SCALE-NONE | REV LTR 8 | SHEET 6 OF
SIZE A | CODE IDENT NO. 80230 | 2010780

NOTE GENERAL NOTES

NUMBER DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SCALE-NONE | REV LTR 8 | SHEET 7 OF
SIZE A | CODE IDENT NO. 80230 | 2010780

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2010780-001	WIRE PER 1010789-006, 22 AWG, YEL, 5 FT TOT LG
	2	1	2010780-002	WIRE PER 1010789-016, 26 AWG, YEL, 265 FT TOT LG
	3	1	2010780-003	WIRE PER 1010789-008, 22 AWG, YEL, RED, 5 FT TOT LG
	4	1	2010780-004	WIRE PER 1010789-003, 24 AWG, YEL, RED, 5 FT TOT LG
	5	1	2010780-005	WIRE PER 1010789-017, 26 AWG, YEL, RED, 75 FT TOT LG
	6	1	2010780-006	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 5 FT TOT LG
	7	1	2010780-007	WIRE PER 1010789-004, 24 AWG, YEL, RED, GRN, 5 FT TOT LG
	8	1	2010780-008	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN, 5 FT TOT LG
	9	1	2010780-009	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 5 FT TOT LG
	10	1	2010780-010	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 88 FT TOT LG
	11	1	2010780-011	WIRE PER 1010789-002, 24 AWG, BLK, 15 FT TOT LG
	12	1	2014747-021	CONNECTOR, PLUG, ELECTRICAL (56P29)
9	13	1	1010929-002	CONNECTOR, PLUG, ELECTRICAL (56P20)
9	14	1	1010929-008	CONNECTOR, PLUG, ELECTRICAL (56P21)

SCALE-NONE | REV LTR 8 | SHEET 8 OF
SIZE A | CODE IDENT NO. 80230 | 2010780

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	15	1	1010929-101	CONNECTOR, PLUG, ELECTRICAL (56P22)
9	16	1	1010929-001	CONNECTOR, PLUG, ELECTRICAL (56P32)
9	17	REF	1010770- 1	CONTACT, PIN, SUPPLIED WITH CONNECTOR 1010929
9	18	REF	1010770- 2	CONTACT, SOCKET, SUPPLIED WITH CONNECTORS 1010929 AND 1010930
9	19	3	1010930-017	CONNECTOR, RECEPTACLE, ELECTRICAL (56J6, 56J7, AND 56J8).
9	20	31	1010955- 1	CONTACT, MALE
9	21	75	1010955- 2	CONTACT, MALE
	22	2	2014670- 4	ADAPTER, CONNECTOR
	23	1	2014670- 5	ADAPTER, CONNECTOR
9	24	91	1010958- 1	PLUG, PROTECTIVE SEALING
9	25	19	1010402- 2	SLEEVE, SOLDER
9	26	AR	1012507- 4	TAPE, LACING
	27	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	28	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
9	29	AR	1012503	COMPOUND, POTTING, POLYURETHANE
9	30	AR	1012504	PRIMER, METAL PARTS
9	33	AR	1010661	EPOXY RESIN

SCALE-NONE | REV LTR 8 | SHEET 9 OF
SIZE A | CODE IDENT NO. 80230 | 2010780

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	34	AR	1010679	ADHESIVE, ACTIVATOR
	35	3	2014670-010	ADAPTER, CONNECTOR
9	36	19	1012534- 36	SLEEVING, INSULATION (HEAT SHRINKABLE)
	37	1	7021203	TERMINAL LUG, SOLDER
	38	1	2010780-012	WIRE PER QQ-W-343, TYPE C, CLASS C, UNCOATED, SILVER PLATED, 22AWG, 16 FT TOT LG.
	39	AR	1010989	TAPE, SHIELDING, EMI/RFI
	40	1	1006783- 93	SCREW, BUTTON HD
	41	1	MS35333-69	WASHER, LOCK
	42	AR	1006776- 19	INSULATION SLEEVING
	43	1	2014670- 11	ADAPTER, CONNECTOR
	44	1	2010780-013	WIRE PER 1010707-1, RED JKT, 29AWG, RED, WHT, BLU, 15 FT TOTAL LG.
9	45	6	1010862	BUSHING, SLEEVE
9	46	6	1010763- 2	SOLDER, SLEEVE
	47	1	2010780-014	WIRE PER 1010789-12, 24AWG, YEL, RED, YEL, JKT, 16 FT TOT LG.
	48	AR	SN60WRAP	SOLDER QQ-S-571
	49	AR	SN60WS	SOLDER QQ-S-571

2012708

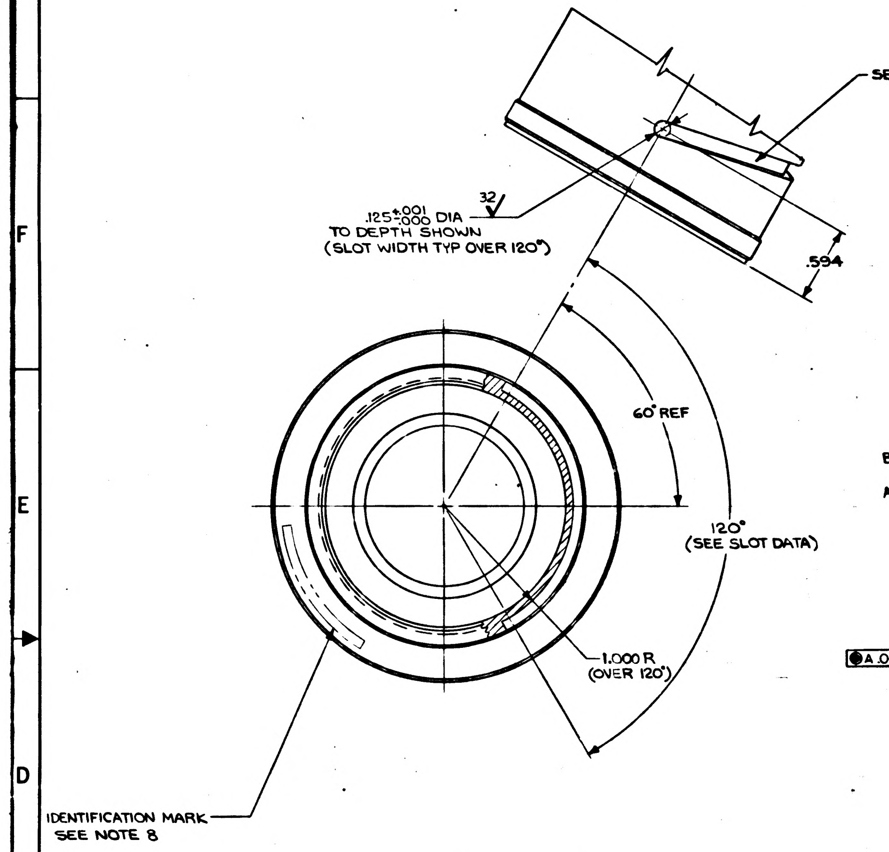
REVISIONS 24743

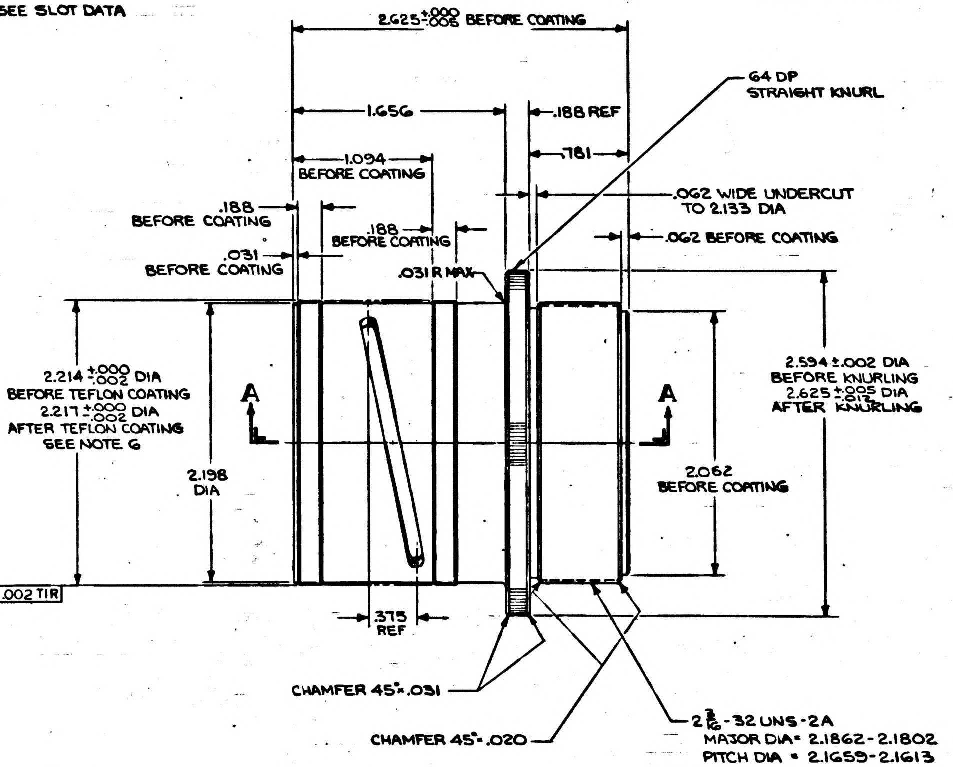
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

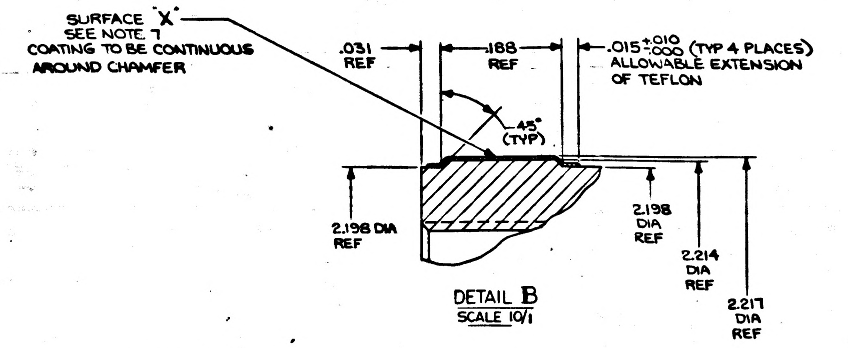
NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   a) 63√ FINISH ALL OVER
   b) BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. HEAT TREAT (STABILIZE AND STRESS RELIEVE) PER ND1002114.
6. SURFACES "X", "Y" AND "Z" TO BE TEFLON COATED TO DIMENSIONS SHOWN.
7. FINISH: BLACK ANODIZE PER ND1002127 TYPE I AFTER TEFLON COATING. IN ACCORDANCE WITH ND 1002067 TYPE I.
8. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.

SLOT DATA

LEAD = 1.125 INCHES PER TURN
NOTE: SLOT SHALL BE GENERATED WITH ROTATING TOOL HAVING ITS AXIS ALWAYS INTERSECTING AND PERPENDICULAR TO AXIS OF 2.217 DIA.

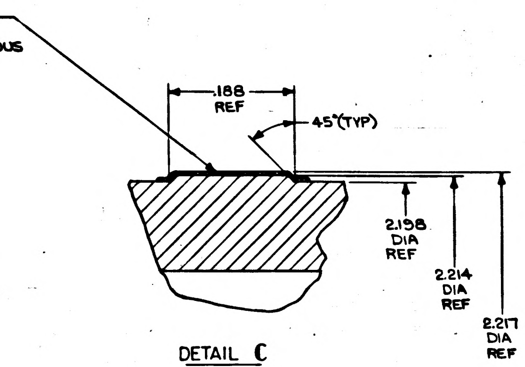

SEE SLOT DATA
32√
.125 +.001 -.000 DIA
TO DEPTH SHOWN
(SLOT WIDTH TYP OVER 120°)
.594
60° REF
120°
(SEE SLOT DATA)
1.000 R
(OVER 120°)
IDENTIFICATION MARK
SEE NOTE 8


2.625 +.000 -.005 BEFORE COATING
1.656
.188 REF
.781
1.094
BEFORE COATING
64 DP
STRAIGHT KNURL
.188
BEFORE COATING
.031
BEFORE COATING
.188
BEFORE COATING
.062 WIDE UNDERCUT
TO 2.133 DIA
.062 BEFORE COATING
.031 R MAX
2.214 +.000 -.002 DIA
BEFORE TEFLON COATING
2.217 +.000 -.002 DIA
AFTER TEFLON COATING
SEE NOTE 6
2.198
DIA
A
A
2.594 ±.002 DIA
BEFORE KNURLING
2.625 +.005 -.012 DIA
AFTER KNURLING
2.062
BEFORE COATING
A .002 TIR
.375
REF
CHAMFER 45° × .031
CHAMFER 45° × .020
2 3/16-32 UNS-2A
MAJOR DIA = 2.1862 - 2.1802
PITCH DIA = 2.1659 - 2.1613
MINOR DIA = 2.148 REF

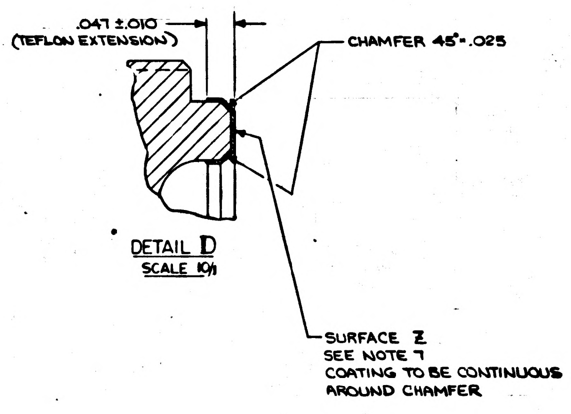

SURFACE "X"
SEE NOTE 7
COATING TO BE CONTINUOUS
AROUND CHAMFER
.031
REF
.188
REF
.015 +.010 -.000 (TYP 4 PLACES)
ALLOWABLE EXTENSION
OF TEFLON
45°
(TYP)
2.198 DIA
REF
2.198
DIA
REF
2.214
DIA
REF
2.217
DIA
REF

DETAIL B
SCALE 10/1

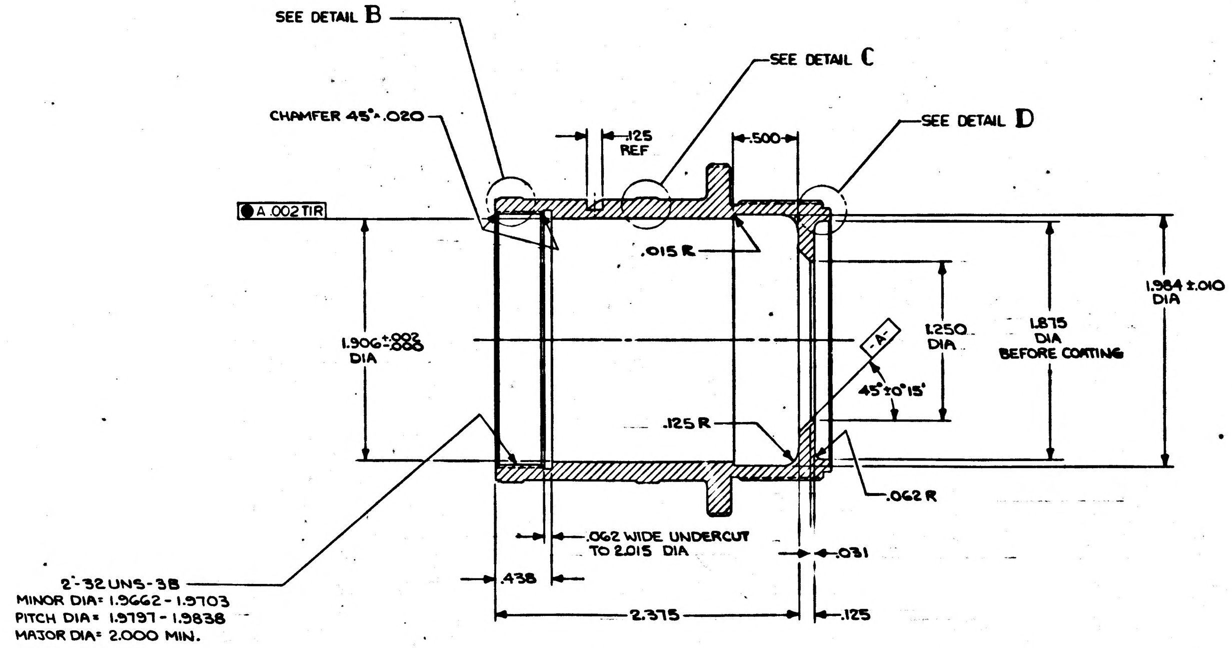
SURFACE "Y"
SEE NOTE 7
COATING TO BE CONTINUOUS
AROUND CHAMFER


.188
REF
45° (TYP)
2.198
DIA
REF
2.214
DIA
REF
2.217
DIA
REF

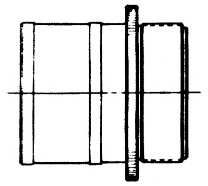
DETAIL C
SCALE 10/1


.047 ±.010
(TEFLON EXTENSION)
CHAMFER 45° × .025
SURFACE Z
SEE NOTE 7
COATING TO BE CONTINUOUS
AROUND CHAMFER

DETAIL D
SCALE 10/1


SEE DETAIL B
SEE DETAIL C
SEE DETAIL D
CHAMFER 45° × .020
.125
REF
.500
A .002 TIR
.015 R
1.906 +.002 -.000
DIA
-A-
45° ± 0° 15'
1.250
DIA
1.875
DIA
BEFORE COATING
1.984 ±.010
DIA
.125 R
.062 R
.062 WIDE UNDERCUT
TO 2.015 DIA
.031
.438
2.375
.125
2"-32 UNS-3B
MINOR DIA = 1.9662 - 1.9703
PITCH DIA = 1.9797 - 1.9838
MAJOR DIA = 2.000 MIN.
P.D. A .002 TIR

SECTION A-A



ACTUAL SIZE

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012713	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
BERYLLIUM
ND 1002125
SEE NOTE 5
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 57386911700
DRAWN DATE
CHECKED McCrory 11-19-65
APPROVAL
APPROVAL 12-13-65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 14 Dec 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, LENS
(SCT EYEPIECE)

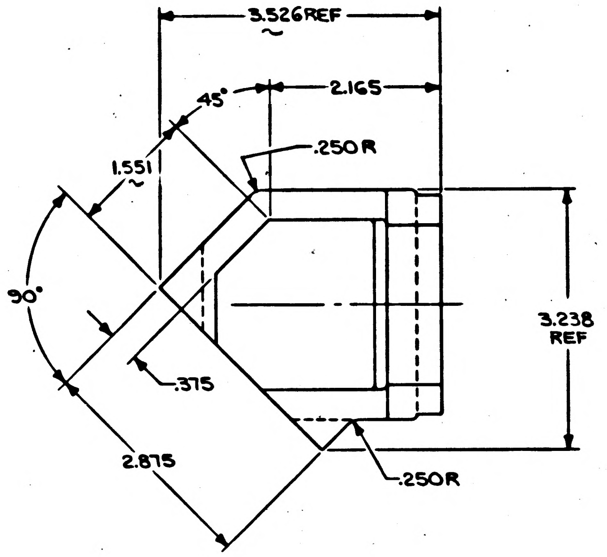
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012708
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

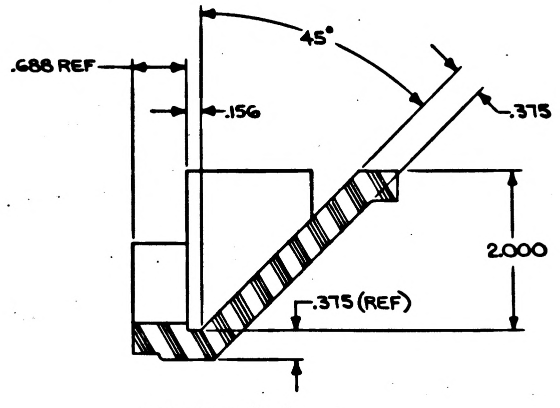
2012711

REVISIONS TDRR 24350				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

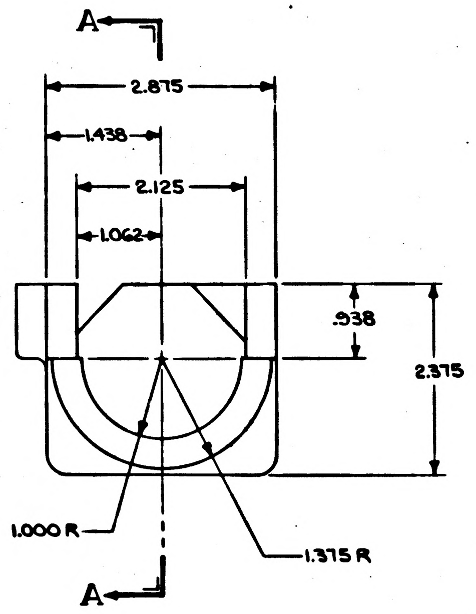
NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. MATERIAL: POLYURETHANE FOAM IN ACCORDANCE WITH ND1002288 - COLOR, WHITE.

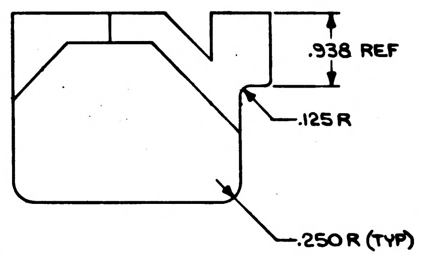
3. UNLESS OTHERWISE SPECIFIED, ALL RADII = .062
4. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019. (BAGGING)

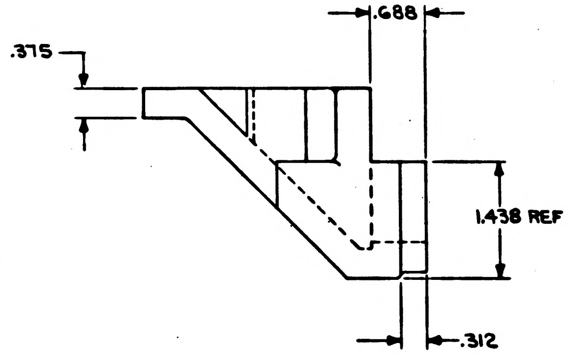

3.526REF
~
45°
2.165
.250R
1.551
90°
3.238
REF
.375
2.875
.250R


.688 REF
45°
.156
.375
2.000
.375 (REF)

SECTION A-A


A
2.875
1.438
2.125
1.062
.938
2.375
1.000 R
1.375 R
A


.938 REF
.125 R
.250 R (TYP)


.688
.375
1.438 REF
.312

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012667	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ ; DECIMALS ± .030 ; ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 2
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 26386910650
DRAWN F. Schiller DATE 9-30-65
CHECKED H.E. Prussy 9-30-65
APPROVAL E. [illegible] 10-4-65
APPROVAL E. Thomp 10/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W. Kupfer 24 Nov 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
INSULATION, THERMAL
SCT PRISM HOUSING

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012711
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

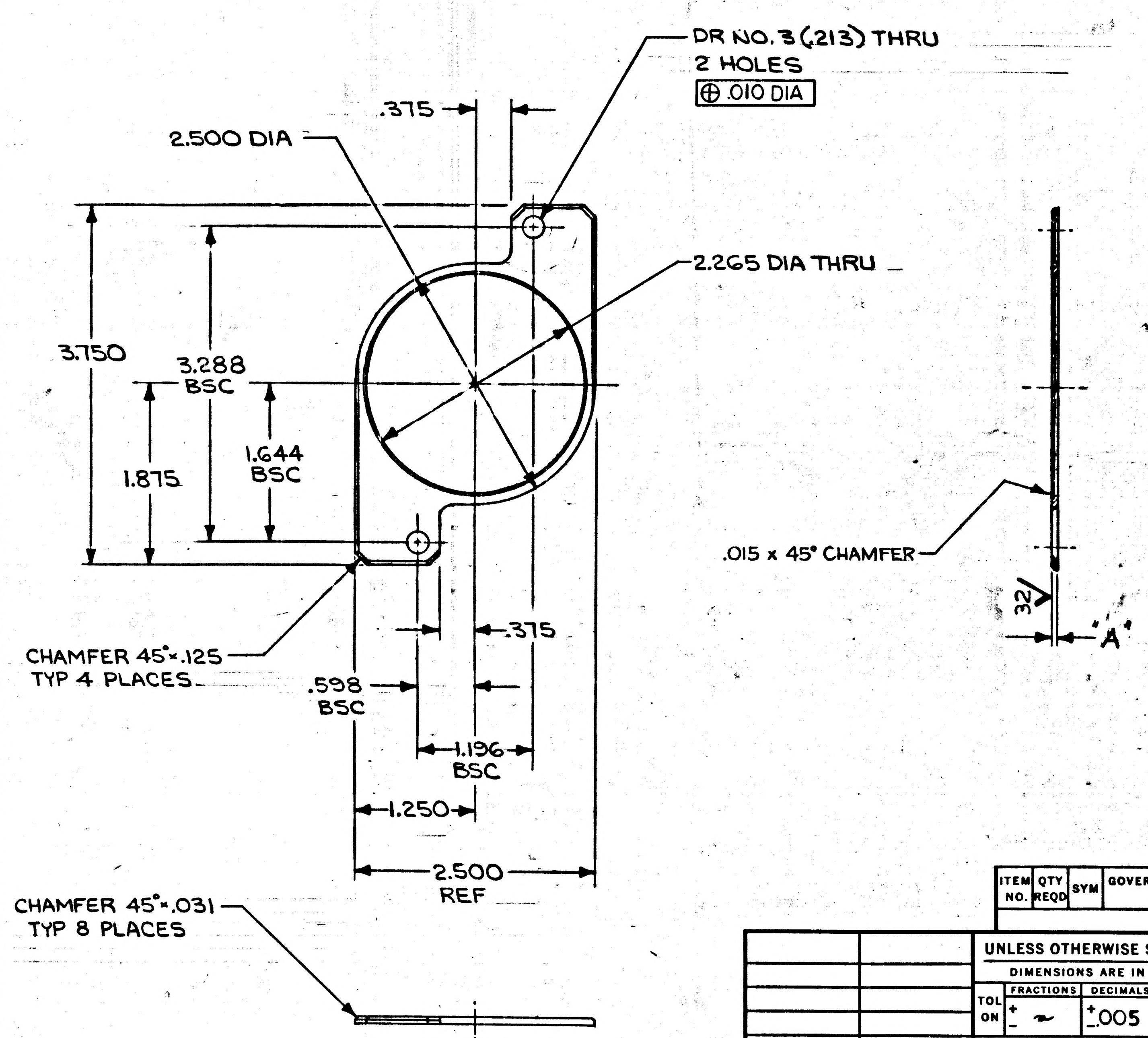
MASTER

2012711

2012712 A

REVISIONS TDRR 23366				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 28214	5/4/66	WK

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. HEAT TREAT TO Rc 28-36 PER ND1002114.
6. FINISH: PASSIVATE IN ACCORDANCE WITH MIL-STD-171, TABLE V
7. IDENTIFY USING NASA DRAWING NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019. (TAGGING)


DR NO. 3 (.213) THRU
2 HOLES
⊕ .010 DIA
.375
2.500 DIA
2.265 DIA THRU
3.750
3.288 BSC
1.644 BSC
1.875
.015 x 45° CHAMFER
32√
"A"
CHAMFER 45°×.125
TYP 4 PLACES
.375
.598 BSC
1.196 BSC
1.250
2.500 REF
CHAMFER 45°×.031
TYP 8 PLACES

PART NO.	DIM. "A"
2012712-1	.093 ± .001
2012712-2	.125 MIN.

2012712 A

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011000	2011000
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL CORROSION RESISTANT STEEL FED. SPEC QQ-S-766 CLASS 410 COND A

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 45386910220

DRAWN J. Schiller DATE 9-27-65
CHECKED H.E. Crespy 9-30-65
APPROVAL E. Ruslum 10/18/65
APPROVAL E. Murup 10/18/65

NASA APPROVAL A. C. METZGER
MIT APPROVAL W. Hoffer 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
PLATE, BEARING, EYEPIECE
(SCT)

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012712

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

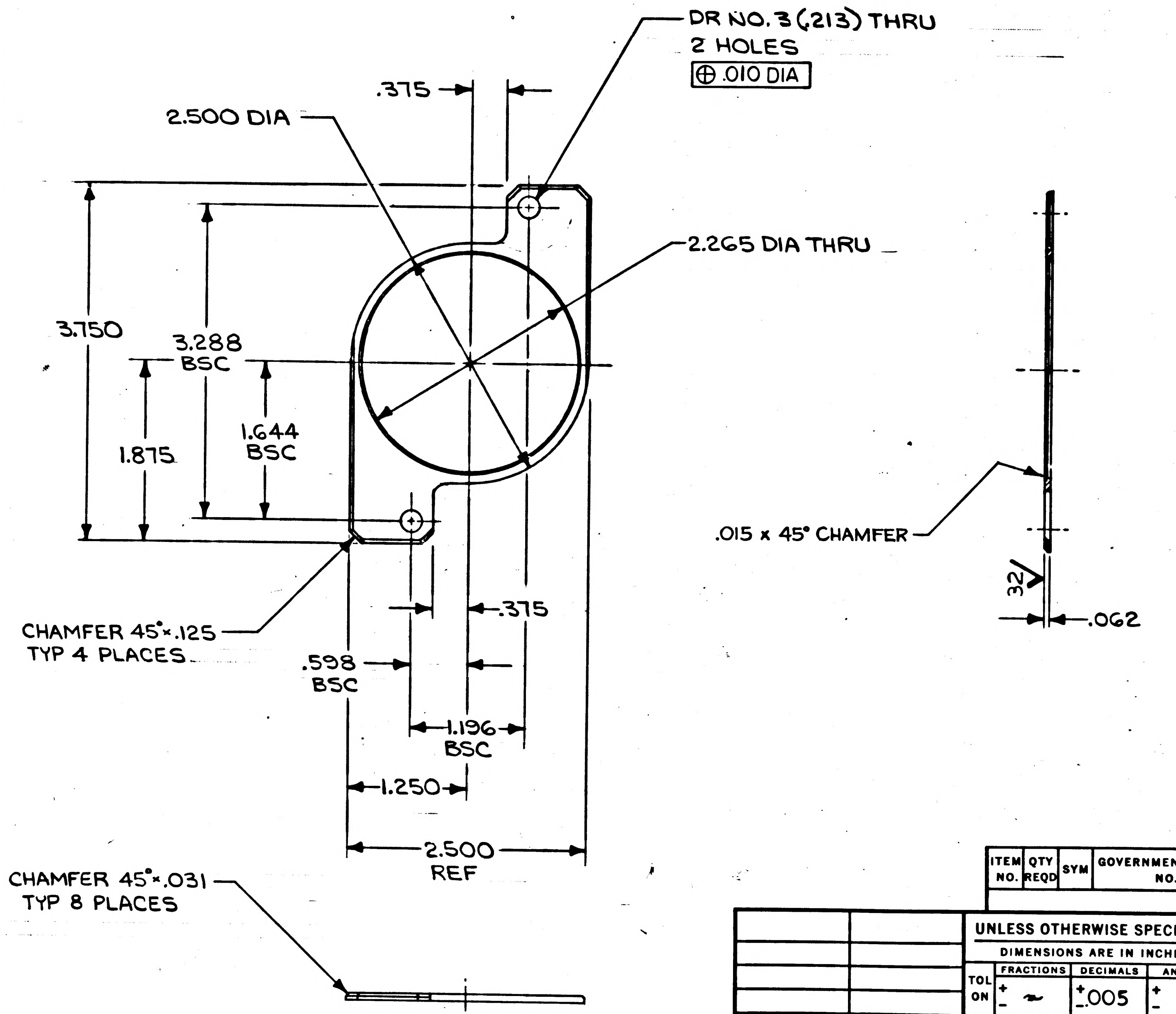
AD-1340

2012712

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS TDRR 23366				

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. HEAT TREAT TO Rc 28-36 PER ND1002114.
6. FINISH: PASSIVATE IN ACCORDANCE WITH MIL-STD-171, TABLE V
7. IDENTIFY USING NASA DRAWING NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019. (TAGGING)


DR NO. 3 (.213) THRU
2 HOLES
⊕ .010 DIA
.375
2.500 DIA
2.265 DIA THRU
3.750
3.288 BSC
1.875
1.644 BSC
.015 x 45° CHAMFER
32√
.062
CHAMFER 45° × .125 TYP 4 PLACES
.375
.598 BSC
1.196 BSC
1.250
2.500 REF
CHAMFER 45° × .031 TYP 8 PLACES

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

MASTER

2011000	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL CORROSION RESISTANT STEEL FED. SPEC QQ-S-766 CLASS 410 COND A

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 45386910220

DRAWN J. Schiller DATE 9-27-65
CHECKED H.E. Crosby 9-30-65
APPROVAL 10/18/65
APPROVAL E. Thorup 10/18/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 26 Oct 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
PLATE, BEARING, EYEPIECE
(SCT)

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012712

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

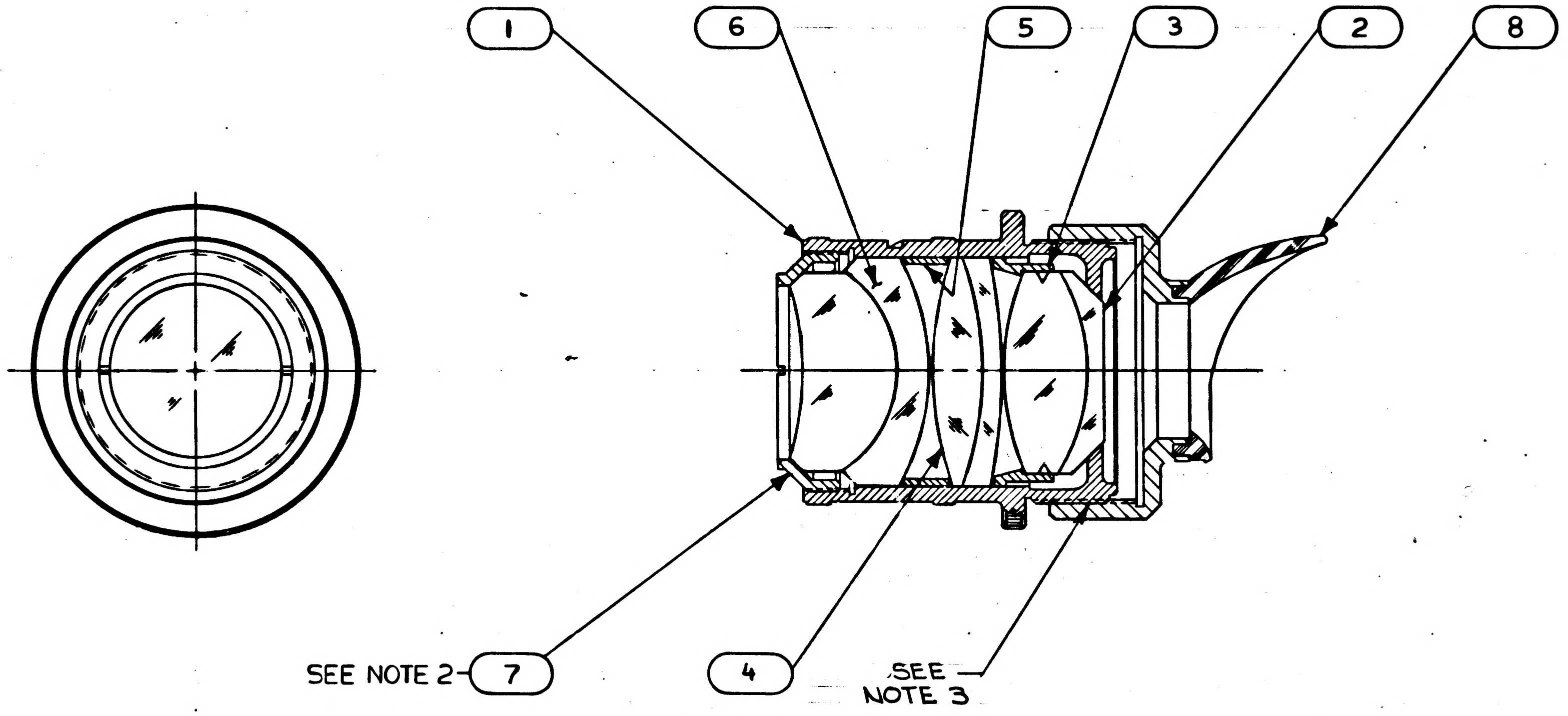
AD-1340

2012713

SYM	ZONE	REVISIONS 24743 DESCRIPTION	DATE	APPROVAL

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. APPLY TO 1/3 CIRC OF THE LAST THREAD TO ENTER THREADED HOLE, SEALING COMPOUND OF MIL-S-22473, GRADE H.V. PER ND 1002211.
3. APPLY DRY LUBRICANT POWDER (MIL-M-7866 TO SURFACES INDICATED BY RUBBING ON WITH CLOTH OR CHAMOIS. REMOVE ALL LOOSE PARTICLES
4. IDENTIFY USING NASA DWG NO, REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019. (BAGGING)



QTY REQ'D -000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	8		2011965	85386910550		SCT EYEGUARD ASSY			
1	7		2012707	57386911690		RING, RETAINING			
1	6		2011707	76386910010		LENS, ASSY OF			
1	5		2011660	57386910260		SPACER, LENS			
1	4		2011708	76386910020		LENS, ASSY OF			
1	3		2011661	57386910270		SPACER, LENS			
1	2		2011967	76386910080		LENS, ASSY OF			
1	1		2012708	57386911700		HOUSING, LENS			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012719	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± —	± —

DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911740

DRAWN DATE 9-28-65
CHECKED H C Pressey 11-19-65
APPROVAL
APPROVAL C. Thomp 12-13-65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 14 Dec 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
LENS HOUSING, ASSEMBLY OF
(SCT EYEPIECE)

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012713

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

2012713

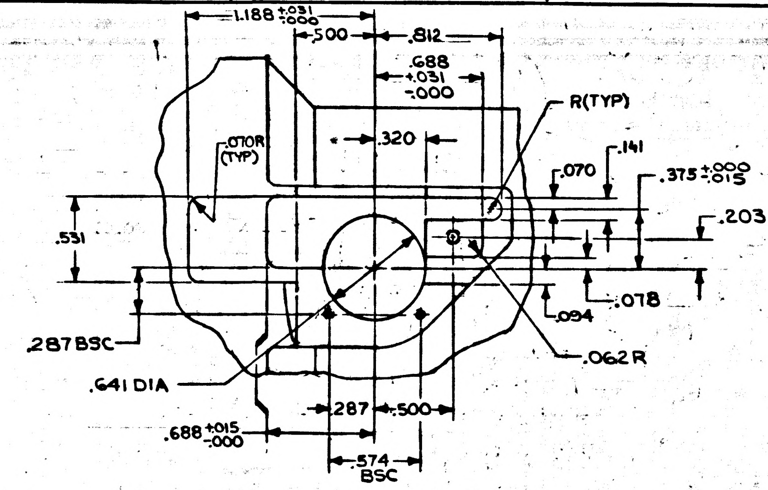
MASTER

AD-1340

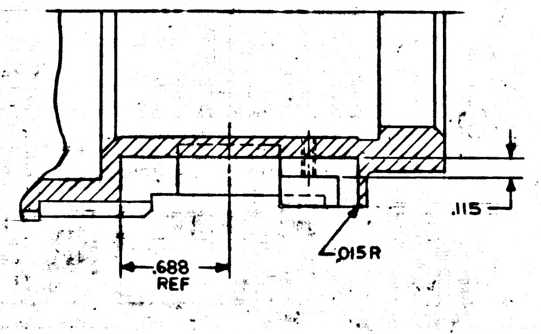
A	2012717

REVISIONS 24743				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 28216	5/14/66	WC

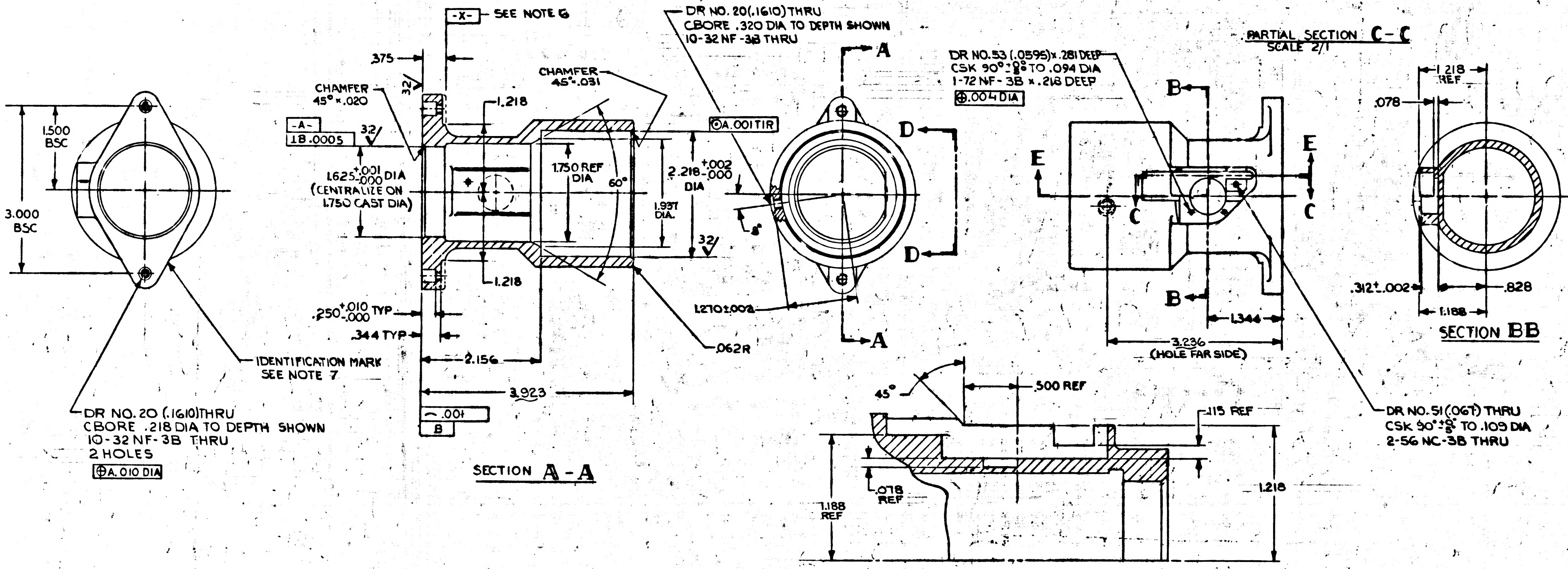
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ON ALL MACHINED SURFACES
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. BLACK ANODIZE PER MIL-A-8625 TYPE II BLACK.
6. SURFACE -X- ESTABLISHES PICK-UP SURFACE FOR MACHINING.
7. IDENTITY USING NASA DRAWING NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.


1.188 +.031 -.000
.500
.812
.688 +.031 -.000
R(TYP)
.320
.070R (TYP)
.141
.070
.375 +.000 -.015
.203
.531
.078
.094
.062R
.287 BSC
.641 DIA
.287
.500
.688 +.015 -.000
.574 BSC

PARTIAL VIEW D-D
SCALE 2/1


.115
.688 REF
.015R

PARTIAL SECTION C-C
SCALE 2/1


-X- SEE NOTE 6
.375
32
CHAMFER 45° × .020
-A-
⊥ B .0005
1.218
CHAMFER 45° × .031
1.625 +.001 -.000 DIA (CENTRALIZE ON 1.750 CAST DIA)
1.750 REF DIA
60°
2.218 +.002 -.000 DIA
1.937 DIA.
1.218
.250 +.010 -.000 TYP
.344 TYP
2.156
3.923
⌒ .001 B
DR NO. 20 (.1610) THRU CBORE .320 DIA TO DEPTH SHOWN 10-32 NF-3B THRU
◎A .001 TIR
A
D
8°
1.270±.002
.062R
1.500 BSC
3.000 BSC
IDENTIFICATION MARK SEE NOTE 7
DR NO. 20 (.1610) THRU CBORE .218 DIA TO DEPTH SHOWN 10-32 NF-3B THRU 2 HOLES
⊕A .010 DIA
DR NO. 53 (.0595) × .281 DEEP CSK 90° +0° -8° TO .094 DIA 1-72 NF-3B × .218 DEEP
⊕ .004 DIA
B
E
C
1.344
3.236 (HOLE FAR SIDE)
DR NO. 51 (.067) THRU CSK 90° +0° -8° TO .109 DIA 2-56 NC-3B THRU
1.218 REF
.078
.312 ± .002
.828
1.188
45°
.500 REF
.115 REF
.078 REF
1.188 REF
1.218

SECTION A-A

SECTION BB

PARTIAL SECTION E-E
SCALE 2/1

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012718	2011000	
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING
MATERIAL 2012670
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910210
DRAWN E. Drapala DATE 9-29-65
CHECKED H.L. Prussey 11-19-65
APPROVAL
APPROVAL E. Thomp 12-13-65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 14 Dec 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, EYEPIECE SCT

CODE IDENT NO.	SIZE	NASA NUMBER
80230	D	2012717

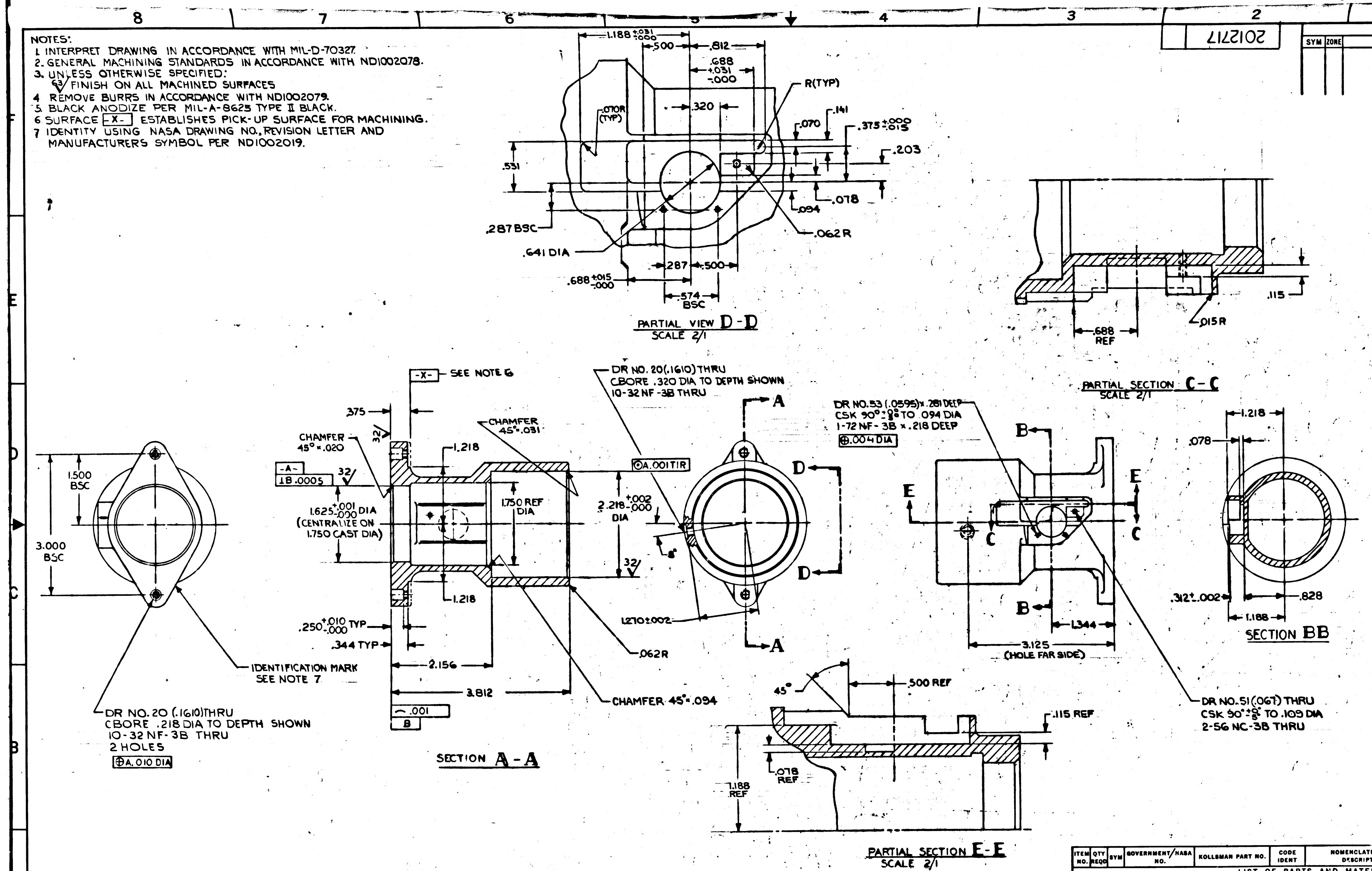
SCALE 1/1 × 2/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

2012717

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

REVISIONS 24743

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ON ALL MACHINED SURFACES
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. BLACK ANODIZE PER MIL-A-8625 TYPE II BLACK.
6. SURFACE -X- ESTABLISHES PICK-UP SURFACE FOR MACHINING.
7. IDENTITY USING NASA DRAWING NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.


1.188 +.031 -.000
.500
.812
.688 +.031 -.000
.070R (TYP)
.320
R(TYP)
.070
.141
.375 +.000 -.015
.203
.551
.078
.094
.062 R
.287 BSC
.641 DIA
.287
.500
.688 +.015 -.000
.574 BSC
PARTIAL VIEW D-D
SCALE 2/1
.115
.015R
.688 REF
PARTIAL SECTION C-C
SCALE 2/1
-X- SEE NOTE 6
DR NO. 20 (.1610) THRU
CBORE .320 DIA TO DEPTH SHOWN
10-32 NF-3B THRU
.375
32
CHAMFER 45° × .020
CHAMFER 45° × .031
1.218
-A-
⊥ B .0005
1.625 +.001 -.000 DIA
(CENTRALIZE ON 1.750 CAST DIA)
1.750 REF DIA
2.218 +.002 -.000 DIA
⊙ A .001 TIR
.250 +.010 -.000 TYP
.344 TYP
2.156
3.812
⌒ .001
B
.062R
CHAMFER 45° × .094
SECTION A-A
1.500 BSC
3.000 BSC
IDENTIFICATION MARK
SEE NOTE 7
DR NO. 20 (.1610) THRU
CBORE .218 DIA TO DEPTH SHOWN
10-32 NF-3B THRU
2 HOLES
⊕ A .010 DIA
A
D
D
A
8°
1.270±.002
DR NO. 53 (.0595) × .281 DEEP
CSK 90° +0 -5 TO .094 DIA
1-72 NF-3B × .218 DEEP
⊕ .004 DIA
B
E
C
E
C
B
1.344
3.125
(HOLE FAR SIDE)
DR NO. 51 (.067) THRU
CSK 90° +0 -5 TO .109 DIA
2-56 NC-3B THRU
1.218
.078
.312±.002
.828
1.188
SECTION BB
45°
.500 REF
.115 REF
.078 REF
1.188 REF
PARTIAL SECTION E-E
SCALE 2/1
MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012718	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL 2012716

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 50386910210

DRAWN E. DROPALA DATE 9-29-65
CHECKED H. Hennessy 11-19-65
APPROVAL
APPROVAL E. Thorup 12-13-65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 14 Dec 65

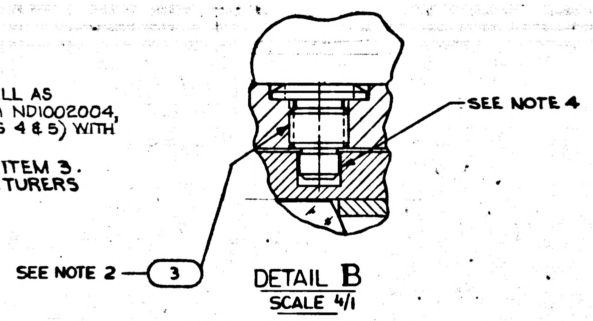
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
HOUSING, EYEPIECE SCT

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012717
SCALE 1/1 × 2/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

NOTES:

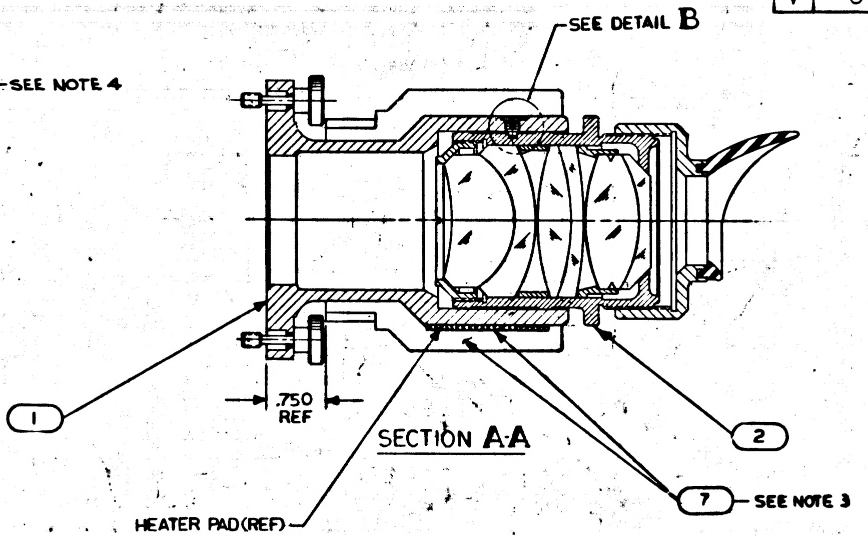
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. VIBRATION PROOF ITEM 3, IN ACCORDANCE WITH ND1002211 USING GRADE "H" OF MIL-S-22473.
3. COAT INTERIOR SURFACES OF BOTH INSULATION HALVES (ITEMS 4 & 5) AS WELL AS MATCHING CONTACT AREAS OF EYEPIECE ASSY (ITEM 1) IN ACCORDANCE WITH ND1002004, TYPE VII. COAT MATING SURFACES OF BOTH INSULATION HALVES (ITEMS 4 & 5) WITH ADHESIVE (ITEM 7) & ALLOW TO DRY TO A HIGH TACK BEFORE JOINING.
4. APPLY LUBRICANT (ITEM 8) TO SURFACE INDICATED (ALL AROUND) OF ITEM 3.
5. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019. (BAGGING)



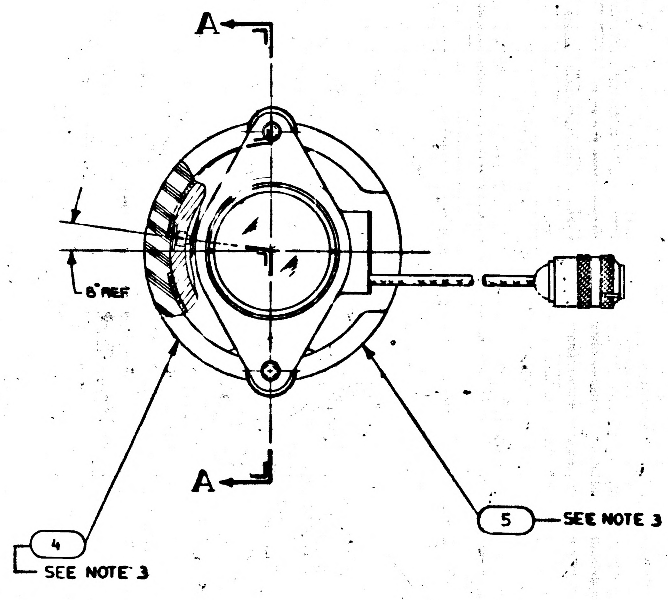
DETAIL B
SCALE 4/1

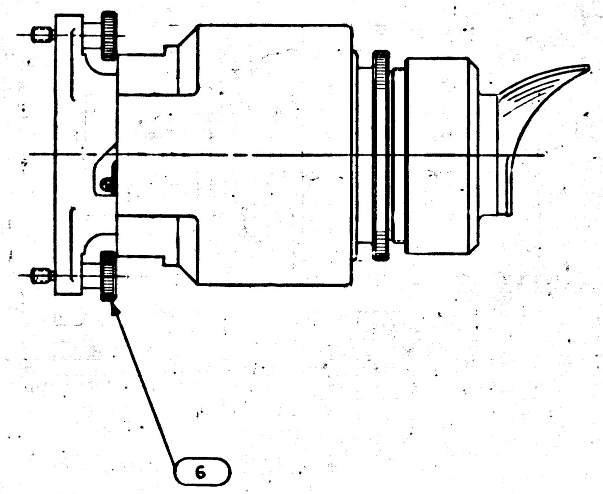
2012719 A

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDKR 28217		



SECTION A-A





QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
AR	8	*	1010878	—		LUBRICATING OIL HYDROCARBON			
AR	7	*	1010838	—		ADHESIVE, PRESSURE SENSITIVE, SILICONE			
2	6		2012659	45386910130		SCREW, CAPTIVE, KNURLED HEAD			
1	5		2012715	26386910670		INSULATION, THERMAL			
1	4		2012714	26386910660		INSULATION, THERMAL			
1	3		2012706	45386910190		SCREW, GUIDE			
1	2		2012713	85386911740		LENS HOUSING, ASSY OF			
1	1		2012718	85386911750		EYEPIECE HOUSING AND HEATER, ASSY OF			

LIST OF PARTS AND MATERIALS

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING.

MASTER

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL ~
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911760
DRAWN [illegible] DATE 10-5-65
CHECKED H E Perry 11-19-65
APPROVAL
APPROVAL E Thorup 12-13-65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 14 Dec 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SCT EYEPIECE ASSEMBLY
(ADJUSTABLE FOCUSING)

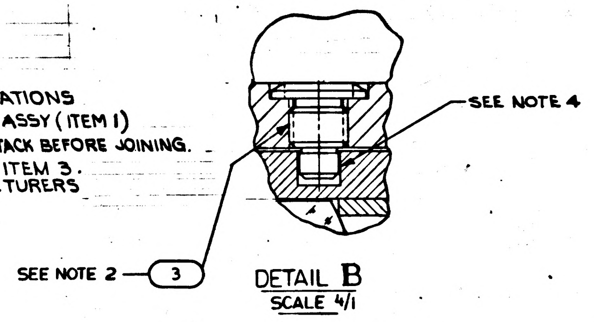
CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012719
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012719

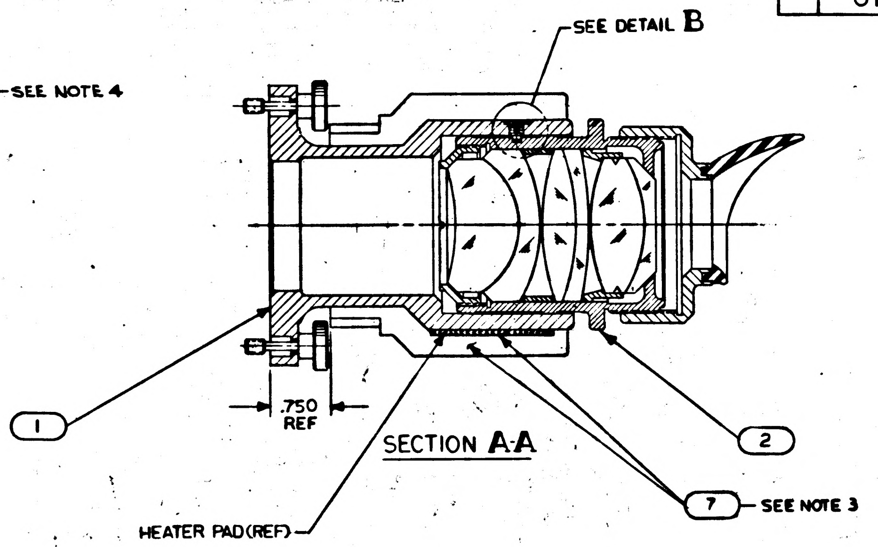
SYM	ZONE	REVISIONS 24-43 DESCRIPTION	DATE	APPROVAL

NOTES:

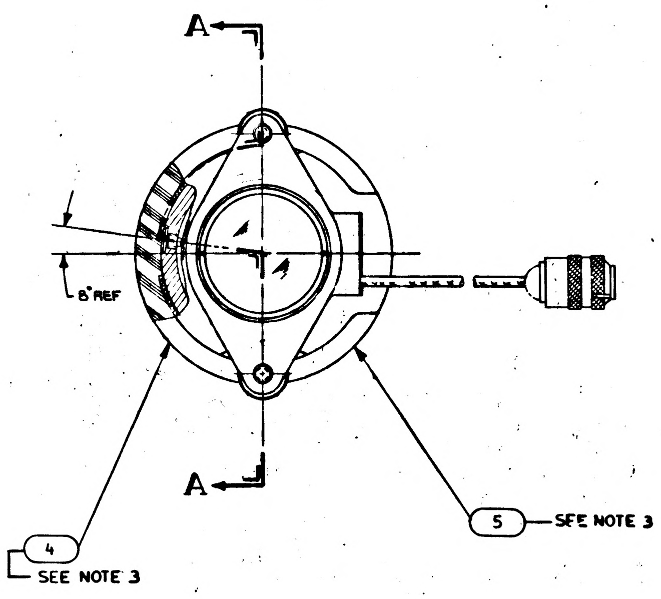
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. VIBRATION PROOF ITEM 3, IN ACCORDANCE WITH ND1002211 USING GRADE "H" OF MIL-S-22473.
3. COAT MATING SURFACES AND INTERIOR SURFACES OF BOTH INSULATIONS (ITEMS 4 AND 5) AS WELL AS MATCHING CONTACT AREAS OF EYEPIECE ASSY (ITEM 1) WITH ADHESIVE (ITEM 7), BEFORE ASSEMBLY ALLOW TO DRY TO A HIGH TACK BEFORE JOINING.
4. APPLY LUBRICANT (ITEM 8) TO SURFACE INDICATED (ALL AROUND) OF ITEM 3.
5. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019. (BAGGING)

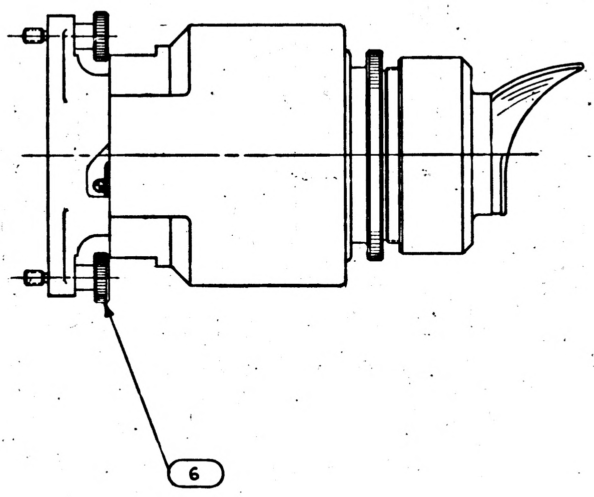


DETAIL B
SCALE 4/1



SECTION A-A





QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
AR	8	*	1010878	—		LUBRICATING OIL HYDROCARBON			
AR	7	*	1010838	—		ADHESIVE, PRESSURE SENSITIVE, SILICONE			
2	6		2012659	45386910130		SCREW, CAPTIVE, KNURLED HEAD			
1	5		2012715	26386910670		INSULATION, THERMAL			
1	4		2012714	26386910660		INSULATION, THERMAL			
1	3		2012706	45386910190		SCREW, GUIDE			
1	2		2012713	85386911740		LENS HOUSING, ASSY OF			
1	1		2012718	85386911750		EYEPIECE HOUSING AND HEATER, ASSY OF			

LIST OF PARTS AND MATERIALS

* PURCHASE ITEM: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING.

MASTER

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL ~
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911760
DRAWN [illegible] DATE 10-5-65
CHECKED H. E. Perry 11-19-65
APPROVAL
APPROVAL E. Thomp 12-13-65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 14 Dec 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SCT EYEPIECE ASSEMBLY
(ADJUSTABLE FOCUSING)

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012719
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

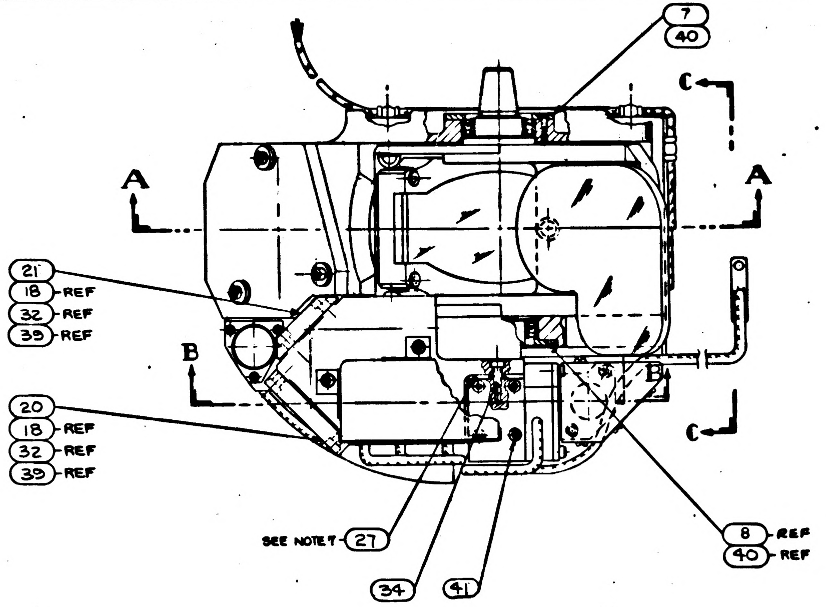
2012719

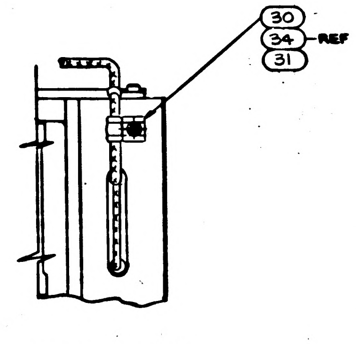
2012722 A

REVISIONS TDRR 24092				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 24748	1-4-66	KK

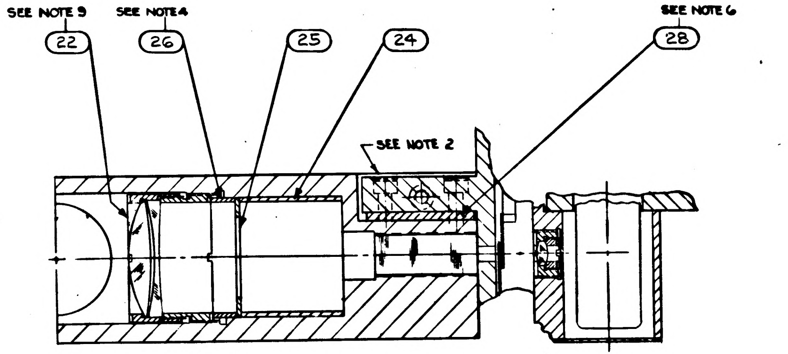
SHEET LEGEND

SHEET 1—AS SHOWN
SHEET 2—HARNESS & ELECTRONICS
(PICTURE & FIND NUMBER CALLOUTS)
SHEET 3—HARNESS & ELECTRONICS
(WIRING DIAGRAM INFORMATION)
SHEET 4—LIST OF PARTS & MATERIALS
SHEET 5—NOTES

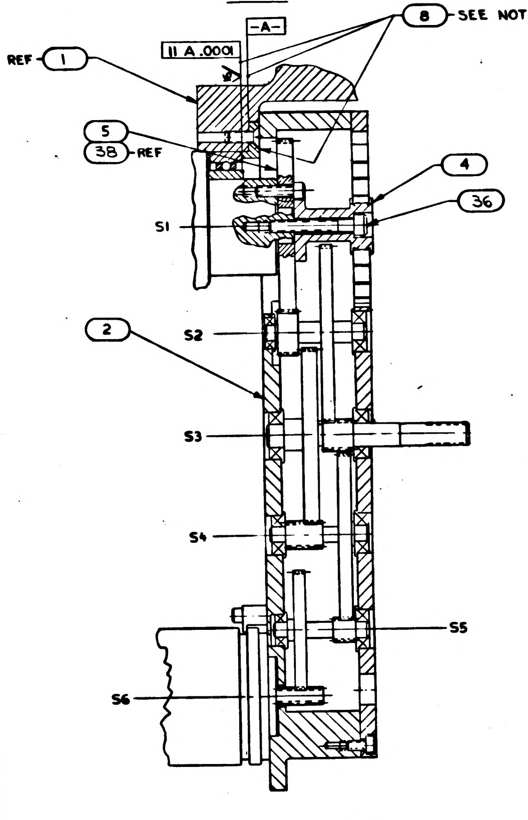

7
40
C
A
A
21
18 REF
32 REF
39 REF
B
20
18 REF
32 REF
39 REF
SEE NOTE 7 27
34
41
8 REF
40 REF
C
B



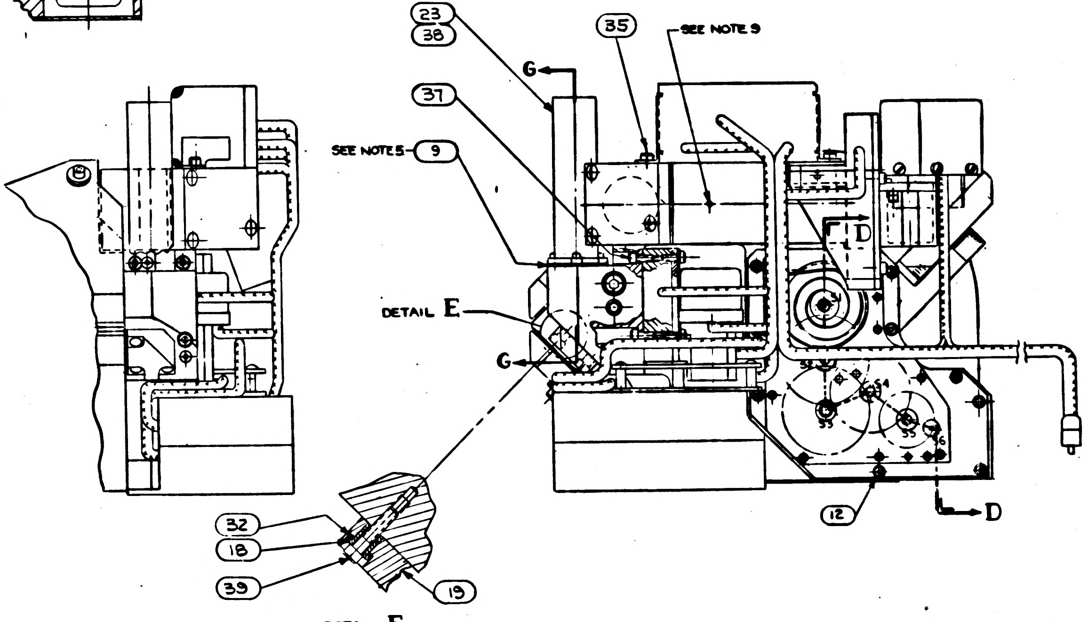
PARTIAL VIEW C-C


SEE NOTE 9
22
SEE NOTE 4
26
25
24
SEE NOTE 6
28
SEE NOTE 2

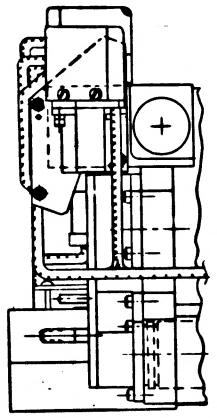
PARTIAL SECTION B-B
SCALE 2/1

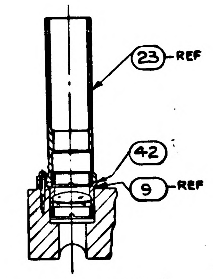

REF 1
11 A .0001
-A-
8 SEE NOTE 3
5
38 REF
4
36
S1
2
S2
S3
S4
S5
S6

PARTIAL SECTION D-D
SCALE 2/1

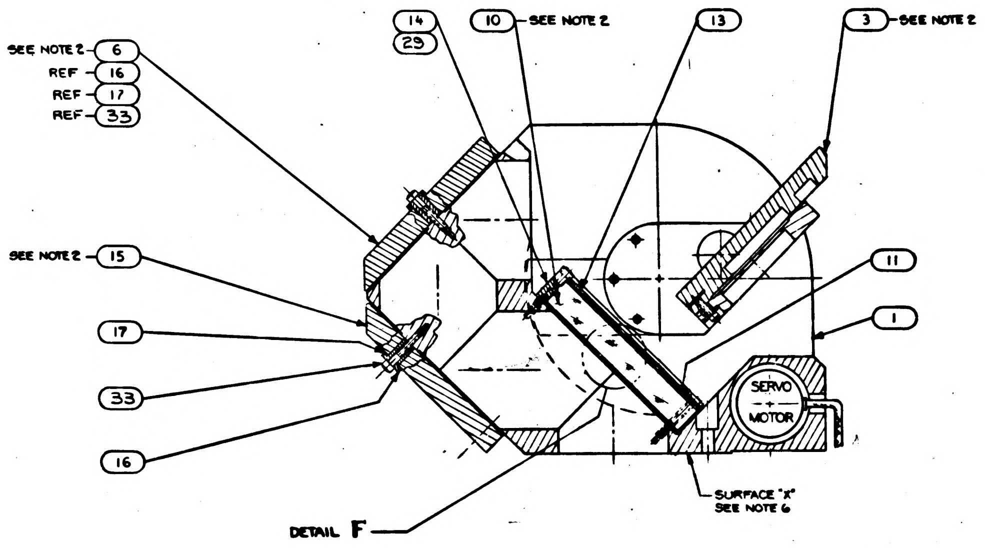

23
38
G
35
SEE NOTE 9
37
SEE NOTE 5 9
DETAIL E
G
12
D
32
18
39
19

DETAIL E
SCALE 2/1

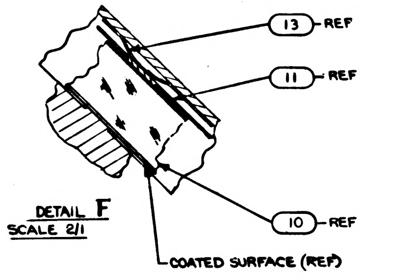



23 REF
42
9 REF

PARTIAL SECTION G-G
SCALE: 1/1


14
29
10 SEE NOTE 2
13
3 SEE NOTE 2
SEE NOTE 2 6
REF 16
REF 17
REF 33
SEE NOTE 2 15
17
33
16
11
1
SERVO MOTOR
SURFACE "X" SEE NOTE 6
DETAIL F

SECTION A-A


13 REF
11 REF
10 REF
COATED SURFACE (REF)

DETAIL F
SCALE 2/1

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012730	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± —	± —

DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911780

DRAWN R BRUNELLE DATE 10-13-65
CHECKED P.G. Lowe 10/28/65
APPROVAL E. Murray 11/15/65
APPROVAL
NASA APPROVAL
MIT APPROVAL W. [illegible] 16 Nov 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

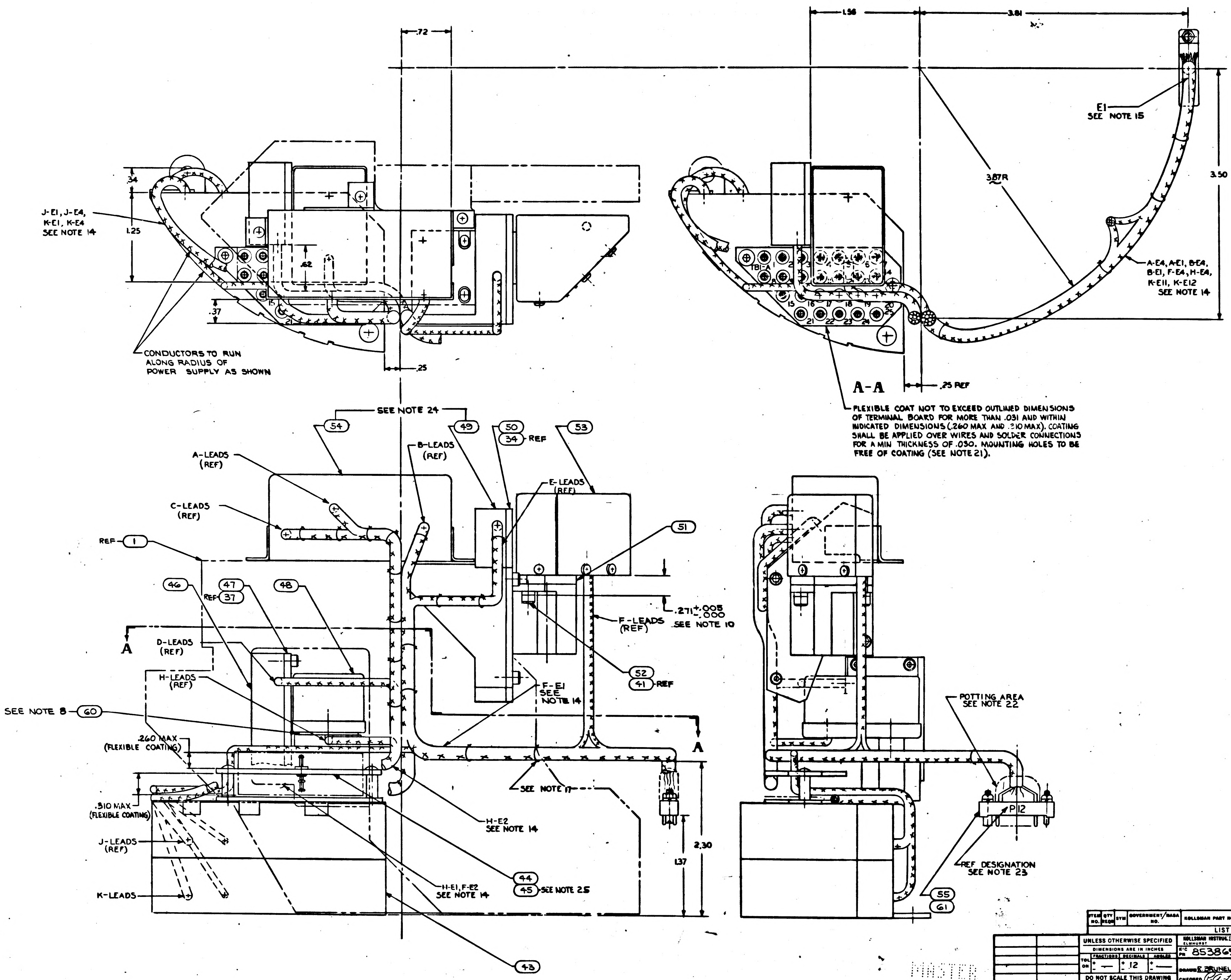
TITLE
SEXTANT INDEX HEAD
ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012722
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 5

2012722 A

2012722 A

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS TDRR 24092				
A		REVISED PER TDRR 24745	12/3/65	WR



.72
1.56
3.81
E1
SEE NOTE 15
3.87R
3.50
.34
J-E1, J-E4,
K-E1, K-E4
SEE NOTE 14
1.25
.62
.37
.25
TB1-A
15
16
17
18
19
20
21
22
23
24
A-E4, A-E1, B-E4,
B-E1, F-E4, H-E4,
K-E11, K-E12
SEE NOTE 14
CONDUCTORS TO RUN
ALONG RADIUS OF
POWER SUPPLY AS SHOWN
A-A
.25 REF
SEE NOTE 24
54
49
50
34 REF
53
A-LEADS
(REF)
B-LEADS
(REF)
E-LEADS
(REF)
C-LEADS
(REF)
51
REF 1
46
47
REF 37
48
.271 +.005 -.000
SEE NOTE 10
F-LEADS
(REF)
A
D-LEADS
(REF)
H-LEADS
(REF)
52
41 REF
F-E1
SEE
NOTE 14
SEE NOTE 8 60
.260 MAX
(FLEXIBLE COATING)
A
SEE NOTE 17
.310 MAX
(FLEXIBLE COATING)
J-LEADS
(REF)
K-LEADS
H-E2
SEE NOTE 14
44
45 SEE NOTE 25
H-E1, F-E2
SEE NOTE 14
2.30
1.37
43
POTTING AREA
SEE NOTE 22
P12
REF DESIGNATION
SEE NOTE 23
55
61

FLEXIBLE COAT NOT TO EXCEED OUTLINED DIMENSIONS OF TERMINAL BOARD FOR MORE THAN .031 AND WITHIN INDICATED DIMENSIONS (.260 MAX AND .310 MAX). COATING SHALL BE APPLIED OVER WIRES AND SOLDER CONNECTIONS FOR A MIN THICKNESS OF .030. MOUNTING HOLES TO BE FREE OF COATING (SEE NOTE 21).

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

MASTER

NEXT ASSY	USED ON
2012730	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± .12 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
K'C PN 85386911780
DRAWN R. BRUNELLE DATE 10-13-65
CHECKED P. A. Lame 10/28/65
APPROVAL E. Marg 11/15/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT INDEX HEAD
ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012722
SCALE 2/1
WEIGHT
CALC ACTUAL
SHEET 2 OF 5

2012722 A

A	2012722

REVISIONS - TDRR 24092

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 24745	12/22/65	

WIRING LEGEND

MODULE	MODULE	ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE 12
TUNING FORK ASSY-TRACKER AND PHOTOMETER 2007023	TUNING FORK ASSY (TRACKER) 2007022 REF. DESIG.-A		E5	RED	A-E5		TB1-B7	8
			E3	RED	A-E3		TB1-B6	
			E7	RED	A-E7		TB1-B5	8
			E2	BLACK	A-E2		TB1-B19	
			E6	RED	A-E6		TB1-A13	
			E4	WHITE	A-E4		P12-K	
		56		WHITE	A-E4 SHIELD		K-E11 SHIELD	
			E1	WHITE	A-E1		P12-H	
		56		WHITE	A-E1 SHIELD		A-E4 SHIELD	
	TUNING FORK ASSY (TRACKER) 2007022 REF. DESIG.-B		E5	RED	B-E5		TB1-B23	8
			E3	RED	B-E3		TB1-B24	
			E7	RED	B-E7		TB1-B25	8
			E2	BLACK	B-E2		TB1-B22	
			E6	RED	B-E6		TB1-A13	
			E4	WHITE	B-E4		P12-C	
		56		WHITE	B-E4 SHIELD		F-E4 SHIELD	
			E1	WHITE	B-E1		P12-A	
		56		WHITE	B-E1 SHIELD		B-E4 SHIELD	
	TUNING FORK ASSY (PHOTOMETER) 2007021 REF. DESIG.-C		E2	RED	C-E2		TB1-B4	8
			E4	RED	C-E4		TB1-B11	
			E5	RED	C-E5		TB1-B16	8
			E3	BLACK	C-E3		TB1-B17	
			E1	RED	C-E1		TB1-B13	
RESONATOR, TUNING FORKS ASSY OF (TRACKER) 1012154 REF. DESIG. - E				WHITE	E-WHITE		TB1-A23	8
				BLACK	E-BLACK		TB1-A24	
				ORANGE	E-ORANGE		TB1-A25	8
				VIOLET	E-VIOLET		TB1-A22	
				YELLOW	E-YELLOW		TB1-A7	8
				GREEN	E-GREEN		TB1-A6	
				RED	E-RED		TB1-A5	8
				BLUE	E-BLUE		TB1-A19	
RESONATOR, TUNING FORKS ASSY OF (PHOTOMETER) 1012155 REF. DESIG.-D				YELLOW	D-YELLOW		TB1-A4	8
				GREEN	D-GREEN		TB1-A11	
				RED	D-RED		TB1-A16	8
				BLUE	D-BLUE		TB1-A17	

MODULE	MODULE	ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE 12
HEAD ELECTRONICS ASSY (TRACKER) 2007176 REF. DESIG.-F			E1	WHITE	F-E1		TB1-A2	
		56		WHITE	F-E1 SHIELD		F-E2 SHIELD	
			E2	WHITE	F-E2		TB1-A1	
		56		WHITE	F-E2 SHIELD		H-E1 SHIELD	
			E3	RED	F-E3		TB1-A12	
			E5	BLACK	F-E5		TB1-A20	
			E4	WHITE	F-E4		P12-F	
		56		WHITE	F-E4 SHIELD		A-E1 SHIELD	
HEAD ELECTRONICS ASSY (PHOTOMETER) 2007179 REF. DESIG.-H			E1	WHITE	H-E1		TB1-A9	
		56		WHITE	H-E1 SHIELD		H-E2 SHIELD	
			E2	WHITE	H-E2		TB1-A8	
		56		WHITE	H-E2 SHIELD		TB1-A21	
			E3	RED	H-E3		TB1-A14	
			E5	BLACK	H-E5		TB1-A22	
			E4	WHITE	H-E4		P12-V	
		56		WHITE	H-E4 SHIELD		E1	
H V POWER SUPPLY PHOTOMETER-TRACKER ASSY 2007030-011	H V POWER SUPPLY ASSY (TRACKER) 2007174 REF. DESIG.-K		E1	WHITE	K-E1		TB1-B2	
		56		WHITE	K-E1 SHIELD		K-E4 SHIELD	
			E4	WHITE	K-E4		TB1-B1	
		56		WHITE	K-E4 SHIELD		J-E1 SHIELD	
			E13	RED	K-E13		TB1-B12	
			E5	BLACK	K-E5		P12-L	
			E11	WHITE	K-E11		P12-N	
		56		WHITE	K-E11 SHIELD		K-E12 SHIELD	
			E12	WHITE	K-E12		P12-P	
		56		WHITE	K-E12 SHIELD		H-E4 SHIELD	
	HV POWER SUPPLY ASSY (PHOTOMETER) 2007031 REF. DESIG.-J		E1	WHITE	J-E1		TB1-B9	
		56		WHITE	J-E1 SHIELD		J-E4 SHIELD	
			E4	WHITE	J-E4		TB1-B8	
		56		WHITE	J-E4 SHIELD		TB1-B21	
			E5	BLACK	J-E5		TB1-B17	8
			E6	RED	J-E6		TB1-B12	
		56		WHITE	TB1-A21	E1	P12-U	
		57		RED	TB1-A14		P12-W	8
		58		BLACK	TB1-A20		P12-X	
		63		YELLOW	TB1-A18		P12-D	
		64		BLUE	TB1-A18		P12-T	
		65	**	BLUE	TB1-B12		TB1-B13	
		65	**	BLUE	TB1-B13		TB1-B14	
		65	**	BLUE	TB1-B22		TB1-B17	
		65	**	BLUE	TB1-B17		TB1-B18	
		65	**	BLUE	TB1-B18		TB1-B19	
		65	**	BLUE	TB1-B19		TB1-B20	
		65	**	BLUE	TB1-B1		TB1-B8	
		65		BLUE	TB1-B8		TB1-B22	

** -TO FACILITATE ASSEMBLY
INSULATION MAY BE STRIPPED FROM WIRE.

MASTER

2012722 A

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012730	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
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KOLLSMAN INSTRUMENT CORPORATION
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MIT APPROVAL

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2012722 A

REVISIONS TDRR 24092				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 24745	12/22/	wk

LIST OF PARTS AND MATERIALS

QTY REQD				ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
				101								
				100								
				99								
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				70								
				69								
				68								
				67								
				66								
			1	65	*	1010708-5	—		WIRE MODIFIED, INSULATED, SOLID COPPER (6" LG)			
			1	64	*	1010416-7	—		WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
			1	63	*	1010416-5	—		WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
			1	62	*	1010490-114	—		INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
			15	61	*	1010490-058	—		INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
			AR	60		2012724	7938691 0301 THRU 0308		WASHER, LIGHT SHIELD			
			8	59	*	1010402-1	—		SLEEVE, SOLDER, ELECT, COND. INSUL. HEAT SHRIN			
			1	58	*	1010416-1	—		WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
			1	57	*	1010416-3	—		WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
			1	56	*	1010416-10	—		WIRE, ELECTRICAL, STRANDED, INSULATED (6")			
			1	55	*	1011790-2	—		CONNECTOR, ELECTRICAL RECTANGULAR			
			1	54		2007023	—		TUNING FORK ASSY, TRACKER & PHOTOMETER			
			1	53		2007176			HEAD, ELECTRONICS ASSY (TRACKER)			
			2	52		2012720	45386910230		WASHER			
			1	51		2012710	45386910210		SPACER			
			1	50		2012483-011	85386911000		PHOTOMULTIPLIER HOUSING & LENS ASSY (S.T)			
			1	49	*	1012154	68258000901		RESONATOR, TUNING FORKS, ASSY OF (TRACKER)			
			1	48		2007179			HEAD, ELECTRONICS ASSY (PHOTOMETER)			
			1	47		2012481-011	85386910990		PHOTOMULTIPLIER HOUSING & LENS ASSY (H.S.)			
			1	46		2012518	85386911300		RESONATOR, TUNING FORK & FIELD STOP, ASSY OF			
			2	45	*	2012619	48386910190		SCREW, BUTTON HEAD, MODIFIED			
			1	44		2012506	85386911260		BOARD, TERMINAL, ASSY OF			
			1	43		2012516-011	85386911290		HV POWER SUPPLY AND PLATE, ASSY OF			
			1	42		2012515	85386911280		HOUSING & LENS, ASSY OF (HORIZON SENSING)			
			6	41	*	1011625-30	74455151030		SCREW, CAP, HEX SOC HD, SELF LOCKING			
			12	40		NAS1189C02P4L	74455155002		SCREW, 100° FLAT HD, SELF LOCKING			
			9	39		NAS1352C02LL6	74455157007		SCREW, CAP, HEX SOC. HD SELF LOCKING			
			6	38	*	1011625-11	74455151011		↕			
			6	37		NAS1352C03LL4	74455157009		↕			
			1	36	*	1011625-24	74455151024		↕			
			3	35		NAS1352C04LL4	74455157013		↕			
			7	34	*	1011625-28	74455151028		↕			
			6	33		NAS1352C04LL10	74455157016		SCREW, CAP, HEX SOC HD, SELF LOCKING			
			9	32	*	1010608-2	—		WASHER, SPRING, CURVED			
			3	31	*	1011918-1	—		WASHER, CABLE CLAMP			
			3	30	*	1000220-4	—		CLAMP, CABLE			
			4	29	*	1011625-34	74455151034		SCREW, CAP, HEX SOC. HD, SELF LOCKING			
			1	28		2012461	52386910860		SPACER			
			1	27		2012462	56386910500		SPACER			
			1	26		2012466	57386911120		SPACER, VARIABLE			
			1	25		2012464	56386910520		APERTURE, STAR TRACKER			
			1	24		2012467	57386911130		SPACER			
			1	23		2012393-011	85386911270		HOUSING & FILTER, ASSY OF			
			1	22		2012480	85386910980		HOUSING & LENS ASSY (STAR TRACKER)			
			1	21		2012368	52386910080		MIRROR, STAR TRACKER			
			1	20		2012369	52386910090		MIRROR, STAR TRACKER			
			1	19		2012451	52386910810		MIRROR, HORIZON SENSOR			
			9	18		2012465	57386911110		BUSHING, MIRROR			
			6	17		2011213	59386910010		WASHER, WAVE			
			6	16		2011214	57386910220		BUSHING, MIRROR			
			1	15		2011260	52386910380		MIRROR, SEXTANT HEAD			
			1	14		2011598	52386910390		RETAINER, BEAMSPLITTER			
			1	13		2011634	56386910150		SPRING, BEAMSPLITTER			
			8	12		NAS1352C04LL6	74455157014		SCREW, CAP, HEX SOC HD, SELF LOCKING			
			AR	11		2011635	56386910160		SPACER, BEAMSPLITTER			
			1	10		2012222	28386910550		BEAMSPLITTER			
			1	9		2012482	56386910540		SPACER			
			1	8		2011671	57386910010		RETAINER, DRIVE BEARING			
			1	7		2011266	57386910230		RETAINER, BEARING			
			1	6		2012366	52386910310		MIRROR, SEXTANT HEAD			
			1	5		2011233	33386910010		GEAR, SPUR (128T-96P)			
			1	4		2011940	85386910090		SPRING & COLLET, ASSY OF			
			1	3		2011712	85386910050		INDEXING MIRROR & MOUNT ASSY			
			1	2		2011706	85386910100		TRUNNION DRIVE GEARBOX ASSY			
			1	1		2011254-021	85386910040		HOUSING, SXT HEAD, ASSY OF (MACHINING)			

QTY REQD					ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
					142									
					141									
					140									
					139									
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					136									
					135									
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					103									
					102									

*PURCHASE ITEM-SEE SPECIFICATION CONTROL DWG BEFORE ORDERING.

MASTER

NEXT ASSY	USED ON
2012730	2011000

APPLICATION

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SHEET 4 OF 5

A 2012722

REVISIONS TDRR 24092				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 24745		UK

NOTES:

1. a. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.

1. b. IDENTIFY USING NASA DRAWING NUMBER, REVISION LETTER & MANUFACTURER'S SYMBOL PER ND 1002019 (TAGGING)

2. SELECT ITEMS 6, 10, AND 15 TO PRODUCE OPTIMUM FOCUS AND RESOLUTION IN CONJUNCTION WITH ITEM 3 BY THE FOLLOWING CRITERIA BASED ON THE INSPECTION OF ITEMS BY INTERFEROMETER.

   a) THE ALGEBRAIC SUM OF THE FRINGE CURVATURES TAKING CONCAVE AS PLUS AND CONVEX AS MINUS SHALL BE BETWEEN +1/2 AND -1/2 FOR BOTH THE LONG (2 1/4") AND SHORT (1.6") AXES OF THE USED ELLIPTICAL AREA OF THE SURFACES. THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE LONG AXIS SHALL EQUAL THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE SHORT AXIS WITHIN 1/2 FRINGE.

   b) MEASUREMENT PRECISION OF 1/4 FRINGE AT 5461 Å IS ASSUMED.

   c) VERIFY SELECTION BY MEASUREMENT OF:

      1. RESOLUTION -- 5 SECONDS OF ARC OR BETTER

      2. a. COMBINED FLATNESS -- 1/2 FRINGE (INTERFEROMETER)

      OR

      2. b. FOCUS -- ± 1 1/4 MILLI DIOPTERS

3. MACHINE ITEM 8 AT ASSEMBLY TO APPLY 10 ± 1 POUNDS PRELOAD ON THE BALL BEARINGS OF ITEM 3. TOUCH UP ITEM 8 BY APPLICATION OF CHEMICAL FILM PER MIL-C-5541, TYPE I, GRADE B, CLASS 1, WHERE MACHINING HAS REMOVED ORIGINAL FINISH.

4. MACHINE ITEM 26 AT ASSEMBLY TO FOCUS COLLIMATED LIGHT OF 4000Å WAVELENGTH AT WITHIN ±.003 OF MIDPOINT BETWEEN THE TWO REEDS OF THE 1012154 STAR TRACKER TUNING FORK ASSY (ITEM 49). THIS OPERATION MAY BE MONITORED BY CALCULATING THE SPACER (ITEM 26) DIMENSION FROM MEASUREMENTS ON THE FOCUS AT SOME OTHER WAVELENGTH OF KNOWN DISPLACEMENT FROM THE 4000Å FOCUS AND FROM MEASUREMENTS RELATING THE POSITION OF A REFERENCE RETICLE SUBSTITUTE FOR THE TUNING FORK ASSY. TOUCH UP ITEM 26 BY APPLICATION OF CHEMICAL FILM PER MIL-C-5541 TYPE I, GRADE B, CLASS I WHERE MACHINING HAS REMOVED ORIGINAL FINISH.

5. MACHINE AND REPASSIVATE ITEM 9 AT ASSEMBLY TO FOCUS COLLIMATED LIGHT OF 3500 Å WAVELENGTH WITHIN ±.003 AT THE APERATURE OF THE 1012155 HORIZON PHOTOMETER TUNING FORK ASSY (PART OF ITEM46). THIS OPERATION MAY BE MONITORED BY CALCULATING THE SPACER (ITEM 9) DIMENSION FROM MEASUREMENTS ON THE FOCUS AT SOME OTHER WAVELENGTH OF KNOWN DISPLACEMENT FROM THE 3500 Å FOCUS AND FROM MEASUREMENTS RELATING THE POSITION OF A REFERENCE RETICLE SUBSTITUTED FOR THE TUNING FORK ASSY.

6. MACHINE AND REPASSIVATE ITEM 28 AT ASSEMBLY TO POSITION THE 1012154 STAR TRACKER TUNING FORK ASSY (ITEM 49) SO THAT A LINE OF SIGHT TO THE MID-POINT OF THE REED APERATURES AT REST IS PERPENDICULAR WITHIN 20 SECONDS TO A LINE OF SIGHT WHICH EXITS NORMAL TO SURFACE "X".

7. SIMILARLY TREAT ITEM 27 TO OBTAIN PERPENDICULARITY OF 1 MINUTE TO THE TRUNNION DRIVE AXIS.

8. SELECT WASHER OR WASHERS (ITEM 60) OF PROPER THICKNESS AT ASSY TO ELIMINATE LIGHT GAP BETWEEN ITEMS 47 AND 48

9. VIBRATION PROOF ITEM 22 BY APPLYING ONE DROP OF LOCKING COMPOUND, GRADE "E" OF MIL-S-22473 IN ACCORDANCE WITH ND 1002211, THRU .060 DIAMETER HOLE IN ITEM 1.

10. WITH COLLIMATED LIGHT PARALLEL TO THE SLOS DIRECTED INTO THE TRACKER, OBTAIN MAXIMUM PHOTOTUBE CURRENT BY ROTATING HEAD ELECTRONICS ASSY (ITEM 53) AND VARYING THE THICKNESS OF ITEM 51 BY MACHINING. MACHINE FACES OF ITEM 51 PARALLEL TO WITHIN .0005. AFTER OBTAINING PROPER THICKNESS OF ITEM 51 THE $.271^{+.005}_{-.000}$ DIMENSION SHALL BE MAINTAINED BY MACHINING THICKNESS OF ITEM 52. AFTER MACHINING ITEMS 51 & 52 REPASSIVATE PER MIL-STD-171 TABLE V, FINISH NO. 5.4.1.

11. REFER TO WIRING SCHEMATIC, NASA DRAWING NO. 2012732.

12. TWIST CONDUCTORS IN ACCORDANCE WITH ND 1002032

13. APPLY ITEM 61 TO LEADS.

14. TERMINATE SHIELDED WIRES, USING ITEM 59 IN ACCORDANCE WITH ND 1002071

15. E1 POINT TO BE A SPLICE, USING ITEM 62 IN ACCORDANCE WITH ND 1002032 APPROXIMATE LOCATION OF E POINT SHOWN ON HARNESS.

16. SOLDER CONDUCTORS IN ACCORDANCE WITH ND 1002071

17. LACE CONDUCTORS IN ACCORDANCE WITH ND1002032.

18. PERFORM CONTINUITY CHECK.

19. PLACE ITEM 61 OVER CONTACTS AND LEADS AND SHRINK

20.

21. FLEXIBLE COAT ITEM 44 USING TYPE II (FLEXIBLE) OF ND 1002004

22. POT IN ACCORDANCE WITH ND 1002240
   A. POTTING SHALL NOT INTERFERE WITH POLARITY SCREW OPERATION
   B. POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .12 INCH. PORTION OF INSULATION TO BE POTTED SHALL BE ETCHED IN ACCORDANCE WITH ND1002146.

23. MARK REFERENCE DESIGNATIONS .12±.02 INCH HIGH IN ACCORDANCE WITH ND1002019

24. ITEMS 49 AND 54 ARE A MATCHED PAIR (REFER TO DWG 2007023)

25. VIBRATION PROOF ITEM 45 TO ITEM 43 USING GRADE "E" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211

MASTER

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APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL 16 Nov 65

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SHEET 5 OF 5

2012722

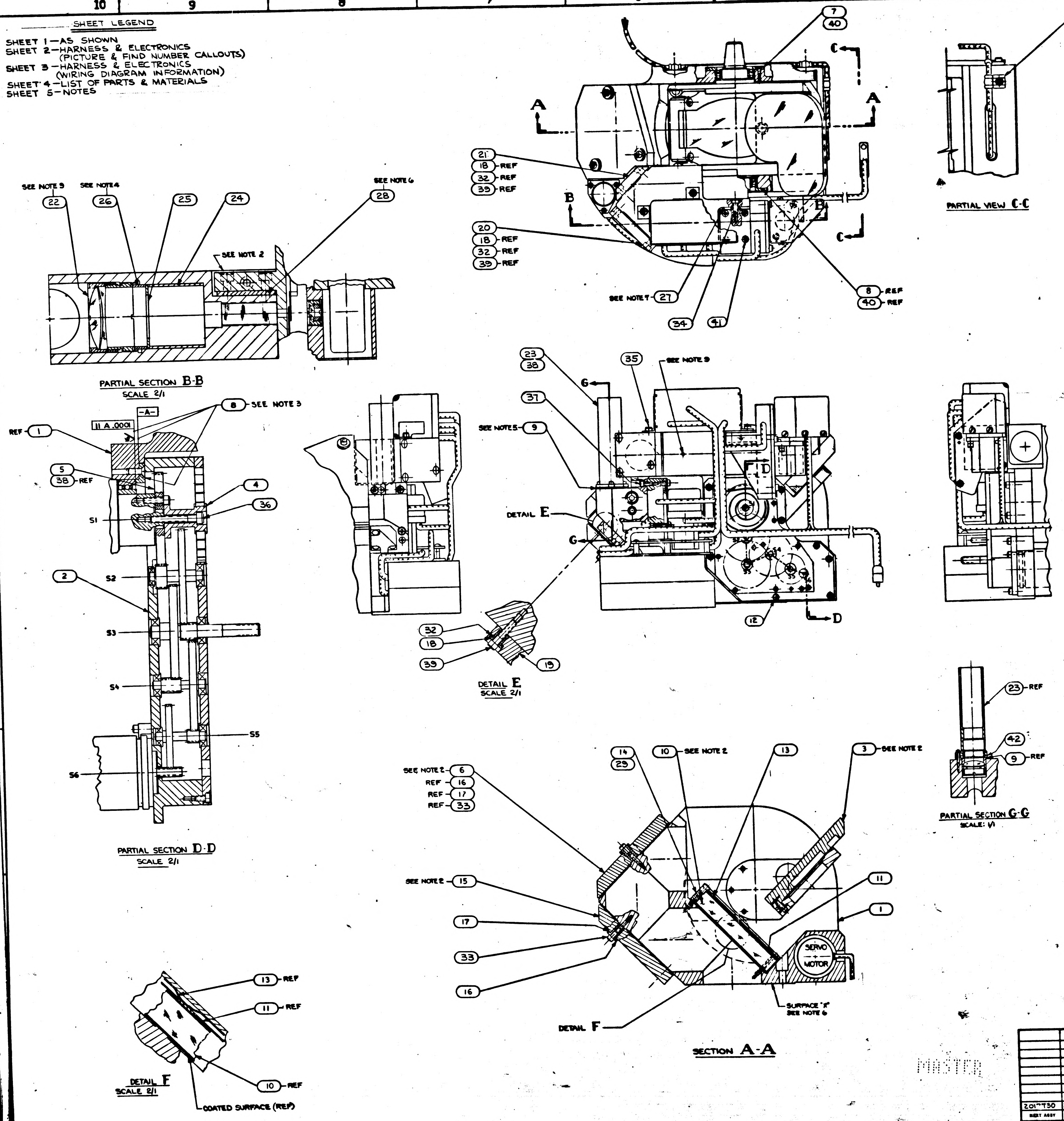
2012722

REVISIONS TDRR 24092

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

SHEET LEGEND

SHEET 1—AS SHOWN
SHEET 2—HARNESS & ELECTRONICS
(PICTURE & FIND NUMBER CALLOUTS)
SHEET 3—HARNESS & ELECTRONICS
(WIRING DIAGRAM INFORMATION)
SHEET 4—LIST OF PARTS & MATERIALS
SHEET 5—NOTES


A
A
B
B
C
C
7
40
21
18 REF
32 REF
39 REF
20
18 REF
32 REF
39 REF
SEE NOTE 7 27
34
41
8 REF
40 REF
30
34 REF
31
PARTIAL VIEW C-C
SEE NOTE 9 22
SEE NOTE 4 26
25
24
SEE NOTE 6 28
SEE NOTE 2
PARTIAL SECTION B-B
SCALE 2/1
8 SEE NOTE 3
-A-
11 A .0001
REF 1
5
38 REF
4
36
S1
S2
S3
S4
S5
S6
2
PARTIAL SECTION D-D
SCALE 2/1
23
38
35
SEE NOTE 9
37
G
SEE NOTE 5 9
D
DETAIL E
G
12
D
32
18
39
19
DETAIL E
SCALE 2/1
23 REF
42
9 REF
PARTIAL SECTION G-G
SCALE 1/1
SEE NOTE 2 6
REF 16
REF 17
REF 33
14
29
10 SEE NOTE 2
13
3 SEE NOTE 2
SEE NOTE 2 15
17
33
16
11
1
SERVO MOTOR
SURFACE "X" SEE NOTE 6
DETAIL F
SECTION A-A
13 REF
11 REF
10 REF
COATED SURFACE (REF)
DETAIL F
SCALE 2/1

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2017730	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386011780
DRAWN R. BRUNELLE DATE 10-13-65
CHECKED P.A. [illegible] 10/30/65
APPROVAL E. [illegible] 11/15/65
APPROVAL
NASA APPROVAL
KIT APPROVAL

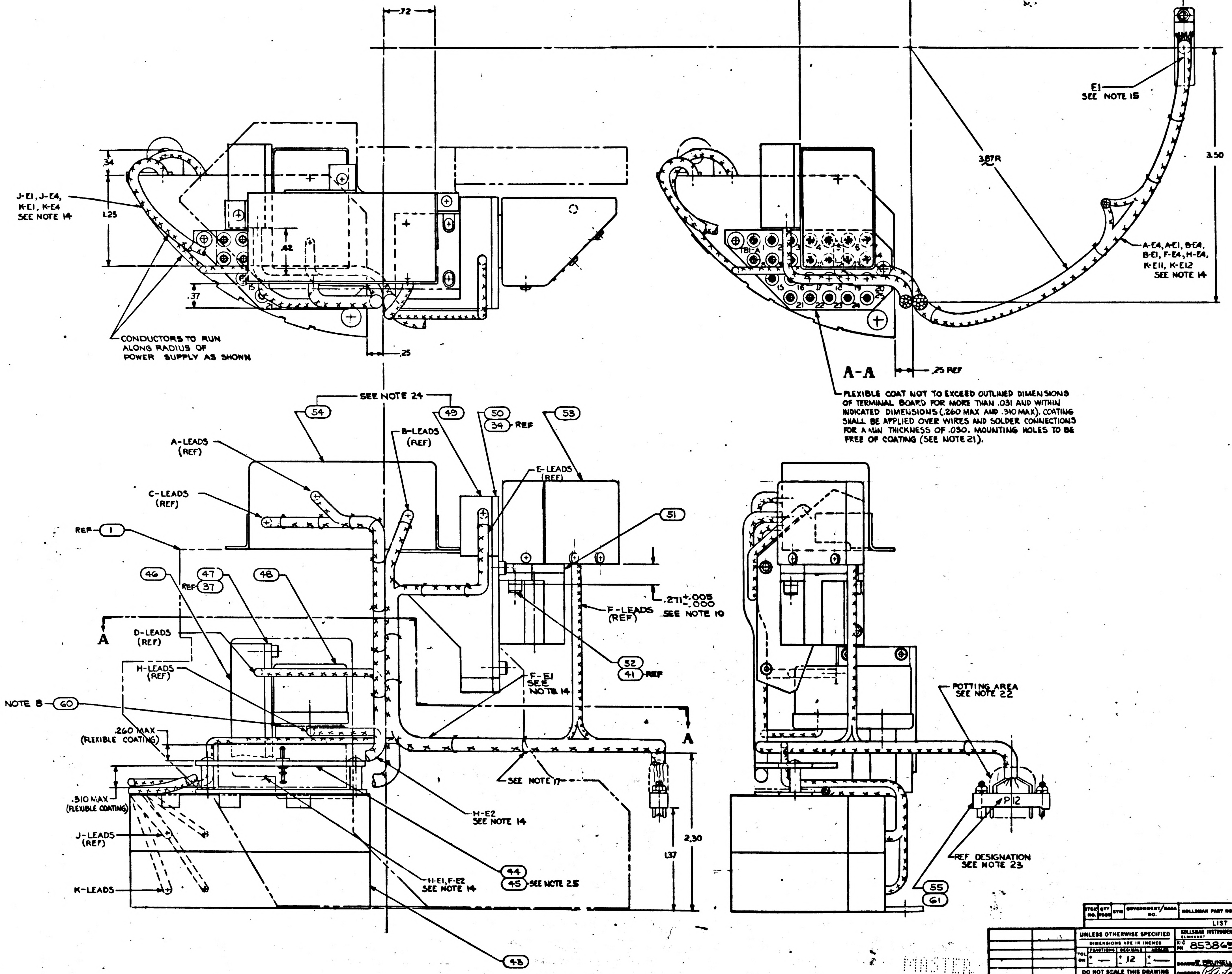
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT INDEX HEAD
ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012722
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 5

2012722

REVISIONS TDRR 24092				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL


.72
1.56
3.81
E1
SEE NOTE 15
3.87R
3.50
.34
J-E1, J-E4,
K-E1, K-E4
SEE NOTE 14
1.25
.42
.37
.25
CONDUCTORS TO RUN
ALONG RADIUS OF
POWER SUPPLY AS SHOWN
TB1-A1
A-E4, A-E1, B-E4,
B-E1, F-E4, H-E4,
K-E11, K-E12
SEE NOTE 14
A-A
.25 REF
SEE NOTE 24
54
49
50
34 REF
53
A-LEADS
(REF)
B-LEADS
(REF)
E-LEADS
(REF)
C-LEADS
(REF)
REF 1
51
46
47
REF 37
48
.271 +.005 -.000
F-LEADS
(REF)
SEE NOTE 10
A
D-LEADS
(REF)
H-LEADS
(REF)
52
41 REF
F-E1
SEE
NOTE 14
SEE NOTE 8
60
.260 MAX
(FLEXIBLE COATING)
A
SEE NOTE 17
.310 MAX
(FLEXIBLE COATING)
H-E2
SEE NOTE 14
J-LEADS
(REF)
2.30
1.37
H-E1, F-E2
SEE NOTE 14
44
45 SEE NOTE 25
K-LEADS
43
POTTING AREA
SEE NOTE 22
P12
REF DESIGNATION
SEE NOTE 23
55
61

PLEXIBLE COAT NOT TO EXCEED OUTLINED DIMENSIONS OF TERMINAL BOARD FOR MORE THAN .031 AND WITHIN INDICATED DIMENSIONS (.260 MAX AND .310 MAX). COATING SHALL BE APPLIED OVER WIRES AND SOLDER CONNECTIONS FOR A MIN THICKNESS OF .030. MOUNTING HOLES TO BE FREE OF COATING (SEE NOTE 21).

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012730	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± .12 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
K/C PN 85386911780
DRAWN E. BRUNELLE
CHECKED P.A. Lane
APPROVAL E. Conroy 11/17/65
APPROVAL
NASA APPROVAL A. L. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT INDEX HEAD
ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012722
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 2 OF 5

2012722

2012722

REVISIONS - TDRR 24092

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

WIRING LEGEND

MODULE		ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE 12
TUNING FORK ASSY-TRACKER AND PHOTOMETER 2007023	TUNING FORK ASSY (TRACKER) 2007022 REF. DESIG.-A		E5	RED	A-E5		TB1-B7	8
			E3	RED	A-E3		TB1-B6	
			E7	RED	A-E7		TB1-B5	8
			E2	BLACK	A-E2		TB1-B19	
			E6	RED	A-E6		TB1-A13	
			E4	WHITE	A-E4		P12-K	
		56		WHITE	A-E4 SHIELD		K-E11 SHIELD	
			E1	WHITE	A-E1		P12-H	
		56		WHITE	A-E1 SHIELD		A-E4 SHIELD	
	TUNING FORK ASSY (TRACKER) 2007022 REF. DESIG.-B		E5	RED	B-E5		TB1-B23	8
			E3	RED	B-E3		TB1-B24	
			E7	RED	B-E7		TB1-B25	8
			E2	BLACK	B-E2		TB1-B22	
			E6	RED	B-E6		TB1-A13	
			E4	WHITE	B-E4		P12-C	
		56		WHITE	B E4 SHIELD		F-E4 SHIELD	
			E1	WHITE	B-E1		P12-A	
		56		WHITE	B-E1 SHIELD		B-E4 SHIELD	
	TUNING FORK ASSY (PHOTOMETER) 2007021 REF. DESIG.-C		E2	RED	C-E2		TB1-B4	8
			E4	RED	C-E4		TB1-B11	
			E5	RED	C-E5		TB1-B16	8
			E3	BLACK	C-E3		TB1-B17	
			E1	RED	C-E1		TB1-B13	
RESONATOR, TUNING FORKS ASSY OF (TRACKER) 1012154 REF. DESIG. - E				WHITE	E-WHITE		TB1-A23	8
				BLACK	E-BLACK		TB1-A24	
				ORANGE	E-ORANGE		TB1-A25	8
				VIOLET	E-VIOLET		TB1-A22	
				YELLOW	E-YELLOW		TB1-A7	8
				GREEN	E-GREEN		TB1-A6	
				RED	E-RED		TB1-A5	8
				BLUE	E-BLUE		TB1-A19	
RESONATOR, TUNING FORKS ASSY OF (PHOTOMETER) 1012155 REF. DESIG.-D				YELLOW	D-YELLOW		TB1-A4	8
				GREEN	D-GREEN		TB1-A11	
				RED	D-RED		TB1-A16	8
				BLUE	D-BLUE		TB1-A17	

MODULE		ITEM NO.	COND. NO.	COLOR	FROM	INTERIM PT.	TO	SEE NOTE 12
HEAD ELECTRONICS ASSY (TRACKER) 2007024 REF. DESIG.-F			E1	WHITE	F-E1		TB1-A2	
		56		WHITE	F-E1 SHIELD		F-E2 SHIELD	
			E2	WHITE	F-E2		TB1-A1	
		56		WHITE	F-E2 SHIELD		H-E1 SHIELD	
			E3	RED	F-E3		TB1-A12	
			E5	BLACK	F-E5		P12-D	
			E4	WHITE	F-E4		P12-F	
		56		WHITE	F-E4 SHIELD		A-E1 SHIELD	
HEAD ELECTRONICS ASSY (PHOTOMETER) 2007025 REF. DESIG.-H			E1	WHITE	H-E1		TB1-A9	
		56		WHITE	H-E1 SHIELD		H-E2 SHIELD	
			E2	WHITE	H-E2		TB1-A8	
		56		WHITE	H-E2 SHIELD		TB1-A21	
			E3	RED	H-E3		TB1-A14	
			E5	BLACK	H-E5		P12-T	
			E4	WHITE	H-E4		P12-V	
		56		WHITE	H-E4 SHIELD		E1	
H V POWER SUPPLY PHOTOMETER-TRACKER ASSY 2007030	HV POWER SUPPLY ASSY (TRACKER) 2007032 REF. DESIG.-K		E1	WHITE	K-E1		TB1-B2	
		56		WHITE	K-E1 SHIELD		K-E4 SHIELD	
			E4	WHITE	K-E4		TB1-B1	
		56		WHITE	K-E4 SHIELD		J-E1 SHIELD	
			E13	RED	K-E13		TB1-B12	8
			E5	BLACK	K-E5		TB1-B18	
			E11	WHITE	K-E11		P12-N	
		56		WHITE	K-E11 SHIELD		K-E12 SHIELD	
			E12	WHITE	K-E12		P12-P	
		56		WHITE	K-E12 SHIELD		H-E4 SHIELD	
	HV POWEP SUPPLY ASSY (PHOTOMETER) 2007031 REF. DESIG.-J		E1	WHITE	J-E1		TB1-B9	
		56		WHITE	J-E1 SHIELD		J-E4 SHIELD	
			E4	WHITE	J-E4		TB1-B8	
		56		WHITE	J-E4 SHIELD		TB1-B21	
			E5	BLACK	J-E5		TB1-B17	8
			E6	RED	J-E6		TB1-B12	
		56		WHITE	TB1-A21	E1	P12-U	
		57		RED	TB1-A14		P12-W	8
		58		BLACK	TB1-A20		P12-X	
		63		YELLOW	TB1-A18		P12-S	
		64		BLUE	TB1-A18		P12-L	
		65	**	BLUE	TB1-B12		TB1-B13	
		65	**	BLUE	TB1-B13		TB1-B14	
		65	**	BLUE	TB1-B22		TB1-B17	
		65	**	BLUE	TB1-B17		TB1-B18	
		65	**	BLUE	TB1-B18		TB1-B19	
		65	**	BLUE	TB1-B19		TB1-B20	
		65	**	BLUE	TB1-B1		TB1-B8	
		65		BLUE	TB1-B8		TB1-B22	

** - TO FACILITATE ASSEMBLY INSULATION MAY BE STRIPPED FROM WIRE.

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	HOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012730	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911780
DRAWN R. DANIELLS DATE 9-14-65
CHECKED P. A. Lomo 10/20/65
APPROVAL E. Thorop 11/15/65
APPROVAL
NASA APPROVAL A. C. MET/GEB
MIT APPROVAL W. Coggan 11-16-65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT INDEX HEAD
ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012722
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 3 OF 5

2012722

2012722

REVISIONS TDRR 24092				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	HOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
	101								
	100								
	99								
	98								
	97								
	96								
	95								
	94								
	93								
	92								
	91								
	90								
	89								
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	71								
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	69								
	68								
	67								
	66								
1	65	*	1010708-5	———		WIRE MODIFIED, INSULATED, SOLID COPPER (6" LG)			
1	64	*	1010416-7	———		WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
1	63	*	1010416-5	———		WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
1	62	*	1010490-114	———		INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
15	61	*	1010490-058	———		INSULATION-SLEEVING, ELECT, HEAT SHRINKABLE			
AR	60		2012724	7938691 0301 THRU 0399		WASHER, LIGHT SHIELD			
8	59	*	1010402-1	———		SLEEVE, SOLDER, ELECT, COND. INSUL. HEAT SHRIN			
1	58	*	1010416-1	———		WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
1	57	*	1010416-3	———		WIRE, ELECTRICAL, STRANDED, INSULATED (12")			
1	56	*	1010416-10	———		WIRE, ELECTRICAL, STRANDED, INSULATED (6")			
1	55	*	1011740-2	———		CONNECTOR, ELECTRICAL RECTANGULAR			
1	54		2007023	———		TUNING FORK ASSY, TRACKER & PHOTOMETER			
1	53		2007176			HEAD, ELECTRONICS ASSY (TRACKER)			
2	52		2012720	45386910230		WASHER			
1	51		2012710	45386910210		SPACER			
1	50		2012483-011	85386911000		PHOTOMULTIPLIER HOUSING & LENS ASSY (S.T.)			
1	49	*	1012154	68258000901		RESONATOR, TUNING FORKS, ASSY OF (TRACKER)			
1	48		2007179			HEAD, ELECTRONICS ASSY (PHOTOMETER)			
1	47		2012481-011	85386910990		PHOTOMULTIPLIER HOUSING & LENS ASSY (H.S.)			
1	46		2012518	85386911300		RESONATOR, TUNING FORK & FIELD STOP, ASSY OF			
2	45	*	2012619	48386910190		SCREW, BUTTON HEAD, MODIFIED			
1	44		2012506	85386911260		BOARD, TERMINAL, ASSY OF			
1	43		2012516-011	85386911290		HV POWER SUPPLY AND PLATE, ASSY OF			
1	42		2012515	85386911280		HOUSING & LENS, ASSY OF (HORIZON SENSING)			
6	41	*	1011625-30	74455151030		SCREW, CAP, HEX SOC HD, SELF LOCKING			
12	40		NAS1189C02PLL	74455155002		SCREW, 100° FLAT HD, SELF LOCKING			
9	39		NAS1352C02LL6	74455157007		SCREW, CAP, HEX SOC. HD SELF LOCKING			
6	38	*	1011625-11	74455151011		↕			
6	37		NAS1352C03LL4	74455157009		↕			
1	36	*	1011625-24	74455151024		↕			
3	35		NAS1352C04LL4	74455157013		↕			
7	34	*	1011625-28	74455151028		↕			
6	33		NAS1352C04LL10	74455157016		SCREW, CAP, HEX SOC HD, SELF LOCKING			
9	32	*	1010608-2	———		WASHER, SPRING, CURVED			
3	31	*	1011918-1	———		WASHER, CABLE CLAMP			
3	30	*	1000220-4	———		CLAMP, CABLE			
4	29	*	1011625-34	74455151034		SCREW, CAP, HEX SOC. HD, SELF LOCKING			
1	28		2012461	52386910860		SPACER			
1	27		2012462	56386910500		SPACER			
1	26		2012466	57386911120		SPACER, VARIABLE			
1	25		2012464	56386910520		APERTURE, STAR TRACKER			
1	24		2012467	57386911130		SPACER			
1	23		2012393-011	85386911270		HOUSING & FILTER, ASSY OF			
1	22		2012480	85386910980		HOUSING & LENS ASSY (STAR TRACKER)			
1	21		2012368	52386910080		MIRROR, STAR TRACKER			
1	20		2012369	52386910090		MIRROR, STAR TRACKER			
1	19		2012451	52386910810		MIRROR, HORIZON SENSOR			
9	18		2012465	57386911110		BUSHING, MIRROR			
6	17		2011213	59386910010		WASHER, WAVE			
6	16		2011214	57386910220		BUSHING, MIRROR			
1	15		2011260	52386910380		MIRROR, SEXTANT HEAD			
1	14		2011598	52386910390		RETAINER, BEAMSPLITTER			
1	13		2011634	56386910150		SPRING, BEAMSPLITTER			
8	12		NAS1352C04LL6	74455157014		SCREW, CAP, HEX SOC HD, SELF LOCKING			
AR	11		2011635	56386910160		SPACER, BEAMSPLITTER			
1	10		2012222	28386910550		BEAMSPLITTER			
1	9		2012482	56386910540		SPACER			
1	8		2011671	57386910010		RETAINER, DRIVE BEARING			
1	7		2011266	57386910230		RETAINER, BEARING			
1	6		2012366	52386910310		MIRROR, SEXTANT HEAD			
1	5		2011233	33386910010		GEAR, SPUR (128T-96P)			
1	4		2011940	85386910090		SPRING & COLLET, ASSY OF			
1	3		2011712	85386910050		INDEXING MIRROR & MOUNT ASSY			
1	2		2011706	85386910100		TRUNNION DRIVE GEARBOX ASSY			
1	1		2011254-021	85386910040		HOUSING, SXT HEAD, ASSY OF (MACHINING)			

LIST OF PARTS AND MATERIALS

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	HOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
	142								
	141								
	140								
	139								
	138								
	137								
	136								
	135								
	134								
	133								
	132								
	131								
	130								
	129								
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	114								
	113								
	112								
	111								
	110								
	109								
	108								
	107								
	106								
	105								
	104								
	103								
	102								

LIST OF PARTS AND MATERIALS

*PURCHASE ITEM-SEE SPECIFICATION CONTROL DWG BEFORE ORDERING.

MASTER

APPLICATION	
NEXT ASSY	USED ON
2012730	2011000

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

HOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911780
DRAWN R. BRUNELLE DATE 10-14-65
CHECKED P.A.
APPROVAL E.
APPROVAL
NASA APPROVAL A C METZLER
UNIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT INDEX HEAD
ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012722
SCALE —
WEIGHT CALC ACTUAL
SHEET 4 OF 5

2012722.

REVISIONS TDRR 24092				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES:

1. a. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
1. b. IDENTIFY USING NASA DRAWING NUMBER, REVISION LETTER & MANUFACTURER'S SYMBOL PER ND 1002019 (TAGGING)

2. SELECT ITEMS 6, 10, AND 15 TO PRODUCE OPTIMUM FOCUS AND RESOLUTION IN CONJUNCTION WITH ITEM 3 BY THE FOLLOWING CRITERIA BASED ON THE INSPECTION OF ITEMS BY INTERFEROMETER.
   - a) THE ALGEBRAIC SUM OF THE FRINGE CURVATURES TAKING CONCAVE AS PLUS AND CONVEX AS MINUS SHALL BE BETWEEN +1/2 AND -1/2 FOR BOTH THE LONG (2 1/4") AND SHORT (1.6") AXES OF THE USED ELLIPTICAL AREA OF THE SURFACES. THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE LONG AXIS SHALL EQUAL THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE SHORT AXIS WITHIN 1/2 FRINGE.
   - b) MEASUREMENT PRECISION OF 1/4 FRINGE AT 5461 Å IS ASSUMED.
   - c) VERIFY SELECTION BY MEASUREMENT OF:
     - 1. RESOLUTION -- 5 SECONDS OF ARC OR BETTER
     - 2. a. COMBINED FLATNESS -- 1/2 FRINGE (INTERFEROMETER)
       OR
     - 2. b. FOCUS -- ± 1 1/4 MILLI DIOPTERS

3. MACHINE ITEM 8 AT ASSEMBLY TO APPLY 10 ± 1 POUNDS PRELOAD ON THE BALL BEARINGS OF ITEM 3. TOUCH UP ITEM 8 BY APPLICATION OF CHEMICAL FILM PER MIL-C-5541, TYPE 1, GRADE B, CLASS 1, WHERE MACHINING HAS REMOVED ORIGINAL FINISH.

4. MACHINE ITEM 26 AT ASSEMBLY TO FOCUS COLLIMATED LIGHT OF 4000Å WAVELENGTH AT WITHIN ±.003 OF MIDPOINT BETWEEN THE TWO REEDS OF THE 1012154 STAR TRACKER TUNING FORK ASSY (ITEM 49). THIS OPERATION MAY BE MONITORED BY CALCULATING THE SPACER (ITEM 26) DIMENSION FROM MEASUREMENTS ON THE FOCUS AT SOME OTHER WAVELENGTH OF KNOWN DISPLACEMENT FROM THE 4000Å FOCUS AND FROM MEASUREMENTS RELATING THE POSITION OF A REFERENCE RETICLE SUBSTITUTE FOR THE TUNING FORK ASSY. TOUCH UP ITEM 26 BY APPLICATION OF CHEMICAL FILM PER MIL-C-5541 TYPE I, GRADE B, CLASS I WHERE MACHINING HAS REMOVED ORIGINAL FINISH.

5. MACHINE AND REPASSIVATE ITEM 9 AT ASSEMBLY TO FOCUS COLLIMATED LIGHT OF 3500 Å WAVELENGTH WITHIN ±.005 AT THE APERATURE OF THE 1012155 HORIZON PHOTOMETER TUNING FORK ASSY (PART OF ITEM 46). THIS OPERATION MAY BE MONITORED BY CALCULATING THE SPACER (ITEM 9) DIMENSION FROM MEASUREMENTS ON THE FOCUS AT SOME OTHER WAVELENGTH OF KNOWN DISPLACEMENT FROM THE 3500 Å FOCUS AND FROM MEASUREMENTS RELATING THE POSITION OF A REFERENCE RETICLE SUBSTITUTED FOR THE TUNING FORK ASSY.

6. MACHINE AND REPASSIVATE ITEM 28 AT ASSEMBLY TO POSITION THE 1012154 STAR TRACKER TUNING FORK ASSY (ITEM 49) SO THAT A LINE OF SIGHT TO THE MID-POINT OF THE REED APERATURES AT REST IS PERPENDICULAR WITHIN 20 SECONDS TO A LINE OF SIGHT WHICH EXITS NORMAL TO SURFACE "X".

7. SIMILARLY TREAT ITEM 27 TO OBTAIN PERPENDICULARITY OF 1 MINUTE TO THE TRUNNION DRIVE AXIS.

8. SELECT WASHER OR WASHERS (ITEM 60) OF PROPER THICKNESS AT ASSY TO ELIMINATE LIGHT GAP BETWEEN ITEMS 47 AND 48

9. VIBRATION PROOF ITEM 22 BY APPLYING ONE DROP OF LOCKING COMPOUND, GRADE "E" OF MIL-S-22473 IN ACCORDANCE WITH ND 1002211, THRU .060 DIAMETER HOLE IN ITEM 1.

10. WITH COLLIMATED LIGHT PARALLEL TO THE SLOS DIRECTED INTO THE TRACKER, OBTAIN MAXIMUM PHOTOTUBE CURRENT BY ROTATING HEAD ELECTRONICS ASSY (ITEM 53) AND VARYING THE THICKNESS OF ITEM 51 BY MACHINING. MACHINE FACES OF ITEM 51 PARALLEL TO WITHIN .0005. AFTER OBTAINING PROPER THICKNESS OF ITEM 51 THE .271 $^{+.005}_{-.000}$ DIMENSION SHALL BE MAINTAINED BY MACHINING THICKNESS OF ITEM 52. AFTER MACHINING ITEMS 51 & 52 REPASSIVATE PER MIL-STD-171 TABLE V, FINISH NO. 5.4.1.

11. REFER TO WIRING SCHEMATIC, NASA DRAWING NO. 2012391

12. TWIST CONDUCTORS IN ACCORDANCE WITH ND 1002032

13. APPLY ITEM 61 TO LEADS.

14. TERMINATE SHIELDED WIRES, USING ITEM 59 IN ACCORDANCE WITH ND 1002071

15. E1 POINT TO BE A SPLICE, USING ITEM 62 IN ACCORDANCE WITH ND 1002032 APPROXIMATE LOCATION OF E POINT SHOWN ON HARNESS.

16. SOLDER CONDUCTORS IN ACCORDANCE WITH ND 1002071

17. LACE CONDUCTORS IN ACCORDANCE WITH ND1002032.

18. PERFORM CONTINUITY CHECK.

19. PLACE ITEM 61 OVER CONTACTS AND LEADS AND SHRINK

20.

21. FLEXIBLE COAT ITEM 44 USING TYPE II (FLEXIBLE) OF ND 1002004

22. POT IN ACCORDANCE WITH ND 1002240
    A. POTTING SHALL NOT INTERFERE WITH POLARITY SCREW OPERATION
    B. POTTING SHALL COVER WIRE INSULATION FOR A MINIMUM OF .12 INCH. PORTION OF INSULATION TO BE POTTED SHALL BE ETCHED IN ACCORDANCE WITH ND1002146.

23. MARK REFERENCE DESIGNATIONS .12 ±.02 INCH HIGH IN ACCORDANCE WITH ND 1002019

24. ITEMS 49 AND 54 ARE A MATCHED PAIR (REFER TO DWG 2007023)

25. VIBRATION PROOF ITEM 45 TO ITEM 43 USING GRADE "E" OF MIL-S-22475 IN ACCORDANCE WITH ND 1002211

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012730	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911780
DRAWN R. BRUNELLE
CHECKED P. G. Lane 4/30/65
APPROVAL E. Mayo 4/5/65
APPROVAL
NASA APPROVAL A. C. METZGER
UNIT APPROVAL W... 6/16/65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT INDEX HEAD ASSEMBLY

CODE IDENT NO.	SIZE	NASA NUMBER
30230	E	2012722

SCALE — WEIGHT CALC ACTUAL SHEET 5 OF 5

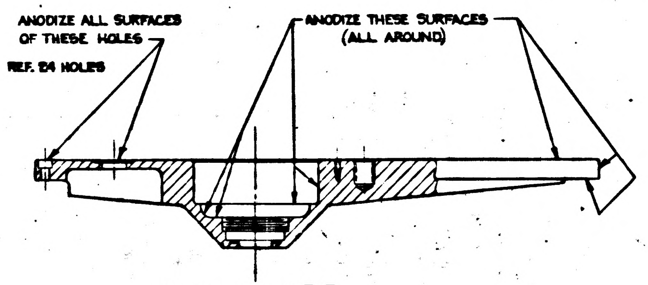
2012722

2012727 A

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26270	2-28-66	

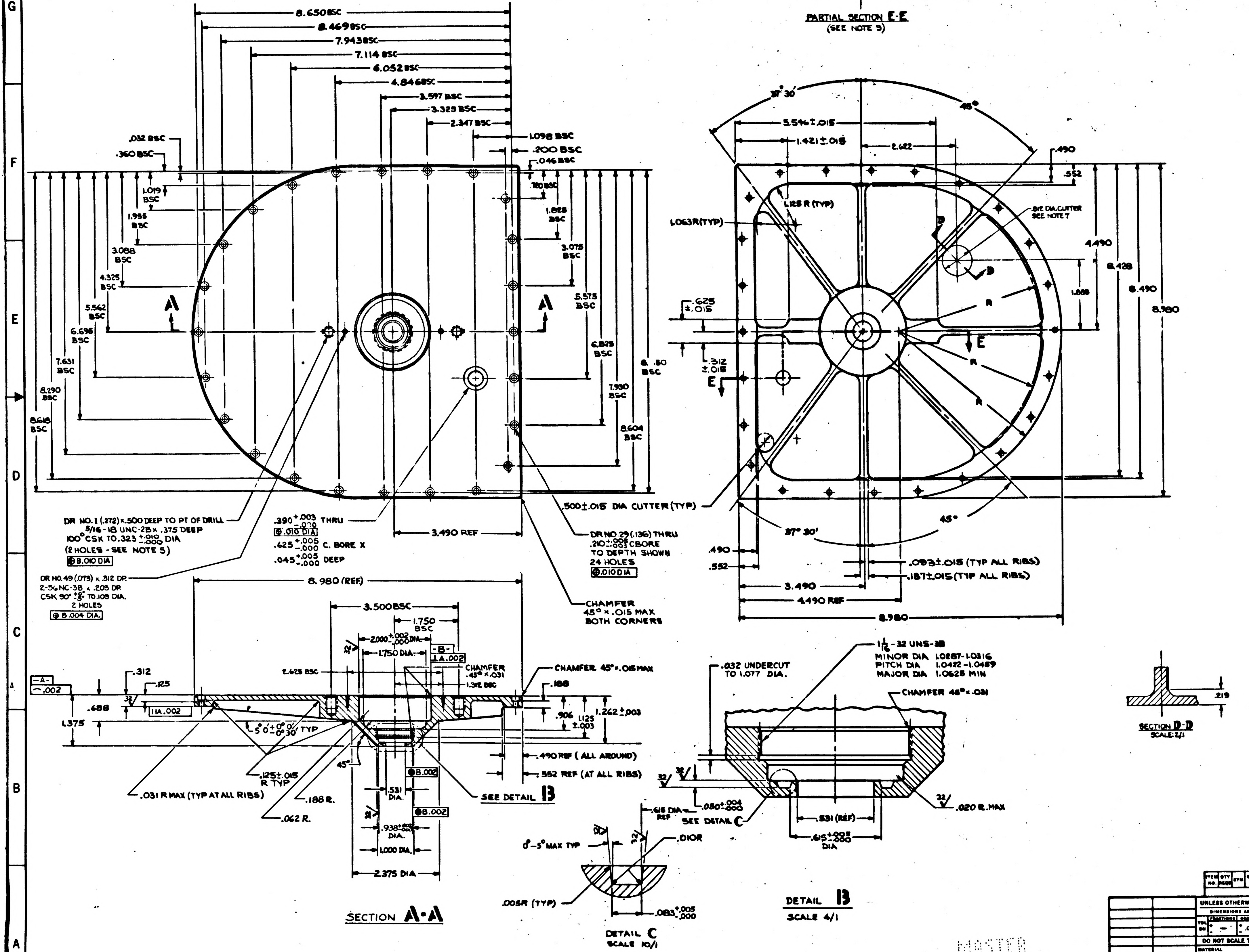
REVISIONS TDRR 23422

NOTES:
1. INTERPRET DWG. IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND 1002078.
3. UNLESS OTHERWISE SPECIFIED:
   a. 63✓ FINISH ALL OVER.
   b. BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
5. USE BROACHING TOOL PER ND1002121
6. HEAT TREAT (STABILIZE & STRESS RELIEVE) PER ND1002114
7. DUE TO TOLERANCE ON LOCATION OF STIFFENER RIB .812 DIA. CUTTER MAY OR MAY NOT CUT INTO RIB.
8. IDENTIFY USING NASA DWG., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019 (BAGGING OR TAGGING).
9. BLACK ANODIZE IN ACCORDANCE WITH ND1002127, TYPE I ON SURFACES INDICATED ON SECTION E-E. ANODIZE ON OTHER SURFACES OPTIONAL.



ANODIZE ALL SURFACES OF THESE HOLES
REF. 24 HOLES
ANODIZE THESE SURFACES (ALL AROUND)

PARTIAL SECTION E-E
(SEE NOTE 9)



8.650 BSC
8.469 BSC
7.943 BSC
7.114 BSC
6.052 BSC
4.846 BSC
3.597 BSC
3.325 BSC
2.347 BSC
1.098 BSC
.200 BSC
.046 BSC
.032 BSC
.360 BSC
1.019 BSC
1.955 BSC
3.088 BSC
4.325 BSC
5.562 BSC
6.695 BSC
7.631 BSC
8.290 BSC
8.618 BSC
1.828 BSC
3.075 BSC
5.575 BSC
6.825 BSC
7.930 BSC
8.604 BSC
8.80 BSC
A
A
3.490 REF
DR NO. 1 (.272) x .500 DEEP TO PT OF DRILL 5/16-18 UNC-2B x .375 DEEP 100° CSK TO .323 +.010 -.000 DIA (2 HOLES - SEE NOTE 5)
B .010 DIA
.390 +.003 -.000 THRU
.010 DIA
.625 +.005 -.000 C. BORE X .045 +.005 -.000 DEEP
DR NO. 49 (.073) x .312 DP. 2-56NC-3B x .205 DP. CSK 90° ±2° TO .105 DIA. 2 HOLES
B .004 DIA.
.500±.015 DIA CUTTER (TYP)
DR NO. 29 (.136) THRU .210 +.005 -.003 C'BORE TO DEPTH SHOWN 24 HOLES
.010 DIA
CHAMFER 45° x .015 MAX BOTH CORNERS
37° 30'
45°
5.544±.015
1.421±.015
2.422
.490
.552
1.125 R (TYP)
1.063R (TYP)
.812 DIA. CUTTER SEE NOTE 7
D
D
R
R
R
R
E
E
.625 ±.015
.312 ±.015
1.888
4.490
8.428
8.490
8.980
37° 30'
45°
.490
.552
3.490
4.490 REF
8.980
.083±.015 (TYP ALL RIBS)
.187±.015 (TYP ALL RIBS)
8.980 (REF)
3.500 BSC
1.750 BSC
2.000 +.002 -.000 DIA.
-B-
A .002
1.750 DIA.
CHAMFER .45° x .031
2.625 BSC
1.312 BSC
CHAMFER 45° x .015 MAX
.188
-A-
.002
.312
.125
32
A .002
.688
1.375
5° 0' ±0° 0' 30" TYP
.906
1.125 ±.003
1.262 ±.003
.490 REF (ALL AROUND)
.552 REF (AT ALL RIBS)
.125±.015 R TYP
45°
.031 R MAX (TYP AT ALL RIBS)
.188 R.
.062 R.
.531 DIA.
B .002
B .002
.938 +.002 -.000 DIA.
1.000 DIA.
2.375 DIA.
SEE DETAIL B
SECTION A-A
1 1/16 -32 UNS-2B
MINOR DIA 1.0287-1.0316
PITCH DIA 1.0422-1.0469
MAJOR DIA 1.0625 MIN
CHAMFER 45° x .031
.032 UNDERCUT TO 1.077 DIA.
32
.050 +.004 -.000
SEE DETAIL C
.531 (REF)
.615 +.002 -.000 DIA
.020 R. MAX
DETAIL B
SCALE 4/1
.615 DIA. REF
.010R
0°-5° MAX TYP
.005R (TYP)
.083 +.005 -.000
DETAIL C
SCALE 10/1
.219
SECTION D-D
SCALE: 2/1

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011586	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
BERYLLIUM
PER ND1002125
(SEE NOTE 6)
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911080
DRAWN A.C. WILLIAMS DATE 10-25-65
CHECKED E. Raymond 11/15/65
APPROVAL
APPROVAL E. Mayer 11/25/65
A. C. METZGER
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
PANEL, SEXTANT

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012727
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

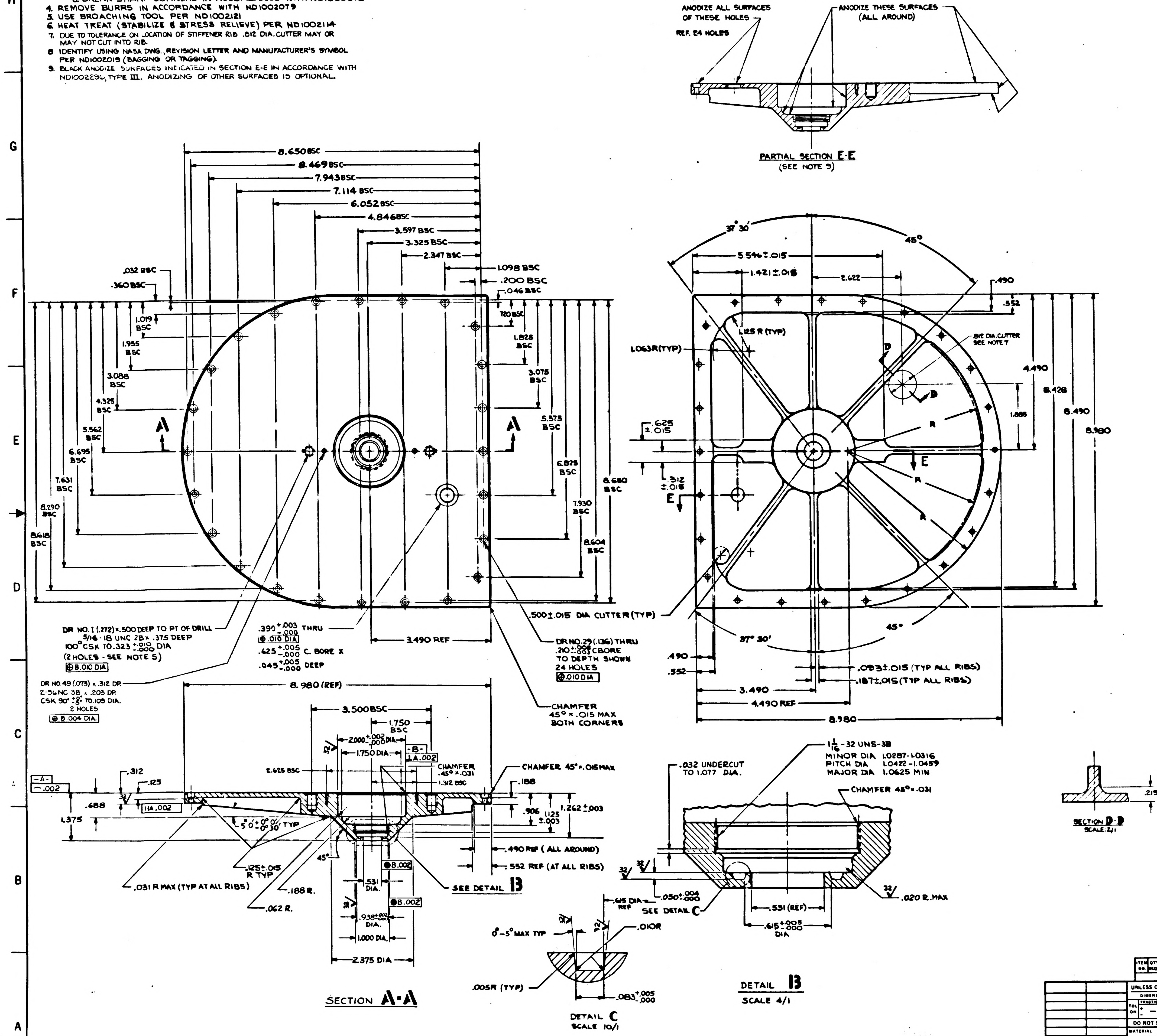
NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND 1002078.
3. UNLESS OTHERWISE SPECIFIED:
   - a. 32√ FINISH ALL OVER.
   - b. BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
5. USE BROACHING TOOL PER ND1002121
6. HEAT TREAT (STABILIZE & STRESS RELIEVE) PER ND1002114
7. DUE TO TOLERANCE ON LOCATION OF STIFFENER RIB .812 DIA. CUTTER MAY OR MAY NOT CUT INTO RIB.
8. IDENTIFY USING NASA DWG., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019 (BAGGING OR TAGGING).
9. BLACK ANODIZE SURFACES INDICATED IN SECTION E-E IN ACCORDANCE WITH ND1002296, TYPE III. ANODIZING OF OTHER SURFACES IS OPTIONAL.

B 2012727

REVISIONS TDRR 23422

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26270	2/24/66	UK
B		REVISED PER TDRR 29147	6-1-66	[illegible]



ANODIZE ALL SURFACES OF THESE HOLES
REF. 24 HOLES
ANODIZE THESE SURFACES (ALL AROUND)
PARTIAL SECTION E-E
(SEE NOTE 9)
8.650 BSC
8.469 BSC
7.943 BSC
7.114 BSC
6.052 BSC
4.846 BSC
3.597 BSC
3.325 BSC
2.347 BSC
1.098 BSC
.200 BSC
.046 BSC
.120 BSC
.032 BSC
.360 BSC
1.019 BSC
1.955 BSC
3.088 BSC
4.325 BSC
5.562 BSC
6.695 BSC
7.631 BSC
8.290 BSC
8.618 BSC
1.828 BSC
3.075 BSC
5.575 BSC
6.825 BSC
7.930 BSC
8.604 BSC
8.680 BSC
A
A
.500±.015 DIA CUTTER (TYP)
DR NO. 1 (.272) x .500 DEEP TO PT OF DRILL
5/16-18 UNC-2B x .375 DEEP
100° CSK TO .323 +.010 -.000 DIA
(2 HOLES - SEE NOTE 5)
⊕ B .010 DIA
.390 +.003 -.000 THRU
⊕ .010 DIA
.625 +.005 -.000 C. BORE X
.045 +.005 -.000 DEEP
3.490 REF
DR NO. 29 (.136) THRU
.210 +.005 -.003 CBORE
TO DEPTH SHOWN
24 HOLES
⊕ .010 DIA
DR NO 49 (.073) x .312 DP.
2-56NC-3B x .203 DP.
CSK 90° +0° -5° TO .109 DIA.
2 HOLES
⊕ B .004 DIA.
CHAMFER 45° x .015 MAX BOTH CORNERS
37° 30'
45°
5.546±.015
1.421±.015
2.622
.490
.552
1.125 R (TYP)
1.063R (TYP)
.812 DIA. CUTTER SEE NOTE 7
D
D
4.490
8.428
8.490
8.980
1.885
.625 ±.015
.312 ±.015
R
R
R
E
E
.093±.015 (TYP ALL RIBS)
.187±.015 (TYP ALL RIBS)
3.490
4.490 REF
8.980
45°
37° 30'
8.980 (REF)
3.500 BSC
1.750 BSC
2.000 +.002 -.000 DIA.
1.750 DIA.
-B-
⊥ A .002
CHAMFER .45° x .031
2.625 BSC
1.312 BSC
CHAMFER 45° x .015 MAX
-A-
⌒ .002
.312
.125
.688
1.375
// A .002
5° 0' +0° 0' -0° 30' TYP
.188
.906
1.125 ±.003
1.262 ±.003
.490 REF (ALL AROUND)
.552 REF (AT ALL RIBS)
45°
● B .002
.125±.015 R TYP
.031 R MAX (TYP AT ALL RIBS)
.188 R.
.062 R.
.531 DIA.
.938 +.002 -.000 DIA.
1.000 DIA.
2.375 DIA
SEE DETAIL B
SECTION A-A
.615 DIA REF
.050 +.004 -.000
SEE DETAIL C
0°-5° MAX TYP
.010R
.005R (TYP)
.083 +.005 -.000
DETAIL C
SCALE 10/1
.032 UNDERCUT TO 1.077 DIA.
1 1/16-32 UNS-3B
MINOR DIA 1.0287-1.0316
PITCH DIA 1.0422-1.0459
MAJOR DIA 1.0625 MIN
CHAMFER 45° x .031
.020 R. MAX
.531 (REF)
.615 +.005 -.000 DIA
DETAIL B
SCALE 4/1
.219
SECTION D-D
SCALE: 2/1

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011586	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — ; DECIMALS ± .005 ; ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
BERYLLIUM
PER ND1002125
(SEE NOTE 6)

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 5238691080

DRAWN A.C. WILLIAMS DATE 10-25-65
CHECKED E. Raymond [illegible]
APPROVAL
APPROVAL E. Mong 10/25/65
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
PANEL, SEXTANT

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012727
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

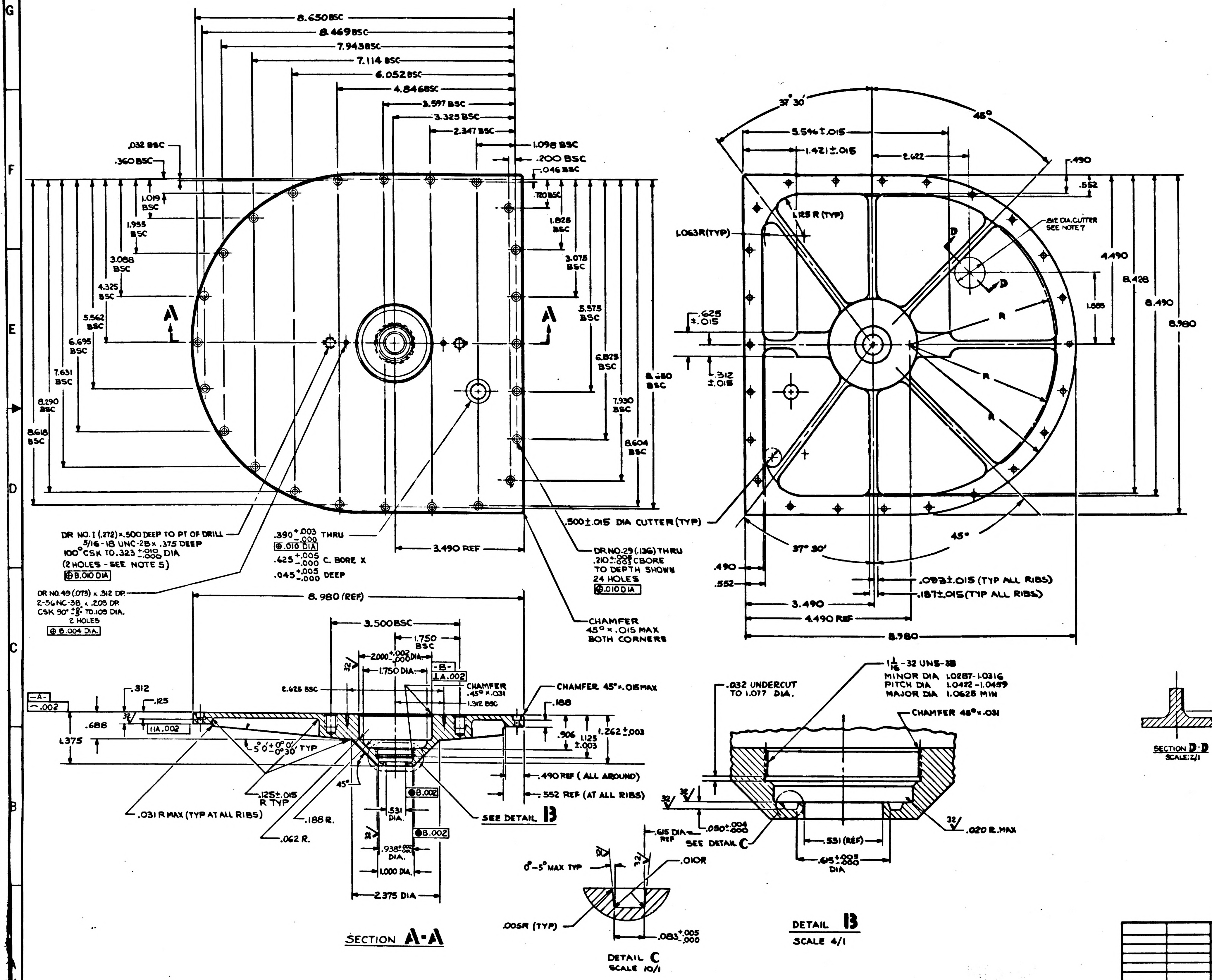
2012727

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

REVISIONS

NOTES:

1. INTERPRET DWG. IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND 1002078.
3. UNLESS OTHERWISE SPECIFIED:
   a. 32/ FINISH ALL OVER.
   b. BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
5. USE BROACHING TOOL PER ND1002121
6. HEAT TREAT (STABILIZE & STRESS RELIEVE) PER ND1002114
7. DUE TO TOLERANCE ON LOCATION OF STIFFENER RIB .812 DIA. CUTTER MAY OR MAY NOT CUT INTO RIB.
8. IDENTIFY USING NASA DWG., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019 (BAGGING OR TAGGING).
9. BLACK ANODIZE IN ACCORDANCE WITH ND1002127, TYPE I.


8.650 BSC
8.469 BSC
7.943 BSC
7.114 BSC
6.052 BSC
4.846 BSC
3.597 BSC
3.325 BSC
2.347 BSC
1.098 BSC
.200 BSC
.046 BSC
.032 BSC
.360 BSC
1.019 BSC
1.955 BSC
3.088 BSC
4.325 BSC
5.562 BSC
6.695 BSC
7.631 BSC
8.290 BSC
8.618 BSC
.120 BSC
1.825 BSC
3.075 BSC
5.575 BSC
6.825 BSC
7.930 BSC
8.604 BSC
8.680 BSC
A
A
3.490 REF
DR NO. 1 (.272) x .500 DEEP TO PT OF DRILL
5/16-18 UNC-2B x .375 DEEP
100° CSK TO .323 +.010 -.000 DIA
(2 HOLES - SEE NOTE 5)
B .010 DIA
.390 +.003 -.000 THRU
.010 DIA
.625 +.005 -.000 C. BORE X
.045 +.005 -.000 DEEP
.500 ±.015 DIA CUTTER (TYP)
DR NO. 29 (.136) THRU
.210 ±.005 CBORE
TO DEPTH SHOWN
24 HOLES
.010 DIA
DR NO. 49 (.073) x .312 DP.
2-56 NC-3B x .203 DR
CSK 90° +0° -5° TO .109 DIA.
2 HOLES
B .004 DIA
CHAMFER
45° x .015 MAX
BOTH CORNERS
37° 30'
45°
5.546 ±.015
1.421 ±.015
2.422
.490
.552
1.125 R (TYP)
.812 DIA. CUTTER SEE NOTE 7
1.063 R (TYP)
D
D
4.490
8.428
8.490
8.980
1.885
.625 ±.015
.312 ±.015
R
R
R
37° 30'
45°
.490
.552
.093 ±.015 (TYP ALL RIBS)
.187 ±.015 (TYP ALL RIBS)
3.490
4.490 REF
8.980
8.980 (REF)
3.500 BSC
1.750 BSC
2.000 +.002 -.000 DIA
1.750 DIA
-B-
A .002
CHAMFER .45° x .031
1.312 BSC
2.625 BSC
CHAMFER 45° x .015 MAX
-A-
.002
.312
.125
.688
1.375
A .002
32/
.188
.906
1.125 ±.003
1.262 ±.003
5°0' ±0°0' -0°30' TYP
45°
.490 REF (ALL AROUND)
.552 REF (AT ALL RIBS)
.125 ±.015 R TYP
.031 R MAX (TYP AT ALL RIBS)
.188 R.
.062 R.
.531 DIA.
B .002
B .002
.938 +.002 -.000 DIA.
1.000 DIA.
2.375 DIA
SEE DETAIL B
SECTION A-A
.015 DIA REF
SEE DETAIL C
0°-5° MAX TYP
.010 R
.005 R (TYP)
.083 +.003 -.000
DETAIL C
SCALE 10/1
.032 UNDERCUT TO 1.077 DIA.
1 1/16 -32 UNS-3B
MINOR DIA 1.0287-1.0316
PITCH DIA 1.0472-1.0489
MAJOR DIA 1.0625 MIN
CHAMFER 45° x .031
.050 +.005 -.000
.531 (REF)
.615 +.005 -.000 DIA
.020 R. MAX
DETAIL B
SCALE 4/1
.219
SECTION D-D
SCALE: 2/1

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011586	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
BERYLLIUM
PER ND1002125
(SEE NOTE 6)

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 523869-11080
DRAWN A.C. WILLIAMS DATE 10-25-65
CHECKED E. Raymond 10/25/65
APPROVAL
APPROVAL E. Thomas 10/25/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
PANEL, SEXTANT

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012727
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

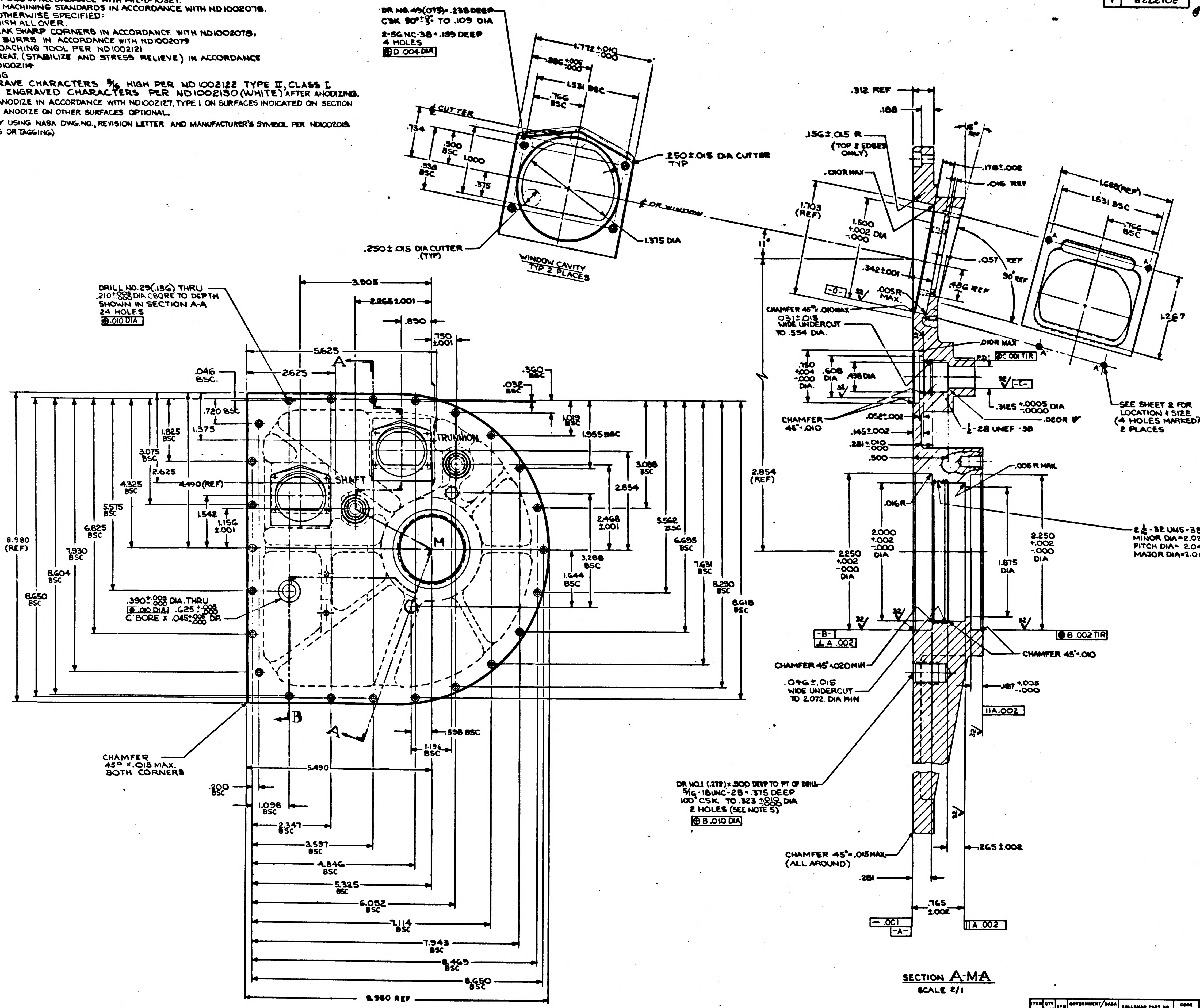
2012727

A | 2012728

REVISIONS TDRC 23422				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26271	1/13/66	WW

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   a. 63✓ FINISH ALL OVER.
   b. ✓ BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
5. USE BROACHING TOOL PER ND1002121
6. HEAT TREAT. (STABILIZE AND STRESS RELIEVE) IN ACCORDANCE WITH ND1002114
7. MARKING
   a. ENGRAVE CHARACTERS 3/16 HIGH PER ND1002122 TYPE II, CLASS I.
   b. FILL ENGRAVED CHARACTERS PER ND1002130 (WHITE) AFTER ANODIZING.
8. BLACK ANODIZE IN ACCORDANCE WITH ND1002127, TYPE I ON SURFACES INDICATED ON SECTION B-M-A. ANODIZE ON OTHER SURFACES OPTIONAL.
9. IDENTIFY USING NASA DWG.NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING OR TAGGING)



DR NO.45(.082)×.238 DEEP
C'SK 90° TO .109 DIA
2-56 NC-3B×.199 DEEP
4 HOLES
D .004 DIA
1.772 +.010 -.000
.886 +.005 -.000
1.531 BSC
.766 BSC
CUTTER
.734
.500 BSC
1.000
.538 BSC
.375
.250±.015 DIA CUTTER TYP
OR WINDOW
.250±.015 DIA CUTTER (TYP)
1.375 DIA
WINDOW CAVITY TYP 2 PLACES
.312 REF
.188
15° REF
.156±.015 R (TOP 2 EDGES ONLY)
.010R MAX
.178±.002
.016 REF
1.703 (REF)
1.500 +.002 -.000 DIA
11°
.342±.001
.057 REF
30° REF
.486 REF
-D-
.005R MAX
CHAMFER 45°×.010 MAX
.031±.015 WIDE UNDERCUT TO .554 DIA.
.010R MAX
C .001 TIR
.750 +.004 -.000 DIA.
.608 DIA
.438 DIA
-C-
.3125 +.0005 -.0000 DIA
.020R
CHAMFER 45°×.010
.052±.002
1/4-28 UNEF-3B
.145±.002
.281 +.010 -.000
.500
1.688 (REF)
1.531 BSC
.766 BSC
1.267
SEE SHEET 2 FOR LOCATION & SIZE (4 HOLES MARKED A) 2 PLACES
2.854 (REF)
.005 R MAX
.016R
2.000 +.002 -.000 DIA
2.250 +.002 -.000 DIA
1.875 DIA
2.250 +.002 -.000 DIA
2 1/16-32 UNS-3B
MINOR DIA=2.0290-2.0343
PITCH DIA=2.0422-2.0463
MAJOR DIA=2.0625 MIN
-B-
A .002
B .002 TIR
CHAMFER 45°×.010
CHAMFER 45°×.020 MIN
.046±.015 WIDE UNDERCUT TO 2.072 DIA MIN
.187 +.005 -.000
A .002
DR NO.1 (.228)×.500 DEEP TO PT OF DRILL
5/16-18UNC-2B×.375 DEEP
100° CSK TO .323 +.010 -.000 DIA
2 HOLES (SEE NOTE 5)
B .010 DIA
CHAMFER 45°×.015 MAX (ALL AROUND)
.265±.002
.281
.765 ±.002
.001
-A-
A .002
SECTION A-MA
SCALE 2/1
DRILL NO.29(.136) THRU
.210 +.005 -.000 DIA CBORE TO DEPTH SHOWN IN SECTION A-A
24 HOLES
.010 DIA
3.905
2.265±.001
.890
.750 ±.001
5.625
2.625
.046 BSC.
.720 BSC
.032 BSC
.360 BSC
1.019 BSC
1.555 BSC
1.825 BSC
1.375
3.075 BSC
2.625
4.325 BSC
4.490 (REF)
5.575 BSC
6.825 BSC
7.930 BSC
8.604 BSC
8.650 BSC
8.980 (REF)
1.542
1.156 ±.001
TRUNNION
SHAFT
M
3.088 BSC
2.854
2.468 ±.001
3.288 BSC
1.644 BSC
5.562 BSC
6.695 BSC
7.631 BSC
8.290 BSC
8.618 BSC
.390 +.005 -.000 DIA. THRU
B .010 DIA .625 +.005 -.000
C'BORE × .045 +.005 -.000 DP.
A
B
CHAMFER 45° × .015 MAX. BOTH CORNERS
.598 BSC
1.196 BSC
5.490
.200 BSC
1.098 BSC
2.347 BSC
3.597 BSC
4.846 BSC
5.325
6.052 BSC
7.114 BSC
7.943 BSC
8.469 BSC
8.650 BSC
8.980 REF

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011717	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — ; DECIMALS ±.005 ; ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
BERYLLIUM
ND1002125
SEE NOTE 6
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911090
DRAWN A.C. WILLIAMS DATE 10-25-65
CHECKED
APPROVAL
APPROVAL E. Thomas 10/25/65
A. C. MITCHELL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
PANEL, TELESCOPE

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012728
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 2

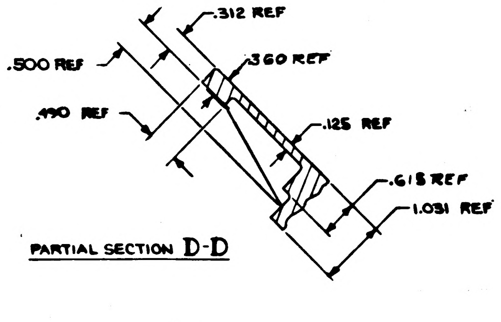
MASTER

2012728 A

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26271		

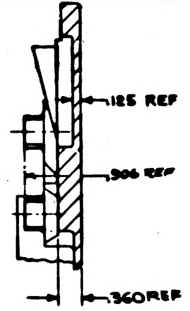
REVISIONS TDRR 26-22

NOTES: (SEE SHEET 1 OF 2)



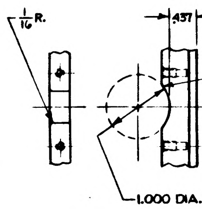
.312 REF
.500 REF
.360 REF
.490 REF
.125 REF
.615 REF
1.031 REF

PARTIAL SECTION D-D



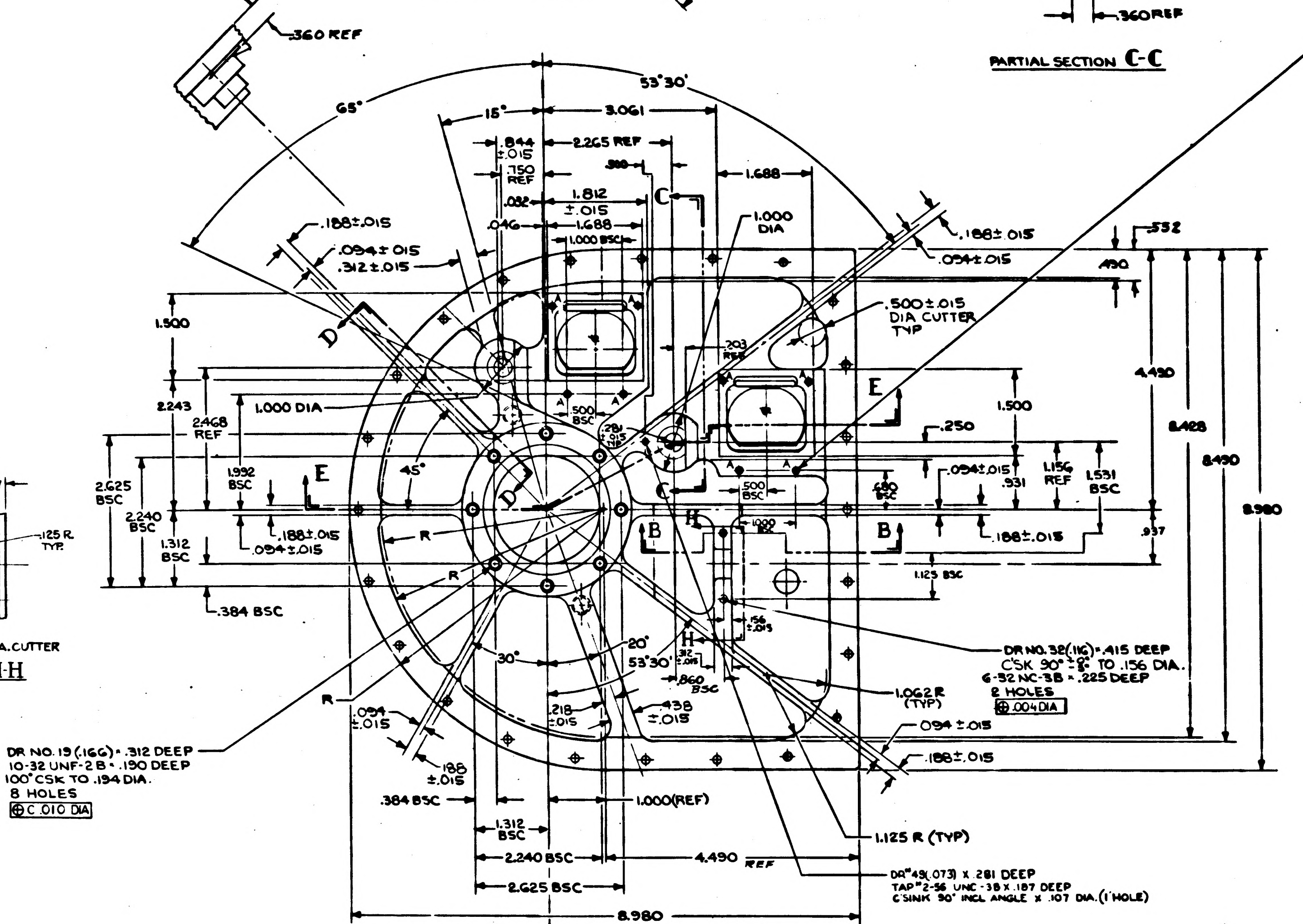
.125 REF
.906 REF
.360 REF

PARTIAL SECTION C-C



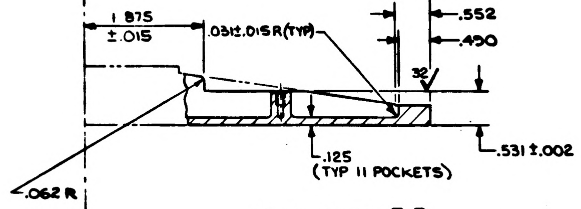
1/16 R.
.437
.125 R. TYP.
1.000 DIA. CUTTER

PARTIAL VIEW H-H



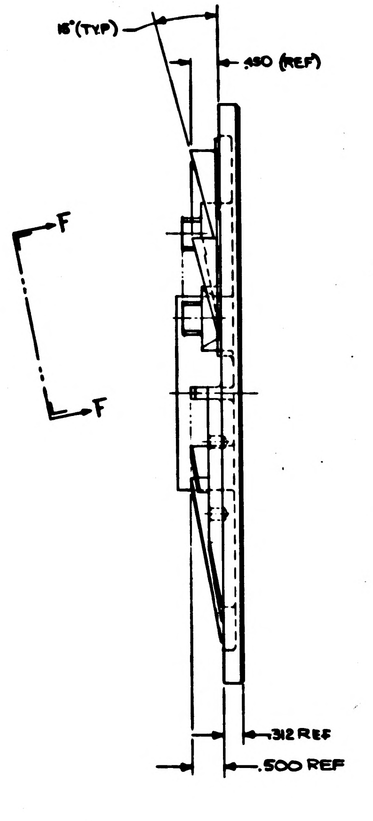
.360 REF
65°
53°30'
15°
3.061
.844 ±.015
2.265 REF
.750 REF
.380
1.688
1.812 ±.015
.032
.046
1.688
1.000 BSC
C
1.000 DIA
.188±.015
.094±.015
.312±.015
.188±.015
.094±.015
.532
.490
.500±.015 DIA CUTTER TYP
.203 REF
D
E
1.500
2.243
2.468 REF
1.000 DIA
.500 BSC
.281 ±.015 TYP
1.500
4.490
8.428
8.490
8.980
.250
2.625 BSC
2.240 BSC
1.312 BSC
1.992 BSC
45°
.094±.015
.931
1.156 REF
1.531 BSC
.188±.015
.094±.015
.500 BSC
.680 BSC
1.000 BSC
.937
.188±.015
B
H
R
1.125 BSC
.384 BSC
.156 ±.015
DR NO. 32 (.116) × .415 DEEP
C'SK 90° +0° -5° TO .156 DIA.
6-32 NC-3B × .225 DEEP
2 HOLES
⊕ .004 DIA
30°
20°
53°30'
.312 ±.015
.860 BSC
1.062 R (TYP)
.094 ±.015
.218 ±.015
.438 ±.015
.188±.015
DR NO. 19 (.166) × .312 DEEP
10-32 UNF-2B × .190 DEEP
100° CSK TO .194 DIA.
8 HOLES
⊕ C .010 DIA
.094 ±.015
.188 ±.015
.384 BSC
1.000 (REF)
1.312 BSC
1.125 R (TYP)
2.240 BSC
4.490 REF
2.625 BSC
DR #49 (.073) X .281 DEEP
TAP #2-56 UNC-3B X .187 DEEP
C'SINK 90° INCL ANGLE X .107 DIA. (1 HOLE)
8.980

DR NO. 52 (.0635) × .281 DEEP
C'SK 90° +0° -5° TO .093 DIA.
1-64 NC-3B × .188 DEEP
8 HOLES MARKED 'A'
SEE SHEET 1 FOR COMPLETE DIMENSIONING
⊕ .004 DIA

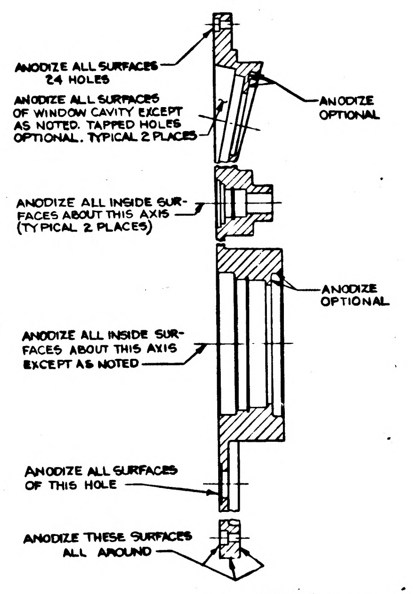


1.875 ±.015
.031±.015 R (TYP)
.552
.490
32
.062 R
.125 (TYP 11 POCKETS)
.531±.002

PARTIAL SECTION B-B

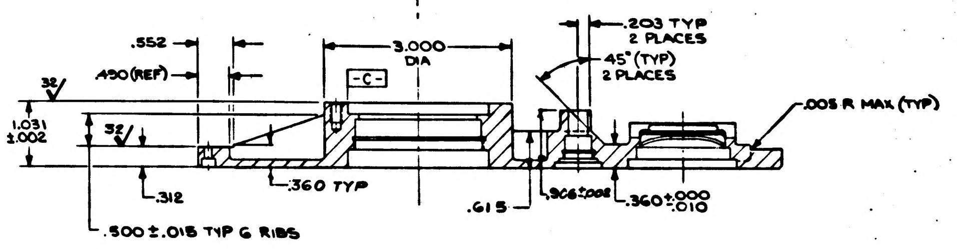


15° (TYP)
.490 (REF)
F
F
.312 REF
.500 REF



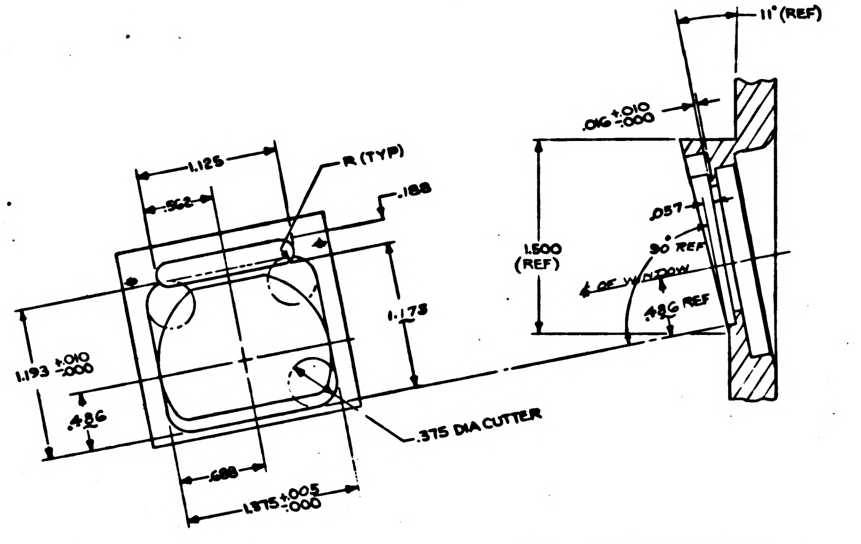
ANODIZE ALL SURFACES 24 HOLES
ANODIZE ALL SURFACES OF WINDOW CAVITY EXCEPT AS NOTED. TAPPED HOLES OPTIONAL. TYPICAL 2 PLACES
ANODIZE OPTIONAL
ANODIZE ALL INSIDE SURFACES ABOUT THIS AXIS (TYPICAL 2 PLACES)
ANODIZE OPTIONAL
ANODIZE ALL INSIDE SURFACES ABOUT THIS AXIS EXCEPT AS NOTED
ANODIZE ALL SURFACES OF THIS HOLE
ANODIZE THESE SURFACES ALL AROUND

SECTION B-M-A (SEE SH. 1)
(SEE NOTE 8)



.552
.490 (REF)
3.000 DIA
-C-
.203 TYP 2 PLACES
45° (TYP) 2 PLACES
.005 R MAX (TYP)
32
1.031 ±.002
32
.312
.360 TYP
.615
.906±.002
.360 +.000 -.010
.500±.015 TYP 6 RIBS

SECTION E-E



11° (REF)
.016 +.010 -.000
1.125
R (TYP)
.562
.188
1.500 (REF)
.057
90° REF
℄ OF WINDOW
.486 REF
1.173
1.193 +.010 -.000
.486
.375 DIA CUTTER
.688
1.375 +.005 -.000

PARTIAL VIEW F-F
SCALE 2/1
(WINDOW-TYP 2 PLACES)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011717	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.005	± 1°

DO NOT SCALE THIS DRAWING
MATERIAL
SEE SHEET 1
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911090
DRAWN A.C. WILLIAMS DATE 10-25-65
CHECKED
APPROVAL
APPROVAL 10/25/65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

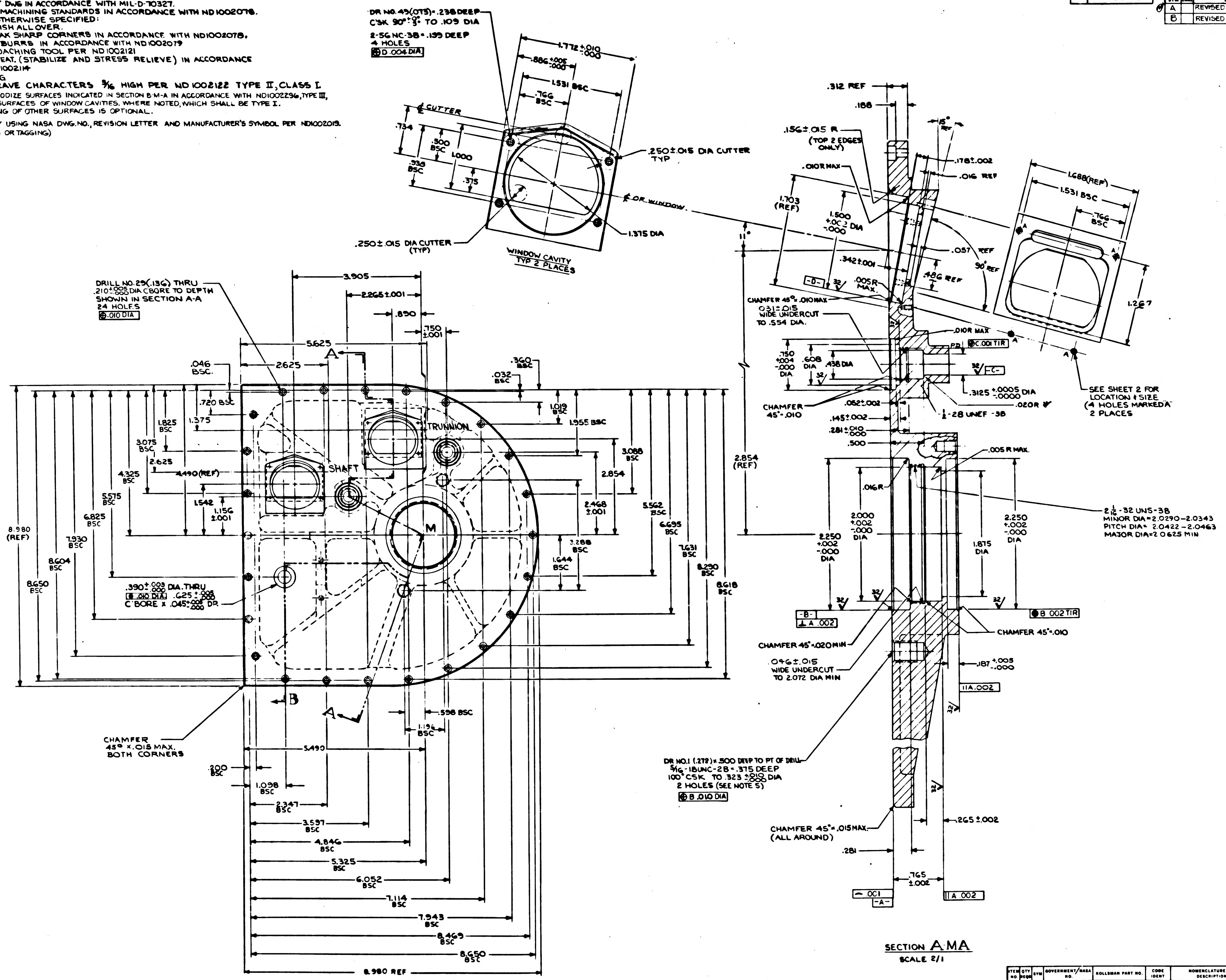
TITLE
PANEL, TELESCOPE

CODE IDENT NO.	SIZE	NASA NUMBER
80230	E	2012728

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 2 OF 2

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26271	1/24/66	WMF
B		REVISED PER TDRR 29145	6/66	[illegible]

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   a. 63/ FINISH ALL OVER.
   b. ✓ BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
5. USE BROACHING TOOL PER ND1002121
6. HEAT TREAT. (STABILIZE AND STRESS RELIEVE) IN ACCORDANCE WITH ND1002114
7. MARKING
   a. ENGRAVE CHARACTERS 3/16 HIGH PER ND1002122 TYPE II, CLASS I.
8. BLACK ANODIZE SURFACES INDICATED IN SECTION B-M-A IN ACCORDANCE WITH ND1002296, TYPE III, EXCEPT SURFACES OF WINDOW CAVITIES, WHERE NOTED, WHICH SHALL BE TYPE I. ANODIZING OF OTHER SURFACES IS OPTIONAL.
9. IDENTIFY USING NASA DWG.NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING OR TAGGING)



DR NO.49(.073) × .238 DEEP
C'SK 90° +0° −5° TO .109 DIA
2-56NC-3B × .199 DEEP
4 HOLES
⊕ D .004 DIA
1.772 +.010 −.000
.886 +.005 −.000
1.531 BSC
.766 BSC
℄ CUTTER
.734
.500 BSC
1.000
.938 BSC
.375
.250±.015 DIA CUTTER TYP
℄ OF WINDOW
1.375 DIA
.250±.015 DIA CUTTER (TYP)
WINDOW CAVITY
TYP 2 PLACES
DRILL NO.29(.136) THRU
.210 +.005 −.000 DIA CBORE TO DEPTH
SHOWN IN SECTION A-A
24 HOLES
⊕ .010 DIA
3.905
2.265±.001
.890
.750 ±.001
5.625
2.625
A
.046 BSC.
.720 BSC
1.375
1.825 BSC
3.075 BSC
2.625
4.490(REF)
4.325 BSC
5.575 BSC
1.542
1.156 ±.001
6.825 BSC
7.930 BSC
8.604 BSC
8.650 BSC
8.980 (REF)
.360 BSC
.032 BSC
1.019 BSC
1.955 BSC
TRUNNION
SHAFT
M
3.088 BSC
2.854
2.468 ±.001
3.288 BSC
1.644 BSC
5.562 BSC
6.695 BSC
7.631 BSC
8.290 BSC
8.618 BSC
.390 +.003 −.000 DIA. THRU
⊕ .010 DIA
.625 +.005 −.000
C'BORE × .045 +.005 −.000 DP.
B
A
CHAMFER
45° × .015 MAX.
BOTH CORNERS
.598 BSC
1.196 BSC
5.490
.200 BSC
1.098 BSC
2.347 BSC
3.597 BSC
4.846 BSC
5.325 BSC
6.052 BSC
7.114 BSC
7.943 BSC
8.469 BSC
8.650 BSC
8.980 REF
.312 REF
.188
.156±.015 R
(TOP 2 EDGES ONLY)
15° REF
.178±.002
.016 REF
.010R MAX
1.703 (REF)
1.500 +.002 −.000 DIA
11°
.057 REF
90° REF
.342±.001
.486 REF
-D-
32/
.005R MAX.
CHAMFER 45° × .010 MAX
.031±.015
WIDE UNDERCUT
TO .554 DIA.
1.688(REF)
1.531 BSC
.766 BSC
1.267
A
.010R MAX
P.D.
◎ C .001 TIR
.750 +.004 −.000 DIA
.608 DIA
.438 DIA
-C-
.3125 +.0005 −.0000 DIA
.020R
CHAMFER 45° − .010
.062±.002
1/2-28 UNEF -3B
.145±.002
.281 +.010 −.000
.500
SEE SHEET 2 FOR
LOCATION & SIZE
(4 HOLES MARKED A
2 PLACES
2.854 (REF)
.005 R MAX.
.016R
2 1/16-32 UNS-3B
MINOR DIA = 2.0290−2.0343
PITCH DIA = 2.0422−2.0463
MAJOR DIA = 2.0625 MIN
2.250 +.002 −.000 DIA
2.000 +.002 −.000 DIA
1.875 DIA
2.250 +.002 −.000 DIA
-B-
⊥ A .002
● B .002 TIR
CHAMFER 45° × .010
CHAMFER 45° × .020 MIN
.046±.015
WIDE UNDERCUT
TO 2.072 DIA MIN
.187 +.005 −.000
∥ A .002
DR NO.1 (.272) × .500 DEEP TO PT OF DRILL
5/16-18UNC-2B × .375 DEEP
100° CSK TO .323 +.010 −.000 DIA
2 HOLES (SEE NOTE 5)
⊕ B .010 DIA
.265±.002
CHAMFER 45° × .015 MAX.
(ALL AROUND)
.281
.765 ±.002
— .001
-A-
∥ A .002

SECTION A-MA
SCALE 2/1

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011717	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — ; DECIMALS ± .005 ; ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
BERYLLIUM
ND1002125
SEE NOTE 6
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911090
DRAWN A.C. WILLIAMS DATE 10-25-65
CHECKED [illegible]
APPROVAL
APPROVAL E. [illegible] 10/25/65
A. L. [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

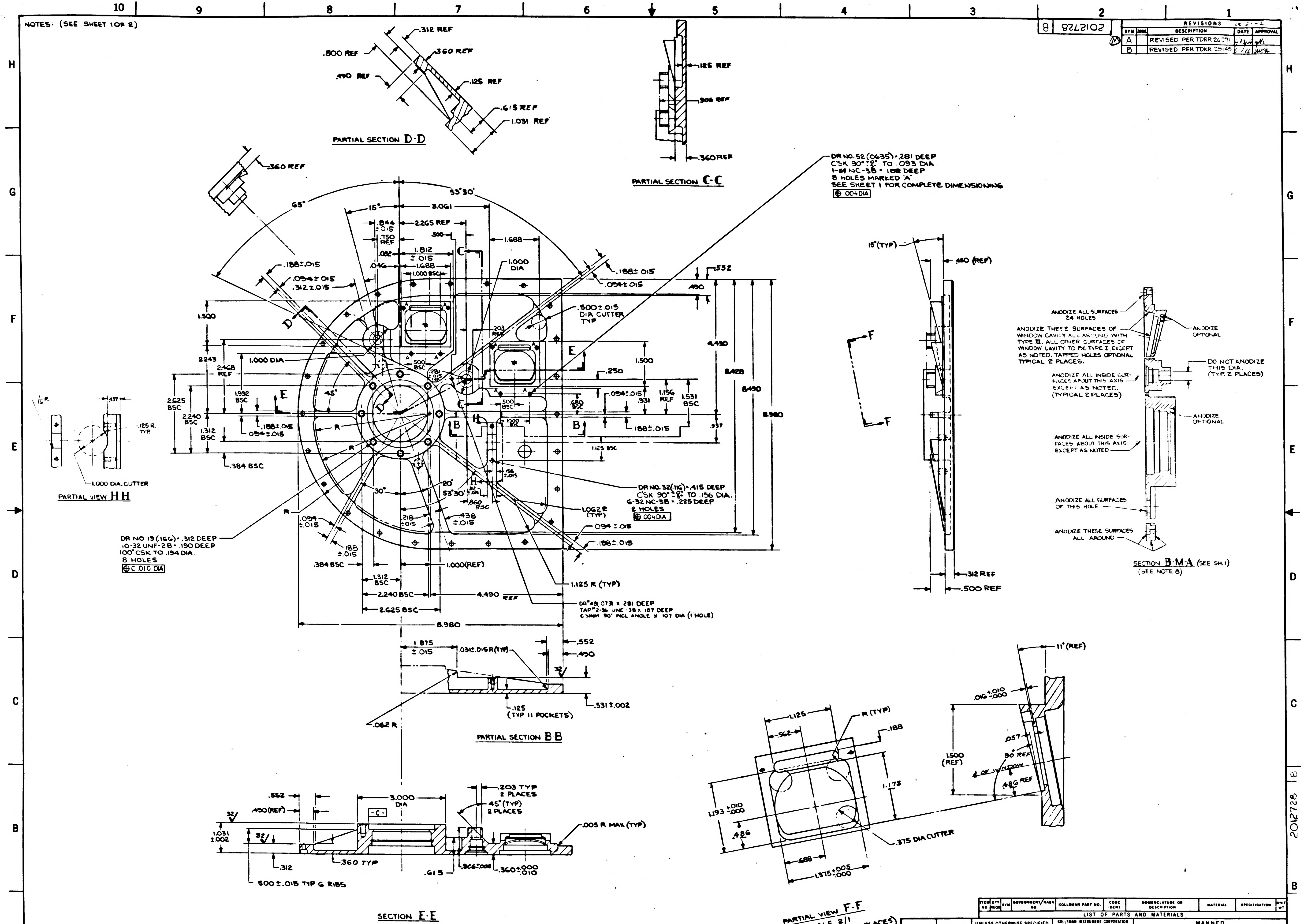
TITLE
PANEL, TELESCOPE

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012728
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 2

2012728 B

NOTES· (SEE SHEET 1OF 2)

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26271		
B		REVISED PER TDRR 29145		



PARTIAL SECTION D-D
.312 REF
.500 REF
.360 REF
.490 REF
.125 REF
.615 REF
1.031 REF
PARTIAL SECTION C-C
.125 REF
.906 REF
.360 REF
DR NO. 52 (.0635) × .281 DEEP
CSK 90° +0° -5° TO .093 DIA.
1-64 NC-3B × .188 DEEP
8 HOLES MARKED 'A'
SEE SHEET 1 FOR COMPLETE DIMENSIONING
⊕ .004 DIA
.360 REF
65°
53°30'
15°
3.061
.844 ±.015
2.265 REF
.750 REF
1.812 ±.015
1.688
1.000 BSC
1.000 DIA
.188±.015
.094±.015
.312±.015
.500±.015 DIA CUTTER TYP
.532
.490
1.500
2.243
2.468 REF
1.000 DIA
1.992 BSC
2.625 BSC
2.240 BSC
1.312 BSC
.384 BSC
.188±.015
.094±.015
45°
.250
.094±.015
.931
1.156 REF
1.531 BSC
.680 BSC
.500 BSC
.937
4.490
8.468
8.490
8.980
1.125 BSC
DR NO. 32 (.116) × .415 DEEP
C'SK 90° +0° -5° TO .156 DIA.
6-32 NC-3B × .225 DEEP
2 HOLES
⊕ .004 DIA
1.062 R (TYP)
.094 ±.015
.188±.015
1.125 R (TYP)
DR #49 (.073) × .281 DEEP
TAP #2-56 UNC-3B × .187 DEEP
C SINK 90° INCL ANGLE × .107 DIA. (1 HOLE)
DR NO. 19 (.166) × .312 DEEP
10-32 UNF-2B × .190 DEEP
100° CSK TO .194 DIA
8 HOLES
⊕ C .010 DIA
20°
30°
53°30'
.860 BSC
.218 ±.015
.438 ±.015
.094 ±.015
.188 ±.015
.384 BSC
1.000 (REF)
1.312 BSC
2.240 BSC
2.625 BSC
4.490 REF
8.980
PARTIAL VIEW H-H
1/16 R.
.437
.125 R. TYP.
1.000 DIA. CUTTER
1.875 ±.015
.031±.015 R (TYP)
.552
.490
32
.125 (TYP 11 POCKETS)
.531±.002
.062 R
PARTIAL SECTION B-B
15° (TYP)
.450 (REF)
.312 REF
.500 REF
ANODIZE ALL SURFACES 24 HOLES
ANODIZE THESE SURFACES OF WINDOW CAVITY ALL AROUND WITH TYPE III. ALL OTHER SURFACES OF WINDOW CAVITY TO BE TYPE I, EXCEPT AS NOTED. TAPPED HOLES OPTIONAL TYPICAL 2 PLACES.
ANODIZE OPTIONAL
DO NOT ANODIZE THIS DIA. (TYP. 2 PLACES)
ANODIZE ALL INSIDE SURFACES ABOUT THIS AXIS EXCEPT AS NOTED. (TYPICAL 2 PLACES)
ANODIZE OPTIONAL
ANODIZE ALL INSIDE SURFACES ABOUT THIS AXIS EXCEPT AS NOTED
ANODIZE ALL SURFACES OF THIS HOLE
ANODIZE THESE SURFACES ALL AROUND
SECTION B-M-A (SEE SH. 1)
(SEE NOTE 8)
11° (REF)
.016 +.010 -.000
.057
30° REF
.485 REF
1.500 (REF)
1.125
.562
R (TYP)
.188
1.173
1.193 +.010 -.000
.486
.688
1.375 +.005 -.000
.375 DIA CUTTER
PARTIAL VIEW F-F
SCALE 2/1
(WINDOW-TYP 2 PLACES)
3.000 DIA
-C-
.552
.490 (REF)
1.031 ±.002
.312
.360 TYP
.500 ±.015 TYP 6 RIBS
.203 TYP 2 PLACES
45° (TYP) 2 PLACES
.005 R MAX (TYP)
.615
.906±.002
.360 +.000 -.010
SECTION E-E

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011717	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE SHEET 1

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911090

DRAWN A.C WILLIAMS DATE 10-25-65
CHECKED F. Raymond 10/25/65
APPROVAL
APPROVAL E. Morey 10/25/65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

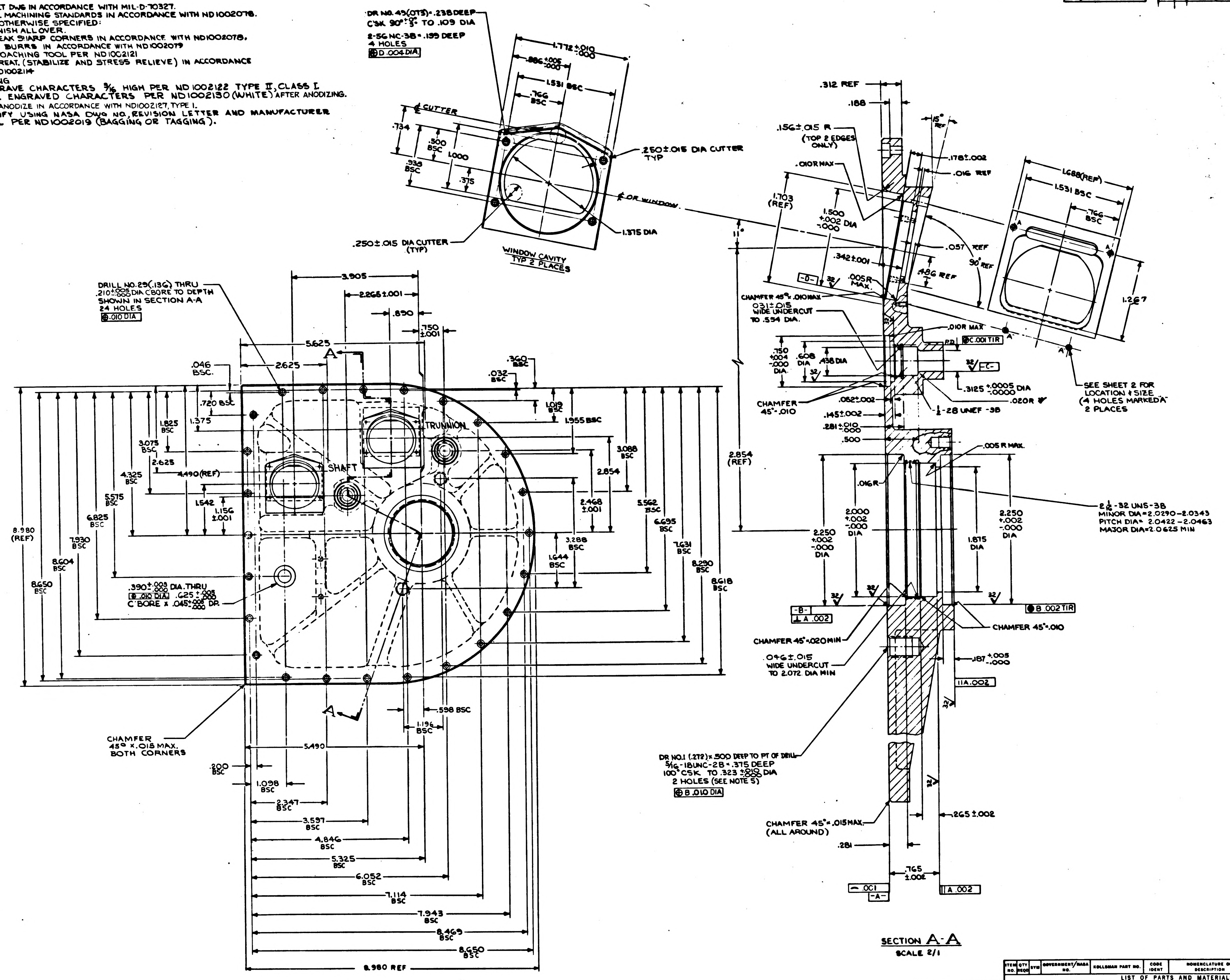
TITLE
PANEL, TELESCOPE

CODE IDENT NO.	SIZE	NASA NUMBER
80230	E	2012728

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 2 OF 2

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   - a. 63√ FINISH ALL OVER.
   - b. BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
5. USE BROACHING TOOL PER ND1002121
6. HEAT TREAT. (STABILIZE AND STRESS RELIEVE) IN ACCORDANCE WITH ND1002114
7. MARKING
   - a. ENGRAVE CHARACTERS 3/16 HIGH PER ND1002122 TYPE II, CLASS I.
   - b. FILL ENGRAVED CHARACTERS PER ND1002130 (WHITE) AFTER ANODIZING.
8. BLACK ANODIZE IN ACCORDANCE WITH ND1002127, TYPE I.
9. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURER SYMBOL PER ND1002019 (BAGGING OR TAGGING).


DR NO. 45 (OTS) = .238 DEEP
CSK 90° +0° -5° TO .109 DIA
2-56 NC-3B = .199 DEEP
4 HOLES
⊕ D .004 DIA
1.772 ±.010 -.000
.886 ±.005 -.000
1.531 BSC
.766 BSC
℄ CUTTER
.734
.500 BSC
1.000
.938 BSC
.375
.250 ±.015 DIA CUTTER TYP
℄ OR WINDOW
1.375 DIA
.250 ±.015 DIA CUTTER (TYP)
WINDOW CAVITY TYP 2 PLACES
DRILL NO. 29 (.136) THRU
.210 +.005 -.000 DIA C'BORE TO DEPTH SHOWN IN SECTION A-A
24 HOLES
⊕ .010 DIA
3.905
2.265 ±.001
.850
.750 ±.001
5.625
2.625
A
.046 BSC.
.360 BSC
.032 BSC
.720 BSC
1.375
1.825 BSC
1.019 BSC
1.955 BSC
TRUNNION
3.075 BSC
2.625
3.088 BSC
2.854
4.325 BSC
4.490 (REF)
SHAFT
5.575 BSC
1.542
1.156 ±.001
2.468 ±.001
5.562 BSC
6.825 BSC
6.695 BSC
8.980 (REF)
7.930 BSC
3.288 BSC
7.631 BSC
8.604 BSC
1.644 BSC
8.290 BSC
8.650 BSC
8.618 BSC
.390 +.003 -.000 DIA. THRU
⊕ .010 DIA
.625 +.005 -.000
C'BORE × .045 +.005 -.000 DP.
A
.598 BSC
1.196 BSC
CHAMFER 45° × .018 MAX. BOTH CORNERS
5.490
.200 BSC
1.098 BSC
2.347 BSC
3.597 BSC
4.846 BSC
5.325 BSC
6.052 BSC
7.114 BSC
7.943 BSC
8.469 BSC
8.650 BSC
8.980 REF
.312 REF
.188
15° REF
.156 ±.015 R (TOP 2 EDGES ONLY)
.178 ±.002
.010 R MAX
.016 REF
1.688 (REF)
1.531 BSC
.766 BSC
1.703 (REF)
1.500 +.002 -.000 DIA
11°
.342 ±.001
.057 REF
90° REF
.486 REF
-D-
.005 R MAX
1.267
CHAMFER 45° × .010 MAX
.031 ±.015 WIDE UNDERCUT TO .534 DIA.
.010 R MAX
⊕ C .001 TIR
.750 +.004 -.000 DIA
.608 DIA
.438 DIA
-C-
.3125 +.0005 -.0000 DIA
.020 R
SEE SHEET 2 FOR LOCATION & SIZE (4 HOLES MARKED A) 2 PLACES
CHAMFER 45° × .010
.062 ±.002
1/4-28 UNEF-3B
.145 ±.002
.281 ±.010 -.000
.500
.005 R MAX.
2.854 (REF)
.016 R
2 1/2-32 UNS-3B
MINOR DIA = 2.0290-2.0343
PITCH DIA = 2.0422-2.0463
MAJOR DIA = 2.0625 MIN
2.000 +.002 -.000 DIA
2.250 +.002 -.000 DIA
1.815 DIA
2.250 +.002 -.000 DIA
-B-
⊥ A .002
⊕ B .002 TIR
CHAMFER 45° × .020 MIN
CHAMFER 45° × .010
.046 ±.015 WIDE UNDERCUT TO 2.072 DIA MIN
.187 +.005 -.000
// A .002
DR NO. 1 (.272) × .500 DEEP TO PT OF DRILL
5/16-18UNC-2B × .375 DEEP
100° CSK TO .323 ±.010 DIA
2 HOLES (SEE NOTE 5)
⊕ B .010 DIA
CHAMFER 45° × .015 MAX. (ALL AROUND)
.265 ±.002
.281
.765 ±.002
⏥ .001
-A-
// A .002

SECTION A-A
SCALE 2/1

REVISIONS
2012728
SYM ZONE DESCRIPTION DATE APPROVAL

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011717	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
BERYLLIUM
ND1002125
SEE NOTE 6
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911090
DRAWN A.C. WILLIAMS DATE 10-25-65
CHECKED
APPROVAL
APPROVAL
A.C. METCALF
NASA APPROVAL
MIT APPROVAL

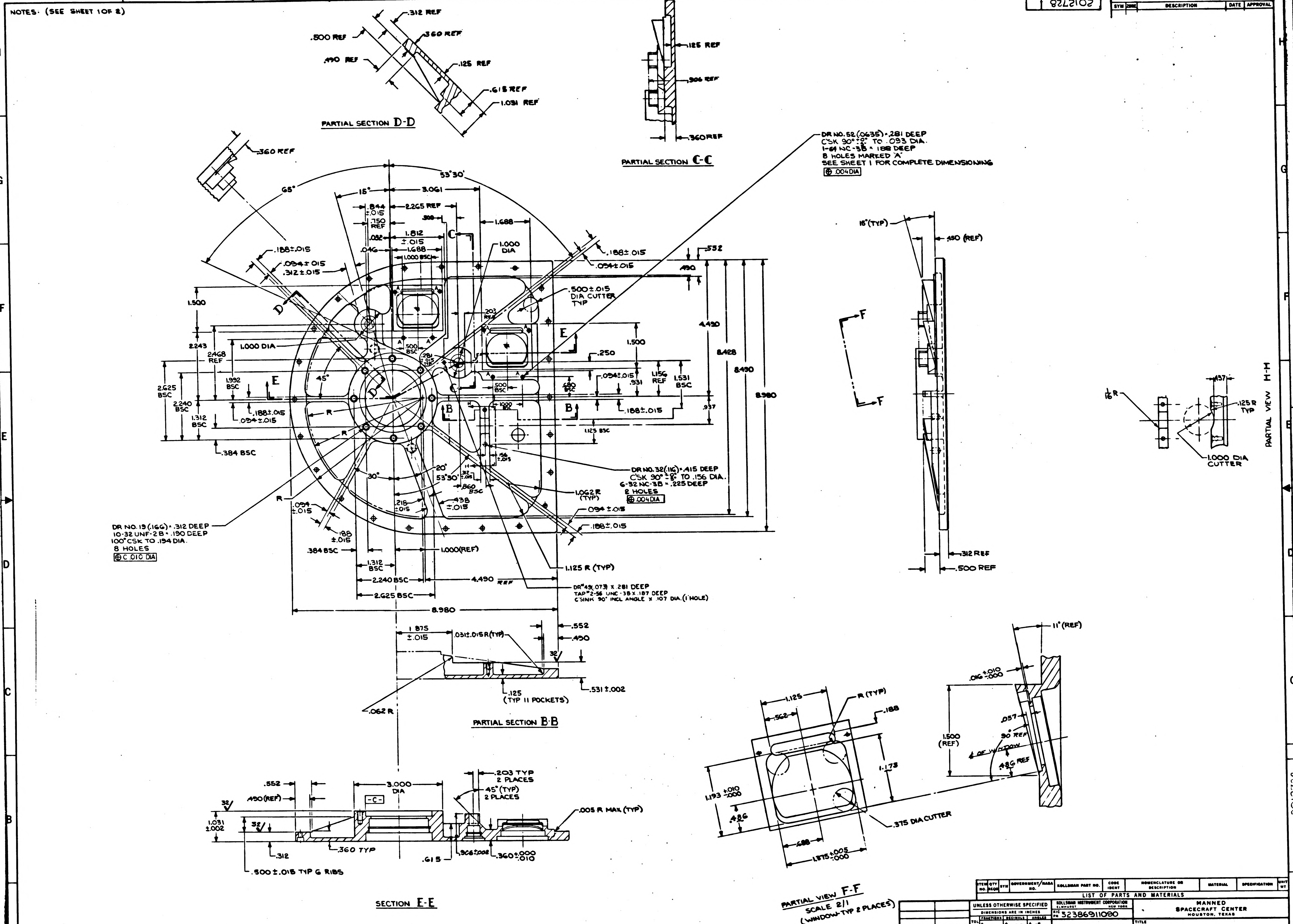
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS
TITLE
PANEL, TELESCOPE
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012728
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 2

2012728

2012728

SYM	ZONE	REVISIONS DESCRIPTION	DATE	APPROVAL

NOTES: (SEE SHEET 1 OF 2)



.312 REF
.360 REF
.500 REF
.490 REF
.125 REF
.615 REF
1.031 REF
PARTIAL SECTION D-D
.125 REF
.306 REF
.360 REF
PARTIAL SECTION C-C
.360 REF
DR NO. 52 (.0635) × .281 DEEP
C'SK 90° +0° -5° TO .093 DIA.
1-64 NC-3B × .188 DEEP
8 HOLES MARKED "A"
SEE SHEET 1 FOR COMPLETE DIMENSIONING
⊕ .004 DIA
65°
15°
53°30'
3.061
.844 ±.015
2.265 REF
.750 REF
.300
1.688
1.812 ±.015
1.688
1.000 BSC
.032
.046
1.000 DIA
.188±.015
.094±.015
.312±.015
.188±.015
.094±.015
.552
.490
.500±.015 DIA CUTTER TYP
1.500
2.243
2.468 REF
1.000 DIA
1.992 BSC
2.625 BSC
2.240 BSC
1.312 BSC
.188±.015
.094±.015
.384 BSC
45°
.500 BSC
.281
.203 REF
1.500
.250
.094±.015
.931
1.156 REF
1.531 BSC
.937
.188±.015
1.125 BSC
.500 BSC
.650 BSC
1.000 BSC
4.490
8.428
8.490
8.980
E
E
B
B
C
C
D
D
A
R
R
R
30°
20°
53°30'
.860 BSC
.438 ±.015
.218 ±.015
.094 ±.015
.188 ±.015
.156 ±.015
.312 ±.015
DR NO. 32 (.116) × .415 DEEP
C'SK 90° ±8° TO .156 DIA.
6-32 NC-3B × .225 DEEP
2 HOLES
⊕ .004 DIA
1.062 R (TYP)
.094 ±.015
.188 ±.015
DR NO. 19 (.166) × .312 DEEP
10-32 UNF-2B × .190 DEEP
100° CSK TO .194 DIA.
8 HOLES
⊕ C .010 DIA
.384 BSC
1.000 (REF)
1.312 BSC
2.240 BSC
2.625 BSC
4.490 REF
8.980
1.125 R (TYP)
DR #43 (.073) X .281 DEEP
TAP #2-56 UNC-3B X .187 DEEP
C'SINK 90° INCL ANGLE X .107 DIA. (1 HOLE)
1.875 ±.015
.031±.015 R (TYP)
.552
.490
32
.125 (TYP 11 POCKETS)
.531 ±.002
.062 R
PARTIAL SECTION B-B
.552
.490 (REF)
32
3.000 DIA
-C-
.203 TYP 2 PLACES
45° (TYP) 2 PLACES
.005 R MAX (TYP)
1.031 ±.002
32
.312
.360 TYP
.615
.306 ±.002
.360 +.000 -.010
.500 ±.015 TYP 6 RIBS
SECTION E-E
15° (TYP)
.450 (REF)
F
F
.312 REF
.500 REF
1/16 R
.437
.125 R TYP
1.000 DIA CUTTER
PARTIAL VIEW H-H
11° (REF)
.016 +.010 -.000
1.500 (REF)
.057
90° REF
⊄ OF WINDOW
.486 REF
1.125
R (TYP)
.562
.188
1.173
1.193 +.010 -.000
.486
.688
.375 DIA CUTTER
1.375 ±.005 -.000
PARTIAL VIEW F-F
SCALE 2/1
(WINDOW-TYP 2 PLACES)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011717	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± –	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE SHEET 1

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 52386911090

DRAWN A.C. WILLIAMS DATE 10-25-65
CHECKED F. Rayconda 10/25/65
APPROVAL
APPROVAL E. Murray 10/25/65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
PANEL, TELESCOPE

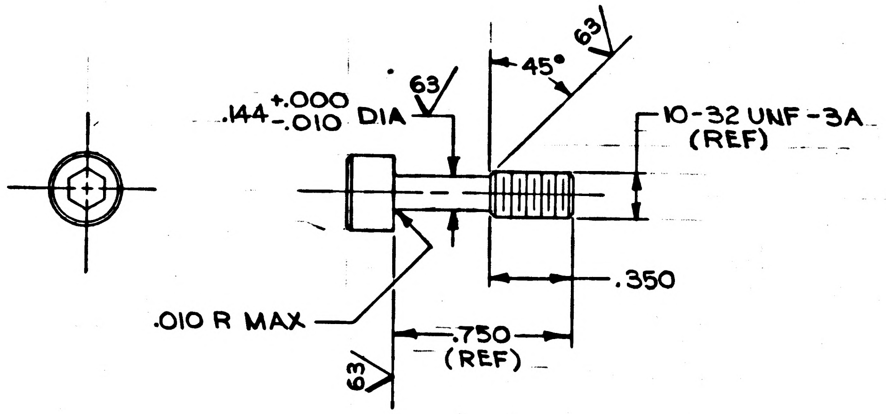
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012728
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 2 OF 2

2012729

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
4. THIS PART IS TO BE PRODUCED BY REWORKING MS 16999-12 (#10-32 x 3/4 LG SCREW).
5. PASSIVATE PER MIL-STD-171 TABLE V
6. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019 (BAGGING).

REVISIONS TDEE 23366

SYM	DESCRIPTION	DATE	APPROVAL



MASTER

ACTUAL SIZE

LIST OF PARTS AND MATERIALS

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

NEXT ASSY	USED ON
2012700	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
REF - CORROSION RESISTANT STEEL (SEE NOTE 4)

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 48386910200

DRAWN S Baykowski DATE 21 Oct 65
CHECKED F Raymond 10/21/65
APPROVAL
APPROVAL E Thorup FBA 10/21/65
A. C. METZGER
NASA APPROVAL
MIT APPROVAL W. Kyle 26 Oct 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

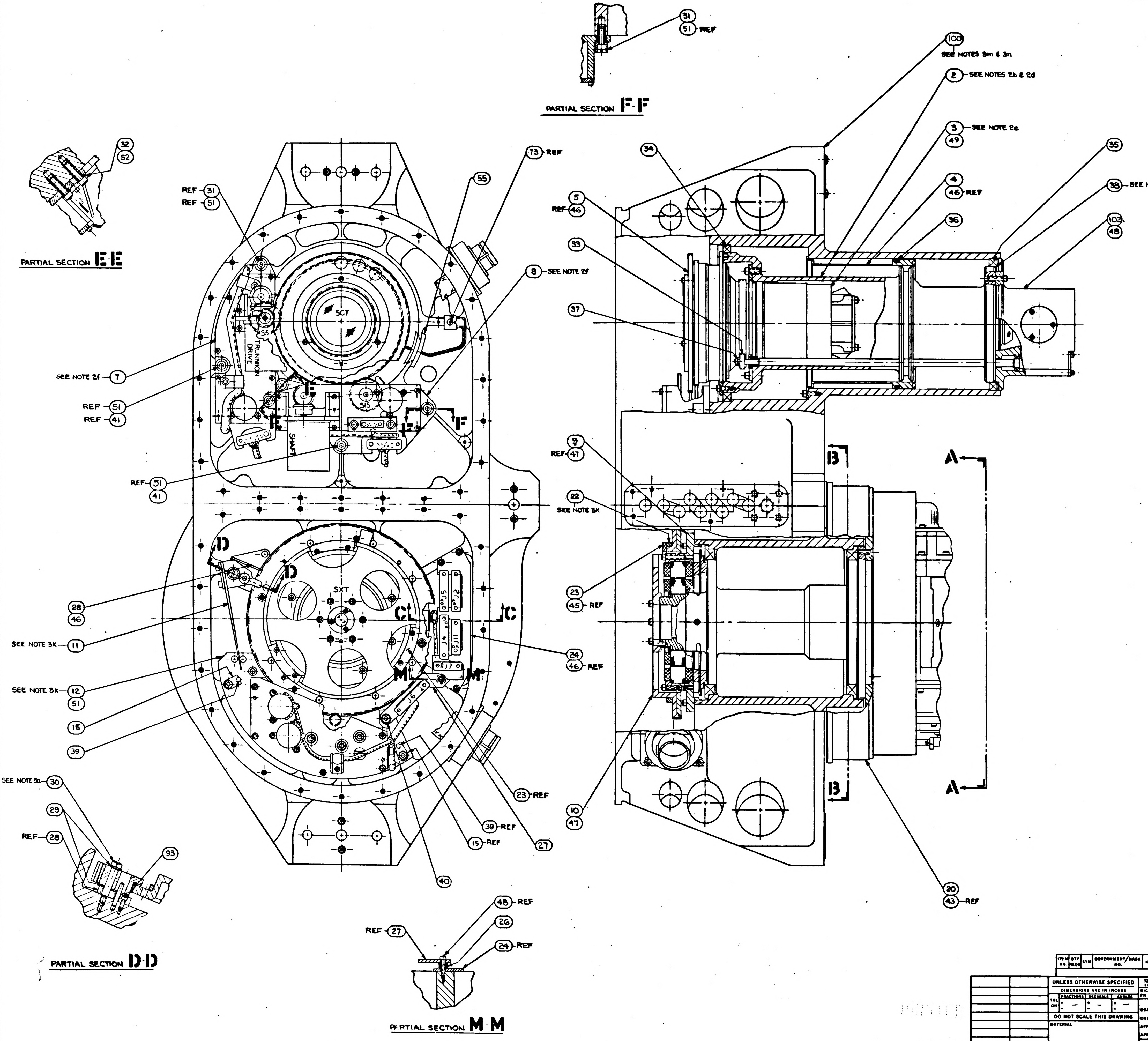
TITLE
SCREW, CAPTIVE
HEX SOCKET HEAD

CODE IDENT NO.	SIZE	NASA NUMBER
80230	B	2012729

SCALE 2/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

E-153

REVISIONS TDRR 24092				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25079		



31
51 REF
PARTIAL SECTION F-F
32
52
PARTIAL SECTION E-E
REF 31
REF 51
55
73 REF
SCT
S5
TRUNNION DRIVE
SEE NOTE 2f 7
REF 51
REF 41
S15
SHAFT
E
F
8 SEE NOTE 2f
REF 51
41
D
SXT
C
M
SEE NOTE 3k 11
28
46
SEE NOTE 3k 12
51
15
39
SEE NOTE 3a 30
29
REF 28
93
PARTIAL SECTION D-D
23 REF
39 REF
15 REF
27
40
REF 27
48 REF
26
24 REF
PARTIAL SECTION M-M
100
SEE NOTES 3m & 3n
2 SEE NOTES 2b & 2d
3 SEE NOTE 2e
49
34
35
38 SEE NOTE 2a
4
46 REF
36
102
48
5
REF 46
33
37
9
REF 47
22
SEE NOTE 3k
23
45 REF
24
46 REF
10
47
20
43 REF
A
B

LIST OF PARTS AND MATERIALS

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± —	± —

DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK

KIC PN 85386911790

DRAWN R BRUNELLE DATE 10-27-65
CHECKED P.G. Lowe 11/2/65
APPROVAL 11/15/65
APPROVAL

NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012730

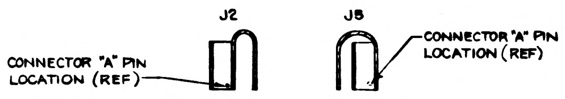
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 6

2012730 A

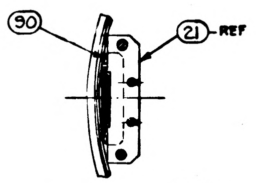
A	2012730

REVISIONS TDRR 24092

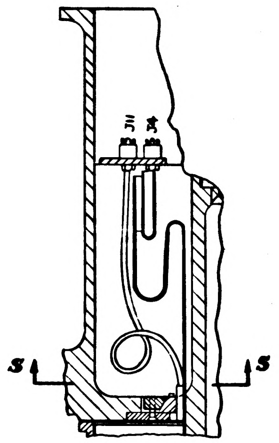
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25079	[illegible]	[illegible]


J2
J8
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

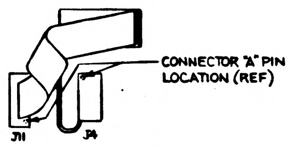
PARTIAL SECTION N-N
SCALE: NONE



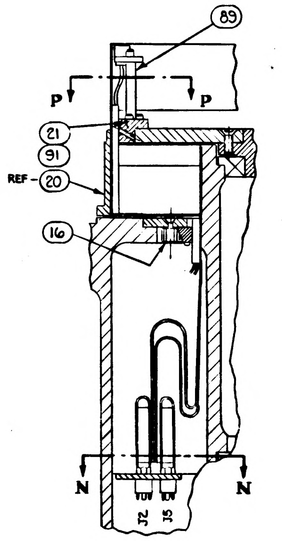
PARTIAL SECTION P-P



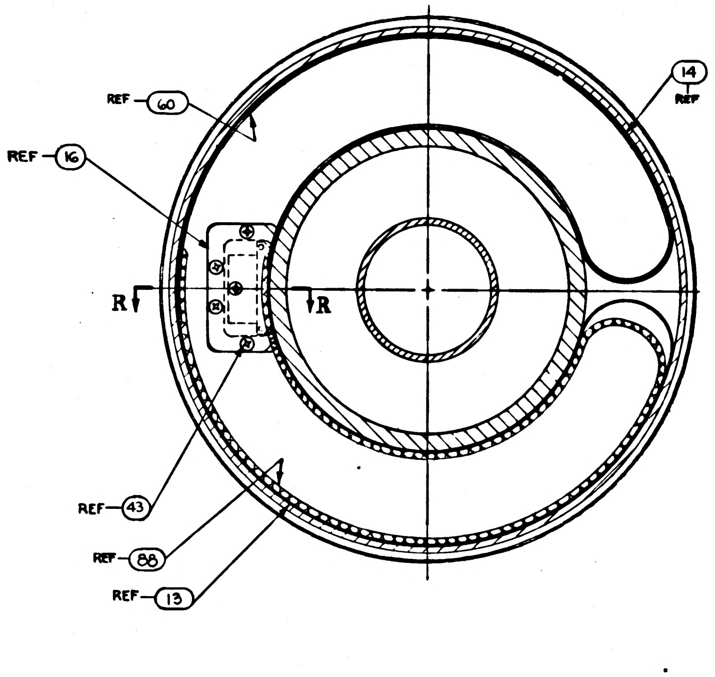
PARTIAL SECTION R-R


CONNECTOR "A" PIN LOCATION (REF)
J11
J4

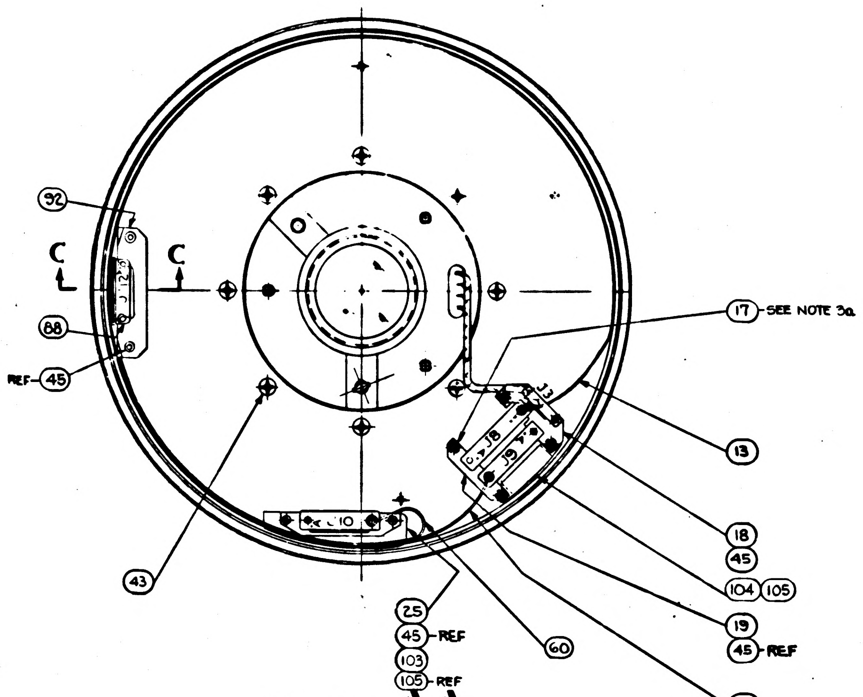
PARTIAL SECTION S-S


89
P
P
21
91
REF - 20
16
N
N
J2
J8

PARTIAL SECTION C-C


REF - 60
REF - 16
14
REF
R
R
REF - 43
REF - 88
REF - 13

PARTIAL SECTION B-B


92
C
C
88
REF - 45
17 - SEE NOTE 3a
13
18
45
104
105
19
45 - REF
43
25
45 - REF
103
105 - REF
60
14

PARTIAL VIEW A-A
(WITH SEXTANT INDEX HD ASSY REMOVED)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011000	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± —	± —

DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911790
DRAWN R BRUNELLE DATE 10-27-65
CHECKED P.A. Loome 11/2/65
APPROVAL E. [illegible] 11/15/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 16 Nov 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

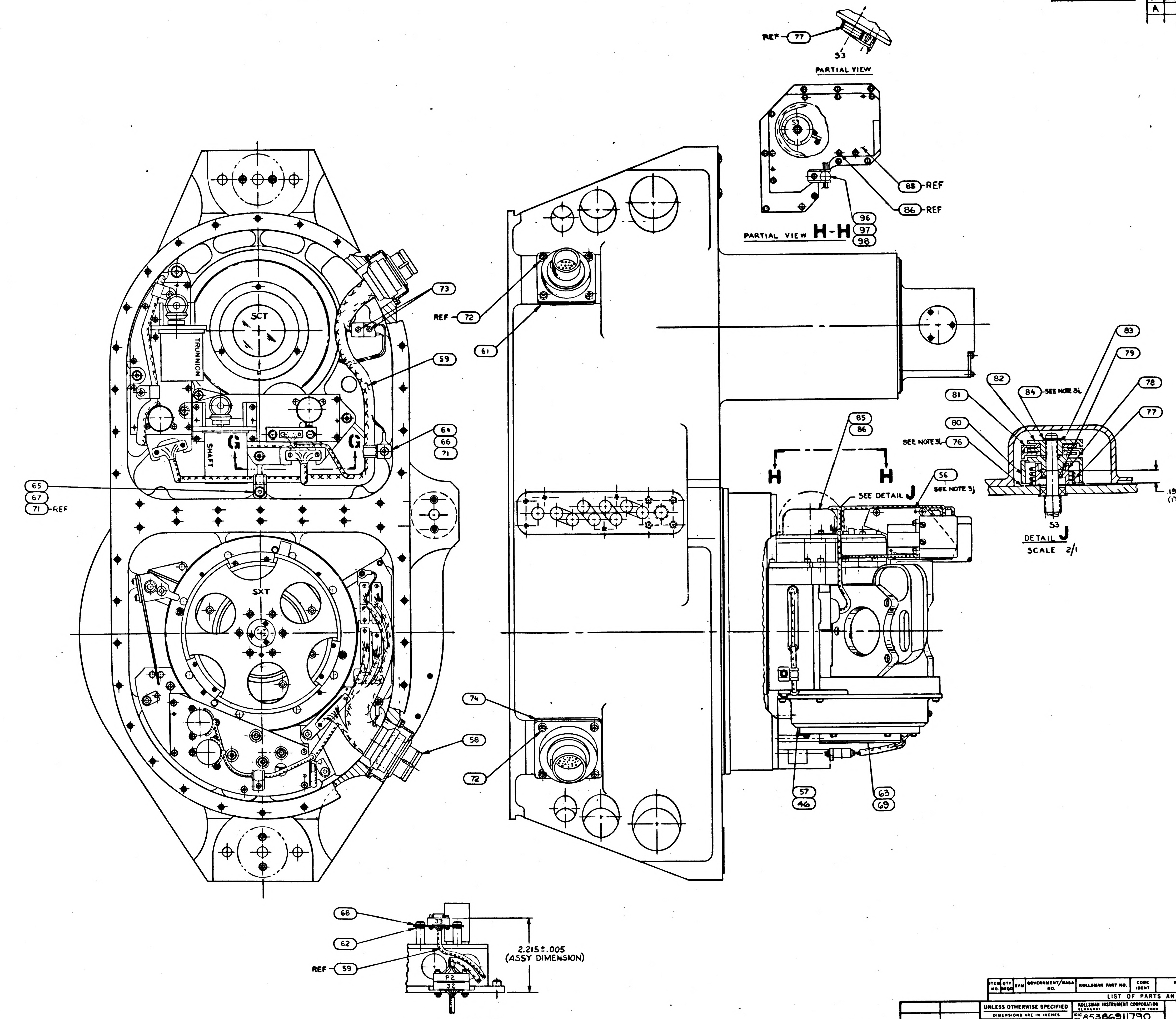
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO.	SIZE	NASA NUMBER
80230	E	2012730

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 2 OF 6

2012730 A

REVISIONS TDRR 24092				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25079		



REF 77
53
PARTIAL VIEW
53
85 REF
86 REF
96
97
98
PARTIAL VIEW H-H
73
REF 72
61
SCT
TRUNNION
59
SHAFT
G
G
64
66
71
65
67
71 REF
SXT
83
79
82
84 SEE NOTE 3i
78
81
77
80
SEE NOTE 3i 76
85
86
H
H
SEE DETAIL J
56
SEE NOTE 3j
.198 (REF)
(ITEM 78)
53
DETAIL J
SCALE 2/1
74
58
72
57
46
63
69
68
62
REF 59
33
P2
33
2.215±.005
(ASSY DIMENSION)

PARTIAL SECTION G-G

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011000	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION ELMHURST NEW YORK
KIC PN 85386911790
DRAWN DATE 10-26-65
CHECKED P.A. Leone 11/2/65
APPROVAL E. Phang 11/15/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL 16 Nov 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

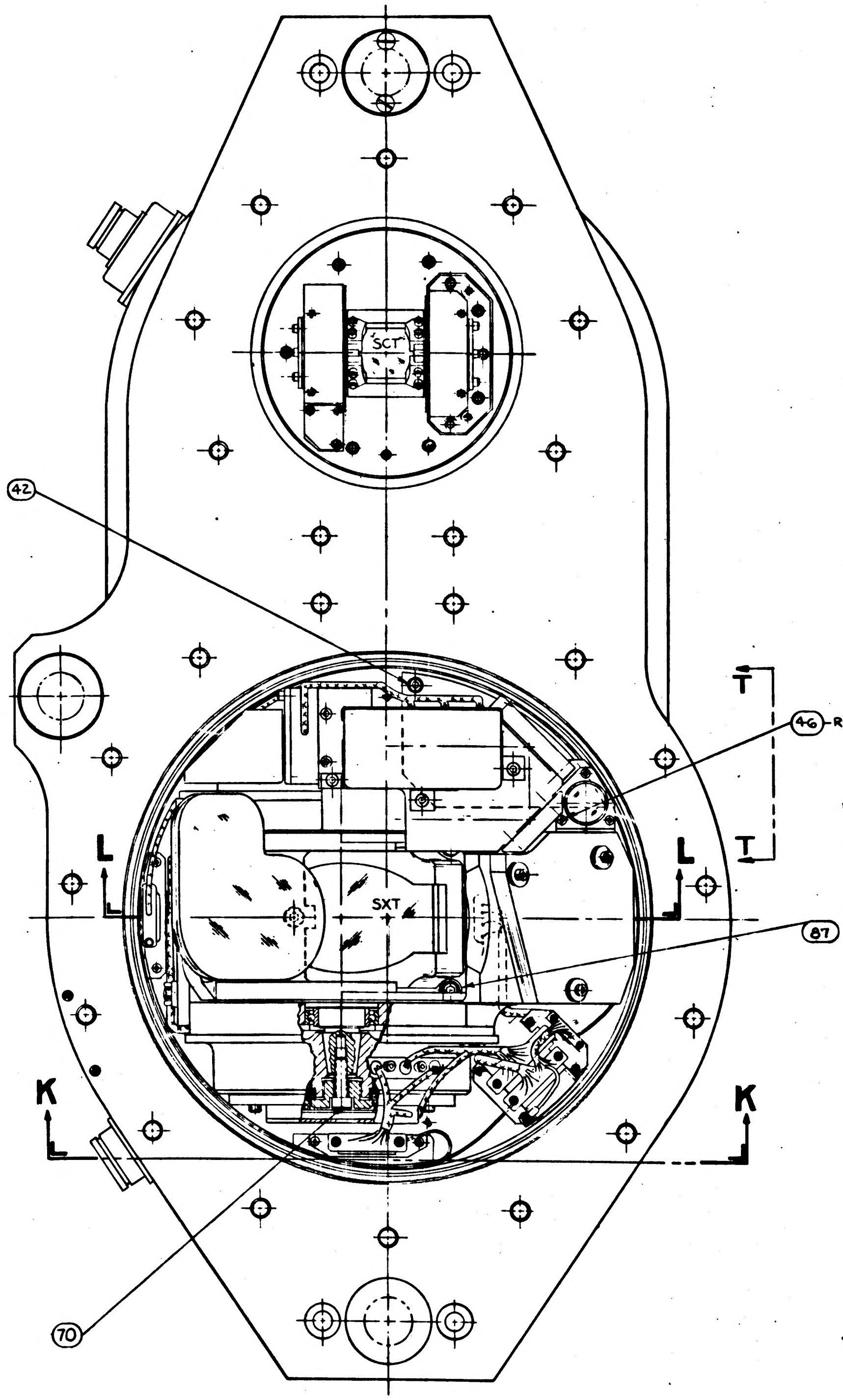
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012730
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 3 OF 6

2012730 A

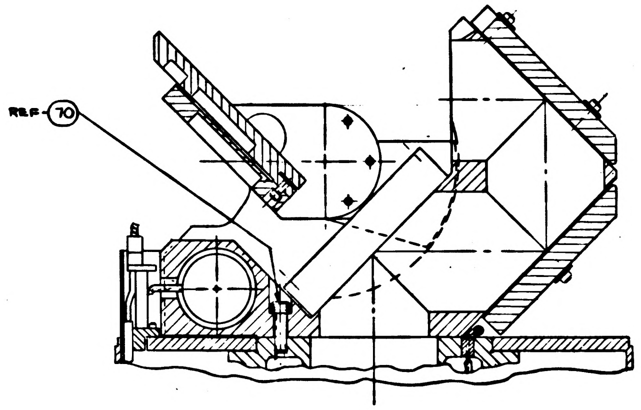
2012730 A

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25079		

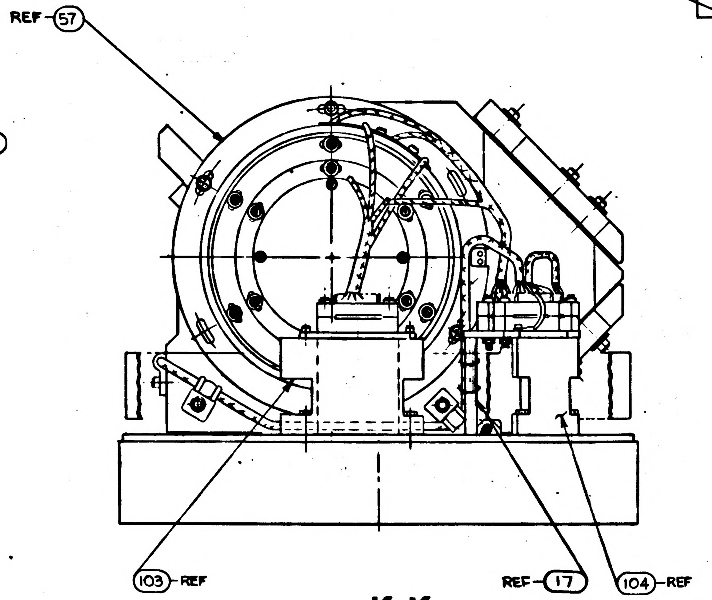
REVISIONS Jdcc 24092



SCT
42
46-REF
T
T
L
L
SXT
87
K
K
70

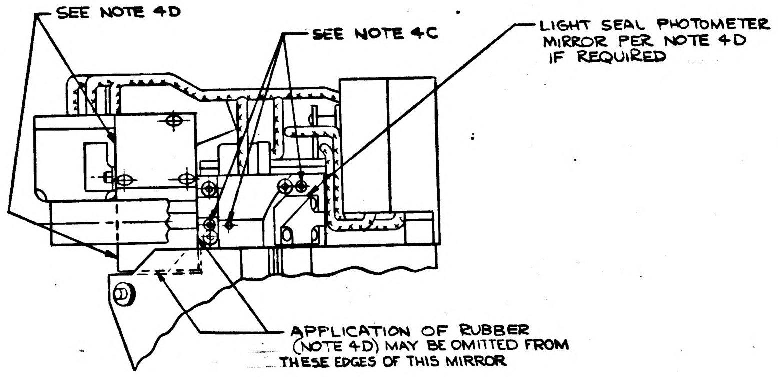


PARTIAL SECTION L-L



REF-57
103-REF
REF-17
104-REF

PARTIAL VIEW K-K



SEE NOTE 4D
SEE NOTE 4C
LIGHT SEAL PHOTOMETER MIRROR PER NOTE 4D IF REQUIRED
APPLICATION OF RUBBER (NOTE 4D) MAY BE OMITTED FROM THESE EDGES OF THIS MIRROR

PARTIAL VIEW T-T

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS + — − DECIMALS + — − ANGLES + — −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911790
DRAWN R. BRUNELLE DATE 10-26-65
CHECKED P.A. Lome 11/2/65
APPROVAL E. Ohmay 11/15/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL 16 Nov 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012730
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 4 OF 6

2012730 A

2012730 A

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25079		

REVISIONS TDRR 24092

NOTES:

1. GENERAL REQUIREMENTS

a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.

2. SCANNING TELESCOPE (SCT) REQUIREMENTS

a. ITEM 38 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.

b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 102.

c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).

d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF 13±2 IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.

e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.

f. ITEMS 7 AND 8 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.

g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.

h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2011000 AFTER THE REQUIREMENTS OF NOTE 3e HAVE BEEN MET. BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS

a. VIBRATION PROOF ITEMS 17 AND 30, USING LOCKING COMPOUND GRADE "CV" PER MIL-S-22473. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.

b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).

c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.

d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.

e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.

f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.

g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.

h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.

i. THE SXT TRUNNION LIMIT STOP, ITEMS 76 THRU 84, SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS.

j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION.

k. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12, AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387

l. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.

m. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.8 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 100). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 100) USING 1 DROP OF LOCKING COMPOUND, GRADE H OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.

n. AFTER THE REQUIREMENTS OF NOTE 3m HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 100)

o. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2011000

4. STAR TRACKER AND HORIZON SENSOR REQUIREMENTS

a. THE SXT SLOS AND THE STAR TRACKER LOS SHALL BE PARALLEL TO WITHIN 20 ARC SECONDS IN THE TRUNNION AXIS DIRECTION AND 3 ARC MINUTES IN THE CROSS TRUNNION AXIS DIRECTION.

b. THE SXT LLOS AND THE PHOTOMETER LOS SHALL BE PARALLEL TO WITHIN 3 ARC MINUTES.

C. FILL CAVITIES USING 1011541 EPOXY TO LOCK HORIZON TUNING FORK ASSY (2012518) & HORIZON SENSOR LENS ASSY (2012515) TO HOUSING IN ACCORDANCE WITH ND1002219, METHOD II.

D. LIGHT SEAL BETWEEN MIRRORS AND HOUSING BY APPLYING A LAP BEAD OF SILICONE RUBBER NO. 1006338-001 AT EDGES. (EXERCISE CARE TO AVOID RUBBER BEING APPLIED TO MIRROR SURFACES)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
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DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

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SHEET 5 OF 6

MASTER

2012730 A

2012730 A

REVISIONS TDRR 24092				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25079	1/11/66	

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	101								
1	100		2011889-021			OPTICAL UNIT SUB-ASSY STAGE I			
	99								
1	98	*	1000220-5			CLAMP, CABLE			
1	97	*	1011918-1			WASHER, CLAMP, CABLE			
1	96		NAS1352C08LL8	74455157011		SCREW, CAP, SOC.HD., SELF LOCKING			
	95								
	94								
1	93	*	1011625-28	74455151028		SCREW, CAP HEX., SOC.HD., SELF LOCKING			
1	92		2012431	56386910580		PLATE, MOUNTING, CONNECTOR			
2	91	*	1011625-11	74455151011		SCREW, CAP, SOC.HD., SELF LOCKING			
2	90		NAS1081C02A4L			SET SCREW, SELF LOCKING			
2	89		2012432	53386910050		POST, CONNECTOR PLATE			
1	88		1012522	68201016701		CABLE (FLAT) AND CONNECTOR ASSY			
2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC.HD., SELF LOCKING			
8	86		1011625-20	74455151020		SCREW, CAP, SOC. HD., SELF LOCKING			
1	85		2011595	52386910220		COVER, GEARBOX			
1	84		MS16624-1018			RING, RETAINING			
AR	83		2012351	7938691 0101 0103		WASHER, FLAT			
1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	81		2011579	57386910120		DOG, LIMIT STOP			
1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	79		1011608-3			BEARING, BALL, ANNULAR			
1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	77		2011577	56386910060		SPRING, TORSION			
1	76		2012350	25386910010		WASHER			
	75								
1	74	*	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	73		MS35249-11	74455187011		SCREW, SELF LOCKING, 82° FLAT HEAD			
8	72		1011625-39	74455151040		SCREW, CAP, SOC.HEAD, SELF LOCKING			
2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC.HEAD, SELF LOCKING			
2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC.HEAD, SELF LOCKING			
4	69		NAS1189C02T4L			SCREW, FLAT HD., SELF LOCKING			
2	68		MS16624-15	—		RING, RETAINING, EXTERNAL, BASIC			
1	67		MS15795-305	—		WASHER, FLAT			
1	66	*	1011918-2	—		WASHER, CABLE CLAMP			
1	65	*	1000220-6 OR 5	—		CLAMP, CABLE			
1	64	*	1000220-8 OR 6	—		CLAMP, CABLE			
1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	62		2011885	45386910040		SHIM			
1	61	*	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	57	*	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
1	56		2012722	85386911780		SXT INDEX HD ASSY			
1	55		2012164	26386910060		GROMMET			
	54								
	53								
2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC.HD., SELF LOCKING			
7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC.HD., SELF LOCKING			
	50								
4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC.HD., SELF LOCKING			
8	48	NAS	1352C04LL8	74455157015		↕			
14	47	NAS	1352C04LL6	74455157014		↕			
14	46	NAS	1352C04LL4	74455157013		↕			
14	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC.HD., SELF LOCKING			
	44								
12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING, 100° FLAT HEAD			
1	42		1010628-19			SCREW, FLAT HD, SELF LOCKING, SOC. HEX			
2	41	AN	960-C8	74468051004		WASHER, FLAT, REGULAR			
1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC.HD., SELF LOCKING			
2	39		2011684	48386910030		PIN, THREADED			
1	38		2011877	45386910250		SPACER			
1	37	*	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1	36		MS9021-154			PACKING, PREFORMED			
1	35	*	1011606-1	30205772240		BEARING, BALL			
1	34	*	1011606-2	30205772720		BEARING, BALL			
1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	32		2011562	57386910580		BUSHING, LOCATING			
2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	30		2011344	45386910020		SCREW, SHOULDER			
2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	26		2012486	57386911240		SPACER, CONNECTOR, MOUNTING PLATE			
1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
1	22		2011342	57386910570		RING, LIMIT STOP			
1	21		2011320	52386910160		PLATE, FLEXPRINT GUIDE			
1	20		2011616	57386910020		RING, MOUNTING, COVER			
1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
2	17		2011323	53386910020		POST, SHOULDERED, THREADED			
1	16		2012440	85386911240		FLEXPRINT RETAINING ASSY			
2	15		2011686	56386910310		RETAINER, PIN			
1	14	*	1012520-1	85386900910		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	13	*	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	12		2011705	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
1	11		2011714	85386910460		LIMIT STOP ASSY			
1	10		2012387	85386911110		GEAR & SPRING, ASSY OF			
1	9		2011906	85386910440		HOUSING, STATOR & LAMP, ASSY OF			
1	8		2011703	85386910200		SHAFT DRIVE, GEAR BOX, SCT, ASSY OF			
1	7		2011702	85386910630		TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
	6								
1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
	1								

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
	142								
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	108								
	107								
	106								
4	105		1012540-029			SCREW, HEX HD, SELF LOCKING			
1	104		2012725	57386911710		COUNTERWEIGHT			
1	103		2012726	57386911720		COUNTERWEIGHT			
1	102		2011215-011			TELESCOPE TRUNNION AXIS ASSY			

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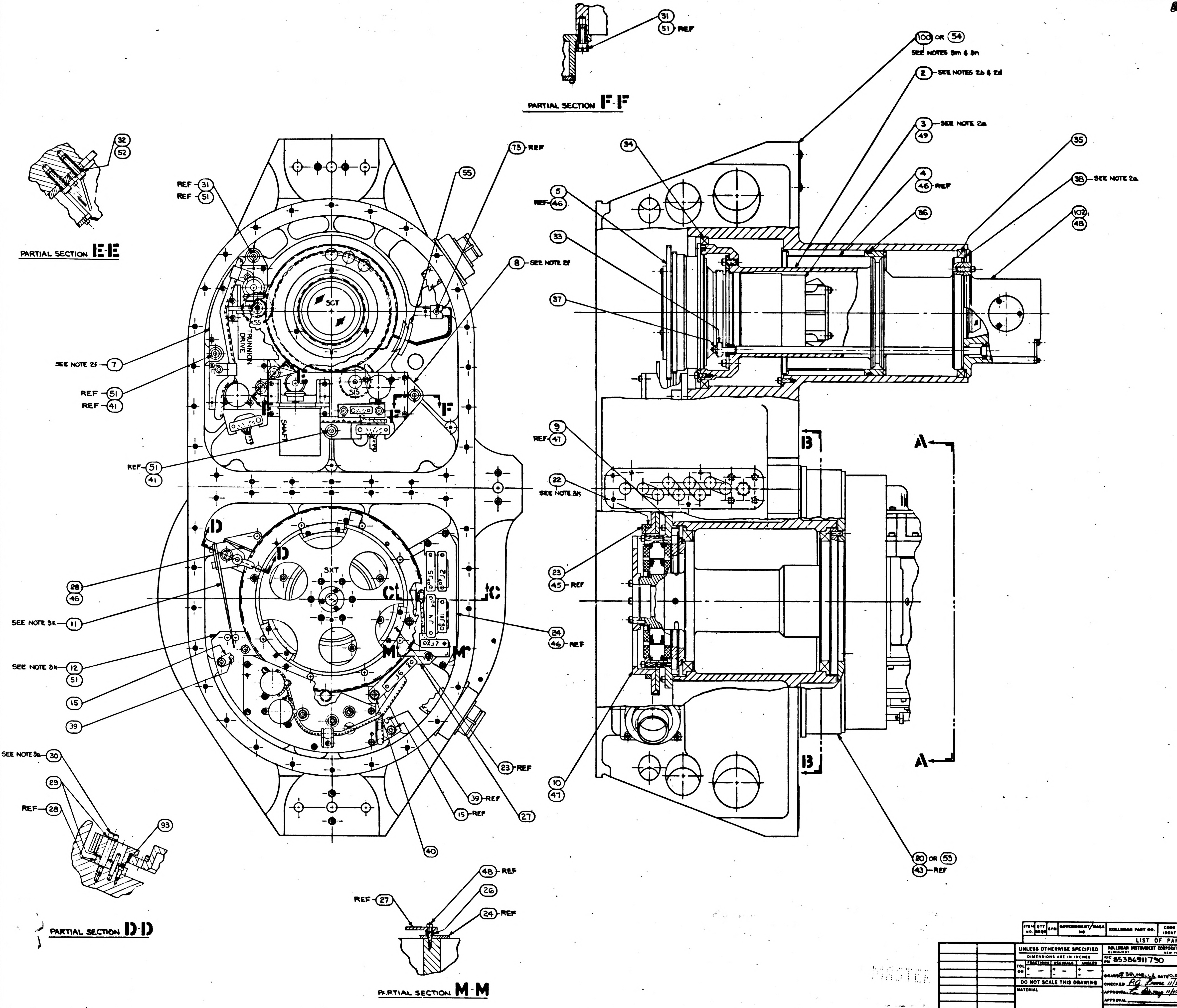
B	2012730

REVISIONS TDRR 24092

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25079	1/4/66	WC
B		REVISED PER TDRR 25253	1/19/66	WH



PARTIAL SECTION F-F
31
51 REF
PARTIAL SECTION E-E
32
52
100 OR 54
SEE NOTES 3m & 3n
2 SEE NOTES 2b & 2d
3 SEE NOTE 2a
49
4
46 REF
35
38 SEE NOTE 2a
36
102
48
34
5
REF 46
33
37
REF 31
REF 51
55
73 REF
8 SEE NOTE 2f
SCT
TRUNNION DRIVE
SHAFT
S15
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REF 41
REF 51
41
F
9
REF 47
22
SEE NOTE 3k
B
A
23
45 REF
24
46 REF
D
SXT
C
M
J7
28
46
SEE NOTE 3k 11
SEE NOTE 3k 12
51
15
39
23 REF
39 REF
15 REF
27
40
10
47
20 OR 53
43 REF
SEE NOTE 3a 30
29
REF 28
93
PARTIAL SECTION D-D
48 REF
26
REF 27
24 REF
PARTIAL SECTION M-M

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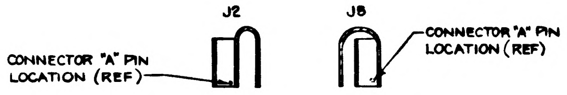
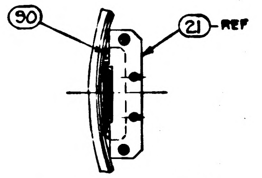
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
		REVISIONS TDRR 24092		
A		REVISED PER TDRR 25079	1/66	[illegible]
B		REVISED PER TDRR 25253	[illegible]	[illegible]

2012730 B



J2
J8
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

PARTIAL SECTION **N-N**
SCALE: NONE



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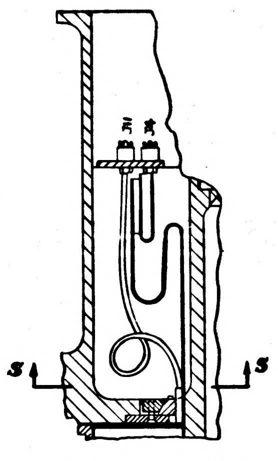

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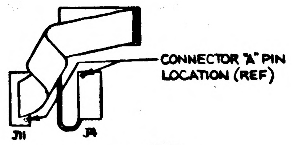
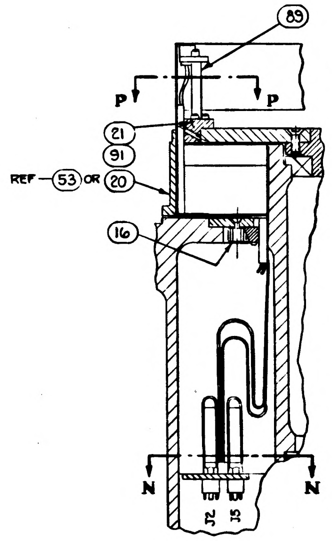


CONNECTOR "A" PIN LOCATION (REF)
J11
J4

PARTIAL SECTION **S-S**



89
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P
21
91
REF-53 OR 20
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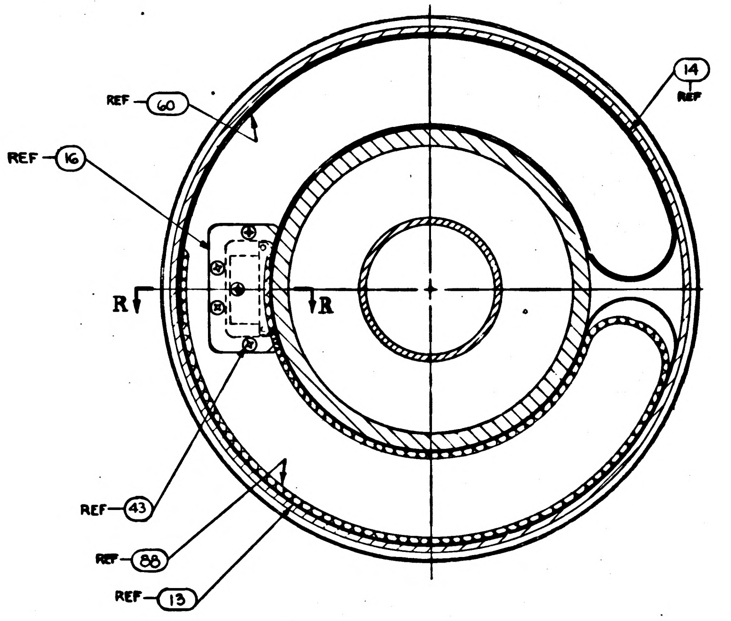
N
J2
J5

PARTIAL SECTION **C-C**



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R
R
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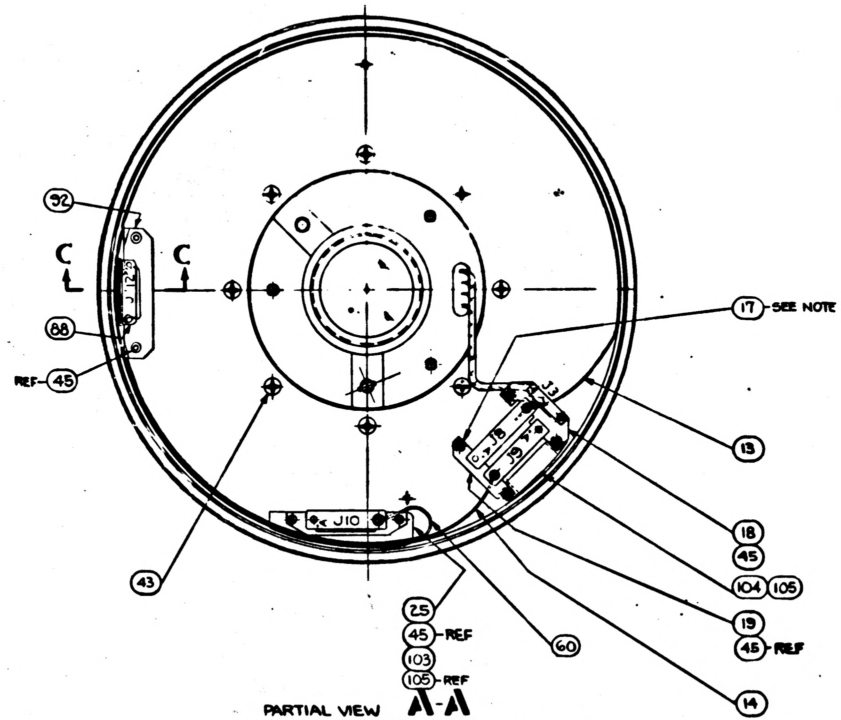
REF-13

PARTIAL SECTION **B-B**



92
C
C
88
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17-SEE NOTE 3a.
13
J10
43
18
45
104
105
19
45-REF
25
45-REF
103
105-REF
60
14

PARTIAL VIEW **A-A**
(WITH SEXTANT INDEX AND ASSY REMOVED)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911790
DRAWN R BRUNELLE DATE 10-27-65
CHECKED P.A. Loomis 11/2/65
APPROVAL E. Thomp 11/15/65
APPROVAL
NASA APPROVAL A.L. METZGER
MIT APPROVAL 16 Nov 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

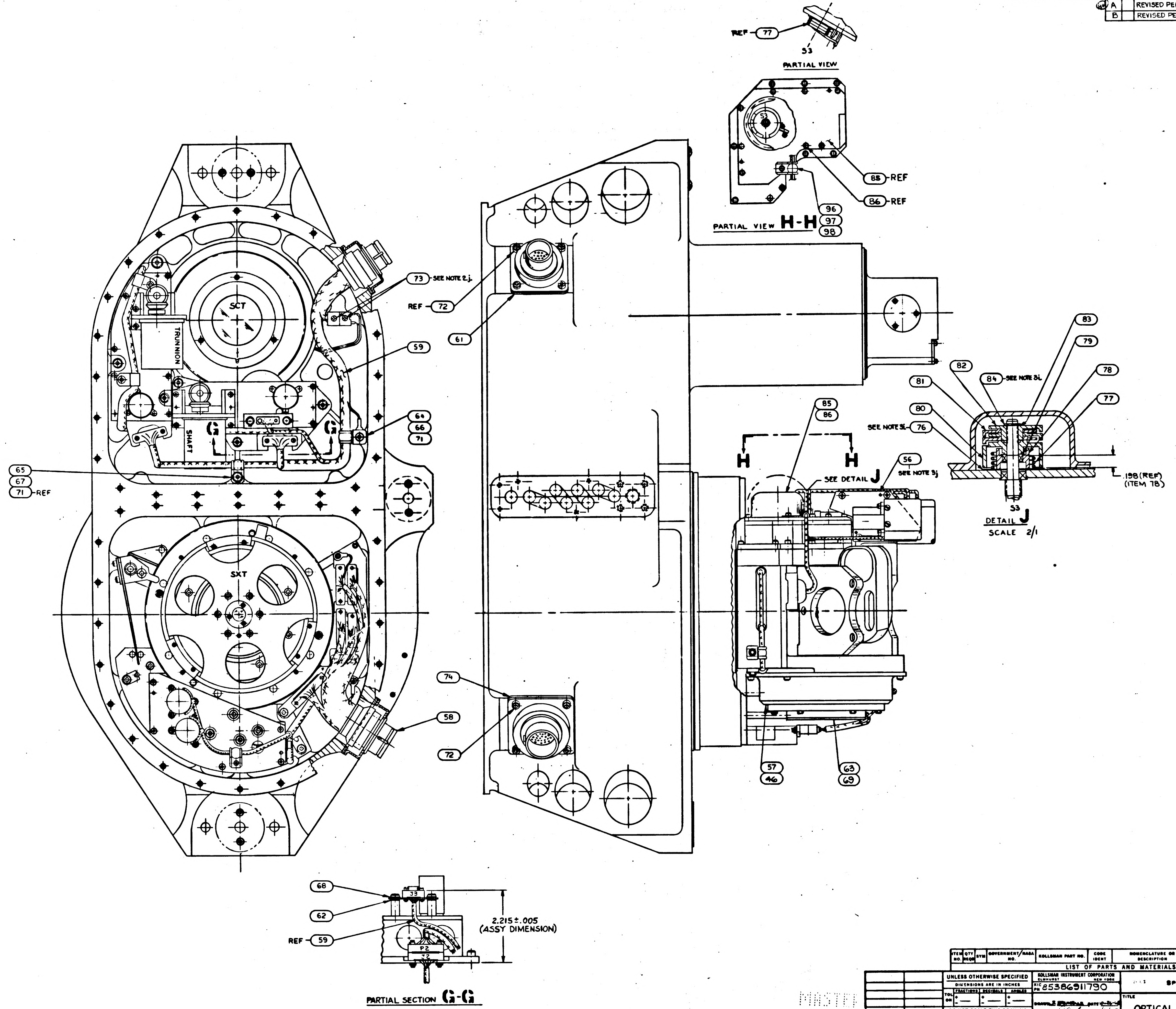
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012730
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 2 OF 6

2012730 B

B 2012730

REVISIONS TDRR 24092				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25079		
B		REVISED PER TDRR 25253		


REF 77
53
PARTIAL VIEW
53
85 REF
86 REF
96
97
98
PARTIAL VIEW H-H
SCT
TRUNNION
SHAFT
G
G
73 SEE NOTE 2.j.
REF 72
61
59
64
66
71
65
67
71 REF
SXT
74
58
72
83
79
82
84 SEE NOTE 3.L.
78
81
80
77
SEE NOTE 3L 76
85
86
H
H
56
SEE DETAIL J
SEE NOTE 3j
.198 (REF) (ITEM 78)
53
DETAIL J
SCALE 2/1
57
46
63
69
68
62
REF 59
33
P2
2.215 ±.005 (ASSY DIMENSION)
PARTIAL SECTION G-G

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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CONTRACT

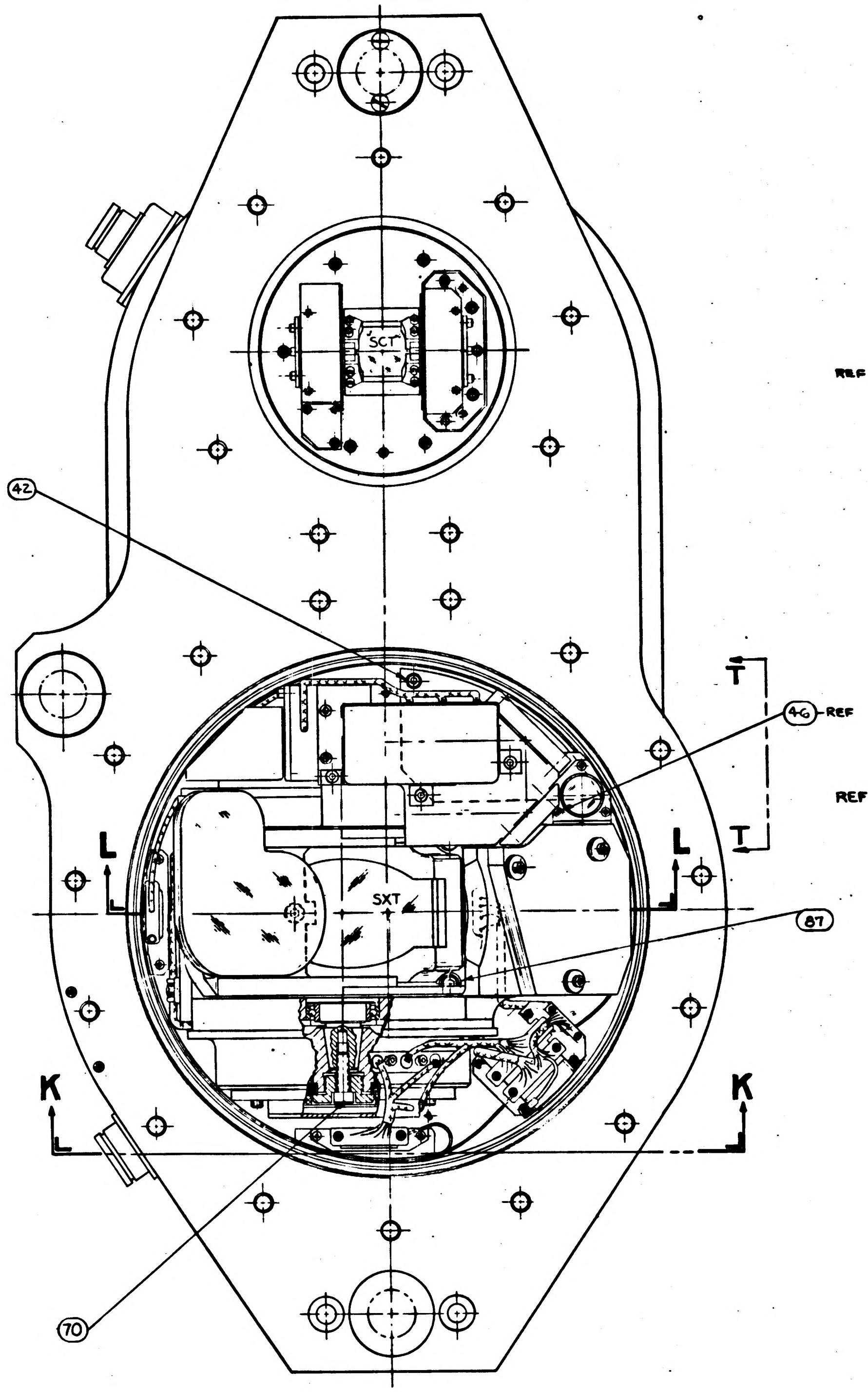
KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911790
DRAWN
CHECKED P.A. Leone 11/2/65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL 16 Nov 65

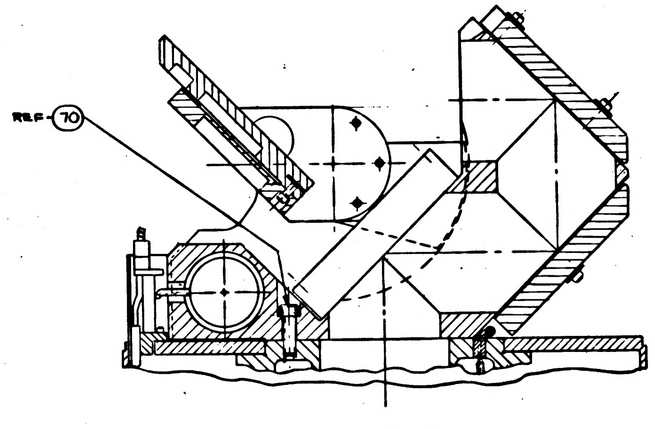
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012730
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 3 OF 6

2012730 B

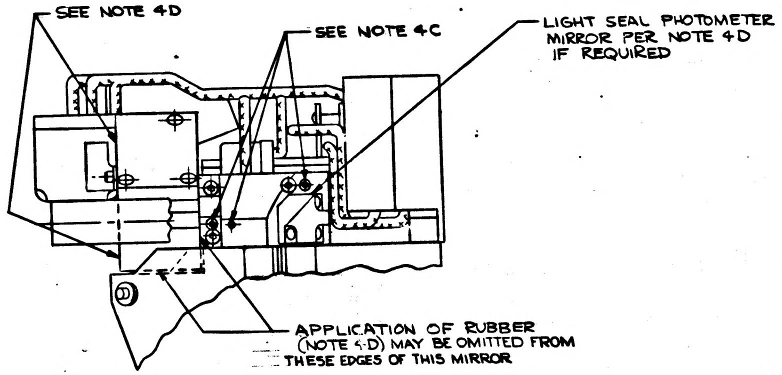
2012730 B

REVISIONS				Tdrr 24092
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25079	1/11/66	
B		REVISED PER TDRR 25253	1/19/66	

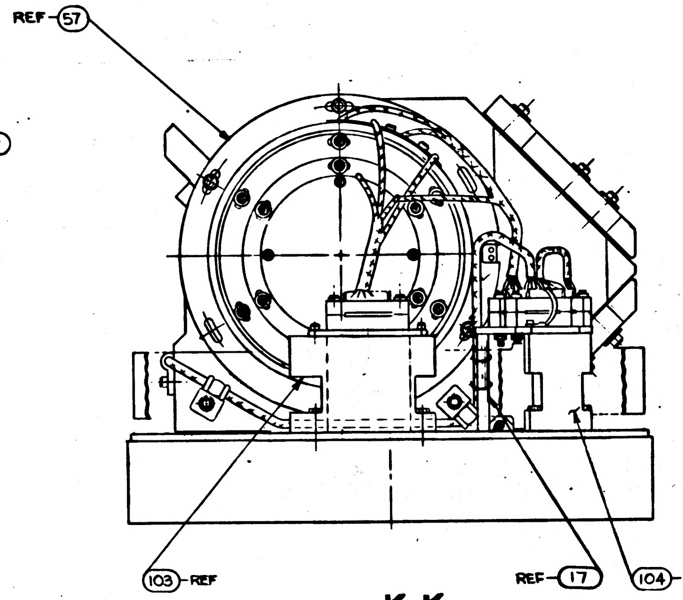

SCT
42
T
46-REF
L
L
T
SXT
87
K
K
70



PARTIAL SECTION L-L


SEE NOTE 4D
SEE NOTE 4C
LIGHT SEAL PHOTOMETER MIRROR PER NOTE 4D IF REQUIRED
APPLICATION OF RUBBER (NOTE 4D) MAY BE OMITTED FROM THESE EDGES OF THIS MIRROR

PARTIAL VIEW T-T


REF-57
103-REF
REF-17
104-REF

PARTIAL VIEW K-K

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
20H000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911790
DRAWN R. BRUNELLE DATE 10-26-65
CHECKED P.A. Lanne 11/2/65
APPROVAL E. Dhong 11/5/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL 11/15/65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012730
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 4 OF 6

B	2012730

REVISIONS TDRR 24092				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25079		
B		REVISED PER TDRR 25253		

NOTES:

1. GENERAL REQUIREMENTS
   - a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
   - b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.

2. SCANNING TELESCOPE (SCT) REQUIREMENTS
   - a. ITEM 38 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.
   - b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 102.
   - c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).
   - d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF $13^{\pm 2}$ IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.
   - e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792; PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.
   - f. ITEMS 7 AND 8 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.
   - g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.
   - h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2011000 AFTER THE REQUIREMENTS OF NOTE 3o HAVE BEEN MET. BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.
   - j. VIBRATION PROOF ITEM 73 USING LOCKING COMPOUND GRADE "EV" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.

3. SEXTANT (SXT) REQUIREMENTS
   - a. VIBRATION PROOF ITEMS 17 AND 30, USING LOCKING COMPOUND GRADE "CV" PER MIL-S-22473. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.
   - b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).
   - c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.
   - d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.
   - e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.
   - f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.
   - g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.
   - h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.
   - i. THE SXT TRUNNION LIMIT STOP, ITEMS 76 THRU 84, SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS.
   - j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION.
   - k. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12, AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387
   - l. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.
   - m. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.8 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 100). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 100) USING 1 DROP OF LOCKING COMPOUND, GRADE H OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
   - n. AFTER THE REQUIREMENTS OF NOTE 3m HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 100)
   - o. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2011000

4. STAR TRACKER AND HORIZON SENSOR REQUIREMENTS
   - a. THE SXT SLOS AND THE STAR TRACKER LOS SHALL BE PARALLEL TO WITHIN 20 ARC SECONDS IN THE TRUNNION AXIS DIRECTION AND 3 ARC MINUTES IN THE CROSS TRUNNION AXIS DIRECTION.
   - b. THE SXT LLOS AND THE PHOTOMETER LOS SHALL BE PARALLEL TO WITHIN 3 ARC MINUTES.
   - C. FILL CAVITIES USING 1011541 EPOXY TO LOCK HORIZON TUNING FORK ASSY (2012518) & HORIZON SENSOR LENS ASSY (2012515) TO HOUSING IN ACCORDANCE WITH ND1002219, METHOD II.
   - D. LIGHT SEAL BETWEEN MIRRORS AND HOUSING BY APPLYING A LAP BEAD OF SILICONE RUBBER NO. 1006338-001 AT EDGES. (EXERCISE CARE TO AVOID RUBBER BEING APPLIED TO MIRROR SURFACES)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911790
DRAWN R. BRUNELLE DATE 10-26-65
CHECKED R.G. Perone 11/2/65
APPROVAL E. Blomquist 11/15/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012730
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 5 OF 6

2012730 B

B 2012730

REVISIONS TDRR 24092				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 25079	1/11/66	[illegible]
B		REVISED PER TDRR 25253	[illegible]	[illegible]

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
	101								
0	100		2011889-021	85386911790		OPTICAL UNIT SUB-ASSY STAGE I			
	99								
1	98	#	1000220-5			CLAMP, CABLE			
1	97	#	1011918-1			WASHER, CLAMP, CABLE			
1	96		NAS1352C08LL8	74455157011		SCREW, CAP, SOC. HD., SELF LOCKING			
	95								
	94								
1	93	#	1011625-28	74455151028		SCREW, CAP HEX, SOC. HD., SELF LOCKING			
1	92		2012431	56386910580		PLATE, MOUNTING, CONNECTOR			
2	91	#	1011625-11	74455151011		SCREW, CAP, SOC. HD., SELF LOCKING			
2	90		NAS1081C02A4L			SET SCREW, SELF LOCKING			
2	89		2012432	53386910050		POST, CONNECTOR PLATE			
1	88		1012522	68201016701		CABLE (FLAT) AND CONNECTOR ASSY			
2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC. HD., SELF LOCKING			
8	86		1011625-20	74455151020		SCREW, CAP, SOC. HD., SELF LOCKING			
1	85		2011595	52386910220		COVER, GEARBOX			
1	84		MS16624-1018			RING, RETAINING			
AR	83		2012351	7938691 0101 0103		WASHER, FLAT			
1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	81		2011579	57386910120		DOG, LIMIT STOP			
1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	79		1011608-5			BEARING, BALL, ANNULAR			
1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	77		2011577	56386910060		SPRING, TORSION			
1	76		2012350	25386910010		WASHER			
	75								
1	74	#	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	73		MS35249-11	74455187011		SCREW, SELF LOCKING, 82° FLAT HEAD			
8	72		1011625-39	74455151040		SCREW, CAP, SOC. HEAD, SELF LOCKING			
2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC. HEAD, SELF LOCKING			
2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC. HEAD, SELF LOCKING			
4	69		NAS1189C02T4L			SCREW, FLAT HD., SELF LOCKING			
2	68		MS16624-15	—		RING, RETAINING, EXTERNAL, BASIC			
1	67		MS15795-305	—		WASHER FLAT			
1	66	#	1011918-2	—		WASHER, CABLE CLAMP			
1	65	#	1000220-6 OR 5	—		CLAMP, CABLE			
1	64	#	1000220-8 OR 6	—		CLAMP, CABLE			
1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	62		2011885	45386910040		SHIM			
1	61	#	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	57	#	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
1	56		2012722	85386911780		SXT INDEX HD ASSY			
1	55		2012164	26386810060		GROMMET			
1	54		2011889-011	85386911790		OPTICAL UNIT SUB-ASSY STAGE I			
1	53		2012621	57386911630		RING, MOUNTING, COVER			
2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC. HD., SELF LOCKING			
7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC. HD., SELF LOCKING			
	50								
4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC. HD., SELF LOCKING			
8	48	NAS	1352C04LL8	74455157015		↕			
14	47	NAS	1352C04LL6	74455157014		↕			
14	46	NAS	1352C04LL4	74455157013		↕			
14	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC. HD., SELF LOCKING			
	44								
12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING, 100° FLAT HEAD			
1	42		1010628-19			SCREW, FLAT HD, SELF LOCKING, SOC. HEX			
2	41	AN	960-C8	74468051004		WASHER, FLAT, REGULAR			
1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC. HD., SELF LOCKING			
2	39		2011684	48386910030		PIN, THREADED			
1	38		2011877	45386910250		SPACER			
1	37	#	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1	36		MS9021-154			PACKING, PREFORMED			
1	35	#	1011606-1	30205772240		BEARING, BALL			
1	34	#	1011606-2	30205772720		BEARING, BALL			
1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	32		2011562	57386910580		BUSHING, LOCATING			
2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	30		2011344	45386910020		SCREW, SHOULDER			
2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	26		2012486	57386911240		SPACER, CONNECTOR, MOUNTING PLATE			
1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
1	22		2011342	57386910570		RING, LIMIT STOP			
1	21		2011320	52306910160		PLATE, FLEXPRINT GUIDE			
0	20		2011616	57386910020		RING, MOUNTING, COVER			
1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
2	17		2011323	53386910020		POST, SHOULDERED, THREADED			
1	16		2012440	85386911240		FLEXPRINT RETAINING ASSY			
2	15		2011686	56386910310		RETAINER, PIN			
1	14	#	1012520-1	85386900910		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	13	#	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	12		2011705	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
1	11		2011714	85386910460		LIMIT STOP ASSY			
1	10		2012387	85386911110		GEAR & SPRING, ASSY OF			
1	9		2011906	85386910440		HOUSING, STATOR & LAMP, ASSY OF			
1	8		2011703	85386910200		SHAFT DRIVE, GEAR BOX, SCT, ASSY OF			
1	7		2011702	85386910630		TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
	6								
1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
	1								
000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

QTY REQD — LIST OF PARTS AND MATERIALS

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
	142								
	141								
	140								
	139								
	138								
	137								
	136								
	135								
	134								
	133								
	132								
	131								
	130								
	129								
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	116								
	115								
	114								
	113								
	112								
	111								
	110								
	109								
	108								
	107								
	106								
4	105		1012540-029			SCREW, HEX HD, SELF LOCKING			
1	104		2012725	57386911710		COUNTERWEIGHT			
1	103		2012726	57386911720		COUNTERWEIGHT			
1	102		2011215-011			TELESCOPE TRUNNION AXIS ASSY			
000	ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION

QTY REQD — LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± | DECIMALS ± | ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911790

DRAWN A.C. WILLIAMS DATE [illegible]
CHECKED P.A. [illegible] 11/2/65
APPROVAL E. [illegible] 11/15/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

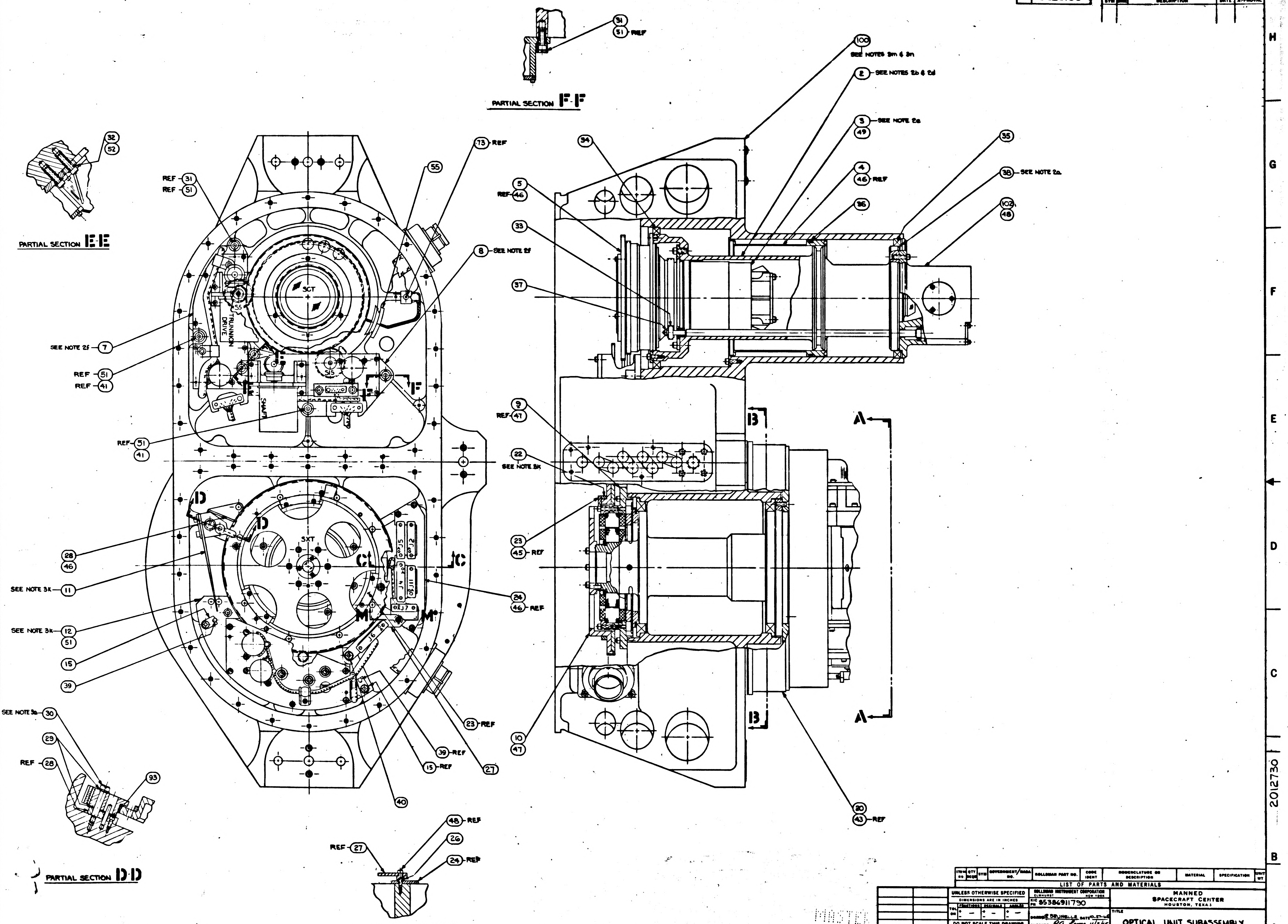
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012730
SCALE
WEIGHT CALC ACTUAL
SHEET 6 OF 6

2012730 B

2012730

REVISIONS TDRR 24092				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL



PARTIAL SECTION F-F
31
51 REF
PARTIAL SECTION E-E
32
52
REF 31
REF 51
73 REF
55
8 SEE NOTE 2f
SCT
TRUNNION DRIVE
SHAFT
SEE NOTE 2f 7
REF 51
REF 41
REF 51
41
F
100 SEE NOTES 3m & 3n
2 SEE NOTES 2b & 2d
3 SEE NOTE 2e
49
4
46 REF
35
38 SEE NOTE 2a
102
48
54
5
REF 46
33
36
37
9
REF 47
22
SEE NOTE 3k
23
45 REF
24
46 REF
B
A
10
47
20
43 REF
D
SXT
C
M
J15
J12
J4
J11
J17
28
46
SEE NOTE 3k 11
SEE NOTE 3k 12
51
15
39
23 REF
39 REF
15 REF
27
40
SEE NOTE 3a 30
29
REF 28
93
PARTIAL SECTION D-D
48 REF
REF 27
26
24 REF
PARTIAL SECTION M-M
MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	HOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011000	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
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DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

HOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911790
DRAWN R BRUNELLE DATE 10-27-65
CHECKED P.G. Lowe 11/2/65
APPROVAL E. [illegible] 11/15/65
APPROVAL
NASA APPROVAL A. C. METZGER
UNIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

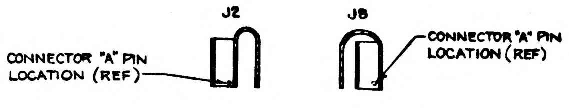
CODE IDENT NO. 80230 SIZE E NASA NUMBER 2012730
SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 6

2012730

2012730

REVISIONS TDR2 24092

SYM	ZONE	DESCRIPTION	DATE	APPROVAL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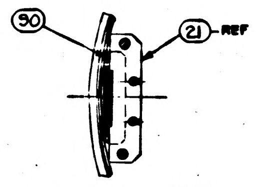
J8
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

PARTIAL SECTION N-N
SCALE: NONE



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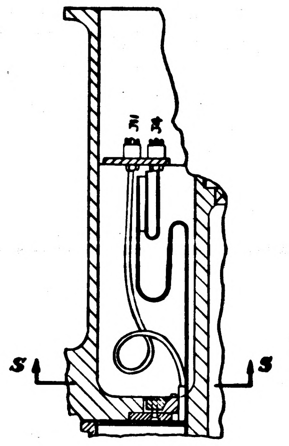
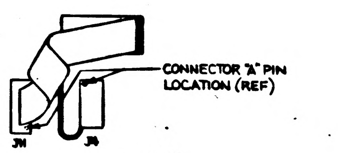


PARTIAL SECTION R-R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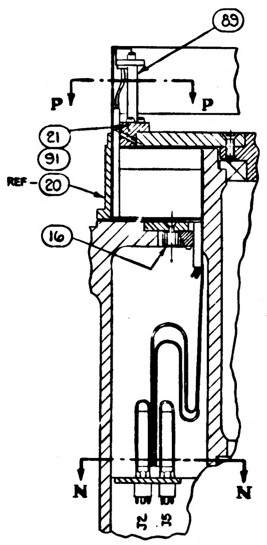
J8

PARTIAL SECTION S-S


89
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21
91
REF 20
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J2
J8
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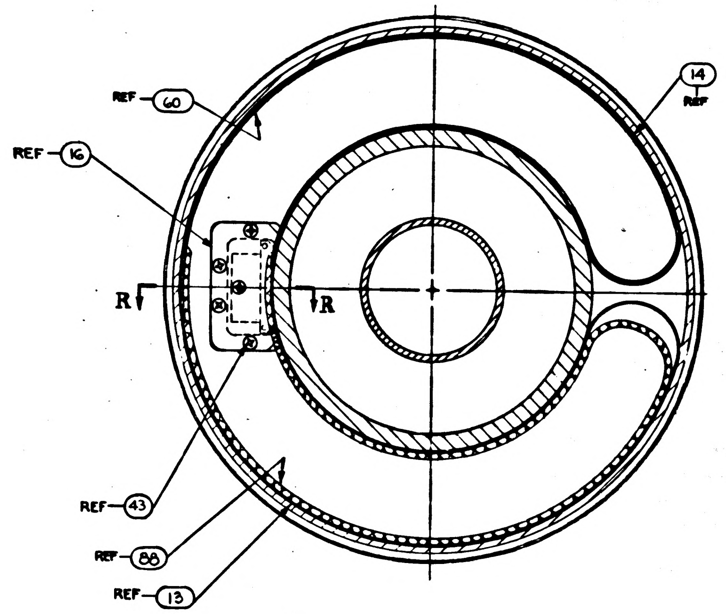
PARTIAL SECTION C-C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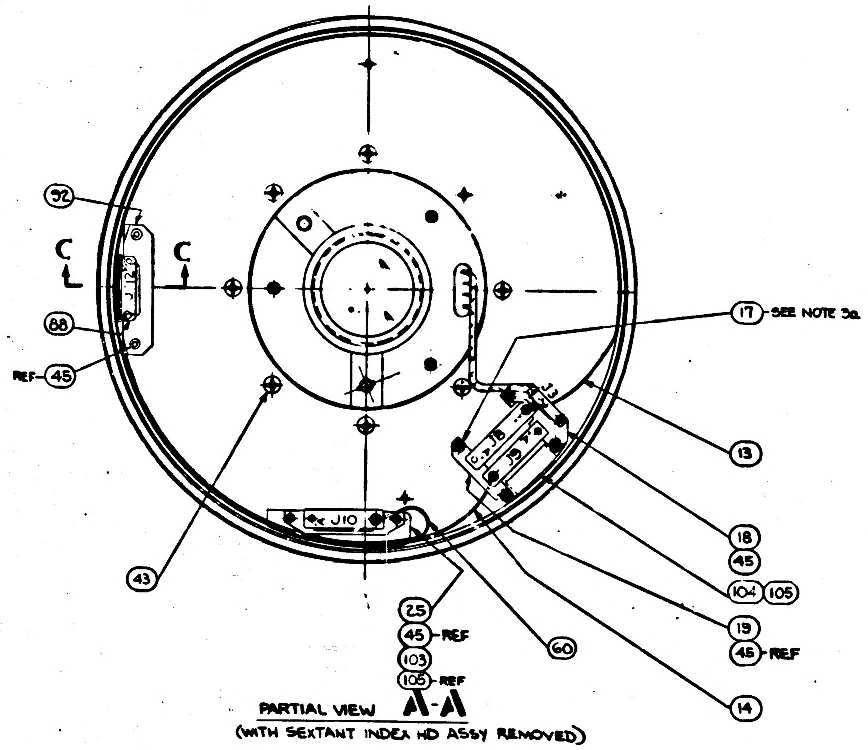
REF 43
REF 88
REF 13

PARTIAL SECTION B-B


32
C
C
88
REF 45
17 SEE NOTE 5a.
13
J10
43
18
45
104
105
25
45 REF
103
105 REF
60
19
45 REF
14

PARTIAL VIEW A-A
(WITH SEXTANT INDEX HD ASSY REMOVED)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911790
DRAWN R. BRUNELLE DATE 10-27-65
CHECKED R.G. Lerma 11/2/65
APPROVAL E. Wong 11/5/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL 16 Nov 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

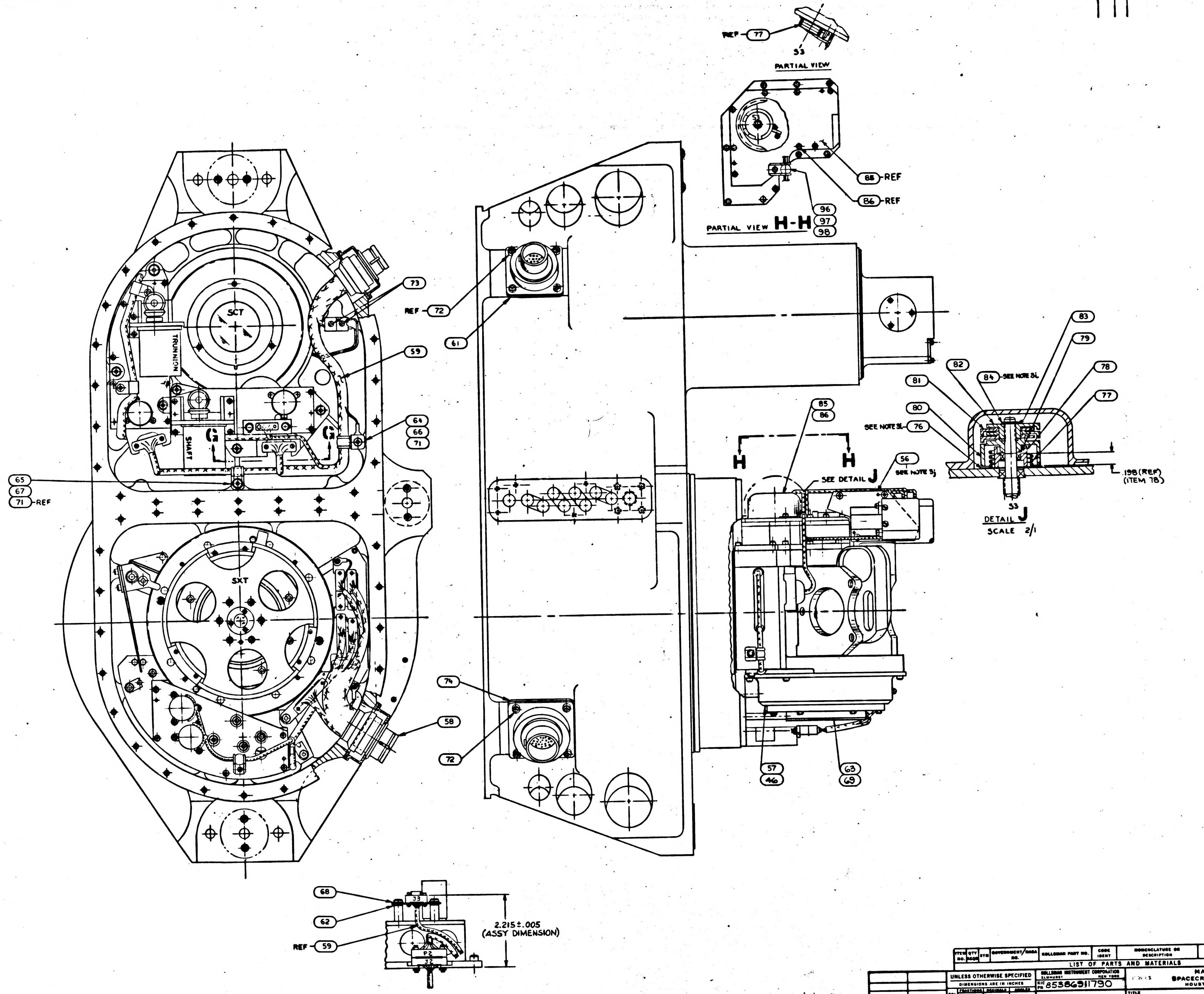
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012730
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 2 OF 6

2012730

2012730

REVISIONS TDRR 24092

SYM	ZONE	DESCRIPTION	DATE	APPROVAL



REF 77
53
PARTIAL VIEW
85 REF
86 REF
96
97
98
PARTIAL VIEW H-H
73
REF 72
61
59
SCT
TRUNNION
SHAFT
G
G
64
66
71
65
67
71 REF
SXT
74
72
58
83
79
82
84 SEE NOTE 3L
78
81
77
80
SEE NOTE 3L 76
.198 (REF) (ITEM 78)
53
DETAIL J
SCALE 2/1
85
86
H
H
SEE DETAIL J
56
SEE NOTE 3J
57
46
63
69
68
33
62
REF 59
P2
32
2.215±.005 (ASSY DIMENSION)
PARTIAL SECTION G-G

2012730

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011000	2011000
NEXT ASSY	USED ON

APPLICATION

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TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL ———
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION ELMHURST NEW YORK
KIC PN 85386911790
DRAWN [illegible] DATE 10-26-65
CHECKED P.A. Leone 11/2/65
APPROVAL E. Ab[illegible] 11/15/65
APPROVAL
A. C. METZGER
NASA APPROVAL
MIT APPROVAL W[illegible] 16 Nov 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

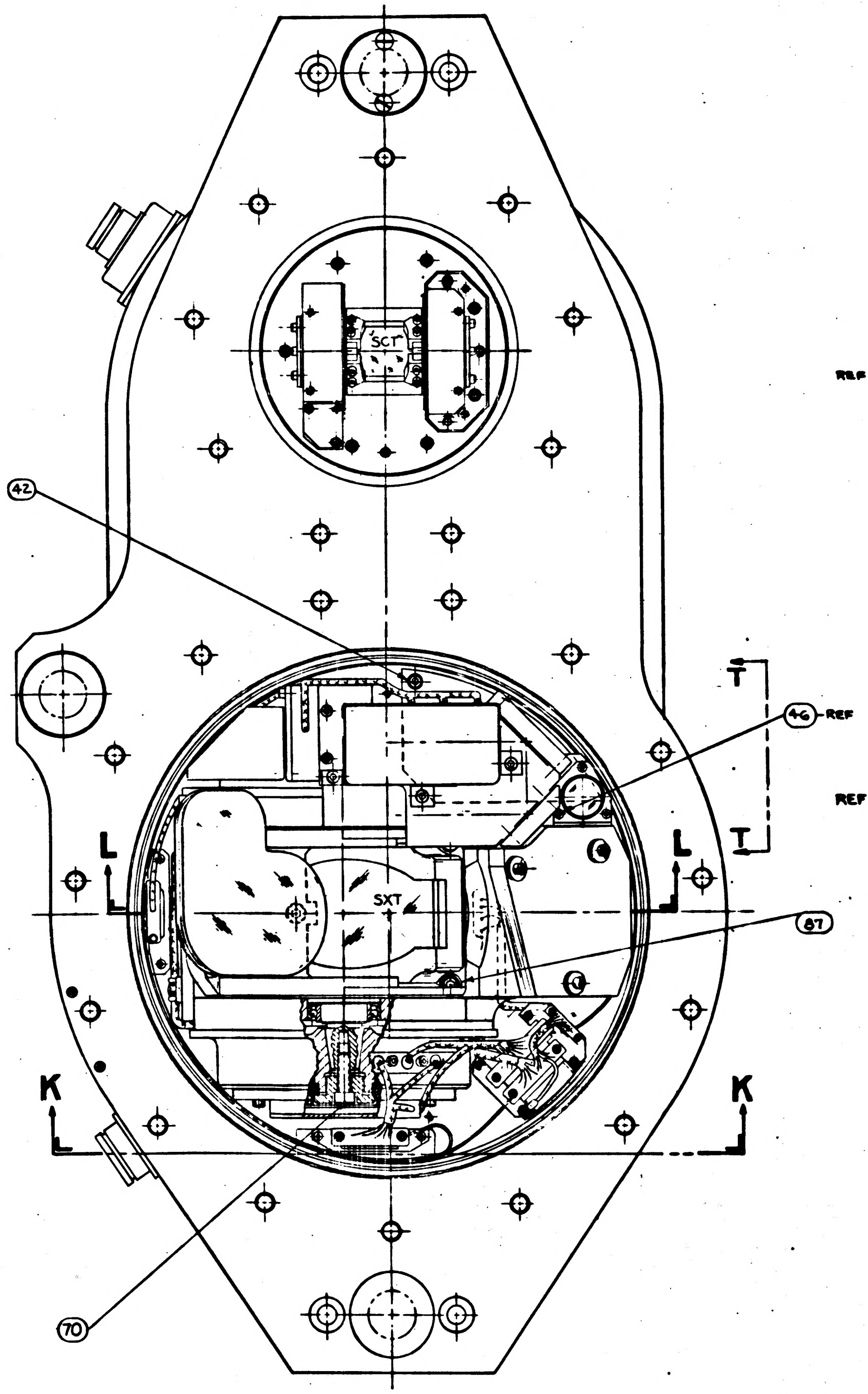
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230 SIZE E NASA NUMBER 2012730
SCALE 1/1 WEIGHT CALC ACTUAL SHEET 3 OF 6

2012730

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

Toce 20032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42
46-REF
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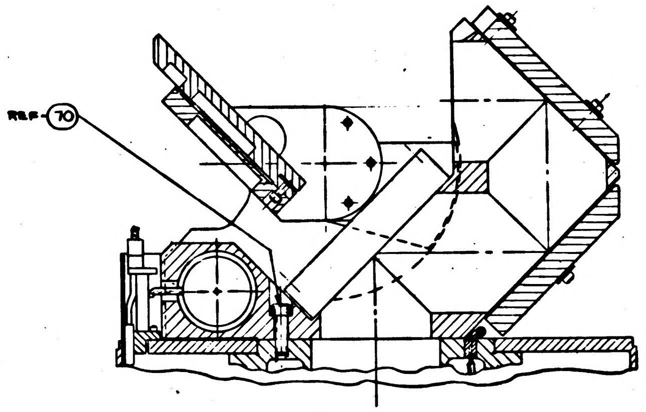
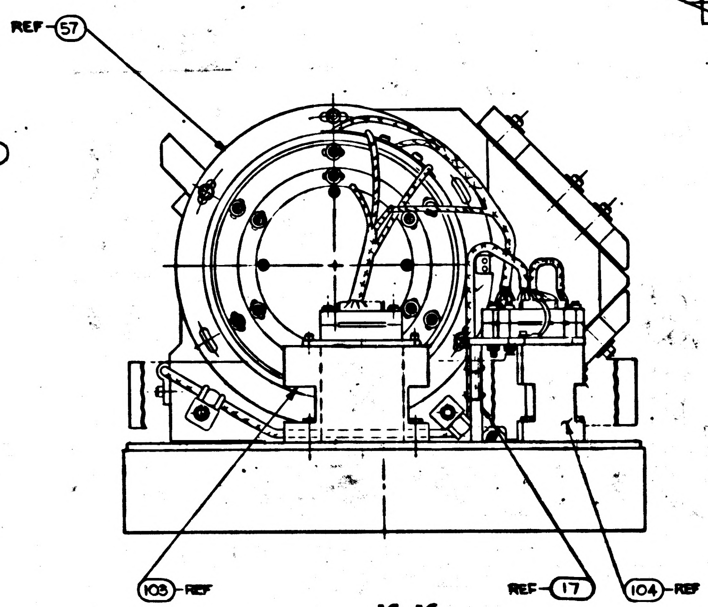
T
L
L
SXT
87
K
K
70



PARTIAL SECTION L-L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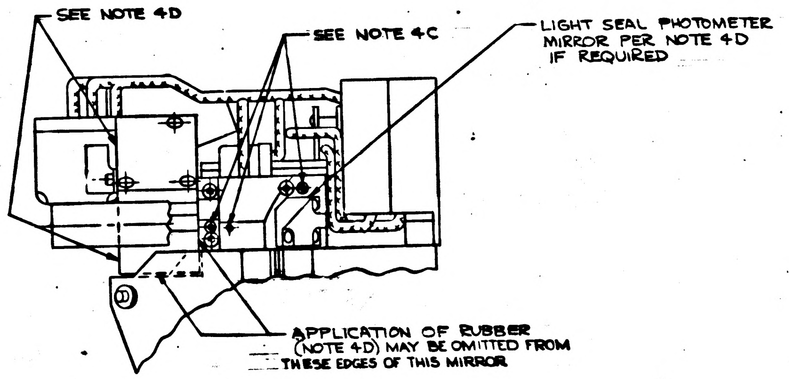
108-REF
REF-17
104-REF

PARTIAL VIEW K-K


SEE NOTE 4D
SEE NOTE 4C
LIGHT SEAL PHOTOMETER MIRROR PER NOTE 4D IF REQUIRED
APPLICATION OF RUBBER (NOTE 4D) MAY BE OMITTED FROM THESE EDGES OF THIS MIRROR

PARTIAL VIEW T-T

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911790
DRAWN E BRUNELLE DATE 10-26-65
CHECKED P.G. Lamo 11/2/65
APPROVAL E Blumenstock
APPROVAL
NASA APPROVED A.C. METZGER
UNIT APPROVAL W Nagle 16 Mar 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012730
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 4 OF 6

2012730

NOTES:

1. GENERAL REQUIREMENTS

a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARD PROCEDURES OF MIL-D-[illegible].

b. IDENTIFY USING CODE IDENT NO., DWG. NO., REV. LETTER, AND MANUFACTURER'S SERIAL NO. [illegible]

2. SCANNING TELESCOPE (SCT) REQUIREMENTS

a. ITEM [illegible] SHALL BE SELECTED AND/OR ADJUSTED BY [illegible] AND [illegible] TO PROVIDE A [illegible] OF [illegible] ± [illegible] DEG. TO ITEMS [illegible] AND [illegible].

b. THE SCT RETICLE CENTER (PART OF ITEM [illegible]) SHALL BE WITHIN [illegible] ARC SECONDS OF THE SHAFT DRIVE AXIS [illegible] PARALLEL TO THE TRUNNION AXIS OF ITEM [illegible].

c. THE SCT RETICLE TOP LINE SHALL ALIGN WITH THE SCT TRUNNION TRACE WITHIN [illegible] ARC MINUTES DEVIATION OVER ITS WHOLE LENGTH (FULL FIELD).

d. THE REQUIREMENTS OF NOTES [illegible] AND [illegible] SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. [illegible]) PARTS OF ITEM [illegible] HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF [illegible] IN-LB. AND WITHIN [illegible] IN-LB. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.

e. THE [illegible] OF THE RELAY LENS ASSEMBLY (PART NO. [illegible], PART OF ITEM [illegible]) SHALL BE ADJUSTED SO THAT A [illegible] TARGET RETICLE AT THE [illegible] IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.

f. ITEMS [illegible] AND [illegible] SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM [illegible] AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES [illegible] AND [illegible].

g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .[illegible] IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .[illegible] IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE SPECIFIED EXCURSION RANGE OF THE SCT SHAFT AT THOSE POSITIONS WHERE THE [illegible] ITEMS [illegible] AND [illegible] [illegible] SHAFT ([illegible] AND [illegible]). AT THESE POSITIONS THE [illegible] SHALL NOT EXCEED .[illegible] IN-OZ.

h. THE COUPLERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT [illegible] REQUIREMENTS OF TABLE I OF [illegible] AFTER THE REQUIREMENTS OF NOTE [illegible] HAVE BEEN MET. BACKLASH BETWEEN [illegible] SHALL BE BETWEEN .[illegible] AND .[illegible] THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS

a. VIBRATION PROOF ITEMS [illegible] AND [illegible], USING LOCKING COMPOUND GRADE "[illegible]" PER MIL-S-[illegible]. PREPARE SURFACES IN ACCORDANCE WITH [illegible].

b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO DEG., THE [illegible] AND [illegible] SHALL BE LATERALLY PARALLEL WITHIN [illegible] ARC SECONDS (TOP LINE COINCIDENCE).

c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO [illegible] DEG. IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE TOP LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE TOP LINE WITHIN [illegible] ARC SECONDS.

d. THE DIFFERENCE BETWEEN MEASUREMENTS [illegible] AND [illegible] [illegible] SHALL NOT EXCEED [illegible] ARC SECONDS.

e. THE SUM OF THE MEASUREMENTS [illegible] AND [illegible] SHALL NOT EXCEED [illegible] ARC SECONDS [illegible].

f. THE RETICLE AS OBSERVED THROUGH THE [illegible] SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN [illegible] ARC SECONDS.

g. THE SCT RETICLE AS OBSERVED THROUGH THE [illegible] SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN [illegible] ARC SECONDS. [illegible] MEASUREMENTS [illegible] AND [illegible] SHALL NOT [illegible].

h. THE SXT RETICLE TOP LINE SHALL ALIGN WITH THE SXT TRUNNION TRACE WITHIN [illegible] ARC SECONDS DEVIATION OVER ITS WHOLE LENGTH.

i. THE SXT TRUNNION LIGHT STOP, ITEMS [illegible] THRU [illegible], SHALL BE SET TO PROVIDE EQUAL [illegible] WITHIN [illegible] AT THE [illegible] AND [illegible] DEG POSITIONS.

j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM [illegible]) SHALL BE WOUND UP [illegible] TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE [illegible] DEG POSITION.

k. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS [illegible], [illegible], AND [illegible] WITH THEIR MOUNTING HARDWARE. THE [illegible] ON ITEM [illegible] SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM [illegible] IS [illegible] WITH ITEM [illegible]. ITEM [illegible] SHALL BE POSITIONED WITH ITS STOP PIN IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM [illegible]. REMOVE TOOL [illegible] & [illegible] WHICH ARE ITEMS 4 & 5 OF 2012307

l. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .[illegible] IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .[illegible] IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR SPECIFIED EXCURSIONS.

m. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING [illegible] IN-LBS LOCKING TORQUE TO [illegible] RETICLE LOCKING SCREWS [illegible] WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM [illegible]). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF [illegible]) [illegible] LOCKING COMPOUND, GRADE [illegible] OF MIL-S-[illegible] IN ACCORDANCE WITH [illegible].

n. AFTER THE REQUIREMENTS OF NOTE [illegible] HAVE BEEN ACCOMPLISHED REMOVE [illegible] RETAINERS AND [illegible] WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM [illegible]).

o. THE [illegible] ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT [illegible] REQUIREMENTS OF TABLE I OF [illegible].

4. [illegible] REQUIREMENTS

a. THE SXT [illegible] SHALL BE PARALLEL TO WITHIN [illegible] ARC SECONDS [illegible] AS THE TRUNNION [illegible] OVER THE [illegible].

b. THE SXT [illegible] SHALL BE PARALLEL TO WITHIN [illegible] ARC SECONDS.

c. FILL CAVITIES USING [illegible] EPOXY TO LOCK HORIZON TUNING FORK ASSY (2012[illegible]) & HORIZON SENSOR LENS ASSY (2012[illegible]) TO HOUSING IN ACCORDANCE WITH ND1002[illegible], METHOD 2.

d. LIGHT SEAL BETWEEN [illegible] AND HOUSING BY APPLYING A LAP BEAD OF SILICONE RUBBER ND 1002[illegible] AT EDGES. (EXERCISE CARE TO AVOID RUBBER BEING APPLIED TO MIRROR SURFACES)

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPTICAL UNIT SUBASSEMBLY
STAGE II

80230 | E | 2012730

2012730

2012730

REVISIONS TDRR 24092

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

LIST OF PARTS AND MATERIALS

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
	101								
1	100		2011889-021			OPTICAL UNIT SUB-ASSY STAGE I			
	99								
1	98	*	1000220-5			CLAMP, CABLE			
1	97	*	1011918-1			WASHER, CLAMP, CABLE			
1	96		NAS1352C08LL8	74455157011		SCREW, CAP, SOC. HD., SELF LOCKING			
	95								
	94								
1	93	*	1011625-28	74455151028		SCREW, CAP HEX, SOC. HD., SELF LOCKING			
1	92		2012431	56386910580		PLATE, MOUNTING, CONNECTOR			
2	91	*	1011625-11	74455151011		SCREW, CAP, SOC. HD., SELF LOCKING			
2	90		NAS1081C02A4L			SET SCREW, SELF LOCKING			
2	89		2012432	53386910050		POST, CONNECTOR PLATE			
1	88		1012522	68201016701		CABLE (FLAT) AND CONNECTOR ASSY			
2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC. HD., SELF LOCKING			
8	86		1011625-20	74455151020		SCREW, CAP, SOC. HD., SELF LOCKING			
1	85		2011595	52386910220		COVER, GEARBOX			
1	84		MS16624-1018			RING, RETAINING			
AR	83		2012351	7938691 0101 0105		WASHER, FLAT			
1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	81		2011579	57386910120		DOG, LIMIT STOP			
1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	79		1011608-5			BEARING, BALL, ANNULAR			
1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	77		2011577	56386910060		SPRING, TORSION			
1	76		2012350	25386910010		WASHER			
	75								
1	74	*	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	73		MS35249-11	74455187011		SCREW, SELF LOCKING, 82° FLAT HEAD			
8	72		1011625-39	74455151040		SCREW, CAP, SOC. HEAD, SELF LOCKING			
2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC. HEAD, SELF LOCKING			
2	70		NAS1351C3LL10	744551[illegible]040		SCREW, CAP, SOC. HEAD, SELF LOCKING			
4	69		NAS1189C02T4L			SCREW, FLAT HD., SELF LOCKING			
2	68		MS16624-15	—		RING, RETAINING, EXTERNAL, BASIC			
1	67		MS15795-305	—		WASHER, FLAT			
1	66	*	1011918-2	—		WASHER, CABLE CLAMP			
1	65	*	1000220-6 OR 5	—		CLAMP, CABLE			
1	64	*	1000220-5 OR 6	—		CLAMP, CABLE			
1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	62		2011885	45386910040		SHIM			
1	61	*	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	57	*	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
1	56		2012722	85386911780		SXT INDEX HD ASSY			
1	55		2012164	26386810060		GROMMET			
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	53								
2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC. HD., SELF LOCKING			
7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC. HD., SELF LOCKING			
	50								
4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC. HD., SELF LOCKING			
8	48	NAS	1352C04LL8	74455157015		↕			
14	47	NAS	1352C04LL6	74455157014		↕			
14	46	NAS	1352C04LL4	74455157013		↕			
14	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC. HD., SELF LOCKING			
	44								
12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING, 100° FLAT HEAD			
1	42		1010628-19			SCREW, FLAT HD., SELF LOCKING, SOC. HEX			
2	41	AN	960-C8	74468051004		WASHER, FLAT, REGULAR			
1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC. HD., SELF LOCKING			
2	39		2011684	48386910090		PIN, THREADED			
AR	38		2011677-1 TO 12	7938691 0001 THRU 0012		SPACER			
1	37	*	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1	36		MS9021-154			PACKING, PREFORMED			
1	35	*	1011606-1	30205772240		BEARING, BALL			
1	34	*	1011606-2	30205772720		BEARING, BALL			
1	33		2011825	3338[illegible]910170		GEAR, SPUR (42T-96P)			
2	32		2011562	57386910580		BUSHING, LOCATING			
2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	30		2011344	45386910020		SCREW, SHOULDER			
2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	26		2012486	57386911240		SPACER, CONNECTOR, MOUNTING PLATE			
1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
1	22		2011342	57386910570		RING, LIMIT STOP			
1	21		2011320	52306910160		PLATE, FLEXPRINT GUIDE			
1	20		2011616	57386910020		RING, MOUNTING, COVER			
1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
2	17		2011323	53386910020		POST, SHOULDERED, THREADED			
1	16		2012440	85386911240		FLEXPRINT RETAINING ASSY			
2	15		2011686	56386910310		RETAINER, PIN			
1	14	*	1012520-1	85386900910		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	13	*	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	12		2011705	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
1	11		2011714	85386910460		LIMIT STOP ASSY			
1	10		2012387	85386911110		GEAR & SPRING, ASSY OF			
1	9		2011906	85386910440		HOUSING STATOR & LAMP, ASSY OF			
1	8		2011703	85386910200		SHAFT DRIVE, GEAR BOX, SCT, ASSY OF			
1	7		2011702	85386910630		TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
	6								
1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	4		2011731	85386910830		HOUSING & LAMP, ASSY OF			
1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	2		2011722	85386910800		OUTER TELESCOPE TUBE ASSY			
	1								

LIST OF PARTS AND MATERIALS

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
	142								
	141								
	140								
	139								
	138								
	137								
	136								
	135								
	134								
	133								
	132								
	131								
	130								
	129								
	128								
	127								
	126								
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	123								
	122								
	121								
	120								
	119								
	118								
	117								
	116								
	115								
	114								
	113								
	112								
	111								
	110								
	109								
	108								
	107								
	106								
4	105		1012540-029			SCREW, HEX HD, SELF LOCKING			
1	104		2012725	57386911710		COUNTERWEIGHT			
1	103		2012726	57386911720		COUNTERWEIGHT			
1	102		2011215-011			TELESCOPE TRUNNION AXIS ASSY			

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911730

DRAWN A.C. WILLIAMS DATE
CHECKED P.A. [illegible] 11/2/65
APPROVAL E. [illegible]
APPROVAL
NASA APPROVAL A. C. METZGER
UNIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012730
SCALE
WEIGHT
SHEET 6 OF 6

MASTER

2012730

A	2012735

REVISIONS TDRR 25767

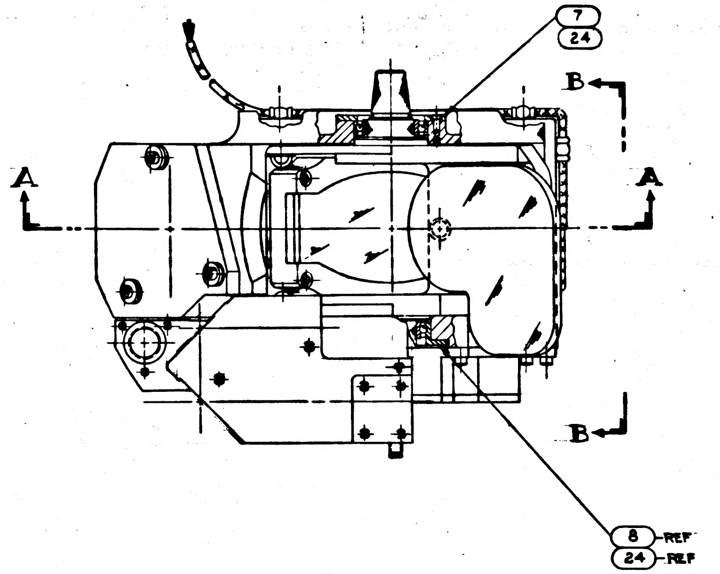
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26523	2/23/66	

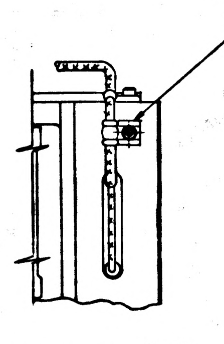
NOTES:

1a. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
b. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND 1002019 (TAGGING).

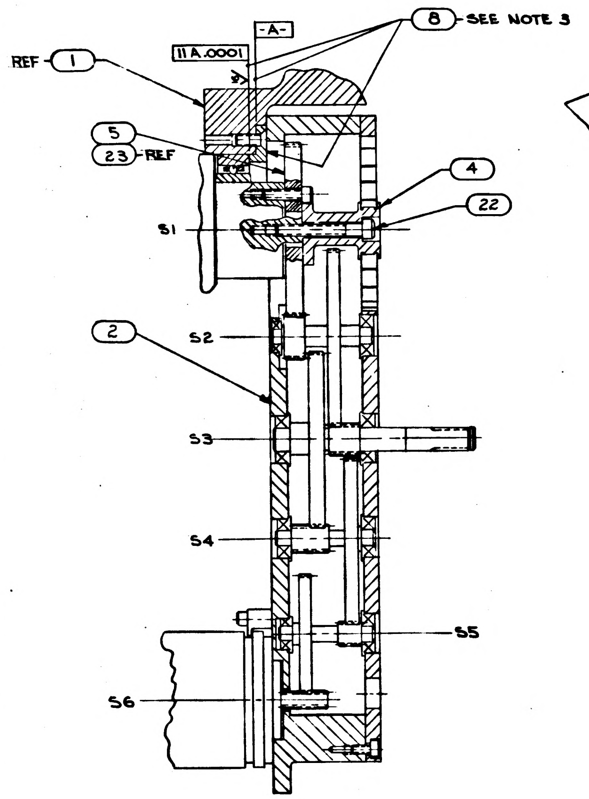
2. SELECT ITEMS 6, 9 AND 14 TO PRODUCE OPTIMUM FOCUS AND RESOLUTION IN CONJUNCTION WITH ITEM 3 BY THE FOLLOWING CRITERIA BASED ON THE INSPECTION OF ITEMS BY INTERFEROMETER.
   a) THE ALGEBRAIC SUM OF THE FRINGE CURVATURES TAKING CONCAVE AS PLUS AND CONVEX AS MINUS SHALL BE BETWEEN +1/2 AND -1/2 FOR BOTH THE LONG (2 1/4") AND SHORT (1.6") AXES OF THE USED ELLIPTICAL AREA OF THE SURFACES. THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE LONG AXIS SHALL EQUAL THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE SHORT AXIS WITHIN 1/2 FRINGE.
   b) MEASUREMENT PRECISION OF 1/4 FRINGE AT 5461 Å IS ASSUMED.
   c) VERIFY SELECTION BY MEASUREMENT OF:
      1. RESOLUTION -- 5 SECONDS OF ARC OR BETTER
      2.a. COMBINED FLATNESS -- 1/2 FRINGE (INTERFEROMETER)
      OR
      b. FOCUS -- ±1 1/4 MILLI DIOPTERS

3. MACHINE ITEM 8 AT ASSEMBLY TO APPLY 10±1 POUND PRELOAD ON THE BALL BEARING OF ITEM 3. TOUCH UP ITEM 8 BY APPLICATION OF CHEMICAL FILM PER MIL-C-5541, TYPE I, GRADE B, CLASS I WHERE MACHINING HAS REMOVED ORIGINAL FINISH.

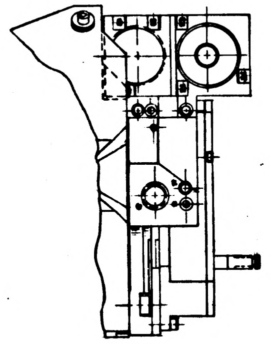


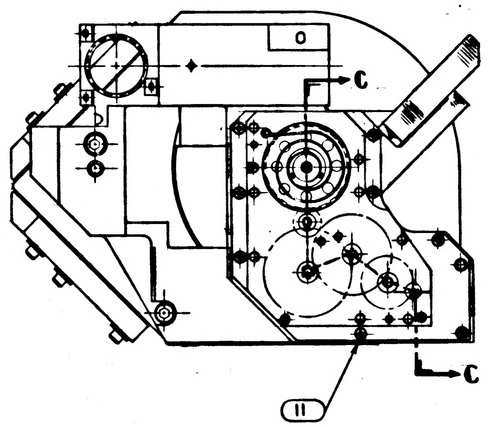


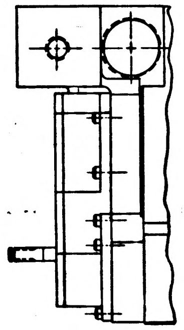
PARTIAL VIEW B-B

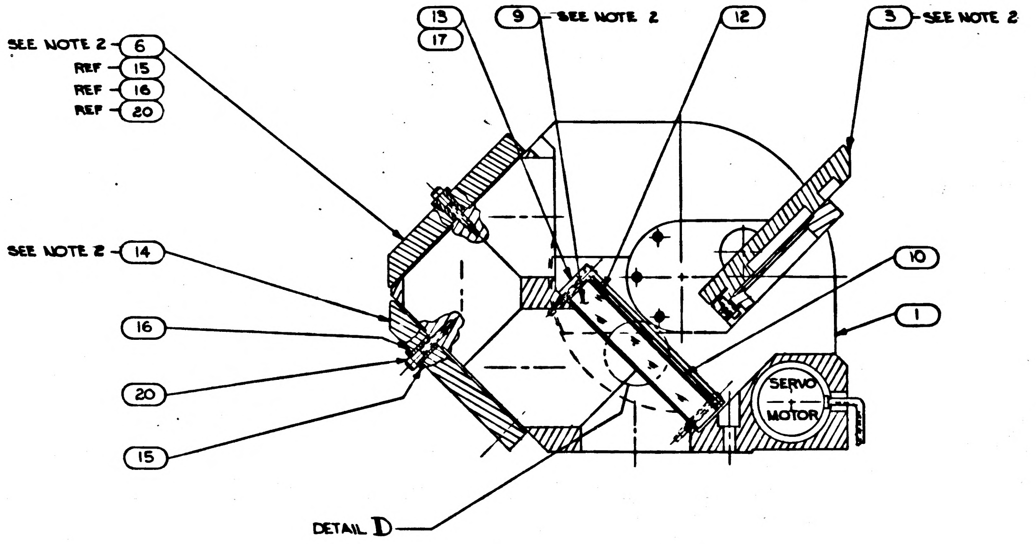


PARTIAL SECTION C-C
SCALE 2/1

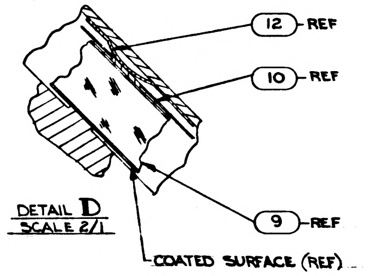








SECTION A-A



DETAIL D
SCALE 2/1

#PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG. BEFORE ORDERING.

MASTER

LIST OF PARTS AND MATERIALS

QTY REQD	ITEM NO	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
12	24		NAS1189C02P4L	74455155002		SCREW, 100° FLAT HD, SELF LOCKING			
3	23	#	1011625-11	74455151011		SCREW, CAP, HEX, SOC. HD. SELF LOCKING			
1	22	*	1011625-24	74455151024		↕			
3	21	*	1011625-28	74455151028		↕			
6	20		NAS1352C04LL10	74455157016		SCREW, CAP, HEX SOC. HD. SELF LOCKING			
3	19	*	1011918-1			WASHER, CABLE CLAMP			
3	18	*	1000220-4			CLAMP, CABLE			
4	17	*	1011625-34	74455151034		SCREW, CAP, HEX, SOC HD SELF LOCKING			
6	16		2011213	59386910010		WASHER, WAVE			
6	15		2011214	57386910220		BUSHING, MIRROR			
1	14		2011260	52386910380		MIRROR, SEXTANT HEAD			
1	13		2011598	52386910390		RETAINER, BEAMSPLITTER			
1	12		2011634	56386910150		SPRING, BEAMSPLITTER			
8	11		NAS1352C04LL6	74455157014		SCREW, CAP, HEX, SOC HD SELF LOCKING			
AR	10		2011635	56386910160		SPACER, BEAMSPLITTER			
1	9		2012222	28386810550		BEAMSPLITTER			
1	8		2011671	57386910010		RETAINER, DRIVE BEARING			
1	7		2011266	57386910230		RETAINER, BEARING			
1	6		2012366	52386910810		MIRROR, SEXTANT HEAD			
1	5		2011233	33386910010		GEAR SPUR (128T-96P)			
1	4		2011940	85386910090		SPRING & COLLET, ASSY OF			
1	3		2011712	85386910050		INDEXING MIRROR & MOUNT ASSY			
1	2		2011706	85386910100		TRUNNION DRIVE GEARBOX ASSY			
1	1		2011254-021	85386910040		HOUSING, SXT. HEAD, ASSY OF (MACHINING)			

NEXT ASSY	USED ON
2012736	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911800
DRAWN [illegible] DATE 21 Dec 65
CHECKED H.E. [illegible] 1-13-66
APPROVAL
APPROVAL [illegible] 1-17-66
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 1/31/66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT INDEX HEAD
ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012735
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

2012735 A

B	2012735

REVISIONS TDRL 25757

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26523	2/23/66	
B		REVISED PER TDRR 32739	1/19/67	

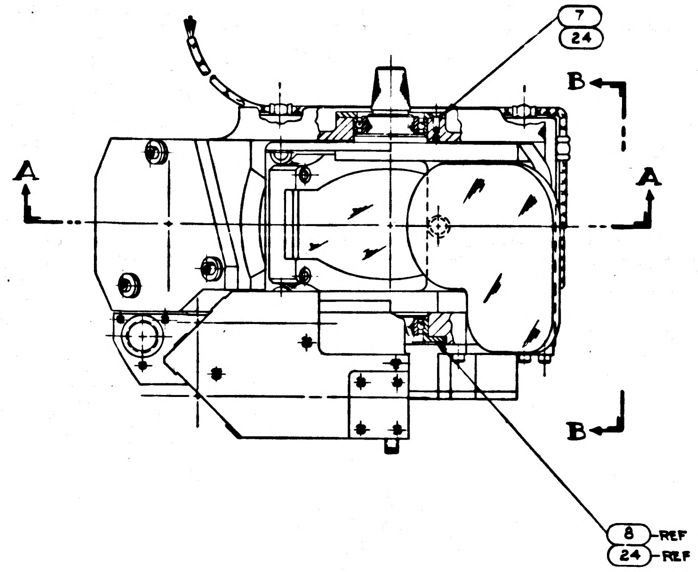
NOTES:

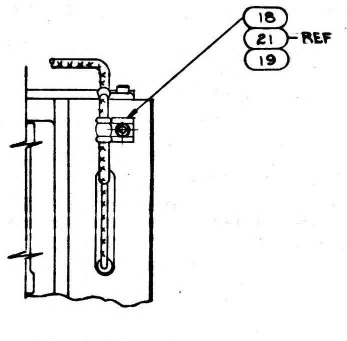
1a. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
 b. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019 (TAGGING).

2. SELECT ITEMS 6, 9 AND 14 TO PRODUCE OPTIMUM FOCUS AND RESOLUTION IN CONJUNCTION WITH ITEM 3 BY THE FOLLOWING CRITERIA BASED ON THE INSPECTION OF ITEMS BY INTERFEROMETER.
   a) THE ALGEBRAIC SUM OF THE FRINGE CURVATURES TAKING CONCAVE AS PLUS AND CONVEX AS MINUS SHALL BE BETWEEN +1/2 AND −1/2 FOR BOTH THE LONG (2 1/4") AND SHORT (1.6") AXES OF THE USED ELLIPTICAL AREA OF THE SURFACES. THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE LONG AXIS SHALL EQUAL THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE SHORT AXIS WITHIN 1/2 FRINGE.
   b) MEASUREMENT PRECISION OF 1/4 FRINGE AT 5461 Å IS ASSUMED.
   c) VERIFY SELECTION BY MEASUREMENT OF:
      1. RESOLUTION -- 5 SECONDS OF ARC OR BETTER
      2.a. COMBINED FLATNESS -- 1/2 FRINGE (INTERFEROMETER)
      OR
      b. FOCUS -- ±1 1/4 MILLI DIOPTERS

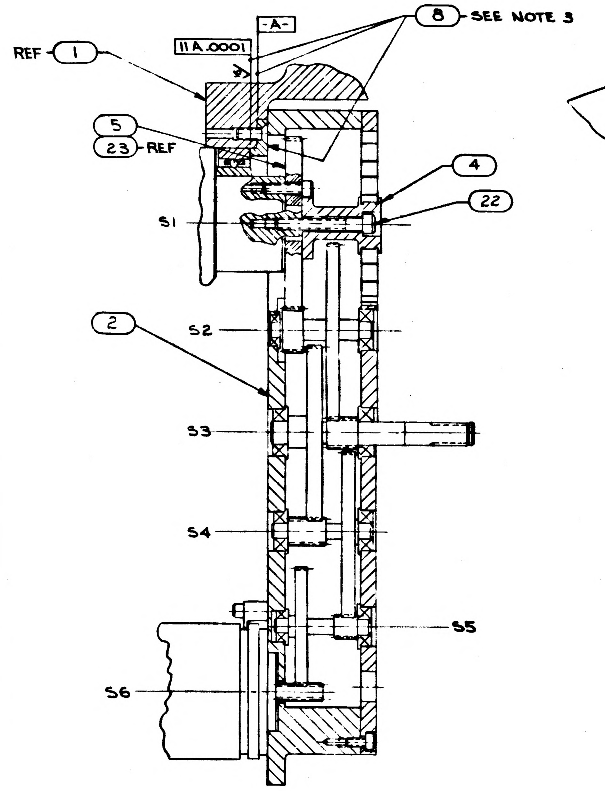
3. MACHINE ITEM 8 AT ASSEMBLY TO APPLY 10 ± 1 POUND PRELOAD ON THE BALL BEARING OF ITEM 3. TOUCH UP ITEM 8 BY APPLICATION OF CHEMICAL FILM PER MIL-C-5541, TYPE I, GRADE B, CLASS I WHERE MACHINING HAS REMOVED ORIGINAL FINISH.

4. ITEM NO. 15 TO BE SIZED (LAPPED) AT ASSY, TO ATTAIN A GAP, BETWEEN BACK OF MIRROR AND BUSHING FLANGE, OF $.002^{+.001}_{-.000}$ PLUS WAVE WASHER THICKNESS.

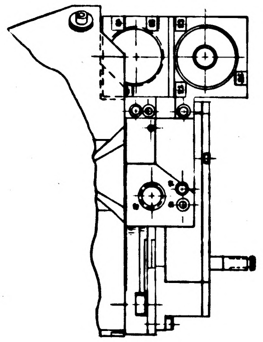


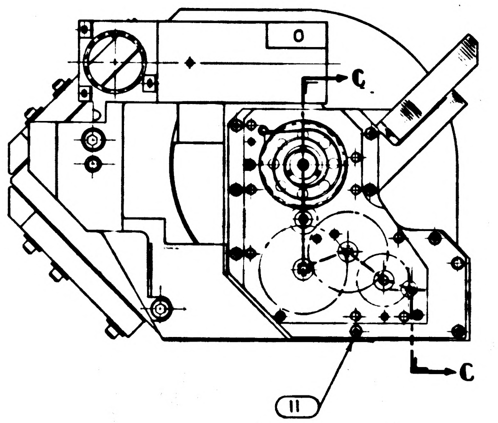


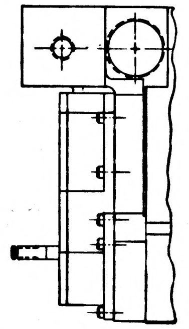
PARTIAL VIEW B-B

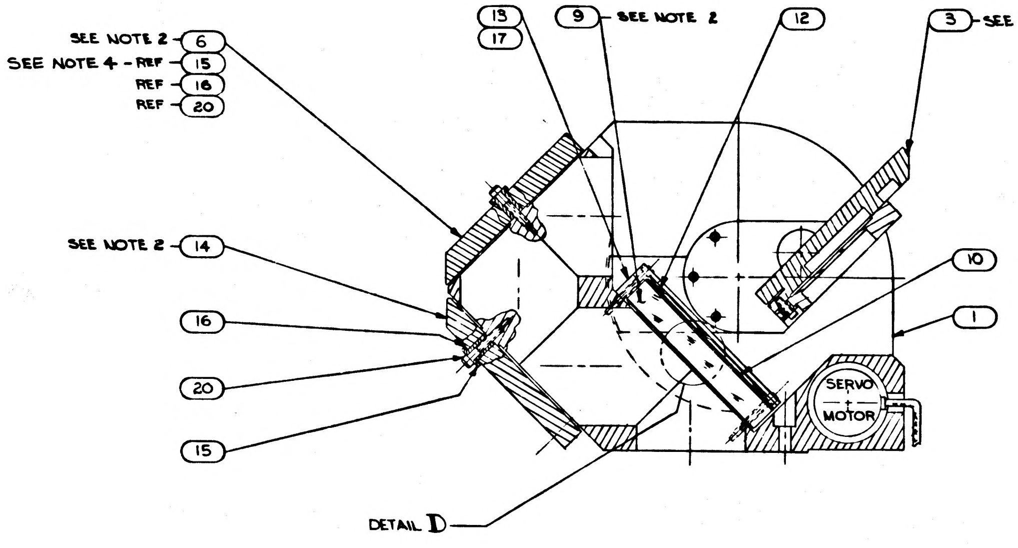


PARTIAL SECTION C-C
SCALE 2/1

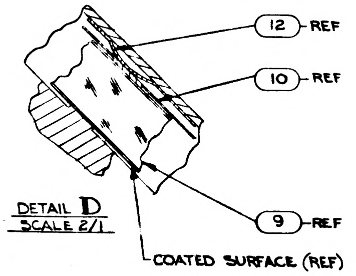








SECTION A-A



DETAIL D
SCALE 2/1

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG. BEFORE ORDERING.

QTY REQD	ITEM NO	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
12	24		NAS1189C02P4L	74455155002		SCREW, 100° FLAT HD, SELF LOCKING			
3	23	*	1011625-11	74455151011		SCREW, CAP, HEX, SOC. HD. SELF LOCKING			
1	22	*	1011625-24	74455151024		↕ ↕			
3	21	*	1011625-28	74455151028		↕ ↕			
6	20		NAS1352C04LL10	74455157016		SCREW, CAP HEX SOC. HD. SELF LOCKING			
3	19	*	1011918-1			WASHER, CABLE CLAMP			
3	18	*	1000220-4			CLAMP, CABLE			
4	17	*	1011625-34	74455151034		SCREW, CAP. HEX, SOC HD SELF LOCKING			
6	16		2011213	59386910010		WASHER, WAVE			
6	15		2011214	57386910220		BUSHING, MIRROR			
1	14		2011260	52386910380		MIRROR, SEXTANT HEAD			
1	13		2011598	52386910390		RETAINER, BEAMSPLITTER			
1	12		2011634	56386910150		SPRING, BEAMSPLITTER			
8	11		NAS1352C04LL6	74455157014		SCREW, CAP, HEX, SOC HD SELF LOCKING			
AR	10		2011635	56386910160		SPACER, BEAMSPLITTER			
1	9		2012222	28386910550		BEAMSPLITTER			
1	8		2011671	57386910010		RETAINER, DRIVE BEARING			
1	7		2011266	57386910230		RETAINER, BEARING			
1	6		2012366	52386910310		MIRROR, SEXTANT HEAD			
1	5		2011233	33386910010		GEAR, SPUR (128T-96P)			
1	4		2011940	85386910090		SPRING & COLLET, ASSY OF			
1	3		2011712	85386910050		INDEXING MIRROR & MOUNT ASSY			
1	2		2011706	85386910100		TRUNNION DRIVE GEARBOX ASSY			
1	1		2011254-021	85386910040		HOUSING, SXT. HEAD, ASSY OF (MACHINING)			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012736	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911800
DRAWN Bankowski DATE 21 Dec 65
CHECKED 1-13-66
APPROVAL
APPROVAL 1-17-66
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT INDEX HEAD ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012735
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012735 B

1/13

2012735 C

REVISIONS TDRL 2575				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26523	2/23/66	
B		REVISED PER TDRR 32739	1/19/67	
C		REVISED PER TDRR 32825	1/27/67	JWP

NOTES:

1a. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
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   a) THE ALGEBRAIC SUM OF THE FRINGE CURVATURES TAKING CONCAVE AS PLUS AND CONVEX AS MINUS SHALL BE BETWEEN +1/2 AND −1/2 FOR BOTH THE LONG (2 1/4") AND SHORT (1.6") AXES OF THE USED ELLIPTICAL AREA OF THE SURFACES. THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE LONG AXIS SHALL EQUAL THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE SHORT AXIS WITHIN 1/2 FRINGE.
   b) MEASUREMENT PRECISION OF 1/4 FRINGE AT 5461 Å IS ASSUMED.
   c) VERIFY SELECTION BY MEASUREMENT OF:
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      OR
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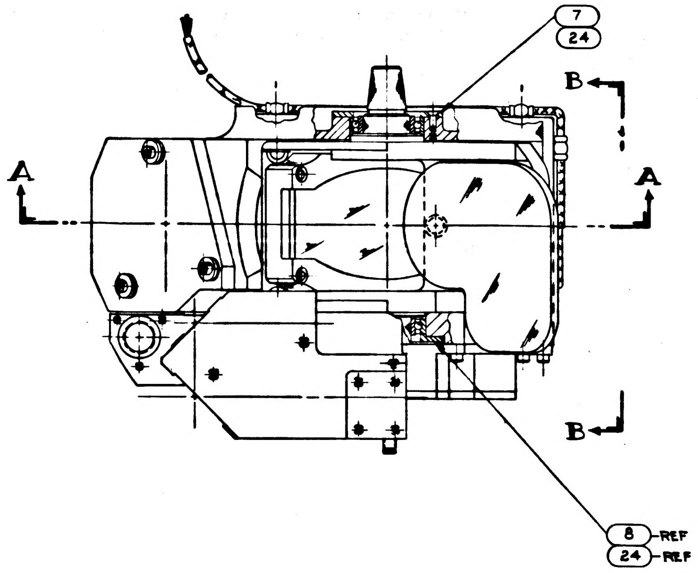
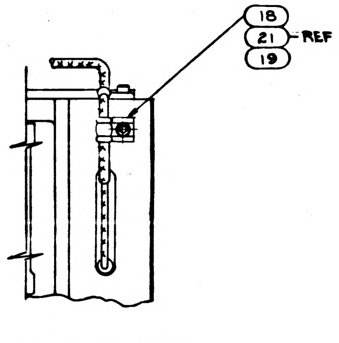
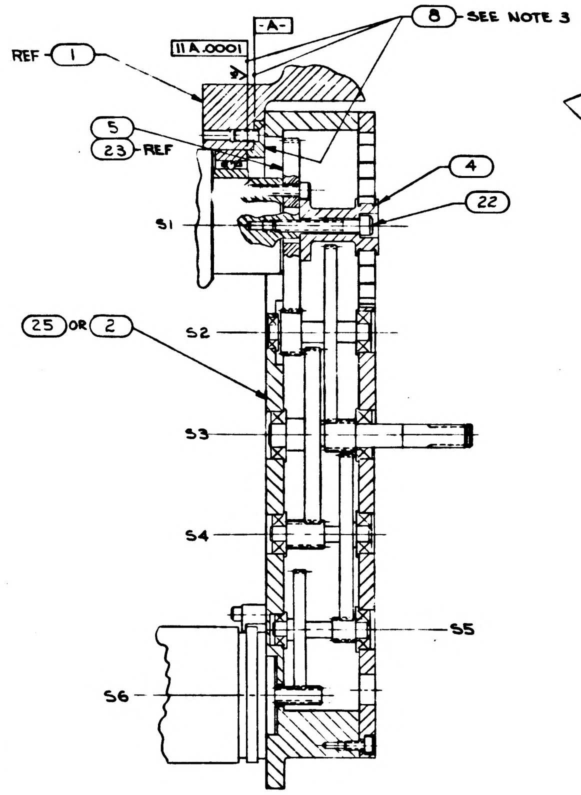
4. ITEM NO. 15 TO BE SIZED (LAPPED) AT ASSY, TO ATTAIN A GAP, BETWEEN BACK OF MIRROR AND BUSHING FLANGE, OF .002 $^{+.001}_{-.000}$ PLUS WAVE WASHER THICKNESS.

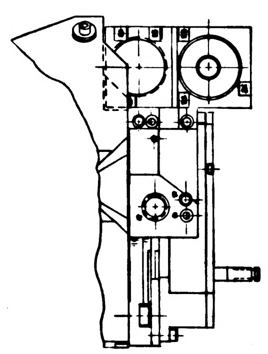


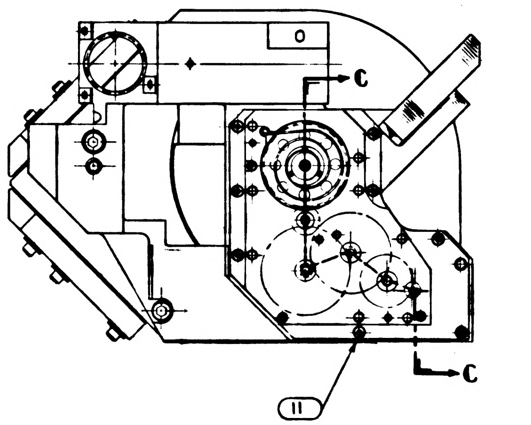


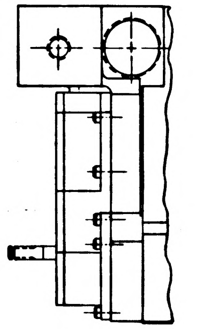
PARTIAL VIEW B-B

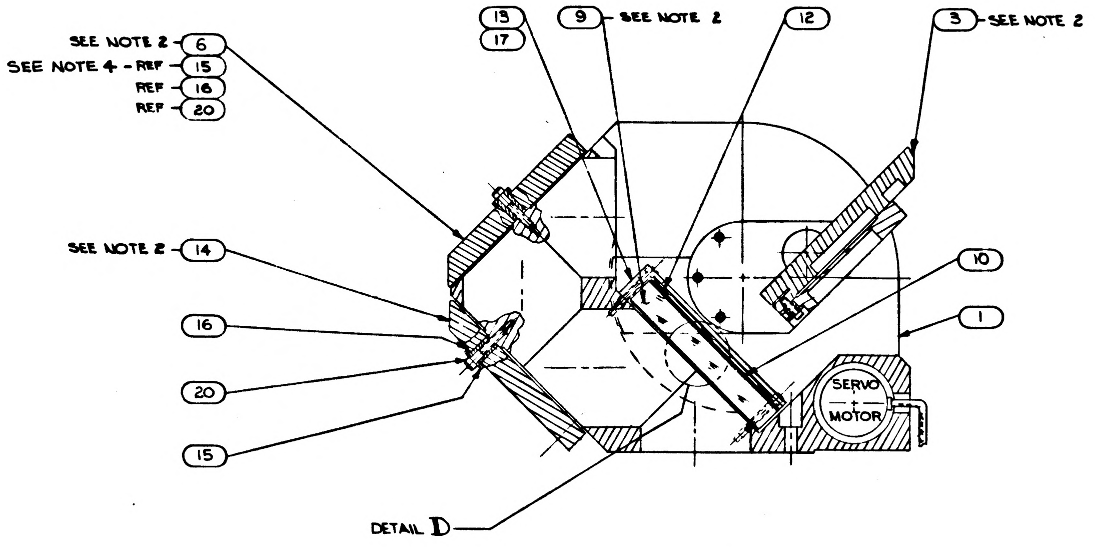


PARTIAL SECTION C-C
SCALE 2/1

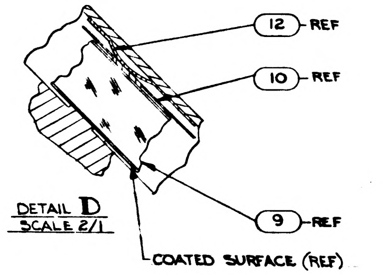








SECTION A-A



DETAIL D
SCALE 2/1

QTY REQD 011	000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	0	25		2011706-011			TRUNNION DRIVE GEARBOX ASSY			
12	12	24	NAS1189C02P4L		74455155002		SCREW, 100° FLAT HD, SELF LOCKING			
3	3	23	*	1011625-11	74455151011		SCREW, CAP, HEX, SOC. HD. SELF LOCKING			
1	1	22	*	1011625-24	74455151024		↕			
3	3	21	*	1011625-28	74455151028		↕			
6	6	20	NAS1352C04LL10		74455157016		SCREW, CAP HEX SOC. HD. SELF LOCKING			
3	3	19	*	1011918-1			WASHER, CABLE CLAMP			
3	3	18	*	1000220-4			CLAMP, CABLE			
4	4	17	*	1011625-34	74455151034		SCREW, CAP, HEX, SOC HD SELF LOCKING			
6	6	16		2011213	59386910010		WASHER, WAVE			
6	6	15		2011214	57386910220		BUSHING, MIRROR			
1	1	14		2011260	52386910380		MIRROR, SEXTANT HEAD			
1	1	13		2011598	52386910390		RETAINER, BEAMSPLITTER			
1	1	12		2011634	56386910150		SPRING, BEAMSPLITTER			
8	8	11	NAS1352C04LL6		74455157014		SCREW, CAP, HEX, SOC HD SELF LOCKING			
AR	AR	10		2011635	56386910160		SPACER, BEAMSPLITTER			
1	1	9		2012222	28386910550		BEAMSPLITTER			
1	1	8		2011671	57386910010		RETAINER, DRIVE BEARING			
1	1	7		2011266	57386910230		RETAINER, BEARING			
1	1	6		2012366	52386910310		MIRROR, SEXTANT HEAD			
1	1	5		2011233	33386910010		GEAR, SPUR (128T-96P)			
1	1	4		2011940	85386910090		SPRING & COLLET, ASSY OF			
1	1	3		2011712	85386910050		INDEXING MIRROR & MOUNT ASSY			
0	1	2		2011706	85386910100		TRUNNION DRIVE GEARBOX ASSY			
1	1	1		2011254-021	85386910040		HOUSING, SXT. HEAD, ASSY OF (MACHINING)			

LIST OF PARTS AND MATERIALS

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG. BEFORE ORDERING.

MASTER

NEXT ASSY	USED ON
2012736	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911800
DRAWN DATE 21 DEC 65
CHECKED 1-13-66
APPROVAL
APPROVAL E. Thorup 1-17-66
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT INDEX HEAD
ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012735
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

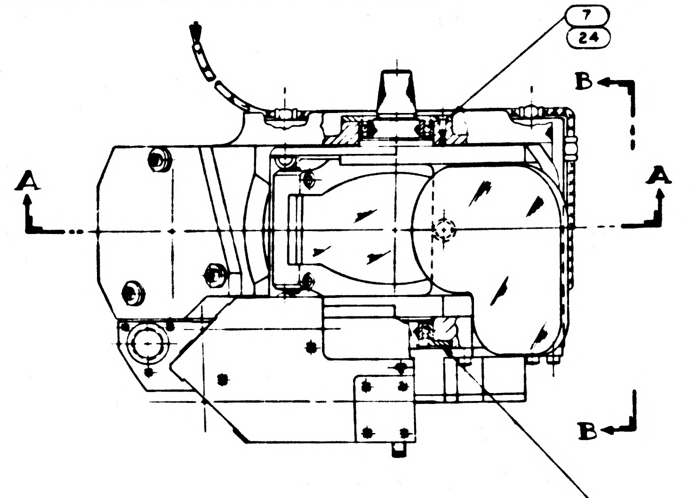
2012735 C

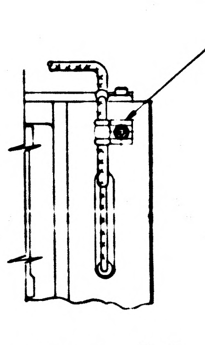
NOTES:

1a. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
b. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019 (TAGGING)
2. SELECT ITEMS 6, 9 AND 14 TO PRODUCE OPTIMUM FOCUS AND RESOLUTION IN CONJUNCTION WITH ITEM 3 BY THE FOLLOWING CRITERIA BASED ON THE INSPECTION OF ITEMS BY INTERFEROMETER
a) THE ALGEBRAIC SUM OF THE FRINGE CURVATURES TAKING CONCAVE AS PLUS AND CONVEX AS MINUS SHALL BE BETWEEN +1/2 AND −1/2 FOR BOTH THE LONG (2 1/4") AND SHORT (1.6") AXES OF THE USED ELLIPTICAL AREA OF THE SURFACES. THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE LONG AXIS SHALL EQUAL THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE SHORT AXIS WITHIN 1/2 FRINGE.
b) MEASUREMENT PRECISION OF 1/4 FRINGE AT 5461 Å IS ASSUMED.
c) VERIFY SELECTION BY MEASUREMENT OF:
1. RESOLUTION -- 5 SECONDS OF ARC OR BETTER
2 a. COMBINED FLATNESS -- 1/2 FRINGE (INTERFEROMETER)
OR
b. FOCUS -- ±1 1/4 MILLI DIOPTERS
3. MACHINE ITEM 8 AT ASSEMBLY TO APPLY 10±1 POUND PRELOAD ON THE BALL BEARING OF ITEM 3. TOUCH UP ITEM 8 BY APPLICATION OF CHEMICAL FILM PER MIL-C-5541, TYPE I, GRADE B, CLASS I WHERE MACHINING HAS REMOVED ORIGINAL FINISH.
4. ITEM NO 15 TO BE SIZED (LAPPED) AT ASSY, TO ATTAIN A GAP, BETWEEN BACK OF MIRROR AND BUSHING FLANGE, OF $.002 {}^{+.001}_{-.000}$ PLUS WAVE WASHER THICKNESS.

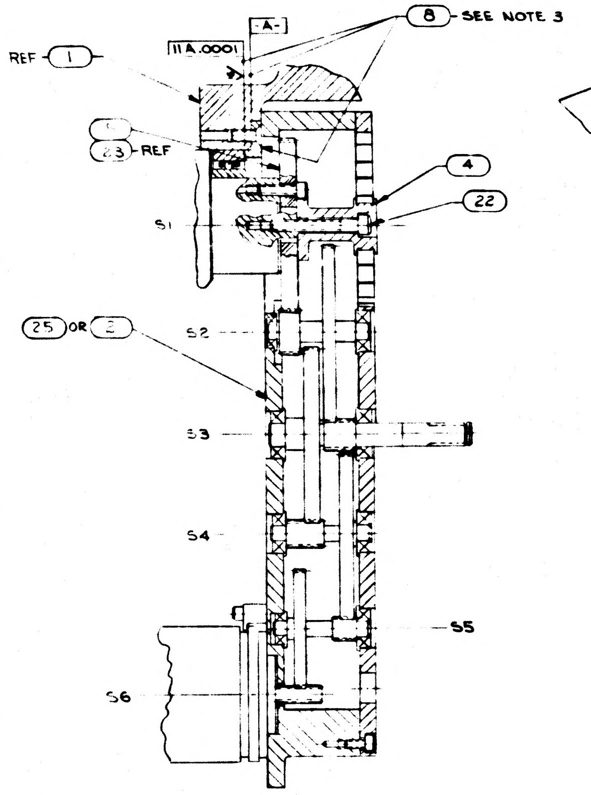
2012735 C

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26523	2/23/..	
B		REVISED PER TDRR 32739		
C		REVISED PER TDRR 32825	1/27/6.	
D		REVISED PER TDRR 343..	7/18/..	

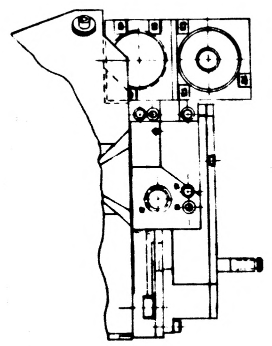


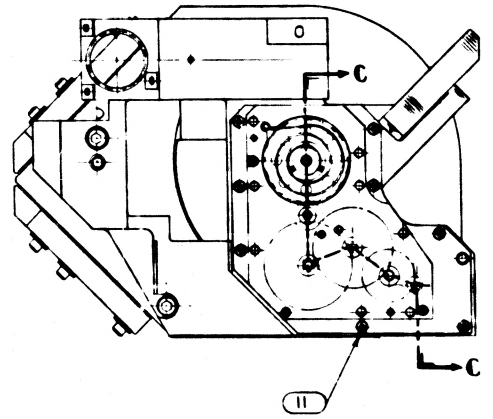


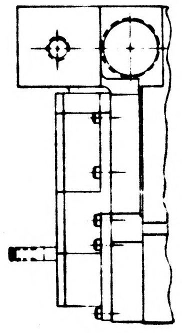
PARTIAL VIEW B-B

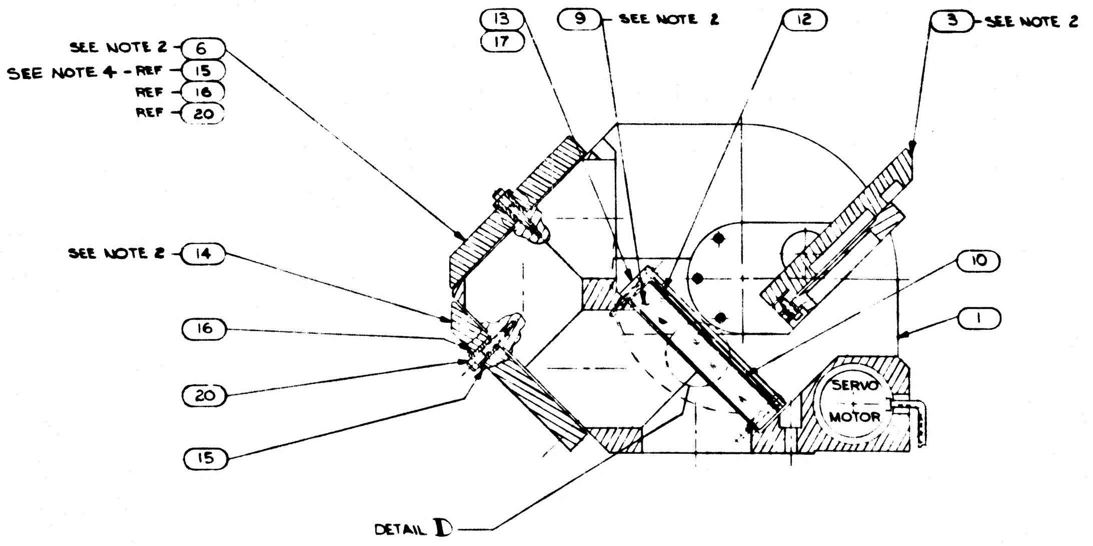


PARTIAL SECTION C-C
SCALE 2/1

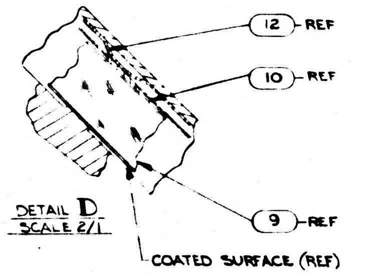








SECTION A-A



DETAIL D
SCALE 2/1

* PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG. BEFORE ORDERING.

LIST OF PARTS AND MATERIALS

QTY REQD 021	011	000	ITEM NO.	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	0	0	26		2012767			SPRING & COLLECT ASSY OF			
1	1	0	25		2011706-011			TRUNNION DRIVE GEARBOX ASSY			
12	12	12	24		NAS1189C02F4L	74455155002		SCREW, 100° FLAT HD, SELF LOCKING			
3	3	3	23	*	1011625-11	74455151011		SCREW, CAP HEX SOC HD SELF LOCKING			
1	1		22	*	1011625-24	74455151024		↕			
3	3	3	21	*	1011625-28	74455151028		↕			
6	6	6	20		NAS1352C04LL10	74455157016		SCREW CAP HEX SOC HD SELF LOCKING			
3	3	3	19	*	1011918-1			WASHER CABLE CLAMP			
3	3	3	18	*	1000220-4			CLAMP, CABLE			
4	4	4	17	*	1011625-34	74455151034		SCREW, CAP HEX SOC HD SELF LOCKING			
6	6	6	16		2011213	59386910010		WASHER, WAVE			
6	6	6	15		2011214	57386910220		BUSHING MIRROR			
1	1	1	14		2011260	52386910380		MIRROR SEXTANT HEAD			
1	1	1	13		2011598	52386910390		RETAINER BEAMSPLITTER			
1	1	1	12		2011634	56386910150		SPRING BEAMSPLITTER			
8	8	8	11		NAS1352C04LL6	74455157014		SCREW CAP HEX SOC HD SELF LOCKING			
AR	AR	AR	10		2011635	56386910160		SPACER, BEAMSPLITTER			
1	1	1	9		2012222	28386910550		BEAMSPLITTER			
1	1	1	8		2011671	57385910010		RETAINER DRIVE BEARING			
1	1	1	7		2011266	57386910230		RETAINER, BEARING			
1	1	1	6		2012366	52386910310		MIRROR SEXTANT HEAD			
1	1	1	5		2011233	33386910010		GEAR SPUR (128T-96P)			
0	1	1	4		2011940	85386910090		SPRING & COLLET ASSY OF			
1	1	1	3		2011712	85386910050		INDEXING MIRROR & MOUNT ASSY			
0	0	1	2		2011706	85386910100		TRUNNION DRIVE GEARBOX ASSY			
1	1		1		2011254-021	85386910040		HOUSING SXT HEAD ASSY OF (MACHINING)			

NEXT ASSY	USED ON
2012736	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 853869 800
DRAWN
DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

TITLE
SEXTANT INDEX HEAD
ASSEMBLY

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012735
SCALE
WEIGHT CALC ACTUAL
SHEET OF

2012735 E

NOTES:

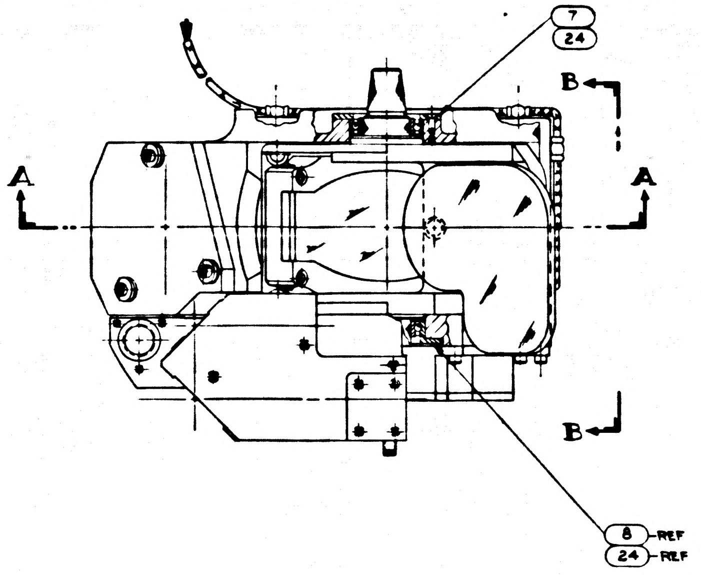
1a. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
b. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019 (TAGGING).

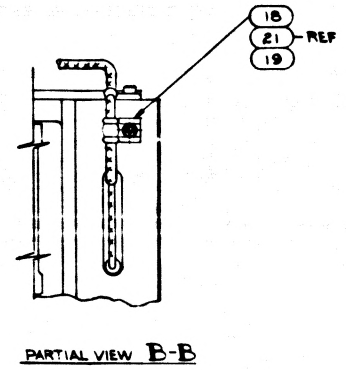
2. SELECT ITEMS 6, 9 AND 14 TO PRODUCE OPTIMUM FOCUS AND RESOLUTION IN CONJUNCTION WITH ITEM 3 BY THE FOLLOWING CRITERIA BASED ON THE INSPECTION OF ITEMS BY INTERFEROMETER.
   a) THE ALGEBRAIC SUM OF THE FRINGE CURVATURES TAKING CONCAVE AS PLUS AND CONVEX AS MINUS SHALL BE BETWEEN + 1/2 AND - 1/2 FOR BOTH THE LONG (2 1/4") AND SHORT (1.6") AXES OF THE USED ELLIPTICAL AREA OF THE SURFACES. THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE LONG AXIS SHALL EQUAL THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE SHORT AXIS WITHIN 1/2 FRINGE.
   b) MEASUREMENT PRECISION OF 1/4 FRINGE AT 5461 Å IS ASSUMED.
   c) VERIFY SELECTION BY MEASUREMENT OF:
      1. RESOLUTION -- 5 SECONDS OF ARC OR BETTER
      2 a. COMBINED FLATNESS -- 1/2 FRINGE (INTERFEROMETER)
      OR
      b. FOCUS -- ±1 1/4 MILLI DIOPTERS

3. MACHINE ITEM 8 AT ASSEMBLY TO APPLY 10 ± 1 POUND PRELOAD ON THE BALL BEARING OF ITEM 3. TOUCH UP ITEM 8 BY APPLICATION OF CHEMICAL FILM PER MIL-C-5541, TYPE I, GRADE B, CLASS I WHERE MACHINING HAS REMOVED ORIGINAL FINISH.

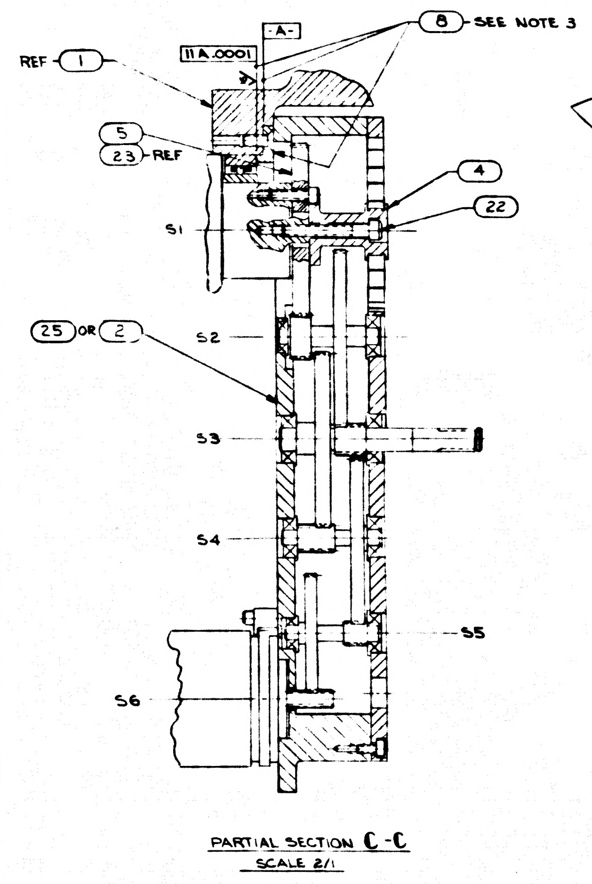
4. ITEM NO 15 TO BE SIZED (LAPPED) AT ASSY, TO ATTAIN A GAP, BETWEEN BACK OF MIRROR AND BUSHING FLANGE, OF .002 $^{+.001}_{-.000}$ PLUS WAVE WASHER THICKNESS.

REVISIONS TDRR 25[illegible]				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26523	[illegible]	[illegible]
B		REVISED PER TDRR 32739	1/1/66	[illegible]
C		REVISED PER TDRR 32E25	1/27/67	[illegible]
D		REVISED PER TDRR 34336	7/18/67	[illegible]
E		REVISED PER TDRR 34360	8/18 67	[illegible]

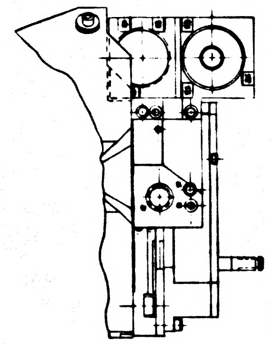


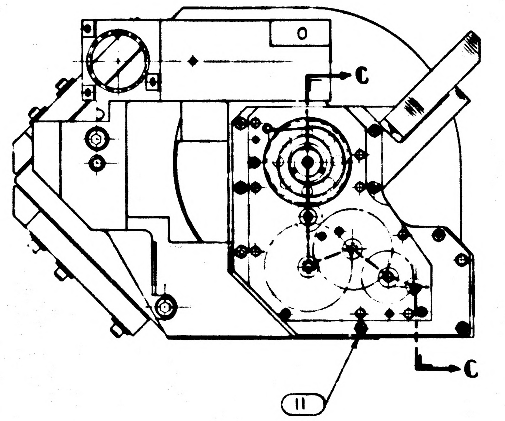


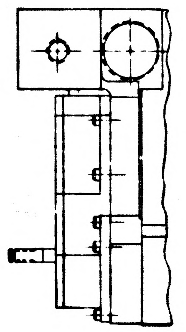
PARTIAL VIEW B-B

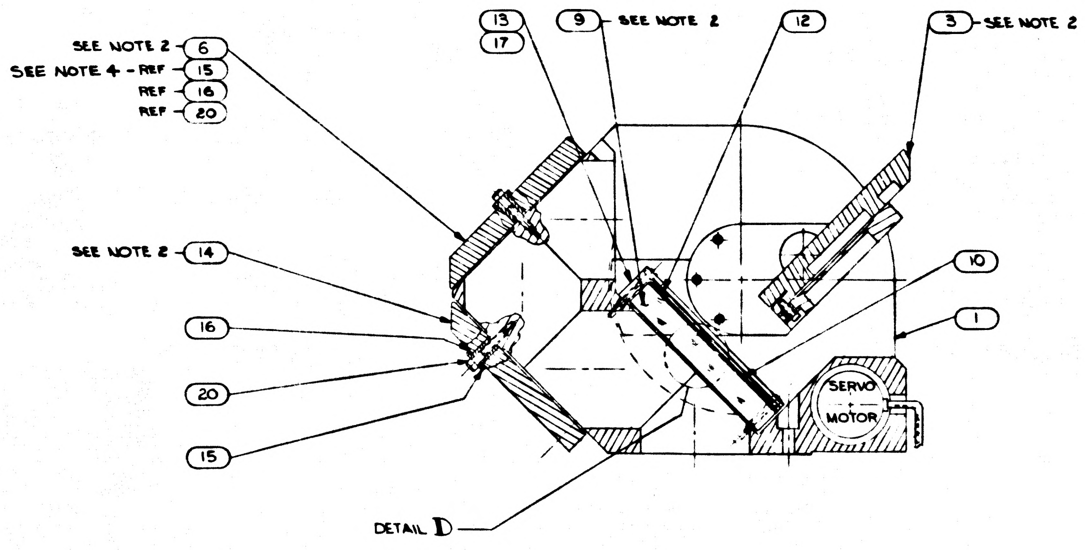


PARTIAL SECTION C-C
SCALE 2/1

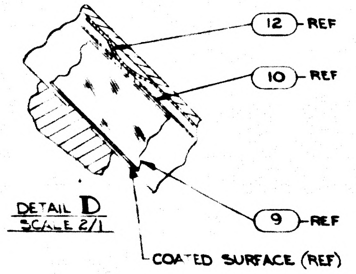








SECTION A-A



DETAIL D
SCALE 2/1

* PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG. BEFORE ORDERING.

QTY REQD 001	QTY REQD 021	QTY REQD 011	QTY REQD 000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	1	0	0	26		2012767			SPRING & COLLECT ASSY OF			
0	1	1	0	25		2011706-011			TRUNNION DRIVE GEARBOX ASSY			
12	12	12	12	24		NAS1189C02P4L	74455155002		SCREW, 100° FLAT HD, SELF LOCKING			
3	3	3	3	23	*	1011625-11	74455151011		SCREW, CAP HEX. SOC HD SELF LOCKING			
1	1	1	1	22	*	1011625-24	74455151024		↕			
3	3	3	3	21	*	1011625-28	74455151028		↕			
6	6	6	6	20		NAS1352C04LL10	74455157016		SCREW, CAP HEX SOC HD SELF LOCKING			
3	3	3	3	19	*	1011918-1			WASHER, CABLE CLAMP			
3	3	3	3	18	*	1000220-4			CLAMP, CABLE			
4	4	4	4	17	*	1011625-34	74455151034		SCREW, CAP HEX. SOC HD SELF LOCKING			
6	6	6	6	16		2011213	59386910010		WASHER, WAVE			
6	6	6	6	15		2011214	57386910220		BUSHING, MIRROR			
1	1	1	1	14		2011260	52386910380		MIRROR, SEXTANT HEAD			
1	1	1	1	13		2011598	52386910390		RETAINER, BEAMSPLITTER			
1	1	1	1	12		2011634	56388910150		SPRING, BEAMSPLITTER			
8	8	8	8	11		NAS1352C04LL6	74455157014		SCREW, CAP HEX. SOC HD SELF LOCKING			
AR	AR	AR	AR	10		2011635	56386910160		SPACER, BEAMSPLITTER			
1	1	1	1	9		2012222	28386910550		BEAMSPLITTER			
1	1	1	1	8		2011671	57386910010		RETAINER, DRIVE BEARING			
1	1	1	1	7		2011266	57386910230		RETAINER, BEARING			
1	1	1	1	6		2012366	52386910310		MIRROR, SEXTANT HEAD			
1	1	1	1	5		2011233	33386910010		GEAR SPUR (128T-96P)			
0	0	1	1	4		2011940	85386910090		SPRING & COLLET, ASSY OF			
1	1	1	1	3		2011712	85386910050		INDEXING MIRROR & MOUNT ASSY			
1	0	0	1	2		2011706	85386910100		TRUNNION DRIVE GEARBOX ASSY			
1	1	1	1	1		2011254-021	85386910040		HOUSING, SXT HEAD ASSY OF (MACHINING)			

LIST OF PARTS AND MATERIALS

2012736	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 853869 800
DRAWN [illegible] DATE 21 Dec 65
CHECKED [illegible]
APPROVAL
APPROVAL E. [illegible] 1-17-66
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT INDEX HEAD
ASSEMBLY

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012735
SCALE
WEIGHT
CALC. ACT.
SHEET OF

2012735 F

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 26523	[illegible]	[illegible]
B		REVISED PER TDRR 32739	[illegible]	[illegible]
C		REVISED PER TDRR 32925	1/27/67	[illegible]
D		REVISED PER TDRR 34636	7/18/67	[illegible]
E		REVISED PER TDRR 34380	8/18/67	[illegible]
F		REVISED PER TDRR 35657	[illegible]	[illegible]

NOTES:

1a. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327

b. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019 (TAGGING)

2. SELECT ITEMS 6, 9 AND 14 TO PRODUCE OPTIMUM FOCUS AND RESOLUTION IN CONJUNCTION WITH ITEM 3 BY THE FOLLOWING CRITERIA BASED ON THE INSPECTION OF ITEMS BY INTERFEROMETER.

a) THE ALGEBRAIC SUM OF THE FRINGE CURVATURES TAKING CONCAVE AS PLUS AND CONVEX AS MINUS SHALL BE BETWEEN + 1/2 AND − 1/2 FOR BOTH THE LONG (2 1/4") AND SHORT (1.6") AXES OF THE USED ELLIPTICAL AREA OF THE SURFACES. THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE LONG AXIS SHALL EQUAL THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE SHORT AXIS WITHIN 1/2 FRINGE.

b) MEASUREMENT PRECISION OF 1/4 FRINGE AT 5461 Å IS ASSUMED.

c) VERIFY SELECTION BY MEASUREMENT OF:

1. RESOLUTION - - 5 SECONDS OF ARC OR BETTER

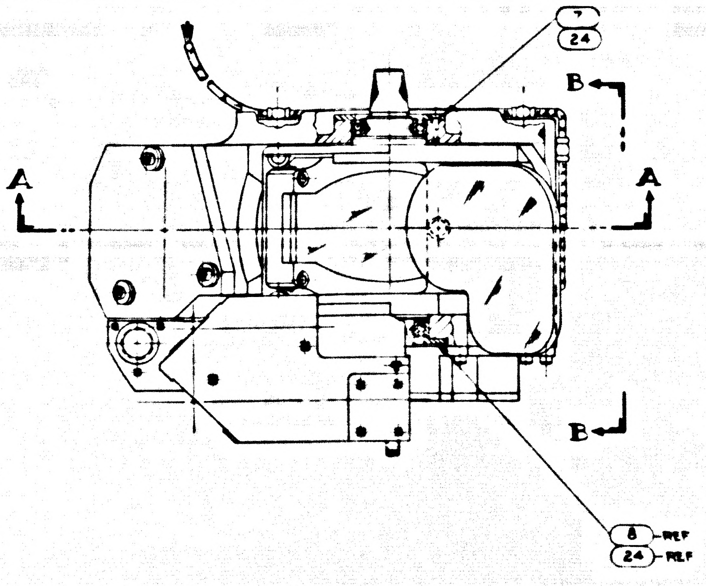
2 a. COMBINED FLATNESS - - 1/2 FRINGE (INTERFEROMETER)

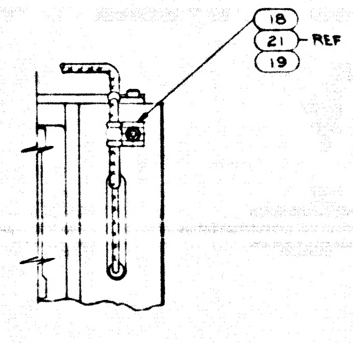
OR

b. FOCUS - - ±1 1/4 MILLI DIOPTERS

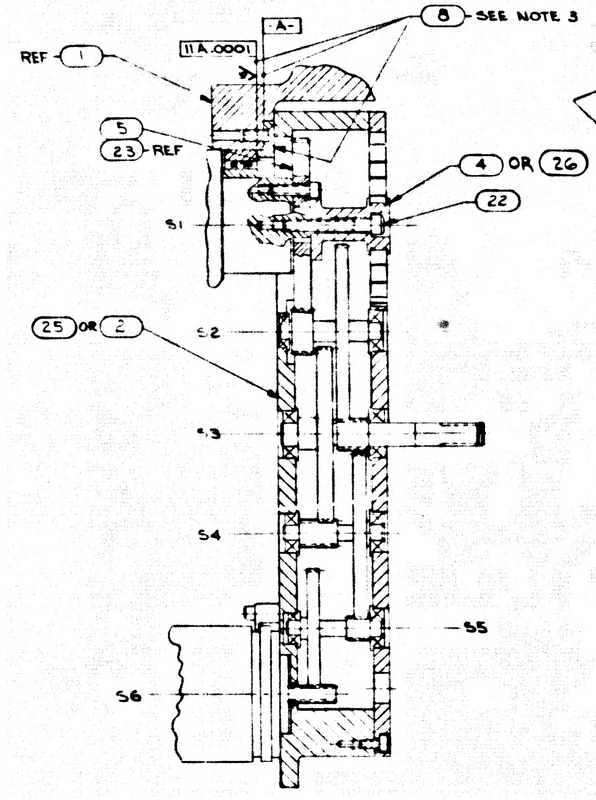
3. MACHINE ITEM 8 AT ASSEMBLY TO APPLY 10 ± 1 POUND PRELOAD ON THE BALL BEARING OF ITEM 3. TOUCH UP ITEM 8 BY APPLICATION OF CHEMICAL FILM PER MIL-C-5541, TYPE I, GRADE B, CLASS I WHERE MACHINING HAS REMOVED ORIGINAL FINISH.

4. ITEM NO 15 TO BE SIZED (LAPPED) AT ASSY, TO ATTAIN A GAP, BETWEEN BACK OF MIRROR AND BUSHING FLANGE, OF $.002 {}^{+.001}_{-.000}$ PLUS WAVE WASHER THICKNESS.

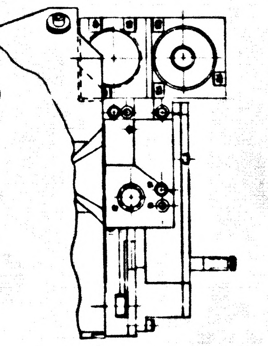


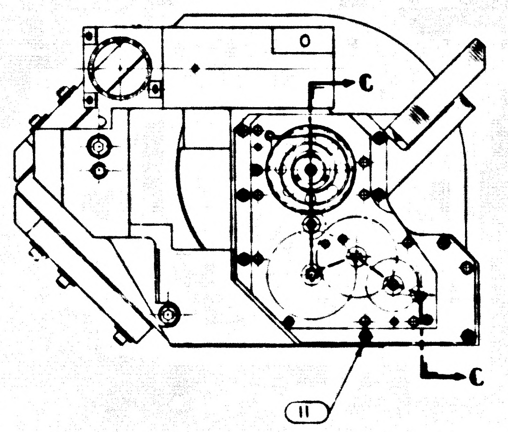


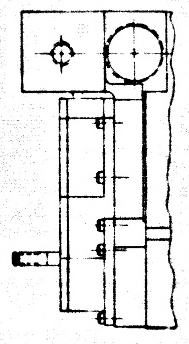
PARTIAL VIEW B-B

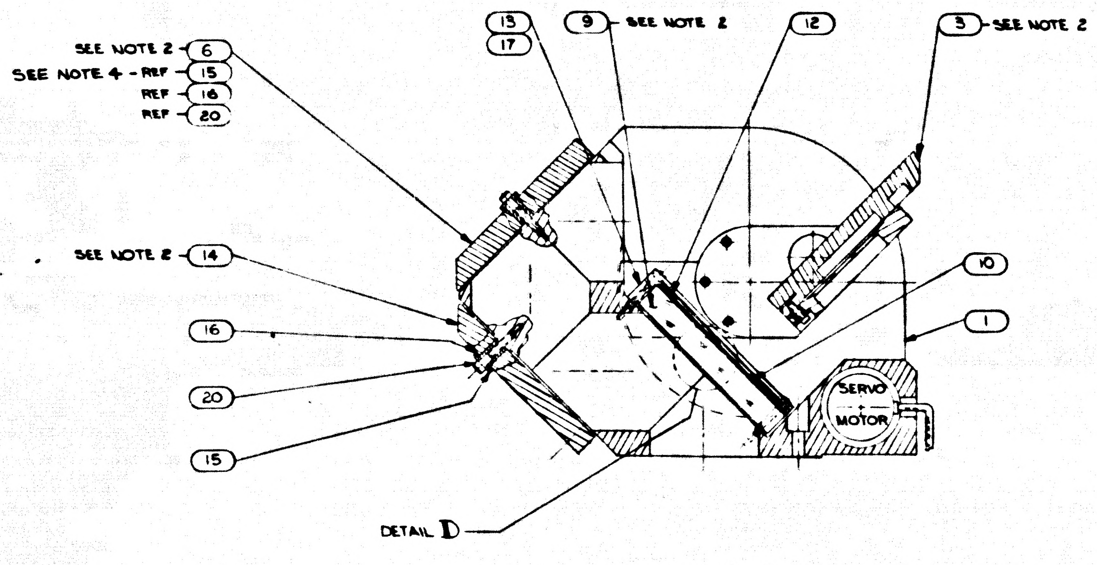


PARTIAL SECTION C-C
SCALE 2/1

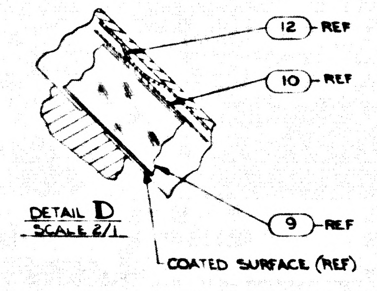








SECTION A-A



DETAIL D
SCALE 2/1

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG. BEFORE ORDERING.

001	021	011	000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	1	0	0	26		2012767			SPRING & COLLECT ASSY OF			
0	1	1	0	25		2011706-011			TRUNNION DRIVE GEARBOX ASSY			
12	12	12	12	24		NAS1189C02P4L	74455155002		SCREW, 100° FLAT HD, SELF LOCKING			
3	3	3	3	23	#	1011625-11	7445515011		SCREW, CAP HEX SOC HD SELF LOCKING			
1	1	1	1	22	#	1011625-24	74455151024		↕			
3	3	3	3	21	#	1011625-28	74455151024		↕			
6	6	6	6	20		NAS1352C04LL10	74455157016		SCREW CAP HEX SOC HD SELF LOCKING			
3	3	3	3	19	#	1011918-1			WASHER, CABLE CLAMP			
3	3	3	3	18	#	1000220-4			CLAMP, CABLE			
4	4	4	4	17	#	1011625-34	74455151034		SCREW, CAP HEX SOC HD SELF LOCKING			
6	6	6	6	16		2011213	59386910010		WASHER, WAVE			
6	6	6	6	15		2011214	57386910220		BUSHING, MIRROR			
1	1	1	1	14		2011260	52386910380		MIRROR SEXTANT HEAD			
1	1	1	1	13		2011598	52386910390		RETAINER BEAMSPLITTER			
1	1	1	1	12		2011634	56388910150		SPRING, BEAMSPLITTER			
8	8	8	8	11		NAS1352C04LL6	74455157014		SCREW, CAP HEX, SOC HD SELF LOCKING			
AR	AR	AR	AR	10		2011635	56386910160		SPACER, BEAMSPLITTER			
1	1	1	1	9		2012222	28386910550		BEAMSPLITTER			
1	1	1	1	8		2011671	57386910010		RETAINER, DRIVE BEARING			
1	1	1	1	7		2011266	57386910230		RETAINER, BEARING			
1	1	1	1	6		2012366	52386910310		MIRROR, SEXTANT HEAD			
1	1	1	1	5		2011233	33386910010		GEAR, SPUR (12 PT - 96 P)			
0	0	1	1	4		2011940	85386910090		SPRING & COLLET ASSY OF			
1	1	1	1	3		2011712	85386910050		INDEXING MIRROR & MOUNT ASSY			
1	0	0	1	2		2011706	85386910100		TRUNNION DRIVE GEARBOX ASSY			
1	1	1	1	1		2011254-021	55386910040		HOUSING SXT HEAD ASSY OF (MACHINING)			

QTY REQD — LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012736	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 853869 800
DRAWN Bankowska DATE 21 [illegible]
CHECKED [illegible]
APPROVAL
APPROVAL E. Perry 1-17-66
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

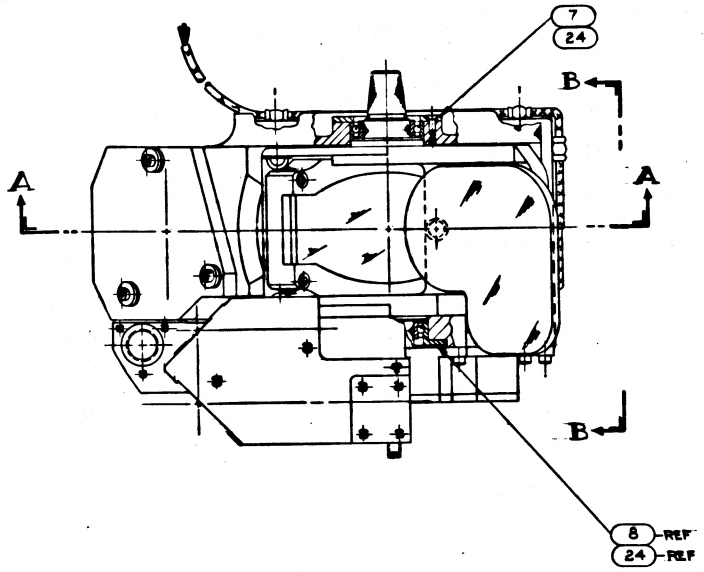
TITLE
SEXTANT INDEX HEAD
ASSEMBLY

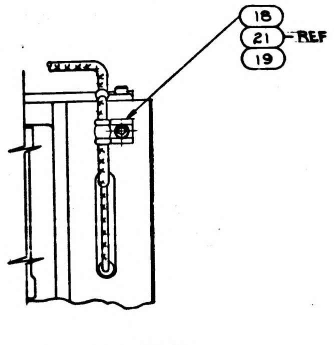
CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012735
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET OF

2012735

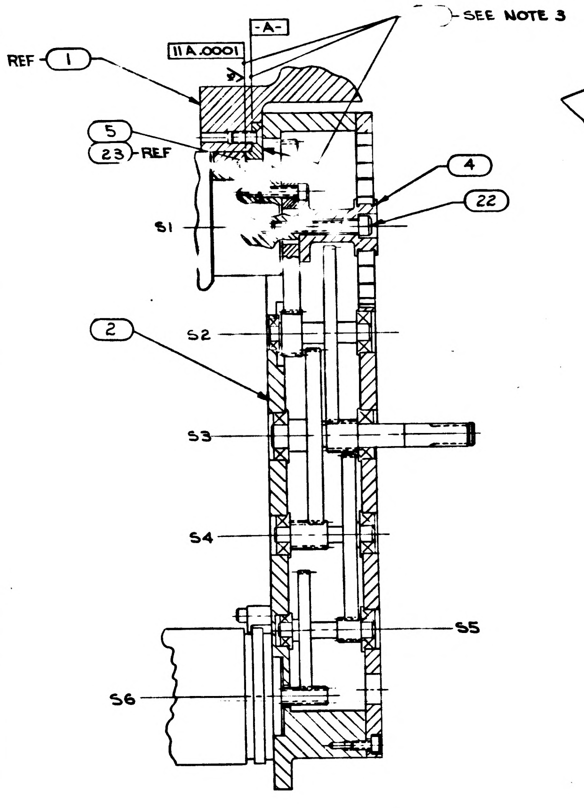
REVISIONS TDEE 25767				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

NOTES:
1a. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
b. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019 (TAGGING).
2. SELECT ITEMS 6, 9 AND 14 TO PRODUCE OPTIMUM FOCUS AND RESOLUTION IN CONJUNCTION WITH ITEM 3 BY THE FOLLOWING CRITERIA BASED ON THE INSPECTION OF ITEMS BY INTERFEROMETER.
a) THE ALGEBRAIC SUM OF THE FRINGE CURVATURES TAKING CONCAVE AS PLUS AND CONVEX AS MINUS SHALL BE BETWEEN +1/2 AND −1/2 FOR BOTH THE LONG (2 1/4") AND SHORT (1.6") AXES OF THE USED ELLIPTICAL AREA OF THE SURFACES. THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE LONG AXIS SHALL EQUAL THE ALGEBRAIC SUM OF THE FRINGE CURVATURES FOR THE SHORT AXIS WITHIN 1/2 FRINGE.
b) MEASUREMENT PRECISION OF 1/4 FRINGE AT 5461 Å IS ASSUMED.
c) VERIFY SELECTION BY MEASUREMENT OF:
1. RESOLUTION -- 5 SECONDS OF ARC OR BETTER
2 a. COMBINED FLATNESS -- 1/2 FRINGE (INTERFEROMETER)
OR
b. FOCUS -- ± 1/4 MILLI DIOPTERS
3. MACHINE ITEM 8 AT ASSEMBLY TO APPLY 10 ± 1 POUND PRELOAD ON THE BALL BEARING OF ITEM 3. TOUCH UP ITEM 8 BY APPLICATION OF CHEMICAL FILM PER MIL-C-5541, TYPE I, GRADE B, CLASS I WHERE MACHINING HAS REMOVED ORIGINAL FINISH.

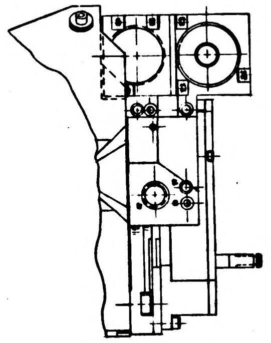


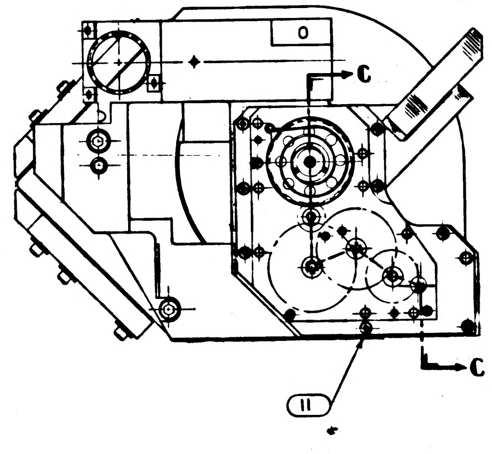


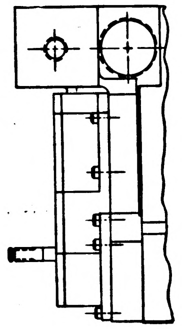
PARTIAL VIEW B-B

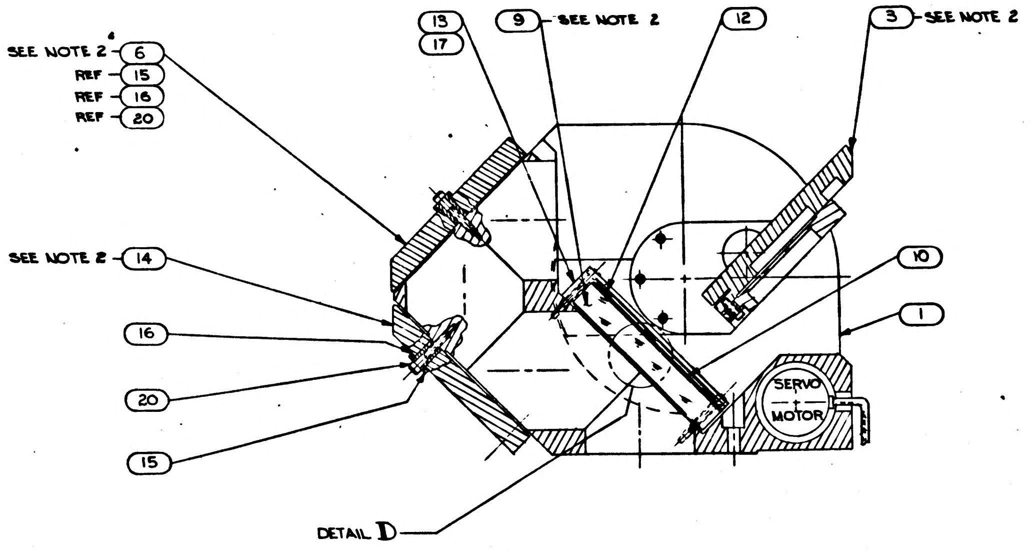


PARTIAL SECTION C-C
SCALE 2/1

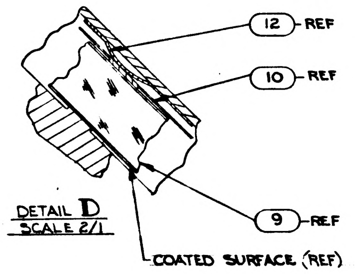








SECTION A-A



DETAIL D
SCALE 2/1

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG. BEFORE ORDERING.

QTY REQD	ITEM NO	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
12	24		NAS1189C02P4L	74455155002		SCREW, 100° FLAT HD, SELF LOCKING			
3	23	*	1011625-11	74455151011		SCREW, CAP, HEX, SOC. HD. SELF LOCKING			
1	22	*	1011625-24	74455151024		↕			
3	21	*	1011625-28	74455151028		↕			
6	20		NAS1352C04LL10	74455157016		SCREW, CAP, HEX SOC. HD. SELF LOCKING			
3	19	*	1011918-1			WASHER, CABLE CLAMP			
3	18	*	1000220-4			CLAMP, CABLE			
4	17	*	1011625-34	74455151034		SCREW, CAP, HEX, SOC HD SELF LOCKING			
6	16		2011213	59386910010		WASHER, WAVE			
6	15		2011214	57386910220		BUSHING, MIRROR			
1	14		2011260	52386910380		MIRROR, SEXTANT HEAD			
1	13		2011598	52386910390		RETAINER, BEAMSPLITTER			
1	12		2011634	56386910150		SPRING, BEAMSPLITTER			
8	11		NAS1352C04LL6	74455157014		SCREW, CAP, HEX, SOC HD SELF LOCKING			
AR	10		2011635	56386910160		SPACER, BEAMSPLITTER			
1	9		2012222	28386910550		BEAMSPLITTER			
1	8		2011671	57386910010		RETAINER, DRIVE BEARING			
1	7		2011266	57386910230		RETAINER, BEARING			
1	6		2012366	52386910310		MIRROR, SEXTANT HEAD			
1	5		2011233	33386910010		GEAR, SPUR (128T-96P)			
1	4		2011940	85386910090		SPRING & COLLET, ASSY OF			
1	3		2011712	85386910050		INDEXING MIRROR & MOUNT ASSY			
1	2		2011706	85386910100		TRUNNION DRIVE GEARBOX ASSY			
1	1		2011254-021	85386910040		HOUSING, SXT. HEAD, ASSY OF (MACHINING)			
000									

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012736	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911800
DRAWN DATE 21 Dec 65
CHECKED 1-13-66
APPROVAL
APPROVAL 1-17-66
NASA APPROVAL A. C. METZGER
MIT APPROVAL

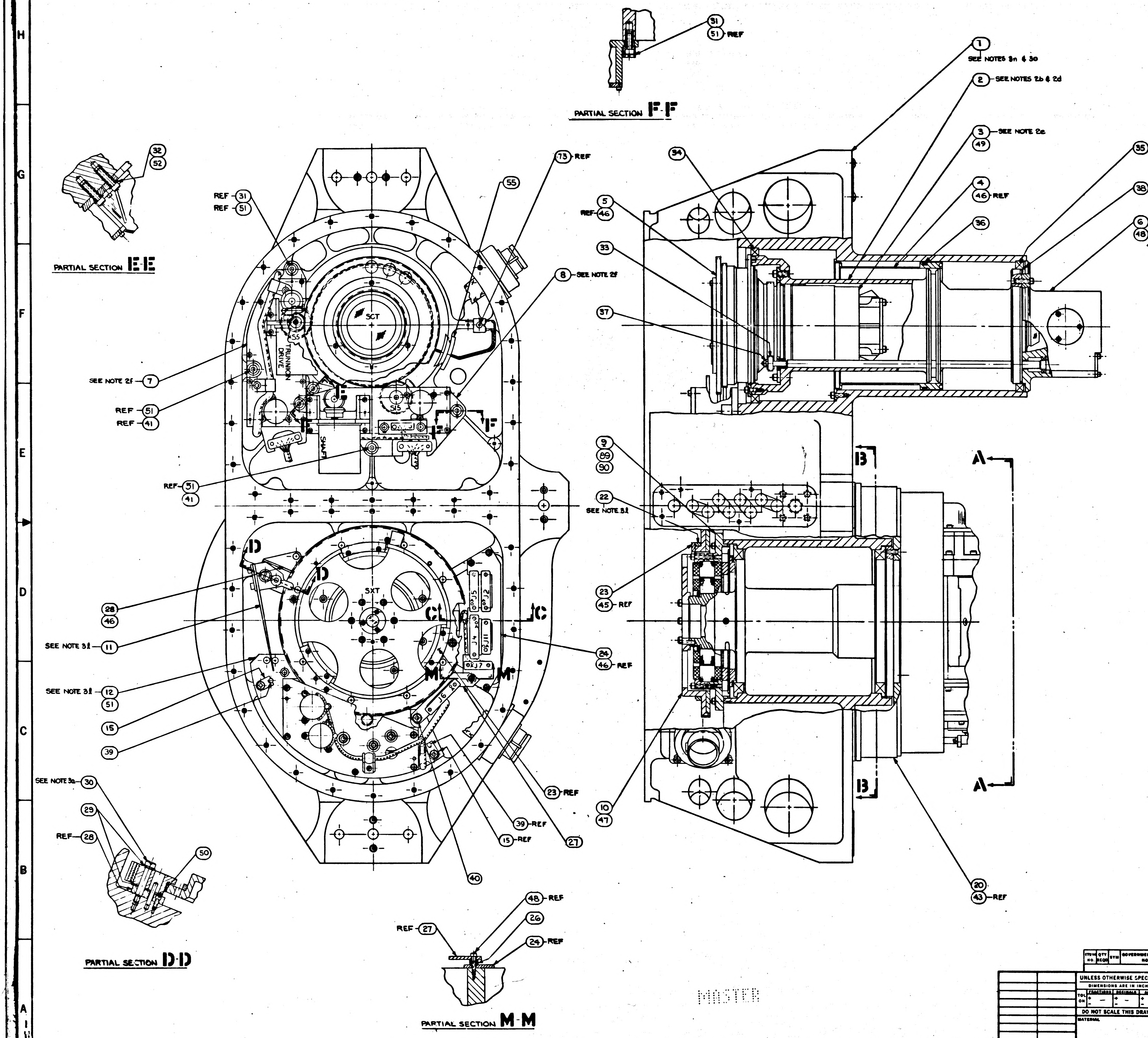
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SEXTANT INDEX HEAD
ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012735
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012736 A

REVISIONS TDRR 25767				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/14/66	WC



PARTIAL SECTION F-F
31
51 - REF
PARTIAL SECTION E-E
32
52
REF - 31
REF - 51
73 - REF
55
SCT
S5
TRUNNION DRIVE
SEE NOTE 2f - 7
REF - 51
REF - 41
S15
SHAFT
F
F
REF - 51
41
8 - SEE NOTE 2f
1 SEE NOTES 3n & 30
2 - SEE NOTES 2b & 2d
3 - SEE NOTE 2e
49
4
46 - REF
34
5
REF - 46
33
37
36
35
38 - SEE NOTE 2a
6
48
9
89
90
22 SEE NOTE 3l
B
B
A
A
D
D
SXT
J5
J2
J4
J11
J7
J6
CL
C
C
M
M
28
46
SEE NOTE 3l - 11
SEE NOTE 3l - 12
51
15
39
23
45 - REF
24
46 - REF
23 - REF
39 - REF
15 - REF
27
40
10
47
20
43 - REF
SEE NOTE 3a - 30
29
REF - 28
50
PARTIAL SECTION D-D
48 - REF
26
REF - 27
24 - REF
PARTIAL SECTION M-M
MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011000	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	+ – –	+ – –	+ – –

DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL [illegible] 1-18-66
NASA APPROVAL A. L. METZGER
MIT APPROVAL [illegible] 3 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

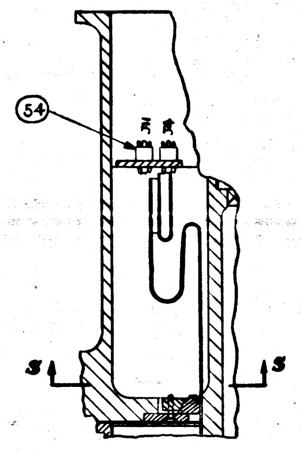
CODE IDENT NO.	SIZE	NASA NUMBER
80230	E	2012736

SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 6

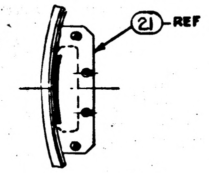
2012736 A

2012736 A

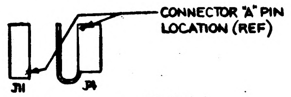
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS TDRR 25767				
A		REVISED PER TDRR 27677		



PARTIAL SECTION R-R

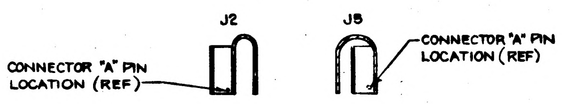


PARTIAL SECTION P-P



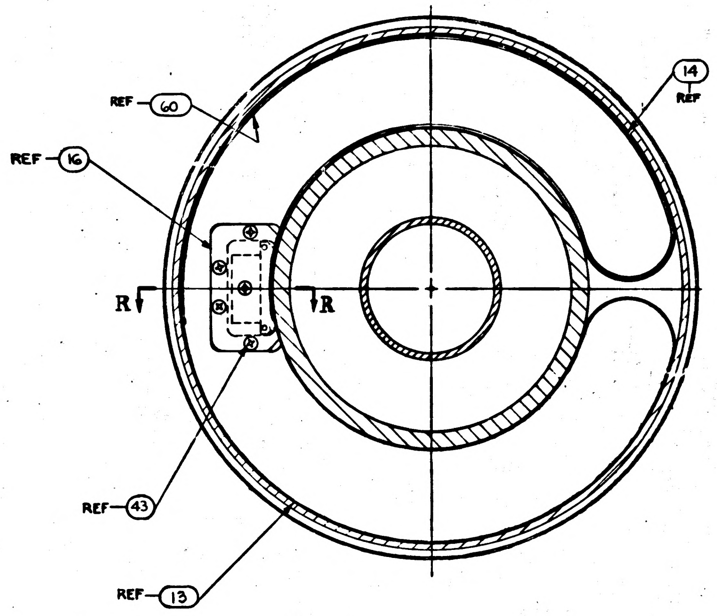
CONNECTOR "A" PIN LOCATION (REF)
J11
J4

PARTIAL SECTION S-S



J2
J5
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

PARTIAL SECTION N-N
SCALE: NONE



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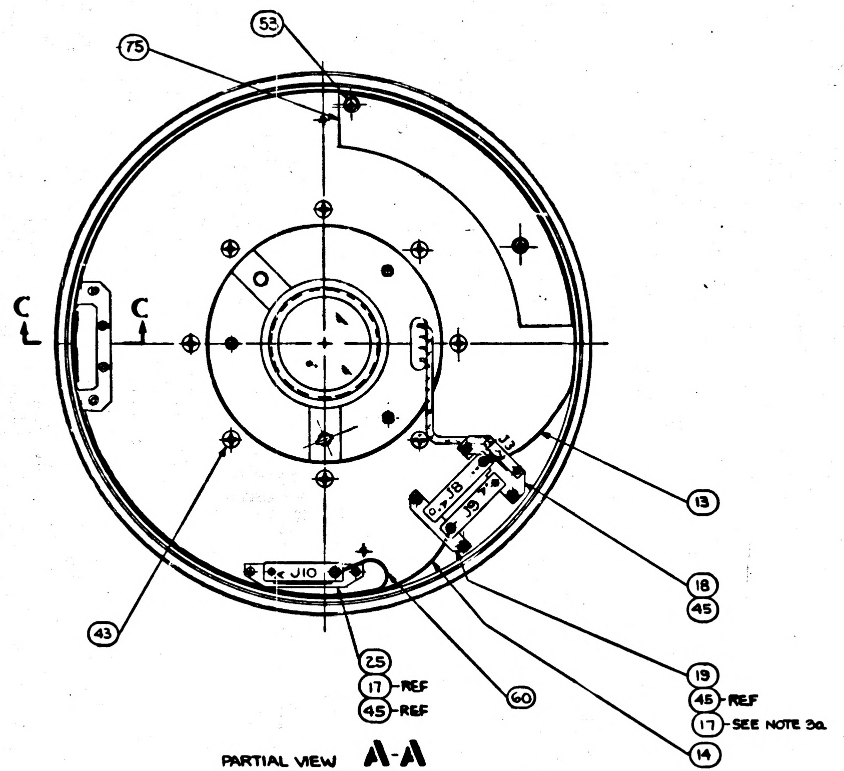
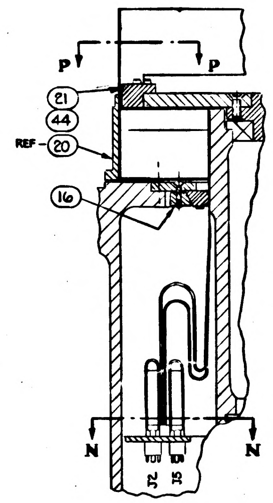
REF - 16
14 REF
R
R
REF - 43
REF - 13

PARTIAL SECTION B-B



75
53
C
C
J10
J9
J8
13
18
45
43
25
17 - REF
45 - REF
60
19
45 - REF
17 - SEE NOTE 3a.
14

PARTIAL VIEW A-A
(WITH SEXTANT INDEX HD ASSY REMOVED)



P
P
21
44
REF - 20
16
N
N
J2
J5

PARTIAL SECTION C-C

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN
CHECKED H.E. Ramsey 1-13-66
APPROVAL
APPROVAL E. Manning
NASA APPROVAL A. C. METZGER
UNIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO.	SIZE	NASA NUMBER
80230	E	2012736

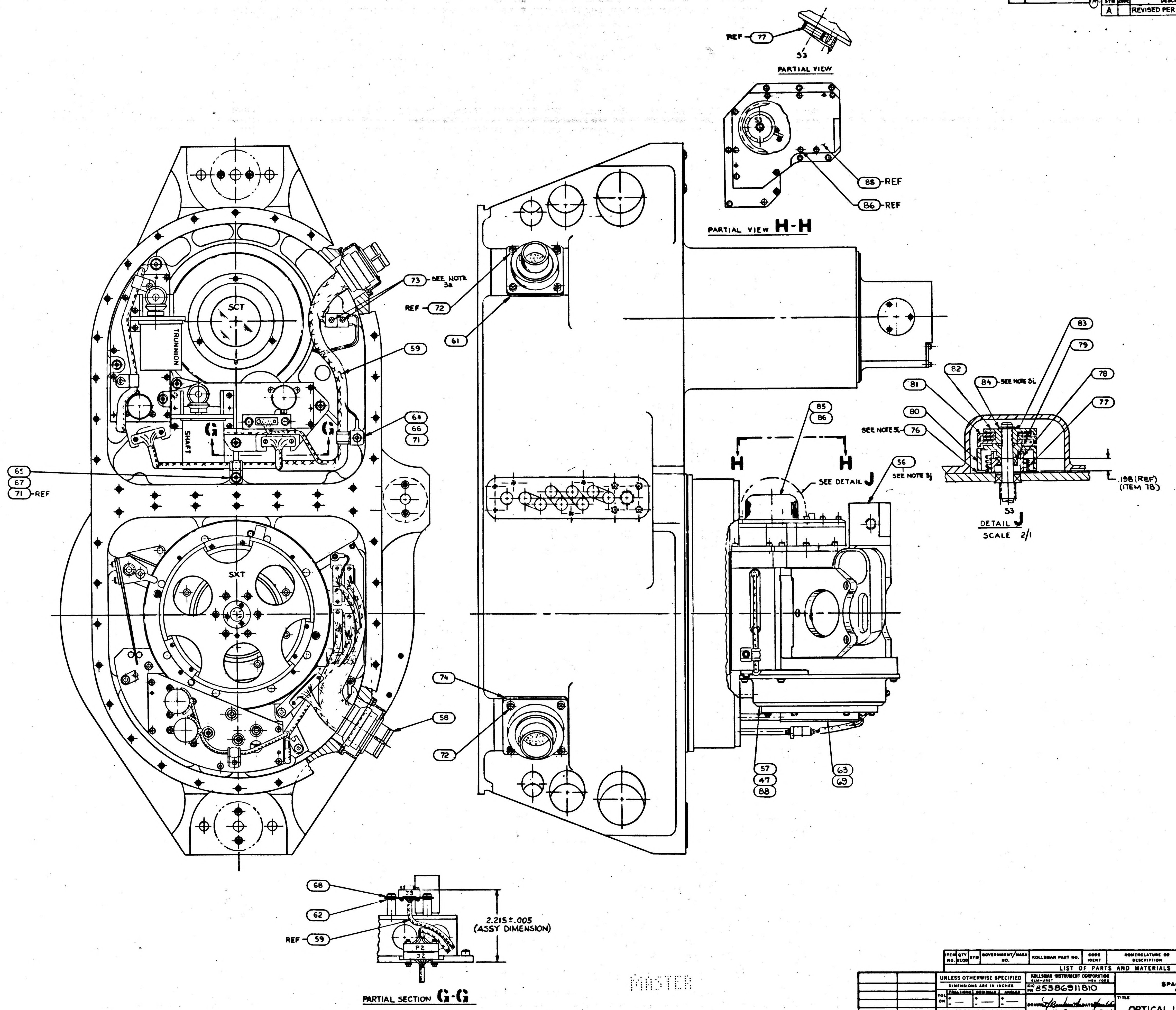
SCALE 1/1 WEIGHT CALC ACTUAL SHEET 2 OF 6

2012736 A

A	2012736

REVISIONS TDRR 25767

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		



REF 77
53
PARTIAL VIEW
85 REF
86 REF
PARTIAL VIEW H-H
73 SEE NOTE 3a
REF 72
61
SCT
TRUNNION
59
SHAFT
G
G
64
66
71
65
67
71 REF
SXT
74
72
58
83
79
82
84 SEE NOTE 3L
78
81
77
80
SEE NOTE 3L 76
56 SEE NOTE 3J
.198 (REF) (ITEM 78)
53
DETAIL J
SCALE 2/1
85
86
H
H
SEE DETAIL J
57
47
88
63
69
68
33
62
REF 59
P2
32
2.215 ± .005 (ASSY DIMENSION)
PARTIAL SECTION G-G

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED H E Pressey 1-13-66
APPROVAL
APPROVAL [illegible] 1/18/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

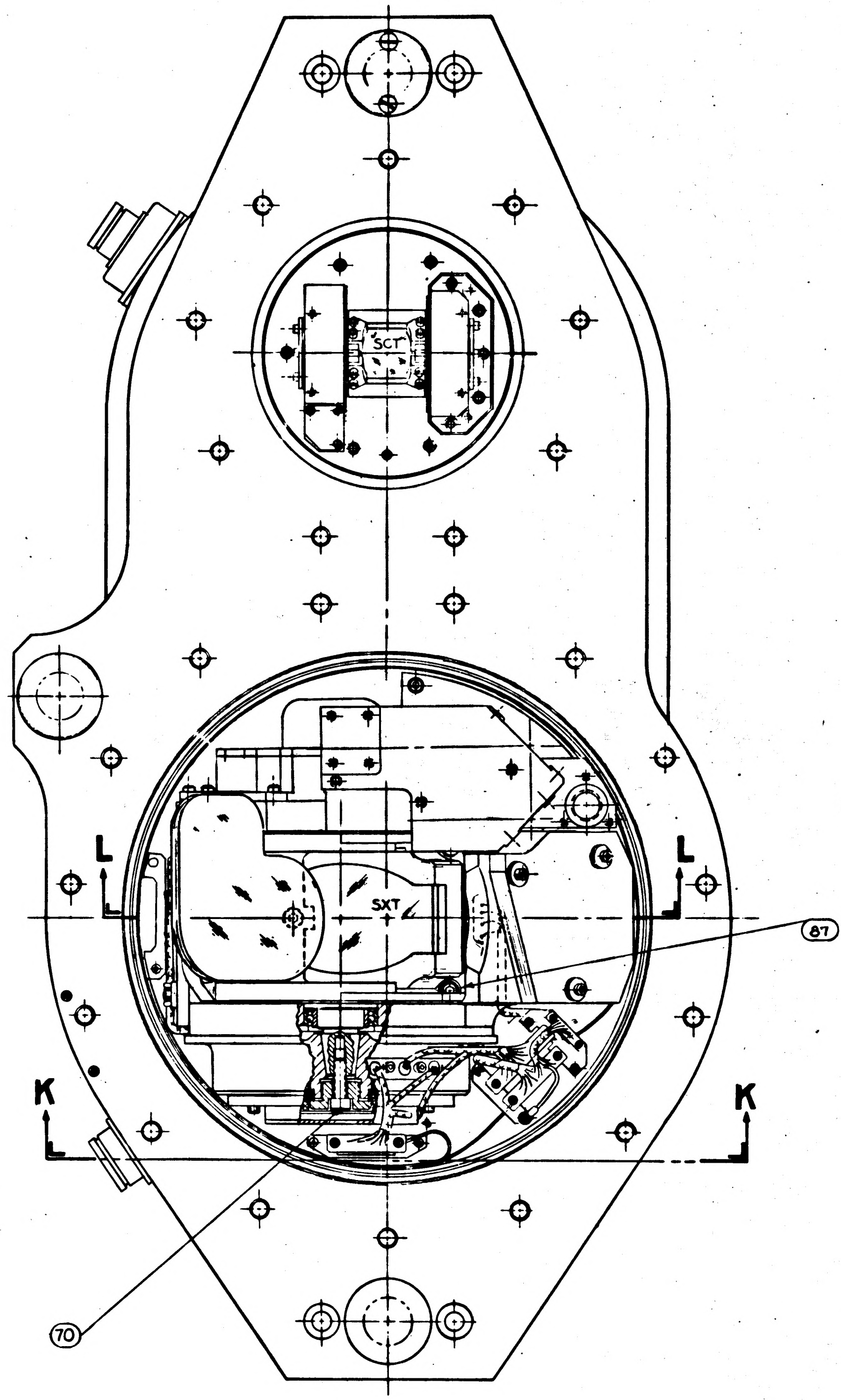
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

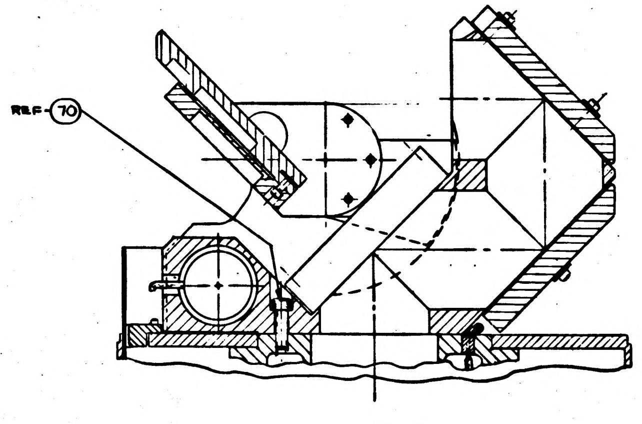
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 3 OF 6

2012736 A

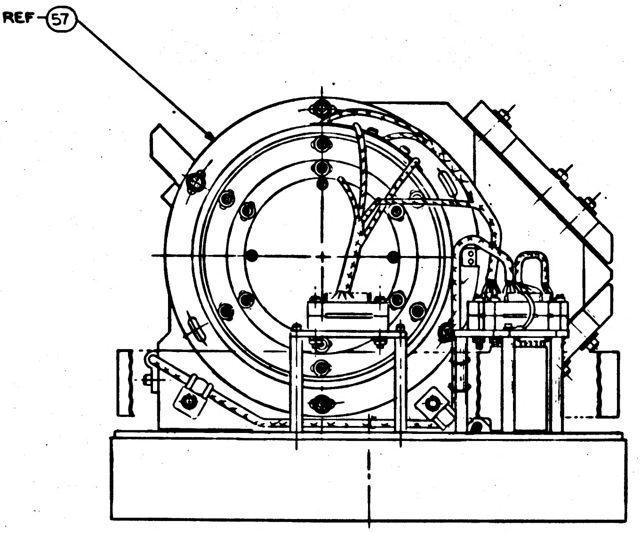
2012736	A

REVISIONS TDRR 25767				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		





PARTIAL SECTION L-L



PARTIAL VIEW K-K

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
20H000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE
CHECKED H.E.Browny 1-13-66
APPROVAL
APPROVAL 1/14/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 4 OF 6

2012736 A

REVISIONS TDRR 25767				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	

A 2012736

NOTES:

1. GENERAL REQUIREMENTS

   a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

   b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.

2. SCANNING TELESCOPE (SCT) REQUIREMENTS

   a. ITEM 38 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.

   b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.

   c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).

   d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF $13^{\pm 2}$ IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.

   e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.

   f. ITEMS 7 AND 8 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.

   g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.

   h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3o HAVE BEEN MET. BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS

   a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND 30 AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.

   b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).

   c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.

   d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.

   e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.

   f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.

   g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.

   h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.

   i. THE SXT TRUNNION LIMIT STOP, ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS.

   j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION

   k.

   l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12, AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS 15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387

   m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.

   n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.8 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE H PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.

   o. AFTER THE REQUIREMENTS OF NOTE 3n HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)

   p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± —	± —

DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE
CHECKED 1-13-66
APPROVAL
APPROVAL 1/18/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO.	SIZE	NASA NUMBER
80230	E	2012736

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 5 OF 6

2012736 A

REVISIONS TDRR 25				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		

A 2012736

LIST OF PARTS AND MATERIALS

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
	101								
	100								
	99								
	98								
	97								
	96								
	95								
	94								
	93								
	92								
	91								
8	90		1012540-029			SCREW, HEX HD, SELF LOCKING			
8	89		MS 5795-804			WASHER, FLAT			
4	88		MS15795-803			WASHER, FLAT			
2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC.HD., SELF LOCKING			
9	86		1011625-20	74455151020		SCREW, CAP, SOC. HD., SELF LOCKING			
1	85		2011595	52386910220		COVER, GEARBOX			
1	84		MS16624-1018			RING, RETAINING			
AR	83		2012351-1,243	7938691 0101 0103		WASHER, FLAT			
1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	81		2011579	57386910120		DOG, LIMIT STOP			
1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	79		1011608-5			BEARING, BALL, ANNULAR			
1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	77		2011577	56386910060		SPRING, TORSION			
1	76		2012350	25386910010		WASHER			
1	75		2012723	52386911060		COUNTERWEIGHT			
1	74	*	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	73		MS35249-11	74455187011		SCREW, MACHINE, FLAT COUNTERSUNK HD, SLOTTED			
8	72		1011625-39	74455151040		SCREW, CAP, SOC. HEAD, SELF LOCKING			
2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC. HEAD, SELF LOCKING			
2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC. HEAD, SELF LOCKING			
4	69		NAS1189C02T4L			SCREW, FLAT HD., SELF LOCKING			
2	68		MS16624-15	—+—		RING, RETAINING, EXTERNAL, BASIC			
1	67		MS15795-305	—+—		WASHER, FLAT			
1	66	*	1011918-2	—+—		WASHER, CABLE CLAMP			
1	65	*	1000220-6 OR 5	—+—		CLAMP, CABLE			
1	64	*	1000220-8 OR 6	—+—		CLAMP, CABLE			
1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	62		2011885	45386910040		SHIM			
1	61	*	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
1	60		1012520-2	85386901910		FLEXPRINT & CONNECTOR, ASSY OF			
1	59		2011713	80386912040		SCT BASE HARNESS ASSY			
1	58		2011896	80386912080		SXT BASE HARNESS ASSY			
1	57	*	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
1	56		2012735	85386911800		SXT INDEX HD ASSY			
1	55		2012164	26386910260		GROMMET			
	54		2012740	48386[illegible]		CONNECTOR ASSY, DUMMY			
2	53	*	1011625-30	74455151030		SCREW, CAP, SOC. HD, SELF LOCKING			
2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC. HD., SELF LOCKING			
7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC. HD., SELF LOCKING			
1	50	*	1011625-28	74455151028		SCREW, CAP, SOC HD., SELF LOCKING			
4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC. HD., SELF LOCKING			
8	48	NAS	1352C04LL8	74455157015		↕	↕		
10	47	NAS	1352C04LL6	74455157014		↕	↕		
10	46	NAS	1352C04LL4	74455157013		↕	↕		
12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC. HD, SELF LOCKING			
4	44	*	1011625-11	74455151011		SCREW, CAP, SOC HD., SELF LOCKING			
12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING, 100° FLAT HEAD			
1	42		1010628-19			SCREW, FLAT HD, SELF LOCKING, SOC. HEX			
2	41	AN	960-C8	74468051004		WASHER, FLAT, REGULAR			
1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC. HD, SELF LOCKING			
2	39		2011684	48386910030		PIN, THREADED			
1	38		2011877	45386910250		SPACER			
1	37	*	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1	36		MS9021-154			PACKING, PREFORMED			
1	35	*	1011606-1	30205772240		BEARING, BALL			
1	34	*	1011606-2	30205772720		BEARING, BALL			
1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	32		2011562	57386910580		BUSHING, LOCATING			
2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	30		2011344	45386910020		SCREW, SHOULDER			
2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	26		2012486	57386911240		SPACER, CONNECTOR, MOUNTING PLATE			
1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
1	22		2011342	57386910570		RING, LIMIT STOP			
1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
1	20		2011616	57386910020		RING, MOUNTING, COVER			
1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
1	16		2012743	85386911820		FLEXPRINT RETAINING ASSY			
2	15		2011686	56386910310		RETAINER, PIN			
1	14	*	1012520-1	85386900910		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	13	*	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	12		2011705	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
1	11		2011714	85386910460		LIMIT STOP ASSY			
1	10		2012387	85386911110		GEAR & SPRING, ASSY OF			
1	9		2011906	85386910440		HOUSING, STATOR & LAMP, ASSY OF			
1	8		2011703	85386910200		SHAFT DRIVE, GEAR BOX, SCT, ASSY OF			
1	7		2011702	85386910630		TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
1	6		2011215-011	85386910380		TELESCOPE TRUNNION AXIS ASSY			
1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
1	1		2011889-021	85386910680		OPTICAL UNIT SUBASSY - STAGE I			

LIST OF PARTS AND MATERIALS

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
	142								
	141								
	140								
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	104								
	103								
	102								

MASTER

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG. BEFORE ORDERING

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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KOLLSMAN INSTRUMENT CORPORATION
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CHECKED H E Cruey 1-13-64
APPROVAL
APPROVAL 1/18/64
NASA APPROVAL A. C. METZGER
MIT APPROVAL 3 Jan 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

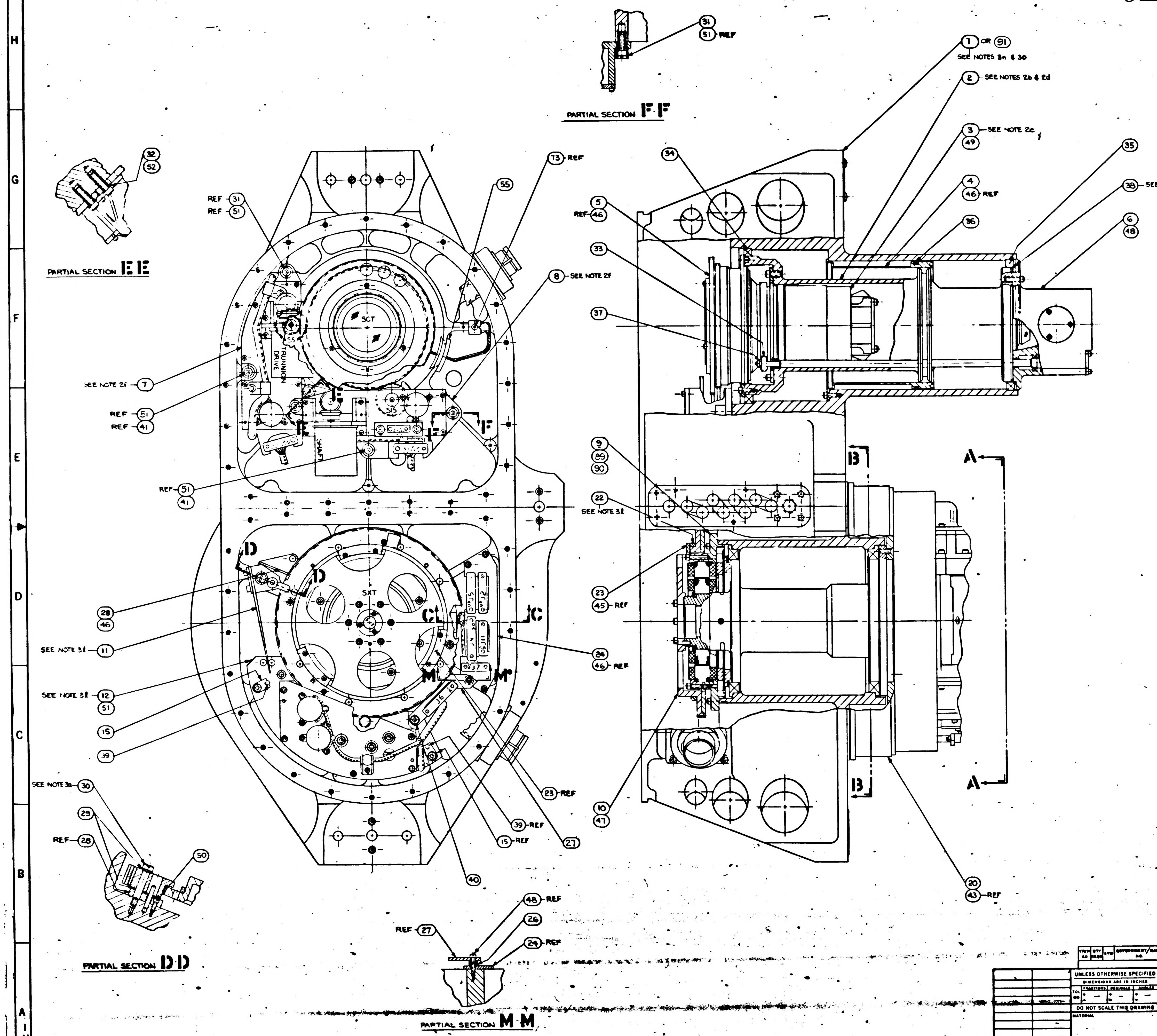
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE
WEIGHT
SHEET 6 OF 6

2012736 A

2012736 E

REVISIONS TDRR 25767

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/19/66	WC
B		REVISED PER TDRR 29151	6-1-66	



PARTIAL SECTION F-F
31
51 REF
PARTIAL SECTION E-E
32
52
REF 31
REF 51
73 REF
55
8 SEE NOTE 2f
SCT
TRUNNION DRIVE
SHAFT
S15
SEE NOTE 2f 7
REF 51
REF 41
REF 51
41
D
SXT
C
M
28
46
SEE NOTE 3l 11
SEE NOTE 3l 12
51
15
39
24
46 REF
23 REF
39 REF
15 REF
27
40
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REF 28
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REF 27
26
24 REF
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1 OR 91
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2 SEE NOTES 2b & 2d
3 SEE NOTE 2e
49
4
46 REF
36
35
38 SEE NOTE 2a
6
48
34
5
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23
45 REF
10
47
B
A
20
43 REF

2012736 B

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CHECKED H E Passey 1-13-66
APPROVAL
APPROVAL E. Plecury 1-18-66
NASA APPROVAL METZGER
MIT APPROVAL 3

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STAGE II

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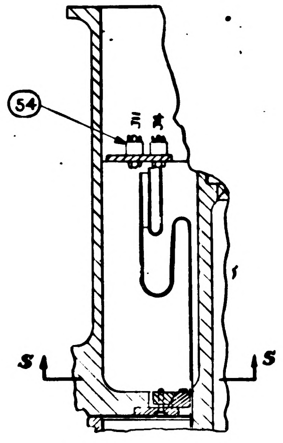
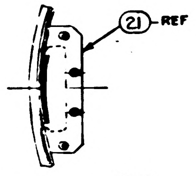
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 6

2012736 B

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS -DRR 25767				
A		REVISED PER TDRR 27677	4/1/66	wk
B		REVISED PER TDRR 29151	6/1/66	



PARTIAL SECTION R-R



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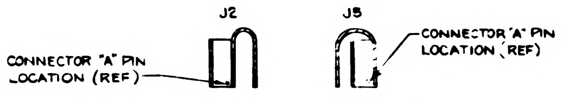
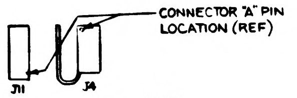


J2
J5
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

PARTIAL SECTION N-N
SCALE: NONE



CONNECTOR "A" PIN LOCATION (REF)
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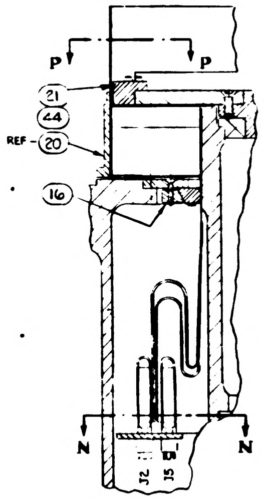
PARTIAL SECTION S-S



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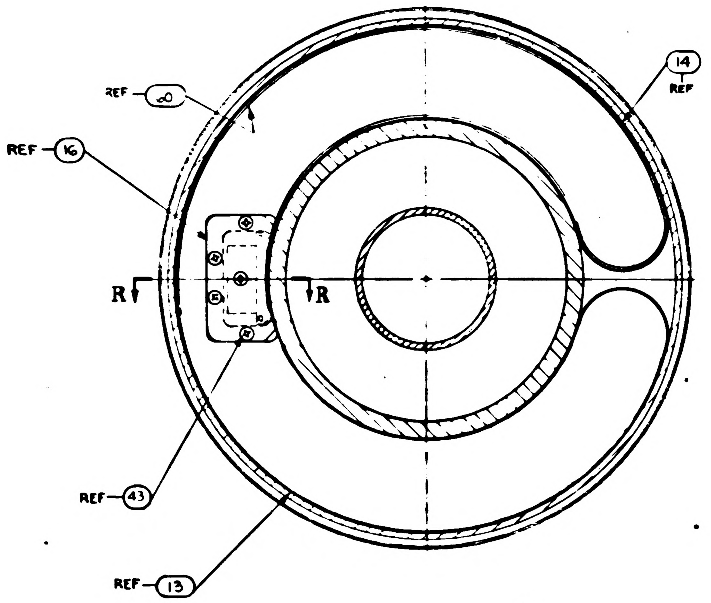
J2
J5

PARTIAL SECTION C-C



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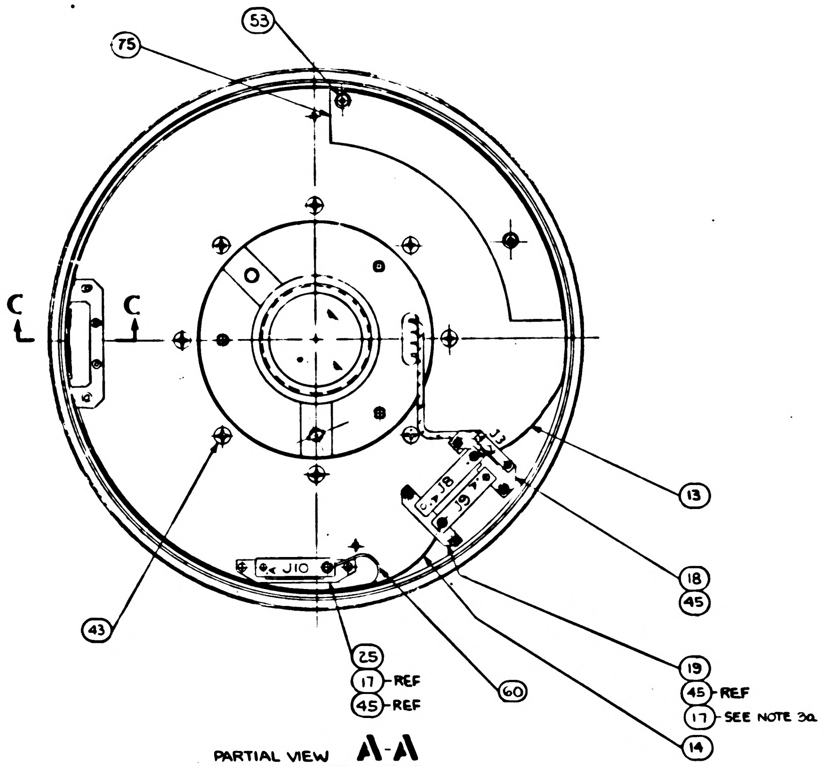
14 REF
REF - 16
R
R
REF - 43
REF - 13

PARTIAL SECTION B-B



53
75
C
C
13
18
45
J10
43
25
17 - REF
45 - REF
60
19
45 - REF
17 - SEE NOTE 3a
14

PARTIAL VIEW A-A
(WITH SEXTANT INDEX HD ASSY REMOVED)

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CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN Burkhardt DATE 3 Jan 66
CHECKED H Ebrusey 1-13-66
APPROVAL
APPROVAL E. Mayo
NASA APPROVAL
MIT APPROVAL W Wolff 31 Jan

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

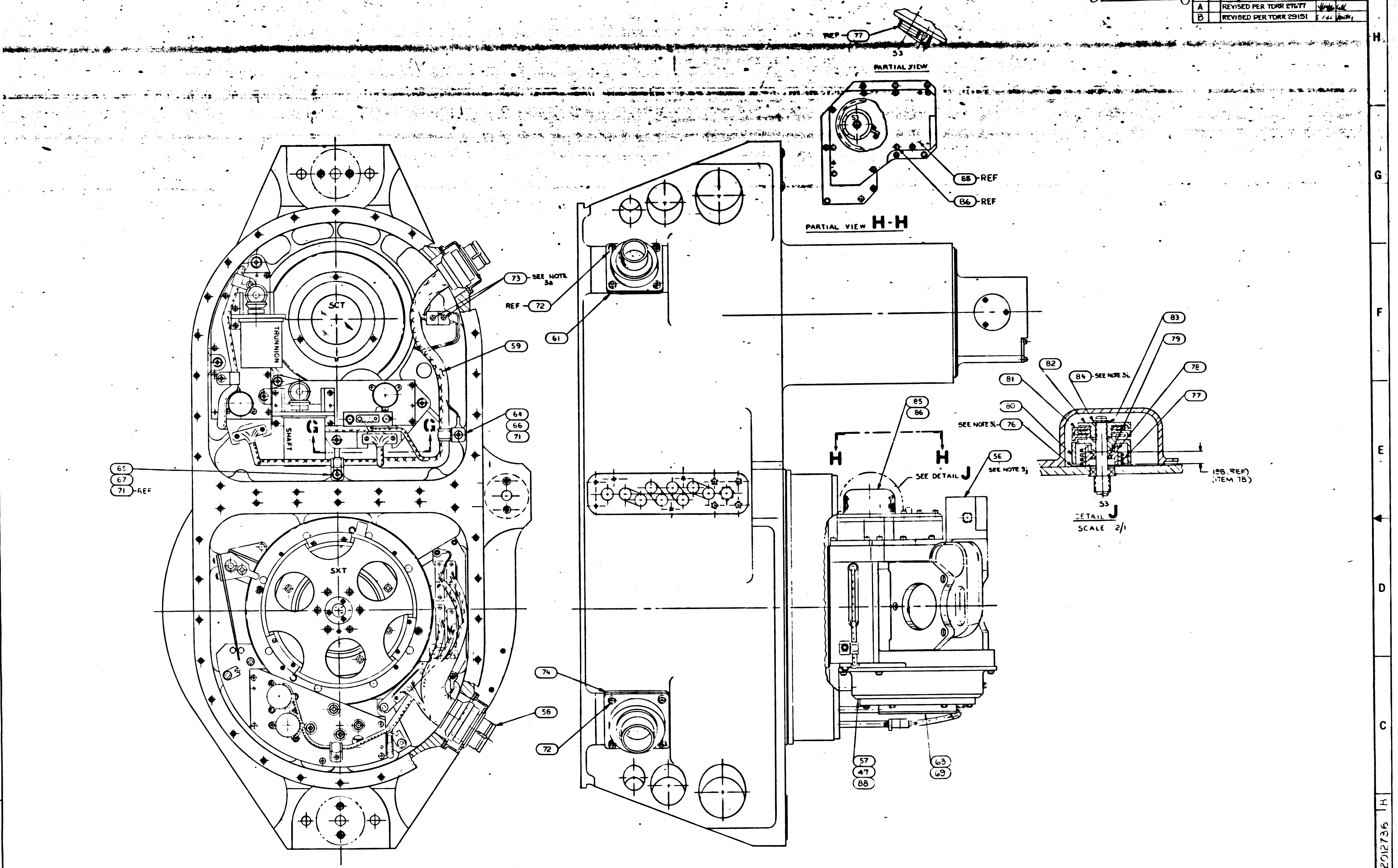
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 2 OF 6

2012736 B

B 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS TDRR 25767				
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151	1-66	



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PARTIAL VIEW
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88 REF
86 REF
PARTIAL VIEW H-H
73 SEE NOTE 3a
REF 72
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SCT
TRUNNION
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SHAFT
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71 REF
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84 SEE NOTE 3L
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SEE NOTE 3L 76
.198 REF (ITEM 78)
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DETAIL J
SCALE 2/1
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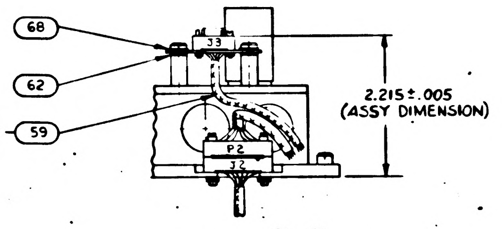

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2.215±.005 (ASSY DIMENSION)

PARTIAL SECTION G-G

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
EIC PN 85386911810
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CHECKED H F Penney 1-13-66
APPROVAL
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NASA APPROVAL
UNIT APPROVAL

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TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 3 OF 6

B 2012736

REVISIONS TDRR 25767

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
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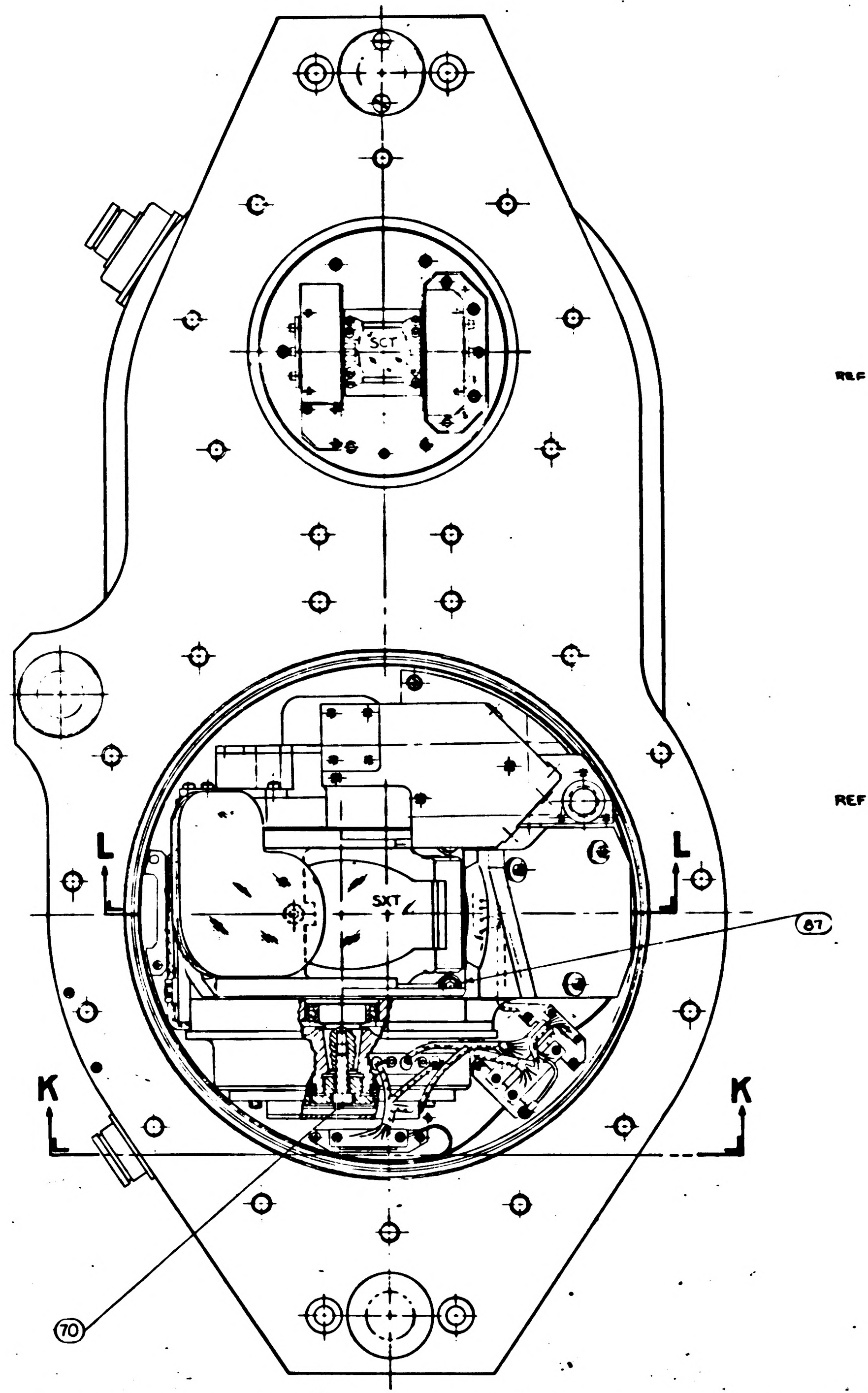
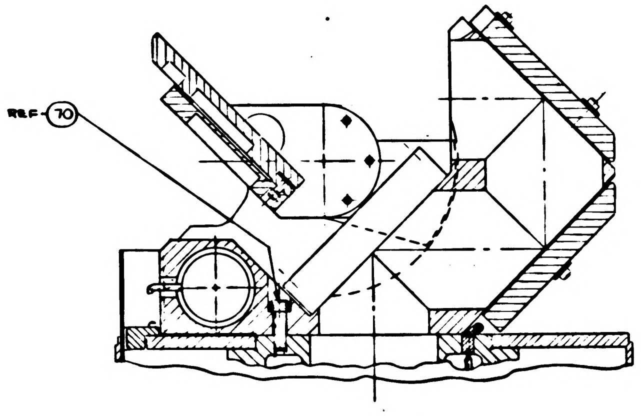
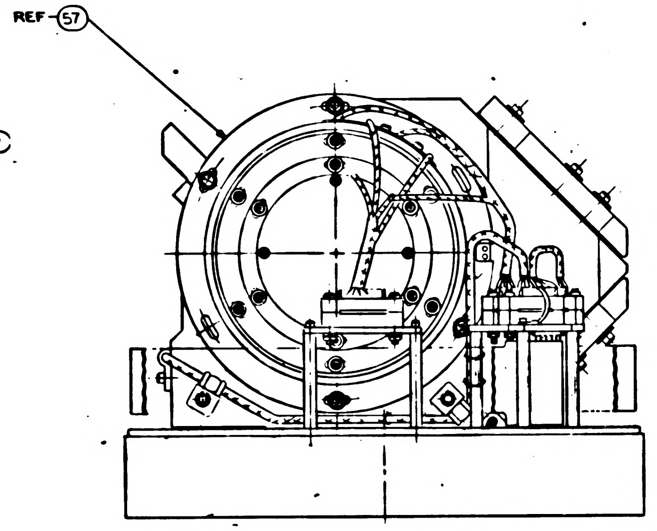
B		REVISED PER TDRR 29151	166	





PARTIAL SECTION L L



PARTIAL VIEW K-K

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
30H000	2011000

APPLICATION

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CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
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CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
~~OPTICAL UNIT SUBASSEMBLY~~
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 4 OF 6

2012736 B

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	6-1-[illegible]	[illegible]

REVISIONS TDRR 25767

B 2012736

NOTES:

1. GENERAL REQUIREMENTS

a. IDENTIFY USING NASA DWG. NO., [illegible] LETTER, AND MANUFACTURER'S SYMBOL PER ND [illegible] BY STAMPING.

2. SCANNING TELESCOPE (SCT) REQUIREMENTS

a. ITEM 30 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND/OR REPOSITIONING TO PROVIDE A DESIRED PRELOAD OF [illegible] 30 THRU 35 AND 70. [illegible]

b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.

c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).

d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF 13±2 IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.

e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.

f. ITEMS 7 AND 8 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.

g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.

h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3o HAVE BEEN MET. BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS

a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND 30 AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.

b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).

c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.

d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.

e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.

f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.

g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.

h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.

i. THE SXT TRUNNION LIMIT STOP, ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS

j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION

k.

l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12, AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS 15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387

m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.

n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.8 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE H PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.

o. AFTER THE REQUIREMENTS OF NOTE 3m HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)

p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

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2011000	2011000

APPLICATION

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KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
EIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED HC[illegible] 1-13-66
APPROVAL
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 5 OF 6

2012736 B

2012736 B

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS TDRR 25767				
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151	6/66	

QTY REQD 011	QTY REQD 090	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
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		99								
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		97								
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		94								
		93								
		92								
[illegible]	[illegible]	91		2011889-0[illegible]			OPTICAL UNIT SUBASSY. STAGE I			
8	8	90		1012540-029			SCREW, HEX HD, SELF LOCKING			
8	8	89		MS15795-804			WASHER, FLAT			
4	4	88		MS15795-803			WASHER, FLAT			
2	2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC.HD., SELF LOCKING			
9	9	86		1011625-20	74455151020		SCREW, CAP, SOC. HD., SELF LOCKING			
1	1	85		2011596	52386910220		COVER, GEARBOX			
1	1	84		MS16624-1018			RING, RETAINING			
AR	AR	83		2012351-1,2,3	7938691 [illegible]		WASHER, FLAT			
1	1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	3	81		2011579	57386910120		DOG, LIMIT STOP			
1	1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	1	79		1011608-5			BEARING, BALL, ANNULAR			
1	1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	1	77		2011577	56386910060		SPRING, TORSION			
1	1	76		2012350	25386910010		WASHER			
1	1	75		2012723	52386911060		COUNTERWEIGHT			
1	1	74	*	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	2	73		MS35249-11	74455187011		SCREW, MACHINE, FLAT COUNTERSUNK HD. SLOTTED			
8	8	72		1011625-39	74455151040		SCREW, CAP, SOC. HEAD, SELF LOCKING			
2	2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC. HEAD, SELF LOCKING			
2	2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC HEAD, SELF LOCKING			
4	4	69		NAS1189C02T4L			SCREW, FLAT HD., SELF LOCKING			
2	2	68		MS16624-15	—		RING, RETAINING, EXTERNAL, BASIC			
1	1	67		MS15795-305	—		WASHER, FLAT			
1	1	66	*	1011918-2	—		WASHER, CABLE CLAMP			
1	1	65	*	1000220-6 OR 5	—		CLAMP, CABLE			
1	1	64	*	1000220-8 OR 6	—		CLAMP, CABLE			
1	1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	AR	62		2011885	45386910040		SHIM			
1	1	61	*	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
1	1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	1	57	*	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
1	1	56		2012735	85386911800		SXT INDEX HD ASSY			
1	1	55		2012164	26386910060		GROMMET			
1	1	54		2012740	48386910210		CONNECTOR ASSY, DUMMY			
2	2	53	*	1011625-30	74455151030		SCREW, CAP, SOC. HD, SELF LOCKING			
2	2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC.HD., SELF LOCKING			
7	7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC.HD., SELF LOCKING			
1	1	50	*	1011625-28	74455151028		SCREW, CAP, SOC HD., SELF LOCKING			
4	4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC.HD, SELF LOCKING			
8	8	48	NAS	1352C04LL8	74455157015		↕			
10	10	47	NAS	1352C04LL6	74455157014		↕			
10	10	46	NAS	1352C04LL4	74455157013		↕			
12	12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC. HD, SELF LOCKING			
4	4	44	*	1011625-11	74455151011		SCREW, CAP, SOC HD, SELF LOCKING			
12	12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING 100° FLAT HEAD			
1	1	42		010628-9			SCREW, FLAT HD, SELF LOCKING, SOC HEX			
2	2	41	AN	960-C8	74468051004		WASHER, FLAT, REGULAR			
1	1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC. HD, SELF LOCKING			
2	2	39		2011684	48386910030		PIN, THREADED			
1	1	38		2011877	45386910250		SPACER			
1	1	37	*	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1	1	36		MS9021-154			PACKING, PREFORMED			
1	1	35	*	1011606-1	30205772240		BEARING, BALL			
1	1	34	*	1011606-2	30205772720		BEARING, BALL			
1	1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	2	32		2011562	57386910580		BUSHING, LOCATING			
2	2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	1	30		2011344	45386910020		SCREW, SHOULDER			
2	2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	1	27		2012487	56386910550		PLATE MOUNTING, CONNECTOR			
1	1	26		2012486	57386911240		SPACER, CONNECTOR, MOUNTING PLATE			
1	1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
1	1	22		2011342	57386910570		RING, LIMIT STOP			
1	1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
1	1	20		2011616	57386910020		RING, MOUNTING, COVER			
1	1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
1	1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
1	1	16		2012743	85386911820		FLEXPRINT RETAINING ASSY			
2	2	15		2011686	56386910310		RETAINER, PIN			
1	1	14	*	1012520-1	85386900910		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	1	13	*	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	1	12		2011705	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
1	1	11		2011714	85386910460		LIMIT STOP ASSY			
1	1	10		2012387	85386911110		GEAR & SPRING, ASSY OF			
1	1	9		2011906	85386910440		HOUSING, STATOR & LAMP, ASSY OF			
1	1	8		2011703	85386910200		SHAFT DRIVE, GEAR BOX, SCT, ASSY OF			
1	1	7		2011702	85386910630		TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
1	1	6		2011215-011	85386910380		TELESCOPE TRUNNION AXIS ASSY			
1	1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
0	1	1		2011889-021	85386910680		OPTICAL UNIT SUBASSY - STAGE I			

LIST OF PARTS AND MATERIALS

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
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LIST OF PARTS AND MATERIALS

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG. BEFORE ORDERING

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2011000	2011090

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KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
87386911810
DRAWN
CHECKED H.E. Carney 1-13-66
APPROVAL
APPROVAL E. [illegible] 1/17/66
NASA APPROVAL A. C. [illegible]
UNIT APPROVAL

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STAGE II

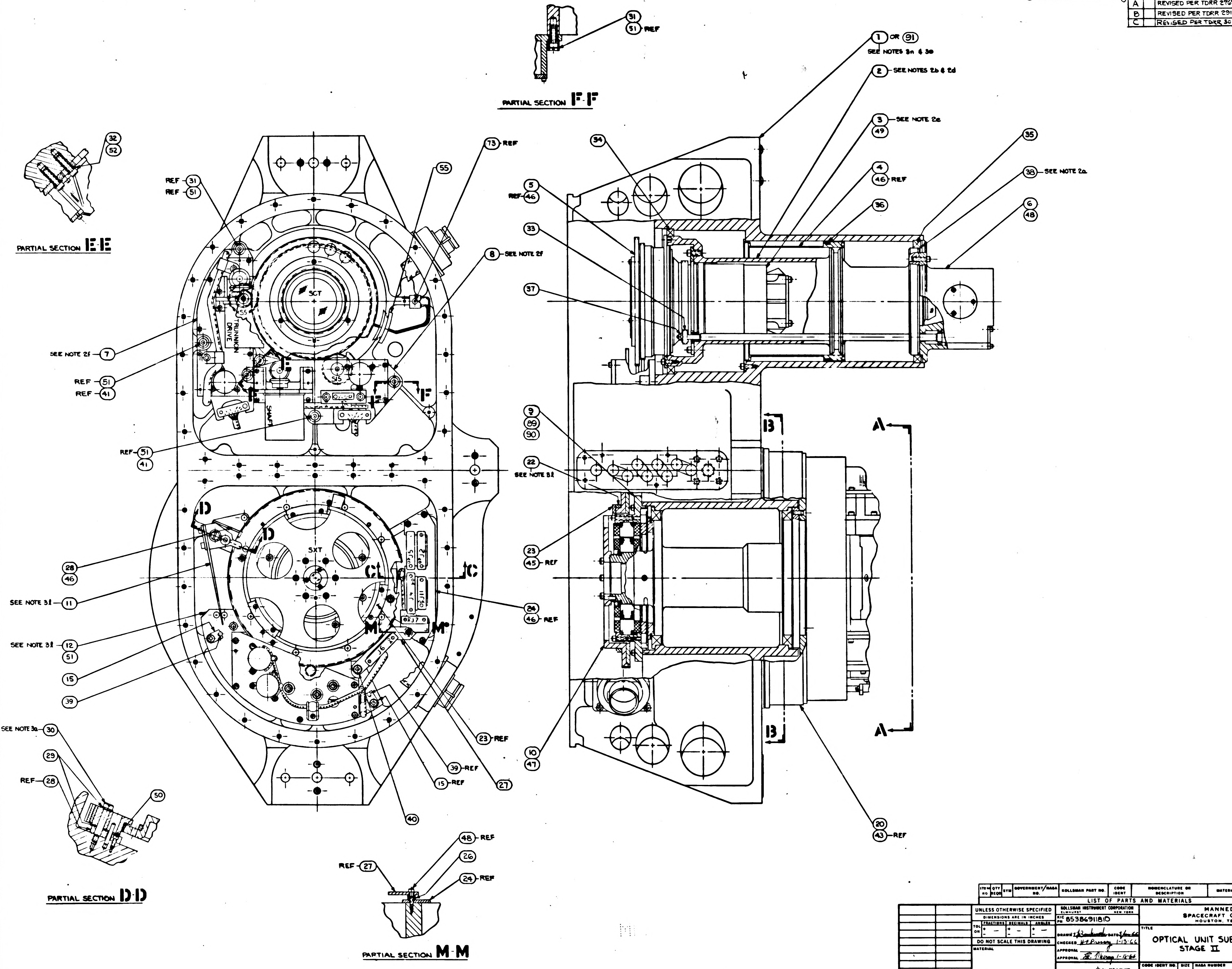
CODE IDENT NO. 80230
SIZE E
NASA DRAWING 2012736
SCALE
WEIGHT
SHEET 6 OF 6

2012736 B

(W) C 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/14/66	WC
B		REVISED PER TDRR 29151	6/16	[illegible]
C		REVISED PER TDRR 30829	8-[illegible]	[illegible]

REVISIONS TDRR 25767



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9
89
90
22
SEE NOTE 3l
23
45 REF
24
46 REF
10
47
20
43 REF
A
B

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE 3 Jan 66
CHECKED H E Prosser 1-13-66
APPROVAL
APPROVAL E. [illegible] 1-18-66
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 3 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

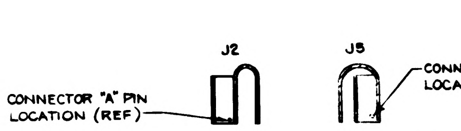
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 6

2012736 C

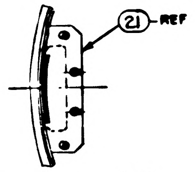
2012736 C

REVISIONS TDRR 25767				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/14/66	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-26-66	[illegible]

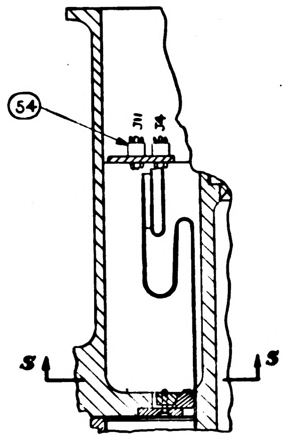


J2
J5
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

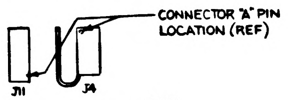
PARTIAL SECTION **N-N**
SCALE: NONE



PARTIAL SECTION **P-P**

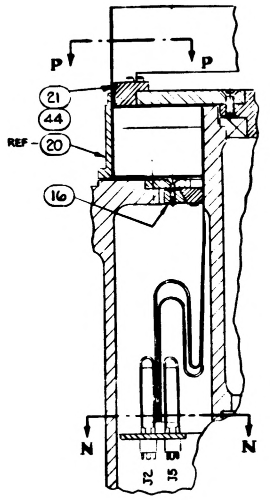


PARTIAL SECTION **R R**



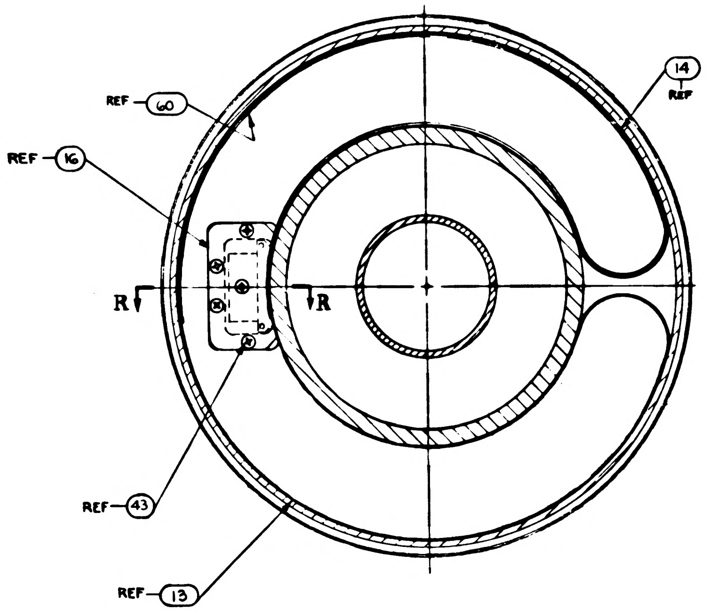
CONNECTOR "A" PIN LOCATION (REF)
J11
J4

PARTIAL SECTION **S-S**



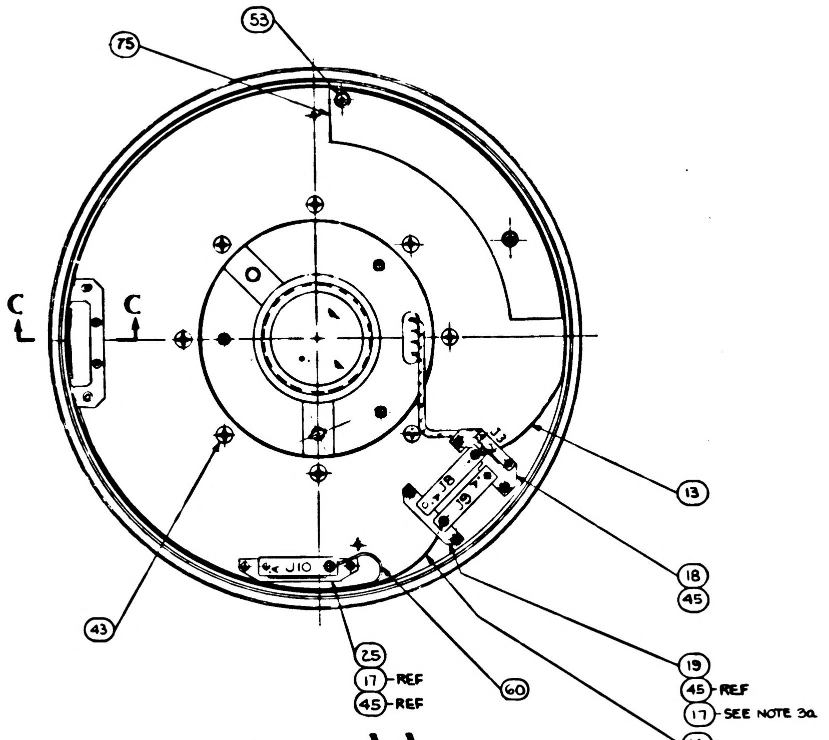
P
P
21
44
REF - 20
16
N
N
J2
J5

PARTIAL SECTION **C-C**



REF - 60
14 REF
REF - 16
R
R
REF - 43
REF - 13

PARTIAL SECTION **B-B**



53
75
C
C
J3
J8
J9
J10
13
18
45
43
25
17 - REF
45 - REF
60
19
45 - REF
17 - SEE NOTE 3a
14

PARTIAL VIEW **A-A**
(WITH SEXTANT INDEX HD ASSY REMOVED)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE 3 Jan 66
CHECKED E Prussy 1-13-66
APPROVAL
APPROVAL E. Thomp [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 31 Jan

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

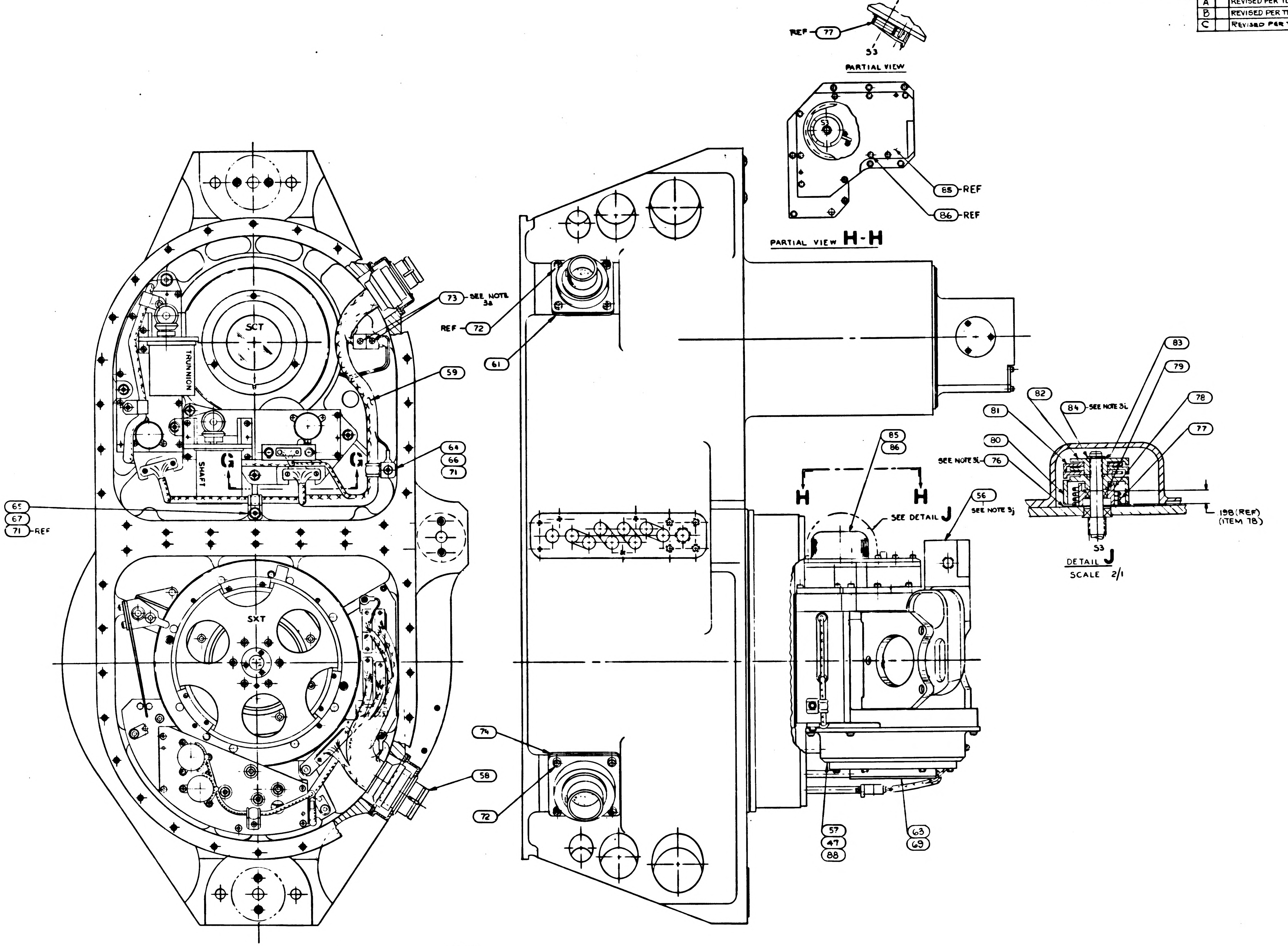
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

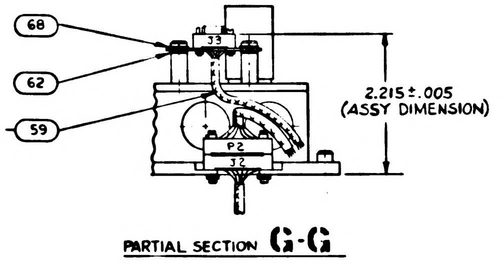
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 2 OF 6

2012736 C

2012736 C

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/1/66	
B		REVISED PER TDRR 29151		
C		REVISED PER TDRR 30829	8/25/66	


REF 77
53
PARTIAL VIEW
65 REF
86 REF
PARTIAL VIEW H-H
73 SEE NOTE 3a
REF 72
61
59
SCT
TRUNNION
SHAFT
G
G
64
66
71
65
67
71 REF
SXT
H
H
85
86
SEE DETAIL J
56
SEE NOTE 3j
83
79
82
84 SEE NOTE 3L
78
81
77
80
SEE NOTE 3L 76
.198 (REF) (ITEM 78)
53
DETAIL J
SCALE 2/1
74
58
72
57
47
88
63
69


68
62
REF 59
33
P2
32
2.215±.005 (ASSY DIMENSION)

PARTIAL SECTION G-G

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

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CONTRACT

KOLLSMAN INSTRUMENT CORPORATION ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE
CHECKED H.E. Penney 1-13-66
APPROVAL
APPROVAL 1/13/66
NASA APPROVAL
MIT APPROVAL 31 Jan 66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

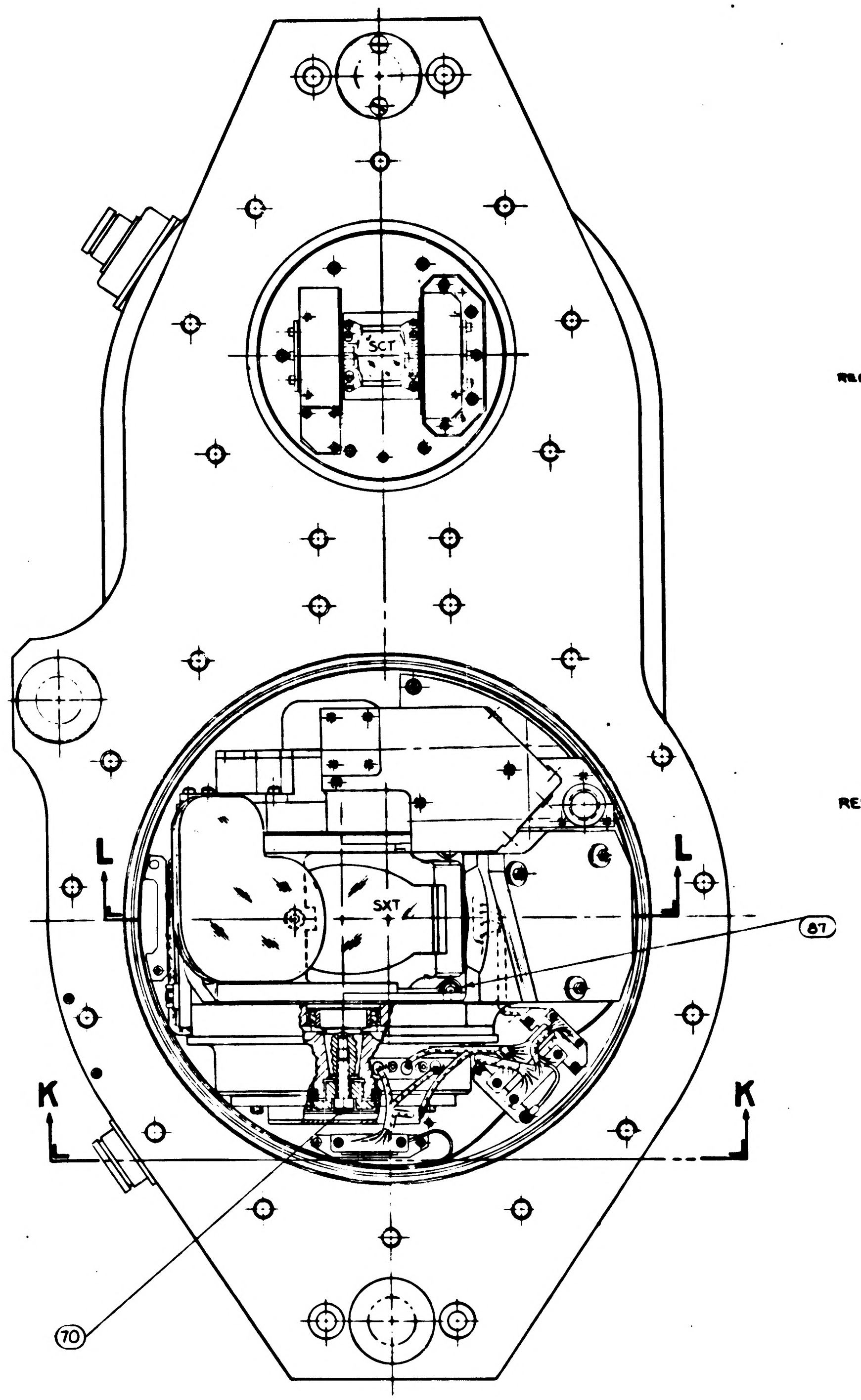
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 3 OF 6

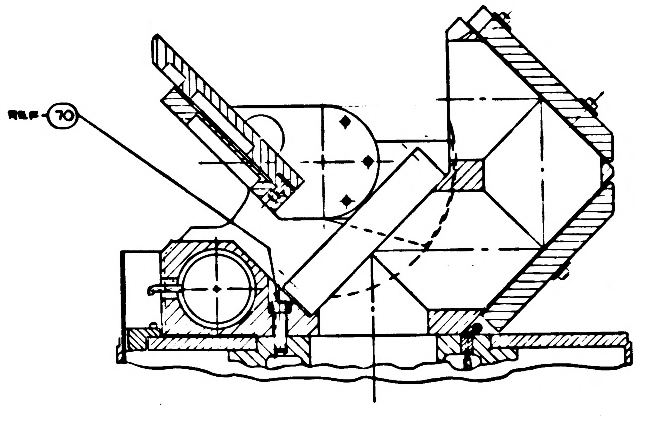
2012736 C

2012736 C

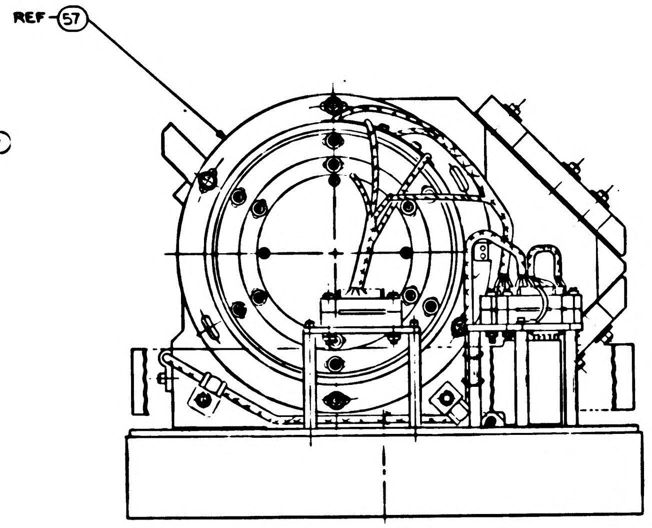
REVISIONS TDRR 25767

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151	1-66	
C		REVISED PER TDRR 30829	8-26-66	





PARTIAL SECTION L-L



PARTIAL VIEW K-K

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

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KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN Badnock DATE Jan 66
CHECKED H E Preissey 1-13-66
APPROVAL
APPROVAL E. Murray 1/14/66
NASA APPROVAL
MIT APPROVAL 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 4 OF 6

2012736 C

2012736 C

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/14/66	WK
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-3	[illegible]

NOTES:

1. GENERAL REQUIREMENTS

   a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

   b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.

2. SCANNING TELESCOPE (SCT) REQUIREMENTS

   a. ITEM 38 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.

   b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.

   c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).

   d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF $13^{\pm 2}$ IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.

   e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.

   f. ITEMS 7 AND 8 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.

   g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.

   h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3a HAVE BEEN MET. BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS

   a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND 30 AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.

   b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).

   c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.

   d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.

   e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.

   f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.

   g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.

   h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.

   i. THE SXT TRUNNION LIMIT STOP, ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS

   j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION

   h.

   l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12, AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387

   m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.

   n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.8 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE H PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.

   o. AFTER THE REQUIREMENTS OF NOTE 3n HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)

   p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

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MATERIAL
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KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE 3/[illegible]66
CHECKED [illegible] [illegible]66
APPROVAL
APPROVAL [illegible] 1/18/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 5 OF 6

2012736 C

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-25-[illegible]	[illegible]

011	000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
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		100								
		99								
		98								
		97								
		96								
		95								
		94								
		93								
		92								
1	0	91		2011889-031			OPTICAL UNIT SUB-ASSY STAGE I			
8	8	90		1012540-029			SCREW, HEX HD, SELF LOCKING			
8	8	89		MS15795-804			WASHER, FLAT			
4	4	88		MS15795-803			WASHER, FLAT			
2	2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC.HD, SELF LOCKING			
9	9	86		1011625-20	74455151020		SCREW, CAP, SOC HD., SELF LOCKING			
1	1	85		2011595	52386910220		COVER, GEARBOX			
1	1	84		MS16624-1018			RING, RETAINING			
AR	AR	83		2012351-1,2&3	7938691 [illegible]		WASHER, FLAT			
1	1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	3	81		2011579	57386910120		DOG, LIMIT STOP			
1	1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	1	79		1011608-5			BEARING, BALL, ANNULAR			
1	1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	1	77		2011577	56386910060		SPRING, TORSION			
1	1	76		2012350	25386910010		WASHER			
1	1	75		2012723	52386911060		COUNTERWEIGHT			
1	1	74	*	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	2	73		MS35249-11	74455187011		SCREW, MACHINE, FLAT COUNTERSUNK HD, SLOTTED			
5	5	72		1011625-39	74455151040		SCREW, CAP, SOC HEAD, SELF LOCKING			
2	2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC.HEAD, SELF LOCKING			
2	2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC HEAD, SELF LOCKING			
4	4	69		NAS1189C02T4L			SCREW, FLAT HD., SELF LOCKING			
2	2	68		MS16624-15	—•—		RING, RETAINING, EXTERNAL, BASIC			
1	1	67		MS15795-305	—•—		WASHER, FLAT			
1	1	66	*	1011918-2	—•—		WASHER, CABLE CLAMP			
1	1	65	*	1000220-6OR5	—•—		CLAMP, CABLE			
1	1	64	*	1000220-8OR6	—•—		CLAMP, CABLE			
1	1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	AR	62		2011885	45386910040		SHIM			
1	1	61	*	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
1	1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	1	57	*	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
1	1	56		2012735	85386911800		SXT INDEX HD ASSY			
1	1	55		2012164	26386910060		GROMMET			
1	1	54		2012740	48386910210		CONNECTOR ASSY, DUMMY			
2	2	53	*	1011625-30	74455151030		SCREW, CAP, SOC. HD, SELF LOCKING			
2	2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC.HD., SELF LOCKING			
7	7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC.HD., SELF LOCKING			
1	1	50	*	1011625-28	74455151028		SCREW, CAP, SOC HD., SELF LOCKING			
4	4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC.HD., SELF LOCKING			
8	8	48	NAS	1352C04LL8	74455157015					
10	10	47	NAS	1352C04LL6	74455157014					
10	10	46	NAS	1352C04LL4	74455157013					
12	12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC.HD., SELF LOCKING			
4	4	44	*	1011625-11	74455151011		SCREW, CAP, SOC HD, SELF LOCKING			
12	12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING, 100° FLAT HEAD			
		42								
2	2	41	AN	960-C8	74468051004		WASHER, FLAT, REGULAR			
1	1	40		NAS1352C08LL10	74455157028		SCREW, CAP HEX SOC.HD, SELF LOCKING			
2	2	39		2011684	48386910030		PIN, THREADED			
1	1	38		2011877	45386910250		SPACER			
1	1	37	*	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1	1	36		MS9021-154			PACKING, PREFORMED			
1	1	35	*	1011606-1	30205772240		BEARING, BALL			
1	1	34	*	1011606-2	30205772720		BEARING, BALL			
1	1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	2	32		2011562	57386910580		BUSHING, LOCATING			
2	2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	1	30		2011344	45386910020		SCREW, SHOULDER			
2	2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	1	26		2012486	57386911240		SPACER, CONNECTOR, MOUNTING PLATE			
1	1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
1	1	22		2011342	57386910570		RING, LIMIT STOP			
1	1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
1	1	20		2011616	57386910020		RING, MOUNTING, COVER			
1	1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
1	1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
1	1	16		2012743	85386911820		FLEXPRINT RETAINING ASSY			
2	2	15		2011686	56386910310		RETAINER, PIN			
1	1	14	*	1012520-1	85386900910		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	1	13	*	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	1	12		2011705	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
1	1	11		2011714	85386910460		LIMIT STOP ASSY			
1	1	10		2012387	85386911110		GEAR & SPRING, ASSY OF			
1	1	9		2011906	85386910440		HOUSING, STATOR & LAMP, ASSY OF			
1	1	8		2011703	85386910200		SHAFT DRIVE, GEAR BOX, SCT, ASSY OF			
1	1	7		2011702	85386910630		TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
1	1	6		2011215-011	85386910380		TELESCOPE TRUNNION AXIS ASSY			
1	1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
0	1	1		2011889-021	85386910680		OPTICAL UNIT SUBASSY - STAGE II			

QTY REQD — LIST OF PARTS AND MATERIALS

010	000	ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
		142									
		141									
		140									
		139									
		138									
		137									
		136									
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		103									
		102									

QTY REQD — LIST OF PARTS AND MATERIALS

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG. BEFORE ORDERING

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

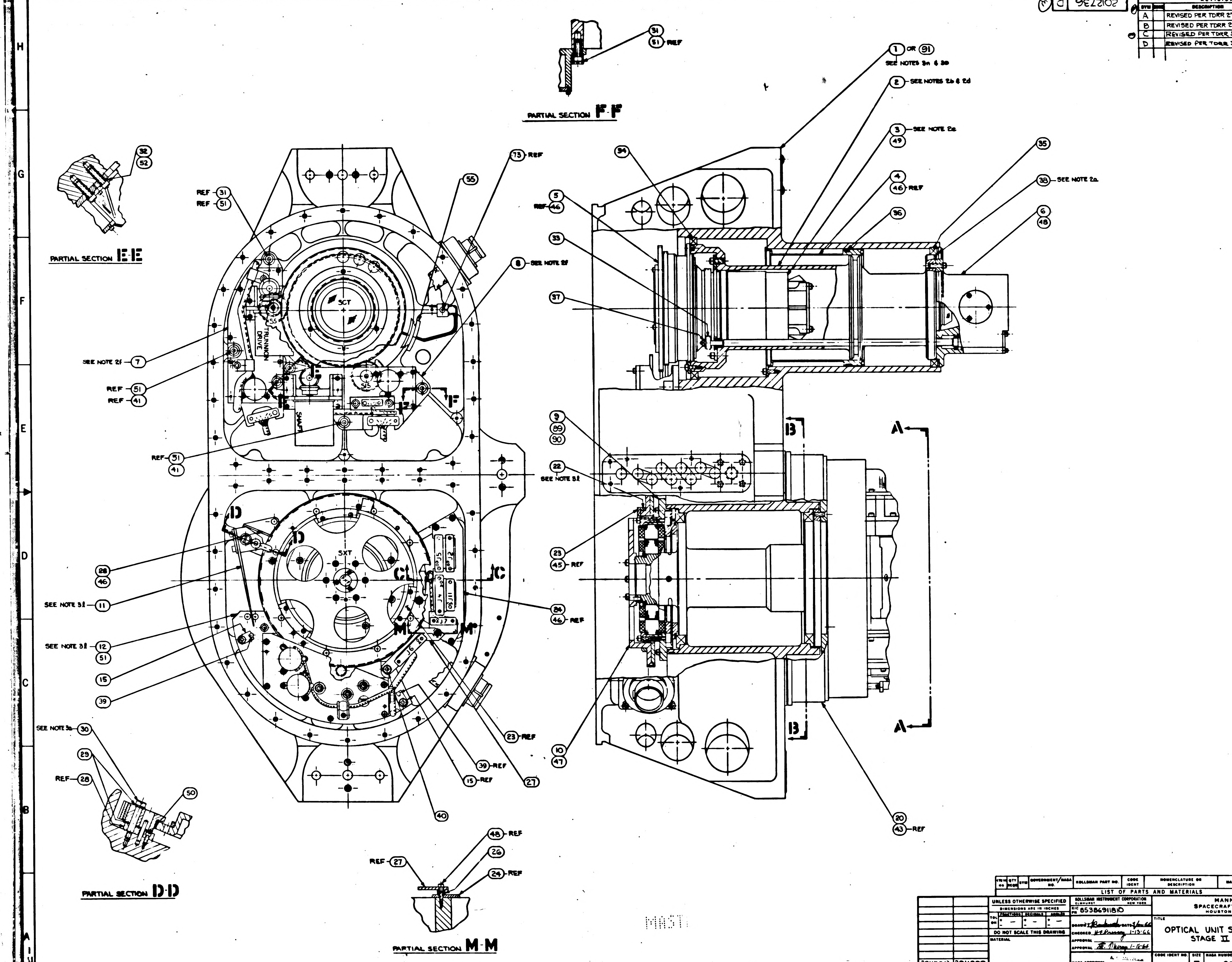
KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. [illegible]
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE
WEIGHT CALC ACTUAL
SHEET 6 OF 6

2012736 C



PARTIAL SECTION F-F
31
51 REF
PARTIAL SECTION E-E
32
52
REF 31
REF 51
73 REF
55
8 SEE NOTE 2f
SEE NOTE 2f 7
REF 51
REF 41
REF 51
41
TRUNNION DRIVE
SHAFT
SCT
SXT
D
C
M
28
46
SEE NOTE 3l 11
SEE NOTE 3l 12
51
15
39
24
46 REF
23 REF
39 REF
15 REF
27
40
SEE NOTE 3a 30
29
REF 28
50
PARTIAL SECTION D-D
48 REF
26
24 REF
REF 27
PARTIAL SECTION M-M
1 OR 91
SEE NOTES 3n & 3o
2 SEE NOTES 2b & 2d
3 SEE NOTE 2e
49
34
5
REF 46
4
46 REF
36
35
38 SEE NOTE 2a
6
48
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37
9
89
90
22
SEE NOTE 3l
23
45 REF
10
47
20
43 REF
A
B

MAST

2012736 D

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
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A		REVISED PER TDRR 27677	4/14/66	WK
B		REVISED PER TDRR 29151	6-1-66	
C		REVISED PER TDRR 30829	8-26-66	
D		REVISED PER TDRR 31105	9-15-66	

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
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MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE 3 Jan 66
CHECKED H E Pressey 1-13-66
APPROVAL
APPROVAL 1-18-66
NASA APPROVAL
MIT APPROVAL 3 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 6

2012736 D

2012736 D

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
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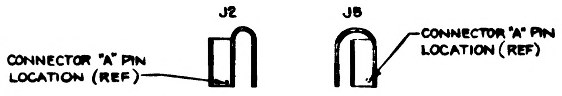
B		REVISED PER TDRR 29151		
C		REVISED PER TDRR 30829	8-26-66	
D		REVISED PER TDRR 31105	9-15-66	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J8
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

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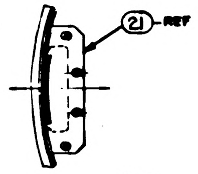
SCALE: NONE



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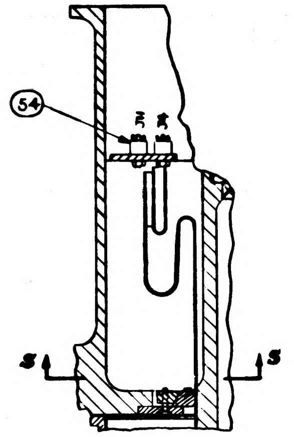

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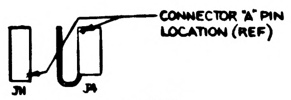
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J9

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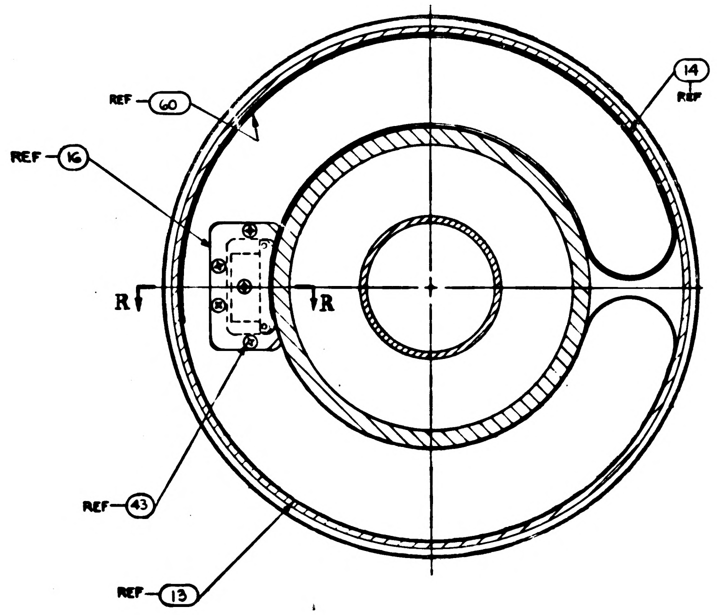
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REF - 16
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REF - 13

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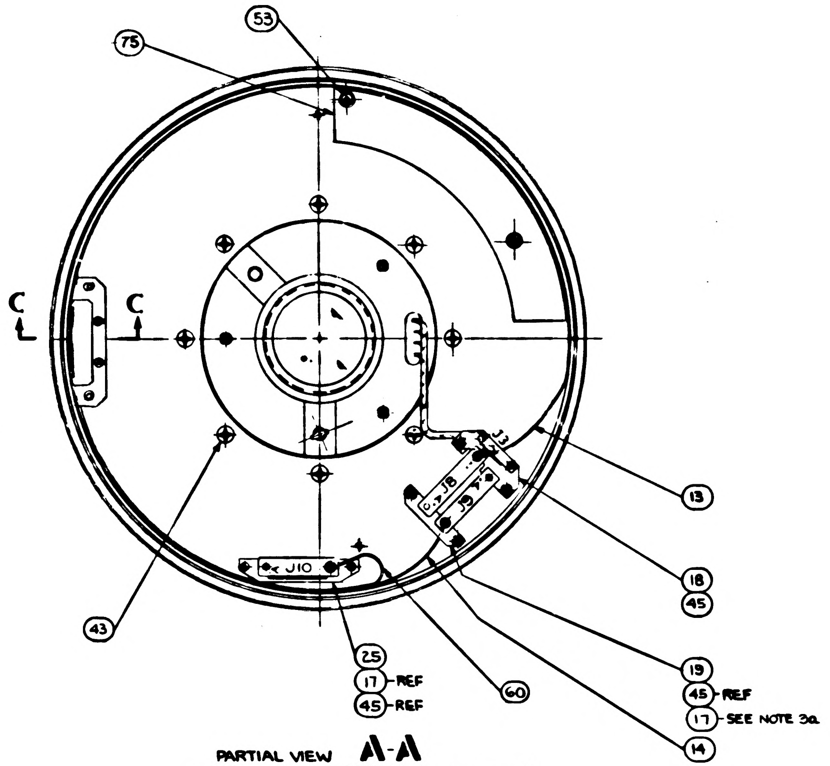
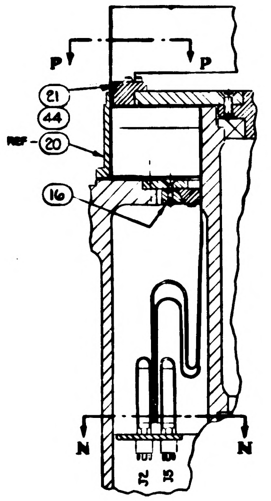

75
53
C
C
J10
13
18
45
43
19
45 - REF
17 - SEE NOTE 3a
14
25
17 - REF
45 - REF
60

PARTIAL VIEW A-A
(WITH SEXTANT INDEX HD ASSY REMOVED)


P
P
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44
REF - 20
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N
N
J10
J2
J8

PARTIAL SECTION C-C

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE
CHECKED 1-13-66
APPROVAL
APPROVAL E. Dhoong Tiike
NASA APPROVAL A. L. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

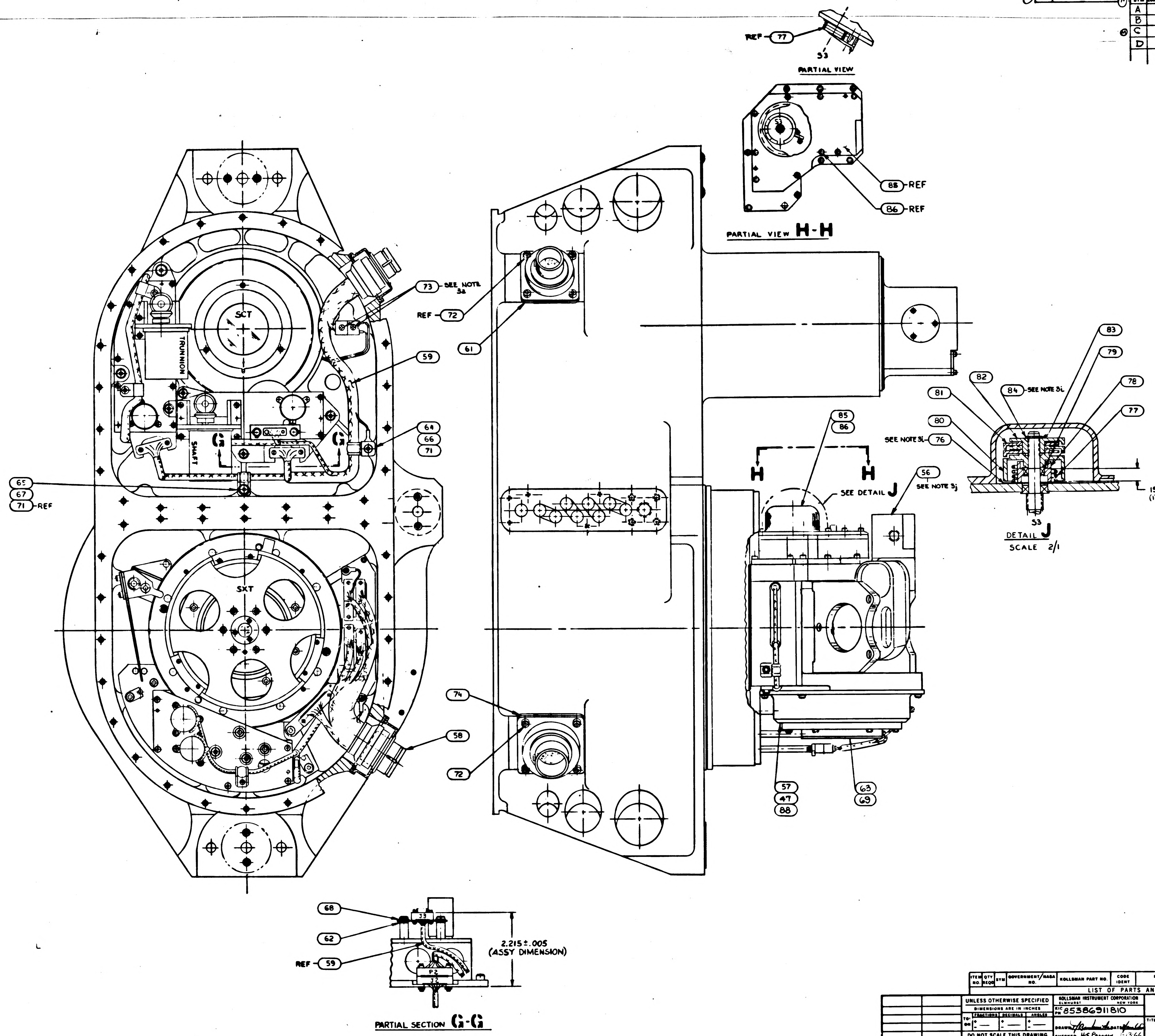
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 2 OF 6

2012736

2012736 D

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151		
C		REVISED PER TDRR 30829	8-25-66	
D		REVISED PER TDRR 31105	9-8-66	

REVISIONS TDRR 25767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PARTIAL VIEW
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85 REF
86 REF
PARTIAL VIEW H-H
73 SEE NOTE 3a
REF 72
61
SCT
TRUNNION
59
SHAFT
G
G
64
66
71
65
67
71 REF
SXT
58
74
72
85
86
H
H
SEE DETAIL J
56 SEE NOTE 3j
83
79
82
84 SEE NOTE 3i
78
81
77
80
SEE NOTE 3i 76
.198 (REF) (ITEM 78)
53
DETAIL J
SCALE 2/1
57
47
88
63
69
68
62
REF 59
33
P2
J2
2.215±.005 (ASSY DIMENSION)
PARTIAL SECTION G-G

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE
CHECKED H E Prang 1-13-66
APPROVAL
APPROVAL E. Wary 1/13/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 31 Jan 66

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SPACECRAFT CENTER
HOUSTON, TEXAS

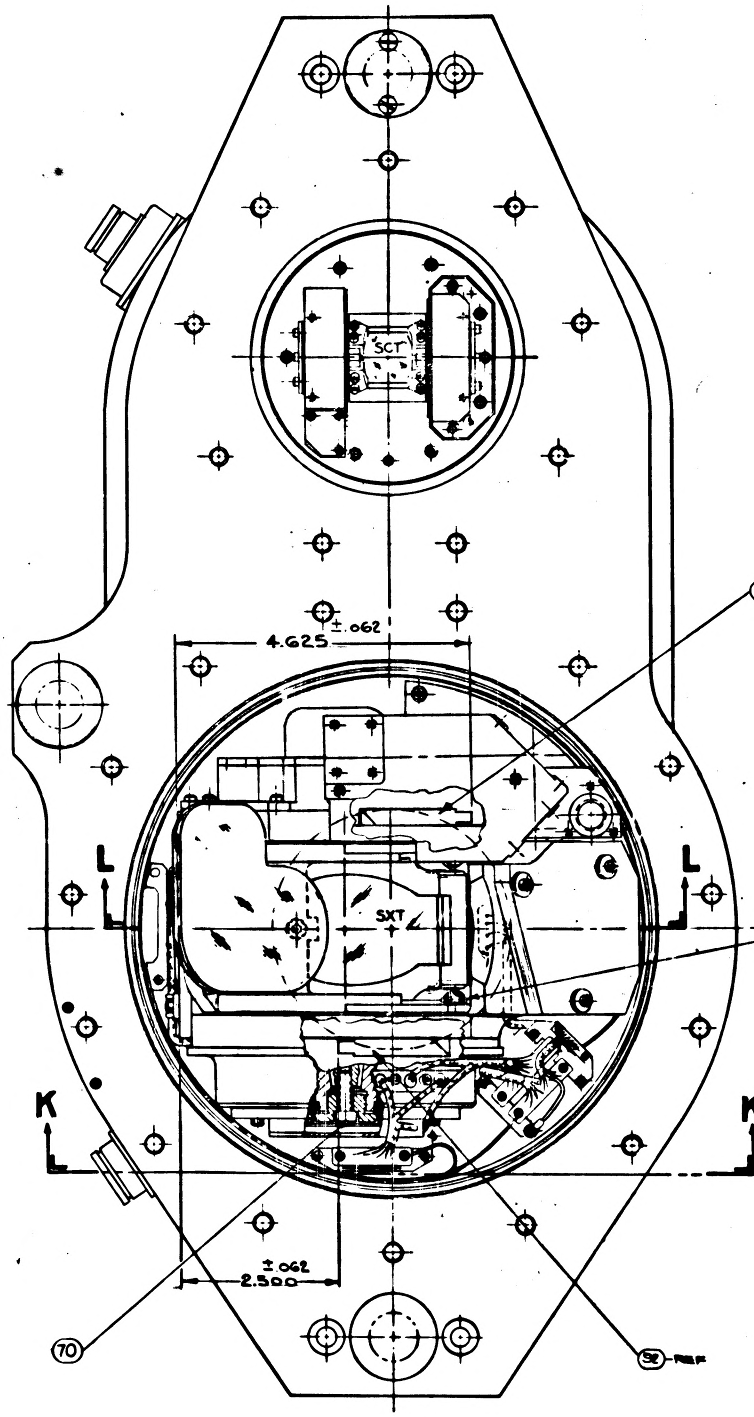
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

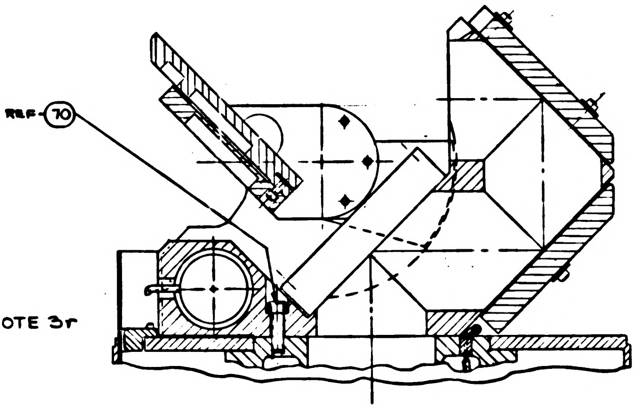
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 3 OF 6

2012736 L

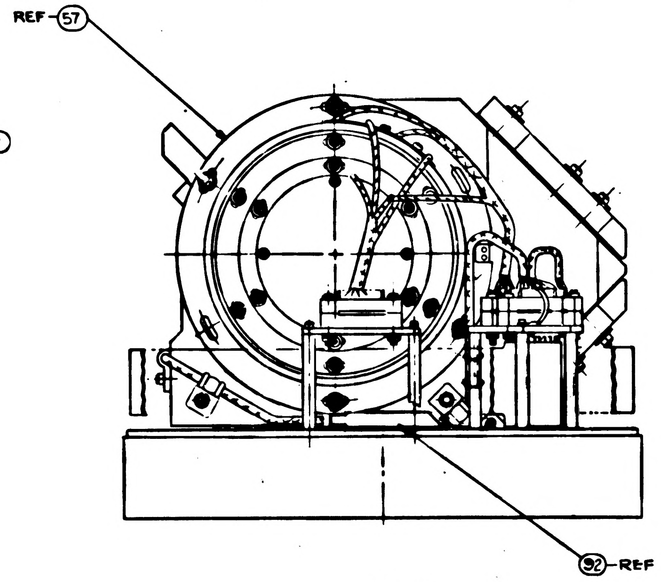
2012736 D

REVISIONS TDRR 25767				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151		
C		REVISED PER TDRR 30829	8-25-66	
D		REVISED PER TDRR 3105	9-15-66	





PARTIAL SECTION L-L



PARTIAL VIEW K-K

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
20H000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
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MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE
CHECKED H. E. Brannay 1-13-66
APPROVAL
APPROVAL 1/14/66
NASA APPROVAL
MIT APPROVAL 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 4 OF 6

2012736 D

D 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/… 66	wk
B		~~REVISED PER TDRR 28151~~		
C		REVISED PER TDRR 30829	8-2?-66	
D		REVISED PER TDRR 31108	9-16-66	

REVISIONS TDRR 25767

NOTES:

1. GENERAL REQUIREMENTS
   - a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
   - b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.

2. SCANNING TELESCOPE (SCT) REQUIREMENTS
   - a. ITEM 30 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.
   - b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.
   - c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).
   - d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF 13±2 IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.
   - e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.
   - f. ITEMS 7 AND 8 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.
   - g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.
   - h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3a HAVE BEEN MET. BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS
   - a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND 30 AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.
   - b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).
   - c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.
   - d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.
   - e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.
   - f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.
   - g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.
   - h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.
   - i. THE SXT TRUNNION LIMIT STOP, ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS.
   - j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION
   - k.
   - l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12, AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387
   - m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.
   - n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.0 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE H PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.
   - o. AFTER THE REQUIREMENTS OF NOTE 3n HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)
   - p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206
   - r. CEMENT WEDGES (ITEM 92) TO SXT HD ASSY (ITEM 56) AND TO THE TELESCOPE TUBE ASSY OF THE SHAFT AXIS ASSY (ITEM 3 OF 2011889-ASSY) TO DIMENSIONS SHOWN ON SHEET 4 OF 6 USING EPOXY CEMENT PER ND1002004 TYPE VII.

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± —; DECIMALS ± —; ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE 3/…/66
CHECKED H.E.Pr… …-13-66
APPROVAL
APPROVAL … 1/18/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL … 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230 | SIZE E | NASA NUMBER 2012736
SCALE 1/1 | WEIGHT CALC ACTUAL | SHEET 5 OF 6

2012736 D

2012736 D

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-29-[illegible]	[illegible]
D		REVISED PER TDRR 31105	[illegible]	[illegible]

REVISIONS

LIST OF PARTS AND MATERIALS

QTY REQD 021	QTY REQD 011	QTY REQD 000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	HOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
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			99								
			98								
			97								
			96								
			95								
			94								
			93								
2	0	0	92		2012760			WEDGE, RIGHT TRIANGULAR			
1	1	0	91		2011889-031			OPTICAL UNIT SUB-ASSY STAGE I			
8	8	8	90		1012540-029			SCREW, HEX HD, SELF LOCKING			
8	8	8	89		MS15795-804			WASHER, FLAT			
4	4	4	88		MS15795-803			WASHER, FLAT			
2	2	2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC.HD., SELF LOCKING			
9	9	9	86		1011625-20	74455151020		SCREW, CAP, SOC. HD., SELF LOCKING			
1	1	1	85		2011595	52386910220		COVER, GEARBOX			
1	1	1	84		MS16624-1018			RING, RETAINING			
AR	AR	AR	83		2012351-1,2&3	7938691 0101 0103		WASHER, FLAT			
	1	1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	3	3	81		2011579	57386910120		DOG, LIMIT STOP			
1	1	1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	1	1	79		1011608-5			BEARING, BALL, ANNULAR			
1	1	1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	1	1	77		2011577	56386910060		SPRING, TORSION			
1	1	1	76		2012350	25386910010		WASHER			
1	1	1	75		2012723	52386911060		COUNTERWEIGHT			
1	1	1	74	#	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	2	2	73		MS35249-11	74455187011		SCREW, MACHINE, FLAT COUNTERSUNK HD, SLOTTED			
8	8	8	72		1011625-39	74455151040		SCREW, CAP, SOC.HEAD, SELF LOCKING			
2	2	2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC.HEAD, SELF LOCKING			
2	2	2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC.HEAD, SELF LOCKING			
4	4	4	69		NAS1189C02T4L			SCREW, FLAT HD., SELF LOCKING			
2	2	2	68		MS16624-15	—•—		RING, RETAINING, EXTERNAL, BASIC			
1	1	1	67		MS15795-305	—•—		WASHER, FLAT			
1	1	1	66	#	1011918-2	—•—		WASHER, CABLE CLAMP			
1	1	1	65	#	1000220-6OR5	—•—		CLAMP, CABLE			
1	1	1	64	#	1000220-8OR6	—•—		CLAMP, CABLE			
1	1	1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	AR	AR	62		2011885	45386910040		SHIM			
1	1	1	61	#	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
1	1		60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	1	1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	1	1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	1	1	57	#	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
1	1	1	56		2012735	85386911800		SXT INDEX HD ASSY			
1	1	1	55		2012164	26386910060		GROMMET			
1	1	1	54		2012740	48386910210		CONNECTOR ASSY, DUMMY			
2	2	2	53	#	1011625-30	74455151030		SCREW, CAP, SOC. HD, SELF LOCKING			
2	2	2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC.HD., SELF LOCKING			
7	7	7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC.HD., SELF LOCKING			
1	1	1	50	#	1011625-28	74455151028		SCREW, CAP, SOC HD., SELF LOCKING			
4	4	4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC.HD., SELF LOCKING			
8	8	8	48	NAS	1352C04LL8	74455157015		↕			
10	10	10	47	NAS	1352C04LL6	74455157014		↕			
10	10	10	46	NAS	1352C04LL4	74455157013		↕			
12	12	12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC.HD, SELF LOCKING			
4	4	4	44	#	1011625-11	74455151011		SCREW, CAP, SOC HD., SELF LOCKING			
12	12	12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING, 100° FLAT HEAD			
			42								
2	2	2	41	AN	960-C8	74468051004		WASHER, FLAT, REGULAR			
1	1	1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC.HD., SELF LOCKING			
2	2	2	39		2011684	48386910030		PIN, THREADED			
1	1	1	38		2011877	45386910250		SPACER			
1	1	1	37	#	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1	1	1	36		MS9021-154			PACKING, PREFORMED			
1	1	1	35	#	1011606-1	30205772240		BEARING, BALL			
1	1	1	34	#	1011606-2	30205772720		BEARING, BALL			
1	1	1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	2	2	32		2011562	57386910580		BUSHING, LOCATING			
2	2	2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	1	1	30		2011344	45386910020		SCREW, SHOULDER			
2	2	2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	1	1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	1	1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	1	1	26		2012486	57386911240		SPACER, CONNECTOR, MOUNTING PLATE			
1	1	1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	1	1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	3	3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
1	1	1	22		2011342	57386910570		RING, LIMIT STOP			
1	1	1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
1	1	1	20		2011616	57386910020		RING, MOUNTING, COVER			
1	1	1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
1	1	1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	6	6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
1	1	1	16		2012743	85386911820		FLEXPRINT RETAINING ASSY			
2	2	2	15		2011686	56386910310		RETAINER, PIN			
1	1	1	14	#	1012520-1	85386900910		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	1	1	13	#	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	1	1	12		2011705	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
1	1	1	11		2011714	85386910460		LIMIT STOP ASSY			
1	1	1	10		2012387	85386911110		GEAR & SPRING, ASSY OF			
1	1	1	9		2011906	85386910440		HOUSING, STATOR & LAMP, ASSY OF			
1	1	1	8		2011703	85386910200		SHAFT DRIVE, GEAR BOX, SCT, ASSY OF			
1	1	1	7		2011702	85386910630		TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
1	1	1	6		2011215-011	85386910380		TELESCOPE TRUNNION AXIS ASSY			
1	1	1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	1	1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	1	1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	1	1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
0	0	1	1		2011889-021	85386910680		OPTICAL UNIT SUBASSY – STAGE I			

LIST OF PARTS AND MATERIALS

QTY REQD 110	QTY REQD 000	ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	HOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
		142									
		141									
		140									
		139									
		138									
		137									
		136									
		135									
		134									
		133									
		132									
		131									
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		127									
		126									
		125									
		124									
		123									
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		113									
		112									
		111									
		110									
		109									
		108									
		107									
		106									
		105									
		104									
		103									
		102									

MASTER

#PURCHASE ITEM – SEE SPECIFICATION
CONTROL DWG. BEFORE ORDERING

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

HOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 3-66
APPROVAL
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
UNIT APPROVAL [illegible] 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

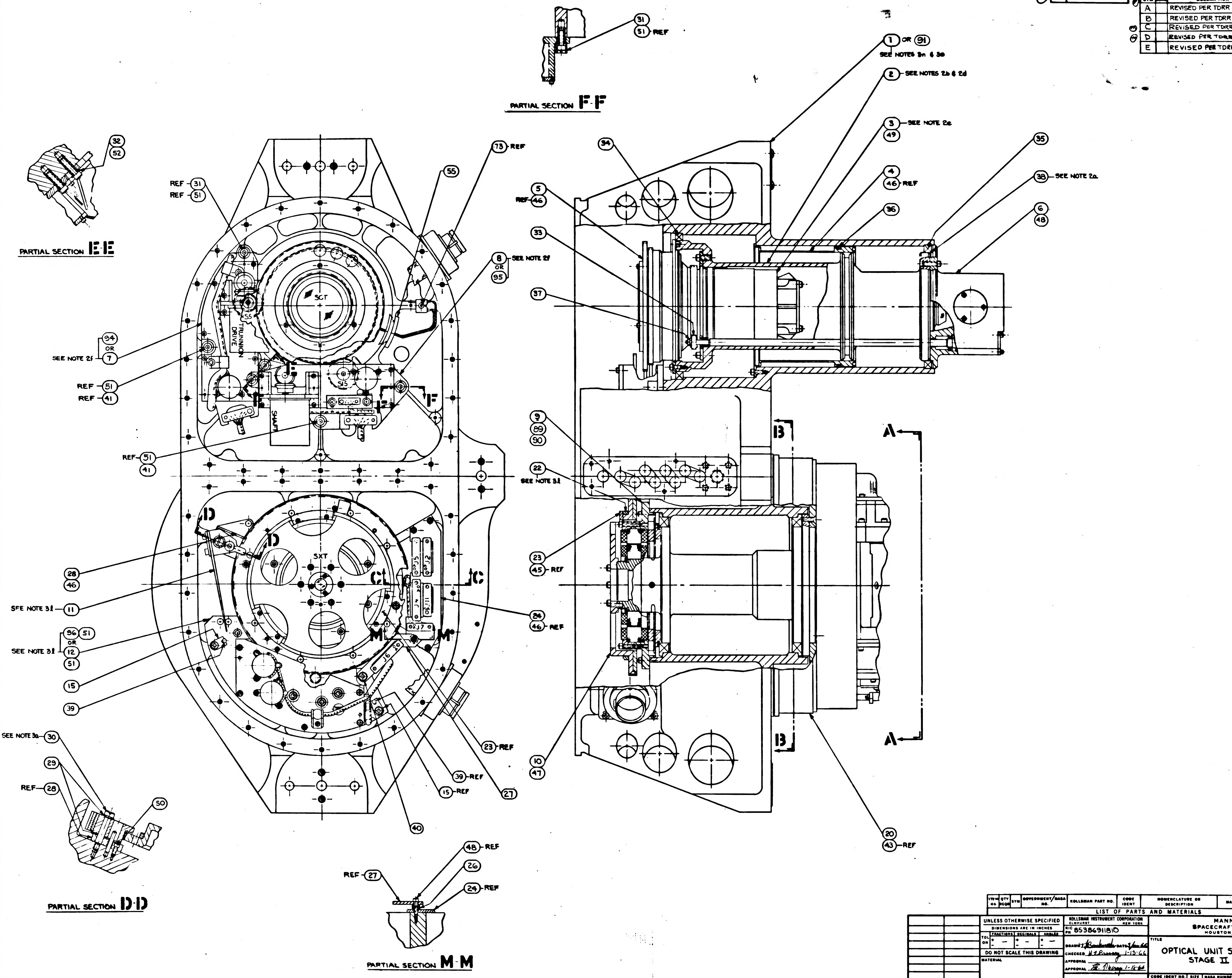
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE
WEIGHT CALC ACTUAL
SHEET 6 OF 6

2012736 D

E	2012736

REVISIONS TDRR 25767				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/7/66	W/C
B		REVISED PER TDRR 29151	6-1-66	
C		REVISED PER TDRR 30829	8-2-66	
D		REVISED PER TDRR 31105	2-15-66	
E		REVISED PER TDRR 32832	1-27-67	


PARTIAL SECTION F-F
31
51 REF
PARTIAL SECTION E-E
32
52
REF 31
REF 51
55
73 REF
8 SEE NOTE 2f
OR
95
SCT
TRUNNION DRIVE
SHAFT
F
F
94 OR 7 SEE NOTE 2f
REF 51
REF 41
REF 51
41
D
D
SXT
C
C
M
M
28
46
SEE NOTE 3l 11
96 51 OR 12 51 SEE NOTE 3l
15
39
SEE NOTE 3a 30
29
REF 28
50
PARTIAL SECTION D-D
40
15 REF
39 REF
23 REF
27
24
46 REF
REF 27
48 REF
26
24 REF
PARTIAL SECTION M-M
1 OR 91 SEE NOTES 3n & 3o
2 SEE NOTES 2b & 2d
3 SEE NOTE 2e
49
4
46 REF
36
35
38 SEE NOTE 2a
6
48
34
5
REF 46
33
37
9
89
90
22
SEE NOTE 3l
23
45 REF
10
47
20
43 REF
A
A
B
B

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011000	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± —	± —

DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK

KIC PN 85386911810

DRAWN DATE 1/13/66
CHECKED 1-13-66
APPROVAL
APPROVAL 1-18-66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 3 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

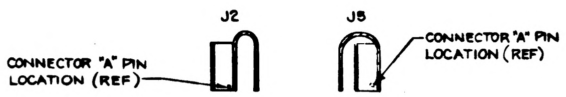
CODE IDENT NO.	SIZE	NASA NUMBER
80230	E	2012736

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 6

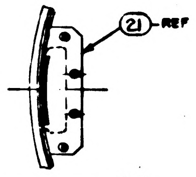
2012736 E

E 2012736

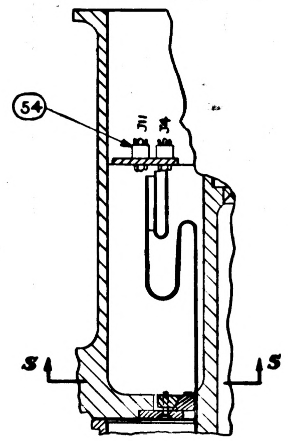
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS TDRR 25767				
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151	6-1-66	
C		REVISED PER TDRR 30829	8-26-66	
D		REVISED PER TDRR 31105	9-15-66	
E		REVISED PER TDRR 32832	1/27/67	


J2
J3
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

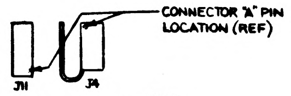
PARTIAL SECTION **N-N**
SCALE: NONE



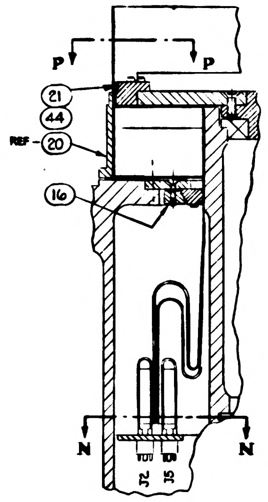
PARTIAL SECTION **P-P**

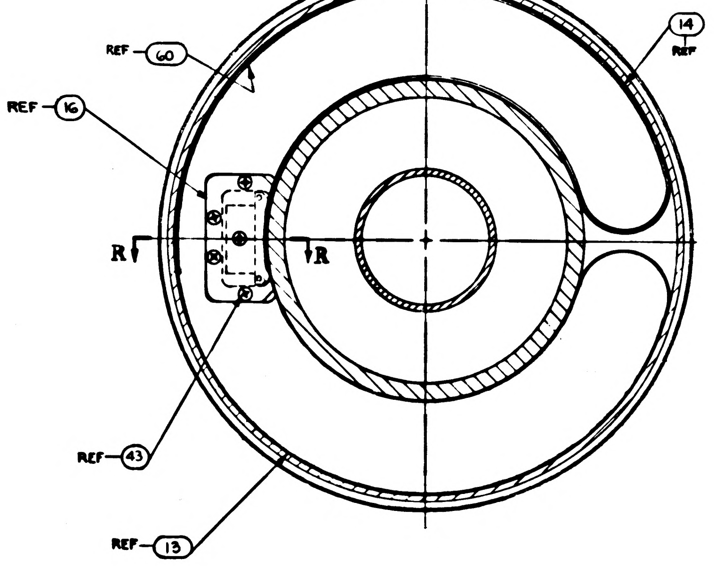


PARTIAL SECTION **R-R**

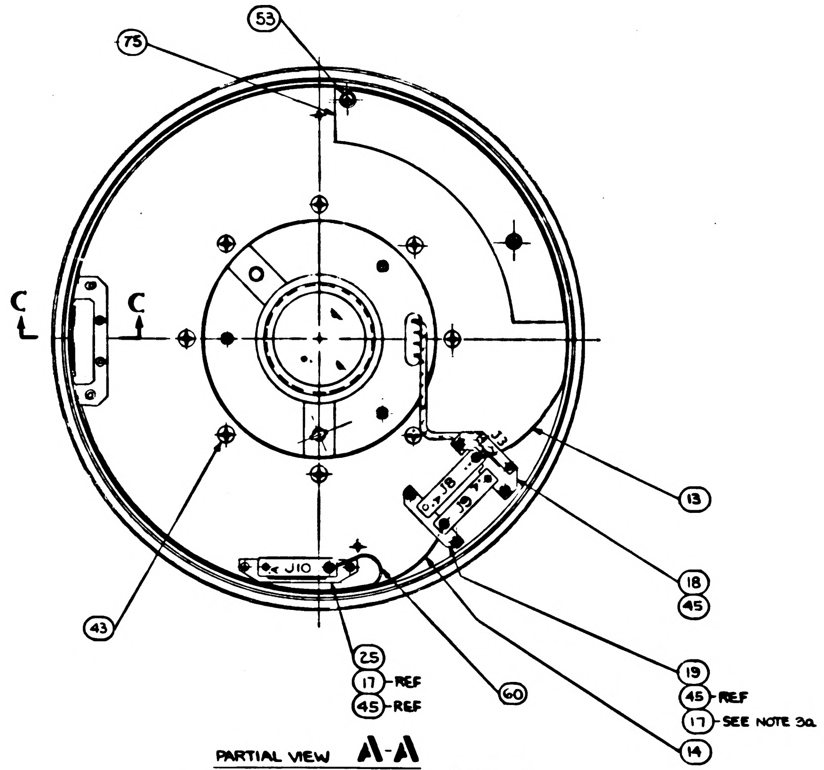

CONNECTOR "A" PIN LOCATION (REF)
J11
J4

PARTIAL SECTION **S-S**


P
P
21
44
REF 20
16
N
N
J2
J3


REF 60
14 REF
REF 16
R
R
REF 43
REF 13

PARTIAL SECTION **B-B**


53
75
C
C
13
18
45
J10
43
25
17 -REF
45 -REF
60
19
45 -REF
17 -SEE NOTE 3a.
14

PARTIAL VIEW **A-A**
(WITH SEXTANT INDEX HD ASSY REMOVED)

PARTIAL SECTION **C-C**

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE 3 Jan 66
CHECKED 1-13-66
APPROVAL
APPROVAL E. Thomp 1/11/66
NASA APPROVAL A. C. METZCER
MIT APPROVAL W. Wagg 31 Jan

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

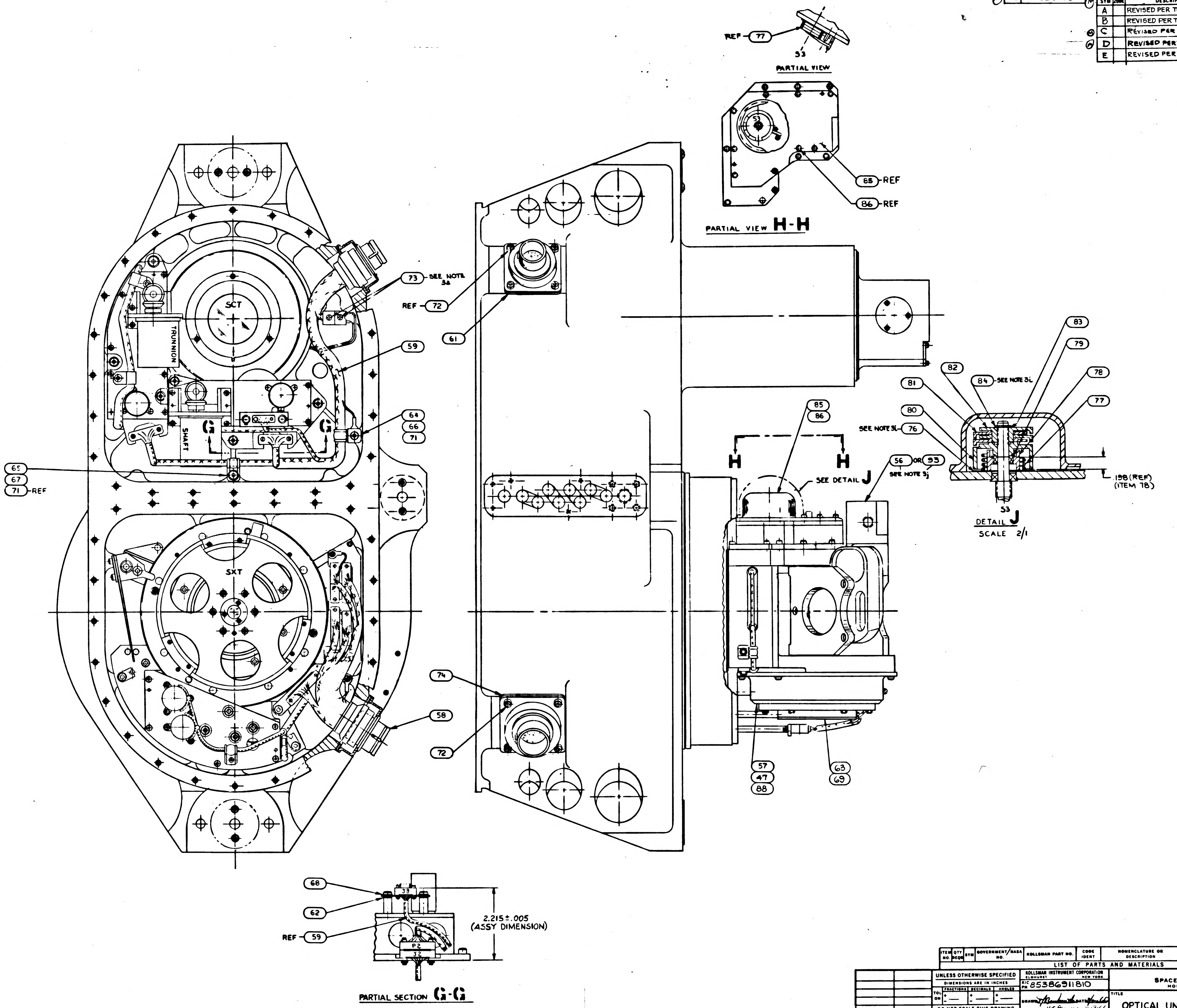
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 2 OF 6

2012736 E

2012736 E

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-25-66	[illegible]
D		REVISED PER TDRR 31105	9-15-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	[illegible]

REVISIONS TDRR 25[illegible]


REF 77
S3
PARTIAL VIEW
S3
65 REF
86 REF
PARTIAL VIEW H-H
73 SEE NOTE 3a
REF 72
61
59
SCT
TRUNNION
SHAFT
G
G
64
66
71
65
67
71 REF
SXT
74
58
72
85
86
H
H
SEE DETAIL J
56 OR 93
SEE NOTE 3j
57
47
88
63
69
83
79
82
84 SEE NOTE 3i
78
81
77
80
SEE NOTE 3i 76
.198 (REF)
(ITEM 78)
S3
DETAIL J
SCALE 2/1
68
62
REF 59
33
P2
32
2.215±.005
(ASSY DIMENSION)
PARTIAL SECTION G-G

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED H E Cressy 1-13-66
APPROVAL
APPROVAL E. Morey 1/15/66
NASA APPROVAL A. [illegible]
MIT APPROVAL W. [illegible] 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

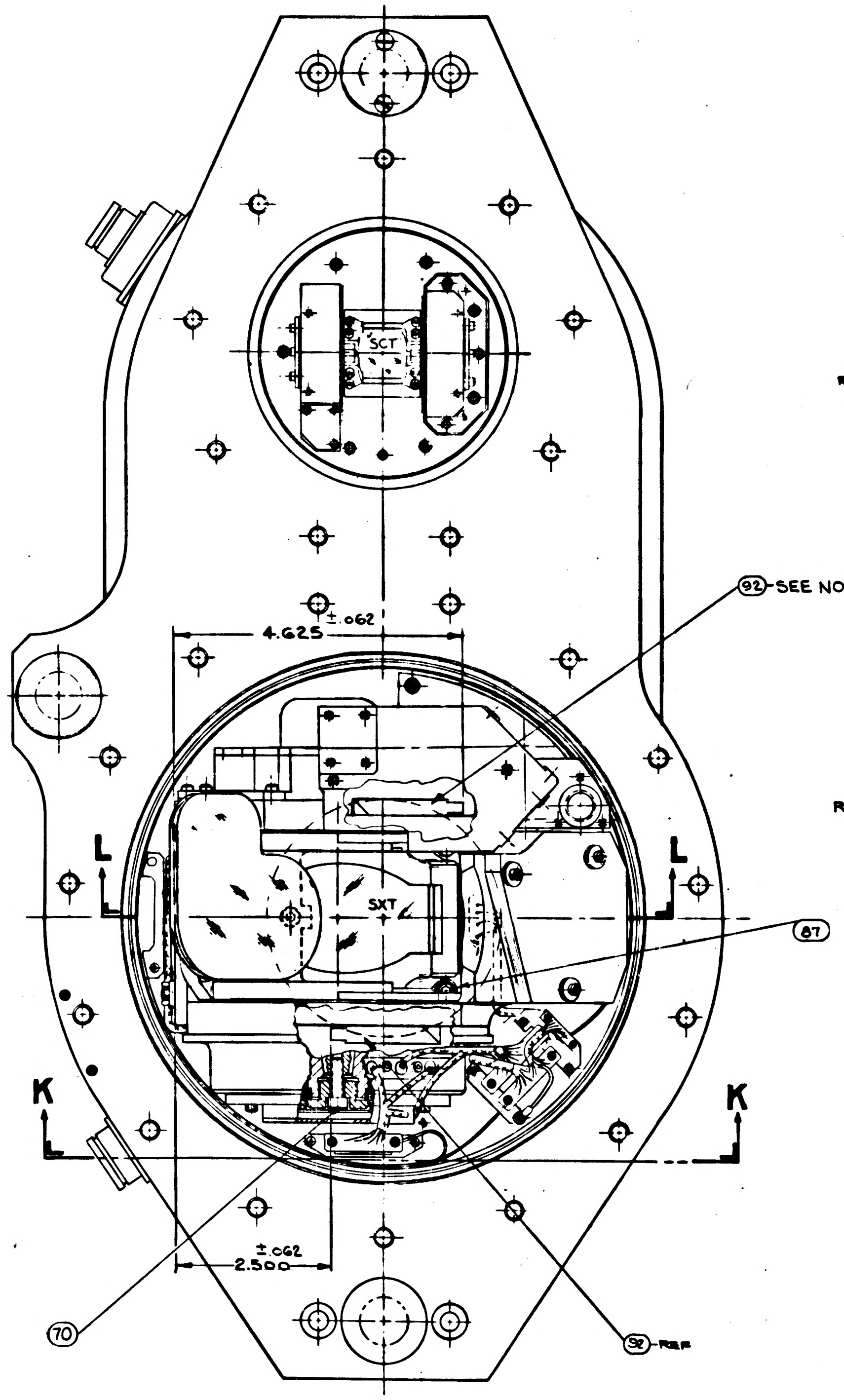
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

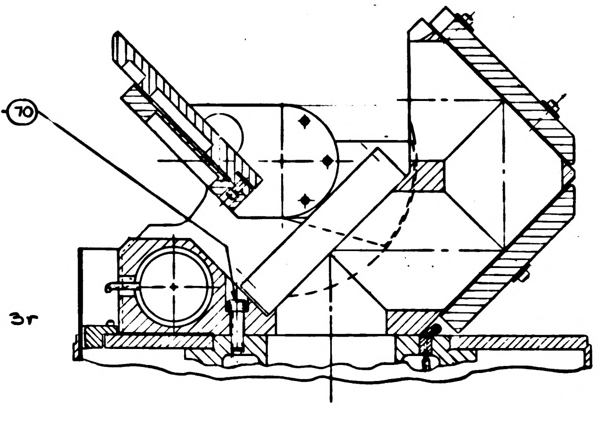
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 3 OF 6

2012736 E

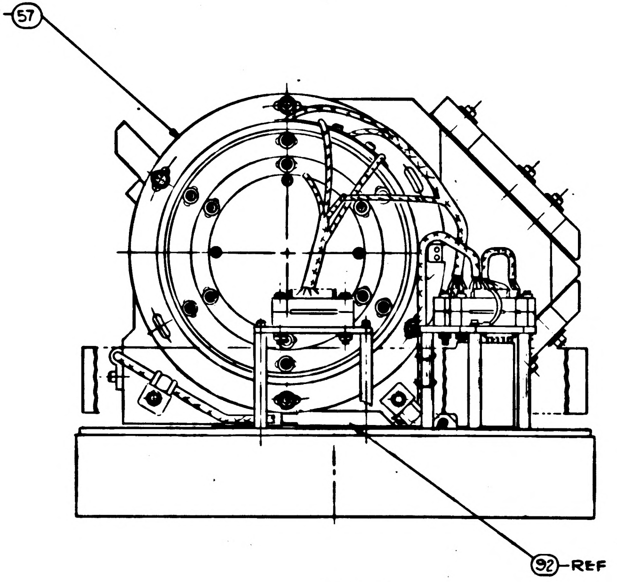
2012736 E

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS TDRR 25767				
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151	6-1-66	
C		REVISED PER TDRR 30829	8 25 66	
D		REVISED PER TDRR 3405	9-15-66	
E		REVISED PER TDRR 32832	1/27/67	





PARTIAL SECTION **L L**



PARTIAL VIEW **K-K**

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
20H000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE
CHECKED 1-13-66
APPROVAL
APPROVAL 1/13/66
NASA APPROVAL
MIT APPROVAL 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 4 OF 6

2012736 E

2012736 E

REVISIONS TDRR 25767				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/14/66	wlc
B		REVISED PER TDRR 29151	6-1-66	
C		REVISED PER TDRR 30829	8-23-66	
D		REVISED PER TDRR 31108	9-16-66	
E		REVISED PER TDRR 32832	1/27/67	

NOTES:

1. GENERAL REQUIREMENTS

a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL ~~PER ND 1002019 BY TAGGING.~~

2. SCANNING TELESCOPE (SCT) REQUIREMENTS

a. ITEM 38 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.

b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.

c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).

d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF $13^{\pm 2}$ IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.

e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.

f. ITEMS 7 OR 94 AND 8 OR 95 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.

g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.

h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE 1 OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3o HAVE BEEN MET. BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS

a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND 30 AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.

b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).

c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.

d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.

e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.

f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.

g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.

h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.

i. THE SXT TRUNNION LIMIT STOP, ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS.

j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56 OR 93) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION

k.

l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12 OR 96 AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 OR 96 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 OR 96 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS 15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387

m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.

n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.8 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE H PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.

o. AFTER THE REQUIREMENTS OF NOTE 3m HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)

p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206

r. CEMENT WEDGES (ITEM 92) TO SXT HD ASSY (ITEM 56) AND TO THE TELESCOPE TUBE ASSY OF THE SHAFT AXIS ASSY (ITEM 3 OF 2011889-ASSY) TO DIMENSIONS SHOWN ON SHEET 4 OF 6 USING EPOXY CEMENT PER ND1002004 TYPE VII.

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

	FRACTIONS	DECIMALS	ANGLES
TOL ON	± —	± —	± —

DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE 3/ /66
CHECKED H.E. -13-66
APPROVAL
APPROVAL 1/18/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 5 OF 6

2012736 E

2012736 E

SYM	ZONE	REVISIONS TDRR 2576 DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151		
C		REVISED PER TDRR 30829	8-25-66	
D		REVISED PER TDRR 31105	9/15/66	
E		~~REVISED PER TDRR 32832~~	1/27/67	

QTY REQD 031	021	011	000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
				101								
				100								
				99								
				98								
				97								
1	0	0	0	96		2011705-011			SHAFT DRIVE GEAR BOX SXT ASSY OF			
1	0	0	0	95		2011703-011			SHAFT DRIVE GEAR BOX, ASSY OF SCT			
1	0	0	0	94		2011702-011			TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
1	0	0	0	93		2012735-011			SXT INDEX HEAD ASSY			
2	2	0	0	92		2012760			WEDGE, RIGHT TRIANGULAR			
1	1	1	0	91		2011889-031			OPTICAL UNIT SUB-ASSY STAGE I			
8	8	8	8	90		1012540-029			SCREW, HEX HD, SELF LOCKING			
8	8	8	8	89		MS15795-804			WASHER, FLAT			
4	4	4	4	88		MS15795-803			WASHER, FLAT			
2	2	2	2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC.HD, SELF LOCKING			
9	9	9	9	86		1011625-20	74455151020		SCREW, CAP, SOC. HD., SELF LOCKING			
1	1	1	1	85		2011595	52386910220		COVER, GEARBOX			
1	1	1	1	84		MS16624-1018			RING, RETAINING			
AR	AR	AR	AR	83		2012351-1,2&3	7938691 0101 0103		WASHER, FLAT			
1	1	1	1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	3	3	3	81		2011579	57386910120		DOG, LIMIT STOP			
1	1	1	1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	1	1	1	79		1011608-5			BEARING, BALL, ANNULAR			
1	1	1	1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	1	1	1	77		2011577	56386910060		SPRING, TORSION			
1	1	1	1	76		2012350	25386910010		WASHER			
1	1	1	1	75		2012723	52386911060		COUNTERWEIGHT			
1	1	1	1	74	*	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	2	2	2	73		MS35249-11	74455187011		SCREW MACHINE, FLAT COUNTERSUNK HD, SLOTTED			
8	8	8	8	72		1011625-39	74455151040		SCREW, CAP, SOC. HEAD, SELF LOCKING			
2	2	2	2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC. HEAD, SELF LOCKING			
2	2	2	2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC. HEAD, SELF LOCKING			
4	4	4	4	69		NAS1189C02T4L			SCREW, FLAT HD., SELF LOCKING			
2	2	2	2	68		MS16624-15	—		RING, RETAINING, EXTERNAL, BASIC			
1		1	1	67		MS15795-305	—		WASHER, FLAT			
1	1		1	66	*	1011918-2	—		WASHER, CABLE CLAMP			
1		1	1	65	*	1000220-6 OR 5	—		CLAMP, CABLE			
1	1	1	1	64	*	1000220-8 OR 6	—		CLAMP, CABLE			
1		1	1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	AR	AR	AR	62		201 885	45386910040		SHIM			
1	1	1	1	61	*	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
1	1	1	1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	1	1	1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	1	1	1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	1	1	1	57	*	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
0	1	1	1	56		2012735-000	85386911800		SXT INDEX HD ASSY			
1	1	1	1	55		2012164	26386910060		GROMMET			
1	1	1	1	54		2012740	48386910210		CONNECTOR ASSY, DUMMY			
2	2	2	2	53	*	1011625-30	74455151030		SCREW, CAP, SOC. HD, SELF LOCKING			
2	2	2	2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC.HD., SELF LOCKING			
7	7	7	7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC.HD., SELF LOCKING			
1	1	1	1	50	*	1011625-28	74455151028		SCREW, CAP, SOC HD., SELF LOCKING			
4	4	4	4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC.HD., SELF LOCKING			
8	8	8	8	48	NAS	1352C04LL8	74455157015		↕			
10	10	10	10	47	NAS	1352C04LL6	74455157014		↕			
10	10	10	10	46	NAS	1352C04LL4	74455157013		↕			
12	12	12	12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC.HD., SELF LOCKING			
4	4	4	4	44	*	1011625-11	74455151011		SCREW, CAP, SOC HD, SELF LOCKING			
12	12	12	12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING, 100° FLAT HEAD			
				42								
2	2	2	2	41	AN	960-C8	74468051004		WASHER, FLAT, REGULAR			
1	1	1	1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC.HD., SELF LOCKING			
2	2	2	2	39		2011564	48386910030		PIN, THREADED			
1	1	1	1	38		2011577	45386910250		SPACER			
1	1	1	1	37	*	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1	1	1	1	36		MS9021-154			PACKING, PREFORMED			
1	1	1	1	35	*	1011606-1	30205772240		BEARING, BALL			
1	1	1	1	34	*	1011606-2	30205772720		BEARING, BALL			
1	1	1	1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	2	2	2	32		2011562	57386910580		BUSHING, LOCATING			
2	2	2	2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	1	1	1	30		20 1344	45386910020		SCREW, SHOULDER			
2	2	2	2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	1	1	1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	1	1	1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	26		2012486	57386911240		SPACER, CONNECTOR, MOUNTING PLATE			
1	1	1	1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	3	3	3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
1	1	1	1	22		2011342	57386910570		RING, LIMIT STOP			
1	1	1	1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
1	1	1	1	20		2011616	57386910020		RING, MOUNTING, COVER			
1	1	1	1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	6	6	6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
1	1	1	1	16		2012743	85386911820		FLEXPRINT RETAINING ASSY			
2	2	2	2	15		2011686	56386910310		RETAINER, PIN			
1	1	1	1	14	*	1012520-1	85386900910		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	1	1	1	13	*	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
0	1	1	1	12		2011705-000	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
1	1	1	1	11		2011714	85386910460		LIMIT STOP ASSY			
1	1	1	1	10		2012387	85386911110		GEAR & SPRING, ASSY OF			
1	1	1	1	9		2011906	85386910440		HOUSING, STATOR & LAMP, ASSY OF			
0	1	1	1	8		2011703-000	85386910200		SHAFT DRIVE, GEAR BOX, SCT, ASSY OF			
0	1	1	1	7		2011702-000	85386910630		TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
1	1	1	1	6		2011215-011	85386910380		TELESCOPE TRUNNION AXIS ASSY			
1	1	1	1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	1	1	1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	1	1	1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	1	1	1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
0	0	0	1	1		2011889-021	85386910680		OPTICAL UNIT SUBASSY - STAGE I			

QTY REQD — LIST OF PARTS AND MATERIALS

QTY REQD 031	021	011	000	ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
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				141									
				140									
				139									
				138									
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				105									
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				103									
				102									

QTY REQD — LIST OF PARTS AND MATERIALS

STER

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG. BEFORE ORDERING

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE 3/66
CHECKED H E Crusy 3-66
APPROVAL
APPROVAL E. Thomp
A. C. METZGER
NASA APPROVAL
MIT APPROVAL 3/31/66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

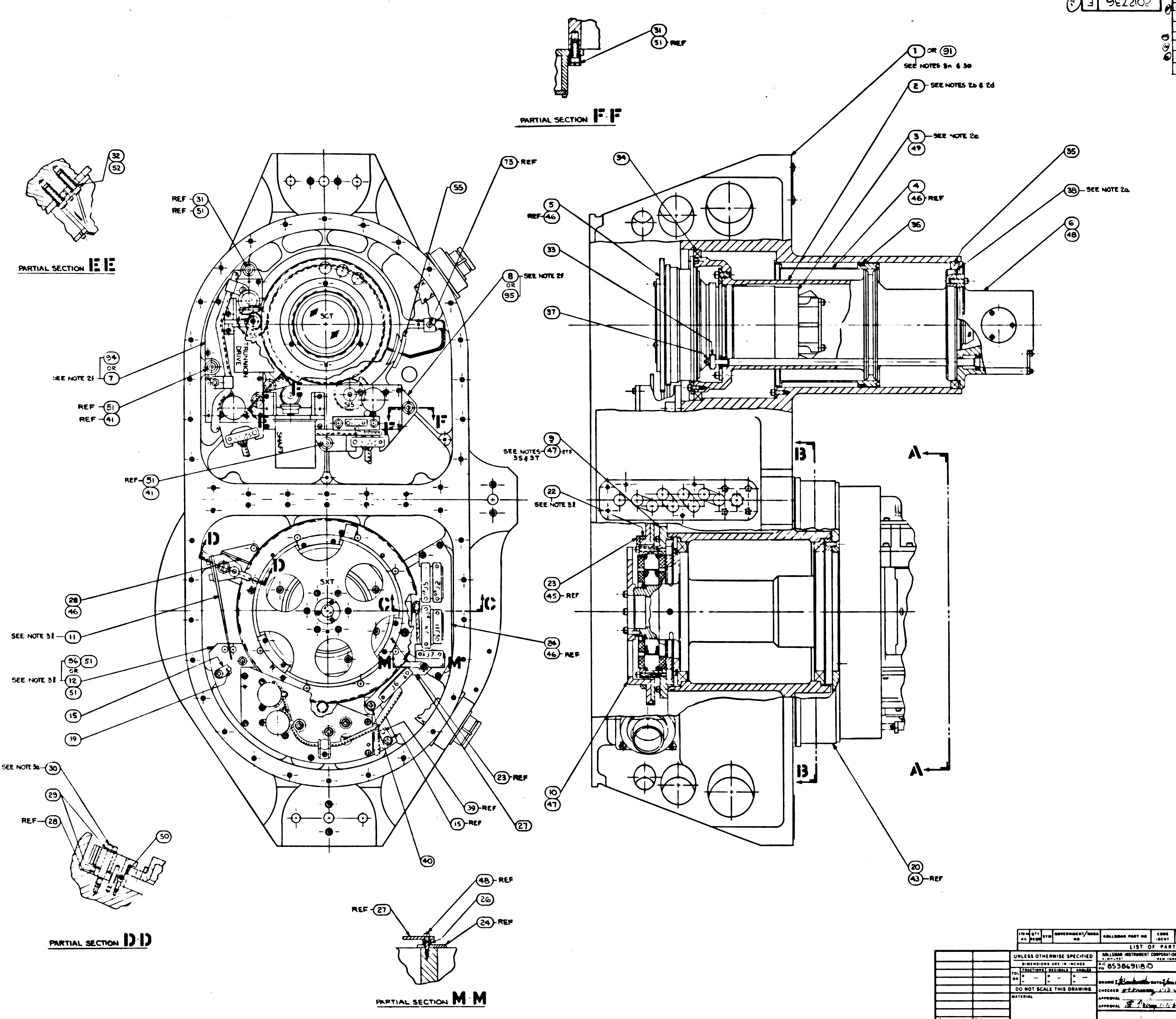
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE
WEIGHT CALC ACTUAL
SHEET 6 OF 6

2012736 E

2012736 F

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/4/66	wll
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	[illegible]	[illegible]
D		REVISED PER TDRR 31108	[illegible]	[illegible]
E		REVISED PER TDRR 32832	1-27-67	[illegible]
F		REVISED PER TDRR 33868	[illegible]	[illegible]



PARTIAL SECTION F-F
31
51 REF
PARTIAL SECTION E-E
32
52
1 OR 91 SEE NOTES 3n & 30
2 SEE NOTES 2b & 2d
3 SEE NOTE 2e
49
4
46 REF
36
35
38 SEE NOTE 2a
6
48
34
5
REF 46
33
37
73 REF
55
REF 31
REF 51
SCT
TRUNNION DRIVE
SHAFT
SIS
8 SEE NOTE 2f
OR
95
SEE NOTE 2f 94 OR 7
REF 51
REF 41
REF 51
41
E
F
SEE NOTES 35 & 37 9 47 REF
22 SEE NOTE 3l
B
A
SXT
D
C
M
28
46
SEE NOTE 3l 11
SEE NOTE 3l 56 51 OR 12 OR 51
15
39
23
45 REF
24
46 REF
SEE NOTE 3a 30
29
REF 28
50
PARTIAL SECTION D-D
23 REF
39 REF
15 REF
27
40
10
47
20
43 REF
48 REF
26
24 REF
REF 27
PARTIAL SECTION M-M

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL [illegible] 1-11-66
NASA APPROVAL
MIT APPROVAL [illegible]

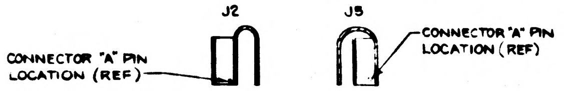
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

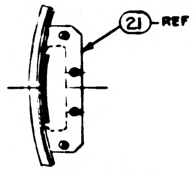
CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 6

2012736 F

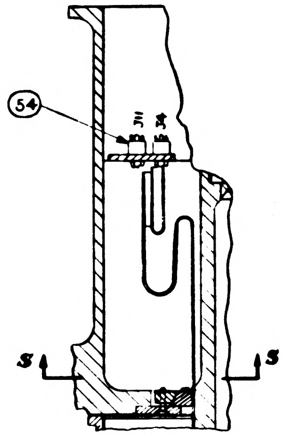
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151		
C		REVISED PER TDRR 30829	9-26-66	[illegible]
D		REVISED PER TDRR 31105	9-6-66	[illegible]
E		REVISED PER TDRR 32832	[illegible]	[illegible]
F		REVISED PER TDRR 33808	5-25-67	[illegible]


J2
J5
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

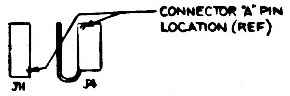
PARTIAL SECTION N-N
SCALE NONE



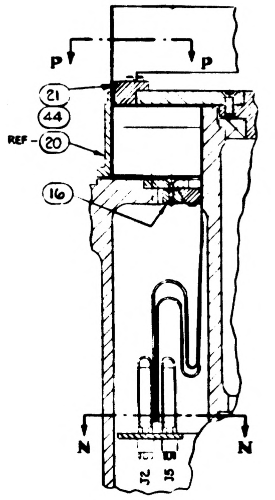
PARTIAL SECTION P-P



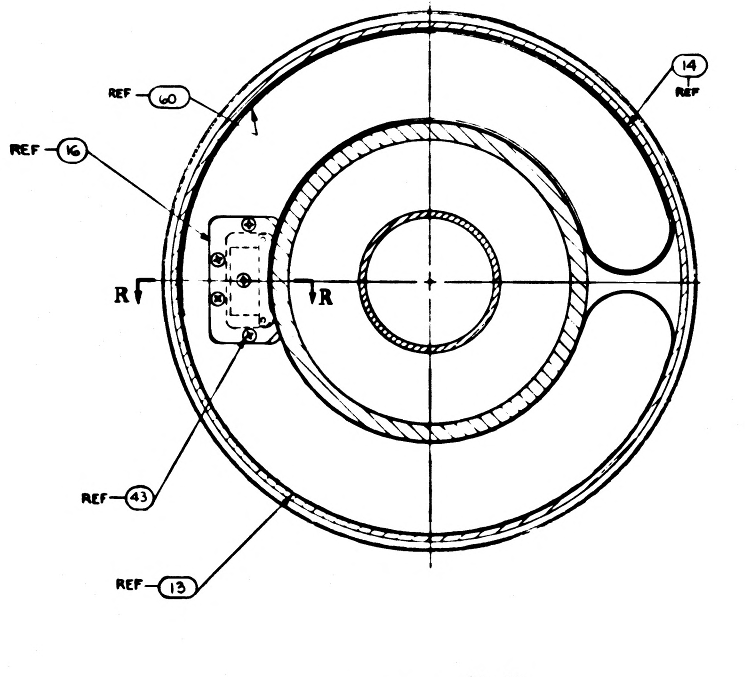
PARTIAL SECTION R-R


CONNECTOR "A" PIN LOCATION (REF)
J11
J4

PARTIAL SECTION S-S


P
P
21
44
REF - 20
16
N
N
J2
J5

PARTIAL SECTION C-C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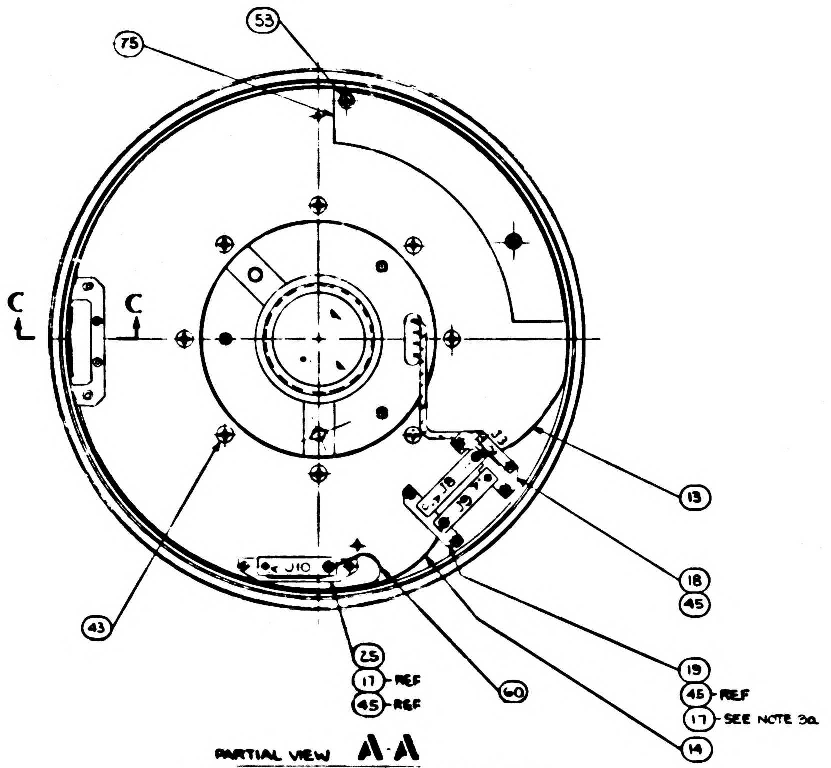
REF - 16
14 REF
R
R
REF - 43
REF - 13

PARTIAL SECTION B-B


75
53
C
C
J10
13
18
45
19
45 - REF
17 - SEE NOTE 3a
14
60
25
17 - REF
45 - REF
43

PARTIAL VIEW A-A
(WITH SEXTANT INDEX HD ASSY REMOVED)

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL E [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

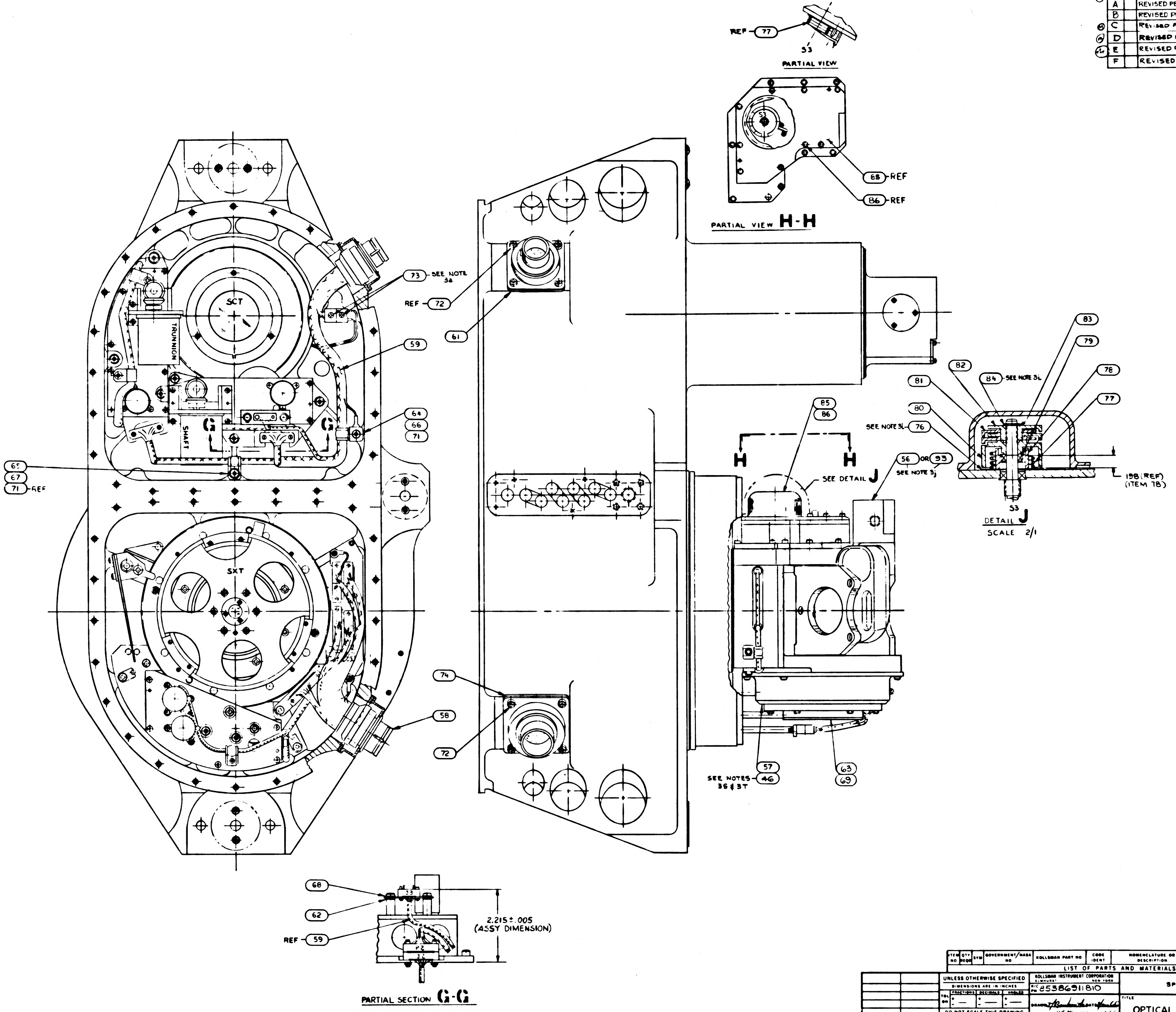
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 2 OF 6

2012736 F

2012736 F

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151		
C		REVISED PER TDRR 30829	8-25-66	
D		REVISED PER TDRR 31105	9-6-66	
E		REVISED PER TDRR 32832	1/27/67	
F		REVISED PER TDRR 33806	6-25-67	



REF 77
S3
PARTIAL VIEW
85 REF
86 REF
PARTIAL VIEW H-H
73 SEE NOTE 3a
REF 72
61
SCT
TRUNNION
59
SHAFT
G
G
64
66
71
65
67
71 REF
SXT
85
86
H
H
SEE DETAIL J
56 OR 93
SEE NOTE 3j
83
82
84 SEE NOTE 3L
79
78
81
77
80
SEE NOTE 3L 76
.198 (REF) (ITEM 78)
S3
DETAIL J
SCALE 2/1
74
58
72
57
SEE NOTES 36 & 37 46
63
69
68
62
REF 59
2.215 ± .005 (ASSY DIMENSION)
PARTIAL SECTION G-G

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011000	2011000
NEXT ASSY	USED ON
APPLICATION	

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CONTRACT

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ELMHURST NEW YORK
KIC PN 85386911810
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

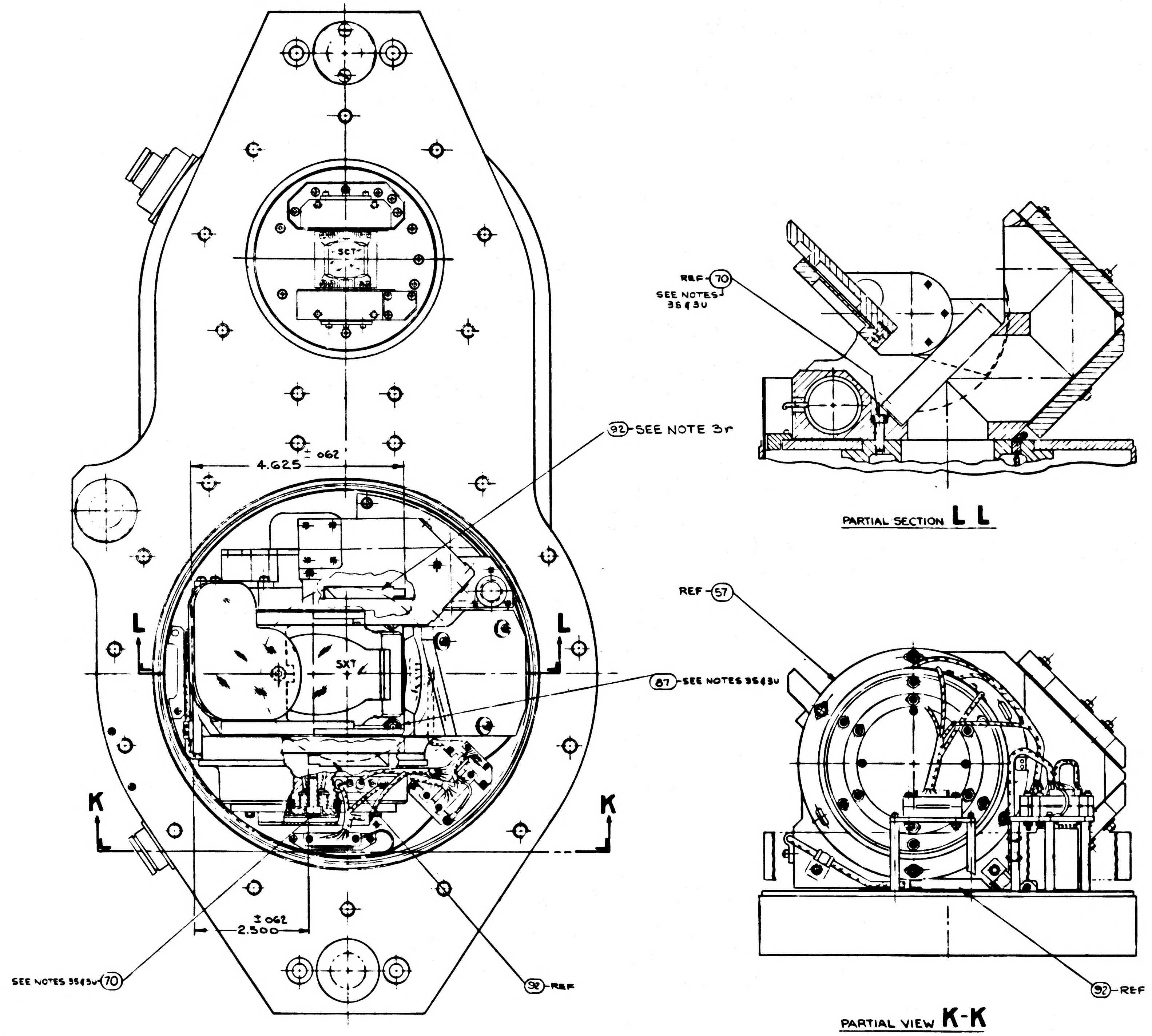
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 3 OF 6

2012736 F

2012736 F

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151		
C		REVISED PER TDRR 30829	8 25	
D		REVISED PER TDRR 31105	9-5-66	
E		REVISED PER TDRR 32892	1-27-67	
F		REVISED PER TDRR 33868	5-25-67	


SCT
4.625
± .062
32 -SEE NOTE 3r
L
L
SXT
87 -SEE NOTES 35&3U
K
K
± .062
2.500
SEE NOTES 35&3U 70
92 -REF
REF- 70
SEE NOTES 35&3U
REF- 57
92 -REF

PARTIAL SECTION L L

PARTIAL VIEW K-K

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE
CHECKED 1-13-66
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 4 OF 6

2012736 F

2012736 F

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30824	[illegible]	[illegible]
D		REVISED PER TDRR 31109	[illegible]	[illegible]
E		REVISED PER TDRR 32832	[illegible]	
F		REVISED PER TDRR 338-8	[illegible]	[illegible]

NOTES:

1. GENERAL REQUIREMENTS

a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.

2. SCANNING TELESCOPE (SCT) REQUIREMENTS

a. ITEM 30 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.

b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.

c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).

d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF $13^{\pm 2}$ IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.

e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.

f. ITEMS 7 OR 94 AND 8 OR 95 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.

g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.

h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3a HAVE BEEN MET.) BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS

a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND 30 AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.

b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).

c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.

d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.

e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.

f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.

g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.

h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.

i. THE SXT TRUNNION LIMIT STOP ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS

j. THE SXT TRUNNION ANTI-BACKLASH SPRING (PART OF ITEM 56 OR 93) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION

k.

l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12 OR 96 AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 OR 96 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 OR 96 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387

m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.

n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.8 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE H PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.

o. AFTER THE REQUIREMENTS OF NOTE 3n HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)

p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206

r. CEMENT WEDGES (ITEM 92) TO SXT HD ASSY (ITEM 56) AND TO THE TELESCOPE TUBE ASSY OF THE SHAFT AXIS ASSY (ITEM 3 OF 2011889-ASSY) TO DIMENSIONS SHOWN ON SHEET 4 OF 6 USING EPOXY CEMENT PER ND1002004 TYPE VII.

S. SOCKETS & HEADS OF ITEMS 70, 87, 46 & 47 ARE TO BE FORMED BY COLD HEADING, THREADS ARE TO BE FORMED BY THREAD ROLLING.

T. TORQUE WRENCH READING FOR ITEM 47 PLUS (4) SCREWS (ITEM 46) USED TO SECURE ITEM 57 TO BE 10 IN. LBS. ±5%.

U. TORQUE WRENCH READING FOR ITEMS 70 & 87 TO BE 40 IN. LBS. ±5%

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 5 OF 6

2012736 F

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151		
C		REVISED PER TDRR 30829	8-25	
D		REVISED PER TDRR 31105	9-8	
E		REVISED PER TDRR 32832	1-2-67	
F		REVISED PER TDRR 33868	5-29-67	

031	021	011	000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
				101								
				100								
				99								
				98								
				97								
1	0	0	0	96		2011705-011			SHAFT DRIVE GEAR BOX SXT ASSY OF			
1	0	0	0	95		2011703-011			SHAFT DRIVE GEAR BOX, ASSY OF SCT			
1	0	0	0	94		2011702-011			TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
1	0	0	0	93		2012735-011			SXT INDEX HEAD ASSY			
2	2	0	0	92		2012760			WEDGE, RIGHT TRIANGULAR			
1	1	1	0	91		2011889-031			OPTICAL UNIT SUB-ASSY STAGE I			
0	0	0	0	90		1012540-029			SCREW, HEX HD, SELF LOCKING			
0	0	0	0	89		MS15795-804			WASHER, FLAT			
0	0	0	0	88		MS15795-803			WASHER, FLAT			
2	2	2	2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC.HD, SELF LOCKING SEE NOTE 35			
9	9	9	9	86		1011625-20	74455151020		SCREW, CAP, SOC HD., SELF LOCKING			
1	1	1	1	85		2011595	52386910220		COVER, GEARBOX			
1	1	1	1	84		MS16624-1018			RING, RETAINING			
AR	AR	AR	AR	83		2012351-1,2&3	793869[illegible]		WASHER, FLAT			
1	1	1	1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	3	3	3	81		2011579	57386910120		DOG, LIMIT STOP			
1	1	1	1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	1	1	1	79		1011608-5			BEARING, BALL, ANNULAR			
1	1	1	1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	1	1	1	77		2011577	56386910060		SPRING, TORSION			
1	1	1	1	76		2012350	25386910010		WASHER			
1	1	1	1	75		2012723	52386911060		COUNTERWEIGHT			
1	1	1	1	74	*	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	2	2	2	73		MS35249-11	74455187011		SCREW MACHINE, FLAT COUNTERSUNK HD, SLOTTED			
8	8		8	72		1011625-39	74455151040		SCREW, CAP, SOC HEAD, SELF LOCKING			
2	2		2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC HEAD, SELF LOCKING			
2	2	2	2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC HEAD, SELF LOCKING SEE NOTE 35			
4	4	4	4	69		NAS1189C02T4L			SCREW, FLAT HD, SELF LOCKING			
2	2	2	2	68		MS16624-15	↓		RING, RETAINING, EXTERNAL, BASIC			
1	1		1	67		MS15795-305	↓		WASHER, FLAT			
1	1		1	66	*	1011918-2	↓		WASHER CABLE CLAMP			
1	1		1	65	*	1000220-6 OR 5	↓		CLAMP, CABLE			
1	1		1	64	*	1000220-5 OR 6	↓		CLAMP, CABLE			
1	1		1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	AR	AR	AR	62		2011885	45386910040		SHIM			
1	1	1	1	61	*	1011599-5	74453034005		PACKING, PREFORMED, RETAINED			
1	1	1	1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	1		1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	1		1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	1	1	1	57	*	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
0	1		1	56		2012735-000	85386911800		SXT INDEX HD ASSY			
1	1	1	1	55		2012164	26386910060		GROMMET			
1	1		1	54		2012740	48386910210		CONNECTOR ASSY, DUMMY			
2	2	2	2	53	*	1011625-30	74455151030		SCREW, CAP, SOC HD, SELF LOCKING			
2	2	2	2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC HD, SELF LOCKING			
7	7	7	7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC.HD, SELF LOCKING			
1	1	1	1	50	*	1011625-28	74455151028		SCREW, CAP, SOC HD, SELF LOCKING			
4	4	4	4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC HD, SELF LOCKING			
8	8	-	8	48	NAS	1352C04LL8	74455157015		↑			
14	14	14	14	47	NAS	1352C04LL6	74455157014		SEE NOTE 35			
14	14	14	14	46	NAS	1352C04LL4	74455157013		↓ SEE NOTE 35			
12	12	12	12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC.HD, SELF LOCKING			
4	4	4	4	44	*	1011625-11	74455151011		SCREW, CAP, SOC HD, SELF LOCKING			
12	12	12	12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING 100° FLAT HEAD			
				42								
2	2	2	2	41	AN	960-C8	74468051004		WASHER, FLAT REGULAR			
1	1	1	1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC.HD, SELF LOCKING			
2	2	2	2	39		2011684	48386910030		PIN, THREADED			
1	1	1	1	38		2011877	45386910230		SPACER			
1		1	1	37	*	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1		1	1	36		MS9021-154			PACKING, PREFORMED			
1	1	1	1	35	*	1011606-1	30205772240		BEARING, BALL			
1	1	1	1	34	*	1011606-2	30205772720		BEARING, BALL			
1	1	1	1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	2	2	2	32		2011562	57386910580		BUSHING, LOCATING			
2	2	2	2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	1	1	1	30		2011344	45386910020		SCREW, SHOULDER			
2	2	2	2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	1	1	1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	1	1	1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1		1	1	26		2012486	57386911240		SPACER CONNECTOR MOUNTING PLATE			
1	1	1	1	25		2012374	56386910030		PLATE MOUNTING, CONNECTOR			
1	1	1	1	24		2011622	56386910290		PLATE, MOUNTING CONNECTOR			
3	3	3	3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
1	1	1	1	22		2011342	57386910570		RING, LIMIT STOP			
1	1	1	1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
1	1	1	1	20		2011616	57386910020		RING, MOUNTING, COVER			
1	1	1	1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	6	6	6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
1	1	1	1	16		2012743	85386911820		FLEXPRINT RETAINING ASSY			
2	2	2	2	15		2011686	56386910310		RETAINER PIN			
1	1	1	1	14	*	1012520-1	85386900910		FLEXPRINT & CONNECTOR ASSY OF (SXT)			
1	1	1	1	13	*	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
0	1	1	1	12		2011705-000	85386910490		SHAFT DRIVE GEAR BOX SXT, ASSY OF			
1	1	1	1	11		2011714	85386910460		LIMIT STOP ASSY			
1		1	1	10		2012387	85386911110		GEAR & SPRING ASSY OF			
1	1	1	1	9		2011906	85386910440		HOUSING STATOR & LAMP ASSY OF			
0		1	1	8		2011703-000	85386910200		SHAFT DRIVE GEAR BOX SCT, ASSY OF			
0	1	1	1	7		2011702-000	85386910630		TRUNNION DRIVE GEAR BOX, SCT ASSY OF			
1	1	1	1	6		2011215-011	85386910380		TELESCOPE TRUNNION AXIS ASSY			
1	1	1	1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	1	1	1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	1	1	1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	1	1	1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
0	0	0	1	1		2011889-021	85386910680		OPTICAL UNIT SUBASSY - STAGE I			

QTY REQD — LIST OF PARTS AND MATERIALS

031	021	011	000	ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

QTY REQD — LIST OF PARTS AND MATERIALS

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN: DATE:
CHECKED:
APPROVAL:
APPROVAL:
NASA APPROVAL:
MIT APPROVAL:

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO: 80230
SIZE: E
NASA NUMBER: 2012736
SCALE:
WEIGHT: CALC / ACTUAL
SHEET 6 OF 6

2012736 F

2012736 G

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
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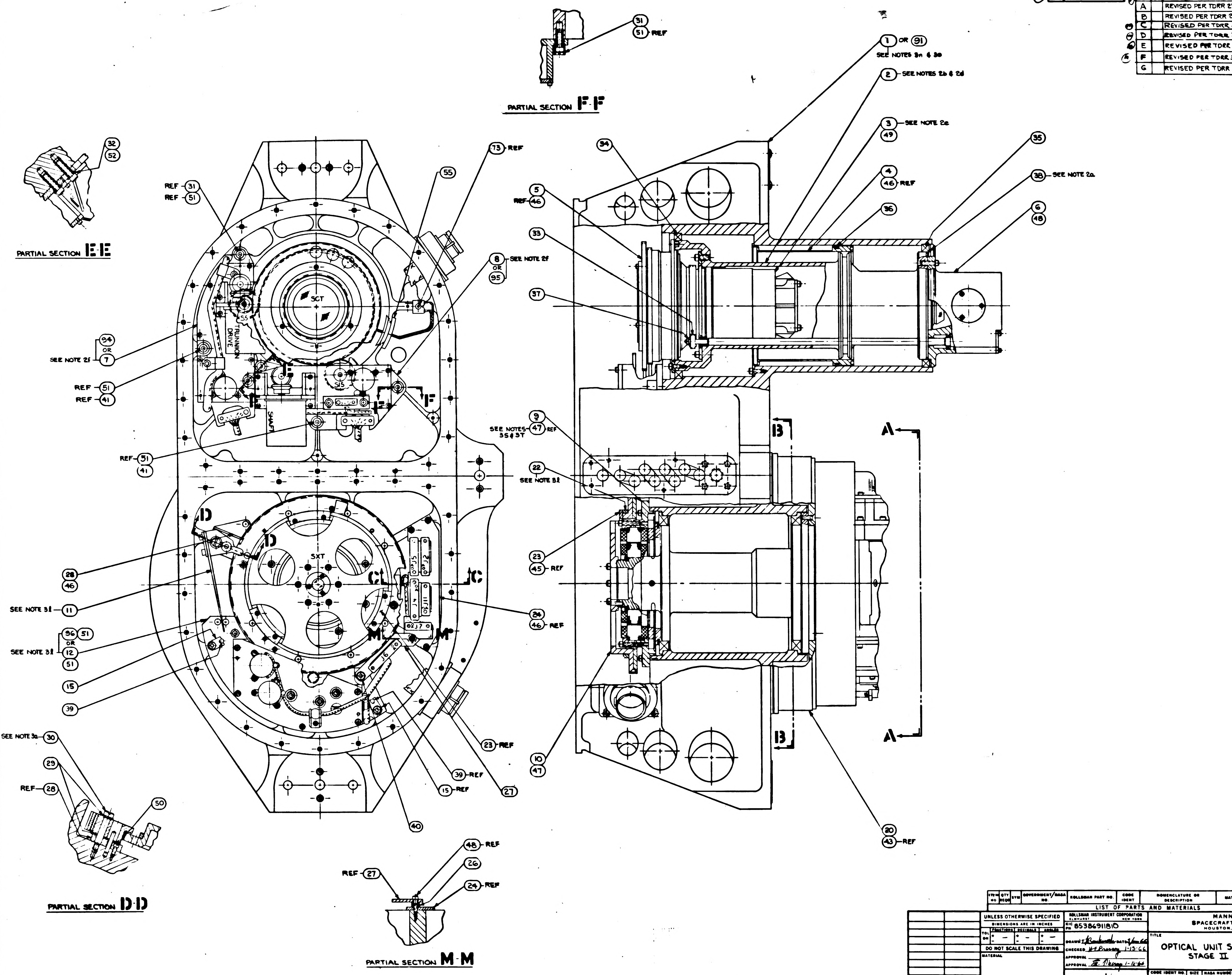
B		REVISED PER TDRR 29151	6/1/66	[illegible]
C		REVISED PER TDRR 30829	8-25-66	[illegible]
D		REVISED PER TDRR 31103	10-5-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	[illegible]
F		REVISED PER TDRR 33868	5/25/67	myS
G		REVISED PER TDRR 34019	6/23/67	myS


PARTIAL SECTION F-F
31
51 REF
PARTIAL SECTION E-E
32
52
REF 31
REF 51
73 REF
55
SCT
TRUNNION DRIVE
SHAFT
SEE NOTE 2f
94 OR 7
REF 51
REF 41
REF 51
41
5
REF 46
33
37
8 OR 95 SEE NOTE 2f
SEE NOTES 35 & 5T
9
47 REF
22
SEE NOTE 3R
23
45 REF
24
46 REF
1 OR 91
SEE NOTES 3n & 30
2 SEE NOTES 2b & 2d
3 SEE NOTE 2e
49
4
46 REF
34
36
35
38 SEE NOTE 2a
6
48
B
A
A
B
20
43 REF
10
47
SXT
C
C
D
D
M
M
28
46
SEE NOTE 3l
11
SEE NOTE 3l
36 51 OR 12 OR 51
15
39
23 REF
39 REF
15 REF
27
40
SEE NOTE 3a
30
29
REF 28
50
PARTIAL SECTION D-D
REF 27
48 REF
26
24 REF
PARTIAL SECTION M-M

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± —	± —

DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN I. Bankowski DATE 3 Jan 66
CHECKED H. E. Prossey 1-13-66
APPROVAL
APPROVAL E. Pharoy 1-14-66
NASA APPROVAL
MIT APPROVAL W. Cuff 3 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 6

2012736 G

2012736 G

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	3-26-66	[illegible]
D		REVISED PER TDRR 31105	9-15-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	[illegible]
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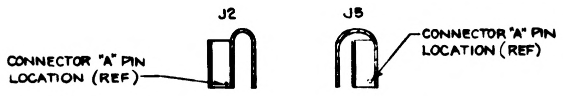
G		REVISED PER TDRR 34019	6-23-67	mjF

REVISIONS -DRR 25767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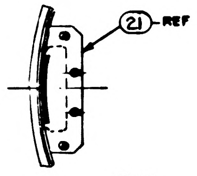
J5
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

PARTIAL SECTION N-N
SCALE: NONE



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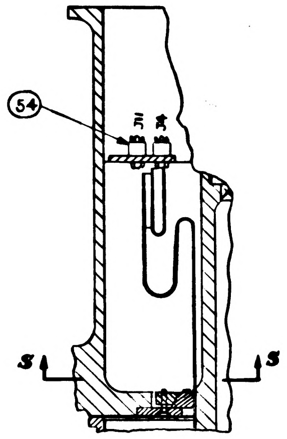
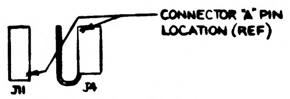


PARTIAL SECTION R-R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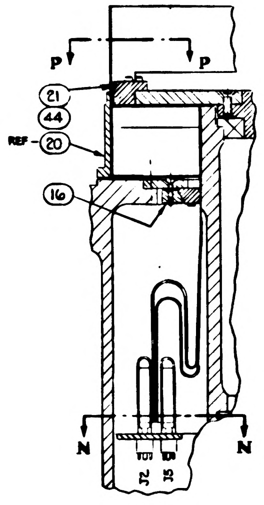
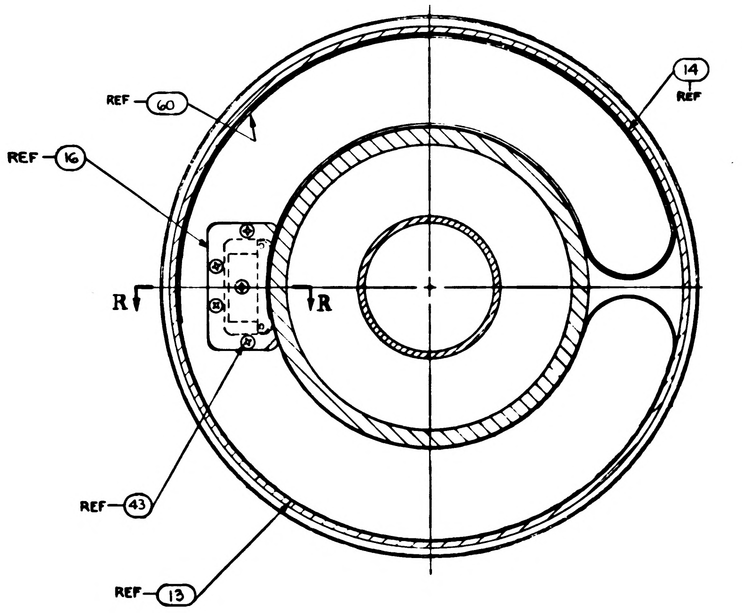
J11
J4

PARTIAL SECTION S-S


P
P
21
44
REF 20
16
N
N
J2
J5

PARTIAL SECTION C-C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REF 16
14 REF
R
R
REF 43
REF 13

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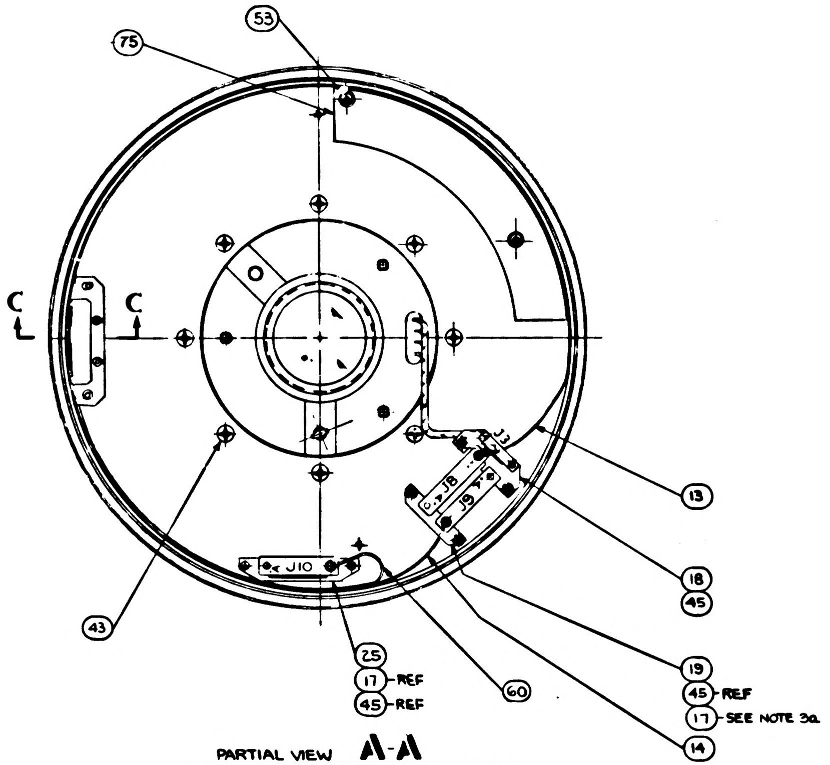
75
53
C
C
J11
J8
J9
J10
13
18
45
43
25
17 -REF
45 -REF
60
19
45 -REF
17 -SEE NOTE 3a.
14

PARTIAL VIEW A-A
(WITH SEXTANT INDEX HD ASSY REMOVED)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED E. Prussy 1-13-66
APPROVAL
APPROVAL E. Thomp [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 2 OF 6

2012736 G

	2012736	G

REVISIONS

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151		
C		REVISED PER TDRR 30829	8-25-66	
D		REVISED PER TDRR 31105	9-15-66	
E		REVISED PER TDRR 32832	1/27/67	
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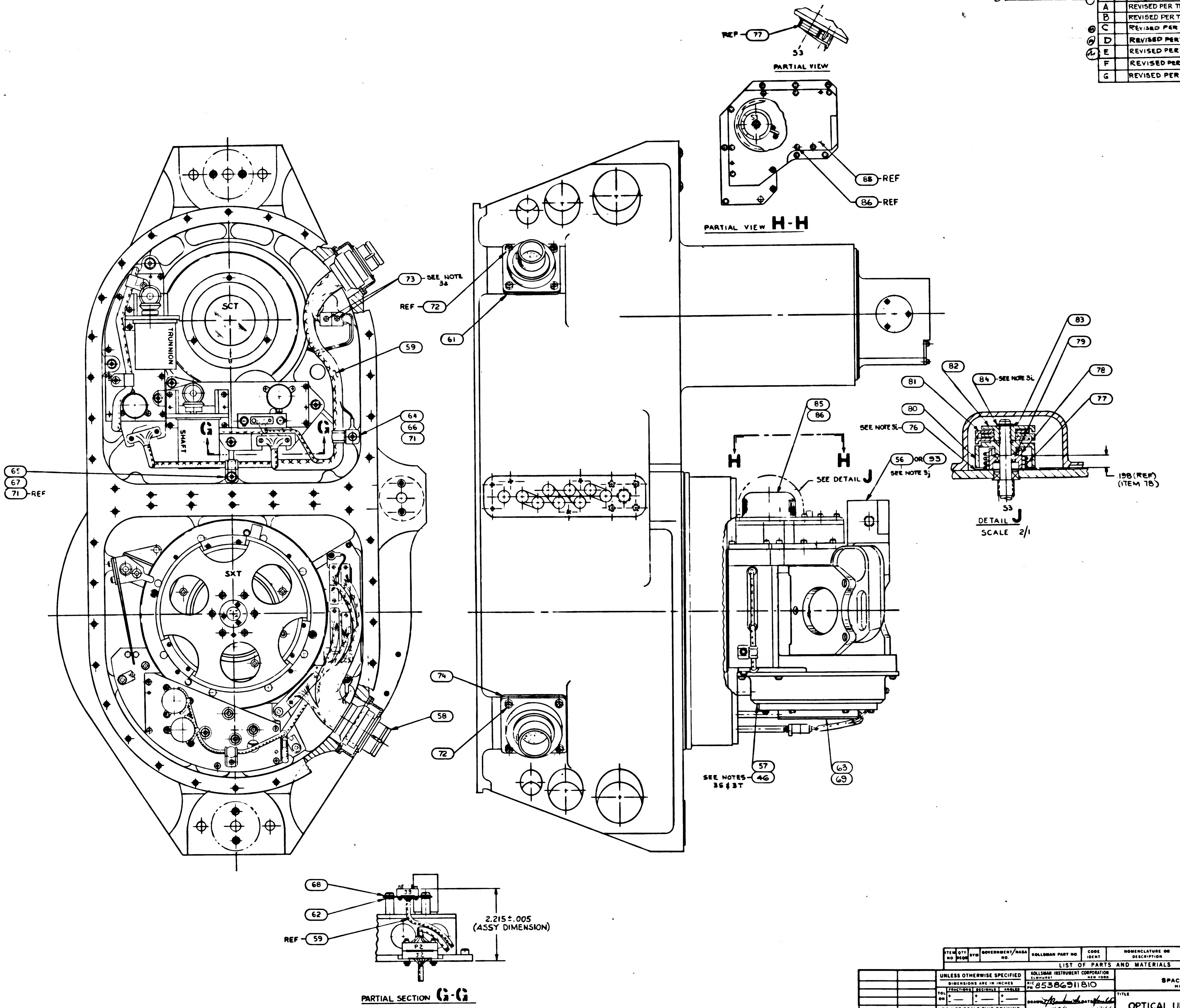
G		REVISED PER TDRR 34019	6-23-67	


REF 77
53
PARTIAL VIEW
53
85 REF
86 REF
PARTIAL VIEW H-H
73 SEE NOTE 3a
REF 72
61
59
SCT
TRUNNION
SHAFT
G
G
64
66
71
65
67
71 REF
SXT
74
58
72
83
79
82
84 SEE NOTE 3L
78
81
77
80
SEE NOTE 3L 76
85
86
H
H
SEE DETAIL J
56 OR 93
SEE NOTE 3j
.198 (REF) (ITEM 78)
53
DETAIL J
SCALE 2/1
57
SEE NOTES 35 & 37 46
63
69
68
62
REF 59
53
P2
2.215±.005 (ASSY DIMENSION)
PARTIAL SECTION G-G

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011000	2011000
NEXT ASSY	USED ON
APPLICATION	

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MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE
CHECKED H.E. Brocay 1-13-66
APPROVAL
APPROVAL 1/13/66
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO.	SIZE	NASA NUMBER
80230	E	2012736

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 3 OF 6

2012736 G

2012736 G

REVISIONS TDC - 25767

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
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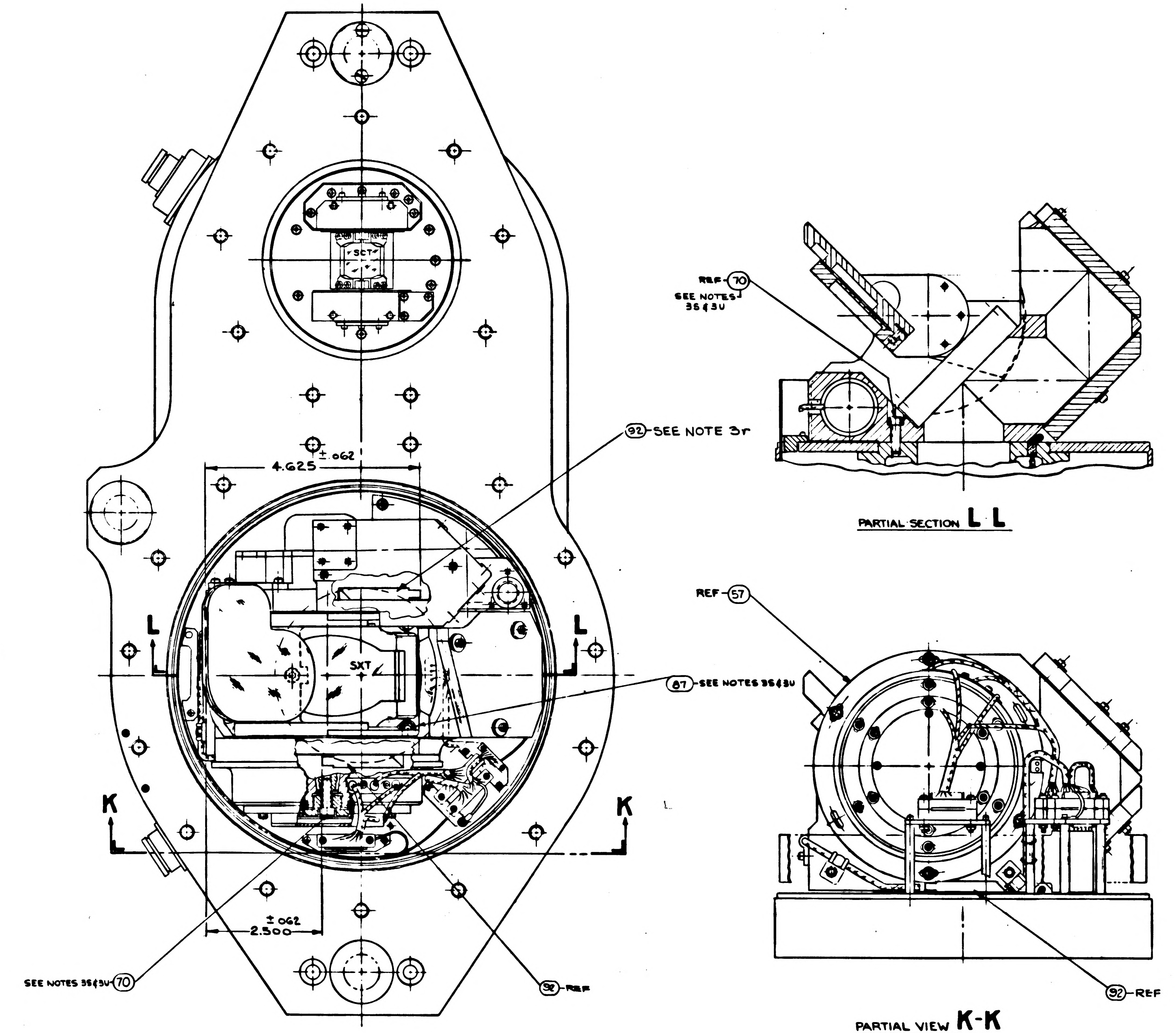
B		REVISED PER TDRR 29151	66	
C		REVISED PER TDRR 30829	8 25 66	
D		REVISED PER TDRR 3405	9-8-66	
E		REVISED PER TDRR 32832	1/27/67	
F		REVISED PER TDRR 33808	5/29/67	MJB
G		REVISED PER TDRR 34019	6/23/67	MJB


REF-(70)
SEE NOTES 35&3U
(92)-SEE NOTE 3r
4.625
±.062
SCT
SXT
L
L
(87)-SEE NOTES 35&3U
REF-(57)
K
K
±.062
2.500
SEE NOTES 35&3U-(70)
(92)-REF
(92)-REF

PARTIAL SECTION L-L

PARTIAL VIEW K-K

2012736 G

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE 1-66
CHECKED 1-13-66
APPROVAL
APPROVAL 1/13/66
NASA APPROVAL
MIT APPROVAL 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 4 OF 6

2012736 G

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
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B		REVISED PER TDRR 29151	[illegible]	
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D		REVISED PER TDRR 31105	9-16-66	
E		REVISED PER TDRR 32832	1/27/67	
F		REVISED PER TDRR 33808	5-26-67	
G		REVISED PER TDRR 34019	6-23-67	

REVISIONS TDRR 35767

NOTES:

1. GENERAL REQUIREMENTS

a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.

2. SCANNING TELESCOPE (SCT) REQUIREMENTS

a. ITEM 38 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.

b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.

c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).

d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF 13±2 IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.

e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.

f. ITEMS 7 OR 94 AND 8 OR 95 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.

g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.

h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3o HAVE BEEN MET; BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS

a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND 30 AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.

b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).

c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.

d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.

e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.

f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.

g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.

h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.

i. THE SXT TRUNNION LIMIT STOP, ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS

j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56 OR 93) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION

k.

l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12 OR 96 AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 OR 96 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 OR 96 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS 15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387

m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.

n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.8 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE H PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.

o. AFTER THE REQUIREMENTS OF NOTE 3n HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)

p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206

r. CEMENT WEDGES (ITEM 92) TO SXT HD ASSY (ITEM 56) AND TO THE TELESCOPE TUBE ASSY OF THE SHAFT AXIS ASSY (ITEM 3 OF 2011889-ASSY) TO DIMENSIONS SHOWN ON SHEET 4 OF 6 USING EPOXY CEMENT PER ND1002004 TYPE VII.

s. SOCKETS & HEADS OF ITEMS 70, 87, 46 & 47 ARE TO BE FORMED BY COLD HEADING, THREADS ARE TO BE FORMED BY THREAD ROLLING.

T. TORQUE WRENCH READING FOR ITEM 47 PLUS (4) SCREWS (ITEM 46) USED TO SECURE ITEM 57 TO BE 10 IN. LBS. ±5%.

U. TORQUE WRENCH READING FOR ITEMS 70 & 87 TO BE 40 IN. LBS. ±5%

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE 3/66
CHECKED 3-66
APPROVAL
APPROVAL 1/18/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 3/66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 5 OF 6

2012736 G

2012736 G

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-25-[illegible]	[illegible]
D		REVISED PER TDRR 31105	9.15.66	JWB
E		REVISED PER TDRR 32832	1/27/67	JWB
F		REVISED PER TDRR 33868	3/23/67	mjS
G		REVISED PER TDRR 34019	6/23/67	mjS

001	031	021	011	000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	HOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
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					100								
					99								
					98								
					97								
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0	1	0	0	0	95		2011703-011			SHAFT DRIVE GEAR BOX, ASSY OF SCT			
0	1	0	0	0	94		2011702-011			TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
0	1	0	0	0	93		2012735-011			SXT INDEX HEAD ASSY			
2	2	2	0	0	92		2012760			WEDGE, RIGHT TRIANGULAR			
0	1	1	1	0	91		2011889-031			OPTICAL UNIT SUB-ASSY STAGE I			
0	0	0	0	0	90		1012540-029			SCREW, HEX HD, SELF LOCKING			
0	0	0	0	0	89		MS15795-804			WASHER, FLAT			
0	0	0	0	0	88		MS15795-803			WASHER, FLAT			
2	2	2	2	2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC.HD, SELF LOCKING SEE NOTE 35			
9	9	9	9	9	86		1011625-20	74455151020		SCREW, CAP, SOC HD., SELF LOCKING			
1	1	1	1	1	85		2011595	52386910220		COVER, GEARBOX			
1	1	1	1	1	84		MS16624-1018			RING, RETAINING			
AR	AR	AR	AR	AR	83		2012351-1,2&3	7938691 [illegible]		WASHER, FLAT			
1	1	1	1	1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	3	3	3	3	81		2011579	57386910120		DOG, LIMIT STOP			
1	1	1	1	1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	1	1	1	1	79		1011608-5			BEARING, BALL, ANNULAR			
1	1	1	1	1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	1	1	1	1	77		2011577	56386910060		SPRING, TORSION			
1	1	1	1	1	76		2012350	25386910010		WASHER			
1	1	1	1	1	75		2012723	52386911060		COUNTERWEIGHT			
1	1	1	1	1	74	#	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	2	2	2	2	73		MS35249-11	74455187011		SCREW MACHINE, FLAT COUNTERSUNK HD, SLOTTED			
8	8	8	8	8	72		1011625-39	74455151040		SCREW, CAP, SOC HEAD, SELF LOCKING			
2	2	2	2	2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC HEAD, SELF LOCKING			
2	2	2	2	2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC HEAD, SELF LOCKING SEE NOTE 35			
4	4	4	4	4	69		NAS1189C02T4L			SCREW, FLAT HD., SELF LOCKING			
2	2	2	2	2	68		MS16624-15	—		RING, RETAINING, EXTERNAL, BASIC			
1	1	1	1	1	67		MS15795-305	—		WASHER, FLAT			
1	1	1	1	1	66	#	1011918-2	—		WASHER, CABLE CLAMP			
1	1	1	1	1	65	#	1000220-6OR5	—		CLAMP, CABLE			
1	1	1		1	64	#	1000220-8OR6	—		CLAMP, CABLE			
1	1	1	1	1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	AR	AR	AR	AR	62		2011885	45386910040		SHIM			
1	1	1	1	1	61	#	1011599-9	74453034009		PACKING PREFORMED, RETAINED			
1	1	1	1	1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	1	1	1	1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	1	1	1	1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	1	1	1	1	57	#	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
1	0	1		1	56		2012735-000	85386911800		SXT INDEX HD ASSY			
1	1	1	1	1	55		2012164	26386910060		GROMMET			
1	1	1	1	1	54		2012740	48386910210		CONNECTOR ASSY, DUMMY			
2	2	2	2	2	53	#	1011625-30	74455151030		SCREW CAP SOC HD, SELF LOCKING			
2	2	2	2	2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC HD., SELF LOCKING			
7	7	7	7	7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC.HD, SELF LOCKING			
1	1	1	1	1	50	#	1011625-28	7445515 028		SCREW, CAP, SOC HD, SELF LOCKING			
4	4	4	4	4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC HD., SELF LOCKING			
8	8	8	8	8	48	NAS	1352C04LL8	74455157015		↕			
14	14	14	14	14	47	NAS	1352C04LL6	74455157014		↕ SEE NOTE 35			
14	14	14	14	14	46	NAS	1352C04LL4	74455157013		↕ SEE NOTE 35			
12	12	12	12	12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC HD, SELF LOCKING			
4	4	4	4	4	44	#	1011625-11	74455151011		SCREW, CAP, SOC HD, SELF LOCKING			
12	12	12	12	12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING 100° FLAT HEAD			
					42								
2	2	2	2	2	41	AN	960-C8	74468051004		WASHER, FLAT REGULAR			
1	1	1	1	1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC HD, SELF LOCKING			
2	2	2	2	2	39		2011684	48386910030		PIN, THREADED			
1	1	1	1	1	38		2011877	45386910250		SPACER			
1	1		1	1	37	#	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1	1	1	1	1	36		MS9021-154			PACKING, PREFORMED			
1	1	1	1	1	35	#	1011606-1	30205772240		BEARING, BALL			
1	1	1	1	1	34	#	1011606-2	30205772720		BEARING, BALL			
1	1	1	1	1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	2	2	2	2	32		2011562	57386910580		BUSHING, LOCATING			
2	2	2	2	2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	1	1	1	1	30		2011344	45386910020		SCREW, SHOULDER			
2	2	2	2	2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	1	1	1	1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	1	1	1	1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	26		2012486	57386911240		SPACER, CONNECTOR, MOUNTING PLATE			
1	1	1	1	1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	3	3	3	3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
1	1	1	1	1	22		2011342	57386910570		RING, LIMIT STOP			
1	1	1	1	1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
1	1	1	1	1	20		2011616	57386910020		RING, MOUNTING, COVER			
1	1	1	1	1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	6	6	6	6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
1	1	1	1	1	16		2012743	85386911820		FLEXPRINT RETAINING ASSY			
2	2	2	2	2	15		2011686	56386910310		RETAINER, PIN			
1	1	1	1	1	14	#	1012520-1	85386900910		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	1	1	1	1	13	#	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	0	1	1	1	12		2011705-000	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
1	1	1	1	1	11		2011714	85386910460		LIMIT STOP ASSY			
1	1	1	1	1	10		2012387	85386911110		GEAR & SPRING, ASSY OF			
1	1	1	1	1	9		2011906	85386910440		HOUSING, STATOR & LAMP, ASSY OF			
1	0	1	1	1	8		2011703-000	85386910200		SHAFT DRIVE, GEAR BOX, SCT, ASSY OF			
1	0	1	1	1	7		2011702-000	85386910630		TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
1	1	1	1	1	6		2011215-011	85386910380		TELESCOPE TRUNNION AXIS ASSY			
1	1	1	1	1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	1	1	1	1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	1	1	1	1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	1	1	1	1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
1	0	0	0	1	1		2011889-021	85386910680		OPTICAL UNIT SUBASSY – STAGE I			

QTY REQD — LIST OF PARTS AND MATERIALS

001	031	021	011	000	ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	HOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
					142									
					141									
					140									
					139									
					138									
					137									
					136									
					135									
					134									
					133									
					132									
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					104									
					103									
					102									

QTY REQD — LIST OF PARTS AND MATERIALS

#PURCHASE ITEM – SEE SPECIFICATION CONTROL DWG. BEFORE ORDERING

APPLICATION	
NEXT ASSY	USED ON
2011000	2011000

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

HOLLSMAN INSTRUMENT CORPORATION, ELMHURST, NEW YORK
PN 85386911810
DRAWN [illegible] DATE 3/[illegible]/66
CHECKED [illegible] 3-66
APPROVAL
APPROVAL E. [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 31 Jan 67

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

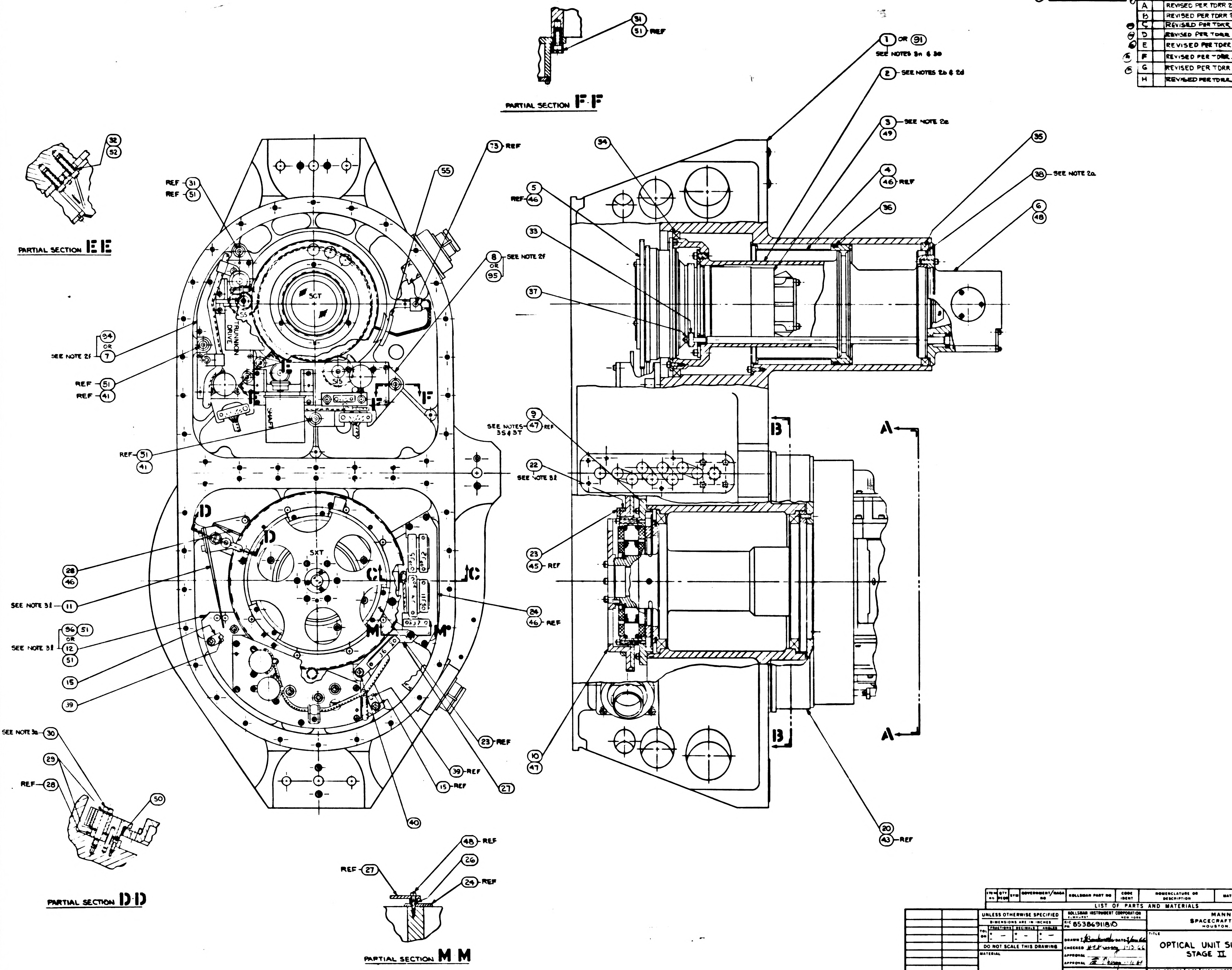
CODE IDENT NO 80230 | SIZE E | NASA NUMBER 2012736
SCALE | WEIGHT | CALC ACTUAL | SHEET 6 OF 6

2012736 G

H 2012736

REVISIONS TDRR 25767

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 3082[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 31105	[illegible]	[illegible]
E		REVISED PER TDRR 32832	1-27-67	[illegible]
F		REVISED PER TDRR 33868	5/25/67	[illegible]
G		REVISED PER TDRR 34[illegible]9	6-23-[illegible]	[illegible]
H		REVISED PER TDRR 34:37	7/9/67	[illegible]



PARTIAL SECTION F-F
31
51-REF
PARTIAL SECTION E-E
32
52
PARTIAL SECTION D-D
PARTIAL SECTION M-M
REF-31
REF-51
73-REF
55
8-SEE NOTE 2f
OR
95
SEE NOTE 2f
34
OR
7
REF-51
REF-41
REF-51
41
SCT
SXT
S5
S15
TRUNNION DRIVE
SHAFT
D
C
M
F
28
46
SEE NOTE 3I-11
36 51
OR
SEE NOTE 3I-12
51
15
39
SEE NOTE 3a-30
29
REF-28
50
23-REF
39-REF
15-REF
27
40
48-REF
REF-27
26
24-REF
1 OR 91
SEE NOTES 3n & 3o
2-SEE NOTES 2b & 2d
3-SEE NOTE 2e
49
4
46-REF
36
35
38-SEE NOTE 2a
6
48
34
5
REF-46
33
37
9
SEE NOTES 3S & 3T-47 REF
22
SEE NOTE 3I
23
45-REF
24
46-REF
10
47
20
43-REF
A
B

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 6

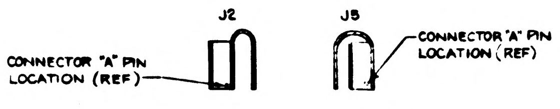
NEXT ASSY	USED ON
2011000	2011000

APPLICATION

2012736 H

H - 2012736

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-26-66	[illegible]
D		REVISED PER TDRR 31108	9-8-66	[illegible]
E		REVISED PER TDRR 32892	1/27/67	[illegible]
F		REVISED PER TDRR 33868	5/23/67	[illegible]
G		REVISED PER TDRR 34019	6/23/67	[illegible]
H		REVISED PER TDRR 34?87	7/13/67	[illegible]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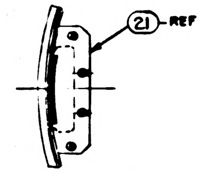
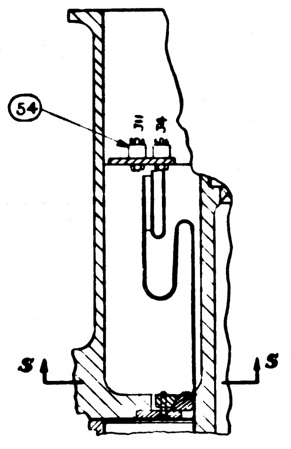
J5
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

PARTIAL SECTION N-N
SCALE NONE



PARTIAL SECTION P-P



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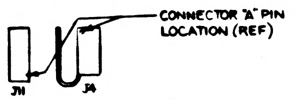
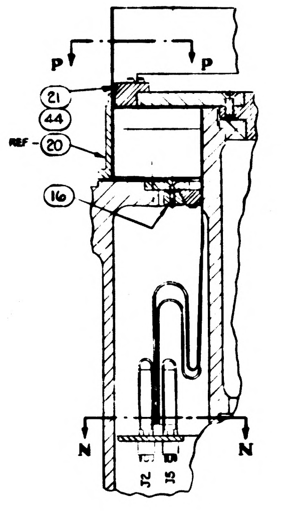

CONNECTOR "A" PIN LOCATION (REF)
J11
J4

PARTIAL SECTION S S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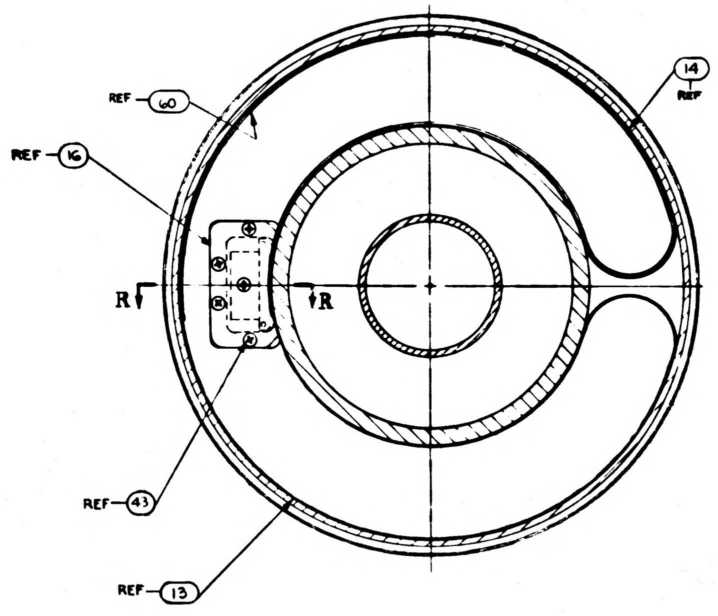
44
REF 20
16
N
N
J2
J5

PARTIAL SECTION C-C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REF 16
R
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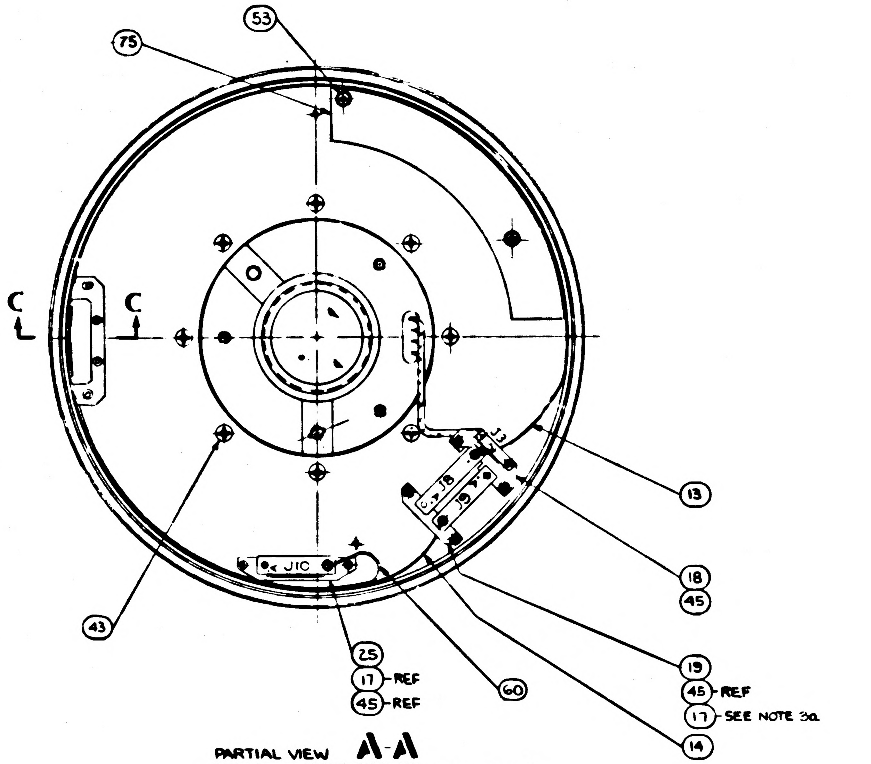
REF 43
REF 13

PARTIAL SECTION B-B


75
53
C
C
J3
J8
J9
J1C
13
18
45
43
25
17 -REF
45 -REF
60
19
45 -REF
17 -SEE NOTE 3a
14

PARTIAL VIEW A-A
(WITH SEXTANT INDEX HD ASSY REMOVED)

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

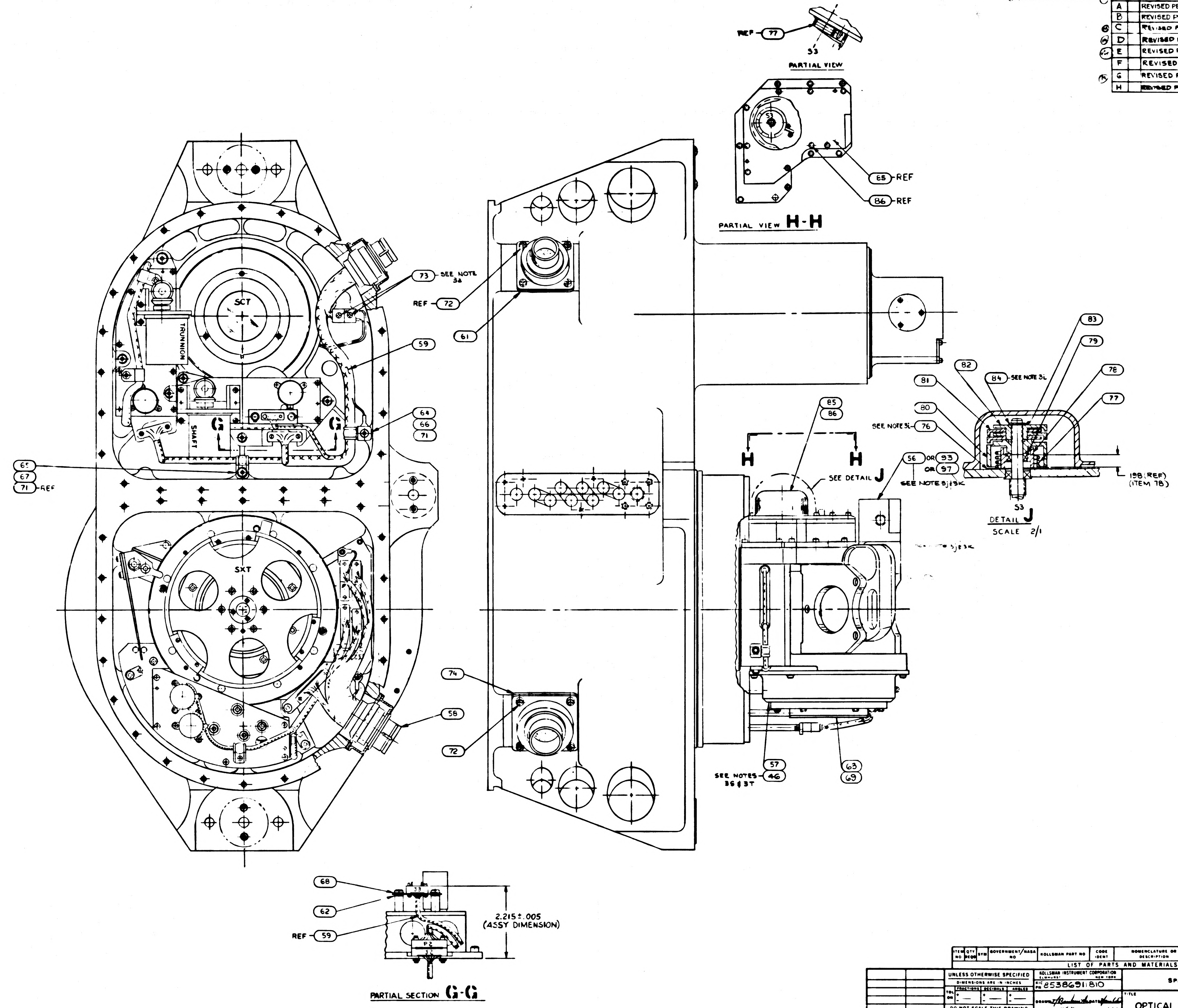
LIST OF PARTS AND MATERIALS

2011000 NEXT ASSY	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —	KOLLSMAN INSTRUMENT CORPORATION ELMHURST NEW YORK	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
2011000 USED ON	DO NOT SCALE THIS DRAWING	KIC PN 85386911810	TITLE OPTICAL UNIT SUBASSEMBLY STAGE II	
APPLICATION	MATERIAL	DRAWN [illegible] DATE [illegible] CHECKED [illegible] 1-13-66 APPROVAL APPROVAL E. [illegible]		
	CONTRACT	NASA APPROVAL MIT APPROVAL [illegible]	CODE IDENT NO 80230	SIZE E	NASA NUMBER 2012736
			SCALE 1/1	WEIGHT CALC ACTUAL	SHEET 2 OF 6

2012736 H

H 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-25-66	[illegible]
D		REVISED PER TDRR 31105	9-8-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	[illegible]
F		REVISED PER TDRR 33608	6-23-67	[illegible]
G		REVISED PER TDRR 34219	6-23-67	[illegible]
H		REVISED PER TDRR 34537	7/18/67	[illegible]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S3
PARTIAL VIEW
S3
65 REF
86 REF
PARTIAL VIEW H-H
73 SEE NOTE 3L
REF 72
61
59
SCT
TRUNNION
SHAFT
G
G
64
66
71
65
67
71 REF
83
79
82
84 SEE NOTE 3L
78
81
77
80
SEE NOTE 3L 76
85
86
H
H
SEE DETAIL J
56 OR 93 OR 97
SEE NOTES 3J & 3K
.198 (REF) (ITEM 78)
S3
DETAIL J
SCALE 2/1
SXT
74
58
72
57
SEE NOTES 3G & 3T 46
63
69
68
62
REF 59
J3
P2
2.215 ± .005 (ASSY DIMENSION)
PARTIAL SECTION G-G

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

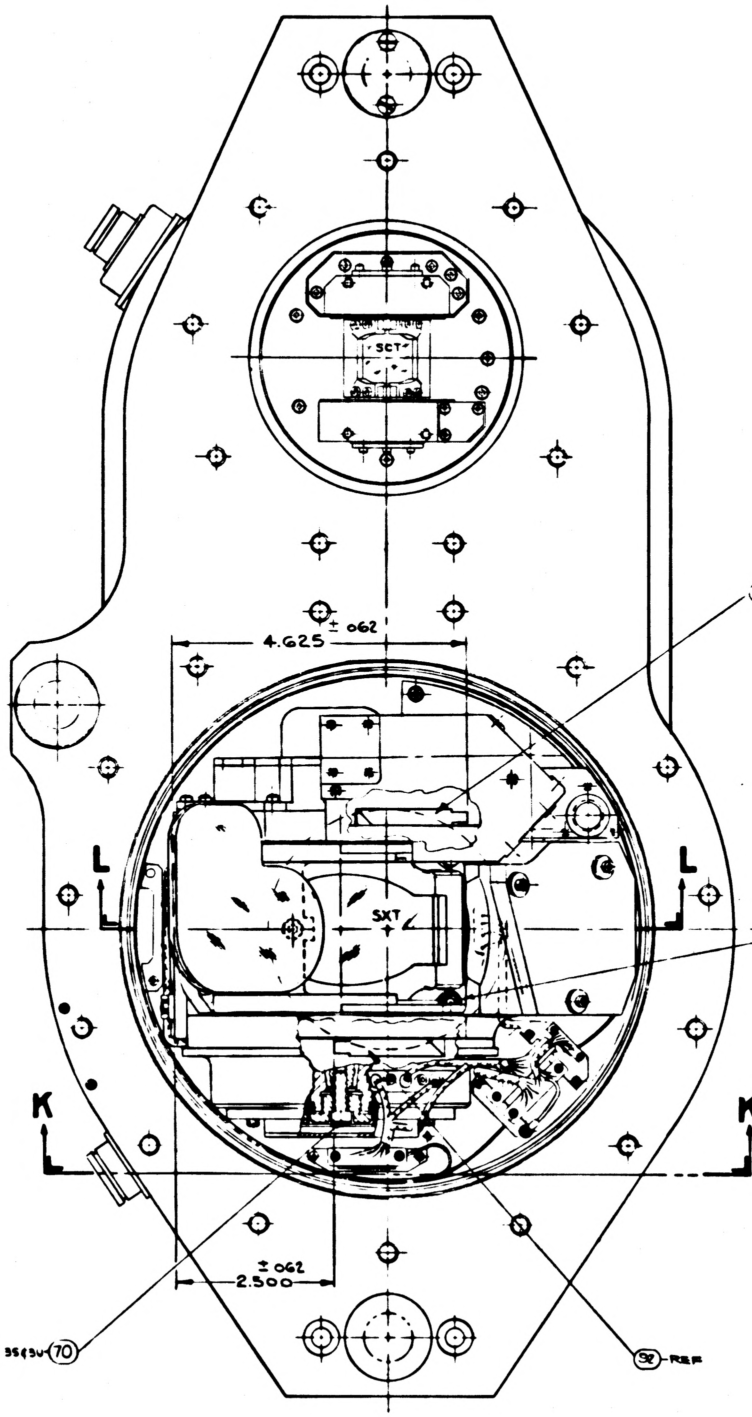
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

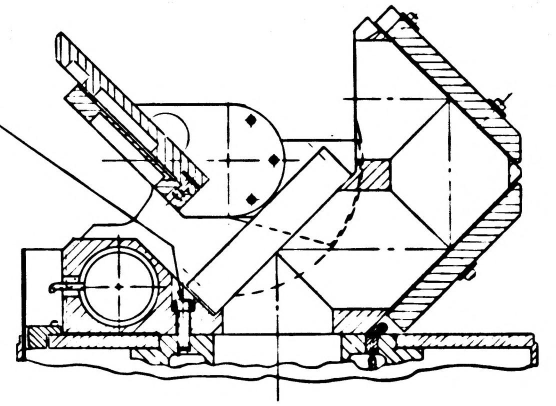
CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 3 OF 6

2012736 H

H | 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-25-66	[illegible]
D		REVISED PER TDRR 3405	9-6-66	[illegible]
E		REVISED PER TDRR 32892	1/27/67	[illegible]
F		REVISED PER TDRR 33868	5-26-67	[illegible]
G		REVISED PER TDRR 34019	6-23-67	[illegible]
H		REVISED PER TDRR 3415	7/3/67	[illegible]


SCT
SXT
4.625 ± .062
(92)-SEE NOTE 3r
L
L
(87)-SEE NOTES 35&3U
K
K
± .062
2.500
SEE NOTES 35&3U-(70)
(92)-REF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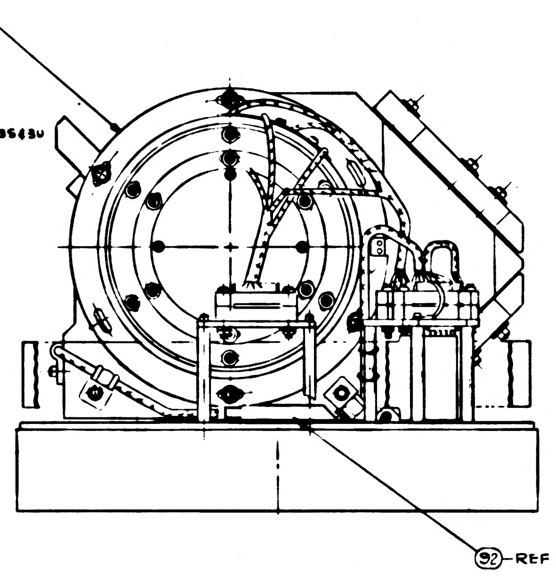
SEE NOTES 35&3U

PARTIAL SECTION L L


REF-(57)
(92)-REF

PARTIAL VIEW K-K

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
20H000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 4 OF 6

2012736 H

H 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	
B		REVISED PER TDRR 29151	6/ /66	
C		REVISED PER TDRR 30829	8-29-66	
D		REVISED PER TDRR 31108	9-15-66	
E		REVISED PER TDRR 32832	1/27/67	
F		REVISED PER TDRR 338-8	5-23-67	
G		REVISED PER TDRR 34019	6-23-67	
H		REVISED PER TDRR 34137	7/ /67	

NOTES.

1. GENERAL REQUIREMENTS
   - a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
   - b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.
2. SCANNING TELESCOPE (SCT) REQUIREMENTS
   - a. ITEM 30 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.
   - b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.
   - c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).
   - d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF $13^{\pm 2}$ IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.
   - e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.
   - f. ITEMS 7 OR 94 AND 8 OR 95 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.
   - g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.
   - h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE 1 OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3o HAVE BEEN MET. BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.
3. SEXTANT (SXT) REQUIREMENTS
   - a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND 30 AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.
   - b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).
   - c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.
   - d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.
   - e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.
   - f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.
   - g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.
   - h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.
   - i. THE SXT TRUNNION LIMIT STOP, ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS
   - j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56 OR 93) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION
   - K. THE SXT TRUNNION ANTI-BACKLASH SPRING (PART OF ITEM 97) SHALL BE TURNED CLOCKWISE UNTIL SCRIBE MARK ON FACE OF COLLET IS AT 12 O'CLOCK $^{+30°}_{-0}$ AND CLAMPED WITH BASE IN AN UPRIGHT HORIZONTAL POSITION AND TRUNNION IS AT 90° SLOS POSITION.
   - l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12 OR 96 AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 OR 96 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 OR 96 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387
   - m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.
   - n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.8 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE H PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.
   - o. AFTER THE REQUIREMENTS OF NOTE 3n HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)
   - p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206
   - r. CEMENT WEDGES (ITEM 92) TO SXT HD ASSY (ITEMS 56 OR 93 OR 97) AND TO THE TELESCOPE TUBE ASSY OF THE SHAFT AXIS ASSY (ITEM 3 OF 2011889-ASSY) TO DIMENSIONS SHOWN ON SHEET 4 OF 6 USING EPOXY CEMENT PER ND1002004 TYPE VII.
   - S. SOCKETS & HEADS OF ITEMS 70, 87, 46 & 47 ARE TO BE FORMED BY COLD HEADING, THREADS ARE TO BE FORMED BY THREAD ROLLING.
   - T. TORQUE WRENCH READING FOR ITEM 47 PLUS (4) SCREWS (ITEM 46) USED TO SECURE ITEM 57 TO BE 10 IN. LBS. ±5%.
   - U. TORQUE WRENCH READING FOR ITEMS 70 & 87 TO BE 40 IN. LBS. ±5%

& TO THE TELESCOPE TUBE

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

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2011000	2011000

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SIZE E
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WEIGHT CALC ACTUAL
SHEET 5 OF 6

041	001	031	021	011	000	ITEM NO	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
						101								
						100								
						99								
						98								
1	0	0	0	0	0	97		2012735-02			SXT INDEX HEAD ASSY			
1	0	1	0	0	0	96		2011705-011			SHAFT DRIVE GEAR BOX SXT ASSY OF			
1	0	1	0	0	0	95		2011703-011			SHAFT DRIVE GEAR BOX, ASSY OF SCT			
1	0	1	0	0	0	94		2011702-011			TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
0	0	1	0	0	0	93		2012735-011			SXT INDEX HEAD ASSY			
2	2	2	2	0	0	92		2012760			WEDGE, RIGHT TRIANGULAR			
1	0	1	1	1	0	91		2011889-031			OPTICAL UNIT SUB-ASSY STAGE I			
0	0	0	0	0	0	90		1012540-029			SCREW, HEX HD, SELF LOCKING			
0	0	0	0	0	0	89		MS15795-804			WASHER, FLAT			
0	0	0	0	0	0	88		MS15795-803			WASHER, FLAT			
2	2	2	2	2	2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC HD, SELF LOCKING SEE NOTE 35			
9	9	9	9	9	9	86		1011625-20	74455151020		SCREW, CAP, SOC HD., SELF LOCKING			
1	1	1	1	1	1	85		2011595	52386910220		COVER, GEARBOX			
1	1	1	1	1	1	84		MS16624-1018			RING, RETAINING			
AR	AR	AR	AR	AR	AR	83		2012351-1,2&3	7938691[illegible]		WASHER, FLAT			
1	1	1	1	1	1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	3	3	3	3	3	81		2011579	57386910120		DOG, LIMIT STOP			
1	1	1	1	1	1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	1	1	1	1	1	79		1011608-5			BEARING, BALL, ANNULAR			
1	1	1	1	1	1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	1	1	1	1	1	77		2011577	56386910060		SPRING, TORSION			
1	1	1	1	1	1	76		2012350	25386910010		WASHER			
1	1	1	1	1	1	75		2012723	52386911060		COUNTERWEIGHT			
	1	1		1	1	74	#	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	2	2	2	2	2	73		MS35249-11	74455187011		SCREW MACHINE FLAT COUNTERSUNK HD, SLOTTED			
8	8	8	8		8	72		1011625-39	74455151040		SCREW, CAP, SOC HEAD, SELF LOCKING			
2	2	2	2		2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC HEAD, SELF LOCKING			
2	2	2	2	2	2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC HEAD, SELF LOCKING SEE NOTE 35			
4	4	4	4	4	4	69		NAS1189C02T4L			SCREW, FLAT HD, SELF LOCKING			
2	2	2	2	2	2	68		MS16624-15			RING, RETAINING, EXTERNAL, BASIC			
1	1	1		1	1	67		MS15795-305			WASHER, FLAT			
1	1	1			1	66	#	1011918-2			WASHER CABLE CLAMP			
1	1	1			1	65	#	1000220-6 OR 5			CLAMP, CABLE			
	1	1			1	64	#	1000220-8 OR 6			CLAMP, CABLE			
	1	1			1	63		2012491	57386911280		PLATE END, RESOLVER			
AR	AR	AR	AR	--	AR	62		2011885	45386910040		SHIM			
1	1	1	1	1	1	61	#	1011599-9	74453034009		PACKING PREFORMED, RETAINED			
1	1	1	1	1	1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	1	1	1	1	1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	1	1	1	1	1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	1	1	1	1	1	57	#	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
0	1	0	1		1	56		2012735-000	85386911800		SXT INDEX HD ASSY			
1	1	1	1	1	1	55		2012164	26386910060		GROMMET			
1	1	1	1	1	1	54		2012740	48386910210		CONNECTOR ASSY, DUMMY			
2	2	2	2	2	2	53	#	1011625-30	74455151030		SCREW CAP SOC HD SELF LOCKING			
2	2	2	2	2	2	52	NAS	1352C08LL12	74455157029		SCREW, CAP SOC. HD., SELF LOCKING			
7	7	7	7	7	7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC. HD., SELF LOCKING			
1	1	1	1	1	1	50	#	1011625-28	74455151028		SCREW, CAP, SOC HD, SELF LOCKING			
4	4	4	4	4	4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC. HD., SELF LOCKING			
8	8	8	8	-	8	48	NAS	1352C04LL8	74455157015					
4	14	14	14	14	14	47	NAS	1352C04LL6	74455157014		SEE NOTE 35			
4	14	14	14	14	14	46	NAS	1352C04LL4	74455157013		SEE NOTE 35			
12	12	12	12	12	12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC. HD, SELF LOCKING			
4	4	4	4	4	4	44	#	1011625-11	74455151011		SCREW, CAP, SOC HD, SELF LOCKING			
12	12	12	12	12	12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING 100° FLAT HEAD			
						42								
2	2	2	2		2	41	AN	960-C8	74468051004		WASHER, FLAT REGULAR			
1	1	1		1	1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC HD, SELF LOCKING			
2	2	2	2	2	2	39		2011684	48386910030		PIN, THREADED			
1	1	1	1	1	1	38		2011877	45386910250		SPACER			
1	1	1		1	1	37	#	1012525-005	74443162005		NUT SELF LOCKING, HEX, THIN			
1	1	1		1	1	36		MS9021-154			PACKING, PREFORMED			
1	1	1	1	1	1	35	#	1011606-1	30205772240		BEARING, BALL			
1	1	1	1	1	1	34	#	1011606-2	30205772720		BEARING, BALL			
1	1	1	1	1	1	33		2011825	33386910170		GEAR SPUR (42T-96P)			
2	2	2	2	2	2	32		2011562	57386910580		BUSHING, LOCATING			
2	2	2	2	2	2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1		1	1	1	1	30		2011344	45386910020		SCREW, SHOULDER			
2	2	2	2	2	2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1		1	1	1	1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	1	1	1	1	1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	1	26		2012486	57386911240		SPACER CONNECTOR MOUNTING PLATE			
1	1	1	1	1	1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	3	3	3	3	3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
	1	1	1	1	1	22		2011342	57386910570		RING, LIMIT STOP			
		1	1	1	1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
	1	1	1	1	1	20		2011616	57386910020		RING, MOUNTING, COVER			
	1	1	1	1	1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
	1	1		1	1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	6	6	6	6	6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
		1	1	1	1	16		2012743	85386911820		FLEXPRINT RETAINING ASSY			
2	2	2	2	2	2	15		2011686	56386910310		RETAINER, PIN			
	1	1	1	1	1	14	#	1012520-1	85386900910		FLEXPRINT & CONNECTOR ASSY OF (SXT)			
	1	1	1	1	1	13	#	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
0	1	0	1	1	1	12		2011705-000	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
	1	1	1	1	1	11		2011714	85386910460		LIMIT STOP ASSY			
	1	1	1	1	1	10		2012387	85386911110		GEAR & SPRING ASSY OF			
	1	1	1	1	1	9		2011906	85386910440		HOUSING STATOR & LAMP ASSY OF			
0	1	0				8		2011703-000	85386910200		SHAFT DRIVE GEAR BOX, SCT, ASSY OF			
0	1	0	1	1	1	7		2011702-000	85386910630		TRUNNION DRIVE GEAR BOX, SCT ASSY OF			
1	1	1	1	1	1	6		2011215-011	85386910380		TELESCOPE TRUNNION AXIS ASSY			
1	1	1	1	1	1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	1	1	1	1	1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	1	1	1	1	1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	1	1	1	1	1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
0	1	0	0	0	1	1		2011889-021	8538691068		OPTICAL UNIT SUBASSY - STAGE I			

QTY REQD — LIST OF PARTS AND MATERIALS

001	031	021	011	000	ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
					142									
					141									
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					135									
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					103									
					102									

QTY REQD — LIST OF PARTS AND MATERIALS

#PURCHASE ITEM - SEE SPECIFICATION
CONTROL DWG. BEFORE ORDERING

H 2012736

REVISIONS

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A		REVISED PER TDRR 27677	[illegible]	[illegible]
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F		REVISED PER TDRR 33868	[illegible]	[illegible]
G		REVISED PER TDRR 34019	[illegible]	[illegible]
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CODE IDENT NO 80230
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WEIGHT CALC ACTUAL
SHEET 6 OF 6

2012736 J

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
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A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 308[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 31105	[illegible]	[illegible]
E		REVISED PER TDRR 3283[illegible]	[illegible]	[illegible]
F		REVISED PER TDRR 33868	5/29/67	[illegible]
G		REVISED PER TDRR 34[illegible]	[illegible]	[illegible]
H		REVISED PER TDRR 34[illegible]	[illegible]	[illegible]
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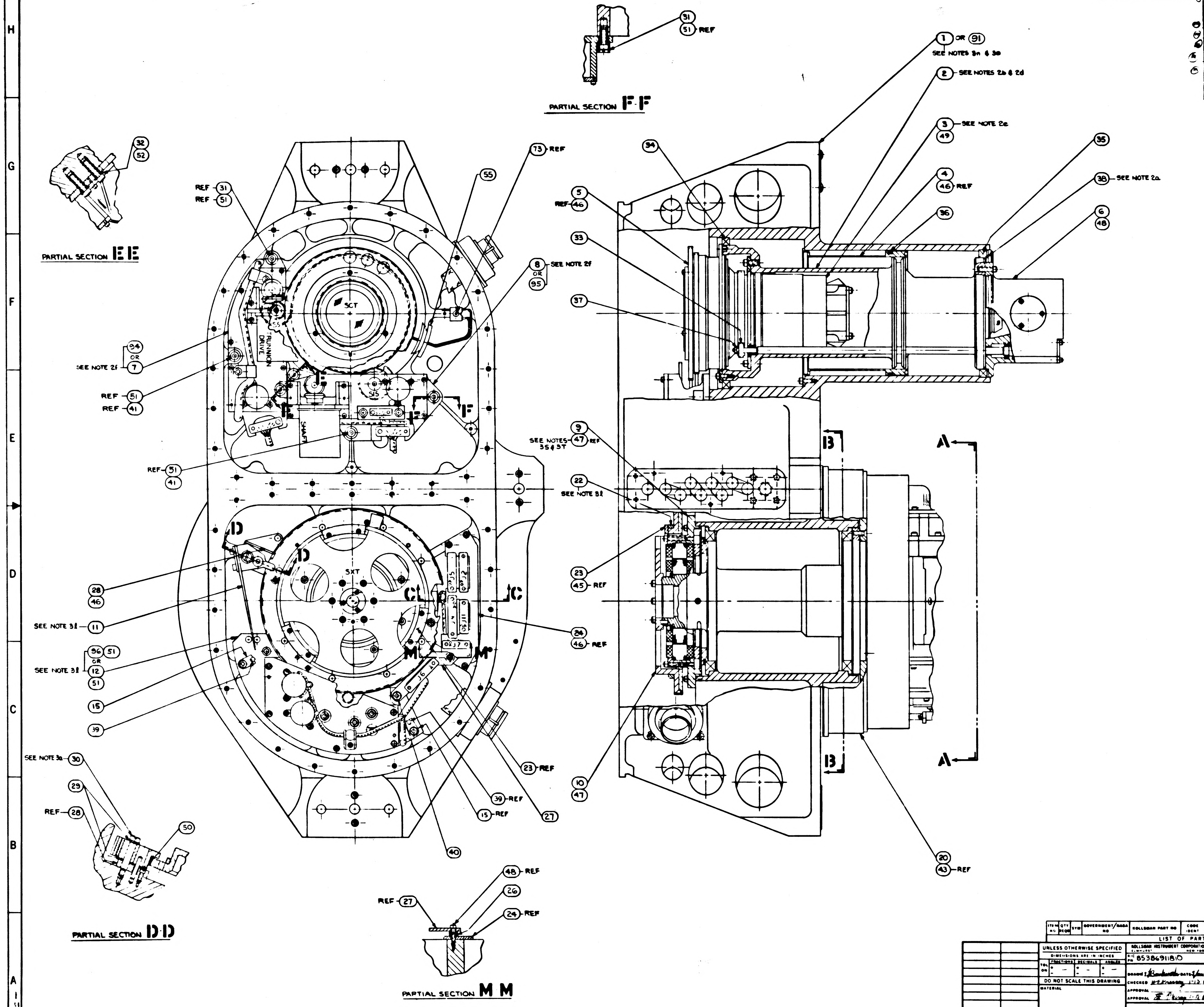
31
51 REF
PARTIAL SECTION F-F
1 OR 91
SEE NOTES 3a & 30
2 SEE NOTES 2b & 2d
3 SEE NOTE 2e
49
4
46 REF
36
35
38 SEE NOTE 2a
6
48
34
5
REF 46
33
37
32
52
PARTIAL SECTION E-E
REF 31
REF 51
55
73 REF
SCT
TRUNNION DRIVE
8 SEE NOTE 2f
OR
95
94
OR
7
SEE NOTE 2f
REF 51
REF 41
SHAFT
S15
F
REF 51
41
9 SEE NOTES 35 & 37 47 REF
22 SEE NOTE 31
B
A
D
SXT
C
M
28
46
SEE NOTE 31 11
56 51
OR
SEE NOTE 31 12
OR
51
15
39
24
46 REF
23
45 REF
SEE NOTE 3a 30
29
REF 28
50
23 REF
39 REF
15 REF
27
40
10
47
20
43 REF
PARTIAL SECTION D-D
REF 27
48 REF
26
24 REF
PARTIAL SECTION M M

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 6

2012736 J

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-26-66	[illegible]
D		REVISED PER TDRR 31105	9-6-66	[illegible]
E		REVISED PER TDRR 32852	1/27/67	[illegible]
F		REVISED PER TDRR 33808	5-24-67	[illegible]
G		REVISED PER TDRR 34019	6-23-67	[illegible]
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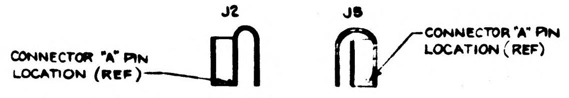
J		REVISED PER TDRR 3438	8-8-67	[illegible]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J8
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

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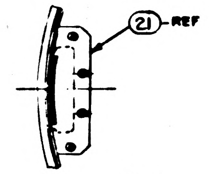

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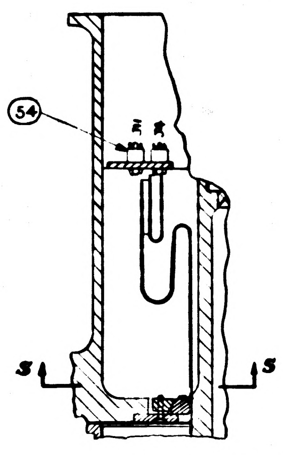

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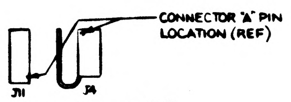
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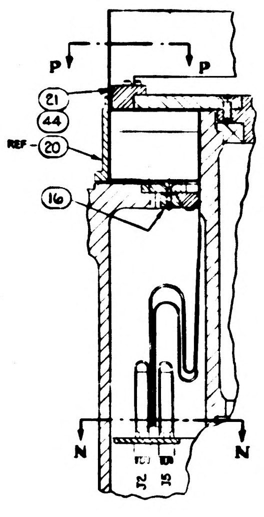
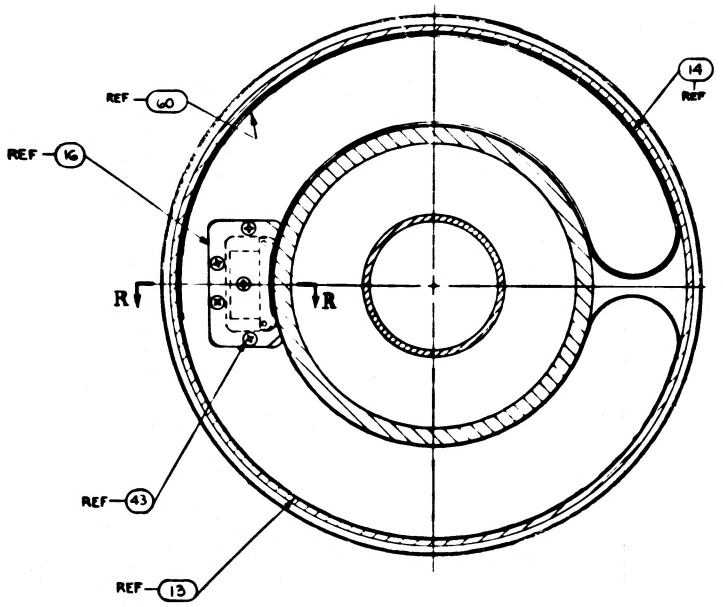
J11
J4

PARTIAL SECTION **S S**


P
P
21
44
REF 20
16
N
N
J2
J5

PARTIAL SECTION **C-C**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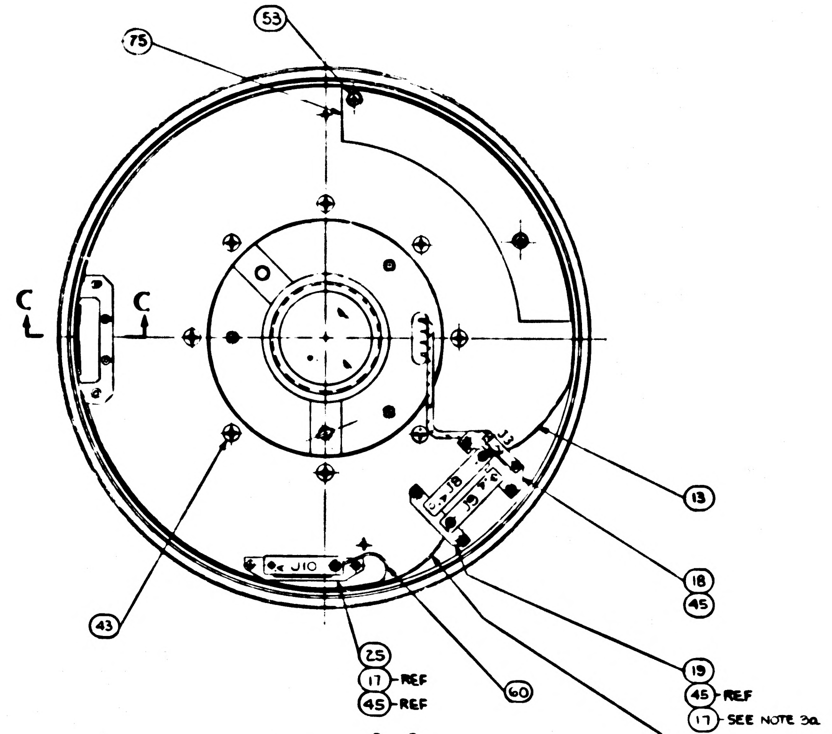
14 REF
R
R
REF 43
REF 13

PARTIAL SECTION **B-B**


75
53
C
C
13
18
45
43
J10
25
17 REF
45 REF
60
19
45 REF
17 SEE NOTE 3a
14

PARTIAL VIEW **A-A**
(WITH SEXTANT INDEX HD ASSY REMOVED)

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL E [illegible]
NASA APPROVAL [illegible] METZGER
KIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230 | SIZE E | NASA NUMBER 2012736
SCALE 1/1 | WEIGHT CALC ACTUAL | SHEET 2 OF 6

2012736 J

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS				
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151		[illegible]
C		REVISED PER TDRR 30820	8-25-66	[illegible]
D		REVISED PER TDRR 31105	[illegible]	[illegible]
E		REVISED PER TDRR 32832	1/27/67	[illegible]
F		REVISED PER TDRR 33808	6-25-67	[illegible]
G		REVISED PER TDRR 34019	[illegible]	[illegible]
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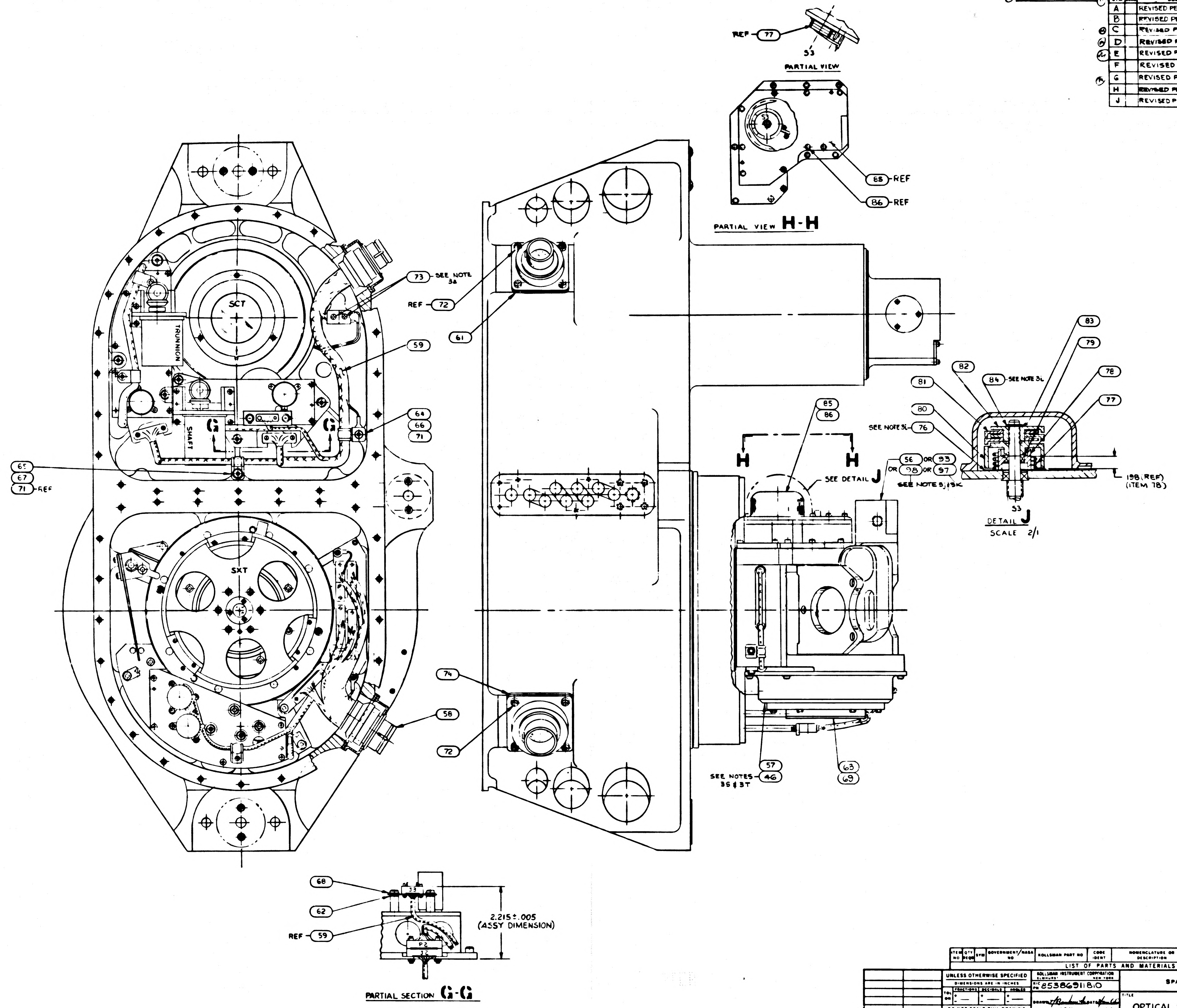
J		REVISED PER TDRR 3438	8-8-67	[illegible]



REF 77
S3
PARTIAL VIEW
S3
65 REF
86 REF
PARTIAL VIEW H-H
73 SEE NOTE 3a
REF 72
61
SCT
TRUNNION
59
SHAFT
G
G
64
66
71
65
67
71 REF
SXT
74
58
72
85
86
H
H
SEE DETAIL J
56 OR 93
OR 98 OR 97
SEE NOTES 9, 15K
83
79
82
84 SEE NOTE 3L
81
78
77
80
SEE NOTE 3L 76
.198 (REF) (ITEM 78)
S3
DETAIL J
SCALE 2/1
57
SEE NOTES 35 & 37 46
63
69
68
62
REF 59
2.215±.005 (ASSY DIMENSION)
P2
J2
PARTIAL SECTION G-G

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible] 66
CHECKED [illegible] 3 66
APPROVAL
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 3 OF 6

2012736 J

2012736 J

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
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E		REVISED PER TDRR 32832	1/27/67	[illegible]
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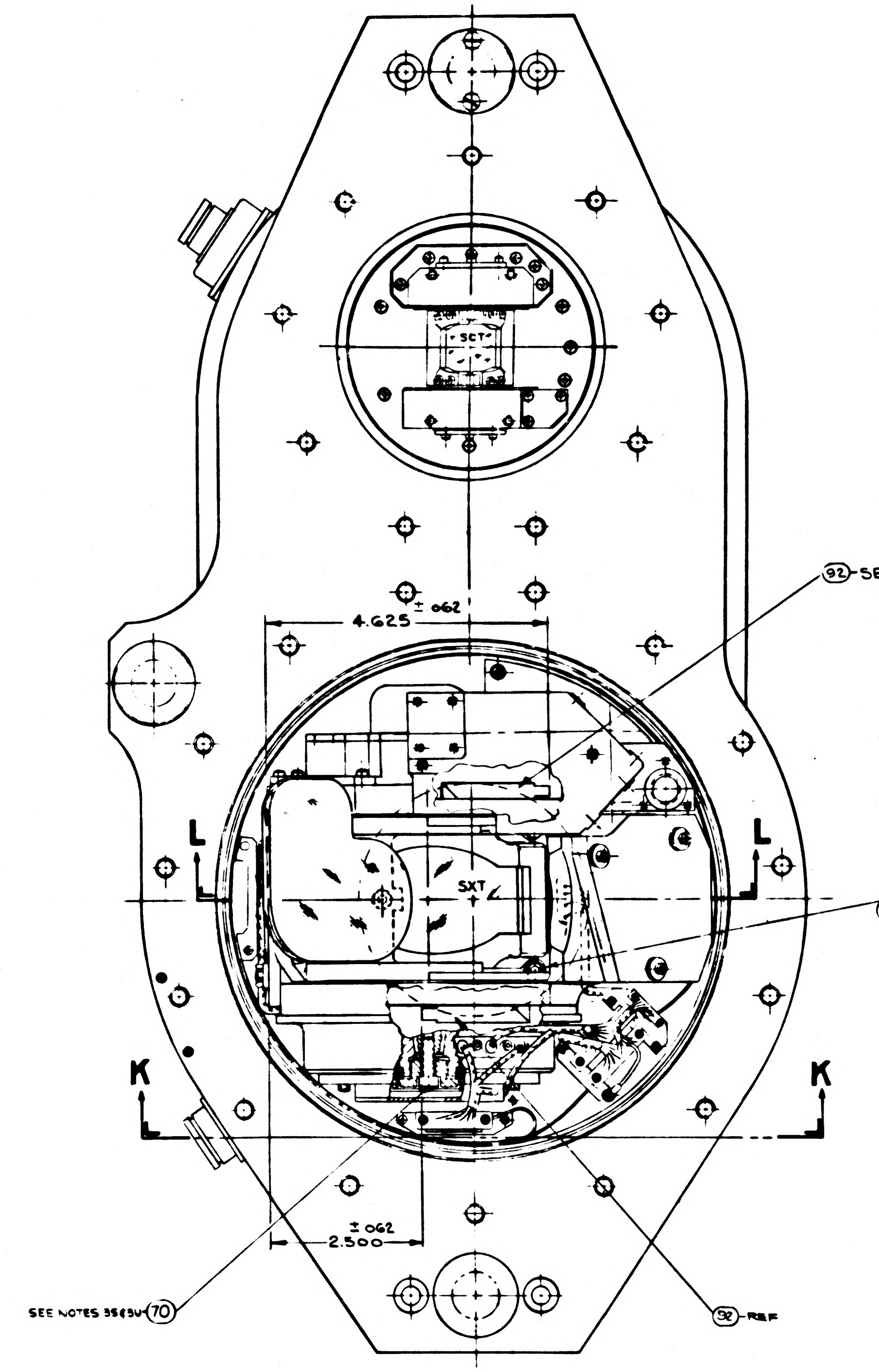
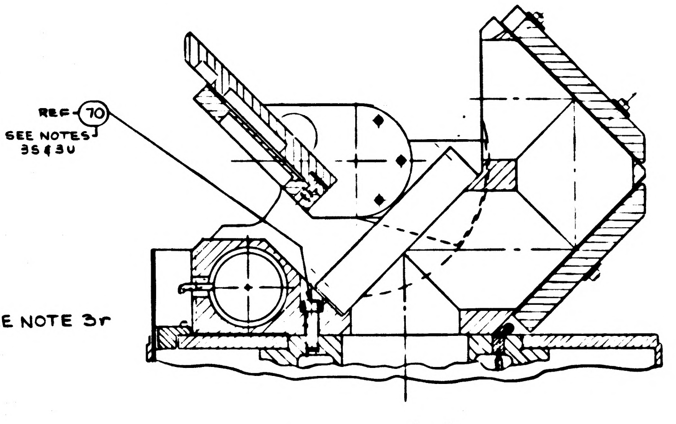
J		REVISED PER TDRR 3438	8.18.67	[illegible]


SXT
SCT
4.625
± .062
92 - SEE NOTE 3r
L
L
87 - SEE NOTES 35 & 3U
K
K
± .062
2.500
SEE NOTES 35 & 3U 70
92 - REF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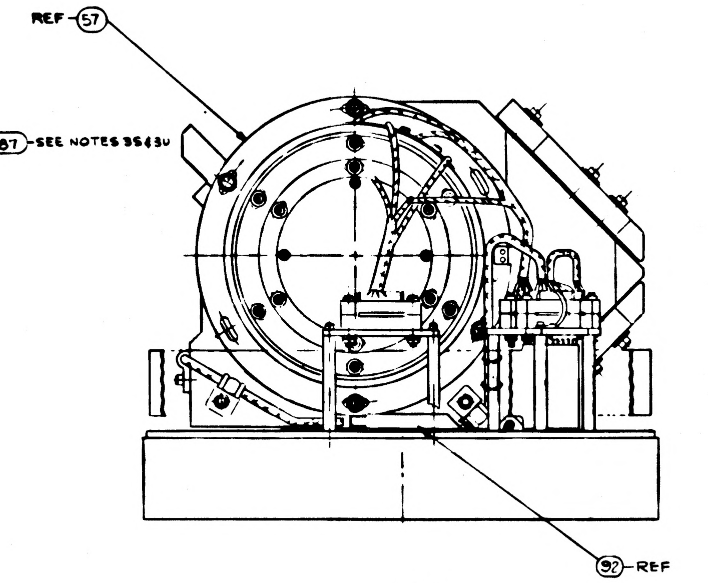
SEE NOTES 35 & 3U

PARTIAL SECTION **L L**


REF 57
92 - REF

PARTIAL VIEW **K-K**

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
20H000	2011000

APPLICATION

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MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN Babcock DATE [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 4 OF 6

2012736 J

2012736 J

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-23-66	[illegible]
D		REVISED PER TDRR 31108	9-16-66	[illegible]
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F		REVISED PER TDRR 33848	5/23/67	[illegible]
G		REVISED PER TDRR 34019	6/23/67	[illegible]
H		REVISED PER TDRR 34157	7-8-67	[illegible]
J		REVISED PER TDRR 3438	8-8-67	[illegible]

NOTES:

1. GENERAL REQUIREMENTS
   - a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
   - b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.

2. SCANNING TELESCOPE (SCT) REQUIREMENTS
   - a. ITEM 30 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.
   - b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.
   - c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).
   - d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF 13^{+2} IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.
   - e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.
   - f. ITEMS 7 OR 94 AND 8 OR 95 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.
   - g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.
   - h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3e HAVE BEEN MET; BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS
   - a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND 30 AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.
   - b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).
   - c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF. THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.
   - d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.
   - e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.
   - f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.
   - g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.
   - h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.
   - i. THE SXT TRUNNION LIMIT STOP ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS
   - j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56 OR 93) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION
   - k. THE SXT TRUNNION ANTI-BACKLASH SPRING (PART OF ITEM 97 AND 98) SHALL BE TURNED CLOCKWISE UNTIL SCRIBE MARK ON FACE OF COLLET IS AT 12 O'CLOCK $^{+30°}_{-0}$ AND CLAMPED WITH BASE IN AN UPRIGHT HORIZONTAL POSITION AND TRUNNION IS AT 90° SLOS POSITION.
   - l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12 OR 96 AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 OR 96 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 OR 96 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS 15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387
   - m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.
   - n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.8 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE H PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.
   - o. AFTER THE REQUIREMENTS OF NOTE 3n HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)
   - p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206
   - r. CEMENT WEDGES (ITEM 92) TO SXT HD ASSY (ITEMS 56 OR 93 OR 97) AND TO THE TELESCOPE TUBE ASSY OF THE SHAFT AXIS ASSY (ITEM 3 OF 2011889-ASSY) TO DIMENSIONS SHOWN ON SHEET 4 OF 6 USING EPOXY CEMENT PER ND1002004 TYPE VII.
   - S. SOCKETS & HEADS OF ITEMS 70, 87, 46 & 47 ARE TO BE FORMED BY COLD HEADING, THREADS ARE TO BE FORMED BY THREAD ROLLING.
   - T. TORQUE WRENCH READING FOR ITEM 47 PLUS (4) SCREWS (ITEM 46) USED TO SECURE ITEM 37 TO BE 10 IN. LBS. ±5%.
   - U. TORQUE WRENCH READING FOR ITEMS 70 & 87 TO BE 40 IN. LBS. ±5%

& TO THE TELESCOPE TUBE

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

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HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 5 OF 6

2012736 J

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151		
C		REVISED PER TDRR 30829	8-25-	
D		REVISED PER TDRR 31105	9-8-	
E		REVISED PER TDRR 32892	1-27-67	
F		REVISED PER TDRR 33868	5-25-67	
G		REVISED PER TDRR 34019	6/23/67	
H		REVISED PER TDRR 34187	7/18/67	
J		REVISED PER TDRR 34381	8-8-67	

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								100								
								99								
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0	0	1	0	0	0	0	0	97		2012735-021			SXT INDEX HEAD ASSY			
0	0	1	0	1	0	0	0	96		2011705-011			SHAFT DRIVE GEAR BOX SXT ASSY OF			
0	0	1	0	1	0	0	0	95		2011703-011			SHAFT DRIVE GEAR BOX, ASSY OF SCT			
0	0		0	1	0	0	0	94		2011702-011			TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
0	0	0	0		0	0	0	93		2012735-011			SXT INDEX HEAD ASSY			
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0	0	0	0	0	0	0	0	88		MS15795-803			WASHER, FLAT			
2	2	2	2	2	2	2	2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC HD, SELF LOCKING SEE NOTE 35			
9	9	9	9	9	9	9	9	86		1011625-20	74455151020		SCREW, CAP, SOC HD., SELF LOCKING			
1		1		1	1	1	1	85		2011595	52386910220		COVER, GEARBOX			
						1	1	84		MS16624-1018			RING, RETAINING			
AR	AR	AR	AR	AR	AR	AR	AR	83		2012351-1,243	7938691[illegible]		WASHER, FLAT			
1					1	1	1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	3	3	3	3	3	3	3	81		2011579	57386910120		DOG, LIMIT STOP			
1		1				1	1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1				1		1	1	79		1011608-5			BEARING, BALL, ANNULAR			
1	1			1		1	1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	1			1		1	1	77		2011577	56386910060		SPRING, TORSION			
1				1		1	1	76		2012350	25386910010		WASHER			
1	1	1	1	1		1		75		2012723	52386911060		COUNTERWEIGHT			
1	1	1	1	1		1	1	74	*	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	2	2	2	2	2	2	2	73		MS35249-11	74455187011		SCREW MACHINE, FLAT COUNTERSUNK HD, SLOTTED			
8	8	8	8	8	8		8	72		1011625-39	74455151040		SCREW, CAP, SOC HEAD, SELF LOCKING			
2	2	2	2	2	2		2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC HEAD, SELF LOCKING			
2	2	2	2	2	2	2	2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC HEAD, SELF LOCKING SEE NOTE 35			
4	4	4	4	4	4	4	4	69		NAS1189C02T4L			SCREW, FLAT HD, SELF LOCKING			
2	2	2	2	2	2	2	2	68		MS16624-15			RING, RETAINING, EXTERNAL, BASIC			
1	1	1	1	1	1	1	1	67		MS15795-305			WASHER, FLAT			
1	1	1	1	1	1		1	66	*	1011918-2			WASHER, CABLE CLAMP			
1	1	1	1	1	1		1	65	*	1000220-6 OR 5			CLAMP, CABLE			
1			1	1			1	64	*	1000220-8 OR 6			CLAMP, CABLE			
1	1		1	1			1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	AR	AR	AR	AR	AR	--	AR	62		2011885	45386910040		SHIM			
1	1	1	1	1	1	1	1	61	*	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
1	1	1	1	1	1	1	1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	1	1	1	1	1	1	1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	1	1	1	1	1	1	1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	1	1	1	1	1	1	1	57	*	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
0	0	0	1	0	1		1	56		2012735-000	85386911800		SXT INDEX HD ASSY			
1	1	1	1	1	1	1	1	55		2012164	26386910060		GROMMET			
1	1	1	1	1	1	1	1	54		2012740	48386910210		CONNECTOR ASSY, DUMMY			
2	2	2	2	2	2	2	2	53	*	1011625-30	74455151030		SCREW CAP SOC HD, SELF LOCKING			
2	2	2	2	2	2	2	2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC HD, SELF LOCKING			
7	7	7	7	7	7	7	7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC. HD, SELF LOCKING			
1	1	1	1	1	1		1	50	*	1011625-28	74455151028		SCREW, CAP, SOC HD, SELF LOCKING			
4	4	4	4	4	4	4	4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC. HD., SELF LOCKING			
8	8	8	8	8	8	-	8	48	NAS	1352C04LL8	74455157015					
14	14	4	14	14	14	14	14	47	NAS	1352C04LL6	74455157014		SEE NOTE 35			
14	14	14	14	14	14	14	14	46	NAS	1352C04LL4	74455157013		SEE NOTE 35			
12	12	12	12	12	12	12	12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC. HD, SELF LOCKING			
4	4	4	4	4	4	4	4	44	*	1011625-11	74455151011		SCREW, CAP, SOC HD, SELF LOCKING			
12	12	12	12	12	12	12	12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING 100° FLAT HEAD			
								42								
2	2	2	2	2	2	2	2	41	AN	960-C8	74468051004		WASHER, FLAT, REGULAR			
1	1		1	1	1	1	1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC. HD, SELF LOCKING			
2	2	2	2	2	2	2	2	39		2011684	48386910030		PIN, THREADED			
1	1	1	1	1	1	1	1	38		2011877	45386910250		SPACER			
1	1	1	1	1		1	1	37	*	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1	1	1	1	1		1	1	36		MS9021-154			PACKING, PREFORMED			
1	1	1	1	1	1	1	1	35	*	1011606-1	30205772240		BEARING, BALL			
		1	1	1	1	1	1	34	*	1011606-2	30205772720		BEARING, BALL			
	1	1	1	1	1	1	1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	2	2	2	2	2	2	2	32		2011562	57386910580		BUSHING, LOCATING			
2	2	2	2	2	2	2	2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	1	1	1	1	1	1	1	30		2011344	45386910020		SCREW, SHOULDER			
2	2	2	2	2	2	2	2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	1	1	1	1	1	1	1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	1	1	1	1	1	1	1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	1	1	1	26		2012486	57386911240		SPACER CONNECTOR, MOUNTING PLATE			
1	1	1	1	1	1	1	1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	1	1	1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	3	3	3	3	3	3	3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
			1	1	1	1	1	22		2011342	57386910570		RING, LIMIT STOP			
	1		1	1	1	1	1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
			1	1	1	1	1	20		2011616	57386910020		RING, MOUNTING, COVER			
		1	1	1	1	1	1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
			1	1	1	1	1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	6	6	6	6	6	6	6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
				1	1	1	1	16		2012743	85386911820		FLEXPRINT RETAINING ASSY			
2	2	2	2	2	2	2	2	15		2011686	56386910310		RETAINER, PIN			
	1		1	1	1	1	1	14	*	1012520-1	85386900910		FLEXPRINT & CONNECTOR ASSY OF (SXT)			
			1	1	1	1	1	13	*	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	1	0	1	0	1	1	1	12		2011705-000	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
	1		1	1	1	1	1	11		2011714	85386910460		LIMIT STOP ASSY			
1	1		1	1	1	1	1	10		2012387	85386911110		GEAR & SPRING ASSY OF			
1	1		1	1	1	1	1	9		2011906	85386910440		HOUSING STATOR & LAMP ASSY OF			
1	1	0	1	0			1	8		2011703-000	85386910200		SHAFT DRIVE GEAR BOX, SCT, ASSY OF			
1	1	0	1	0	1	1	1	7		2011702-000	85386910630		TRUNNION DRIVE GEAR BOX, SCT ASSY OF			
1	1	1	1	1	1	1	1	6		2011215-011	85386910380		TELESCOPE TRUNNION AXIS ASSY			
1	1	1	1	1	1	1	1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	1	1	1	1	1	1	1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	1	1	1	1	1	1	1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1		1	1	1	1	1	1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
0	1	0	1	0	0	0	1	1		2011889-021	85386910680		OPTICAL UNIT SUBASSY - STAGE I			

QTY REQD — LIST OF PARTS AND MATERIALS

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

012	002	041	001	031	021	011	000	ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	HOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
								142									
								141									
								140									
								139									
								138									
								137									
								136									
								135									
								134									
								133									
								132									
								131									
								130									
								129									
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								127									
								126									
								125									
								124									
								123									
								122									
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								120									
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								109									
								108									
								107									
								106									
								105									
								104									
								103									
								102									

QTY REQD — LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

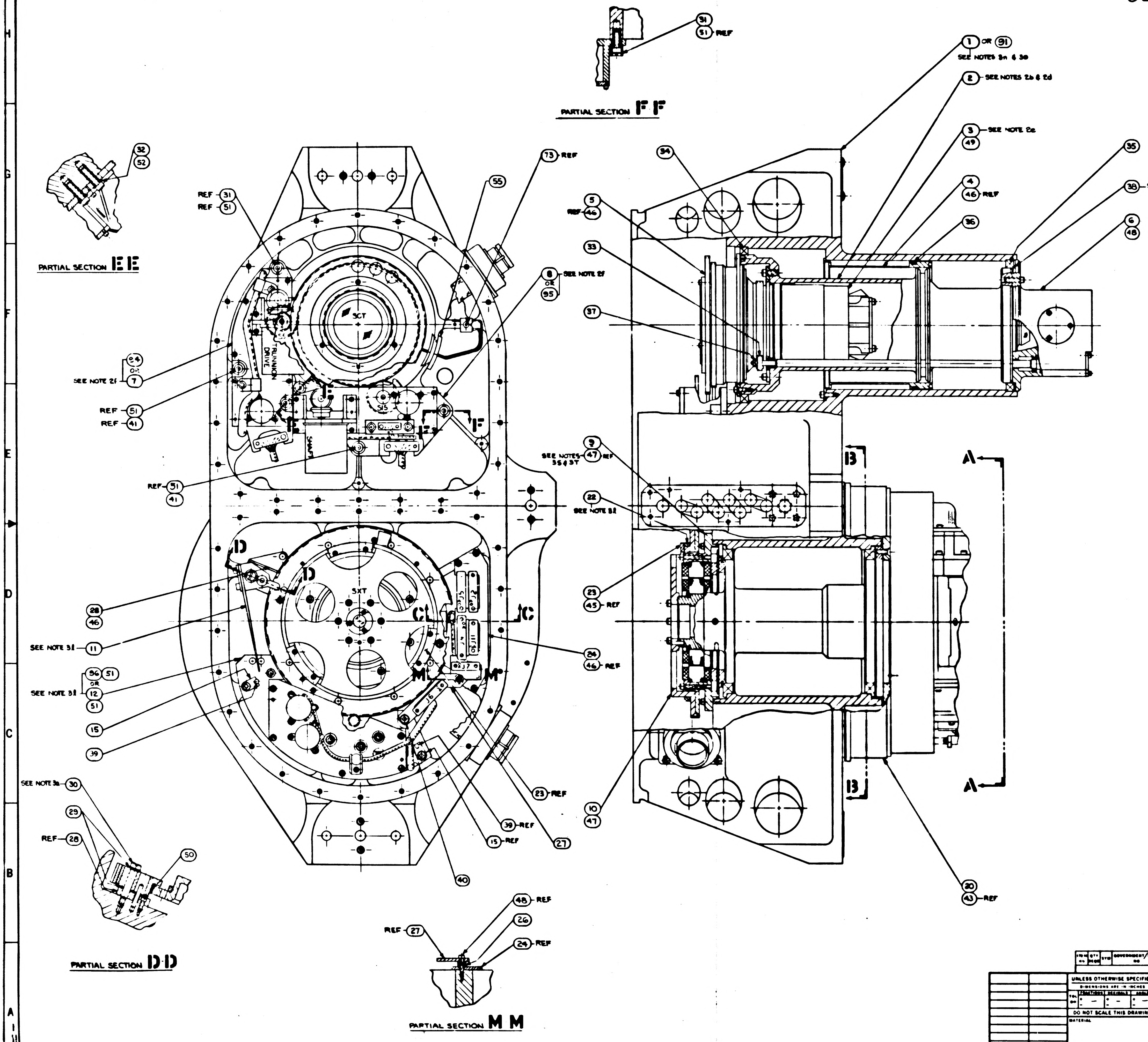
HOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
HIC PN 85386911810
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE
WEIGHT CALC ACTUAL
SHEET 6 OF 6

2012736 J


PARTIAL SECTION F F
31
51 REF
PARTIAL SECTION E E
32
52
73 REF
55
REF 31
REF 51
SCT
TRUNNION DRIVE
SHAFT
SEE NOTE 2f 24 OR 7
REF 51
REF 41
REF 51
41
8 SEE NOTE 2f OR 95
E
F
D
SXT
C
M
28
46
SEE NOTE 3l 11
SEE NOTE 3l 56 51 OR 12 51
15
39
24
46 REF
23 REF
39 REF
15 REF
27
40
SEE NOTE 3a 30
29
REF 28
50
PARTIAL SECTION D D
REF 27
48 REF
26
24 REF
PARTIAL SECTION M M
1 OR 91 SEE NOTES 3n & 3o
2 SEE NOTES 2b & 2d
3 SEE NOTE 2e
49
4
46 REF
36
34
5
REF 46
33
37
35
38 SEE NOTE 2a
6
48
9
SEE NOTES 3S & 3T 47 REF
22
SEE NOTE 3l
23
45 REF
10
47
20
43 REF
A
B

2012736 K

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 29151		
C		REVISED PER TDRR 30829		
D		REVISED PER TDRR 3108		
E		REVISED PER TDRR 32832	1/27/67	
F		REVISED PER TDRR 33068		
G		REVISED PER TDRR 34019	6-23-67	
H		REVISED PER TDRR 34.37		
J		REVISED PER TDRR 34381	8-18-67	
K		REVISED PER TDRR 3475	9-29-67	

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN
CHECKED 1-13-66
APPROVAL
APPROVAL 1-11-66
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

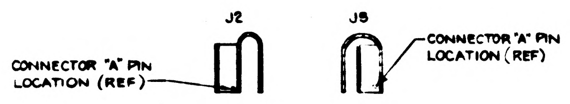
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 6

2012736 K

2012736 K

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	3-26-66	[illegible]
D		REVISED PER TDRR 3105	3-8-66	[illegible]
E		REVISED PER TDRR 32892	1/27/67	[illegible]
F		REVISED PER TDRR 33808	5/24/67	[illegible]
G		REVISED PER TDRR 34019	[illegible]	[illegible]
H		REVISED PER TDRR 34[illegible]	[illegible]	[illegible]
J		REVISED PER TDRR 3438	8-8-6[illegible]	[illegible]
K		REVISED PER TDRR 3[illegible]	[illegible]	[illegible]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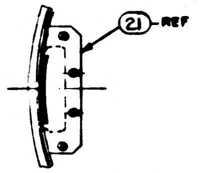
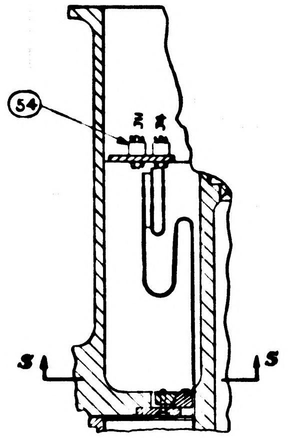
J3
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

PARTIAL SECTION N-N
SCALE NONE



PARTIAL SECTION P-P



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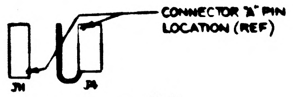
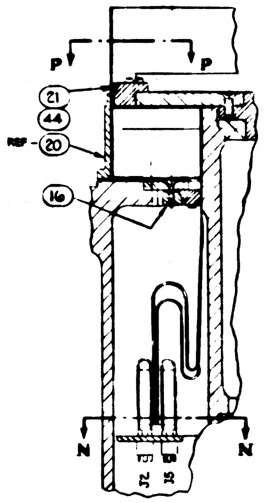
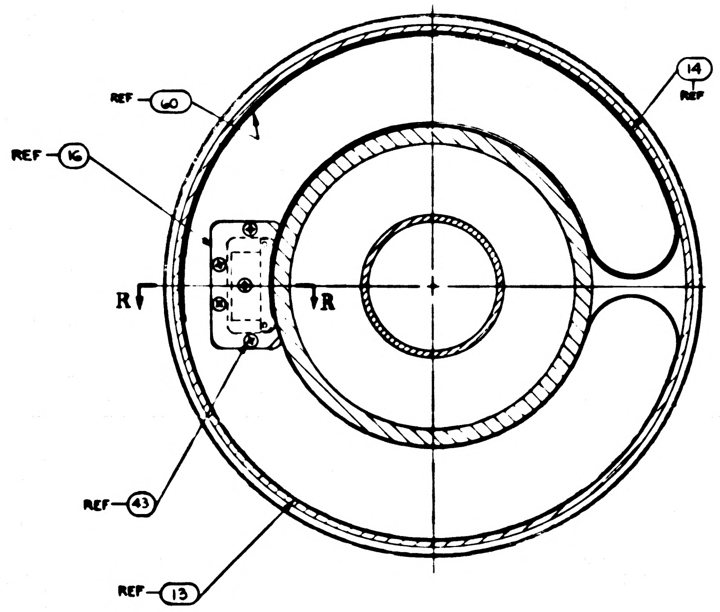

CONNECTOR "A" PIN LOCATION (REF)
J4
J6

PARTIAL SECTION S-S


P
P
21
44
REF - 20
16
N
N
J2
J3

PARTIAL SECTION C-C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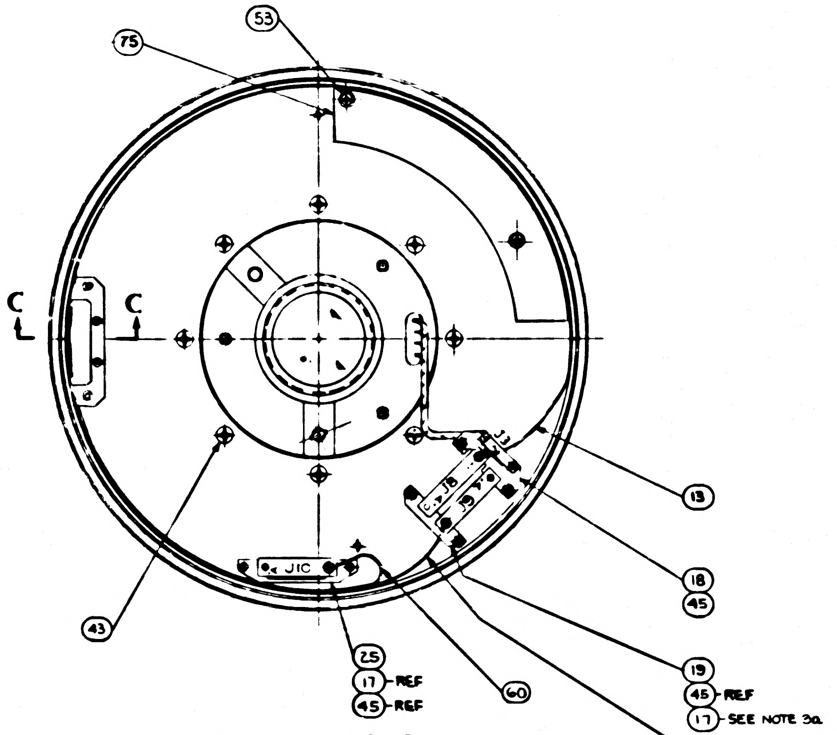
14 REF
R
R
REF - 43
REF - 13

PARTIAL SECTION B-B


75
53
C
C
13
18
45
43
JIC
25
17 - REF
45 - REF
60
19
45 - REF
17 - SEE NOTE 3a
14

PARTIAL VIEW A-A
(WITH SEXTANT INDEX HD ASSY REMOVED)

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL [illegible]
NASA APPROVAL
KIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

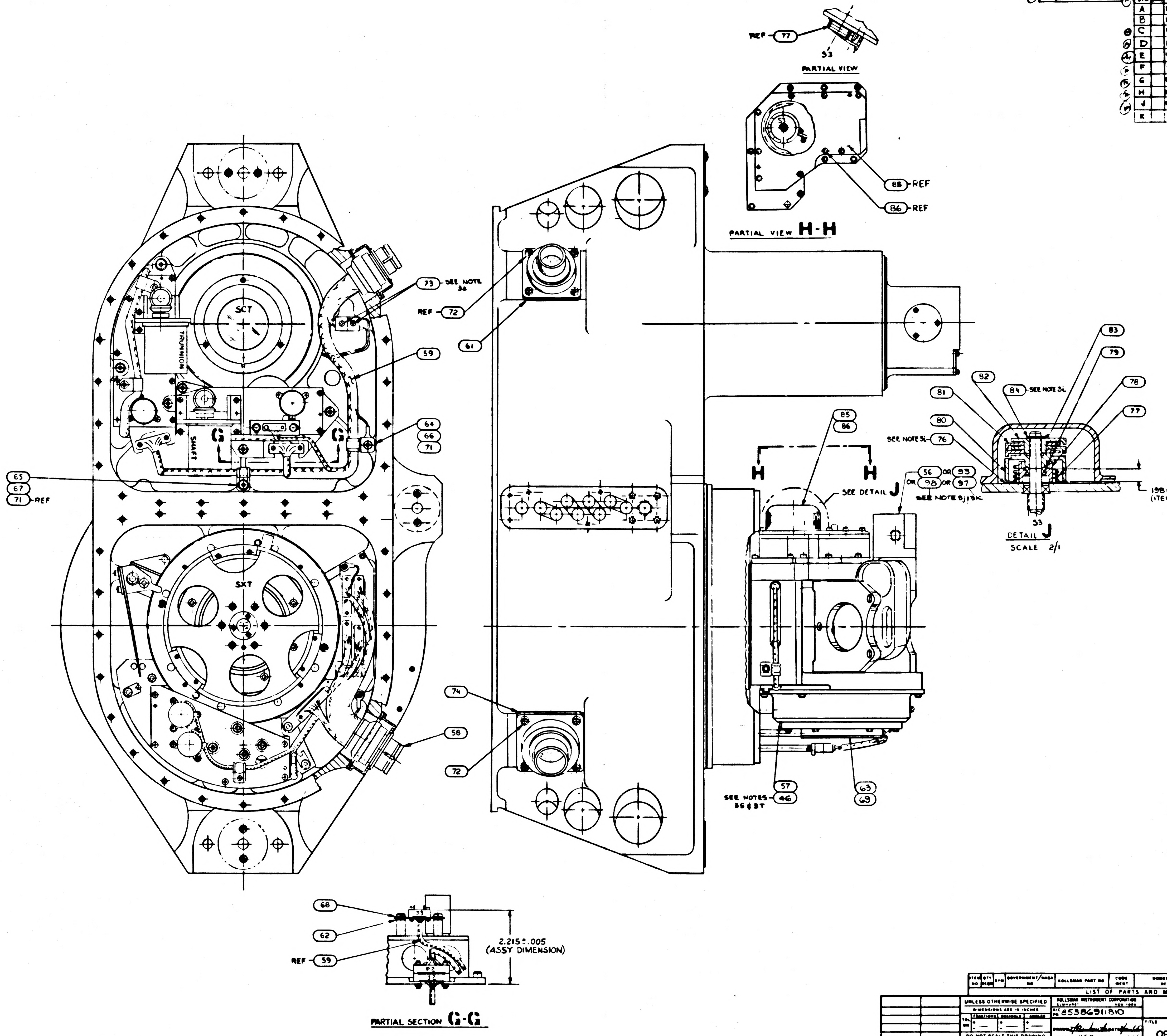
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 2 OF 6

2012736 K

2012736 K

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	[illegible]	[illegible]
D		REVISED PER TDRR 31105	9-8-66	[illegible]
E		REVISED PER TDRR 32932	1/27/67	[illegible]
F		REVISED PER TDRR 33806	6/25/67	[illegible]
G		REVISED PER TDRR 34019	[illegible]	[illegible]
H		REVISED PER TDRR 34 87	[illegible]	[illegible]
J		REVISED PER TDRR 3438	8-8-67	[illegible]
K		REVISED PER TDRR 34756	[illegible]	[illegible]



REF 77
S3
PARTIAL VIEW
S2
88 REF
86 REF
PARTIAL VIEW H-H
73 SEE NOTE 3a
REF 72
61
SCT
TRUNNION
59
SHAFT
G
G
64
66
71
65
67
71 REF
SXT
85
86
H
H
SEE DETAIL J
56 OR 93
OR 98 OR 97
SEE NOTE 3j & 3K
83
79
82
84 SEE NOTE 3i
81
78
80
77
SEE NOTE 3i 76
.198 (REF) (ITEM 78)
S3
DETAIL J
SCALE 2/1
74
58
72
57
SEE NOTES 3S & 3T 46
63
69
68
62
REF 59
J3
P2
J2
2.215 ± .005 (ASSY DIMENSION)
PARTIAL SECTION G-G

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PR 85386911810
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
KIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

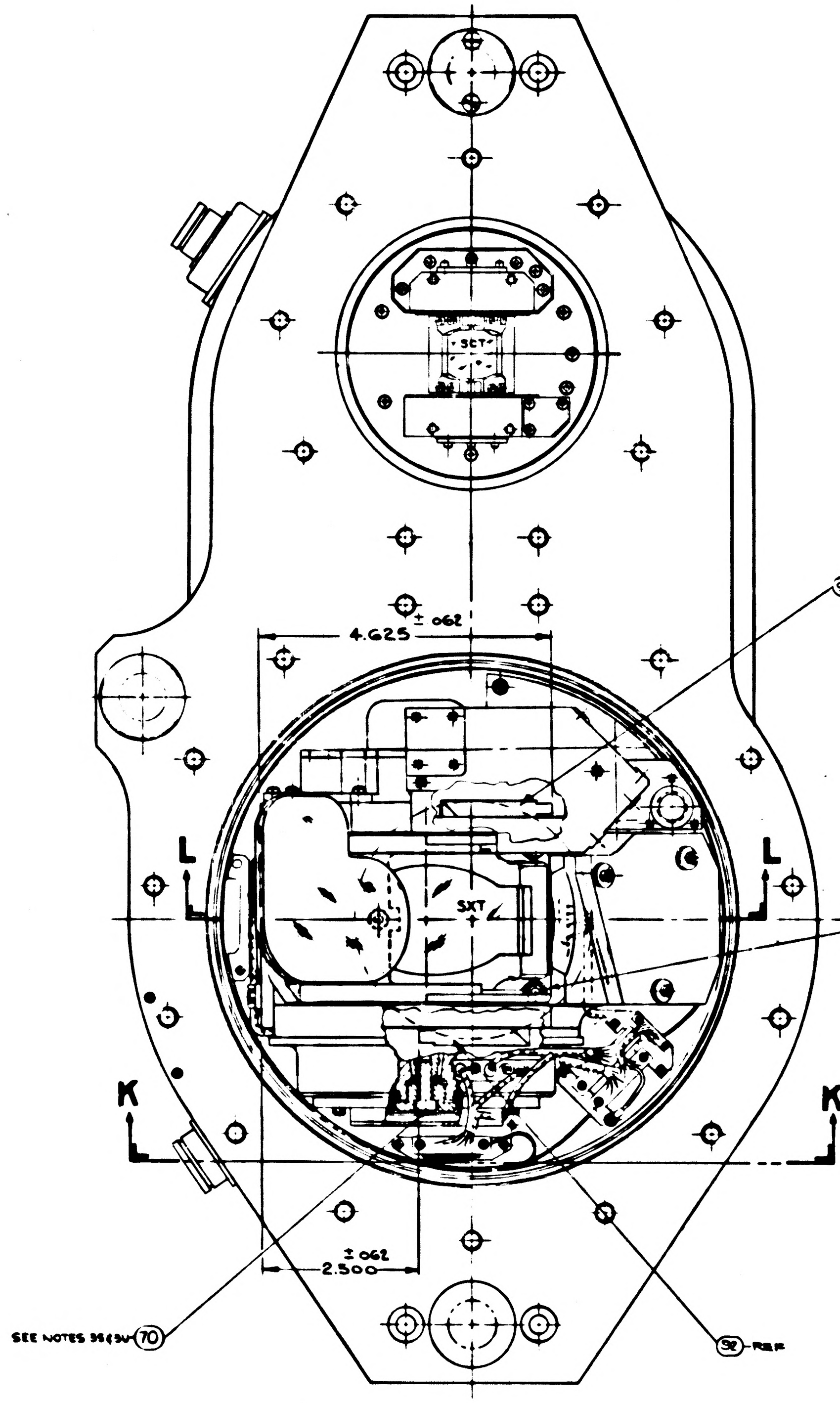
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

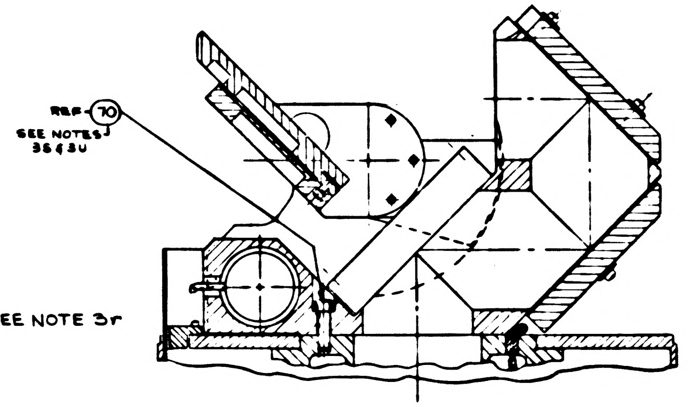
CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 3 OF 6

2012736 K

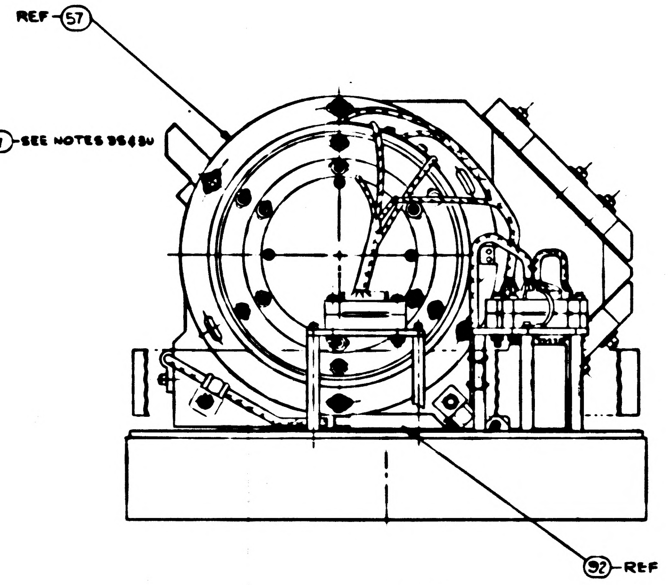
2012736 K

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	[illegible]	[illegible]
D		REVISED PER TDRR 3405	7-6-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	[illegible]
F		REVISED PER TDRR 33868	5-29-67	[illegible]
G		REVISED PER TDRR 34019	6-23-67	[illegible]
H		REVISED PER TDRR 34187	7/3/67	[illegible]
J		REVISED PER TDRR 3438	[illegible]	[illegible]
K		REVISED PER TDRR 3475	9-29-67	[illegible]


4.625
± .062
92-SEE NOTE 3r
L
L
SXT
SXT
87-SEE NOTES 35&3U
K
K
± .062
2.500
SEE NOTES 35&3U 70
92-REF


REF-70
SEE NOTES 35&3U

PARTIAL SECTION **L-L**


REF-57
92-REF

PARTIAL VIEW **K-K**

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
R/C PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 4 OF 6

2012736 K

NOTES:

1. GENERAL REQUIREMENTS

   a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

   b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.

2. SCANNING TELESCOPE (SCT) REQUIREMENTS

   a. ITEM 30 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.

   b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.

   c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).

   d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011680, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF 13 ± 2 IN.OZ. AND WITHIN 1 IN. OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.

   e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.

   f. ITEMS 7 OR 94 AND 8 OR 95 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.

   g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 100°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.

   h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3a HAVE BEEN MET; BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS

   a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND 30 AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211

   b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).

   c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.

   d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.

   e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.

   f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.

   g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.

   h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.

   i. THE SXT TRUNNION LIMIT STOP ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS

   j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56 OR 93) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION

   k. THE SXT TRUNNION ANTI-BACKLASH SPRING (PART OF ITEM 97 AND 98) SHALL BE TURNED CLOCKWISE UNTIL SCRIBE MARK ON FACE OF COLLET IS AT 12 O'CLOCK $^{+30°}_{-0°}$ AND CLAMPED WITH BASE IN AN UPRIGHT HORIZONTAL POSITION AND TRUNNION IS AT 90° SLOS POSITION.

   l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12 OR 96 AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 OR 96 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 OR 96 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387

   m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.

   n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.0 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE H PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.

   o. AFTER THE REQUIREMENTS OF NOTE 3n HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)

   p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206

   r. CEMENT WEDGES (ITEM 92) TO SXT HD ASSY (ITEMS 56 OR 93 OR 97) AND TO THE TELESCOPE TUBE ASSY OF THE SHAFT AXIS ASSY (ITEM 3 OF 2011889-ASSY) TO DIMENSIONS SHOWN ON SHEET 4 OF 6 USING EPOXY CEMENT PER ND1002004 TYPE VII.

   S. SOCKETS & HEADS OF ITEMS 70, 87, 46 & 47 ARE TO BE FORMED BY COLD HEADING, THREADS ARE TO BE FORMED BY THREAD ROLLING.

   T. TORQUE WRENCH READING FOR ITEM 47 PLUS (4) SCREWS (ITEM 46) USED TO SECURE ITEM 57 TO BE 10 IN. LBS. ±5%.

   U. TORQUE WRENCH READING FOR ITEMS 70 & 87 TO BE 40 IN. LBS. ±5%

& TO THE TELESCOPE TUBE

K 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS TDRR 25707				
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-29-66	[illegible]
D		REVISED PER TDRR 31108	9-6-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	
F		REVISED PER TDRR 33808	5-29-67	[illegible]
G		REVISED PER TDRR 34019	6/23/67	[illegible]
H		REVISED PER TDRR 34137	7/19/67	MDF
J		REVISED PER TDRR 34381	8-18-67	MF
K		REVISED PER TDRR 34756	9-29-67	[illegible]

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 8538691181O
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 5 OF 6

2012736 K

2012736 K

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677		
B		REVISED PER TDRR 2915		
C		REVISED PER TDRR 30829	8-25-66	
D		REVISED PER TDRR 31105	9-16-66	
E		REVISED PER TDRR 32892	2-7-67	
F		REVISED PER TDRR 33868		
G		REVISED PER TDRR 34019		
H		REVISED PER TDRR 34187		
J		REVISED PER TDRR 34381	8-8-67	
K		REVISED PER TDRR 3475		

LIST OF PARTS AND MATERIALS

QTY REQD 003	012	002	041	001	031	021	011	000	ITEM NO	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
									101								
									100								
									99								
1	1	1	0	0	0	0	0	0	98		2012735-001			SXT INDEX HEAD ASSY			
0	0	0	1	0	0	0	0	0	97		2012735-021			SXT INDEX HEAD ASSY			
0	0	0	1	0	1	0	0	0	96		2011705-011			SHAFT DRIVE GEAR BOX SXT ASSY OF			
0	0	0	1	0	1	0	0	0	95		2011703-011			SHAFT DRIVE GEAR BOX, ASSY OF SCT			
0	0	0	1	0	1	0	0	0	94		2011702-011			TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
0	0	0	0	0	1	0	0	0	93		2012735-011			SXT INDEX HEAD ASSY			
2	0	0	2	2	2	2	0	0	92		2012760			WEDGE, RIGHT TRIANGULAR			
		0		0	1	1	1	0	91		2011889-031			OPTICAL UNIT SUBASSY STAGE I			
0	0	0	0	0	0	0	0	0	90		1012540-029			SCREW, HEX HD, SELF LOCKING			
0	0	0	0	0	0	0	0	0	89		MS15795-804			WASHER, FLAT			
0	0	0	0	0	0	0	0	0	88		MS15795-803			WASHER, FLAT			
2	2	2	2	2	2	2		2	87		NAS1351C3LL20	7445515[illegible]044		SCREW, CAP, SOC HD, SELF LOCKING SEE NOTE 35			
9	9	9	9	9	9	9		9	86		1011625-20	74455151020		SCREW, CAP, SOC HD., SELF LOCKING			
			1		1	1	1	1	85		2011595	52386910220		COVER, GEARBOX			
			1	1	1	1	1	1	84		MS16624-1018			RING, RETAINING			
AR	AR	AR	AR	AR	AR	AR	AR	AR	83		2012351-1,2&3	7938691[illegible]		WASHER, FLAT			
			1		1	1	1	1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	3	3	3	3	3	3		3	81		2011579	57386910120		DOG, LIMIT STOP			
			1	1	1	1		1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
		1	1	1	1	1	1	1	79		1011608-5			BEARING BALL, ANNULAR			
1	1	1	1	1	1	1	1	1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	1	1	1	1	1	1	1	1	77		2011577	56386910060		SPRING, TORSION			
1	1	1	1	1	1	1	1	1	76		2012350	25386910010		WASHER			
1	1	1	1	1	1	1	1	1	75		2012723	52386911060		COUNTERWEIGHT			
1	1	1	1	1	1	1	1	1	74	*	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	2	2	2	2	2	2		2	73		MS35249-11	74455187011		SCREW MACHINE, FLAT COUNTERSUNK HD, SLOTTED			
8	8	8	8	8	8	8		8	72		1011625-39	74455151040		SCREW, CAP, SOC HEAD, SELF LOCKING			
2	2	2	2	2	2	2		2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC HEAD, SELF LOCKING			
2	2	2	2	2	2	2		2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC HEAD, SELF LOCKING SEE NOTE 35			
4	4	4	4	4	4	4		4	69		NAS1189C02T4L			SCREW, FLAT HD, SELF LOCKING			
2	2	2	2	2	2	2		2	68		MS16624-15	—		RING, RETAINING, EXTERNAL, BASIC			
1		1	1	1	1			1	67		MS15795-305	—		WASHER, FLAT			
1		1	1	1	1			1	66	*	1011918-2	—		WASHER, CABLE CLAMP			
1		1	1	1	1			1	65	*	1000220-6 OR 5	—		CLAMP, CABLE			
1					1			1	64	*	1000220-8 OR 6	—		CLAMP, CABLE			
1				1	1			1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	AR	AR	AR	AR	AR	AR		AR	62		2011885	45386910040		SHIM			
1	1	1	1	1	1	1	1	1	61	*	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
1			1	1	1	1		1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	1	1	1	1	1	1		1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	1	1	1	1	1	1		1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	1	1	1	1	1	1	1	1	57	*	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
0	0	0	0	1	0	1		1	56		2012735-000	85386911800		SXT INDEX HD ASSY			
1	1	1	1	1	1	1		1	55		2012164	26386910060		GROMMET			
1	1	1	1	1	1	1		1	54		2012740	48386910210		CONNECTOR ASSY, DUMMY			
2	2	2	2	2	2	2		2	53	*	1011625-30	74455151030		SCREW, CAP, SOC HD, SELF LOCKING			
2	2	2	2	2	2	2		2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC HD., SELF LOCKING			
7	7	7	7	7	7	7		7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC HD, SELF LOCKING			
1	1	1	1	1	1	1		1	50	*	1011625-28	74455151028		SCREW, CAP, SOC HD, SELF LOCKING			
4	4	4	4	4	4	4		4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC HD, SELF LOCKING			
8	8	8	8	8	8	8	-	8	48	NAS	1352C04LL8	74455157015					
14	14	14	14	14	14	14	14	14	47	NAS	1352C04LL6	74455157014		SEE NOTE 35			
14	14	14	14	14	14	14	14	14	46	NAS	1352C04LL4	74455157013		SEE NOTE 35			
12	12	12	12	12	12	12		12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC HD, SELF LOCKING			
4	4	4	4	4	4	4		4	44	*	1011625-11	74455151011		SCREW, CAP, SOC HD, SELF LOCKING			
12	12	12	12	12	12	12	12	12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING, 100° FLAT HEAD			
									42								
2	2	2	2	2	2	2		2	41	AN	960-C8	74468051004		WASHER, FLAT REGULAR			
1	1	1		1	1	1	1	1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC HD, SELF LOCKING			
2	2	2	2	2	2	2		2	39		2011684	48386910030		PIN, THREADED			
	1	1		1	1	1		1	38		2011877	45386910250		SPACER			
				1	1		1	1	37	*	1012525-005	74443162006		NUT, SELF LOCKING, HEX, THIN			
	1	1		1	1			1	36		MS9021-154			PACKING, PREFORMED			
		1	1	1	1		1	1	35	*	1011606-1	30205772240		BEARING, BALL			
1			1	1	1	1		1	34	*	1011606-2	30205772720		BEARING, BALL			
1		1	1	1	1	1	1	1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	2	2	2	2	2	2	2	2	32		2011562	57386910580		BUSHING, LOCATING			
2	2	2	2	2	2	2	2	2	31		2011561	57386910590		BUSHING, ECCENTRIC			
			1		1	1	1	1	30		2011344	45386910020		SCREW, SHOULDER			
2	2	2	2	2	2	2	2	2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	1		1		1	1	1	1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	1	1	1	1	1	1	1	1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	1		1	1	26		2012486	57386911240		SPACER CONNECTOR MOUNTING PLATE			
1	1	1	1	1	1	1	1	1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
	1	1	1	1	1	1	1	1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	3	3	3	3	3	3	3	3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
				1	1	1	1	1	22		2011342	57386910570		RING, LIMIT STOP			
1		1		1	1	1	1	1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
	1	1		1	1	1	1	1	20		2011616	57386910020		RING, MOUNTING, COVER			
1	1	1		1	1	1	1	1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
		1		1	1	1		1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	6	6	6	6	6	6	6	6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
			1	1	1	1	1	1	16		2012743	85386911820		FLEXPRINT RETAINING ASSY			
2	2	2	2	2	2	2	2	2	15		2011686	56386910310		RETAINER PIN			
		1		1	1	1	1	1	14	*	1012520-1	85386900910		FLEXPRINT & CONNECTOR ASSY OF (SXT)			
		1		1	1	1	1	1	13	*	012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	1	1	0	1	0	1	1	1	12		2011705-000	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
1		1		1	1	1	1	1	11		2011714	85386910460		LIMIT STOP ASSY			
1	1	1		1	1	1	1	1	10		2012387	85386911110		GEAR & SPRING ASSY OF			
			1	1	1	1	1	1	9		2011906	85386910440		HOUSING STATOR & LAMP, ASSY OF			
	1	1	0	1	0		1		8		2011703-000	85386910200		SHAFT DRIVE GEAR BOX, SCT, ASSY OF			
1	1	1	0	1	0	1	1	1	7		2011702-000	85386910630		TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
1	1	1	1	1	1	1	1	1	6		2011215-011	85386910380		TELESCOPE TRUNNION AXIS ASSY			
1	1	1	1	1	1	1	1	1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	1	1	1	1	1	1	1	1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	1	1	1	1	1	1	1	1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	1		1	1	1	1	1	1	2		2011722	55386910300		OUTER TELESCOPE TUBE ASSY			
0	0	1	0	1	0	0	0	1	1		2011889-021	85386910680		OPTICAL UNIT SUBASSY - STAGE I			

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. [illegible]
UNIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE
WEIGHT
CALC ACTUAL
SHEET 6 OF 6

2012736

2012736 L

SYM	ZONE	REVISIONS DESCRIPTION	DATE	APPROVAL
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B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30629	[illegible]	[illegible]
D		REVISED PER TDRR 31105	[illegible]	[illegible]
E		REVISED PER TDRR 32832	1-27-67	[illegible]
F		REVISED PER TDRR 33868	3/29/67	[illegible]
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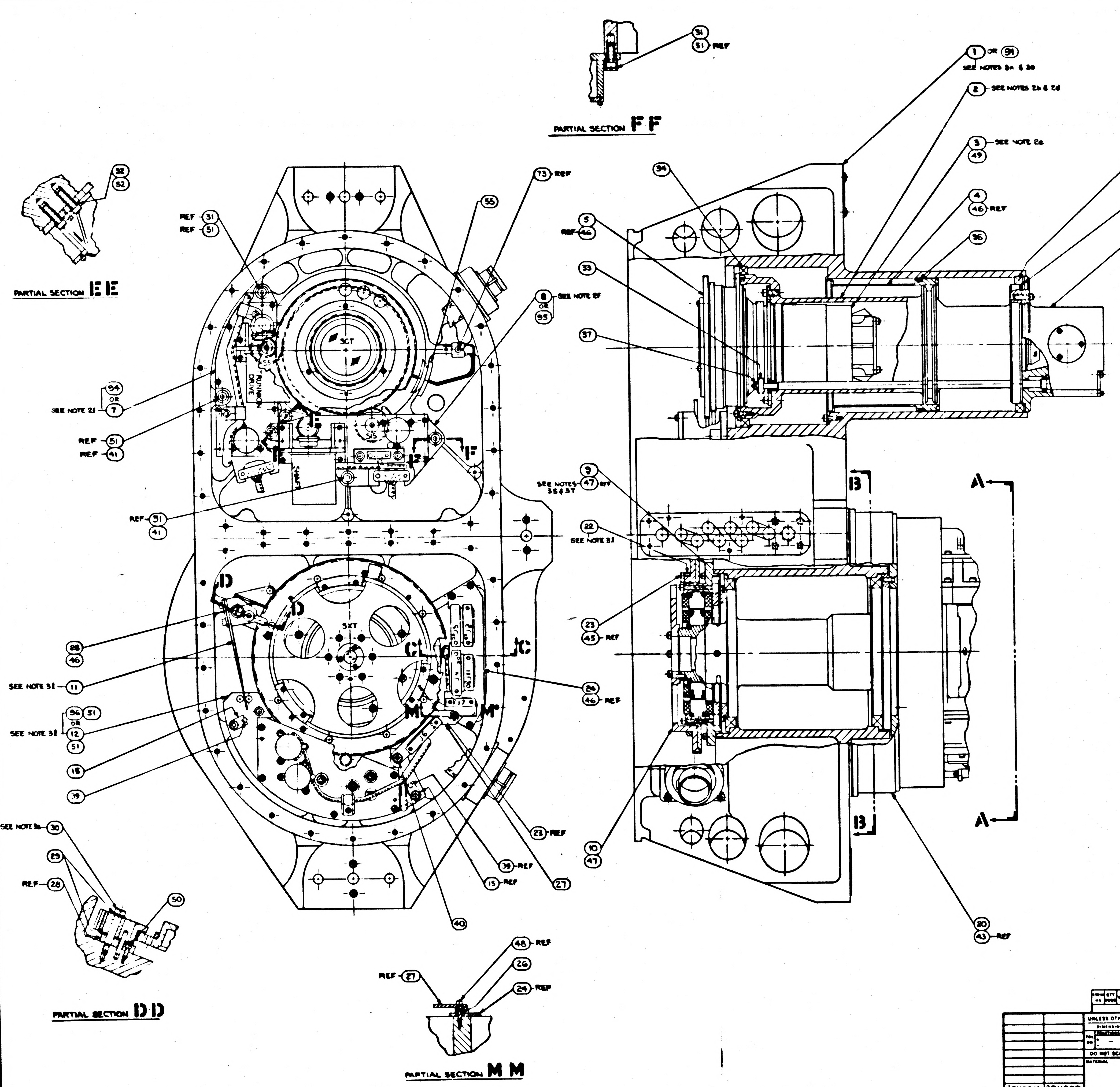
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9
8
7
6
5
4
3
2
1
PARTIAL SECTION FF
31
51 REF
PARTIAL SECTION EE
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52
REF 31
REF 51
55
73 REF
SXT
TRUNNION DRIVE
SHAFT
SIS
SEE NOTE 2f 94 OR 7
REF 51
REF 41
REF 51
41
8 SEE NOTE 2f OR 95
SEE NOTES 35 & 37
9
47 REF
22
SEE NOTE 31
D
C
M
F
88
46
SEE NOTE 31 11
SEE NOTE 31 96 OR 12 51 OR 51
15
39
84
46 REF
23 REF
39 REF
15 REF
27
40
SEE NOTE 3b 30
29
REF 28
50
PARTIAL SECTION DD
48 REF
26
REF 27
24 REF
PARTIAL SECTION MM
1 OR 91 SEE NOTES 3a & 30
2 SEE NOTES 2b & 2d
3 SEE NOTE 2e
49
4
46 REF
36
35
38 SEE NOTE 2a
6
48
34
5
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37
23
45 REF
10
47
20
43 REF
A
B

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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DO NOT SCALE THIS DRAWING
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CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL [illegible]
NASA APPROVAL
UNIT APPROVAL [illegible] 3 [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 6

L 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
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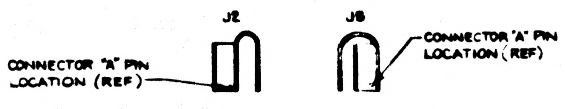
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CONNECTOR "A" PIN LOCATION (REF)

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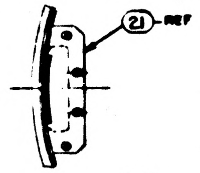

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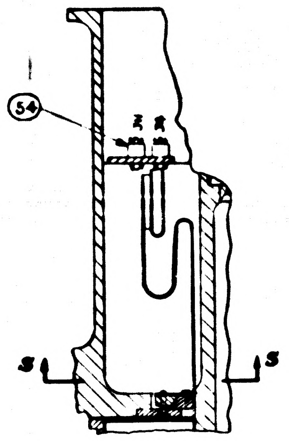

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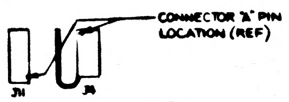
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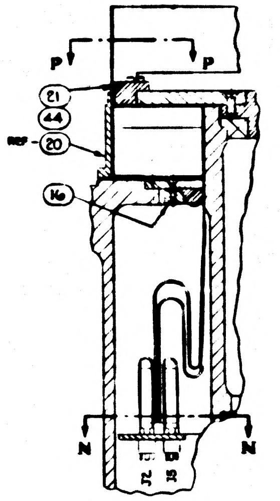
J9

PARTIAL SECTION S-S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J8

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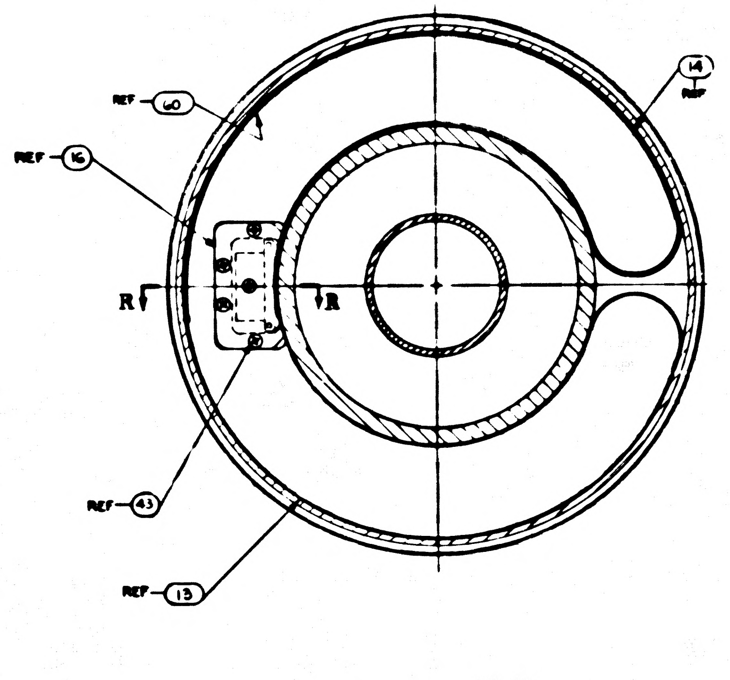
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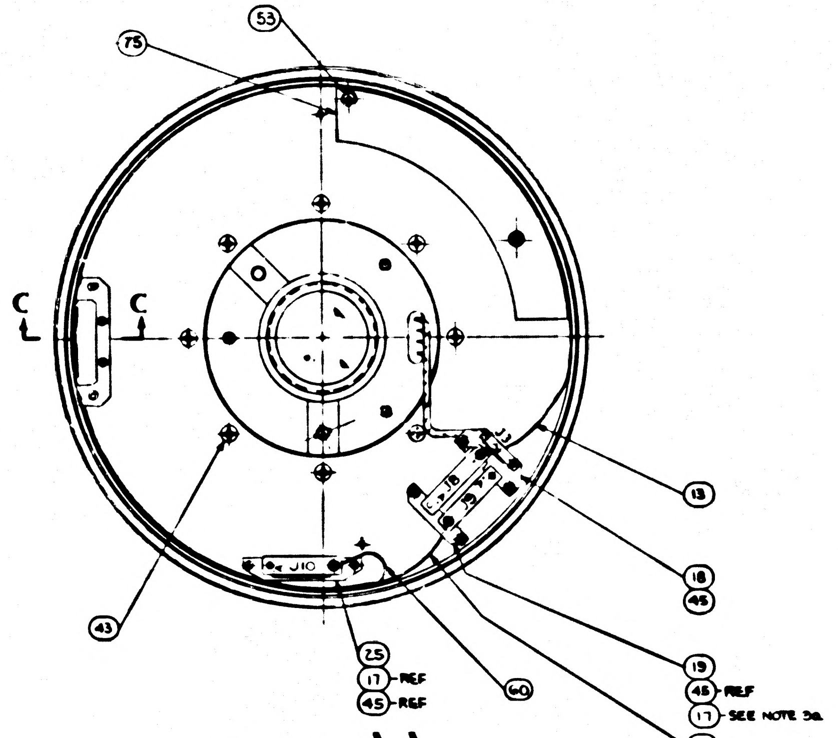
75
53
C
C
13
18
48
J10
43
25
17 -REF
45 -REF
60
19
46 -REF
17 -SEE NOTE 3a
14

PARTIAL VIEW A-A
(WITH SEXTANT INDEX HD ASSY REMOVED)

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
RIC PN 8538691810
DRAWN [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL [illegible]
NASA APPROVAL [illegible]
UNIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
SHEET 2 OF 6

L 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
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C		REVISED PER TDRR 30829	[illegible]	[illegible]
D		REVISED PER TDRR 31105	[illegible]	[illegible]
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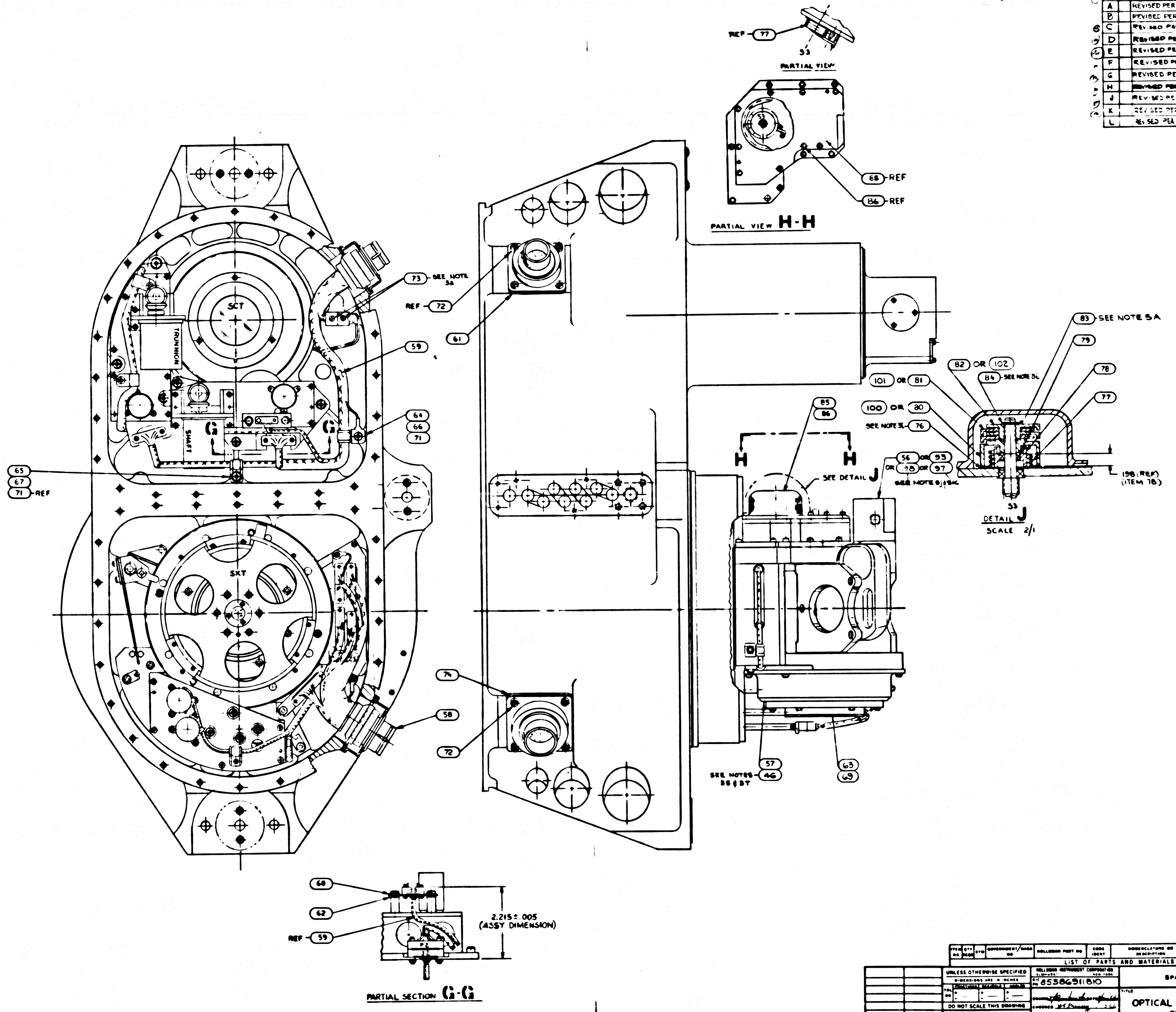
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PARTIAL VIEW
68 REF
86 REF
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73 SEE NOTE 3a
REF 72
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SCT
TRUNNION
SHAFT
59
G
G
64
66
71
65
67
71 REF
SXT
74
72
58
H
H
SEE DETAIL J
85
86
101 OR 81
100 OR 80
SEE NOTE 5L 76
82 OR 102
84 SEE NOTE 5L
83 SEE NOTE 5A
79
78
77
56 OR 93
OR 98 OR 97
SEE NOTE 5J&5K
.198 (REF)
(ITEM 78)
53
DETAIL J
SCALE 2/1
57
SEE NOTES 36 & 37 46
63
69
68
62
REF 59
2.215±.005
(ASSY DIMENSION)
P2
PARTIAL SECTION G-G

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	HOLLEMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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MATERIAL
CONTRACT

HOLLEMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
SIC PN 85386911810
CHECKED H.E. Barry
NASA APPROVAL A. C. WITTLER
UNIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 3 OF 6

2012736 L

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
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B		REVISED PER TDRR 29151		[illegible]
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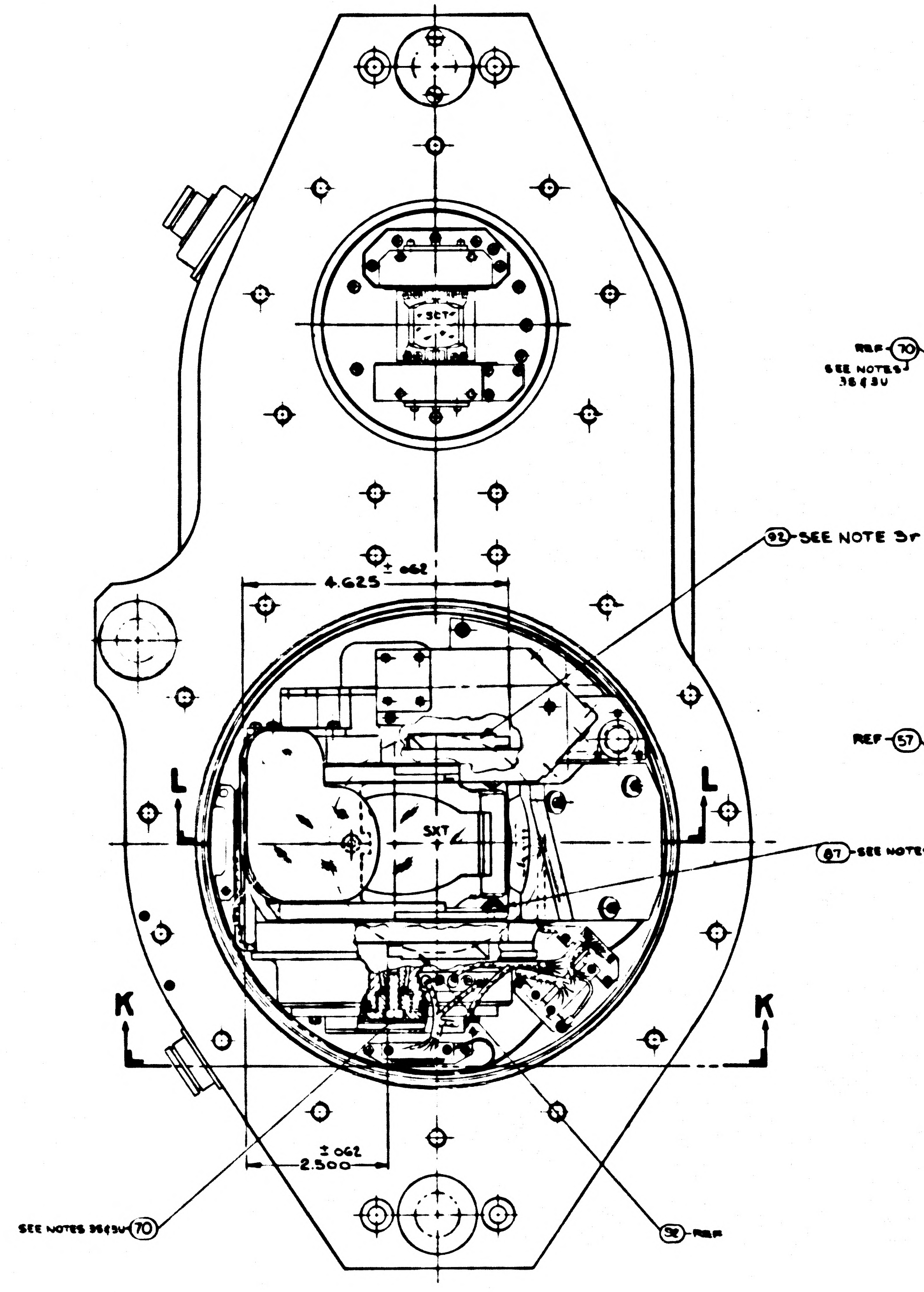
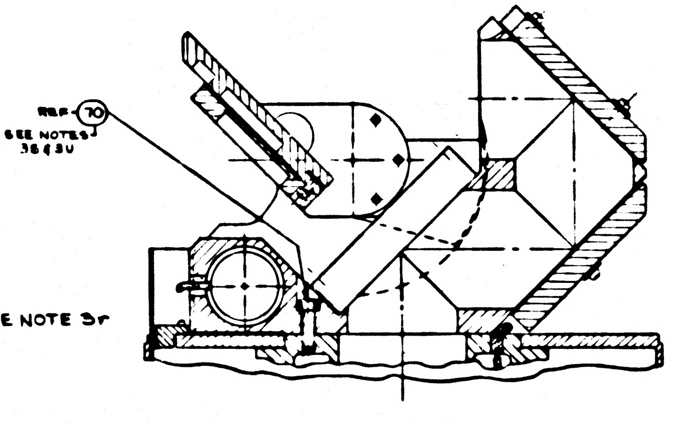
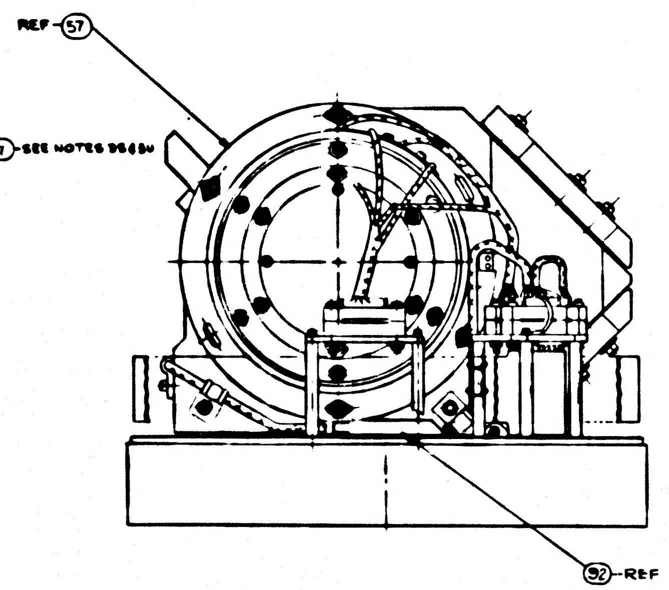




PARTIAL SECTION **L-L**



PARTIAL VIEW **K-K**

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
RIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL [illegible]
NASA APPROVAL
UNIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
SHEET 4 OF 6

2012736 L

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L		REVISED PER TDRR 34455	[illegible]	[illegible]

NOTES:

1. GENERAL REQUIREMENTS
   a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
   b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.

2. SCANNING TELESCOPE (SCT) REQUIREMENTS
   a. ITEM 30 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.
   b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 30 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.
   c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).
   d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011600, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF 19^{+2} IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.
   e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.
   f. ITEMS 7 OR 94 AND 8 OR 95 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2a AND 2b.
   g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 100°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.
   h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3b HAVE BEEN MET. BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS
   a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND 30 AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.
   b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).
   c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.
   d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.
   e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.
   f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.
   g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.
   h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.
   i. THE SXT TRUNNION LIMIT STOP ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS
   j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56 OR 93) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION
   k. THE SXT TRUNNION ANTI-BACKLASH SPRING (PART OF ITEM 97 AND 98) SHALL BE TURNED CLOCKWISE UNTIL SCRIBE MARK ON FACE OF COLLET IS AT 12 O'CLOCK $^{+30°}_{-0}$ AND CLAMPED WITH BASE IN AN UPRIGHT HORIZONTAL POSITION AND TRUNNION IS AT 90° SLOS POSITION.
   l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12 OR 96 AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 OR 96 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 OR 96 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS15795-802 WHICH ARE ITEMS 4 & 5 OF 2012887
   m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.
   n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.0 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE N PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.
   o. AFTER THE REQUIREMENTS OF NOTE 3n HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)
   p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206
   r. CEMENT WEDGES (ITEM 92) TO SXT HD ASSY (ITEMS 56 OR 93 OR 97) AND TO THE TELESCOPE TUBE ASSY OF THE SHAFT AXIS ASSY (ITEM 3 OF 2011889-ASSY) TO DIMENSIONS SHOWN ON SHEET 4 OF 6 USING EPOXY CEMENT PER ND1002004 TYPE VII.
   s. SOCKETS & HEADS OF ITEMS 70, 87, 46 & 47 ARE TO BE FORMED BY COLD HEADING, THREADS ARE TO BE FORMED BY THREAD ROLLING.
   t. TORQUE WRENCH READING FOR ITEM 47 PLUS (4) SCREWS (ITEM 46) USED TO SECURE ITEM 57 TO BE 10 IN. LBS. ±5%.
   u. TORQUE WRENCH READING FOR ITEMS 70 & 87 TO BE 40 IN. LBS. ±5%

4. PRIOR TO INSTALLATION AND SETTING OF STOPS, INDEX MIRROR SHALL BE CHECKED TO VERIFY FREE MOVEMENT THRU A MIN. ANGLE OF 50° (MECHANICAL) FROM 0° LOS MIRROR POSITION

5. LMT STOP SETTING FOR -051 CONFIGURATION
   A. SHIM BETWEEN SNAP RING AND OUTER DOG LIMIT STOP TO ACHIEVE .003-.008 ENDPLAY AS MEASURED BETWEEN SNAP RING AND OUTER DOG.

& TO THE TELESCOPE TUBE

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

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KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
EIC PN 85386911810
DRAWN
CHECKED
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APPROVAL
NASA APPROVAL A. C. METZGER
KIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 5 OF 6

2012736 L

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 291[illegible]		
C		REVISED PER TDRR 30829	[illegible]	
D		REVISED PER TDRR 31108	[illegible]	
E		REVISED PER TDRR 32892	[illegible]	
F		REVISED PER TDRR 33868	[illegible]	
G		REVISED PER TDRR 34019	[illegible]	
H		REVISED PER TDRR 34187	[illegible]	
J		REVISED PER TDRR 34381	[illegible]	
K		REVISED PER TDRR [illegible]		
—		REVISED PER TDRR [illegible]		

051	003	012	002	041	001	031	021	011	000	ITEM NO.		GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
3	0	0	0	0	0	0	0	0	0	101		2012801			DOG, LIMIT STOP			
1	0	0	0	0	0	0	0	0	0	100		202462			DOG, LIMIT STOP, INNER			
										99								
0	1	1	1	0	0	0	0	0	0	98		2012735-001			SXT INDEX HEAD ASSY			
1	0	0	0	1	0	0	0	0	0	97		2012735-021			SXT INDEX HEAD ASSY			
1	0	0	0	1	0	1	0	0	0	96		2011705-011			SHAFT DRIVE GEAR BOX SXT ASSY OF			
1	0	0	0	1	0	1	0	0	0	95		2011703-011			SHAFT DRIVE GEAR BOX, ASSY OF SCT			
1	0	0	0	1	0	1	0	0	0	94		2011702-011			TRUNNION DRIVE GEAR BOX SCT, ASSY OF			
0	0	0	0	0	0	1	0	0	0	93		2012735-011			SXT INDEX HEAD ASSY			
2	2	0	0	2	2	2	2	0	0	92		2012760			WEDGE, RIGHT TRIANGULAR			
1	1		0	1	0	1	1	1	0	91		2011889-031			OPTICAL UNIT SUB-ASSY STAGE I			
0	0	0	0	0	0	0	0	0	0	90		1012540-029			SCREW, HEX HD, SELF LOCKING			
0	0	0	0	0	0	0	0	0	0	89		MS15795-804			WASHER, FLAT			
0	0	0	0	0	0	0	0	0	0	88		MS15795-803			WASHER, FLAT			
2	2	2	2	2	2	2	2	2	2	87		NAS1351C3LL20	74455151044		SCREW CAP SOC HD, SELF LOCKING SEE NOTE 35			
9	9	9	9	9	9	9	9	9	9	86		1011625-20	74455151020		SCREW, CAP, SOC HD., SELF LOCKING			
	1	1	1	1	1	1	1	1	1	85		2011595	52386910220		COVER, GEARBOX			
		1	1	1	1	1	1		1	84		MS16624-1018			RING, RETAINING			
AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	83		2012351-1,2&3	793869[illegible]		WASHER, FLAT			
0	1			1	1	1	1		1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
0	3	3	3	3	3	3	3	3	3	81		2011579	57386910120		DOG, LIMIT STOP			
0	1	1	1	1		1	1	1	1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	1	1	1	1		1	1	1	1	79		1011608-5			BEARING, BALL, ANNULAR			
1	1		1	1		1		1	1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	1		1			1		1	1	77		2011577	56386910060		SPRING, TORSION			
1	1		1			1		1	1	76		2012350	25386910010		WASHER			
						1		1	1	75		2012723	52386911060		COUNTERWEIGHT			
						1			1	74	*	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	2	2	2	2	2	2	2	2	2	73		MS35249-11	74455187011		SCREW, MACHINE, FLAT COUNTERSUNK HD, SLOTTED			
8	8	8	8	8	8	8	8		8	72		1011625-39	74455151040		SCREW, CAP, SOC HEAD, SELF LOCKING			
2	2	2	2	2	2	2	2		2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC HEAD, SELF LOCKING			
2	2	2	2	2	2	2	2	2	2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC HEAD, SELF LOCKING SEE NOTE 35			
4	4	4	4	4	4	4	4	4	4	69		NAS1189C02T4L			SCREW, FLAT HD, SELF LOCKING			
2	2	2	2	2	2	2	2	2	2	68		MS16624-15	—		RING, RETAINING, EXTERNAL, BASIC			
			1	1	1	1	1	1	1	67		MS15795-305	—		WASHER, FLAT			
				1	1	1	1		1	66	*	1011918-2	—		WASHER, CABLE CLAMP			
			1	1		1	1		1	65	*	1000220-6 OR 5	—		CLAMP, CABLE			
		1		1		1	1		1	64	*	1000220-8 OR 6	—		CLAMP, CABLE			
			1		1	1			1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	62		2011885	45386910040		SHIM			
	1	1	1	1	1	1		1	1	61	*	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
	1		1	1	1	1	1	1	1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	1	1	1	1	1	1	1	1	1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	1	1	1	1	1	1	1	1	1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	1	1	1	1	1	1	1	1	1	57	*	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
0	0	0	0	0	1	0	1		1	56		2012735-000	85386911800		SXT INDEX HD ASSY			
	1	1	1	1	1	1	1	1	1	55		2012164	26386910060		GROMMET			
	1	1	1	1	1	1	1	1	1	54		2012740	48386910210		CONNECTOR ASSY, DUMMY			
2	2	2	2	2	2	2	2	2	2	53	*	1011625-30	74455151030		SCREW CAP SOC HD, SELF LOCKING			
2	2	2	2	2	2	2	2	2	2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC HD, SELF LOCKING			
7	7	7	7	7	7	7	7	7	7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC HD, SELF LOCKING			
1	1	1	1	1	1	1	1	1	1	50	*	1011625-28	74455151028		SCREW, CAP, SOC HD, SELF LOCKING			
4	4	4	4	4	4	4	4	4	4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC HD, SELF LOCKING			
8	8	8	8	8	8	8	8	8	8	48	NAS	1352C04LL8	74455157015					
14	14	14	14	14	14	14	14	14	14	47	NAS	1352C04LL6	74455157014		SEE NOTE 35			
14	14	14	14	14	14	14	14	14	14	46	NAS	1352C04LL4	74455157013		SEE NOTE 35			
12	12	12	12	12	12	12	12	12	12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC HD, SELF LOCKING			
4	4	4	4	4	4	4	4	4	4	44	*	1011625-11	74455151011		SCREW, CAP, SOC HD., SELF LOCKING			
12	12	12	12	12	12	12	12	12	12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING 100° FLAT HEAD			
										42								
2	2	2	2	2	2	2	2	2	2	41	AN	960-C8	74468051004		WASHER, FLAT REGULAR			
	1	1	1		1	1	1	1	1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC HD, SELF LOCKING			
2	2	2	2	2	2	2	2	2	2	39		2011684	48386910030		PIN, THREADED			
					1	1	1	1	1	38		2011877	45386910230		SPACER			
					1	1		1	1	37	*	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
		1			1	1		1	1	36		MS9021-154			PACKING, PREFORMED			
					1	1		1	1	35	*	1011606-1	30205772240		BEARING, BALL			
				1		1	1		1	34	*	1011606-2	30205772720		BEARING, BALL			
1	1			1		1	1	1	1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	2	2	2	2	2	2	2	2	2	32		2011562	57386910580		BUSHING, LOCATING			
2	2	2	2	2	2	2	2	2	2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1		1		1		1	1	1	1	30		2011344	45386910020		SCREW, SHOULDER			
2	2	2	2	2	2	2	2	2	2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	1	1	1	1	1	1	1	1	1	28		2011351	52986910560		BRACKET, MOUNTING, SPRING HOLDER			
1	1	1	1	1	1	1	1	1	1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	1	1	1	1	1	26		2012486	57986911240		SPACER, CONNECTOR MOUNTING PLATE			
1	1	1	1	1	1	1	1	1	1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1		1		1	1	1	1	1	1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	3	3	3	3	3	3	3	3	3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
					1	1	1	1	1	22		2011342	57386910570		RING, LIMIT STOP			
						1	1	1	1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
					1	1	1	1	1	20		2011616	57386910020		RING, MOUNTING, COVER			
					1	1	1	1	1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
					1	1	1	1	1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	6	6	6	6	6	6	6	6	6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
						1	1		1	16		2012748	85386911820		FLEXPRINT RETAINING ASSY			
2	2	2	2	2	2	2	2	2	2	15		2011686	56386910310		RETAINER, PIN			
		1	1		1	1	1	1	1	14	*	1012520-1	85386900910		FLEXPRINT & CONNECTOR ASSY OF (SXT)			
					1	1	1	1	1	13	*	1012519	85386900900		FLEXPRINT & CONNECTOR ASSY OF (SXT)			
0	1	1	1	0	1	0	1	1	1	12		2011705-000	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
	1	1	1		1	1	1	1	1	11		2011714	85386910460		LIMIT STOP ASSY			
	1	1	1		1	1		1	1	10		2012387	85386911110		GEAR & SPRING ASSY OF			
	1		1	1	1	1		1	1	9		2011906	85386910440		HOUSING, STATOR & LAMP ASSY OF			
0		1	1	0	1	0	1	1	1	8		2011703-000	85386910200		SHAFT DRIVE GEAR BOX, SCT, ASSY OF			
0	1	1	1	0	1	0	1	1	1	7		2011702-000	85386910630		TRUNNION DRIVE GEAR BOX, SCT ASSY OF			
	1	1	1	1	1	1	1	1	1	6		2011215-011	85386910580		TELESCOPE TRUNNION AXIS ASSY			
	1	1	1	1	1	1	1	1	1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
	1			1	1	1	1	1	1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
	1	1		1	1	1	1	1	1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
	1	1		1	1	1	1	1	1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
0	0	0	1	0	1	0	0	0	1	1		2011889-021	85386910680		OPTICAL UNIT SUBASSY - STAGE I			

QTY REQD — LIST OF PARTS AND MATERIALS

051	003	012	002	041	001	031	021	011	000	ITEM NO.	QTY REQD		GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
	0	0	0	0	0	0	0	0	0	102			2012802			DOG, LIMIT STOP, OUTER			

QTY REQD — LIST OF PARTS AND MATERIALS

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
DO NOT SCALE THIS DRAWING
MATERIAL

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL

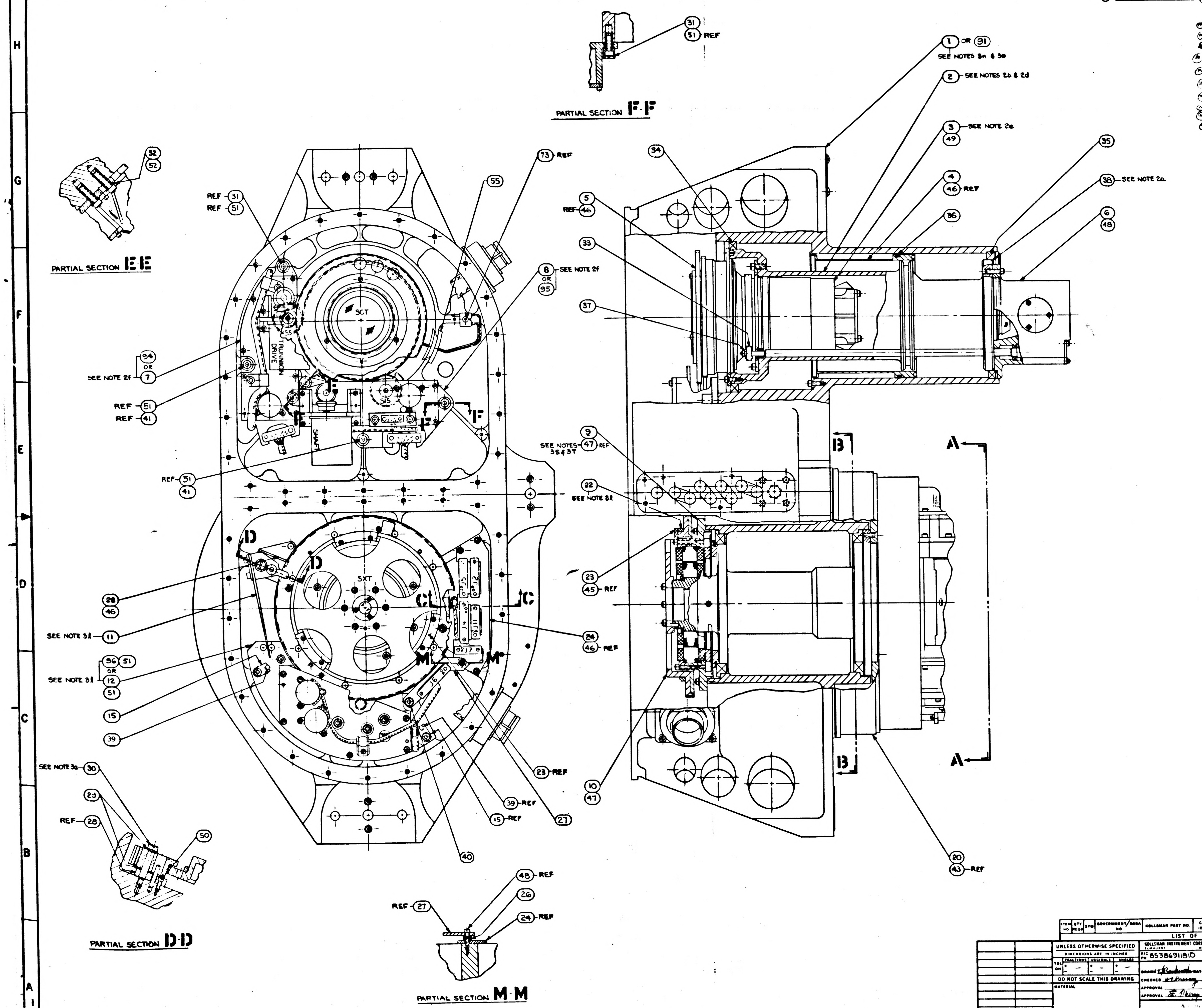
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
DWG NUMBER 2012736
SHEET 6 OF 6

N 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/14/66	wk
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-26-66	[illegible]
D		REVISED PER TDRR 31105	9-15-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	[illegible]
F		REVISED PER TDRR 33868	5/23/67	[illegible]
G		REVISED PER TDRR 34019	6/23/67	[illegible]
H		REVISED PER TDRR 34157	7/13/67	[illegible]
J		REVISED PER TDRR 3438	8-18-67	[illegible]
K		REVISED PER TDRR 34756	[illegible]	[illegible]
L		REVISED PER TDRR 36453	[illegible]	[illegible]
M		REVISED PER TDRR 36761	8/29/68	[illegible]
N		REVISED PER TDRR 36983	11-30-68	[illegible]



PARTIAL SECTION F-F
31
51 REF
PARTIAL SECTION E-E
32
52
1 OR 91 SEE NOTES 3n & 30
2 SEE NOTES 2b & 2d
3 SEE NOTE 2e
49
4
46 REF
5
REF 46
34
35
38 SEE NOTE 2a
6
48
36
33
37
73 REF
55
REF 31
REF 51
8 SEE NOTE 2f
OR
95
SCT
SS
TRUNNION DRIVE
SHAFT
SEE NOTE 2f 94 OR 7
REF 51
REF 41
REF 51
41
SEE NOTES 35 & 3T 9 47 REF
22 SEE NOTE 3l
23
45 REF
24
46 REF
SXT
D
C
M
28
46
SEE NOTE 3l 11
SEE NOTE 3l 96 51 OR 12 51
15
39
23 REF
39 REF
15 REF
27
40
10
47
20
43 REF
A
B
SEE NOTE 3a 30
29
REF 28
50
PARTIAL SECTION D-D
48 REF
26
24 REF
REF 27
PARTIAL SECTION M-M

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS + − DECIMALS + − ANGLES + −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE 1/[illegible]/66
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL [illegible] 1-15-66
NASA APPROVAL
MIT APPROVAL [illegible] 3 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

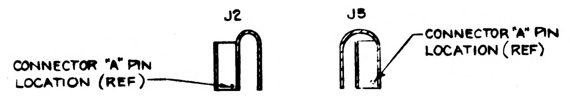
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230 | SIZE E | NASA NUMBER 2012736
SCALE 1/1 | WEIGHT CALC ACTUAL | SHEET 1 OF 6

2012736 11

N 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-25-66	[illegible]
D		REVISED PER TDRR 31105	9-15-66	[illegible]
E		REVISED PER TDRR 32892	1/27/67	[illegible]
F		REVISED PER TDRR 33802	5/25/67	[illegible]
G		REVISED PER TDRR 34019	[illegible]	[illegible]
H		REVISED PER TDRR 3437	[illegible]	[illegible]
J		REVISED PER TDRR 3438	[illegible]	[illegible]
K		REVISED PER TDRR 347	[illegible]	[illegible]
L		REVISED PER TDRR 36453	[illegible]	[illegible]
M		REVISED PER TDRR 36761	8/29/68	[illegible]
N		REVISED PER TDRR 36985	[illegible]	[illegible]


J2
J5
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

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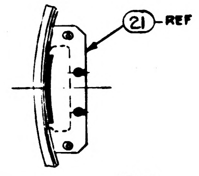
SCALE: NONE



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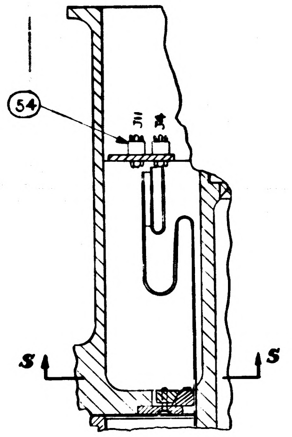

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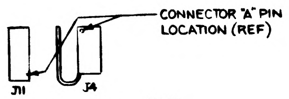
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J11
J4

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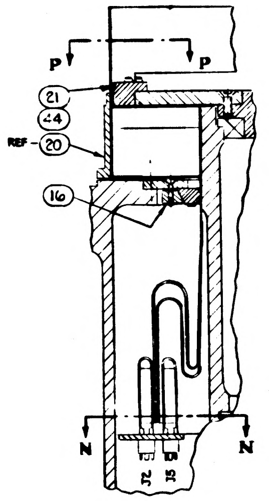
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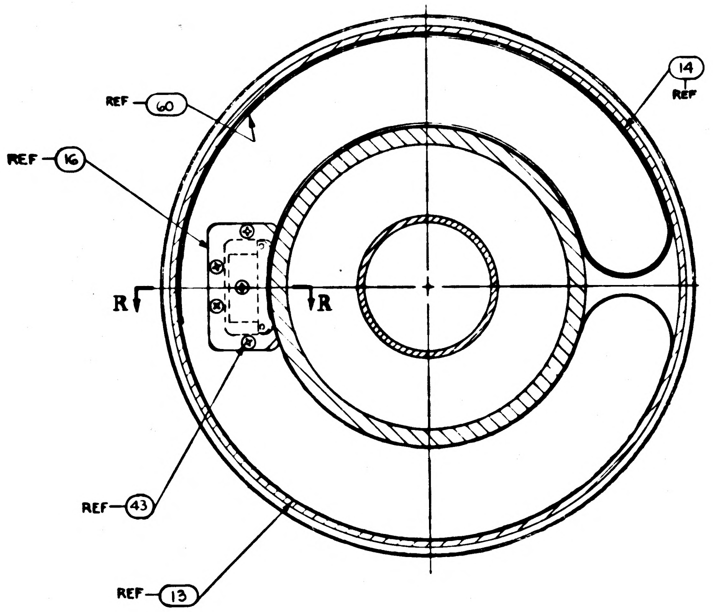
REF-20
16
N
N
J2
J5

PARTIAL SECTION **C-C**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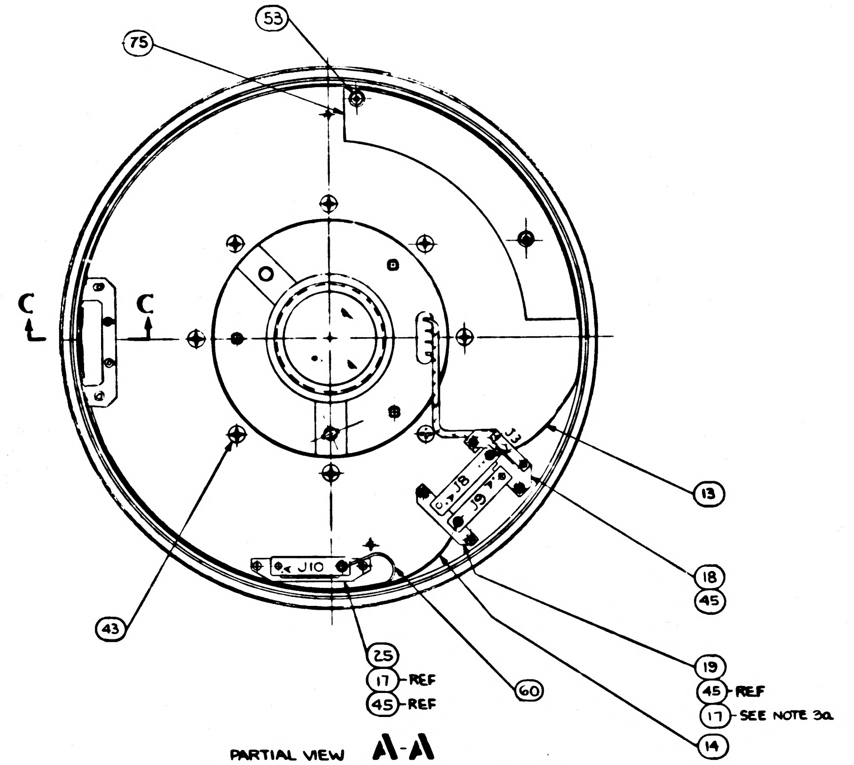

75
53
C
C
J10
J11
J18
J19
13
18
45
19
45 REF
17 SEE NOTE 3a
14
60
25
17 REF
45 REF
43

PARTIAL VIEW **A-A**
(WITH SEXTANT INDEX HD ASSY REMOVED)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE 3 Jan 66
CHECKED 1-13-66
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

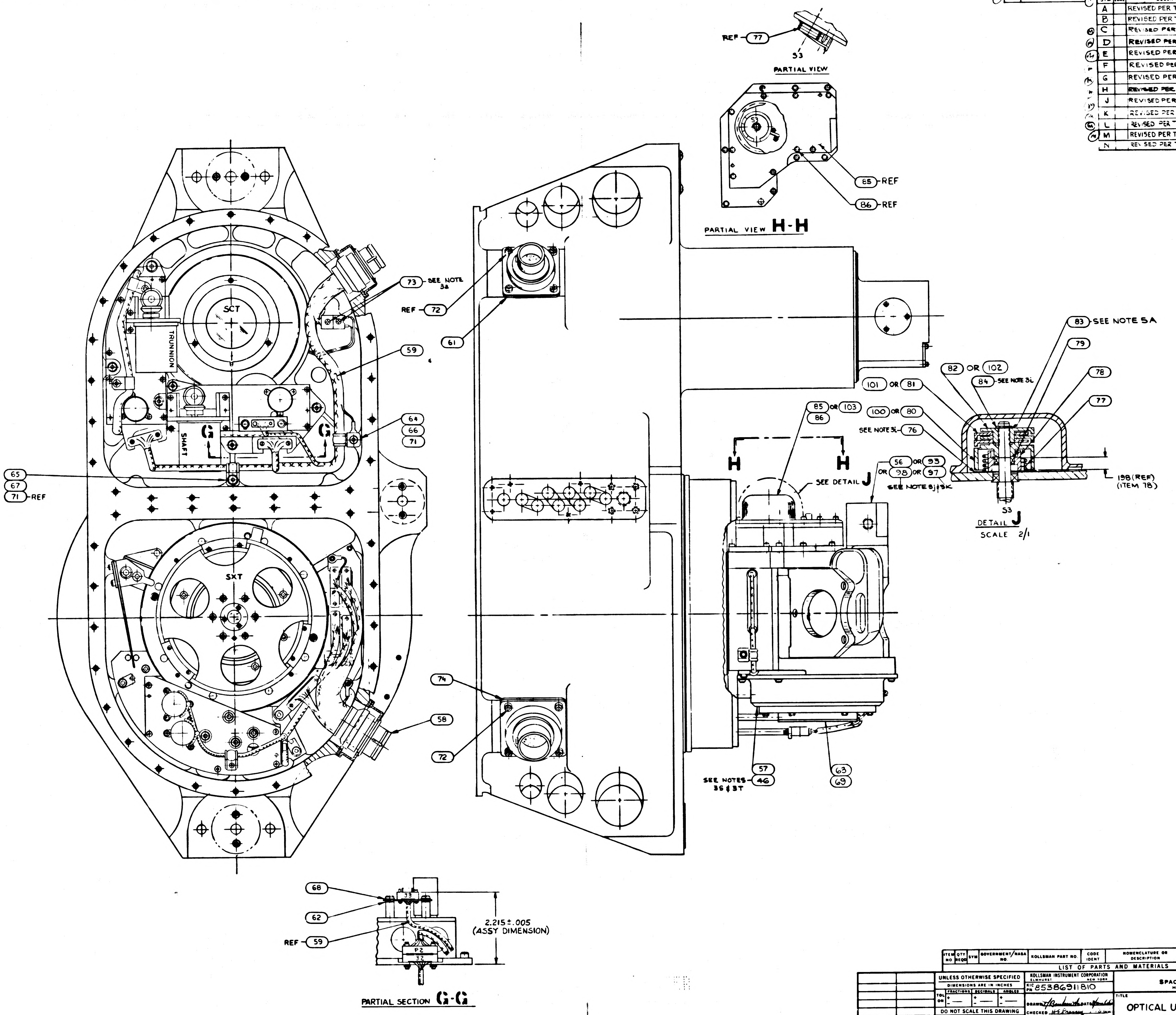
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 2 OF 6

2012736

N 2012736

SYM	ZONE	REVISIONS DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-25-66	[illegible]
D		REVISED PER TDRR 31105	9-5-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	[illegible]
F		REVISED PER TDRR 33868	5-25-67	[illegible]
G		REVISED PER TDRR 34019	23	[illegible]
H		REVISED PER TDRR 34137	7/	[illegible]
J		REVISED PER TDRR 34381	8-8-67	[illegible]
K		REVISED PER TDRR [illegible]	[illegible]	[illegible]
L		REVISED PER TDRR 36453	[illegible]	[illegible]
M		REVISED PER TDRR 36761	6/25/68	[illegible]
N		REVISED PER TDRR 36955	[illegible]	[illegible]


REF 77
53
PARTIAL VIEW
65 REF
86 REF
PARTIAL VIEW H-H
73 SEE NOTE 3Z
REF 72
61
59
SCT
TRUNNION
SHAFT
G
G
64
66
71
65
67
71 REF
SXT
74
72
58
83 SEE NOTE 5A
79
82 OR 102
84 SEE NOTE 3L
78
101 OR 81
100 OR 80
77
SEE NOTE 3L 76
85 OR 103
86
H
H
SEE DETAIL J
56 OR 93
OR 98 OR 97
SEE NOTE 3J & 3K
.198 (REF) (ITEM 78)
53
DETAIL J
SCALE 2/1
SEE NOTES 3S & 3T
57
46
63
69
68
62
REF 59
33
P2
32
2.215 ± .005 (ASSY DIMENSION)
PARTIAL SECTION G-G

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED H E Crossey
APPROVAL
APPROVAL E. Mary
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

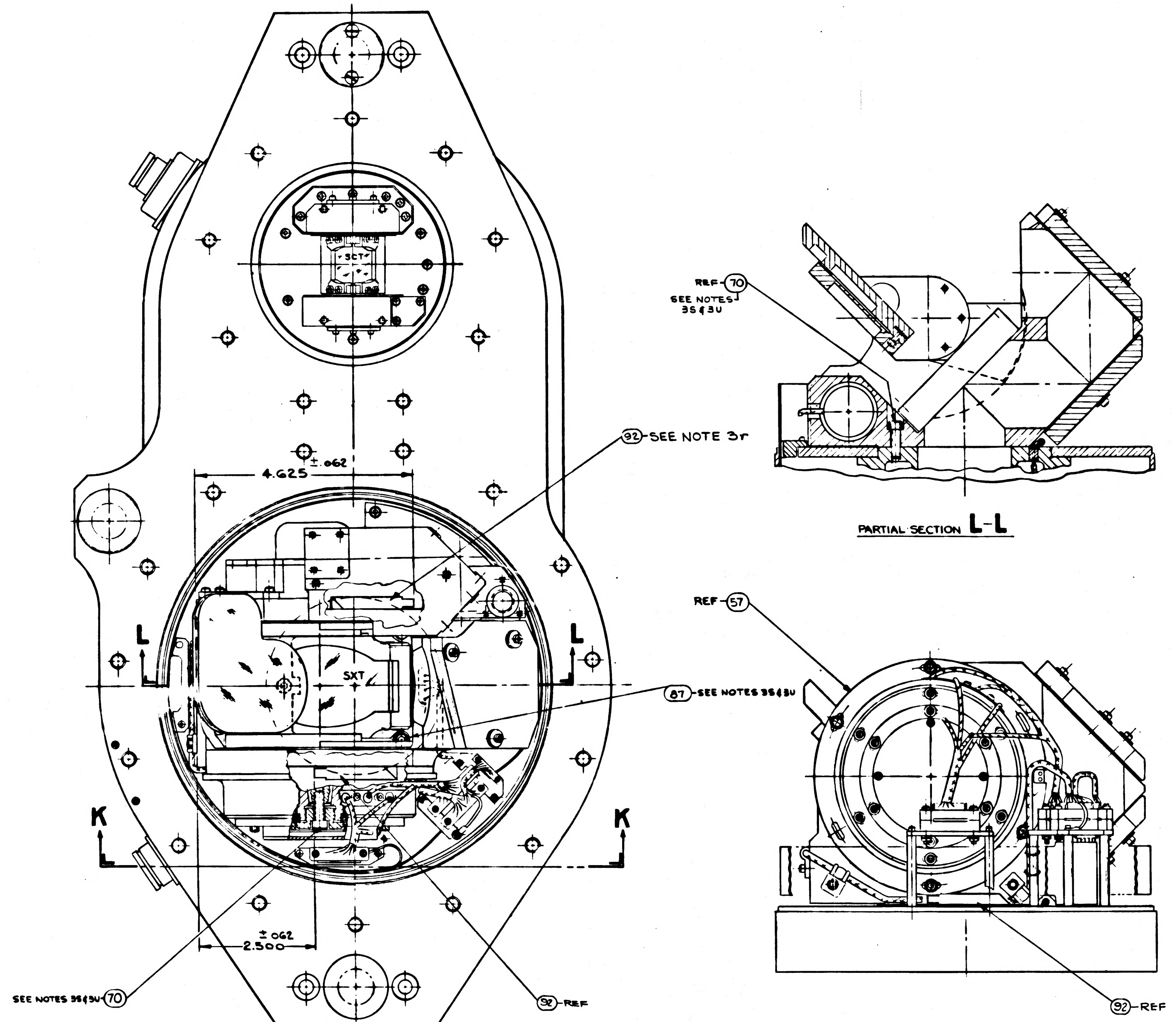
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 3 OF 6

2012736 N

N 2012736

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-25-66	[illegible]
D		REVISED PER TDRR 31105	9-5-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	[illegible]
F		REVISED PER TDRR 33868	5/25/67	MJF
G		REVISED PER TDRR 34019	6-23-67	MJF
H		REVISED PER TDRR 34157	7/3/67	MJF
J		REVISED PER TDRR 3438	8-8-67	MJF
K		REVISED PER TDRR 3475	[illegible]	[illegible]
L		REVISED PER TDRR 36453	[illegible]	[illegible]
M		REVISED PER TDRR 36761	8/29/68	[illegible]
N		REVISED PER TDRR 36985	[illegible]	[illegible]



PARTIAL SECTION **L-L**

PARTIAL VIEW **K-K**

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN Backrack DATE [illegible]
CHECKED H Etruney 1-13-66
APPROVAL
APPROVAL E [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 4 OF 6

2012736 N

N 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/14/66	
B		REVISED PER TDRR 29151	[illegible]	
C		REVISED PER TDRR 30829	8-23-66	
D		REVISED PER TDRR 31105	9-16-66	
E		REVISED PER TDRR 32832	1/27/67	
F		REVISED PER TDRR 33868	5/29/67	MJF
G		REVISED PER TDRR 34019	6-23-67	MJF
H		REVISED PER TDRR 34137	7-5-67	MJF
J		REVISED PER TDRR 3438	8-8-67	MJF
K		REVISED PER TDRR 34756	9-29-67	MJF
L		REVISED PER TDRR 36433	[illegible]	
M		REVISED PER TDRR 36761	8/29/68	
N		REVISED PER TDRR 36983	[illegible]	

NOTES:

1. GENERAL REQUIREMENTS
   - a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
   - b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.
2. SCANNING TELESCOPE (SCT) REQUIREMENTS
   - a. ITEM 30 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.
   - b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.
   - c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).
   - d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF $13^{\pm 2}$ IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.
   - e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.
   - f. ITEMS 7 OR 94 AND 8 OR 95 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.
   - g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.
   - h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3o HAVE BEEN MET; BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.
3. SEXTANT (SXT) REQUIREMENTS
   - a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND 30 AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.
   - b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).
   - c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.
   - d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.
   - e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.
   - f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.
   - g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.
   - h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.
   - i. THE SXT TRUNNION LIMIT STOP, ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS
   - j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56 OR 93) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION
   - k. THE SXT TRUNNION ANTI-BACKLASH SPRING (PART OF ITEM 97 AND 98) SHALL BE TURNED CLOCKWISE UNTIL SCRIBE MARK ON FACE OF COLLET IS AT 12 O'CLOCK $^{+30°}_{-0°}$ AND CLAMPED WITH BASE IN AN UPRIGHT HORIZONTAL POSITION AND TRUNNION IS AT 90° SLOS POSITION.
   - l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12 OR 96 AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 OR 96 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 OR 96 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387
   - m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.
   - n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.8 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE H PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.
   - o. AFTER THE REQUIREMENTS OF NOTE 3n HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)
   - p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206
   - r. CEMENT WEDGES (ITEM 92) TO SXT HD ASSY (ITEMS 56 OR 93 OR 97) AND TO THE TELESCOPE TUBE ASSY OF THE SHAFT AXIS ASSY (ITEM 3 OF 2011889-ASSY) TO DIMENSIONS SHOWN ON SHEET 4 OF 6 USING EPOXY CEMENT PER ND1002004 TYPE VII.
   - s. SOCKETS & HEADS OF ITEMS 70, 87, 46 & 47 ARE TO BE FORMED BY COLD HEADING, THREADS ARE TO BE FORMED BY THREAD ROLLING.
   - t. TORQUE WRENCH READING FOR ITEM 47 PLUS (4) SCREWS (ITEM 46) USED TO SECURE ITEM 57 TO BE 10 IN. LBS. ±5%.
   - u. TORQUE WRENCH READING FOR ITEMS 70 & 87 TO BE 40 IN. LBS. ±5%
4. PRIOR TO INSTALLATION AND SETTING OF STOPS, INDEX MIRROR SHALL BE CHECKED TO VERIFY FREE MOVEMENT THRU A MIN. ANGLE OF 50° (MECHANICAL) FROM 0° LOS MIRROR POSITION
5. LIMIT STOP SETTING FOR -051 CONFIGURATION
   - A. SHIM BETWEEN SNAP RING AND OUTER DOG LIMIT STOP TO ACHIEVE .005-.008 ENDPLAY AS MEASURED BETWEEN SNAP RING AND OUTER DOG.

& TO THE TELESCOPE TUBE

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± – ; DECIMALS ± – ; ANGLES ± –
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 35386911810
DRAWN V. Bankowski DATE 3/66
CHECKED 1966
APPROVAL
APPROVAL E. Thorup
NASA APPROVAL C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 5 OF 6

N | 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	
B		REVISED PER TDRR 29151	[illegible]	
C		REVISED PER TDRR 30829	8-25-[illegible]	
D		REVISED PER TDRR 31105	9/18/66	
E		REVISED PER TDRR 32832	1/27/67	
F		REVISED PER TDRR 33868	5-25-67	
G		REVISED PER TDRR 34019	6/23/67	
H		REVISED PER TDRR 34137	7/13/67	
J		REVISED PER TDRR 34381	8-18-67	
K		REVISED PER TDRR 347[illegible]	9-29-67	
L		REVISED PER TDRR 36453	[illegible]	
M		REVISED PER TDRR 36761	8/29/68	
N		REVISED PER TDRR 35983	[illegible]	

LIST OF PARTS AND MATERIALS

051	009	012	002	041	001	031	021	011	000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
3	0	0	0	0	3	0	0	0	0	101		2012801			DOG, LIMIT STOP			
1	0	0	0	0	1	0	0	0	0	100		2021462			DOG, LIMIT STOP, INNER			
										99								
0	1	1	1	0	0	0	0	0	0	98		2012735-001			SXT INDEX HEAD ASSY			
1	0	0	0	1	0	0	0	0	0	97		2012735-021			SXT INDEX HEAD ASSY			
1	0	0	0	1	0	1	0	0	0	96		2011705-011			SHAFT DRIVE GEAR BOX SXT ASSY OF			
1	0	0	0	1	0	1	0	0	0	95		2011703-011			SHAFT DRIVE GEAR BOX, ASSY OF SCT			
1	0	0	0	1	0	1	0	0	0	94		2011702-011			TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
0	0	0	0	0	0	1	0	0	0	93		2012735-011			SXT INDEX HEAD ASSY			
2	2	0	0	2	2	2	2	0	0	92		2012760			WEDGE, RIGHT TRIANGULAR			
1	1	1	0	1	0	1	1	1	0	91		2011889-031			OPTICAL UNIT SUB-ASSY STAGE I			
0	0	0	0	0	0	0	0	0	0	90		1012540-029			SCREW, HEX HD, SELF LOCKING			
0	0	0	0	0	0	0	0	0	0	89		MS15795-804			WASHER, FLAT			
0	0	0	0	0	0	0	0	0	0	88		MS15795-803			WASHER, FLAT			
2	2	2	2	2	2	2	2	2	2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC.HD, SELF LOCKING SEE NOTE 35			
9	9	9	9	9	9	9	9	9	9	86		1011625-20	74455151020		SCREW, CAP, SOC HD., SELF LOCKING			
0	1	1	1	1	0	1	1	1	1	85		2011595	52386910220		COVER, GEARBOX			
	1	1	1	1	1	1	1	1	1	84		MS16624-1016			RING, RETAINING			
AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	83		2012351-1,2&3	7938691 [illegible]		WASHER, FLAT			
0	1	1		1	0	1	1	1	1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
0	3	3	3	3	0	3	3	3	3	81		2011579	57386910120		DOG, LIMIT STOP			
0	1	1		1	0	1	1	1	1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
	1		1	1	1	1	1	1	1	79		1011608-5			BEARING, BALL, ANNULAR			
	1			1	1	1	1	1	1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
				1	1	1	1	1	1	77		2011577	56386910060		SPRING, TORSION			
				1	1	1	1	1	1	76		2012350	25386910010		WASHER			
				1	1	1	1	1	1	75		2012723	52386911060		COUNTERWEIGHT			
			1	1	1	1	1	1	1	74	*	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	2	2	2	2	2	2	2	2	2	73		MS35249-11	74455187011		SCREW, MACHINE, FLAT COUNTERSUNK HD, SLOTTED			
8	8	8	8	8	8	8	8		8	72		1011625-39	74455151040		SCREW, CAP, SOC.HEAD, SELF LOCKING			
2	2	2	2	2	2	2	2		2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC.HEAD, SELF LOCKING			
2	2	2	2	2	2	2	2	2	2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC.HEAD, SELF LOCKING SEE NOTE 35			
4	4	4	4	4	4	4	4	4	4	69		NAS1189C02T4L			SCREW, FLAT HD., SELF LOCKING			
2	2	2	2	2	2	2	2		2	68		MS16624-15	—•—		RING, RETAINING, EXTERNAL, BASIC			
1	1	1	1	1	1	1	1	1	1	67		MS15795-305	—•—		WASHER, FLAT			
1	1	1	1	1	1	1	1		1	66	*	1011918-2	—•—		WASHER, CABLE CLAMP			
1	1	1	1	1	1	1	1		1	65	*	1000220-6 OR 5	—•—		CLAMP, CABLE			
1	1	1	1	1	1	1	1		1	64	*	1000220-8 OR 6	—•—		CLAMP, CABLE			
1	1	1	1	1	1	1	1	1	1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	62		2011885	45386910040		SHIM			
1	1	1	1	1	1	1	1	1	1	61	*	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
1	1	1	1	1	1	1	1	1	1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	1	1	1	1	1	1	1	1	1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	1	1	1	1	1	1	1	1	1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	1	1	1	1	1	1	1	1	1	57	*	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
0	0	0	0	0	1	0	1		1	56		2012735-000	85386911800		SXT INDEX HD ASSY			
1	1	1	1	1	1	1	1	1	1	55		2012164	26386910060		GROMMET			
1	1	1	1	1	1	1	1	1	1	54		2012740	48386910210		CONNECTOR ASSY, DUMMY			
2	2	2	2	2	2	2	2	2	2	53	*	1011625-30	74455151030		SCREW, CAP, SOC HD, SELF LOCKING			
2	2	2	2	2	2	2	2	2	2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC.HD., SELF LOCKING			
7	7	7	7	7	7	7	7	7	7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC.HD., SELF LOCKING			
1	1	1	1	1	1	1	1	1	1	50	*	1011625-28	74455151028		SCREW, CAP, SOC HD., SELF LOCKING			
4	4	4	4	4	4	4	4	4	4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC.HD., SELF LOCKING			
8	8	8	8	8	8	8	8	8	8	48	NAS	1352C04LL8	74455157015		↑ ↑			
14	14	14	14	14	14	14	14	14	14	47	NAS	1352C04LL6	74455157014		SEE NOTE 35			
14	14	14	14	14	14	14	14	14	14	46	NAS	1352C04LL4	74455157013		↓ ↓ SEE NOTE 35			
12	12	12	12	12	12	12	12	12	12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC HD, SELF LOCKING			
4	4	4	4	4	4	4	4	4	4	44	*	1011625-11	74455151011		SCREW, CAP, SOC.HD., SELF LOCKING			
12	12	12	12	12	12	12	12	12	12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING 100° FLAT HEAD			
										42								
2	2	2	2	2	2	2	2	2	2	41	AN	960-C8	74468051004		WASHER, FLAT, REGULAR			
1	1	1	1	1	1	1	1	1	1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC.HD, SELF LOCKING			
2	2	2	2	2	2	2	2	2	2	39		2011684	48386910030		PIN, THREADED			
1	1	1	1	1	1	1	1	1	1	38		2011877	45386910250		SPACER			
1	1	1	1	1	1	1	1	1	1	37	*	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1	1	1	1	1	1	1	1	1	1	36		MS9021-154			PACKING, PREFORMED			
1	1	1	1	1	1	1	1	1	1	35	*	1011606-1	30205772240		BEARING, BALL			
1	1	1	1	1	1	1	1	1	1	34	*	1011606-2	30205772720		BEARING, BALL			
1	1	1	1	1	1	1	1	1	1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	2	2	2	2	2	2	2	2	2	32		2011562	57386910580		BUSHING, LOCATING			
2	2	2	2	2	2	2	2	2	2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	1	1	1	1	1	1	1	1	1	30		2011344	45386910020		SCREW, SHOULDER			
2	2	2	2	2	2	2	2	2	2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	1	1	1	1	1	1	1	1	1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	1	1	1	1	1	1	1	1	1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	1	1	1	1	1	26		2012486	57386911240		SPACER, CONNECTOR, MOUNTING PLATE			
1	1	1	1	1	1	1	1	1	1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	1	1	1	1	1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	3	3	3	3	3	3	3	3	3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
1	1	1	1	1	1	1	1	1	1	22		2011342	57386910570		RING, LIMIT STOP			
1	1	1	1	1	1	1	1	1	1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
	1	1	1	1	1	1	1	1	1	20		2011616	57386910020		RING, MOUNTING, COVER			
1	1	1	1	1	1	1	1	1	1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	1	1	1	1	1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	6	6	6	6	6	6	6	6	6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
	1	1	1	1	1	1	1	1	1	16		2012743	85386911820		FLEXPRINT RETAINING ASSY			
2	2	2	2	2	2	2	2	2	2	15		2011686	56386910310		RETAINER, PIN			
1	1	1	1	1	1	1	1	1	1	14	*	1012520-1	85386900910		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	1	1	1	1	1	1	1	1	1	13	*	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
0	1	1	1	0	1	0	1	1	1	12		2011705-000	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
1	1	1	1	1	1	1	1	1	1	11		2011714	85386910460		LIMIT STOP ASSY			
1	1	1	1	1	1	1	1	1	1	10		2012387	85386911110		GEAR & SPRING, ASSY OF			
1	1	1	1	1	1	1	1	1	1	9		2011906	85386910440		HOUSING, STATOR & LAMP, ASSY OF			
0	1	1	1	0	1	0	1	1	1	8		2011703-000	85386910200		SHAFT DRIVE, GEAR BOX, SCT, ASSY OF			
0	1	1	1	0	1	0	1	1	1	7		2011702-000	85386910630		TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
	1	1	1	1	1	1	1	1	1	6		2011215-011	85386910380		TELESCOPE TRUNNION AXIS ASSY			
1	1	1	1	1	1	1	1	1	1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	1	1	1	1	1	1	1	1	1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	1	1	1	1	1	1	1	1	1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	1	1	1	1	1	1	1	1	1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
0	0	0	1	0	1	0	0	0	1	1		2011889-021	85386910680		OPTICAL UNIT SUBASSY - STAGE I			

QTY REQD — LIST OF PARTS AND MATERIALS

051	009	012	002	041	001	031	021	011	000	ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
										142									
										141									
										140									
										139									
										138									
										137									
										136									
										135									
										134									
										133									
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										131									
										130									
										129									
										128									
										127									
										126									
										125									
										124									
										123									
										122									
										121									
										120									
										119									
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										117									
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										115									
										114									
										113									
										112									
										111									
										110									
										109									
										108									
										107									
										106									
										105									
										104									
1	0	0	0	0	1	0	0	0	0	103			2021468-011			COVER, GEARBOX			
	0	0	0	0	1	0	0	0	0	102			2012802			DOG, LIMIT STOP, OUTER			

MASTER

*PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG. BEFORE ORDERING

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE 3/[illegible]/66
CHECKED [illegible] 3-66
APPROVAL
APPROVAL [illegible]
NASA APPROVAL A. C. [illegible]
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

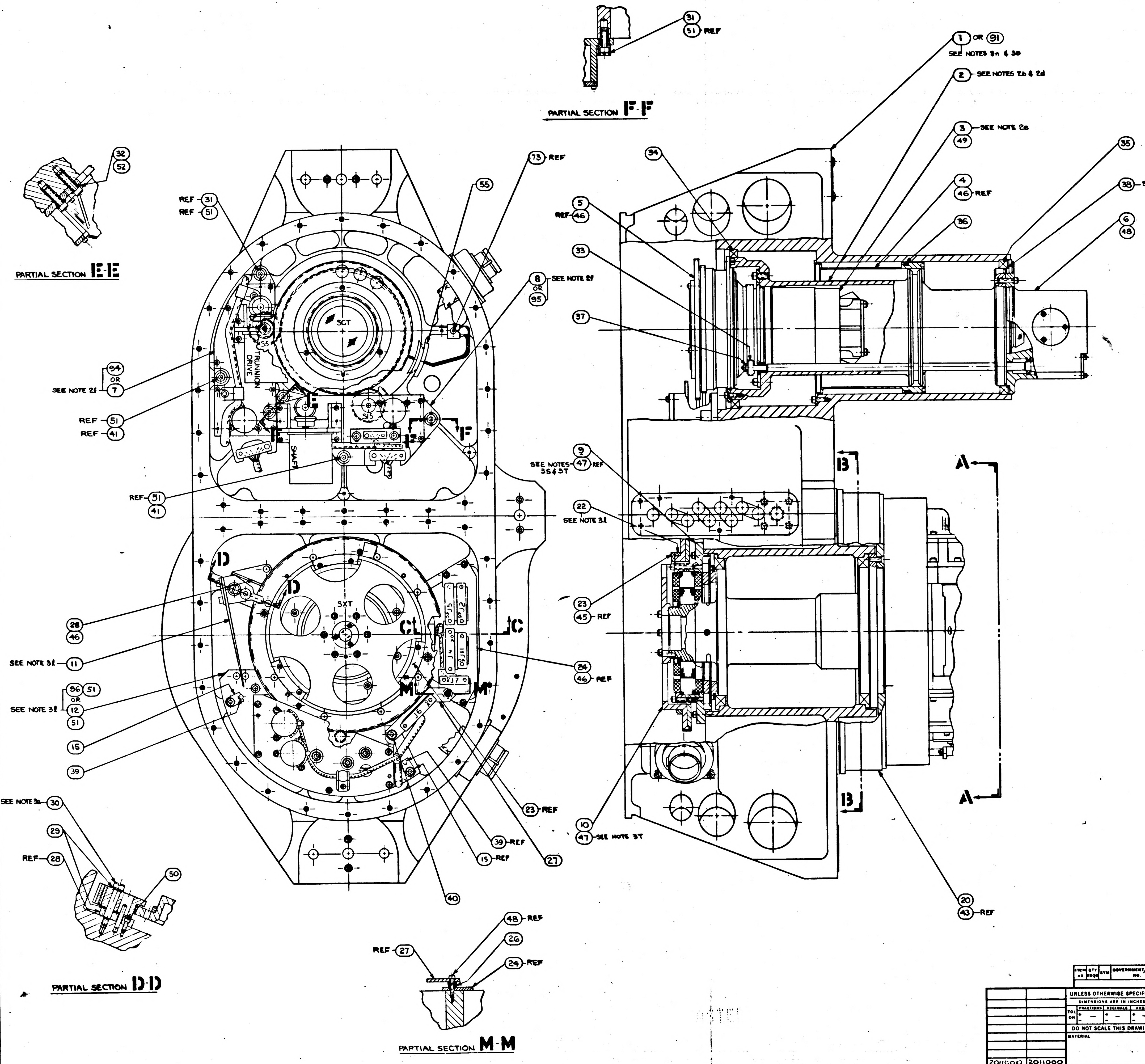
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE
WEIGHT CALC ACTUAL
SHEET 6 OF 6

2012736

2012736 P

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS TDRR 25767				
A		REVISED PER TDRR 27677	4/14/66	WIC
B		REVISED PER TDRR 29151	6-1-66	[illegible]
C		REVISED PER TDRR 30829	8-26-66	[illegible]
D		REVISED PER TDRR 31108	9-15-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	[illegible]
F		REVISED PER TDRR 33868	5/25/67	[illegible]
G		REVISED PER TDRR 34019	6/23/67	[illegible]
H		REVISED PER TDRR 34137	7/13/67	[illegible]
J		REVISED PER TDRR 34381	8-18-67	[illegible]
K		REVISED PER TDRR 34756	9-29-67	MF
L		REVISED PER TDRR 36453	6-25-68	[illegible]
M		REVISED PER TDRR 36761	8/29/68	[illegible]
N		REVISED PER TDRR 38[illegible]	11-[illegible]-68	[illegible]
P		REVISED PER TDRR 38087	4-14-70	[illegible]



PARTIAL SECTION F-F
31
51 REF
32
52
PARTIAL SECTION E-E
REF 31
REF 51
73 REF
55
SGT
TRUNNION DRIVE
SHAFT
SIS
E
F
8 SEE NOTE 2f
OR
95
SEE NOTE 2f 94 OR 7
REF 51
REF 41
REF 51
41
1 OR 91 SEE NOTES 3n & 3o
2 SEE NOTES 2b & 2d
3 SEE NOTE 2e
49
4
46 REF
34
5
REF 46
36
35
38 SEE NOTE 2a
6
48
33
37
9
SEE NOTES 35 & 37 47 REF
22 SEE NOTE 3l
B
A
D
SXT
C
M
28
46
SEE NOTE 3l 11
SEE NOTE 3l 96 51 OR 12 51
15
39
23
45 REF
24
46 REF
SEE NOTE 3a 30
29
REF 28
50
PARTIAL SECTION D-D
23 REF
39 REF
15 REF
27
40
10
47 SEE NOTE 37
20
43 REF
REF 27
48 REF
26
24 REF
PARTIAL SECTION M-M

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]-66
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL [illegible] 1-18-66
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 3 [illegible] 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

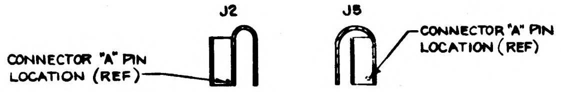
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 6

2012736 P

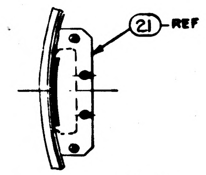
2012736 P

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/14/66	[illegible]
B		REVISED PER TDRR 29151	6-[illegible]-66	[illegible]
C		REVISED PER TDRR 30829	8-25-66	[illegible]
D		REVISED PER TDRR 31105	9-15-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	[illegible]
F		REVISED PER TDRR 33868	5/25/67	MJF
G		REVISED PER TDRR 34019	6-23-67	MJF
H		REVISED PER TDRR 34187	7/13/67	MJF
J		REVISED PER TDRR 3438	8-9-67	MJF
K		REVISED PER TDRR 34756	9-29-67	MJF
L		REVISED PER TDRR 36453	6-25-68	[illegible]
M		REVISED PER TDRR 36761	8/29/68	[illegible] 9/26/68
N		REVISED PER TDRR 36983	[illegible]-30-68	[illegible] 12/12/68
P		REVISED PER TDRR 38087	4-14-70	[illegible] 4-14-70

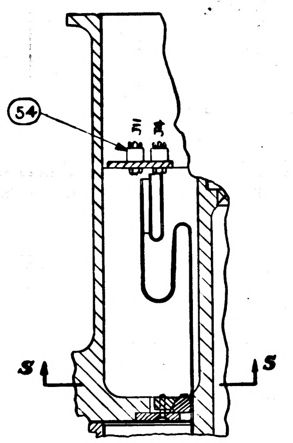
REVISIONS TDRR 25767


J2
J5
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

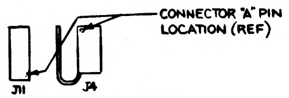
PARTIAL SECTION N-N
SCALE: NONE



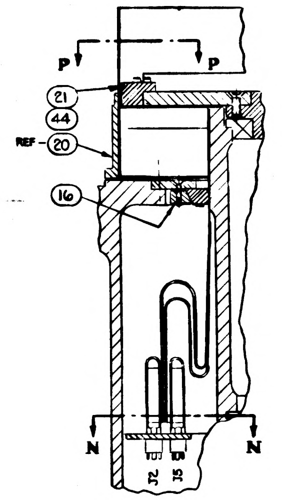
PARTIAL SECTION P-P



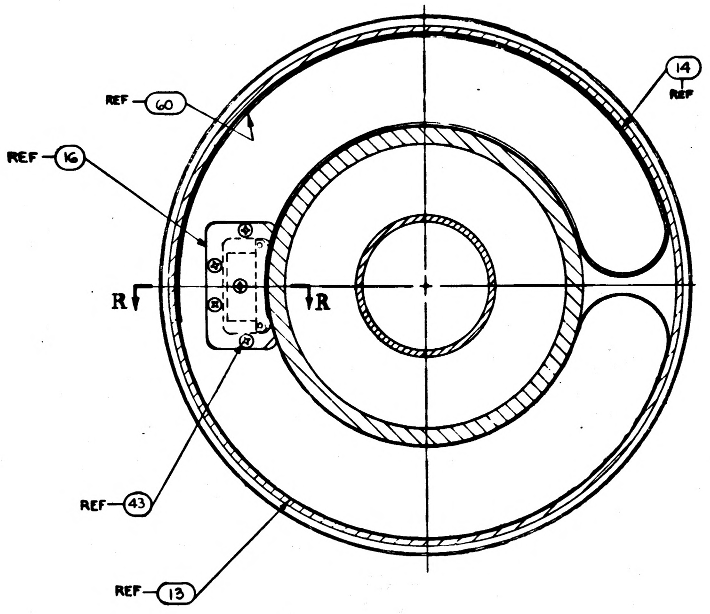
PARTIAL SECTION R-R


CONNECTOR "A" PIN LOCATION (REF)
J11
J4

PARTIAL SECTION S-S


P
P
21
44
REF - 20
16
N
N
J2
J5

PARTIAL SECTION C-C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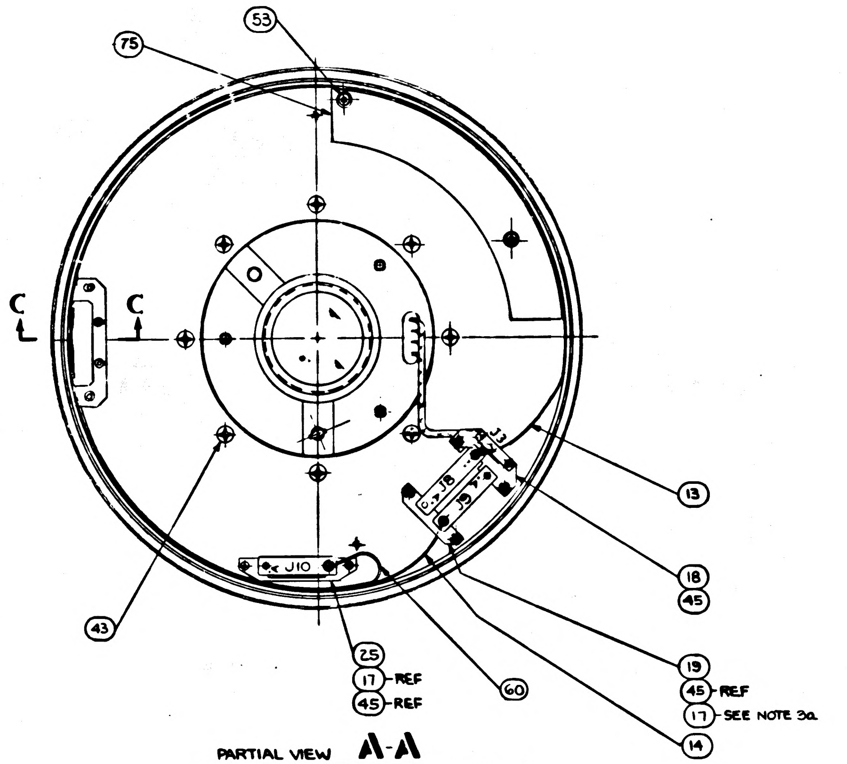
14 REF
REF - 16
R
R
REF - 43
REF - 13

PARTIAL SECTION B-B


75
53
C
C
J3
J8
J9
J10
13
18
45
43
25
17 - REF
45 - REF
60
19
45 - REF
17 - SEE NOTE 3a
14

PARTIAL VIEW A-A
(WITH SEXTANT INDEX HD ASSY REMOVED)

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± —	± —

DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL E [illegible] 1/13/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

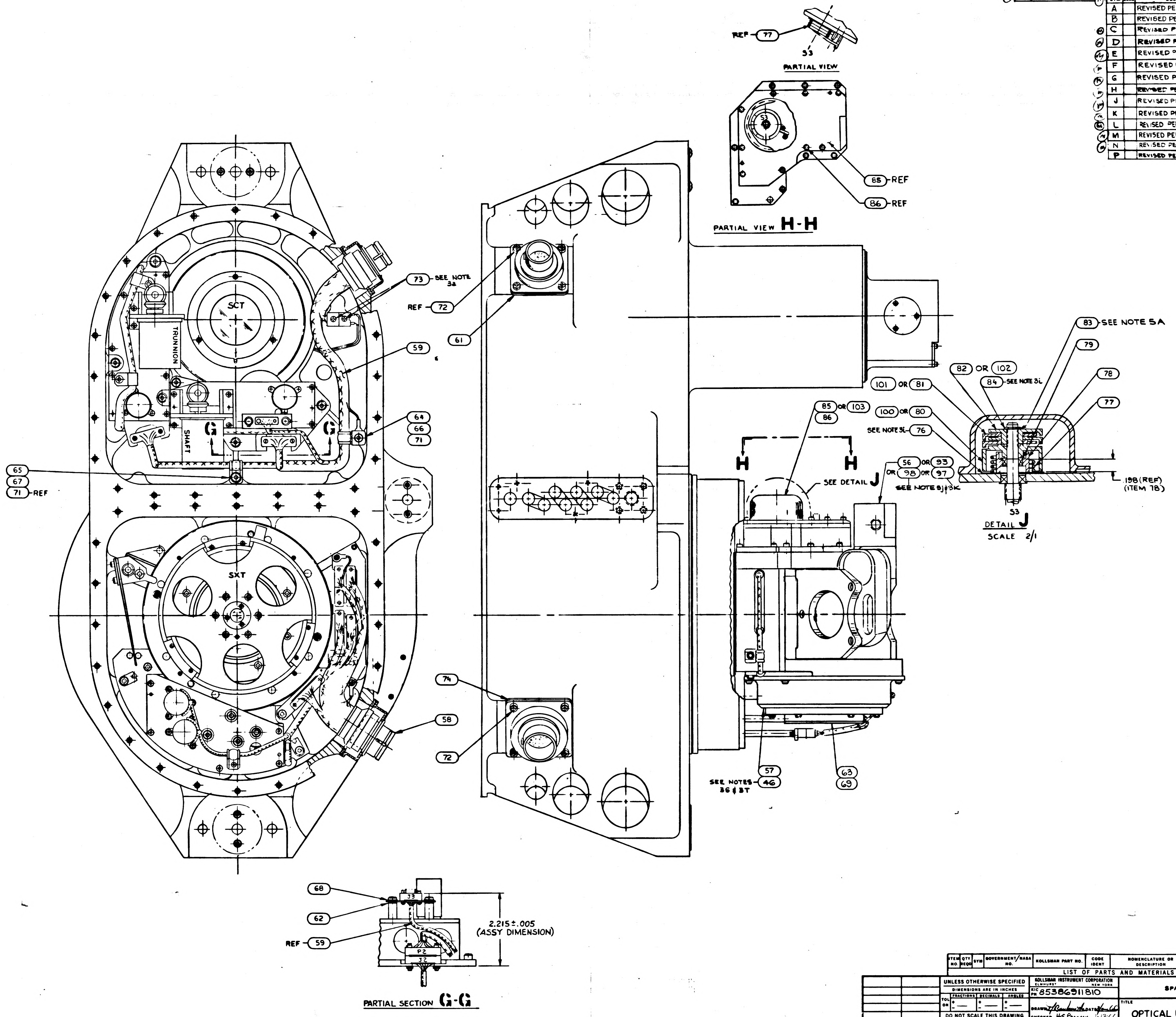
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 2 OF 6

2012736 P

2012736 P

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-25-66	[illegible]
D		REVISED PER TDRR 31105	9-15-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	[illegible]
F		REVISED PER TDRR 33868	5/[illegible]/67	[illegible]
G		REVISED PER TDRR 34019	6/23/67	[illegible]
H		REVISED PER TDRR 34[illegible]	[illegible]	[illegible]
J		REVISED PER TDRR 3438[illegible]	8-8-67	[illegible]
K		REVISED PER TDRR 34[illegible]56	9-24-67	[illegible]
L		REVISED PER TDRR 36453	6/25/68	[illegible]
M		REVISED PER TDRR 36761	8/29/68	[illegible]
N		REVISED PER TDRR 36983	[illegible]	[illegible]
P		REVISED PER TDRR 38087	4-14-70	[illegible]



REF 77
S3
PARTIAL VIEW
65 REF
86 REF
PARTIAL VIEW H-H
73 SEE NOTE 3a
REF 72
61
59
SCT
TRUNNION
SHAFT
G
G
64
66
71
65
67
71 REF
SXT
74
72
58
83 SEE NOTE 5A
79
82 OR 102
84 SEE NOTE 3i
101 OR 81
78
77
85 OR 103
86
100 OR 80
SEE NOTE 3i 76
H
H
SEE DETAIL J
56 OR 93
OR 98 OR 97
SEE NOTES 3j & 3K
.198 (REF) (ITEM 78)
S3
DETAIL J
SCALE 2/1
57
46
SEE NOTES 36 & 3T
63
69
68
62
REF 59
S3
P2
S2
2.215±.005 (ASSY DIMENSION)
PARTIAL SECTION G-G

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED H E Pressey 1-13-66
APPROVAL
APPROVAL [illegible] 1/1/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 3 OF 6

2012736 P

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-25-66	[illegible]
D		REVISED PER TDRR 3405	9-15-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	[illegible]
F		REVISED PER TDRR 33868	5/[illegible]/67	MJF
G		REVISED PER TDRR 34019	6/23/67	MJF
H		REVISED PER TDRR 34137	7/3/67	MJF
J		REVISED PER TDRR 34381	8-8-67	MJF
K		REVISED PER TDRR 3[illegible]	[illegible]	MJF
L		REVISED PER TDRR 36653	[illegible]	[illegible]
M		REVISED PER TDRR 36761	8/29/68	[illegible]
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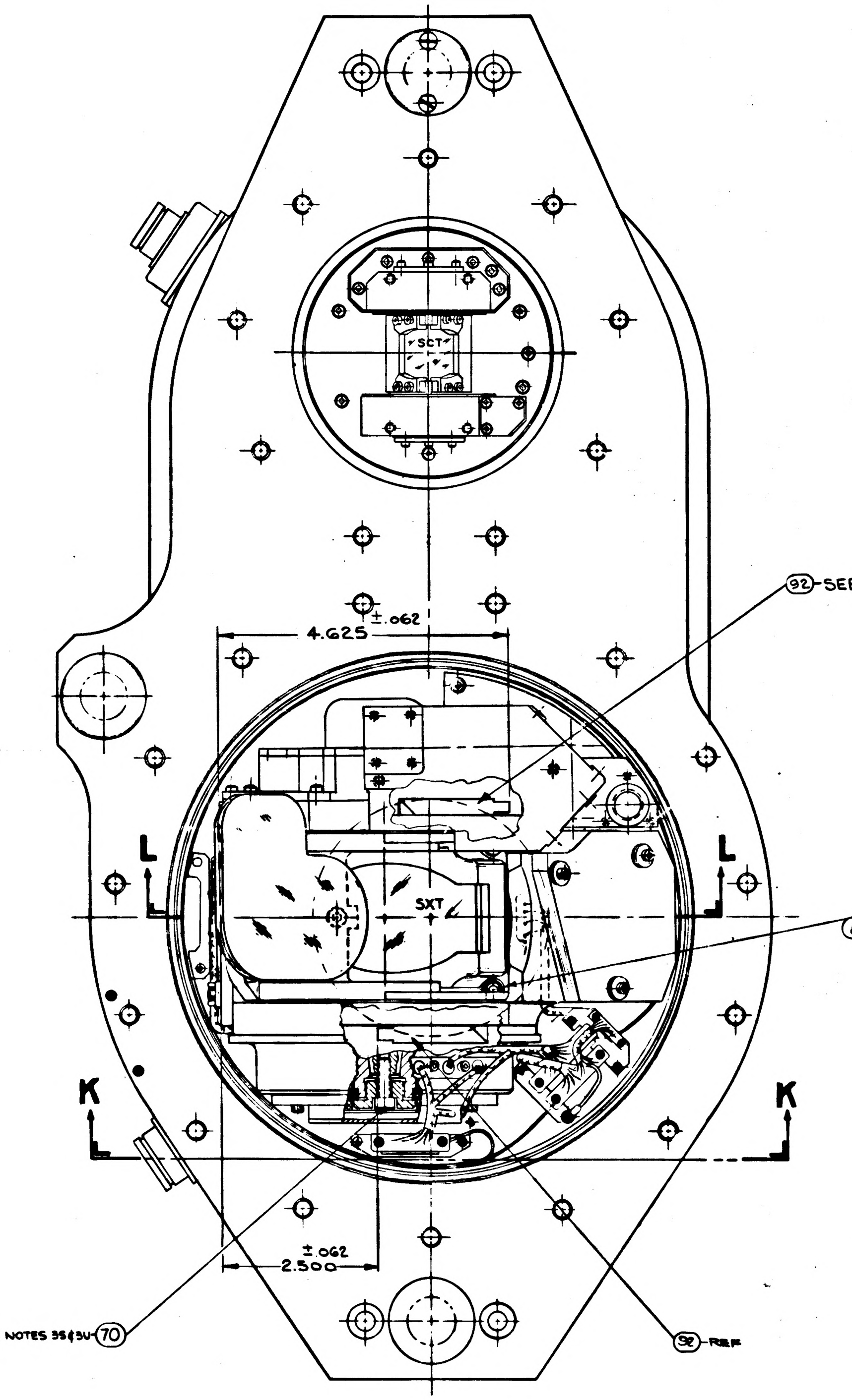
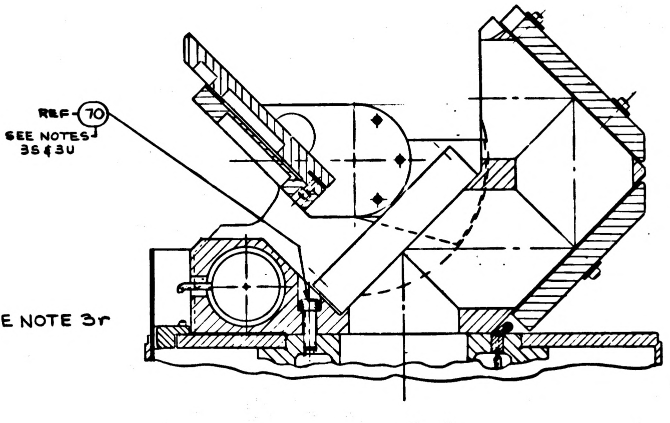
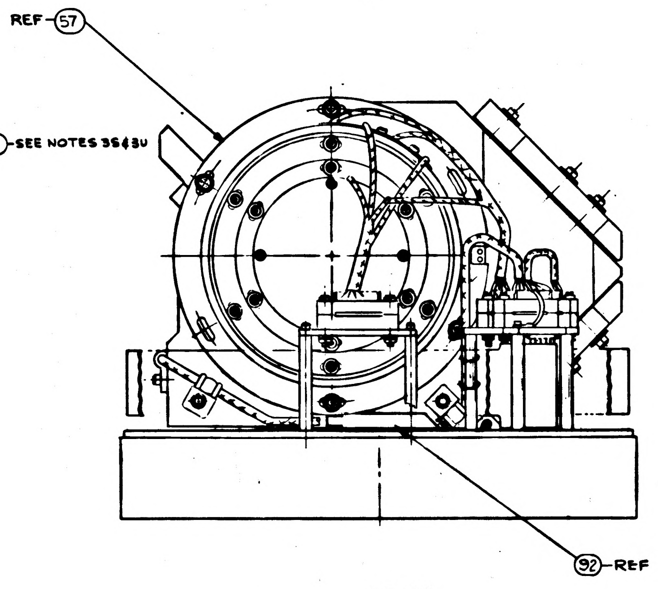




PARTIAL SECTION **L-L**



PARTIAL VIEW **K-K**

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 8538691181O
DRAWN Bachurak DATE 1-66
CHECKED H.E.Preney 1-13-66
APPROVAL
APPROVAL E. Olney 1/18/66
NASA APPROVAL
MIT APPROVAL 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 4 OF 6

2012736 P

2012736 | P

NOTES:

1. GENERAL REQUIREMENTS

a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.

2. SCANNING TELESCOPE (SCT) REQUIREMENTS

a. ITEM 30 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.

b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.

c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).

d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF $13^{\pm 2}$ IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.

e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.

f. ITEMS 7 OR 94 AND 8 OR 95 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.

g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.

h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3o HAVE BEEN MET; BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS

a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND 30 AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.

b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).

c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.

d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.

e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.

f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.

g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.

h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.

i. THE SXT TRUNNION LIMIT STOP, ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS.

j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56 OR 93) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION

k. THE SXT TRUNNION ANTI-BACKLASH SPRING (PART OF ITEM 97 AND 98) SHALL BE TURNED CLOCKWISE UNTIL SCRIBE MARK ON FACE OF COLLET IS AT 12 O'CLOCK $^{+30°}_{-0}$ AND CLAMPED WITH BASE IN AN UPRIGHT HORIZONTAL POSITION AND TRUNNION IS AT 90° SLOS POSITION.

l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12 OR 96 AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 OR 96 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 OR 96 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10.' REMOVE NAS 1352C02-4 & MS 15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387

m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.

n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.8 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE H PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.

o. AFTER THE REQUIREMENTS OF NOTE 3m HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)

p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206

r. CEMENT WEDGES (ITEM 92) TO SXT HD ASSY (ITEMS 56 OR 93 OR 97) AND TO THE TELESCOPE TUBE ASSY OF THE SHAFT AXIS ASSY (ITEM 3 OF 2011889-ASSY) TO DIMENSIONS SHOWN ON SHEET 4 OF 6 USING EPOXY CEMENT PER ND1002004 TYPE VII.

s. SOCKETS & HEADS OF ITEMS 70, 87, 46 & 47 ARE TO BE FORMED BY COLD HEADING, THREADS ARE TO BE FORMED BY THREAD ROLLING.

T. TORQUE WRENCH READING FOR ITEM 47 PLUS (4) SCREWS (ITEM 46) USED TO SECURE ITEM 57 TO BE 10 IN. LBS. ±5%.

U. TORQUE WRENCH READING FOR ITEMS 70 & 87 TO BE 40 IN. LBS. ±5%

4. PRIOR TO INSTALLATION AND SETTING OF STOPS, INDEX MIRROR SHALL BE CHECKED TO VERIFY FREE MOVEMENT THRU A MIN. ANGLE OF 50° (MECHANICAL) FROM 0° LOS MIRROR POSITION

5. LIMIT STOP SETTING FOR -051 CONFIGURATION

A. SHIM BETWEEN SNAP RING AND OUTER DOG LIMIT STOP TO ACHIEVE .005-.008 ENDPLAY AS MEASURED BETWEEN SNAP RING AND OUTER DOG.

& TO THE TELESCOPE TUBE

MASTER

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 27677	4/14/66	wk
B		REVISED PER TDRR 29151	6-1-66	[illegible]
C		REVISED PER TDRR 30829	8-23-66	[illegible]
D		REVISED PER TDRR 31105	9-15-66	[illegible]
E		REVISED PER TDRR 32832	1/27/67	
F		REVISED PER TDRR 33868	5/29/67	[illegible]
G		REVISED PER TDRR 34019	6/23/67	[illegible]
H		REVISED PER TDRR 34137	7/12/67	MAF
J		REVISED PER TDRR 34381	8-8-67	MAF
K		REVISED PER TDRR [illegible]	[illegible]	[illegible]
L		REVISED PER TDRR 36453	6/25/68	[illegible] 7/1/68
M		REVISED PER TDRR 36761	8/29/68	[illegible] 9/20/68
N		REVISED PER TDRR 36983	11-30-68	[illegible] 12-2-68
P		REVISED PER TDRR 38087	4-14-70	[illegible] 4-16-70

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS + — − ; DECIMALS + — − ; ANGLES + — −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE 3 Jan 66
CHECKED H.E. Prussy 1-13-66
APPROVAL
APPROVAL E. Thorup 1/18/66
NASA APPROVAL A. C. [illegible]
MIT APPROVAL [illegible] 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 5 OF 6

2012736 P

P 2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS TDRR [illegible]				
A		REVISED PER TDRR 27677	[illegible]	[illegible]
B		REVISED PER TDRR 29151	6/[illegible]	[illegible]
C		REVISED PER TDRR 30829	8-25-66	JWB
D		REVISED PER TDRR 31105	9/16/66	JWB
E		REVISED PER TDRR 32832	1/27/67	JWB
F		REVISED PER TDRR 33868	5/25/67	MJS
G		REVISED PER TDRR 34019	6/23/67	MJS
H		REVISED PER TDRR 34187	7/19/67	MJS
J		REVISED PER TDRR 34381	8-8-67	MJS
K		REVISED PER TDRR 34756	9-29-67	MJF
L		REVISED PER TDRR 36453	[illegible]-25-68	[illegible]
M		REVISED PER TDRR 36761	8/29/68	[illegible]
N		REVISED PER TDRR 36983	[illegible]-30-68	[illegible]
P		REVISED PER TDRR 38087	4-14-70	MB

001

051	003	012	002	041	001	031	021	011	000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
3	0	0	0	0	3	0	0	0	0	101		2012801			DOG, LIMIT STOP			
1	0	0	0	0	1	0	0	0	0	100		2021462			DOG, LIMIT STOP, INNER			
										99								
0	1	1	1	0	0	0	0	0	0	98		2012735-001			SXT INDEX HEAD ASSY			
1	0	0	0	1	0	0	0	0	0	97		2012735-021			SXT INDEX HEAD ASSY			
1	0	0	0	1	0	1	0	0	0	96		2011705-011			SHAFT DRIVE GEAR BOX SXT ASSY OF			
1	0	0	0	1	0	1	0	0	0	95		2011703-011			SHAFT DRIVE GEAR BOX, ASSY OF SCT			
1	0	0	0	1	0	1	0	0	0	94		2011702-011			TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
0	0	0	0	0	0	1	0	0	0	93		2012735-011			SXT INDEX HEAD ASSY			
2	2	0	0	2	2	2	2	0	0	92		2012760			WEDGE, RIGHT TRIANGULAR			
1	1	1	0	1	0	1	1	1	0	91		2011889-031			OPTICAL UNIT SUB-ASSY STAGE I			
0	0	0	0	0	0	0	0	0	0	90		1012540-029			SCREW, HEX HD, SELF LOCKING			
0	0	0	0	0	0	0	0	0	0	89		MS15795-804			WASHER, FLAT			
0	0	0	0	0	0	0	0	0	0	88		MS15795-803			WASHER, FLAT			
2	2	2	2	2	2	2	2	2	2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC.HD., SELF LOCKING SEE NOTE 35			
9	9	9	9	9	9	9	9	9	9	86		1011625-20	74455151020		SCREW, CAP, SOC.HD., SELF LOCKING			
0	1	1	1	1	0	1	1	1	1	85		2011595	52386910220		COVER, GEARBOX			
1	1	1	1	1	1	1	1	1	1	84		MS16624-1018			RING, RETAINING			
AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	83		2012351-1,243	7938691 0101 0103		WASHER, FLAT			
0	1	1	1	1	0	1	1	1	1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
0	3	3	3	3	0	3	3	3	3	81		2011579	57386910120		DOG, LIMIT STOP			
0	1	1	1	1	0	1	1	1	1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	1	1	1	1	1	1	1	1	1	79		1011608-5			BEARING, BALL, ANNULAR			
1	1	1	1	1	1	1	1	1	1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	1	1	1	1	1	1	1	1	1	77		2011577	56386910060		SPRING, TORSION			
1	1	1	1	1	1	1	1	1	1	76		2012350	25386910010		WASHER			
1	1	1	1	1	1	1	1	1	1	75		2012723	52386911060		COUNTERWEIGHT			
1	1	1	1	1	1	1	1	1	1	74	*	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	2	2	2	2	2	2	2	2	2	73		MS35249-11	74455187011		SCREW, MACHINE, FLAT COUNTERSUNK HD, SLOTTED			
8	8	8	8	8	8	8	8	8	8	72		1011625-39	74455151040		SCREW, CAP, SOC.HEAD, SELF LOCKING			
2	2	2	2	2	2	2	2	2	2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC.HEAD, SELF LOCKING			
2	2	2	2	2	2	2	2	2	2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC.HEAD, SELF LOCKING SEE NOTE 35			
4	4	4	4	4	4	4	4	4	4	69		NAS1189C02T4L			SCREW, FLAT HD., SELF LOCKING			
2	2	2	2	2	2	2	2	2	2	68		MS16624-15	———		RING, RETAINING, EXTERNAL, BASIC			
1	1	1	1	1	1	1	1	1	1	67		MS15795-305	———		WASHER, FLAT			
1	1	1	1	1	1	1	1	1	1	66	*	1011918-2	———		WASHER, CABLE CLAMP			
1	1	1	1	1	1	1	1	1	1	65	*	1000220-6 OR 5	———		CLAMP, CABLE			
1	1	1	1	1	1	1	1	1	1	64	*	1000220-8 OR 6	———		CLAMP, CABLE			
1	1	1	1	1	1	1	1	1	1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	62		2011885	45386910040		SHIM			
1	1	1	1	1	1	1	1	1	1	61	*	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
1	1	1	1	1	1	1	1	1	1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	1	1	1	1	1	1	1	1	1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	1	1	1	1	1	1	1	1	1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	1	1	1	1	1	1	1	1	1	57	*	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
0	0	0	0	0	1	0	1		1	56		2012735-000	85386911800		SXT INDEX HD ASSY			
1	1	1	1	1	1	1	1	1	1	55		2012164	26386910060		GROMMET			
1	1	1	1	1	1	1	1	1	1	54		2012740	48386910210		CONNECTOR ASSY, DUMMY			
2	2	2	2	2	2	2	2	2	2	53	*	1011625-30	74455151030		SCREW, CAP, SOC. HD, SELF LOCKING			
2	2	2	2	2	2	2	2	2	2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC.HD., SELF LOCKING			
7	7	7	7	7	7	7	7	7	7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC.HD., SELF LOCKING			
1	1	1	1	1	1	1	1	1	1	50	*	1011625-28	74455151028		SCREW, CAP, SOC HD., SELF LOCKING			
4	4	4	4	4	4	4	4	4	4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC.HD., SELF LOCKING			
8	8	8	8	8	8	8	8	8	8	48	NAS	1352C04LL8	74455157015					
14	14	14	14	14	14	14	14	14	14	47	NAS	1352C04LL6	74455157014		SEE NOTE 35			
14	14	14	14	14	14	14	14	14	14	46	NAS	1352C04LL4	74455157013		SEE NOTE 35			
12	12	12	12	12	12	12	12	12	12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC.HD., SELF LOCKING			
4	4	4	4	4	4	4	4	4	4	44	*	1011625-11	74455151011		SCREW, CAP, SOC.HD., SELF LOCKING			
12	12	12	12	12	12	12	12	12	12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING, 100° FLAT HEAD			
										42								
2	2	2	2	2	2	2	2	2	2	41	AN	960-C8	74468051004		WASHER, FLAT, REGULAR			
1	1	1	1	1	1	1	1	1	1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC.HD., SELF LOCKING			
2	2	2	2	2	2	2	2	2	2	39		2011684	48386910030		PIN, THREADED			
1	1	1	1	1	1	1	1	1	1	38		2011877	45386910250		SPACER			
1	1	1	1	1	1	1	1	1	1	37	*	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1	1	1	1	1	1	1	1	1	1	36		MS9021-154			PACKING, PREFORMED			
1	1	1	1	1	1	1	1	1	1	35	*	1011606-1	30205772240		BEARING, BALL			
1	1	1	1	1	1	1	1	1	1	34	*	1011606-2	30205772720		BEARING, BALL			
1	1	1	1	1	1	1	1	1	1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	2	2	2	2	2	2	2	2	2	32		2011562	57386910580		BUSHING, LOCATING			
2	2	2	2	2	2	2	2	2	2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	1	1	1	1	1	1	1	1	1	30		2011344	45386910020		SCREW, SHOULDER			
2	2	2	2	2	2	2	2	2	2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	1	1	1	1	1	1	1	1	1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	1	1	1	1	1	1	1	1	1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	1	1	1	1	1	26		2012486	57386911240		SPACER, CONNECTOR, MOUNTING PLATE			
1	1	1	1	1	1	1	1	1	1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	1	1	1	1	1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	3	3	3	3	3	3	3	3	3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
1	1	1	1	1	1	1	1	1	1	22		2011342	57386910570		RING, LIMIT STOP			
1	1	1	1	1	1	1	1	1	1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
1	1	1	1	1	1	1	1	1	1	20		2011616	57386910020		RING, MOUNTING, COVER			
1	1	1	1	1	1	1	1	1	1	19		2011321	56386910020		PLATE, MOUNTING, CONNECTOR			
1	1	1	1	1	1	1	1	1	1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	6	6	6	6	6	6	6	6	6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
1	1	1	1	1	1	1	1	1	1	16		2012743	85386911820		FLEXPRINT RETAINING ASSY			
2	2	2	2	2	2	2	2	2	2	15		2011686	56386910310		RETAINER, PIN			
1	1	1	1	1	1	1	1	1	1	14	*	1012520-1	85386900910		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	1	1	1	1	1	1	1	1	1	13	*	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
0	1	1	1	0	1	0	1	1	1	12		2011705-000	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
1	1	1	1	1	1	1	1	1	1	11		2011714	85386910460		LIMIT STOP ASSY			
1	1	1	1	1	1	1	1	1	1	10		2012387	85386911110		GEAR & SPRING, ASSY OF			
1	1	1	1	1	1	1	1	1	1	9		2011906	85386910440		HOUSING, STATOR & LAMP, ASSY OF			
0	1	1	1	0	1	0	1	1	1	8		2011703-000	85386910200		SHAFT DRIVE, GEAR BOX, SCT, ASSY OF			
0	1	1	1	0	1	0	1	1	1	7		2011702-000	85386910630		TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
1	1	1	1	1	1	1	1	1	1	6		2011215-011	85386910380		TELESCOPE TRUNNION AXIS ASSY			
1	1	1	1	1	1	1	1	1	1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	1	1	1	1	1	1	1	1	1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	1	1	1	1	1	1	1	1	1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	1	1	1	1	1	1	1	1	1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
0	0	0	1	0	1	0	0	0	1	1		2011889-021	85386910680		OPTICAL UNIT SUBASSY – STAGE I			
QTY REQD										LIST OF PARTS AND MATERIALS								

051	003	012	002	041	001	031	021	011	000	ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
										142									
										141									
										140									
										139									
										138									
										137									
										136									
										135									
										134									
										133									
										132									
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										105									
										104									
1	0	0	0	0	1	0	0	0	0	103			2021468-011			COVER, GEARBOX			
1	0	0	0	0	1	0	0	0	0	102			2012802			DOG, LIMIT STOP, OUTER			
QTY REQD										LIST OF PARTS AND MATERIALS									

*PURCHASE ITEM - SEE SPECIFICATION
CONTROL DWG. BEFORE ORDERING

2011000	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN T. Rankowski DATE 3/Jan 66
CHECKED H E Cressey 1-13-66
APPROVAL
APPROVAL E. Wrany 1-14-6[illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] Jan 31 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

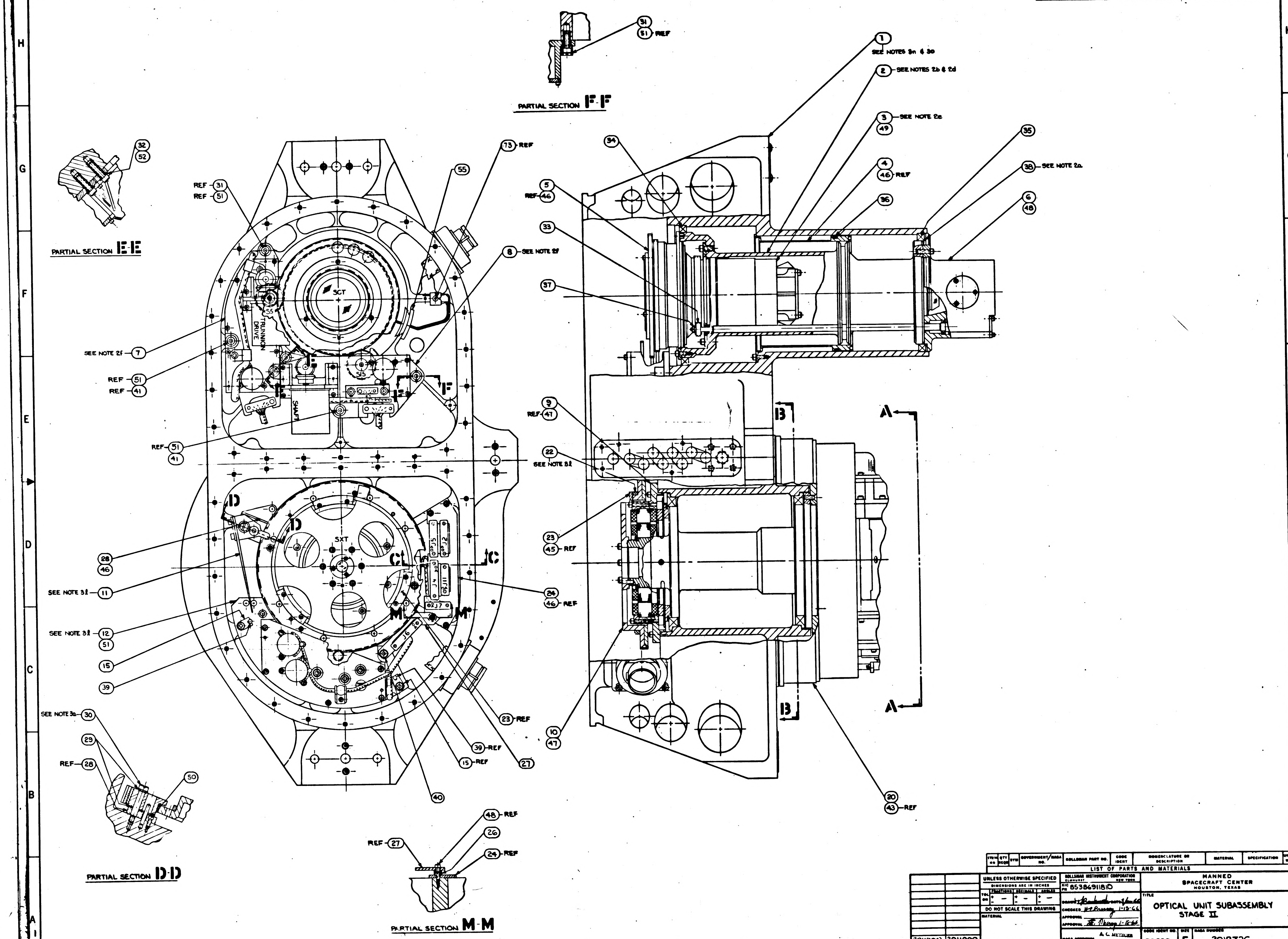
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE
WEIGHT CALC ACTUAL
SHEET 6 OF 6

2012736

2012736

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



PARTIAL SECTION F-F
31
51 REF
1 SEE NOTES 3a & 3c
2 SEE NOTES 2b & 2d
3 SEE NOTE 2e
49
4
46 REF
36
35
38 SEE NOTE 2a
6
48
34
5
REF 46
33
37
PARTIAL SECTION E-E
32
52
73 REF
55
REF 31
REF 51
8 SEE NOTE 2f
SCT
S5
TRUNNION DRIVE
SEE NOTE 2f 7
REF 51
REF 41
SHAFT
S15
F
REF 51
41
9
REF 47
22
SEE NOTE 3l
B
A
D
SXT
C
M
J7
J2
J1
28
46
SEE NOTE 3l 11
SEE NOTE 3l 12
51
15
39
23
45 REF
24
46 REF
23 REF
39 REF
15 REF
27
10
47
40
20
43 REF
SEE NOTE 3a 30
29
REF 28
50
PARTIAL SECTION D-D
48 REF
26
REF 27
24 REF
PARTIAL SECTION M-M

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2011000	2011000
NEXT ASSY	USED ON

APPLICATION

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CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN
CHECKED 1-13-66
APPROVAL
APPROVAL 1-15-66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 3 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

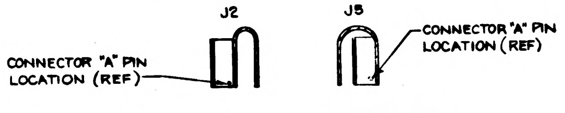
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
SHEET 1 OF 6

2012736

2012736

SYM	ZONE	REVISIONS TDRR 25-67 DESCRIPTION	DATE	APPROVAL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J5
CONNECTOR "A" PIN LOCATION (REF)
CONNECTOR "A" PIN LOCATION (REF)

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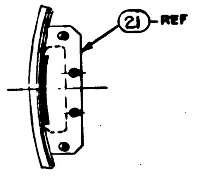
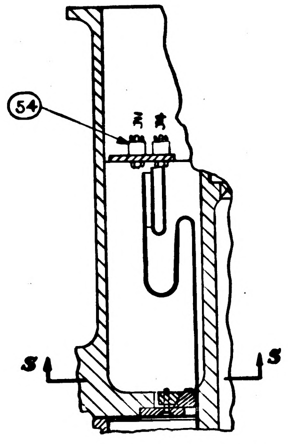
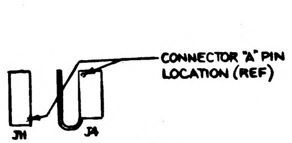


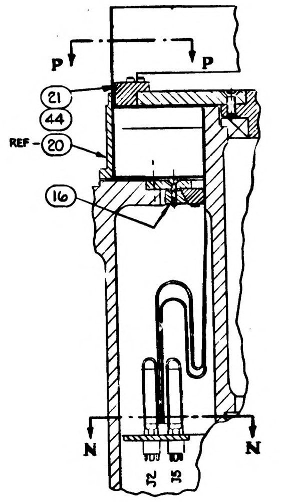
PARTIAL SECTION **P-P**



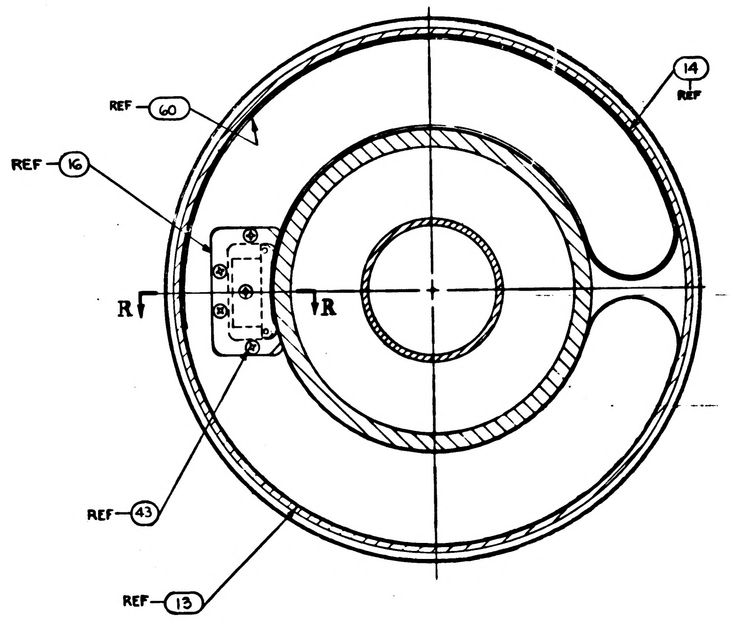
PARTIAL SECTION **R-R**


CONNECTOR "A" PIN LOCATION (REF)
J11
J4

PARTIAL SECTION **S-S**


P
P
21
44
REF-20
16
N
N
J10
J5

PARTIAL SECTION **C-C**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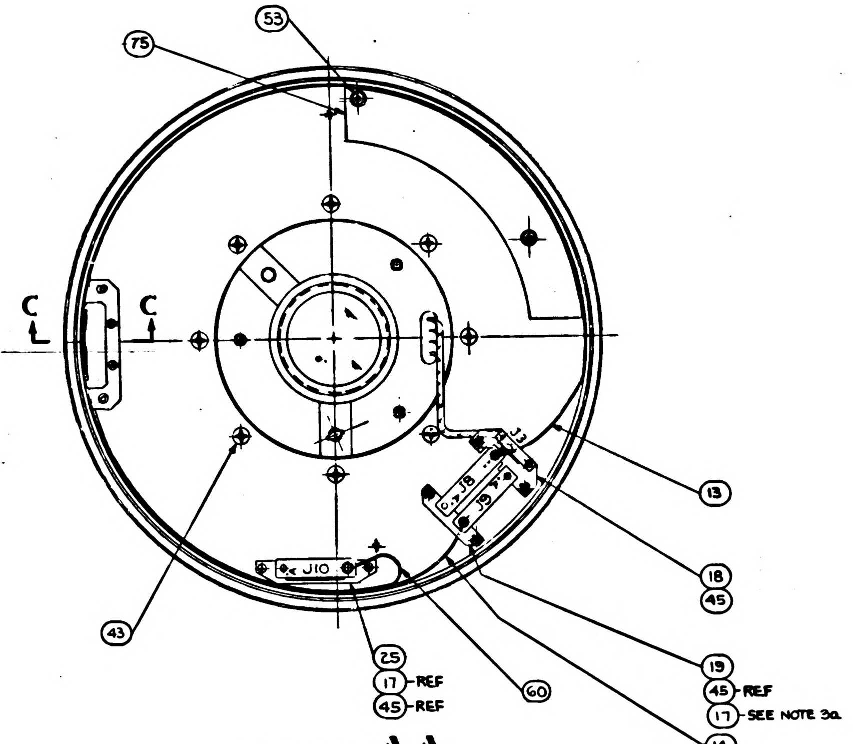
14 REF
REF-16
R
R
REF-43
REF-13

PARTIAL SECTION **B-B**


53
75
C
C
J11
J8
J5
J10
13
18
45
19
45-REF
17-SEE NOTE 3a.
14
43
25
17-REF
45-REF
60

PARTIAL VIEW **A-A**
(WITH SEXTANT INDEX HD ASSY REMOVED)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1-13-66
APPROVAL
APPROVAL E. [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

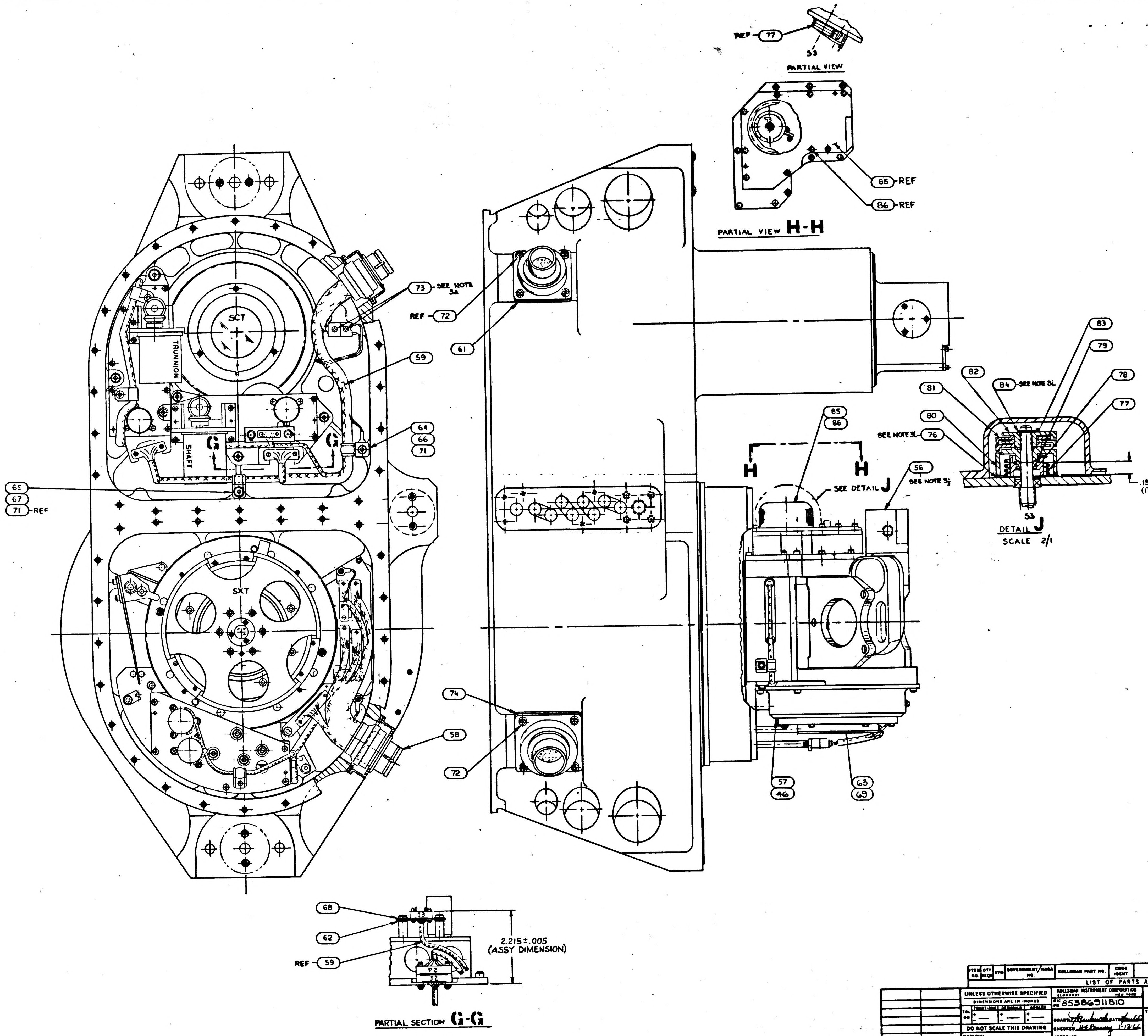
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 2 OF 6

2012736

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

REVISIONS TDRR 25767


REF 77
53
PARTIAL VIEW
85 -REF
86 -REF
PARTIAL VIEW H-H
73 -SEE NOTE 3a
REF 72
61
59
64
66
71
65
67
71 -REF
SCT
TRUNNION
SHAFT
G
G
SXT
H
H
85
86
SEE DETAIL J
56
SEE NOTE 3j
83
79
82
84 -SEE NOTE 3i
78
81
80
77
SEE NOTE 3L 76
.198 (REF) (ITEM 78)
53
DETAIL J
SCALE 2/1
74
58
72
57
46
63
69
68
62
REF 59
33
P2
J2
2.215±.005 (ASSY DIMENSION)
PARTIAL SECTION G-G

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
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MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE
CHECKED H.S. Pauney 1-13-66
APPROVAL
APPROVAL 1/18/66
NASA APPROVAL A. C. METZGER
UNIT APPROVAL 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

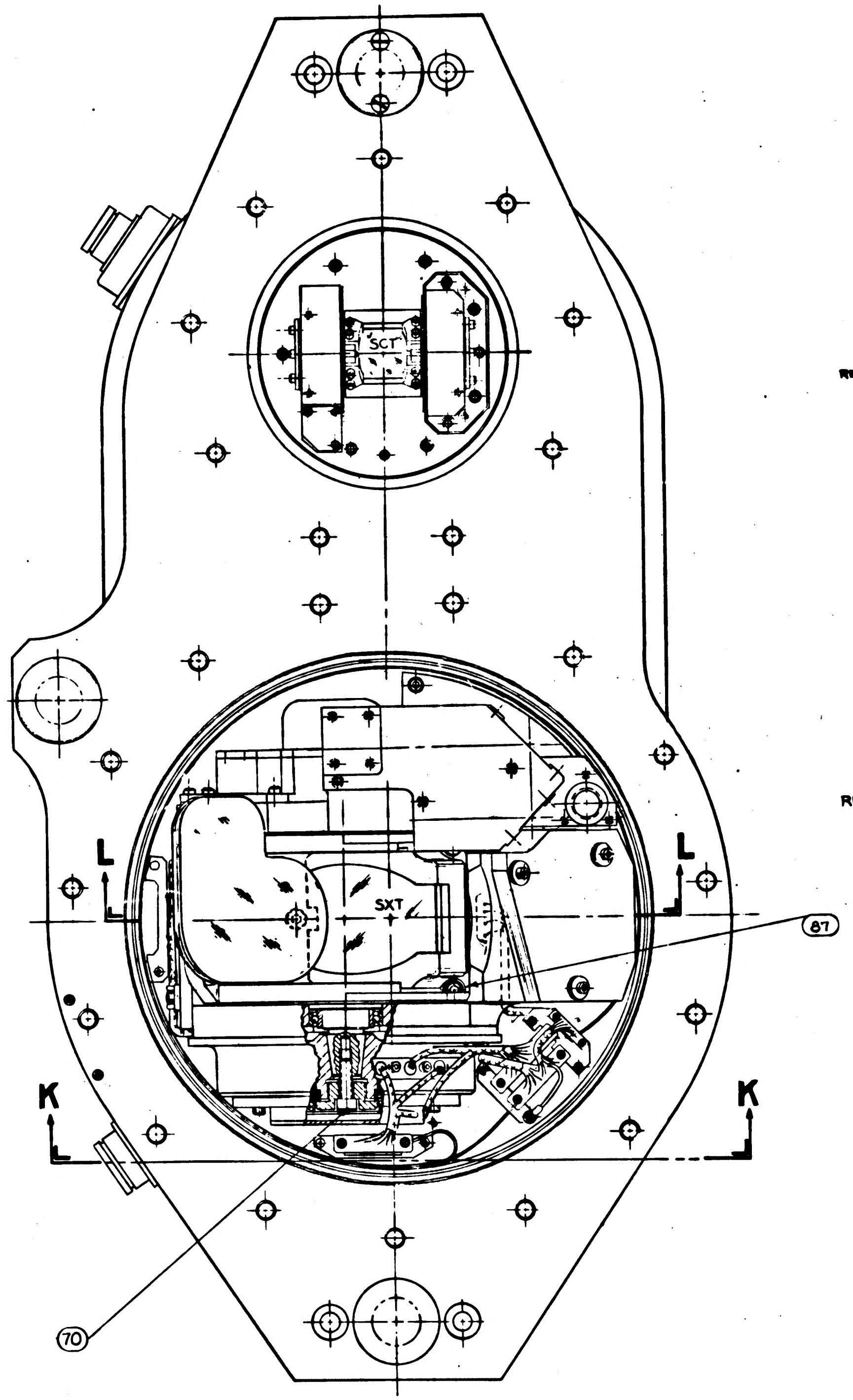
TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

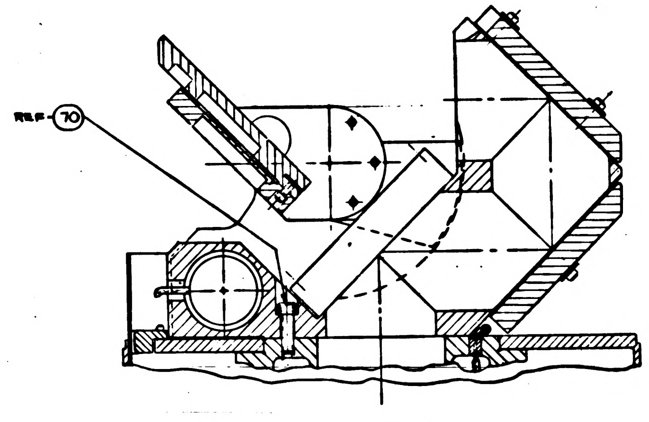
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 3 OF 6

2012736

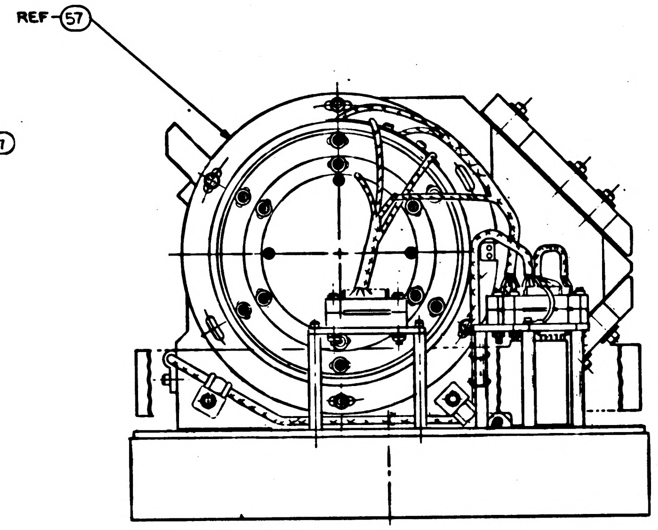
SYM	ZONE	DESCRIPTION	DATE	APPROVAL

REVISIONS TDRR 25767





PARTIAL SECTION **L-L**



PARTIAL VIEW **K-K**

2012736

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2014020	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
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MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 8538691180
DRAWN DATE
CHECKED 1-13-66
APPROVAL
APPROVAL 1/18/66
NASA APPROVAL A. C. METZGER
KIT APPROVAL 31 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 4 OF 6

2012736

SYM	ZONE	REVISIONS TDRR 25767 DESCRIPTION	DATE	APPROVAL

NOTES:

1. GENERAL REQUIREMENTS

   a. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

   b. IDENTIFY USING NASA DWG. NO., REV. LETTER, AND MANUFACTURER'S SYMBOL PER ND 1002019 BY TAGGING.

2. SCANNING TELESCOPE (SCT) REQUIREMENTS

   a. ITEM 30 SHALL BE SELECTED AND/OR ADJUSTED BY MACHINING AND REPASSIVATING TO PROVIDE A BEARING PRELOAD OF 75 ± 7.5 LBS. TO ITEMS 34 AND 35.

   b. THE SCT RETICLE CENTER (PART OF ITEM 2) SHALL BE WITHIN 50 ARC SECONDS OF THE SHAFT DRIVE AXIS IN THE DIRECTION PARALLEL TO THE TRUNNION AXIS OF ITEM 6.

   c. THE SCT RETICLE "R" LINE SHALL ALIGN WITH THE SCT TRUNNION TRACK WITHIN 4 ARC MINUTES VARIATION OVER ITS WHOLE LENGTH (FULL FIELD).

   d. THE REQUIREMENTS OF NOTES 2b AND 2c SHALL BE MET AFTER THE THREE RETICLE RETAINING SCREWS (PART NO. 2011688, PARTS OF ITEM 2) HAVE BEEN SECURED WITH A TIGHTENING TORQUE OF $13^{\pm 2}$ IN.OZ. AND WITHIN 1 IN.OZ. OF EACH OTHER. THE TIGHTENING TORQUE SHALL BE DEFINED AS THE TORQUE IN EXCESS OF THE THREADING TORQUE MEASURED ON AN INDIVIDUAL SCREW BASIS.

   e. THE AXIAL POSITION OF THE RELAY LENS ASSEMBLY (PART NO. 2011792, PART OF ITEM 3) SHALL BE ADJUSTED SO THAT A COLLIMATED TARGET RETICLE AT THE PANEL END IS SEEN AT THE SAME FOCUS AS THE SCT RETICLE WHEN BOTH ARE OBSERVED THROUGH THE SCT OBJECTIVE.

   f. ITEMS 7 AND 8 SHALL BE POSITIONED BY THEIR MOUNTING HARDWARE SO THAT THEY MESH WITH ITEM 5 AS TIGHTLY AS IS COMPATIBLE WITH THE REQUIREMENTS OF NOTES 2g AND 2h.

   g. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SCT TRUNNION AND SHAFT. THESE TORQUE LIMITS SHALL BE MAINTAINED THROUGHOUT THE OPERATING EXCURSION RANGE OF THE SCT EXCEPT AT THOSE POSITIONS WHERE THE RESPECTIVE ITEMS 7 AND 8 ANGLE COUNTER MASKS SHIFT (0° AND 180°). AT THESE POSITIONS THE PERMISSABLE BREAKAWAY FRICTION SHALL NOT EXCEED .052 IN-OZ.

   h. THE COUNTERS AND RESOLVERS OF THE SCT TRUNNION AND SHAFT DRIVES SHALL BE SET TO MEET THE SCT TDA AND SCT SDA REQUIREMENTS OF TABLE I OF PS 2016206 AFTER THE REQUIREMENTS OF NOTE 3a HAVE BEEN MET. BACKLASH BETWEEN COUNTER BEVEL GEARS SHALL BE BETWEEN .001 & .005 THROUGH ONE COMPLETE REVOLUTION OF LARGER GEAR.

3. SEXTANT (SXT) REQUIREMENTS

   a. VIBRATION PROOF ITEMS 17, 30 AND 73 PER MIL-S-22473. USE LOCKING COMPOUND GRADE "CV" FOR ITEMS 17 AND [illegible] AND LOCKING COMPOUND GRADE "EV" FOR ITEM 73. PREPARE SURFACES IN ACCORDANCE WITH ND 1002211.

   b. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO ZERO SLOS, THE SLOS AND LLOS SHALL BE LATERALLY PARALLEL WITHIN 20 ARC SECONDS ("R" LINE COINCIDENCE).

   c. WITH SXT TRUNNION ROTATED TO THE POSITION CORRESPONDING TO 90° SLOS IN WHICH THE SXT RETICLE IS REFLECTED BACK UPON ITSELF, THE "R" LINE OF THE REFLECTED IMAGE SHALL COINCIDE WITH THE RETICLE "R" LINE WITHIN 10 ARC SECONDS.

   d. THE DIFFERENCE BETWEEN MEASUREMENTS 3b AND 3c TAKING DIRECTION INTO ACCOUNT SHALL NOT EXCEED 20 ARC SECONDS.

   e. THE SUM OF THE MEASUREMENTS 3b AND 3c SHALL NOT EXCEED 25 ARC SECONDS IGNORING DIRECTION.

   f. THE RETICLE AS OBSERVED THROUGH THE LLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 10 ARC SECONDS.

   g. THE SXT RETICLE AS OBSERVED THROUGH THE SLOS SHALL BE COINCIDENT WITH THE SHAFT AXIS WITHIN 20 ARC SECONDS. THAT IS, MEASUREMENTS 3b AND 3f SHALL NOT HAVE ADDITIVE TOLERANCES.

   h. THE SXT RETICLE "R" LINE SHALL ALIGN WITH THE SXT TRUNNION TRACK WITHIN 5 ARC SECONDS VARIATION OVER ITS WHOLE LENGTH.

   i. THE SXT TRUNNION LIMIT STOP, ITEM 76 THRU 84 SHALL BE SET TO PROVIDE EQUAL OVERTRAVEL WITHIN 3° AT THE 0° AND 90° SLOS POSITIONS.

   j. THE SXT TRUNNION ANTI-BACKLASH SPRING, (PART OF ITEM 56) SHALL BE WOUND UP 1/4 TURN CLOCKWISE AND CLAMPED WHEN THE TRUNNION IS AT THE 90° SLOS POSITION

   h.

   l. THE SXT SHAFT SHALL BE AT ITS ZERO POSITION DURING THE ASSEMBLY OF ITEMS 11, 12, AND 22 WITH THEIR MOUNTING HARDWARE. THE RSVR'S ON ITEM 12 SHALL BE PRESET TO THEIR ELECTRICAL ZERO REFERENCE WHEN ITEM 12 IS MESHED WITH ITEM 10. ITEM 22 SHALL BE POSITIONED WITH ITS STOP DOG IN THE LARGER SECTOR BETWEEN THE TWO PINS OF ITEM 10. REMOVE NAS 1352C02-4 & MS15795-802 WHICH ARE ITEMS 4 & 5 OF 2012387

   m. A MAXIMUM BREAKAWAY FRICTIONAL TORQUE OF .04 IN-OZ AND A MAXIMUM RUNNING FRICTIONAL TORQUE OF .03 IN-OZ SHALL BE REQUIRED AT THE RESPECTIVE DRIVE MOTOR SHAFTS TO DRIVE THE SXT TRUNNION AND SHAFT IN EITHER DIRECTION THROUGHOUT THEIR OPERATING EXCURSIONS.

   n. AFTER SXT RETICLE POSITION IS FINALIZED, SECURE BY APPLYING 2.8 IN-LBS LOCKING TORQUE TO (3) RETICLE LOCKING SCREWS (NAS 1352C02LL6) WHICH ARE PART OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1). VIBRATION PROOF SXT RETICLE LOCKING RING (PART OF ITEM 1) USING 1 DROP OF LOCKING COMPOUND, GRADE H PER MIL-S-22473, IN ACCORDANCE WITH ND 1002211.

   o. AFTER THE REQUIREMENTS OF NOTE 3m HAVE BEEN ACCOMPLISHED REMOVE (3) BEVEL RETAINERS AND (3) HEX SOC HD CAP SCREWS (MS 16995-3) WHICH ARE PARTS OF THE SXT RETICLE ASSEMBLY (PART OF ITEM 1.)

   p. THE RSVR'S ASSOCIATED WITH THE SXT TRUNNION AND SHAFT SHALL BE SET TO MEET THE SXT TDA AND SDA REQUIREMENTS OF TABLE 1 OF PS 2016206

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

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MATERIAL
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN DATE 3 Jan 66
CHECKED HC Prussy 1-13-66
APPROVAL
APPROVAL 1/18/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 3 Jan 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 5 OF 6

2012736

REVISIONS TDER 25-6

SYM	ZONE	DESCRIPTION	DATE	APPROVAL

QTY REQD 000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	HOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
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	100								
	99								
	98								
	97								
	96								
	95								
	94								
	93								
	92								
	91								
	90								
	89								
	88								
2	87		NAS1351C3LL20	74455156044		SCREW, CAP, SOC.HD., SELF LOCKING			
9	86		1011625-20	74455151020		SCREW, CAP, SOC. HD., SELF LOCKING			
1	85		2011595	52386910220		COVER, GEARBOX			
1	84		MS16624-1018			RING, RETAINING			
AR	83		2012351-1,2&3	7938691 0101 0103		WASHER, FLAT			
1	82		2011578	57386910130		DOG, LIMIT STOP, OUTER			
3	81		2011579	57386910120		DOG, LIMIT STOP			
1	80		2011580	57386910140		DOG, LIMIT STOP, INNER			
1	79		1011608-5			BEARING, BALL, ANNULAR			
1	78		2011581	57386910110		GUIDE, SPRING, LIMIT STOP			
1	77		2011577	56386910060		SPRING, TORSION			
1	76		2012350	25386910010		WASHER			
1	75		2012723	52386911060		COUNTERWEIGHT			
1	74	*	1011599-10	74453034010		PACKING, PREFORMED, RETAINED			
2	73		MS35249-11	74455187011		SCREW, MACHINE, FLAT COUNTERSUNK HD., SLOTTED			
8	72		1011625-39	74455151040		SCREW, CAP, SOC. HEAD, SELF LOCKING			
2	71		NAS1352C06LL6	74455157019		SCREW, CAP, SOC. HEAD, SELF LOCKING			
2	70		NAS1351C3LL10	74455156040		SCREW, CAP, SOC. HEAD, SELF LOCKING			
4	69		NAS1189C02T4L			SCREW, FLAT HD., SELF LOCKING			
2	68		MS16624-15	—•—		RING, RETAINING, EXTERNAL, BASIC			
1	67		MS15795-305	—•—		WASHER, FLAT			
1	66	*	1011918-2	—•—		WASHER, CABLE CLAMP			
1	65	*	1000220-6 OR 5	—•—		CLAMP, CABLE			
1	64	*	1000220-8 OR 6	—•—		CLAMP, CABLE			
1	63		2012491	57386911280		PLATE, END, RESOLVER			
AR	62		2011885	45386910040		SHIM			
1	61	*	1011599-9	74453034009		PACKING, PREFORMED, RETAINED			
1	60		1012520-2	85386900910		FLEXPRINT & CONNECTOR, ASSY OF			
1	59		2011713	80386910040		SCT BASE HARNESS ASSY			
1	58		2011896	80386910050		SXT BASE HARNESS ASSY			
1	57	*	1012065			RESOLVER ASSY 1 SPEED, 2 SPEED, 64 SPEED			
1	56		2012735	85386911800		SXT INDEX HD ASSY			
1	55		2012164	26386910060		GROMMET			
1	54		2012740	48386910210		CONNECTOR ASS'Y, DUMMY			
2	53	*	1011625-30	74455151030		SCREW, CAP, SOC. HD., SELF LOCKING			
2	52	NAS	1352C08LL12	74455157029		SCREW, CAP, SOC. HD., SELF LOCKING			
7	51	NAS	1352C08LL8	74455157027		SCREW, CAP, SOC. HD., SELF LOCKING			
1	50	*	1011625-28	74455151028		SCREW, CAP, SOC. HD., SELF LOCKING			
4	49	NAS	1352C06LL4	74455157018		SCREW, CAP, SOC. HD., SELF LOCKING			
8	48	NAS	1352C04LL8	74455157015					
14	47	NAS	1352C04LL6	74455157014					
14	46	NAS	1352C04LL4	74455157013					
12	45	NAS	1352C02LL4	74455157006		SCREW, CAP, SOC. HD., SELF LOCKING			
4	44	*	1011625-11	74455151011		SCREW, CAP, SOC HD., SELF LOCKING			
12	43	NAS	1189C04P6L	74455155010		SCREW, SELF LOCKING, 100° FLAT HEAD			
1	42		1010628-19			SCREW, FLAT HD, SELF LOCKING, SOC. HEX			
2	41	AN	960-C8	74468051004		WASHER, FLAT, REGULAR			
1	40		NAS1352C08LL10	74455157028		SCREW, CAP, HEX SOC. HD., SELF LOCKING			
2	39		2011684	48386910030		PIN, THREADED			
1	38		2011877	45386910250		SPACER			
1	37	*	1012525-005	74443162005		NUT, SELF LOCKING, HEX, THIN			
1	36		MS9021-154			PACKING, PREFORMED			
1	35	*	1011606-1	30205772240		BEARING, BALL			
1	34	*	1011606-2	30205772720		BEARING, BALL			
1	33		2011825	33386910170		GEAR, SPUR (42T-96P)			
2	32		2011562	57386910580		BUSHING, LOCATING			
2	31		2011561	57386910590		BUSHING, ECCENTRIC			
1	30		2011344	45386910020		SCREW, SHOULDER			
2	29		2011353	56386910260		SPACER, SPRING HOLDER			
1	28		2011351	52386910560		BRACKET, MOUNTING, SPRING HOLDER			
1	27		2012487	56386910550		PLATE, MOUNTING, CONNECTOR			
1	26		2012486	57386911240		SPACER, CONNECTOR, MOUNTING PLATE			
1	25		2012374	56386910030		PLATE, MOUNTING, CONNECTOR			
1	24		2011622	56386910290		PLATE, MOUNTING, CONNECTOR			
3	23		2011341	57386910560		PLATE, RETAINING, STOP RING			
1	22		2011342	57386910570		RING, LIMIT STOP			
1	21		2012739	52386911110		PLATE, FLEXPRINT GUIDE			
1	20		2011616	57386910020		RING, MOUNTING, COVER			
1	19		2011321	56386[illegible]0020		PLATE, MOUNTING, CONNECTOR			
1	18		2011322	56386910300		PLATE, MOUNTING, CONNECTOR			
6	17		2011323	53386910020		POST, SHOULDERED, THREADED			
1	16		2012743	85386911820		FLEXPRINT RETAINING ASSY			
2	15		2011686	56386910310		RETAINER, PIN			
1	14	*	1012520-1	85386900910		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	13	*	1012519	85386900900		FLEXPRINT & CONNECTOR, ASSY OF (SXT)			
1	12		2011705	85386910490		SHAFT DRIVE GEAR BOX, SXT, ASSY OF			
1	11		2011714	85386910460		LIMIT STOP ASSY			
1	10		2012387	85386911110		GEAR & SPRING, ASSY OF			
1	9		2011906	85386910440		HOUSING, STATOR & LAMP, ASSY OF			
1	8		2011703	85386910200		SHAFT DRIVE, GEAR BOX, SCT, ASSY OF			
1	7		2011702	85386910630		TRUNNION DRIVE GEAR BOX, SCT, ASSY OF			
1	6		2011215-011	85386910380		TELESCOPE TRUNNION AXIS ASSY			
1	5		2011723	85386910500		DRIVE GEAR, CLUSTER ASSY			
1	4		2011731	85386910530		HOUSING & LAMP, ASSY OF			
1	3		2011724	85386910430		INNER TELESCOPE TUBE, ASSY OF			
1	2		2011722	85386910300		OUTER TELESCOPE TUBE ASSY			
1	1		2011889-021	85386910680		OPTICAL UNIT SUBASSY - STAGE I			

QTY REQD — LIST OF PARTS AND MATERIALS

000	ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	HOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
	142									
	141									
	140									
	139									
	138									
	137									
	136									
	135									
	134									
	133									
	132									
	131									
	130									
	129									
	128									
	127									
	126									
	125									
	124									
	123									
	122									
	121									
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	115									
	114									
	113									
	112									
	111									
	110									
	109									
	108									
	107									
	106									
	105									
	104									
	103									
	102									

QTY REQD — LIST OF PARTS AND MATERIALS

*PURCHASE ITEM - SEE SPECIFICATION
CONTROL DWG. BEFORE ORDERING

NEXT ASSY	USED ON
2011000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

HOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911810
DRAWN
CHECKED 1-13-66
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
UNIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
OPTICAL UNIT SUBASSEMBLY
STAGE II

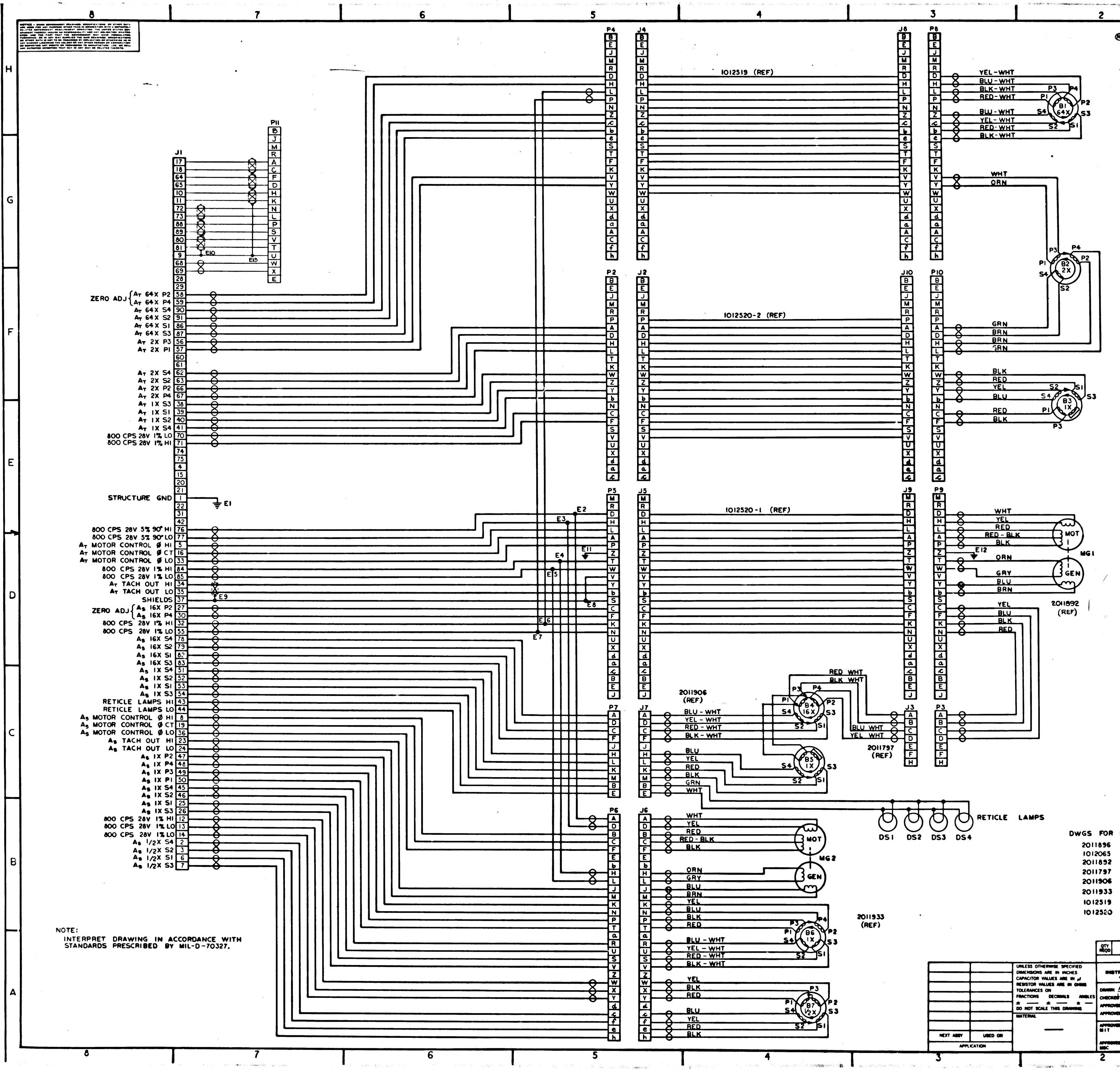
CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012736
SCALE
WEIGHT
SHEET 6 OF 6

2012736

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS DRR 25757

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 32834	F.F.P.		1/27/67	



8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
P4
J4
J8
P8
1012519 (REF)
1012520-2 (REF)
1012520-1 (REF)
P2
J2
J10
P10
P5
J5
J9
P9
P7
J7
J3
P3
P6
J6
J1
P11
E10
E13
ZERO ADJ
A_T 64X P2
A_T 64X P4
A_T 64X S4
A_T 64X S2
A_T 64X S1
A_T 64X S3
A_T 2X P3
A_T 2X P1
A_T 2X S4
A_T 2X S2
A_T 2X P2
A_T 2X P4
A_T 1X S3
A_T 1X S1
A_T 1X S2
A_T 1X S4
800 CPS 28V 1% LO
800 CPS 28V 1% HI
STRUCTURE GND
E1
800 CPS 28V 5% 90° HI
800 CPS 28V 5% 90° LO
A_T MOTOR CONTROL Ø HI
A_T MOTOR CONTROL Ø CT
A_T MOTOR CONTROL Ø LO
800 CPS 28V 1% HI
800 CPS 28V 1% LO
A_T TACH OUT HI
A_T TACH OUT LO
SHIELDS
E9
ZERO ADJ
A_S 16X P2
A_S 16X P4
800 CPS 28V 1% HI
800 CPS 28V 1% LO
A_S 16X S4
A_S 16X S2
A_S 16X S1
A_S 16X S3
A_S 1X S4
A_S 1X S2
A_S 1X S1
A_S 1X S3
RETICLE LAMPS HI
RETICLE LAMPS LO
A_S MOTOR CONTROL Ø HI
A_S MOTOR CONTROL Ø CT
A_S MOTOR CONTROL Ø LO
A_S TACH OUT HI
A_S TACH OUT LO
A_S 1X P2
A_S 1X P4
A_S 1X P3
A_S 1X P1
A_S 1X S4
A_S 1X S2
A_S 1X S1
A_S 1X S3
800 CPS 28V 1% HI
800 CPS 28V 1% LO
800 CPS 28V 1% LO
A_S 1/2X S4
A_S 1/2X S2
A_S 1/2X S1
A_S 1/2X S3
E2
E3
E4
E5
E6
E7
E8
E11
E12
YEL-WHT
BLU-WHT
BLK-WHT
RED-WHT
B1 64X
WHT
ORN
B2 2X
1012065 (REF)
GRN
BRN
BLK
RED
YEL
BLU
B3 1X
RED-BLK
MOT
GEN
MG1
GRY
2011892 (REF)
2011906 (REF)
B4 16X
B5 1X
2011797 (REF)
RETICLE LAMPS
DS1
DS2
DS3
DS4
MG2
2011933 (REF)
B6 1X
B7 1/2X
P1
P2
P3
P4
S1
S2
S3
S4

NOTE:
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

REF DESIG	PART NO.	DESCRIPTION
B1	1012065	RESOLVER, ASSEMBLY (64x)
B2	1012065	RESOLVER, ASSEMBLY (2x)
B3	1012065	RESOLVER, ASSEMBLY (1x)
B4	1012066	RESOLVER, MULTIPLE SPEED (16x)
B5	1012066	RESOLVER, MULTIPLE SPEED (1x)
B6	1012157	RESOLVER RECEIVER (1x)
B7	1010428	RESOLVER TRANSMITTER (1/2 x)
DS1	MS24367-715	LAMP INCANDESCANT
DS2	↕	↕
DS3	↕	↕
DS4	MS24367-715	LAMP INCANDESCANT
E1	MS25036-48	TERMINAL LUG CRIMP STYLE INSULATED
E11	MS25036-48	TERMINAL LUG CRIMP STYLE INSULATED
E12	MS25036-43	TERMINAL LUG CRIMP STYLE INSULATED
J1	1010771-001	CONNECTOR ELECTRICAL
J2	1011649-001	↕
J3	1011741-002	↕
J4	1000117-001	↕
J5	1011649-001	↕
J6	1000117-001	↕
J7	1012146-3	↕
J8	1011645-001	↕
J9	1000122-001	↕
J10	1000122-001	CONNECTOR ELECTRICAL
*MG1	1012156-4	SERVO MOTOR-TACHOMETER GENERATOR
*MG1	1012156-1	SERVO MOTOR-TACHOMETER GENERATOR
*MG2	1012156-1	SERVO MOTOR-TACHOMETER GENERATOR
*MG2	1012156-4	SERVO MOTOR-TACHOMETER GENERATOR
P2	1000121	CONNECTOR ELECTRICAL
P3	1011757-000	↕
P4	1000116	↕
P5	1000121	↕
P6	1000116	↕
P7	1012147-2	↕
P8	1011756	↕
P9	1000123	↕
P10	1000123	↕
P11	1011758-1	CONNECTOR ELECTRICAL

*FOR PROPER SERVO MOTOR-TACHOMETER GENERATOR CONFIGURATION CHECK DWG-2011000

DWGS FOR REF

2011896	SXT BASE HARNESS ASSY
1012065	RESOLVER ASSEMBLY
2011892	SERVO MOTOR & CONNECTOR, ASSY OF
2011797	TELESCOPE TUBE ASSY
2011906	HOUSING, STATOR & LAMP, ASSY OF
2011933	SXT SHAFT DRIVE HARNESS, ASSY OF
1012519	CABLE (FLAT) & CONNECTOR ASSY
1012520	CABLE (FLAT) & CONNECTOR ASSY

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

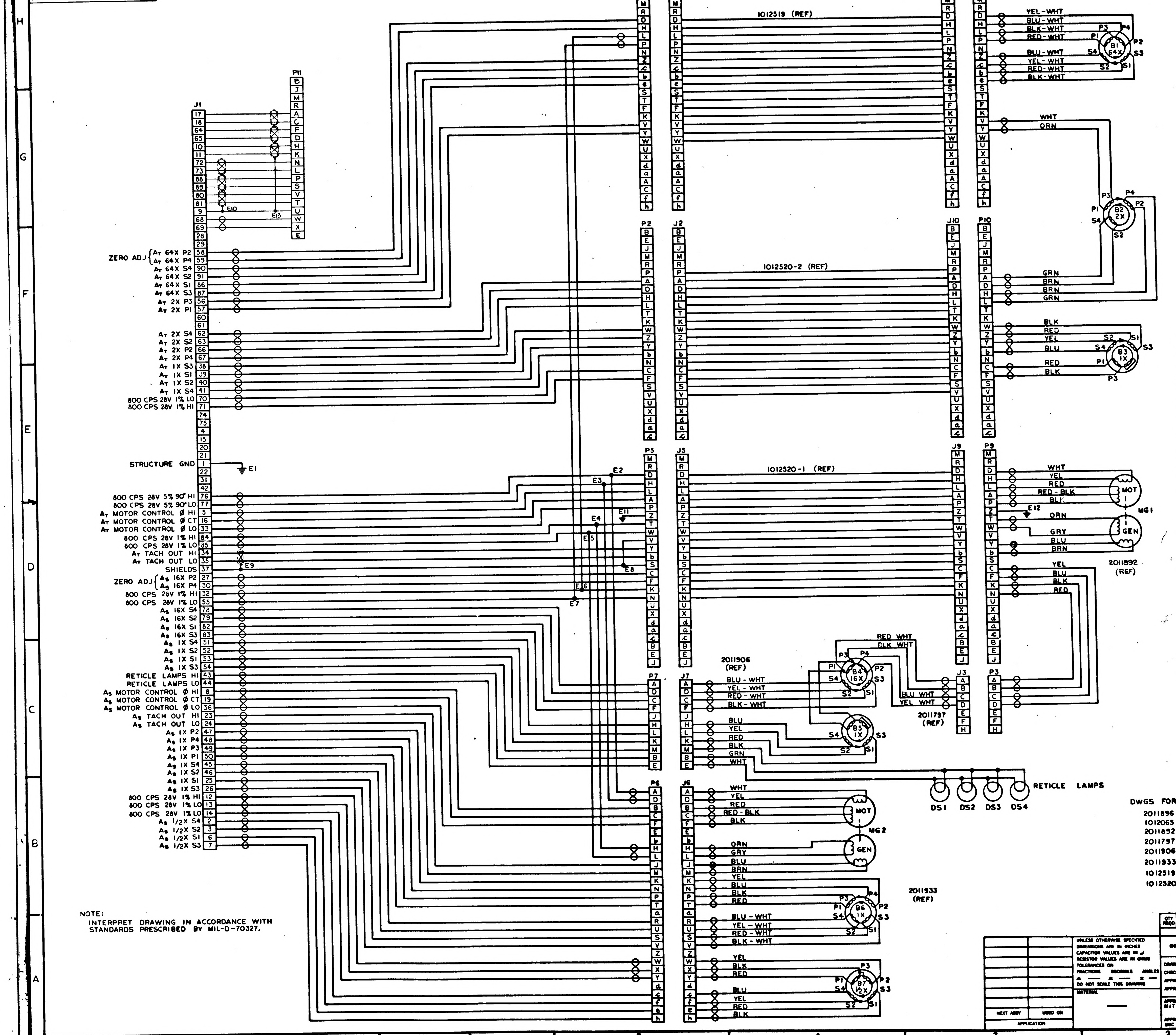
DRAWN	A.C.WILLIAMS	1/7/66
CHECKED		1/–/66
APPROVED	J.F. Costey	1/10/66
APPROVED		1/10/66
APPROVED MIT	W. Kupfer	
APPROVED MSC	A/C METZGER	

SCHEMATIC DIAGRAM SEXTANT

CODE IDENT NO. | SIZE E | DRAWING NO. 2012741
SCALE — | SHEET 1 OF 1

2012741

REVISIONS						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED


J1
P11
P4
J4
J8
P8
P2
J2
J10
P10
P5
J5
J9
P9
P7
J7
P6
J6
J3
P3
1012519 (REF)
1012520-2 (REF)
1012520-1 (REF)
1012065 (REF)
2011892 (REF)
2011906 (REF)
2011797 (REF)
2011933 (REF)
ZERO ADJ
STRUCTURE GND
SHIELDS
RETICLE LAMPS HI
RETICLE LAMPS LO
RETICLE LAMPS
B1 64X
B2 2X
B3 1X
B4 16X
B5 1X
B6 1X
B7 1/2X
MOT
GEN
MG1
MG2
DS1
DS2
DS3
DS4
E1
E2
E3
E4
E5
E6
E7
E8
E9
E10
E11
E12
E13

NOTE:
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

REF DESIG	PART NO.	DESCRIPTION
B1	1012065	RESOLVER, ASSEMBLY (64x)
B2	1012065	RESOLVER, ASSEMBLY (2x)
B3	1012065	RESOLVER, ASSEMBLY (1x)
B4	1012066	RESOLVER, MULTIPLE SPEED (16x)
B5	1012066	RESOLVER, MULTIPLE SPEED (1x)
B6	1012157	RESOLVER RECEIVER (1x)
B7	1010428	RESOLVER TRANSMITTER (½ X)
DS1	MS24367-715	LAMP INCANDESCANT
DS2	↕	↕
DS3	↕	↕
DS4	MS24367-715	LAMP INCANDESCANT
E1	MS25036-48	TERMINAL LUG CRIMP STYLE INSULATED
E11	MS25036-48	TERMINAL LUG CRIMP STYLE INSULATED
E12	MS25036-43	TERMINAL LUG CRIMP STYLE INSULATED
J1	1010771-001	CONNECTOR ELECTRICAL
J2	1011649-001	↕
J3	1011741-002	↕
J4	1000117-001	↕
J5	1011649-001	↕
J6	1000117-001	↕
J7	1012146-3	↕
J8	1011645-001	↕
J9	1000122-001	↕
J10	1000122-001	CONNECTOR ELECTRICAL
MG1	1012156-1	SERVO MOTOR - TACHOMETER
MG2	1012156-1	SERVO MOTOR - TACHOMETER
P2	1000121	CONNECTOR ELECTRICAL
P3	1011757-000	↕
P4	1000116	↕
P5	1000121	↕
P6	1000116	↕
P7	1012147-2	↕
P8	1011756	↕
P9	1000123	↕
P10	1000123	↕
P11	1011758-1	CONNECTOR ELECTRICAL

DWGS FOR REF

2011896	SXT BASE HARNESS ASSY
1012065	RESOLVER ASSEMBLY
2011892	SERVO MOTOR & CONNECTOR, ASSY OF
2011797	TELESCOPE TUBE ASSY
2011906	HOUSING, STATOR & LAMP, ASSY OF
2011933	SXT SHAFT DRIVE HARNESS, ASSY OF
1012519	CABLE (FLAT) & CONNECTOR ASSY
1012520	CABLE (FLAT) & CONNECTOR ASSY

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN	A.C.WILLIAMS	1/7/66
CHECKED		1/-/66
APPROVED	E Costay	1/10/66
APPROVED		1/10/66
APPROVED MIT	W Kupfer	3/Jan/66
APPROVED MSC	A/C. METZGER	
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC DIAGRAM
SEXTANT

CODE IDENT NO.	SIZE	DRAWING NO.
	E	2012741

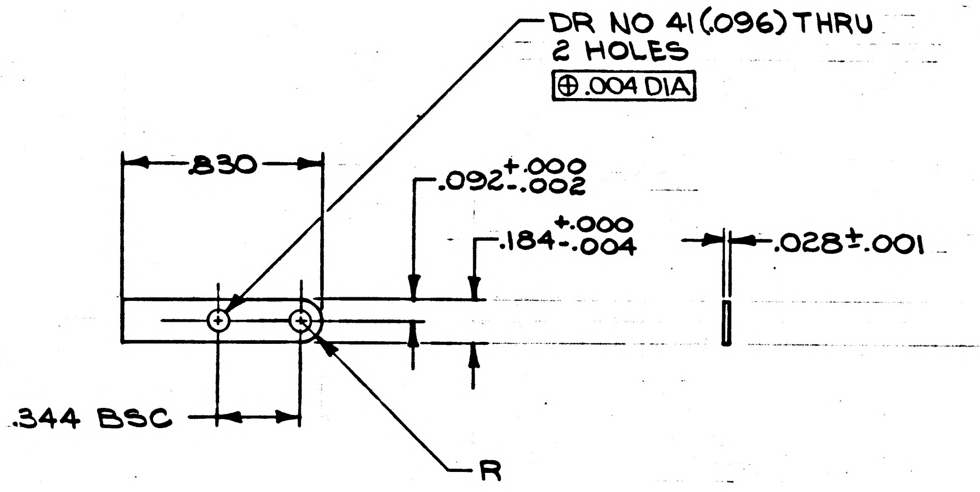
SCALE —
SHEET 1 OF 1

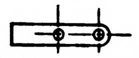
2012741

2012745

SYM	ZONE	REVISIONS 26051 DESCRIPTION	DATE	APPROVAL

NOTES
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND 1002078.
3. UNLESS OTHERWISE SPECIFIED:
   63/√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND 1002079.
5. HEAT TREAT BY HEATING TO 900°F ± 10°F FOR 1 HOUR AND AIR COOL
6. PASSIVATE PER MIL-STD-171, TABLE V.
7. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND 1002019.




ACTUAL SIZE

MASTER

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012695	
2012666	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± —

DO NOT SCALE THIS DRAWING

MATERIAL CORROSION RESISTANT STEEL MIL-S-25043 CLASS 17-7 PH COND C HEAT TREAT PER NOTE 5

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 56386910680

DRAWN Y Baubowski DATE 7 Feb 1966
CHECKED H E Pressey 2-8-66
APPROVAL
APPROVAL E. Thorup 2-8-66
A. C. METZGER
NASA APPROVAL Kupfer 9 Feb 66
MIT APPROVAL 2/8/66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SPRING, FLAT

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012745

SCALE 2/1 | WEIGHT | CALC ACTUAL | SHEET 1 OF 1

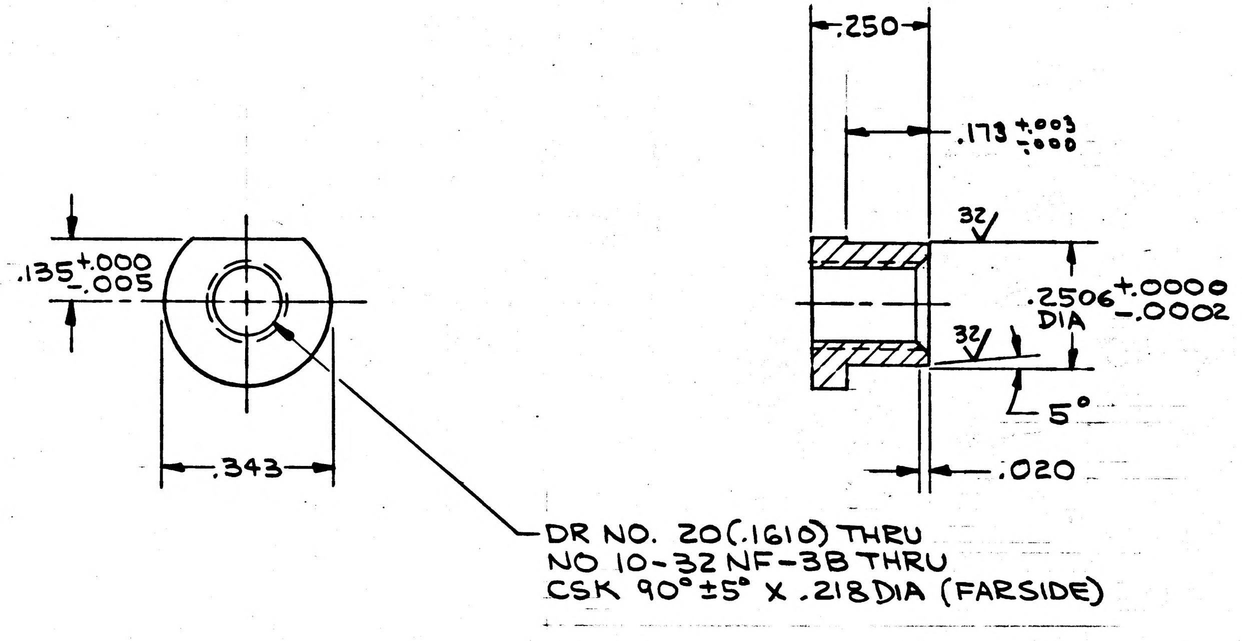
AD-1340

2012745

2012747

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078
3. UNLESS OTHERWISE SPECIFIED:
   63√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
5. PASSIVATE PER MIL-STD-171
6. BLACKEN IN ACCORDANCE WITH MIL-C-13924, CLASS 3
7. IDENTIFY USING NASA PART NO. AND MANUFACTURERS SYMBOL PER ND1002019

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL



MASTER

ACTUAL SIZE

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012666	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL CORROSION RESISTANT STEEL FED SPEC QQ-S-763 CLASS 303 COND. A

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC
PN

DRAWN B. BRUNELLE DATE 3-21-66
CHECKED H E Pressey 4-21-66
APPROVAL
APPROVAL E. Thorup 4-21-66
NASA APPROVAL 4/22/66
MIT APPROVAL W Kupfer 22 Apr 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE INSERT, THREADED

CODE IDENT NO.
SIZE C
NASA NUMBER 2012747
SCALE 4/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

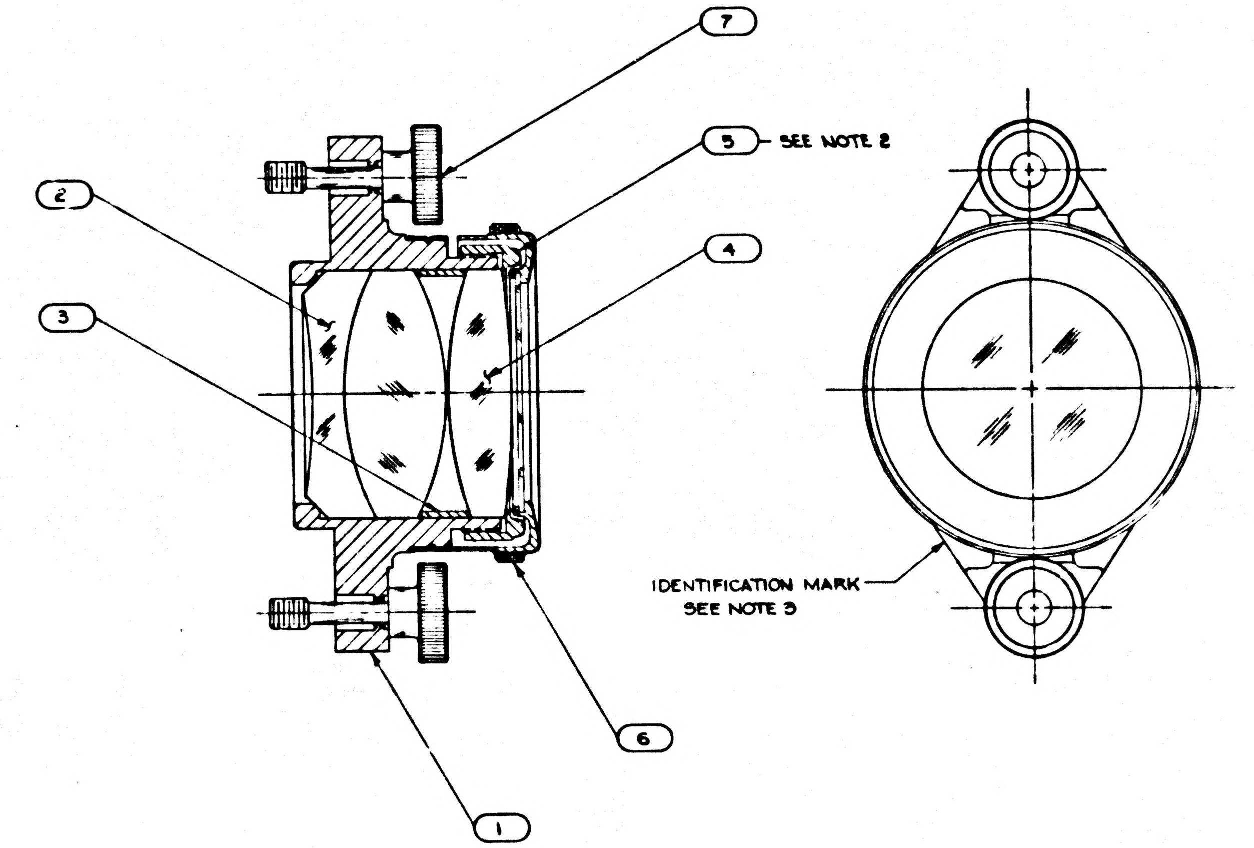
AD-1340

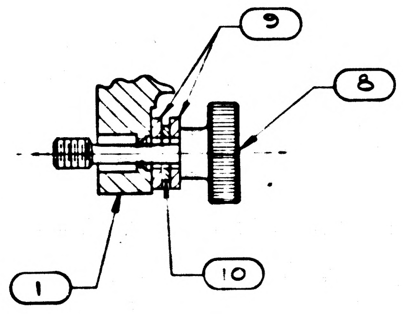
B 2012748

REVISIONS 28082				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 29290	6-7-66	[illegible]
3		REVISED PER TDRR 36408	9-24-66	[illegible]

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. VIBRATION PROOF USING LOCKING COMPOUND GRADE "HV" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
3. IDENTIFY USING NASA PART NO. & SERIAL NO. AND MANUFACTURER'S SYMBOL PER ND 002019.
4. COMPLETE ASS'Y SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2012748.





FOR -011 AND SUBSEQUENT CONFIGURATIONS

QTY REQ'D 011	QTY REQ'D 000	ITEM NO	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
2	0	10		MS35338-81			LOCKWASHER			
4	0	9		AN960-C10L			FLAT WASHER (LIGHT SERIES)			
2	0	8		2012749-001			SCREW, CAPTIVE, KNURLED HEAD			
0	2	7		2012749-000	45386910260		SCREW, CAPTIVE, KNURLED HEAD			
1	1	6		2011931	85386910710		RETAINER AND FILTER ASSY OF			
1	1	5		2011927	57386910920		RING, LOCKING			
1	1	4		2011922	28386910400		LENS, POSITIVE (SXT ½ X)			
1	1	3		2011929	57386910930		SPACER, LENS			
1	1	2		2011921	76386910110		LENS, ASSY OF (SXT ½ X)			
1	1	1		2011926	50386910060		HOUSING, LONG EYE RELIEF EYEPIECE (SXT)			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2015000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL ~
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911830

DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL
APPROVAL E. Thoma 3/20/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
LONG EYE RELIEF
EYEPIECE ASSEMBLY (SXT)

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012748
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

APOLLO G&N Specification
PS 2012748
Original Issue Date:
Release Authority: TORR 29289
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

LONG EYE RELIEF EYEPIECE ASSEMBLY (SXT)

DRAWING NO. 2012748

Record of Revisions

Date	Revision Letter	TORR No.	Pages Revised	Approvals	
				MIT	NASA
9/9/66	A	30838	4	S.A.	N/A
6/24/68	B	36409	2	M.M.	N/A

This specification consists of page 1 to 5 inclusive.

APPROVALS	A. G. METZGER NASA/MSC	E.T. 5/31/66 6-1-66 6-1-66 MIT/IL	KIC

1 SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the Long Eye Relief Eyepiece Assembly No. 2012748-000.and ~~2012748-011~~ -011,

1-1 PRODUCT CONFIGURATION BASE LINE ACCEPTANCES. The product configuration baseline shall be established by F. A. C. I. of the end item Serial No. . This unit and all subsequent units regardless of intended use shall be accepted to the configuration defined by Serial No. unless formally approved otherwise as required by ANA Bulletin No. 445.

2 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2-1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

Specifications

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of Apollo Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

Standards

Military

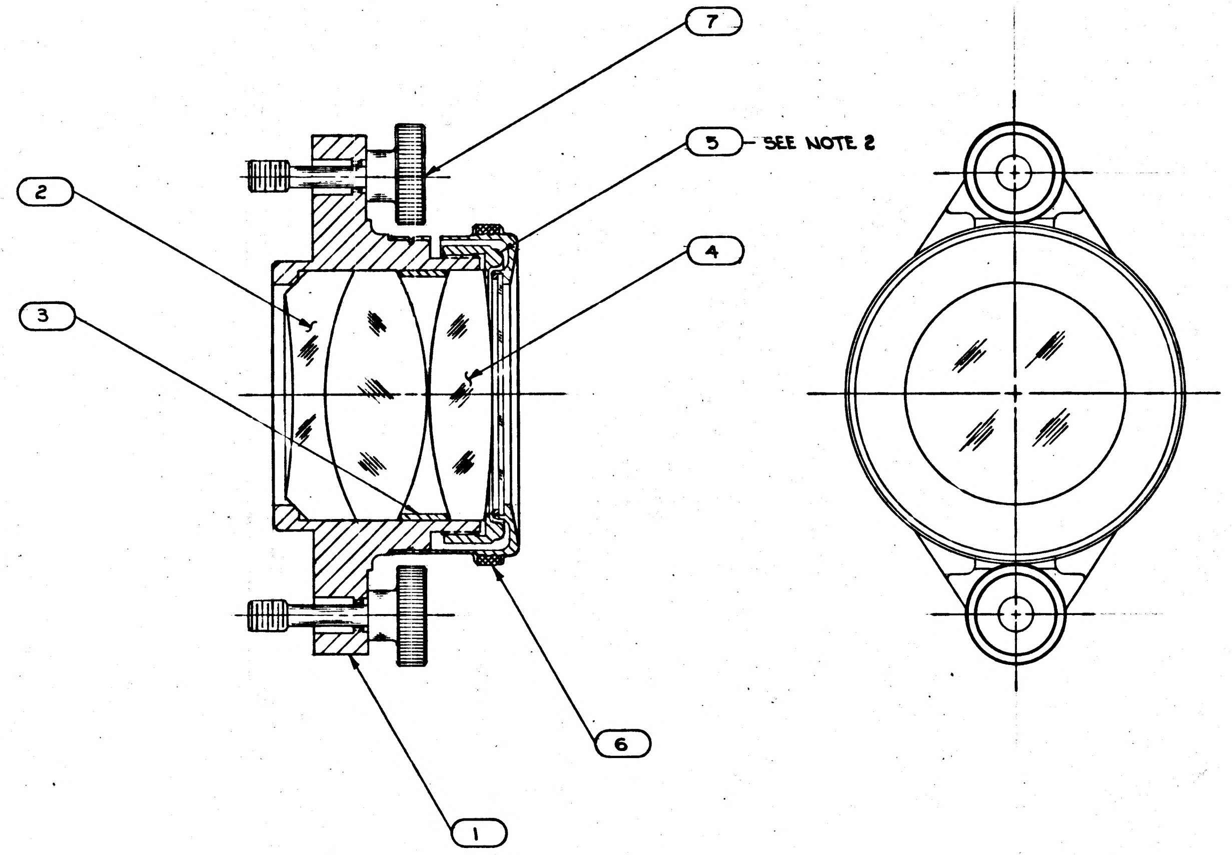
MIL-STD-202	Test Methods for Electronic and Electrical Component Parts
MIL-STD-150	Photographic Lenses

2012748

SYM	ZONE	REVISIONS 28082 DESCRIPTION	DATE	APPROVAL

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. VIBRATION PROOF USING LOCKING COMPOUND GRADE "HV" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
3. IDENTIFY USING NASA DWG. NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019 (TAGGING).



QTY REQ'D 000	ITEM NO	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
2	7		2012749	45386910260		SCREW, CAPTIVE, KNURLED HEAD			
1	6		2011931	85386910710		RETAINER AND FILTER ASS'Y OF			
1	5		2011927	57386910920		RING, LOCKING			
1	4		2011922	28386910400		LENS, POSITIVE (SXT ½ X)			
1	3		2011929	57386910930		SPACER, LENS			
1	2		2011921	76386910110		LENS, ASS'Y OF (SXT ½ X)			
1	1		2011926	50386910060		HOUSING, LONG EYE RELIEF EYEPIECE (SXT)			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2015000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN 85386911830
DRAWN H. Bankowski DATE 23 Mar 66
CHECKED F. Raymond 4/4/66
APPROVAL
APPROVAL E. Thorup 3/28/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 14 Apr 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
LONG EYE RELIEF
EYEPIECE ASSEMBLY (SXT)

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012748
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

MASTER

AD-1960

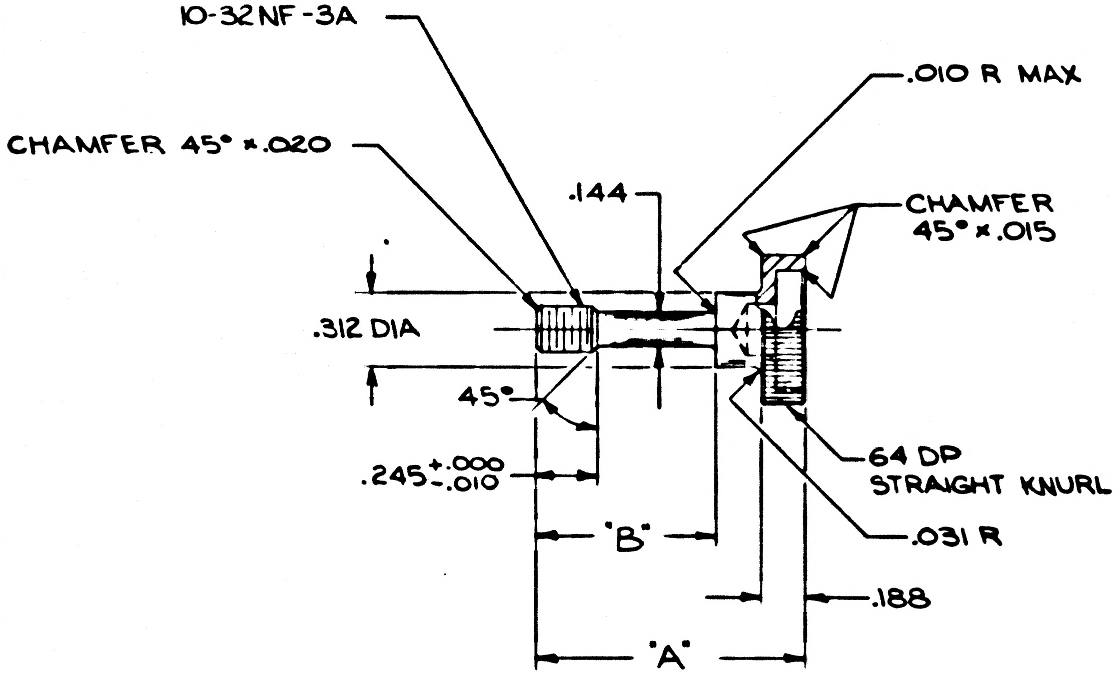
2012748

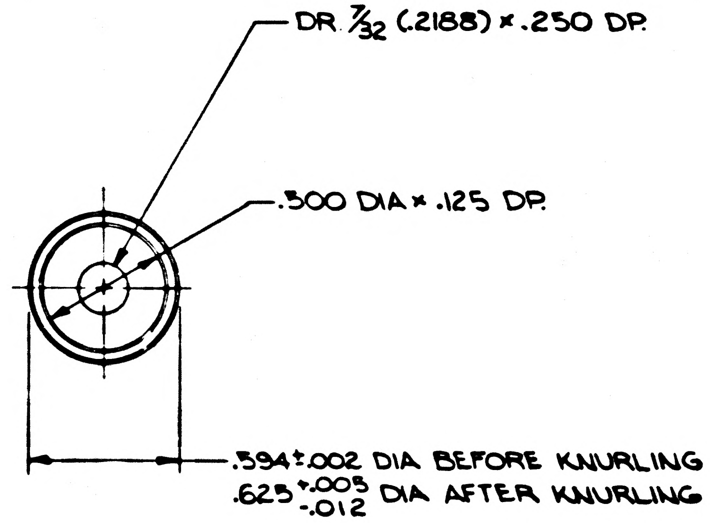
2012749 A

REVISIONS 28082				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		REVISED PER TDRR 36434	6/24/68	7.7P 7/5/68

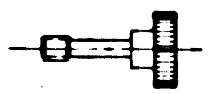
NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED
   63√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5. FINISH: PASSIVATE PER MIL-STD-171 TABLE V
6. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURER'S SYMBOL IN ACCORDANCE WITH ND1002019


10-32NF-3A
.010 R MAX
CHAMFER 45° × .020
.144
CHAMFER 45° × .015
.312 DIA
45°
.245 +.000 −.010
64 DP STRAIGHT KNURL
"B"
.031 R
.188
"A"


DR. 7/32 (.2188) × .250 DP.
.500 DIA × .125 DP.
.594 ±.002 DIA BEFORE KNURLING
.625 +.005 −.012 DIA AFTER KNURLING

DASH NO.	"A" DIM	"B" DIM
-000	1.125	.750
-001	1.218	.844



ACTUAL SIZE

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2012748	
2012700	2011000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL CORROSION RESISTANT STEEL FED SPEC QQ-S-763 CLASS 303 COND A

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK

KIC PN 45386910260

DRAWN J. Borkowski DATE 25 Mar 66
CHECKED F. Raymond 4/1/66
APPROVAL
APPROVAL E. Thorup 3/28/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 14 Apr 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SCREW, CAPTIVE
KNURLED HEAD

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012749

SCALE 2/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

2012749 A

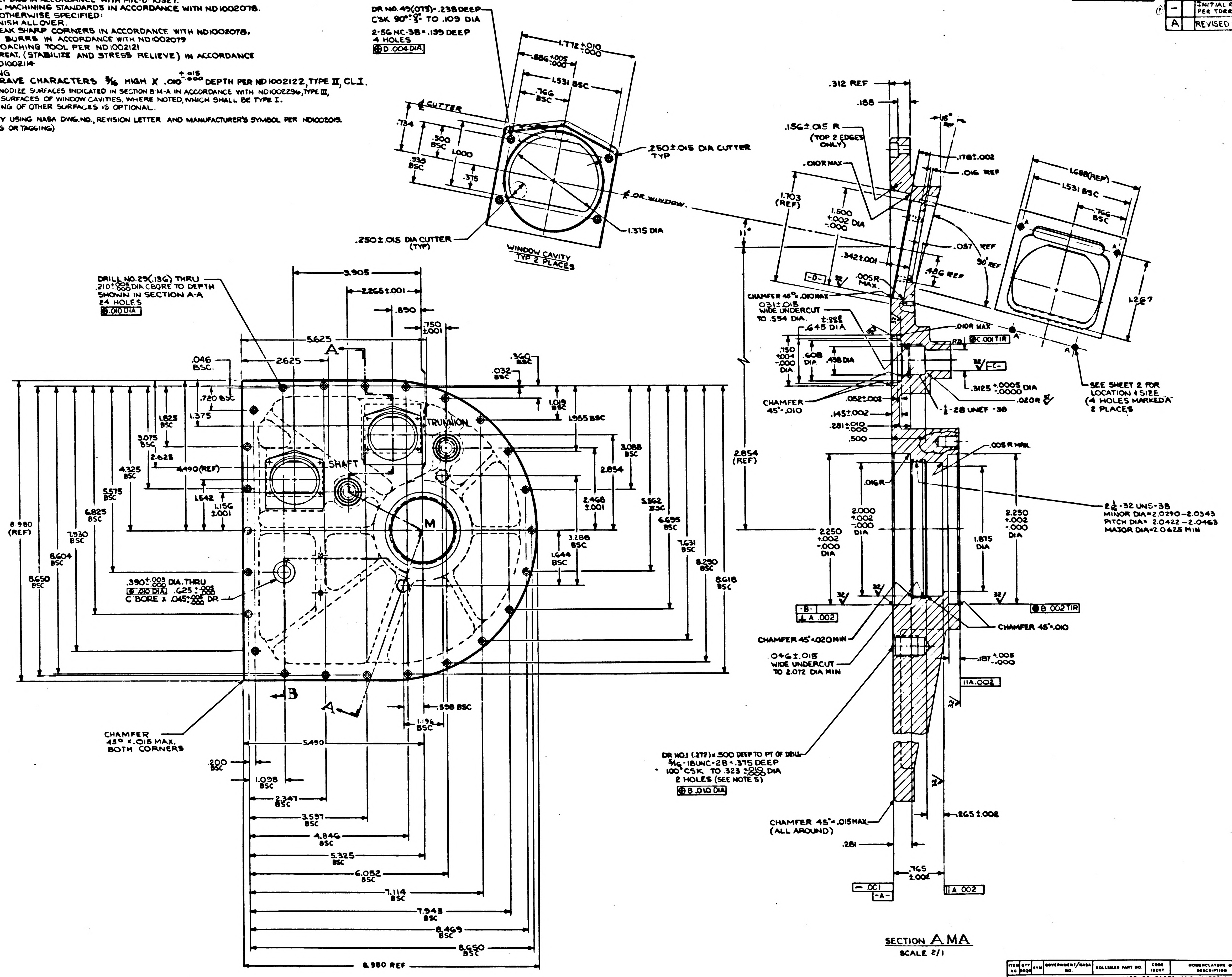
AD-1340

03/25

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
  a. 63√ FINISH ALL OVER.
  b. BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
5. USE BROACHING TOOL PER ND1002121
6. HEAT TREAT. (STABILIZE AND STRESS RELIEVE) IN ACCORDANCE WITH ND1002114
7. MARKING
  a. ENGRAVE CHARACTERS 3/16 HIGH X .010 $^{+.015}_{-.000}$ DEPTH PER ND1002122, TYPE II, CL.I.
8. BLACK ANODIZE SURFACES INDICATED IN SECTION B-M-A IN ACCORDANCE WITH ND1002296, TYPE III, EXCEPT SURFACES OF WINDOW CAVITIES, WHERE NOTED, WHICH SHALL BE TYPE I. ANODIZING OF OTHER SURFACES IS OPTIONAL.
9. IDENTIFY USING NASA DWG.NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING OR TAGGING)

2012765 A

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—		INITIAL RELEASE CLASS A PER TDRR 32821 DATE	27 JAN	
A		REVISED PER TDRR 33029	2/21/67	


DR NO. 49(.073) × .238 DEEP
C'SK 90° +0° −5° TO .109 DIA
2-56 NC-3B × .199 DEEP
4 HOLES
⊕ D .004 DIA
1.772 +.010 −.000
.886 +.005 −.000
1.531 BSC
.766 BSC
℄ CUTTER
.734
.500 BSC
1.000
.938 BSC
.375
.250 ± .015 DIA CUTTER TYP
℄ OF WINDOW
1.375 DIA
.250 ± .015 DIA CUTTER (TYP)
WINDOW CAVITY TYP 2 PLACES
DRILL NO. 29 (.136) THRU
.210 +.005 −.000 DIA C'BORE TO DEPTH SHOWN IN SECTION A-A
24 HOLES
⊕ .010 DIA
3.905
2.265 ± .001
.890
.750 ± .001
5.625
2.625
A
.046 BSC.
.360 BSC
.032 BSC
.720 BSC
1.825 BSC
1.375
1.019 BSC
1.955 BSC
3.075 BSC
2.625
4.490 (REF)
4.325 BSC
TRUNNION
SHAFT
3.088 BSC
2.854
5.575 BSC
1.542
1.156 ± .001
2.468 ± .001
M
5.562 BSC
6.695 BSC
6.825 BSC
8.980 (REF)
7.930 BSC
3.288 BSC
1.644 BSC
7.631 BSC
8.290 BSC
8.618 BSC
8.604 BSC
8.650 BSC
.390 +.003 −.000 DIA. THRU
⊕ .010 DIA
.625 +.005 −.000
C'BORE × .045 +.005 −.000 DP.
B
CHAMFER 45° × .018 MAX. BOTH CORNERS
A
.598 BSC
1.196 BSC
5.490
.200 BSC
1.098 BSC
2.347 BSC
3.597 BSC
4.846 BSC
5.325 BSC
6.052 BSC
7.114 BSC
7.943 BSC
8.469 BSC
8.650 BSC
8.980 REF
.312 REF
.188
15° REF
.156 ± .015 R (TOP 2 EDGES ONLY)
.178 ± .002
.010 R MAX
.016 REF
1.703 (REF)
1.500 +.002 −.000 DIA
11°
.057 REF
90° REF
.342 ± .001
.486 REF
-D-
32
.005 R MAX.
1.688 (REF)
1.531 BSC
.766 BSC
1.267
A
CHAMFER 45° × .010 MAX
.031 ± .015 WIDE UNDERCUT TO .554 DIA.
.645 +.002 −.000 DIA
.010 R MAX
PD ⊚ C .001 TIR
.750 +.004 −.000 DIA
.608 DIA
.438 DIA
-C-
.3125 +.0005 −.0000 DIA
.020 R
CHAMFER 45° × .010
.062 ± .002
1/2-28 UNEF-3B
SEE SHEET 2 FOR LOCATION & SIZE (4 HOLES MARKED "A" 2 PLACES)
.145 ± .002
.281 +.010 −.000
.500
.005 R MAX.
2.854 (REF)
.016 R
2 1/16-32 UNS-3B
MINOR DIA = 2.0290 − 2.0343
PITCH DIA = 2.0422 − 2.0463
MAJOR DIA = 2.0625 MIN
2.250 +.002 −.000 DIA
2.000 +.002 −.000 DIA
1.875 DIA
2.250 +.002 −.000 DIA
-B-
⊥ A .002
⊚ B .002 TIR
CHAMFER 45° × .020 MIN
CHAMFER 45° × .010
.046 ± .015 WIDE UNDERCUT TO 2.072 DIA MIN
.187 +.005 −.000
∥ A .002
DR NO. 1 (.272) × .500 DEEP TO PT OF DRILL
5/16-18 UNC-2B × .375 DEEP
100° CSK TO .323 +.010 −.000 DIA
2 HOLES (SEE NOTE 5)
⊕ B .010 DIA
CHAMFER 45° × .015 MAX. (ALL AROUND)
.265 ± .002
.281
.765 ± .002
— .001
-A-
∥ A .002

SECTION A-MA
SCALE 2/1

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOL ON: FRACTIONS ± —; DECIMALS ± .005; ANGLES ± 1°	KOLLSMAN INSTRUMENT CORPORATION ELMHURST NEW YORK KIC PN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
DO NOT SCALE THIS DRAWING	DRAWN F.P. ESCHÉ DATE 12/21/66 CHECKED EJ APPROVAL APPROVAL 1/4/67	TITLE PANEL, TELESCOPE		
MATERIAL BERYLLIUM ND1002125 SEE NOTE 6	NASA APPROVAL	CODE IDENT NO 80230	SIZE E	NASA NUMBER 2012765
CONTRACT NAS 9-497	CCO APPROVAL	SCALE 1/1	WEIGHT CALC ACTUAL	SHEET 1 OF 2

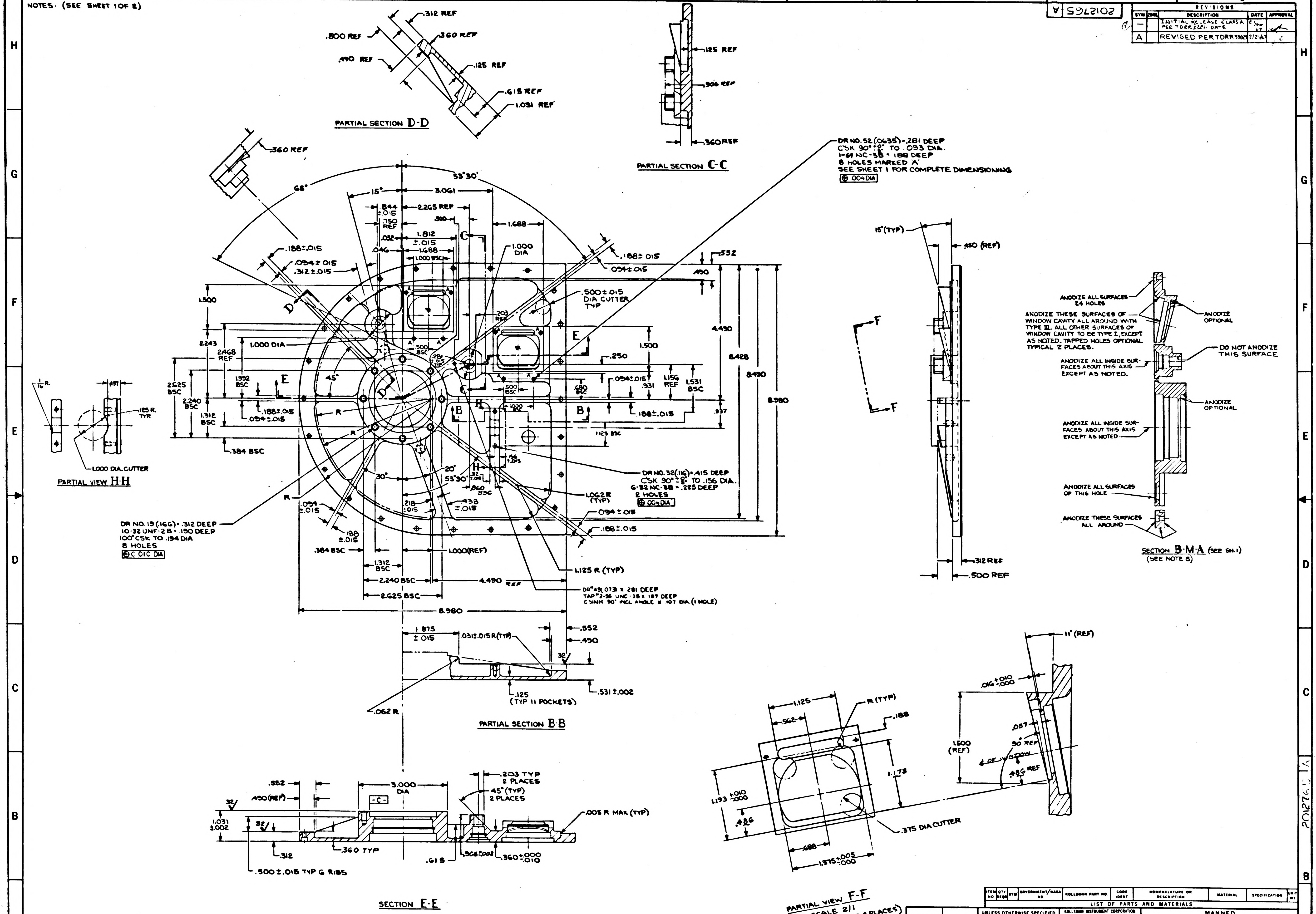
NEXT ASSY	USED ON
2011717	2011000
APPLICATION	

2012765 A

NOTES: (SEE SHEET 1 OF 2)

2012765 A

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—		INITIAL RELEASE CLASS A PER TDRR 3221 DATE	6 Jan 67	
A		REVISED PER TDRR 33025	2/21/67	



PARTIAL SECTION D-D
.312 REF
.500 REF
.360 REF
.490 REF
.125 REF
.615 REF
1.031 REF
PARTIAL SECTION C-C
.125 REF
.906 REF
.360 REF
.360 REF
68°
53°30'
15°
3.061
.844 ±.015
2.265 REF
.750 REF
.500
1.688
1.812 ±.015
1.688
1.000 BSC
.032
.046
1.000 DIA
.188±.015
.094±.015
.312±.015
.188±.015
.094±.015
.552
.490
.500±.015 DIA CUTTER TYP
1.500
2.243
2.468 REF
1.000 DIA
2.625 BSC
2.240 BSC
1.312 BSC
1.992 BSC
.188±.015
.094±.015
.384 BSC
45°
.500 BSC
.281 ±.015 TYP
.250
1.500
4.490
8.428
8.490
8.980
.094±.015
.931
1.156 REF
1.531 BSC
.188±.015
.937
1.125 BSC
.500 BSC
.680 BSC
1.000 BSC
.203 R TYP
R
30°
20°
53°30'
.860 BSC
.438 ±.015
.218 ±.015
.094 ±.015
.188 ±.015
.384 BSC
1.000(REF)
1.312 BSC
2.240 BSC
2.625 BSC
4.490 REF
8.980
1.062 R (TYP)
.094 ±.015
.188±.015
1.125 R (TYP)
DR NO. 52 (.0635) × .281 DEEP
C'SK 90° +0° -5° TO .093 DIA.
1-64 NC-3B × .188 DEEP
8 HOLES MARKED "A"
SEE SHEET 1 FOR COMPLETE DIMENSIONING
⊕ .004 DIA
DR NO. 32 (.116) × .415 DEEP
C'SK 90° +0° -5° TO .156 DIA.
6-32 NC-3B × .225 DEEP
2 HOLES
⊕ .004 DIA
DR NO. 19 (.166) × .312 DEEP
10-32 UNF-2B × .190 DEEP
100° CSK TO .194 DIA
8 HOLES
⊕ C .010 DIA
DR #49 (.073) × .281 DEEP
TAP #2-56 UNC-3B × .187 DEEP
C'SINK 90° INCL ANGLE × .107 DIA. (1 HOLE)
1/16 R.
.437
.125 R. TYP.
1.000 DIA. CUTTER
PARTIAL VIEW H-H
15° (TYP)
.490 (REF)
.312 REF
.500 REF
F
F
ANODIZE ALL SURFACES 24 HOLES
ANODIZE THESE SURFACES OF WINDOW CAVITY ALL AROUND WITH TYPE III. ALL OTHER SURFACES OF WINDOW CAVITY TO BE TYPE I, EXCEPT AS NOTED. TAPPED HOLES OPTIONAL TYPICAL 2 PLACES.
ANODIZE OPTIONAL
DO NOT ANODIZE THIS SURFACE
ANODIZE ALL INSIDE SURFACES ABOUT THIS AXIS EXCEPT AS NOTED.
ANODIZE OPTIONAL
ANODIZE ALL INSIDE SURFACES ABOUT THIS AXIS EXCEPT AS NOTED
ANODIZE ALL SURFACES OF THIS HOLE
ANODIZE THESE SURFACES ALL AROUND
SECTION B-M-A (SEE SH. 1)
(SEE NOTE 8)
1.875 ±.015
.031±.015 R (TYP)
.552
.490
32
.125 (TYP 11 POCKETS)
.531±.002
.062 R
PARTIAL SECTION B-B
11° (REF)
.016 +.010 -.000
1.500 (REF)
.057
90° REF
℄ OF WINDOW
.486 REF
1.125
.562
R (TYP)
.188
1.193 +.010 -.000
1.173
.486
.688
1.375 +.005 -.000
.375 DIA CUTTER
PARTIAL VIEW F-F
SCALE 2/1
(WINDOW-TYP 2 PLACES)
.552
.490 (REF)
32
1.031 ±.002
32
.312
3.000 DIA
-C-
.360 TYP
.500 ±.015 TYP 6 RIBS
.203 TYP 2 PLACES
45° (TYP) 2 PLACES
.615
.906±.002
.360 +.000 -.010
.005 R MAX (TYP)
SECTION E-E

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011717	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE SHEET 1
CONTRACT NAS-9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC
PN
DRAWN F. PLESCHE DATE 12/2/66
CHECKED EJT
APPROVAL
APPROVAL E. [illegible] 1/6/67
NASA APPROVAL J. C. W
CCB APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

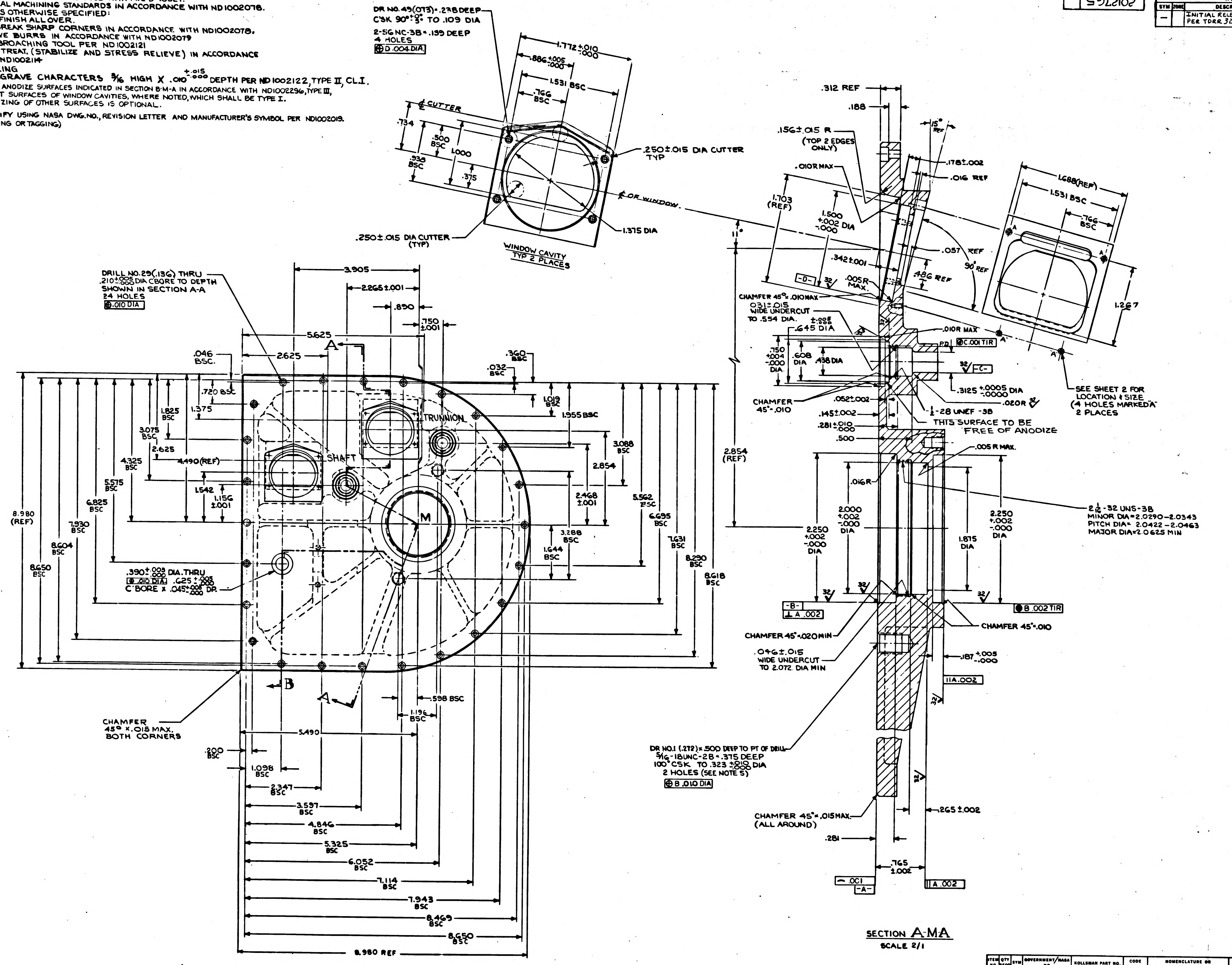
TITLE
PANEL, TELESCOPE

CODE IDENT NO 80230
SIZE E
NASA NUMBER 2012765
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 2 OF 2

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—		INITIAL RELEASE CLASS A PER TDRR 3282/DATE		

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED:
   a. 63/ FINISH ALL OVER.
   b. BREAK SHARP CORNERS IN ACCORDANCE WITH ND1002078.
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
5. USE BROACHING TOOL PER ND1002121
6. HEAT TREAT. (STABILIZE AND STRESS RELIEVE) IN ACCORDANCE WITH ND1002114
7. MARKING
   a. ENGRAVE CHARACTERS 3/16 HIGH X .010 $^{+.015}_{-.000}$ DEPTH PER ND1002122, TYPE II, CL.I.
8. BLACK ANODIZE SURFACES INDICATED IN SECTION B-M-A IN ACCORDANCE WITH ND1002296, TYPE III, EXCEPT SURFACES OF WINDOW CAVITIES, WHERE NOTED, WHICH SHALL BE TYPE I. ANODIZING OF OTHER SURFACES IS OPTIONAL.
9. IDENTIFY USING NASA DWG.NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING OR TAGGING)


DR NO.49(.073)×.238 DEEP
C'SK 90° TO .109 DIA
2-56NC-3B×.159 DEEP
4 HOLES
D .004 DIA
1.772±.010
.886±.005
1.531 BSC
.766 BSC
CUTTER
.734
.500 BSC
1.000
.935 BSC
.375
.250±.015 DIA CUTTER TYP
.250±.015 DIA CUTTER (TYP)
1.375 DIA
WINDOW CAVITY TYP 2 PLACES
WINDOW
DRILL NO.29(.136) THRU
.210 DIA C'BORE TO DEPTH SHOWN IN SECTION A-A
24 HOLES
.010 DIA
3.905
2.265±.001
.890
.750±.001
5.625
2.625
A
.046 BSC.
.360 BSC
.032 BSC
.720 BSC
1.825 BSC
1.375
1.019 BSC
1.955 BSC
3.075 BSC
2.625
TRUNNION
SHAFT
4.490(REF)
4.325 BSC
5.575 BSC
1.542
1.156±.001
3.088 BSC
2.854
2.468±.001
5.562 BSC
6.825 BSC
8.980 (REF)
7.930 BSC
8.604 BSC
8.650 BSC
M
3.288 BSC
1.644 BSC
6.695 BSC
7.631 BSC
8.290 BSC
8.618 BSC
.390 DIA.THRU
.010 DIA
.625 C'BORE X .045 DP.
B
CHAMFER 45° X .015 MAX. BOTH CORNERS
.598 BSC
1.196 BSC
5.490
.200 BSC
1.098 BSC
2.347 BSC
3.597 BSC
4.846 BSC
5.325 BSC
6.052 BSC
7.114 BSC
7.943 BSC
8.469 BSC
8.650 BSC
8.980 REF
.312 REF
.188
15° REF
.156±.015 R (TOP 2 EDGES ONLY)
.178±.002
.016 REF
.010R MAX
1.703 (REF)
1.500 +.002 -.000 DIA
11°
.057 REF
.342±.001
.486 REF
90° REF
1.688(REF)
1.531 BSC
.766 BSC
1.267
A'
-D-
.005R MAX.
CHAMFER 45°×.010 MAX
.031±.015 WIDE UNDERCUT TO .554 DIA.
.645 DIA
.010R MAX
.001 TIR
.750 +.004 -.000 DIA
.608 DIA
.438 DIA
-C-
.3125 +.0005 -.0000 DIA
.020R
SEE SHEET 2 FOR LOCATION & SIZE (4 HOLES MARKED "A") 2 PLACES
CHAMFER 45°×.010
.052±.002
1/2-28 UNEF-3B
.145±.002
THIS SURFACE TO BE FREE OF ANODIZE
.281±.010
.500
.005 R MAX.
2.854 (REF)
.016R
2 1/16-32 UNS-3B
MINOR DIA=2.0290-2.0343
PITCH DIA=2.0422-2.0463
MAJOR DIA=2.0625 MIN
2.000 +.002 -.000 DIA
2.250 +.002 -.000 DIA
1.815 DIA
-B-
A .002
B .002 TIR
CHAMFER 45°×.020 MIN
CHAMFER 45°×.010
.046±.015 WIDE UNDERCUT TO 2.072 DIA MIN
.187 +.005 -.000
A .002
DR NO.1 (.272)×.500 DEEP TO PT OF DRILL
5/16-18UNC-2B×.375 DEEP
100° CSK TO .323 DIA
2 HOLES (SEE NOTE 5)
B .010 DIA
.265±.002
CHAMFER 45°×.015 MAX. (ALL AROUND)
.281
.765±.002
.001
-A-
A .002
SECTION A-MA
SCALE 2/1

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011717	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
BERYLLIUM
ND1002125
SEE NOTE 6

CONTRACT NAS 9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN

DRAWN F.PLESCHE DATE 12/21/66
CHECKED ET
APPROVAL
APPROVAL E. Thomp 1/6/67
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

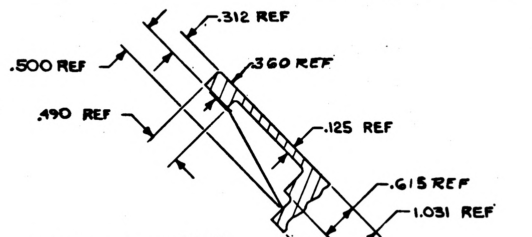
TITLE
PANEL, TELESCOPE

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012765
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 2

NOTES: (SEE SHEET 1 OF 2)

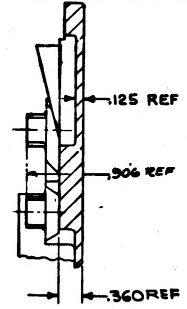
2012765

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—		INITIAL RELEASE CLASS A PER TDRR 3262 DATE	27 JAN 67	



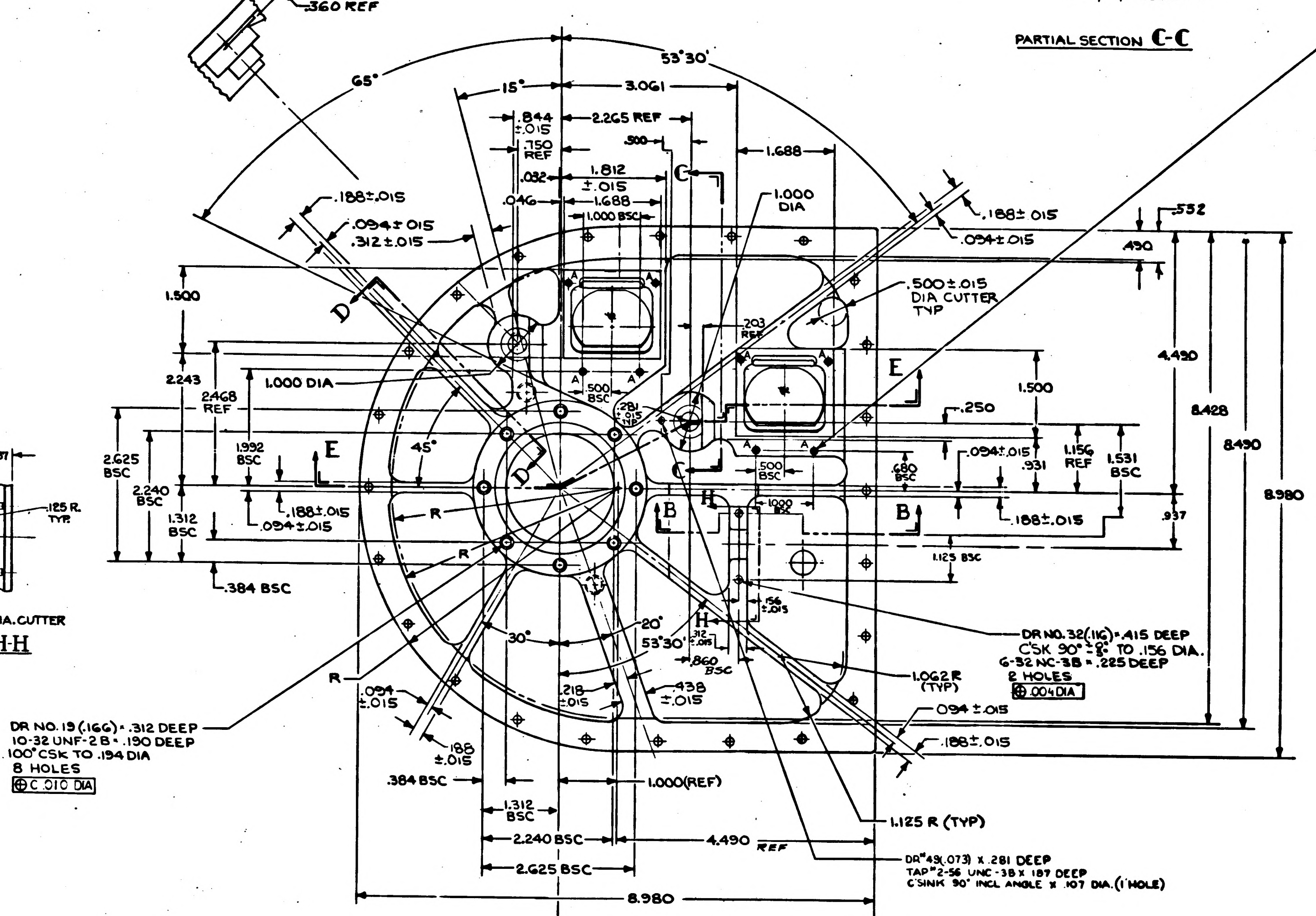
.312 REF
.500 REF
.360 REF
.490 REF
.125 REF
.615 REF
1.031 REF

PARTIAL SECTION D-D



.125 REF
.906 REF
.360 REF

PARTIAL SECTION C-C



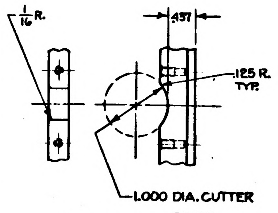
.360 REF
65°
53°30'
15°
3.061
.844 ±.015
2.265 REF
.750 REF
.500
.032
1.812 ±.015
1.688
1.000 BSC
.046
C
1.688
1.000 DIA
.188±.015
.094±.015
.312±.015
D
.188±.015
.094±.015
.552
.490
.500±.015 DIA CUTTER TYP
.203 REF
1.500
2.243
2.468 REF
1.000 DIA
E
1.500
4.490
8.428
8.490
8.980
.250
2.625 BSC
1.992 BSC
E
45°
.500 BSC
.281 .015
.094±.015
.931
1.156 REF
1.531 BSC
2.240 BSC
.188±.015
.094±.015
.500 BSC
.680 BSC
1.312 BSC
R
B
H
1.000 BSC
B
.188±.015
.937
.384 BSC
R
1.125 BSC
R
20°
30°
53°30'
H
.312 .015
.156 .015
.860 BSC
.218 ±.015
.438 ±.015
.094 ±.015
.188 ±.015
1.062 R (TYP)
094 ±.015
.188±.015
.384 BSC
1.000(REF)
1.312 BSC
2.240 BSC
2.625 BSC
4.490 REF
1.125 R (TYP)
8.980

DR NO.52 (.0635) × .281 DEEP
C'SK 90° +0° −5° TO .093 DIA.
1-64 NC-3B × .188 DEEP
8 HOLES MARKED "A"
SEE SHEET 1 FOR COMPLETE DIMENSIONING
⊕ .004 DIA

DR NO.19 (.166) × .312 DEEP
10-32 UNF-2B × .190 DEEP
100° CSK TO .194 DIA
8 HOLES
⊕ C .010 DIA

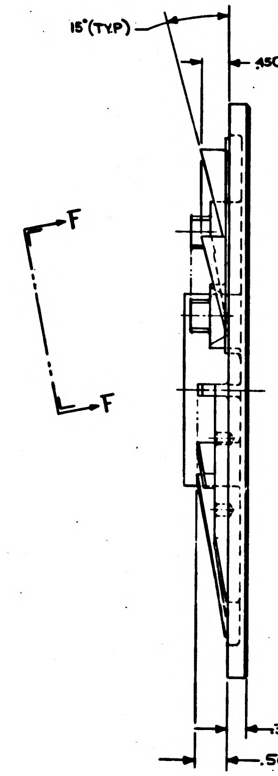
DR NO.32 (.116) × .415 DEEP
C'SK 90° ±0° −5° TO .156 DIA.
6-32 NC-3B × .225 DEEP
2 HOLES
⊕ .004 DIA

DR #49 (.073) X .281 DEEP
TAP #2-56 UNC-3B X .187 DEEP
C'SINK 90° INCL ANGLE X .107 DIA. (1 HOLE)

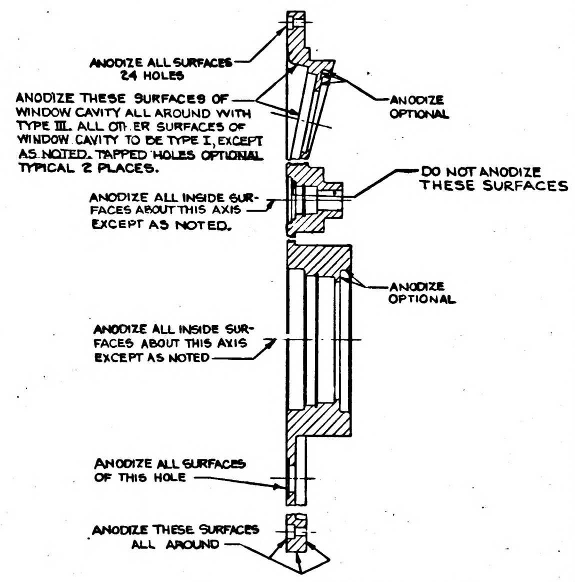


1/16 R.
.437
.125 R. TYP.
1.000 DIA. CUTTER

PARTIAL VIEW H-H



15°(TYP)
.450 (REF)
F
F
.312 REF
.500 REF



ANODIZE OPTIONAL
DO NOT ANODIZE THESE SURFACES
ANODIZE OPTIONAL

ANODIZE ALL SURFACES 24 HOLES

ANODIZE THESE SURFACES OF WINDOW CAVITY ALL AROUND WITH TYPE III. ALL OTHER SURFACES OF WINDOW CAVITY TO BE TYPE I, EXCEPT AS NOTED. TAPPED HOLES OPTIONAL TYPICAL 2 PLACES.

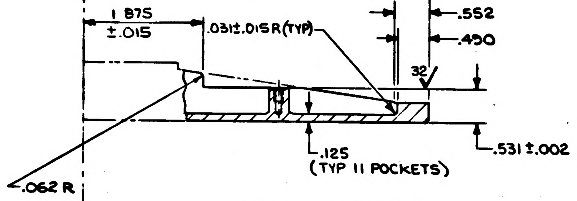
ANODIZE ALL INSIDE SURFACES ABOUT THIS AXIS EXCEPT AS NOTED.

ANODIZE ALL INSIDE SURFACES ABOUT THIS AXIS EXCEPT AS NOTED

ANODIZE ALL SURFACES OF THIS HOLE

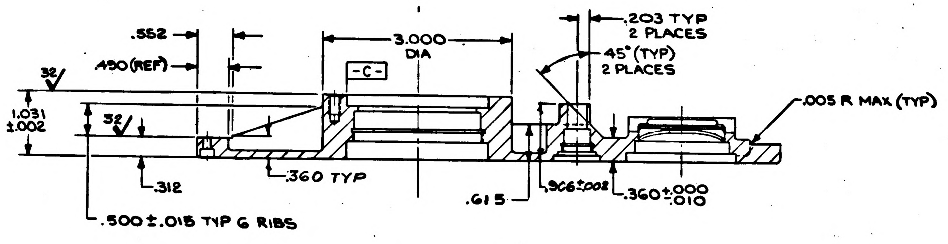
ANODIZE THESE SURFACES ALL AROUND

SECTION B-M-A (SEE SH.1)
(SEE NOTE 8)



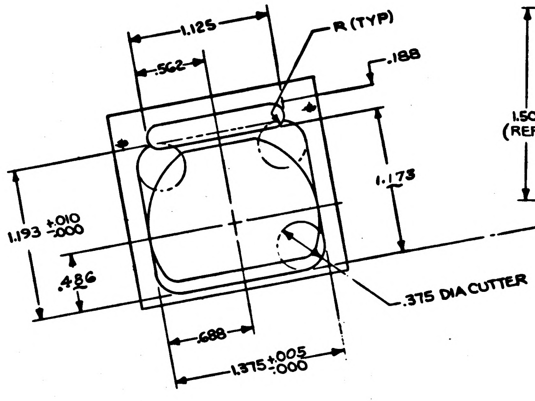
1.875 ±.015
.031±.015R(TYP)
.552
.450
32
.531±.002
.125 (TYP 11 POCKETS)
.062 R

PARTIAL SECTION B-B



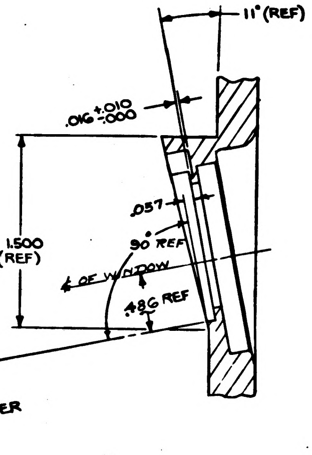
.552
.490(REF)
32
1.031 ±.002
32
3.000 DIA
-C-
.203 TYP 2 PLACES
45° (TYP) 2 PLACES
.005 R MAX (TYP)
.312
.360 TYP
.500±.015 TYP 6 RIBS
.615
.906±.002
.360 +.000 −.010

SECTION E-E



1.125
R (TYP)
.562
.188
1.173
1.193 +.010 −.000
.486
.375 DIA CUTTER
.688
1.375 +.005 −.000

PARTIAL VIEW F-F
SCALE 2/1
(WINDOW-TYP 2 PLACES)



11° (REF)
.016 +.010 −.000
.037
1.500 (REF)
90° REF
℄ OF WINDOW
.486 REF

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2011717	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE SHEET 1

CONTRACT
NAS-9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC
PN

DRAWN F. PLESCHE DATE 12/21/66
CHECKED EOT
APPROVAL
APPROVAL E. Phrong 1/6/67
NASA APPROVAL A C
CCB APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
PANEL, TELESCOPE

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012765
SCALE 1/1
WEIGHT
CALC
ACTUAL
SHEET 2 OF 2

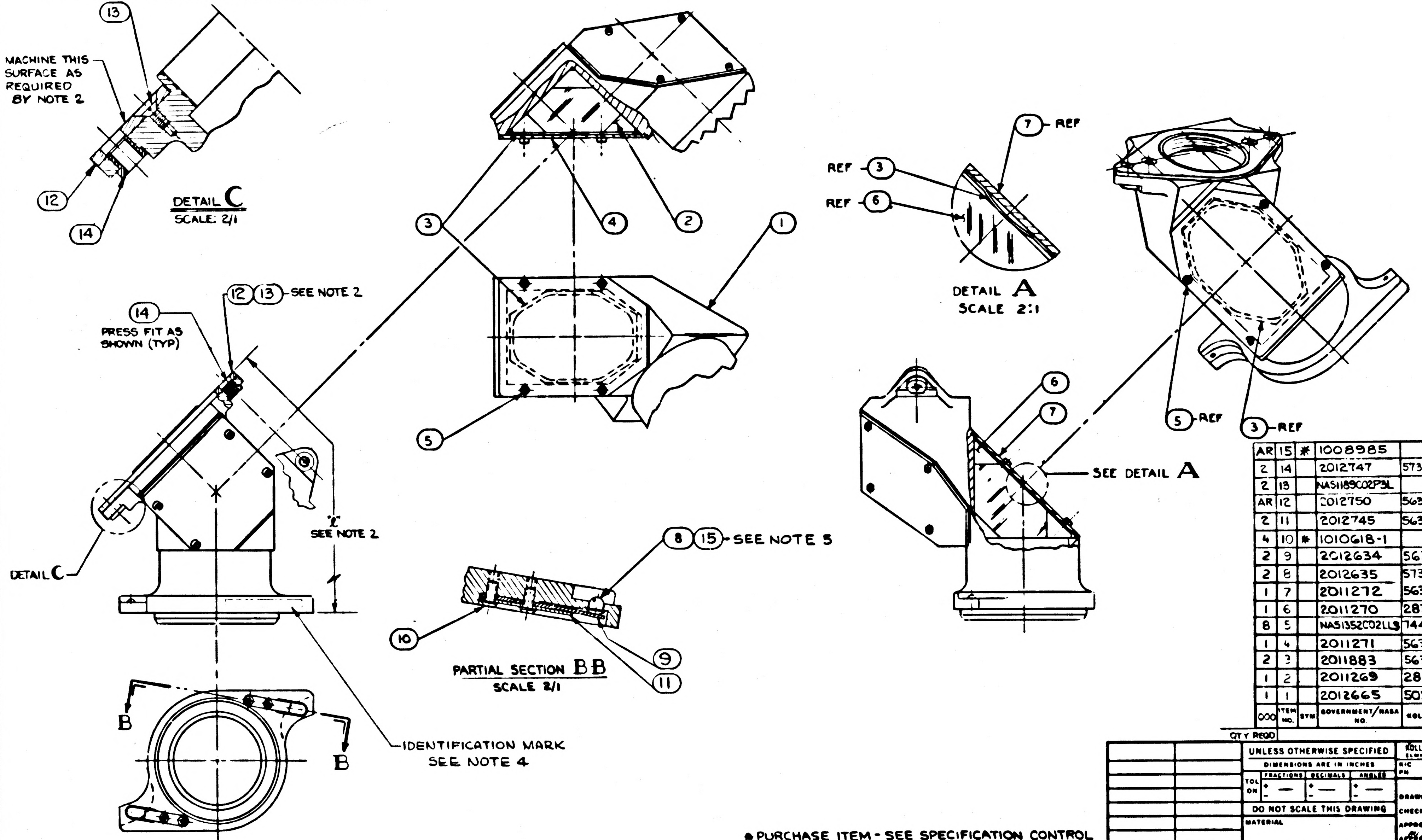
2012765

2012775 A

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 35754	" FEB 68	
A		REVISED PER TDRR 36489	7/2/68	

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. a. MACHINE ITEM 12 AS REQ'D TO PROVIDE AN OPTICAL PATH "ℒ" (AIR EQUIVALENT) OF 3.835 ± .003
   b. AFTER COMPLYING WITH NOTE 2a, ANODIZE ITEM 12 PER MIL-A-8625, TYPE II, CLASS II (DYED BLACK)
3. COMPLETE ASSY SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF PS 2012775.
4. IDENTIFY USING NASA DWG NO, REVISION LETTER AND MANUFACTURER'S SYMBOL IN ACCORDANCE WITH ND 1002019 WITH .125 HIGH CHARACTERS (WHITE) AT LOCATION SHOWN
5. APPLY THIN FILM OF ITEM 15 TO CYLINDRICAL PORTION OF ITEM 8 AND SWAB MATING HOLE IN ITEM NO. 1. WIPE OFF ALL EXCESSIVE LUBRICANT.


13
MACHINE THIS SURFACE AS REQUIRED BY NOTE 2
12
14
DETAIL C
SCALE: 2/1
14
PRESS FIT AS SHOWN (TYP)
12 13 - SEE NOTE 2
"ℒ" SEE NOTE 2
DETAIL C
B
B
IDENTIFICATION MARK SEE NOTE 4
3
4
2
1
5
8 15 - SEE NOTE 5
10
9
11
PARTIAL SECTION BB
SCALE 2/1
REF 3
REF 6
7 REF
DETAIL A
SCALE 2:1
6
7
SEE DETAIL A
5 REF
3 REF

* PURCHASE ITEM - SEE SPECIFICATION CONTROL DWG BEFORE ORDERING.

QTY REQD	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
AR	15	*	1008985			GREASE, FLUORINATED			
2	14		2012747	57386911760		INSERT, THREADED			
2	13		NAS1189C02P3L			SCREW, 100° FLAT HD., SELF LOCKING			
AR	12		2012750	56386910690		SHIM, MACHINED, SCT			
2	11		2012745	56386910680		SPRING, FLAT			
4	10	*	1010618-1	—		SCREW, BUTTON HD, SELF LOCKING, SOC HEX			
2	9		2012634	56386910610		SPRING, FLAT			
2	8		2012635	57386911660		PLUNGER			
1	7		2011272	56386910350		PLATE, COVER PRISM HOUSING			
1	6		2011270	28386910270		PRISM, LARGE SCT EYEPIECE			
8	5		NAS1352C02LL8	74455157006		SCREW, CAP, SOCKET HEAD SELF-LOCKING			
1	4		2011271	56386910340		PLATE, COVER PRISM HOUSING			
2	3		2011883	56386910360		SPRING, ELLIPTICAL SCT PRISM			
1	2		2011269	28386910260		PRISM, SMALL SCT EYEPIECE			
1	1		2012665	50386910160		HOUSING, SCT PRISM			
000									

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2015000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
RIC
PN
DRAWN C. SAGONA 12-9-67
CHECKED L. Oster 2-13-68
APPROVAL J. Oster
APPROVAL
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SCT PRISM HOUSING,
ASSY OF

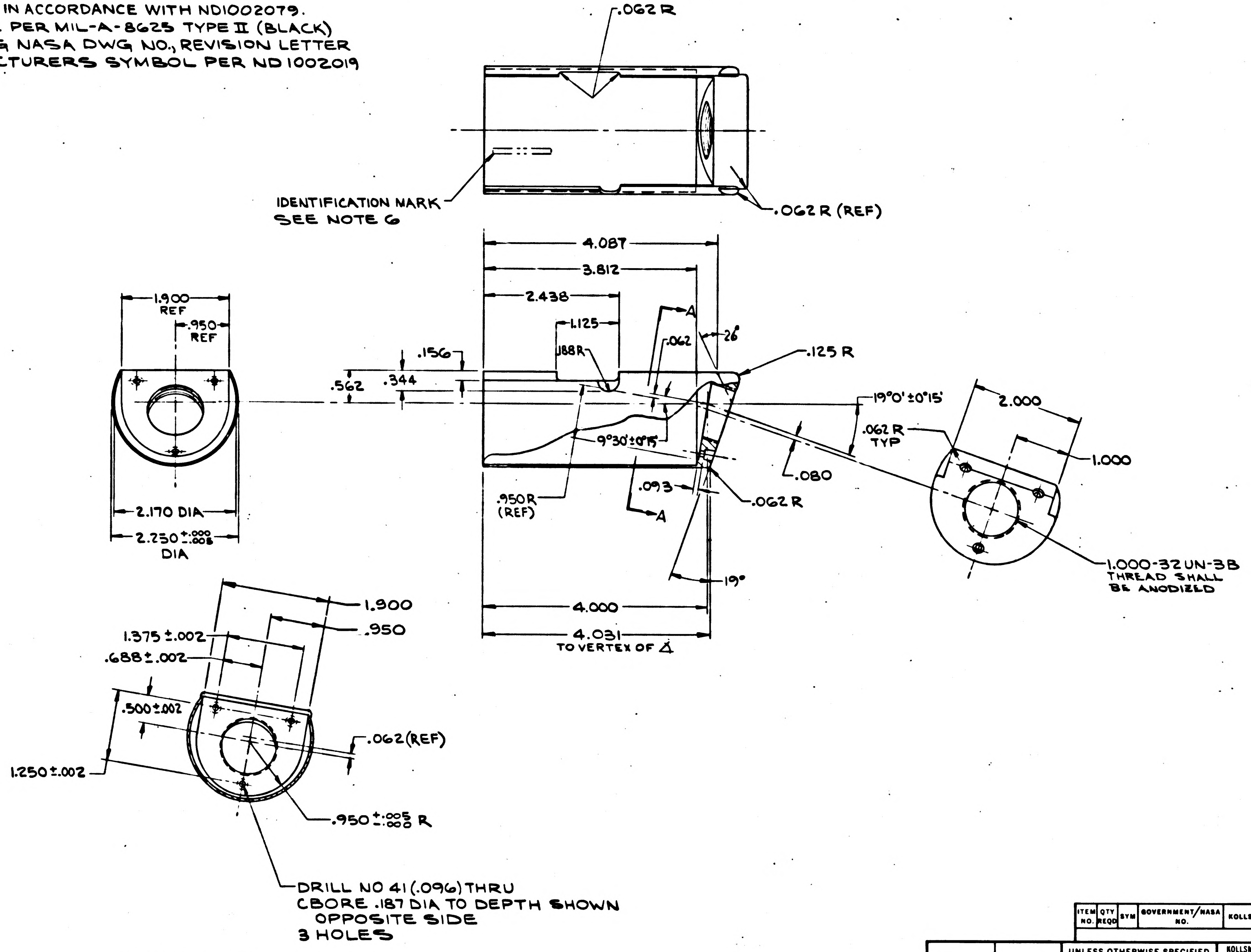
CODE IDENT NO 80230
SIZE D
NASA NUMBER 2012775
SCALE 1/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

2012775 A

2012777

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 35754.	26 FEB 68	

NOTES:
1-INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2-GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078
3-FINISH 63/ UNLESS OTHERWISE SPECIFIED
4-REMOVE BURRS IN ACCORDANCE WITH ND1002079.
5-FINISH: ANODIZE PER MIL-A-8625 TYPE II (BLACK)
6-IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019


.062 R
IDENTIFICATION MARK SEE NOTE 6
.062 R (REF)
4.087
3.812
2.438
1.125
.188R
.062
26°
A
A
.125 R
.156
.562
.344
19°0'±0°15'
.062 R TYP
9°30'±0°15'
.080
.093
.062 R
.950R (REF)
19°
4.000
4.031 TO VERTEX OF ∆
2.000
1.000
1.000-32UN-3B THREAD SHALL BE ANODIZED
1.900 REF
.950 REF
2.170 DIA
2.250 +.000 -.005 DIA
1.900
.950
1.375±.002
.688±.002
.500±.002
1.250±.002
.062(REF)
.950 +.005 -.000 R
DRILL NO 41 (.096) THRU
CBORE .187 DIA TO DEPTH SHOWN OPPOSITE SIDE
3 HOLES

SECTION A-A

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012791	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.005	±0°30'

DO NOT SCALE THIS DRAWING

MATERIAL
ALUMINUM ALLOY
FED SPEC QQ-A-225/8
TEMPER T6

CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC
PN

DRAWN Rinebruner DATE 2-3-68
CHECKED J. Oster 2-7-68
APPROVAL J. Oster 2-13-68
ALT. APPROVAL E. Khoury 2/14/68
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
COVER, HEATER
SXT EYEPIECE

CODE IDENT NO.	SIZE	NASA NUMBER
80230	D	2012777

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

2012777

AD-1300

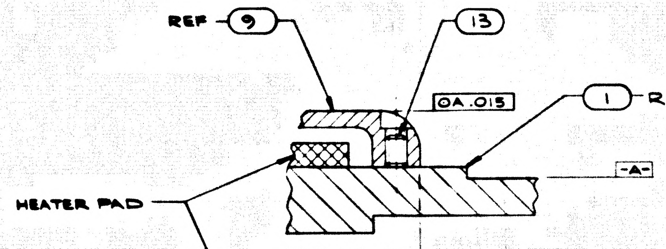
02/14/68

2012790 A

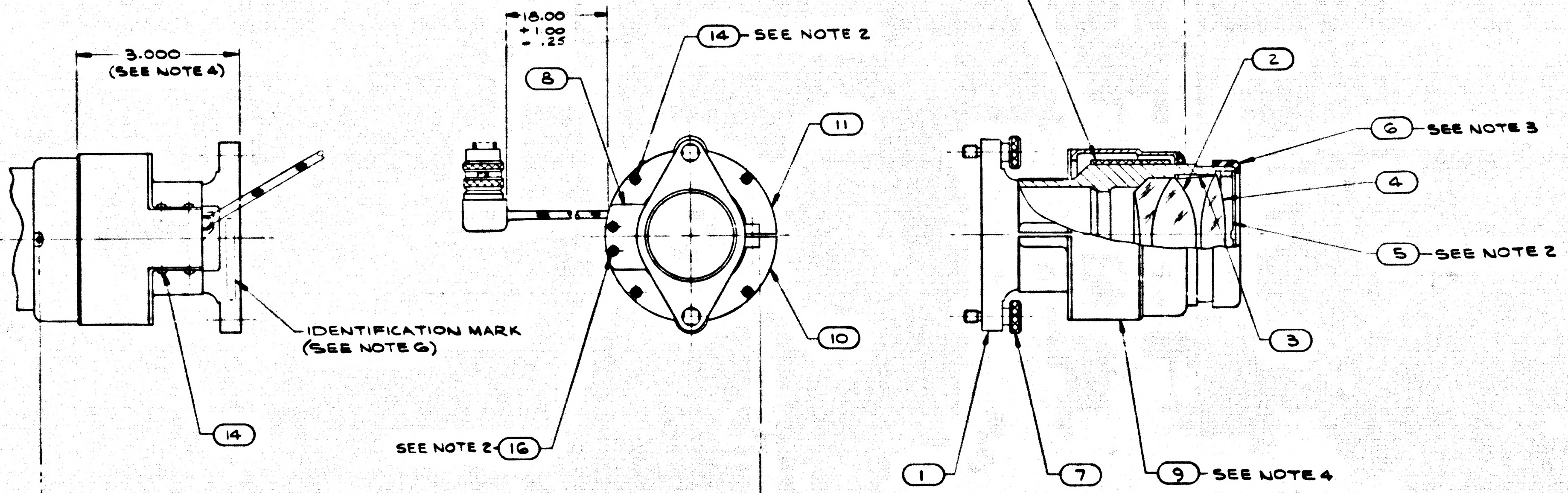
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS				
—	—	INITIAL RELEASE CLASS A PER TDRR 35754		
A		REVISED PER TDRR 35934	3-25-68	

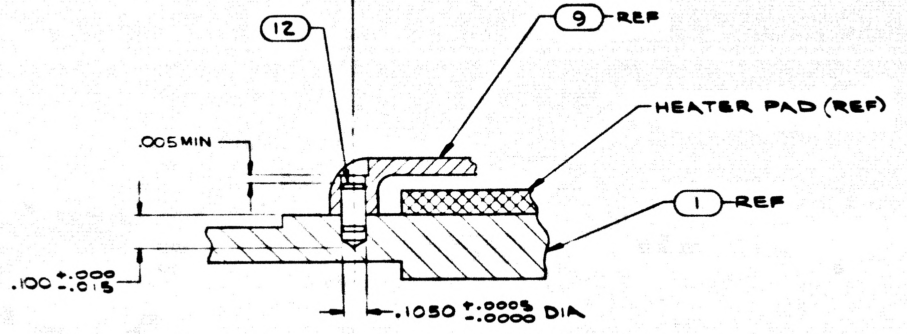
NOTES:

1- INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2- VIBRATION PROOF ITEM 5 WITH GRADE HV AND ITEMS 13, 14, 15 AND 16 WITH GRADE E OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
3- CEMENT ITEM 6 IN PLACE IN ACCORDANCE WITH MIL-A-1154
4- SET ITEM 9 TO DIMENSION SHOWN, SECURE IN PLACE WITH ITEM 13 (3 REQD). DRILL AND REAM THRU ITEM 9 TO DEPTH SHOWN IN ITEM 1. PRESS FIT ITEM 12 TO DEPTH SHOWN
5- COMPLETE ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2012790
6- IDENTIFY USING NASA PART NO., REVISION LETTER, AND MANUFACTURERS SYMBOL PER ND 1002019
7- GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND 1002078
8- REMOVE BURRS IN ACCORDANCE WITH ND 1002079

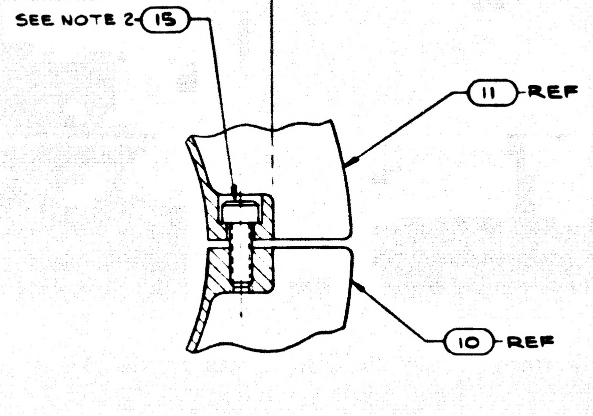

REF 9
13
0A.015
1 REF
-A-
HEATER PAD

VIEW A-A
SCALE-4/1


3.000
(SEE NOTE 4)
IDENTIFICATION MARK
(SEE NOTE G)
14
18.00
+1.00
-.25
8
14 SEE NOTE 2
11
10
SEE NOTE 2 16
2
6 SEE NOTE 3
4
5 SEE NOTE 2
3
1
7
9 SEE NOTE 4


12
9 REF
HEATER PAD (REF)
.005 MIN
1 REF
.100 +.000 -.015
.1050 +.0005 -.0000 DIA

VIEW B-B
SCALE-4/1


SEE NOTE 2 15
11 REF
10 REF

VIEW C-C
SCALE-4/1

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
16	2		MS16995-1			SCREW, CAP, SOCKET HEAD			
15	2		MS16995-2			SCREW, CAP SOCKET HEAD			
14	8		MS51957-2			SCREW, MACHINE, PAN HEAD			
13	3		MS51029-1			SETSCREW FLAT POINT			
12	2		2012786			PIN, DOWEL			
11	1		2012780			CLAMP, HEATER COVER HOLDER (SCT EYEPIECE)			
10	1		2012779			CLAMP, HEATER COVER HOLDER (SCT EYEPIECE)			
9	1		2012784			COVER, SLEEVE, HEATER (SCT EYEPIECE)			
8	1		2012782			COVER, WIRE GUIDE (SCT EYEPIECE)			
7	2		2012659	45386910130		SCREW, CAPTIVE, KNURLED HEAD			
6	1		2011974	26386910050		GUARD, RUBBER			
5	1		2011916	57386910820		RING, LOCKING			
4	1		2011824	28386910350		LENS, POSITIVE			
3	1		2011917	57386910820		SPACER, LENS			
2	1		2011730	76386910100		LENS, ASSY OF			
1	1		2012690-011			EYEPIECE HOUSING & HEATER ASSY OF			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± ~ DECIMALS ± .005 ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS-9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
RIC
PN
DRAWN R. ... DATE 2-8-68
CHECKED W. HABUTMAN 2-13-68
APPROVAL 2-2-68
APPROVAL
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

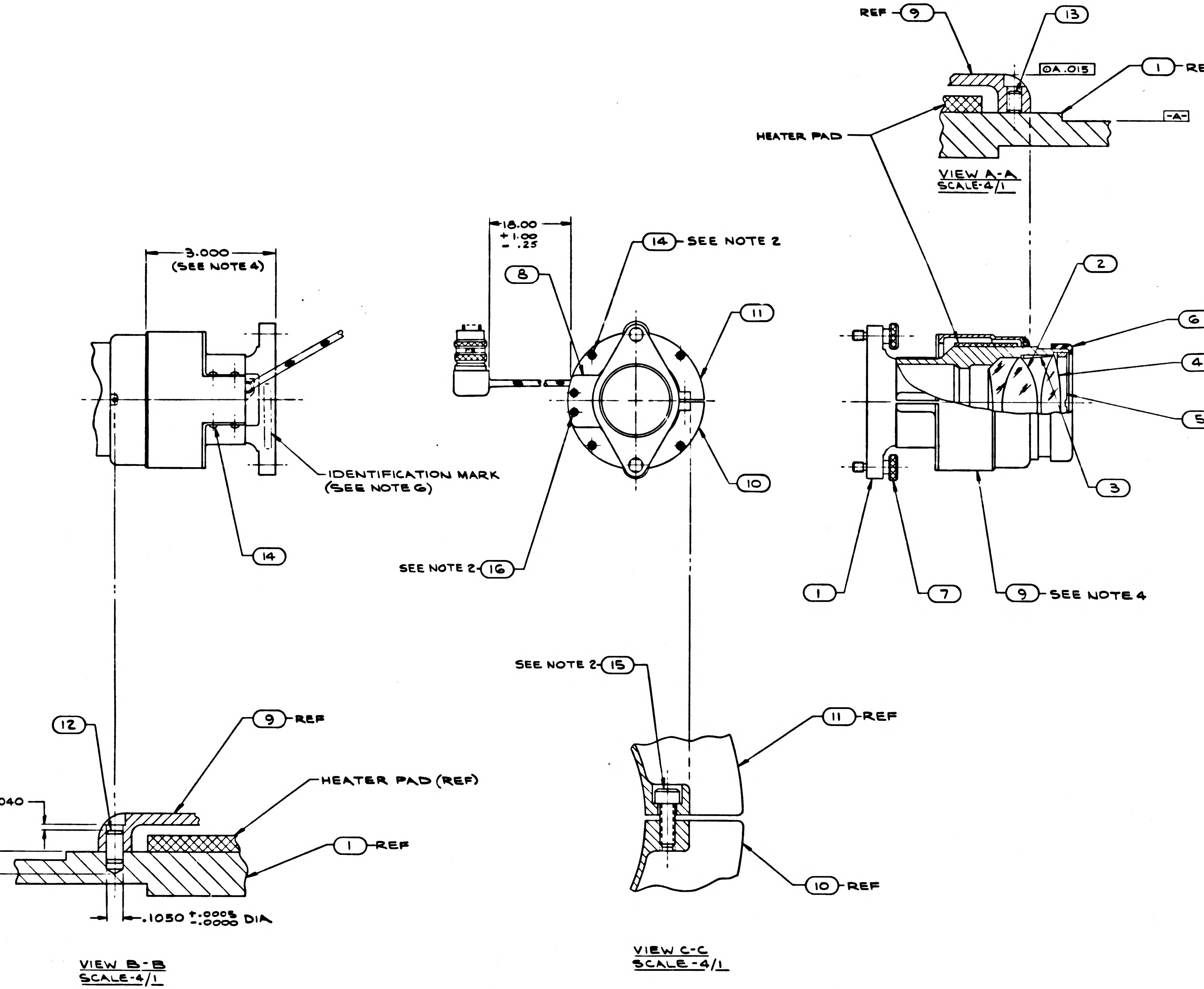
TITLE
LONG EYE RELIEF
EYEPIECE ASSEMBLY
(SCT)

CODE IDENT NO 80230 SIZE E NASA NUMBER 2012790
SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

NOTES:
1- INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2- VIBRATION PROOF ITEM NO.'S 5,13,14,15 AND 16 IN ACCORDANCE WITH ND 1002211 USING GRADE "HV" OF MIL-S-22473
3- CEMENT ITEM 6 IN PLACE IN ACCORDANCE WITH MIL-A-1154
4- SET ITEM 9 TO DIMENSION SHOWN, SECURE IN PLACE WITH ITEM 13 (3 REQD). DRILL AND REAM THRU ITEM 9 TO DEPTH SHOWN IN ITEM 1. PRESS FIT ITEM 12 TO DEPTH SHOWN
5- COMPLETE ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2012790
6- IDENTIFY USING NASA PART NO., REVISION LETTER, AND MANUFACTURERS SYMBOL PER ND 1002019
7- GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND 1002078
8- REMOVE BURRS IN ACCORDANCE WITH ND 1002079

2012790

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 35754	[illegible] 68	[illegible]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9
13
0A .015
1
REF
-A-
HEATER PAD
VIEW A-A
SCALE-4/1
18.00 +1.00 −.25
3.000
(SEE NOTE 4)
14
SEE NOTE 2
8
2
11
6
SEE NOTE 3
4
5
SEE NOTE 2
IDENTIFICATION MARK
(SEE NOTE 6)
10
3
14
SEE NOTE 2
16
1
7
9
SEE NOTE 4
SEE NOTE 2
15
12
9
REF
HEATER PAD (REF)
.040
1
REF
.100 +.000 −.015
.1050 +.0005 −.0000 DIA
11
REF
10
REF
VIEW B-B
SCALE-4/1
VIEW C-C
SCALE-4/1

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
16	2		MS16995-1			SCREW, CAP, SOCKET HEAD			
15	2		MS16995-2			SCREW, CAP SOCKET HEAD			
14	8		MS51957-2			SCREW, MACHINE, PAN HEAD			
13	3		MS51029-1			SETSCREW FLAT POINT			
12	2		2012786			PIN, DOWEL			
11	1		2012780			CLAMP, HEATER COVER HOLDER (SCT EYEPIECE)			
10	1		2012779			CLAMP, HEATER COVER HOLDER (SCT EYEPIECE)			
9	1		2012784			COVER, SLEEVE, HEATER (SCT EYEPIECE)			
8	1		2012782			COVER, WIRE GUIDE (SCT EYEPIECE)			
7	2		2012659	45386910130		SCREW, CAPTIVE, KNURLED HEAD			
6	1		2011974	26386910050		GUARD, RUBBER			
5	1		2011916	57386910820		RING, LOCKING			
4	1		2011824	28386910350		LENS, POSITIVE			
3	1		2011917	57386910820		SPACER, LENS			
2	1		2011730	76386910100		LENS, ASSY OF			
1	1		2012690-011			EYEPIECE HOUSING & HEATER, ASSY OF			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ DECIMALS ± .005 ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS-9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN Rindfleisch DATE 2-8-68
CHECKED W. Harutunian 2-3-68
APPROVAL [illegible] 2-?-68
MIT APPROVAL [illegible]
NASA APPROVAL [illegible]
APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
LONG EYE RELIEF
EYEPIECE ASSEMBLY
(SCT)

CODE IDENT NO. 80230 SIZE E NASA NUMBER 2012790
SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

02/4/71 m

APOLLO G&N Specification
PS 2012790
Original Issue Date: 26 Feb 68
Release Authority: TDRR 35761
Class A Release

PRODUCT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

LONG EYE RELIEF EYEPIECE ASSEMBLY (SCT)

DRAWING NO. 2012790

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page 1 to 6 inclusive.

APPROVALS	NASA/MSC	wstameris 19 Feb 68 MIT/IL	ccb 2/4/68	J. Oster 10/3/67 KIC	G. Altman

1 SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the SCT Long Eye Relief Eyepiece Assembly, Part No. 2012790-000.

1.1 PRODUCT CONFIGURATION BASELINE ACCEPTANCES. The product configuration baseline shall be established by FACI of the end item Serial No. . This unit and all subsequent units regardless of intended use shall be accepted to the configuration defined by Serial No. unless formally approved otherwise as required by ANA Bulletin No. 445.

2 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

Specifications

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of Apollo Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

Standards

Military

MIL-STD-150	Photographic Lenses
MIL-STD-202	Test Methods for Electronic and Electrical Component Parts

Drawings

APOLLO G&N

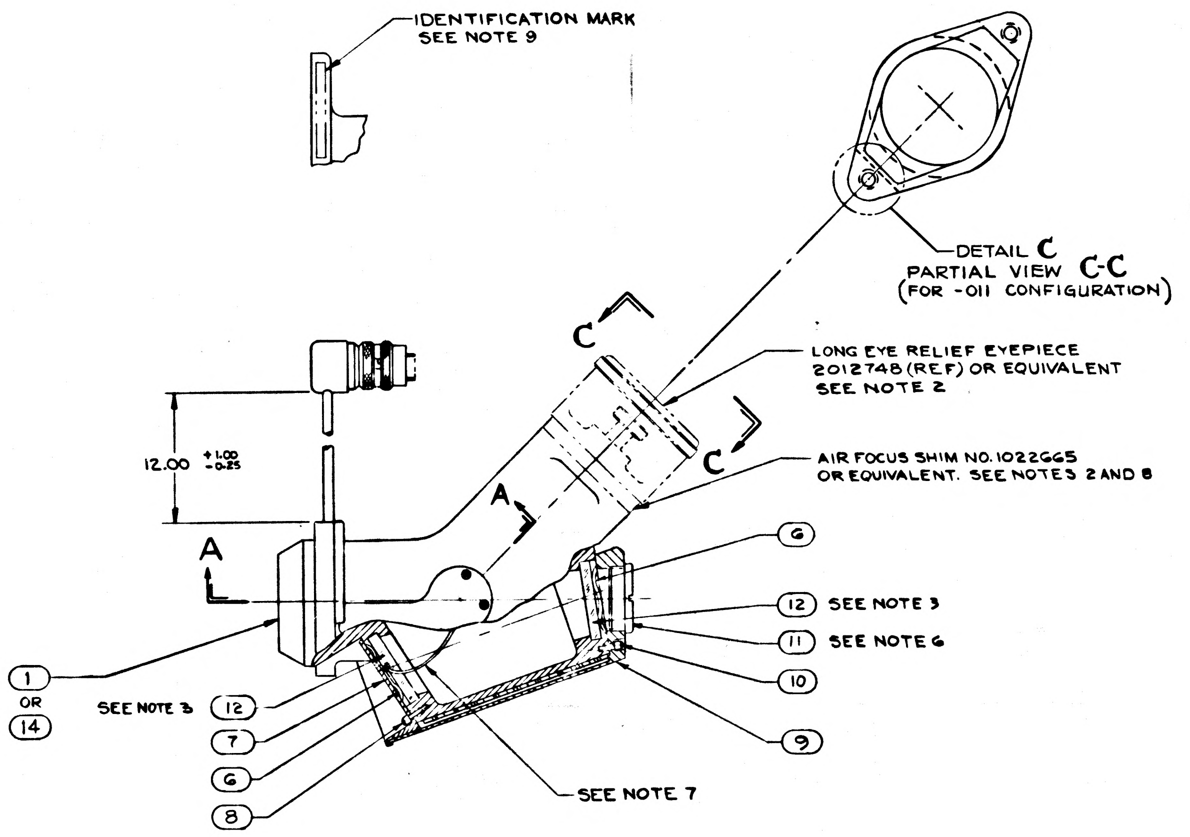
2012790	Long Eye Relief Eyepiece Assembly (SCT)
2012775	SCT Prism Housing Assembly
2011000	Optical Unit Assembly

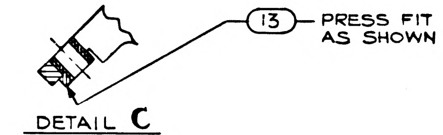
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. WITH LONG EYERELIEF EYEPIECE AND AIR FOCUS SHIM OR EQUIVALENTS IN PLACE, MACHINE ITEM 4 SO THAT AIR RETICLE IS IN FOCUS AT -1.00 ±0.15 DIOPTERS WHEN WINDOW AND RETICLE ARE AS SHOWN. SAME WINDOW AND RETICLE SHALL BE USED FOR FOCUSING ALL ASSEMBLIES TO INSURE INTERCHANGEABILITY.
3. ITEMS 12 TO BE MOUNTED WITH THE REFLECTIVE SURFACES FACED INWARD.
4. VIBRATION PROOF, USING LOCKING COMPOUND, GRADE "HV" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
5. COMPLETE ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS2012791
6. VIBRATION PROOF PLUG USING GRADE "HV" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211. (VIBRATION PROOFING MAY BE ACCOMPLISHED SUBSEQUENT TO FINAL FIELD TEST REQUIRING PLUG REMOVAL).
7. SOLDER YELLOW LEAD TO TERMINAL LUG OF ITEM 7 IN ACCORDANCE WITH ND1002032.
8. AIR FOCUS SHIM NO. 1022665, SHALL REMAIN WITH THIS ASSEMBLY FOR ALL GROUND TESTING.
9. IDENTIFY USING NASA DWG NO. AND SERIAL NO., PLUS MANUFACTURER'S SYMBOL PER ND1002019 WITH .125 HIGH CHARACTERS (WHITE) AT LOCATION SHOWN.

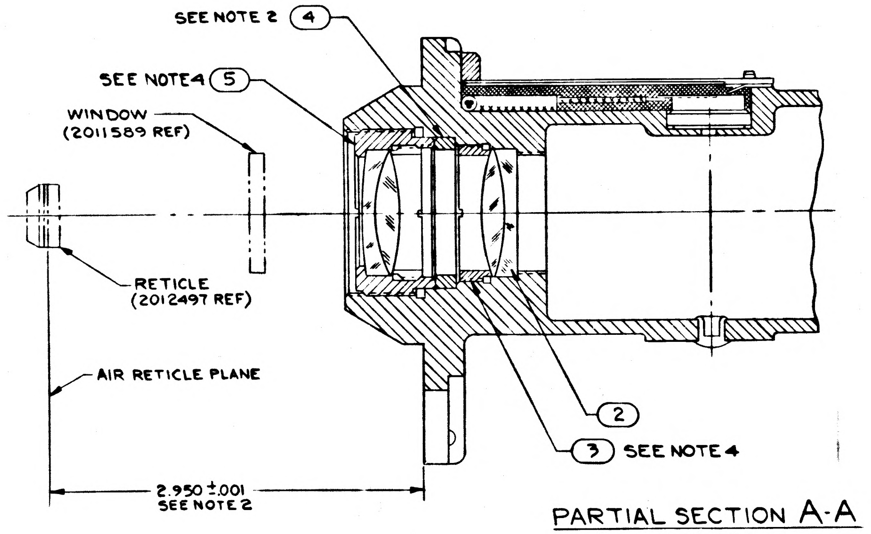
2012791 A

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 357..	26 FEB 68	
A		REVISED PER TDRR 37015	2-2-68	2/6/68


IDENTIFICATION MARK
SEE NOTE 9
DETAIL C
PARTIAL VIEW C-C
(FOR -011 CONFIGURATION)
C
C
LONG EYE RELIEF EYEPIECE
2012748 (REF) OR EQUIVALENT
SEE NOTE 2
AIR FOCUS SHIM NO. 1022665
OR EQUIVALENT. SEE NOTES 2 AND 8
12.00 +1.00 -0.25
A
A
6
12 SEE NOTE 3
11 SEE NOTE 6
10
9
1 OR 14
SEE NOTE 3
12
7
6
8
SEE NOTE 7


13 PRESS FIT AS SHOWN

DETAIL C
SCALE 2:1
(-011 CONFIGURATION)


SEE NOTE 2 4
SEE NOTE 4 5
WINDOW
(2011589 REF)
RETICLE
(2012497 REF)
AIR RETICLE PLANE
2.950 ±.001
SEE NOTE 2
2
3 SEE NOTE 4

PARTIAL SECTION A-A
SCALE 2/1

QTY REQD -011	QTY REQD -000	ITEM NO.		SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	0	14			2012695-021			MIRROR HOUSING & HEATER ASSY			
2	0	13			2012747-001			INSERT, THREADED			
2	2	12			2012162	28386910520		MIRROR			
1	1	11			2012124	57386911070		PLUG			
3	3	10			NAS1352C02LL4	74455157006		SCREW, CAP, HEX SOC HD, SELF-LOCKING			
1	1	9			2012777			COVER, HEATER SXT EYEPIECE			
3	3	8			NAS1352C02LL3	74455157005		SCREW, CAP, HEX SOC HD, SELF-LOCKING			
1	1	7			2012787			CAP AND TERMINAL ASSY			
2	2	6			2011685	56386910470		WASHER, WAVE			
1	1	5			2011794	85386910840		HOLDER AND LENS, ASSY OF			
1	1	4			2011665	57386910970		RING, SPACER			
1	1	3			2011667	57386910980		RING, LOCKING			
1	1	2			2011781	76386910120		LENS, ASSY OF			
1	1	1			2012695-011	85386911720		MIRROR HOUSING AND HEATER ASSY OF			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS-9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN J. J. TODD DATE 2-9-68
CHECKED H. Borenstein 2-3-68
APPROVAL J. Ootes 2-13-68
APPROVAL E. [illegible] 2/13/68
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SXT MIRROR HOUSING
AND AIR FOCUSSING
SHIM ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012791
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012791 A

02/14/8M

APOLLO G&N Specification
PS 2012791
Original Issue Date: 26Feb68
Release Authority: TDRR 35762
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

SXT MIRROR HOUSING AND AIR FOCUSING SHIM ASSEMBLY

DRAWING NO. 2012791

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals MIT	Approvals NASA
11-12-8	A	37013	2	M. M.	N/R

This specification consists of page 1 to 7 inclusive.

APPROVALS	NASA/MSC	W Stameris 19 Feb 68 MIT/IL	CCB 2/26/68	J. Ostero A Altamura KIC

1 SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the SXT Mirror Housing and Air Focusing Shim Assembly, Part No. 2012791 -000 and 2012791-011.

1.1 PRODUCT CONFIGURATION BASE LINE ACCEPTANCES. The product configuration baseline shall be established by FACI of the end item Serial No. . This unit and all subsequent units regardless of intended use shall be accepted to the configuration defined by Serial No. unless formally approved otherwise as required by ANA Bulletin No. 445.

2 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

Specifications

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of Apollo Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment

Standards

Military

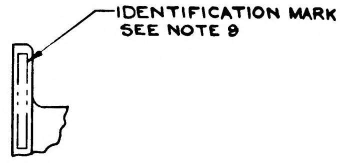
MIL-STD-202	Test Methods for Electronic and Electrical Component Parts
MIL-STD-150	Photographic Lenses

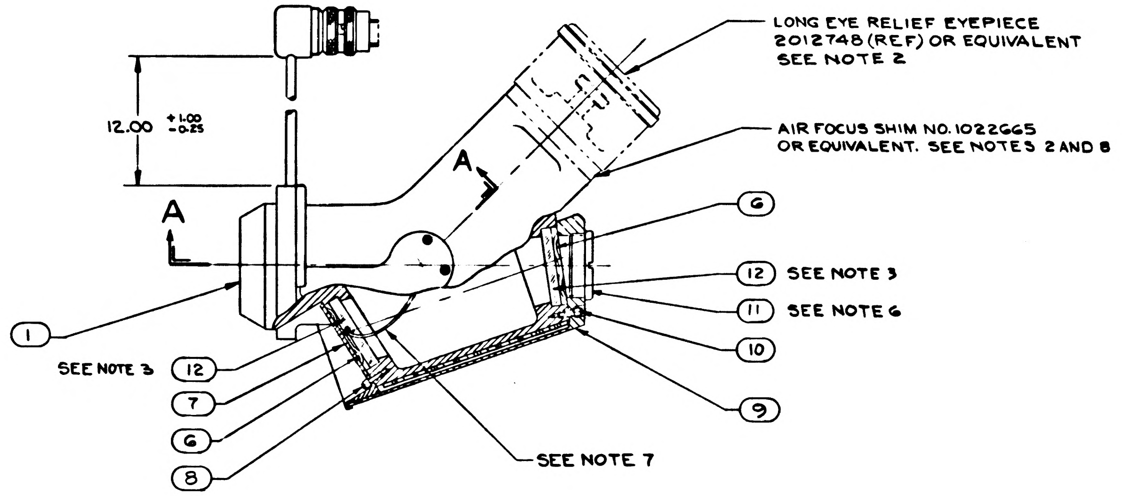
2012791

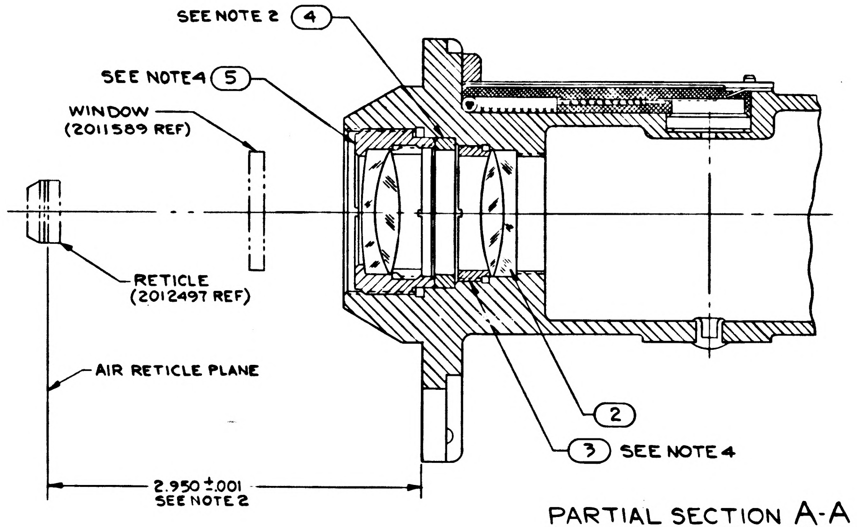
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 35754	26 FEB 68	

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. WITH LONG EYERELIEF EYEPIECE AND AIR FOCUS SHIM OR EQUIVALENTS IN PLACE, MACHINE ITEM 4 SO THAT AIR RETICLE IS IN FOCUS AT -1.00 ±0.15 DIOPTERS WHEN WINDOW AND RETICLE ARE AS SHOWN. SAME WINDOW AND RETICLE SHALL BE USED FOR FOCUSING ALL ASSEMBLIES TO INSURE INTERCHANGEABILITY.
3. ITEMS 12 TO BE MOUNTED WITH THE REFLECTIVE SURFACES FACED INWARD.
4. VIBRATION PROOF, USING LOCKING COMPOUND, GRADE "HV" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211.
5. COMPLETE ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS2012791
6. VIBRATION PROOF PLUG USING GRADE "HV" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211. (VIBRATION PROOFING MAY BE ACCOMPLISHED SUBSEQUENT TO FINAL FIELD TEST REQUIRING PLUG REMOVAL).
7. SOLDER YELLOW LEAD TO TERMINAL LUG OF ITEM 7 IN ACCORDANCE WITH ND1002032.
8. AIR FOCUS SHIM NO. 1022665, SHALL REMAIN WITH THIS ASSEMBLY FOR ALL GROUND TESTING.
9. IDENTIFY USING NASA DWG NO. AND SERIAL NO., PLUS MANUFACTURER'S SYMBOL PER ND1002019 WITH .125 HIGH CHARACTERS (WHITE) AT LOCATION SHOWN.


IDENTIFICATION MARK
SEE NOTE 9


12.00 +1.00 -0.25
A
A
LONG EYE RELIEF EYEPIECE
2012748 (REF) OR EQUIVALENT
SEE NOTE 2
AIR FOCUS SHIM NO. 1022665
OR EQUIVALENT. SEE NOTES 2 AND 8
6
12 SEE NOTE 3
11 SEE NOTE 6
10
9
1
SEE NOTE 3 12
7
6
8
SEE NOTE 7


SEE NOTE 2 4
SEE NOTE 4 5
WINDOW
(2011589 REF)
RETICLE
(2012497 REF)
AIR RETICLE PLANE
2.950 ±.001
SEE NOTE 2
2
3 SEE NOTE 4

PARTIAL SECTION A-A
SCALE 2/1

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
12	2		2012162	28386910520		MIRROR			
11	1		2012124	57386911070		PLUG			
10	3		NAS1352C02LL4	74455157006		SCREW, CAP, HEX SOC HD, SELF-LOCKING			
9	1		2012777			COVER, HEATER SXT EYEPIECE			
8	3		NAS1352C02LL3	74455157005		SCREW, CAP, HEX SOC HD, SELF-LOCKING			
7	1		2012787			CAP AND TERMINAL ASSY			
6	2		2011685	56386910470		WASHER, WAVE			
5	1		2011794	85386910840		HOLDER AND LENS, ASSY OF			
4	1		2011665	57386910970		RING, SPACER			
3	1		2011667	57386910980		RING, LOCKING			
2	1		2011781	76386910120		LENS, ASSY OF			
1	1		2012695-011	85386911720		MIRROR HOUSING AND HEATER ASSY OF			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS-9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC
PN
DRAWN J.J. TODD DATE 2-9-68
CHECKED H. Boerlisten 2-13-68
APPROVAL J Oates 2-13-68
APPROVAL
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SXT MIRROR HOUSING
AND AIR FOCUSSING
SHIM ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012791
SCALE 1:1
WEIGHT
CALC ACTUAL
SHEET OF 1

02/14/18 m

APOLLO G&N Specification
PS 2012791
Original Issue Date: 26Feb68
Release Authority: TDRR 35762
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

SXT MIRROR HOUSING AND AIR FOCUSING SHIM ASSEMBLY

DRAWING NO. 2012791

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page 1 to 7 inclusive.

APPROVALS	NASA/MSC	W Stameris 19 Feb 68 MIT/IL	CCB 2/26/68	J. Oster a altamura KIC

1 SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the SXT Mirror Housing and Air Focusing Shim Assembly, Part No. 2012791 -000.

1.1 PRODUCT CONFIGURATION BASE LINE ACCEPTANCES. The product configuration baseline shall be established by FACI of the end item Serial No. . This unit and all subsequent units regardless of intended use shall be accepted to the configuration defined by Serial No. unless formally approved otherwise as required by ANA Bulletin No. 445.

2 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

Specifications

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of Apollo Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment

Standards

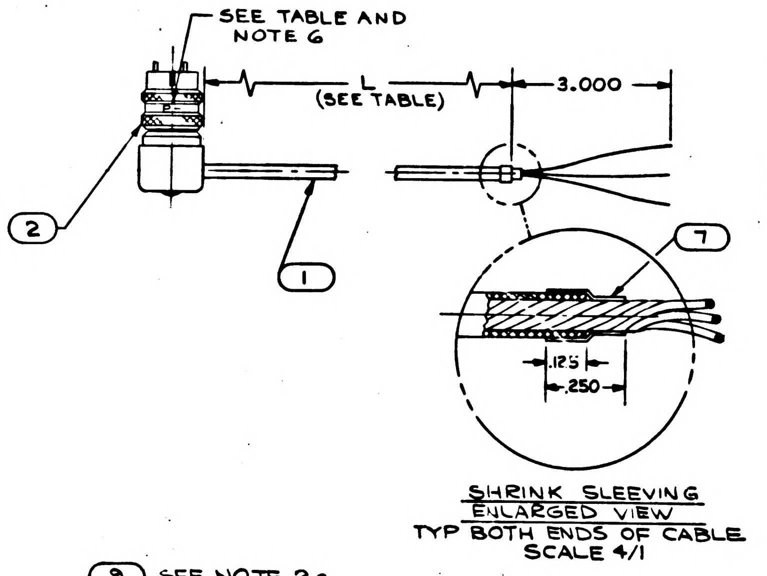
Military

MIL-STD-202	Test Methods for Electronic and Electrical Component Parts
MIL-STD-150	Photographic Lenses

2012792

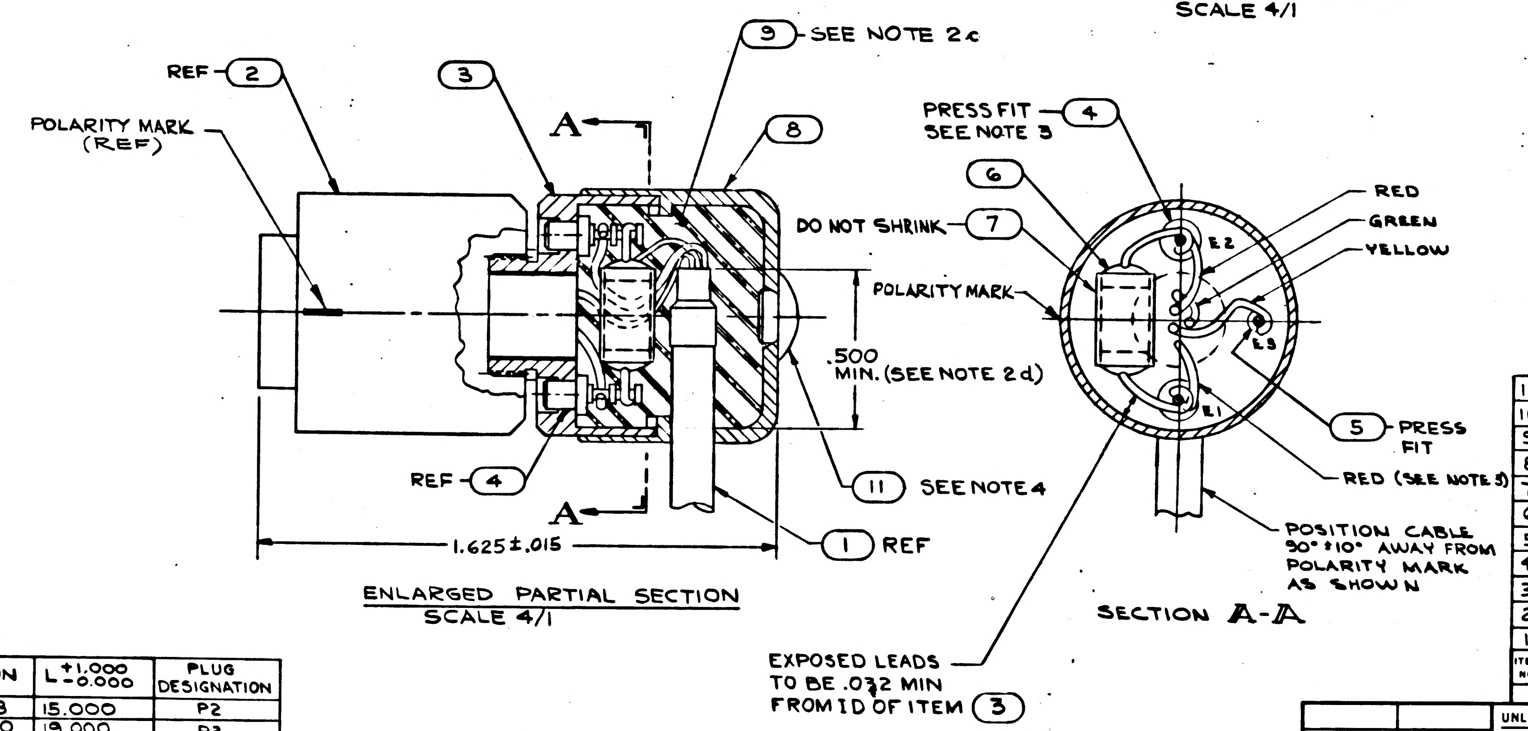
REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
–	–	INITIAL RELEASE CLASS A PER TDRR 35754	26 FEB 68	

NOTES
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2a. REMOVE RETAINER NUT FROM CONNECTOR AND INSTALL ITEM 3 INTO CONNECTOR TORQUE DOWN TO 25 INCH LBS.
2b. INSTALL CRIMP STYLE PINS, ITEM 10, IN ACCORDANCE WITH ND1002206.
2c. POT IN ACCORDANCE WITH ND1002236
2d. POTTING SHALL COVER OUTER JACKET OF CABLE TO DIMENSION SHOWN.
3. CUT OFF SMALL LENGTH OF RED CONDUCTOR TO PROVIDE NECESSARY LEAD FROM TERMINAL ITEM 4 TO PIN 4 ITEM 2.
4. BEFORE POTTING HAS CURED REMOVE SUFFICIENT AMOUNT TO ALLOW PROPER INSTALLATION OF ITEM 11. AFTER POTTING HAS CURED, PRESS FIT ITEM 11 IN PLACE.
5. ALL SOLDERING SHALL BE IN ACCORDANCE WITH ND 1002032.
6. MARK REFERENCE DESIGNATION .125 ±.015 HIGH IN ACCORDANCE WITH ND 1002019.
7. PERFORM CONTINUITY CHECK.
8. IDENTIFY USING NASA DWG NO. REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019 (TAGGING).


SEE TABLE AND NOTE 6
L
(SEE TABLE)
3.000
2
1
7
.125
.250

SHRINK SLEEVING ENLARGED VIEW
TYP BOTH ENDS OF CABLE
SCALE 4/1

WIRING LEGEND				
COLOR	ITEM NO	FROM	TO	REF
YELLOW	1	—	ITEM 5(E3)	—
RED	1	—	ITEM 4 (E2)	—
RED	–	ITEM 4 (E1)	ITEM 2-4	SEE NOTE 3
GREEN	1	—	ITEM 2-7	—


REF 2
POLARITY MARK (REF)
3
A
9 SEE NOTE 2c
8
DO NOT SHRINK 7
POLARITY MARK
.500 MIN. (SEE NOTE 2d)
REF 4
A
11 SEE NOTE 4
1 REF
1.625±.015
PRESS FIT SEE NOTE 3 4
6
RED
GREEN
YELLOW
E2
E3
E1
5 PRESS FIT
RED (SEE NOTE 3)
POSITION CABLE 90° ±10° AWAY FROM POLARITY MARK AS SHOWN
EXPOSED LEADS TO BE .032 MIN FROM I D OF ITEM 3

ENLARGED PARTIAL SECTION
SCALE 4/1

SECTION A-A

DASH NO.	USED ON	L +1.000 -0.000	PLUG DESIGNATION
-1	2012718	15.000	P2
-2	2012690	19.000	P3
-3	2012695	15.000	P1

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
11	1		2012789			PLUG, CONNECTOR POTTING CAP			
10	7	✱	1010770-1			CONTACT, CRIMP STYLE			
9	AR		1012503			COMPOUND, POLYURETHANE			
8	1		2012788			CONNECTOR POTTING CAP			
7	AR	✱	1010490			SLEEVING, SHRINK			
6	1	✱	1000170-12			FUSE, PIGTAIL, SUB MINIATURE			
5	1	✱	1012516-002			TERMINAL, STUD			
4	2	✱	1010623-2			TERMINAL, TURRET			
3	1		2012785			ADAPTER, POTTING			
2	1	✱	1010929-117			CONNECTOR, PLUG, ELECTRICAL			
1	1	✱	1010789-013			CABLE			

LIST OF PARTS AND MATERIALS

✱ COMMERCIAL ITEM SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

NEXT ASSY	USED ON
2012718	2015000
2012695	2015000
2012690	2015000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — ; DECIMALS ± .031 ; ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS-9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC
PN
DRAWN R. BRUNELLE DATE 2-8-68
CHECKED H. BORENSTEIN 2-13-68
APPROVAL J O F 2-13-68
PIT APPROVAL E. Thomp 2/16/68
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
POTTED CABLE AND CONNECTOR ASSY

CODE IDENT NO. 80230
SIZE D
NASA NUMBER 2012792
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

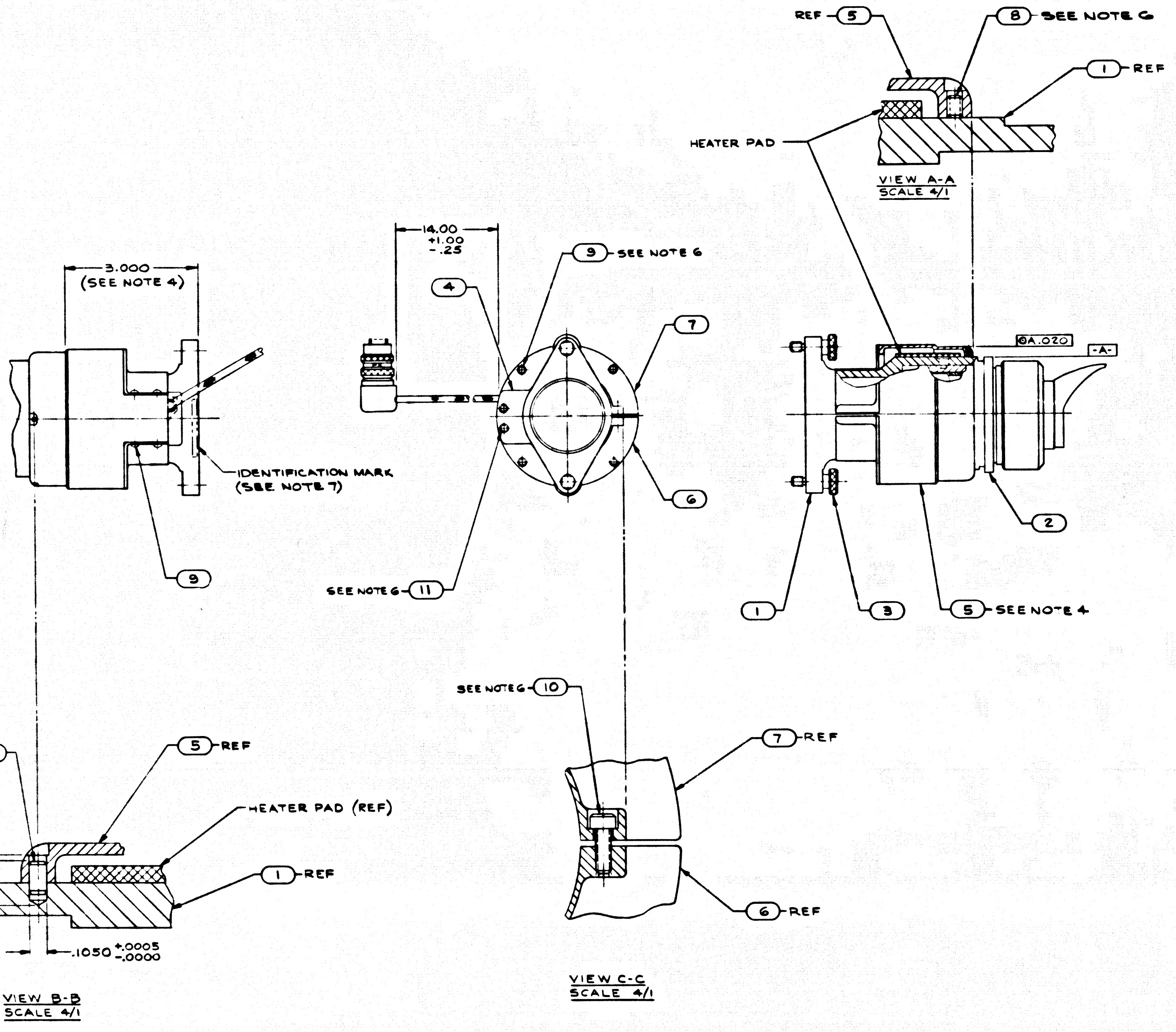
2012792

AD-1380

2012793

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS				
–	–	INITIAL RELEASE CLASS A PER TDRR 35754-		
A		REVISED PER TDRR 35935	1-28-68	

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078
3. REMOVE BURRS IN ACCORDANCE WITH ND1002079
4. SET ITEM 3 TO DIMENSION SHOWN, SECURE IN PLACE WITH ITEM 8, (3 REQD). DRILL AND REAM THRU ITEM 5 TO DEPTH SHOWN IN ITEM 1. PRESS FIT ITEM 12 TO DEPTH SHOWN.
5. COMPLETE ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2012793
6. VIBRATION PROOF ITEM NO.S 8,9,10 AND 11 IN ACCORDANCE WITH ND1002211 USING GRADE "E" OF MIL-S-22473.
7. IDENTIFY USING NASA PART NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.


REF
5
8
SEE NOTE 6
1
REF
HEATER PAD
VIEW A-A
SCALE 4/1
14.00
+1.00
-.25
9
SEE NOTE 6
3.000
(SEE NOTE 4)
4
7
ⓐA.020
-A-
IDENTIFICATION MARK
(SEE NOTE 7)
6
2
9
SEE NOTE 6
11
1
3
5
SEE NOTE 4
SEE NOTE 6
10
7
REF
12
5
REF
HEATER PAD (REF)
.005 MIN
1
REF
.100 +.000 -.015
.1050 +.0005 -.0000
VIEW B-B
SCALE 4/1
VIEW C-C
SCALE 4/1
6
REF

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
12	2		2012786			PIN, DOWEL			
11	2		MS16995-1			SCREW, CAP, SOCKET HEAD			
10	2		MS16995-2			SCREW, CAP SOCKET HEAD			
9	8		MS51957-2			SCREW, MACHINE, PAN HEAD			
8	3		MS51029-1			SETSCREW, FLAT POINT			
7	1		2012780			CLAMP, HEATER COVER HOLDER (SCT EYEPIECE			
6	1		2012779			CLAMP, HEATER COVER HOLDER (SCT EYEPIECE)			
5	1		2012784			COVER, SLEEVE, HEATER (SCT EYEPIECE)			
4	1		2012782			COVER, WIRE GUIDE (SCT EYEPIECE)			
3	2		2012659			SCREW, CAPTIVE KNURLED HEAD			
2	1		2012713			LENS HOUSING ASSY OF			
1	1		2012718-011			EYEPIECE HOUSING & HEATER ASSY OF			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± ~ DECIMALS ±.005 ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL ~
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC
PN
DRAWN F. PLESCHE DATE 2-9-68
CHECKED W. HARUTUNIAN 2-13-68
APPROVAL 2-13-68
ALT. APPROVAL
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

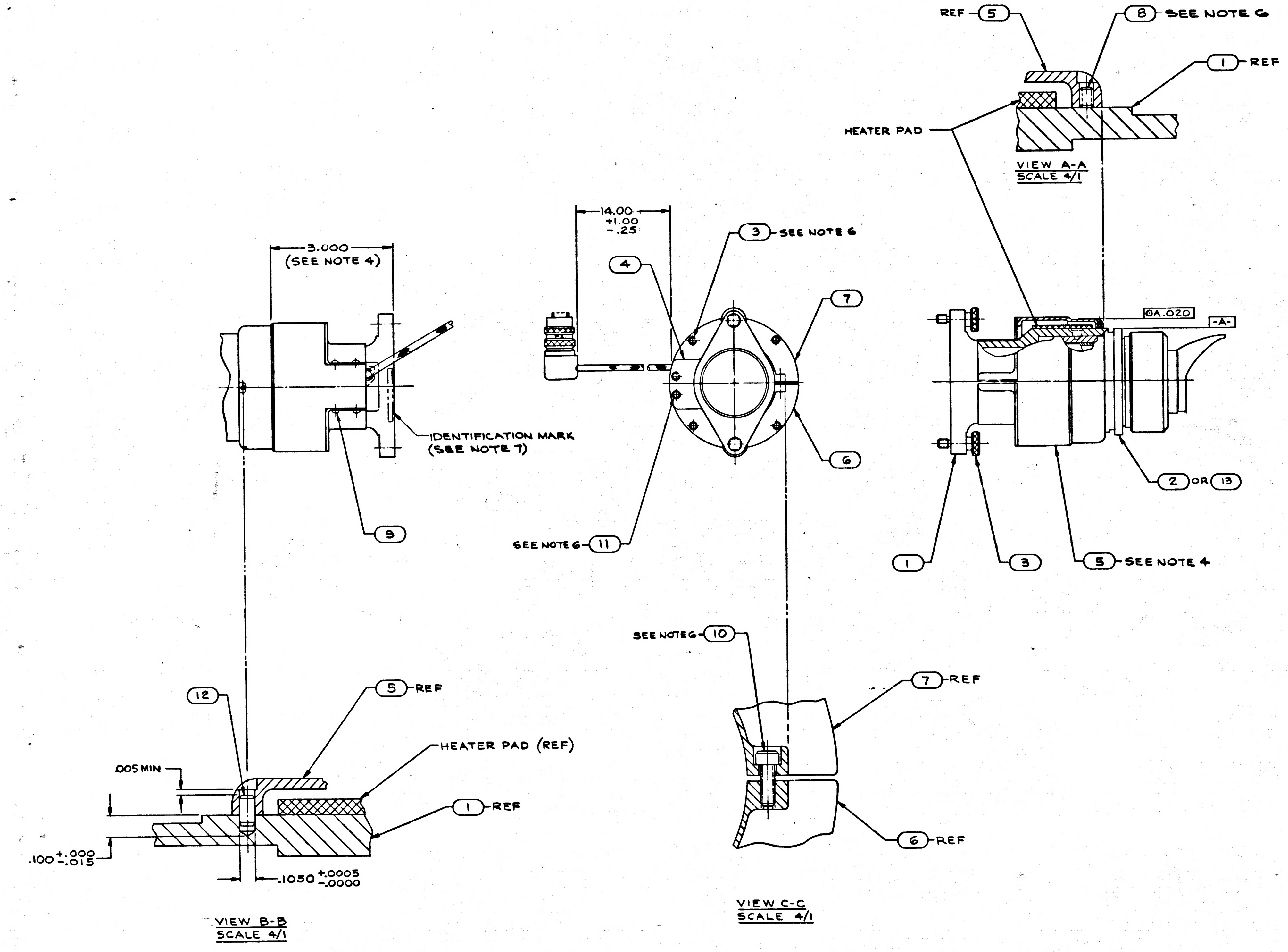
TITLE
SCT STANDARD (ADJUSTABLE) EYEPIECE ASSEMBLY

CODE IDENT NO 80230 SIZE E NASA NUMBER 2012793
SCALE 1/1 WEIGHT CALC ACTUAL SHEET OF

2012793

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078
3. REMOVE BURRS IN ACCORDANCE WITH ND1002079
4. SET ITEM 5 TO DIMENSION SHOWN, SECURE IN PLACE WITH ITEM 8, (3 REQ'D). DRILL AND REAM THRU ITEM 5 TO DEPTH SHOWN IN ITEM 1. PRESS FIT ITEM 12 TO DEPTH SHOWN.
5. COMPLETE ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2012793
6. VIBRATION PROOF ITEM NO.'S 8,9,10 AND 11 IN ACCORDANCE WITH ND1002211 USING GRADE "E" OF MIL-S-22473.
7. IDENTIFY USING NASA PART NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 35754-	26 FEB 68	
A		REVISED PER TDRR 35935	3-25-68	
B		REVISED PER TDRR 37630	6/11/69	


REF
5
8
SEE NOTE 6
1
REF
HEATER PAD
VIEW A-A
SCALE 4/1
14.00
+1.00
-.25
3
SEE NOTE 6
4
7
3.000
(SEE NOTE 4)
.A.020
-A-
IDENTIFICATION MARK
(SEE NOTE 7)
6
2 OR 13
9
SEE NOTE 6 11
1
3
5 SEE NOTE 4
SEE NOTE 6 10
7 REF
12
5 REF
HEATER PAD (REF)
.005 MIN
1 REF
.100 +.000 -.015
.1050 +.0005 -.0000
6 REF
VIEW B-B
SCALE 4/1
VIEW C-C
SCALE 4/1

QTY REQD -011	QTY REQD -000	ITEM NO.	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	0	13		2012713-011			LENS HOUSING ASSY OF			
2	2	12		2012786			PIN, DOWEL			
2	2	11		MS16995-1			SCREW, CAP, SOCKET HEAD			
2	2	10		MS16995-2			SCREW, CAP SOCKET HEAD			
8	8	9		MS51957-2			SCREW, MACHINE, PAN HEAD			
3	3	8		MS51029-1			SETSCREW, FLAT POINT			
1	1	7		2012780			CLAMP, HEATER COVER HOLDER (SCT EYEPIECE)			
1	1	6		2012779			CLAMP, HEATER COVER HOLDER (SCT EYEPIECE)			
1	1	5		2012784			COVER, SLEEVE, HEATER (SCT EYEPIECE)			
1	1	4		2012782			COVER, WIRE GUIDE (SCT EYEPIECE)			
2	2	3		2012659			SCREW, CAPTIVE, KNURLED HEAD			
0	1	2		2012713			LENS HOUSING ASSY OF			
1	1	1		2012718-011			EYEPIECE HOUSING & HEATER ASSY OF			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2011000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	±.005	± ~

DO NOT SCALE THIS DRAWING
MATERIAL ~
CONTRACT

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN F. PLESCHÉ DATE 2-9-68
CHECKED W. HARUTUNIAN 2-13-68
APPROVAL J. Oster 2-13-68
ALT. APPROVAL [illegible]
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SCT STANDARD (ADJUSTABLE)
EYEPIECE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA NUMBER 2012793
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

02/14/78

APOLLO G&N Specification
PS 2012793
Original Issue Date: 26Feb68
Release Authority: TDRR 35763
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

SCT EYEPIECE ASSEMBLY

(ADJUSTABLE FOCUSING)

DRAWING NO. 2012793

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page 1 to 7 inclusive.

APPROVALS	NASA/MSC	19 Feb 68 MIT/IL	2/26/68	J. Oster KIC

1 SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the SCT Eyepiece Assembly, Part No. 2012793-000.

1.1 PRODUCT CONFIGURATION BASE LINE ACCEPTANCES. The product configuration baseline shall be established by FACI of the end item Serial No. This unit and all subsequent units regardless of intended use shall be accepted to the configuration defined by Serial No. unless formally approved otherwise as required by ANA Bulletin No. 445.

2 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

Specifications

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of Apollo Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

Standards

Military

MIL-STD-202	Test Methods for Electronic and Electrical Component Parts
MIL-STD-150	Photographic Lenses

Drawings

APOLLO G&N

2012793

2012793 SCT Eyepiece Assembly (Adjustable Focusing)

2012775

2012775 SCT Prism Housing Assembly

2011000 Optical Unit Assembly

Copies of specifications, standards, drawings, bulletins, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the Contracting Officer.

2.2 CONFLICTING REQUIREMENTS. In the event of conflict between the requirements of the contract, this specification, and the documents listed in this section, the following order of precedence shall apply and the contractor shall notify MIT/IL APOLLO Configuration Management Office of the conflict as soon as it is determined.

The contract

This specification

Documents listed in this section

3 REQUIREMENTS

The assembly shall meet the requirements of this section.

3.1 PERFORMANCE

3.1.1 Electrical.

3.1.1.1 Resistance. At a room temperature of 77°F ±10°F, the resistance between pins P2-4 and P2-7 shall be 313 ohms ± 10%.

3.1.1.2 Insulation Resistance. The insulation resistance shall be a minimum of 100 megohms when tested by MIL-STD-202 Method 302, Test Condition B.

3.1.1.3 **Heater Current.** The heater current drain shall not exceed 100 ma. with 28 ± 1% VDC applied to heater plug pins P2-4 and P2-7.

3.1.1.4 **Grounding.** Resistance shall be checked from the heater cover to the eyepiece connector and shall not exceed 100 milliohms.

3.1.2 Thermostat Operation.

3.1.2.1 The thermostat shall open and close as a function of temperature, being closed at 108 ± 5°F and open at 138 ± 5°F.

3.1.3 Optical.

3.1.3.1 **Eyepiece Focus.** The assembly shall have a minimum range of focus from -2 to +2 diopters. An object located at 2.055 inches from flange of eyepiece housing shall focus at -1 ± .5 diopters when eyepiece is positioned at mid-range of total mechanical adjustment.

3.1.3.2 **Resolving Power.** With the SCT Eyepiece Assembly mounted in a certified system comprising an Optical Unit Assembly (P/N 2011000) and SCT Prism Housing Assembly (P/N 2012775), the system resolution shall meet the requirements of paragraph 3.1.3.2.1. Resolution shall be determined with the eyepiece adjusted for optimum focus at the center of the target field, using either low contrast or high contrast targets as defined by MIL-STD-150, Photographic Lenses, paragraphs 5.1.1.7.1 and 5.1.1.7.3.

3.1.3.2.1 LOS resolution shall be 83 arc seconds or better using a high contrast target or 146 seconds using a low contrast target.

3.1.3.3 **Luminous Transmittance.** The measured transmission for LOS of a certified system consisting of an Optical Unit Assembly (P/N 2011000) and SCT Prism Housing Assembly (P/N 2012775) with a mounted certified SCT Eyepiece Assembly (P/N 2012793) or equivalent shall be accomplished using a CIE standard illuminant "C". With the certified SCT Eyepiece Assembly (P/N 2012793) replaced by the SCT Eyepiece Assembly (P/N 2012793) to be tested, the measured transmission shall not be less than 90% of the readings taken for the certified system.

3.2 PRODUCT CONFIGURATION

3.2.1 **Drawings.** The configuration of the assembly shall be in accordance with APOLLO G& N Drawing 2012793 and all drawings and engineering data referenced thereon.

4 QUALITY ASSURANCE

4.1 GENERAL. The Contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein.

4.1.1 Nonconformance. The failure on an end product to pass any examination or test of this section will automatically classify the unit as nonconforming. When nonconforming units are corrected by the Contractor, the unit shall be reinspected. When corrective action has been taken, the reinspection of a nonconforming unit may be limited to the test or examination which defined the nonconformance or, when so directed by the cognizant inspector, a complete re-examination and retest of the unit may be required. Nonconforming units which have not been corrected will be considered for acceptance only upon formal application by the Contractor to the cognizant NASA representative.

4.1.2 Test Conditions.

4.1.2.1 Environmental. Unless otherwise specified the assemblies shall be tested under the following ambient conditions:

Temperature: 25 ± 10°C

Relative Humidity: 90% maximum

Barometric Pressure: 28 to 32 inches Hg

4.2 TESTS/VERIFICATIONS.

4.2.1 Drawing Compliance. The assembly shall be visually inspected for compliance to the requirements of APOLLO G&N Drawing 2012793. Particular attention should be given to inspection for nicks, scratches, burrs, dents, encapsulant defects, contaminants, pin misalignment, and legibility and appearance of markings.

4.2.2 Tests.

4.2.2.1 Electrical.

4.2.2.1.1 **Resistance.** Using a wheatstone bridge measure that the resistance between pins P2-4 and P2-7 is of the value specified in paragraph 3.1.1.1.

4.2.2.1.2 **Insulation Resistance.** Using a megohmeter, verify that the insulation resistance between pins P2-4, P2-7 and assembly case (Gnd) is as specified in paragraph 3.1.1.2 when tests per MIL-STD-202, Method 302, Condition B with 500 VDC applied.

4.2.2.1.3 **Heater Current.** Using a milliameter, verify that the heater current drain is within the limits required by paragraph 3.1.1.3.

4.2.2.1.4 **Grounding.** Using a multimeter, measure resistance between heater cover and eyepiece connector; it shall be as specified in paragraph 3.1.1.4.

4.2.2.2 **Thermostat.** Thermostat operation shall be verified prior to cementing insulation to the assembly in the following sequence:

a. The assembly shall be placed in an oven and subjected to a two-hour temperature soak at 138 ± 5°F. The thermostat shall be verified to be in the open position by a multimeter resistance indication of at least one megohm across heater plug pins P2-4 and P2-7.

b. The assembly shall be then subjected to a two-hour temperature soak at 108 ± 5°F. Thermostat closure shall be indicated by a multimeter resistance indication of 313 ohms ± 20% across heater plug pins P2-4 and P2-7.

4.2.2.3 **Optical.** Optical tests shall be performed with the SCT Eyepiece Assembly mounted in a certified system comprising an Optical Unit Assembly (P/N 2011000) and SCT Prism Housing Assembly (P/N 2012775).

4.2.2.3.1 **Eyepiece Focus.** Using the test configuration of paragraph 4.2.2.3, verify that the focus renge and mid-range focus setting of the SCT Eyepiece Assembly meets the requirements specified in paragraph 3.1.3.1.

4.2.2.3.2 **Resolving Power.** Using the test configuration of paragraph 4.2.2.3, verify that SCT Eyepiece Assembly resolution meets the requirements specified by paragraph 3.1.3.2.

4.2.2.3.3 **Luminous Transmittance.** Using the test configuration of paragraph 4.2.2.3, verify that the system luminous transmission meets the requirements specified by paragraph 3.1.3.3.

5 PREPARATION FOR DELIVERY

5.1 Preparation for delivery shall be in accordance with specification ND100221

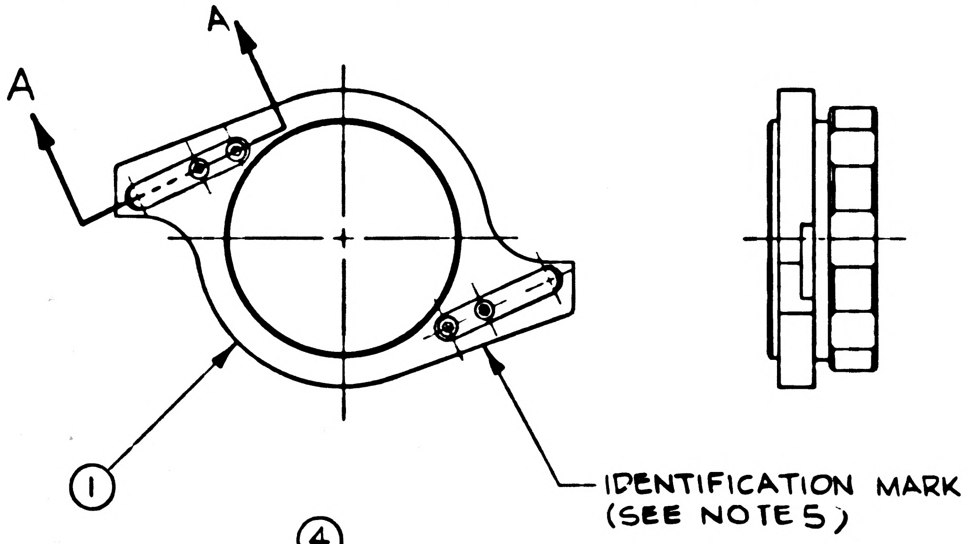
6 NOTES

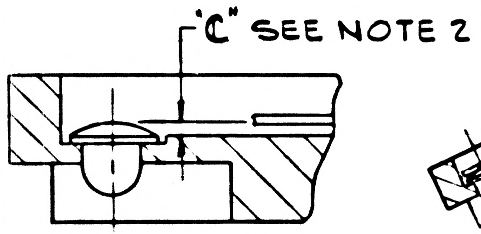
A 2012796

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 36289	6-5-68	S. Bm
A		REVISED PER TDRR 36428	6/24/68	

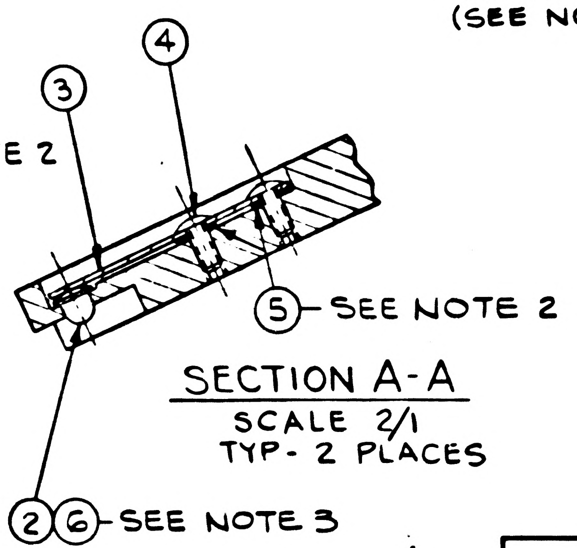
NOTES:

1. INTERPRET DRAWING PER MIL-D-70327.
2. ASSEMBLE WASHERS ITEM 5 AS REQUIRED TO SATISFY TORQUE REQUIREMENTS OF NOTE 4. MAX HEIGHT OF WASHER(S) SHALL NOT BE MORE THAN "C" MINUS .002 INCHES.
3. APPLY THIN FILM OF ITEM NO.6 TO CYLINDRICAL PORTION OF ITEM 2 AND SWAB MATING HOLE.
4. ENGAGEMENT OF COVER ASSY WITH OUA PANEL SHALL REQUIRE NO LESS THAN 5 IN/LBS OR MORE THAN 10 IN/LBS.
5. IDENTIFY USING NASA DRAWING NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.





DETAIL - B



SECTION A-A
SCALE 2/1
TYP - 2 PLACES

2012796 A

QTY REQD 021	QTY REQD 011	ITEM NO.		SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
AR	0	6		*	1008985			GREASE, FLUORINATED			
AR	0	5			2012807-1,-2,-3			WASHER, FLAT			
4	4	4		*	1010618-1			SCREW, BUTTON HEAD, SELF LOCKING, SOC HEX			
2	2	3			2012634-001			SPRING, FLAT			
2	2	2			2012635			PLUNGER			
1	1	1			2012798			COVER, SEXTANT			

LIST OF PARTS AND MATERIALS

* PURCHASE ITEM - SEE SPECIFICATION CONTROL DRAWING BEFORE ORDERING

NEXT ASSY	USED ON
2015000	2015000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN

DRAWN RINDZUNER 4/1/68
CHECKED 4/3/68
APPROVAL 4/4/68
M APPROVAL E. Thomas 9/27/68
NASA APPROVAL
CCB APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

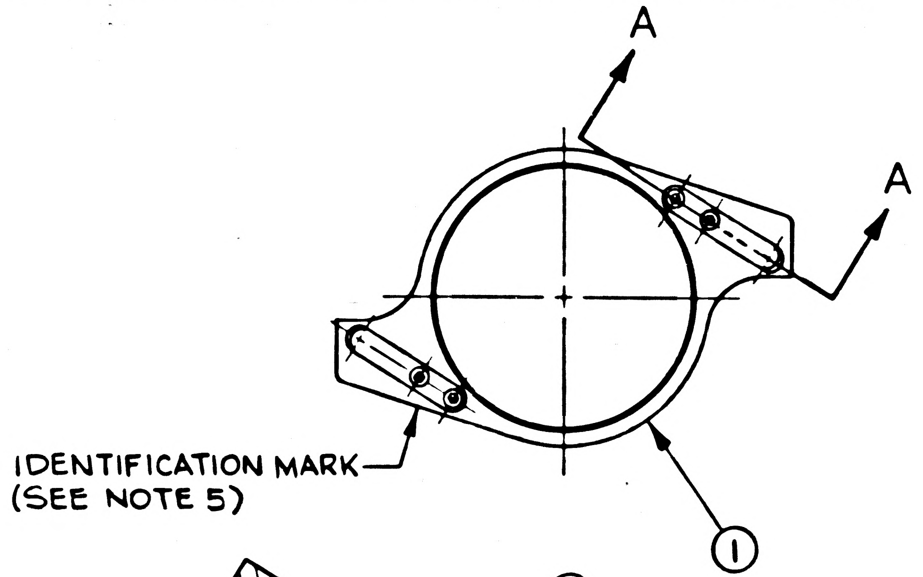
TITLE
SEXTANT COVER ASSY

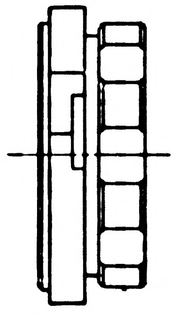
CODE IDENT NO. 80230
SIZE C
NASA NUMBER 2012796
SCALE 1/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

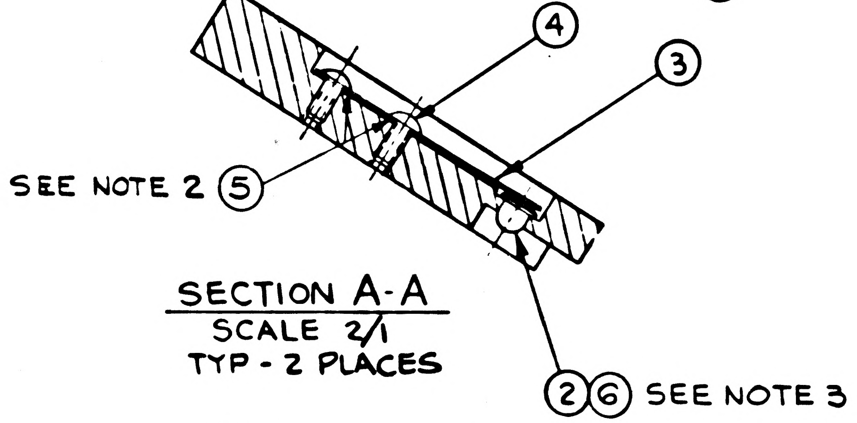
2012797 A

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 36289	6-5-68	S Tran
A	-	REVISED PER TDRR 36429	6/24/68	

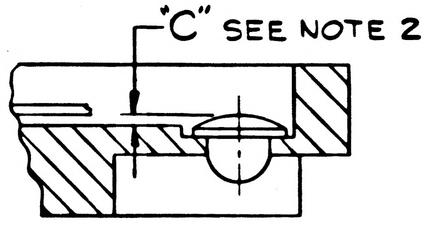
NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. ASSEMBLE WASHERS ITEM 5 AS REQUIRED TO SATISFY TORQUE REQUIREMENTS OF NOTE 4. MAX. HEIGHT OF WASHER(S) SHALL NOT BE MORE THAN "C" MINUS .002 INCHES.
3. APPLY THIN FILM OF ITEM NO. 6 TO CYLINDRICAL PORTION OF ITEM 2 AND SWAB MATING HOLE.
4. ENGAGEMENT OF COVER ASSY WITH OUA PANEL SHALL REQUIRE NO LESS THAN 5 IN/LBS OR MORE THAN 10 IN/LBS
5. IDENTIFY USING NASA DWG NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND1002019.







SECTION A-A
SCALE 2/1
TYP - 2 PLACES



DETAIL "B"

QTY REQ'D		ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
021	011										
AR	O	6		✱	1008985			GREASE, FLUORINATED			
AR	O	5			2012807-1,-2,-3			WASHER, FLAT			
4	4	4		✱	1010618-1			SCREW, BUTTON HEAD, SELF LOCKING, SOC HEX			
2	2	3			2012634-001			SPRING, FLAT			
2	2	2			2012635			PLUNGER			
1	1	1			2012799			COVER, TELESCOPE			

LIST OF PARTS AND MATERIALS

✱ PURCHASE ITEM-SEE SPECIFICATION CONTROL DRAWING BEFORE ORDERING

NEXT ASSY	USED ON
2015000	2015000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± —; DECIMALS ± —; ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN RINDZUNER DATE 4/1/68
CHECKED 4/3/68
APPROVAL 4/4/68
MIT APPROVAL 4/29/68
NASA APPROVAL
APPROVAL S Tran

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
TELESCOPE COVER ASSEMBLY

CODE IDENT NO.	SIZE	NASA NUMBER
80230	C	2012797

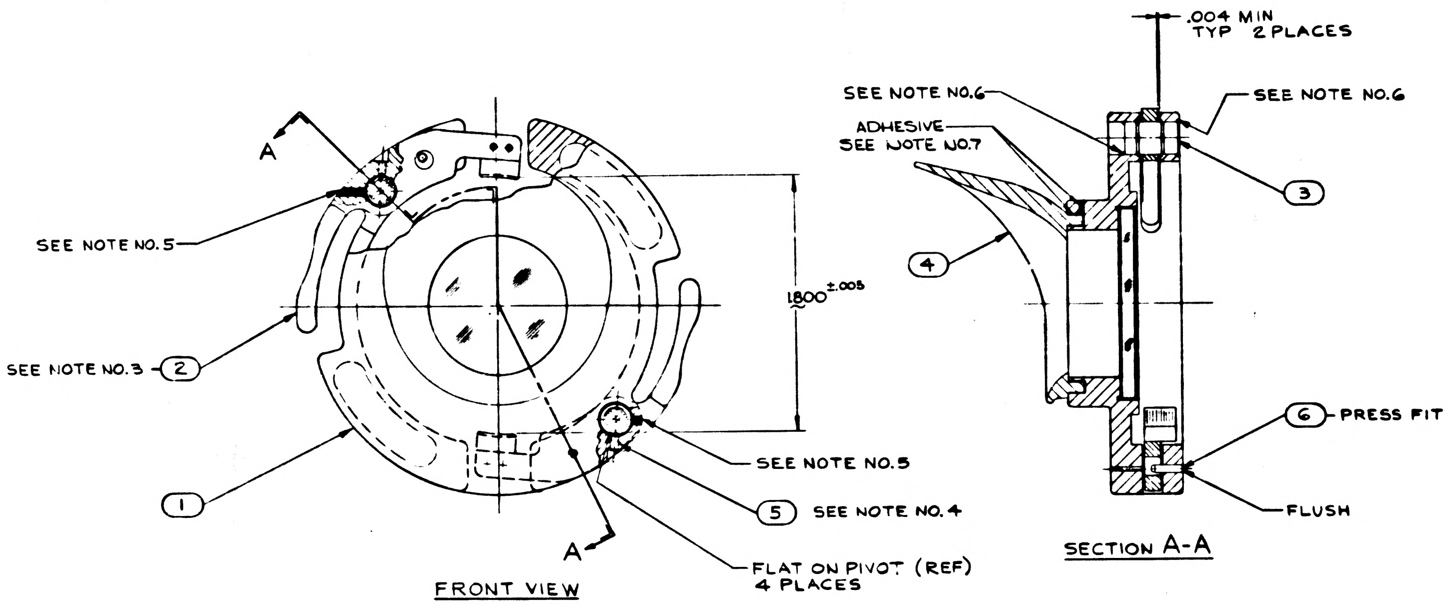
SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

2012797 A

2012808

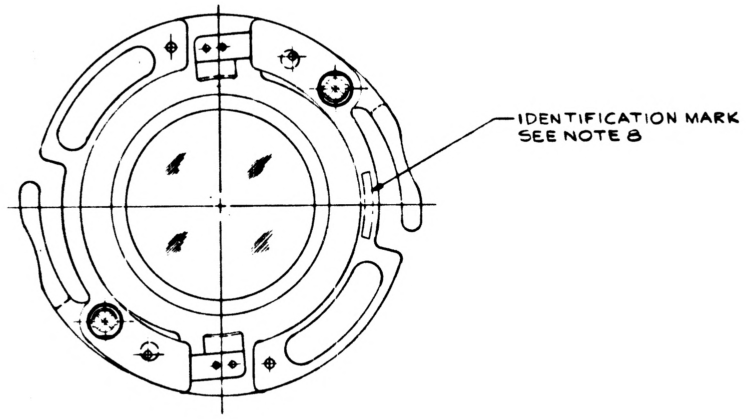
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CL-SSA PER TDRR 37025		

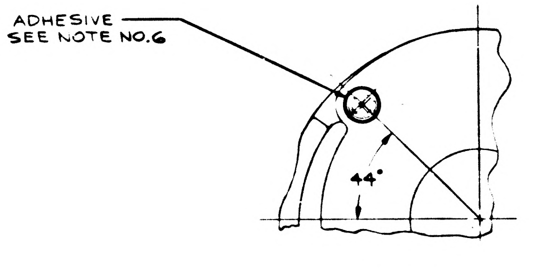
NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2. POSITION PIVOT (ITEM 3) SUCH THAT THERE SHALL BE NO ROTATIONAL RESTRICTION BETWEEN CENTER SECTION OF PIVOT AND RETAINER (ITEM 1)
3. POSITION 2 3/16-32 UNS THREAD OF LEVER ASSYS (ITEM 2) PER DIMENSION SHOWN BEFORE SECURING TO PIVOTS (ITEM 3) PER NOTE 5
4. TORQUE ITEM 4 TO 3.0 ± 0.3 IN. OZ AND VIBRATION PROOF USING GRADE "CV" OF MIL-S-22473 IN ACCORDANCE WITH ND1002211
5. BOND BY FILLING .062 DIA HOLES IN ITEMS 1&2 (TOTAL 6 HOLES) WITH ADHESIVE PER ND1002187 TYPE I
6. ADHESIVE IS TO BE 360° AROUND PIVOTS AT FRONT AND REAR OF ASSY. ADHESIVE PER ND1002187 TYPE I. I.D. OF PIVOT TO BE CLEAR OF ADHESIVE.
7. APPLY CEMENT TO ITEM 4 AND MATING SURFACE OF ITEM 1 AS SHOWN IN SECTION "A-A" USING ADHESIVE PER ND1002219. HOLE TO BE FILLED FLUSH OR BELOW FLUSH.
8. IDENTIFY USING NASA DWG NO. AND MANUFACTURERS SYMBOL PER ND1002019
9. SERIALIZE PER ND1002023.


A
SEE NOTE NO.5
SEE NOTE NO.3
2
1
1.800 ±.005
SEE NOTE NO.5
5 SEE NOTE NO.4
A
FLAT ON PIVOT (REF)
4 PLACES
.004 MIN
TYP 2 PLACES
SEE NOTE NO.6
ADHESIVE
SEE NOTE NO.7
SEE NOTE NO.6
3
4
6 PRESS FIT
FLUSH

FRONT VIEW

SECTION A-A


IDENTIFICATION MARK
SEE NOTE 8


ADHESIVE
SEE NOTE NO.6
44°

PARTIAL FRONT VIEW

* PURCHASED PART: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

ITEM NO	QTY REQD	SYM	GOVERNMENT/NASA NO	KOLLSMAN PART NO	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
6	2		MS16555-602			PIN, STRAIGHT HEADLESS (DOWEL)			
5	6		MS51023-1			SETSCREW, HEX SOC. HEAD (CUP POINT			
4	1		2011879			EYEGUARD			
3	2	*	1012557			FLEXURAL PIVOT			
2	2		2012810			LEVER ASSEMBLY			
1	1		2012809			RETAINER AND FILTER ASSEMBLY			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ DECIMALS ± .005 ANGLES ± 4°
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN F. PLESCHE DATE 6/16/68
CHECKED
APPROVAL
MIT APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

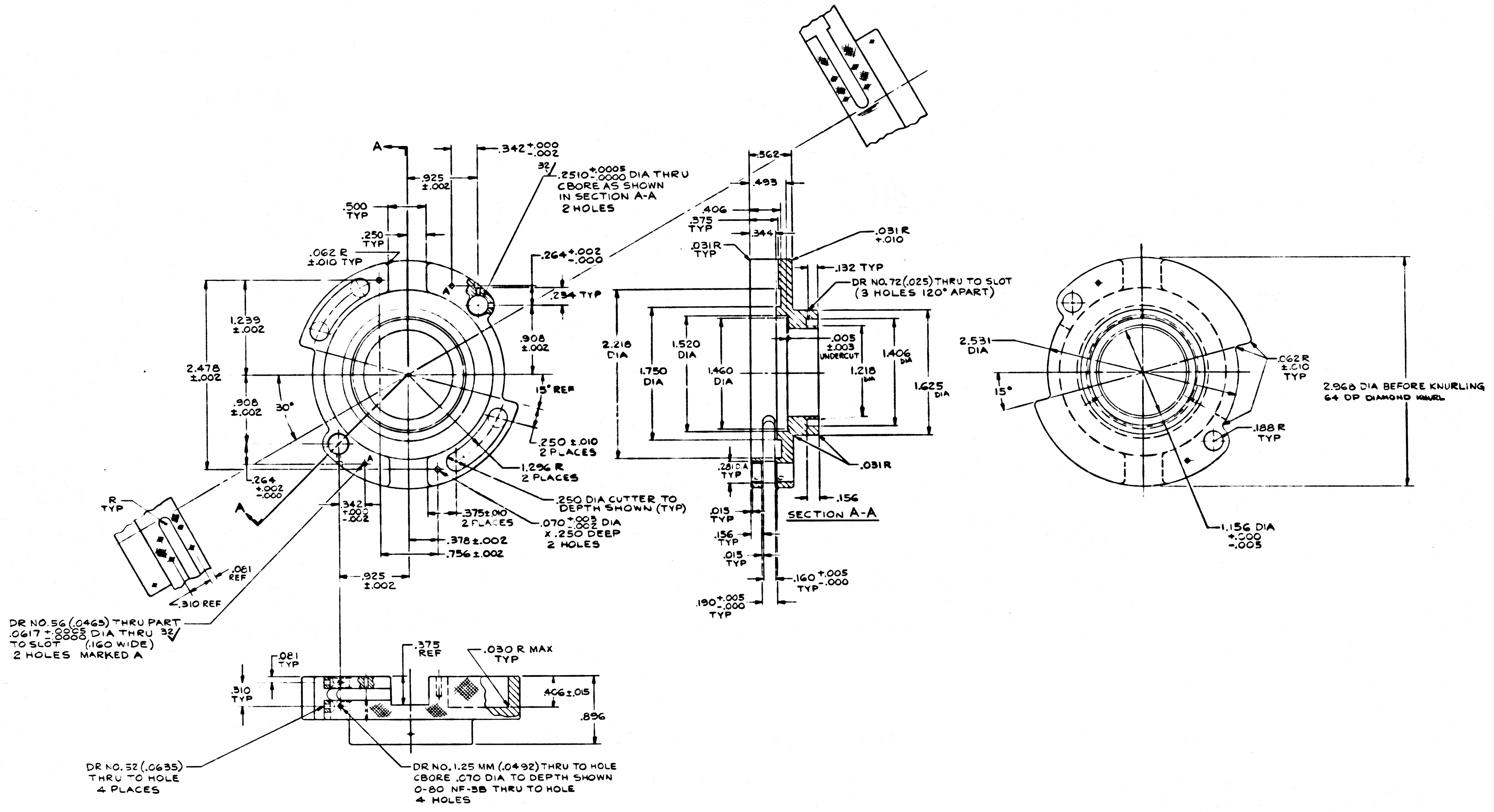
TITLE
SCT STD EYEPIECE
HIGH DENSITY FILTER
ASSEMBLY

CODE IDENT NO 89944
SIZE E
NASA NUMBER 2012808
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET OF

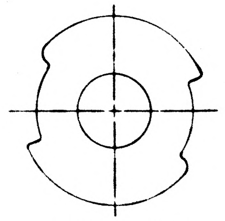
2012811

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
–	–	INITIAL RELEASE CLASS A PER TDRR 37025	11 Nov 68	

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078
3. UNLESS OTHERWISE SPECIFIED 63√ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
5. FINISH: BLACK ANODIZE PER MIL-A-8625, TYPE II, CLASS 2 (BLACK)
6. IDENTIFY USING NASA DWG NO. AND MANUFACTURERS SYMBOL PER ND1002019 (BAGGING OR TAGGING)



A
.342 +.000 −.002
.925 ±.002
32 .2510 +.0005 −.0000 DIA THRU CBORE AS SHOWN IN SECTION A-A 2 HOLES
.500 TYP
.250 TYP
.062 R ±.010 TYP
.264 +.002 −.000
.234 TYP
1.239 ±.002
2.478 ±.002
.908 ±.002
30°
15° REF
.250 ±.010 2 PLACES
1.296 R 2 PLACES
.264 +.002 −.000
.342 +.000 −.002
.250 DIA CUTTER TO DEPTH SHOWN (TYP)
.375 ±.010 2 PLACES
.070 +.003 −.002 DIA X .250 DEEP 2 HOLES
.378 ±.002
.756 ±.002
.925 ±.002
R TYP
.081 REF
.310 REF
DR NO. 56 (.0465) THRU PART .0617 +.0005 −.0000 DIA THRU 32√ TO SLOT (.160 WIDE) 2 HOLES MARKED A
.562
.493
.406
.375 TYP
.344
.031 R TYP
.031 R +.010
.132 TYP
DR NO. 72 (.025) THRU TO SLOT (3 HOLES 120° APART)
2.218 DIA
1.750 DIA
1.520 DIA
1.460 DIA
.005 ±.003 UNDERCUT
1.406 DIA
1.218 DIA
1.625 DIA
.031 R
.281 DIA TYP
.156
SECTION A-A
.015 TYP
.156 TYP
.015 TYP
.160 +.005 −.000 TYP
.190 +.005 −.000 TYP
2.531 DIA
15°
.062 R ±.010 TYP
2.968 DIA BEFORE KNURLING 64 DP DIAMOND KNURL
.188 R TYP
1.156 DIA +.000 −.005
.081 TYP
.375 REF
.030 R MAX TYP
.310 TYP
.466 ±.015
.896
DR NO. 52 (.0635) THRU TO HOLE 4 PLACES
DR NO. 1.25 MM (.0492) THRU TO HOLE CBORE .070 DIA TO DEPTH SHOWN 0-80 NF-3B THRU TO HOLE 4 HOLES



ACTUAL SIZE

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2012809	2012808

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ ; DECIMALS ±.005 ; ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
ALUMINUM ALLOY
FED SPEC QQ-A-225/8
TEMPER T6

CONTRACT
NAS 9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN

DRAWN F. Plescia DATE 10/14/68
CHECKED 10/21/68
APPROVAL
MIT APPROVAL 10/25/68
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
RETAINER, FILTER

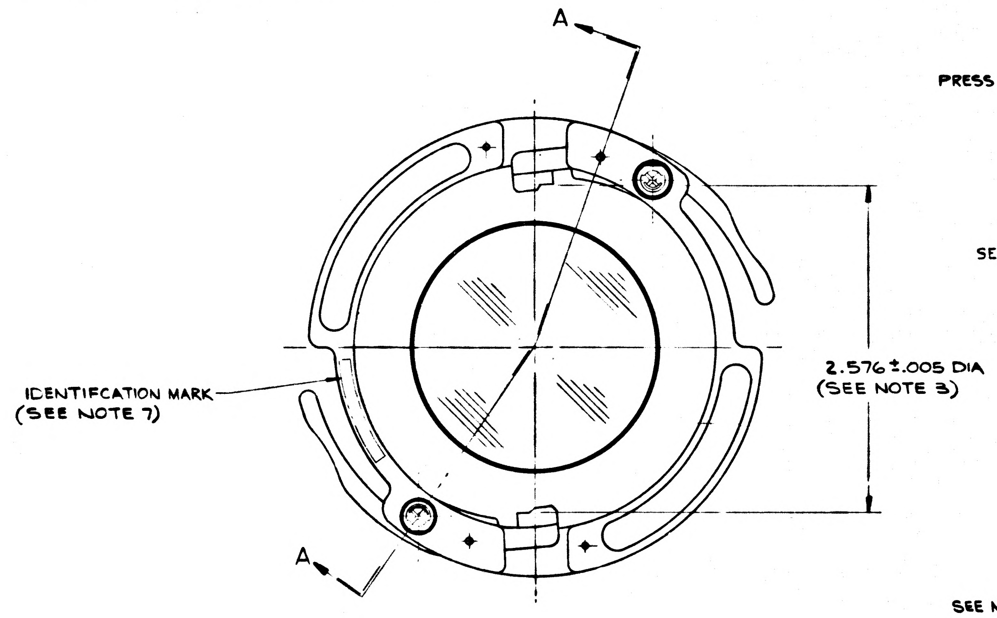
CODE IDENT NO 89944
SIZE E
NASA NUMBER 2012811
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

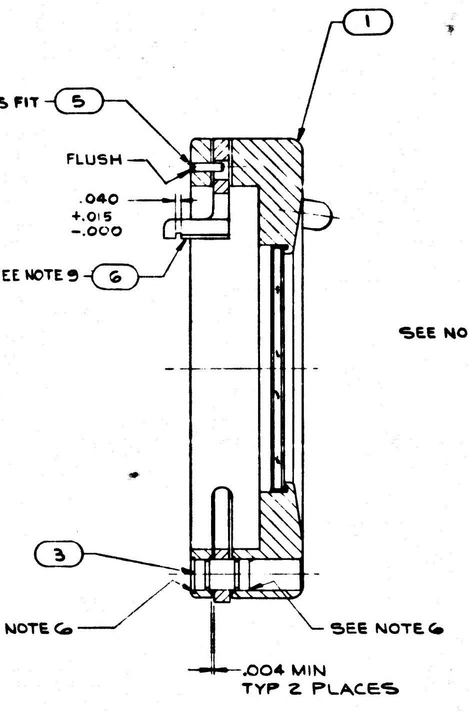
2012816 A

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INTIAL RELEASE CLASS A PER TDRR 37025	19 Nov 68	
A		REVISED AS PER TDRR 37059	12-3-68	12/3/68

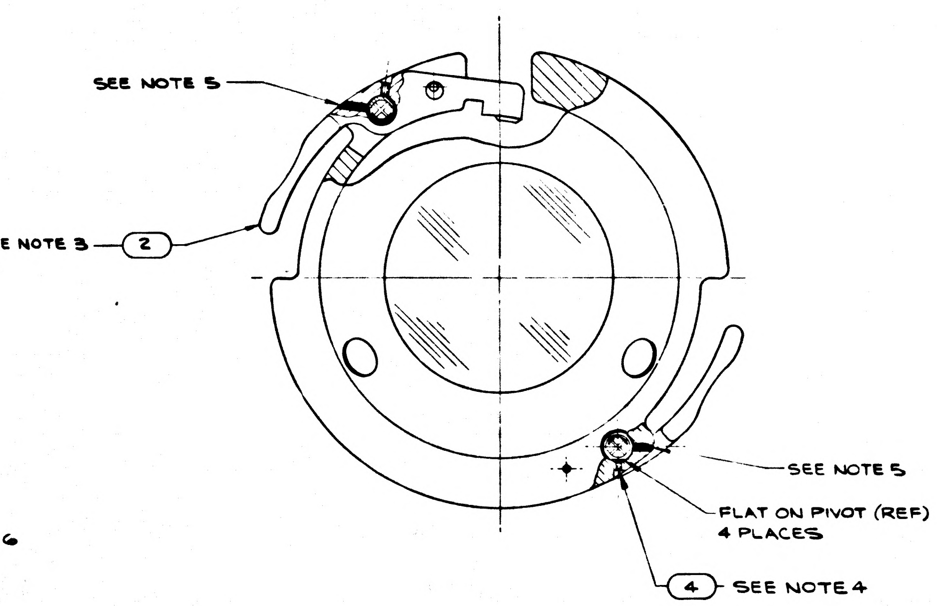
NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2. POSITION PIVOT (ITEM 3) SUCH THAT THERE SHALL BE NO ROTATIONAL RESTRICTION BETWEEN CENTER SECTION OF PIVOT AND RETAINER (ITEM 1)
3. POSITION KNURLED PART OF LEVER (ITEM 2) PER DIMENSION SHOWN BEFORE SECURING TO PIVOTS (ITEM 3) PER NOTE 5
4. TORQUE (ITEM 4) TO 3.0±0.3 IN.OZ AND VIBRATION PROOF USING GRADE "CV" OF MIL-S-22473 IN ACCORDANCE WITH ND 1002211
5. BOND BY FILLING .062 DIA HOLES IN ITEMS 1 & 2 (TOTAL 6 HOLES) WITH ADHESIVE PER ND 1002187 TYPE I
6. ADHESIVE TO BE 360° AROUND PIVOTS AT FRONT AND REAR OF ASSY. AS SHOWN IN PARTIAL FRONT VIEW. ADHESIVE PER ND 1002187 TYPE I. I.D OF PIVOT TO BE CLEAR OF ADHESIVE.
7. IDENTIFY USING NASA DWG NO. AND MANUFACTURERS SYMBOL PER ND 1002019.
8. SERIALIZE PER ND 1002023.
9. APPLY CEMENT TO ONE SIDE OF ITEM 6 AND MATING SURFACE ITEM 2 IN ACCORDANCE WITH ND 1002219. AFTER BOND HAS CURED TRIM ITEM 6 FLUSH TO .015 BELOW MATING SURFACE.

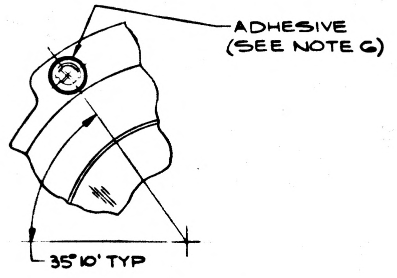

A
A
IDENTIFCATION MARK (SEE NOTE 7)
2.576±.005 DIA (SEE NOTE 3)


1
PRESS FIT 5
FLUSH
.040 +.015 −.000
SEE NOTE 9 6
3
SEE NOTE 6
SEE NOTE 6
.004 MIN TYP 2 PLACES

SECTION A-A


SEE NOTE 5
SEE NOTE 3 2
SEE NOTE 5
FLAT ON PIVOT (REF) 4 PLACES
4 SEE NOTE 4

FRONT VIEW


ADHESIVE (SEE NOTE 6)
35°10' TYP

PARTIAL FRONT VIEW

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
6	2		2012823			PAD, RUBBER			
5	2		MS16555-602			PIN, STRAIGHT, HEADLESS (DOWEL)			
4	6		MS51023-1			SETSCREW, HEX SOC. HEAD (CUP POINT)			
3	2	*	1012557-001			FLEXURAL PIVOT			
2	2		2012819			LEVER, PIVOT			
1	1		2012817			RETAINER, FILTER AND BUTTON ASSY			

LIST OF PARTS AND MATERIALS

* PURCHASED PART: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

NEXT ASSY	USED ON
2015000	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ DECIMALS ±.005 ANGLES ±4°
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN Rindzuner DATE 10-17-68
CHECKED 10/21/68
APPROVAL 10/24/68
MIT APPROVAL E 10-25-68
NASA APPROVAL
MIT APPROVAL 10-31-68

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SCT LER EYEPIECE HIGH DENSITY FILTER ASSEMBLY

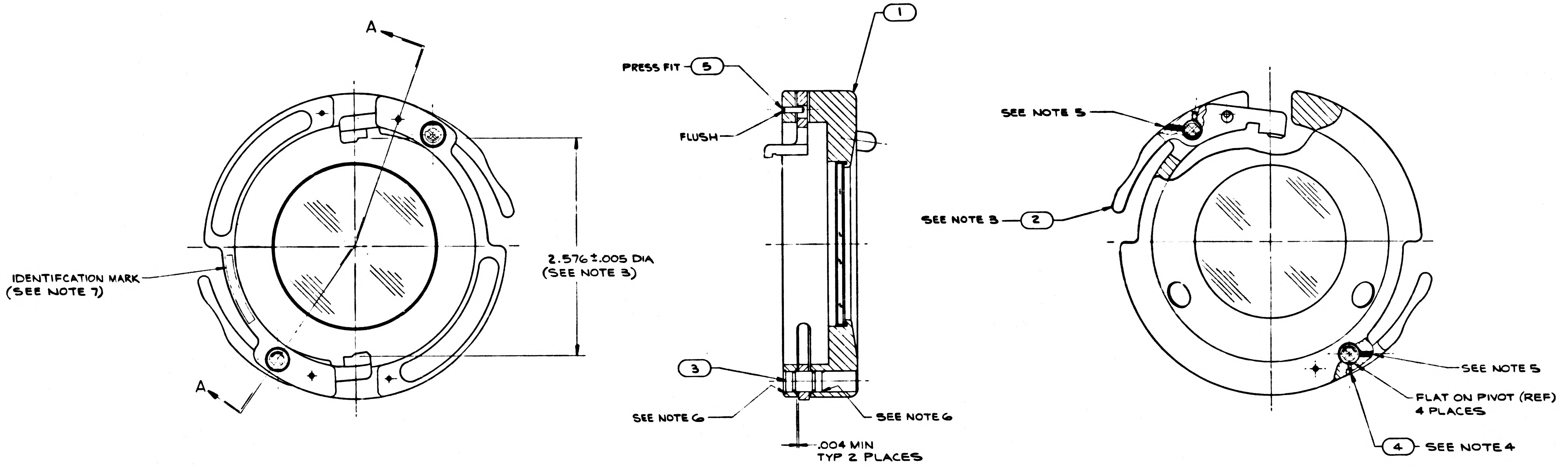
CODE IDENT NO. 89944
SIZE E
NASA NUMBER 2012816
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2012816

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INTIAL RELEASE CLASS A PER TDRR 37025	19 NOV 68	GA

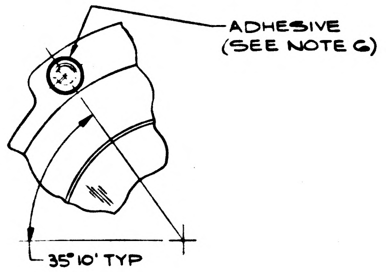
NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2. POSITION PIVOT (ITEM 3) SUCH THAT THERE SHALL BE NO ROTATIONAL RESTRICTION BETWEEN CENTER SECTION OF PIVOT AND RETAINER (ITEM 1)
3. POSITION KNURLED PART OF LEVER (ITEM 2) PER DIMENSION SHOWN BEFORE SECURING TO PIVOTS (ITEM 3) PER NOTE 5
4. TORQUE (ITEM 4) TO 3.0±0.3 IN.OZ AND VIBRATION PROOF USING GRADE "CV" OF MIL-S-22473 IN ACCORDANCE WITH ND 1002211
5. BOND BY FILLING .0[illegible] DIA HOLES IN ITEMS 1+2 (TOTAL 6 HOLES) WITH ADHESIVE PER ND 1002187 TYPE I
6. ADHESIVE TO BE 360 AROUND PIVOTS AT FRONT AND REAR OF ASSY. AS SHOWN IN PARTIAL FRONT VIEW ADHESIVE PER ND 1002187 TYPE I I.D. OF PIVOT TO BE CLEAR OF ADHESIVE.
7. IDENTIFY USING NASA DWG NO. AND MANUFACTURERS SYMBOL PER ND 1002019.
8. SERIALIZE PER ND 1002023.


A
A
IDENTIFCATION MARK
(SEE NOTE 7)
2.576±.005 DIA
(SEE NOTE 3)
PRESS FIT
5
FLUSH
1
3
SEE NOTE 6
SEE NOTE 6
.004 MIN
TYP 2 PLACES
SEE NOTE 5
SEE NOTE 3
2
SEE NOTE 5
FLAT ON PIVOT (REF)
4 PLACES
4
SEE NOTE 4

SECTION A-A

FRONT VIEW


ADHESIVE
(SEE NOTE 6)
35°10' TYP

PARTIAL FRONT VIEW

* PURCHASED PART: SEE SPECIFICATION CONTROL DWG BEFORE ORDERING

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
5	2		MS16555-602			PIN, STRAIGHT, HEADLESS (DOWEL)			
4	6		MS51023-1			SETSCREW, HEX SOC. HEAD (CUP POINT)			
3	2	*	1012557			FLEXURAL PIVOT			
2	2		2012819			LEVER, PIVOT			
1	1		2012817			RETAINER, FILTER AND BUTTON ASSY			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ~ DECIMALS ±.005 ANGLES ±4°
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN Rindsuner DATE 10-17-68
CHECKED 10/21/68
APPROVAL 10/21/68
MIT APPROVAL E. Rhodes 10-25-68
NASA APPROVAL
MIT APPROVAL McMurty 11-21-68

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
SCT LER EYEPIECE HIGH
DENSITY FILTER
ASSEMBLY

CODE IDENT NO. 89944 SIZE E NASA NUMBER 2012816
SCALE 2/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

AD-1969

2013250 A

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 37773	9 Jan 69	
A		CHANGED AS PER TDRR 37240	2-24-69	

NOTES:

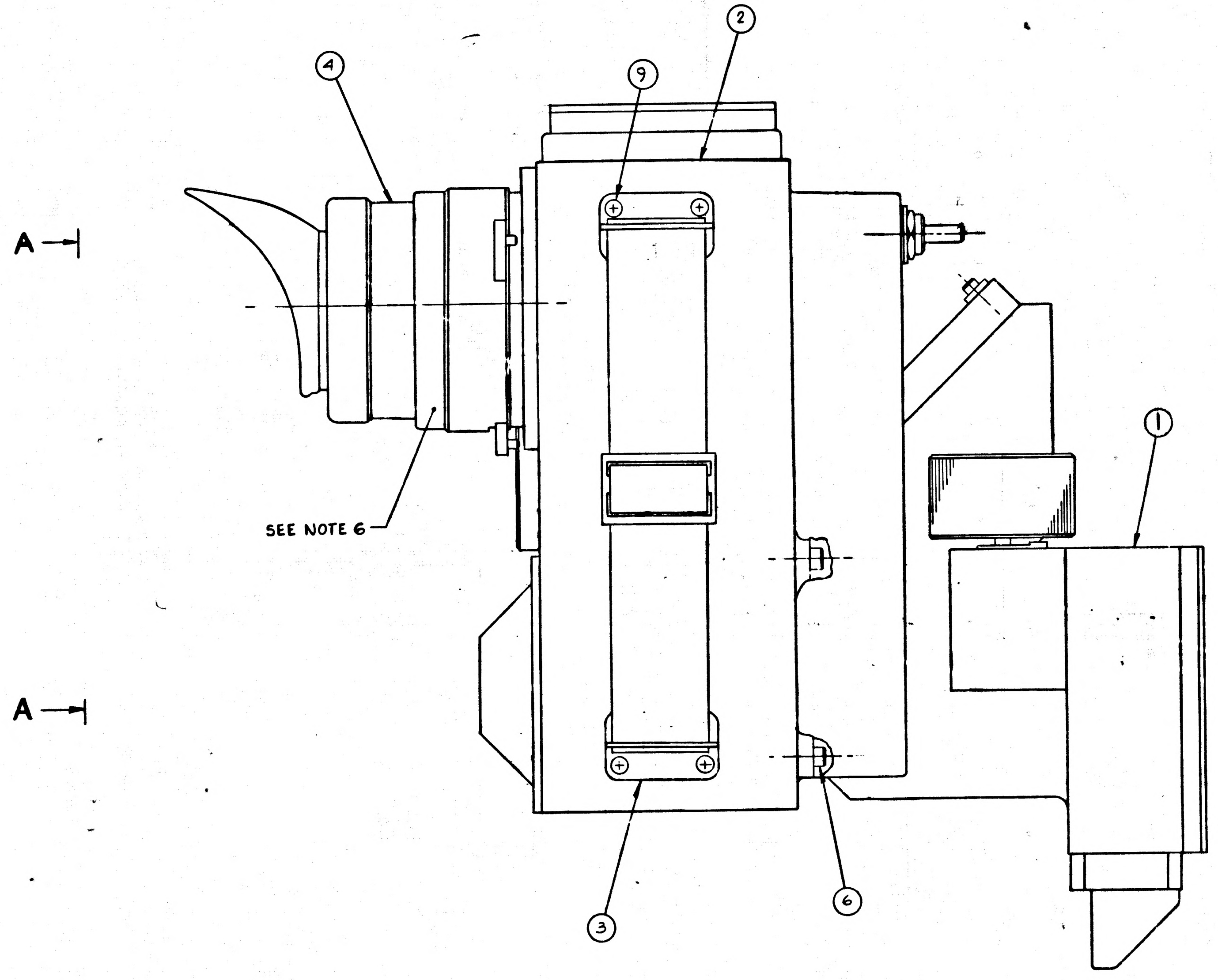
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL REQUIREMENTS OF PS2013250.
3. VIBRATION PROOF ALL SCREWS USING ITEM 14 IN ACCORDANCE WITH ND1002211
4. ITEM NO. 7 SHALL BE REMOVED PRIOR OR DURING TESTING OF UNIT.
5. ITEM NO. 5 SHALL BE SHIPPED AS A SEPARATE ITEM.
6. ALIGN DIOPTER SCALE TO INDEX SCALE OPTICALLY.
7. SOLDER IN ACCORDANCE WITH ND1002071.
8. CEMENT ITEM NO. 11 TO ITEM NO. 1 USING ITEM 15 ACCORDANCE WITH ND1002219 METHOD II
9. ADD THE FOLLOWING INFORMATION AS SHOWN TO ITEM 11 PER ND 1002019.

APOLLO RANGEFINDER

PART NO. 2013250

SERIAL NO. ☐ (AS REQ'D)

CONT. NO. NAS 9-497



REF DWGS:
WIRING DIAGRAM 2013255.

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
15	AR		1011541			ADHESIVE, EPOXY			
14	AR		1008953-003			COMPOUND, SEALING AND RETAINING			
13	1		MS16995-1			SCREW, SOCKET HEAD			
12	1		MS25036-43			LUG, TERMINAL			
11	1		2013251			PLATE, IDENTIFICATION			
10	1		2013339			COVER, BATTERY ASSY			
9	6		MS51959-2			SCREW, FLAT HD.			
8	6		NA91352C04LL4			SCREW CAP HEX SOC. HD., SELF LOCKING			
7	1		2013254			PLATE, BRACKET ASSY			
6	4		MS16995-10			SCREW, SOCKET HEAD			
5	1		2013297			BATTERY ENCAPSULATION ASSY (INSEP)			
4	1		2013400			EYEPIECE ASSY			
3	1		2013289			STRAP, ASSY OF (INSEP)			
2	1		2013275			TELESCOPE ASSY			
1	1		2013350			DIASTIMETER ASSY			

LIST OF PARTS AND MATERIALS

2013250 A

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC
PN
DRAWN DATE 1/2/69
CHECKED 1-6-69
APPROVAL 1-6-69
APPROVAL 1-6-69
3/4/69 NASA APPROVAL
APPROVAL

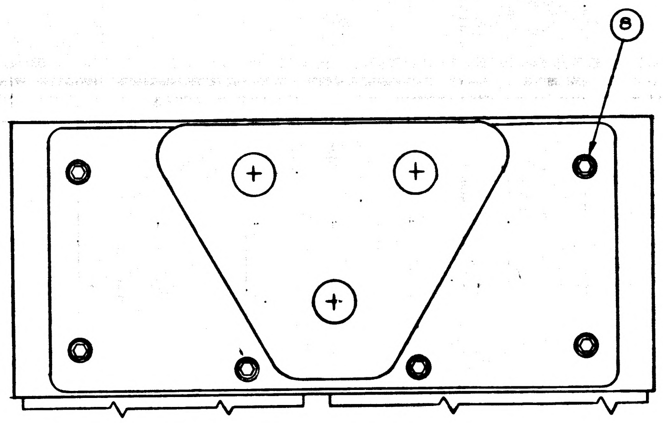
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

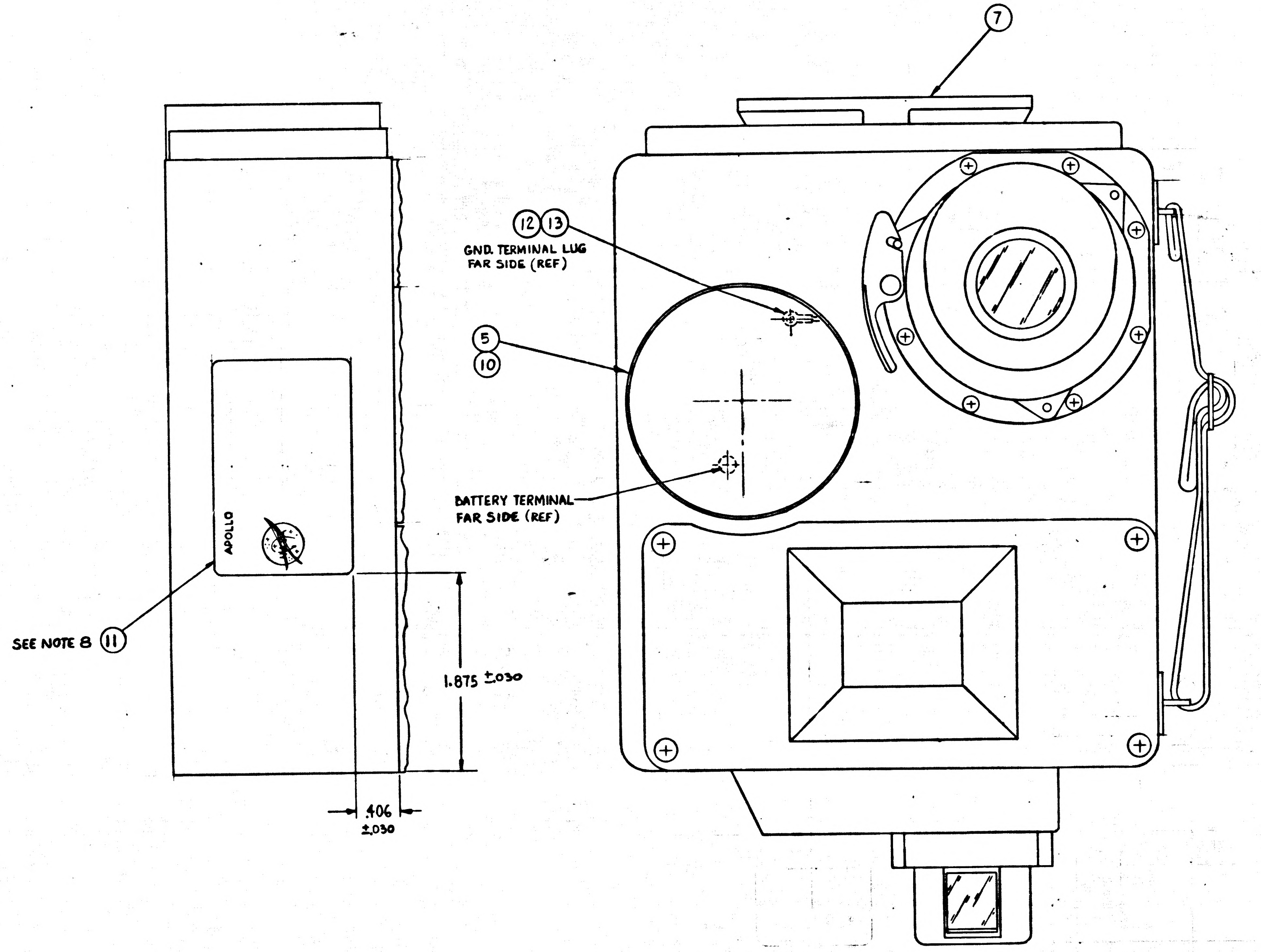
TITLE
APOLLO
RANGEFINDER

CODE IDENT NO. 89944
SIZE E
NASA NUMBER 2013250
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 2

2013250 A

REVISIONS TDRR 37173				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		SEE SHT 1	2/24/69	





7
12 13
GND. TERMINAL LUG FAR SIDE (REF)
5
10
BATTERY TERMINAL FAR SIDE (REF)
APOLLO
SEE NOTE 8 11
1.875 ±.030
.406 ±.030

VIEW A-A

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	+ −	+ −	+ −

DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC
PN
DRAWN DATE 1/8/69
CHECKED 1-6-69
APPROVAL
APPROVAL
JWH 1/8/69 NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
APOLLO
RANGEFINDER

CODE IDENT NO.	SIZE	NASA NUMBER
89944	E	2013250

SCALE 2/1 WEIGHT CALC ACTUAL SHEET 2 OF 2

2013250 A

2013250 B

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 37173	9 Jan 69	
A		CHANGED AS PER TDRR 37240	2-24-69	
B		REV. PER TDRR 37258	4-28-69	

NOTES:

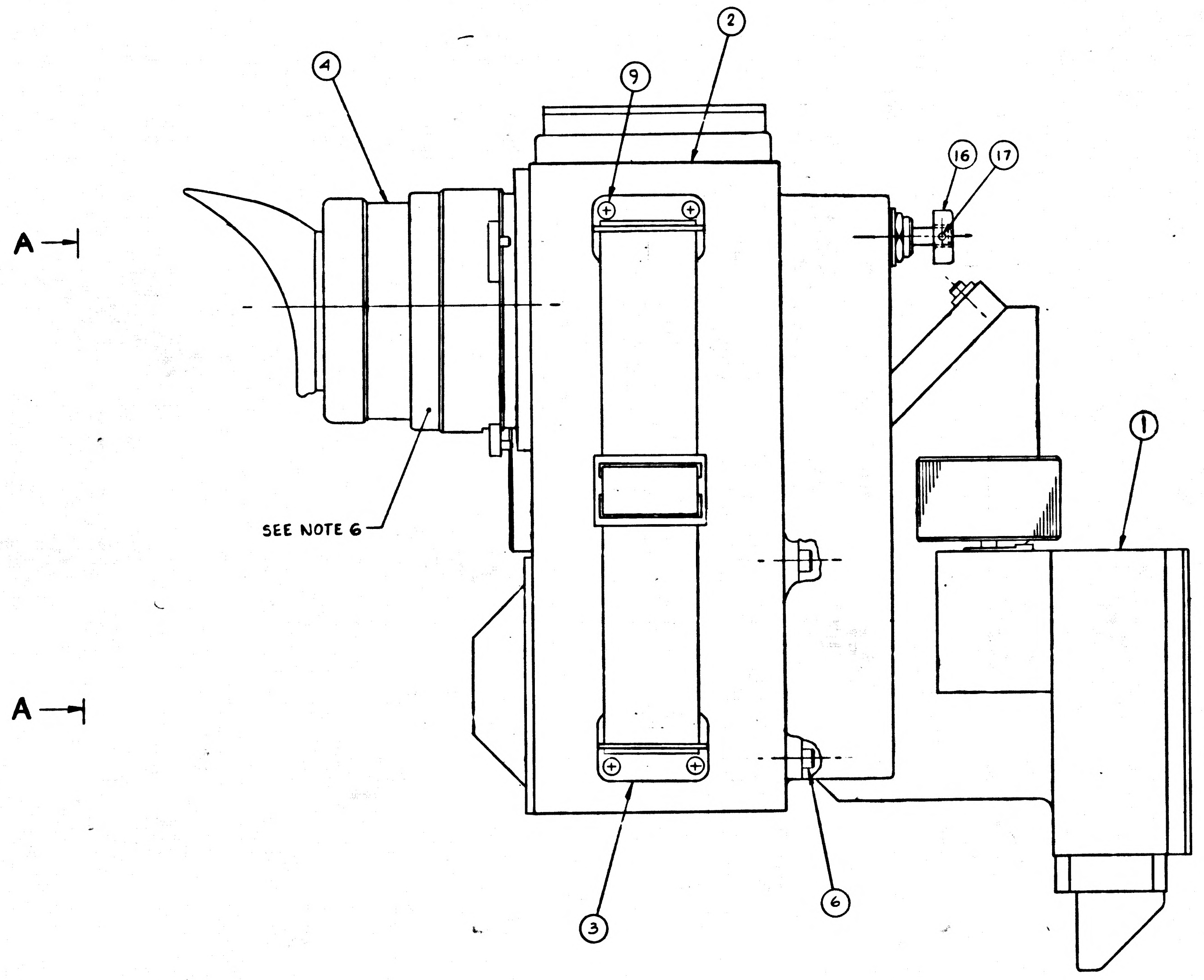
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL REQUIREMENTS OF PS 2013250.
3. VIBRATION PROOF ALL SCREWS USING ITEM 14 IN ACCORDANCE WITH ND1002211
4. ITEM NO. 7 SHALL BE REMOVED PRIOR OR DURING TESTING OF UNIT.
5. ITEM NO. 5 SHALL BE SHIPPED AS A SEPARATE ITEM.
6. ALIGN DIOPTER SCALE TO INDEX SCALE OPTICALLY.
7. SOLDER IN ACCORDANCE WITH ND1002071.
8. CEMENT ITEM NO. 11 TO ITEM NO. 1 USING ITEM 15 ACCORDANCE WITH ND1002219 METHOD II
9. ADD THE FOLLOWING INFORMATION AS SHOWN TO ITEM 11 PER ND 1002019.

APOLLO RANGEFINDER

PART NO. 2013250

SERIAL NO. ____ (AS REQ'D)

CONT. NO. NAS 9-497



REF DWGS:
WIRING DIAGRAM 2013255.

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
17	2		2013424			SCREW, SET, SOCKET			
16	1		2013340			BUTTON, SWITCH			
15	AR		1011541			ADHESIVE, EPOXY			
14	AR		1008953-003			COMPOUND, SEALING AND RETAINING			
13	1		MS16995-1			SCREW, SOCKET HEAD			
12	1		MS25036-43			LUG, TERMINAL			
11	1		2013251			PLATE, IDENTIFICATION			
10	1		2013339			COVER, BATTERY ASSY			
9	6		MS51959-2			SCREW, FLAT HD.			
8	6		NAS1352C04LL4			SCREW CAP HEX SOC. HD., SELF LOCKING			
7	1		2013254			PLATE, BRACKET ASSY			
6	4		MS16995-10			SCREW, SOCKET HEAD			
5	1		2013297			BATTERY ENCAPSULATION ASSY (INSEP)			
4	1		2013400			EYEPIECE ASSY			
3	1		2013289			STRAP, ASSY OF (INSEP)			
2	1		2013275			TELESCOPE ASSY			
1	1		2013350			DIASTIMETER ASSY			

LIST OF PARTS AND MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

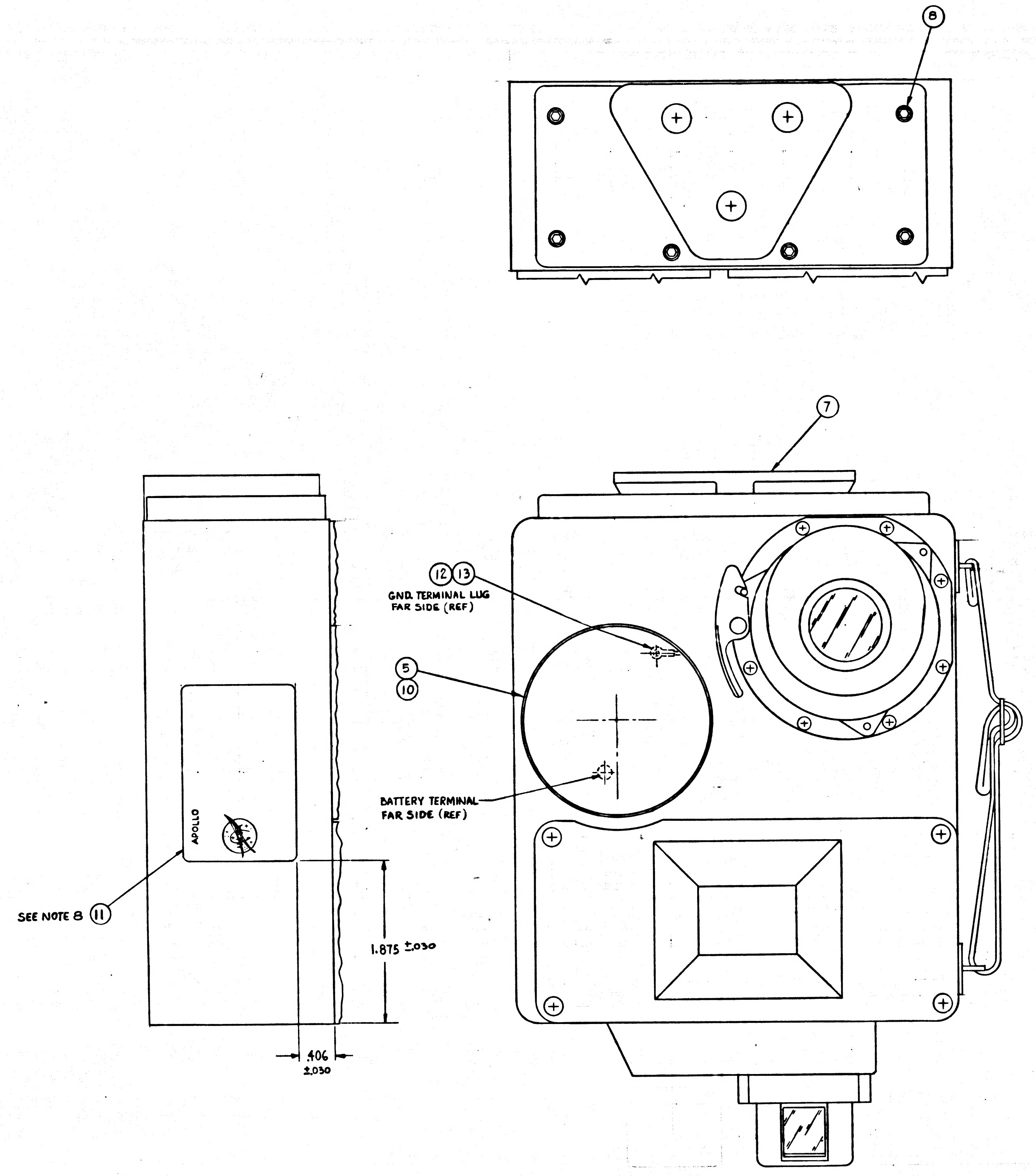
KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN DATE 1/2/69
CHECKED 1-6-69
APPROVAL 1-6-69
APPROVAL 1-6-69
3/4/69 NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
TITLE
APOLLO RANGEFINDER
CODE IDENT NO. 89944
SIZE E
NASA NUMBER 2013250
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 2

2013250 B

2013250 B

REVISIONS TDRR 37173				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
A		SEE SHT 1	2/24/69	
B		REV. PER TDRR 37258		



8
7
12 13
GND. TERMINAL LUG FAR SIDE (REF)
5
10
BATTERY TERMINAL FAR SIDE (REF)
APOLLO
SEE NOTE 8 11
1.875 ±.030
.406 ±.030

VIEW A-A

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± | DECIMALS ± | ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN DATE 1/2/69
CHECKED 1-6-69
APPROVAL
APPROVAL
JWH 1/13/69
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
APOLLO
RANGEFINDER

CODE IDENT NO. 89944
SIZE E
NASA NUMBER 2013250
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 2 OF 2

2013250 A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL REQUIREMENTS OF PS2013250.
3. VIBRATION PROOF ALL SCREWS USING ITEM 14 IN ACCORDANCE WITH ND1002211
4. ITEM NO. 7 SHALL BE REMOVED PRIOR OR DURING TESTING OF UNIT.
5. ITEM NO. 5 SHALL BE SHIPPED AS A SEPARATE ITEM.
6. ALIGN DIOPTER SCALE TO INDEX SCALE OPTICALLY.
7. SOLDER IN ACCORDANCE WITH ND1002071.
8. CEMENT ITEM NO. 11 TO ITEM NO. 1 USING ITEM 15 ACCORDANCE WITH ND1002219 METHOD II
9. ADD THE FOLLOWING INFORMATION AS SHOWN TO ITEM 11 PER ND 1002019.

APOLLO RANGEFINDER

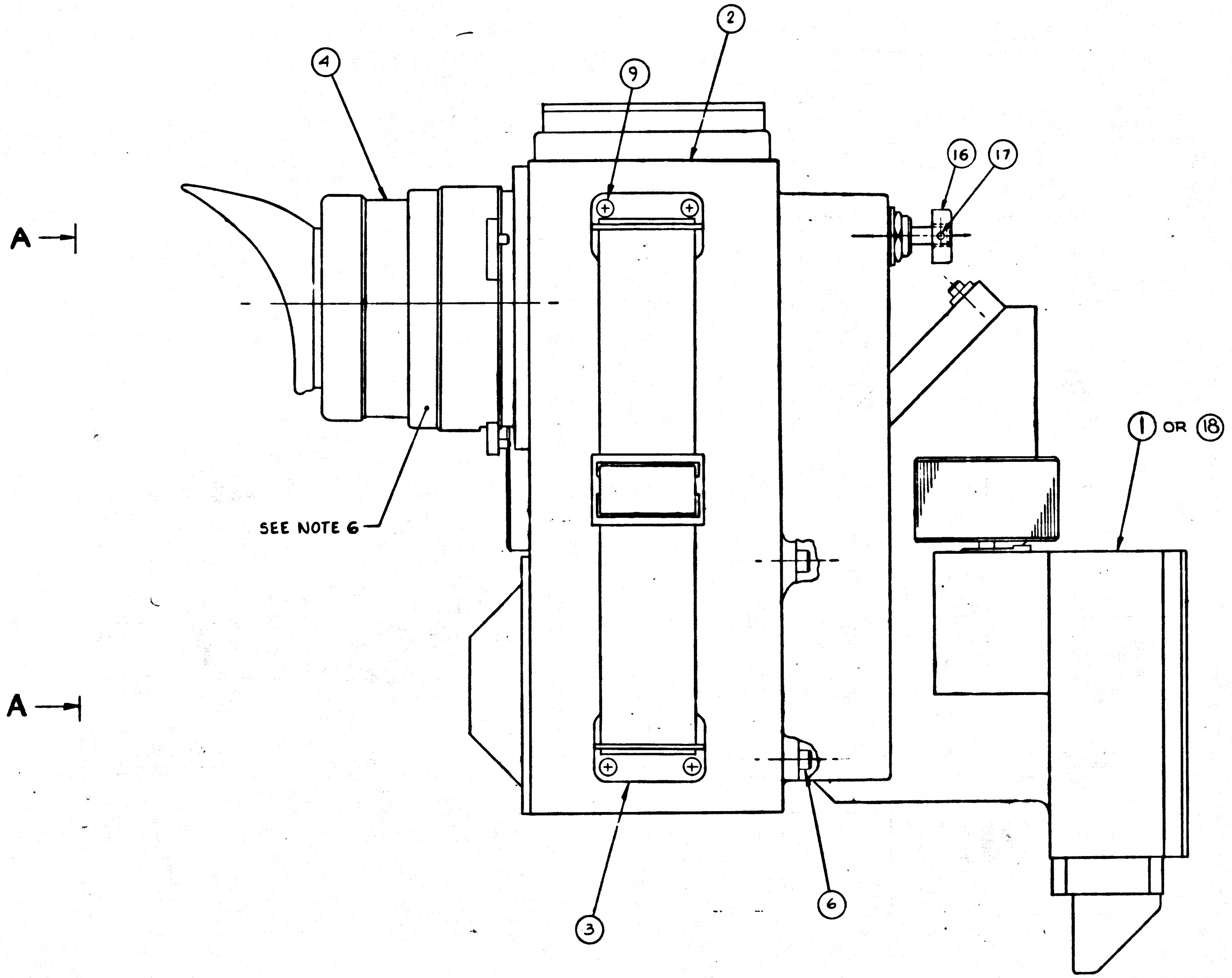
PART NO. 2013250

SERIAL NO. ☐ (AS REQ'D)

CONT. NO. NAS 9-497

2013250 B

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 37173		
A		CHANGED AS PER TDRR 37240		
B		REV. PER TDRR 37258		
C		REV. PER TDRR 37290	4/17/	



REF DWGS:
WIRING DIAGRAM 2013255.

011	000	ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
1	0	18			2013350-011			DIASTIMETER ASSY			
2	2	17			2013424			SCREW, SET, SOCKET			
1	1	16			2013340			BUTTON, SWITCH			
AR	AR	15			1011541			ADHESIVE, EPOXY			
AR	AR	14			1008953-008			COMPOUND, SEALING AND RETAINING			
1	1	13			MS16995-1			SCREW, SOCKET HEAD			
1	1	12			MS25036-43			LUG, TERMINAL			
1	1	11			2013251			PLATE, IDENTIFICATION			
1	1	10			2013339			COVER, BATTERY ASSY			
6	6	9			MS51959-2			SCREW, FLAT HD.			
6	6	8			NAS1352C04LL4			SCREW CAP HEX SOC. HD., SELF LOCKING			
1	1	7			2013254			PLATE, BRACKET ASSY			
4	4	6			MS16995-10			SCREW, SOCKET HEAD			
1	1	5			2013297			BATTERY ENCAPSULATION ASSY (INSEP)			
1	1	4			2013400			EYEPIECE ASSY			
1	1	3			2013289			STRAP, ASSY OF (INSEP)			
1	1	2			2013275			TELESCOPE ASSY			
0	1	1			2013350			DIASTIMETER ASSY			
QTY REQD											

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN DATE 1/2/69
CHECKED 1-6-69
APPROVAL 1-6-69
APPROVAL 1-6-69
NASA APPROVAL
APPROVAL

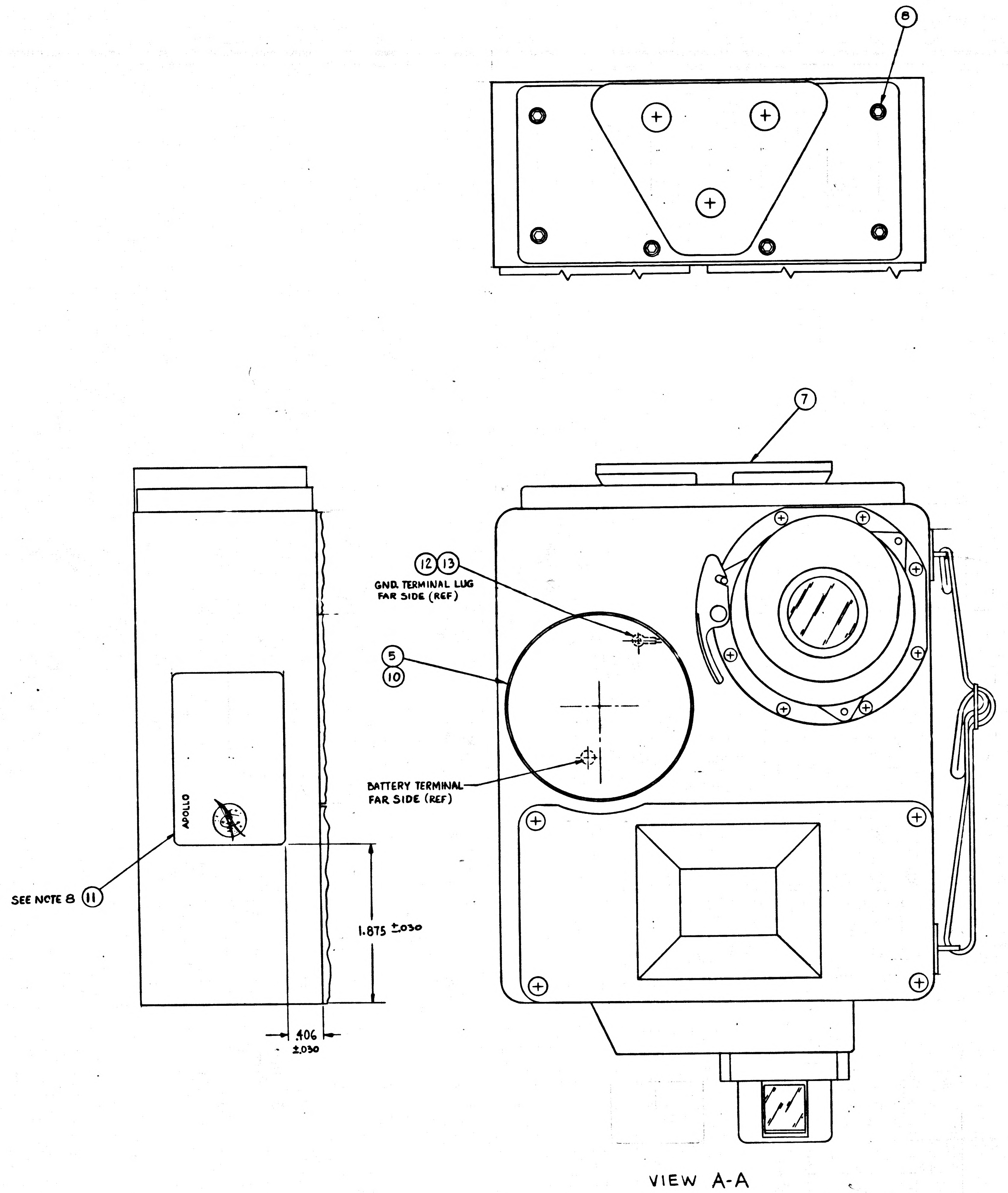
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
APOLLO RANGEFINDER

CODE IDENT NO. 89944 SIZE E NASA NUMBER 2013250
SCALE 2/1 WEIGHT CALC ACTUAL SHEET 1 OF 2

2013250 B

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS TDRR 37173				
A		SEE SHT 1	2/24/69	
B		REV. PER TDRR 37258	4/2/69	
C		REV. PER TDRR 37290	6/17/69	


8
7
12 13
GND. TERMINAL LUG
FAR SIDE (REF)
5
10
BATTERY TERMINAL
FAR SIDE (REF)
APOLLO
SEE NOTE 8 11
1.875 ±.030
.406 ±.030

VIEW A-A

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	+ −	+ −	+ −

DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC
PN
DRAWN DATE 1/2/69
CHECKED 1-6-69
APPROVAL
APPROVAL
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
APOLLO
RANGEFINDER

CODE IDENT NO.	SIZE	NASA NUMBER
89944	E	2013250

SCALE 2/1 WEIGHT CALC ACTUAL SHEET 2 OF 2

2013250

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASSA PER TDRR 37/73		

NOTES:

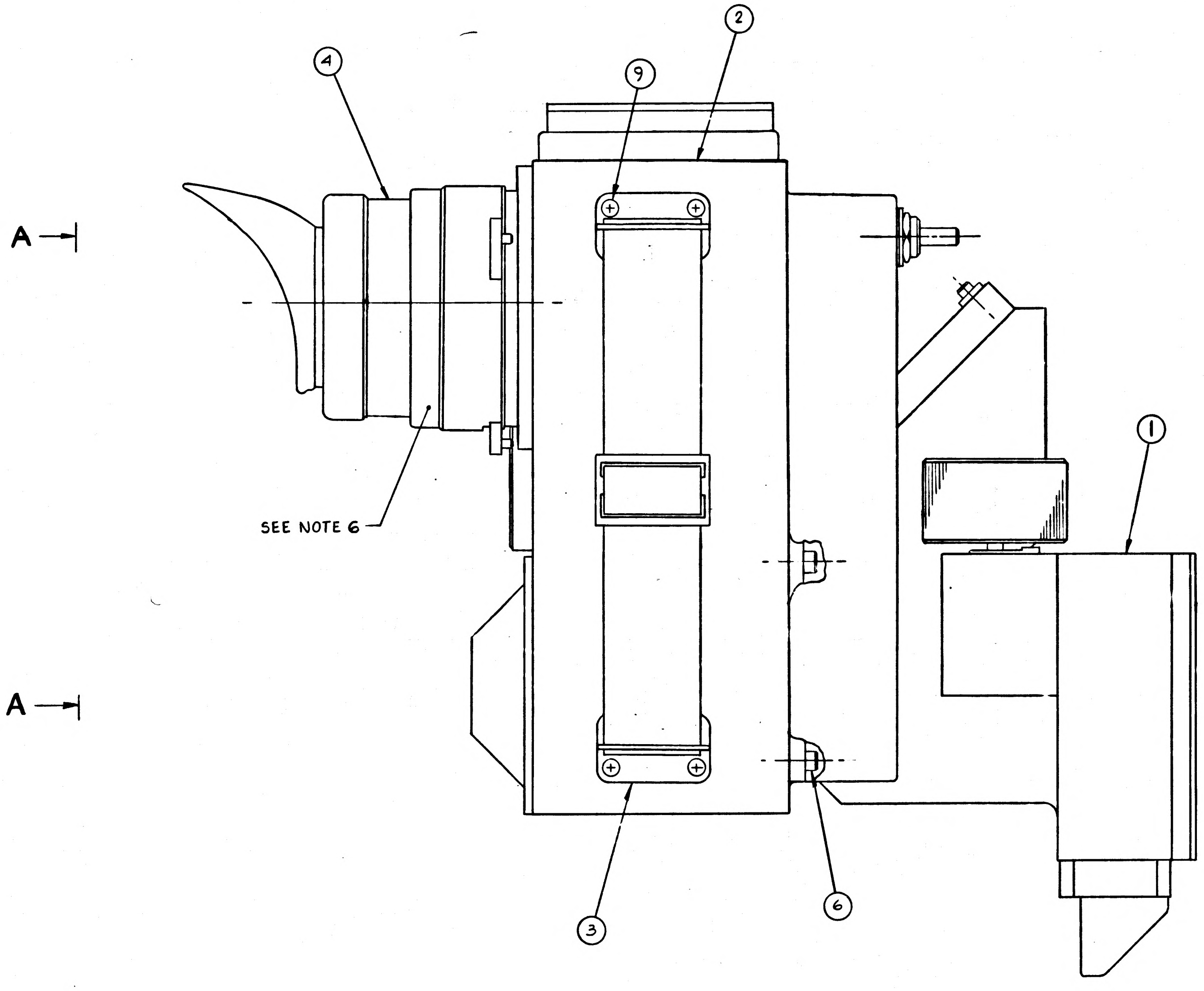
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL REQUIREMENTS OF PS 2013250.
3. VIBRATION PROOF ALL SCREWS USING ITEM 14 IN ACCORDANCE WITH ND1002211
4. ITEM NO. 7 SHALL BE REMOVED PRIOR OR DURING TESTING OF UNIT.
5. ITEM NO. 5 SHALL BE SHIPPED AS A SEPARATE ITEM.
6. ALIGN DIOPTER SCALE TO INDEX SCALE OPTICALLY.
7. SOLDER IN ACCORDANCE WITH ND1002071.
8. CEMENT ITEM NO. 11 TO ITEM NO. 1 USING ITEM 15 ACCORDANCE WITH ND1002219 METHOD II
9. ADD THE FOLLOWING INFORMATION AS SHOWN TO ITEM 11 PER ND 1002019.

APOLLO RANGEFINDER

PART NO. 2013250

SERIAL NO. ______ (AS REQ'D)

CONT. NO. NAS 9-497



REF DWGS:
WIRING DIAGRAM 2013255.

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
15	AR		1011541			ADHESIVE, EPOXY			
14	AR		1008953-003			COMPOUND, SEALING AND RETAINING			
13	1		MS16995-1			SCREW, SOCKET HEAD			
12	1		MS25036-143			LUG, TERMINAL			
11	1		2013251			PLATE, IDENTIFICATION			
10	1		2013339			COVER, BATTERY ASSY			
9	6		MS51959-2			SCREW, FLAT HD.			
8	6		NA91352C04LL4			SCREW, CAP HEX SOC. HD., SELF LOCKING			
7	1		2013254			PLATE, BRACKET ASSY			
6	4		MS16995-10			SCREW, SOCKET HEAD			
5	1		2013297			BATTERY ENCAPSULATION ASSY (INSEP)			
4	1		2013400			EYEPIECE ASSY			
3	1		2013289			STRAP, ASSY OF (INSEP)			
2	1		2013275			TELESCOPE ASSY			
1	1		2013350			DIASTIMETER ASSY			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

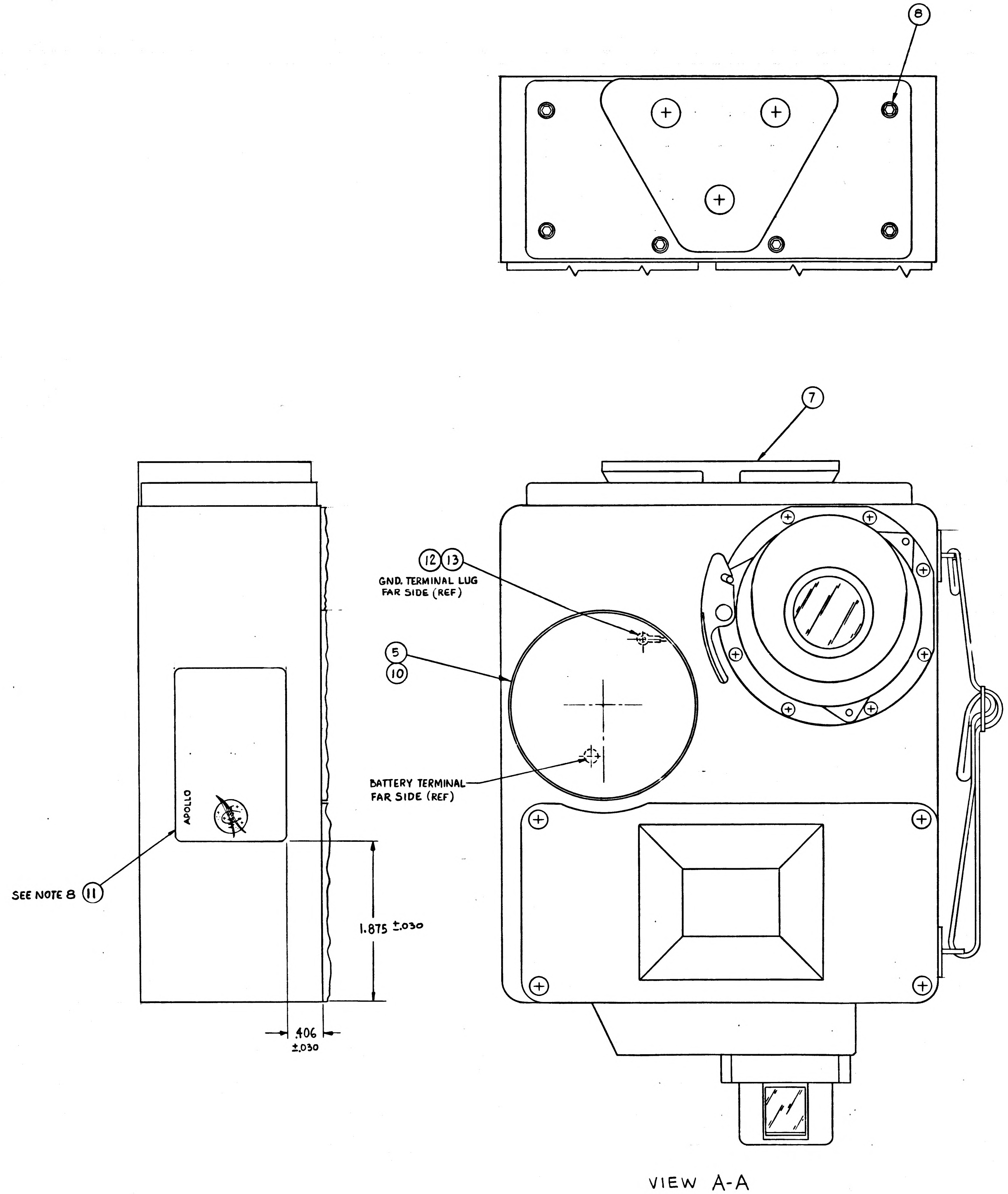
KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN DATE 1/2/69
CHECKED 1-6-69
APPROVAL 1/6/69
APPROVAL 1-6-69
1/9/69 NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE APOLLO RANGEFINDER

CODE IDENT NO. 89944
SIZE E
NASA NUMBER 2013250
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 2

REVISIONS TDRR 37173				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL



8
7
12 13
GND. TERMINAL LUG
FAR SIDE (REF)
5
10
BATTERY TERMINAL
FAR SIDE (REF)
APOLLO
SEE NOTE 8 11
1.875 ±.030
.406 ±.030

VIEW A-A

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	+ −	+ −	+ −

DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC
PN
DRAWN Bauer DATE 1/2/69
CHECKED 1-6-69
APPROVAL
APPROVAL
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
APOLLO
RANGEFINDER

CODE IDENT NO.	SIZE	NASA NUMBER
89944	E	2013250

SCALE 2/1 WEIGHT CALC ACTUAL SHEET 2 OF 2

PS 2013250
Original Issue Date: 20 JAN 69
Release Authority: TDRR 37234
Class A **Release**

PROCUREMENT SPECIFICATION
FOR
APOLLO RANGEFINDER
DRAWING NO. 2013250

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				AC	NASA

This specification consists of page 1 to 9 inclusive.

APPROVALS	R. Jacob 1-21-69 **NASA/MSC**	LDF 1-20-69 Donald J Becker AC 1-20-69	CCB	Robert T. Pitcher 1-14-69 M. Dushey 1-15-69. KIC	C J Fischer 1-14-69

2013250

1. SCOPE

1.1 Purpose. This specification establishes the detail requirements for complete identification and acceptance of the Apollo Rangefinder, Part No. 2013250-000.

2. APPLICABLE DOCUMENTS

2.1 Effective Issues. The following documents form a part of this specification to the extent specified herein.

2.1.1 Unless otherwise specified herein, Military and Government Standards and Specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G AND N

ND 1002214	General Specification for Preservation Packaging, Packing and Container Marking of Apollo Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.
ND 1002023	Serialization, General Specification for

STANDARDS

Military

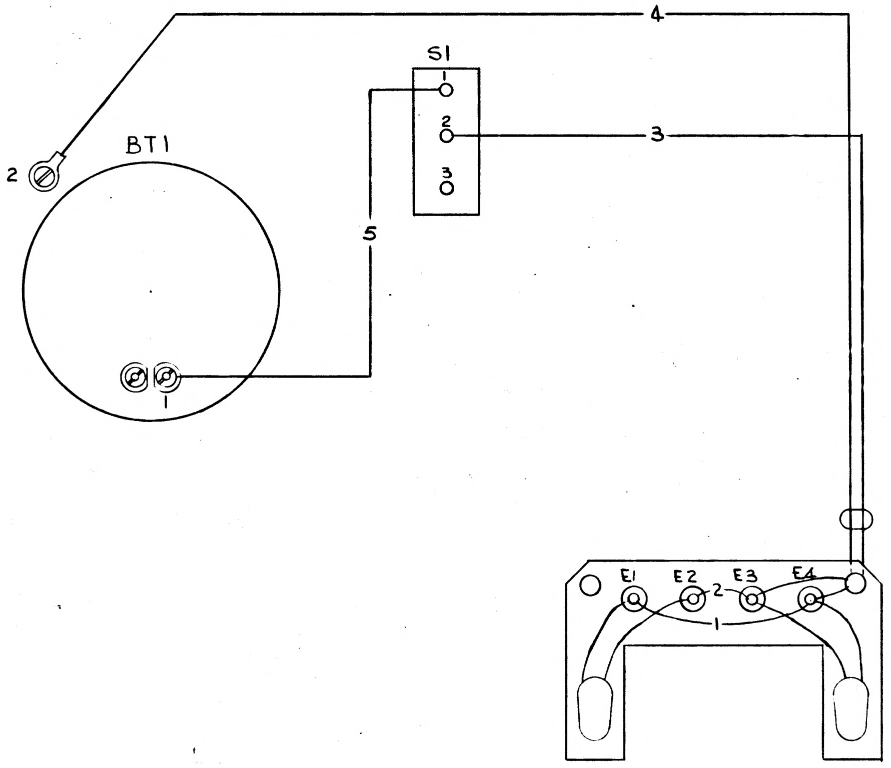
MIL-STD-150A	Photographic Lenses

2013255

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
		INITIAL RELEASE CLASS A PER TDRR 37173	9 JAN 69	

NOTE
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. INSTALL CRIMP STYLE TERMINAL LUG IN ACCORDANCE WITH ND1002206.
3. SOLDER CONDUCTERS, PER WIRING LEGEND, IN ACCORDANCE WITH ND1002071.
4. PERFORM CONTINUITY CHECK.

COND NO.	PART NO. (REF)	FROM CONNECTION	TO CONNECTION
1	1010708-5	E1	E4
2	1010708-5	E2	E3
3	1010789-003	E4	S1-2
4		E3	BT1-2
5	1010708-5	S1-1	BT1-1



2013255

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2013250	2013250

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
1-8-69
DRAWN A. BRIGANTI DATE 1-6-69
CHECKED G.T. DWYER 1-6-69
APPROVAL J. Norla 1/6/69
APPROVAL
7WH 1/8/69
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
WIRING DIAGRAM
APOLLO RANGEFINDER

CODE IDENT NO. 89944
SIZE D
NASA NUMBER 2013255
SCALE
WEIGHT CALC ACTUAL
SHEET OF

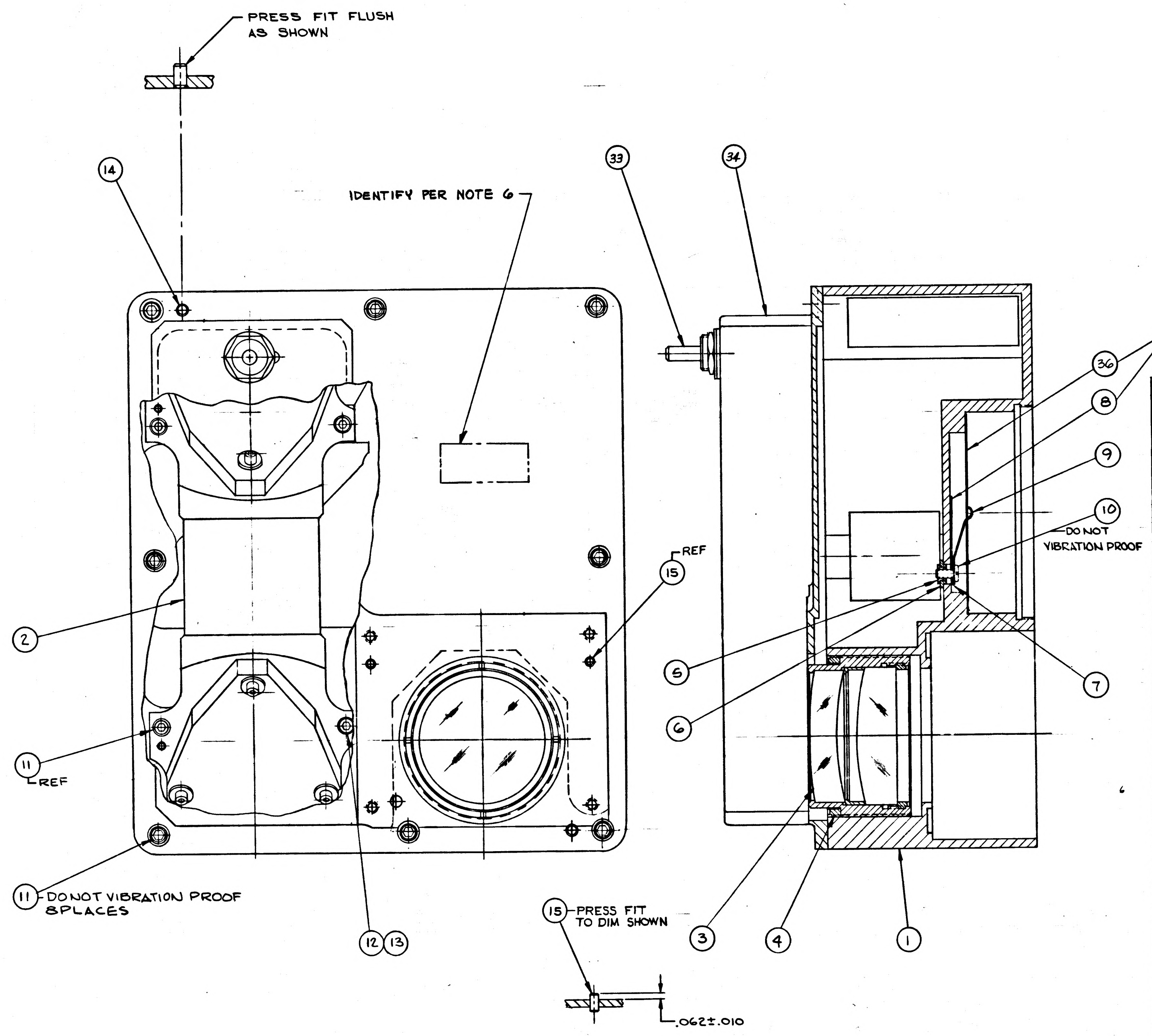
AD-1390

2013275

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE 37173 CLASS A PER TDRR	7 JAN 69	

NOTES:-

1- INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2- VIBRATION PROOF USING ITEM 37 IN ACCORDANCE WITH ND 1002211.
3- SELECT ITEM 35 FOR PROPER CLAMPING OF ITEM 18.
4- ITEM 8 & 36 TO BE ETCHED ON BONDING SURFACE IN ACCORDANCE WITH ND 1002146 & CEMENTED TO ITEM 1 USING ITEMS 38 & 39 IN ACCORDANCE WITH ND 1002004 TYPE II (SEMI-RIGID).
5- ADJUST ITEM 3 AS REQUIRED TO OBTAIN OPTIMUM FOCUS AT FOCAL PLANE (RETICLE PATTERN SURFACE).
6- IDENTIFY USING NASA PART NO. REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND 1002019.



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
39	AR		1010686			CATALYST			
38	AR		1010657			EPOXY RESIN			
37	AR		1008953-003			COMPOUND, SEALING & RETAINING			
36	1		2013305			INSULATOR, ELECTRICAL			
35	AR		2013301			SPACER			
34	1		2013452			MOUNT, DIASTIMETER			
33	1		1006738			SWITCH, PUSH			
32	4		MS51959-13			SCREW, FL.HD.			
31	1		2013313			COVER, REAR (PORRO PRISM)			
30	1		2013310			SPRING, TORSION			
29	1		2013308			SPACER			
28									
27	1		2013307			SCREW, SHOULDER			
26	1		2013293			LATCH, ASSY OF			
25	8		MS51959-3			SCREW, FL. HD (#2-56 X 1/4 LG)			
24	1		2013306			FLANGE, MOUNTING, EYEPIECE			
23	3		MS51959-2			SCREW, FL. HD (#2-56 X 3/16 LG)			
22	1		2013304			RETAINER, RETICLE			
21	1		2013303			RETICLE			
20	2		2013337-002			SCREW, CAP, HEX SOC. HD (REWORK) (#2-56X1 40 LG)			
19	2		2013302			BLOCK, ALIGNMENT			
18	1		2013299			PRISM			
17	6		MS16995-1			SCREW, CAP, HEX SOC. HD (#2-56 X 3/16 LG)			
16	1		2013300			STRAP, PRISM			
15	2		2013319-003			PIN, DOWEL			
14	2		2013319-002			PIN, DOWEL			
13	1		NAS 620C4			WASHER, FLAT			
12	1		MS16995-9			SCREW, CAP SOC.HD.			
11	11		MS16995-10			SCREW, CAP HEX SOC. HD			
10	2		2013326			SCREW, PAN HD (REWORKED)			
9	1		2013324			SPRING, CONTACT			
8	1		2013322			INSULATOR, ELECTRICAL			
7	1		2013397			PLATE INSULATOR			
6	2		2013321			BUSHING, INSULATOR			
5	2		2013323			BUSHING, THREADED			
4	1		2013318			RING, LOCKING, OBJECTIVE			
3	1		2013283			LENS, OBJECTIVE, ASSY OF			
2	1		2013277			SUPPORT, MIRRORS FIXED, ASSY OF			
1	1		2013276			HOUSING, TELESCOPE			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2013250	2013250

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
1-8-69
DRAWN T. LOMNITZ DATE 1-3-69
CHECKED N. Kutzke 1-6-69
APPROVAL 1/6/69
APPROVAL 1/6/69
1/9/69 NASA APPROVAL
APPROVAL

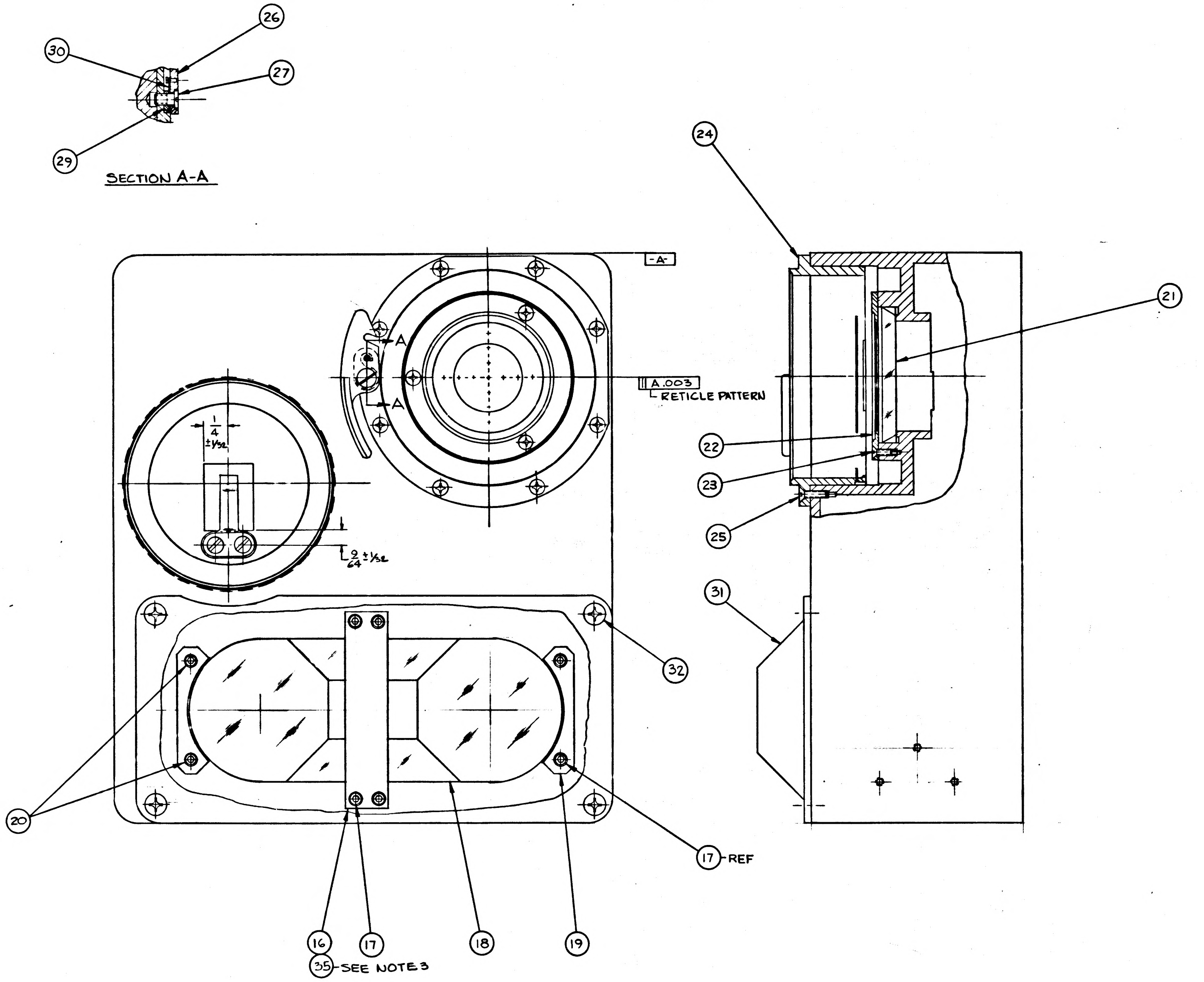
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
TELESCOPE ASSY

CODE IDENT NO. | SIZE E | NASA NUMBER 2013275
SCALE 2/1 | WEIGHT CALC ACTUAL | SHEET 1 OF 2

2013275

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 37173	9 JAN 69	



30
26
27
29
SECTION A-A
24
-A-
A
A
A .003
RETICLE PATTERN
21
1/4 ±1/32
9/64 ±1/32
22
23
25
31
32
20
17-REF
16
17
18
19
35-SEE NOTES

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2013250	2013250

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC
PN
DRAWN T. LOMNITZ DATE 1-3-69
CHECKED 1/6/69
APPROVAL 1/6/69
APPROVAL 1/6/69
JWH 1/9/69 NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

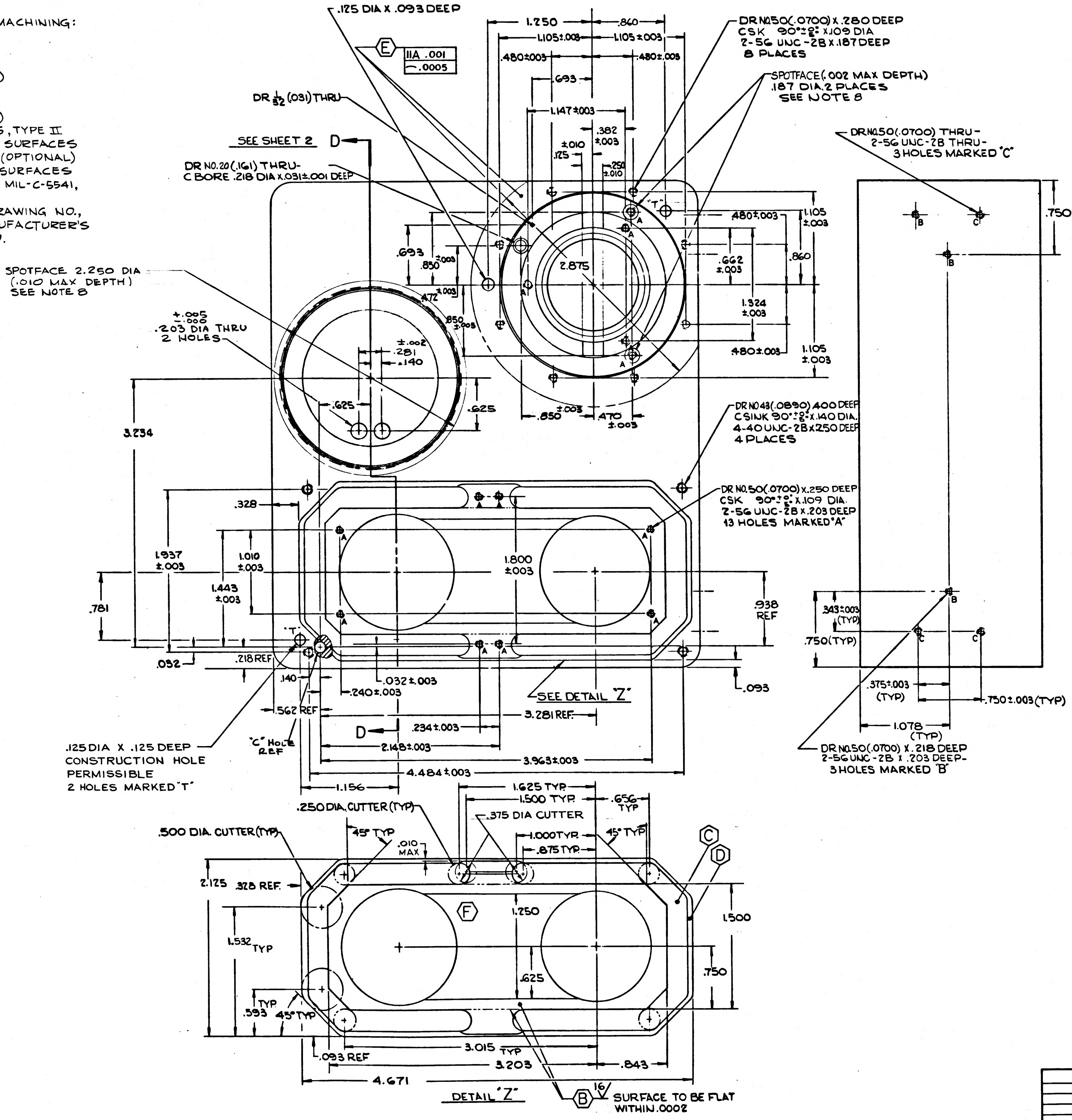
TITLE
TELESCOPE ASSY

CODE IDENT NO. 89944
SIZE E
NASA NUMBER 2013275
SCALE 2/1
WEIGHT
CALC ACTUAL
SHEET 2 OF 2

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
–	–	INITIAL RELEASE CLASS A PER TDRR 37/ 3		

2013276

NOTE:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078
3. UNLESS OTHERWISE SPECIFIED: 125/ FINISH ALL OVER.
4. REMOVE BURRS IN ACCORDANCE WITH ND 1002079.
5. AFTER ROUGH MACHINING STRESS RELIEVE AS FOLLOWS: START WITH A COLD OVEN, RAISE TO 450°F AT THE RATE OF 100°F PER HOUR. HOLD AT 450°F FOR 2 HOURS, THEN FURNACE COOL AT THE RATE OF 100°F PER HOUR TO BELOW 100°F.
6. STABILIZE BEFORE FINISH MACHINING:
   DRY ICE - 1 HOUR (-110°F)
   ROOM TEMP - 1 HOUR (MIN)
   350°F - 2 HOURS
   ROOM TEMP - 1 HOUR (MIN)
   DRY ICE - 1 HOUR (-110°F)
   350°F - 2 HOURS
   ROOM TEMP - 1 HOUR (MIN)
7. ANODIZE PER MIL-A-8625, TYPE II DYED BLACK. THREADED SURFACES TO BE FREE OF ANODIZE (OPTIONAL)
8. CHEMICAL FILM TOUCH-UP SURFACES INDICATED (4 PLACES) PER MIL-C-5541, GRADE B, CLASS 1.
9. IDENTIFY USING NASA DRAWING NO., REVISION LETTER & MANUFACTURER'S SYMBOL PER ND1002019.



SPOTFACE 2.250 DIA (.010 MAX DEPTH) SEE NOTE 8
.125 DIA X .093 DEEP
E
IIA .001
⌒ .0005
DR 1/32 (.031) THRU
SEE SHEET 2
D
DR NO.20 (.161) THRU - C BORE .218 DIA X .031±.001 DEEP
1.250
.860
1.105±.003
1.105±.003
.480±.003
.480±.003
.693
1.147±.003
.382 ±.003
±.010 .125
.250 ±.010
DR NO.50 (.0700) X .280 DEEP CSK 90°±2° X .109 DIA 2-56 UNC-2B X .187 DEEP 8 PLACES
SPOTFACE (.002 MAX DEPTH) .187 DIA 2 PLACES SEE NOTE 8
DR NO.50 (.0700) THRU - 2-56 UNC-2B THRU - 3 HOLES MARKED "C"
.750
.480±.003
1.105 ±.003
.860
.662 ±.003
2.875
1.324 ±.003
.480±.003
1.105 ±.003
.693
.850 ±.003
.472 ±.003
.850 ±.003
+.005 -.000 .203 DIA THRU 2 HOLES
±.002 .281
.140
.625
.625
.850 ±.003
.470 ±.003
3.234
DR NO.43 (.0890) .400 DEEP CSINK 90°±2° X .140 DIA. 4-40 UNC-2B X .250 DEEP 4 PLACES
DR NO.50 (.0700) X .250 DEEP CSK 90°±2° X .109 DIA. 2-56 UNC-2B X .203 DEEP 13 HOLES MARKED "A"
.328
1.937 ±.003
1.010 ±.003
1.443 ±.003
1.800 ±.003
.781
.938 REF
T
.032
.218 REF
.140
.032±.003
.240±.003
.562 REF
SEE DETAIL "Z"
.093
3.281 REF
D
.234±.003
2.148±.003
3.963±.003
4.484±.003
.125 DIA X .125 DEEP CONSTRUCTION HOLE PERMISSIBLE 2 HOLES MARKED "T"
"C" HOLE REF
.343±.003 (TYP)
.750 (TYP)
.375±.003 (TYP)
.750±.003 (TYP)
1.078 (TYP)
DR NO.50 (.0700) X .218 DEEP 2-56 UNC-2B X .203 DEEP - 3 HOLES MARKED "B"
1.156
1.625 TYP
1.500 TYP
.656 TYP
.250 DIA CUTTER (TYP)
.375 DIA CUTTER
.500 DIA CUTTER (TYP)
45° TYP
.010 MAX
1.000 TYP
.875 TYP
45° TYP
C
D
2.125
.328 REF.
F
1.250
1.500
1.532 TYP
.625
.750
TYP .393 45° TYP
.093 REF
3.015 TYP
3.203
.843
4.671
DETAIL "Z"
B 16/ SURFACE TO BE FLAT WITHIN .0002

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2013275	2013250

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

	FRACTIONS	DECIMALS	ANGLES
TOL ON	± ~	± .005	± 0°30′

DO NOT SCALE THIS DRAWING
MATERIAL ALUMINUM ALLOY 6061-T651
FED. SPEC QQ-A-225/8 TEMPER T651
CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
1-8-69
DRAWN J.W. KELLY DATE 12-1-68
CHECKED N. KETZKO
APPROVAL 1-4-69
APPROVAL 1-5-69
7/24 1/3/69
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

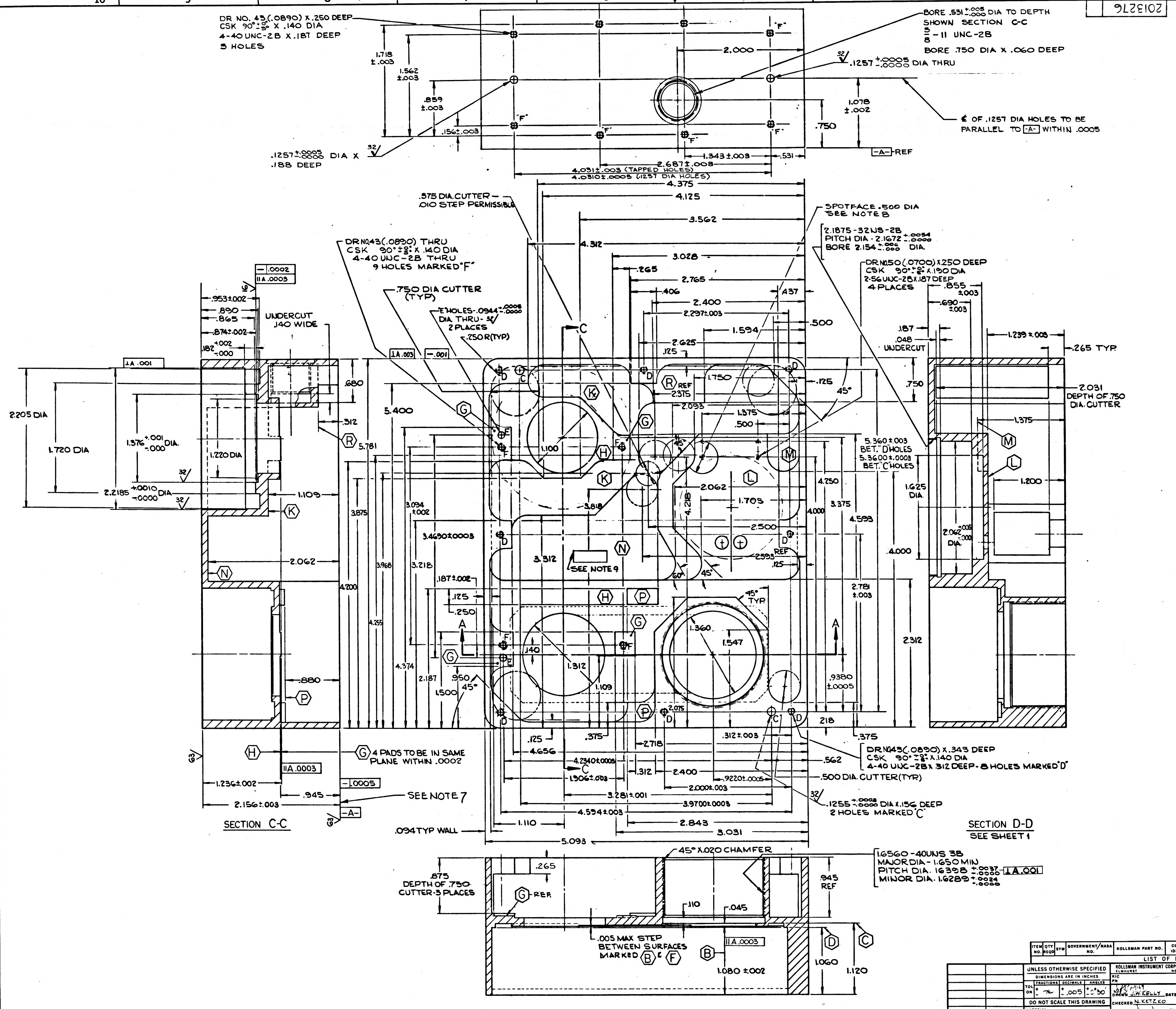
TITLE
HOUSING, TELESCOPE

CODE IDENT NO. 89944
SIZE E
NASA NUMBER 2013276
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 2

2013276

2013276

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
REVISIONS				
—	—	INITIAL RELEASE CLASS A PER TDRR 37173	9 JAN 69	


DR NO. 43 (.0890) X .250 DEEP
CSK 90°±0°/-5° X .140 DIA
4-40 UNC-2B X .187 DEEP
3 HOLES
1.718 ±.003
1.562 ±.003
.859 ±.003
.156±.003
.1257 +.0005/-.0000 DIA X .188 DEEP
32
"F"
2.000
BORE .531 +.005/-.000 DIA TO DEPTH SHOWN SECTION C-C
5/8-11 UNC-2B
BORE .750 DIA X .060 DEEP
.1257 +.0005/-.0000 DIA THRU
1.078 ±.002
.750
℄ OF .1257 DIA HOLES TO BE PARALLEL TO -A- WITHIN .0005
-A- REF
1.343±.003
.531
2.687±.003
4.031±.003 (TAPPED HOLES)
4.0310±.0005 (.1257 DIA HOLES)
4.375
4.125
3.562
4.312
3.028
2.765
2.400
2.297±.003
1.594
2.625
.265
.406
.437
.500
.125
.375 DIA. CUTTER — .010 STEP PERMISSIBLE
DR NO.43 (.0890) THRU
CSK 90°±0°/-5° X .140 DIA
4-40 UNC-2B THRU
9 HOLES MARKED "F"
.750 DIA CUTTER (TYP)
"E" HOLES - .0944 +.0005/-.0000 DIA THRU - 32 2 PLACES
.250 R (TYP)
— .0002
∥ A .0003
16
.953±.002
.890
.865
.874±.002
.182 +.002/-.000
UNDERCUT .140 WIDE
⊥ A .001
⊥ A .003
— .001
2.205 DIA
1.720 DIA
1.376 +.001/-.000 DIA.
1.220 DIA
2.2185 +.0010/-.0000 DIA
.680
.312
5.400
5.781
1.109
2.062
.880
SPOTFACE .500 DIA SEE NOTE 8
2.1875-32 NS-2B
PITCH DIA - 2.1672 +.0054/-.0000
BORE 2.154 +.006/-.000 DIA.
DR NO.50 (.0700) X .250 DEEP
CSK 90°±0°/-5° X .190 DIA
2-56 UNC-2B X .187 DEEP
4 PLACES
.855 ±.003
.690 ±.003
.187
.048 UNDERCUT
1.239±.003
.265 TYP.
.750
2.031 DEPTH OF .750 DIA. CUTTER
1.375
1.200
1.625 DIA
2.062 +.005/-.000 DIA
45°
2.315 REF
2.093
1.750
1.375
.500
1.100
5.360±.003 BET. "D" HOLES
5.3600±.0003 BET. "C" HOLES
4.250
4.000
3.375
4.593
4.000
4.218
2.062
1.703
.818
2.500
2.593 REF
3.312
SEE NOTE 9
60°
2.781 ±.003
45° TYP
1.360
1.547
2.312
.9380 ±.0005
1.312
.140
1.109
.950
45°
1.500
2.187
4.374
3.875
3.968
4.200
4.255
3.094 ±.002
3.4630±.0003
3.218
.187±.002
.125
.250
2.075
218
.375
.312±.003
.562
DR NO.43 (.0890) X .343 DEEP
CSK 90°±0°/-5° X .140 DIA
4-40 UNC-2B X .312 DEEP - 8 HOLES MARKED "D"
.500 DIA. CUTTER (TYP.)
.1255 +.0003/-.0000 DIA X .156 DEEP
2 HOLES MARKED "C"
.125
4.656
.375
2.718
4.2340±.0005
1.906±.003
.312
2.400
.9220±.0005
2.000±.003
3.281±.001
3.9700±.0003
4.594±.003
2.843
3.031
1.110
.094 TYP WALL
5.093
A
C
D
E
F
G
H
K
L
M
N
P
R
G 4 PADS TO BE IN SAME PLANE WITHIN .0002
∥ A .0003
— .0005
SEE NOTE 7
-A-
63
1.236±.002
.945
2.156±.003
SECTION C-C
SECTION D-D
SEE SHEET 1
45° X .020 CHAMFER
1.6560-40UNS 3B
MAJOR DIA - 1.650 MIN
PITCH DIA. 1.6398 +.0037/-.0000 ⊥ A .001
MINOR DIA. 1.6289 +.0024/-.0000
.945 REF
.875 DEPTH OF .750 CUTTER-3 PLACES
.265
G REF
.110
.045
.005 MAX STEP BETWEEN SURFACES MARKED B & F
∥ A .0003
1.080 ±.002
1.060
1.120
B
C
D
SECTION A-A
10
9
8
7
6
5
4
3
2
1

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
LIST OF PARTS AND MATERIALS									

NEXT ASSY	USED ON
2013275	2013250
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± 1/64	± .005	± 0°30'

DO NOT SCALE THIS DRAWING
MATERIAL SEE SHEET 1
CONTRACT NAS 9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
1-8-69
DRAWN J.W. KELLY DATE 12-1-68
CHECKED N. KETZKO
APPROVAL 1-4-69
APPROVAL 1-5-69
JAN 1/8/69
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE HOUSING, TELESCOPE

CODE IDENT NO. 89944
SIZE E
NASA NUMBER 2013276
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 2 OF 2

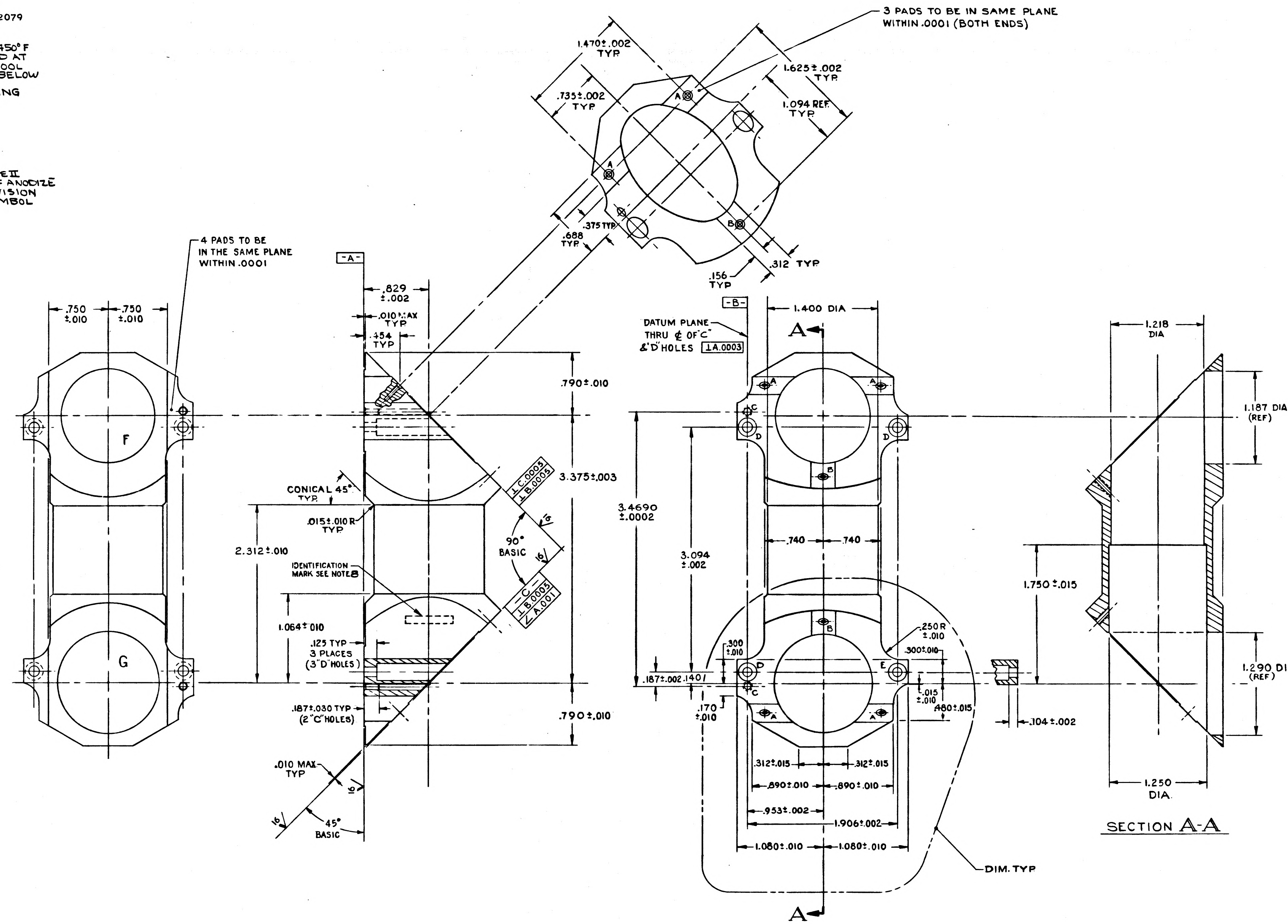
AD-1560

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078
3. UNLESS OTHERWISE SPECIFIED 125/ FINISH ALL OVER
4. REMOVE BURRS IN ACCORDANCE WITH ND1002079
5. AFTER ROUGH MACHINING STRESS RELIEVE AS FOLLOWS:
   START WITH A COLD OVEN, RAISE TO 450° F AT THE RATE OF 100° F PER HOUR, HOLD AT 450° FOR 2 HOURS, THEN FURNACE COOL AT THE RATE OF 100° F PER HOUR TO BELOW 100° F
6. STABILIZE BEFORE FINISH MACHINING
   DRY ICE ——— 1 HOUR (-110°F)
   ROOM TEMP ——— 1 HOUR (MIN)
   350° F ——— 2 HOURS
   ROOM TEMP ——— 1 HOUR (MIN)
   DRY ICE ——— 1 HOUR (-110° F)
   350° F ——— 2 HOURS
   ROOM TEMP ——— 1 HOUR (MIN)
7. BLACK ANODIZE PER MIL-A-8625 TYPE II THREADED SURFACES TO BE FREE OF ANODIZE
8. IDENTIFY USING NASA DWG NO. REVISION LETTER AND MANUFACTURERS SYMBOL PER ND 1002019

2013278

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 37173	8 JAN 69	


3 PADS TO BE IN SAME PLANE WITHIN .0001 (BOTH ENDS)
1.470±.002 TYP
1.625±.002 TYP
.735±.002 TYP
1.094 REF. TYP
.375 TYP
.688 TYP
.156 TYP
.312 TYP
4 PADS TO BE IN THE SAME PLANE WITHIN .0001
-A-
-B-
.829 ±.002
.010 MAX TYP
.454 TYP
.750 ±.010
.750 ±.010
F
G
.790±.010
3.375±.003
CONICAL 45° TYP
.015±.010 R TYP
2.312±.010
IDENTIFICATION MARK SEE NOTE 8
90° BASIC
1.064±.010
.125 TYP 3 PLACES (3 "D" HOLES)
.187±.030 TYP (2 "C" HOLES)
.010 MAX TYP
45° BASIC
DATUM PLANE THRU ℄ OF "C" & "D" HOLES
1.400 DIA
A
3.4690 ±.0002
3.094 ±.002
.740
.740
.250 R ±.010
.300 ±.010
.300 ±.010
.187±.002
.1401
.170 ±.010
.015 ±.010
.460±.015
.104±.002
.312±.015
.312±.015
.890±.010
.890±.010
.953±.002
1.906±.002
1.080±.010
1.080±.010
DIM. TYP
1.218 DIA
1.187 DIA. (REF)
1.750±.015
1.290 DIA. (REF)
1.250 DIA.

SECTION A-A

HOLE	DESCRIPTION	QUAN.
A	DR NO 49 (.073) x .281 DEEP 2-56 UNC 2B x .203 DEEP CSK 90° +0° -5° x .109 DIA.	4
B	DR NO 49 (.073) THRU. 2-56 UNC 2B THRU. CSK 90° +0° -5° x .109 DIA.	2
C	DR NO 40 (.098) TO DEPTH SHOWN. .0934 +.0001 -.0000 DIA. THRU 32/ FINISH CSK 90° x .110 DIA. (FAR SIDE)	2
D	DR NO 1/8 (.125) THRU. CBORE .218 DIA. TO DEPTH SHOWN.	3
E	DR NO 1/8 (.125) THRU. CBORE .218 DIA. TO DEPTH SHOWN.	1
F	1.187 DIA. THRU	1
G	1.290 DIA. THRU	1

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2013277	2013250

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	± .005	± 1°

DO NOT SCALE THIS DRAWING
MATERIAL ALUMINUM ALLOY 6061-T651. FED.SPEC. QQ-A-225/8 TEMPER T651
CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN W. CLARK DATE 12-13-68
CHECKED 1-3-69
APPROVAL 1/3/69
APPROVAL 1/5/69
NASA APPROVAL 7/8/69
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE SUPPORT, MIRRORS FIXED

CODE IDENT NO.	SIZE	NASA NUMBER
89944	E	2013278

SCALE 2/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

2013297	A

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 37173	9 Jan 69	
A		REFER TO TDRR 37346	3-3-69	R.B.

NOTES:

1- INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.

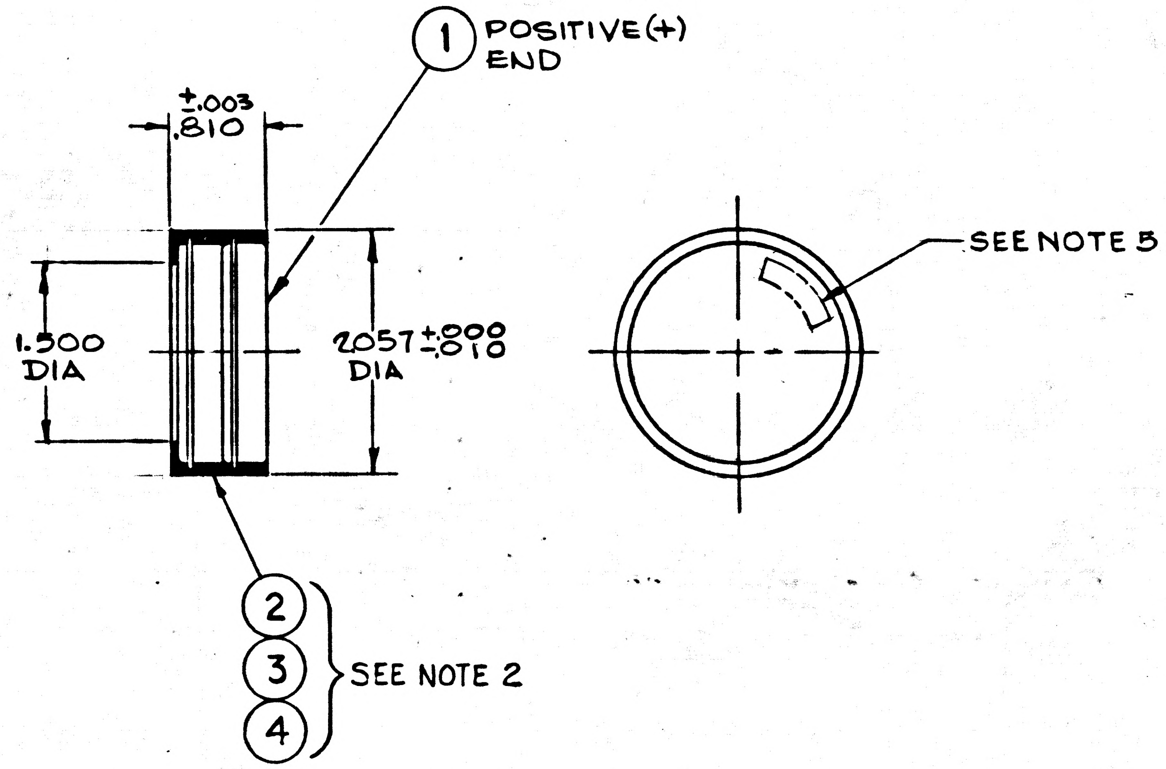
2- APPLY ITEMS 2, 3 & 4 TO ITEM 1 TO DIMENSIONS SHOWN, USING CLEANING, PRIMING & CURING PROCESS PER ND 1002240 METHOD A.

3- IDENTIFY USING NASA PART NO., REVISION LETTER & MANUFACTURER'S SYMBOL PER ND 1002019 (BAG).

4- A. BATTERY SHALL BE CHARGED TO 1 AMP-HOUR CAPACITY AT A 10 HR RATE (140 MILLIAMPS).
   B. SHALL THEN BE DISCHARGED AT 150 MILLIAMPS FOR 6 HOURS. THE TERMINAL VOLTAGE SHALL BE 2.2 VOLTS OR GREATER THROUGHOUT DISCHARGE CYCLE.
   C. BATTERY SHALL BE CHARGED TO 1 AMP-HOUR CAPACITY AT A 10 HR. RATE (140 MILLIAMPS).

5- PLACE BATTERY S/N AND DATE OF CHARGE ON BATTERY PER ND 1002019 IN LOCATION SHOWN.

6- AFTER 30 DAYS FROM DATE INDICATED ON BATTERY, DISCHARGE AND RECHARGE CYCLE IS REQUIRED.



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
4	A/R		1012515			COMPOUND, SILICONE RUBBER			
3	A/R		1012514			CURING AGENT			
2	A/R		1012513			PRIMER			
1	1		2013298			BATTERY			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2013250	2013250

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.010	± —

DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN

DRAWN T. LOMNITZ DATE 12-13-68 1-8-69
CHECKED K. Vaines 1-2-69
APPROVAL 1/2/69
APPROVAL 1/2/69
NASA APPROVAL JWH 1/8/69
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
BATTERY, ENCAPSULATION, ASSEMBLY (INSEP.)

CODE IDENT NO.	SIZE	NASA NUMBER
89944	C	2013297

SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

AD-1340

2013297

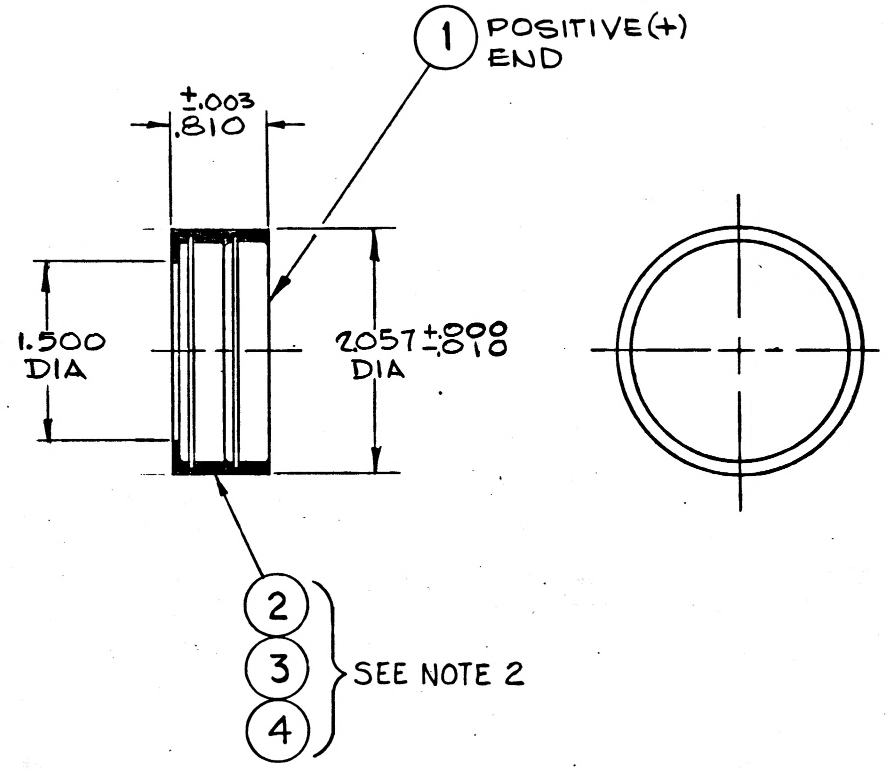
REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 37173	9 JAN 69	

NOTES:

1- INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.

2- APPLY ITEMS 2, 3 & 4 TO ITEM 1 TO DIMENSIONS SHOWN, USING CLEANING, PRIMING & CURING PROCESS PER ND 1002240 METHOD A.

3- IDENTIFY USING NASA PART NO., REVISION LETTER & MANUFACTURER'S SYMBOL PER ND 1002019 (BAG).



2013297

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
4	A/R		1012515			COMPOUND, SILICONE RUBBER			
3	A/R		1012514			CURING AGENT			
2	A/R		1012513			PRIMER			
1	1		2013298			BATTERY			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2013250	2013250

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± —	±.010	± —

DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN

1-8-69
DRAWN T. LOMNITZ DATE 12-13-68
CHECKED K. Vainius 1-2-69
APPROVAL 1/2/69
APPROVAL 1/5/69
JWH 1/8/69 NASA APPROVAL
~~KIT~~ APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
BATTERY, ENCAPSULATION, ASSEMBLY (INSEP.)

CODE IDENT NO.	SIZE	NASA NUMBER
89944	C	2013297

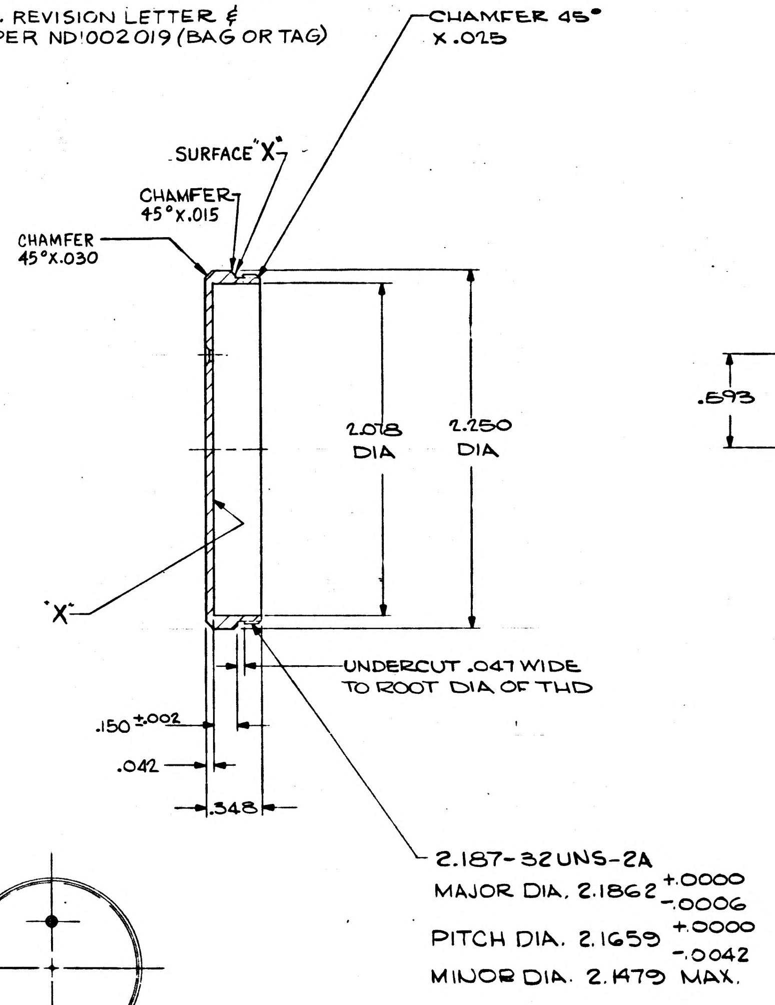
SCALE 1/1 WEIGHT CALC ACTUAL SHEET 1 OF 1

AD-1340

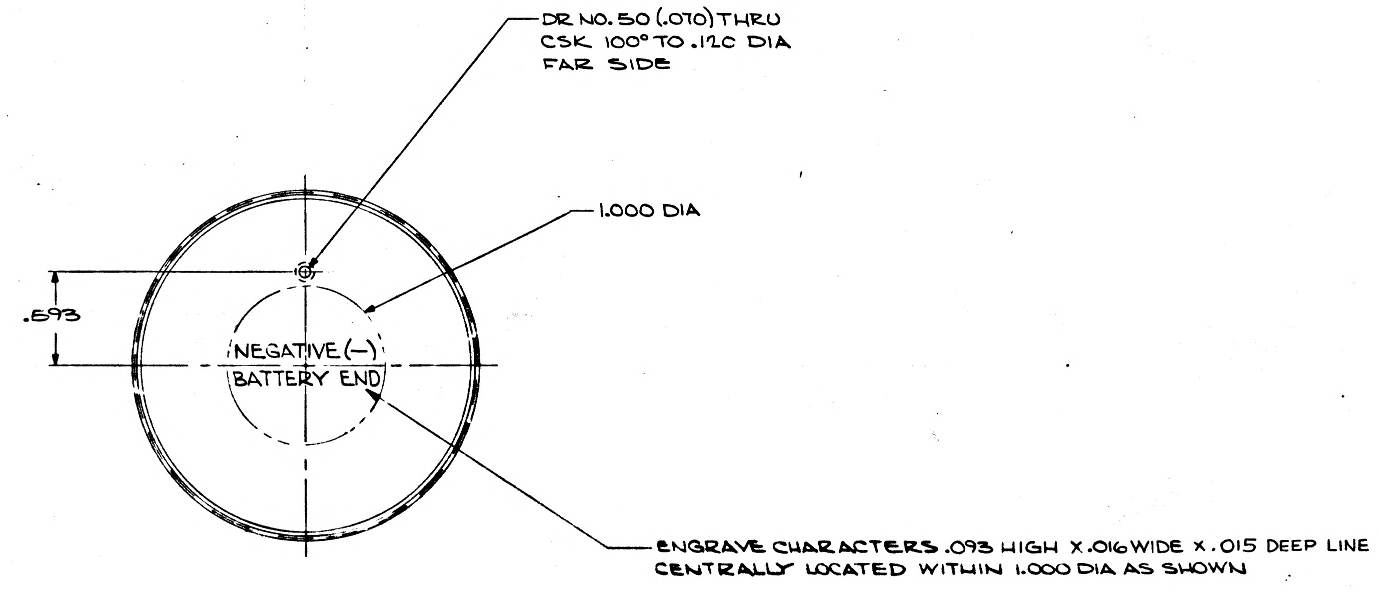
2013311

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
		INITIAL RELEASE CLASS A PER TDRR 37/73	9 JAN 69	

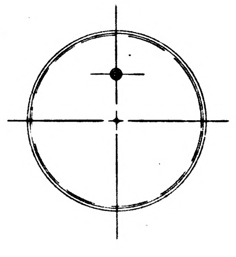
NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND 1002078.
3. FINISH ON ALL MACHINED SURFACES 125√ UNLESS OTHERWISE SPECIFIED.
4. REMOVE BURRS IN ACCORDANCE WITH ND 1002079.
5. BLACK ANODIZE PER MIL-A-8625 TYPE II (BLACK) ALL OVER EXCEPT THREADS AND SURFACES MARKED "X".
6. CHEMICAL FILM TOUCH UP SURFACE MARKED "X" PER MIL-C-5541, GRADE B, CLASS 1.
7. MARKING
   a) ENGRAVE CHARACTERS 3/16 HIGH PER ND1002122 TYPE II, CLASS I.
   b) FILL ENGRAVED CHARACTERS PER ND1002130 (WHITE)
8. IDENTIFY USING NASA DWG NO. REVISION LETTER & MANUFACTURER'S SYMBOL PER ND1002019 (BAG OR TAG)



CHAMFER 45° X.025
SURFACE "X"
CHAMFER 45°X.015
CHAMFER 45°X.030
2.078 DIA
2.250 DIA
"X"
UNDERCUT .047 WIDE TO ROOT DIA OF THD
.150 ±.002
.042
.348
2.187-32 UNS-2A
MAJOR DIA. 2.1862 +.0000 -.0006
PITCH DIA. 2.1659 +.0000 -.0042
MINOR DIA. 2.1479 MAX.



DR NO. 50 (.070) THRU CSK 100° TO .120 DIA FAR SIDE
1.000 DIA
.593
NEGATIVE (−) BATTERY END
ENGRAVE CHARACTERS .093 HIGH X .016 WIDE X .015 DEEP LINE CENTRALLY LOCATED WITHIN 1.000 DIA AS SHOWN



ACTUAL SIZE

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2013339	2013250
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL ALUM ALLOY 2024-T4
FED SPEC QQ-A 225/4 TEMPER T4
CONTRACT NAS 9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN K. SMITH DATE 12-12-68
CHECKED N. K. 12-16-68
APPROVAL 12/19/68
APPROVAL 1/8/69
NASA APPROVAL 1/8/69
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
TITLE COVER, BATTERY
CODE IDENT NO. 89944
SIZE D
NASA NUMBER 2013311
SCALE 2:1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

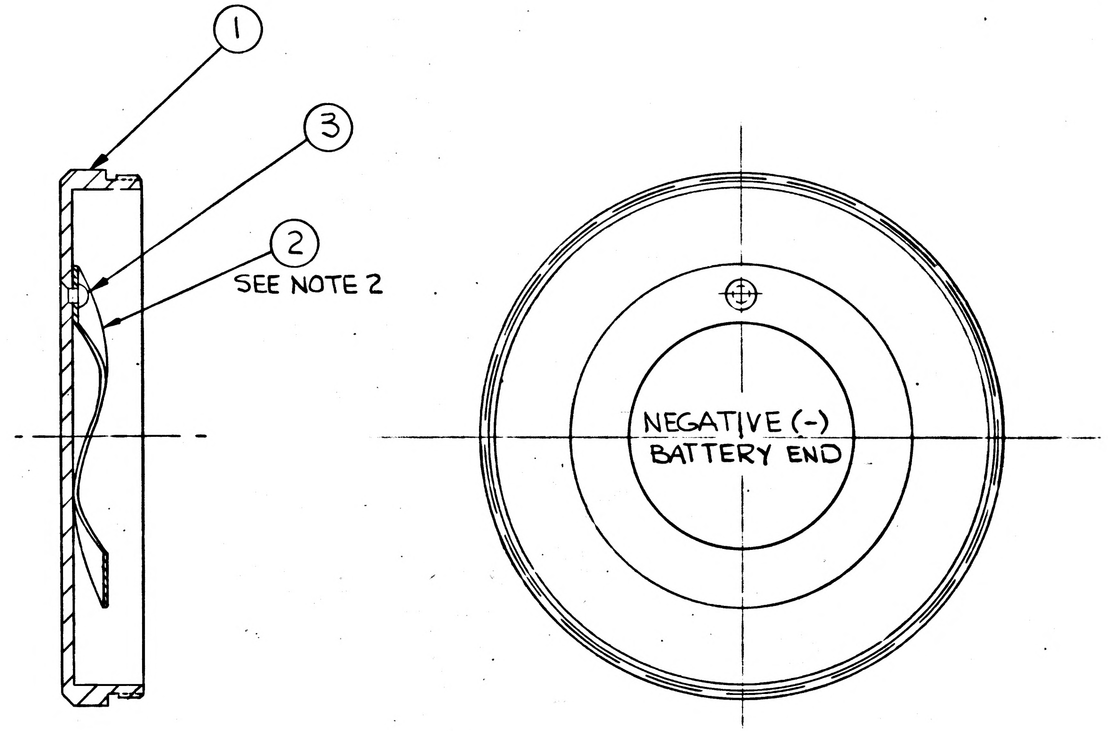
AD-1350

2013311

2013339

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 37173	9 JAN 69	

NOTES
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. LOCATE ITEM 2 AS SHOWN.
3. IDENTIFY USING NASA DWG NO., REVISION LETTER & MANUFACTURER'S SYMBOL PER ND 1002019 (BAG).



2013339

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
3	1		MS 20426 AD2-2			RIVET, COUNTERSUNK			
2	1		2013325			WASHER, WAVE			
1	1		2013311			COVER, BATTERY			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2013250	2013250

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL ~
CONTRACT NAS 9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
1-8-69
DRAWN A. BRIGANTI DATE 12-27-68
CHECKED 1-2-69
APPROVAL 1/2/69
APPROVAL 1/9/69
7WH 1/9/69 NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
COVER, BATTERY ASSEMBLY

CODE IDENT NO. 89944
SIZE C
NASA NUMBER 2013339
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

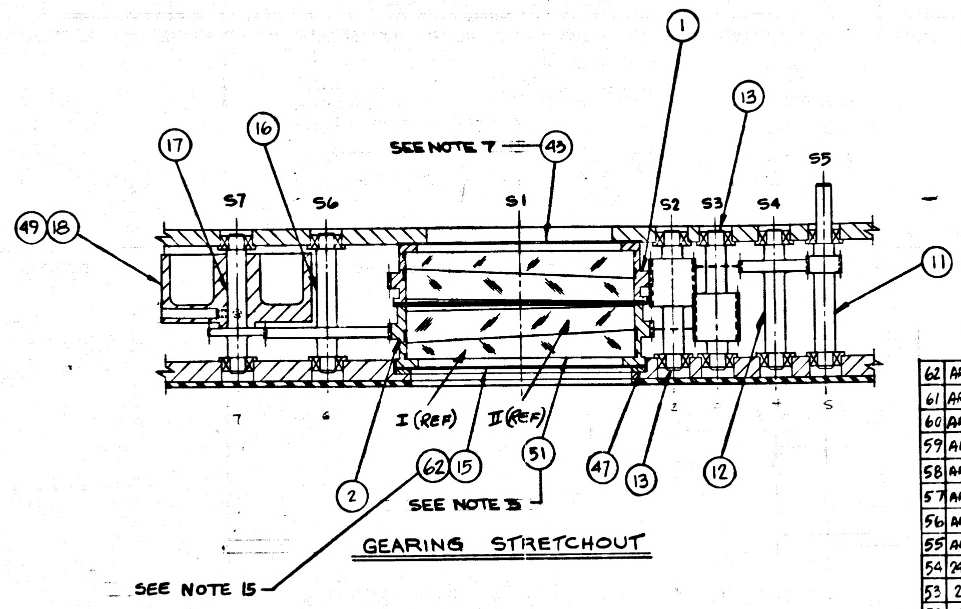
AD-1340

2013350 A

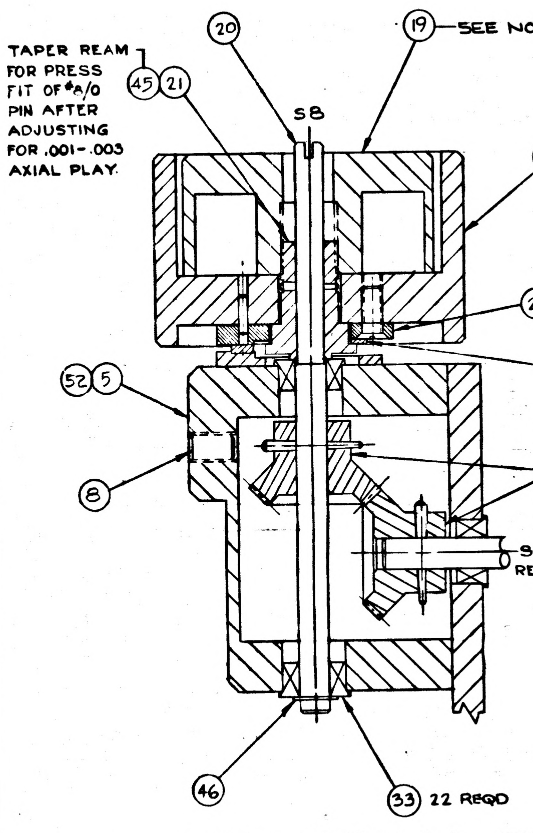
REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
–	–	INITIAL RELEASE CLASS A PER TDRR 37173	9 JAN 69	
A		REFER TO TDRR 37241	1-14-69	

NOTES:

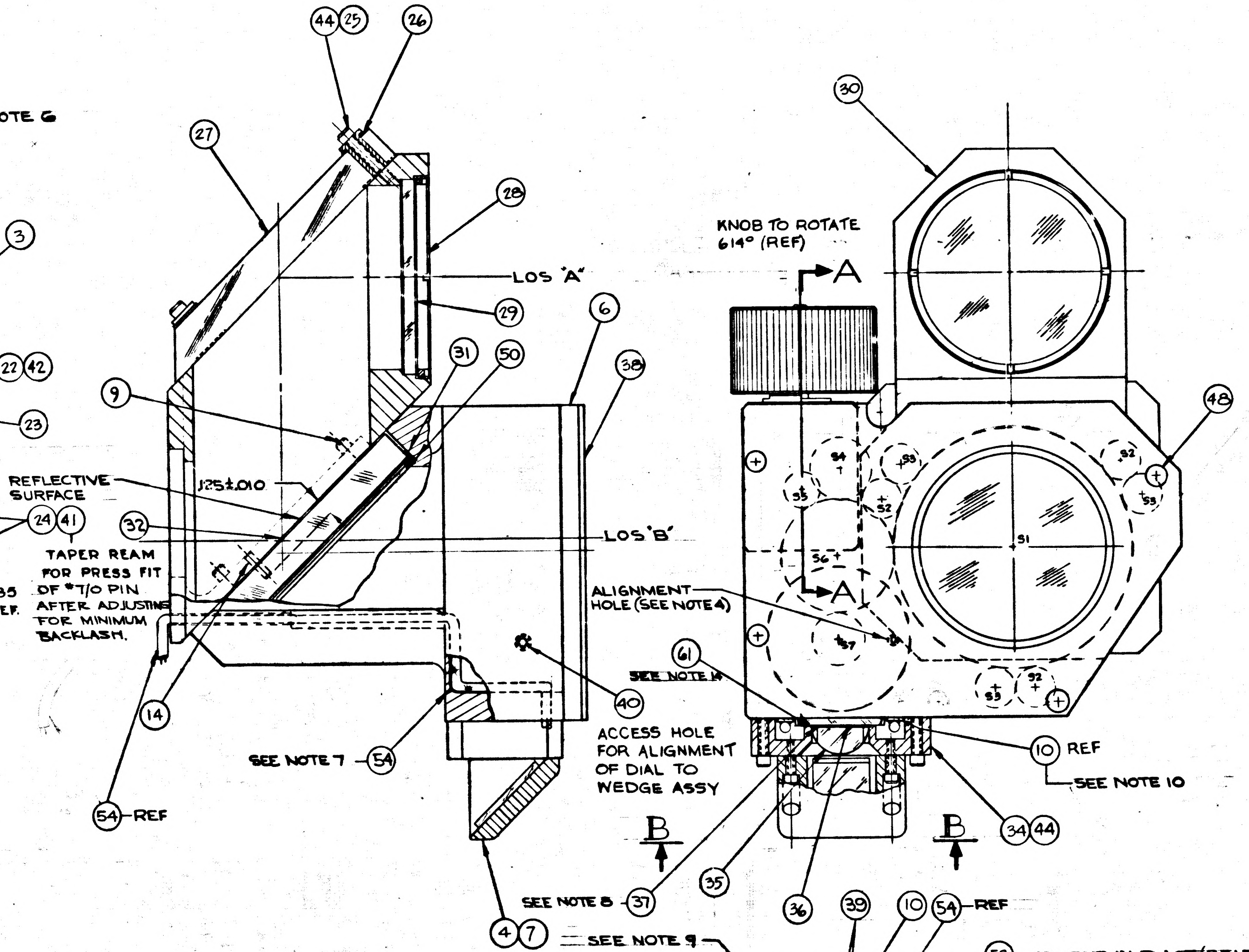
1- INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2- ROTATE ITEM 51 WITHIN ITEM 2 TO ALLOW ZERO OPTICAL DEVIATION AND APPLY TEMPORARY INDEX MARKS
3- DISASSEMBLE, CEMENT ITEMS 2 AND 51 USING ITEMS 55 & 56 (SEMI-RIGID) IN ACCORDANCE WITH ND1002004 AND REASSEMBLE
4- USING ALIGNMENT HOLE, POSITION DRUM RELATIVE TO ZERO OPTICAL DEVIATION AND SECURE DRUM IN PLACE WITH ITEM 49
5- LAP MOUNTING PADS FOR ITEM 27 SO AS TO ATTAIN AN ANGLE OF 1°1'37"±2" BETWEEN LOS "A" AND LOS "B" IN BOTH AXES
6- VIBRATION PROOF USING ITEM 57 IN ACCORDANCE WITH ND1002211. THIS REQUIREMENT APPLIES TO ALL NON SELF-LOCKING SCREWS AND THREADS ON THIS DRAWING
7- ITEMS 43 AND 54 TO BE ETCHED ON BONDING SURFACE IN ACCORDANCE WITH ND1002146 AND CEMENTED TO ITEM 6 USING ITEMS 55 & 56 (SEMI-RIGID) IN ACCORDANCE WITH ND1002004
8- CEMENT ITEM 37 TO ITEMS 36 AND 35 USING ITEMS 55 & 56 IN ACCORDANCE WITH ND1002004 TYPE II (SEMI-RIGID) (2 PLACES)
9- CLEAN, PRIME, AND CURE USING ITEMS 58, 59 & 60 IN ACCORDANCE WITH ND1002240, METHOD A (ALL AROUND)
10- CEMENT ITEM 10 TO ITEM 6 USING ITEMS 55 & 56 IN ACCORDANCE WITH ND1002004 TYPE II (SEMI-RIGID)
11- SOLDER IN ACCORDANCE WITH ND1002071
12- CEMENT ITEM 53 TO ITEM 10 USING ITEMS 55 & 56 IN ACCORDANCE WITH ND1002004 TYPE II (FLEXIBLE).
13- WIRE IN ACCORDANCE WITH WIRING DIAGRAM 2013255. (REF)
14. CUT TO SHAPE REQUIRED NOT TO OBSCURE APERTURE & FOR MAXIMUM BEARING SURFACE. USE AS MANY LAYERS AS REQUIRED FOR PROPER CLAMPING.
15. APPLY ITEM 62 ON BOTH SIDES OF ITEM 15, REMOVE ALL EXCESS.

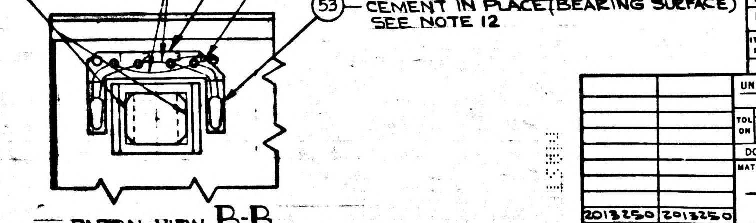

SEE NOTE 7
43
17
16
1
13
S5
S7
S6
S1
S2
S3
S4
49
18
11
I (REF)
II (REF)
2
62
15
51
47
13
12
SEE NOTE 3
SEE NOTE 15

GEARING STRETCHOUT


TAPER REAM FOR PRESS FIT OF #A/0 PIN AFTER ADJUSTING FOR .001-.003 AXIAL PLAY
45
21
20
S8
19 SEE NOTE 6
3
22
42
23
52
5
8
24
41
S5 REF.
46
33 22 REQD

PARTIAL SECTION A-A
SCALE 4/1


44
25
26
27
28
LOS "A"
29
6
38
9
31
50
REFLECTIVE SURFACE
.125±.010
32
TAPER REAM FOR PRESS FIT OF #7/0 PIN AFTER ADJUSTING FOR MINIMUM BACKLASH.
LOS 'B'
14
40
SEE NOTE 7
54
54-REF
4
7
ACCESS HOLE FOR ALIGNMENT OF DIAL TO WEDGE ASSY
30
KNOB TO ROTATE 614° (REF)
A
A
ALIGNMENT HOLE (SEE NOTE 4)
48
61
SEE NOTE 14
10 REF
SEE NOTE 10
B
B
34
44
SEE NOTE 8
37
35
36
S1
S2
S3
S4
S5
S6
S7


39
10
54 REF
SEE NOTE 9
53
CEMENT IN PLACE (BEARING SURFACE) SEE NOTE 12

PARTIAL VIEW B-B
(WITH ITEM 34 AND 4 REMOVED)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
62	AR		1008985			GREASE, FLUORINATED			
61	AR		1011777-1			INDIUM FOIL			
60	AR		1010900			PRIMER COATING			
59	AR		1012515			COMPOUND, POTTING			
58	AR		1012514			CATALYST			
57	AR		1008953-003			COMPOUND, SEALING & RETAINING			
56	AR		1010686			CATALYST			
55	AR		1010657			EPOXY RESIN			
54	24"		1010789-003			WIRE			
53	2		MS24367-715			LAMP			
52	4		MS16995-3			SCREW, SOCKET HD, CAP			
51	1		2013377			WEDGE ASSY			
50	1		2013389			WASHER, WAVE			
49	2		MS51021-3			SCREW, SET			
48	4		MS51959-1			SCREW, FLAT HEAD			
47	1		2013451			WASHER, WAVE			
46	1		MS16624-1012			RING RETAINING EXTERNAL			
45	1		2013359			PIN, PLAIN, TAPER			
44	5		MS16995-4			SCREW, CAP			
43	1		2013453			SPACER			
42	3		MS35249-2			SCREW, FLAT HEAD			
41	2		MS24692-3			PIN, TAPER			
40	1		MS51021-21			SCREW, SET			
39	AR		1010708-5			WIRE, MOD. MONOCHLOROTRIFLUOROETHYLENE INSULATION, SOLID COPPER ALLOY			
38	1		2013450			COVER, DUST			
37	2		2013459			SPACER			
36	1		2013456			WINDOW			
35	1		2013386			MAGNIFIER LENS			
34	1		2013387			BEZEL			
33	22		1010356-6			BEARING			
32	1		2013388			BEAMSPLITTER			
31	1		2013390			RING, BEARING			
30	1		2013353			MIRROR HOUSING			
29	1		2013356			WINDOW			
28	1		2013399			RING, THREADED			
27	1		2013352			MIRROR, FIXED			
26	3		2013281			WASHER, WAVE			
25	3		2013355			BUSHING, MIRROR			
24	2		2013372			GEAR, BEVEL (48T, 96P)			
23	1		2013364			LIMIT STOP			
22	1		2013365			LIMIT STOP			
21	1		2013361			ADAPTER, LIMIT STOP			
20	1		2013371			SHAFT			
19	1		2013362			RING, LOCKING			
18	1		2013385			DRUM			
17	1		2013393			GEAR, SPUR (43T, 96P)			
16	1		2013392			GEAR, SPUR (95T, 96P)			
15	1		2013354			WASHER, FLAT			
14	2		2013319-003			PIN, DOWEL			
13	6		2013391			GEAR, SPUR (33T, 96P)			
12	1		2013394			GEAR, SPUR (51T, 96P)			
11	1		2013395			GEAR, SPUR (25T, 96P)			
10	1		2013368			TERMINAL BOARD ASSY			
9	4		MS16995-10			SCREW, CAP			
8	1		MS51021-10			SCREW, SET			
7	2		MS16995-2			SCREW, CAP			
6	1		2013381			HOUSING AND GEAR PLATE ASSY (MACH)			
5	1		2013370			HOUSING, BEVEL GEAR, PIN ASSY			
4	1		2013460			BRACKET MIRROR ASSY			
3	1		2013357			KNOB AND PIN ASSY			
2	1		2013380			SPUR GEAR			
1	1		2013375			SPUR GEAR AND WEDGE ASSY			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2013250	2013250

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN DATE 12/30/68
CHECKED 1-5-69
APPROVAL 1-5-69
APPROVAL 1-6-69
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
DIASTIMETER
ASSEMBLY

CODE IDENT NO. 89944
SIZE E
NASA NUMBER 2013350
SCALE 2/1
WEIGHT
CALC ACTUAL
SHEET 1 OF 1

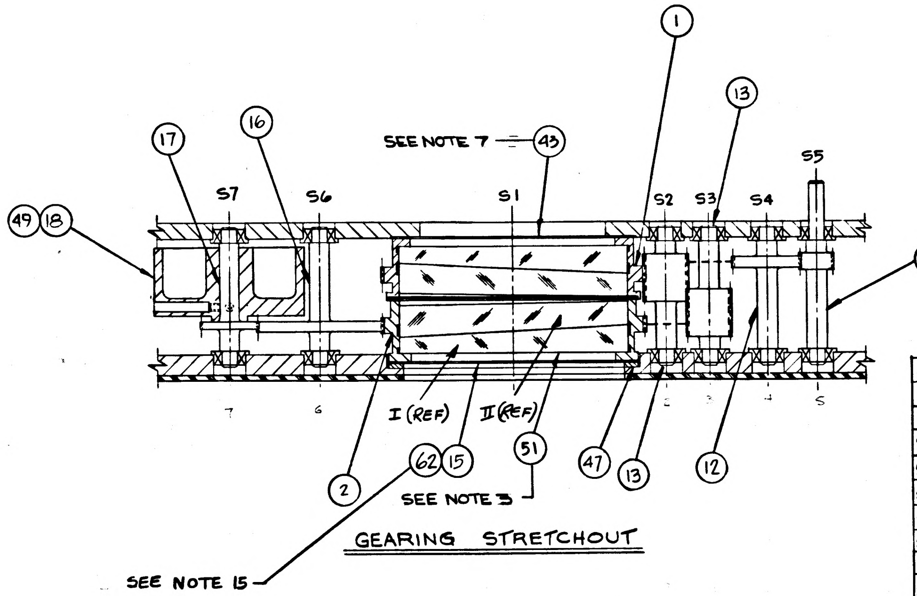
2013350 A

NOTES:

1- INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2- ROTATE ITEM 51 WITHIN ITEM 2 TO ALLOW ZERO OPTICAL DEVIATION AND APPLY TEMPORARY INDEX MARKS
3- DISASSEMBLE, CEMENT ITEMS 2 AND 51 USING ITEMS 55 & 56 (SEMI-RIGID) IN ACCORDANCE WITH ND1002004 AND REASSEMBLE
4- USING ALIGNMENT HOLE, POSITION DRUM RELATIVE TO ZERO OPTICAL DEVIATION AND SECURE DRUM IN PLACE WITH ITEM 49
5- LAP MOUNTING PADS FOR ITEM 27 SO AS TO ATTAIN AN ANGLE OF 1° 1' 37" ± 2" BETWEEN LOS "A" AND LOS "B" IN BOTH AXES
6- VIBRATION PROOF USING ITEM 57 IN ACCORDANCE WITH ND1002211. THIS REQUIREMENT APPLIES TO ALL NON SELF-LOCKING SCREWS AND THREADS ON THIS DRAWING
7- ITEMS 43 AND 54 TO BE ETCHED ON BONDING SURFACE IN ACCORDANCE WITH ND1002146 AND CEMENTED TO ITEM 6 USING ITEMS 55 & 56 (SEMI-RIGID) IN ACCORDANCE WITH ND1002004
8- CEMENT ITEM 37 TO ITEMS 36 AND 35 USING ITEMS 55 & 56 IN ACCORDANCE WITH ND1002004 TYPE II (SEMI-RIGID) (2 PLACES)
9- CLEAN, PRIME, AND CURE USING ITEMS 58, 59 & 60 IN ACCORDANCE WITH ND1002240, METHOD A (ALL AROUND)
10- CEMENT ITEM 10 TO ITEM 6 USING ITEMS 55 & 56 IN ACCORDANCE WITH ND1002004 TYPE II (SEMI-RIGID)
11- SOLDER IN ACCORDANCE WITH ND1002071
12- CEMENT ITEM 53 TO ITEM 10 USING ITEMS 55 & 56 IN ACCORDANCE WITH ND1002004 TYPE II (FLEXIBLE).
13- WIRE IN ACCORDANCE WITH WIRING DIAGRAM 2013255. (REF)
14. CUT TO SHAPE REQUIRED NOT TO OBSCURE APERTURE & FOR MAXIMUM BEARING SURFACE, USE AS MANY LAYERS AS REQUIRED FOR PROPER CLAMPING.
15. APPLY ITEM 62 ON BOTH SIDES OF ITEM 15, REMOVE ALL EXCESS.

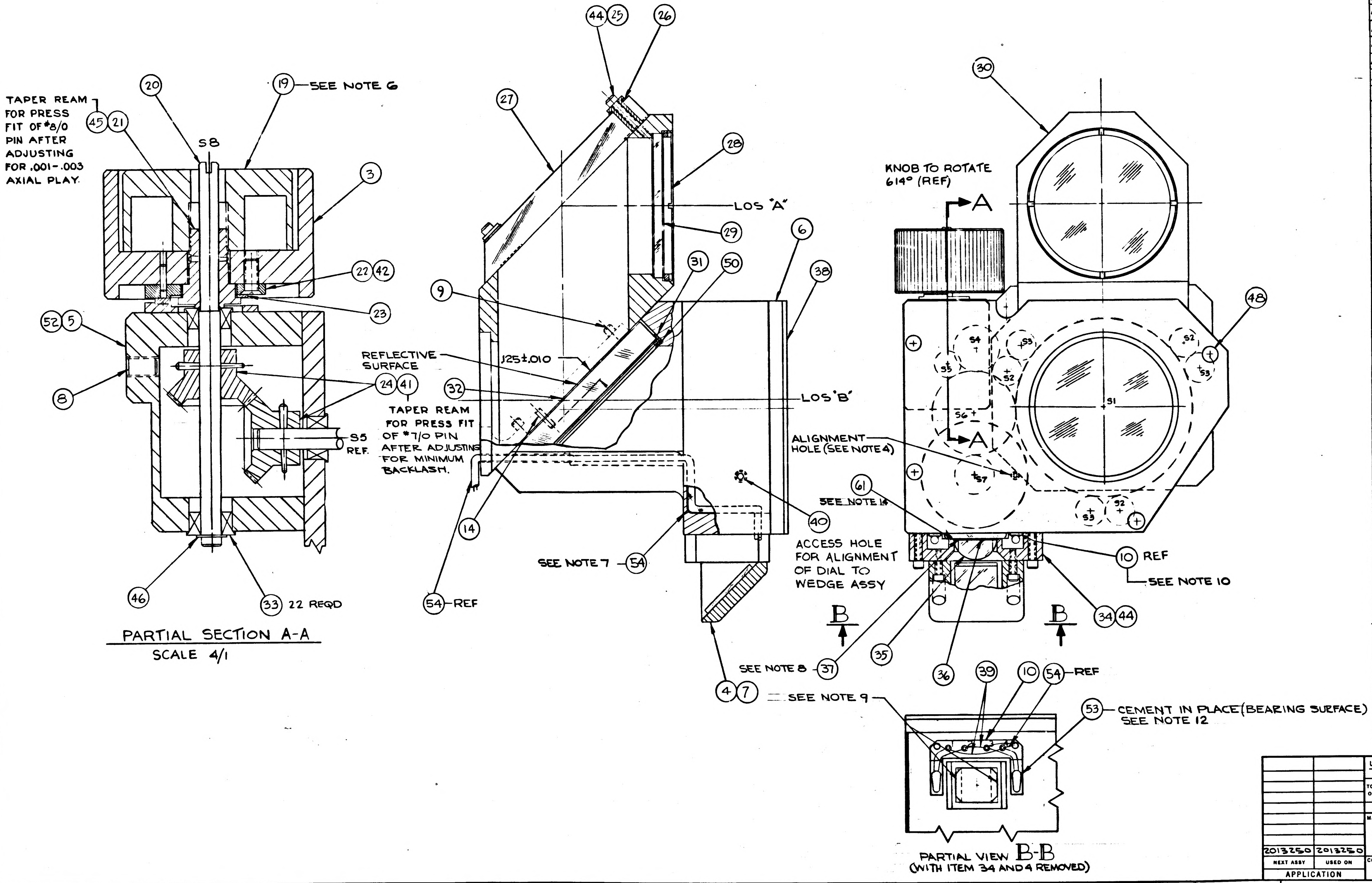
REVISIONS

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
-	-	INITIAL RELEASE CLASS A PER TORR 37/73	? JAN 69	[illegible]



SEE NOTE 7
43
1
13
S5
S7
S6
S1
S2
S3
S4
17
16
49
18
11
I (REF)
II (REF)
62
15
51
47
13
12
2
SEE NOTE 3
SEE NOTE 15

GEARING STRETCHOUT



TAPER REAM FOR PRESS FIT OF #8/0 PIN AFTER ADJUSTING FOR .001-.003 AXIAL PLAY.
45
21
20
19
SEE NOTE 6
S8
3
22
42
23
52
5
8
24
41
S5 REF.
46
33 22 REQD
44
25
26
27
28
LOS "A"
29
6
38
9
31
50
REFLECTIVE SURFACE
.125±.010
32
TAPER REAM FOR PRESS FIT OF #7/0 PIN AFTER ADJUSTING FOR MINIMUM BACKLASH.
LOS "B"
14
54
SEE NOTE 7
54 REF
40
ACCESS HOLE FOR ALIGNMENT OF DIAL TO WEDGE ASSY
4
7
30
KNOB TO ROTATE 614° (REF)
A
A
48
ALIGNMENT HOLE (SEE NOTE 4)
61
SEE NOTE 14
10 REF
SEE NOTE 10
34
44
B
B
SEE NOTE 8
37
35
36
39
10
54 REF
SEE NOTE 9
53
CEMENT IN PLACE (BEARING SURFACE) SEE NOTE 12
S1
S2
S3
S4
S5
S6
S7

PARTIAL SECTION A-A
SCALE 4/1

PARTIAL VIEW B-B
(WITH ITEM 34 AND 4 REMOVED)

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
62	AR		1008985			GREASE, FLUORINATED			
61	AR		1011777-1			INDIUM FOIL			
60	AR		1010900			PRIMER COATING			
59	AR		1012515			COMPOUND, POTTING			
58	AR		1012514			CATALYST			
57	AR		1008953-003			COMPOUND, SEALING & RETAINING			
56	AR		1010686			CATALYST			
55	AR		1010657			EPOXY RESIN			
54	24"		1010789-003			WIRE			
53	2		MS24367-715			LAMP			
52	4		MS16995-3			SCREW, SOCKET HD, CAP			
51	1		2013377			WEDGE ASSY			
50	1		2013389			WASHER, WAVE			
49	2		MS51021-3			SCREW, SET			
48	4		MS51959-1			SCREW, FLAT HEAD			
47	1		2013451			WASHER, WAVE			
46	1		MS16624-1012			RING RETAINING EXTERNAL			
45	1		2013359			PIN, PLAIN, TAPER			
44	5		MS16995-4			SCREW, CAP			
43	1		2013453			SPACER			
42	3		MS35249-2			SCREW, FLAT HEAD			
41	2		MS24692-3			PIN, TAPER			
40	1		MS51021-21			SCREW, SET			
39	AR		1010708-5			WIRE, MOD. MONOCHLOROTRIFLUOROETHYLENE INSULATION, SOLID COPPER ALLOY			
38	1		2013450			COVER, DUST			
37	2		2013459			SPACER			
36	1		2013456			WINDOW			
35	1		2013386			MAGNIFIER LENS			
34	1		2013387			BEZEL			
33	22		1010356-6			BEARING			
32	1		2013388			BEAMSPLITTER			
31	1		2013390			RING, BEARING			
30	1		2013353			MIRROR HOUSING			
29	1		2013356			WINDOW			
28	1		2013399			RING, THREADED			
27	1		2013352			MIRROR, FIXED			
26	3		2013281			WASHER, WAVE			
25	3		2013355			BUSHING, MIRROR			
24	2		2013372			GEAR, BEVEL (48T, 96P)			
23	1		2013364			LIMIT STOP			
22	1		2013365			LIMIT STOP			
21	1		2013361			ADAPTER, LIMIT STOP			
20	1		2013371			SHAFT			
19	1		2013362			RING, LOCKING			
18	1		2013385			DRUM			
17	1		2013393			GEAR, SPUR (43T, 96P)			
16	1		2013392			GEAR, SPUR (95T, 96P)			
15	1		2013354			WASHER, FLAT			
14	2		2013319-003			PIN, DOWEL			
13	6		2013391			GEAR, SPUR (33T, 96P)			
12	1		2013394			GEAR, SPUR (51T, 96P)			
11	1		2013395			GEAR, SPUR (25T, 96P)			
10	1		2013368			TERMINAL BOARD ASSY			
9	4		MS16995-10			SCREW, CAP			
8	1		MS51021-10			SCREW, SET			
7	2		MS16995-2			SCREW, CAP			
6	1		2013381			HOUSING AND GEAR PLATE ASSY (MACH)			
5	1		2013370			HOUSING, BEVEL GEAR, PIN ASSY			
4	1		2013460			BRACKET MIRROR ASSY			
3	1		2013357			KNOB AND PIN ASSY			
2	1		2013380			SPUR GEAR			
1	1		2013375			SPUR GEAR AND WEDGE ASSY			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2013250	2013250

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN [illegible] DATE 12/30/68
CHECKED [illegible] 1-5-69
APPROVAL [illegible] 1-5-69
APPROVAL [illegible] 1-5-69
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

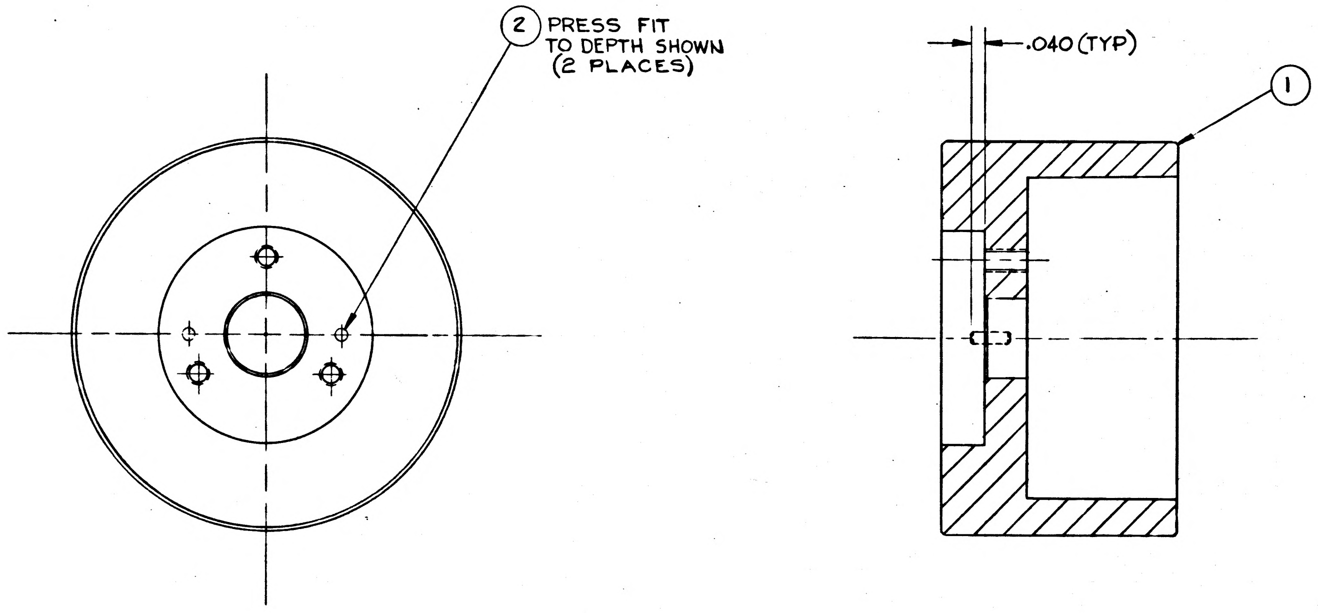
TITLE
DIASTIMETER ASSEMBLY

CODE IDENT NO. 89944
SIZE E
NASA NUMBER 2013350
SCALE 2/1
WEIGHT CALC ACTUAL
SHEET OF

2013357

NOTES:
1 INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2 IDENTIFY USING NASA DRAWING NO., REVISION LETTER & MANUFACTURER'S SYMBOL PER ND1002019(BAG)

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 37173	8 JAN 69	



ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
2	2		2013319-001			DOWEL PIN			
1	1		2013358			KNOB, DIAL			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2013350	2013250

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± ~ DECIMALS ±.005 ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
1-8-69
DRAWN J.J. AMODEO DATE 12-13-68
CHECKED Joseph Fox 12/19/68
APPROVAL 12/19/68
APPROVAL 1/5/69
JWH 1/8/69 NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
KNOB AND PIN ASSEMBLY

CODE IDENT NO. 89944
SIZE D
NASA NUMBER 2013357
SCALE 4/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2013357

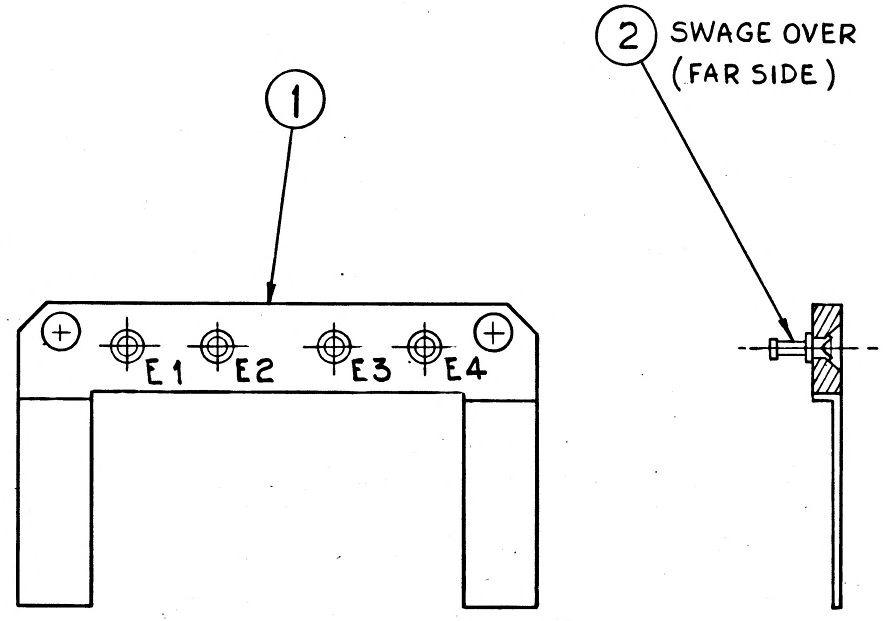
AD-1380

2013368

NOTES :

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-30327.
2. IDENTIFY USING NASA DWG. NO., REVISION LETTER & MANUFACTURER'S SYMBOL IN ACCORDANCE WITH ND 1002019 (TAGGING).

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 37/73	8 JAN 69	



2013368

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT
2	4		1012516-002			TERMINAL, STUD, SINGLE TURRET			
1	1		2013369			BOARD, TERMINAL			

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2013350	2013250

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON FRACTIONS ± ~ DECIMALS ± ~ ANGLES ± ~
DO NOT SCALE THIS DRAWING
MATERIAL ~
CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
1-8-69
DRAWN PIASTUCH DATE 1-2-69
CHECKED Joseph Fox 1-2-69
APPROVAL 1/3/69
APPROVAL 1/5/69
JWH 1/9/69
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE TERMINAL BOARD ASSEMBLY

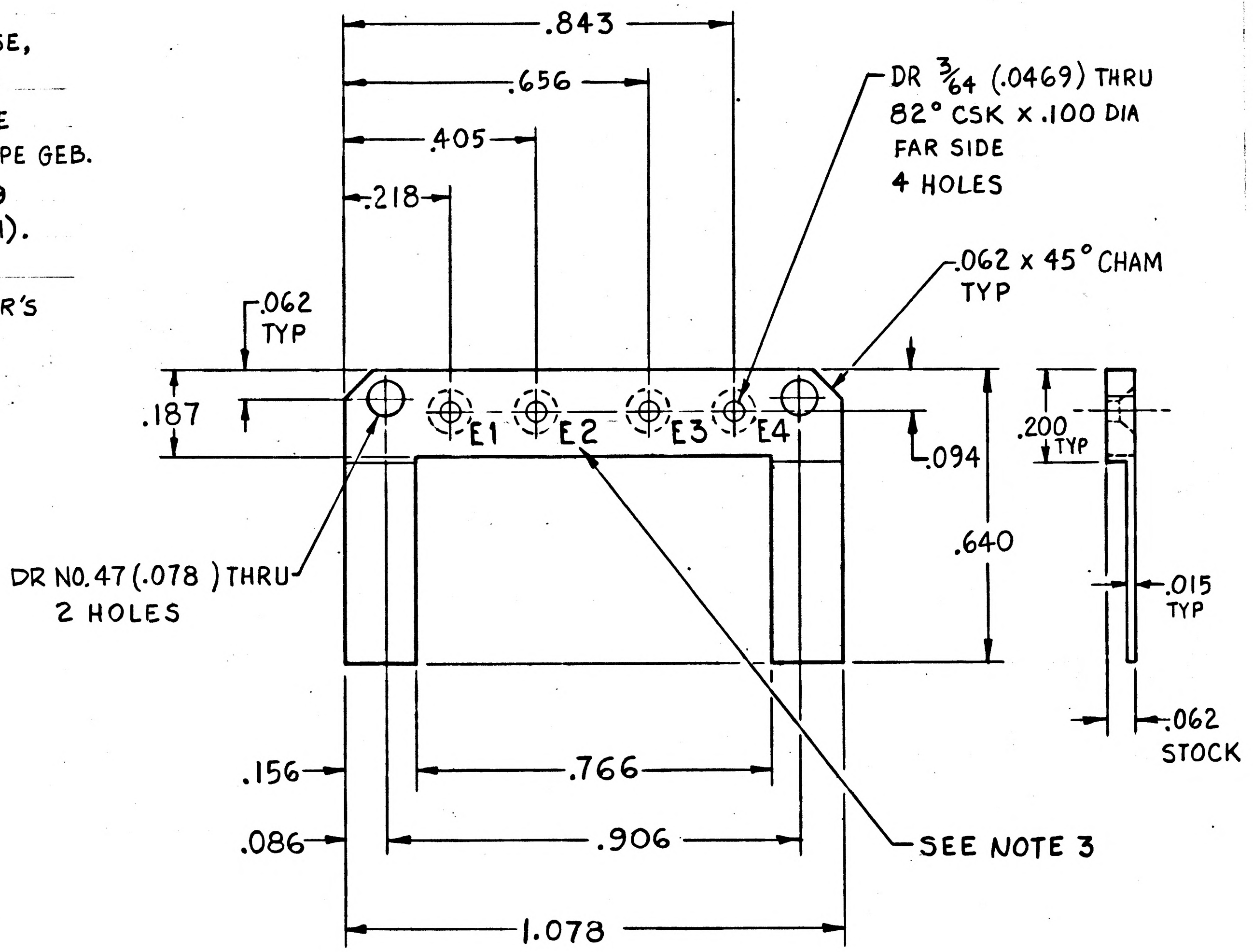
CODE IDENT NO. 89944
SIZE C
NASA NUMBER 2013368
SCALE 4/1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

AD-1340

2013369

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
–	–	INITIAL RELEASE CLASS A PER TDRR 37173	8 JAN 69	

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327.
2. MATERIAL:
   PLASTIC SHEET, LAMINATED THERMOSETTING GLASS FIBER BASE, EPOXY RESIN HIGH TEMPERATURE TYPE IN CONFORMANCE WITH THE LATEST ISSUE OF MIL-P-18177 TYPE GEB.
3. MARK CHARACTERS PER ND 1002019 AT LOCATIONS SHOWN (3/64 HIGH).
4. IDENTIFY USING NASA DWG NO., REVISION LETTER & MANUFACTURER'S SYMBOL IN ACCORDANCE WITH ND 1002019 (TAGGING).


.843
.656
.405
.218
DR 3/64 (.0469) THRU
82° CSK x .100 DIA
FAR SIDE
4 HOLES
.062 x 45° CHAM
TYP
.062
TYP
.187
E1
E2
E3
E4
.094
.200
TYP
.640
DR NO. 47 (.078) THRU
2 HOLES
.015
TYP
.062
STOCK
.156
.766
.086
.906
SEE NOTE 3
1.078

2013369

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2013368	2013250
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOL ON	FRACTIONS	DECIMALS	ANGLES
	± ~	± .005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT
NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC
PN
1-8-69
DRAWN PIASTUCH DATE 1-2-69
CHECKED Joseph Fox 1/-/69
APPROVAL 1/3/69
APPROVAL 1/6/69
JWH 1/9/69
NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
BOARD, TERMINAL

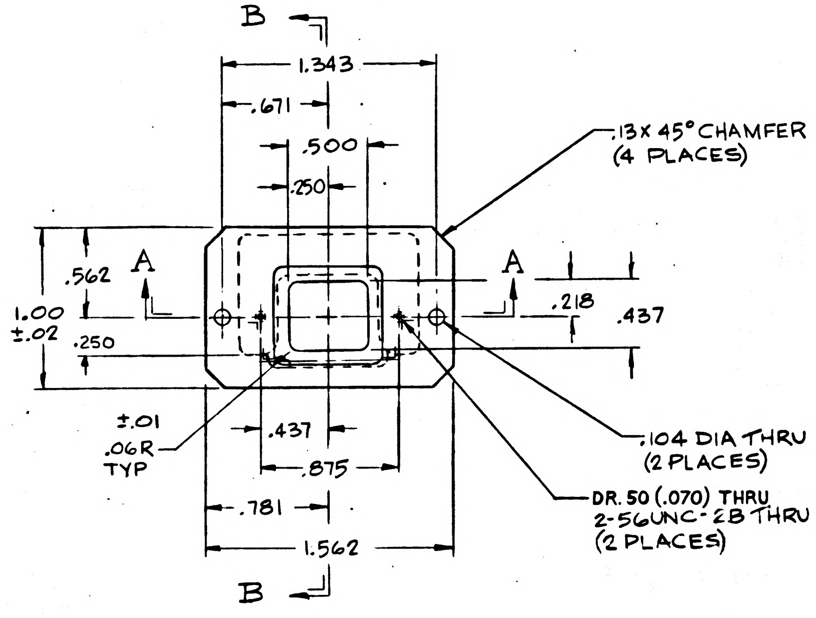
CODE IDENT NO.	SIZE	NASA NUMBER
89944	C	2013369
SCALE 4/1	WEIGHT CALC ACTUAL	SHEET 1 OF 1

AD-1340

2013387

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 37173	8 JAN 69	

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2. GENERAL MACHINING STANDARDS PER ND 1002078
3. REMOVE BURRS PER ND1002079
4. FINISH 125/ ALL OVER UNLESS OTHERWISE SPECIFIED
5. FINISH: ANODIZE PER MIL-A-8625, TYPE II, BLACK
6. IDENTIFY USING NASA PART NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019 (BAG)


B
1.343
.671
.500
.250
.13 X 45° CHAMFER (4 PLACES)
A
A
.562
1.00 ±.02
.250
.218
.437
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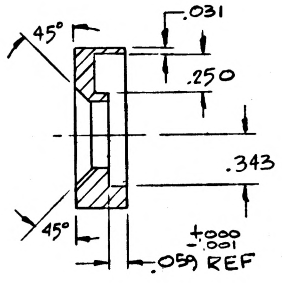
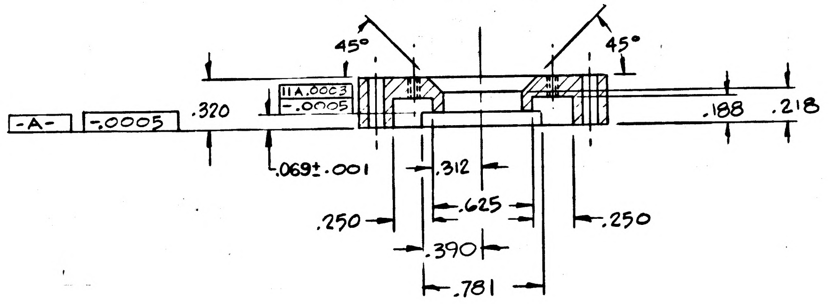
.437
.875
.781
1.562
.104 DIA THRU (2 PLACES)
DR. 50 (.070) THRU 2-56UNC-2B THRU (2 PLACES)
B


45°
.031
.250
.343
45°
+.000 -.001
.059 REF

SECTION B-B


45°
45°
-A-
-.0005
.320
// A .0003
-.0005
.188
.218
.069±.001
.312
.625
.250
.250
.390
.781

SECTION A-A

2013387

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

2013350	2013250
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± ; DECIMALS ±.005 ; ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL ALUMINUM ALLOY 6061-T6
FED SPEC QQ-A-225/8 TEMPER T6
CONTRACT NAS 9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
1-8-69
DRAWN Graue DATE 12/22/68
CHECKED 12/22/68
APPROVAL J. Nala 12/23/68
APPROVAL 1/8/69
JWH 1/8/69 NASA APPROVAL
APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE
BEZEL

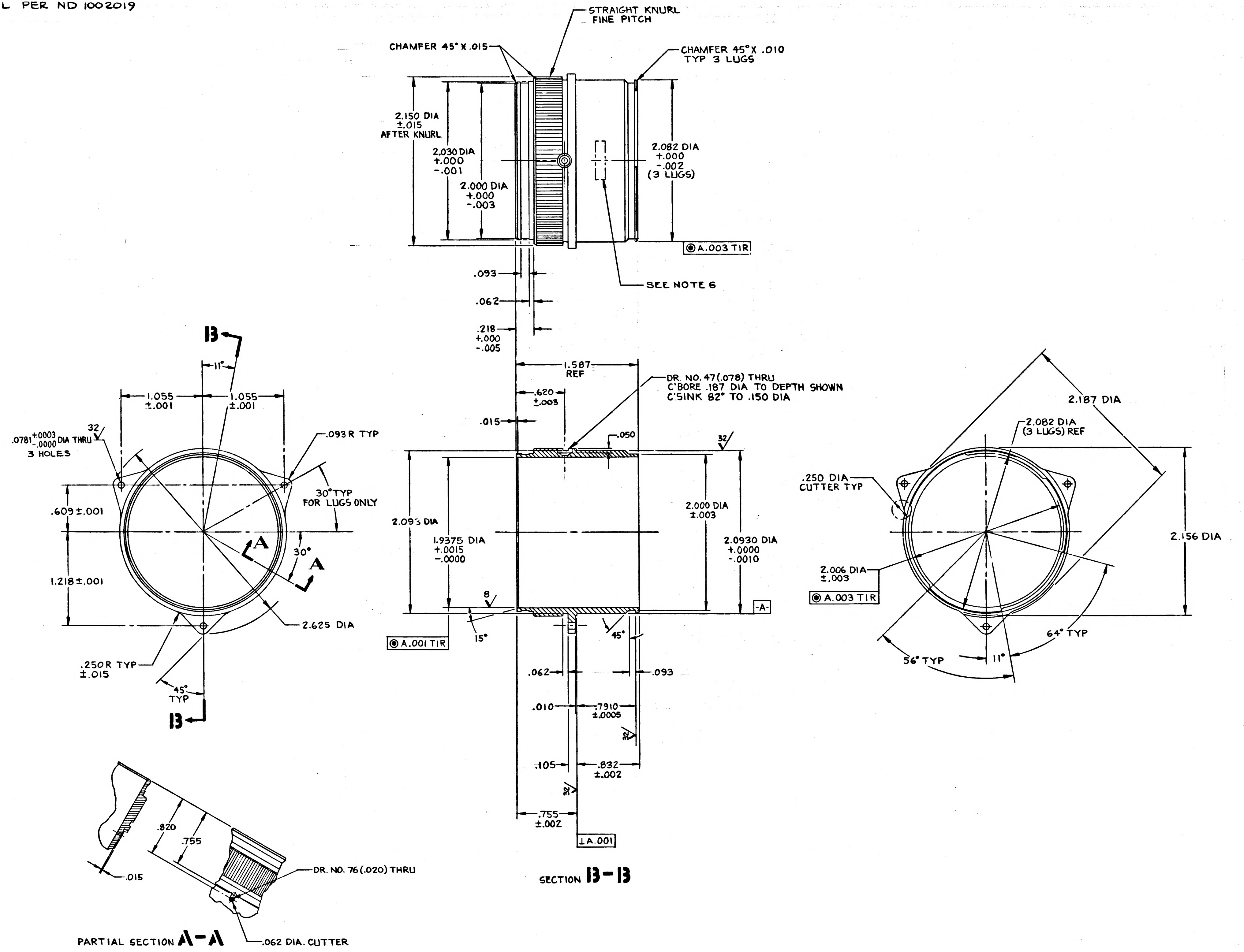
CODE IDENT NO. 89944
SIZE D
NASA NUMBER 2013387
SCALE 2/1
WEIGHT
CALC ACTUAL
SHEET OF

AD-1350

2013413

SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 37/73	9 JAN 69	

NOTES:-
1-INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2-GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078
3-UNLESS OTHERWISE SPECIFIED
a) 125/ FINISH ALL OVER
4-REMOVE BURRS IN ACCORDANCE WITH ND1002079
5-PASSIVATE IN ACCORDANCE WITH MIL-STD-171 FINISH NO. 5.4.1.
6-IDENTIFY USING NASA DRAWING NO., REVISION LETTER AND MANUFACTURERS SYMBOL PER ND 1002019


STRAIGHT KNURL FINE PITCH
CHAMFER 45° X .015
CHAMFER 45° X .010 TYP 3 LUGS
2.150 DIA ±.015 AFTER KNURL
2.030 DIA +.000 -.001
2.000 DIA +.000 -.003
2.082 DIA +.000 -.002 (3 LUGS)
A .003 TIR
SEE NOTE 6
.093
.062
.218 +.000 -.005
B
11°
1.055 ±.001
1.055 ±.001
.0781 +.0003 -.0000 DIA THRU 3 HOLES
32
.093 R TYP
30° TYP FOR LUGS ONLY
.609 ±.001
1.218 ±.001
A
30°
A
2.625 DIA
.250 R TYP ±.015
45° TYP
B
1.587 REF
.620 ±.003
.015
DR. NO. 47 (.078) THRU C'BORE .187 DIA TO DEPTH SHOWN C'SINK 82° TO .150 DIA
.050
32
2.093 DIA
1.9375 DIA +.0015 -.0000
2.000 DIA ±.003
2.0930 DIA +.0000 -.0010
-A-
8
15°
45°
A .001 TIR
.062
.093
.010
.7910 ±.0005
32
.105
.832 ±.002
32
.755 ±.002
⊥ A .001
SECTION B-B
2.187 DIA
2.082 DIA (3 LUGS) REF
.250 DIA CUTTER TYP
2.156 DIA
2.006 DIA ±.003
A .003 TIR
64° TYP
56° TYP
11°
.820
.755
.015
DR. NO. 76 (.020) THRU
.062 DIA. CUTTER
PARTIAL SECTION A-A

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2013412	2013250

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — ; DECIMALS ±.005 ; ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL CORROSION RES. STEEL AISI 303
FED. SPEC: QQ-S-763 CLASS 303, COND A
CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN J. ANDREWS DATE 12-6-68
CHECKED B. R 12-21-68
APPROVAL 12/21/68
APPROVAL 1/4/69
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE SUPPORT, EYEPIECE

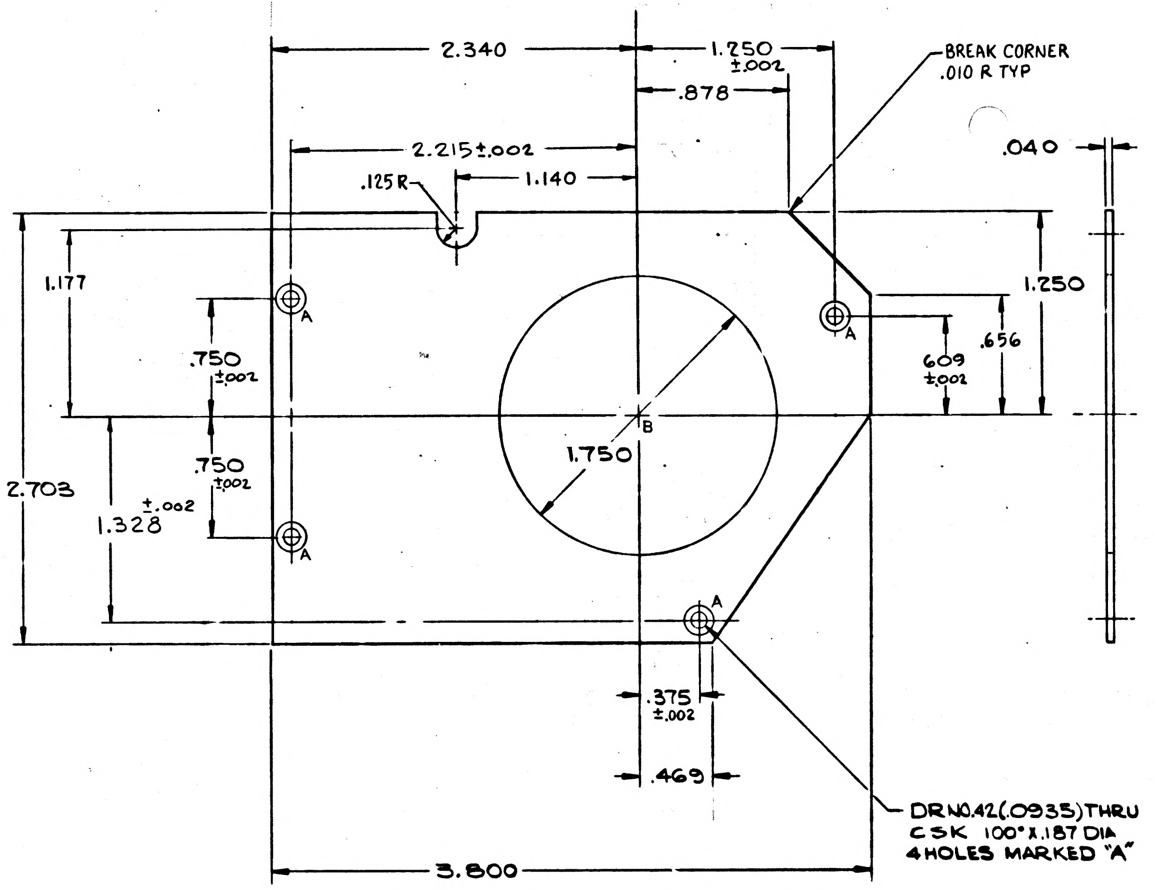
CODE IDENT NO. 89944
SIZE E
NASA NUMBER 2013413
SCALE 2:1
WEIGHT CALC ACTUAL
SHEET 1 OF 1

2013450

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVAL
—	—	INITIAL RELEASE CLASS A PER TDRR 37173	8 JAN 69	

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. GENERAL MACHINING STANDARDS IN ACCORDANCE WITH ND1002078.
3. UNLESS OTHERWISE SPECIFIED: 125/ FINISH ALL OVER.
4. REMOVE BURRS IN ACCORDANCE WITH ND 1002079.
5. IDENTIFY USING NASA PART NO., REVISION LETTER AND MANUFACTURER'S SYMBOL PER ND1002019. (BAGGING OR TAGGING)


2.340
1.250 ±.002
.878
BREAK CORNER .010 R TYP
.040
2.215±.002
.125R
1.140
1.177
A
.750 ±.002
.750 ±.002
1.250
.656
609 ±.002
B
1.750
2.703
±.002 1.328
.375 ±.002
.469
DR NO.42(.0935)THRU CSK 100°X.187 DIA 4 HOLES MARKED "A"
3.800

ITEM NO.	QTY REQD	SYM	GOVERNMENT/NASA NO.	KOLLSMAN PART NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	UNIT WT

LIST OF PARTS AND MATERIALS

NEXT ASSY	2013350
USED ON	2013250
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ON: FRACTIONS ± — DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL POLYTETRAFLUOROETHYLENE
MIL-P-22241 (WHITE)
CONTRACT NAS9-497

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST NEW YORK
KIC PN
DRAWN J.W. KELLY DATE 12.18.68
CHECKED 12/20/68
APPROVAL
APPROVAL 1/3/69
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TITLE COVER, DUST

CODE IDENT NO.	SIZE	NASA NUMBER
89944	D	2013450

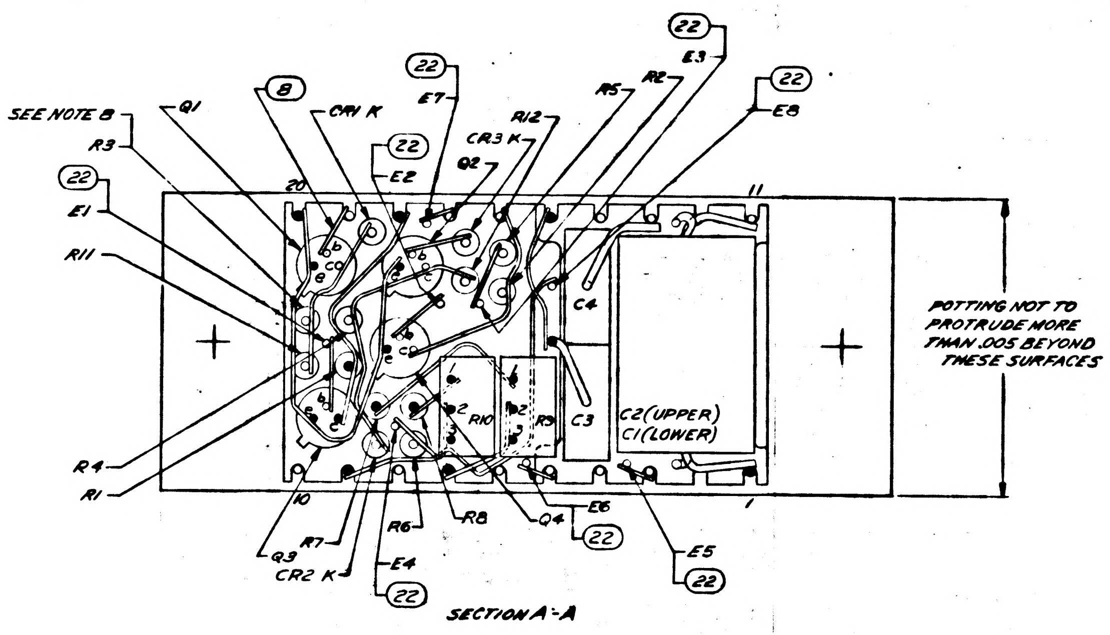
SCALE 2/1 WEIGHT CALC ACTUAL SHEET 4 OF 4

AD-1380

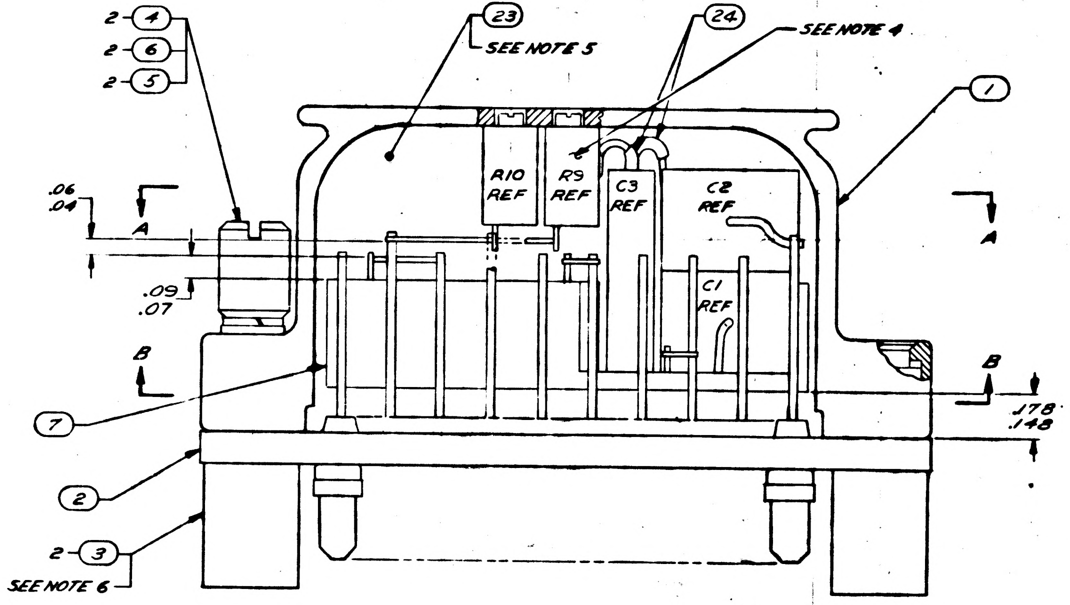
2014004 A

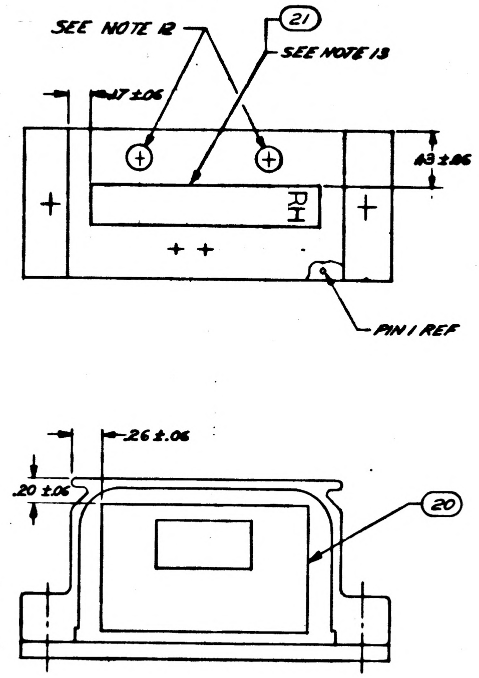
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER RD 25031	7-1-64	Sowling
–	CLASS A RELEASED PER TDRR 23472		
A	CHANGED PER TDRR 26486 DR E. Uffring CHK/ APPD	2/27/66	

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
R1, R2	10
R3, R4	11
R5, R6	12
R7, R8	13
R9, R10	14
R11, R12	15
CR1, CR2, CR3	16
Q1, Q2, Q3, Q4	17
C1, C2	18
C3, C4	19

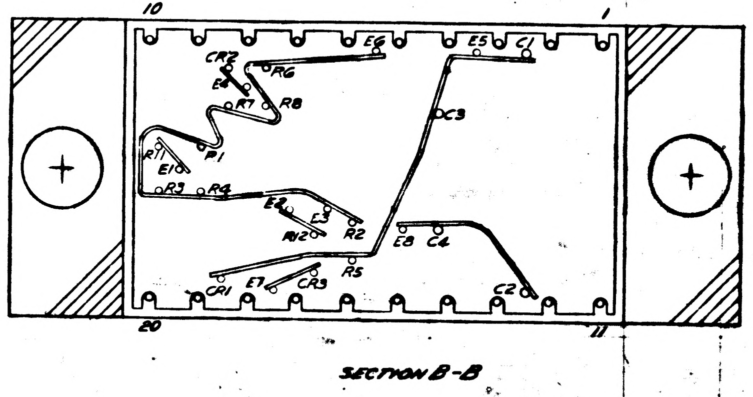

SEE NOTE 8
Q1
8
CR1 K
22
E7
22
E2
Q2
CR3 K
R12
R5
R2
22
E3
22
E8
R3
22
E1
R11
20
11
C4
R10
R9
C3
C2 (UPPER)
C1 (LOWER)
R4
R1
10
1
R7
Q3
CR2 K
R6
E4
22
R8
Q4
22
E6
E5
22
POTTING NOT TO PROTRUDE MORE THAN .005 BEYOND THESE SURFACES

SECTION A-A


2-4
2-6
2-5
23
SEE NOTE 5
24
SEE NOTE 4
1
.06
.04
A
A
.09
.07
R10 REF
R9 REF
C3 REF
C2 REF
C1 REF
B
B
.178
.148
7
2
2-3
SEE NOTE 6


SEE NOTE 12
21
SEE NOTE 13
.17±.06
.63±.06
RH
PIN 1 REF
.26±.06
.20±.06
20

MARKING VIEW
SCALE 2/1


10
1
CR2
E4
R6
R7
R8
E6
E5
C1
C3
R11
E1
R1
R3
R4
E2
E3
R12
R2
E8
C4
R5
CR1
E7
CR3
C2
20
11

SECTION B-B

NOTES
1. WELD PER ND1002005
2. WHITE DOT INDICATES FIRST LEVEL WIRING
3. BLACK DOT INDICATES SECOND LEVEL WIRING
4. STAKE FIND NO. 14 TO FIND NO. 1 PER ND1002004, TYPE V, RIGID
5. FILL WITH FIND NO. 23 PER ND1002183
6. SEE 1014047 FOR POSITIONING OF PROGRAM TABS
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. STAKE FIND NO. 10, 11, 12, 13, 15 THRU 19 TO FIND NO. 7 PER ND1002004, TYPE V, RIGID
9. UNUSED PINS MAY BE TRIMMED FLUSH WITH FIND NO. 2 AND EXCESSIVE LEAD HEIGHT MAY BE TRIMMED .010-.030 ABOVE HIGHEST WELD ON EACH LEAD
10. COAT FIND NO. 14 USING FIND NO. 9 PER ND1002009, METHOD B OR D
11. NO LEADS OR COMPONENTS TO PROTRUDE THRU POTTING
12. POTTING TO BE FLUSH OR .040 BELOW TOP OF VENT HOLES IN FIND NO. 1
13. MARK APPLICABLE SERIAL NO. .06 HIGH PER ND1002019 & ND1002023
14. FOR CLEARANCE LESS THAN .020 BETWEEN CONDUCTIVE MATERIALS, APPLY .010 MINIMUM INSULATION TO ONE CONDUCTOR USING FIND NO. 25 OR ND1002004, TYPE II

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014003	SCHEMATIC	REF
AR	1006778-22	INSULATION, SLEEVING	25
AR	1006776-20	INSULATION, SLEEVING	24
AR	1006904	EPOXY RESIN	23
AR	1006757-8	WIRE, ELECTRICAL	22
1	1014199-14	DECAL, IDENT	21
1	1014200-14	DECAL, IDENT	20
2	1006793-4	CAPACITOR, 750PF ±2%	19
2	1006866	CAPACITOR, 1uf ±10%	18
4	1006752	TRANSISTOR	17
3	1006751	DIODE	16
2	1006750-56	RESISTOR, 10K±2%, 1/4W	15
2	1006499-004	TRIMPOT	14
2	1006750-45	RESISTOR, 3.6K±2%, 1/4W	13
2	1006750-43	RESISTOR, 3K±2%, 1/4W	12
2	1006750-39	RESISTOR, 2K±2%, 1/4W	11
2	1006750-44	RESISTOR, 3.3K±2%, 1/4W	10
AR	1006834	COMPOUND, SILICONE RUBBER	9
AR	1006757-1	WIRE, ELECTRICAL (.010 X .020)	8
1	2014058	BLOCK, COMPONENT CLOCK MODULE	7
2	MS35337-79	WASHER, LOCK	6
2	1006997	WASHER, FLAT	5
2	1006998-1	SCREW, CAPTIVE	4
2	1014032	RECEPTACLE, INDEXING	3
1	1014324	CONNECTOR, 20 PIN	2
1	2014062	FRAME, CLOCK MODULE	1
-011	LIST OF MATERIALS		

2014377	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 22 APR 64
CHECKED 6 MAY 64
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CLOCK MODULE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014004
SCALE 4/1
WT
SHEET 1 OF 1

2014004 A

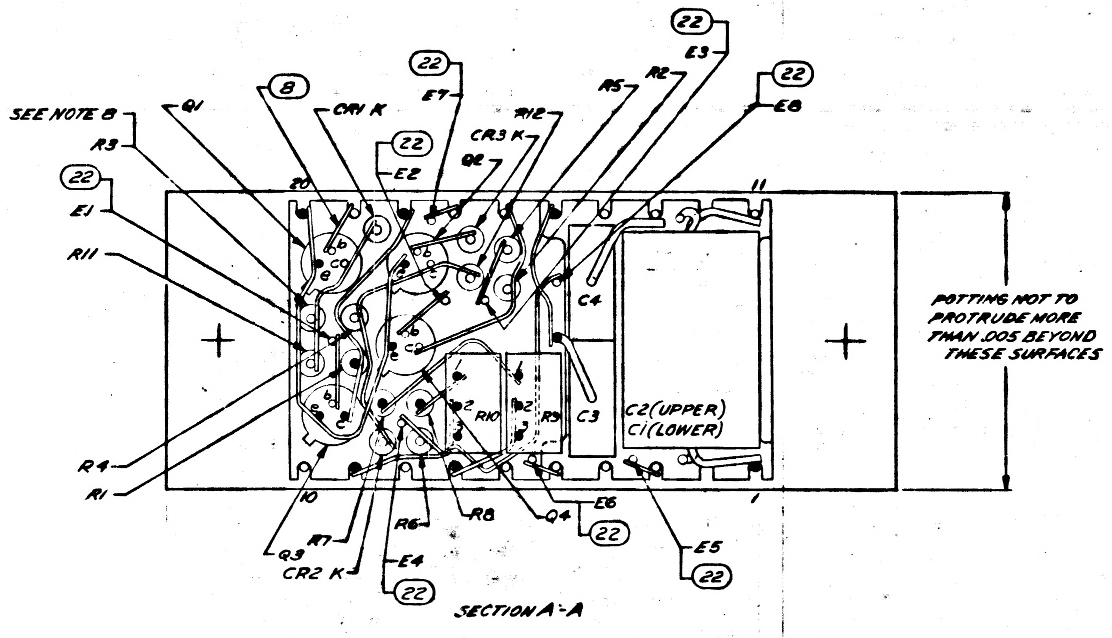
2014004 A

MASTER

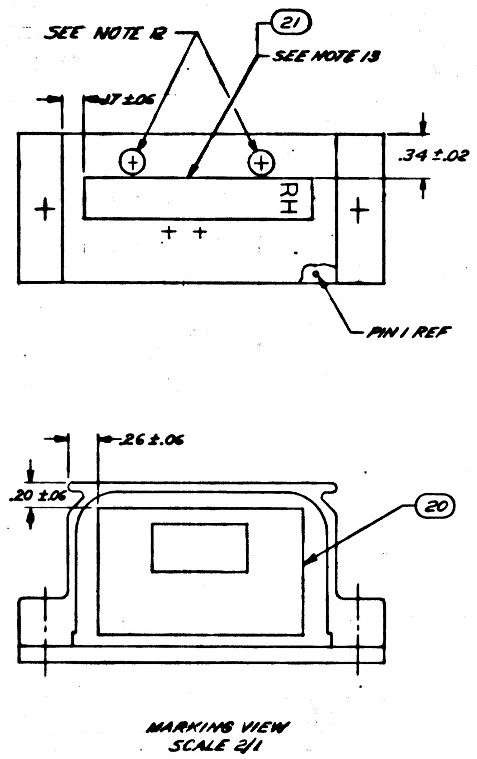
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER RD 25031		
–	CLASS A RELEASED PER TDRR 23472		
A	CHANGED PER TDRR 26486 DR E. Ufting CHK APPD	2/27/66	
B	CHANGED PER TDRR 26487 DR CHK APPD		

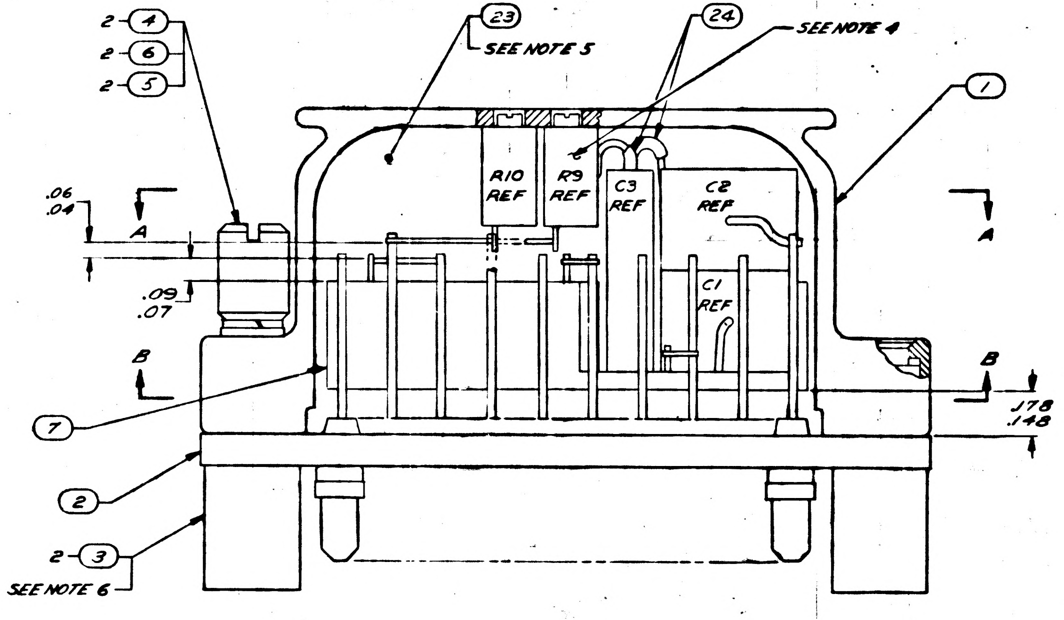
REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
R1, R2	10
R3, R4	11
R5, R6	12
R7, R8	13
R9, R10	14
R11, R12	15
CR1, CR2, CR3	16
Q1, Q2, Q3, Q4	17
C1, C2	18
C3, C4	19

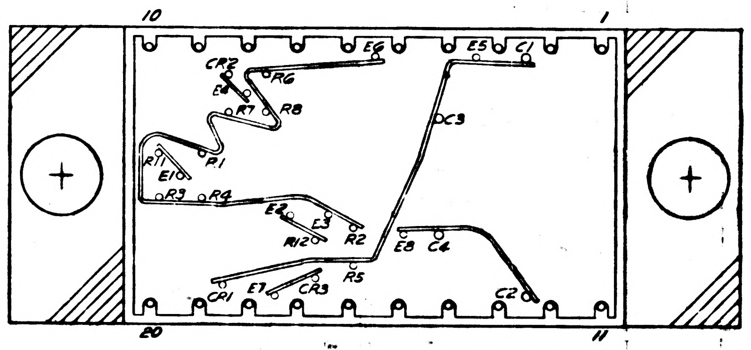

SEE NOTE 8
Q1
8
CR1 K
22
E7
22
E3
R12
R5
R2
22
E8
R3
E2
CR3 K
Q2
22
E1
R11
C4
C3
C2(UPPER)
C1(LOWER)
R10
R9
20
11
10
1
R4
R1
Q3
R7
CR2 K
E4
22
R6
R8
Q4
22
E6
E5
22
POTTING NOT TO PROTRUDE MORE THAN .005 BEYOND THESE SURFACES

SECTION A-A


SEE NOTE 12
21
SEE NOTE 13
.17 ±.06
.34 ±.02
RH
PIN 1 REF
.26 ±.06
.20 ±.06
20

MARKING VIEW
SCALE 2/1


2-4
2-6
2-5
23
SEE NOTE 5
24
SEE NOTE 4
1
R10 REF
R9 REF
C3 REF
C2 REF
C1 REF
.06
.04
A
A
.09
.07
B
B
.178
.148
7
2
2-3
SEE NOTE 6


10
1
E6
E5
C1
CR2
R6
E4
R7
R8
C3
R11
P1
E10
R3
R4
E2
C3
R12
R2
E8
C4
CP1
E7
CR3
R5
C2
20
11

SECTION B-B

NOTES
1. WELD PER ND1002005
2. WHITE DOT INDICATES FIRST LEVEL WIRING
3. BLACK DOT INDICATES SECOND LEVEL WIRING
4. STAKE FIND NO. 14 TO FIND NO. 1 PER ND1002004, TYPE V, RIGID
5. FILL WITH FIND NO. 23 PER ND1002183
6. SEE 1014047 FOR POSITIONING OF PROGRAM TABS
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. STAKE FIND NO. 10, 11, 12, 13, 15 THRU 19 TO FIND NO. 7 PER ND1002004, TYPE V, RIGID
9. UNUSED PINS MAY BE TRIMMED FLUSH WITH FIND NO. 2 AND EXCESSIVE LEAD HEIGHT MAY BE TRIMMED .010 - .030 ABOVE HIGHEST WELD ON EACH LEAD
10. COAT FIND NO. 14 USING FIND NO. 9 PER ND1002009, METHOD B OR D
11. NO LEADS OR COMPONENTS TO PROTRUDE THRU POTTING
12. POTTING TO BE FLUSH OR .040 BELOW TOP OF VENT HOLES IN FIND NO. 1
13. MARK APPLICABLE SERIAL NO. .06 HIGH PER ND1002019 & ND1002023
14. FOR CLEARANCE LESS THAN .020 BETWEEN CONDUCTIVE MATERIALS, APPLY .010 MINIMUM INSULATION TO ONE CONDUCTOR USING FIND NO. 25 OR ND1002004, TYPE II

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014003	SCHEMATIC	REF
AR	1006778-22	INSULATION, SLEEVING	25
AR	1006776-20	INSULATION, SLEEVING	24
AR	1006904	EPOXY RESIN	23
AR	1006757-8	WIRE, ELECTRICAL	22
1	1014199-14	DECAL, IDENT	21
1	1014200-14	DECAL, IDENT	20
2	1006793-4	CAPACITOR, 750PF ±2%	19
2	1006866	CAPACITOR, 1uf ±10%	18
4	1006752	TRANSISTOR	17
3	1006751	DIODE	16
2	1006750-56	RESISTOR, 10K ±2%, 1/4W	15
2	1006499-004	TRIMPOT	14
2	1006750-45	RESISTOR, 3.6K ±2%, 1/4W	13
2	1006750-43	RESISTOR, 3K ±2%, 1/4W	12
2	1006750-39	RESISTOR, 2K ±2%, 1/4W	11
2	1006750-44	RESISTOR, 3.3K ±2%, 1/4W	10
AR	1006834	COMPOUND, SILICONE RUBBER	9
AR	1006757-1	WIRE, ELECTRICAL (DIA X .020)	8
1	2014058	BLOCK, COMPONENT CLOCK MODULE	7
2	MS35337-79	WASHER, LOCK	6
2	1006997	WASHER, FLAT	5
2	1006998-1	SCREW, CAPTIVE	4
2	1014032	RECEPTACLE, INDEXING	3
1	1014324	CONNECTOR, 20 PIN	2
1	2014062	FRAME, CLOCK MODULE	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014377	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4
DRAWN DATE 22 APR 65
CHECKED 6 MAY 65
APPROVAL 6 MAY 65
APPROVAL
APPROVAL
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CLOCK MODULE

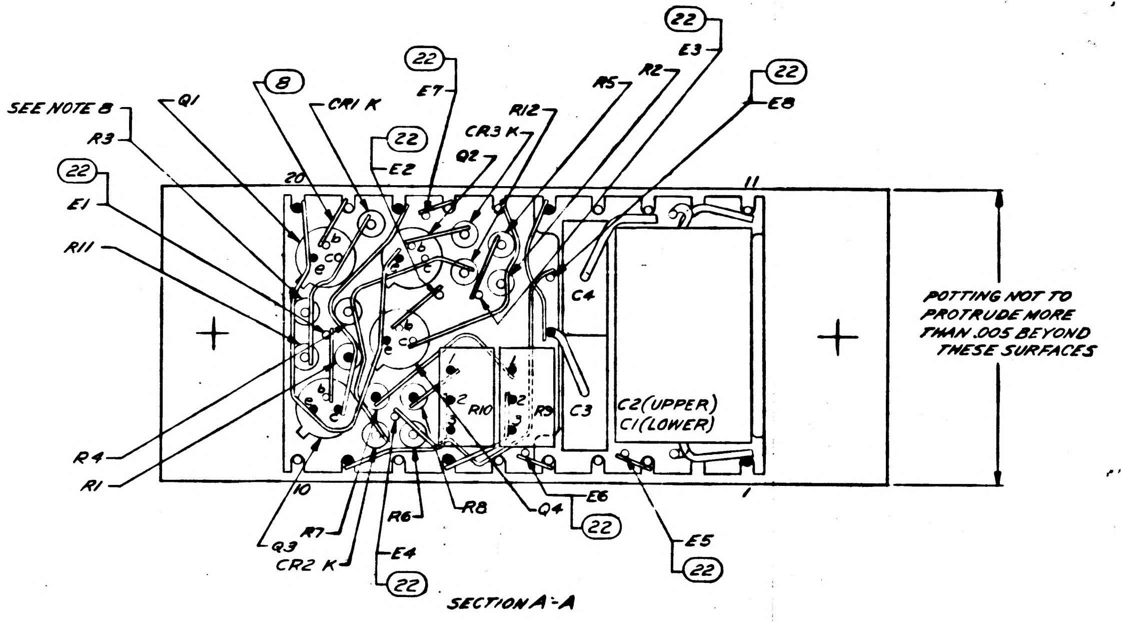
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014004
SCALE 4/1	WT	SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

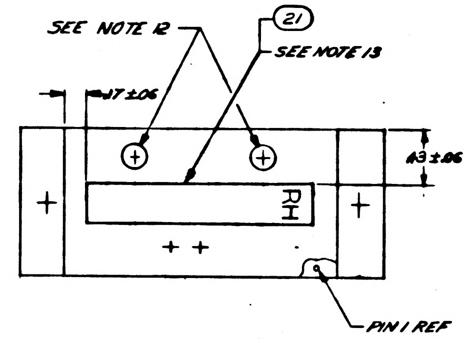
2014004	–

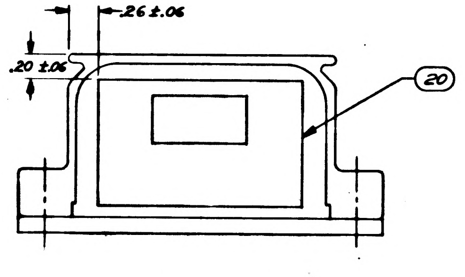
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER RD 25031	7-16-6	
–	CLASS A RELEASED PER TDRR 25472		

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
R1, R2	10
R3, R4	11
R5, R6	12
R7, R8	13
R9, R10	14
R11, R12	15
CR1, CR2, CR3	16
Q1, Q2, Q3, Q4	17
C1, C2	18
C3, C4	19

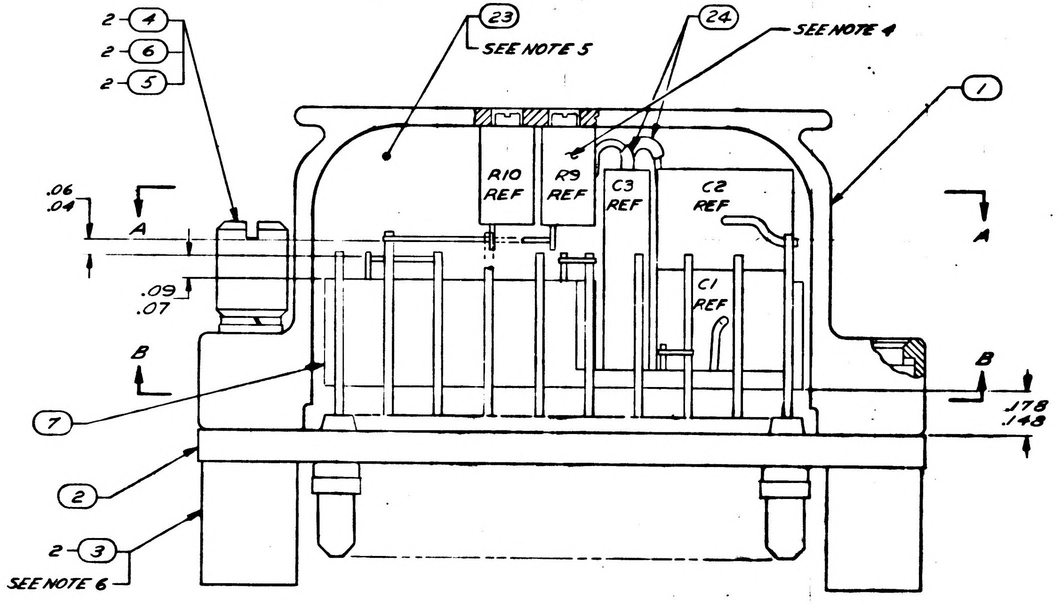

SEE NOTE 8
Q1
8
CR1 K
22
E7
22
E2
Q2
CR3 K
R12
R5
R2
22
E3
22
E8
R3
22
E1
R11
20
11
C4
R10
R9
C3
C2 (UPPER)
C1 (LOWER)
R4
R1
10
1
Q3
CR2 K
R7
R6
E4
22
R8
Q4
E6
22
E5
22
POTTING NOT TO PROTRUDE MORE THAN .005 BEYOND THESE SURFACES

SECTION A-A

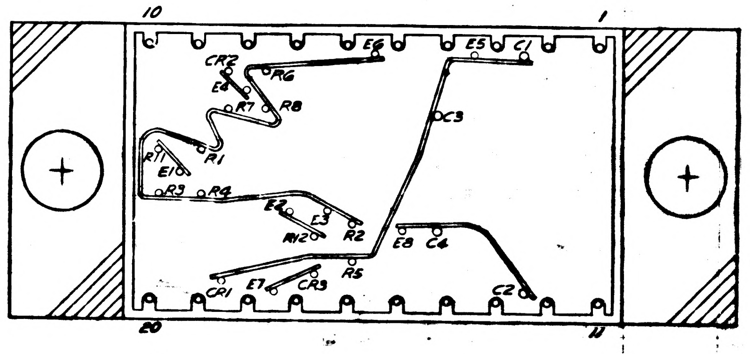

SEE NOTE 12
21
SEE NOTE 13
.17 ±.06
.43 ±.06
RH
PIN 1 REF


.26 ±.06
.20 ±.06
20

MARKING VIEW
SCALE 2/1


2 4
2 6
2 5
23
SEE NOTE 5
24
SEE NOTE 4
1
.06
.04
A
A
R10 REF
R9 REF
C3 REF
C2 REF
C1 REF
.09
.07
B
B
.178
.148
7
2
2 3
SEE NOTE 6

NOTES
1. WELD PER ND1002005
2. WHITE DOT INDICATES FIRST LEVEL WIRING
3. BLACK DOT INDICATES SECOND LEVEL WIRING
4. STAKE FIND NO. 14 TO FIND NO. 1 PER ND1002004, TYPE II, RIGID
5. FILL WITH FIND NO. 23 PER ND1002183
6. SEE 1014047 FOR POSITIONING OF PROGRAM TABS
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. STAKE FIND NO. 10, 11, 12, 13, 15 THRU 19 TO FIND NO. 7 PER ND1002004, TYPE II, RIGID
9. UNUSED PINS MAY BE TRIMMED FLUSH WITH FIND NO. 2 AND EXCESSIVE LEAD HEIGHT MAY BE TRIMMED .010-.030 ABOVE HIGHEST WELD ON EACH LEAD
10. COAT FIND NO. 14 USING FIND NO. 9 PER ND1002009, METHOD B OR D
11. NO LEADS OR COMPONENTS TO PROTRUDE THRU POTTING
12. POTTING TO BE FLUSH OR .040 BELOW TOP OF VENT HOLES IN FIND NO. 1
13. MARK APPLICABLE SERIAL NO. .06 HIGH PER ND1002019 & ND1002023
14. FOR CLEARANCE LESS THAN .020 BETWEEN CONDUCTIVE MATERIALS, APPLY .010 MINIMUM INSULATION TO ONE CONDUCTOR USING FIND NO. 25 OR ND1002004, TYPE II


10
1
CR2
R6
E6
E5
C1
R7
R8
C3
R11
E10
R1
R3
R4
E2
E3
R12
R2
E8
C4
R5
CR1
E7
CR3
C2
20
11

SECTION B-B

	2014003	SCHEMATIC	REF
AR	1006776-22	INSULATION, SLEEVING	25
AR	1006776-20	INSULATION, SLEEVING	24
AR	1006904	EPOXY RESIN	23
AR	1006757-8	WIRE, ELECTRICAL	22
1	1014199-14	DECAL, IDENT	21
1	1014200-14	DECAL, IDENT	20
2	1006793-4	CAPACITOR, 750PF ± 2%	19
2	1006866	CAPACITOR, 1uf ± 10%	18
4	1006752	TRANSISTOR	17
3	1006751	DIODE	16
2	1006750-56	RESISTOR, 10K ± 2%, 1/4W	15
2	1006499-004	TRIMPOT	14
2	1006750-45	RESISTOR, 3.6K ± 2%, 1/4W	13
2	1006750-43	RESISTOR, 3K ± 2%, 1/4W	12
2	1006750-39	RESISTOR, 2K ± 2%, 1/4W	11
2	1006750-44	RESISTOR, 3.3K ± 2%, 1/4W	10
AR	1006834	COMPOUND, SILICONE RUBBER	9
AR	1006757-1	WIRE, ELECTRICAL (DIA .020)	8
1	2014058	BLOCK, COMPONENT CLOCK MODULE	7
2	MS35337-79	WASHER, LOCK	6
2	1006997	WASHER, FLAT	5
2	1006998-1	SCREW, CAPTIVE	4
2	1014032	RECEPTACLE, INDEXING	3
1	1014324	CONNECTOR, 20 PIN	2
1	2014062	FRAME, CLOCK MODULE	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

2014377	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4
DRAWN DATE 22 APR 65
CHECKED 6 MAY 65
APPROVAL 10 MAY 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METCALF
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CLOCK MODULE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014004
SCALE 4/1
WT
SHEET 1 OF 1

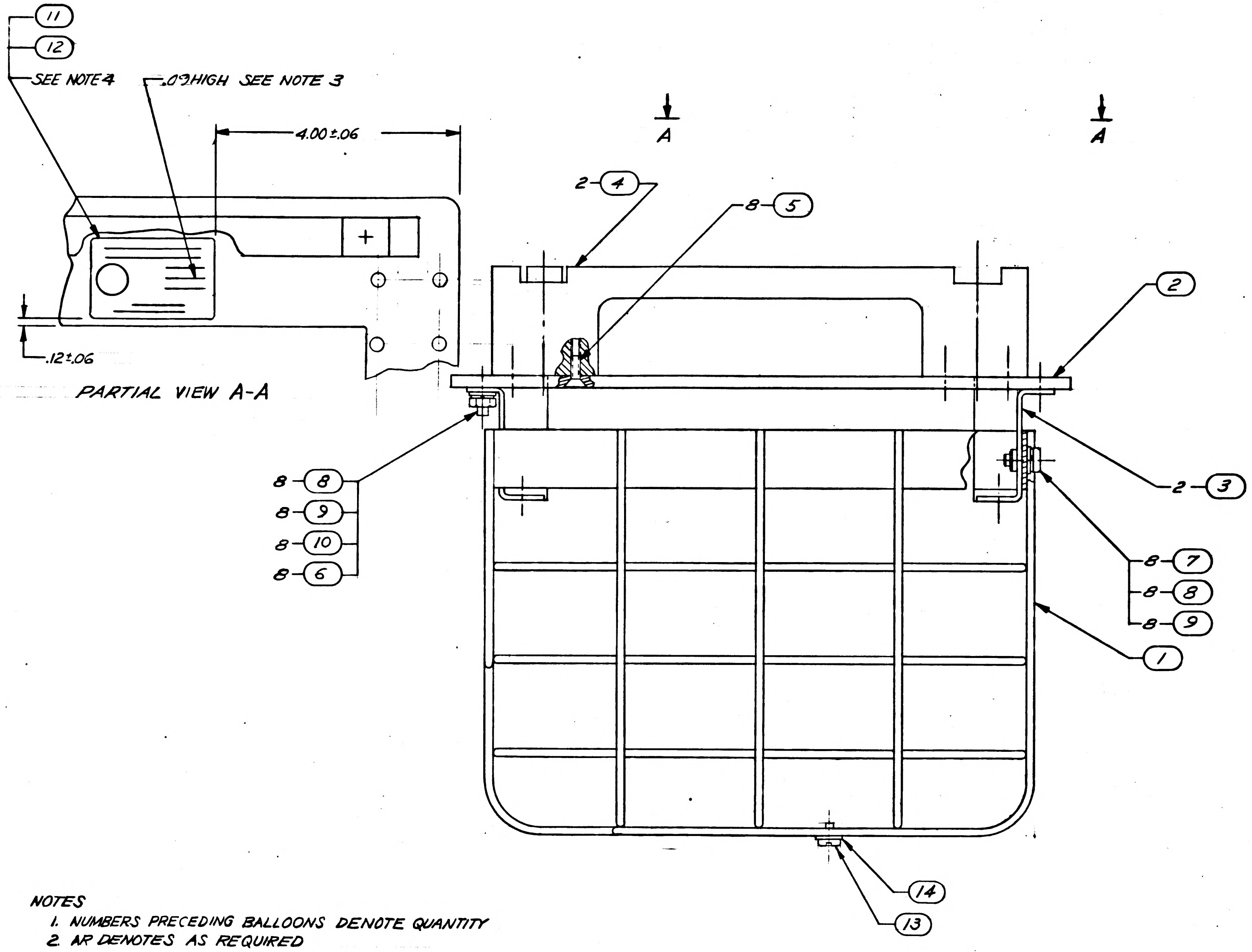
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014004	–

2014013 –

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER R25158	9/14/65	A. Naramo
–	CLASS A RELEASED PER TDRR 24483		



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. SERIALIZE PER ND1002023
4. BOND FIND NO. 11 TO FIND NO. 2 USING FIND NO. 12
5. FIND NO. 15 IS USED TO INSTALL UNIVERSAL DSKY TO 2014013-011

SEE NOTE 5 NOT SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014027	INSTRUCTION DWG. AGC	REF
1	2014023-011	MOUNTING KIT	15
1	MS35335-61	WASHER, EXT. TOOTH	14
1	MS35235-81	SCREW	13
AR	MIL-A-5092 TYPE II	CEMENT	12
1	1004260-208	NAMEPLATE	11
8	MS51960-66	SCREW, FLAT HD	10
16	MS15795-808	WASHER, FLAT	9
16	MS35337-81	WASHER, LOCK	8
8	MS51958-62	SCREW, PAN HD	7
8	MS35650-104	NUT, PLAIN, HEX	6
8	MS51959-45	SCREW, FLAT HD	5
2	1014215-4	HANDLE ASSY	4
2	2014009	BRACKET, DSKY MTG	3
1	2014012	PANEL, HANDLING FIXTURE	2
1	2014008	CAGE, DSKY	1
-011	LIST OF MATERIALS		

2014013 –

MASTER

FINAL	1900030
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 24 MAR 65
CHECKED 10 Mar 65
APPROVAL R. E. Duke 9 AUG '65
APPROVAL 9 AUG '65
APPROVAL 9/14/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL A. Naramo 12/6/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

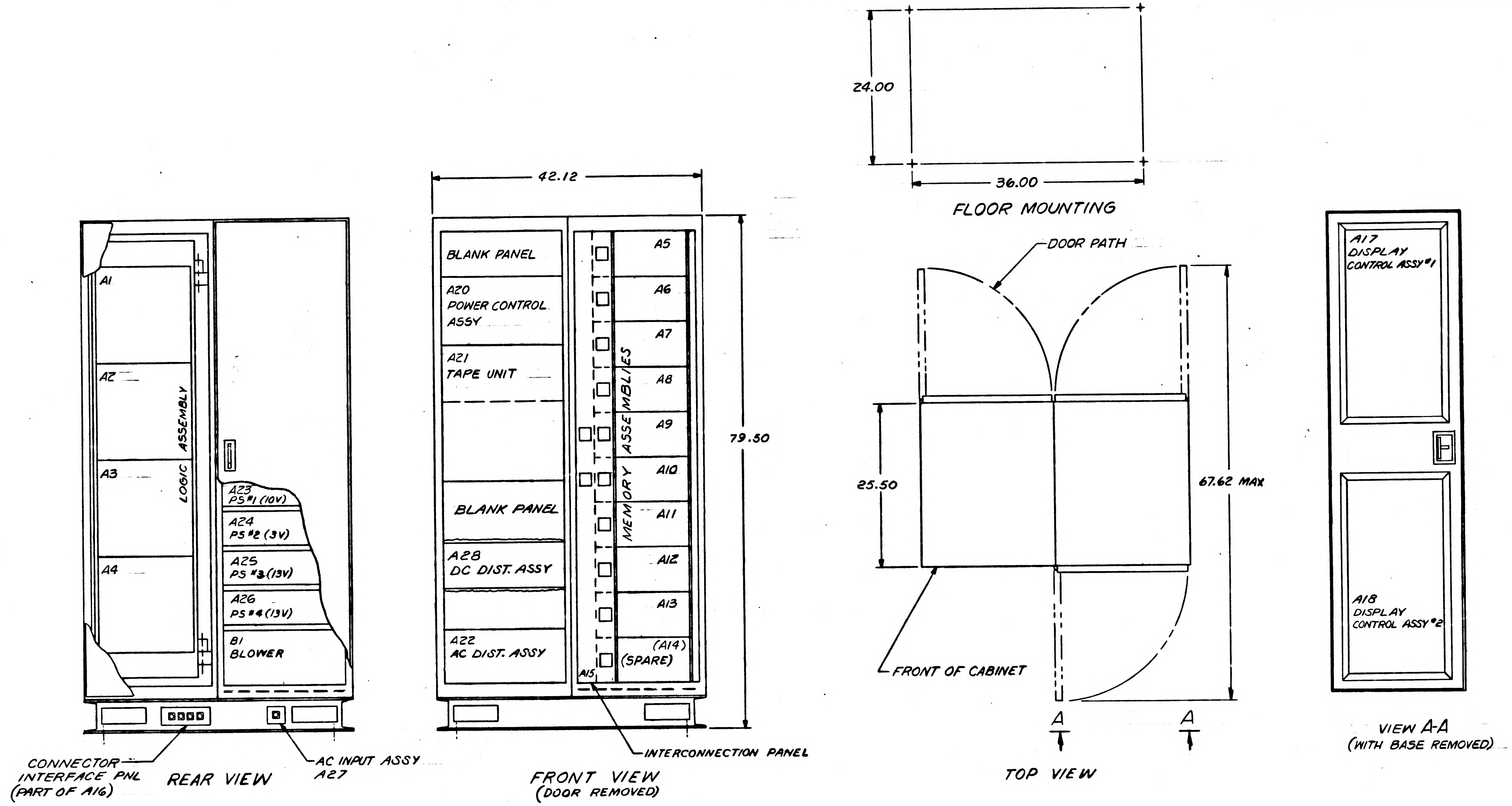
UNIVERSAL DSKY
HANDLING FIXTURE

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014013
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

–	2014017

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
–	CLASS A RELEASED PER TDRR 2381		



24.00
36.00
FLOOR MOUNTING
42.12
79.50
A1
A2
A3
A4
LOGIC ASSEMBLY
A23 PS #1 (10V)
A24 PS #2 (3V)
A25 PS #3 (13V)
A26 PS #4 (13V)
B1 BLOWER
CONNECTOR INTERFACE PNL (PART OF A16)
AC INPUT ASSY A27
REAR VIEW
BLANK PANEL
A20 POWER CONTROL ASSY
A21 TAPE UNIT
BLANK PANEL
A28 DC DIST. ASSY
A22 AC DIST. ASSY
A5
A6
A7
A8
A9
A10
A11
A12
A13
(A14) (SPARE)
A15
MEMORY ASSEMBLIES
INTERCONNECTION PANEL
FRONT VIEW (DOOR REMOVED)
DOOR PATH
25.50
67.62 MAX
FRONT OF CABINET
A
A
TOP VIEW
A17 DISPLAY CONTROL ASSY #1
A18 DISPLAY CONTROL ASSY #2
VIEW A-A (WITH BASE REMOVED)

NOTES
1. ALL DIMENSIONS ARE REFERENCE
2. REF: BLOCK DIAGRAM-2014016

EQUIPMENT LAYOUT

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12775
DRAWN J.P. Leonard DATE 12 MAR 65
CHECKED [illegible] 22 Mar 65
APPROVAL [illegible] 22 Mar 65
APPROVAL [illegible] 22 Mar 65
APPROVAL [illegible] 22 Mar 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 3 Aug 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PROGRAM ANALYZER CONSOLE
MECHANIZATION DWG

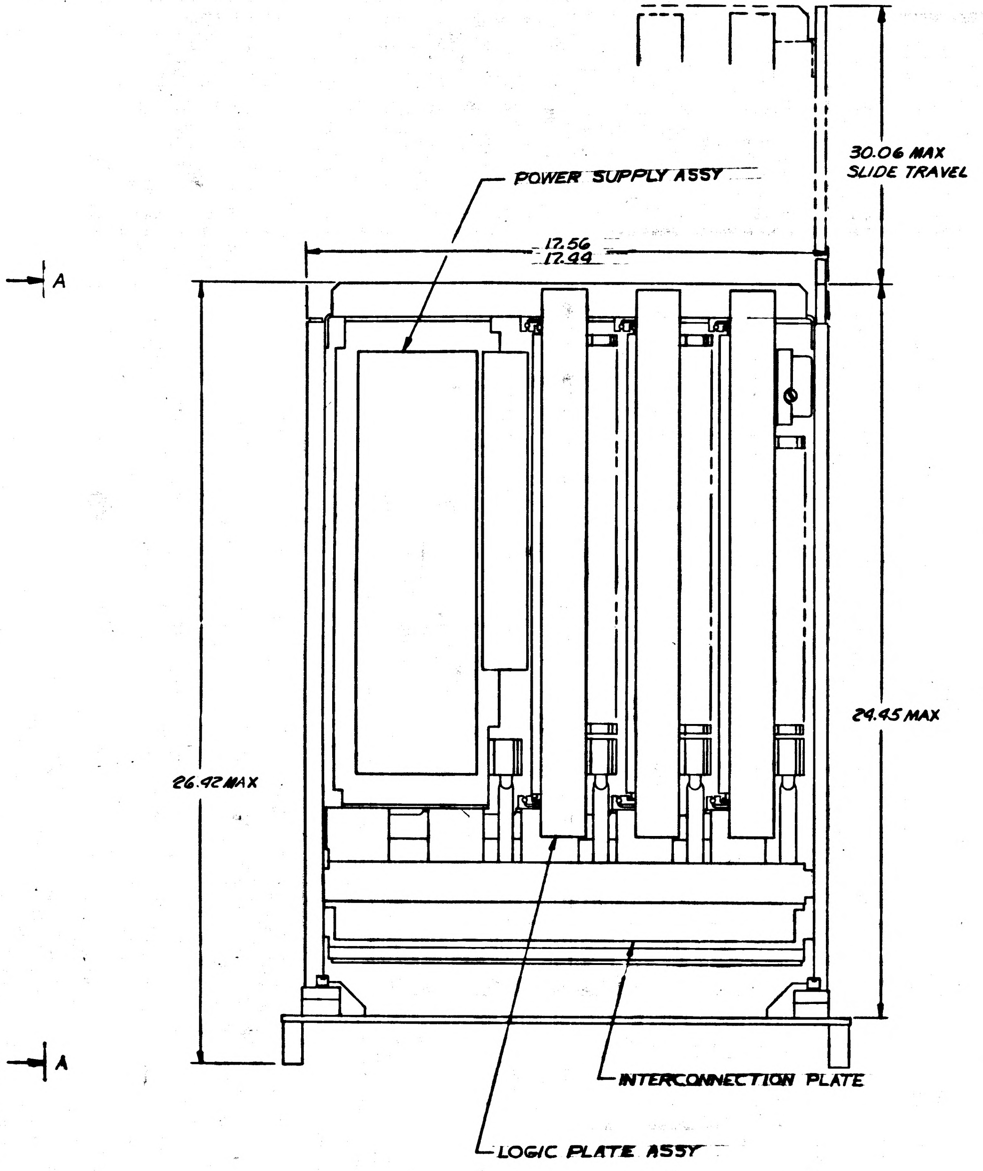
CODE IDENT NO. —
SIZE D
NASA DRAWING NO. 2014017
SCALE NONE
WT
SHEET 1 OF 1

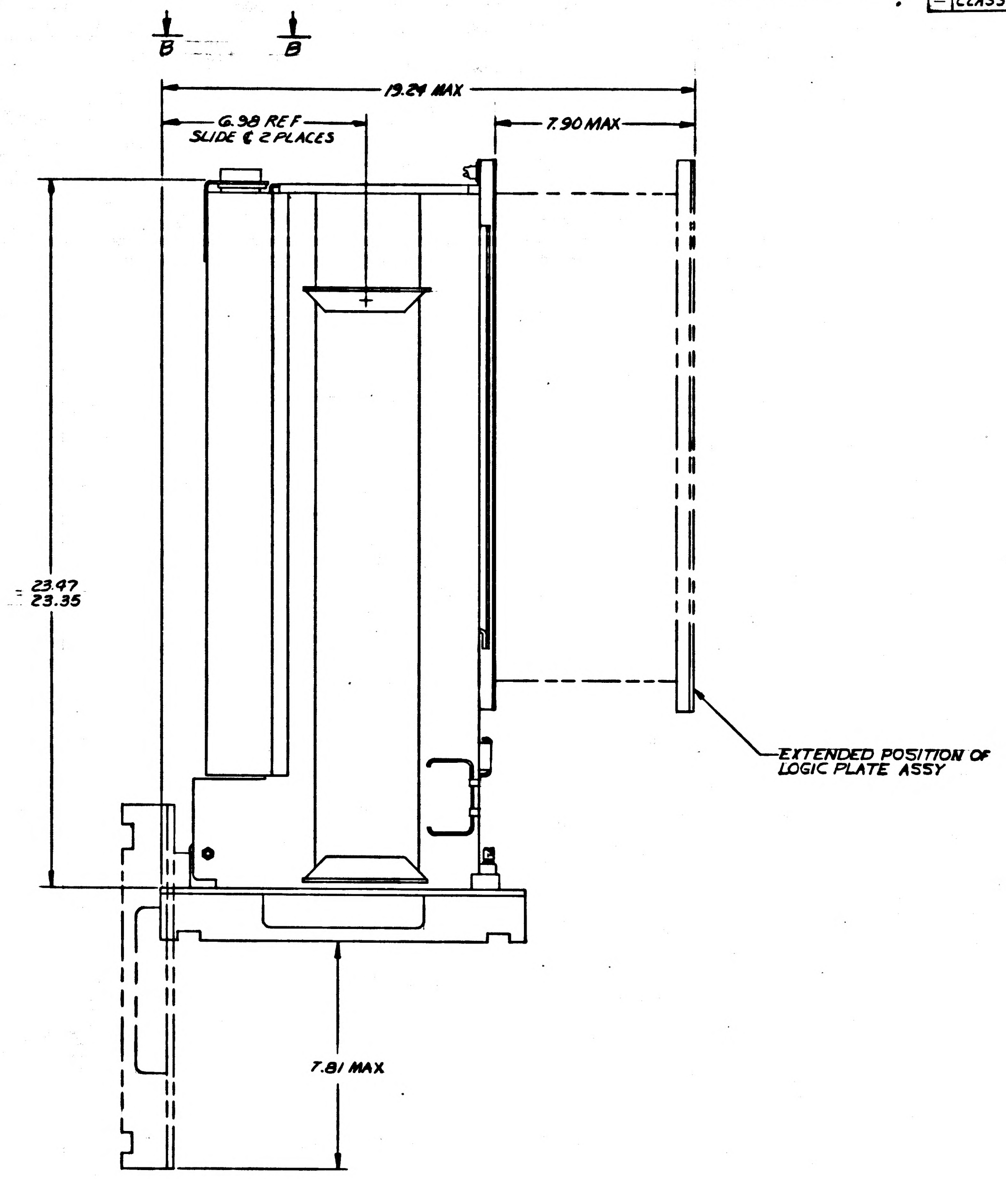
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014017 –

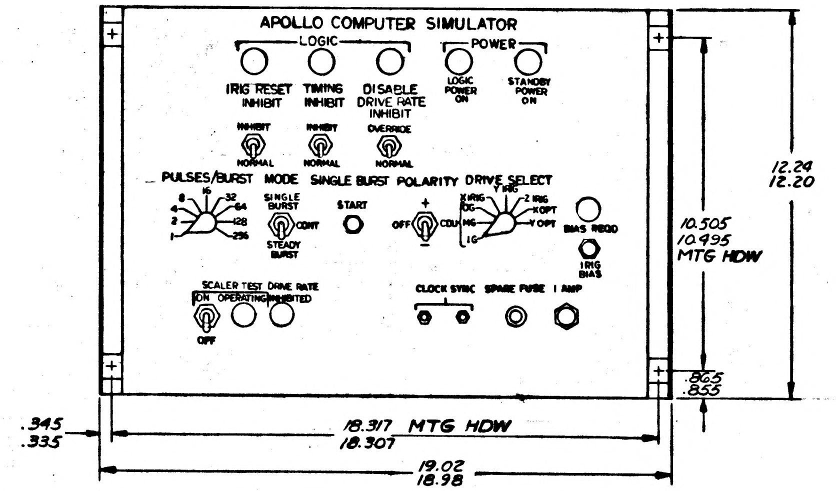
SYM	REVISIONS DESCRIPTION	DATE	APPROVED
—	CLASS A RELEASED PER TDRR 18946		

— 2014021

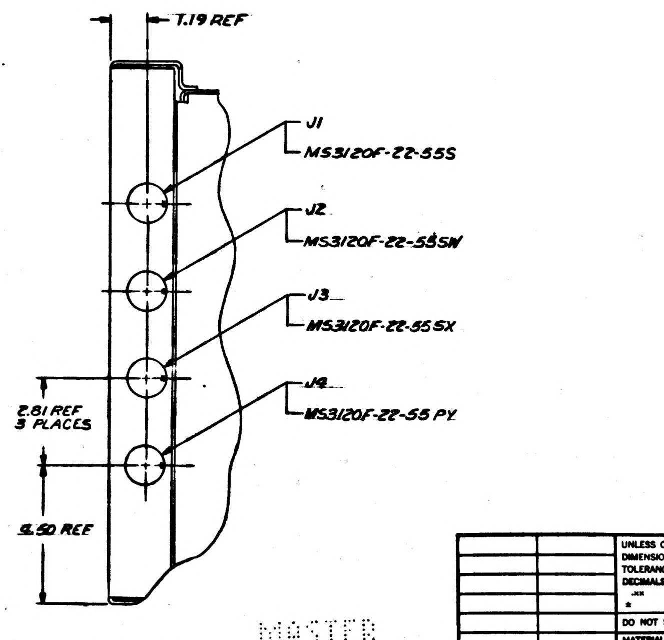

POWER SUPPLY ASSY
30.06 MAX
SLIDE TRAVEL
12.56
12.44
A
A
26.92 MAX
24.45 MAX
INTERCONNECTION PLATE
LOGIC PLATE ASSY


B
B
19.24 MAX
6.98 REF
SLIDE ℄ 2 PLACES
7.90 MAX
23.47
23.35
EXTENDED POSITION OF
LOGIC PLATE ASSY
7.81 MAX

VIEW A-A


APOLLO COMPUTER SIMULATOR
LOGIC
POWER
IRIG RESET INHIBIT
TIMING INHIBIT
DISABLE DRIVE RATE INHIBIT
LOGIC POWER ON
STANDBY POWER ON
INHIBIT
NORMAL
INHIBIT
NORMAL
OVERRIDE
NORMAL
PULSES/BURST
MODE
SINGLE BURST
POLARITY
DRIVE SELECT
1
2
4
8
16
32
64
128
256
SINGLE BURST
CONT
STEADY BURST
START
+
OFF
−
CDU
X IRIG
Y IRIG
Z IRIG
OG
MG
IG
X OPT
Y OPT
BIAS REQD
IRIG BIAS
SCALER TEST
ON
OPERATING
OFF
DRIVE RATE INHIBITED
CLOCK SYNC
SPARE FUSE
1 AMP
12.24
12.20
10.505
10.495
MTG HDW
.865
.855
.345
.335
18.317 MTG HDW
18.307
19.02
18.98

NOTES
1. COOLING REQUIREMENTS
1A. QUANTITY OF AIR REQUIRED: 60 CFM
CABINET AMBIENT @ 100°F MAX
1B. PRESSURE REQUIRED 0.1 INCHES OF
WATER (MIN) STATIC


T.19 REF
J1
MS3120F-22-55S
J2
MS3120F-22-55SW
J3
MS3120F-22-55SX
J4
MS3120F-22-55PY
2.81 REF
3 PLACES
5.50 REF

VIEW B-B

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-2775
DRAWN B Katz DATE 25 MAR 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

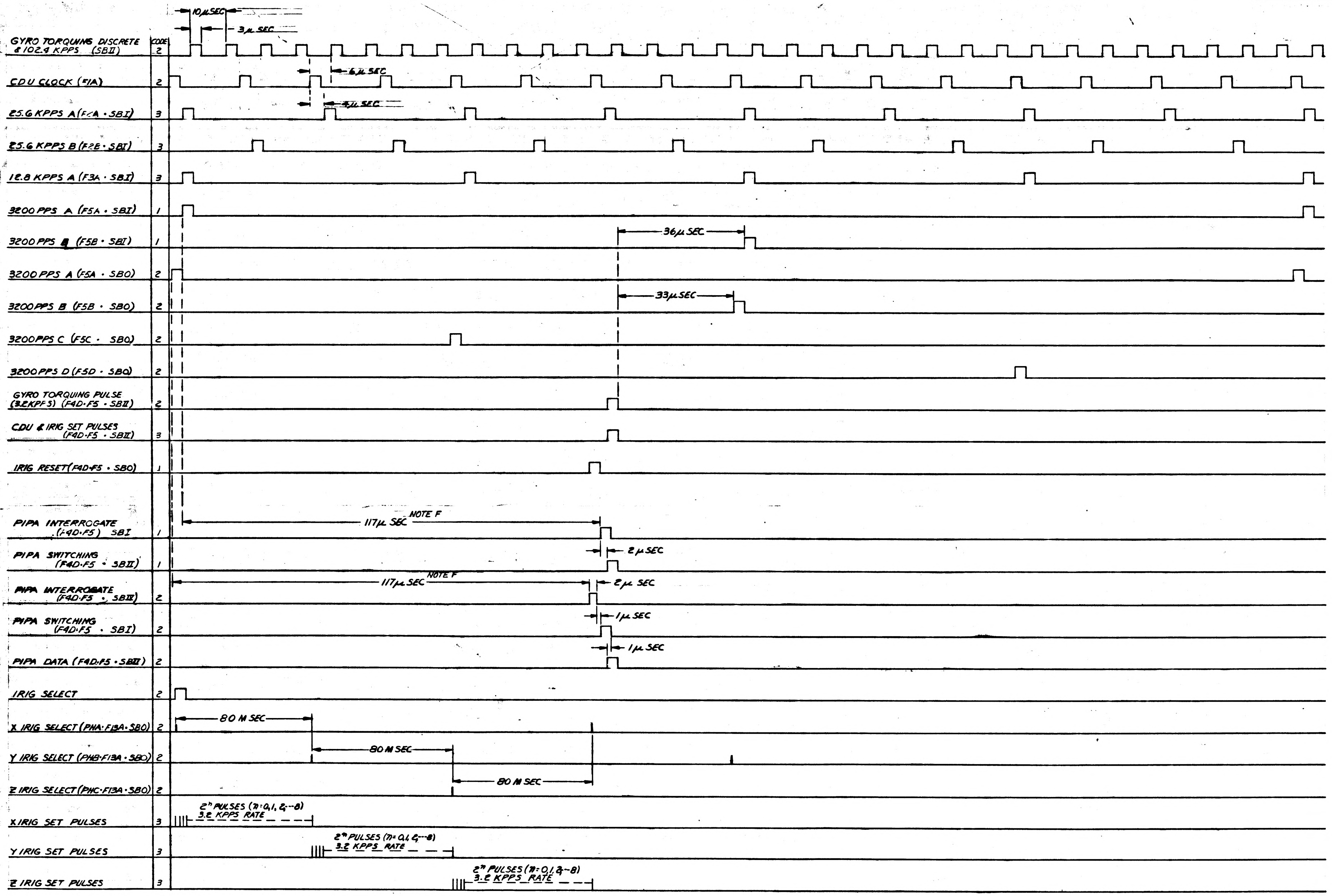
AGC SIMULATOR
MECHANIZATION DIAGRAM

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014021
SCALE NONE
WT
SHEET 1 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014021 —

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
–	CLASS A RELEASED PER TORR [illegible]		


10μSEC
3μSEC
6μSEC
3μSEC
CODE
GYRO TORQUING DISCRETE & 102.4 KPPS (SBII) 2
CDU CLOCK (F1A) 2
25.6 KPPS A (F2A · SBI) 3
25.6 KPPS B (F2E · SBI) 3
12.8 KPPS A (F3A · SBI) 3
3200 PPS A (F5A · SBI) 1
3200 PPS B (F5B · SBI) 1
3200 PPS A (F5A · SBO) 2
3200 PPS B (F5B · SBO) 2
3200 PPS C (F5C · SBO) 2
3200 PPS D (F5D · SBO) 2
GYRO TORQUING PULSE (3.2KPPS) (F4D·F5 · SBII) 2
CDU & IRIG SET PULSES (F4D·F5 · SBII) 3
IRIG RESET (F4D·F5 · SBO) 1
PIPA INTERROGATE (F4D·F5) SBI 1
PIPA SWITCHING (F4D·F5 · SBII) 1
PIPA INTERROGATE (F4D·F5 · SBII) 2
PIPA SWITCHING (F4D·F5 · SBI) 2
PIPA DATA (F4D·F5 · SBII) 2
IRIG SELECT 2
X IRIG SELECT (PHA·F13A·SBO) 2
Y IRIG SELECT (PHB·F13A·SBO) 2
Z IRIG SELECT (PHC·F13A·SBO) 2
X IRIG SET PULSES 3
Y IRIG SET PULSES 3
Z IRIG SET PULSES 3
36μSEC
33μSEC
117μ SEC NOTE F
2μSEC
117μ SEC NOTE F
2μ SEC
1μ SEC
1μ SEC
80 M SEC
80 M SEC
80 M SEC
2ⁿ PULSES (n:0,1,2,--8) 3.2 KPPS RATE
2ⁿ PULSES (n:0,1,2,--8) 3.2 KPPS RATE
2ⁿ PULSES (n:0,1,2,--8) 3.2 KPPS RATE

TIMING DIAGRAM
BLOCK I, 100, II & LEM

SIGNAL NOTES
A. ALL PULSE WIDTHS ARE 3μ SEC
B. ALL PULSES SHOWN ARE ACTUAL OUTPUTS OF SIMULATOR
C. μ REFERS TO 10^{-6} SECONDS
D. CODE: 1.= BLOCK I & 100 USE ONLY
2= BLOCK II & LEM USE ONLY
3. BLOCK I, 100, II & LEM USE
E. M REFERS TO 10^{-3} SECONDS
F. 117μ SEC ≈ 135° PHASE SHIFT REFERENCED TO F5

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION			FIND NO.
LIST OF MATERIALS					
NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±	RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
APPLICATION		DO NOT SCALE DRAWING	CONTRACT NO. FNP-12775	AGC SIMULATOR MECHANIZATION DIAGRAM	
		MATERIAL	DRAWN DATE 25MAR65		
			CHECKED 2 MAR 65		
			APPROVAL 5/13/65		
			APPROVAL 5/13/65		
			APPROVAL		
			NASA APPROVAL 5/11/65	CODE IDENT NO. 49956	SIZE J
			MIT APPROVAL M.G. Manley 5-11-65	NASA DRAWING NO. 2014021	
			MIT APPROVAL C. Sparling 5/11/65	SCALE NONE	WT SHEET 2 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014021 –

--	2014021

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
–	CLASS A RELEASED PER TDRR 18994		

SIGNAL INTERFACE LIST

NOTES:

1.0 THE ELECTRICAL OUTPUTS FOR THE SYSTEM UNDER TEST AND OTHERS FOR THE CONTROL & MONITOR CIRCUITS IN THE OPTICS-INERTIAL ANALYZER ARE DISTRIBUTED THROUGH FOUR CONNECTORS. THESE ARE DESIGNATED J1, J2, J3, & J4 AND ARE MOUNTED ON THE BACK OF THE SIMULATOR AS SHOWN ON SHEET 1. DESIGNATION OF THESE SIGNALS AS TO NOMENCLATURE AND PIN LOCATION ARE DEFINED IN THE FOLLOWING TABLES. A TIMING DIAGRAM OF THESE SIGNALS IS SHOWN ON SHEET 2.

2.0 SIGNAL INTERFACE CHARACTERISTICS

2.1 POWER. THE SIMULATOR SHALL UTILIZE 115 VAC SINGLE PHASE AT 60 CPS WHICH IS SUPPLIED THROUGH J4-U AND J4-V (RET) AND FUSED AT ONE AMPERE.

2.2 THE OUTPUT OF THE OSCILLATOR IS DIVIDED BY 4 TO GIVE A 512 KPPS ± 0.05 CPS SQUARE WAVE. THIS IS THE CLOCK SYNC AND IS DESIGNATED BY ITS BOOLEAN EQUATION C2. FROM THIS SIGNAL ALL THE SCALER FREQUENCIES AND STROBE RATES ARE OBTAINED. THE PULSE CHARACTERISTICS OF C2 WHEN THE OUTPUT IS TERMINATED WITH A 200 ± 10 OHM RESISTIVE LOAD ARE DESCRIBED BELOW:

AMPLITUDE	7 ± 0.7 Vp-p
RISE TIME (10-90%)	0.2 USEC MAXIMUM

2.3 THE STROBE RATES (SBO, SBI, SBII) HAVE A FREQUENCY OF 102.4 KPPS. SBII IS THE ONLY STROBE RATE OUTPUT AND WHEN TERMINATED WITH A 200 ± 10 OHM RESISTOR SHALL HAVE THE FOLLOWING CHARACTERISTICS.

AMPLITUDE	6 ± 0.6 Vp-p
RISE TIME (10-90%)	0.2 USEC MAXIMUM
PULSE WIDTH (50%)	3.0 ± 0.5 USEC

2.4 THE STROBE RATE SBIV HAS A FREQUENCY OF 102.4 KPPS. SBIV IS USED TO STROBE PIPA INTERROGATE FOR BLOCK II AT A RATE OF 3200 PPS. WHEN TERMINATED WITH A 200 ± 10 OHM RESISTOR IT SHALL HAVE THE FOLLOWING CHARACTERISTICS.

AMPLITUDE	5 ± 0.5 Vp-p
RISE TIME (10-90%)	0.2 USEC MAXIMUM
PULSE WIDTH (50%)	2.0 ± 0.5 USEC

2.5 THE REMAINING OUTPUTS ARE ONE OF THE STROBE RATES AT A FREQUENCY LOWER THAN 102.4 KPPS AS DETERMINED BY ONE OF THE SCALER OUTPUTS. THESE ARE DESCRIBED IN NASA DWG 2014021, SHEET 2 USING THE CLOCK SYNC, THE STROBE RATES, AND THE SCALERS TO FORM THE VARIOUS OUTPUTS. THE TIME SEQUENCE FOR FREQUENCIES OF 3200 PPS AND HIGHER IS ALSO SHOWN. SHEET 2 ALSO SHOWS THE RELATIVE PULSE POSITIONS IN RESPECT TO F5 SBI WHICH IS 3200 PPS. THE PULSE CHARACTERISTICS WHEN THE OUTPUTS ARE TERMINATED WITH A 200 ± 10 OHM RESISTIVE LOAD ARE DESCRIBED BELOW.

AMPLITUDE	5.0 ± 0.5 Vp-p
PULSE WIDTH (50%)	3.0 ± 0.5 USEC
RISE TIME (10-90%)	0.2 USEC MAXIMUM
DROOP	0.6 VOLTS MAXIMUM

2.6 CDU INPUTS

2.6.1 IMU & OPTICS CDU INPUTS (BLOCK I, 100). THE INPUTS FROM THE CDU ENCODERS WILL BE SERIES OF POSITIVE PULSES AT A FREQUENCY NOT GREATER THAN 3200 PPS AND AN INPUT IMPEDANCE OF 200 ± 20 OHMS. THE PULSE AMPLITUDE SHALL BE 6.8 ± 0.3 VPP AND THE DROOP SHALL REMAIN WITHIN 15 PERCENT OF THE AMPLITUDE. THE PULSE WIDTH (50%) SHALL BE 3 ± 1 MICROSECONDS WITH A RISE OR FALL TIME (10-90%) LESS THAN 20% OF THE WIDTH.

2.6.2 IMU & OPTICS/RADAR INPUTS (BLOCK II, LEM). THE INPUTS FROM THE CDU PULSE DRIVERS WILL BE A SERIES OF POSITIVE PULSES AT A FREQUENCY NOT GREATER THAN 6400 PPS. WITH AN INPUT IMPEDANCE OF 200 ± 20 Ω, THE PULSE AMPLITUDE SHALL BE +7 ± 3 VPP AND THE DROOP SHALL REMAIN WITHIN 20% AT THE 2 MICROSECOND POINT. THE PULSE WIDTH (50%) SHALL BE 3 ± 1 MICROSECONDS WITH A RISE TIME (10-90%) OF NOT MORE THAN 0.5 MICROSECONDS.

2.7 PIPA INPUTS (BLOCK I, 100, II & LEM). WHEN THE PIPA LOOPS ARE CLOSED, THE PULSES PRESENT AT THE SIMULATOR INTERFACE WILL BE A SERIES OF POSITIVE PULSES AT A FREQUENCY NOT GREATER THAN 3200 PPS. WITH AN INPUT IMPEDANCE OF 200 ± 20 OHMS, THE PULSES SHALL HAVE THE FOLLOWING CHARACTERISTICS:

AMPLITUDE	7 ± 3 VOLTS
PULSE WIDTH:	1.5 TO 5 USEC TO 50% AMPLITUDE
DROOP:	LESS THAN 25% AMPLITUDE

2.8 OUTPUTS. THE OUTPUT SIGNALS RESULTING FROM THE EXTERNAL INPUTS WILL HAVE THE SAME CHARACTERISTICS AS DESCRIBED IN SECTION 2.5 AND THE FREQUENCY SHALL BE THE SAME AS THAT OF THE INPUT.

2.9 REMOTE OPERATION

2.9.1 THE REMOTE OPERATION OF THE "EXT INH" IS ACHIEVED BY APPLYING A +13 VDC LEVEL TO PIN J3V, AND THE REMOTE OPERATION OF THE "IRIG BIAS" IS ACHIEVED BY APPLYING A +13 V PULSE TO PINS J3AA AND J3FF (RET).

2.9.2 THE OPERATION OF THE REMOTE LOGIC POWER "ON" WILL BE ACHIEVED BY APPLYING 0 VDC TO PIN J4BB WHICH ACTUATES THE RELAY CONTROLLING THE +3 VDC LOGIC POWER.

2.9.3 THE REMOTE OPERATION OF TIMING INHIBIT ENABLE IS ACHIEVED BY APPLYING A +13 VDC LEVEL TO PIN J4m.

TABLE I CONNECTOR J1

PIN	CODE	SIGNAL	BOOLEAN	REMARKS
J1 A				
J1 BC	3	+X OPT/RADAR CDU SET (C) AND RET (B)	F4D F5 SBII	3200 PPS
J1 DE	3	800 PPS A (D) AND RET (E)	F7A SBI	800 PPS
J1 FG	3	12.8 KPPS A (F) AND RET (G)	F3A SBI	12.8 KPPS
J1 HJ	1	PIPA SWITCH (J) AND RET (H)	F4D F5 SBII	3200 PPS
J1 KL	3	25.6 KPPS A (L) AND RET (K)	F2A SBI	25.6 KPPS
J1 MN	1	PIPA INTERR (M) AND RET (N)	F4D F5 SBI	3200 PPS
J1 PR	3	-OG CDU HI IN (P) AND LO IN (R)		SEC. 2.6
J1 ST	3	+IG CDU HI IN (S) AND LO IN (T)		SEC. 2.6
J1 UV	3	800 PPS B (U) AND RET (V)	F7B SBI	800 PPS
J1 WX	3	+Y IRIG SET (X) AND RET (W)	F4D F5 SBII	3200 PPS
J1 YZ	3	25.6 KPPS B (Z) AND RET (Y)	F2B SBI	25.6 KPPS
J1 ab	1	3200 PPS A (b) AND RET (a)	F5A SBI	3200 PPS
J1 cd	3	102.4 KPPS (d) AND RET (c)	SBII	102.4 KPPS
J1 e	3	0 VDC		
J1 fg	3	+OG CDU HI IN (f) LO IN (g)		SEC. 2.6
J1 hi	1	3200 PPS B (i) AND RET (h)	F5B SBI	3200 PPS
J1 jk	3	-X OPT/RADAR CDU SET (j) AND RET (k)	F4D F5 SBII	3200 PPS
J1 mn	3	-Y OPT/RADAR CDU SET (n) AND RET (m)	F4D F5 SBII	3200 PPS
J1 pq	3	+Y OPT/RADAR CDU SET (p) AND RET (q)	F4D F5 SBII	3200 PPS
J1 r	3	Y PIPA +ΔV/P PULSE LO IN		SEC. 2.7
J1 s	3	X PIPA +ΔV/P PULSE HI IN		SEC. 2.7
J1 t	3	SHIELD GND		NOT INTERNALLY CONNECTED
J1 u	3	X PIPA +ΔV/P LO IN		SEC. 2.7
J1 v				
J1 w				
J1 x	3	Y PIPA +ΔV/P PULSE HI IN		SEC. 2.7
J1 y	3			NOT AVAILABLE FOR RAYTHEON USE ONLY
J1 z	3			
J1 AA	3			
J1 BB	3			
J1 CC	3	-Y OPT/RADAR CDU HI IN		SEC. 2.6
J1 DDEE	3	-X OPT/RADAR CDU HI IN (DD) LO IN (EE)		SEC. 2.6
J1 FFGG	3	+Y OPT/RADAR CDU HI IN (FF) LO IN (GG)		SEC. 2.6
J1 HH	3	-Y OPT/RADAR CDU LO IN		SEC. 2.6

TABLE II CONNECTOR J2

PIN	CODE	SIGNAL	BOOLEAN	REMARKS
J2 A				
J2 BC	3	+OG CDU SET (C) AND RET (B)	F4D F5 SBII	3200 PPS
J2 DE	3	+MG CDU SET (E) AND RET (D)	F4D F5 SBII	3200 PPS
J2 FG	3	+X IRIG SET (F) AND RET (G)	F4D F5 SBII	3200 PPS
J2 HJ	3	-MG CDU SET (J) AND RET (H)	F4D F5 SBII	3200 PPS
J2 KL	3	-X IRIG SET (K) AND RET (L)	F4D F5 SBII	3200 PPS
J2 MN	3	-OG CDU SET (N) AND RET (M)	F4D F5 SBII	3200 PPS
J2 PR	3	-IG CDU SET (R) AND RET (P)	F4D F5 SBII	3200 PPS
J2 ST	3	+IG CDU SET (S) AND RET (T)	F4D F5 SBII	3200 PPS
J2 UV	3	+MG CDU HI IN (U) LO IN (V)		SEC. 2.6
J2 WX				
J2 YZ	3	IRIG RST (Y) AND RET (Z)	F4D F5 SBO	3200 PPS
J2 ab	3	+X OPT/RADAR CDU HI IN (a) LO IN (b)		SEC. 2.6
J2 cd				
J2 e	3	0 VDC		
J2 fg	3	-MG CDU HI IN (f) LO IN (g)		SEC. 2.6
J2 hi	3	-IG CDU HI IN (h) LO IN (i)		SEC. 2.6
J2 jk	3	+Z IRIG SET (k) AND RET (j)	F4D F5 SBII	3200 PPS
J2 mn	3	-Y IRIG SET (n) AND RET (m)	F4D F5 SBII	3200 PPS
J2 pq	3	-Z IRIG SET (p) AND RET (q)	F4D F5 SBII	3200 PPS
J2 r	3			NOT AVAILABLE
J2 s	3			NOT AVAILABLE
J2 t	3	SHIELD GND		NOT INTERNALLY CONNECTED
J2 u	3			NOT AVAILABLE
J2 v	3			NOT AVAILABLE
J2 w	3			NOT AVAILABLE
J2 x				NOT AVAILABLE
J2 yz	3	Y PIPA -ΔV/N-PULSE HI IN (y) LO IN (z)		SEC. 2.7
J2 AABB	3	Z PIPA +ΔV/P-PULSE HI IN (AA) LO IN (BB)		SEC. 2.7
J2 CCDD	3	Z PIPA -ΔV/N-PULSE HI IN (CC) LO IN (DD)		SEC. 2.7
J2 EEFF	3	X PIPA -ΔV/N-PULSE HI IN (EE) LO IN (FF)		SEC. 2.7
J2 GG				
J2 HH				

NOTES:

I CODE:

1. BLOCK I, 100 USE ONLY.
2. BLOCK II, LEM USE ONLY.
3. BLOCK I, 100, II, & LEM.

TABLE III CONNECTOR J3

PIN #	CODE	SIGNAL	BOOLEAN	REMARKS
J3 A				
J3 BC	3	+Y OPT/RADAR CDU HI OUT (B) LO OUT (C)		SEC. 2.8
J3 DE	3	-Y OPT/RADAR CDU HI OUT (D) LO OUT (E)		SEC. 2.8
J3 FG	3	X PIPA +ΔV/P-PULSE HI OUT (F) LO OUT (G)		SEC. 2.8
J3 HJ	3	X PIPA -ΔV/N-PULSE HI OUT (H) LO OUT (J)		SEC. 2.8
J3 KL	3	Y PIPA +ΔV/P-PULSE HI OUT (K) LO OUT (L)		SEC. 2.8
J3 MN	3	Y PIPA -ΔV/N-PULSE HI OUT (M) LO OUT (N)		SEC. 2.8
J3 PR	3	Z PIPA +ΔV/P-PULSE HI OUT ~~(P)~~ LO OUT (R)		SEC. 2.8
J3 ST	3	CLOCK SYNC SET ~~(T)~~ AND RET ~~(S)~~	(C2)	SEC. 2.2
J3 UV	3	+IG CDU HI OUT (U) LO OUT (V)		SEC. 2.8
J3 WX	3	-IG CDU HI OUT (W) LO OUT (X)		SEC. 2.8
J3 YZ	3	+MG CDU HI OUT (Y) LO OUT (Z)		SEC. 2.8
J3 ab	3	-MG CDU HI OUT (a) LO OUT (b)		SEC. 2.8
J3 cd	3	+X OPT/RADAR CDU HI OUT (c) LO OUT (d)		SEC. 2.8
J3 e	3	0 VDC		
J3 fg	3	-X OPT/RADAR CDU HI OUT (f) LO OUT (g)		SEC. 2.8
J3 hi	3	EXT. T.B. #3 (h) AND RET (i)	F7B SBI	800 PPS
J3 jk	3	EXT. T.B. #2 (j) AND RET (k)	F6B SBI	1600 PPS
J3 mn	3	+OG CDU HI OUT (m) LO OUT (n)		SEC. 2.8
J3 pq	2	PIPA INTERROGATE (p) AND RET (q)	F4D F5 SBIV	3200 PPS
J3 rs	2	PIPA SWITCHING (r) AND RET (s)	F4D F5 SBI	3200 PPS
J3 t	3	SHIELD GND		NOT INTERNALLY CONNECTED
J3 uv	2	PIPA DATA (u) AND RET (v)	F4D F5 SBII	3200 PPS
J3 wx	2	3200 PPS C (w) AND RET (x)	F5C SBO	3200 PPS
J3 y	3	EXT INH		SEC. 2.9.1
J3 z				
J3 AA	3	REMOTE IRIG BIAS		SEC. 2.9.1
J3 BB				
J3 CC	3	+3 VDC LOGIC		MONITOR
J3 DDEE	2	3200 PPS D (DD) AND RET (EE)	F5D SBO	3200 PPS
J3 FF	3	REMOTE IRIG BIAS RETURN		SEC. 2.9.1
J3 GGHH	2	CDU CLOCK (GG) AND RET (HH)	F1A	51.2 KPPS

TABLE IV CONNECTOR J4

PIN #	CODE	SIGNAL	BOOLEAN	REMARKS
J4 A	3	CHASSIS GND		
J4 BC	2	GYRO TORQ. (B) AND RET (C)	F4D F5 SBII	3200 PPS
J4 DE	2	GYRO TORQ. DISCRETE (D) AND RET (E)	SBII	102.4 KPPS
J4 FG	3	-OG CDU HI OUT (F) LO OUT (G)		SEC 2.8
J4 HJ	2	X IRIG SELECT (H) AND RET (J)	PHA F13A SBO	
J4 KL	2	Y IRIG SELECT (K) AND RET (L)	PHB F13A SBO	
J4 MN	2	Z IRIG SELECT (M) AND RET (N)	PHC F13A SBO	
J4 PR	2	3200 PPS A (P) AND RET (R)	F5A SBO	
J4 ST	2	3200 PPS B (S) AND RET (T)	F5B SBO	
J4 UV	3	115 VAC (U) AND RET (V)		AC POWER 60 CPS
J4 W				
J4 X				
J4 Y				
J4 Z				
J4 ab	3	EXT T.B. #1 (a) AND RET (b)	F4D F5 SBI	3200 PPS
J4 cd				
J4 e	3	0 VDC		
J4 f				
J4 g				
J4 hi	3	PROGRAMMED SIGNAL (h) AND RET (i)	F4D F5 SBII	3200 PPS
J4 jk	3	Z PIPA -ΔV/N-PULSE HI OUT (j) LO OUT (k)		SEC. 2.8
J4 m	3	TIMING INHIBIT ENABLE		REMOTE +13VDC APPLIED TO TIMING INHIBIT ARM SECTION 2.9.3
J4 n				
J4 p				
J4 q				
J4 r				
J4 s				
J4 t	3	SHIELD GND		NOT INTERNALLY CONNECTED
J4 u				
J4 v				
J4 w				
J4 x				
J4 y	3	+13 VDC STBY		
J4 z				
J4 AA				
J4 BB	3	REMOTE LOGIC POWER ON		SEC. 2.9.2
J4 CC				
J4 DD				
J4 EE				
J4 FF				
J4 GG				
J4 HH				

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12275
DRAWN [illegible] DATE 7APR65
CHECKED K.A. [illegible] 7 Apr 65
APPROVAL [illegible] 4/13/65
APPROVAL D. [illegible] 4/13/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL W.G. Mc[illegible] 5-11-65
MIT APPROVAL C [illegible] 5/11/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC SIMULATOR
MECHANIZATION DIAGRAM

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014021
SCALE NONE
WT
SHEET 3 OF 5

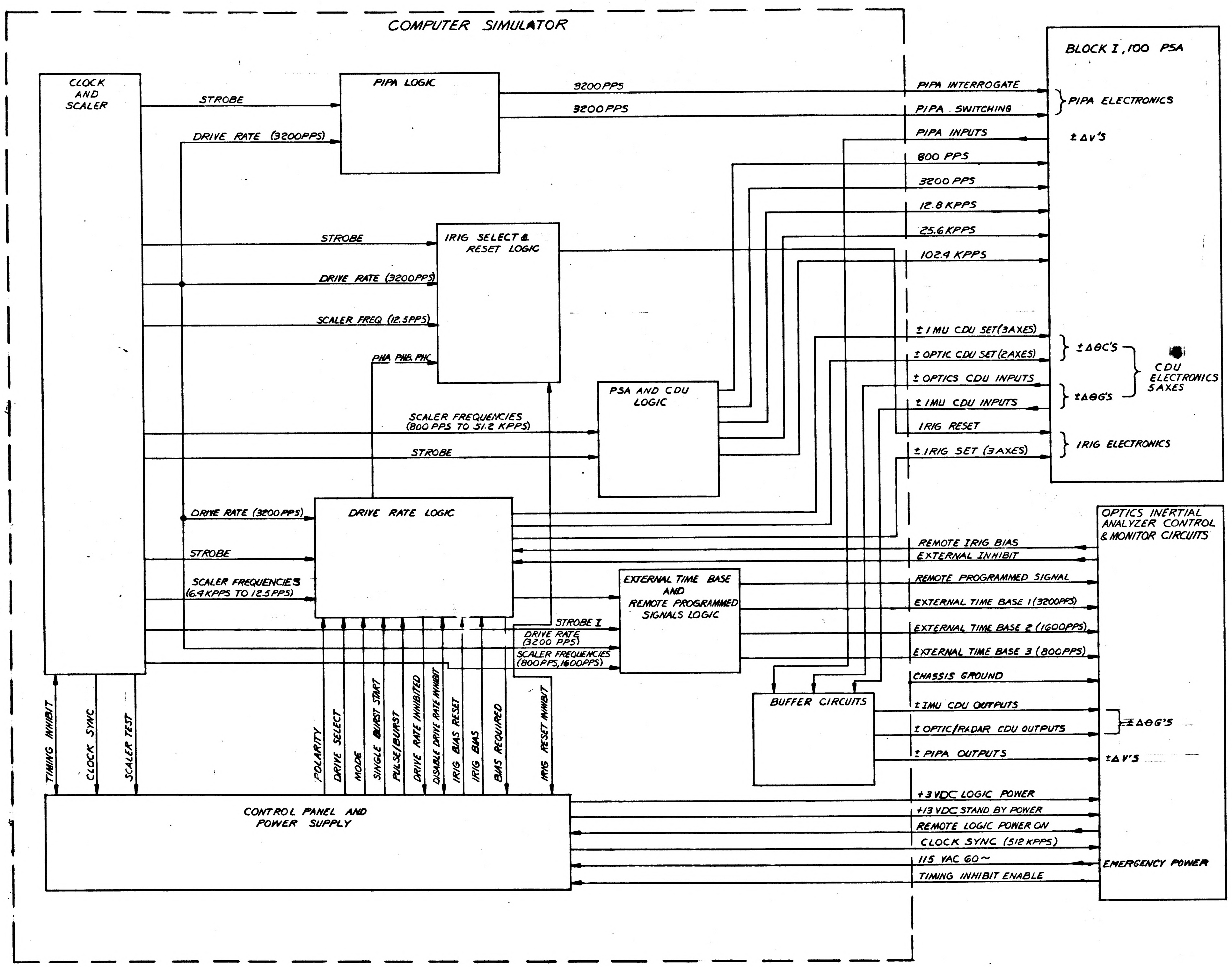
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014021 –

SYM	DESCRIPTION	DATE	APPROVED
—	CLASS A RELEASED PER TDRR 18946		

— 2014021


COMPUTER SIMULATOR
CLOCK AND SCALER
STROBE
DRIVE RATE (3200PPS)
PIPA LOGIC
3200PPS
3200PPS
BLOCK I, 100 PSA
PIPA INTERROGATE
PIPA SWITCHING
PIPA ELECTRONICS
PIPA INPUTS
± ΔV'S
800 PPS
3200 PPS
12.8 KPPS
25.6 KPPS
102.4 KPPS
STROBE
IRIG SELECT & RESET LOGIC
DRIVE RATE (3200PPS)
SCALER FREQ (12.5PPS)
PHA PHB PHC
± IMU CDU SET (3 AXES)
± OPTIC CDU SET (2 AXES)
± OPTICS CDU INPUTS
± IMU CDU INPUTS
± ΔθC'S
± ΔθG'S
CDU ELECTRONICS 5 AXES
IRIG RESET
± IRIG SET (3 AXES)
IRIG ELECTRONICS
PSA AND CDU LOGIC
SCALER FREQUENCIES (800 PPS TO 51.2 KPPS)
STROBE
DRIVE RATE (3200 PPS)
DRIVE RATE LOGIC
STROBE
SCALER FREQUENCIES (6.4 KPPS TO 12.5 PPS)
OPTICS INERTIAL ANALYZER CONTROL & MONITOR CIRCUITS
REMOTE IRIG BIAS
EXTERNAL INHIBIT
EXTERNAL TIME BASE AND REMOTE PROGRAMMED SIGNALS LOGIC
REMOTE PROGRAMMED SIGNAL
EXTERNAL TIME BASE 1 (3200PPS)
EXTERNAL TIME BASE 2 (1600PPS)
EXTERNAL TIME BASE 3 (800PPS)
STROBE I
DRIVE RATE (3200 PPS)
SCALER FREQUENCIES (800PPS, 1600PPS)
CHASSIS GROUND
BUFFER CIRCUITS
± IMU CDU OUTPUTS
± OPTIC/RADAR CDU OUTPUTS
± ΔθG'S
± PIPA OUTPUTS
± ΔV'S
TIMING INHIBIT
CLOCK SYNC
SCALER TEST
POLARITY
DRIVE SELECT
MODE
SINGLE BURST START
PULSE/BURST
DRIVE RATE INHIBITED
DISABLE DRIVE RATE INHIBIT
IRIG BIAS RESET
IRIG BIAS
BIAS REQUIRED
IRIG RESET INHIBIT
CONTROL PANEL AND POWER SUPPLY
+3 VDC LOGIC POWER
+13 VDC STAND BY POWER
REMOTE LOGIC POWER ON
CLOCK SYNC (512 KPPS)
115 VAC 60 ~
TIMING INHIBIT ENABLE
EMERGENCY POWER

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12275
DRAWN B Katula DATE 23 MAR 65
CHECKED [illegible] 24 MAR 65
APPROVAL [illegible] 4/13/65
APPROVAL D. C. Bryant 4/13/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL M C Murphy 5-11-65
MIT APPROVAL C Spalding 5/11/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC SIMULATOR
MECHANIZATION DIAGRAM

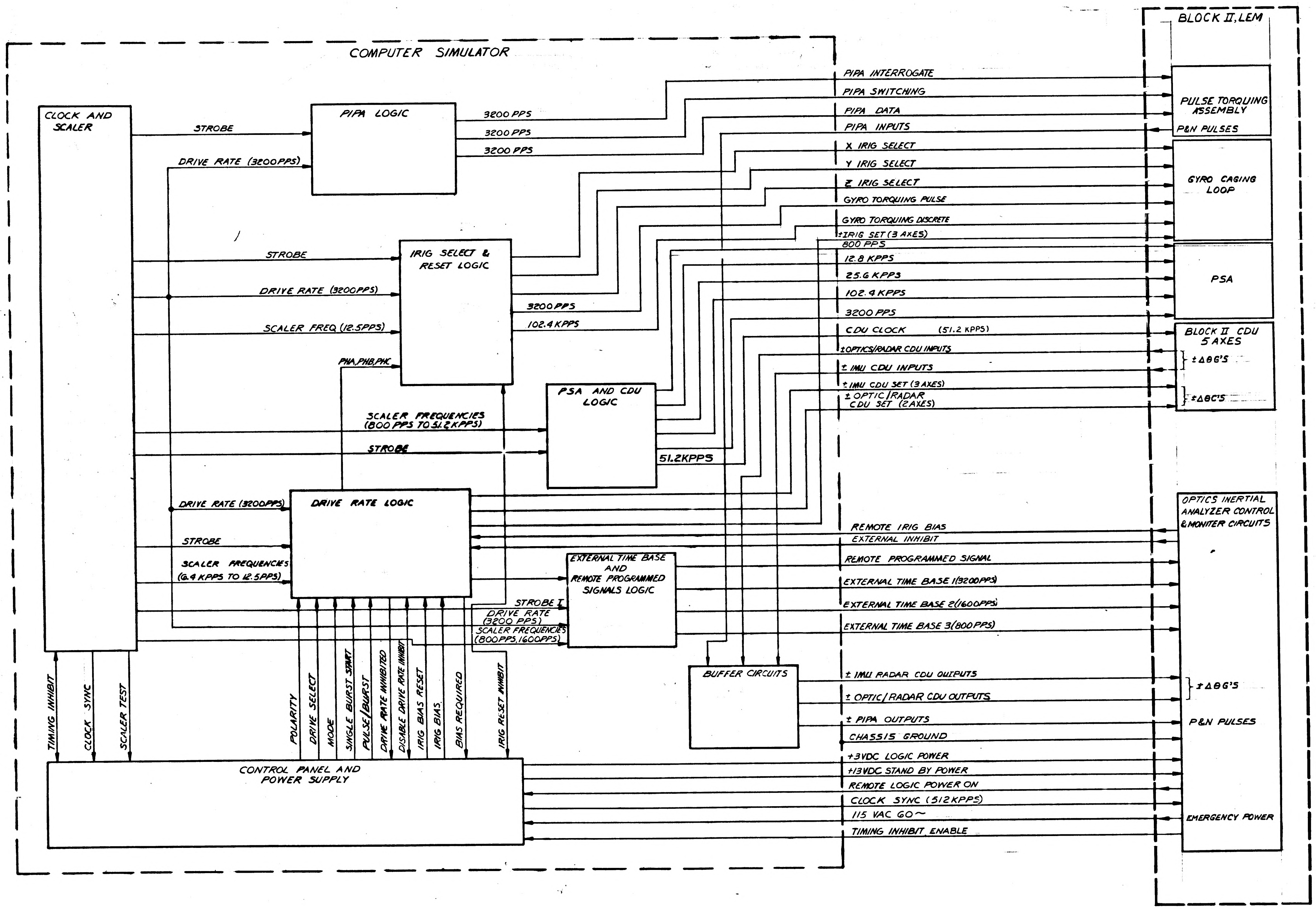
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014021
SCALE NONE
WT
SHEET 4 OF 5

2014021 —

1H

2014021 —

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
—	CLASS A RELEASED PER TDRR 18946		


COMPUTER SIMULATOR
CLOCK AND SCALER
STROBE
DRIVE RATE (3200PPS)
PIPA LOGIC
3200 PPS
3200 PPS
3200 PPS
IRIG SELECT & RESET LOGIC
STROBE
DRIVE RATE (3200PPS)
SCALER FREQ (12.5PPS)
PHA, PHB, PHC
3200 PPS
102.4 KPPS
PSA AND CDU LOGIC
SCALER FREQUENCIES (800 PPS TO 51.2 KPPS)
STROBE
51.2KPPS
DRIVE RATE LOGIC
DRIVE RATE (3200PPS)
STROBE
SCALER FREQUENCIES (6.4 KPPS TO 12.5PPS)
EXTERNAL TIME BASE AND REMOTE PROGRAMMED SIGNALS LOGIC
STROBE I
DRIVE RATE (3200 PPS)
SCALER FREQUENCIES (800PPS, 1600PPS)
BUFFER CIRCUITS
TIMING INHIBIT
CLOCK SYNC
SCALER TEST
POLARITY
DRIVE SELECT
MODE
SINGLE BURST START
PULSE/BURST
DRIVE RATE INHIBITED
DISABLE DRIVE RATE INHIBIT
IRIG BIAS RESET
IRIG BIAS
BIAS REQUIRED
IRIG RESET INHIBIT
CONTROL PANEL AND POWER SUPPLY
PIPA INTERROGATE
PIPA SWITCHING
PIPA DATA
PIPA INPUTS
X IRIG SELECT
Y IRIG SELECT
Z IRIG SELECT
GYRO TORQUING PULSE
GYRO TORQUING DISCRETE
± IRIG SET (3 AXES)
800 PPS
12.8 KPPS
25.6 KPPS
102.4 KPPS
3200 PPS
CDU CLOCK (51.2 KPPS)
± OPTICS/RADAR CDU INPUTS
± IMU CDU INPUTS
± IMU CDU SET (3 AXES)
± OPTIC/RADAR CDU SET (2 AXES)
REMOTE IRIG BIAS
EXTERNAL INHIBIT
REMOTE PROGRAMMED SIGNAL
EXTERNAL TIME BASE 1 (3200PPS)
EXTERNAL TIME BASE 2 (1600PPS)
EXTERNAL TIME BASE 3 (800PPS)
± IMU RADAR CDU OUTPUTS
± OPTIC/RADAR CDU OUTPUTS
± PIPA OUTPUTS
CHASSIS GROUND
+3VDC LOGIC POWER
+13VDC STAND BY POWER
REMOTE LOGIC POWER ON
CLOCK SYNC (512 KPPS)
115 VAC GO ~
TIMING INHIBIT ENABLE
BLOCK II, LEM
PULSE TORQUING ASSEMBLY
P&N PULSES
GYRO CAGING LOOP
PSA
BLOCK II CDU 5 AXES
± ΔθG'S
± ΔθC'S
OPTICS INERTIAL ANALYZER CONTROL & MONITER CIRCUITS
± ΔθG'S
P&N PULSES
EMERGENCY POWER

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12275
DRAWN DATE 23 MAR 65
CHECKED 23 MAR 65
APPROVAL 4/13/65
APPROVAL 4/13/65
APPROVAL
NASA APPROVAL
MIT APPROVAL 5-11-65
MIT APPROVAL 5/11/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC SIMULATOR
MECHANIZATION DIAGRAM

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014021
SCALE NONE
WT
SHEET 5 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014021 —

2014023 —

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25136	9/3/65	G. Harano
—	CLASS A RELEASED PER TDRR 24982		

NOTES
1. THIS KIT IS USED FOR INSTALLING BLOCK II APOLLO DISPLAY AND KEYBOARD UNITS TO GSE UNIVERSAL HANDLING FIXTURE 2014013-011 PER INSTALLATION DWG NO. 2014027
2. IDENTIFY PER ND1002019

2014023 —

~~X~~	~~2014027~~	~~INSTALLATION DWG AGC DSKY~~	~~REF~~
8	MS15795-808	WASHER, FLAT	2
8	MS51958-64	SCREW, PAN HD	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

2014013	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .xx ±
DECIMALS .xxx ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Joe Roper DATE 29 APR 65
CHECKED W. Lyons 30 Jul 65
APPROVAL C E Dube 8 AUG 65
APPROVAL J. Yubic 9 AUG 65
APPROVAL E. Edoars 1 Sept 65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W. Kupfer 7 Dec 65
MIT APPROVAL A. Harano 12/6/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

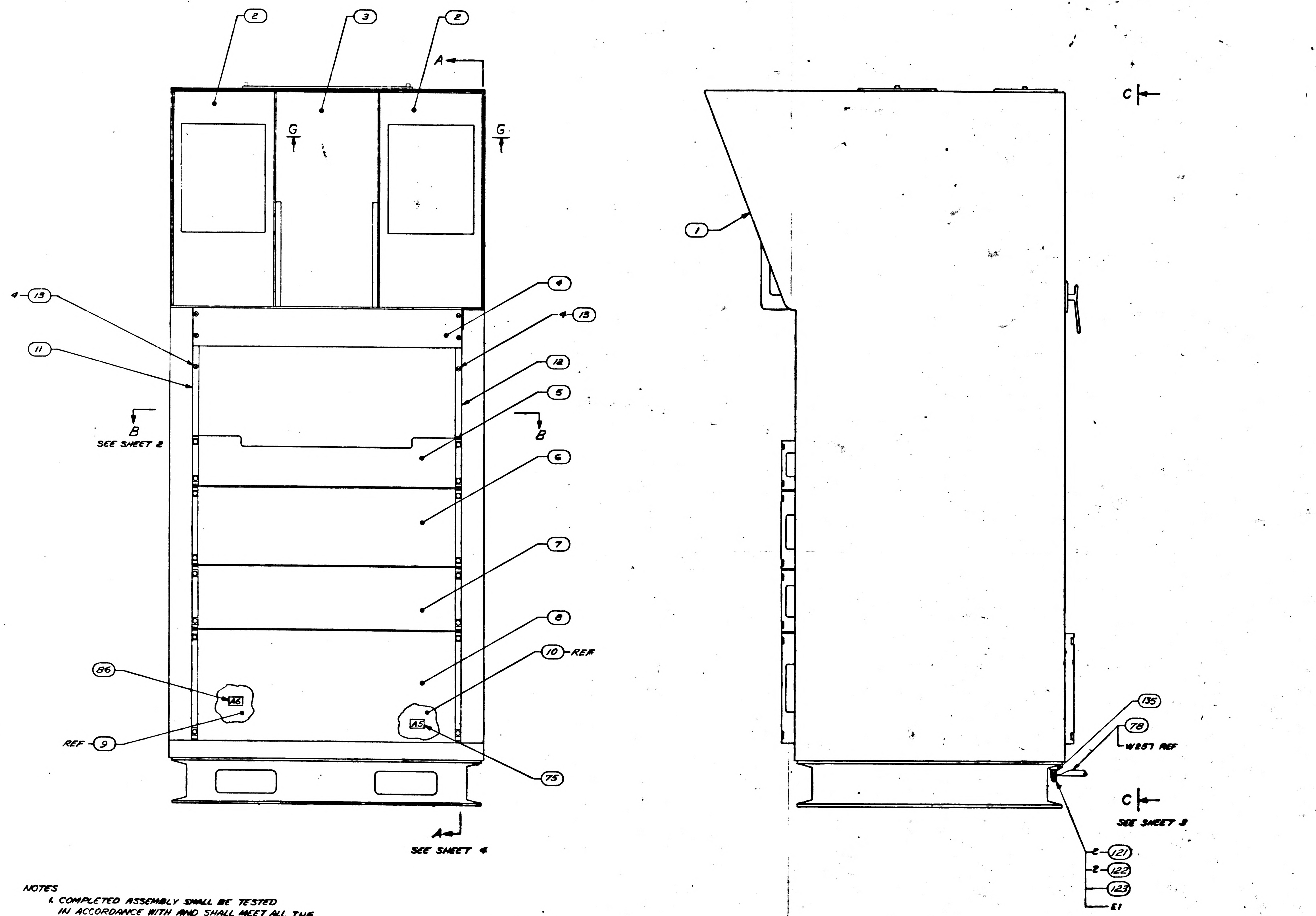
MOUNTING KIT
AGC DSKY (BLK II SERIES)

CODE IDENT NO. 49956
SIZE C
NASA DRAWING NO. 2014023
SCALE NONE
WT
SHEET 1 OF 1

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R25569		
A	CHANGED PER CCA R25578 DR R Dubois CHK Hogan APPD		
B	CHANGED PER CCA R25622 DR CHK Hogan APPD PED		
C	CHANGED PER CCA R25664 DR CHK Hogan APPD PED		
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25475		



SEE SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	CP53B1EF205K1	CAPACITOR	72
1	MS21919DG10	CLAMP, CUSHIONED	71
4	MS51957-30	SCREW, MACH. PAN HD	70
8	MS21044C06	NUT, SELF-LOCKING	69
AR	1006458-004	TAPE, LACING	68
8	1006982-5	WASHER, NYLON	67
8	MS51957-32	SCREW, MACH. PAN HD	66
1	1006476	FAN	65
2	AN929-4	CAP ASSY	64
13	MS35338-79	WASHER, LOCK	63
29	MS15795-806	WASHER, FLAT	62
8	MS51957-28	SCREW, MACH. PAN HD	61
2	AN832-4D	UNION BULKHEAD	60
2	2014320	ADAPTER	59
1	1006410	HOSE, DUCT	58
1	2014256	DUCT, AIR	57
1	2014240	EXHAUST CHAMBER	56
* 1.4	SEE NOTE 6	SLEEVING	55
1	1006477	BLOWER	54
* .50	MIL-W-16878/4 E20	WIRE, ELECTRICAL WHT	53
1	2014497-011	CABLE ASSY W2	52
38	MS51957-45	SCREW, MACH. PAN HD	51
43	MS35338-80	WASHER, LOCK	50
43	MS15795-807	WASHER, FLAT	49
1	1006982-3	FILTER, AIR	48
2	AN6270-4-41	HOSE ASSY	47
3	1006665-4	SLIDE, CHASSIS, Q DISC.	46
3	1006665-3	SLIDE, CHASSIS, Q DISC.	45
1	1014480-3	DECAL, IDENTIFICATION	44
4	1006982-10	WASHER, FLAT NYLON	43
4	AN924-4D	NUT-FLARED TUBE	42
2	AN833-4D	ELBOW-FLARED TUBE	41
2	AN6270-4-13	HOSE ASSY	40
1	1014480-4	DECAL, IDENTIFICATION	39
1	1014480-8	DECAL, IDENTIFICATION	38
1	1006854-2	SLIDE, CHASSIS, LOCK OPEN	37
1	1006854-1	SLIDE, CHASSIS, LOCK OPEN	36
11	MS35690-410	NUT, PLAIN, HEX.	35
39	MS15795-810	WASHER, FLAT	34
39	MS35338-82	WASHER, LOCK	33
10	MS51959-84	SCREW, MACH. FLAT CSK HD	32
18	MS51959-80	SCREW MACH. FLAT CSK HD	31
1	1014480-2	DECAL, IDENTIFICATION	30
17	MS51959-45	SCREW, MACH. FLAT CSK HD	29
1	2014354	CHASSIS ASSY. CMPTR COMPT	28
12	MS51958-60	SCREW, MACH. PAN HD	27
1	2014436	BRACKET, ANGLE, LH	26
1	1014480-10	DECAL, IDENTIFICATION	25
14	MS35650-104	NUT, PLAIN, HEX.	24
68	MS51958-61	SCREW, MACH. PAN HD	23
32	MS51958-64	SCREW, MACH. PAN HD	22
1	1006918-001	FILTER, AIR RFI SHIELDED	21
121	MS15795-808	WASHER, FLAT	20
121	MS35338-81	WASHER, LOCK	19
16	MS51958-62	SCREW, MACH. PAN HD	18
1	1006856	FAN, VENTILATING	17
1	1014480-1	DECAL, IDENTIFICATION	16
4	AN535-4-3	SCREW, DRIVE	15
1	1004260-204	PLATE, IDENTIFICATION	14
8	MS51960-64	SCREW, MACH. FLAT CSK HD	13
1	2014328	SPACER, RH	12
1	2014329	SPACER, LH	11
1	2014302-011	AC INPUT PANEL ASSY	10
1	2014272-011	FRONT PANEL ASSY	9
1	2014207-011	POWER SUPPLY ASSY	8
1	2014279-011	POWER SUPPLY ASSY	7
1	2014391-011	AGC JUNCTION ASSY	6
1	2014257-011	TEST MOUNT ASSY	5
1	2014313-011	TEMPERATURE MONITOR ASSY	4
1	2014079-011	POWER CONTROL ASSY	3
2	2014006-011	MOUNTING FIXTURE ASSY	2
1	2014371	CABINET REWORK	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NOTES

1. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014024
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. SOLDER PER ND1002071
4. FABRICATE PER ND1002032 EXCEPT USE FIND 68
5. SPOT TIE FIND 52 (W2) TO FIND 126 & FIND 127 (W1) 3.00±.50 INCREMENTS
6. MIL-I-631, TYPE F, FORM U, GRADE A, CLASS 1, CATEGORY 1 COLOR BLACK AWG NO.4 FOR FIND 55, AWG NO.8 FOR FIND 136
7. AR DENOTES AS REQUIRED
8. STRIP .50 & TIN PER ND1002071
9. SERIALIZE PER ND1002023
10. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006271-10
11. SLIDE FIND 136 OVER SOLDERED CONNECTIONS ON FIND 65

1900030	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 20 SEP 65
CHECKED R. A. 12 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

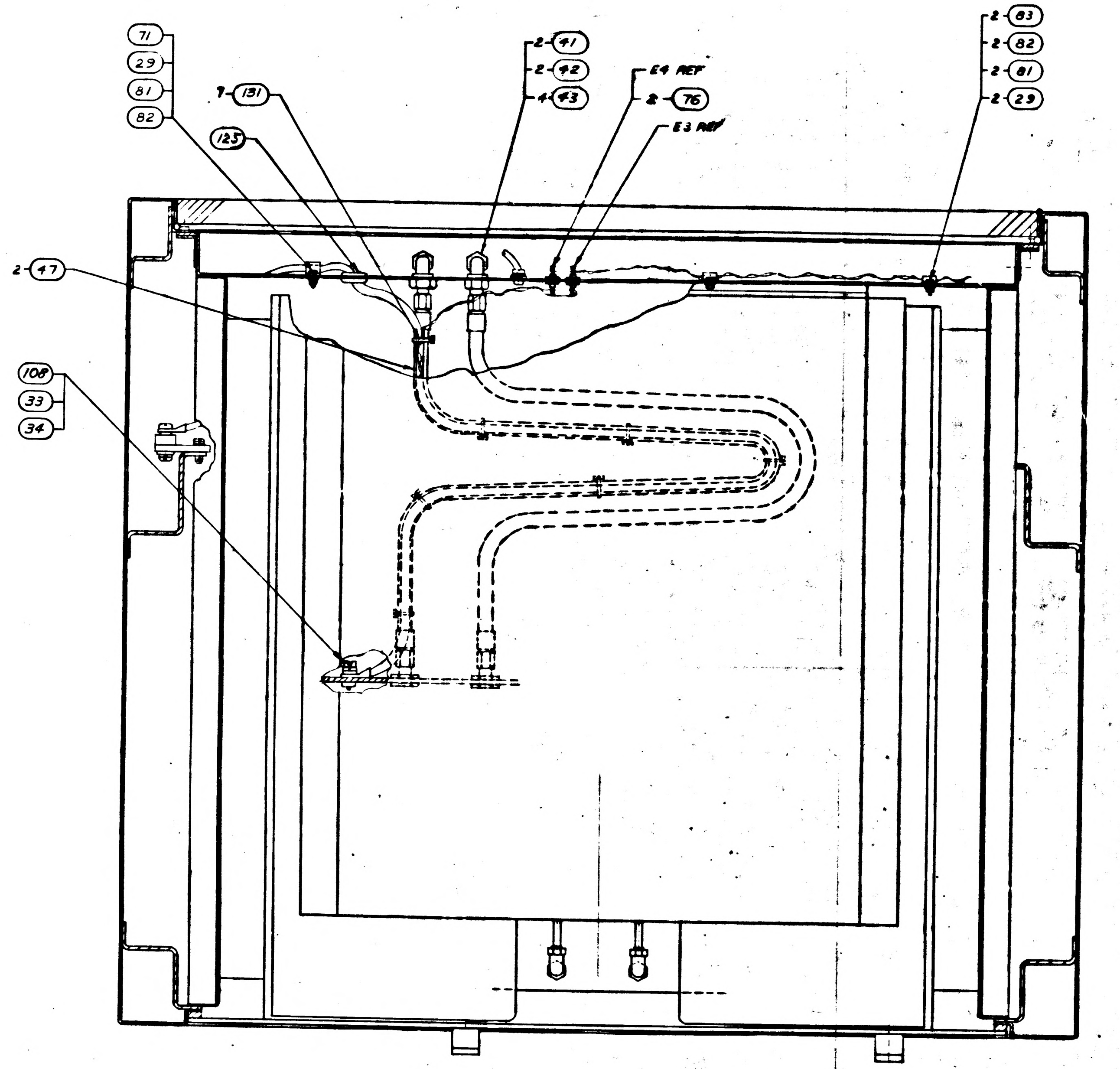
OPERATION CONSOLE
MAIN ASSY

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014024
SCALE 1/8
WT
SHEET 1 OF 4

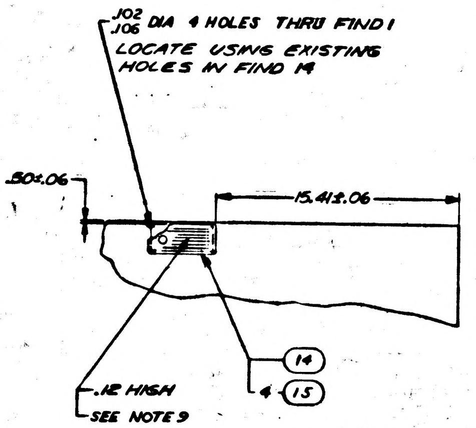
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25489		
—	CLASS B NO CHANGE PER CCA R25509	2/11/66	RS
A	CHANGED PER CCA R25578 DR R. Uluhara CHK APPD PCD		
B	CHANGED PER CCA R25662 DR CHK APPD PCD		
C	CHANGED PER CCA R25664 DR CHK APPD PCD		
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25475		



SECTION B-B
SEE SHEET 1


.J02
.J06 DIA 4 HOLES THRU FIND 1
LOCATE USING EXISTING HOLES IN FIND 14
.50±.06
15.41±.06
14
4-15
.12 HIGH
SEE NOTE 9

PARTIAL VIEW G-G
SCALE 1/4
SEE SHEET 1

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014499	INTERCONNECTION DIAGRAM	REF
*	10	SEE NOTE 6	INSULATION SLEEVING	136
	1	MS35335-63	WASHER, LOCK, EXT TOOTH	135
	1	MS35649-84	NUT, PLAIN, HEX	134
	1	MS51957-47	SCREW, MACH, PAN HD	133
NOT SHOWN	1	1014150-1	CABLE ASSY, POWER	132
	7	MS17821-1	STRAP, CABLE	131
	1	MS21920-43	CLAMP	130
	1	MS21919DG13	CLAMP, CUSHIONED	129
	4	MS21919DG11	CLAMP, CUSHIONED	128
	1	2014496-011	CABLE ASSY W1	127
	1	2014498-011	WIRING HARNESS, BRANCHED A	126
	1	MS35489-16	GROMMET, RUBBER	125
	2	2014403	BLOCK, MOUNTING	124
	4	MS15795-814	WASHER, PLAIN	123
	2	MS35338-84	WASHER, LOCK	122
	3	MS35690-610	NUT, HEX HD	121
	1	2014457-041	CABLE ASSY GROUND	120
	1	2014458-061	CABLE ASSY GROUND	119
	2	2014458-121	CABLE ASSY GROUND	118
	1	2014458-131	CABLE ASSY GROUND	117
	1	1014480-9	DECAL, IDENTIFICATION	116
	3	2014458-151	CABLE ASSY GROUND	115
	4	MS51958-62	SCREW MACH. PAN HD	114
	1	2014457-061	CABLE ASSY GROUND	113
	2	2014457-021	CABLE ASSY GROUND	112
	1	2014458-161	CABLE ASSY, GROUND	111
	1	2014458-081	CABLE ASSY, GROUND	110
	8	MS51957-80	SCREW, MACH. PAN HD	109
	12	MS51957-81	SCREW, MACH. PAN HD	108
	1	1014480-7	DECAL, IDENTIFICATION	107
	4	MS51958-67	SCREW, MACH. PAN HD	106
	8	MS51957-82	SCREW, MACH. PAN HD	105
	3	MS21919DG16	CLAMP, CUSHIONED	104
	2	MS21919DG3	CLAMP, CUSHIONED	103
	1	MS21919DG14	CLAMP, CUSHIONED	102
	3	MS21919DG28	CLAMP, CUSHIONED	101
	1	2014393	BRACKET, CONNECTOR	100
	1	2014394	BRACKET, CONNECTOR	99
	4	MS35337-78	WASHER, LOCK	98
	4	MS15795-803	WASHER, FLAT	97
	4	MS35649-44	NUT, PLAIN, HEX.	96
	4	MS51957-18	SCREW, MACH. PAN HD	95
	8	1006671-003	STOP NUT, CONNECTOR	94
	4	1006671-004	GUIDE SOCKET, CONNECTOR	93
	4	1006671-002	GUIDE PIN, CONNECTOR	92
	9	MS51958-63	SCREW, MACH. PAN HD	91
	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	90
	12	2014412	SPACER, SLIDE BRACKET	89
	1	2014435	BRACKET, ANGLE	88
	2	1006429	GRILLE METAL	87
	1	1014480-6	DECAL, IDENTIFICATION	86
	2	2014437	BLOCK, MOUNTING	85
	1	2014438	BUSBAR, W4	84
	2	MS21919DG6	CLAMP, CUSHIONED	83
	3	MS35649-84	NUT, PLAIN HEX HD	82
	3	MS35337-80	WASHER, LOCK	81
	4	MS51957-46	SCREW, MACH. PAN HD	80
	1	2014402	BUSBAR, W3	79
	1	2014115-041	GROUND STRAP ASSY WE7	78
	~~1~~	~~MS51957-79~~	~~SCREW, MACH. PAN HD~~	~~77~~
	2	1015896-001	TERMINAL FEED THRU INSULATED	76
	1	1014480-5	DECAL, IDENTIFICATION	75
	1	SE09XE02	TERMINAL, STUD MIL-T-55155/9	74
	1	2014353	COVER, CAPACITOR	73

-011 LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9 SEP 65
CHECKED K. A. Chacon 12 OCT 65
APPROVAL 29 OCT 65
APPROVAL 10/29/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

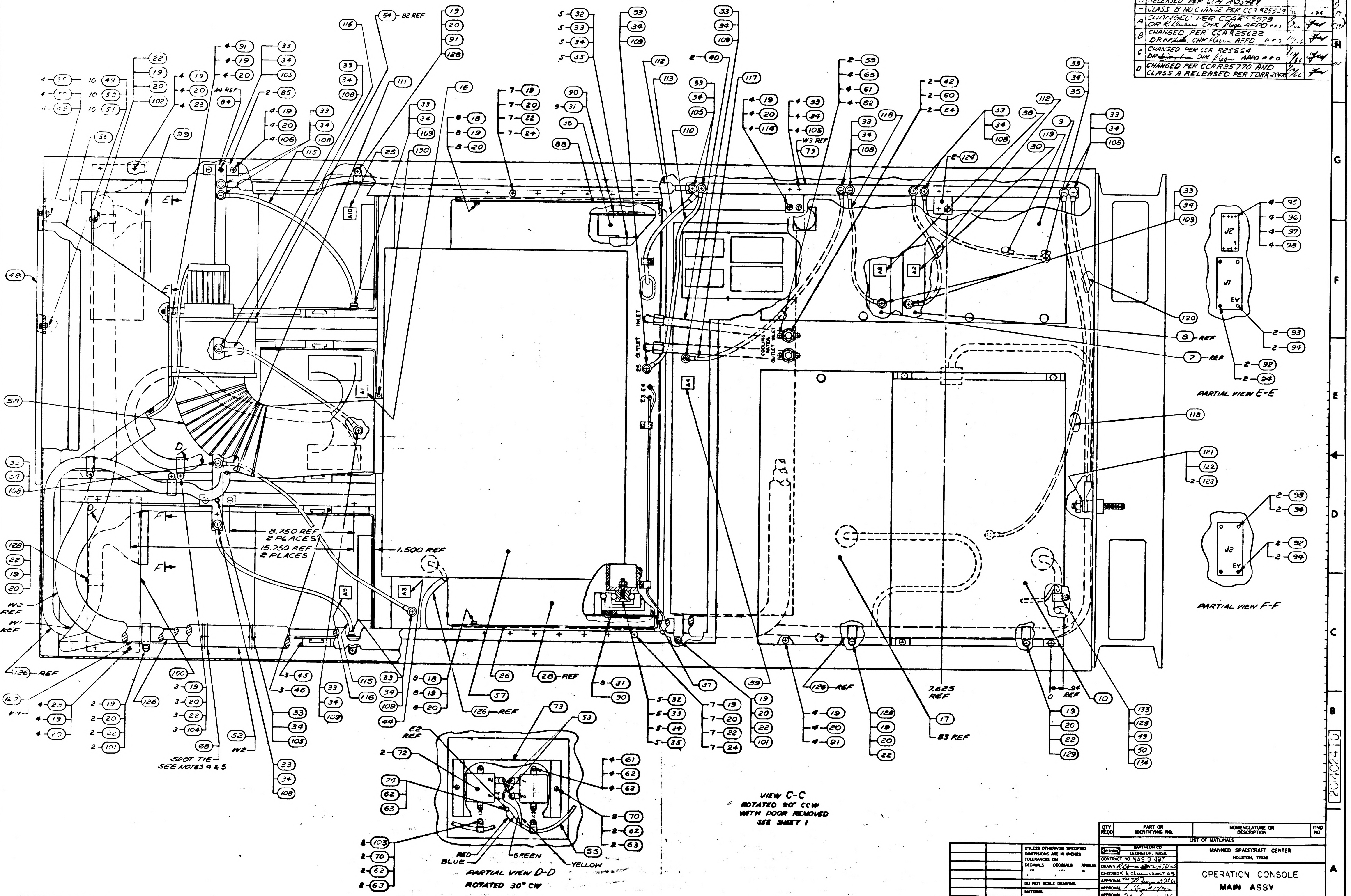
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE MAIN ASSY

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014024
SCALE 1/2 WT SHEET 2 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R25529	[illegible]	[illegible]
A	CHANGED PER CCAR25578 DR R. Durham CHK Hogan APPD RED	[illegible]	[illegible]
B	CHANGED PER CCA R25622 DR [illegible] CHK Hogan APPD RED	[illegible]	[illegible]
C	CHANGED PER CCA R25664 DR [illegible] CHK Hogan APPD RED	1/17/66	[illegible]
D	CHANGED PER CCAR25770 AND CLASS A RELEASED PER TDRR 25470	1/19/66	[illegible]



PARTIAL VIEW E-E
PARTIAL VIEW F-F
VIEW C-C
ROTATED 90° CCW
WITH DOOR REMOVED
SEE SHEET 1
PARTIAL VIEW D-D
ROTATED 30° CW
SPOT TIE
SEE NOTES 4 & 5
8.750 REF
2 PLACES
15.750 REF
2 PLACES
1.500 REF
7.625 REF
B3 REF
B2 REF
W3 REF
W1 REF
W2 REF
W2
W1
E2 REF
RED
BLUE
GREEN
YELLOW
COOLING WATER OUTLET INLET
INLET
OUTLET
E5
E3 E4
J1
J2
J3
A1
A3
A4
A8
A9
A10
A12
E
F
D

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. [illegible] DATE 24 SEP 65
CHECKED K.A. [illegible] 12 OCT 65
APPROVAL [illegible] 29 Oct 65
APPROVAL [illegible] 10/24/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

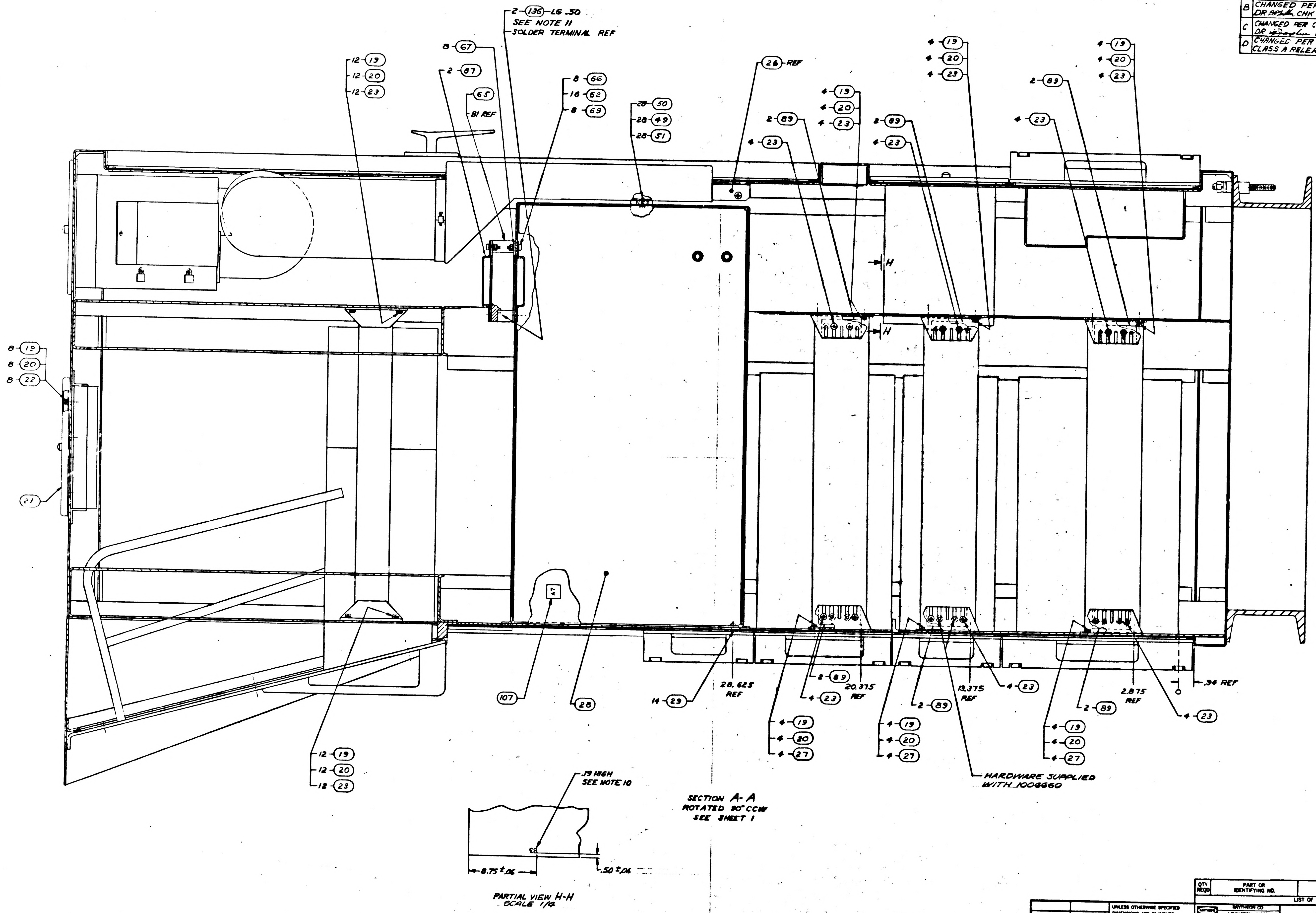
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014024
SCALE 1/2
WT
SHEET 3 OF 4

2014024 D

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER A R25489		
–	CLASS B NO CHANGE PER CCA R25507		
A	CHANGED PER CCA R25578 DR R. Dawson CHK Nagen APPD PED	1/4/66	
B	CHANGED PER CCA R25622 DR CHK Nagen APPD PED	1/11/66	
C	CHANGED PER CCA R25564 DR CHK Nagen APPD PED	1/17/66	
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25475	1/29/66	


2-136 LG .50
SEE NOTE 11
SOLDER TERMINAL REF
8-67
2-87
65
81 REF
12-19
12-20
12-23
8-66
16-62
8-69
28-50
28-49
28-51
26 REF
4-19
4-20
4-23
2-89
4-23
2-89
4-23
4-19
4-20
4-23
2-89
4-23
4-19
4-20
4-23
H
H
8-19
8-20
8-22
21
107
28
14-29
28.625 REF
20.375 REF
13.375 REF
2.875 REF
.34 REF
2-89
4-23
2-89
4-23
2-89
4-23
4-19
4-20
4-27
4-19
4-20
4-27
4-19
4-20
4-27
HARDWARE SUPPLIED WITH 1006660
12-19
12-20
12-23
.19 HIGH
SEE NOTE 10
83
8.75 ±.06
.50 ±.06

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

PARTIAL VIEW H-H
SCALE 1/4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED K. A. Chessman 12 OCT 65
APPROVAL 29 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

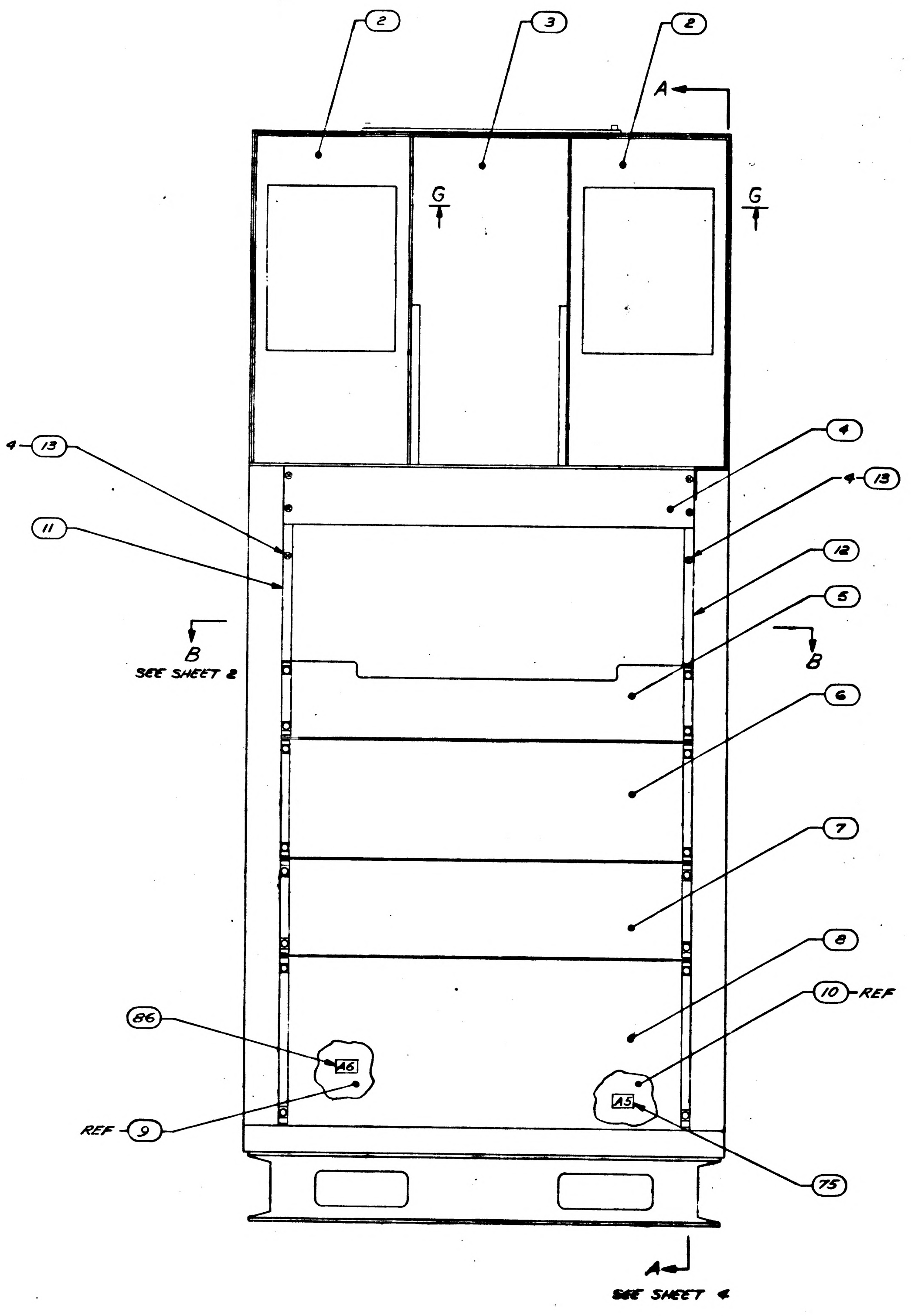
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014024
SCALE 1/2
WT
SHEET 4 OF 4

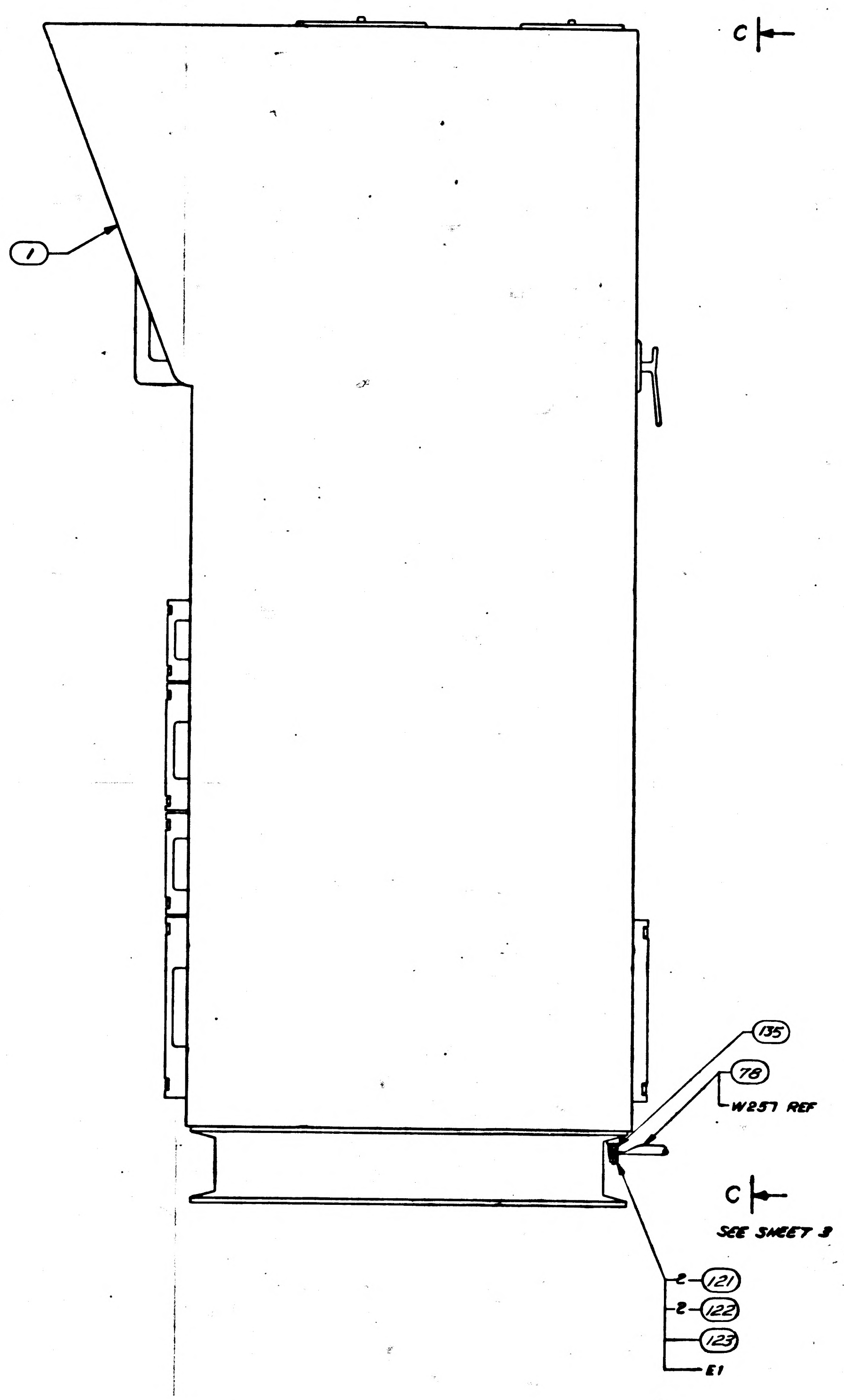
2014024 D

2014024 D

2014024 E

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25489		
—	CLASS B NO CHANGE PER CCA R2555		
A	CHANGED PER CCA R25678 DR R Durham CHK Hagen APPD		
B	CHANGED PER CCA R25622 DR CHK Hagen APPD PED		
C	CHANGED PER CCA R25664 DR CHK Hagen APPD PED		
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25547		
E	CHANGED PER TDRR 26506 DR CHK APPD		





SEE SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	CP53B1EF205K1	CAPACITOR	72
1	MS21919DG10	CLAMP, CUSHIONED	71
4	MS51957-30	SCREW, MACH. PAN HD	70
8	MS21044C06	NUT, SELF-LOCKING	69
AR	1006458-004	TAPE, LACING	68
8	1006982-5	WASHER, NYLON	67
8	MS51957-32	SCREW, MACH. PAN HD	66
1	1006476	FAN	65
2	AN929-4	CAP ASSY	64
13	MS35338-79	WASHER, LOCK	63
29	MS15795-806	WASHER, FLAT	62
8	MS51957-28	SCREW, MACH. PAN HD	61
2	AN832-4D	UNION BULKHEAD	60
2	2014320	ADAPTER	59
1	1006410	HOSE, DUCT	58
1	2014256	DUCT, AIR	57
1	2014240	EXHAUST CHAMBER	56
* 1.4	SEE NOTE 6	SLEEVING	55
1	1006477	BLOWER	54
* .50	MIL-W-16878/4 E20	WIRE, ELECTRICAL WHT	53
1	2014497-011	CABLE ASSY W2	52
38	MS51957-45	SCREW, MACH. PAN HD	51
43	MS35338-80	WASHER, LOCK	50
43	MS15795-807	WASHER, FLAT	49
1	1006892-3	FILTER, AIR	48
2	AN6270-4-41	HOSE ASSY	47
3	1006665-4	SLIDE, CHASSIS, Q DISC.	46
3	1006665-3	SLIDE, CHASSIS, Q DISC.	45
1	1014480-3	DECAL, IDENTIFICATION	44
4	1006982-10	WASHER, FLAT NYLON	43
4	AN924-4D	NUT-FLARED TUBE	42
2	AN833-4D	ELBOW-FLARED TUBE	41
2	AN6270-4-13	HOSE ASSY	40
1	1014480-4	DECAL, IDENTIFICATION	39
1	1014480-8	DECAL, IDENTIFICATION	38
1	1006854-2	SLIDE, CHASSIS, LOCK OPEN	37
1	1006854-1	SLIDE, CHASSIS, LOCK OPEN	36
11	MS35690-410	NUT, PLAIN, HEX.	35
39	MS15795-810	WASHER, FLAT	34
41	MS35338-82	WASHER, LOCK	33
10	MS51959-84	SCREW, MACH. FLAT CSK HD	32
18	MS51959-80	SCREW MACH. FLAT CSK HD	31
1	1014480-2	DECAL, IDENTIFICATION	30
17	MS51959-45	SCREW, MACH. FLAT CSK HD	29
1	2014354	CHASSIS ASSY, CMPTR COMPT	28
12	MS51958-60	SCREW, MACH. PAN HD	27
1	2014436	BRACKET, ANGLE, LH	26
1	1014480-10	DECAL, IDENTIFICATION	25
14	MS35650-104	NUT, PLAIN, HEX.	24
68	MS51958-61	SCREW, MACH. PAN HD	23
32	MS51958-64	SCREW, MACH. PAN HD	22
1	1006918-001	FILTER, AIR RFI SHIELDED	21
121	MS15795-808	WASHER, FLAT	20
121	MS35338-81	WASHER, LOCK	19
20	MS51958-62	SCREW, MACH. PAN HD	18
1	1006856	FAN, VENTILATING	17
1	1014480-1	DECAL, IDENTIFICATION	16
4	AN535-4-3	SCREW, DRIVE	15
1	1004260-204	PLATE, IDENTIFICATION	14
8	MS51960-64	SCREW, MACH. FLAT CSK HD	13
1	2014328	SPACER, RH	12
1	2014329	SPACER, LH	11
1	2014302-011	AC INPUT PANEL ASSY	10
1	2014272-011	FRONT PANEL ASSY	9
1	2014207-011	POWER SUPPLY ASSY	8
1	2014279-011	POWER SUPPLY ASSY	7
1	2014341-011	AGC JUNCTION ASSY	6
1	2014257-011	TEST MOUNT ASSY	5
1	2014313-011	TEMPERATURE MONITOR ASSY	4
1	2014079-011	POWER CONTROL ASSY	3
2	2014006-011	MOUNTING FIXTURE ASSY	2
1	2014371	CABINET REWORK	1
-011	LIST OF MATERIALS		

2014024 E

* DENOTES LENGTH IN FEET

NOTES

1. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014024
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. SOLDER PER ND1002071
4. FABRICATE PER ND1002032 EXCEPT USE FIND 68
5. SPOT TIE FIND 52 (W2) TO FIND 126 & FIND 127 (W1) 3.00±.50 INCREMENTS
6. MIL-I-631, TYPE F, FORM U, GRADE A, CLASS 1, CATEGORY 1 COLOR BLACK AWG NO.4 FOR FIND 55, AWG NO.8 FOR FIND 136
7. AR DENOTES AS REQUIRED
8. STRIP .50 & TIN PER ND 1002071
9. SERIALIZE PER ND1002023
10. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006271-10
11. SLIDE FIND 136 OVER SOLDERED CONNECTIONS ON FIND 65

1900030	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03   DECIMALS .XXX ±   ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Maynard DATE 20 SEP 65
CHECKED K. A. Chosen 18 OCT 65
APPROVAL 29 Oct 65
APPROVAL
APPROVAL 11.1.65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

SIZE J   CODE IDENT NO. 49956   NASA DRAWING NO. 2014024
SCALE 1/8   WT   SHEET 1 OF 4

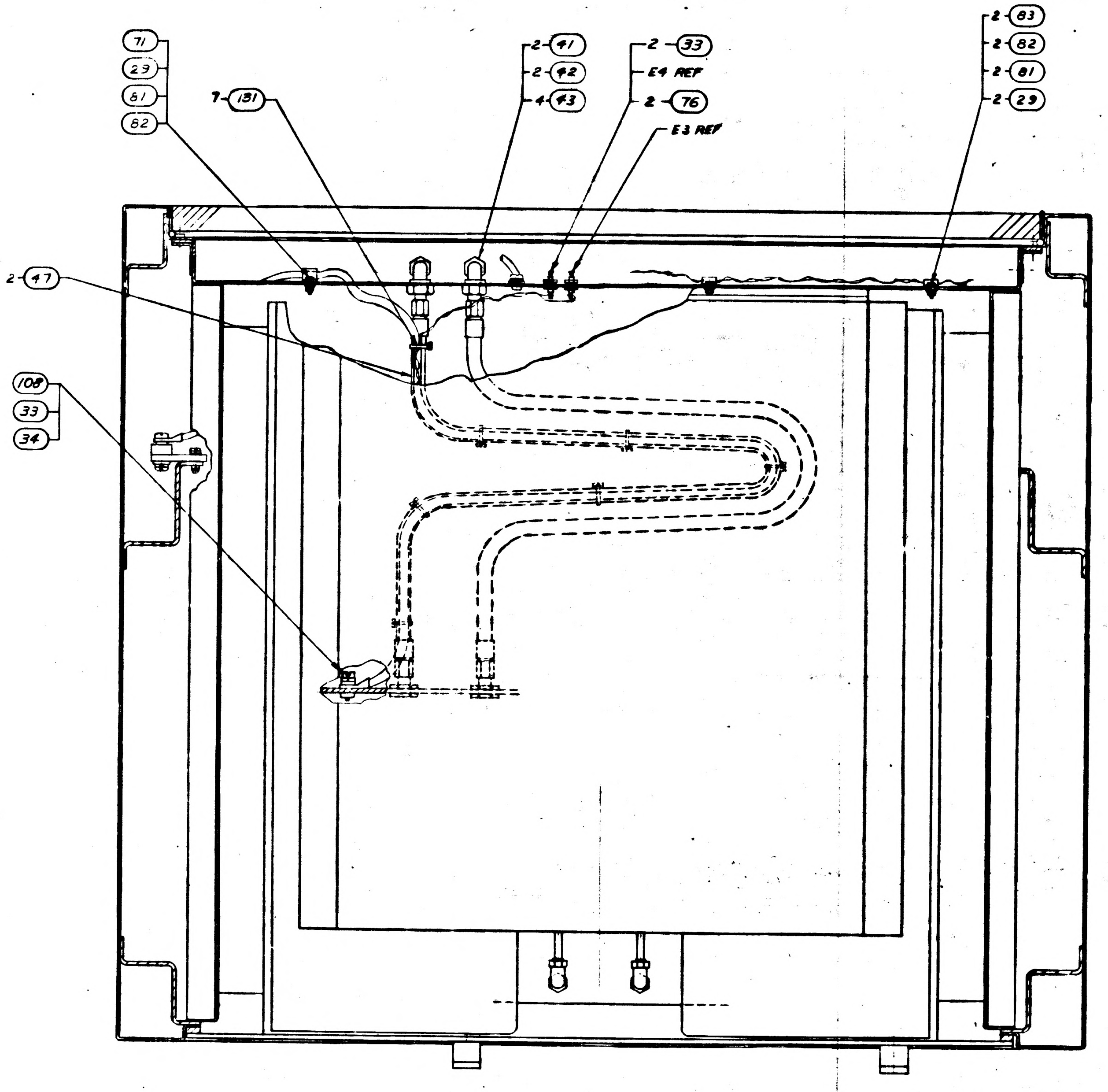
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014024 E

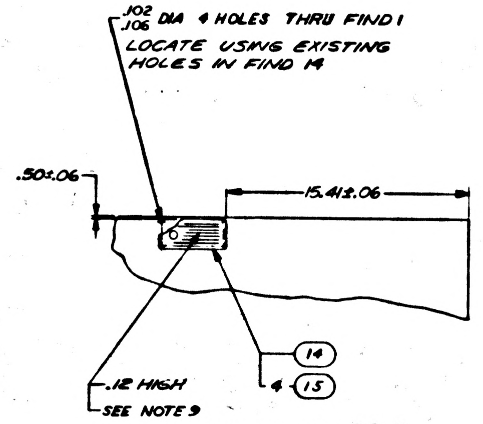
2014024 E

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R2550	1/13/66	
A	CHANGED PER CCA R25578 DR R. Uhacis CHK APPD PED		
B	CHANGED PER CCA R25662 DR CHK APPD PED		
C	CHANGED PER CCA R25664 DR CHK APPD PED		
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25475		
E	CHANGED PER TDRR 26506 DR CHK APPD		



SECTION B-B
SEE SHEET 1


J02
J06 DIA 4 HOLES THRU FIND 1
LOCATE USING EXISTING HOLES IN FIND 14
.50±.06
15.41±.06
.12 HIGH
SEE NOTE 9
14
4-15

PARTIAL VIEW G-G
SCALE 1/4
SEE SHEET 1

NOT SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014499	INTERCONNECTION DIAGRAM	REF
* 10	SEE NOTE 6	INSULATION SLEEVING	136
1	MS35335-63	WASHER, LOCK, EXT TOOTH	135
~~1~~	~~MS35649-84~~	~~NUT, PLAIN, HEX~~	~~134~~
1	MS51957-47	SCREW, MACH, PAN HD	133
1	1014150-1	CABLE ASSY, POWER	132
7	MS17821-1	STRAP, CABLE	131
1	MS21920-43	CLAMP	130
1	MS21919DG13	CLAMP, CUSHIONED	129
4	MS21919DG11	CLAMP, CUSHIONED	128
1	2014496-011	CABLE ASSY W1	127
1	2014498-011	WIRING HARNESS, BRANCHED A	126
~~1~~	~~MS35489-16~~	~~GROMMET, RUBBER~~	~~125~~
2	2014403	BLOCK, MOUNTING	124
4	MS15795-814	WASHER, PLAIN	123
2	MS35338-84	WASHER, LOCK	122
3	MS35690-610	NUT, HEX HD	121
1	2014457-041	CABLE ASSY GROUND	120
1	2014458-061	CABLE ASSY GROUND	119
2	2014458-121	CABLE ASSY GROUND	118
1	2014458-131	CABLE ASSY GROUND	117
1	1014480-9	DECAL, IDENTIFICATION	116
3	2014458-151	CABLE ASSY GROUND	115
~~4~~	~~MS51958-62~~	~~SCREW, MACH. PAN HD~~	~~114~~
1	2014457-061	CABLE ASSY GROUND	113
2	2014457-021	CABLE ASSY GROUND	112
1	2014458-161	CABLE ASSY, GROUND	111
1	2014458-081	CABLE ASSY, GROUND	110
8	MS51957-80	SCREW, MACH. PAN HD	109
12	MS51957-81	SCREW, MACH. PAN HD	108
1	1014480-7	DECAL, IDENTIFICATION	107
4	MS51958-67	SCREW, MACH. PAN HD	106
8	MS51957-82	SCREW, MACH. PAN HD	105
3	MS21919DG16	CLAMP, CUSHIONED	104
2	MS21919DG3	CLAMP, CUSHIONED	103
1	MS21919DG14	CLAMP, CUSHIONED	102
3	MS21919DG28	CLAMP, CUSHIONED	101
1	2014393	BRACKET, CONNECTOR	100
1	2014394	BRACKET, CONNECTOR	99
4	MS35337-78	WASHER, LOCK	98
4	MS15795-803	WASHER, FLAT	97
4	MS35649-44	NUT, PLAIN, HEX.	96
4	MS51957-18	SCREW, MACH. PAN HD	95
8	1006671-003	STOP NUT, CONNECTOR	94
4	1006671-004	GUIDE SOCKET, CONNECTOR	93
4	1006671-002	GUIDE PIN, CONNECTOR	92
9	MS51958-63	SCREW, MACH. PAN HD	91
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	90
12	2014412	SPACER, SLIDE BRACKET	89
1	2014435	BRACKET, ANGLE	88
2	1006429	GRILLE METAL	87
1	1014480-6	DECAL, IDENTIFICATION	86
2	2014437	BLOCK, MOUNTING	85
1	2014438	BUSBAR, W4	94
2	MS21919DG6	CLAMP, CUSHIONED	[illegible]
4	MS35649-84	NUT, PLAIN HEX HD	[illegible]
3	MS35337-80	WASHER, LOCK	[illegible]
4	MS51957-46	SCREW, MACH. PAN HD	[illegible]
1	2014402	BUSBAR, W3	79
1	2014115-041	GROUND STRAP ASSY W857	78
~~1~~	~~MS51957-79~~	~~SCREW, MACH. PAN HD~~	~~77~~
2	1015896-001	TERMINAL FEED THRU INSULATED	7[illegible]
1	1014480-5	DECAL, IDENTIFICATION	7[illegible]
1	SE09XE02	TERMINAL, STUD MIL-T-55155/9	7[illegible]
1	2014353	COVER, CAPACITOR	73

-011 LIST OF MATERIALS

RAYTHEON CO. LEXINGTON, MASS.		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
CONTRACT NO. NAS 9-497			
DRAWN	DATE 9SEP65	OPERATION CONSOLE MAIN ASSY	
CHECKED K. A. Chasen 12 OCT 65			
APPROVAL			
APPROVAL			
APPROVAL			
NASA APPROVAL		CODE IDENT NO. 49956	SIZE J
MIT APPROVAL		NASA DRAWING NO. 2014024	
MIT APPROVAL		SCALE 1/2	WT
		SHEET 2 OF 4	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY	USED ON
APPLICATION	

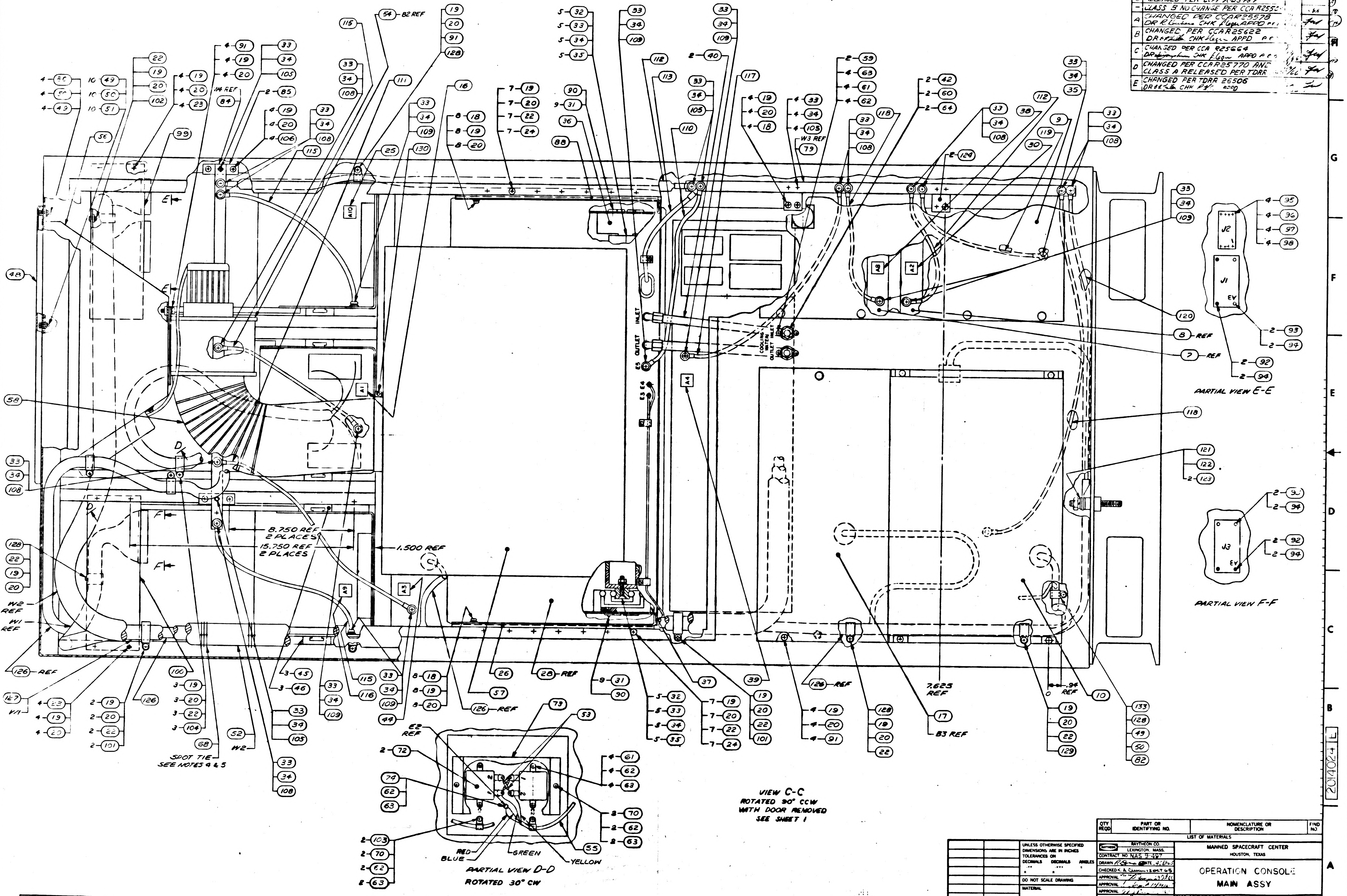
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014024 E

2014024 E

2014024 E

SYM	DESCRIPTION	DATE	APPROVED
—	RELEASED PER CCA R25489		
—	CLASS B NO CHANGE PER CCA R2555		
A	CHANGED PER CCAR25578 DR R. [illegible] CHK [illegible] APPD		
B	CHANGED PER CCAR25622 DR [illegible] CHK [illegible] APPD		
C	CHANGED PER CCA R25664 DR [illegible] CHK [illegible] APPD		
D	CHANGED PER CCAR25770 AND CLASS A RELEASED PER TDRR		
E	CHANGED PER TDRR 26506 DR [illegible] CHK [illegible] APPD		



VIEW C-C
ROTATED 90° CCW
WITH DOOR REMOVED
SEE SHEET 1
PARTIAL VIEW E-E
PARTIAL VIEW F-F
PARTIAL VIEW D-D
ROTATED 30° CW
8.750 REF
2 PLACES
15.750 REF
2 PLACES
1.500 REF
7.625 REF
.94 REF
SPOT TIE
SEE NOTES 4 & 5
W1 REF
W2 REF
W2
W3 REF
V1
54 B2 REF
B3 REF
114 REF
126 REF
28 REF
8 REF
7 REF
E2 REF
RED
BLUE
GREEN
YELLOW
INLET
OUTLET
COOLING WATER INLET
OUTLET
E3
E4
E5
A1
A2
A3
A4
A8
A9
A10
J1
J2
J3
E
F
D

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY	USED ON
APPLICATION	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 4 SEP 65
CHECKED K. A. [illegible] 12 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014024

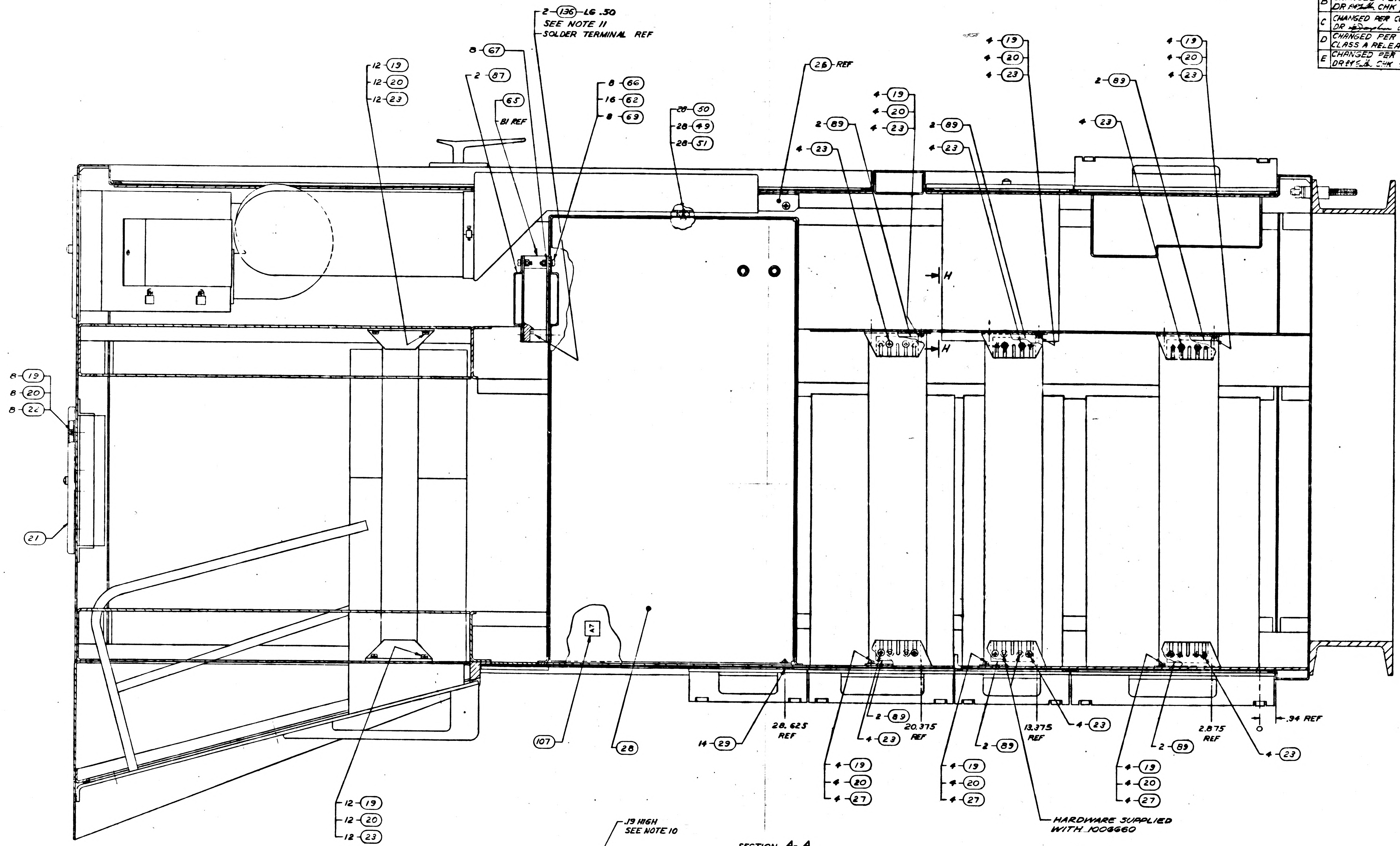
SCALE 1/2 WT SHEET 3 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

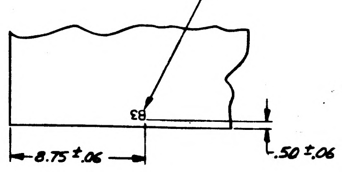
2014024 E

2014024 E

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25489		
—	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25578 DR E. Wilson CHK APPD PED	1/4/66	
B	CHANGED PER CCA R25622 DR CHK APPD PED	1/11/66	
C	CHANGED PER CCA R25_64 DR CHK APPD PED	4/17/66	
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25475	1/19/66	
E	CHANGED PER TDRR 26506 DR CHK APPD	2/20/66	


2-(136)-LG .50
SEE NOTE 11
SOLDER TERMINAL REF
8-(67)
2-(87)
(65)
BI REF
8-(66)
16-(62)
8-(69)
28-(50)
28-(49)
28-(51)
(26)-REF
12-(19)
12-(20)
12-(23)
4-(19)
4-(20)
4-(23)
2-(89)
4-(23)
H
H
8-(19)
8-(20)
8-(22)
(21)
A7
(107)
(28)
14-(29)
28.625 REF
20.375 REF
13.375 REF
2.875 REF
.94 REF
2-(89)
4-(23)
4-(19)
4-(20)
4-(27)
HARDWARE SUPPLIED WITH 1006660
12-(19)
12-(20)
12-(23)

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1


.19 HIGH
SEE NOTE 10
83
8.75 ±.06
.50 ±.06

PARTIAL VIEW H-H
SCALE 1/4

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28-9-65
CHECKED K. A. 12 OCT 65
APPROVAL 29 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

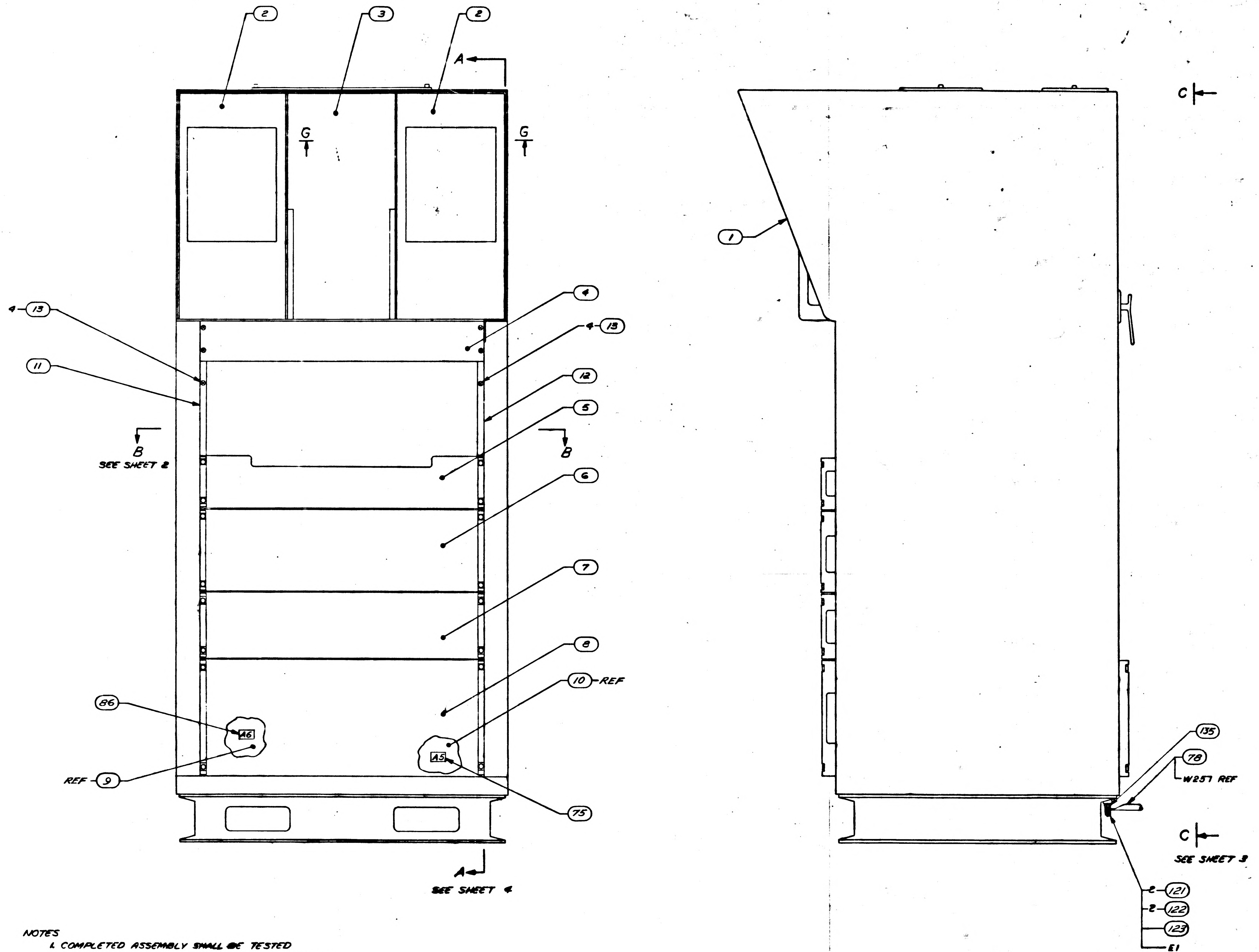
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014024
SCALE 1/2
WT
SHEET 4 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014024 E

2014024 E

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R2550-	1/3/66	
A	CHANGED PER CCA R25578 DR R. Dudson CHK Hogan APPD PED 1-4-66	1/3/66	
B	CHANGED PER CCA R25622 DR CHK Hogan APPD PED	1/11/66	
C	CHANGED PER CCA R25664 DR CHK Hogan APPD PED	1/13/66	
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 2547-	1/3/66	
E	CHANGED PER TDRR 26506 DR CHK R.A.E. APPD	3/2/66	
F	CHANGED PER TDRR 26507 DR E. Uftring CHK G. APPD	3/4/66	



SEE SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	CP53B1EF205K1	CAPACITOR	72
1	MS21919DG10	CLAMP, CUSHIONED	71
4	MS51957-30	SCREW, MACH. PAN HD	70
8	MS21044C06	NUT, SELF-LOCKING	69
AR	1006458-004	TAPE, LACING	68
8	1006982-5	WASHER, NYLON	67
8	MS51957-32	SCREW, MACH. PAN HD	66
1	1006476	FAN	65
2	AN929-4	CAP ASSY	64
13	MS35338-79	WASHER, LOCK	63
29	MS15795-806	WASHER, FLAT	62
8	MS51957-28	SCREW, MACH. PAN HD	61
2	AN832-4D	UNION BULKHEAD	60
2	2014320	ADAPTER	59
1	1006410	HOSE, DUCT	58
1	2014256	DUCT, AIR	57
1	2014240	EXHAUST CHAMBER	56
* 1.4	SEE NOTE 6	SLEEVING	55
1	1006477	BLOWER	54
* .50	MIL-W-16878/4 E20	WIRE, ELECTRICAL WHT	53
1	2014497-011	CABLE ASSY W2	52
38	MS51957-45	SCREW, MACH. PAN HD	51
43	MS35338-80	WASHER, LOCK	50
43	MS15795-807	WASHER, FLAT	49
1	1006883-3	FILTER, AIR	48
2	AN6270-4-41	HOSE ASSY	47
3	1006665-4	SLIDE, CHASSIS, Q DISC.	46
3	1006665-3	SLIDE, CHASSIS, Q DISC.	45
1	1014480-3	DECAL, IDENTIFICATION	44
4	1006982-10	WASHER, FLAT NYLON	43
4	AN924-4D	NUT-FLARED TUBE	42
2	AN833-4D	ELBOW-FLARED TUBE	41
2	AN6270-4-13	HOSE ASSY	40
1	1014480-4	DECAL, IDENTIFICATION	39
1	1014480-8	DECAL, IDENTIFICATION	38
1	1006854-2	SLIDE, CHASSIS, LOCK OPEN	37
1	1006854-1	SLIDE, CHASSIS, LOCK OPEN	36
11	MS35690-410	NUT, PLAIN, HEX.	35
39	MS15795-810	WASHER, FLAT	34
41	MS35338-82	WASHER, LOCK	33
10	MS51959-85	SCREW, MACH. FLAT CSK HD	32
18	MS51959-80	SCREW MACH. FLAT CSK HD	31
1	1014480-2	DECAL, IDENTIFICATION	30
17	MS51959-45	SCREW, MACH. FLAT CSK HD	29
1	2014354	CHASSIS ASSY, CMPTR COMPT	28
12	MS51958-60	SCREW, MACH. PAN HD	27
1	2014436	BRACKET, ANGLE, LH	26
1	1014480-10	DECAL, IDENTIFICATION	25
14	MS35650-104	NUT, PLAIN, HEX.	24
68	MS51958-61	SCREW, MACH. PAN HD	23
32	MS51958-64	SCREW, MACH. PAN HD	22
1	1006918-001	FILTER, AIR RFI SHIELDED	21
121	MS15795-808	WASHER, FLAT	20
121	MS35338-81	WASHER, LOCK	19
20	MS51958-62	SCREW, MACH. PAN HD	18
1	1006856	FAN, VENTILATING	17
1	1014480-1	DECAL, IDENTIFICATION	16
4	AN535-4-3	SCREW, DRIVE	15
1	1004260-204	PLATE, IDENTIFICATION	14
8	MS51960-64	SCREW, MACH. FLAT CSK HD	13
1	2014328	SPACER, RH	12
1	2014329	SPACER, LH	11
1	2014302-011	AC INPUT PANEL ASSY	10
1	2014272-011	FRONT PANEL ASSY	9
1	2014207-011	POWER SUPPLY ASSY	8
1	2014279-011	POWER SUPPLY ASSY	7
1	2014341-011	AGC JUNCTION ASSY	6
1	2014257-011	TEST MOUNT ASSY	5
1	2014313-011	TEMPERATURE MONITOR ASSY	4
1	2014079-011	POWER CONTROL ASSY	3
2	2014006-011	MOUNTING FIXTURE ASSY	2
1	2014371	CABINET REWORK	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NOTES
1. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014024
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. SOLDER PER ND1002071
4. FABRICATE PER ND1002032 EXCEPT USE FIND 68
5. SPOT TIE FIND 52 (W2) TO FIND 126 & FIND 127 (W1) 3.00±.50 INCREMENTS
6. MIL-I-631, TYPE F, FORM U, GRADE A, CLASS 1, CATEGORY 1 COLOR BLACK AWG NO.4 FOR FIND 55, AWG NO.8 FOR FIND 136
7. AR DENOTES AS REQUIRED
8. STRIP .50 & TIN PER ND1002071
9. SERIALIZE PER ND1002023
10. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006271-10
11. SLIDE FIND 136 OVER SOLDERED CONNECTIONS ON FIND 65

1900030	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN P. DATE 20 SEP 65
CHECKED K. A. 12 OCT 65
APPROVAL 29 Oct 65
APPROVAL
APPROVAL 11-1-65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C 1/21/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

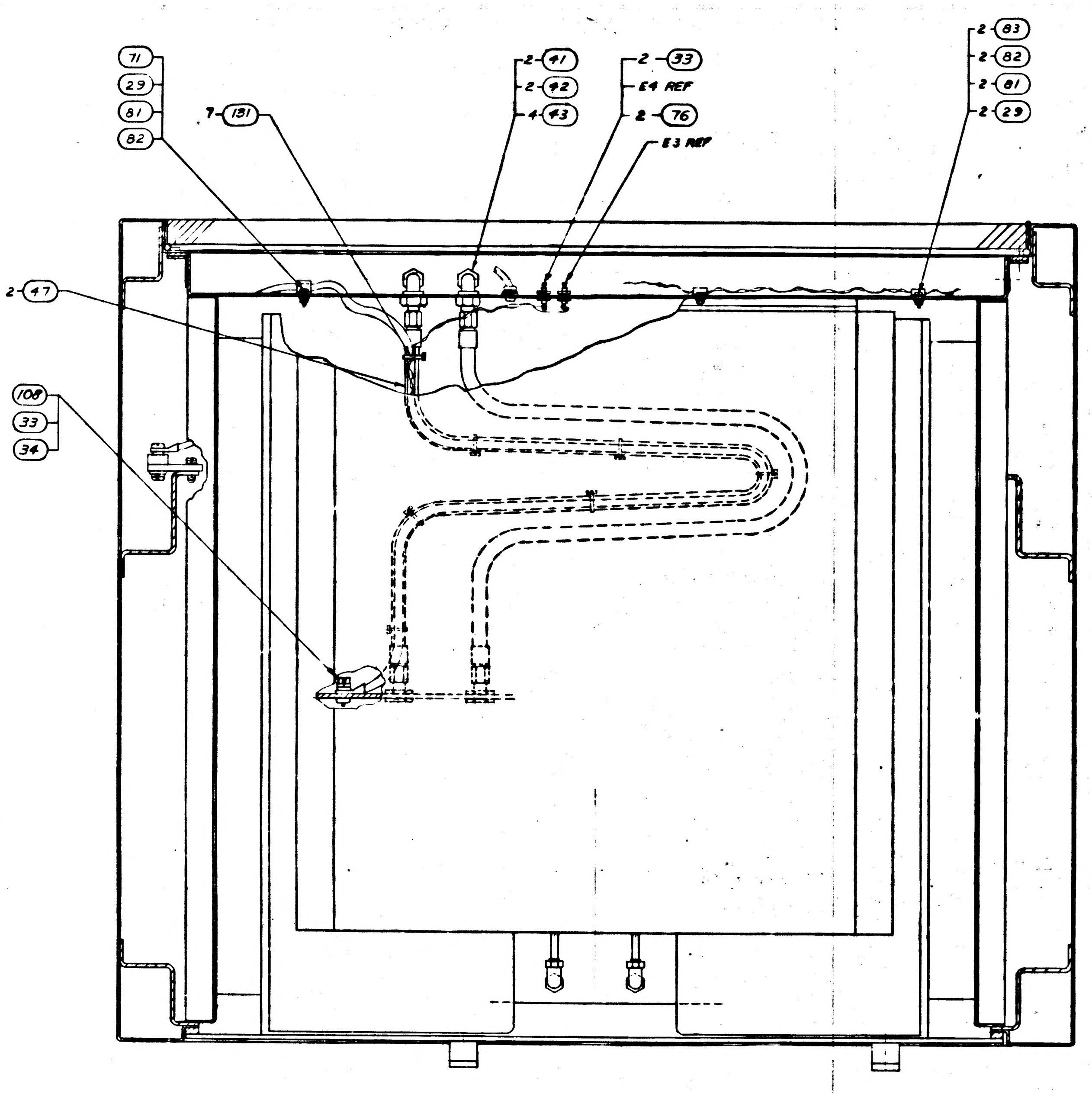
OPERATION CONSOLE
MAIN ASSY

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014024
SCALE 1/8 | WT | SHEET 1 OF 4

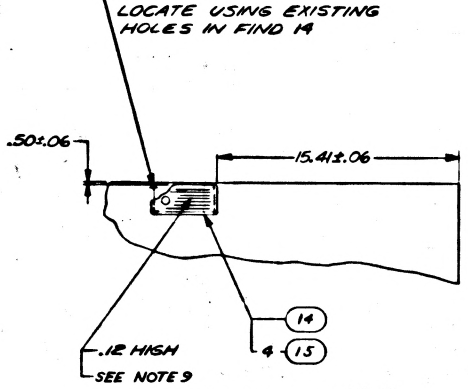
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R 25489		
–	CLASS B NO CHANGE PER CCA R25509	2/11/66	
A	CHANGED PER CCA R25578 DR R. Chubaris CHK APPD PED	3/4/66	
B	CHANGED PER CCA R25662 DR CHK APPD PED	3/10/66	
C	CHANGED PER CCA R25664 DR CHK APPD PED	3/17/66	
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25475	4/9/66	
E	CHANGED PER TDRR 26506 DR CHK APPD	7/28/66	
F	CHANGED PER TDRR 26507 DR E. Uffering CHK G. APPD	8/19/66	



SECTION B-B
SEE SHEET 1



.102/.106 DIA 4 HOLES THRU FIND 1
LOCATE USING EXISTING HOLES IN FIND 14
.50±.06
15.41±.06
.12 HIGH
SEE NOTE 9
14
4-15

PARTIAL VIEW G-G
SCALE 1/4
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014499	INTERCONNECTION DIAGRAM	REF
* J0	SEE NOTE 6	INSULATION SLEEVING	136
1	MS35335-63	WASHER, LOCK, EXT TOOTH	135
~~1~~	~~MS35649-84~~	~~NUT, PLAIN, HEX~~	~~134~~
1	MS51957-47	SCREW, MACH, PAN HD	133
1	1014150-1	CABLE ASSY, POWER	132
7	MS17821-1	STRAP, CABLE	131
1	MS21920-43	CLAMP	130
1	MS21919DG13	CLAMP, CUSHIONED	129
4	MS21919DG11	CLAMP, CUSHIONED	128
1	2014496-011	CABLE ASSY W1	127
1	2014498-011	WIRING HARNESS, BRANCHED A	126
~~1~~	~~MS35489-16~~	~~GROMMET, RUBBER~~	~~125~~
2	2014403	BLOCK, MOUNTING	124
4	MS15795-814	WASHER, PLAIN	123
2	MS35338-84	WASHER, LOCK	122
3	MS35690-610	NUT, HEX HD	121
1	2014457-041	CABLE ASSY GROUND	120
1	2014458-061	CABLE ASSY GROUND	119
2	2014458-121	CABLE ASSY GROUND	118
1	2014458-131	CABLE ASSY GROUND	117
1	1014480-9	DECAL, IDENTIFICATION	116
3	2014458-151	CABLE ASSY GROUND	115
~~8~~	~~MS51958-62~~	~~SCREW, MACH. PAN HD~~	~~114~~
1	2014457-061	CABLE ASSY GROUND	113
2	2014457-021	CABLE ASSY GROUND	112
1	2014458-161	CABLE ASSY, GROUND	111
1	2014458-081	CABLE ASSY, GROUND	110
8	MS51957-80	SCREW, MACH. PAN HD	109
12	MS51957-81	SCREW, MACH. PAN HD	108
1	1014480-7	DECAL, IDENTIFICATION	107
4	MS51958-67	SCREW, MACH. PAN HD	106
8	MS51957-82	SCREW, MACH. PAN HD	105
3	MS21919DG16	CLAMP, CUSHIONED	104
2	MS21919DG3	CLAMP, CUSHIONED	103
1	MS21919DG14	CLAMP, CUSHIONED	102
3	MS21919DG28	CLAMP, CUSHIONED	101
1	2014393	BRACKET, CONNECTOR	100
1	2014394	BRACKET, CONNECTOR	99
4	MS35337-78	WASHER, LOCK	98
4	MS15795-803	WASHER, FLAT	97
4	MS35649-44	NUT, PLAIN, HEX.	96
4	MS51957-18	SCREW, MACH. PAN HD	95
8	1006671-003	STOP NUT, CONNECTOR	94
4	1006671-004	GUIDE SOCKET, CONNECTOR	93
4	1006671-002	GUIDE PIN, CONNECTOR	92
9	MS51958-63	SCREW, MACH. PAN HD	91
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	90
12	2014412	SPACER, SLIDE BRACKET	89
1	2014435	BRACKET, ANGLE	88
2	1006429	GRILLE METAL	87
1	1014480-6	DECAL, IDENTIFICATION	86
2	2014437	BLOCK, MOUNTING	85
1	2014438	BUSBAR, W4	84
2	MS21919DG6	CLAMP, CUSHIONED	83
4	MS35649-84	NUT, PLAIN HEX HD	82
3	MS35337-80	WASHER, LOCK	81
4	MS51957-46	SCREW, MACH. PAN HD	80
1	2014402	BUSBAR, W3	79
1	2014115-041	GROUND STRAP ASSY W257	78
~~1~~	~~MS51957-79~~	~~SCREW, MACH. PAN HD~~	~~77~~
2	1015896-001	TERMINAL FEED THRU INSULATED	76
1	1014480-5	DECAL, IDENTIFICATION	75
1	SE09XE02	TERMINAL, STUD MIL-T-55155/9	74
1	2014353	COVER, CAPACITOR	73
-011	LIST OF MATERIALS		

NOT SHOWN

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 29SEP65
CHECKED K. A. Chaccon 12 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

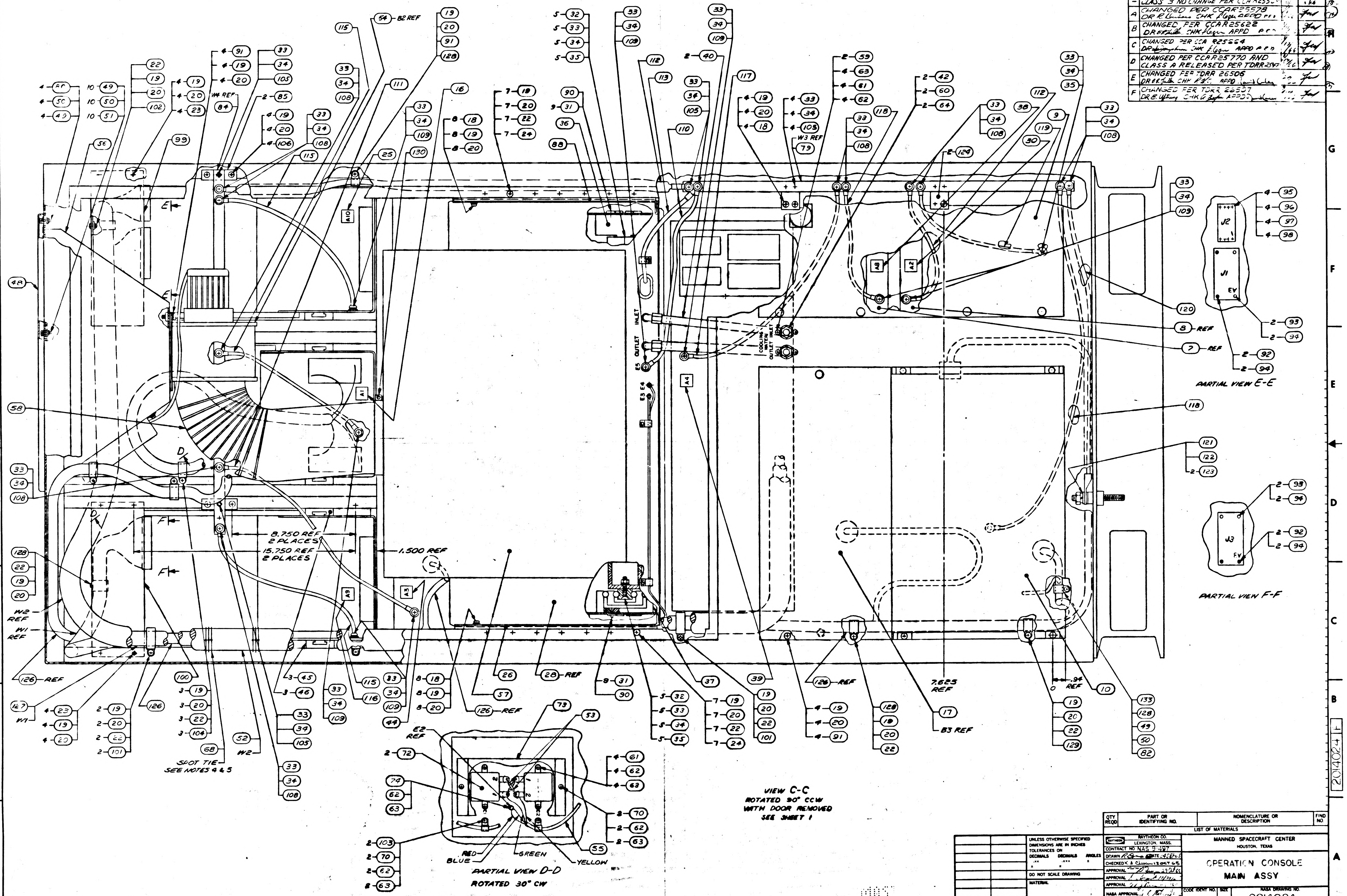
OPERATION CONSOLE
MAIN ASSY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014024
SCALE 1/2
WT
SHEET 2 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014024 F

SYM	DESCRIPTION	DATE	APPROVED
–	RELEASED PER CCA R25489		
–	CLASS 3 NO CHANGE PER CCA R2555[illegible]	[illegible]	[illegible]
A	CHANGED PER CCAR25578 DR R. [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCAR25622 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
C	CHANGED PER CCA R25664 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
D	CHANGED PER CCAR25770 AND CLASS A RELEASED PER TDRR 2547[illegible]	[illegible]/66	[illegible]
E	CHANGED PER TDRR 26506 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
F	CHANGED PER TDRR 26507 DR E. [illegible] CHK G. [illegible] APPD [illegible]	[illegible]	[illegible]


PARTIAL VIEW E-E
PARTIAL VIEW F-F
PARTIAL VIEW D-D
ROTATED 30° CW
VIEW C-C
ROTATED 30° CCW
WITH DOOR REMOVED
SEE SHEET 1
SPOT TIE
SEE NOTES 4 & 5
8.750 REF
2 PLACES
15.750 REF
2 PLACES
1.500 REF
7.625 REF
.94 REF
INLET
OUTLET
COOLING WATER INLET
COOLING WATER OUTLET
E1
E2
E3
E4
E5
A1
A2
A3
A4
A8
A9
A10
J1
J2
J3
W1
W2
W1 REF
W2 REF
W3 REF
W4 REF
B2 REF
B3 REF
E2 REF
RED
BLUE
GREEN
YELLOW
54-B2 REF
126-REF
28-REF
8-REF
7-REF
17
57
26
37
39
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120
118
121
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2-123
133
128
49
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82
129
(E)
(E)
(F)
(F)
(D)
(D)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON

DECIMALS .XX	DECIMALS .XXX	ANGLES
±	±	±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY	USED ON
APPLICATION	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN R. [illegible] DATE 24 SEP 65
CHECKED K. A. [illegible] 12 OCT 65
APPROVAL [illegible] 29 Oct 65
APPROVAL [illegible] 10/29/[illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014024
SCALE 1/2
WT
SHEET 3 OF 4

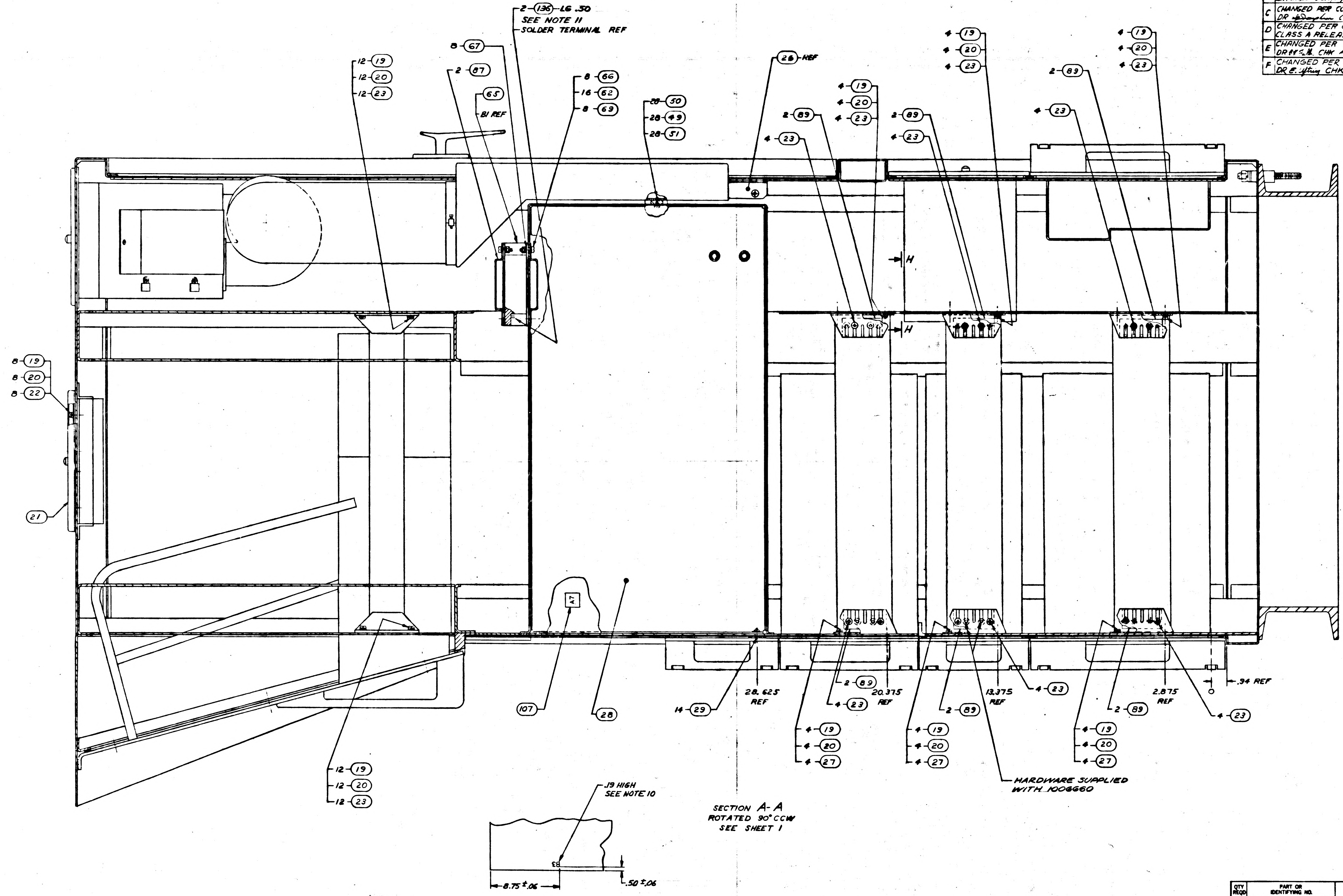
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014024 F

2014024 F

2014024 F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25489		
—	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25578 DR CHK APPD PED	1/6/66	
B	CHANGED PER CCA R25622 DR CHK APPD PED	1/11/66	
C	CHANGED PER CCA R25-54 DR CHK APPD PED	4/13/66	
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25475	1/20/66	
E	CHANGED PER TDRR 25506 DR CHK APPD		
F	CHANGED PER TDRR 25507 DR E. CHK G. APPD	/66	


2-(136)-LG .50
SEE NOTE 11
SOLDER TERMINAL REF
8-(67)
2-(87)
(65)
B1 REF
8-(66)
16-(62)
8-(69)
28-(50)
28-(49)
28-(51)
(28)-REF
12-(19)
12-(20)
12-(23)
4-(19)
4-(20)
4-(23)
2-(89)
4-(23)
H
H
8-(19)
8-(20)
8-(22)
(21)
(107)
(28)
14-(29)
28.625 REF
2-(89)
4-(23)
20.375 REF
13.375 REF
4-(23)
2.875 REF
.94 REF
4-(19)
4-(20)
4-(27)
HARDWARE SUPPLIED WITH 1006660
12-(19)
12-(20)
12-(23)
.19 HIGH
SEE NOTE 10
8.75 ±.06
.50 ±.06

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

PARTIAL VIEW H-H
SCALE 1/4

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED K.A. 12 OCT 65
APPROVAL 29 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014024
SCALE 1/2
WT
SHEET 4 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

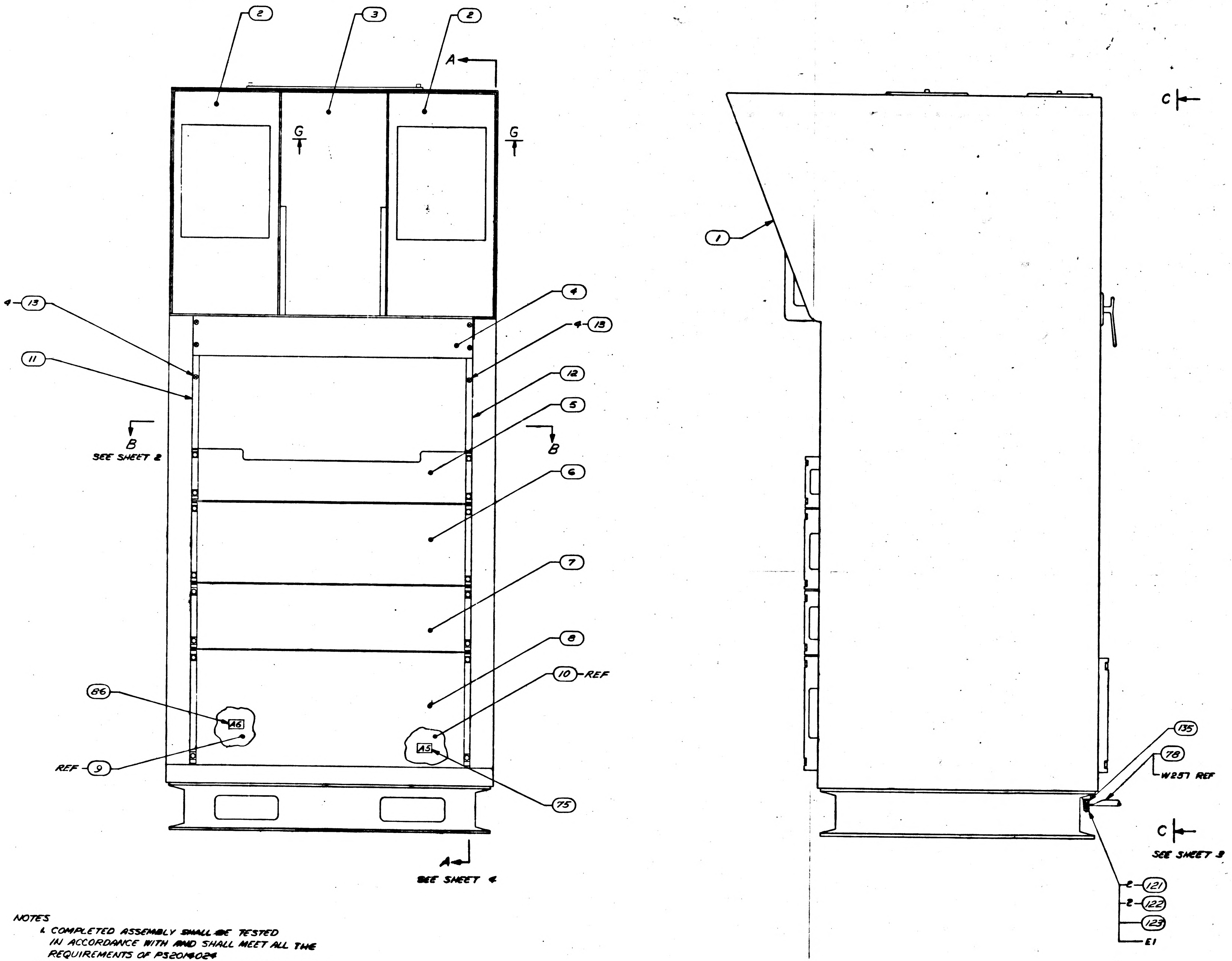
MASTER

2014024 F

2014024 F

2014024 G

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25489		
—	CLASS B NO CHANGE PER CCA R2550	4/7/66	
A	CHANGED PER CCA R25678 DR R. Dunham CHK APPD	1/2/66	
B	CHANGED PER CCA R25622 DR CHK APPD PED	1/1/66	
C	CHANGED PER CCA R25664 DR CHK APPD PED	1/17/66	
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25475	1/19/66	
E	CHANGED PER TDRR 26506 DR CHK R.A.E. APPD	2/24/66	
F	CHANGED PER TDRR 26507 DR E. Young CHK APPD	3/7/66	
G	CHANGED PER TDRR 26503 DR CHK APPD PED	3/22/66	



NOTES
1. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014024
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. SOLDER PER ND1002071
4. FABRICATE PER ND1002032 EXCEPT USE FIND 68
5. SPOT TIE FIND 52 (W2) TO FIND 126 & FIND 127(W1) 3.00±.50 INCREMENTS
6. MIL-I-631, TYPE F, FORM U, GRADE A, CLASS 1, CATEGORY 1 COLOR BLACK AWG NO.4 FOR FIND 55, AWG NO.8 FOR FIND 136
7. AR DENOTES AS REQUIRED
8. STRIP .50 & TIN PER ND 1002071
9. SERIALIZE PER ND1002023
10. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006271-10
11. SLIDE FIND 136 OVER SOLDERED CONNECTIONS ON FIND 65

SEE SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	CP53B1EF205K1	CAPACITOR	72
1	MS21919DG10	CLAMP, CUSHIONED	71
4	MS51957-30	SCREW, MACH. PAN HD	70
8	MS21044C06	NUT, SELF-LOCKING	69
AR	1006458-004	TAPE, LACING	68
8	1006982-5	WASHER, NYLON	67
8	MS51957-32	SCREW, MACH. PAN HD	66
1	1006476	FAN	65
2	AN929-4	CAP ASSY	64
13	MS35338-79	WASHER, LOCK	63
29	MS15795-806	WASHER, FLAT	62
8	MS51957-28	SCREW, MACH. PAN HD	61
2	AN832-4D	UNION BULKHEAD	60
2	2014320	ADAPTER	59
1	1006410	HOSE, DUCT	58
1	2014256	DUCT, AIR	57
1	2014240	EXHAUST CHAMBER	56
* 1.4	SEE NOTE 6	SLEEVING	55
1	1006477	BLOWER	54
* 50	MIL-W-16878/4 E20	WIRE, ELECTRICAL WHT	53
1	2014497-011	CABLE ASSY W2	52
41	MS51957-45	SCREW, MACH. PAN HD	51
43	MS35338-80	WASHER, LOCK	50
46	MS15795-807	WASHER, FLAT	49
1	1006882-3	FILTER, AIR	48
2	AN6270-4-41	HOSE ASSY	47
3	1006665-4	SLIDE, CHASSIS, Q DISC.	46
3	1006665-3	SLIDE, CHASSIS, Q DISC.	45
1	1014480-3	DECAL, IDENTIFICATION	44
4	1006982-10	WASHER, FLAT NYLON	43
4	AN924-4D	NUT-FLARED TUBE	42
2	AN833-4D	ELBOW-FLARED TUBE	41
2	AN6270-4-13	HOSE ASSY	40
1	1014480-4	DECAL, IDENTIFICATION	39
1	1014480-8	DECAL, IDENTIFICATION	38
1	1006854-2	SLIDE, CHASSIS, LOCK OPEN	37
1	1006854-1	SLIDE, CHASSIS, LOCK OPEN	36
11	MS35690-410	NUT, PLAIN, HEX.	35
39	MS15795-810	WASHER, FLAT	34
41	MS35338-82	WASHER, LOCK	33
10	MS51959-85	SCREW, MACH. FLAT CSK HD	32
18	MS51959-80	SCREW MACH. FLAT CSK HD	31
1	1014480-2	DECAL, IDENTIFICATION	30
14	MS51959-45	SCREW, MACH. FLAT CSK HD	29
1	2014354	CHASSIS ASSY, CMPTR COMPT	28
12	MS51958-60	SCREW, MACH. PAN HD	27
1	2014436	BRACKET, ANGLE, LH	26
1	1014480-10	DECAL, IDENTIFICATION	25
14	MS35650-104	NUT, PLAIN, HEX.	24
68	MS51958-61	SCREW, MACH. PAN HD	23
32	MS51958-64	SCREW, MACH. PAN HD	22
1	1006918-001	FILTER, AIR RFI SHIELDED	21
121	MS15795-808	WASHER, FLAT	20
121	MS35338-81	WASHER, LOCK	19
20	MS51958-62	SCREW, MACH. PAN HD	18
1	1006856	FAN, VENTILATING	17
1	1014480-1	DECAL, IDENTIFICATION	16
4	AN535-4-3	SCREW, DRIVE	15
1	1004260-204	PLATE, IDENTIFICATION	14
8	MS51960-64	SCREW, MACH. FLAT CSK HD	13
1	2014328	SPACER, RH	12
1	2014329	SPACER, LH	11
1	2014302-011	AC INPUT PANEL ASSY	10
1	2014272-011	FRONT PANEL ASSY	9
1	2014207-011	POWER SUPPLY ASSY	8
1	2014279-011	POWER SUPPLY ASSY	7
1	2014341-011	AGC JUNCTION ASSY	6
1	2014257-011	TEST MOUNT ASSY	5
1	2014313-011	TEMPERATURE MONITOR ASSY	4
1	2014079-011	POWER CONTROL ASSY	3
2	2014006-011	MOUNTING FIXTURE ASSY	2
1	2014371	CABINET REWORK	1
-011	LIST OF MATERIALS		

2014024 G

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
1900030	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. DATE 20 SEP 65
CHECKED K. A. 18 OCT 65
APPROVAL 29 Oct 65
APPROVAL
APPROVAL 11-1-65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014024
SCALE 1/8
WT
SHEET 1 OF 4

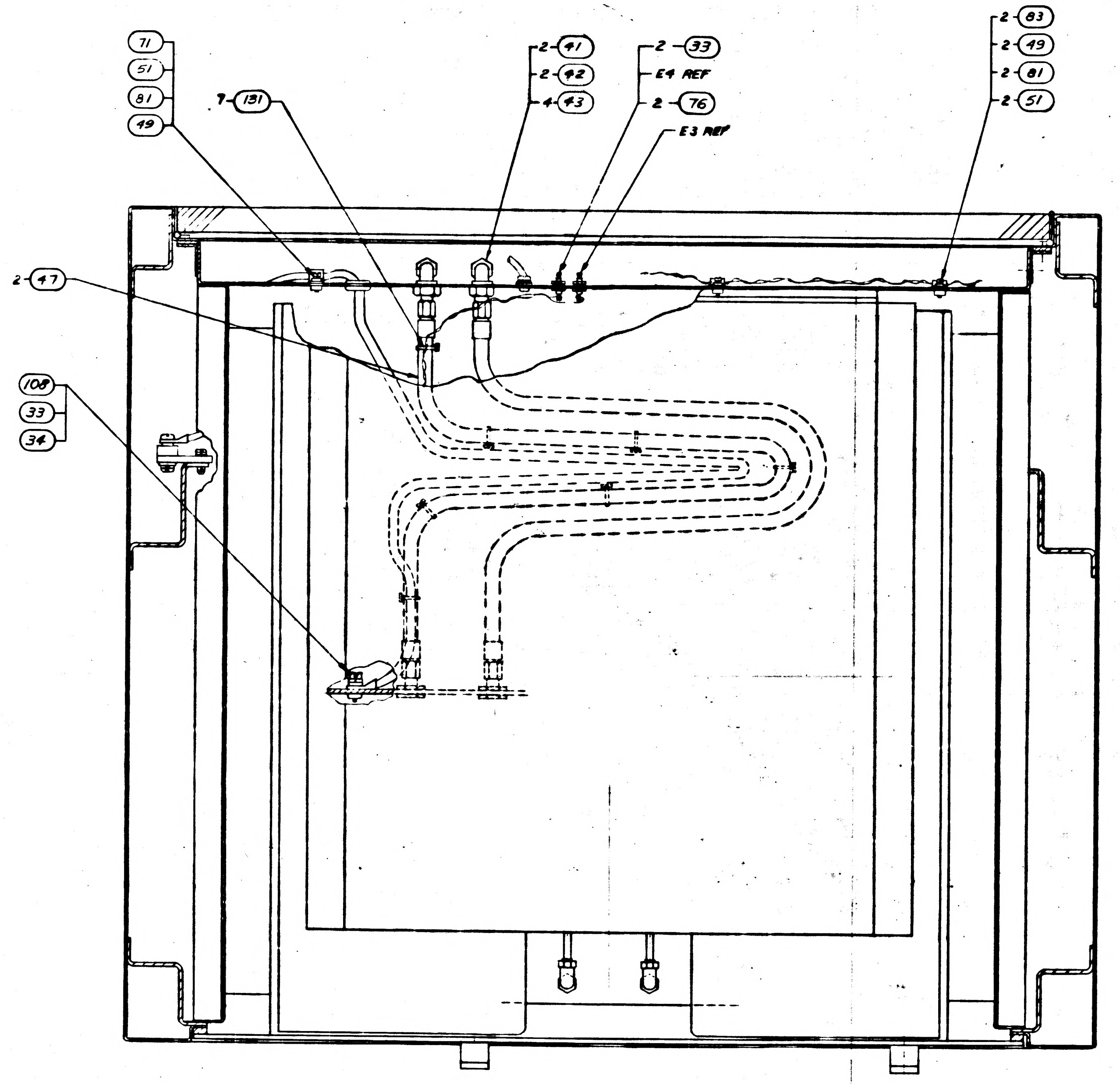
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

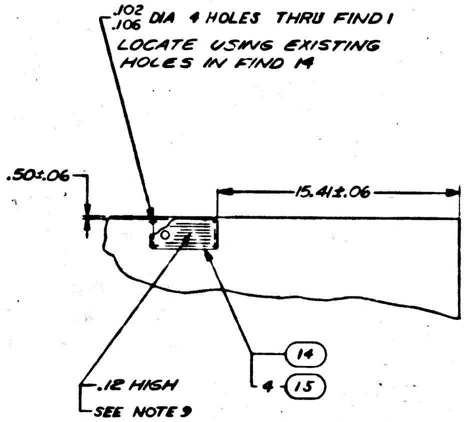
2014024 G

2014024 G

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25479		
–	CLASS B NO CHANGE PER CCA R25509	12/23/65	
A	CHANGED PER CCA R25578 DR R. Umbarger CHK APPD PCD	1/4/66	
B	CHANGED PER CCA R25662 DR CHK APPD PCD	1/14/66	
C	CHANGED PER CCA R25664 DR CHK APPD PCD	1/17/66	
D	CHANGED PER CCAR25770 AND CLASS A RELEASED PER TDRR 25475	1/9/66	
E	CHANGED PER TDRR 26506 DR CHK APPD	2/28/66	
F	CHANGED PER TDRR 26507 DR E. CHK APPD	3/11/66	
G	CHANGED PER TDRR 26508 DR. CHK APPD PED	3/3/66	



SECTION B-B
SEE SHEET 1


.102
.106 DIA 4 HOLES THRU FIND 1
LOCATE USING EXISTING HOLES IN FIND 14
.50±.06
15.41±.06
.12 HIGH
SEE NOTE 9
14
4-15

PARTIAL VIEW G-G
SCALE 1/4
SEE SHEET 1

	☒	2014499	INTERCONNECTION DIAGRAM	REF
*	10	SEE NOTE 6	INSULATION SLEEVING	136
	1	MS35335-63	WASHER, LOCK, EXT TOOTH	135
	~~1~~	~~MS35649-84~~	~~NUT, PLAIN, HEX~~	~~134~~
	1	MS51957-47	SCREW, MACH, PAN HD	133
NOT SHOWN	1	1014150-1	CABLE ASSY, POWER	132
	7	MS17821-1	STRAP, CABLE	131
	1	MS21920-43	CLAMP	130
	1	MS21919DG13	CLAMP, CUSHIONED	129
	4	MS21919DG11	CLAMP, CUSHIONED	128
	1	2014496-011	CABLE ASSY W1	127
	1	2014498-011	WIRING HARNESS, BRANCHED A	126
	~~1~~	~~MS35489-16~~	~~GROMMET, RUBBER~~	~~125~~
	2	2014403	BLOCK, MOUNTING	124
	4	MS15795-814	WASHER, PLAIN	123
	2	MS35338-84	WASHER, LOCK	122
	3	MS35690-610	NUT, HEX HD	121
	1	2014457-081	CABLE ASSY GROUND	120
	1	2014458-061	CABLE ASSY GROUND	119
	2	2014458-121	CABLE ASSY GROUND	118
	1	2014458-131	CABLE ASSY GROUND	117
	1	1014480-9	DECAL, IDENTIFICATION	116
	3	2014458-151	CABLE ASSY GROUND	115
	~~4~~	~~MS51958-68~~	~~SCREW, MACH. PAN HD~~	~~114~~
	1	2014457-061	CABLE ASSY GROUND	113
	2	2014457-021	CABLE ASSY GROUND	112
	1	2014458-161	CABLE ASSY, GROUND	111
	1	2014458-081	CABLE ASSY, GROUND	110
	8	MS51957-80	SCREW, MACH. PAN HD	109
	12	MS51957-81	SCREW, MACH. PAN HD	108
	1	1014480-7	DECAL, IDENTIFICATION	107
	4	MS51958-67	SCREW, MACH. PAN HD	106
	8	MS51957-82	SCREW, MACH. PAN HD	105
	3	MS21919DG16	CLAMP, CUSHIONED	104
	2	MS21919DG3	CLAMP, CUSHIONED	103
	1	MS21919DG14	CLAMP, CUSHIONED	102
	3	MS21919DG28	CLAMP, CUSHIONED	101
	1	2014393	BRACKET, CONNECTOR	100
	1	2014394	BRACKET, CONNECTOR	99
	4	MS35337-78	WASHER, LOCK	98
	4	MS15795-803	WASHER, FLAT	97
	4	MS35649-44	NUT, PLAIN, HEX.	96
	4	MS51957-18	SCREW, MACH. PAN HD	95
	8	1006671-003	STOP NUT, CONNECTOR	94
	4	1006671-004	GUIDE SOCKET, CONNECTOR	93
	4	1006671-002	GUIDE PIN, CONNECTOR	92
	9	MS51958-63	SCREW, MACH. PAN HD	91
	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	90
	12	2014412	SPACER, SLIDE BRACKET	89
	1	2014435	BRACKET, ANGLE	88
	2	1006429	GRILLE METAL	87
	1	1014480-6	DECAL, IDENTIFICATION	86
	2	2014437	BLOCK, MOUNTING	85
	1	2014438	BUSBAR, W4	84
	2	MS21919DG6	CLAMP, CUSHIONED	83
	1	MS35649-84	NUT, PLAIN HEX HD	82
	3	MS35337-80	WASHER, LOCK	81
	4	MS51957-46	SCREW, MACH. PAN HD	80
	1	2014402	BUSBAR, W3	79
	1	2014115-041	GROUND STRAP ASSY W257	78
	~~1~~	~~MS51957-79~~	~~SCREW, MACH. PAN HD~~	~~77~~
	2	1015896-001	TERMINAL FEED THRU INSULATED	76
	1	1014480-5	DECAL, IDENTIFICATION	75
	1	SE09XE02	TERMINAL, STUD MIL-T-55155/9	74
	1	2014353	COVER, CAPACITOR	73
	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 29SEP65
CHECKED K. A. Chacon 12 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014024
SCALE 1/2
WT
SHEET 2 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

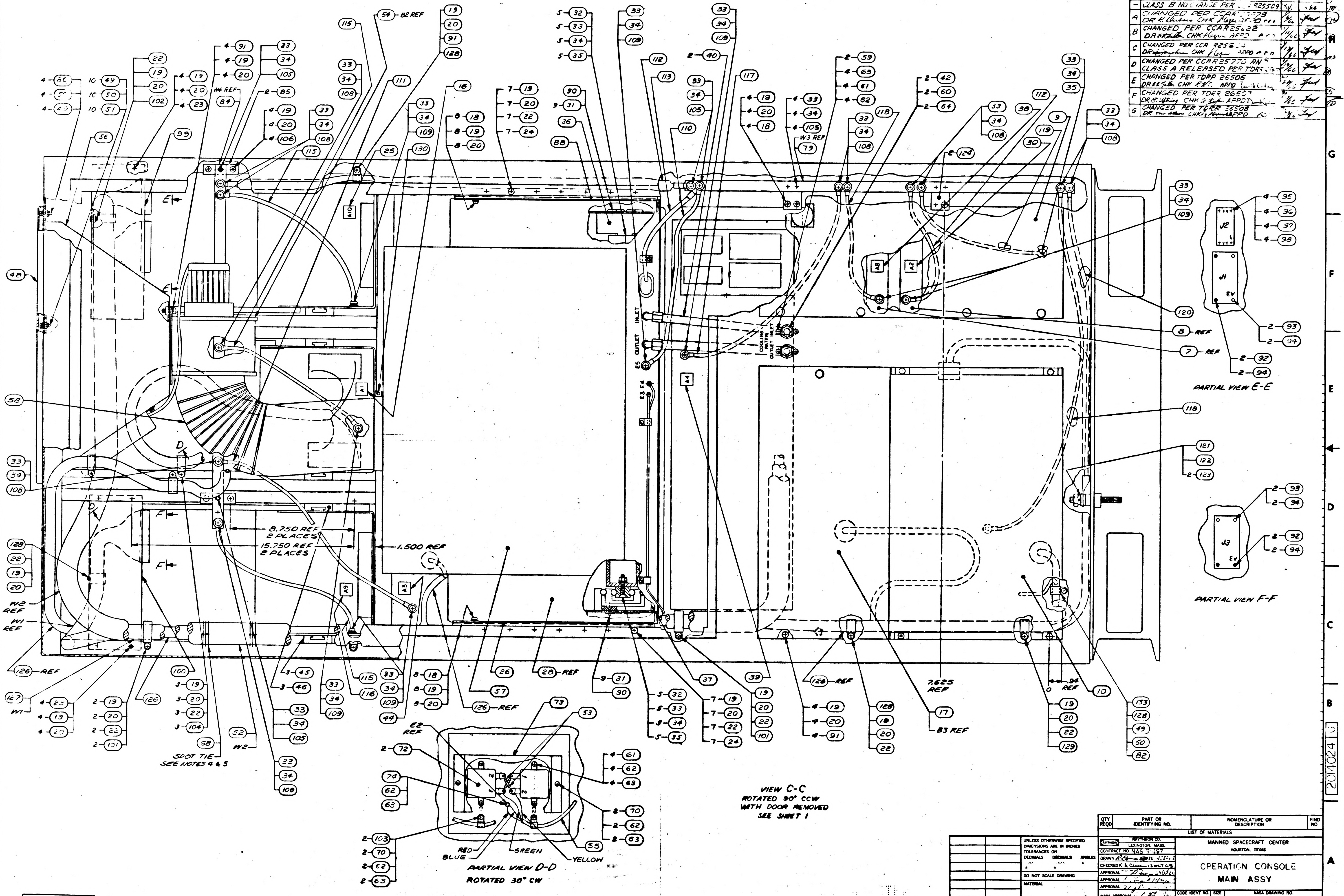
MASTER

2014024 G

2014024 G

2014024 G

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCAR25578 DR R. Chubaro CHK F. Hogan APPD	1/4/66	
B	CHANGED PER CCAR25622 DR B.K. Fuller CHK F. Hogan APPD	1/11/66	
C	CHANGED PER CCA R25624 DR CHK F. Hogan APPD	1/17/66	
D	CHANGED PER CCAR25770 AND CLASS A RELEASED PER TDRR	1/19/66	
E	CHANGED PER TDRR 26506 DR B.K. Fuller CHK APPD	2/2/66	
F	CHANGED PER TDRR 26507 DR E. Uftring CHK A. Kufen APPD	2/ /66	
G	CHANGED PER TDRR 26508 DR CHK APPD	2/ /66	



PARTIAL VIEW E-E
PARTIAL VIEW F-F
PARTIAL VIEW D-D
ROTATED 30° CW
VIEW C-C
ROTATED 90° CCW
WITH DOOR REMOVED
SEE SHEET 1
8.750 REF
2 PLACES
15.750 REF
2 PLACES
1.500 REF
7.625 REF
.94 REF
SPOT TIE
SEE NOTES 4 & 5
COOLING WATER INLET
OUTLET
INLET
E5 OUTLET
E3 E4
E2 REF
W1
W1 REF
W2 REF
W2
W3 REF
W4 REF
B3 REF
54 - 82 REF
126 - REF
7 - REF
8 - REF
RED
BLUE
GREEN
YELLOW
A1
A2
A3
A4
A8
A9
A10
J1
J2
J3
E
F
D

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. Chubaro DATE 4 OCT 65
CHECKED K. A. Chasen 12 OCT 65
APPROVAL D. Hogan 29 Oct 65
APPROVAL 10/20/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

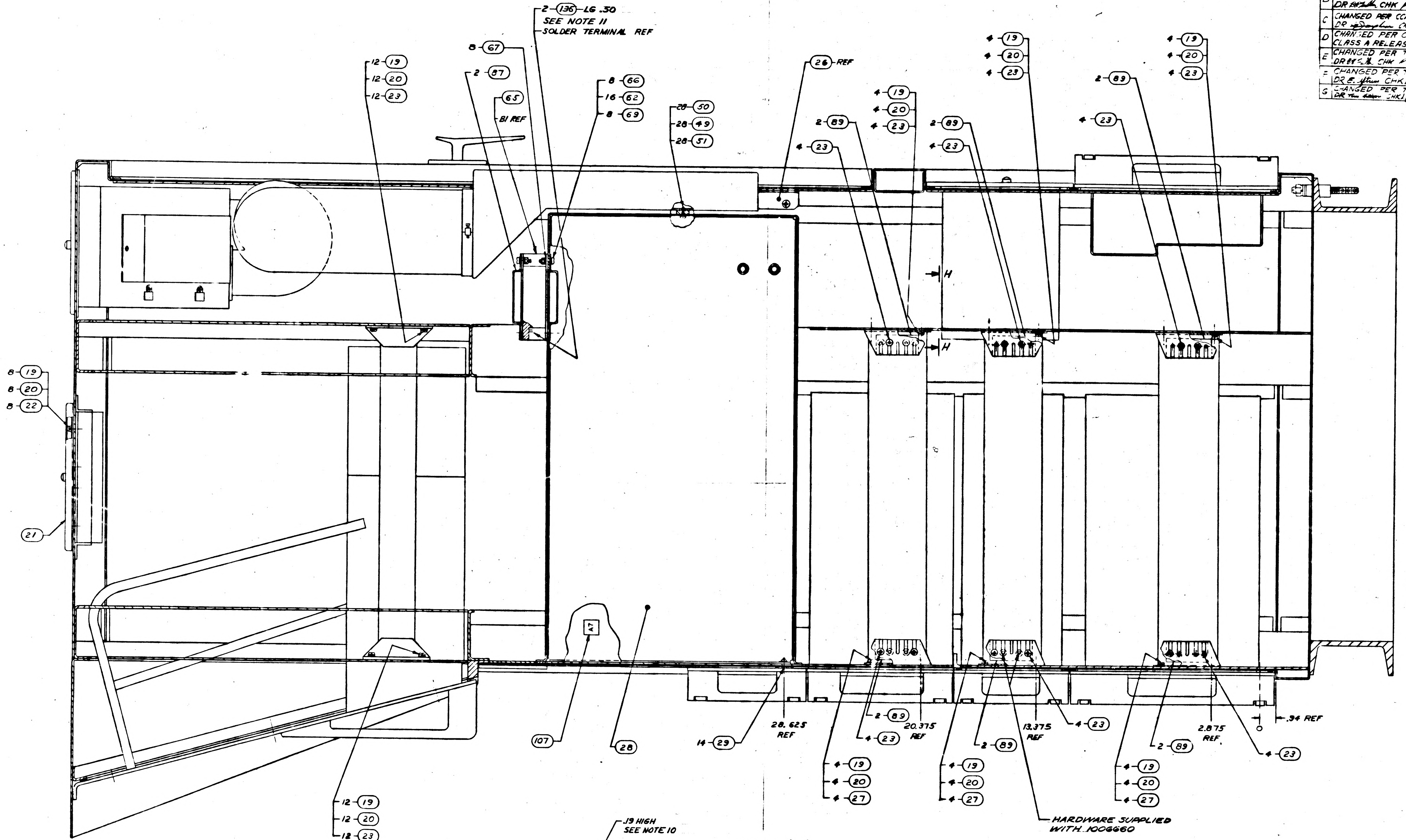
OPERATION CONSOLE
MAIN ASSY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014024
SCALE 1/2	WT	SHEET 3 OF 4

2014024 G

2014024 G

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25578 DR CHK APPD	1/4/66	
B	CHANGED PER CCA R25622 DR CHK APPD	1/11/66	
C	CHANGED PER CCA R25564 DR CHK APPD	1/13/66	
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25	1/20/66	
E	CHANGED PER TDRR 26505 DR CHK APPD	2/24/66	
F	CHANGED PER TDRR 26507 DR E. CHK APPD	3/10/66	
G	CHANGED PER TDRR 26508 DR CHK APPD	3/23/66	


2-(136)-LG .50
SEE NOTE 11
SOLDER TERMINAL REF
8-(67)
2-(87)
(65)
B1 REF
8-(66)
16-(62)
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12-(19)
12-(20)
12-(23)
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8-(20)
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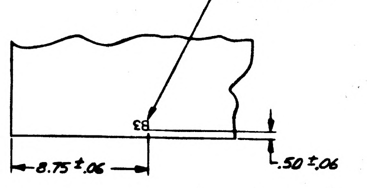
(28)
14-(29)
28.625 REF
20.375 REF
13.375 REF
2.875 REF.
.34 REF
4-(27)
HARDWARE SUPPLIED WITH 1006660

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1


J9 HIGH
SEE NOTE 10
8.75 ±.06
.50 ±.06

PARTIAL VIEW H-H
SCALE 1/4

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 65
CHECKED K. A. 12 OCT 65
APPROVAL 29 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014024
SCALE 1/2
WT
SHEET 4 OF

MASTER

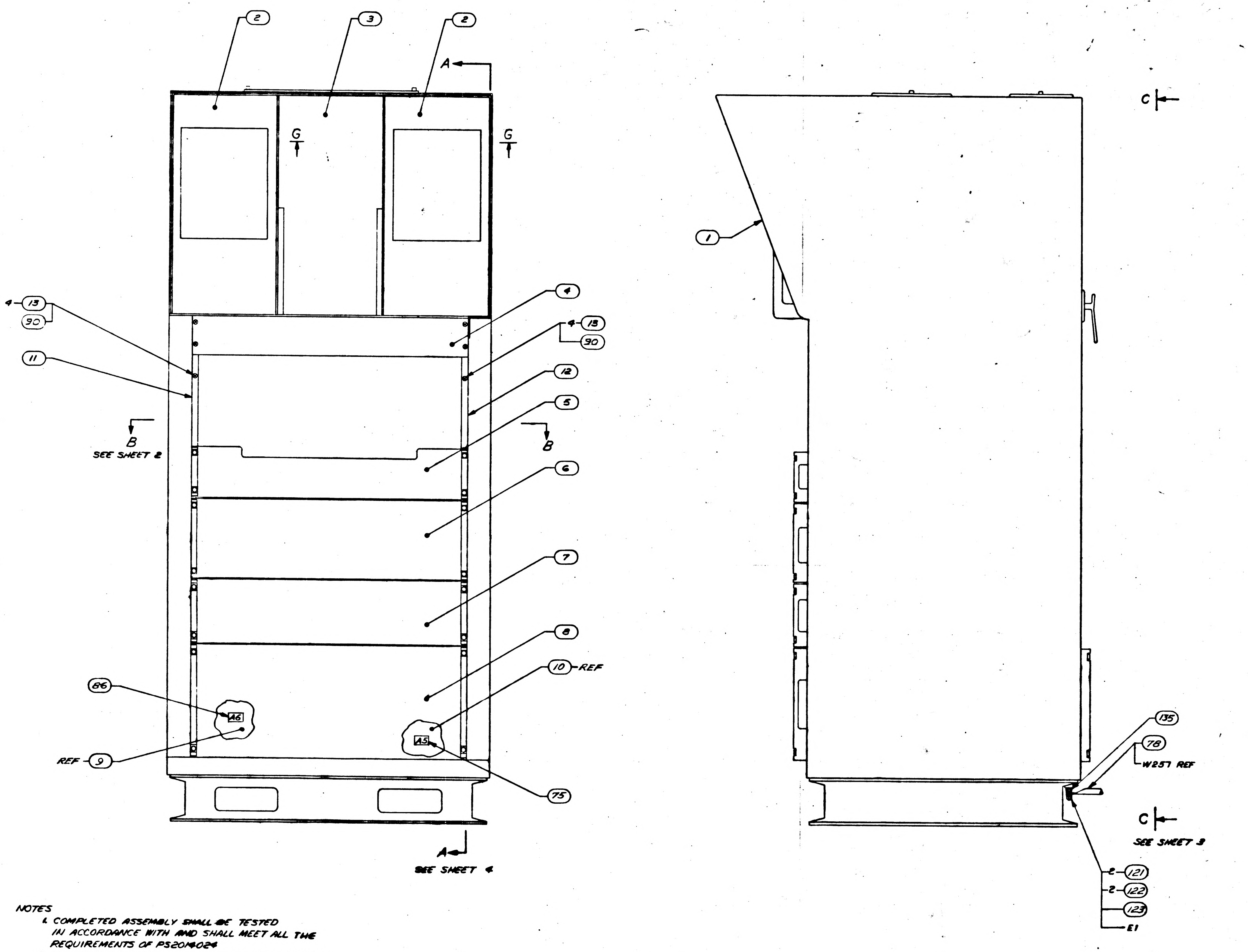
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014024 G

2014024 G

2014024 H

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R2550	11/17/65	
A	CHANGED PER CCA R25578 DR R Dubois CHK. Hogan APPD PED 1-6-66	1/6/66	
B	CHANGED PER CCA R25622 DR CHK Hogan APPD PED	1/11/66	
C	CHANGED PER CCA R25664 DR CHK Hogan APPD PED	1/17/66	
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25475	1/19/66	
E	CHANGED PER TDRR 26506 DR CHK R.A.E. APPD	/66	
F	CHANGED PER TDRR 26507 DR E. Uffring CHK APPD	3/4/66	
G	CHANGED PER TDRR 26503 DR CHK APPD PED	3/23/66	
H	CHANGED PER TDRR 26509 DR CHK APPD PED	4/2/66	



SEE SHEET 2

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	2	CP53B1EF205K1	CAPACITOR	72
	1	MS21919DG10	CLAMP, CUSHIONED	71
	4	MS51957-30	SCREW, MACH. PAN HD	70
	8	MS21044C06	NUT, SELF-LOCKING	69
	AR	1006458-004	TAPE, LACING	68
	8	1006982-5	WASHER, NYLON	67
	8	MS51957-32	SCREW, MACH. PAN HD	66
	1	1006476	FAN	65
	2	AN929-4	CAP ASSY	64
	13	MS35338-79	WASHER, LOCK	63
	29	MS15795-806	WASHER, FLAT	62
	8	MS51957-28	SCREW, MACH. PAN HD	61
	2	AN832-4D	UNION BULKHEAD	60
	2	2014320	ADAPTER	59
	1	1006410	HOSE, DUCT	58
	1	2014256	DUCT, AIR	57
	1	2014240	EXHAUST CHAMBER	56
*	1.4	SEE NOTE 6	SLEEVING	55
	1	1006477	BLOWER	54
*	.50	MIL-W-16878/4 E20	WIRE, ELECTRICAL WHT	53
	1	2014497-011	CABLE ASSY W2	52
	41	MS51957-45	SCREW, MACH. PAN HD	51
	43	MS35338-80	WASHER, LOCK	50
	46	MS15795-807	WASHER, FLAT	49
	1	1006882-3	FILTER, AIR	48
	2	AN6270-4-41	HOSE ASSY	47
	3	1006665-4	SLIDE, CHASSIS, Q DISC.	46
	3	1006665-3	SLIDE, CHASSIS, Q DISC.	45
	1	1014480-3	DECAL, IDENTIFICATION	44
	4	1006982-10	WASHER, FLAT NYLON	43
	4	AN924-4D	NUT-FLARED TUBE	42
	2	AN833-4D	ELBOW-FLARED TUBE	41
	2	AN6270-4-13	HOSE ASSY	40
	1	1014480-4	DECAL, IDENTIFICATION	39
	1	1014480-8	DECAL, IDENTIFICATION	38
	1	1006854-2	SLIDE, CHASSIS, LOCK OPEN	37
	1	1006854-1	SLIDE, CHASSIS, LOCK OPEN	36
	11	MS35690-410	NUT, PLAIN, HEX.	35
	39	MS15795-810	WASHER, FLAT	34
	41	MS35338-82	WASHER, LOCK	33
	10	MS51959-85	SCREW, MACH. FLAT CSK HD	32
	18	MS51959-80	SCREW MACH. FLAT CSK HD	31
	1	1014480-2	DECAL, IDENTIFICATION	30
	14	MS51959-45	SCREW, MACH. FLAT CSK HD	29
	1	2014354	CHASSIS ASSY, CMPTR COMPT	28
	12	MS51958-60	SCREW, MACH. PAN HD	27
	1	2014436	BRACKET, ANGLE, LH	26
	1	1014480-10	DECAL, IDENTIFICATION	25
	14	MS35650-104	NUT, PLAIN, HEX.	24
	68	MS51958-61	SCREW, MACH. PAN HD	23
	32	MS51958-64	SCREW, MACH. PAN HD	22
	1	1006918-001	FILTER, AIR RFI SHIELDED	21
	121	MS15795-808	WASHER, FLAT	20
	121	MS35338-81	WASHER, LOCK	19
	20	MS51958-62	SCREW, MACH. PAN HD	18
	1	1006856	FAN, VENTILATING	17
	1	1014480-1	DECAL, IDENTIFICATION	16
	4	AN535-4-3	SCREW, DRIVE	15
	1	1004260-204	PLATE, IDENTIFICATION	14
	8	MS51960-64	SCREW, MACH. FLAT CSK HD	13
	1	2014328	SPACER, RH	12
	1	2014329	SPACER, LH	11
	1	2014302-011	AC INPUT PANEL ASSY	10
	1	2014272-011	FRONT PANEL ASSY	9
	1	2014207-011	POWER SUPPLY ASSY	8
	1	2014279-011	POWER SUPPLY ASSY	7
	1	2014341-011	AGC JUNCTION ASSY	6
	1	2014257-011	TEST MOUNT ASSY	5
	1	2014313-011	TEMPERATURE MONITOR ASSY	4
	1	2014079-011	POWER CONTROL ASSY	3
	2	2014006-011	MOUNTING FIXTURE ASSY	2
	1	2014371	CABINET REWORK	1
	-011	LIST OF MATERIALS		

2014024 H

NOTES
1. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014024
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. SOLDER PER ND1002071
4. FABRICATE PER ND1002032 EXCEPT USE FIND 68
5. SPOT TIE FIND 52 (W2) TO FIND 126 & FIND 127(W1) 3.00±.50 INCREMENTS
6. MIL-I-631, TYPE F, FORM U, GRADE A, CLASS 1, CATEGORY 1 COLOR BLACK AWG NO.4 FOR FIND 55, AWG NO.8 FOR FIND 136
7. AR DENOTES AS REQUIRED
8. STRIP .50 & TIN PER ND1002071
9. SERIALIZE PER ND1002023
10. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006271-10
11. SLIDE FIND 136 OVER SOLDERED CONNECTIONS ON FIND 65
12. CUT LEADS FROM PROBE (1006469-002) ON FIND 5 TO REQUIRED LENGTH

* DENOTES LENGTH IN FEET

1900030	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN P. Hoyord DATE 20 SEP 65
CHECKED K. A. Chavira 18 OCT 65
APPROVAL 29 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

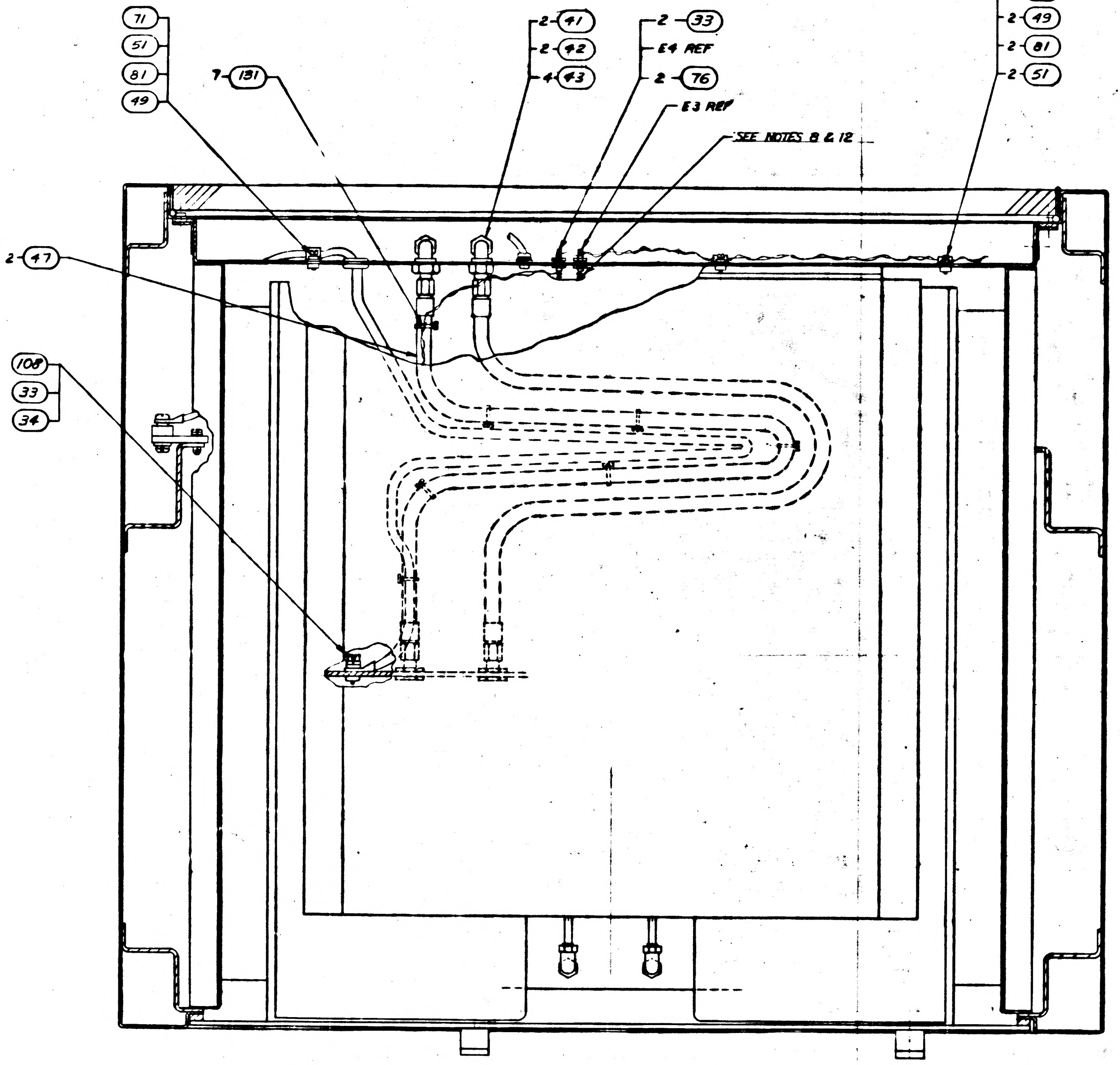
SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014024
SCALE 1/4 WT
SHEET 1 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

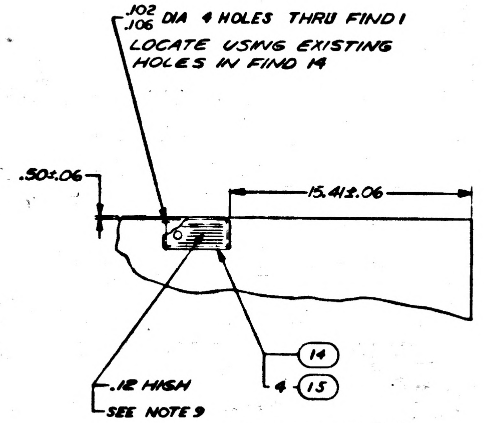
2014024 H

2014024 H

SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R25509	12/21/65	
A	CHANGED PER CCA R25578 DR R. CHK APPD PED	1/4/66	
B	CHANGED PER CCA R25662 DR CHK APPD PED	1/14/66	
C	CHANGED PER CCA R25664 DR CHK APPD PED	1/17/66	
D	CHANGED PER CCAR25770 AND CLASS A RELEASED PER TDRR 25475	1/17/66	
E	CHANGED PER TDRR 26506 DR CHK APPD	3/28/66	
F	CHANGED PER TDRR 26507 DR E. CHK APPD	3/14/66	
G	CHANGED PER TDRR 26508 DR. CHK APPD PED		
H	CHANGED PER TDRR 26509 DR CHK APPD PEC	7/7/66	



SECTION B-B
SEE SHEET 1



PARTIAL VIEW G-G
SCALE 1/4
SEE SHEET 1

NOT SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014499	INTERCONNECTION DIAGRAM	REF
* 10	SEE NOTE 6	INSULATION SLEEVING	136
1	MS35335-63	WASHER, LOCK, EXT TOOTH	135
~~1~~	~~MS35649-84~~	~~NUT, PLAIN, HEX~~	~~134~~
1	MS51957-47	SCREW, MACH, PAN HD	133
1	1014150-1	CABLE ASSY, POWER	132
7	MS17821-1	STRAP, CABLE	131
1	MS21920-43	CLAMP	130
1	MS21919DG13	CLAMP, CUSHIONED	129
4	MS21919DG11	CLAMP, CUSHIONED	128
1	2014496-011	CABLE ASSY W1	127
1	2014498-011	WIRING HARNESS, BRANCHED A	126
~~1~~	~~MS35489-16~~	~~GROMMET, RUBBER~~	~~125~~
2	2014403	BLOCK, MOUNTING	124
4	MS15795-814	WASHER, PLAIN	123
2	MS35338-84	WASHER, LOCK	122
3	MS35690-610	NUT, HEX HD	121
1	2014457-081	CABLE ASSY GROUND	120
1	2014458-061	CABLE ASSY GROUND	119
2	2014458-121	CABLE ASSY GROUND	118
1	2014458-131	CABLE ASSY GROUND	117
1	1014480-9	DECAL, IDENTIFICATION	116
3	2014458-151	CABLE ASSY GROUND	115
~~[illegible]~~	~~MS51958-62~~	~~SCREW, MACH. PAN HD~~	~~114~~
1	2014457-061	CABLE ASSY GROUND	113
2	2014457-021	CABLE ASSY GROUND	112
1	2014458-161	CABLE ASSY, GROUND	111
1	2014458-081	CABLE ASSY, GROUND	110
8	MS51957-80	SCREW, MACH. PAN HD	109
12	MS51957-81	SCREW, MACH. PAN HD	108
1	1014480-7	DECAL, IDENTIFICATION	107
4	MS51958-67	SCREW, MACH. PAN HD	106
8	MS51957-82	SCREW, MACH. PAN HD	105
3	MS21919DG16	CLAMP, CUSHIONED	104
2	MS21919DG3	CLAMP, CUSHIONED	103
1	MS21919DG14	CLAMP, CUSHIONED	102
3	MS21919DG28	CLAMP, CUSHIONED	101
1	2014393	BRACKET, CONNECTOR	100
1	2014394	BRACKET, CONNECTOR	99
4	MS35337-78	WASHER, LOCK	98
4	MS15795-803	WASHER, FLAT	97
4	MS35649-44	NUT, PLAIN, HEX.	96
4	MS51957-18	SCREW, MACH. PAN HD	95
8	1006671-003	STOP NUT, CONNECTOR	94
4	1006671-004	GUIDE SOCKET, CONNECTOR	93
4	1006671-002	GUIDE PIN, CONNECTOR	92
9	MS51958-63	SCREW, MACH. PAN HD	91
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	90
12	2014412	SPACER, SLIDE BRACKET	89
1	2014435	BRACKET, ANGLE	88
2	1006429	GRILLE METAL	87
1	1014480-6	DECAL, IDENTIFICATION	86
2	2014437	BLOCK, MOUNTING	85
1	2014438	BUSBAR, W4	84
2	MS21919DG6	CLAMP, CUSHIONED	83
1	MS35649-84	NUT, PLAIN HEX HD	82
3	MS35337-80	WASHER, LOCK	81
4	MS51957-46	SCREW, MACH. PAN HD	80
1	2014402	BUSBAR, W3	79
1	2014115-041	GROUND STRAP ASSY W257	78
~~1~~	~~MS51957-79~~	~~SCREW, MACH. PAN HD~~	~~77~~
2	1015896-001	TERMINAL FEED THRU INSULATED	76
1	1014480-5	DECAL, IDENTIFICATION	75
1	SE09XE02	TERMINAL, STUD MIL-T-55155/9	74
1	2014353	COVER, CAPACITOR	73
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±	RAYTHEON CO. LEXINGTON, MASS.
APPLICATION		DO NOT SCALE DRAWING	CONTRACT NO. NAS 9-497
		MATERIAL	DRAWN DATE 9SEP65
			CHECKED K.A. 12 OCT 65
			APPROVAL
			APPROVAL 10/29/65
			APPROVAL
			NASA APPROVAL
			MIT APPROVAL
			MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

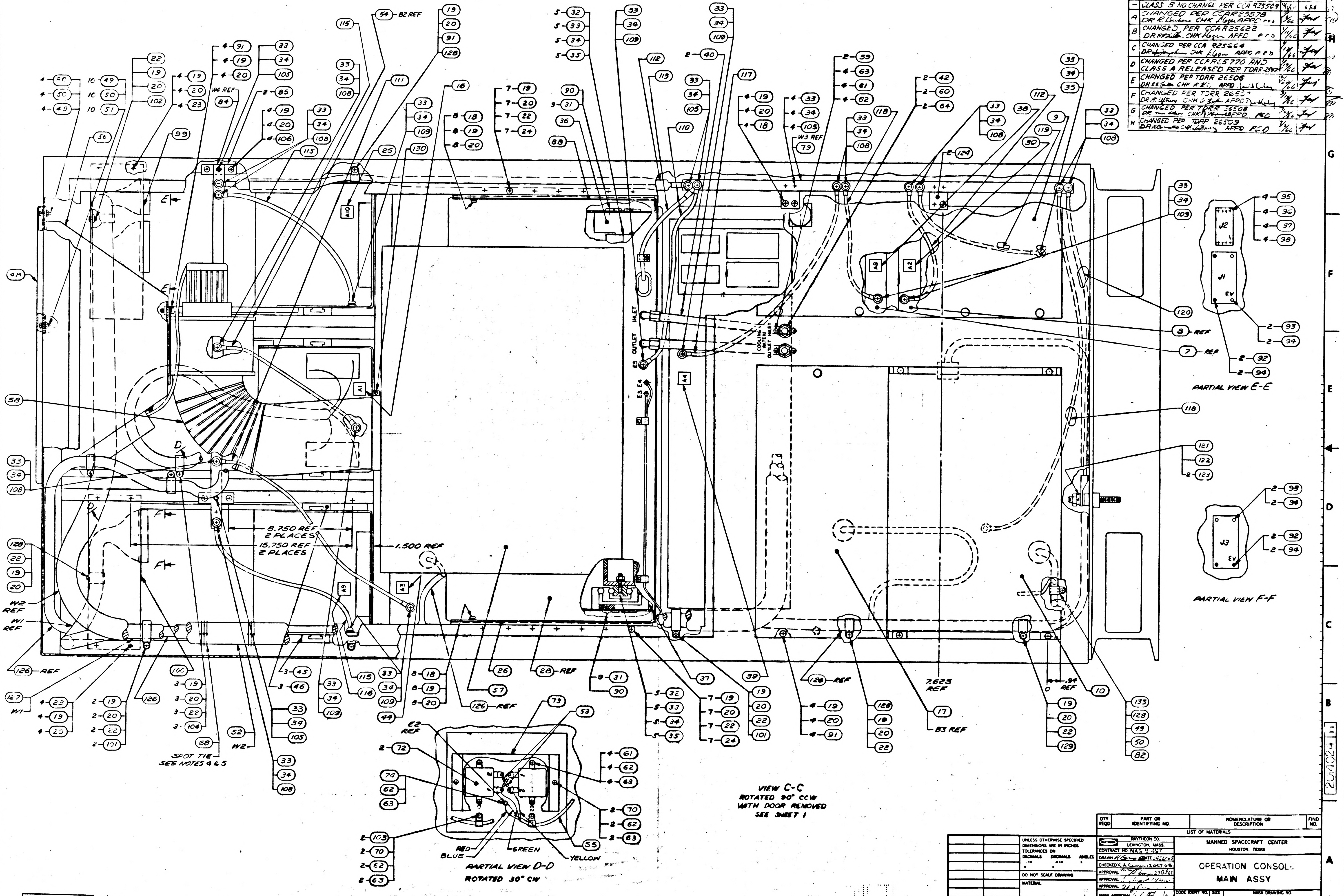
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014024
SCALE 1/2	WT	SHEET 2 OF 4

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014024 H

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCAR25578 DR R. [illegible] CHK [illegible] APPD PED	/66	
B	CHANGED PER CCAR25622 DR BK [illegible] CHK [illegible] APPD PED	1/11/66	
C	CHANGED PER CCA R25664 DR [illegible] CHK [illegible] APPD PED	1/19/66	
D	CHANGED PER CCAR25770 AND CLASS A RELEASED PER TDRR 2547	1/19/66	
E	CHANGED PER TDRR 26506 DR BK [illegible] CHK [illegible] APPD [illegible]	2/2/66	
F	CHANGED PER TDRR 26507 DR E. [illegible] CHK [illegible] APPD [illegible]	3/14/66	
G	CHANGED PER TDRR 26508 DR [illegible] CHK [illegible] APPD PED	3/23/66	
H	CHANGED PER TDRR 26509 DR [illegible] CHK [illegible] APPD PED	4/2/66	


VIEW C-C
ROTATED 90° CCW
WITH DOOR REMOVED
SEE SHEET 1
PARTIAL VIEW D-D
ROTATED 30° CW
PARTIAL VIEW E-E
PARTIAL VIEW F-F
SPOT TIE
SEE NOTES 4 & 5
8.750 REF
2 PLACES
15.750 REF
2 PLACES
1.500 REF
7.625 REF
.94
W1 REF
W2 REF
W1
W2
W3 REF
W4 REF
B2 REF
B3 REF
E2 REF
7 REF
8 REF
RED
BLUE
GREEN
YELLOW
COOLING WATER INLET
OUTLET
INLET
E5
E3 E4
A1
A2
A3
A4
A8
A9
A10
J1
J2
J3
EV
D
E
F

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

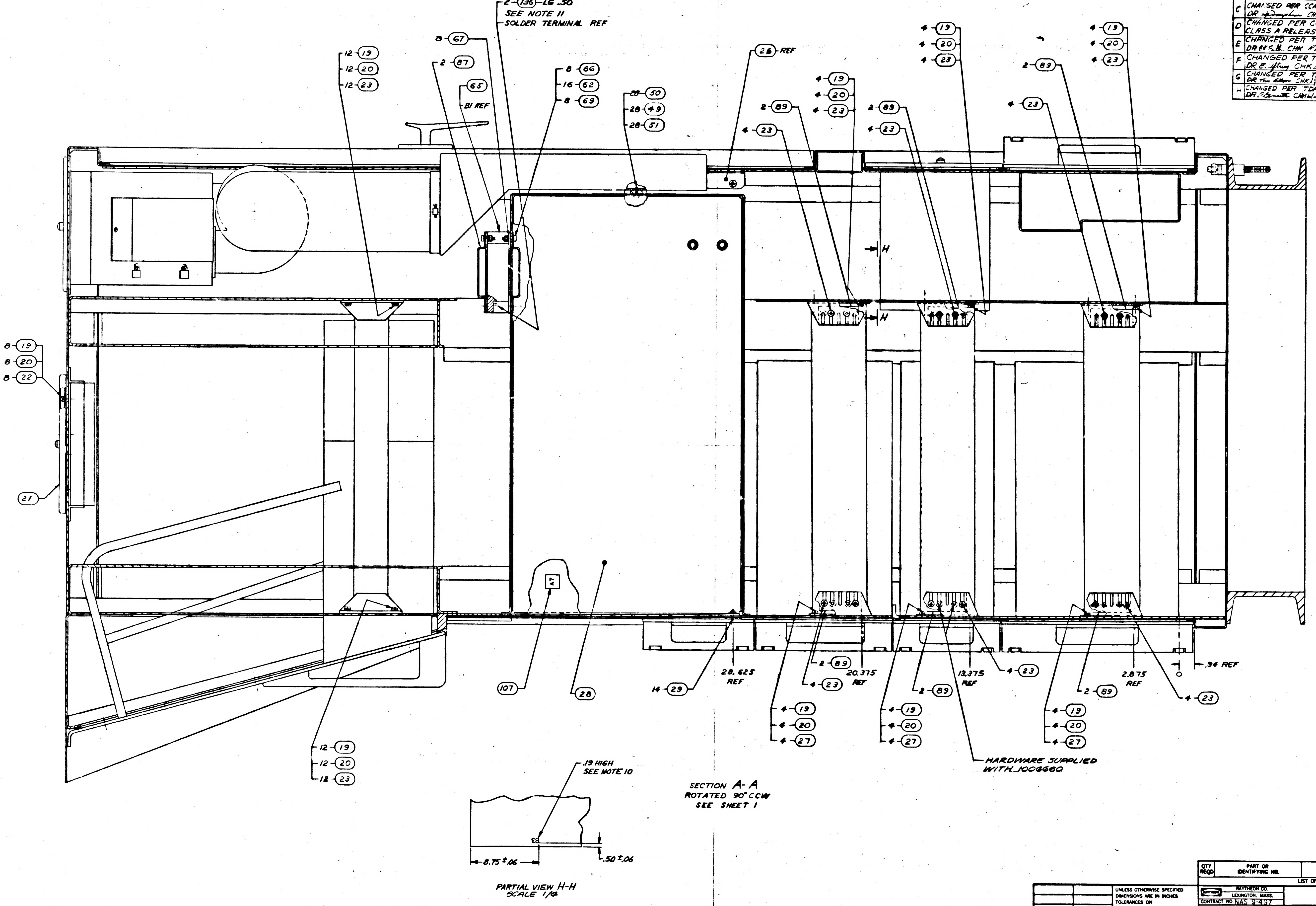
NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±	RAYTHEON CO. LEXINGTON, MASS.
APPLICATION		DO NOT SCALE DRAWING	CONTRACT NO. NAS 9-497
		MATERIAL	DRAWN R. [illegible] DATE 4 OCT 65
			CHECKED K. A. [illegible] 12 OCT 65
			APPROVAL [illegible] 29 Oct 65
			APPROVAL [illegible]
			APPROVAL [illegible]
			NASA APPROVAL [illegible]
			MIT APPROVAL [illegible]
			MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014024
SCALE 1/2	WT	SHEET 3 OF 4

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25578 DR CHK APPD PED		
B	CHANGED PER CCA R25622 DR CHK APPD PED		
C	CHANGED PER CCA R25564 DR CHK APPD PED		
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25475		
E	CHANGED PER TDRR 26506 DR CHK APPD		
F	CHANGED PER TDRR 26507 DR E. CHK G. APPD		
G	CHANGED PER TDRR 26508 DR CHK APPD PED		
H	CHANGED PER TDRR 26509 DR CHK APPD PED		



2-(135)-LG .50
SEE NOTE 11
SOLDER TERMINAL REF
8-(67)
2-(87)
(65)
81 REF
8-(66)
16-(62)
8-(63)
12-(19)
12-(20)
12-(23)
28-(50)
28-(49)
28-(51)
(26)-REF
4-(19)
4-(20)
4-(23)
2-(89)
4-(23)
8-(19)
8-(20)
8-(22)
(21)
H
H
A7
(107)
(28)
14-(29)
28.625 REF
20.375 REF
13.375 REF
2.875 REF
.34 REF
HARDWARE SUPPLIED WITH 1006660
.19 HIGH
SEE NOTE 10
8.75 ± .06
.50 ± .06
PARTIAL VIEW H-H
SCALE 1/4

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28 OCT 65
CHECKED K. A. 12 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

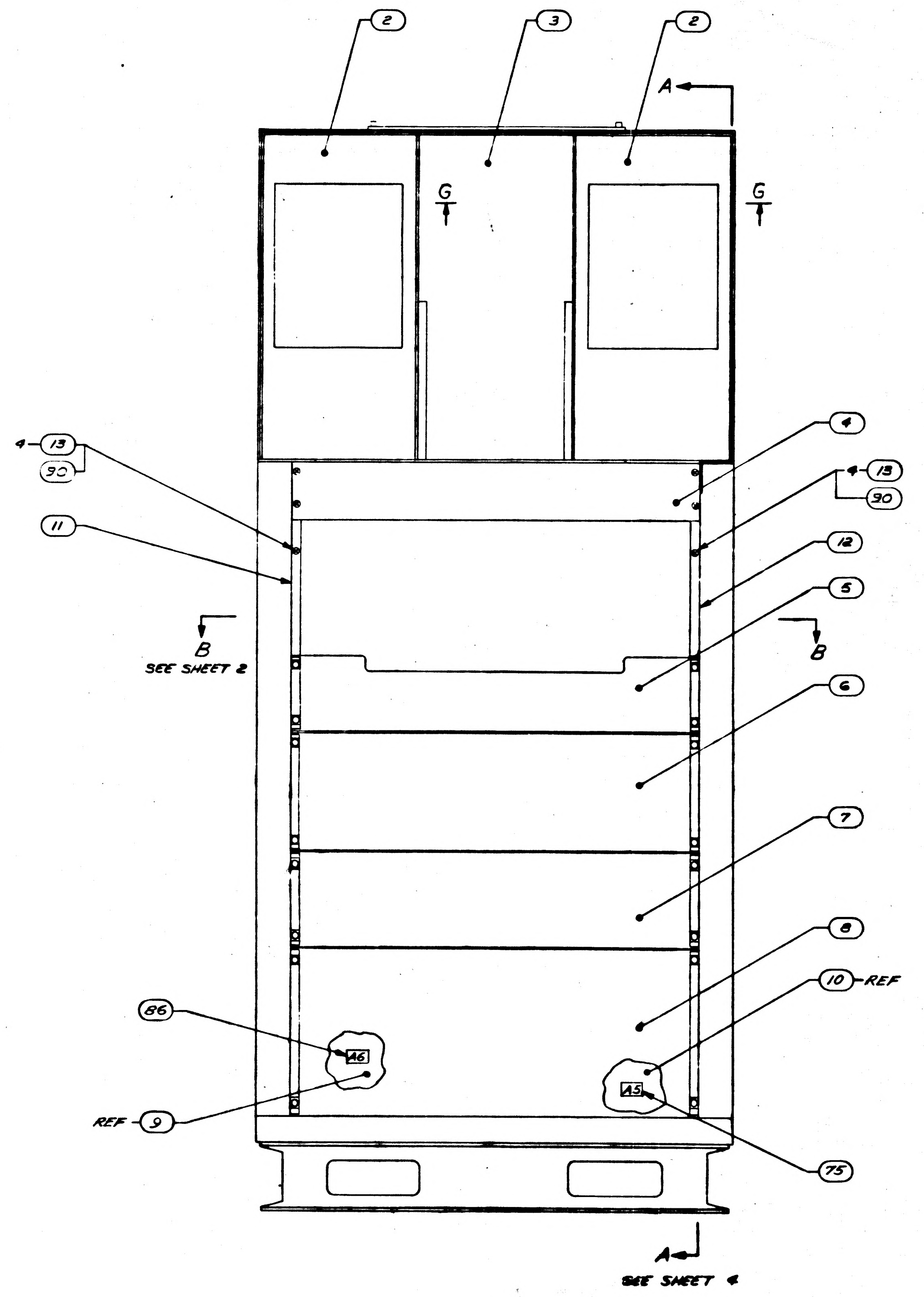
OPERATION CONSOLE
MAIN ASSY

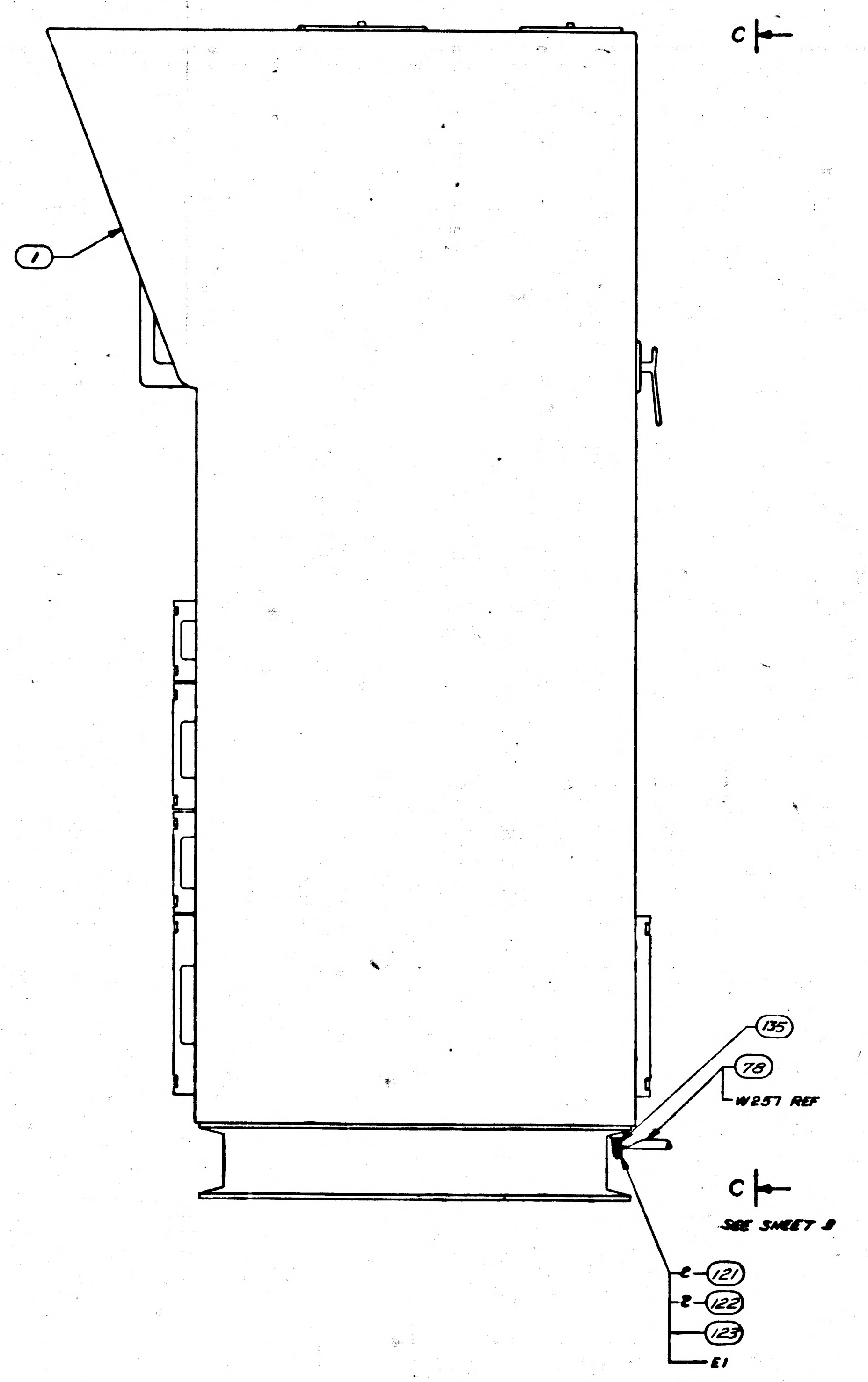
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014024
SCALE 1/2
WT
SHEET 4 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014024 H

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R2550	1/13/66	
A	CHANGED PER CCA R25578 DR CHK APPD	1/5/66	
B	CHANGED PER CCA R25622 DR CHK APPD PED	1/11/66	
C	CHANGED PER CCA R25664 DR CHK APPD PED	1/27/66	
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25472	1/13/66	
E	CHANGED PER TDRR 26506 DR CHK APPD	3/24/66	
F	CHANGED PER TDRR 26507 DR E. CHK APPD	3/17/66	
G	CHANGED PER TDRR 26508 DR CHK APPD PED	3/22/66	
H	CHANGED PER TDRR 26509 DR CHK APPD PED	4/8/66	
J	CHANGED PER TDRR 26534 DR CHK APPD ED	4/23/66	





SEE SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	CPS3BIEF205KI	CAPACITOR	72
1	MS21919DG10	CLAMP, CUSHIONED	71
4	MS51957-30	SCREW, MACH. PAN HD	70
8	MS21044C06	NUT, SELF-LOCKING	69
AR	1006458-004	TAPE, LACING	68
8	1006982-5	WASHER, NYLON	67
8	MS51957-32	SCREW, MACH. PAN HD	66
1	1006476	FAN	65
2	AN929-4	CAP ASSY	64
15	MS35338-79	WASHER, LOCK	63
29	MS15795-806	WASHER, FLAT	62
8	MS51957-28	SCREW, MACH. PAN HD	61
2	AN832-4D	UNION BULKHEAD	60
2	2014320	ADAPTER	59
1	1006410	HOSE, DUCT	58
1	2014256	DUCT, AIR	57
1	2014240	EXHAUST CHAMBER	56
* 1.4	SEE NOTE 6	SLEEVING	55
1	1006477	BLOWER	54
* .50	MIL-W-16878/4 E20	WIRE, ELECTRICAL WHT	53
1	2014497-011	CABLE ASSY W2	52
41	MS51957-45	SCREW, MACH. PAN HD	51
43	MS35338-80	WASHER, LOCK	50
46	MS15795-807	WASHER, FLAT	49
1	1006882-3	FILTER, AIR	48
2	AN6270-4-41	HOSE ASSY	47
3	1006665-4	SLIDE, CHASSIS, Q DISC.	46
3	1006665-3	SLIDE, CHASSIS, Q DISC.	45
1	1014480-3	DECAL, IDENTIFICATION	44
4	1006982-10	WASHER, FLAT NYLON	43
4	AN924-4D	NUT-FLARED TUBE	42
2	AN833-4D	ELBOW-FLARED TUBE	41
2	AN6270-4-13	HOSE ASSY	40
1	1014480-4	DECAL, IDENTIFICATION	39
1	1014480-8	DECAL, IDENTIFICATION	38
1	1006854-2	SLIDE, CHASSIS, LOCK OPEN	37
1	1006854-1	SLIDE, CHASSIS, LOCK OF 'N	36
11	MS35690-410	NUT, PLAIN, HEX.	35
39	MS15795-810	WASHER, FLAT	34
41	MS35338-82	WASHER, LOCK	33
10	MS51959-85	SCREW, MACH. FLAT CSK HD	32
18	MS51959-80	SCREW MACH. FLAT CSK HD	31
1	1014480-2	DECAL, IDENTIFICATION	30
14	MS51959-45	SCREW, MACH. FLAT CSK HD	29
1	2014354	CHASSIS ASSY. CMPTR COMPT	28
12	MS51958-60	SCREW, MACH. PAN HD	27
1	2014436	BRACKET, ANGLE, LH	26
1	1014480-10	DECAL, IDENTIFICATION	25
16	MS35650-104	NUT, PLAIN, HEX.	24
68	MS51958-61	SCREW, MACH. PAN HD	23
31	MS51958-64	SCREW, MACH. PAN HD	22
1	1006918-001	FILTER, AIR RFI SHIELDED	21
122	MS15795-808	WASHER, FLAT	20
120	MS35338-81	WASHER, LOCK	19
20	MS51958-62	SCREW, MACH. PAN HD	18
1	1006856	FAN, VENTILATING	17
1	1014480-1	DECAL, IDENTIFICATION	16
4	AN535-4-3	SCREW, DRIVE	15
1	1004260-204	PLATE, IDENTIFICATION	14
8	MS51960-64	SCREW, MACH. FLAT CSK HD	13
1	2014328	SPACER, RH	12
1	2014329	SPACER, LH	11
1	2014302-011	AC INPUT PANEL ASSY	10
1	2014272-011	FRONT PANEL ASSY	9
1	2014207-011	POWER SUPPLY ASSY	8
1	2014279-011	POWER SUPPLY ASSY	7
1	2014341-011	AGC JUNCTION ASSY	6
1	2014257-011	TEST MOUNT ASSY	5
1	2014313-011	TEMPERATURE MONITOR ASSY	4
1	2014079-011	POWER CONTROL ASSY	3
2	2014006-011	MOUNTING FIXTURE ASSY	2
1	2014371	CABINET REWORK	1

-011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NOTES

1. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014024
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. SOLDER PER ND1002071
4. FABRICATE PER ND1002032 EXCEPT USE FIND 68
5. SPOT TIE FIND 52 (W2) TO FIND 126 & FIND 127(W1) 3.00±.50 INCREMENTS
6. MIL-I-631, TYPE F, FORM U, GRADE A, CLASS 1, CATEGORY 1 COLOR BLACK AWG NO.4 FOR FIND 55, AWG NO.8 FOR FIND 136
7. AR DENOTES AS REQUIRED
8. STRIP .50 & TIN PER ND1002071
9. SERIALIZE PER ND1002023
10. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006271-10
11. SLIDE FIND 136 OVER SOLDERED CONNECTIONS ON FIND 65
12. CUT LEADS FROM PROBE (1006469-002) ON FIND 5 TO REQUIRED LENGTH

NEXT ASSY	USED ON
1900030	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN P. DATE 30 SEP 65
CHECKED K. A. 12 OCT 65
APPROVAL 29 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

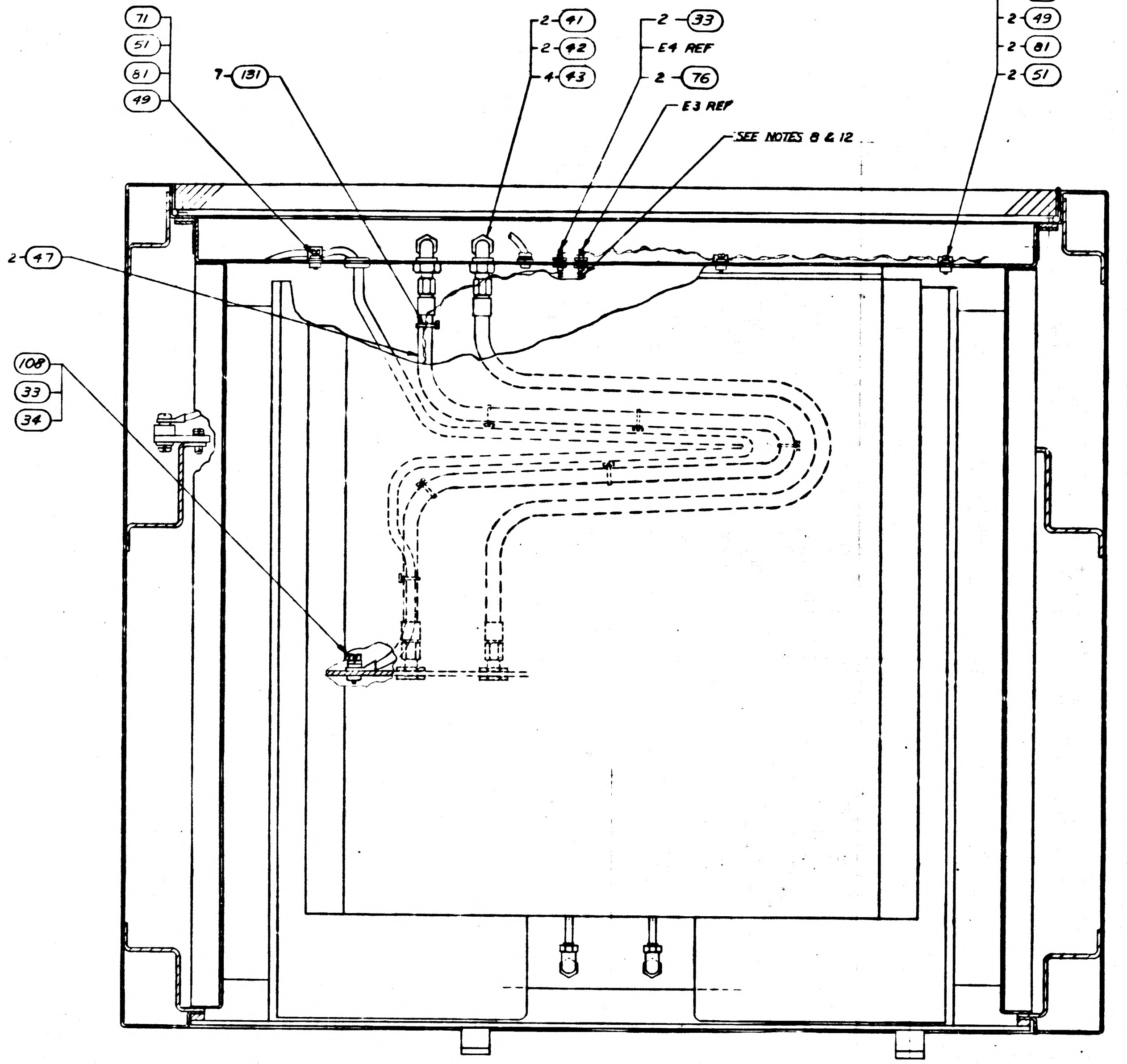
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

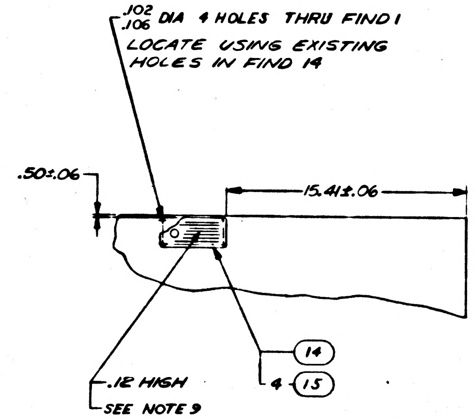
SIZE J CODE IDENT NO. 49956 NASA DRAWING NO. 2014024
SCALE 1/4 WT SHEET 1 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R25509	[illegible]	[illegible]
A	CHANGED PER CCA R25578 DR R. [illegible] CHK [illegible] APPD PED	[illegible]	
B	CHANGED PER CCA R25662 DR [illegible] CHK [illegible] APPD PED	[illegible]	
C	CHANGED PER CCA R25664 DR [illegible] CHK [illegible] APPD PED	[illegible]	
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25475	[illegible]	
E	CHANGED PER TDRR 26506 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	
F	CHANGED PER TDRR 26507 DR E. [illegible] CHK G. [illegible] APPD [illegible]	[illegible]	
G	CHANGED PER TDRR 26508 DR [illegible] CHK [illegible] APPD PED	[illegible]	
H	CHANGED PER TDRR 26509 DR [illegible] CHK [illegible] APPD PED	[illegible]	
J	CHANGED PER TDRR 26534 DR [illegible] CHK [illegible] APPD PED	[illegible]	



SECTION B-B
SEE SHEET 1



PARTIAL VIEW G-G
SCALE 1/4
SEE SHEET 1

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014499	INTERCONNECTION DIAGRAM	REF
	1	MS21919DG36	CLAMP, CUSHIONED	143
	1	MS21919DG15	CLAMP, CUSHIONED	142
	2	MS51957-29	SCREW, MACH PAN HD	141
	2	MS15795-805	WASHER, PLAIN	140
	1	2016361	COVER, TERMINAL BLOCK	139
	3	MS17821-2	STRAP, CABLE	138
	1	MS21919DG5	CLAMP, CUSHIONED	137
*	.10	SEE NOTE 6	INSULATION SLEEVING	136
	1	MS35335-63	WASHER, LOCK, EXT TOOTH	135
	~~1~~	~~MS35649-84~~	~~NUT, PLAIN, HEX~~	~~134~~
	1	MS51957-47	SCREW, MACH, PAN HD	133
NOT SHOWN	1	1014150-1	CABLE ASSY, POWER	132
	7	MS17821-1	STRAP, CABLE	131
	1	MS21920-43	CLAMP	130
	~~1~~	~~MS21919DG13~~	~~CLAMP, CUSHIONED~~	~~129~~
	3	MS21919DG11	CLAMP, CUSHIONED	128
	1	2014496-011	CABLE ASSY W1	127
	1	2014498-011	WIRING HARNESS, BRANCHED A	126
	~~1~~	~~MS35489-16~~	~~GROMMET, RUBBER~~	~~125~~
	2	2014403	BLOCK, MOUNTING	124
	4	MS15795-814	WASHER, PLAIN	123
	2	MS35338-84	WASHER, LOCK	122
	3	MS35690-610	NUT, HEX HD	121
	1	2014457-081	CABLE ASSY GROUND	120
	1	2014458-061	CABLE ASSY GROUND	119
	2	2014458-121	CABLE ASSY GROUND	118
	1	2014458-131	CABLE ASSY GROUND	117
	1	1014480-9	DECAL, IDENTIFICATION	116
	3	2014458-151	CABLE ASSY GROUND	115
	~~4~~	~~MS51958-62~~	~~SCREW, MACH. PAN HD~~	~~114~~
	1	2014457-061	CABLE ASSY GROUND	113
	2	2014457-021	CABLE ASSY GROUND	112
	1	2014458-161	CABLE ASSY, GROUND	111
	1	2014458-081	CABLE ASSY, GROUND	110
	8	MS51957-80	SCREW, MACH. PAN HD	109
	12	MS51957-81	SCREW, MACH. PAN HD	108
	1	1014480-7	DECAL, IDENTIFICATION	107
	4	MS51958-67	SCREW, MACH. PAN HD	106
	8	MS51957-82	SCREW, MACH. PAN HD	105
	2	MS21919DG16	CLAMP, CUSHIONED	104
	1	MS21919DG3	CLAMP, CUSHIONED	103
	2	MS21919DG14	CLAMP, CUSHIONED	102
	2	MS21919DG28	CLAMP, CUSHIONED	101
	1	2014393	BRACKET, CONNECTOR	100
	1	2014394	BRACKET, CONNECTOR	99
	4	MS35337-78	WASHER, LOCK	98
	4	MS15795-803	WASHER, FLAT	97
	4	MS35649-44	NUT, PLAIN, HEX.	96
	4	MS35275-218	SCREW, FIL HD	95
	8	1006671-003	STOP NUT, CONNECTOR	94
	4	1006671-004	GUIDE SOCKET, CONNECTOR	93
	4	1006671-002	GUIDE PIN, CONNECTOR	92
	9	MS51958-63	SCREW, MACH. PAN HD	91
	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	90
	12	2014412	SPACER, SLIDE BRACKET	89
	1	2014435	BRACKET, ANGLE	88
	2	1006429	GRILLE METAL	87
	1	1014480-6	DECAL, IDENTIFICATION	86
	2	2014437	BLOCK, MOUNTING	85
	1	2014439	BUSBAR, W4	84
	2	MS21919DG2	CLAMP, CUSHIONED	83
	1	MS35649-84	NUT, PLAIN HEX HD	82
	3	MS35337-80	WASHER, LOCK	81
	4	MS51957-46	SCREW, MACH. PAN HD	80
	1	2014402	BUSBAR, W3	79
	1	2014115-041	GROUND STRAP ASSY W257	78
	1	MS51957-79	SCREW, MACH. PAN HD	77
	2	1015896-001	TERMINAL FEED THRU INSULATED	76
	1	1014480-5	DECAL, IDENTIFICATION	75
	1	SE09XE02	TERMINAL, STUD MIL-T-55155/9	74
	1	2014353	COVER, CAPACITOR	73

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NAS 9-497
DATE 9SEP65
12 OCT 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

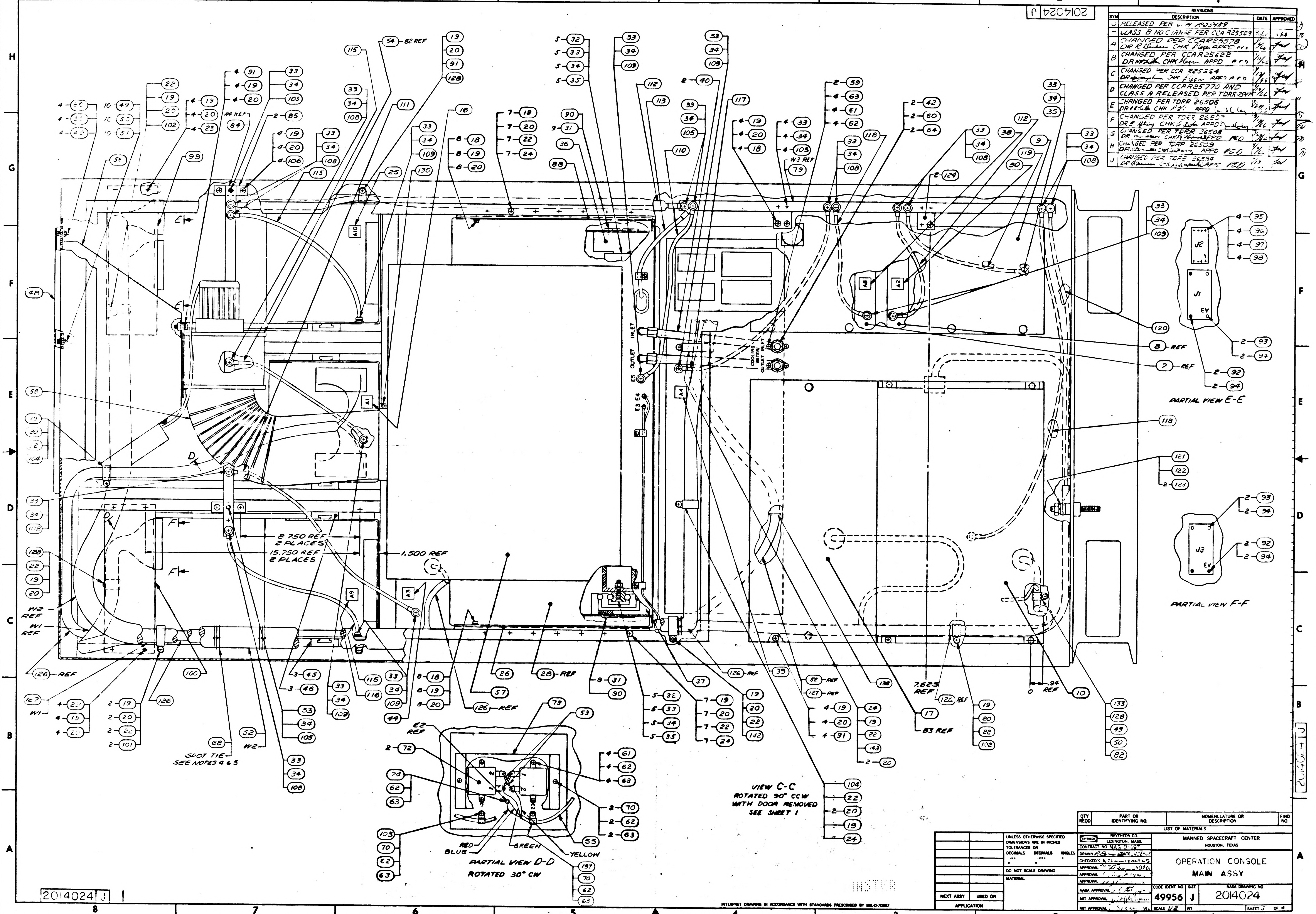
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014024
SCALE 1/2	WT	SHEET 2 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014024 J

2014024 J



E
D
F
A10
A1
A3
A9
A4
A8
A12
J1
J2
J3
E1
E2
E3 E4
E5
INLET
OUTLET
COOLING WATER OUTLET INLET
W1 REF
W2 REF
W1
W2
8.750 REF 2 PLACES
15.750 REF 2 PLACES
1.500 REF
7.625 REF
.94 REF
0
B2 REF
B3 REF
W3 REF
W4 REF
SPOT TIE SEE NOTES 4 & 5
PARTIAL VIEW E-E
PARTIAL VIEW F-F
PARTIAL VIEW D-D ROTATED 30° CW
VIEW C-C ROTATED 90° CCW WITH DOOR REMOVED SEE SHEET 1
RED
BLUE
GREEN
YELLOW
E2 REF

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCAR25578 DR R. Dunham CHK F. Hogan APPD PED	1/6/66	
B	CHANGED PER CCAR25622 DR B.K. Tuller CHK Hogan APPD PED	1/11/66	
C	CHANGED PER CCA R25664 DR CHK F. Hogan APPD PED	1/17/66	
D	CHANGED PER CCAR25770 AND CLASS A RELEASED PER TDRR 2547	1/19/66	
E	CHANGED PER TDRR 26506 DR B.K. Tuller CHK APPD	2/2/66	
F	CHANGED PER TDRR 26507 DR E. Uftring CHK G. Kupfer APPD	3/1/66	
G	CHANGED PER TDRR 26508 DR CHK APPD PED	3/23/66	
H	CHANGED PER TDRR 26509 DR CHK APPD PED	4/2/66	
J	CHANGED PER TDRR 26534 DR CHK APPD PED	4/23	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 4 OCT 65
CHECKED K. A. 12 OCT 65
APPROVAL 29 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

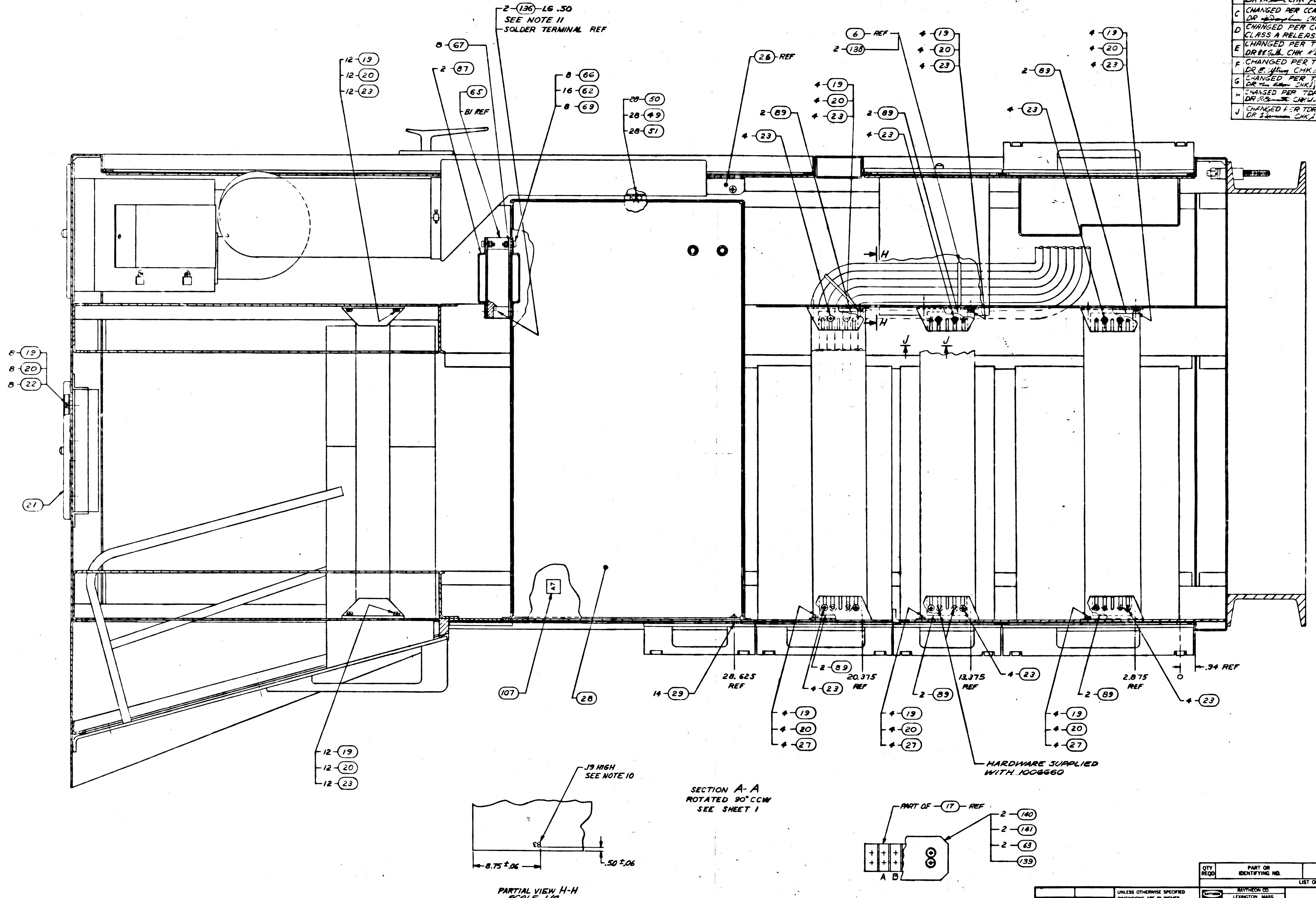
OPERATION CONSOLE
MAIN ASSY

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014024
SCALE 1/2 | WT | SHEET 3 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014024 J

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25578 DR R. Carlson CHK Hogan APPD PED	11/4/66	
B	CHANGED PER CCA R25622 DR BK Futh CHK Hogan APPD PED	1/11/66	
C	CHANGED PER CCA R25664 DR CHK Hogan APPD PED	4/7/66	
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 254	1/30/66	
E	CHANGED PER TDRR 26506 DR BK Futh CHK R.H.S. APPD	2/2/66	
F	CHANGED PER TDRR 26507 DR E. CHK APPD	/66	
G	CHANGED PER TDRR 26508 DR CHK APPD PED	2/23/66	
H	CHANGED PER TDRR 26509 DR CHK APPD PED		
J	CHANGED PER TDRR 26534 DR CHK APPD PED	3/3/66	


2-(136)-LG .50
SEE NOTE 11
SOLDER TERMINAL REF
8-(67)
2-(87)
(65)
81 REF
8-(66)
16-(62)
8-(69)
28-(50)
28-(49)
28-(51)
(26)-REF
(6)-REF
2-(138)
12-(19)
12-(20)
12-(23)
4-(19)
4-(20)
4-(23)
2-(89)
4-(23)
8-(19)
8-(20)
8-(22)
(21)
H
J
A7
(107)
(28)
14-(29)
28.625 REF
20.375 REF
13.375 REF
2.875 REF
.94 REF
4-(27)
HARDWARE SUPPLIED WITH 1006660
.19 HIGH
SEE NOTE 10
83
8.75 ±.06
.50 ±.06
PART OF -(17)- REF
2-(140)
2-(141)
2-(63)
(139)
A B

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

PARTIAL VIEW H-H
SCALE 1/4

PARTIAL VIEW J-J
SCALE 1/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 8-8-65
CHECKED R. A. Chesson 12 OCT 65
APPROVAL 29 Jul 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
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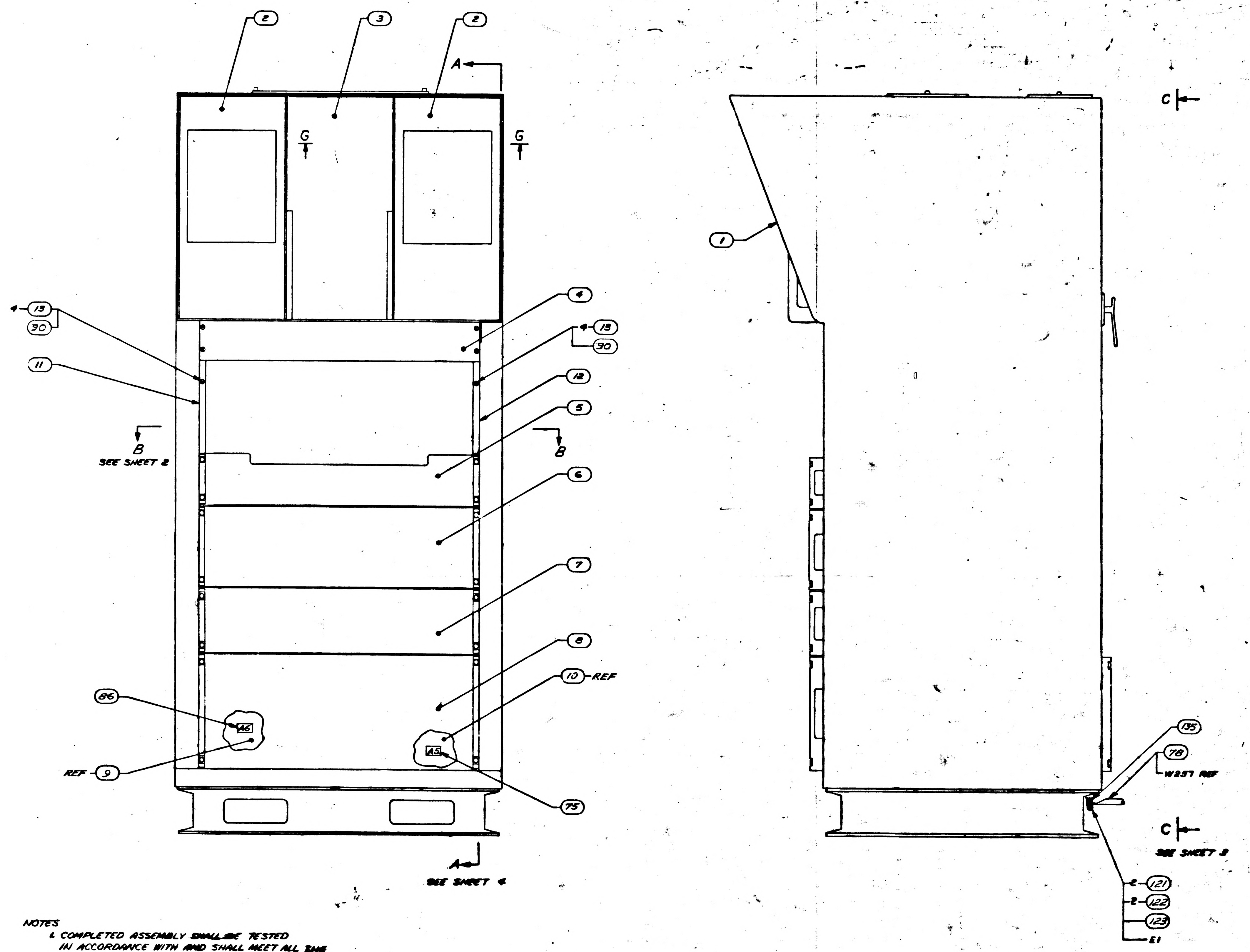
MAIN ASSY

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014024
SCALE 1/2 WT SHEET 4 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014024 K

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25489		
—	CLASS B NO CHANGE PER CCA R25504	4/17/65	
A	CHANGED PER CCA R25578 DR R. [illegible] CHK [illegible] APPD [illegible]	1/6/66	
B	CHANGED PER CCA R25622 DR [illegible] CHK [illegible] APPD PED	1/11/66	
C	CHANGED PER CCA R25664 DR [illegible] CHK [illegible] APPD PED	1/17/66	
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 65475	1/13/66	
E	CHANGED PER TDRR 26506 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	
F	CHANGED PER TDRR 26507 DR E. [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	
G	CHANGED PER TDRR 26508 DR [illegible] CHK [illegible] APPD PED	[illegible]	
H	CHANGED PER TDRR 26509 DR [illegible] CHK [illegible] APPD PED	3/3/66	
J	CHANGED PER TDRR 26534 DR [illegible] CHK [illegible] APPD PED	[illegible]	
K	CHANGED PER TDRR 26728 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	



SEE SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	CP53B1EF205K1	CAPACITOR	72
1	MS21919DG10	CLAMP, CUSHIONED	71
4	MS51957-30	SCREW, MACH. PAN HD	70
8	MS21044C06	NUT, SELF-LOCKING	69
AR	1006458-004	TAPE, LACING	68
8	1006982-5	WASHER, NYLON	67
8	MS51957-32	SCREW, MACH. PAN HD	66
1	1006476	FAN	65
2	AN929-4	CAP ASSY	64
15	MS35338-79	WASHER, LOCK	63
29	MS15795-806	WASHER, FLAT	62
8	MS51957-28	SCREW, MACH. PAN HD	61
2	AN832-4D	UNION BULKHEAD	60
2	2014320	ADAPTER	59
1	1006410	HOSE, DUCT	58
1	2014256	DUCT, AIR	57
1	2014240	EXHAUST CHAMBER	56
* 1.4	SEE NOTE 6	SLEEVING	55
1	1006477	BLOWER	54
* 50	MIL-W-16878/4 E20	WIRE, ELECTRICAL WHT	53
1	2014497-011	CABLE ASSY W2	52
41	MS51957-45	SCREW, MACH. PAN HD	51
43	MS35338-80	WASHER, LOCK	50
46	MS15795-807	WASHER, FLAT	49
1	1006882-3	FILTER, AIR	48
2	AN6270-4-41	HOSE ASSY	47
3	1006665-4	SLIDE, CHASSIS, Q DISC.	46
3	1006665-3	SLIDE, CHASSIS, Q DISC.	45
1	1014480-3	DECAL, IDENTIFICATION	44
4	1006982-10	WASHER, FLAT NYLON	43
4	AN924-4D	NUT-FLARED TUBE	42
2	AN833-4D	ELBOW-FLARED TUBE	41
2	AN6270-4-13	HOSE ASSY	40
1	1014480-4	DECAL, IDENTIFICATION	39
1	1014480-8	DECAL, IDENTIFICATION	38
1	1006854-2	SLIDE, CHASSIS, LOCK OPEN	37
1	1006854-1	SLIDE, CHASSIS, LOCK OPEN	36
11	MS35690-410	NUT, PLAIN, HEX.	35
39	MS15795-810	WASHER, FLAT	34
41	MS35338-82	WASHER, LOCK	33
10	MS51959-85	SCREW, MACH. FLAT CSK HD	32
18	MS51959-80	SCREW MACH. FLAT CSK HD	31
1	1014480-2	DECAL, IDENTIFICATION	30
14	MS51959-45	SCREW, MACH. FLAT CSK HD	29
1	2014354	CHASSIS ASSY. CMPTR COMPT	28
12	MS51958-60	SCREW, MACH. PAN HD	27
1	2014436	BRACKET, ANGLE, LH	26
1	1014480-10	DECAL, IDENTIFICATION	25
16	MS35650-104	NUT, PLAIN, HEX.	24
68	MS51958-61	SCREW, MACH. PAN HD	23
31	MS51958-64	SCREW, MACH. PAN HD	22
1	1006918-001	FILTER, AIR RFI SHIELDED	21
122	MS15795-808	WASHER, FLAT	20
120	MS35338-81	WASHER, LOCK	19
20	MS51958-62	SCREW, MACH. PAN HD	18
1	1006856	FAN, VENTILATING	17
1	1014480-1	DECAL, IDENTIFICATION	16
4	AN535-4-3	SCREW, DRIVE	15
1	1004260-204	PLATE, IDENTIFICATION	14
8	MS51960-64	SCREW, MACH. FLAT CSK HD	13
1	2014328	SPACER, RH	12
1	2014329	SPACER, LH	11
1	2014302-011	AC INPUT PANEL ASSY	10
1	2014272-011	FRONT PANEL ASSY	9
1	2014207-011	POWER SUPPLY ASSY	8
1	2014219-011	POWER SUPPLY ASSY	7
1	2014341-011	AGC JUNCTION ASSY	6
1	2014257-011	TEST MOUNT ASSY	5
1	2014313-011	TEMPERATURE MONITOR ASSY	4
1	2014079-011	POWER CONTROL ASSY	3
2	2014006-011	MOUNTING FIXTURE ASSY	2
1	2014371	CABINET REWORK	1

-011 LIST OF MATERIALS

2014024 K

NOTES

1. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014024
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. SOLDER PER ND1002071
4. FABRICATE PER ND1002032 EXCEPT USE FIND 68
5. SPOT TIE FIND 52 (W2) TO FIND 126 & FIND 127(W1) 3.00±.50 INCREMENTS
6. MIL-I-631, TYPE F, FORM U, GRADE A, CLASS 1, CATEGORY 1 COLOR BLACK AWG NO.4 FOR FIND 55, AWG NO.8 FOR FIND 136
7. AR DENOTES AS REQUIRED
8. STRIP .50 & TIN PER ND 1002071
9. SERIALIZE PER ND1002023
10. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006271-10
11. SLIDE FIND 136 OVER SOLDERED CONNECTIONS ON FIND 65
12. CUT LEADS FROM PROBE (1006459-002) ON FIND 5 TO REQUIRED LENGTH

* DENOTES LENGTH IN FEET

1900030	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
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DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. [illegible] DATE 20 SEP 65
CHECKED R. A. [illegible] 12 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

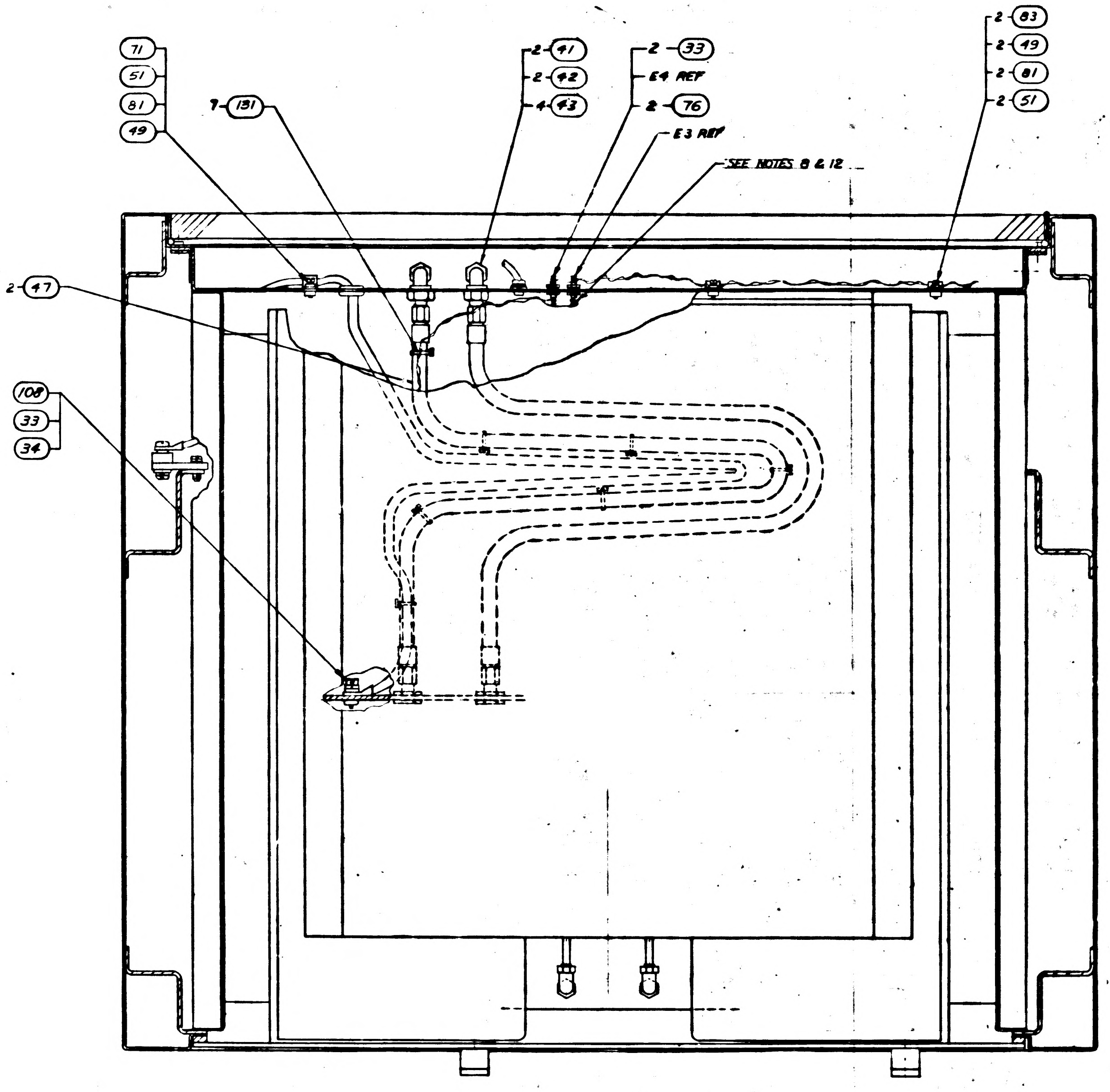
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPERATION CONSOLE
MAIN ASSY

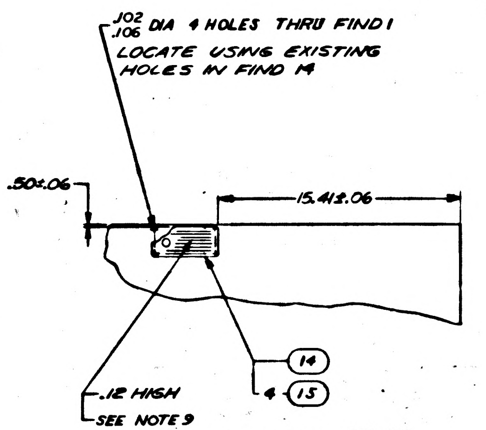
SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014024
SCALE 1/8 | WT | SHEET 1 OF 4

2014024 K

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25489		
–	CLASS B NO CHANGE PER CCA R25509	[illegible]	[illegible]
A	CHANGED PER CCA R25578 DR R. [illegible] CHK [illegible] APPD RCD	[illegible]	[illegible]
B	CHANGED PER CCA R25662 DR [illegible] CHK [illegible] APPD RCD	[illegible]	[illegible]
C	CHANGED PER CCA R25664 DR [illegible] CHK [illegible] APPD RCD	[illegible]	[illegible]
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25475	[illegible]	[illegible]
E	CHANGED PER TDRR 26506 DR [illegible] CHK [illegible] APPD [illegible]	2/28/66	[illegible]
F	CHANGED PER TDRR 26507 DR E. Uffring CHK [illegible] APPD [illegible]	[illegible]	[illegible]
G	CHANGED PER TDRR 26508 DR [illegible] CHK [illegible] APPD RED	[illegible]	[illegible]
H	CHANGED PER TDRR 26509 DR [illegible] CHK [illegible] APPD RED	[illegible]	[illegible]
J	CHANGED PER TDRR 26534 DR [illegible] CHK [illegible] APPD RED	[illegible]	[illegible]
K	CHANGED PER TDRR 26708 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]



SECTION B-B
SEE SHEET 1



PARTIAL VIEW G-G
SCALE 1/4
SEE SHEET 1

NOT SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014499	INTERCONNECTION DIAGRAM	REF
1	MS21919DG36	CLAMP, CUSHIONED	143
1	MS21919DG15	CLAMP, CUSHIONED	142
2	MS51957-29	SCREW, MACH PAN HD	141
2	MS15795-805	WASHER, PLAIN	140
1	2016361	COVER, TERMINAL BLOCK	139
3	MS17821-2-9	STRAP, CABLE	138
1	MS21919DG5	CLAMP, CUSHIONED	137
* 10	SEE NOTE 6	INSULATION SLEEVING	136
1	MS35335-63	WASHER, LOCK, EXT TOOTH	135
~~1~~	~~MS35649-84~~	~~NUT, PLAIN, HEX~~	~~134~~
1	MS51957-47	SCREW, MACH, PAN HD	133
1	1014150-1	CABLE ASSY, POWER	132
7	MS17821-1-9	STRAP, CABLE	131
1	MS21920-43	CLAMP	130
~~1~~	~~MS21919DG13~~	~~CLAMP, CUSHIONED~~	~~129~~
3	MS21919DG11	CLAMP, CUSHIONED	128
1	2014496-011	CABLE ASSY W1	127
1	2014498-011	WIRING HARNESS, BRANCHED A	126
~~1~~	~~MS35489-10~~	~~GROMMET, RUBBER~~	~~125~~
2	2014403	BLOCK, MOUNTING	124
4	MS15795-814	WASHER, PLAIN	123
2	MS35338-84	WASHER, LOCK	122
3	MS35690-610	NUT, HEX HD	121
1	2014457-081	CABLE ASSY GROUND	120
1	2014458-061	CABLE ASSY GROUND	119
2	2014458-121	CABLE ASSY GROUND	118
1	2014458-131	CABLE ASSY GROUND	117
1	1014480-9	DECAL, IDENTIFICATION	116
3	2014458-151	CABLE ASSY GROUND	115
~~[illegible]~~	~~MS51958-68~~	~~SCREW, MACH. PAN HD~~	~~114~~
1	2014457-061	CABLE ASSY GROUND	113
2	2014457-021	CABLE ASSY GROUND	112
1	2014458-161	CABLE ASSY, GROUND	111
1	2014458-081	CABLE ASSY, GROUND	110
8	MS51957-80	SCREW, MACH. PAN HD	109
12	MS51957-81	SCREW, MACH. PAN HD	108
1	1014480-7	DECAL, IDENTIFICATION	107
4	MS51958-67	SCREW, MACH. PAN HD	106
8	MS51957-82	SCREW, MACH. PAN HD	105
2	MS21919DG16	CLAMP, CUSHIONED	104
1	MS21919DG3	CLAMP, CUSHIONED	103
2	MS21919DG14	CLAMP, CUSHIONED	102
2	MS21919DG28	CLAMP, CUSHIONED	101
1	2014393	BRACKET, CONNECTOR	100
1	2014394	BRACKET, CONNECTOR	99
4	MS35337-78	WASHER, LOCK	98
4	MS15795-803	WASHER, FLAT	97
4	MS35649-44	NUT, PLAIN, HEX	96
4	MS35275-218	SCREW, FIL HD	95
8	1006671-003	STOP NUT, CONNECTOR	94
4	1006671-004	GUIDE SOCKET, CONNECTOR	93
4	1006671-002	GUIDE PIN, CONNECTOR	92
9	MS51958-63	SCREW, MACH. PAN HD	91
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	90
12	2014412	SPACER, SLIDE BRACKET	89
1	2014435	BRACKET, ANGLE	88
2	1006429	GRILLE METAL	87
1	1014480-6	DECAL, IDENTIFICATION	86
2	2014437	BLOCK, MOUNTING	85
1	2014438	BUSBAR, W4	84
2	MS21919DG2	CLAMP, CUSHIONED	83
1	MS35649-84	NUT, PLAIN HEX HD	82
3	MS35337-80	WASHER, LOCK	81
4	MS51957-46	SCREW, MACH. PAN HD	80
1	2014402	BUSBAR, W3	79
1	2014115-041	GROUND STRAP ASSY W257	78
~~1~~	~~MS51957-79~~	~~SCREW, MACH. PAN HD~~	~~77~~
2	1015896-001	TERMINAL FEED THRU INSULATED	76
1	1014480-5	DECAL, IDENTIFICATION	75
1	SE09XE02	TERMINAL, STUD MIL-T-55155/9	74
1	2014353	COVER, CAPACITOR	73
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

2014024 K

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 29SEP65
CHECKED K. A. Chasson 12 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

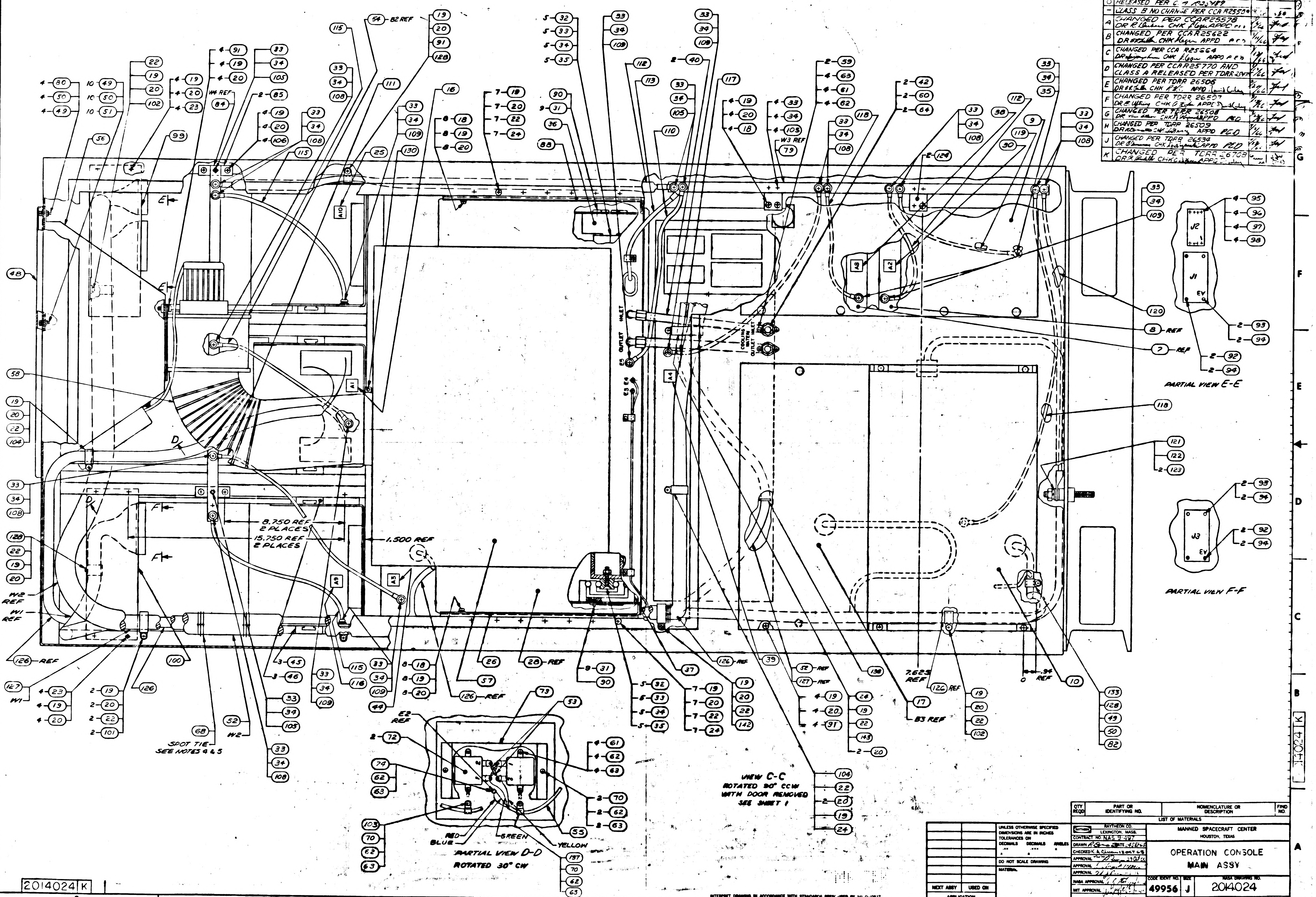
OPERATION CONSOLE
MAIN ASSY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014024
SCALE 1/2	WT	SHEET 2 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014024 K

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER C.A R23489		
–	CLASS B NO CHANGE PER CCA R25539	[illegible]	[illegible]
A	CHANGED PER CCAR25578 DR R. [illegible] CHK [illegible] APPD PED	[illegible]/66	[illegible]
B	CHANGED PER CCAR25622 DR [illegible] CHK [illegible] APPD PED	1/14/66	[illegible]
C	CHANGED PER CCA R25664 DR [illegible] CHK [illegible] APPD PED	1/17/66	[illegible]
D	CHANGED PER CCAR25770 AND CLASS A RELEASED PER TDRR 25477	1/13/66	[illegible]
E	CHANGED PER TDRR 26506 DR B.K [illegible] CHK [illegible] APPD David Conley	2/24/66	[illegible]
F	CHANGED PER TDRR 26507 DR E. [illegible] CHK [illegible] APPD David Conley	3/14/66	[illegible]
G	CHANGED PER TDRR 26508 DR [illegible] CHK [illegible] APPD PED	3/2/66	[illegible]
H	CHANGED PER TDRP 26509 DR [illegible] CHK [illegible] APPD PED	4/7/66	[illegible]
J	CHANGED PER TDRR 26534 DR [illegible] CHK [illegible] APPD PED	4/23/66	[illegible]
K	CHANGED PER TDRR 26708 DR [illegible] CHK C. [illegible] APPD [illegible]	[illegible]	[illegible]


PARTIAL VIEW E-E
J1
J2
J3
EV
PARTIAL VIEW F-F
PARTIAL VIEW D-D
ROTATED 30° CW
VIEW C-C
ROTATED 90° CCW
WITH DOOR REMOVED
SEE SHEET 1
SPOT TIE
SEE NOTES 4 & 5
8.750 REF
2 PLACES
15.750 REF
2 PLACES
1.500 REF
7.625 REF
.94 REF
B2 REF
B3 REF
E2 REF
W1
W2
W1 REF
W2 REF
W3 REF
W4 REF
INLET
OUTLET
COOLING WATER OUTLET INLET
E5
E3 E4
A1
A2
A3
A4
A8
A9
A10
RED
BLUE
GREEN
YELLOW
E
F
D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. [illegible] DATE 4 SEP 65
CHECKED K. A. [illegible] 12 OCT 65
APPROVAL [illegible] 29 Oct 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C. [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

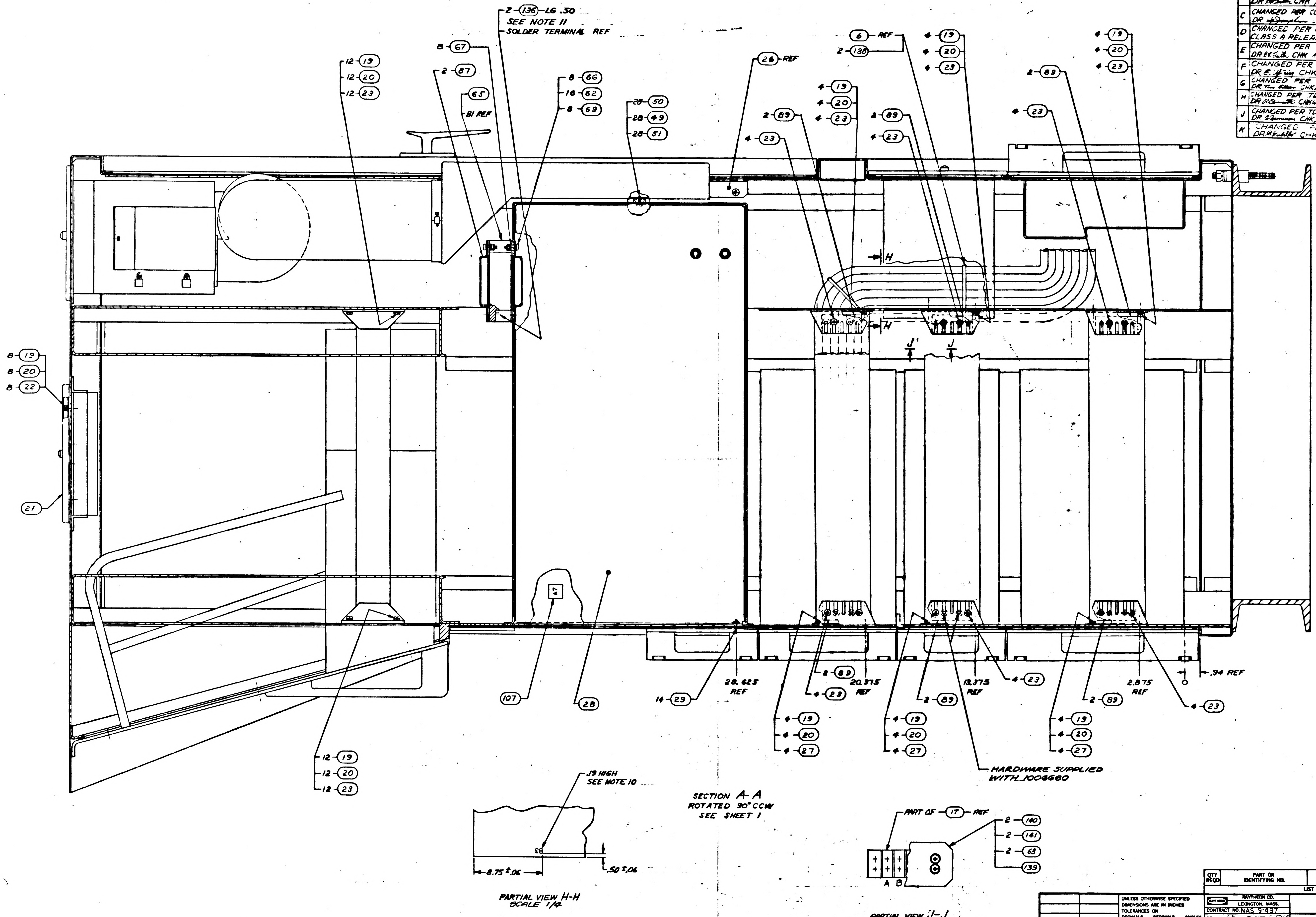
OPERATION CONSOLE
MAIN ASSY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014024
SCALE 1/2
WT
SHEET 3 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014024 K

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25487		
–	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25578 DR R Kinkaid CHK APPD PED	1/4/66	
B	CHANGED PER CCA R25622 DR CHK APPD PED	1/11/66	
C	CHANGED PER CCA R25564 DR CHK APPD PED	1/17/66	
D	CHANGED PER CCA R25770 AND CLASS A RELEASED PER TDRR 25475	1/31/66	
E	CHANGED PER TDRR 26506 DR CHK P.H.S. APPD	2/28/66	
F	CHANGED PER TDRR 26507 DR E. CHK APPD		
G	CHANGED PER TDRR 26508 DR CHK APPD PED	3/2/66	
H	CHANGED PER TDRR 26509 DR CHK APPD PED		
J	CHANGED PER TDRR 26534 DR CHK APPD PED	3/23/66	
K	CHANGED PER TDRR 26708 DR CHK APPD		



2-(135)-LG .50
SEE NOTE 11
SOLDER TERMINAL REF
8-(67)
2-(87)
(65)
81 REF
8-(66)
16-(62)
8-(69)
12-(19)
12-(20)
12-(23)
28-(50)
28-(49)
28-(51)
(26)-REF
(6)-REF
2-(138)
4-(19)
4-(20)
4-(23)
2-(89)
4-(23)
H
J
8-(19)
8-(20)
8-(22)
(21)
A7
(107)
(28)
14-(29)
28.625 REF
20.375 REF
13.375 REF
2.875 REF
.34 REF
2-(89)
4-(23)
4-(19)
4-(20)
4-(27)
HARDWARE SUPPLIED WITH 1006660
.19 HIGH
SEE NOTE 10
8.75 ± .06
.50 ± .06
PART OF -(17)- REF
2-(140)
2-(141)
2-(63)
(139)
A B

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

PARTIAL VIEW H-H
SCALE 1/4

PARTIAL VIEW J-J
SCALE 1/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28 SEP 65
CHECKED K. A. 12 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

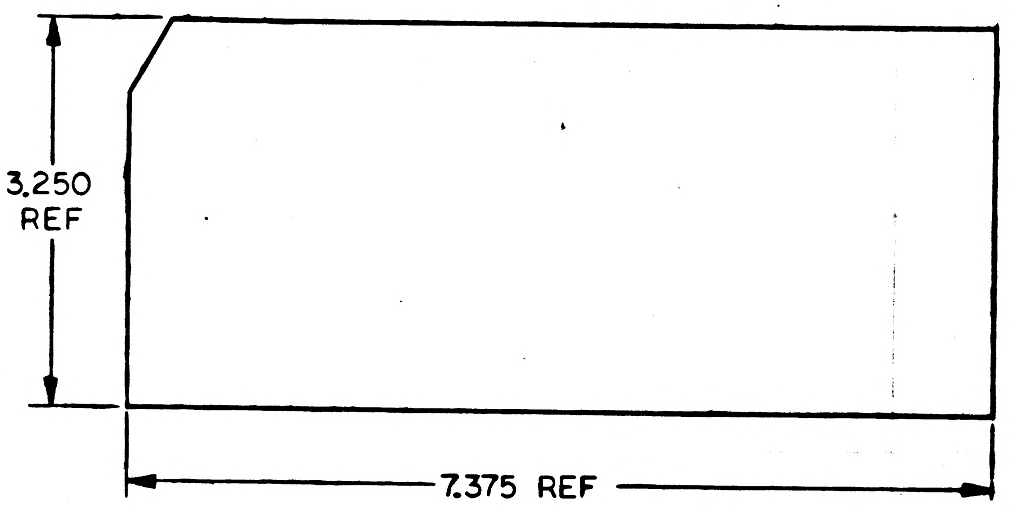
OPERATION CONSOLE
MAIN ASSY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014024
SCALE 1/2
WT
SHEET 4 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DE RIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
–	CLASS B CHANGED PER CCA R25502	11/15/65	
A	CHANGED PER CCA R25565 DR CHK APPD 1-6-66	1/6/66	
B	CHANGED PER CCA 25705 AND CLASS A RELEASED PER TDRR 25472	1/15/66	

NO. OF CARDS 371

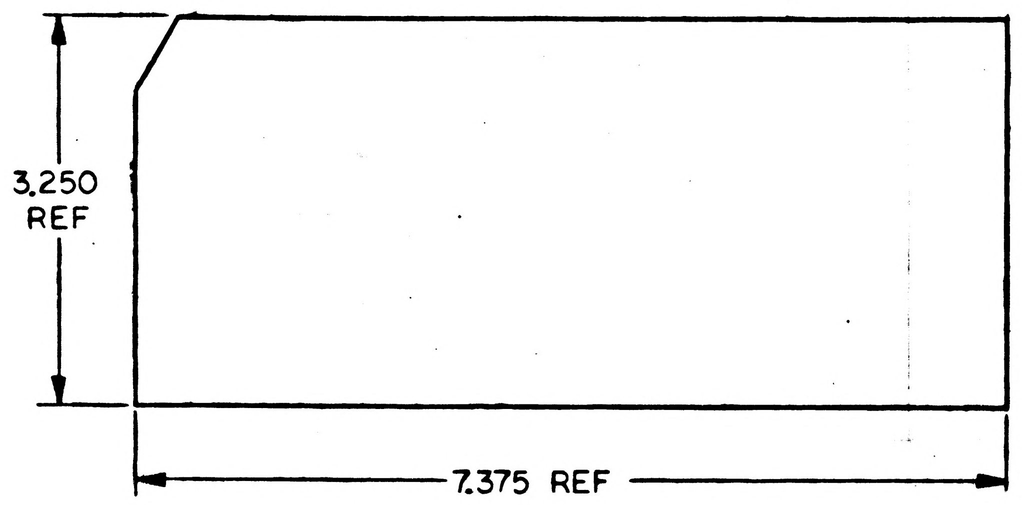


REFERENCE DRAWINGS
LOGIC DIAG. 2014169
MECH ASSY 2014362

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

RAYTHEON RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
CONTRACT NO. NAS 9-497	WIRE WRAP MACHINE CARDS SELF TEST PLATE I COMPUTER TEST SET		
DRAWN R. Lloyd DATE 7JUL65			
CHECKED			
APPROVAL 23JUL65			
APPROVAL D. O'... 10/30/65			
APPROVAL 11/1/65			
NASA APPROVAL A. C. METZGER	CODE IDENT NO.	SIZE	NASA DRAWING NO.
MIT APPROVAL	49956	B	2014025
MIT APPROVAL 1/20/66	SCALE 1/1	WT	SHEET 1 OF 1

NO. OF CARDS 414



REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
-	CLASS B CHANGED PER CCA R25502	11/15/65	
A	CHANGED PER CCA R25565 DR [illegible] CHK [illegible] APPD C.E.D. 1-6-66	1/6/66	
B	CHANGED PER CCA 25705 AND CLASS A RELEASED PER TDRR 25472	1/13/66	
C	CHANGED PER TDRR 26468 DR E. Ufting CHK C. DeGreenia APPD	2/24/66	

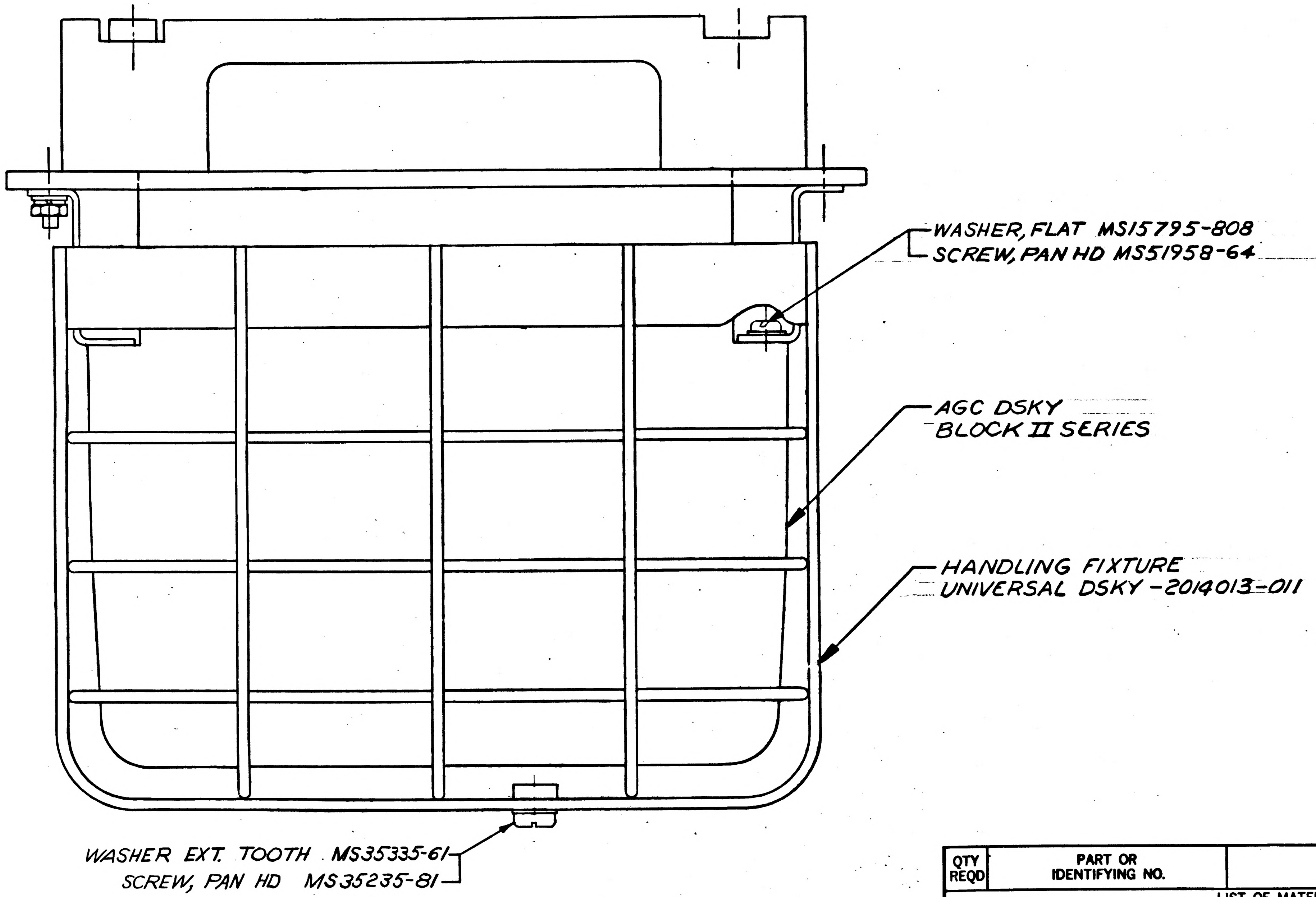
REFERENCE DRAWINGS
LOGIC DIAG 2014169
MECH ASSY 2014362

NOTE
1. USE CARD FORM IBM U11897
OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE
WITH STANDARDS PRESCRIBED
BY MIL-D-70327

RAYTHEON RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
CONTRACT NO. NAS 9-497	
DRAWN R Lloyd DATE 7 JUL 65	WIRE WRAP MACHINE CARDS SELF TEST PLATE I COMPUTER TEST SET
CHECKED	
APPROVAL C E Daniels 23 Dec 65	
APPROVAL D. O'Bryant 10/30/65	
APPROVAL 11/1/65	
NASA APPROVAL A. C. METZGER	CODE IDENT NO. 49956 · SIZE B · NASA DRAWING NO. 2014025
MIT APPROVAL 2 Jan 66	
MIT APPROVAL C Sabely 1/20/66	SCALE 1/1 · WT · SHEET 1 OF 1

— 2014027

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25136	9/3/65	A. Harano
—	CLASS A RELEASED PER TORR 24462		



WASHER, FLAT MS15795-808
SCREW, PAN HD MS51958-64
AGC DSKY
BLOCK II SERIES
HANDLING FIXTURE
UNIVERSAL DSKY -2014013-011
WASHER EXT. TOOTH MS35335-61
SCREW, PAN HD MS35235-81

NOTES

1. INSTALL UNIV DSKY USING MTG KIT 2014023-011

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN N. Matty DATE 7 MAY 65
CHECKED W. Lyons 30 JUL 65
APPROVAL P E Duf 5 AUG '65
APPROVAL J. Yakich 9 AUG '65
APPROVAL E D Soave 1 Sept 65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 7 Dec 65
MIT APPROVAL A. Harano 12/6/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSTALLATION DRAWING
AGC DSKY (BLK II SERIES)

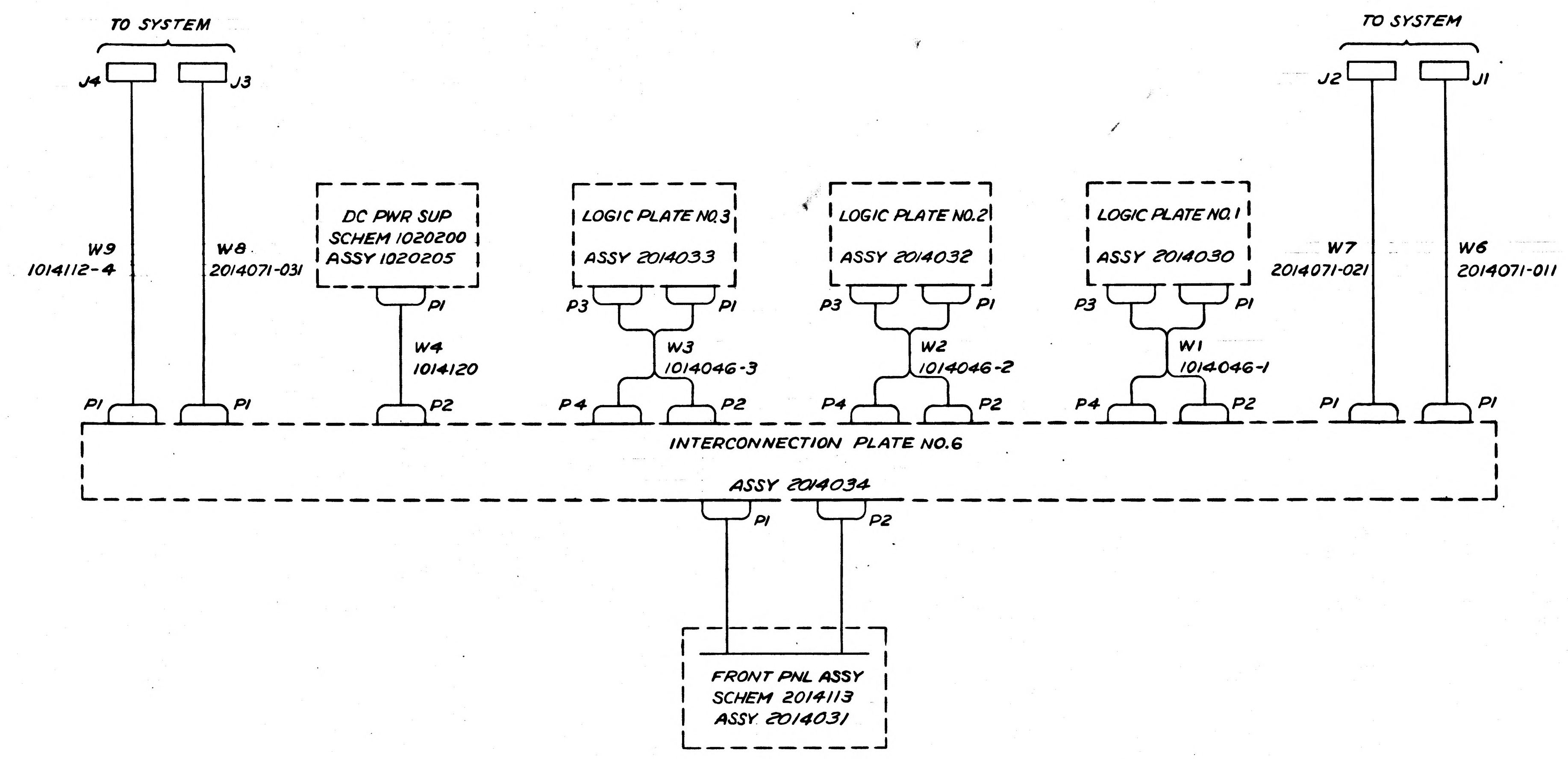
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	C	2014027

SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014028 —

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25030		
—	CLASS A RELEASE PER TDRR 21380		


TO SYSTEM
J4
J3
W9
1014112-4
W8
2014071-031
DC PWR SUP
SCHEM 1020200
ASSY 1020205
P1
W4
1014120
P2
LOGIC PLATE NO.3
ASSY 2014033
P3
P1
W3
1014046-3
P4
P2
LOGIC PLATE NO.2
ASSY 2014032
P3
P1
W2
1014046-2
P4
P2
LOGIC PLATE NO.1
ASSY 2014030
P3
P1
W1
1014046-1
P4
P2
TO SYSTEM
J2
J1
W7
2014071-021
W6
2014071-011
P1
P1
P1
P1
INTERCONNECTION PLATE NO.6
ASSY 2014034
P1
P2
FRONT PNL ASSY
SCHEM 2014113
ASSY 2014031

REF DWG
1. MECH ASSY 2014048
2. LOGIC DIAGRAM 2014065

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12775
DRAWN DATE 5/7/65
CHECKED 5/12/65
APPROVAL 23 Jun 65
APPROVAL D. 8/23/
APPROVAL
NASA APPROVAL
MIT APPROVAL 3 Aug 65
MIT APPROVAL C. Sperling 6/26

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION DIAGRAM
COMPUTER SIMULATOR

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	D	2014028
SCALE NONE	WT	SHEET 1 OF 1

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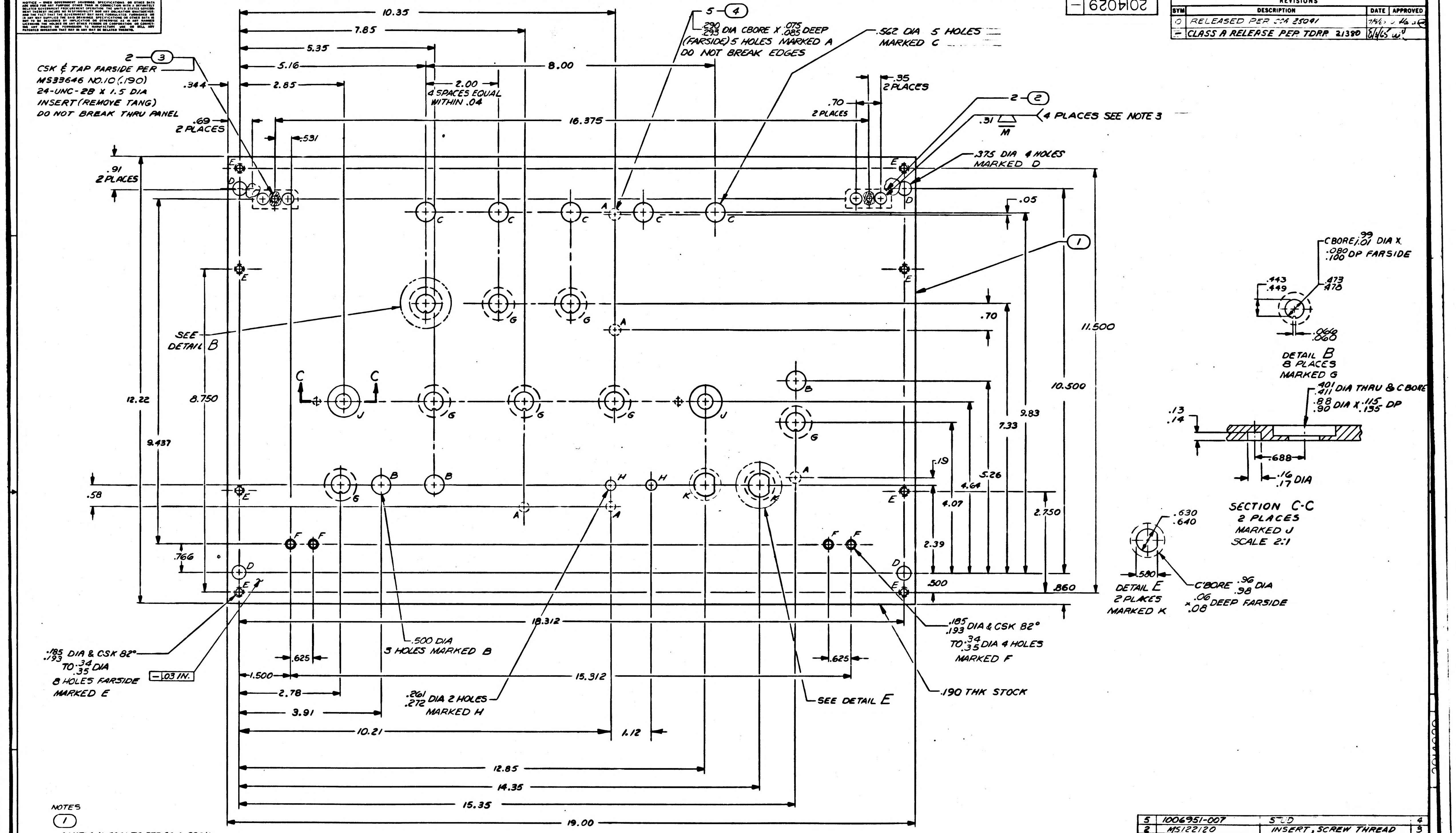
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25091	7/8/65	[illegible]
—	CLASS A RELEASE PEP TDRR 21380	8/3/65	[illegible]


10.35
7.85
5.35
5.16
2.85
8.00
2.00
4 SPACES EQUAL WITHIN .04
16.375
2 — 3
CSK & TAP FARSIDE PER MS33646 NO.10 (.190) 24-UNC-2B X 1.5 DIA INSERT (REMOVE TANG) DO NOT BREAK THRU PANEL
.344
.69 2 PLACES
.531
.91 2 PLACES
5 — 4
.290/.293 DIA CBORE X .075/.085 DEEP (FARSIDE) 5 HOLES MARKED A DO NOT BREAK EDGES
.562 DIA 5 HOLES MARKED C
.35 2 PLACES
.70 2 PLACES
2 — 2
.31 M
4 PLACES SEE NOTE 3
.375 DIA 4 HOLES MARKED D
.05
1
SEE DETAIL B
.70
11.500
10.500
9.83
7.33
5.26
4.64
4.07
2.750
2.39
.19
.500
.860
12.22
8.750
9.437
.58
.766
C C
A B C D E F G H J K
.185/.193 DIA & CSK 82° TO .34/.35 DIA 8 HOLES FARSIDE MARKED E
.03 IN.
.500 DIA 3 HOLES MARKED B
.261/.272 DIA 2 HOLES MARKED H
SEE DETAIL E
.185/.193 DIA & CSK 82° TO .34/.35 DIA 4 HOLES MARKED F
.190 THK STOCK
18.312
.625
1.500
15.312
2.78
3.91
10.21
1.12
12.85
14.35
15.35
19.00
CBORE .99/1.01 DIA X .080/.100 DP FARSIDE
.443/.449
.473/.478
.066/.060
DETAIL B 8 PLACES MARKED G
.401/.411 DIA THRU & C BORE .88/.90 DIA X .115/.135 DP
.13/.14
.688
.16/.17 DIA
SECTION C-C 2 PLACES MARKED J SCALE 2:1
.630/.640
.580
DETAIL E 2 PLACES MARKED K
C'BORE .96/.98 DIA X .06/.08 DEEP FARSIDE

NOTES

1

1. MATL: AL6061-T6 PER QQ-A-250/11
2. REMOVE BURRS & SHARP EDGES .005/.020
3. WELD PER MIL-W-8604
4. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
5. PAINT FRONT & EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE II
6. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
5	1006951-007	STUD	4
2	MS122120	INSERT, SCREW THREAD	3
2	2014029-002	BLOCK	2
1	2014029-001	PANEL	1

LIST OF MATERIALS

2014031	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 .02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE
HEAT TREATMENT
FINAL FINISH SEE NOTE

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12775
DRAWN [illegible] DATE 9 MAY 65
CHECKED [illegible] 6 Jun 65
APPROVAL [illegible] 2/4/65
APPROVAL [illegible] 7/1/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 3 Aug 65
MIT APPROVAL [illegible] 8/4/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, FRONT
COMPUTER SIMULATOR
(INSEPARABLE ASSEMBLY)

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	F	2014029
SCALE 1/1	WT	SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

—	2014029

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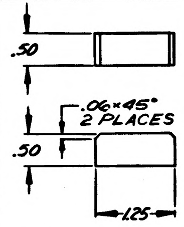
REVISIONS

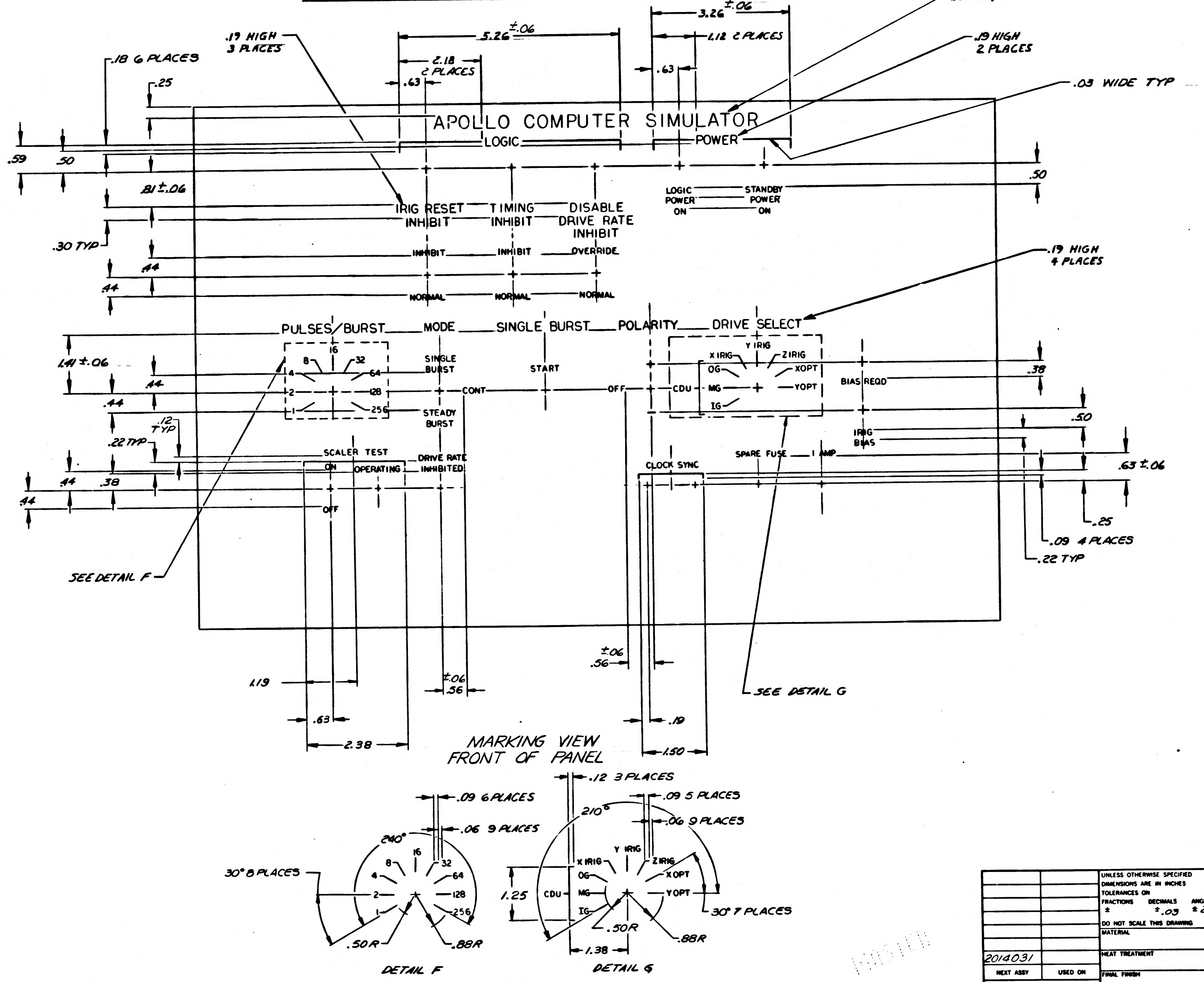
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25041	7/9/65	
—	CLASS A RELEASE PER TDRR 21390	8/3/65	WI



.50
.06×45°
2 PLACES
.50
.125

NOTES:
1. MAT'L: AL 6063-T6 PER QQ-A-200/9
2. REMOVE BURRS & SHARP EDGES
3. TOL: .XX±.02, ANGLES±5°

BLOCK
2014029-002



APOLLO COMPUTER SIMULATOR
LOGIC
POWER
IRIG RESET INHIBIT
TIMING INHIBIT
DISABLE DRIVE RATE INHIBIT
INHIBIT
INHIBIT
OVERRIDE
NORMAL
NORMAL
NORMAL
LOGIC POWER ON
STANDBY POWER ON
PULSES/BURST
MODE
SINGLE BURST
POLARITY
DRIVE SELECT
1
2
4
8
16
32
64
128
256
SINGLE BURST
CONT
STEADY BURST
START
OFF
Y IRIG
X IRIG
Z IRIG
OG
XOPT
CDU
MG
YOPT
IG
BIAS REQD
IRIG BIAS
SCALER TEST
ON
OPERATING
OFF
DRIVE RATE INHIBITED
CLOCK SYNC
SPARE FUSE 1 AMP
.19 HIGH 3 PLACES
5.26 ±.06
2.18 2 PLACES
.63
3.26 ±.06
1.12 2 PLACES
.63
.31 HIGH
.19 HIGH 2 PLACES
.03 WIDE TYP
.18 6 PLACES
.25
.59
.50
.81 ±.06
.30 TYP
.44
.44
.50
.19 HIGH 4 PLACES
1.41 ±.06
.44
.44
.12 TYP
.22 TYP
.38
.44
.44
.38
.50
.63 ±.06
.25
.09 4 PLACES
.22 TYP
SEE DETAIL F
SEE DETAIL G
1.19
.63
2.38
±.06 .56
±.06 .56
.19
1.50
MARKING VIEW
FRONT OF PANEL
.09 6 PLACES
.06 9 PLACES
240°
30° 8 PLACES
.50R
.88R
DETAIL F
.12 3 PLACES
.09 5 PLACES
.06 9 PLACES
210°
1.25
30° 7 PLACES
.50R
.88R
1.38
DETAIL G

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

2014031	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.03 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NP-12775
DRAWN DATE 3 MAY 65
CHECKED
APPROVAL D.O. Bryant 7/8/65
APPROVAL R.E. Buds 7/8/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, FRONT
COMPUTER SIMULATOR
(INSEPARABLE ASSEMBLY)

CODE IDENT NO 49956
SIZE F
NASA DRAWING NO. 2014029
SCALE 1/1
WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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2014029 —

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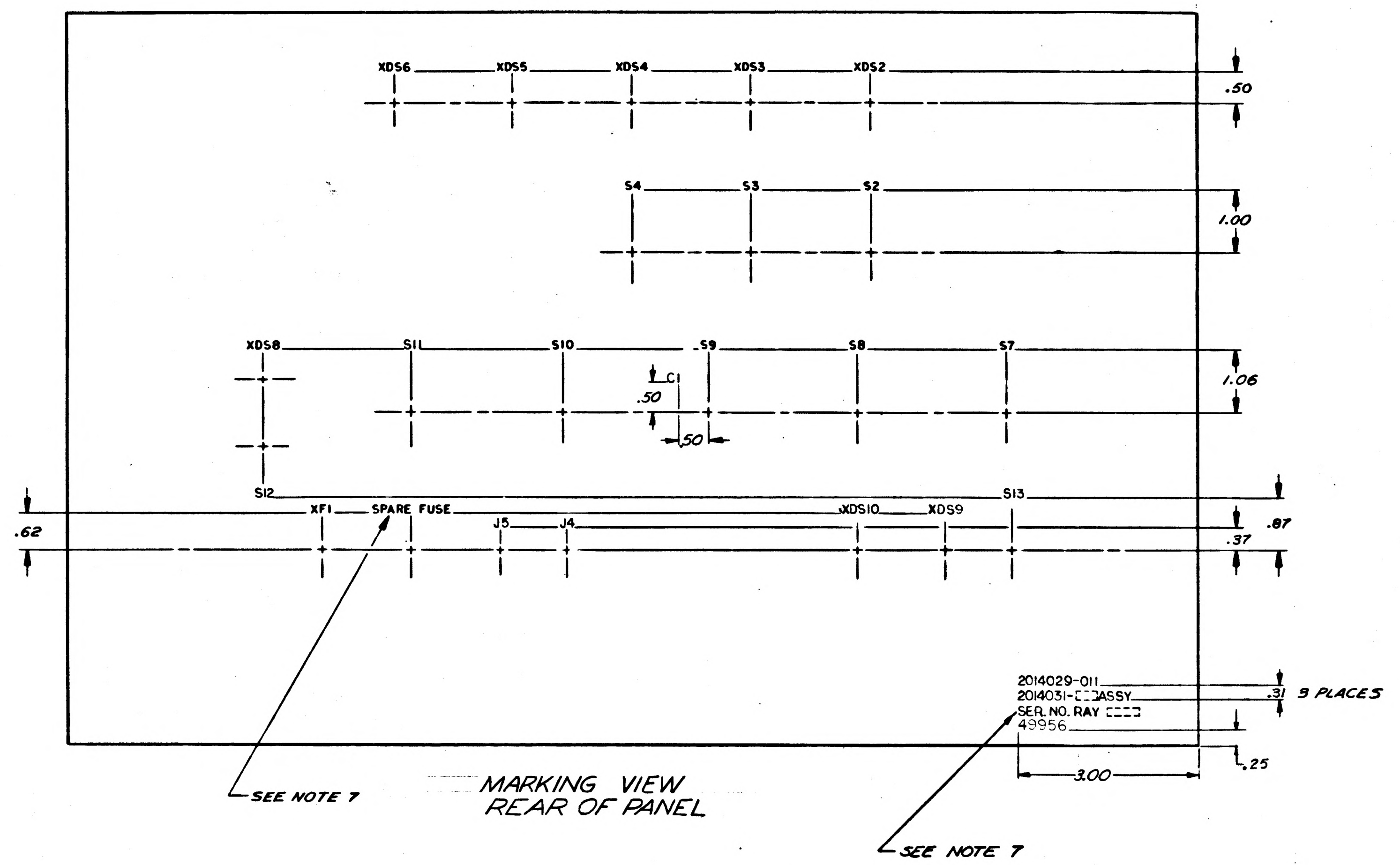
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER ... 35091	7/8/65	[illegible]
-	CLASS A RELEASE PER TDPR 21380	8/3/65	WK


XDS6
XDS5
XDS4
XDS3
XDS2
.50
S4
S3
S2
1.00
XDS8
S11
S10
S9
S8
S7
1.06
C1
.50
.50
S12
S13
XF1
SPARE FUSE
J5
J4
XDS10
XDS9
.62
.87
.37
2014029-011
2014031-□□ASSY
SER. NO. RAY □□□□
49956
.31 3 PLACES
3.00
.25
SEE NOTE 7
SEE NOTE 7

MARKING VIEW
REAR OF PANEL

			QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION		FIND NO	
			LIST OF MATERIALS					
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.06 ANGLES ±	RAYTHEON CO. LEXINGTON, MASS.		MANNED SPACECRAFT CENTER HOUSTON, TEXAS			
		DO NOT SCALE THIS DRAWING	CONTRACT NO. FNP-12775					
		MATERIAL	DRAWN [illegible] DATE 11MAY65		PANEL, FRONT COMPUTER SIMULATOR (INSEPARABLE ASSEMBLY)			
			CHECKED [illegible] 6 JUN 65					
			APPROVAL R.E. [illegible] 7/8/65					
			APPROVAL [illegible] 7/8/65					
			APPROVAL [illegible] 7/8/65					
2014031		HEAT TREATMENT	NASA APPROVAL [illegible]		CODE IDENT NO. 49956	SIZE F	NASA DRAWING NO. 2014029	
NEXT ASSY	USED ON	FINAL FINISH	MIT APPROVAL [illegible] 3 Aug 65					
APPLICATION			MIT APPROVAL [illegible]		SCALE 1/1	WT	SHEET 3 OF 3	

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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2014030 A

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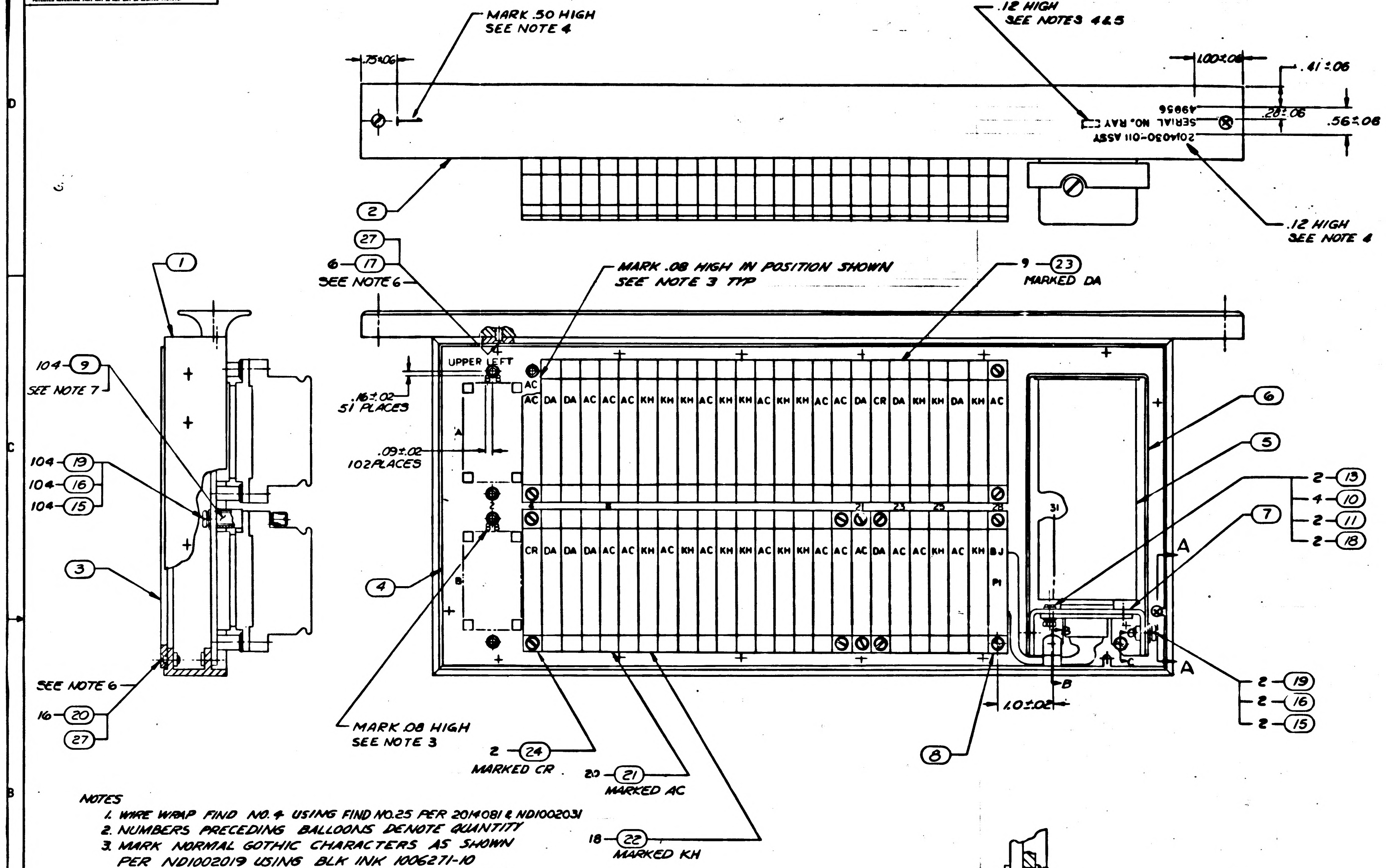
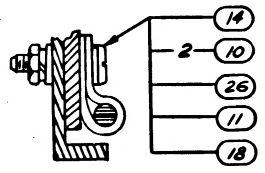
REVISIONS

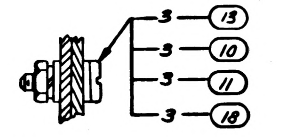
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER [illegible] 25085	7/9/65	
-	CLASS A RELEASE PER TDRR 21380		
A	CHANGED PER TDRR 21640 DR RB CHK C. APPD	27AUG 65	


MARK .50 HIGH
SEE NOTE 4
.75±.06
.12 HIGH
SEE NOTES 4&5
1.00±.06
.41±.06
.28±.06
.56±.08
49956
SERIAL NO. RAY
2014030-011 ASSY
2
.12 HIGH
SEE NOTE 4
27
6-17
SEE NOTE 6
MARK .08 HIGH IN POSITION SHOWN
SEE NOTE 3 TYP
9-23
MARKED DA
1
104-9
SEE NOTE 7
104-19
104-16
104-15
3
SEE NOTE 6
16-20
27
UPPER LEFT
AC
.16±.02
51 PLACES
.09±.02
102 PLACES
A
B
AC DA DA AC AC AC KH KH KH AC KH KH AC KH KH AC AC DA CR DA KH KH DA KH AC
21 23 25 28
CR DA DA DA AC AC KH AC KH AC KH KH AC KH KH AC AC AC DA AC AC KH AC KH BJ
P1
31
6
5
2-13
4-10
2-11
2-18
7
A
A
B
B
C
2-19
2-16
2-15
4
MARK .08 HIGH
SEE NOTE 3
2-24
MARKED CR
20-21
MARKED AC
18-22
MARKED KH
1.0±.02
8

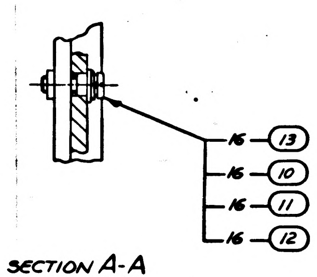
NOTES
1. WIRE WRAP FIND NO. 4 USING FIND NO. 25 PER 2014081 & ND1002031
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLK INK 1006271-10
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
5. MARK SER. NO. PER ND1002023
6. ASSEMBLE FIND NO. 17 & FIND NO. 20 USING FIND 27
7. LOCATE & INSTALL FIND NO. 9 PER KEY CODE MARKING USING DWG NO. 1014047
8. AR DENOTES "AS REQUIRED"


14
2-10
26
11
18

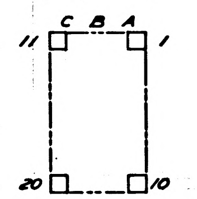
SECTION B-B
SCALE: NONE


3-13
3-10
3-11
3-18

SECTION C-C
SCALE: NONE


16-13
16-10
16-11
16-12

SECTION A-A
SCALE: NONE


C B A
11
1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS
(REF ONLY)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2014065	LOGIC DIAGRAM	REF
☒	2014081	WIREWRAP MACH. CARD	REF
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	27
1	MS25281-4	CLAMP, LOOP-PLASTIC	26
AR	1006345-1	WIRE, ELEC	25
2	1014209	MODULE, INTERFACE COUPLING	24
9	1014053	MODULE, TRANSFORMER DRIVER	23
18	1014079	MODULE, GATED FLIP-FLOP	22
20	1014034	MODULE, NOR	21
16	MS51959-15	SCREW, FLAT HD	20
106	MS51957-29	SCREW, PAN HD	19
6	MS35649-44	NUT, HEXAGON	18
6	MS51959-25	SCREW, FLAT HD	17
106	MS35338-79	WASHER, LOCK	16
106	1006997	WASHER, FLAT	15
1	MS51957-19	SCREW, PAN HD	14
21	MS51957-17	SCREW, PAN HD.	13
16	1006986	WASHER, SHOULDERED, NYLON	12
22	MS35338-78	WASHER, LOCK	11
25	MS15795-804	WASHER, FLAT	10
104	1014212	STANDOFF, PROGRAM	9
1	1014091	CABLE ASSY WS	8
1	1014055	BRACKET, OSCILLATOR	7
1	1014056	RETAINER, OSCILLATOR	6
1	1006946	OSCILLATOR	5
1	1006495-003	PLATE ASSY	4
1	1014026	COVER, CONN. PLATE	3
1	1014007	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

2014048	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12775
DRAWN R. Floyd DATE 12 MAY 65
CHECKED A. K. 6/4/65
APPROVAL R. E. 8 MAY 65
APPROVAL 7/9/65
APPROVAL 7/9/65
NASA APPROVAL
MIT APPROVAL 3 Aug 65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY
PLATE NO. 1
APOLLO COMPUTER SIMULATOR

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014030
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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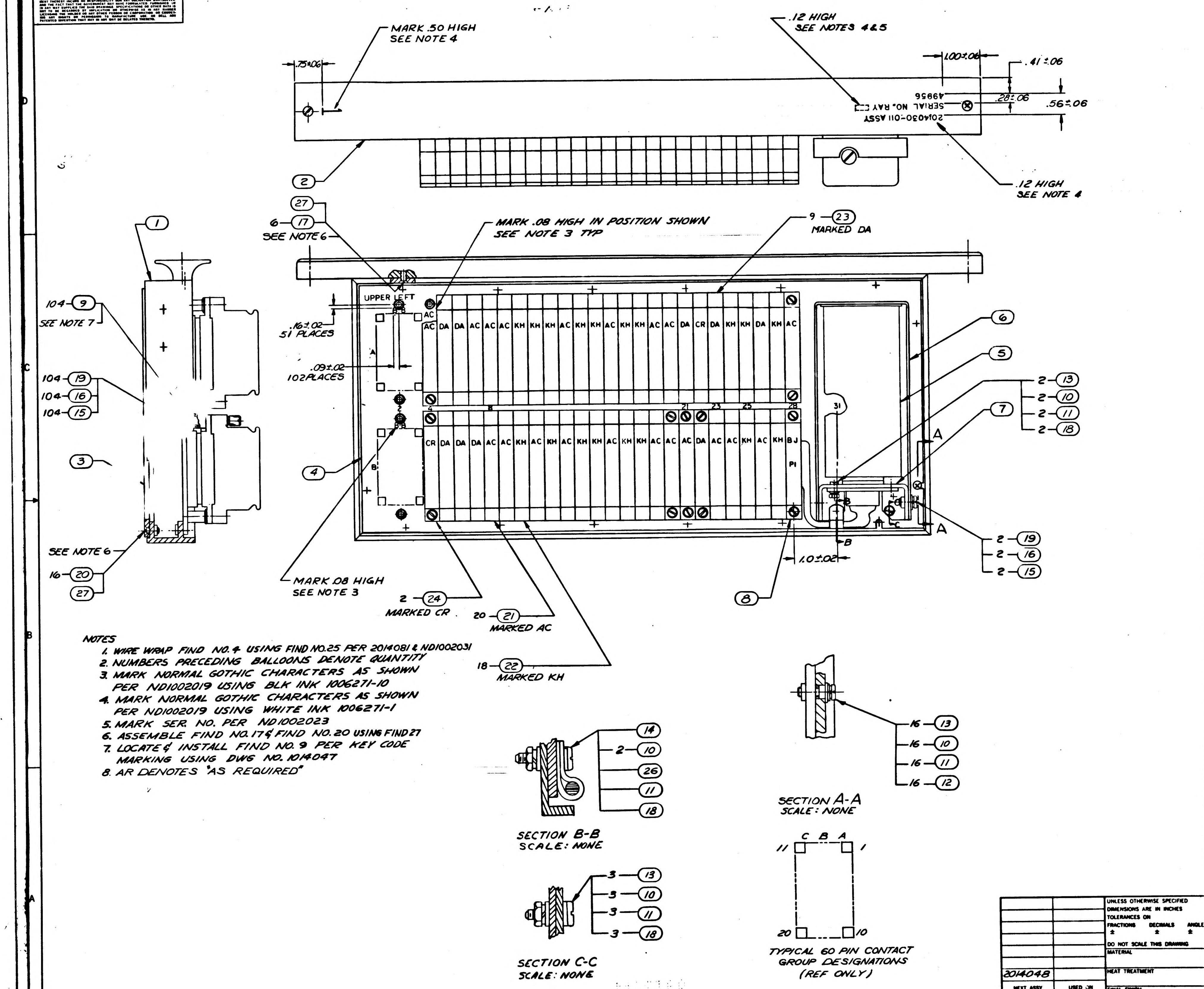
REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER 25095	7/9/65	
–	CLASS A RELEASE PER TDPR 21380		



MARK .50 HIGH
SEE NOTE 4
.75±.06
.12 HIGH
SEE NOTES 4&5
1.00±.06
.41±.06
.28±.06
.56±.06
2014030-011 ASSY
SERIAL NO. RAY
49956
.12 HIGH
SEE NOTE 4
2
27
6-17
SEE NOTE 6
MARK .08 HIGH IN POSITION SHOWN
SEE NOTE 3 TYP
9-23
MARKED DA
1
104-9
SEE NOTE 7
104-19
104-16
104-15
3
UPPER LEFT
.16±.02
51 PLACES
.09±.02
102 PLACES
AC
DA
KH
CR
BJ
P1
6
5
7
2-13
2-10
2-11
2-18
4
A
B
C
31
2-19
2-16
2-15
1.0±.02
8
SEE NOTE 6
16-20
27
MARK .08 HIGH
SEE NOTE 3
2-24
MARKED CR
20-21
MARKED AC
18-22
MARKED KH
14
2-10
26
11
18
SECTION B-B
SCALE: NONE
3-13
3-10
3-11
3-18
SECTION C-C
SCALE: NONE
16-13
16-10
16-11
16-12
SECTION A-A
SCALE: NONE
C B A
11
1
20
10
TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

NOTES
1. WIRE WRAP FIND NO. 4 USING FIND NO. 25 PER 2014081 & ND1002031
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLK INK 1006271-10
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
5. MARK SER. NO. PER ND1002023
6. ASSEMBLE FIND NO. 17 & FIND NO. 20 USING FIND 27
7. LOCATE & INSTALL FIND NO. 9 PER KEY CODE MARKING USING DWG NO. 1014047
8. AR DENOTES "AS REQUIRED"

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2014065	LOGIC DIAGRAM	REF
☒	2014081	WIREWRAP MACH. CARD	REF
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	27
1	MS25281-4	CLAMP, LOOP-PLASTIC	26
AR	1006945-1	WIRE, ELEC	25
2	1014209	MODULE, INTERFACE COUPLING	24
9	1014053	MODULE, TRANSFORMER DRIVER	23
18	1014079	MODULE, GATED FLIP-FLOP	22
20	1014034	MODULE, NOR	21
16	MS51959-15	SCREW, FLAT HD	20
106	MS51957-29	SCREW, PAN HD	19
6	MS35649-44	NUT, HEXAGON	18
6	MS51959-25	SCREW, FLAT HD	17
106	MS35338-79	WASHER, LOCK	16
106	1006997	WASHER, FLAT	15
1	MS51957-19	SCREW, PAN HD	14
21	MS51957-17	SCREW, PAN HD.	13
16	1006986	WASHER, SHOULDERED, NYLON	12
22	MS35338-78	WASHER, LOCK	11
23	MS15795-804	WASHER, FLAT	10
104	1014212	STANDOFF, PROGRAM	9
1	1014091	CABLE ASSY WS	8
1	1014055	BRACKET, OSCILLATOR	7
1	1014056	RETAINER, OSCILLATOR	6
1	1006946	OSCILLATOR	5
1	1006495-003	PLATE ASSY	4
1	1014026	COVER, CONN. PLATE	3
1	1014007	SUPPORT, FRAME	2
1	1014014-2	FRAME	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
2014048	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO FNP 12775
DRAWN S. Hoyt DATE 2 MAY 65
CHECKED B. K. England 6/1/65
APPROVAL P E Duck 8 Jun 65
APPROVAL 7/9/65
APPROVAL 7/9/65
NASA APPROVAL
MIT APPROVAL 3 Aug 65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY
PLATE NO. 1
APOLLO COMPUTER SIMULATOR

CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014030
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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2014034 | -

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
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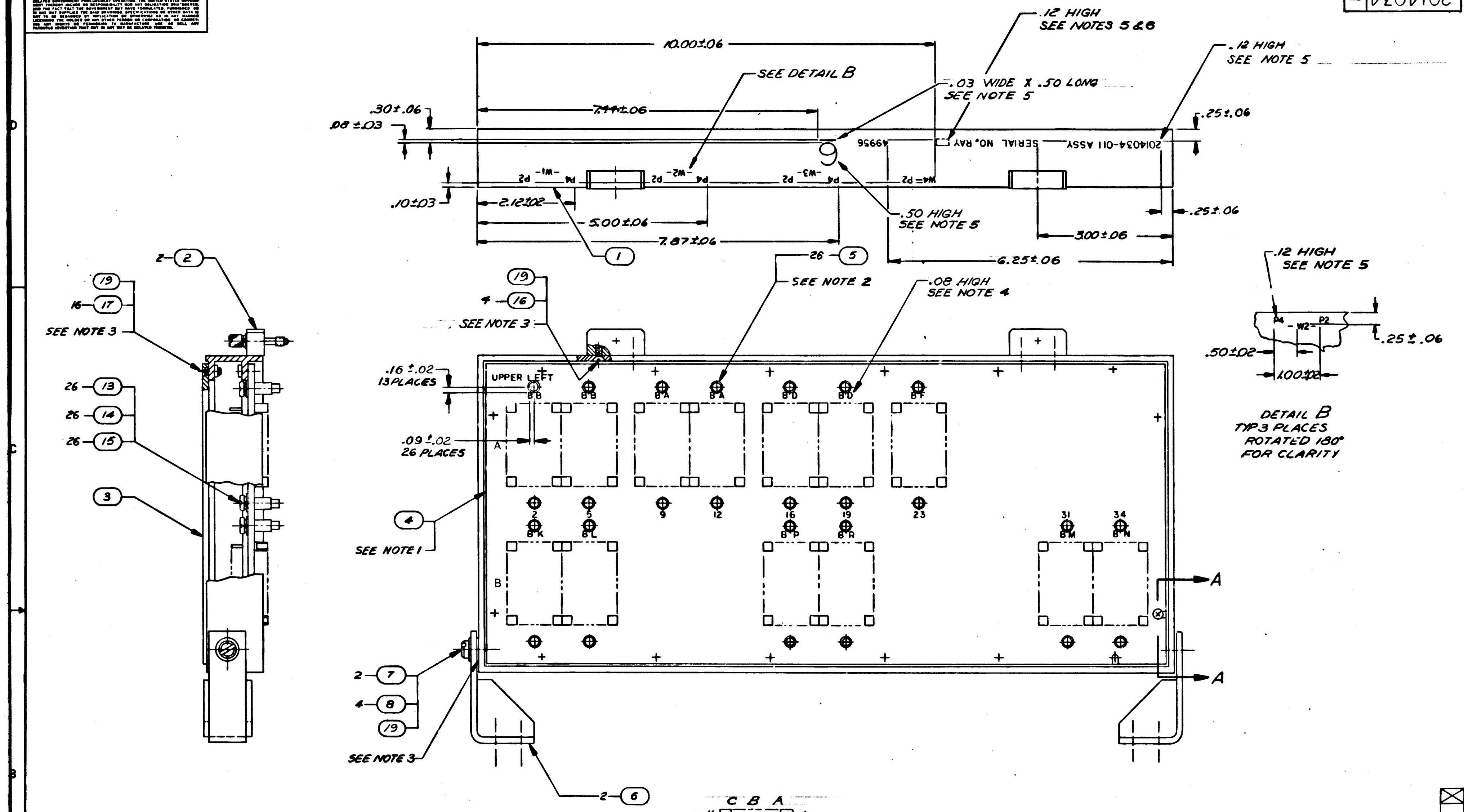
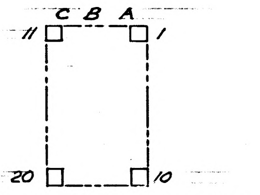
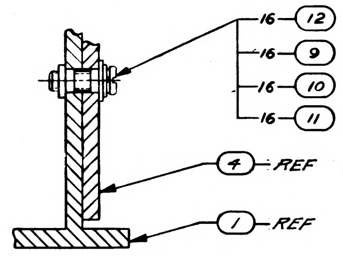
-	CLASS A RELEASE PER TDRR 2,380		


10.00±.06
7.44±.06
.30±.06
.08±.03
.10±.03
2.12±.02
5.00±.06
7.87±.06
6.25±.06
3.00±.06
.25±.06
.25±.06
SEE DETAIL B
.12 HIGH SEE NOTES 5 & 6
.03 WIDE X .50 LONG SEE NOTE 5
.12 HIGH SEE NOTE 5
.50 HIGH SEE NOTE 5
2014034-011 ASSY SERIAL NO. RAY
49956
P4 -W1- P2
P4 -W2- P2
P4 -W3- P2
W4 = P2
SEE NOTE 2
.08 HIGH SEE NOTE 4
SEE NOTE 3
SEE NOTE 1
.16 ±.02 13 PLACES
.09 ±.02 26 PLACES
UPPER LEFT
A
B
8B 8B 8A 8A 8D 8D 8F
2 5 9 12 16 19 23
8K 8L 8P 8R
31 34 8M 8N
A
A
26 (5)
4 (16)
(19)
(4)
2 (7)
4 (8)
(19)
2 (6)
(1)
2 (2)
(19)
16 (17)
26 (13)
26 (14)
26 (15)
(3)
.12 HIGH SEE NOTE 5
P4 W2 P2
.50±.02
1.00±.02
.25±.06

DETAIL B
TYP 3 PLACES
ROTATED 180°
FOR CLARITY


C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)


16 (12)
16 (9)
16 (10)
16 (11)
(4) REF
(1) REF

PARTIAL SECTION A-A
SCALE 2/1

NOTES
1. WIREWRAP FIND NO.4 USING FIND NO.18 PER 2014084 & ND1002031
2. LOCATE & INSTALL FIND NO.5 PER KEY CODE MARKING USING DWG NO. 1014047
3. ASSEMBLE FIND NO.7, 16 & 17 USING FIND NO.19
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. SERIALIZE PER ND1002023
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. AR DENOTES "AS REQUIRED"

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2014084	WIREWRAP MACH. CARD	REF
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMP	19
AR	1006945-1	WIRE, ELECTRICAL	18
16	MS51959-15	SCREW, FLAT HD	17
4	MS51959-14	SCREW, FLAT HD	16
26	MS35338-79	WASHER, LOCK	15
26	1006997	WASHER, FLAT	14
26	MS51957-29	SCREW, PAN HD	13
16	MS51957-17	SCREW, PAN HD	12
16	MS15795-803	WASHER, FLAT	11
16	MS35338-78	WASHER, LOCK	10
16	1006986	WASHER, SHOULDERED, NYLON	9
4	1006982-8	WASHER, NYLON	8
2	1014005	SCREW, SHOULDER	7
2	1014006	BRACKET, PIVOT	6
26	1014212	STAND OFF, PROGRAM	5
1	1006495-002	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
2	1014013	RETAINER, CAPTIVE SCREW	2
1	1014014-1	FRAME	1
-011	LIST OF MATERIALS		

2014048	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO FNP-12775
DRAWN [illegible] DATE 5 MAY65
CHECKED [illegible] 3JUN65
APPROVAL D.O.[illegible] 7/8/65
APPROVAL [illegible] 7/8/65
APPROVAL [illegible] 7/8/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

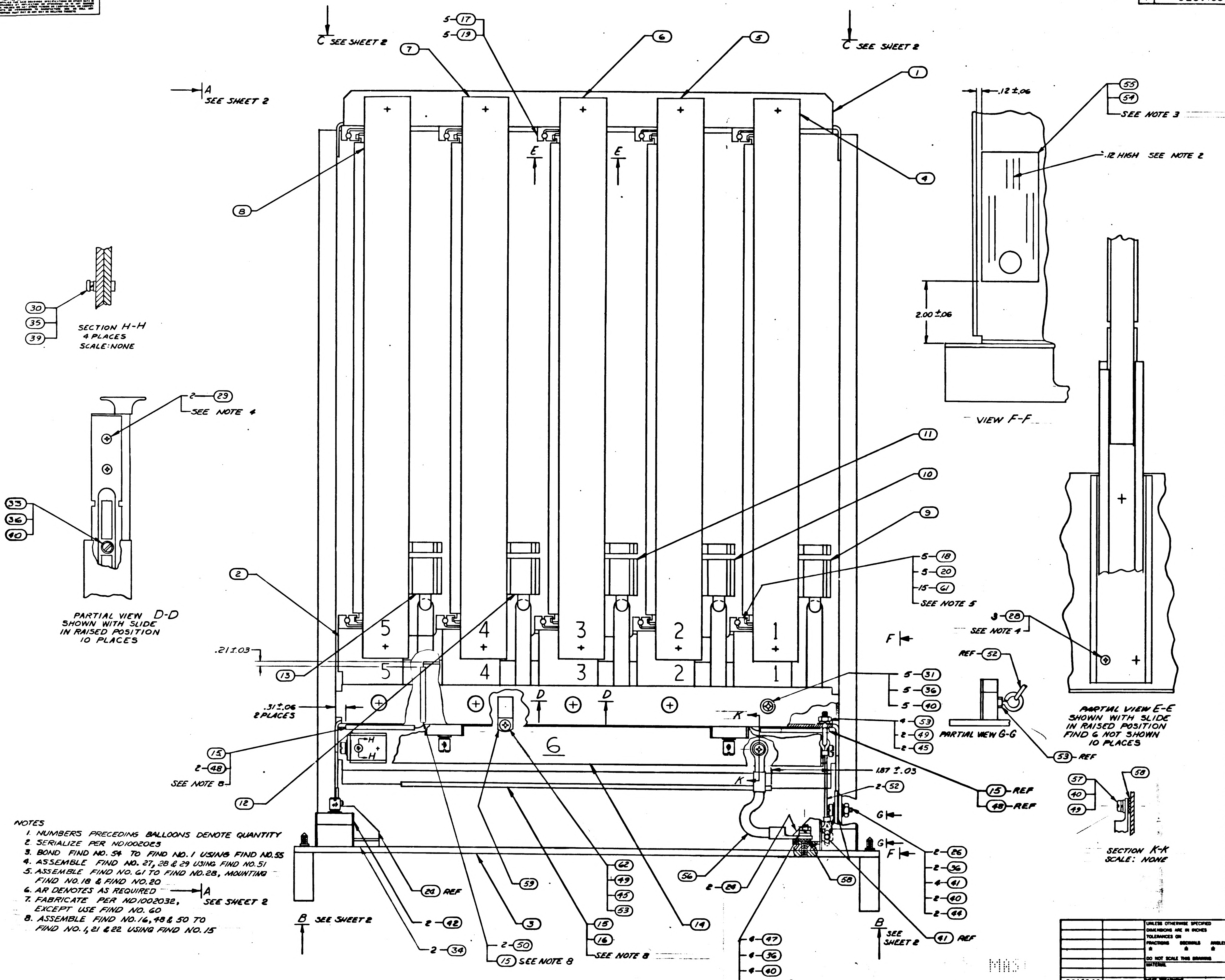
INTERCONNECTION PLATE ASSY
PLATE NO. 6
COMPUTER SIMULATOR

CODE IDENT NO 49956 | SIZE F | NASA DRAWING NO. 2014034
SCALE 1/1 | WT | SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25044		
1	CHANGED PER CCA R25122 DR Barman CHK APPD Cooley		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TERR	1/66	

2014036


C SEE SHEET 2
C SEE SHEET 2
A SEE SHEET 2
5-17
5-19
7
6
5
1
4
8
E
E
.12 ±.06
55
54
SEE NOTE 3
.12 HIGH SEE NOTE 2
2.00 ±.06
VIEW F-F
30
35
39
SECTION H-H
4 PLACES
SCALE: NONE
2-29
SEE NOTE 4
33
36
40
PARTIAL VIEW D-D
SHOWN WITH SLIDE
IN RAISED POSITION
10 PLACES
11
10
9
5-18
5-20
15-61
SEE NOTE 5
2
5 4 3 2 1
.21 ±.03
13
.31 ±.06
2 PLACES
D D
6
K
K
15
2-48
SEE NOTE 8
12
5-31
5-36
5-40
4-53
2-49
2-45
PARTIAL VIEW G-G
REF-52
53-REF
3-28
SEE NOTE 4
F
PARTIAL VIEW E-E
SHOWN WITH SLIDE
IN RAISED POSITION
FIND 6 NOT SHOWN
10 PLACES
1.87 ±.03
2-52
15-REF
48-REF
57
40
49
58
SECTION K-K
SCALE: NONE
G
G
F
2-26
2-36
4-41
2-40
2-44
56
2-28
58
24 REF
59
62
49
45
53
2-42
3
15
16
SEE NOTE 8
14
2-50
15 SEE NOTE 8
2-34
4-47
4-36
4-40
4-44
41 REF
B SEE SHEET 2
B SEE SHEET 2

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. BOND FIND NO. 54 TO FIND NO. 1 USING FIND NO. 55
4. ASSEMBLE FIND NO. 27, 28 & 29 USING FIND NO. 51
5. ASSEMBLE FIND NO. 61 TO FIND NO. 28, MOUNTING FIND NO. 18 & FIND NO. 20
6. AR DENOTES AS REQUIRED
7. FABRICATE PER ND1002032, EXCEPT USE FIND NO. 60
8. ASSEMBLE FIND NO. 16, 48 & 50 TO FIND NO. 1, 21 & 22 USING FIND NO. 15

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2014132	INTERCONN DIAGRAM	REF
8	1006671-004	GUIDE, SOCKET	65
16	1006671-003	NUT, STOP	64
8	1006671-002	GUIDE PIN	63
1	MS51957-64	SCREW, PAN HD, CROSS RECESSED	62
15	MS24680-22	NUT, PLAIN, CAP	61
AR	1006458-004	TAPE, LACING	60
1	MS21333-73	CLAMP, CABLE	59
2	MS35335-61	WASHER, INT. LOCK	58
1	MS51957-62	SCREW, PAN HD, CROSS RECESSED	57
1	2014238-011	GROUND STRAP ASSY	56
AR	MIL-A-5092 TYPE II	CEMENT	55
1	1004260-219	NAME PLATE	54
5	MS35649-104	NUT, PLAIN HEX	53
2	1006239	LANYARD ASSY	52
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	51
6	1006980-5	GROMMET NYLON	50
4	MS15795-808	WASHER, FLAT	49
2	1006980-3	GROMMET NYLON	48
4	MS51959-48	SCR, FLAT HD, CROSS-RECESSED	47
1	1014304	BRACKET CONNECTOR	46
3	MS35338-81	WASHER, LOCK SPLIT	45
6	MS35649-84	NUT, PLAIN HEXAGON	44
1	2014193-011	CABLE ASSY W6	43
2	1014013	RETAINER, CAPTIVE SCREW	42
4	1006982-8	WASHER, NYLON	41
28	MS35338-80	WASHER, LOCK SPLIT	40
22	MS35338-79	WASHER, LOCK SPLIT	39
4	MS35338-78	WASHER, LOCK SPLIT	38
4	MS15795-803	WASHER, FLAT	37
27	MS15795-807	WASHER, FLAT	36
22	MS15795-805	WASHER, FLAT	35
2	1014331	PLATE, SPACING	34
16	MS51957-45	SCR, PAN HD, CROSS RECESSED	33
4	MS51957-13	SCR, PAN HD, CROSS-RECESSED	32
5	MS51957-45	SCR, PAN HD, CROSS-RECESSED	31
22	MS51957-26	SCR, PAN HD, CROSS-RECESSED	30
20	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	29
30	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	28
5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	27
2	1014005	SCREW, SHOULDER	26
2	MS25281-15	CLAMP, CABLE	25
2	2014236	BRACKET, PIVOT ARM	24
1	1014018	TOOL EXTRACTING	23
1	1014028	CHANNEL BOTTOM LEFT	22
1	1014027	CHANNEL BOTTOM RIGHT	21
5	1006988-1	SLIDE, CHASSIS L.H.	20
5	1006988-2	SLIDE, CHASSIS R.H.	19
5	1006988-3	SLIDE, CHASSIS L.H.	18
5	1006988-4	SLIDE, CHASSIS R.H.	17
1	1006980-1	GROMMET, NYLON	16
A.R.	1006981	CEMENT	15
1	2014228-011	INTERCONN PLATE NO. 6	14
1	1014046-8	CABLE ASSY W5	13
1	1014046-7	CABLE ASSY W4	12
1	1014046-6	CABLE ASSY W3	11
1	1014046-5	CABLE ASSY W2	10
1	1014046-4	CABLE ASSY W1	9
1	2014219-011	LOGIC PLATE ASSY NO. 5	8
1	2014218-011	LOGIC PLATE ASSY NO. 4	7
1	2014217-011	LOGIC PLATE ASSY NO. 3	6
1	2014216-011	LOGIC PLATE ASSY NO. 2	5
1	2014215-011	LOGIC PLATE ASSY NO. 1	4
1	2014225-011	PANEL, FRONT ASSY	3
1	2016347	BRACKET, CABLE GUIDE	2
1	2014417	CHASSIS STRUCTURE	1

-011 LIST OF MATERIALS

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-4137
DRAWN R. Lloyd DATE 22 MAR
CHECKED 3 MAR 65 (CC)
APPROVAL 3 JAN 65
APPROVAL 1/6/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C Stell 1/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

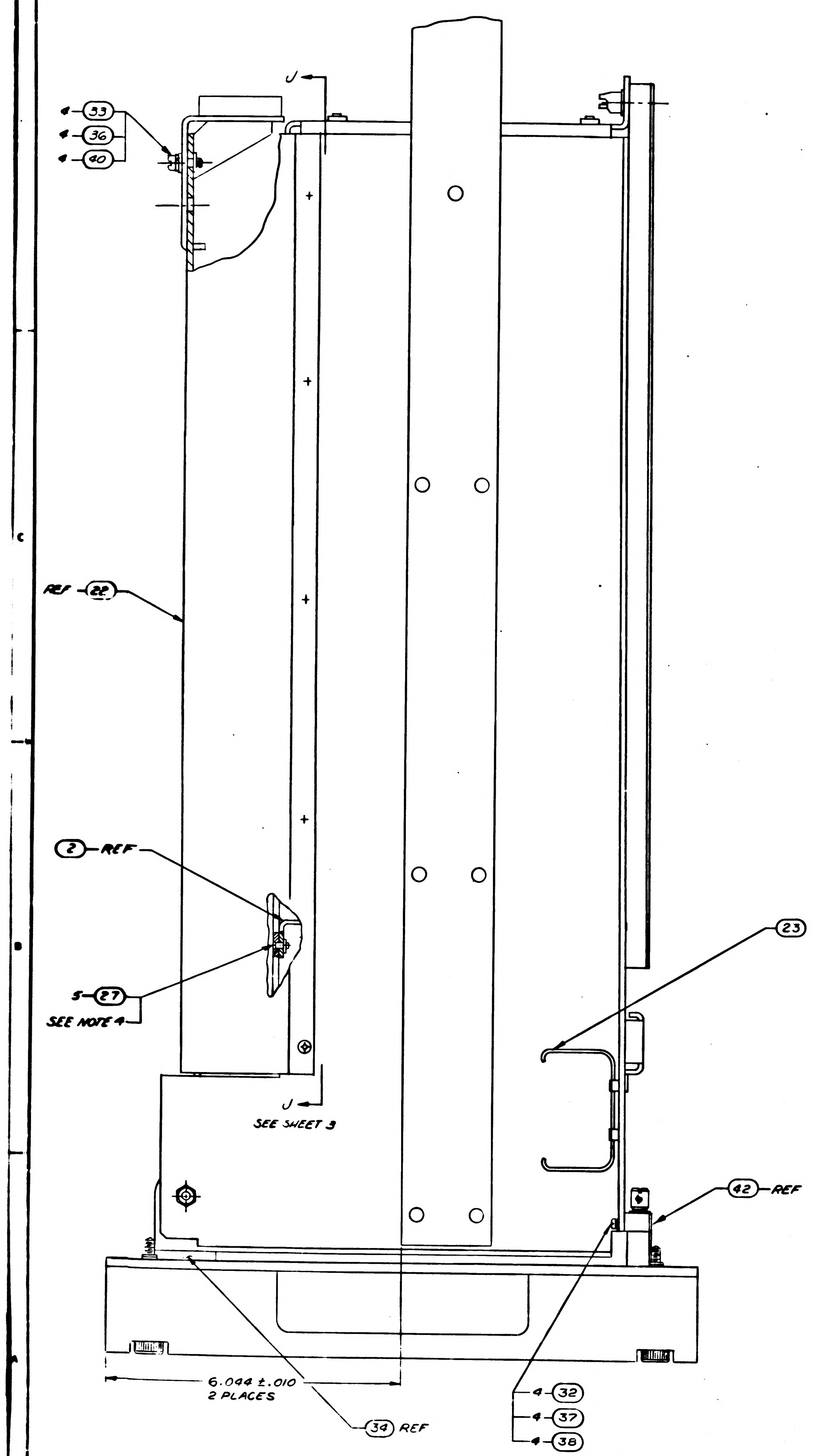
LOGIC DRAWER ASSY
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014036
SCALE 1/1 WT SHEET 1 OF 3

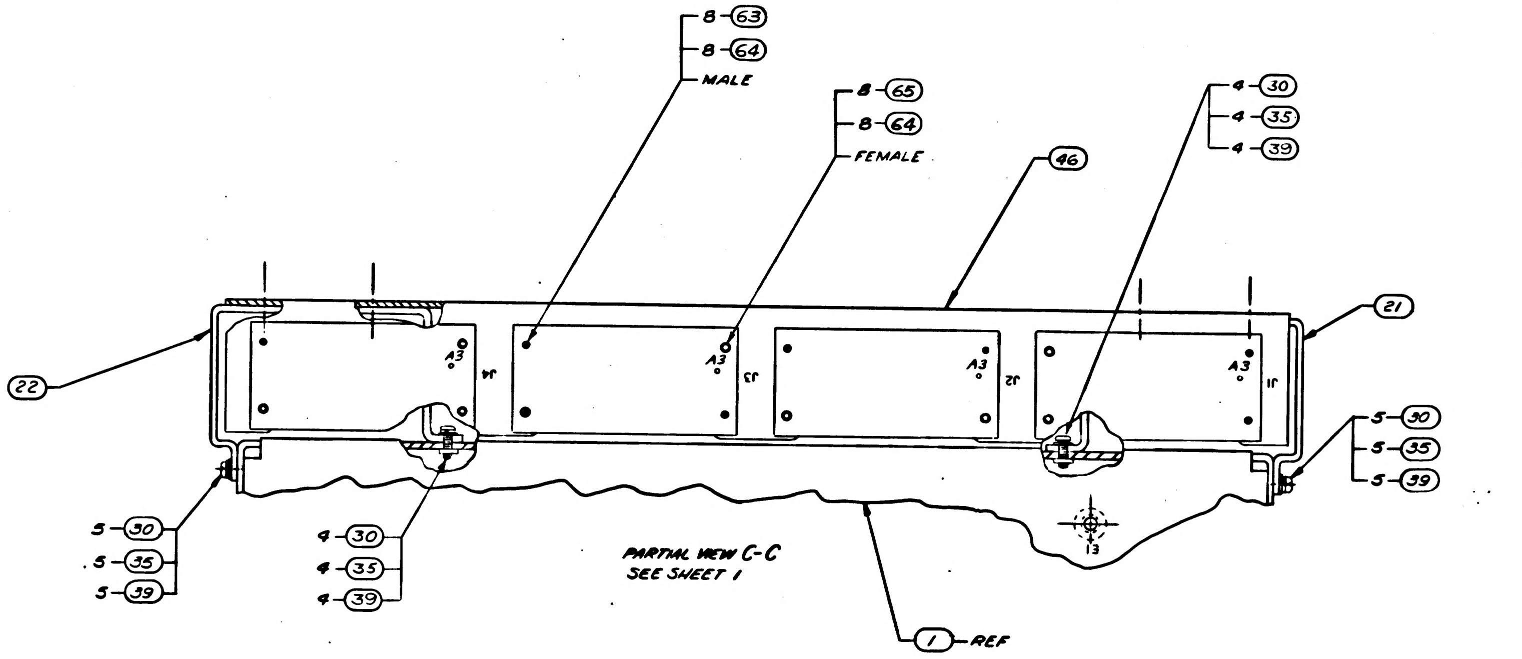
MAS

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

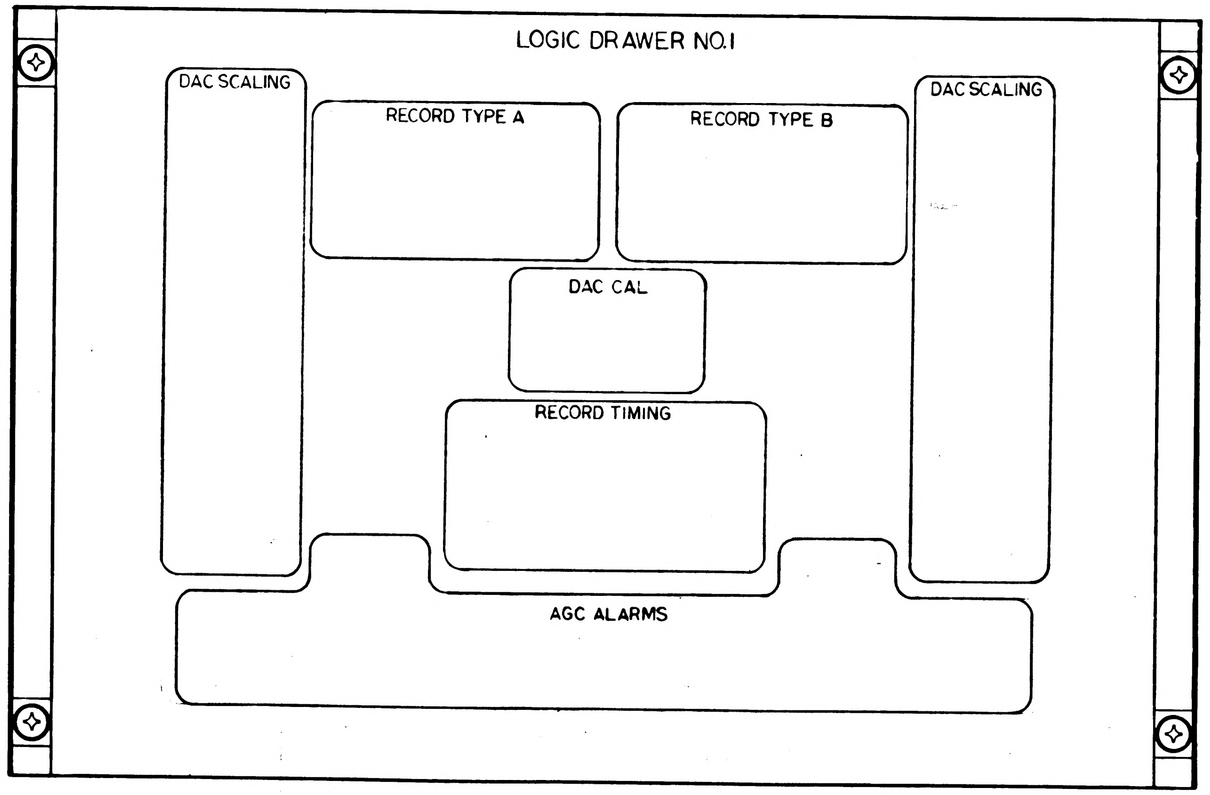
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER CCA 25044	7/9/65	
1	CHANGED PER CCA R25122 DR J J Barrow CHK [illegible] APPD [illegible]	10/[illegible]	
-	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	1/13/66	


J
4 (33)
4 (36)
4 (40)
REF (22)
(2) REF
5 (27)
SEE NOTE 4
J
SEE SHEET 3
(23)
(42) REF
6.044 ± .010
2 PLACES
(34) REF
4 (32)
4 (37)
4 (38)

VIEW A-A


8 (63)
8 (64)
MALE
8 (65)
8 (64)
FEMALE
(46)
4 (30)
4 (35)
4 (39)
(21)
(22)
A3
J4
A3
J3
A3
J2
A3
J1
5 (30)
5 (35)
5 (39)
5 (30)
5 (35)
5 (39)
4 (30)
4 (35)
4 (39)
13
(1) REF

PARTIAL VIEW C-C
SEE SHEET 1


LOGIC DRAWER NO.1
DAC SCALING
RECORD TYPE A
RECORD TYPE B
DAC SCALING
DAC CAL
RECORD TIMING
AGC ALARMS

VIEW B-B
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN [illegible] DATE 2/1/[illegible]
CHECKED [illegible]
APPROVAL [illegible] 9 JUL 65
APPROVAL [illegible] 7/8/65
APPROVAL [illegible]
NASA APPROVAL A C METZGER
MIT APPROVAL [illegible] 1/[illegible]/66
MIT APPROVAL C [illegible] 1/14/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO 1
COMPUTER TEST SET

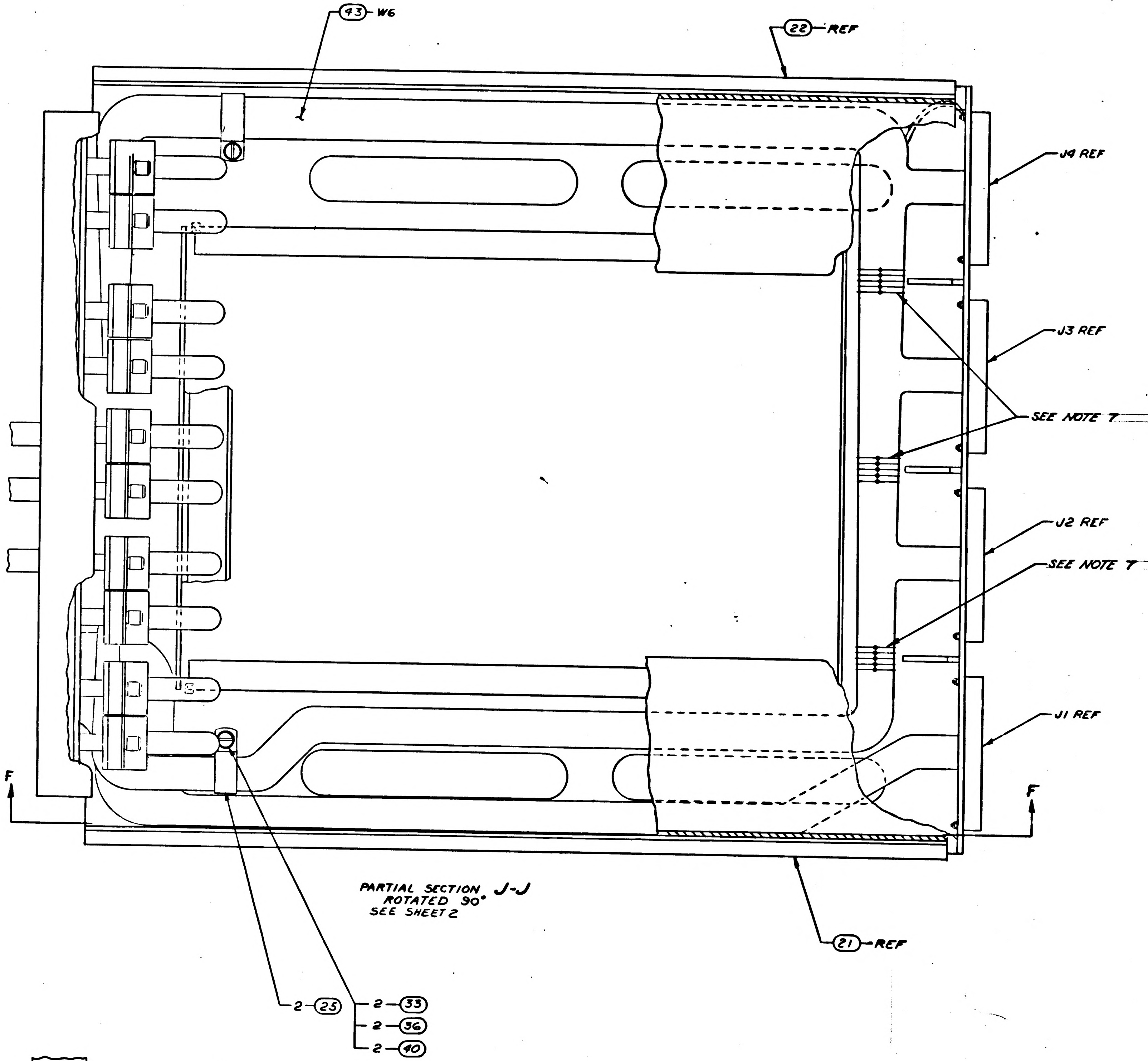
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014036
SCALE 1/1
WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

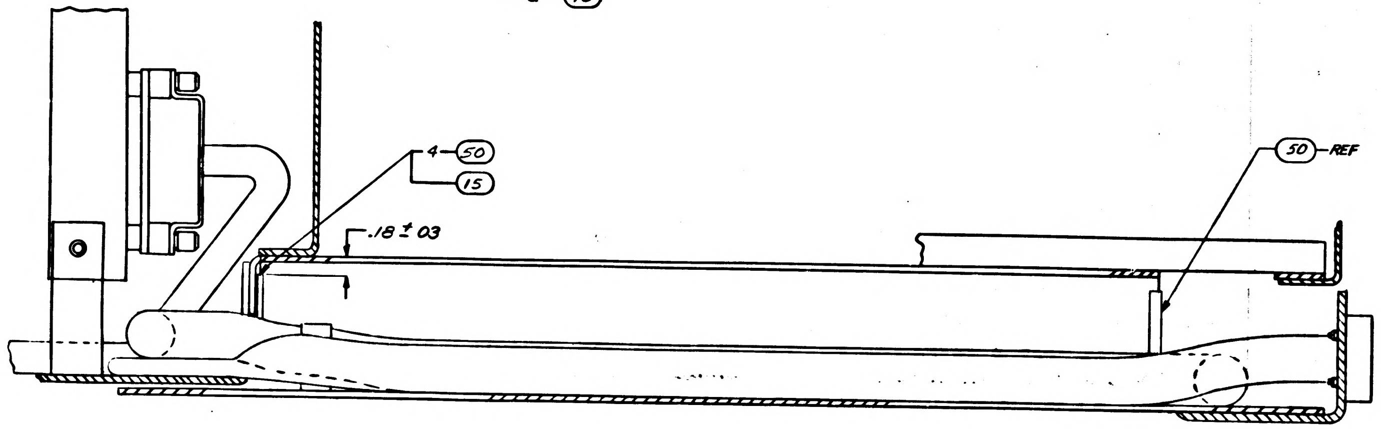
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25044	1/19/65	G Harang
/	CHANGED PER CCA R25122 DR. J.J. Barann CHK. J. Taylor APPD. R. Coley	10/- 65	
–	CLASS B CHANGED PER CCAR25502		HS
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472		



PARTIAL SECTION J-J
ROTATED 90°
SEE SHEET 2



PARTIAL SECTION F-F

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

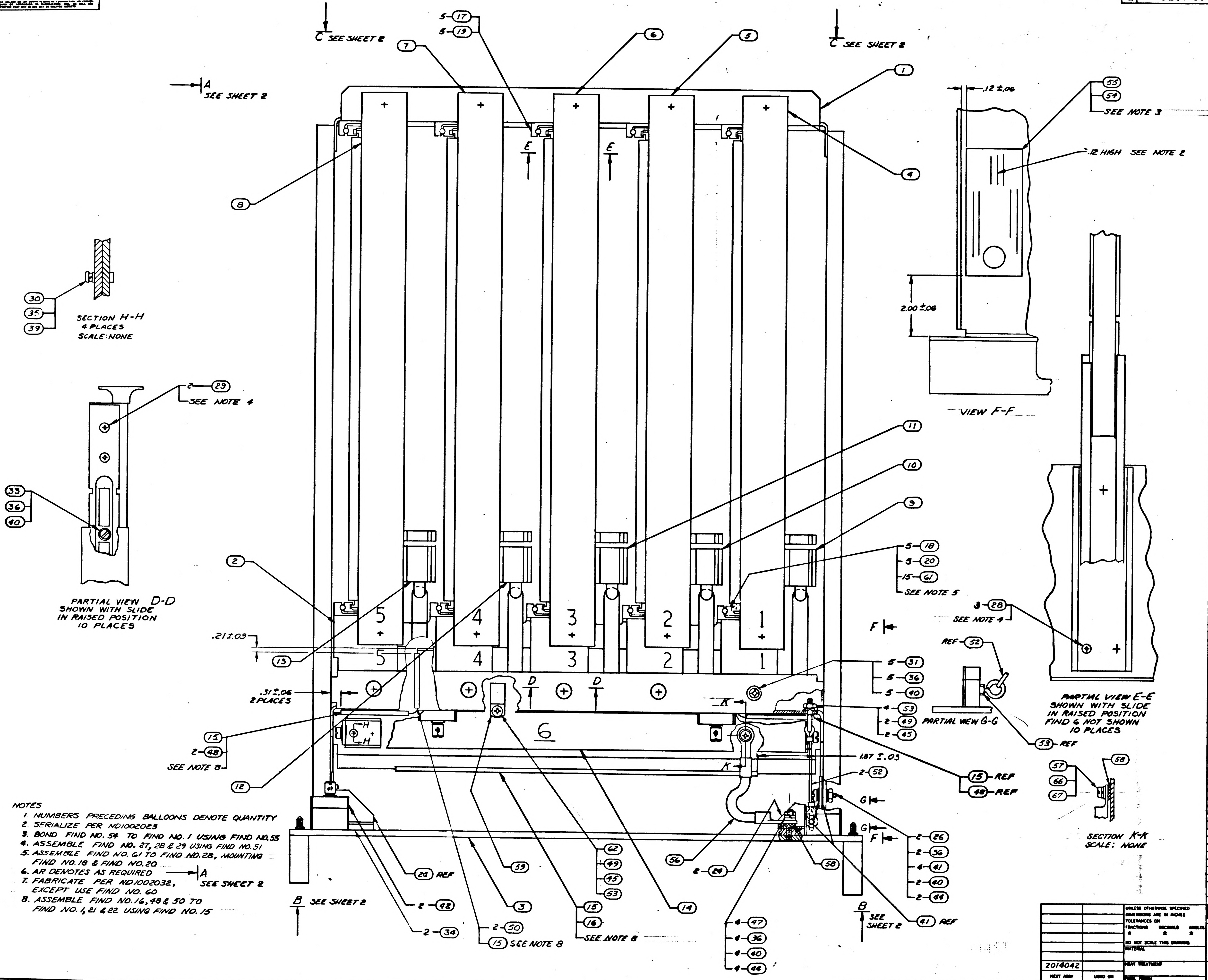
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN S. Traugh 22MAY65
CHECKED 3 JUN 65
APPROVAL P. C. Duda 9 Jun 65
APPROVAL 7/1/65
APPROVAL 7/1/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL C. S. 1/14/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO.
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014036
SCALE 1/1 WT SHEET 3 OF 3



C SEE SHEET 2
A SEE SHEET 2
5-(17)
5-(19)
(7)
(6)
(5)
(1)
(4)
(8)
E
E
.12 ±.06
(55)
(54)
SEE NOTE 3
.12 HIGH SEE NOTE 2
2.00 ±.06
VIEW F-F
(30)
(35)
(39)
SECTION H-H
4 PLACES
SCALE: NONE
2-(29)
SEE NOTE 4
(33)
(36)
(40)
PARTIAL VIEW D-D
SHOWN WITH SLIDE IN RAISED POSITION
10 PLACES
(11)
(10)
(9)
(2)
5-(18)
5-(20)
15-(61)
SEE NOTE 5
5 4 3 2 1
3-(28)
SEE NOTE 4
F
REF-(52)
.21 ±.03
(13)
5-(31)
5-(36)
5-(40)
.31 ±.06
2 PLACES
D
D
K
4-(53)
2-(49)
2-(45)
PARTIAL VIEW G-G
(53)-REF
PARTIAL VIEW E-E
SHOWN WITH SLIDE IN RAISED POSITION
FIND 6 NOT SHOWN
10 PLACES
(15)
2-(48)
SEE NOTE 8
H
6
.187 ±.03
K
(15)-REF
(48)-REF
2-(52)
(57)
(66)
(67)
(58)
SECTION K-K
SCALE: NONE
(12)
G
G
F
2-(26)
2-(36)
4-(41)
2-(40)
2-(44)
(24) REF
(59)
(62)
(49)
(45)
(53)
(56)
2-(24)
(58)
(3)
(14)
(15)
(16)
SEE NOTE 8
B SEE SHEET 2
2-(42)
2-(34)
2-(50)
(15) SEE NOTE 8
4-(47)
4-(36)
4-(40)
4-(44)
B SEE SHEET 2
(41) REF

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. BOND FIND NO. 54 TO FIND NO. 1 USING FIND NO. 55
4. ASSEMBLE FIND NO. 27, 28 & 29 USING FIND NO. 51
5. ASSEMBLE FIND NO. 61 TO FIND NO. 28, MOUNTING FIND NO. 18 & FIND NO. 20
6. AR DENOTES AS REQUIRED
7. FABRICATE PER ND1002032, EXCEPT USE FIND NO. 60
8. ASSEMBLE FIND NO. 16, 48 & 50 TO FIND NO. 1, 21 & 22 USING FIND NO. 15

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25044		
1	CHANGED PER CCA R25122 DR Baran CHK ~~[illegible]~~ APPD Conley	2/4/65	
–	CLASS B CHANGED PER CCA R25502	7/14/65	
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR [illegible]	1/13/66	
B	CHANGED PER TDRR 26288 DR P. Winfield CHK C.D. APPD RCD	2/9/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2014132	INTERCONN DIAGRAM	REF
1	MS15795-810	WASHER, FLAT	67
1	MS35338-82	WASHER, LOCK	66
8	1006671-004	GUIDE, SOCKET	65
16	1006671-003	NUT, STOP	64
8	1006671-002	GUIDE PIN	63
1	MS51957-64	SCREW, PAN HD, CROSS RECESSED	62
15	MS24680-22	NUT, PLAIN, CAP	61
AR	1006458-004	TAPE, LACING	60
1	MS21333-73	CLAMP, CABLE	59
2	MS35335-61	WASHER, INT. LOCK	58
1	MS51957-82	SCREW, PAN HD, CROSS RECESSED	57
1	2014238-011	GROUND STRAP ASSY	56
AR	MIL-A-5092 TYPE II	CEMENT	55
1	1004260-[illegible]	NAME PLATE	54
5	MS35649-104	NUT, PLAIN HEX	53
2	1006239	LANYARD ASSY	52
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	51
6	1006980-5	GROMMET NYLON	50
3	MS15795-808	WASHER, FLAT	49
2	1006980-3	GROMMET NYLON	48
4	MS51959-48	SCR, FLAT HD, CROSS-RECESSED	47
1	1014304	BRACKET CONNECTOR	46
3	MS35338-81	WASHER, LOCK SPLIT	45
6	MS35649-84	NUT, PLAIN HEXAGON	44
1	2014193-011	CABLE ASSY W6	43
2	1014013	RETAINER, CAPTIVE SCREW	42
4	1006982-2	WASHER, NYLON	41
27	MS35338-80	WASHER, LOCK SPLIT	40
22	MS35338-79	WASHER, LOCK SPLIT	39
4	MS35338-78	WASHER, LOCK SPLIT	38
4	MS15795-803	WASHER, FLAT	37
27	MS15795-807	WASHER, FLAT	36
22	MS15795-805	WASHER, FLAT	35
2	1014331	PLATE, SPACING	34
16	MS51957-45	SCR, PAN HD, CROSS RECESSED	33
4	MS51957-13	SCR, PAN HD, CROSS-RECESSED	32
5	MS51957-45	SCR, PAN HD, CROSS-RECESSED	31
22	MS51957-29	SCR, PAN HD, CROSS-RECESSED	30
20	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	29
30	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	28
5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	27
2	1014005	SCREW, SHOULDER	26
2	MS25281-15	CLAMP, CABLE	25
2	2014236	BRACKET, PIVOT ARM	24
1	1014018	TOOL EXTRACTING	23
1	1014028	CHANNEL BOTTOM LEFT	22
1	1014027	CHANNEL BOTTOM RIGHT	21
5	1006988-1	SLIDE, CHASSIS L.H.	20
5	1006988-2	SLIDE, CHASSIS R.H.	19
5	1006988-3	SLIDE, CHASSIS L.H.	18
5	1006988-4	SLIDE, CHASSIS R.H.	17
1	1006980-1	GROMMET, NYLON	16
AR	1006981	CEMENT	15
1	2014228-011	INTERCONN PLATE NO. 6	14
1	1014046-8	CABLE ASSY W5	13
1	1014046-7	CABLE ASSY W4	12
1	1014046-6	CABLE ASSY W3	11
1	1014046-5	CABLE ASSY W2	10
1	1014046-4	CABLE ASSY W1	9
1	2014219-011	LOGIC PLATE ASSY NO. 5	8
1	2014218-011	LOGIC PLATE ASSY NO. 4	7
1	2014217-011	LOGIC PLATE ASSY NO. 3	6
1	2014216-011	LOGIC PLATE ASSY NO. 2	5
1	2014215-011	LOGIC PLATE ASSY NO. 1	4
1	2014225-011	PANEL, FRONT ASSY	3
1	2016347	BRACKET, CABLE GUIDE	2
1	2014417	CHASSIS STRUCTURE	1
-011	LIST OF MATERIALS		

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-[illegible]
DRAWN R. Floyd DATE 22 MAY
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C. S[illegible] [illegible]/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

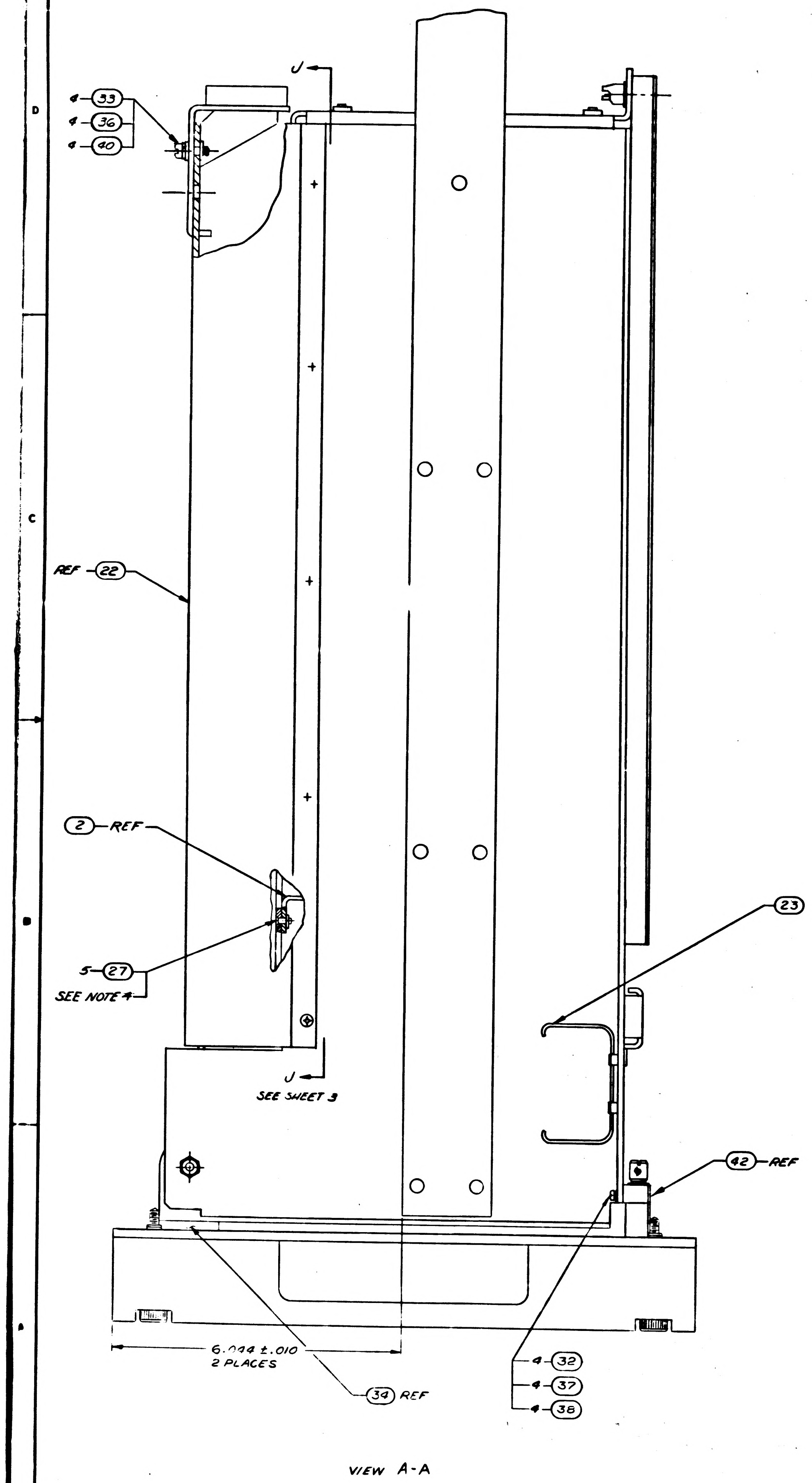
LOGIC DRAWER ASSY
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014036
SCALE 1/1
WT
SHEET 1 OF 3

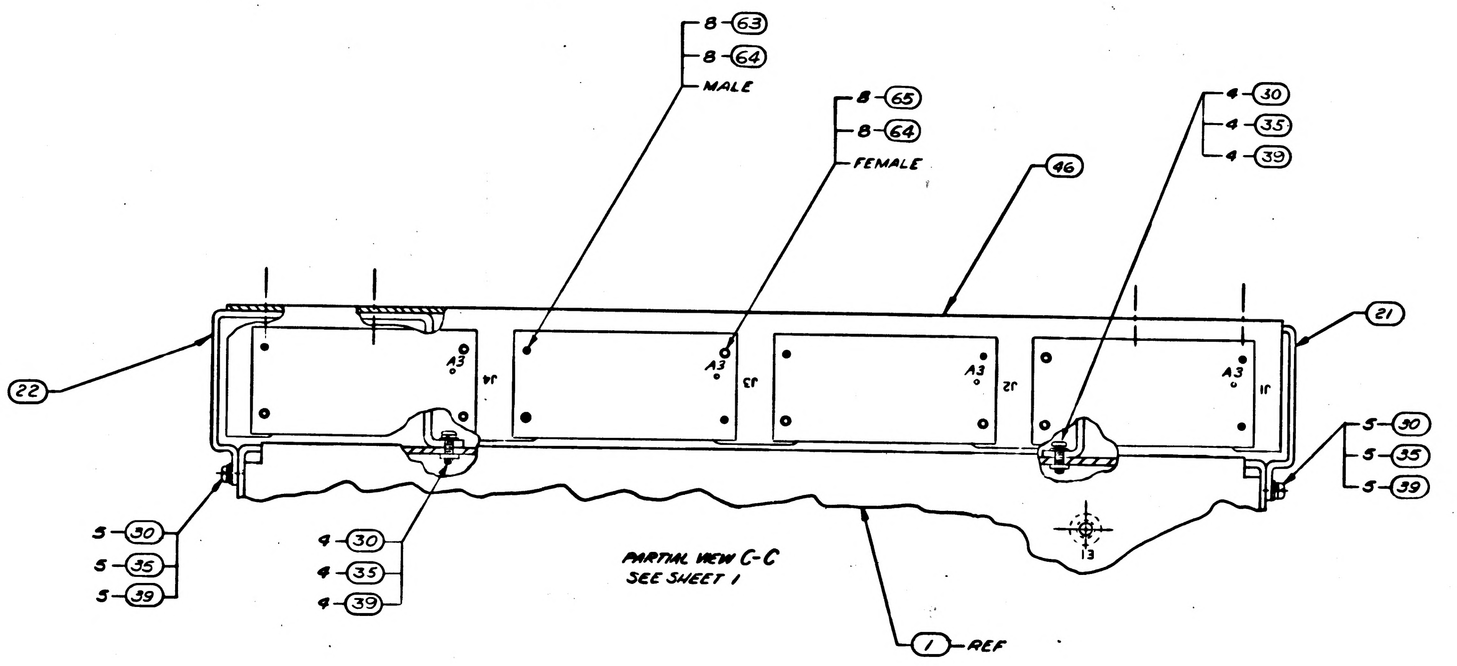
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER [illegible]	7/9/65	[illegible]
/	CHANGED PER CCA R25122 DR J.J. Barron CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER [illegible] R25532	[illegible]	[illegible]
A	CHANGED PER CCA R2[illegible] & CLASS A RELEASED PER TDF [illegible]	1/13/66	[illegible]
B	CHANGED PER TDRR 26288 DR P. [illegible] CHK C.E. APPD	2/19/66	[illegible]


J
4 – 33
4 – 36
4 – 40
REF – 22
2 – REF
5 – 27
SEE NOTE 4
J
SEE SHEET 3
23
42 – REF
6.044 ±.010
2 PLACES
34 REF
4 – 32
4 – 37
4 – 38

VIEW A-A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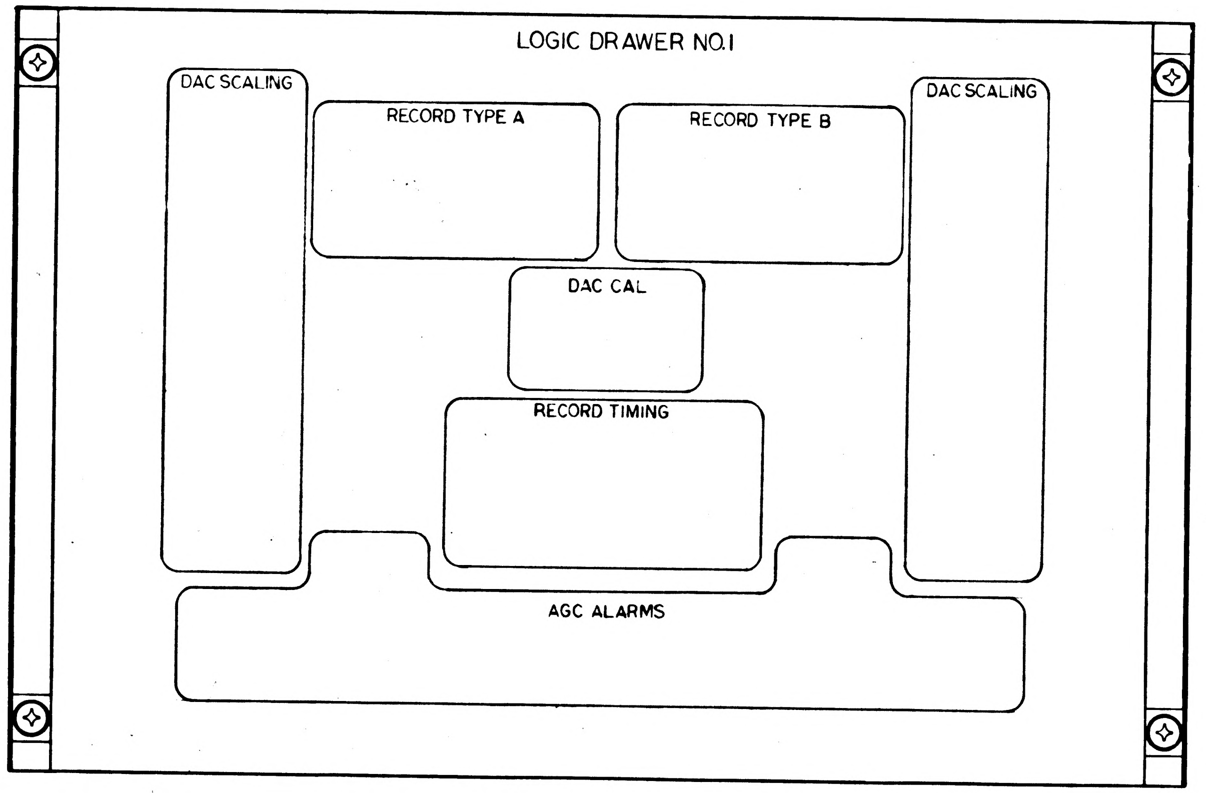
8 – 64
MALE
8 – 65
8 – 64
FEMALE
46
4 – 30
4 – 35
4 – 39
21
22
A3
J4
A3
J3
A3
J2
A3
J1
5 – 30
5 – 35
5 – 39
5 – 30
5 – 35
5 – 39
4 – 30
4 – 35
4 – 39
13
1 – REF

PARTIAL VIEW C-C
SEE SHEET 1


LOGIC DRAWER NO.1
DAC SCALING
RECORD TYPE A
RECORD TYPE B
DAC SCALING
DAC CAL
RECORD TIMING
AGC ALARMS

VIEW B-B
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN [illegible] DATE 27 MAY [illegible]
CHECKED [illegible] 31 JUN 65 [illegible]
APPROVAL E.C. Dude 9 JULY 65
APPROVAL D. Wright [illegible] 7/8/65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL W. Kupfer 1/[illegible]/66
MIT APPROVAL C. S[illegible] 1/24/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO. 1
COMPUTER TEST SET

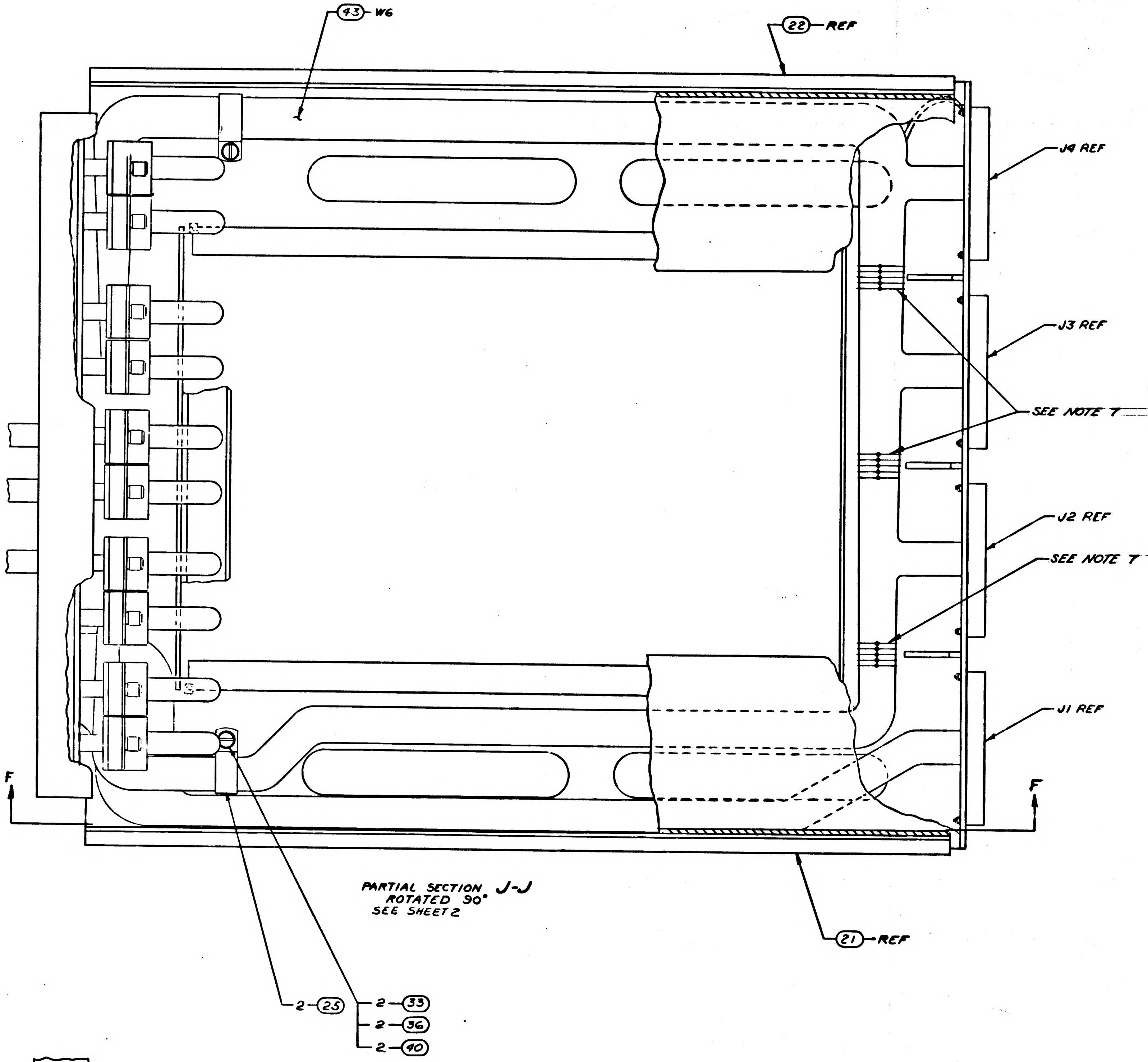
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014036
SCALE 1/1
WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

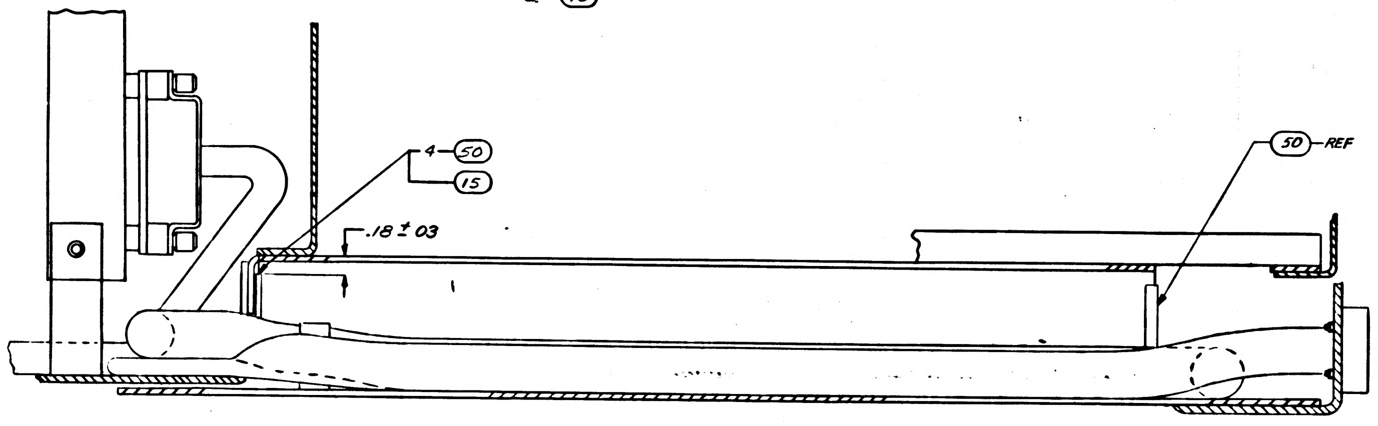
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014036 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 35044	1/19/65	G Wa[illegible]
1	CHANGED PER CCA R25122 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCAR25502	[illegible]	[illegible]
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	[illegible]	[illegible]
B	CHANGED PER TDRR 26288 DR P. Winfield CHK C.N. APPD	2/19/66	[illegible]



PARTIAL SECTION J-J
ROTATED 90°
SEE SHEET 2



PARTIAL SECTION F-F

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] 22 MAY 65
CHECKED [illegible] 3 JUN 65
APPROVAL P C Dunk 9 JUN 65
APPROVAL [illegible] 7/1/65
APPROVAL [illegible]
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C S [illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

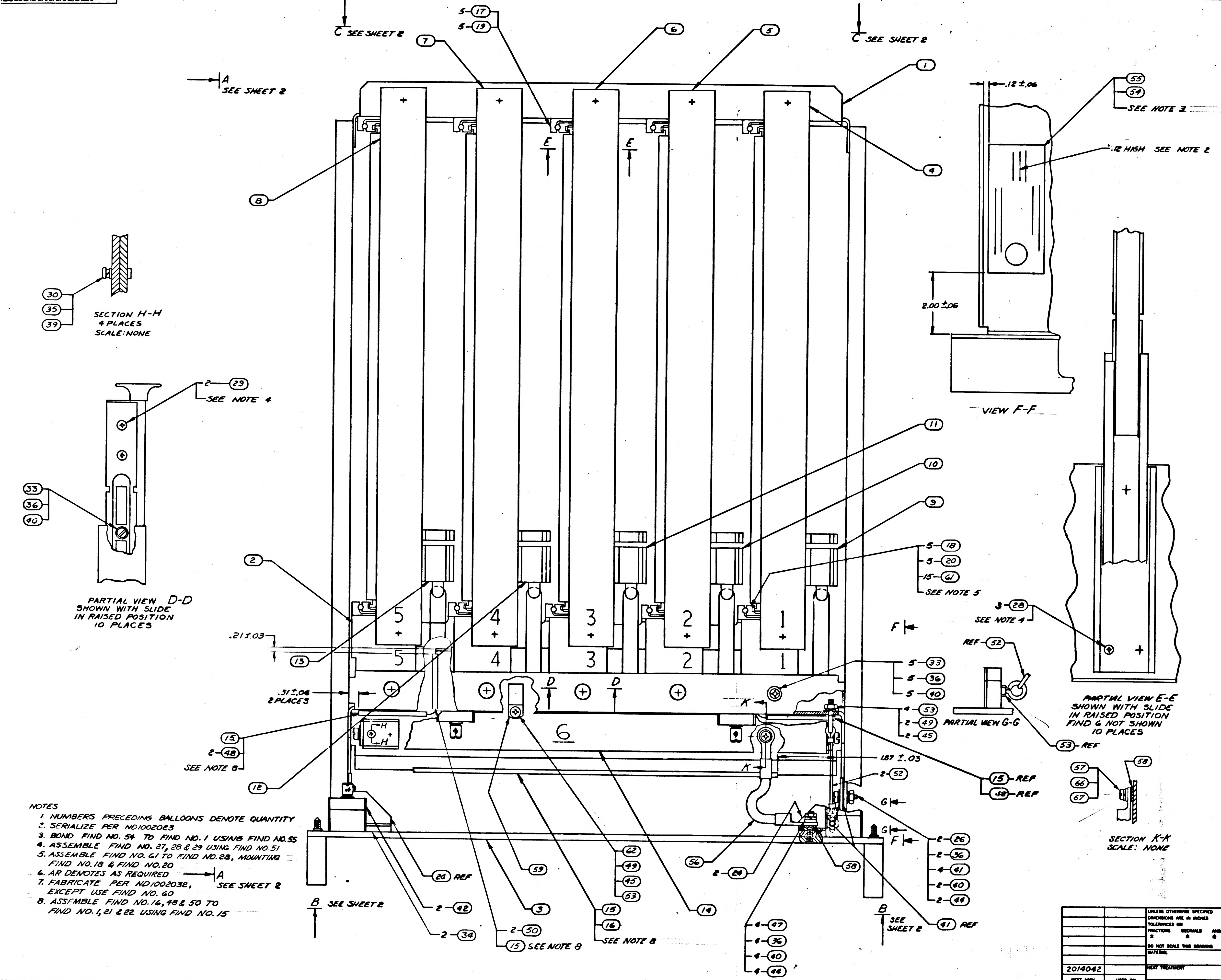
LOGIC DRAWER ASSY
LOGIC DRAWER NO.1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014036
SCALE 1/1
WT
SHEET 3 OF 3

2014036 B

[illegible]

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25[illegible]		
1	CHANGED PER CCA R25122 DR CHK APPD	65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR [illegible]	66	
B	CHANGED PER TDRR 26288 DR CHK APPD	66	
C	CHANGED PER TDRR 26702 DR CHK APPD	3/12/66	



C SEE SHEET 2
C SEE SHEET 2
A SEE SHEET 2
5-17
5-19
7
6
5
1
8
4
E
E
SECTION H-H
4 PLACES
SCALE: NONE
30
35
39
2-29
SEE NOTE 4
33
36
40
PARTIAL VIEW D-D
SHOWN WITH SLIDE
IN RAISED POSITION
10 PLACES
.12 ±.06
55
54
SEE NOTE 3
.12 HIGH SEE NOTE 2
2.00 ±.06
VIEW F-F
11
10
9
2
5-18
5-20
15-61
SEE NOTE 5
5
4
3
2
1
.21 ±.03
13
.31 ±.06
2 PLACES
D
D
6
K
K
5-33
5-36
5-40
4-53
2-49
2-45
PARTIAL VIEW G-G
3-28
SEE NOTE 4
REF-52
53-REF
PARTIAL VIEW E-E
SHOWN WITH SLIDE
IN RAISED POSITION
FIND 6 NOT SHOWN
10 PLACES
15
2-48
SEE NOTE 8
12
.187 ±.03
15-REF
49-REF
2-52
G
G
F
F
57
66
67
58
SECTION K-K
SCALE: NONE
2-26
2-36
4-41
2-40
2-44
41 REF
24 REF
2-42
3
59
62
49
45
53
15
16
SEE NOTE 8
14
56
2-24
58
4-47
4-36
4-40
4-44
2-50
15 SEE NOTE 8
2-34
B SEE SHEET 2
B SEE SHEET 2
A SEE SHEET 2

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. BOND FIND NO. 54 TO FIND NO. 1 USING FIND NO. 55
4. ASSEMBLE FIND NO. 27, 28 & 29 USING FIND NO. 51
5. ASSEMBLE FIND NO. 61 TO FIND NO. 28, MOUNTING FIND NO. 18 & FIND NO. 20
6. AR DENOTES AS REQUIRED
7. FABRICATE PER ND1002032, EXCEPT USE FIND NO. 60
8. ASSEMBLE FIND NO. 16, 48 & 50 TO FIND NO. 1, 21 & 22 USING FIND NO. 15

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2014132	INTERCONN DIAGRAM	REF
1	MS15795-810	WASHER, FLAT	67
1	MS35338-82	WASHER, LOCK	66
8	1006671-004	GUIDE, SOCKET	65
16	1006671-003	NUT, STOP	64
8	1006671-002	GUIDE PIN	63
1	MS51957-64	SCREW, PAN HD, CROSS RECESSED	62
15	MS24680-22	NUT, PLAIN, CAP	61
AR	1006458-004	TAPE, LACING	60
1	MS21919DG14	CLAMP, CABLE	59
2	MS35335-61	WASHER, INT. LOCK	58
1	MS51957-82	SCREW, PAN HD, CROSS RECESSED	57
1	2014238-011	GROUND STRAP ASSY	56
AR	MIL-A-5092 TYPE II	CEMENT	55
1	1004260-019	NAME PLATE	54
5	MS35649-104	NUT, PLAIN HEX	53
2	1006239	LANYARD ASSY	52
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	51
6	1006980-5	GROMMET NYLON	50
3	MS15795-808	WASHER, FLAT	49
2	1006980-3	GROMMET NYLON	48
4	MS51959-48	SCR, FLAT HD, CROSS-RECESSED	47
1	1014304	BRACKET CONNECTOR	46
3	MS35338-81	WASHER, LOCK SPLIT	45
6	MS35649-84	NUT, PLAIN HEXAGON	44
1	2014193-011	CABLE ASSY W6	43
2	1014013	RETAINER, CAPTIVE SCREW	42
4	1006982-8	WASHER, NYLON	41
27	MS35338-80	WASHER, LOCK SPLIT	40
22	MS35338-79	WASHER, LOCK SPLIT	39
4	MS35338-78	WASHER, LOCK SPLIT	38
4	MS15795-803	WASHER, FLAT	37
27	MS15795-807	WASHER, FLAT	36
22	MS15795-805	WASHER, FLAT	35
2	1014331	PLATE, SPACING	34
21	MS51957-45	SCR, PAN HD, CROSS RECESSED	33
4	MS51957-13	SCR, PAN HD, CROSS-RECESSED	32
~~5~~	~~MS51957-15~~	~~SCR, PAN HD, CROSS-RECESSED~~	~~31~~
22	MS51957-29	SCR, PAN HD, CROSS-RECESSED	30
20	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	29
30	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	28
5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	27
2	1014005	SCREW, SHOULDER	26
2	MS25281-15	CLAMP, CABLE	25
2	2014236	BRACKET, PIVOT ARM	24
1	1014018	TOOL EXTRACTING	23
1	1014028	CHANNEL BOTTOM LEFT	22
1	1014027	CHANNEL BOTTOM RIGHT	21
5	1006988-1	SLIDE, CHASSIS L.H.	20
5	1006988-2	SLIDE, CHASSIS R.H.	19
5	1006988-3	SLIDE, CHASSIS L.H.	18
5	1006988-4	SLIDE, CHASSIS R.H.	17
1	1006980-1	GROMMET, NYLON	16
A.R.	1006981	CEMENT	15
1	2014228-011	INTERCONN PLATE NO. 6	14
1	1014046-8	CABLE ASSY W5	13
1	1014046-7	CABLE ASSY W4	12
1	1014046-6	CABLE ASSY W3	11
1	1014046-5	CABLE ASSY W2	10
1	1014046-4	CABLE ASSY W1	9
1	2014219-011	LOGIC PLATE ASSY NO. 5	8
1	2014218-011	LOGIC PLATE ASSY NO. 4	7
1	2014217-011	LOGIC PLATE ASSY NO. 3	6
1	2014216-011	LOGIC PLATE ASSY NO. 2	5
1	2014215-011	LOGIC PLATE ASSY NO. 1	4
1	20142[illegible]5-011	PANEL, FRONT ASSY	3
1	20163[illegible]7	BRACKET, CABLE GUIDE	2
1	2014417	CHASSIS STRUCTURE	1
-011	LIST OF MATERIALS		

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-[illegible]
DRAWN R. Lloyd DATE 22 MAR
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C S 1/6/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014036
SCALE 1/1
WT
SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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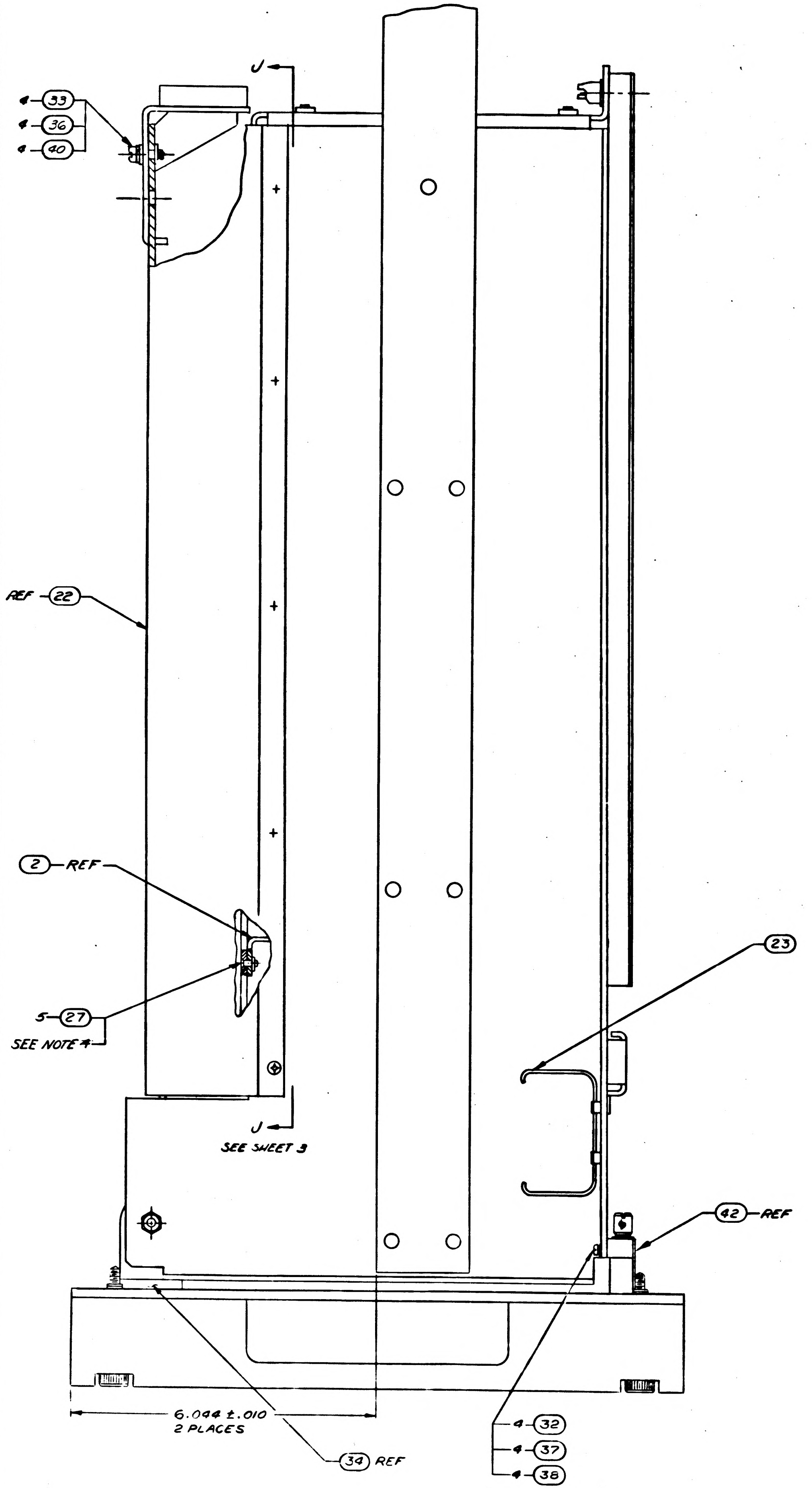
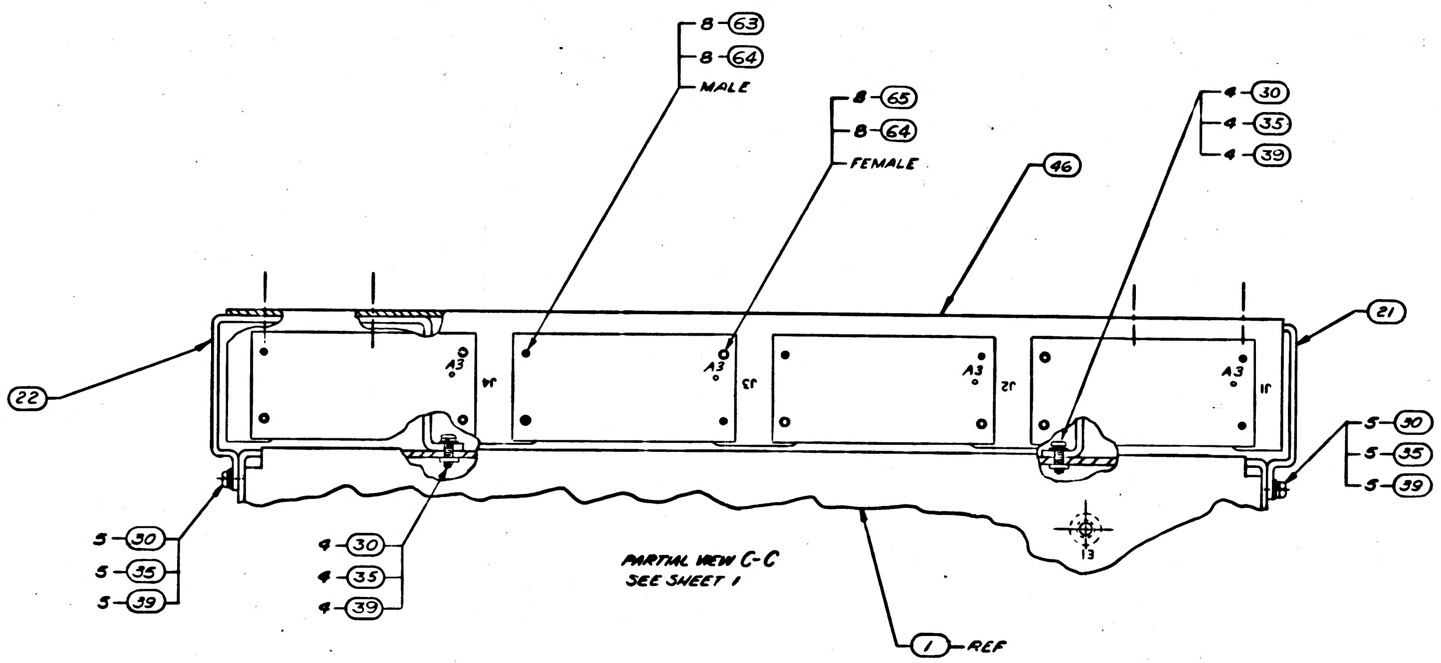
REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25044	7/9/65	
1	CHANGED PER CCA R25122 DR J.J.Barrow CHK A. Taylor APPD J. Cooley		
-	CLASS B CHANGED PER CCA R25552		
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25452	1/13/66	
B	CHANGED PER TDRR 26288 DR P. Winfield CHK C.D. APPD	2/19/66	
C	CHANGED PER TDRR 26702 DR B.J.Papia CHK C.DeFreeman APPD	3/17/66	


4 – 33
4 – 36
4 – 40
J
REF – 22
2 – REF
5 – 27
SEE NOTE 4
J
SEE SHEET 3
23
42 – REF
6.094 ±.010
2 PLACES
34 REF
4 – 32
4 – 37
4 – 38

VIEW A-A


8 – 63
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MALE
8 – 65
8 – 64
FEMALE
4 – 30
4 – 35
4 – 39
46
21
22
A3
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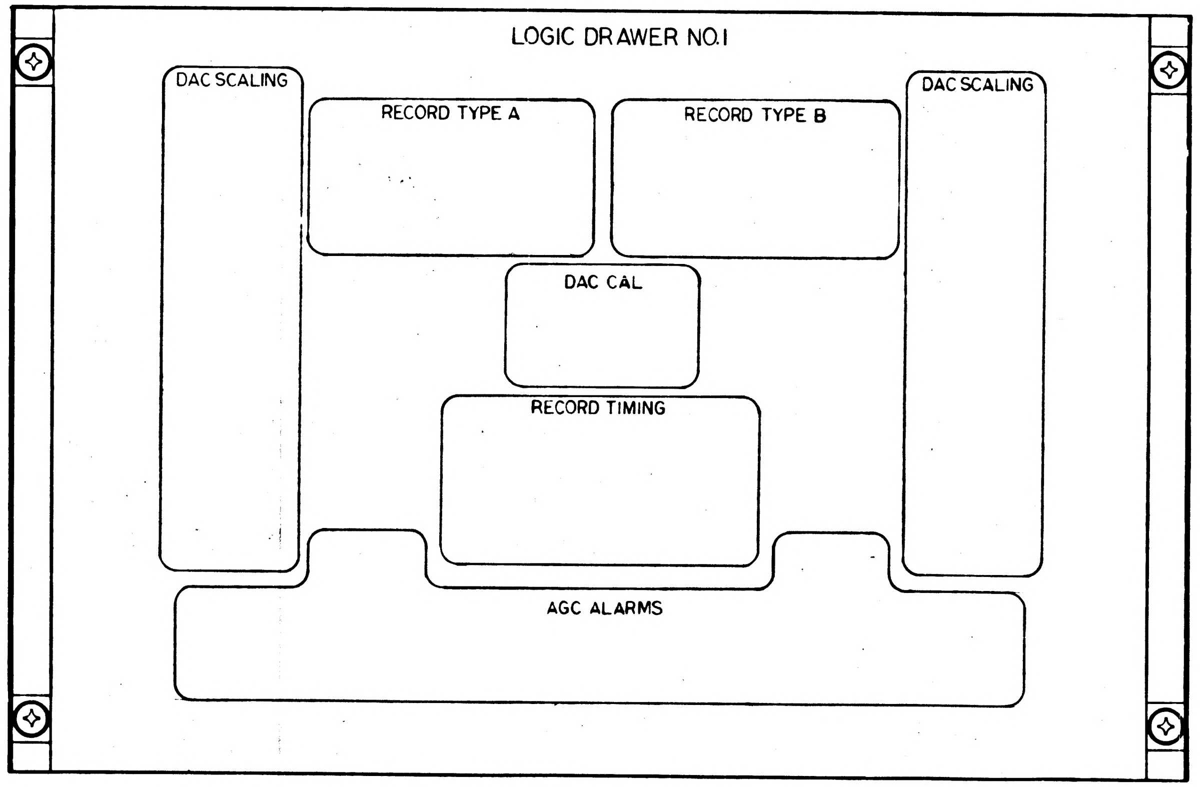
J3
J2
J1
5 – 30
5 – 35
5 – 39
5 – 30
5 – 35
5 – 39
4 – 30
4 – 35
4 – 39
13
1 – REF

PARTIAL VIEW C-C
SEE SHEET 1


LOGIC DRAWER NO.1
DAC SCALING
RECORD TYPE A
RECORD TYPE B
DAC SCALING
DAC CAL
RECORD TIMING
AGC ALARMS

VIEW B-B
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 22 MAR
CHECKED 3 JUN 65
APPROVAL C.E. Dade 9 JULY 65
APPROVAL 7/8/65
APPROVAL 7/9/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 1/20/66
MIT APPROVAL C 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO 1
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014036
SCALE 1/1	WT	SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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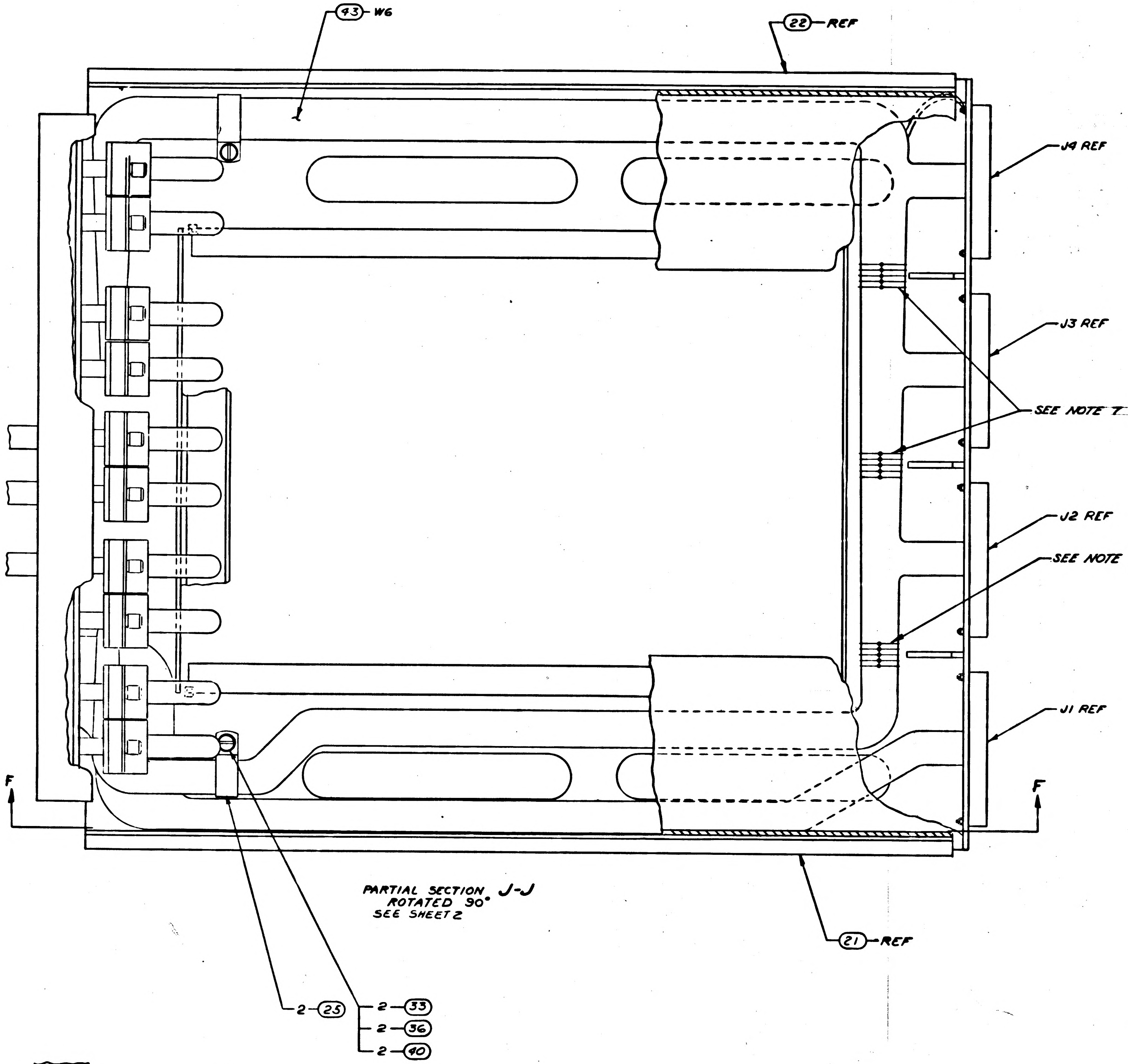
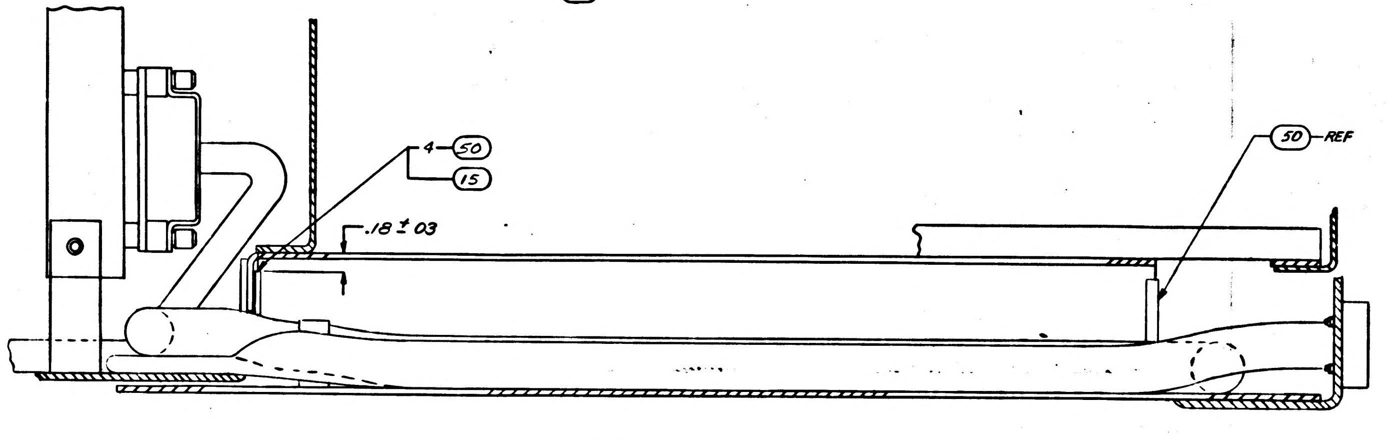
REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25044	1/9/65	
1	CHANGED PER CCA R25122 DR CHK APPD	3 Jan 65	
–	CLASS ■ CHANGED PER CCAR25502	12/14/65	
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	7/66	
B	CHANGED PER TDRR 26288 DR P. Winfield CHK C.N. APPD	8/19/66	
C	CHANGED PER TDRR 26702 DR CHK APPD	3/7/67	



PARTIAL SECTION J-J
ROTATED 90°
SEE SHEET 2



PARTIAL SECTION F-F

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN 22 MAR 65
CHECKED 3 JUN 65
APPROVAL P C Dunk 9 JUN 65
APPROVAL D O 7/8/65
APPROVAL 7/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C S 1/29/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

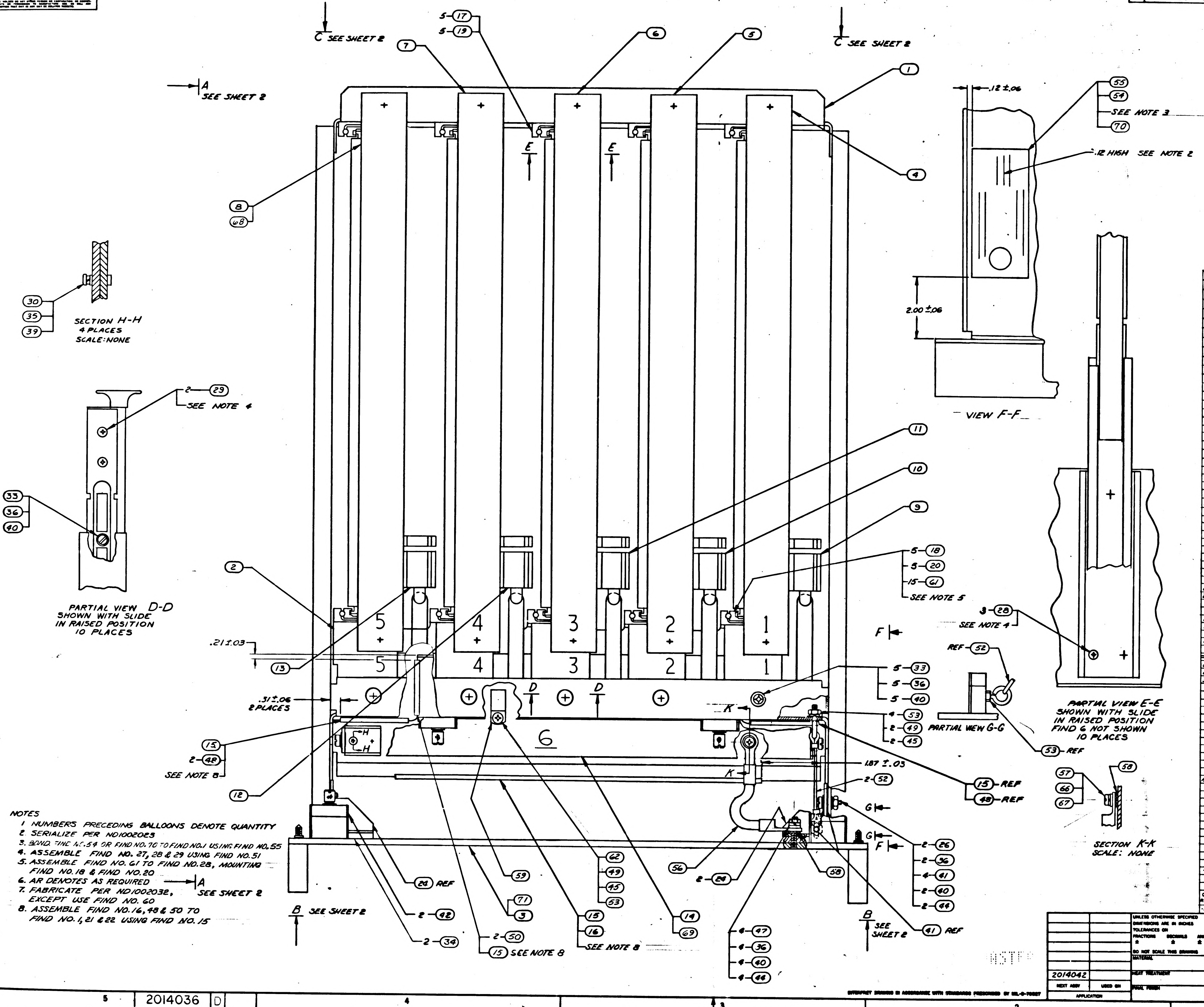
LOGIC DRAWER ASSY
LOGIC DRAWER NO.1
COMPUTER TEST SET

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014036
SCALE 1/1
WT
SHEET 3 OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25044		
1	CHANGED PER CCA R25122 DR SJ Baran CHK APPD	10 Sept 65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	1/13/66	
B	CHANGED PER TDRR 26288 DR R. Winfield CHK APPD	2/17/66	
C	CHANGED PER TDRR 26702 DR B.J. Papia CHK APPD	3/12/66	
D	CHANGED PER TDRR 28103 DR G.J. Bison CHK APPD	7/26/66	


C SEE SHEET 2
C SEE SHEET 2
A SEE SHEET 2
5-17
5-19
7
6
5
1
4
8
68
E
E
55
54
SEE NOTE 3
70
.12 ±.06
.12 HIGH SEE NOTE 2
2.00 ±.06
VIEW F-F
30
35
39
SECTION H-H
4 PLACES
SCALE: NONE
2-29
SEE NOTE 4
33
36
40
PARTIAL VIEW D-D
SHOWN WITH SLIDE
IN RAISED POSITION
10 PLACES
11
10
9
5-18
5-20
15-61
SEE NOTE 5
2
13
.21 ±.03
.31 ±.06
2 PLACES
5
4
3
2
1
D
D
K
K
5-33
5-36
5-40
4-53
2-49
2-45
15
2-42
SEE NOTE 8
12
H
H
6
1.87 ±.03
2-52
15-REF
48-REF
3-28
SEE NOTE 4
F
F
G
G
REF-52
PARTIAL VIEW G-G
53-REF
PARTIAL VIEW E-E
SHOWN WITH SLIDE
IN RAISED POSITION
FIND 6 NOT SHOWN
10 PLACES
57
66
67
58
SECTION K-K
SCALE: NONE
2-26
2-36
4-41
2-40
2-44
41 REF
56
2-24
68
62
49
45
53
59
71
3
24 REF
2-42
2-34
2-50
15 SEE NOTE 8
15
16
SEE NOTE 8
14
69
B SEE SHEET 2
B SEE SHEET 2
4-47
4-36
4-40
4-44

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. BOND FIND NO.54 OR FIND NO.70 TO FIND NO.1 USING FIND NO.55
4. ASSEMBLE FIND NO. 27, 28 & 29 USING FIND NO.51
5. ASSEMBLE FIND NO. 61 TO FIND NO.28, MOUNTING FIND NO.18 & FIND NO.20
6. AR DENOTES AS REQUIRED
7. FABRICATE PER ND1002032, EXCEPT USE FIND NO. 60
8. ASSEMBLE FIND NO.16, 48 & 50 TO FIND NO. 1, 21 & 22 USING FIND NO. 15

LIST OF MATERIALS

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
X	–	2016421	INTERCONN DIAGRAM	REF
–	X	2014132	INTERCONN DIAGRAM	REF
1	–	2014225-021	FRONT PANEL ASSY	71
1	–	1004260-260	NAMEPLATE	70
1	–	2014228-021	LOGIC PLATE ASSY NO. 6	69
1	–	2014219-021	LOGIC PLATE ASSY NO. 5	68
1	1	MS15795-810	WASHER, FLAT	67
1	1	MS35338-82	WASHER, LOCK	66
8	8	1006671-004	GUIDE, SOCKET	65
16	16	1006671-003	NUT, STOP	64
8	8	1006671-002	GUIDE PIN	63
1	1	MS51957-64	SCREW, PAN HD, CROSS RECESSED	62
15	15	MS24680-22	NUT, PLAIN, CAP	61
AR	AR	1006458-004	TAPE, LACING	60
1	1	MS21919DG14	CLAMP, CABLE	59
2	2	MS35335-61	WASHER, INT. LOCK	58
1	1	MS51957-82	SCREW, PAN HD, CROSS RECESSED	57
1	1	2014238-011	GROUND STRAP ASSY	56
AR	AR	MIL-A-5092 TYPE II	CEMENT	55
–	1	1004260-219	NAME PLATE	54
5	5	MS35649-104	NUT, PLAIN HEX	53
2	2	1006239	LANYARD ASSY	52
AR	AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	51
6	6	1006980-5	GROMMET NYLON	50
3	3	MS15795-808	WASHER, FLAT	49
2	2	1006980-3	GROMMET NYLON	48
4	4	MS51959-48	SCR, FLAT HD, CROSS-RECESSED	47
1	1	1014304	BRACKET CONNECTOR	46
3	3	MS35338-81	WASHER, LOCK SPLIT	45
6	6	MS35649-84	NUT, PLAIN HEXAGON	44
1	1	2014193-011	CABLE ASSY W6	43
2	2	1014013	RETAINER, CAPTIVE SCREW	42
4	4	1006982-8	WASHER, NYLON	41
27	27	MS35338-80	WASHER, LOCK SPLIT	40
22	22	MS35338-79	WASHER, LOCK SPLIT	39
4	4	MS35338-78	WASHER, LOCK SPLIT	38
4	4	MS15795-803	WASHER, FLAT	37
27	27	MS15795-807	WASHER, FLAT	36
22	22	MS15795-805	WASHER, FLAT	35
2	2	1014331	PLATE, SPACING	34
21	21	MS51957-45	SCR, PAN HD, CROSS RECESSED	33
4	4	MS51957-13	SCR, PAN HD, CROSS-RECESSED	32
	~~5~~	~~MS51957-15~~	~~SCR, PAN HD, CROSS-RECESSED~~	~~31~~
22	22	MS51957-29	SCR, PAN HD, CROSS-RECESSED	30
20	20	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	29
30	30	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	28
5	5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	27
2	2	1014005	SCREW, SHOULDER	26
2	2	MS25281-15	CLAMP, CABLE	25
2	2	2014236	BRACKET, PIVOT ARM	24
1	1	1014018	TOOL EXTRACTING	23
1	1	1014028	CHANNEL BOTTOM LEFT	22
1	1	1014027	CHANNEL BOTTOM RIGHT	21
5	5	1006988-1	SLIDE, CHASSIS L.H.	20
5	5	1006988-2	SLIDE, CHASSIS R.H.	19
5	5	1006988-3	SLIDE, CHASSIS L.H.	18
5	5	1006988-4	SLIDE, CHASSIS R.H.	17
1	1	1006980-1	GROMMET, NYLON	16
AR	A.R.	1006981	CEMENT	15
–	1	2014228-011	INTERCONN PLATE NO. 6	14
1	1	1014046-8	CABLE ASSY W5	13
1	1	1014046-7	CABLE ASSY W4	12
1	1	1014046-6	CABLE ASSY W3	11
1	1	1014046-5	CABLE ASSY W2	10
1	1	1014046-4	CABLE ASSY W1	9
–	1	2014219-011	LOGIC PLATE ASSY NO. 5	8
1	1	2014218-011	LOGIC PLATE ASSY NO. 4	7
1	1	2014217-011	LOGIC PLATE ASSY NO. 3	6
1	1	2014216-011	LOGIC PLATE ASSY NO. 2	5
1	1	2014215-011	LOGIC PLATE ASSY NO. 1	4
–	1	2014225-011	PANEL, FRONT ASSY	3
1	1	2016347	BRACKET, CABLE GUIDE	2
1	1	2014417	CHASSIS STRUCTURE	1

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-4317
DRAWN R. Kloyd DATE 22 MAR
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C S

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

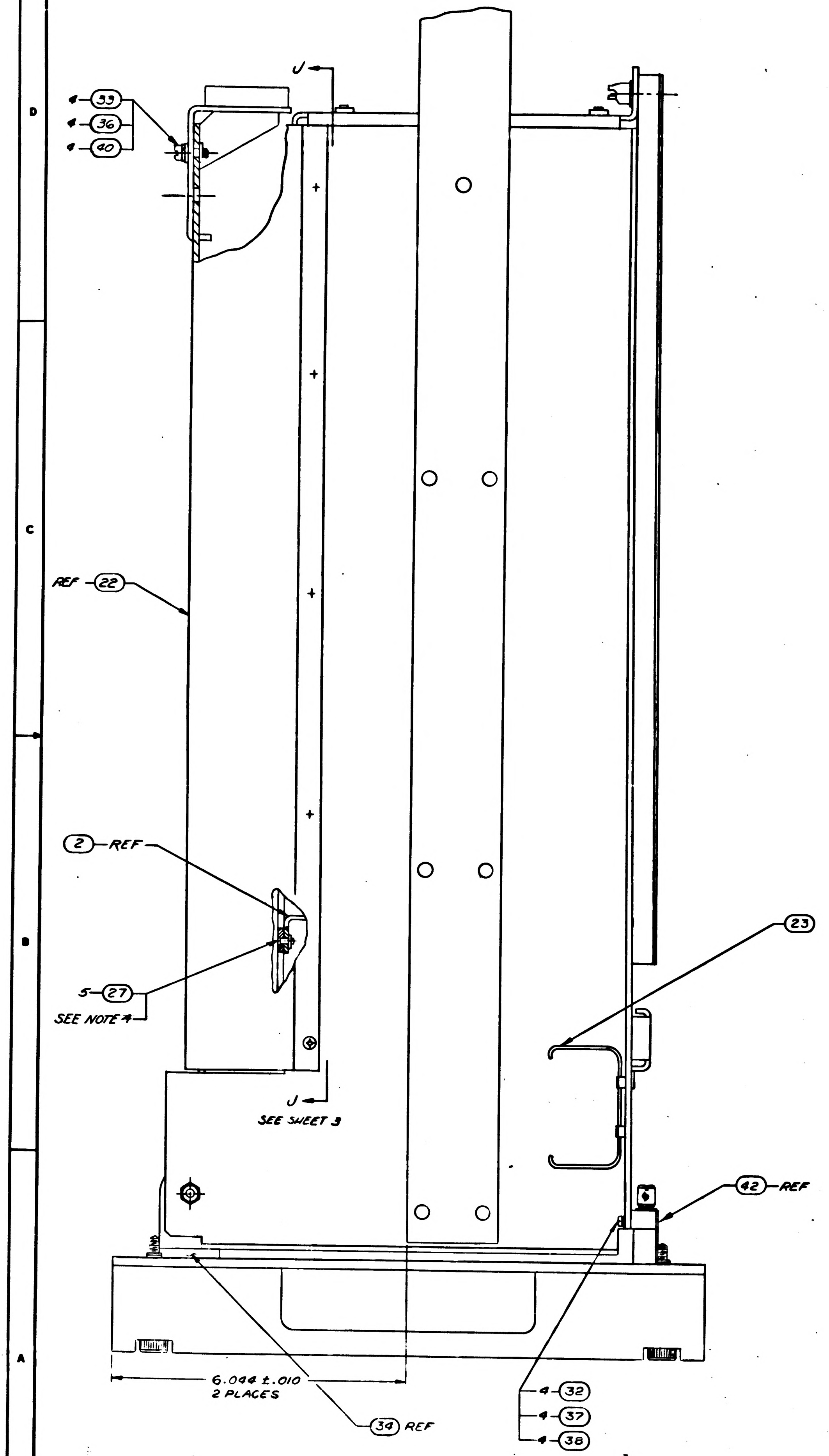
LOGIC DRAWER ASSY
LOGIC DRAWER NO. I
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014036
SCALE 1/1	WT	SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

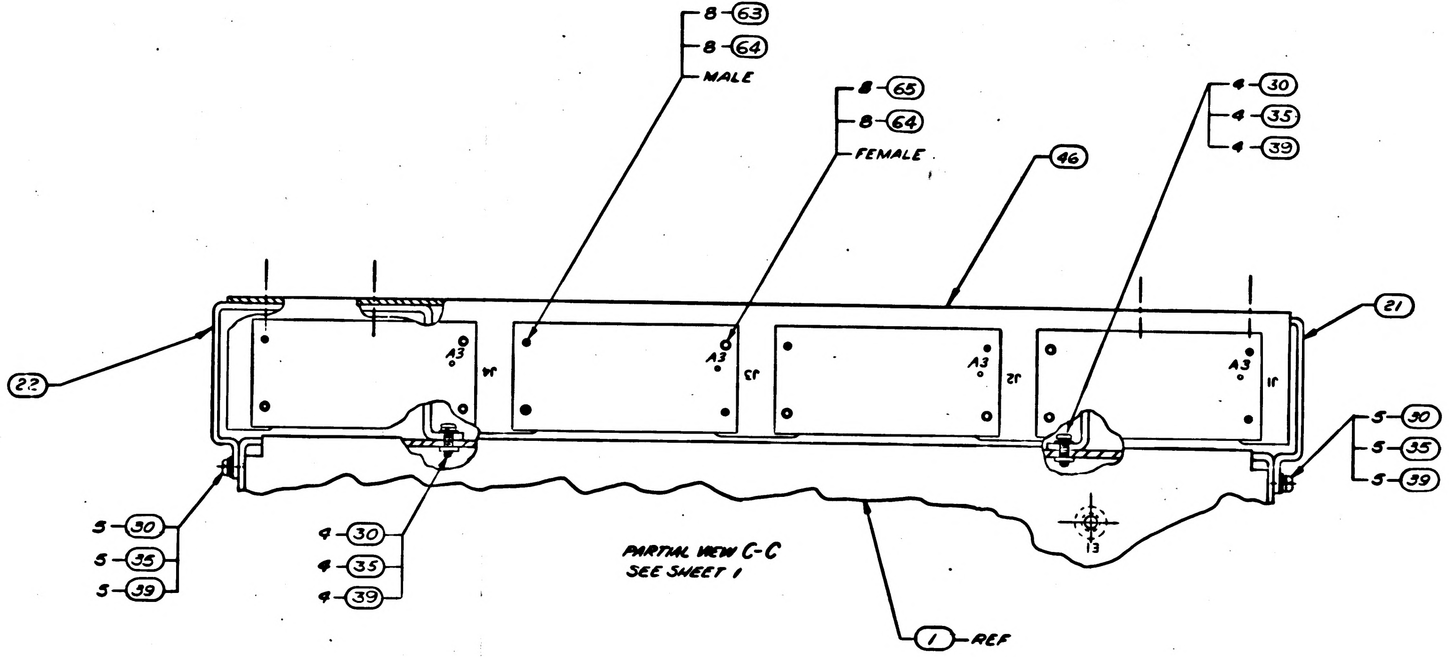
2014036 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25044	7/9/6	[illegible]
1	CHANGED PER CCA R25122 DR J.J Baron CHK T. Taylor APPD Kinley	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25552	[illegible]	[illegible]
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25422	1/13/66	[illegible]
B	CHANGED PER TDRR 26288 DR P. Winfield CHK C.D. APPD	3/19/66	[illegible]
C	CHANGED PER TDRR 26702 DR B.J Papia CHK C.DiNenna APPD R Kinley	5/17/66	[illegible]
D	CHANGED PER TDRR 28103 DR R.J. Bisson CHK [illegible] APPD R Kinley	8/24/66	[illegible]



J
4-(33)
4-(36)
4-(40)
REF-(22)
(2)-REF
5-(27)
SEE NOTE 4
J
SEE SHEET 3
(23)
(42)-REF
6.044 ±.010
2 PLACES
(34) REF
4-(32)
4-(37)
4-(38)

VIEW A-A



8-(63)
8-(64)
MALE
8-(65)
8-(64)
FEMALE
(46)
4-(30)
4-(35)
4-(39)
(21)
(22)
A3
J4
A3
J3
A3
J2
A3
J1
5-(30)
5-(35)
5-(39)
5-(30)
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5-(39)
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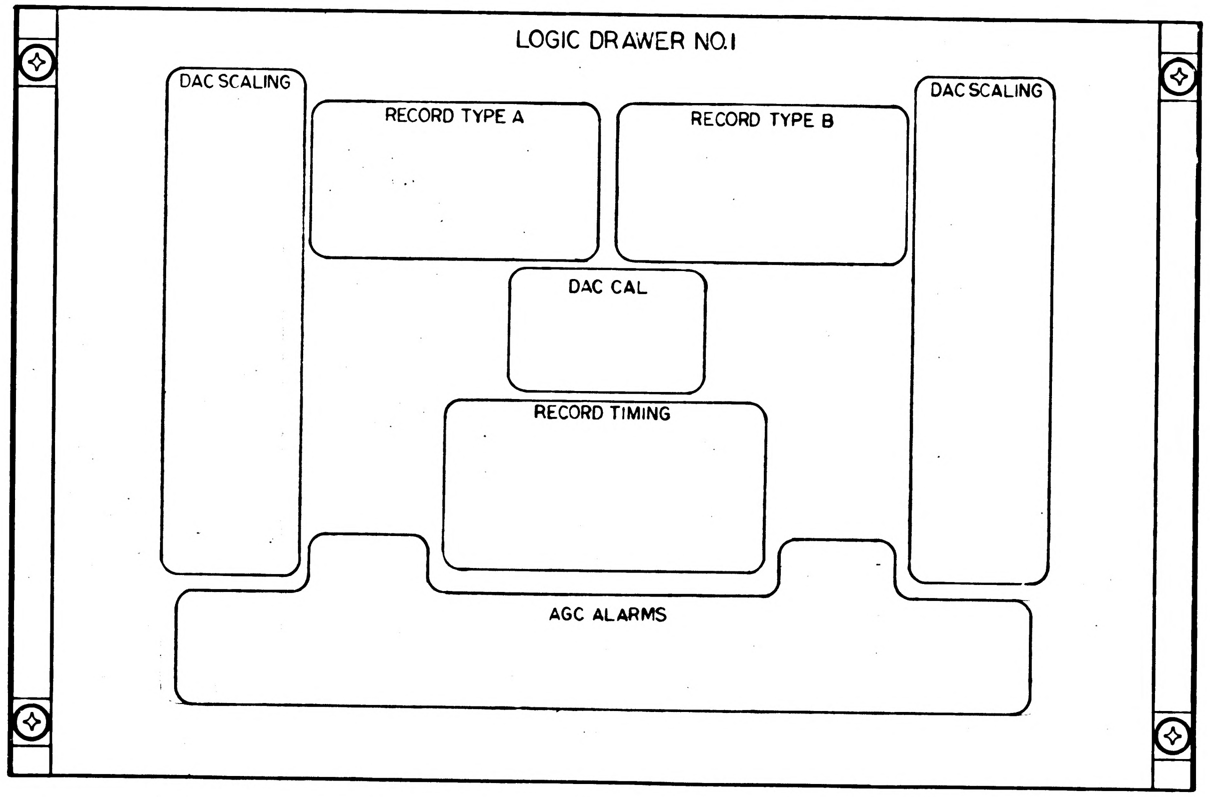
4-(39)
13
(1)-REF

PARTIAL VIEW C-C
SEE SHEET 1



LOGIC DRAWER NO.1
DAC SCALING
RECORD TYPE A
RECORD TYPE B
DAC SCALING
DAC CAL
RECORD TIMING
AGC ALARMS

VIEW B-B
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

–	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN [illegible] DATE 2/18/6
CHECKED [illegible] 3 JUN 65
APPROVAL P.C. Dade 9 JULY 65
APPROVAL R.J. Bryant [illegible] 7/8/65
APPROVAL [illegible] 7/9/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W. [illegible] 1/10/66
MIT APPROVAL C. [illegible] 1/12/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014036
SCALE 1/1
WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014036 D

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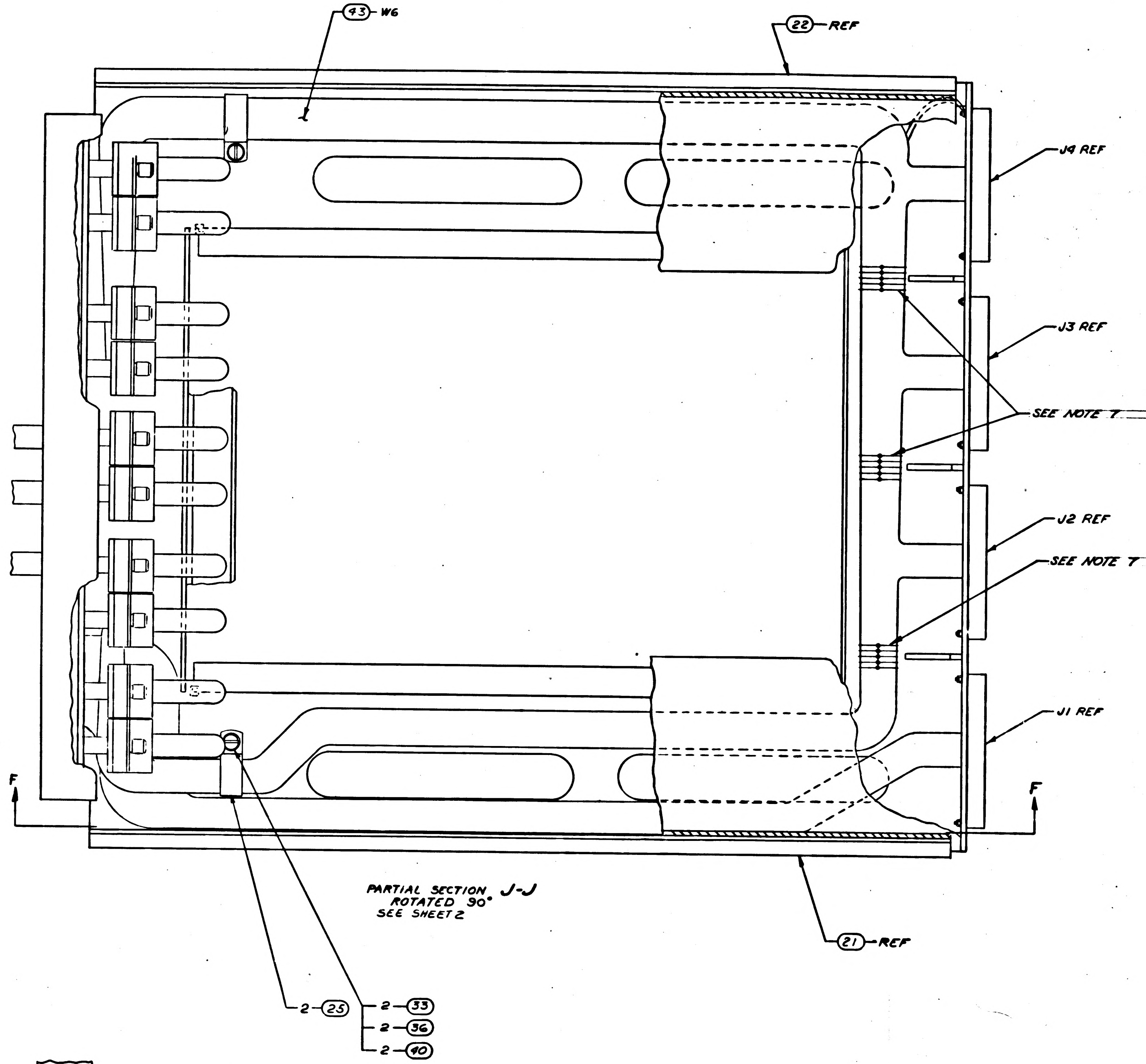
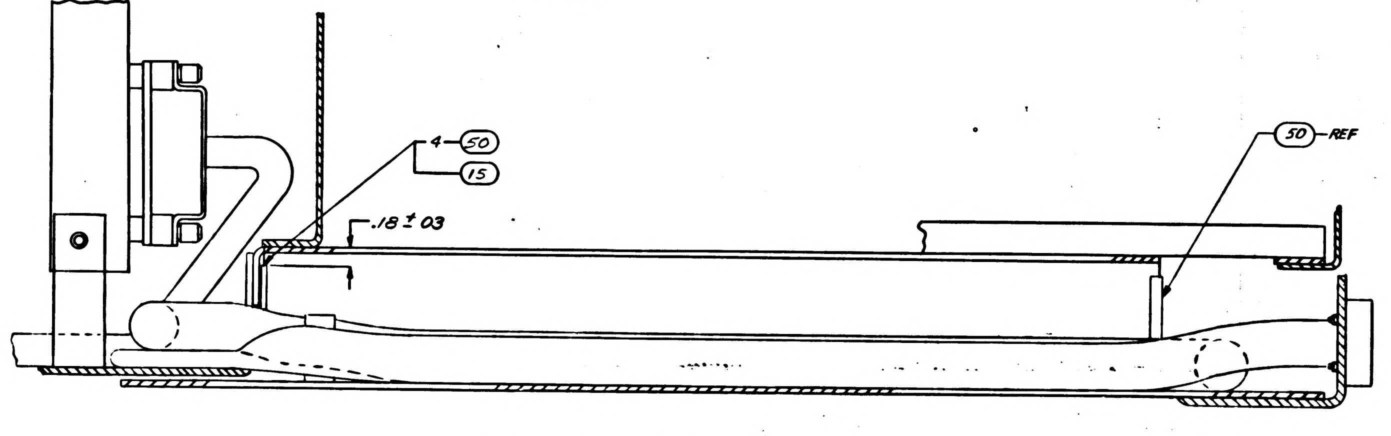
2014036 D

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25044	1/9/65	G Havens
1	CHANGED PER CCA R25122 DR J.J. Baron CHK Taylor APPD	10/65	
–	CLASS B CHANGED PER CCAR25502		HS
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	7/66	
B	CHANGED PER TDRR 26288 DR P. Winfield CHK C.N. APPD	11/66	
C	CHANGED PER TDRR 26702 DR B. Papia CHK G. DeMarco APPD	7/66	
D	CHANGED PER TDRR 28103 DR J. Baron CHK APPD	12/66	



PARTIAL SECTION J-J
ROTATED 90°
SEE SHEET 2



PARTIAL SECTION F-F

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

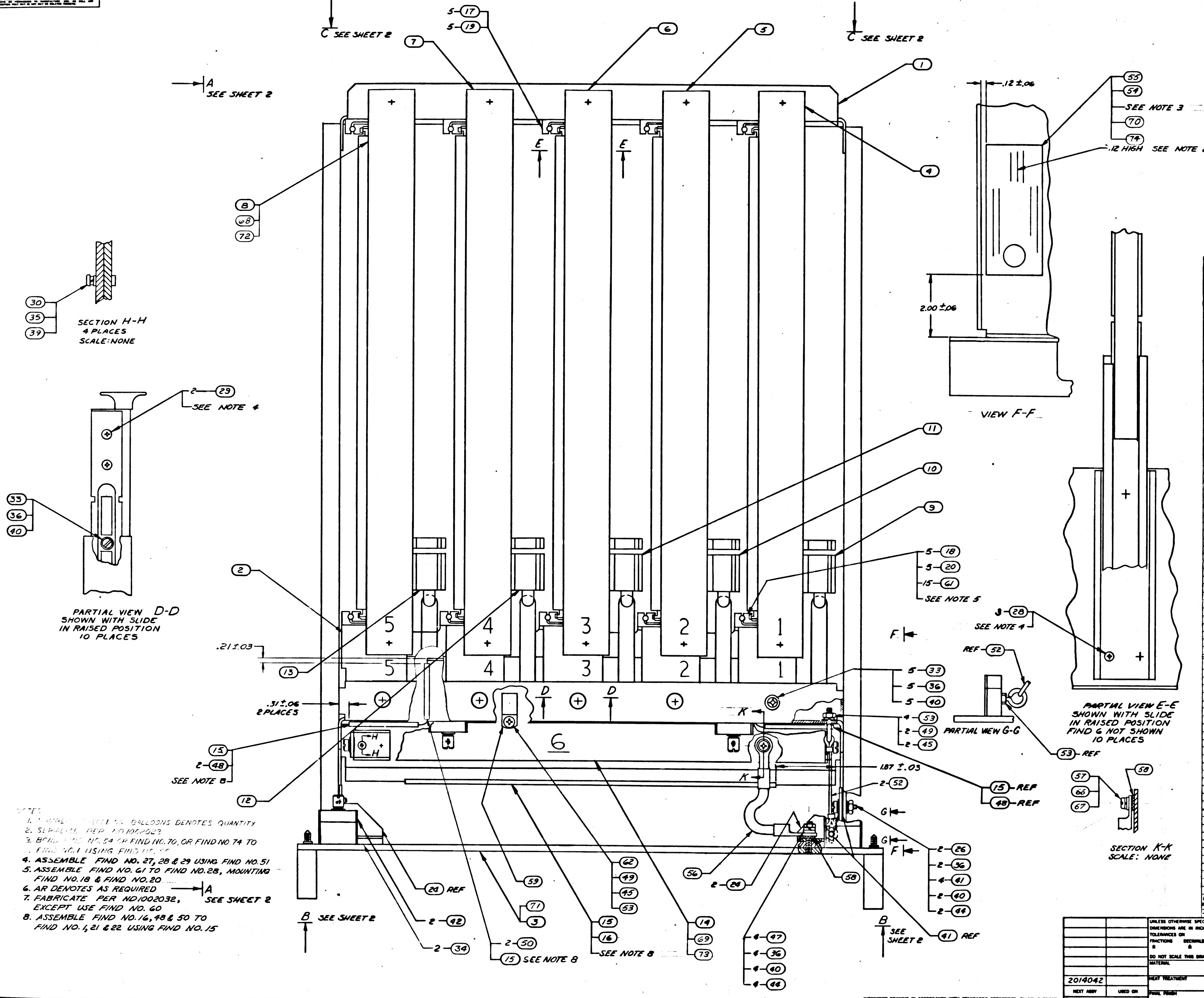
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN 22 MAY 65
CHECKED 3 JAN 65
APPROVAL P C 9 JAN 65
APPROVAL 7/1/65
APPROVAL
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL C S 1/24/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWE ASSY
LOGIC DRAWE - N2
COMPUTER TES SET

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO. 2014036
SCALE 1/1
WT
SHEET 3 OF 3

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25044		
/	CHANGED PER CCA R25122 DR D.J. Baron CHK APPD	20 Oct 65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	/66	
B	CHANGED PER TDRR 26288 DR P. Winfield CHK C.D. APPD	/66	
C	CHANGED PER TDRR 26702 DR B. Pepin CHK C. DeMarco APPD	/66	
D	CHANGED PER TDRR 28103 DR G. Bison CHK APPD	/66	
E	CHANGED PER TDRR 29329 DR C. Butte CHK APPD PED	/66	



NOTES

1. NUMBER PRECEDING BALLOONS DENOTES QUANTITY
2. SERIALIZE PER ND1002023
3. BOND FIND NO. 54 OR FIND NO. 70, OR FIND NO. 74 TO FIND NO. 1 USING FIND NO. 55
4. ASSEMBLE FIND NO. 27, 28 & 29 USING FIND NO. 51
5. ASSEMBLE FIND NO. 61 TO FIND NO. 28, MOUNTING FIND NO. 18 & FIND NO. 20
6. AR DENOTES AS REQUIRED
7. FABRICATE PER ND1002032, EXCEPT USE FIND NO. 60
8. ASSEMBLE FIND NO. 16, 48 & 50 TO FIND NO. 1, 21 & 22 USING FIND NO. 15

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	—	—	2016437	INTERCONN DIAGRAM	REF
—	☒	—	2016421	INTERCONN DIAGRAM	REF
—	—	☒	2014132	INTERCONN DIAGRAM	REF
1	—	—	1004260-271	NAMEPLATE	74
1	—	—	2014228-031	INTERCONN. PLATE ASSY NO. 6	73
1	—	—	2014219-031	LOGIC PLATE ASSY NO. 5	72
1	1	—	2014225-021	FRONT PANEL ASSY	71
—	1	—	1004260-260	NAMEPLATE	70
—	1	—	2014228-021	LOGIC PLATE ASSY NO. 6	69
—	1	—	2014219-021	LOGIC PLATE ASSY NO. 5	68
1	1	1	MS15795-810	WASHER, FLAT	67
1	1	1	MS35338-82	WASHER, LOCK	66
8	8	8	1006671-004	GUIDE, SOCKET	65
16	16	16	1006671-003	NUT, STOP	64
8	8	8	1006671-002	GUIDE PIN	63
1	1	1	MS51957-64	SCREW, PAN HD, CROSS RECESSED	62
15	15	15	MS24680-22	NUT, PLAIN, CAP	61
AR	AR	AR	1006458-004	TAPE, LACING	60
1	1	1	MS21919DG14	CLAMP, CABLE	59
2	2	2	MS35335-61	WASHER, INT. LOCK	58
1	1	1	MS51957-82	SCREW, PAN HD, CROSS RECESSED	57
1	1	1	2014238-011	GROUND STRAP ASSY	56
AR	AR	AR	MIL-A-5092 TYPE II	CEMENT	55
—	—	1	1004260-219	NAME PLATE	54
5	5	5	MS35649-104	NUT, PLAIN HEX	53
2	2	2	1006239	LANYARD ASSY	52
AR	AR	AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	51
6	6	6	1006980-5	GROMMET NYLON	50
3	3	3	MS15795-808	WASHER, FLAT	49
2	2	2	1006980-3	GROMMET NYLON	48
4	4	4	MS51959-48	SCR, FLAT HD, CROSS-RECESSED	47
1	1	1	1014309	BRACKET CONNECTOR	46
3	3	3	MS35338-81	WASHER, LOCK SPLIT	45
6	6	6	MS35649-84	NUT, PLAIN HEXAGON	44
1	1	1	2014193-011	CABLE ASSY W6	43
2	2	2	1014013	RETAINER, CAPTIVE SCREW	42
4	4	4	1006982-8	WASHER, NYLON	41
27	27	27	MS35338-80	WASHER, LOCK SPLIT	40
22	22	22	MS35338-79	WASHER, LOCK SPLIT	39
4	4	4	MS35338-78	WASHER, LOCK SPLIT	38
4	4	4	MS15795-803	WASHER, FLAT	37
27	27	27	MS15795-807	WASHER, FLAT	36
22	22	22	MS15795-805	WASHER, FLAT	35
2	2	2	1014331	PLATE, SPACING	34
21	21	21	MS51957-45	SCR, PAN HD, CROSS RECESSED	33
4	4	4	MS51957-13	SCR, PAN HD, CROSS-RECESSED	32
		~~5~~	~~MS51957-15~~	~~SCR, PAN HD, CROSS-RECESSED~~	31
22	22	22	MS51957-29	SCR, PAN HD, CROSS-RECESSED	30
20	20	20	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	29
30	30	30	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	28
5	5	5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	27
2	2	2	1014005	SCREW, SHOULDER	26
2	2	2	MS25281-15	CLAMP, CABLE	25
2	2	2	2014236	BRACKET, PIVOT ARM	24
1	1	1	1014018	TOOL EXTRACTING	23
1	1	1	1014028	CHANNEL BOTTOM LEFT	22
1	1	1	1014027	CHANNEL BOTTOM RIGHT	21
5	5	5	1006988-1	SLIDE, CHASSIS L.H.	20
5	5	5	1006988-2	SLIDE, CHASSIS R.H.	19
5	5	5	1006988-3	SLIDE, CHASSIS L.H.	18
5	5	5	1006988-4	SLIDE, CHASSIS R.H.	17
1	1	1	1006980-1	GROMMET, NYLON	16
AR	AR	AR	1006981	CEMENT	15
—	—	1	2014228-011	INTERCONN PLATE NO. 6	14
1	1	1	1014046-8	CABLE ASSY W5	13
1	1	1	1014046-7	CABLE ASSY W4	12
1	1	1	1014046-6	CABLE ASSY W3	11
1	1	1	1014046-5	CABLE ASSY W2	10
1	1	1	1014046-4	CABLE ASSY W1	9
—	—	1	2014219-011	LOGIC PLATE ASSY NO. 5	8
1	1	1	2014218-011	LOGIC PLATE ASSY NO. 4	7
1	1	1	2014217-011	LOGIC PLATE ASSY NO. 3	6
1	1	1	2014216-011	LOGIC PLATE ASSY NO. 2	5
1	1	1	2014215-011	LOGIC PLATE ASSY NO. 1	4
—	—	1	2014225-011	PANEL, FRONT ASSY	3
1	1	1	2016347	BRACKET, CABLE GUIDE	2
1	1	1	2014417	CHASSIS STRUCTURE	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-
DRAWN R. Lloyd DATE 22 MAY
CHECKED 3 MAY 65 (CG)
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL /66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014036
SCALE 1/1 WT SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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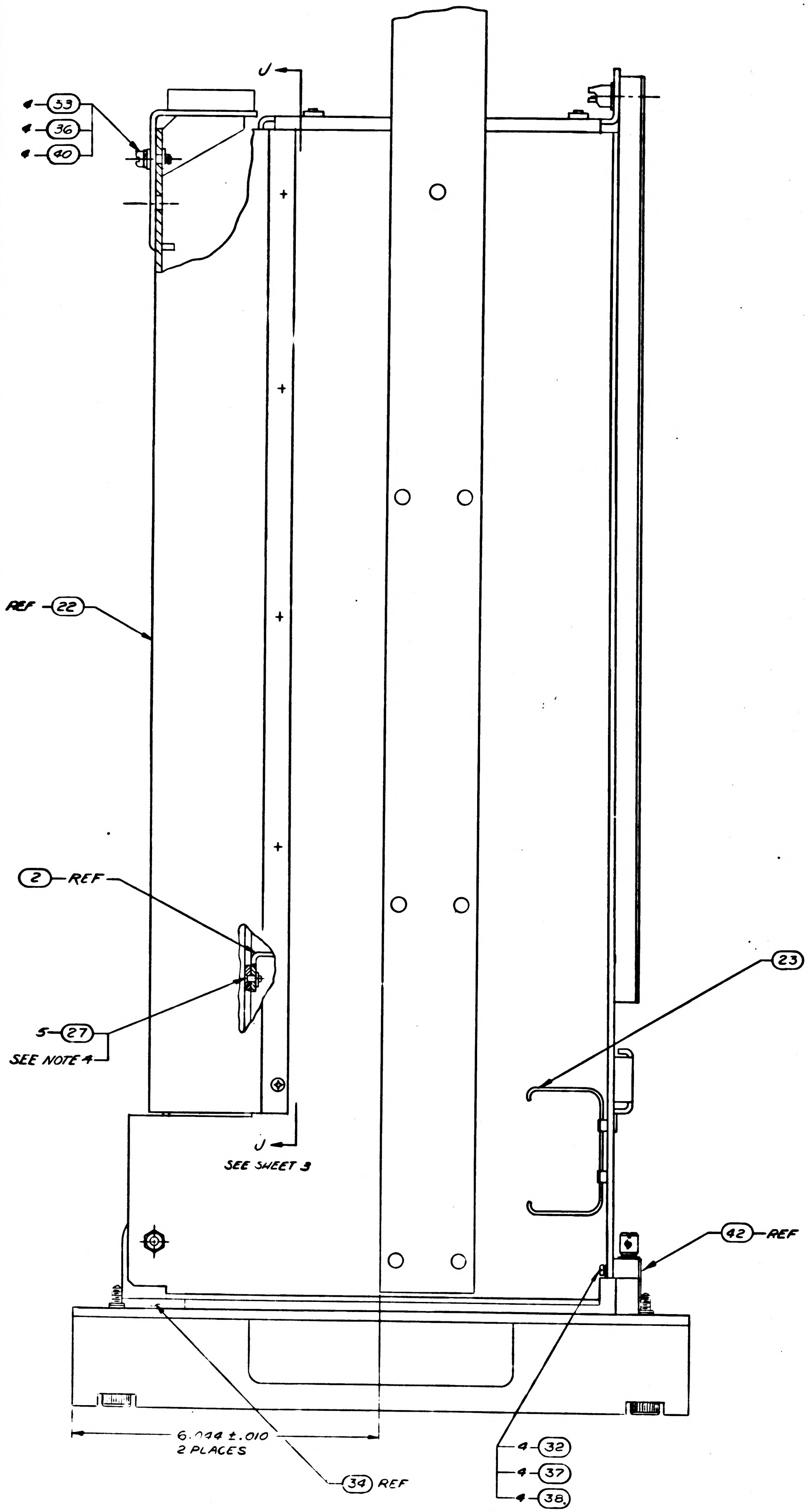
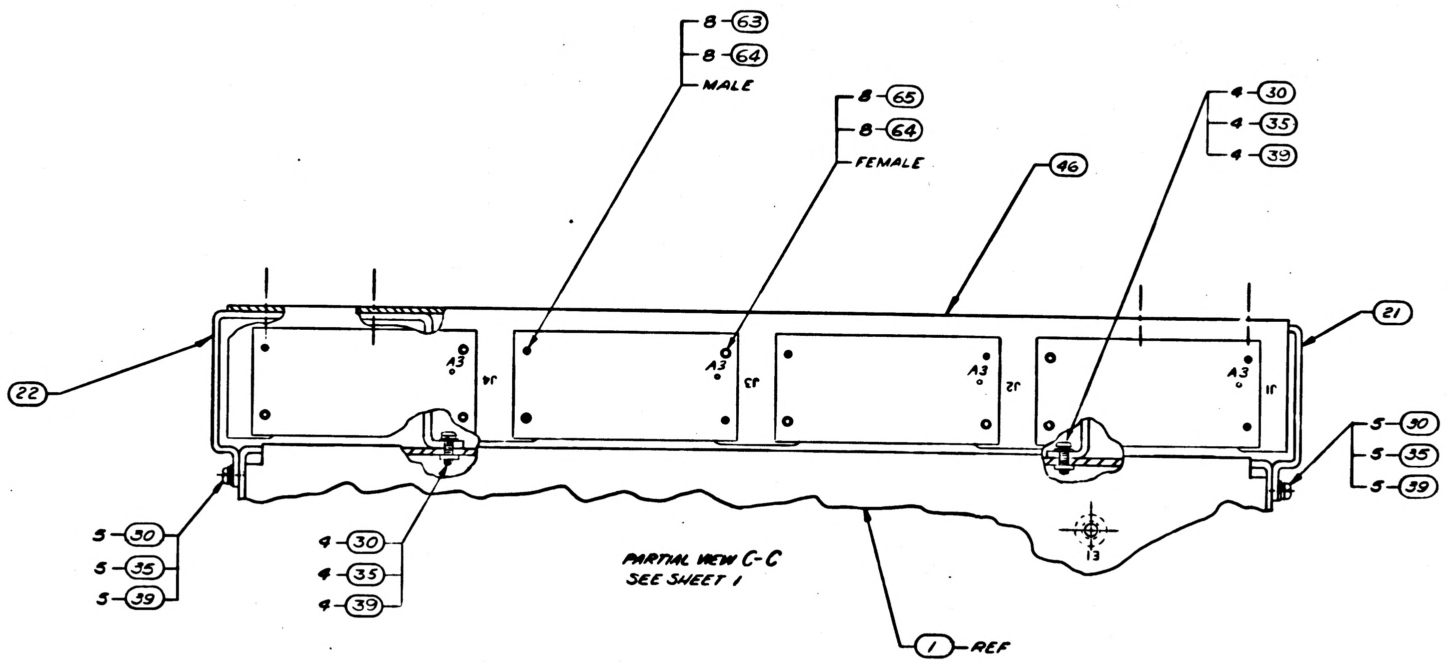
REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
	RELEASED PER [illegible] 25044	7/9/65	G. Navy
1	CHANGED PER CCA R25122 DR. J.J. Baron CHK. [illegible] APPD. Corley	11/4/65	[illegible]
-	CLASS B CHANGED PER CCA R35532	12/14/65	[illegible]
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	1/3/66	[illegible]
B	CHANGED PER TDRR 26288 DR. P. Winfield CHK. [illegible] APPD.	3/18/66	[illegible]
C	CHANGED PER TDRR 2[illegible]2 DR. B.J. Papia CHK. C. DeAnnonia APPD. R. Corley	5/7/66	[illegible]
D	CHANGED PER TDRR 28103 DR. A.J. Biron CHK. [illegible] APPD. R. Corley	7/26/66	[illegible]
E	CHANGED PER TDRR 25[illegible] DR. P. Bates CHK. G. [illegible] APPD. PED	[illegible]/66	[illegible]



J
4-(33)
4-(36)
4-(40)
REF-(22)
(2)-REF
5-(27)
SEE NOTE 4
J
SEE SHEET 3
(23)
(42)-REF
6.044 ±.010
2 PLACES
(34) REF
4-(32)
4-(37)
4-(38)

VIEW A-A



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A3
J2
A3
J1
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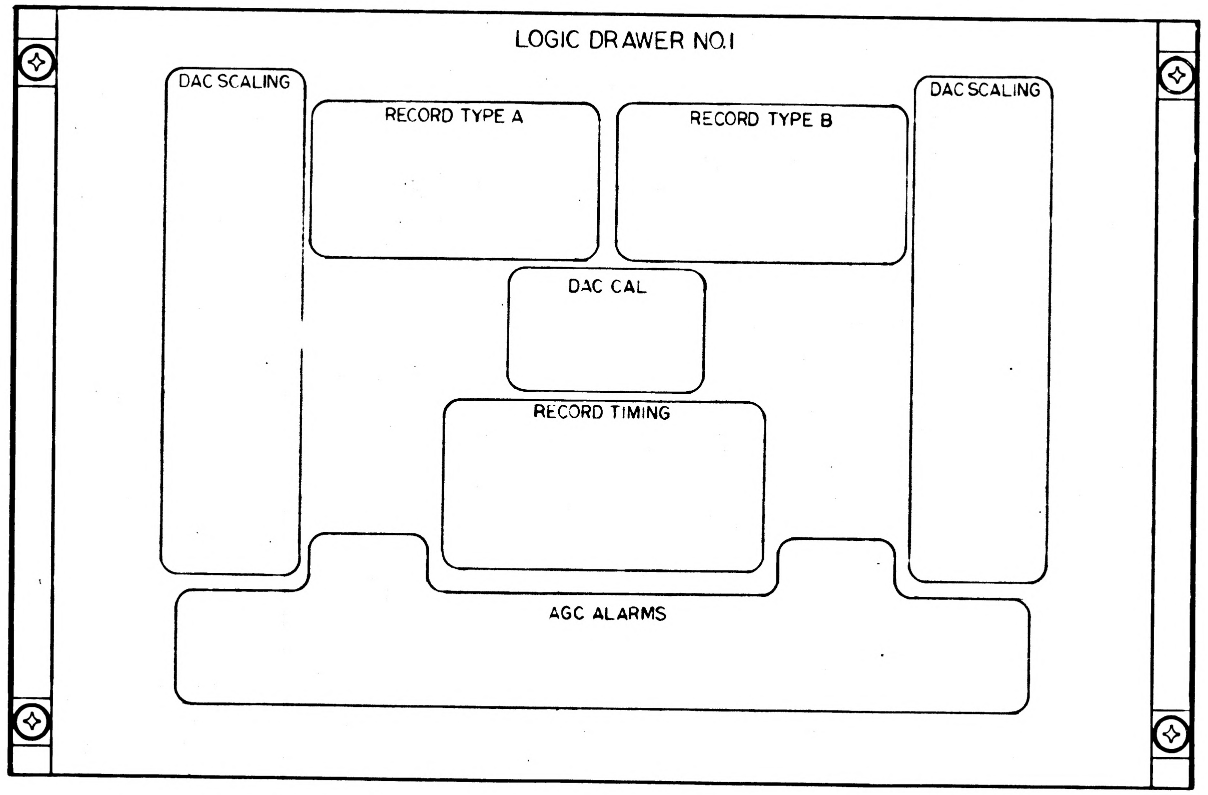
PARTIAL VIEW C-C
SEE SHEET 1



LOGIC DRAWER NO.1
DAC SCALING
RECORD TYPE A
RECORD TYPE B
DAC SCALING
DAC CAL
RECORD TIMING
AGC ALARMS

VIEW B-B
SEE SHEET 1

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL R.E. Duke 9 July 65
APPROVAL D.J. [illegible] 7/8/65
APPROVAL [illegible]
NASA APPROVAL A.C. METZGER
MIT APPROVAL W. [illegible]
MIT APPROVAL C. [illegible]

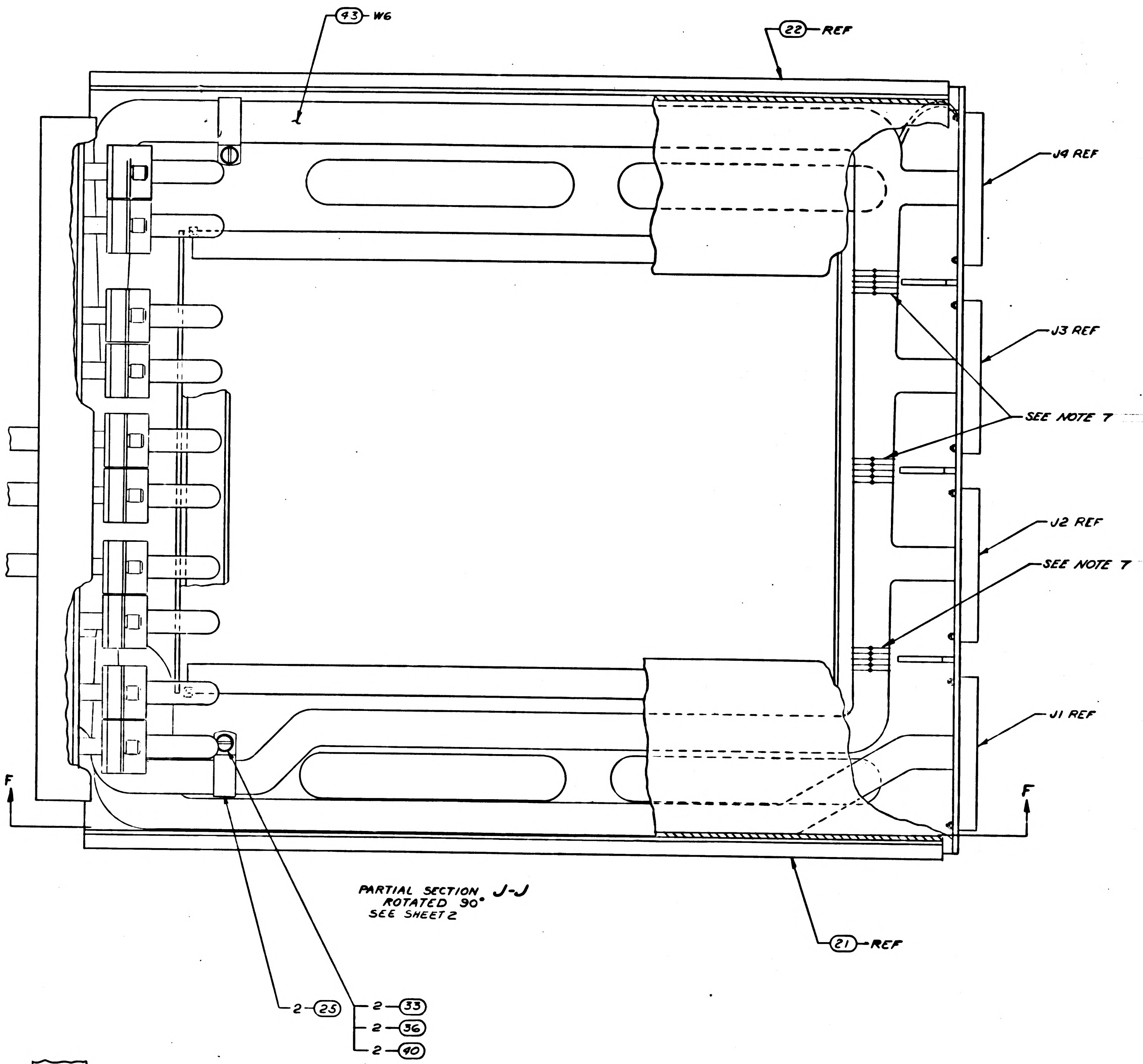
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO 1
COMPUTER TEST SET

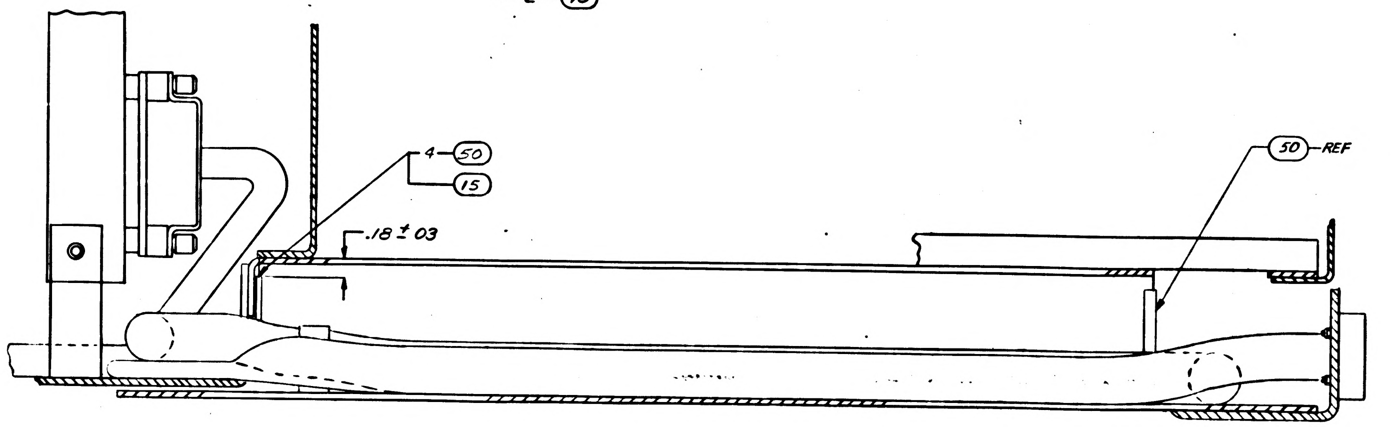
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014036
SCALE 1/1
WT
SHEET 2

2014036 E

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 250[illegible]	[illegible]	C [illegible]
1	CHANGED PER CCA R25122 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCAR25502	[illegible]	[illegible]
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	[illegible]/66	[illegible]
B	CHANGED PER TDRR 26288 DR P. [illegible] CHK C.N. APPD [illegible]	[illegible]/66	[illegible]
C	CHANGED PER TDRR 26702 DR [illegible] CHK C. [illegible] APPD [illegible]	[illegible]/66	[illegible]
D	CHANGED PER TDRR 28103 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
E	CHANGED PER TDRR 29329 DR C. [illegible] CHK [illegible] APPD PED	[illegible]/66	[illegible]



PARTIAL SECTION J-J
ROTATED 90°
SEE SHEET 2



PARTIAL SECTION F-F

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] 22 MAR [illegible]
CHECKED [illegible] 3 JAN 65 [illegible]
APPROVAL [illegible] 9 JAN 65
APPROVAL D. [illegible] 7/1/65
APPROVAL [illegible] 7/1/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. S. [illegible] 1/24/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

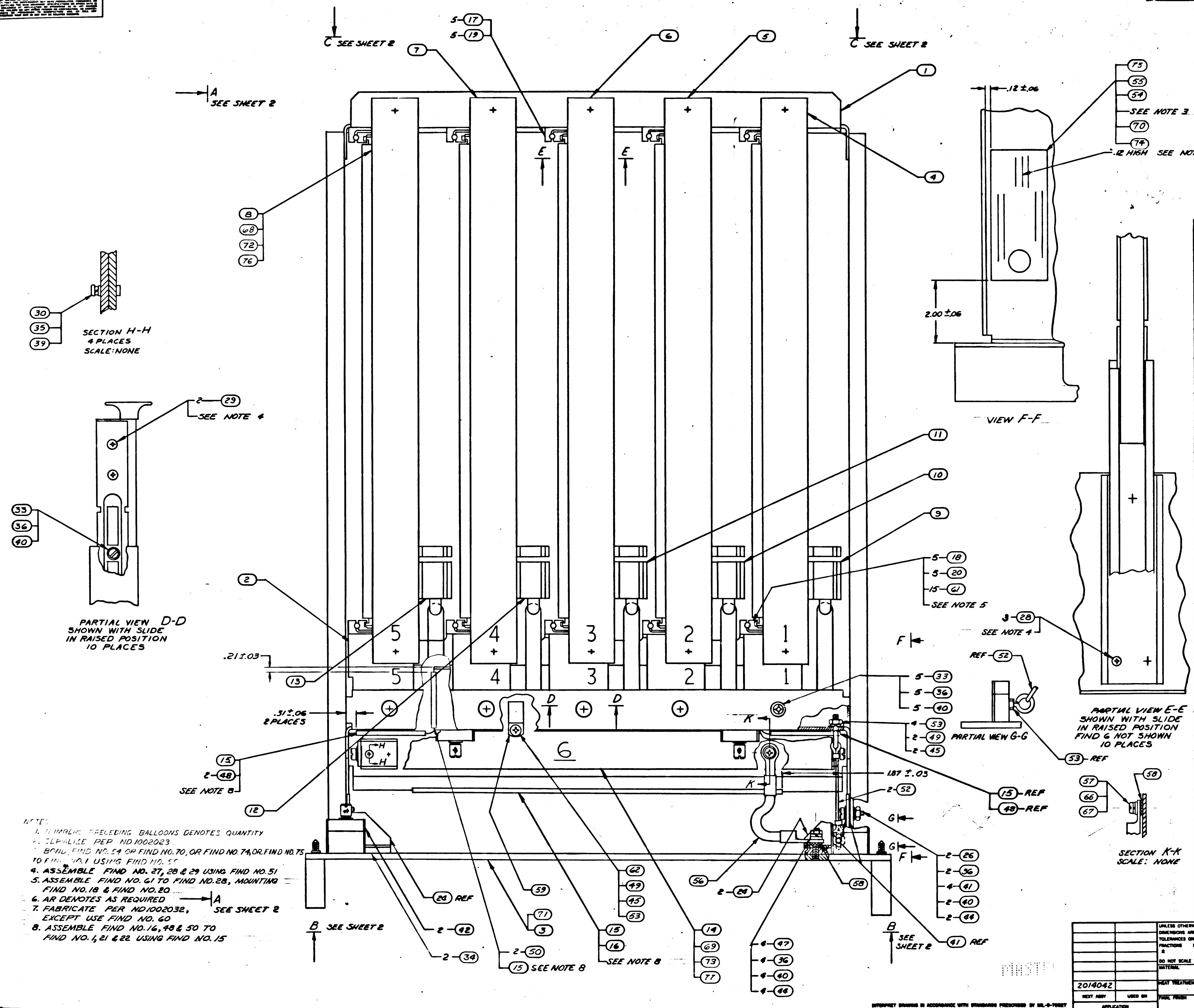
LOGIC DRAWER ASSY
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO	SIZE	NASA DRAWING NO.
49956	J	2014036

SCALE 1/1 WT SHEET 3 OF 3

2014036 F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25044		
1	CHANGED PER CCA R25122 DR S.J. Baran CHK APPD Gurley	10 Sept 65	
-	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	1/13/66	
B	CHANGED PER TDRR 26288 DR P. Winfield CHK C.D. APPD P.C.O.	2/9/66	
C	CHANGED PER TDRR 26702 DR B.J. Papia CHK C. DeVreese APPD Gurley	3/12/66	
D	CHANGED PER TDRR 28103 DR G.S. Bison CHK APPD Gurley	4/21/66	
E	CHANGED PER TDRR 29329 DR CHK G. Kuhn APPD PED		
F	CHANGED PER TDRR 31281 DR J.P. Gordons CHK G. Kuhn APPD	7/25/66	


C SEE SHEET 2
C SEE SHEET 2
A SEE SHEET 2
5-(17)
5-(19)
(7)
(6)
(5)
(1)
(4)
E
E
(8)
(68)
(72)
(76)
(30)
(35)
(39)
SECTION H-H
4 PLACES
SCALE: NONE
2-(29)
SEE NOTE 4
(33)
(36)
(40)
PARTIAL VIEW D-D
SHOWN WITH SLIDE
IN RAISED POSITION
10 PLACES
(2)
.21 ±.03
(13)
.31 ±.06
2 PLACES
(15)
2-(48)
SEE NOTE 8
(12)
5 4 3 2 1
5 4 3 2 1
6
H
H
D
D
K
K
(11)
(10)
(9)
5-(18)
5-(20)
15-(61)
SEE NOTE 5
5-(33)
5-(36)
5-(40)
4-(53)
2-(49)
2-(45)
1.87 ±.03
2-(52)
(15)-REF
(48)-REF
G
F
F
B SEE SHEET 2
B SEE SHEET 2
(24) REF
2-(42)
2-(34)
(59)
(71)
(3)
2-(50)
(15) SEE NOTE 8
(62)
(49)
(45)
(53)
(15)
(16)
SEE NOTE 8
(14)
(69)
(73)
(77)
(56)
2-(24)
4-(47)
4-(36)
4-(40)
4-(44)
(58)
(41) REF
2-(26)
2-(36)
4-(41)
2-(40)
2-(44)
(75)
(55)
(54)
SEE NOTE 3
(70)
(74)
.12 ±.06
.12 HIGH SEE NOTE 2
2.00 ±.06
VIEW F-F
3-(28)
SEE NOTE 4
REF-(52)
PARTIAL VIEW G-G
(53)-REF
PARTIAL VIEW E-E
SHOWN WITH SLIDE
IN RAISED POSITION
FIND 6 NOT SHOWN
10 PLACES
(57)
(66)
(67)
(58)
SECTION K-K
SCALE: NONE

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTES QUANTITY
2. SERIALIZE PER ND1002023
3. BOND FIND NO. 54 OR FIND NO. 70, OR FIND NO. 74, OR FIND NO. 75 TO FIND NO. 1 USING FIND NO. 55
4. ASSEMBLE FIND NO. 27, 28 & 29 USING FIND NO. 51
5. ASSEMBLE FIND NO. 61 TO FIND NO. 28, MOUNTING FIND NO. 18 & FIND NO. 20
6. AR DENOTES AS REQUIRED
7. FABRICATE PER ND1002032, EXCEPT USE FIND NO. 60
8. ASSEMBLE FIND NO. 16, 48 & 50 TO FIND NO. 1, 21 & 22 USING FIND NO. 15

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	—	—	—	2014228-041	INTERCONN PLATE ASSY NO. 6	77
1	—	—	—	2014219-041	LOGIC PLATE ASSY NO. 5	76
1	—	—	—	1004260-278	NAMEPLATE	75
X	—	—	—	2016456	INTERCONN DIAGRAM	REF
—	X	—	—	2016437	INTERCONN DIAGRAM	REF
—	—	X	—	2016421	INTERCONN DIAGRAM	REF
—	—	—	X	2014132	INTERCONN DIAGRAM	REF
—	1	—	—	1004260-271	NAMEPLATE	74
—	1	—	—	2014228-031	INTERCONN. PLATE ASSY NO. 6	73
—	1	—	—	2014219-031	LOGIC PLATE ASSY NO. 5	72
1	1	1	—	2014225-021	FRONT PANEL ASSY	71
—	—	1	—	1004260-260	NAMEPLATE	70
—	—	1	—	2014228-021	INTERCONN PLATE ASSY NO. 6	69
—	—	1	—	2014219-021	LOGIC PLATE ASSY NO. 5	68
1	1	1	1	MS15795-810	WASHER, FLAT	67
1	1	1	1	MS35338-82	WASHER, LOCK	66
8	8	8	8	1006671-004	GUIDE, SOCKET	65
16	16	16	16	1006671-003	NUT, STOP	64
8	8	8	8	1006671-002	GUIDE PIN	63
1	1	1	1	MS51957-64	SCREW, PAN HD, CROSS RECESSED	62
15	15	15	15	MS24680-22	NUT, PLAIN, CAP	61
AR	AR	AR	AR	1006458-004	TAPE, LACING	60
1	1	1	1	MS21919DG14	CLAMP, CABLE	59
2	2	2	2	MS35335-61	WASHER, INT. LOCK	58
1	1	1	1	MS51957-82	SCREW, PAN HD, CROSS RECESSED	57
1	1	1	1	2014238-011	GROUND STRAP ASSY	56
AR	AR	AR	AR	MIL-A-5092 TYPE II	CEMENT	55
—	—	—	1	1004260-279	NAME PLATE	54
5	5	5	5	MS35649-104	NUT, PLAIN HEX	53
2	2	2	2	1006239	LANYARD ASSY	52
AR	AR	AR	AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	51
6	6	6	6	1006980-5	GROMMET NYLON	50
3	3	3	3	MS15795-808	WASHER, FLAT	49
2	2	2	2	1006980-3	GROMMET NYLON	48
4	4	4	4	MS51959-48	SCR, FLAT HD, CROSS-RECESSED	47
1	1	1	1	1014304	BRACKET CONNECTOR	46
3	3	3	3	MS35338-81	WASHER, LOCK SPLIT	45
6	6	6	6	MS35649-84	NUT, PLAIN HEXAGON	44
1	1	1	1	2014193-011	CABLE ASSY W6	43
2	2	2	2	1014013	RETAINER, CAPTIVE SCREW	42
4	4	4	4	1006982-8	WASHER, NYLON	41
27	27	27	27	MS35338-80	WASHER, LOCK SPLIT	40
22	22	22	22	MS35338-79	WASHER, LOCK SPLIT	39
4	4	4	4	MS35338-78	WASHER, LOCK SPLIT	38
4	4	4	4	MS15795-803	WASHER, FLAT	37
27	27	27	27	MS15795-807	WASHER, FLAT	36
22	22	22	22	MS15795-805	WASHER, FLAT	35
2	2	2	2	1014331	PLATE, SPACING	34
21	21	21	21	MS51957-45	SCR, PAN HD, CROSS RECESSED	33
4	4	4	4	MS51957-13	SCR, PAN HD, CROSS-RECESSED	32
~~—~~	~~—~~	~~—~~	~~5~~	~~MS51957-15~~	~~SCR, PAN HD, CROSS-RECESSED~~	~~31~~
22	22	22	22	MS51957-29	SCR, PAN HD, CROSS-RECESSED	30
20	20	20	20	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	29
30	30	30	30	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	28
5	5	5	5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	27
2	2	2	2	1014005	SCREW, SHOULDER	26
2	2	2	2	MS25281-15	CLAMP, CABLE	25
2	2	2	2	2014236	BRACKET, PIVOT ARM	24
1	1	1	1	1014018	TOOL EXTRACTING	23
1	1	1	1	1014028	CHANNEL BOTTOM LEFT	22
1	1	1	1	1014027	CHANNEL BOTTOM RIGHT	21
5	5	5	5	1006988-1	SLIDE, CHASSIS L.H.	20
5	5	5	5	1006988-2	SLIDE, CHASSIS R.H.	19
5	5	5	5	1006988-3	SLIDE, CHASSIS L.H.	18
5	5	5	5	1006988-4	SLIDE, CHASSIS R.H.	17
1	1	1	1	1006980-1	GROMMET, NYLON	16
AR	AR	AR	A.R.	1006981	CEMENT	15
—	—	—	1	2014228-011	INTERCONN PLATE NO. 6	14
1	1	1	1	1014046-8	CABLE ASSY W5	13
1	1	1	1	1014046-7	CABLE ASSY W4	12
1	1	1	1	1014046-6	CABLE ASSY W3	11
1	1	1	1	1014046-5	CABLE ASSY W2	10
1	1	1	1	1014046-4	CABLE ASSY W1	9
—	—	—	1	2014219-011	LOGIC PLATE ASSY NO. 5	8
1	1	1	1	2014218-011	LOGIC PLATE ASSY NO. 4	7
1	1	1	1	2014217-011	LOGIC PLATE ASSY NO. 3	6
1	1	1	1	2014216-011	LOGIC PLATE ASSY NO. 2	5
1	1	1	1	2014215-011	LOGIC PLATE ASSY NO. 1	4
—	—	—	1	2014225-011	PANEL, FRONT ASSY	3
1	1	1	1	2016347	BRACKET, CABLE GUIDE	2
1	1	1	1	2014417	CHASSIS STRUCTURE	1

LIST OF MATERIALS

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-4197
DRAWN R. Lloyd DATE 22 MAR 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C S 1/14/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO. 1
COMPUTER TEST SET

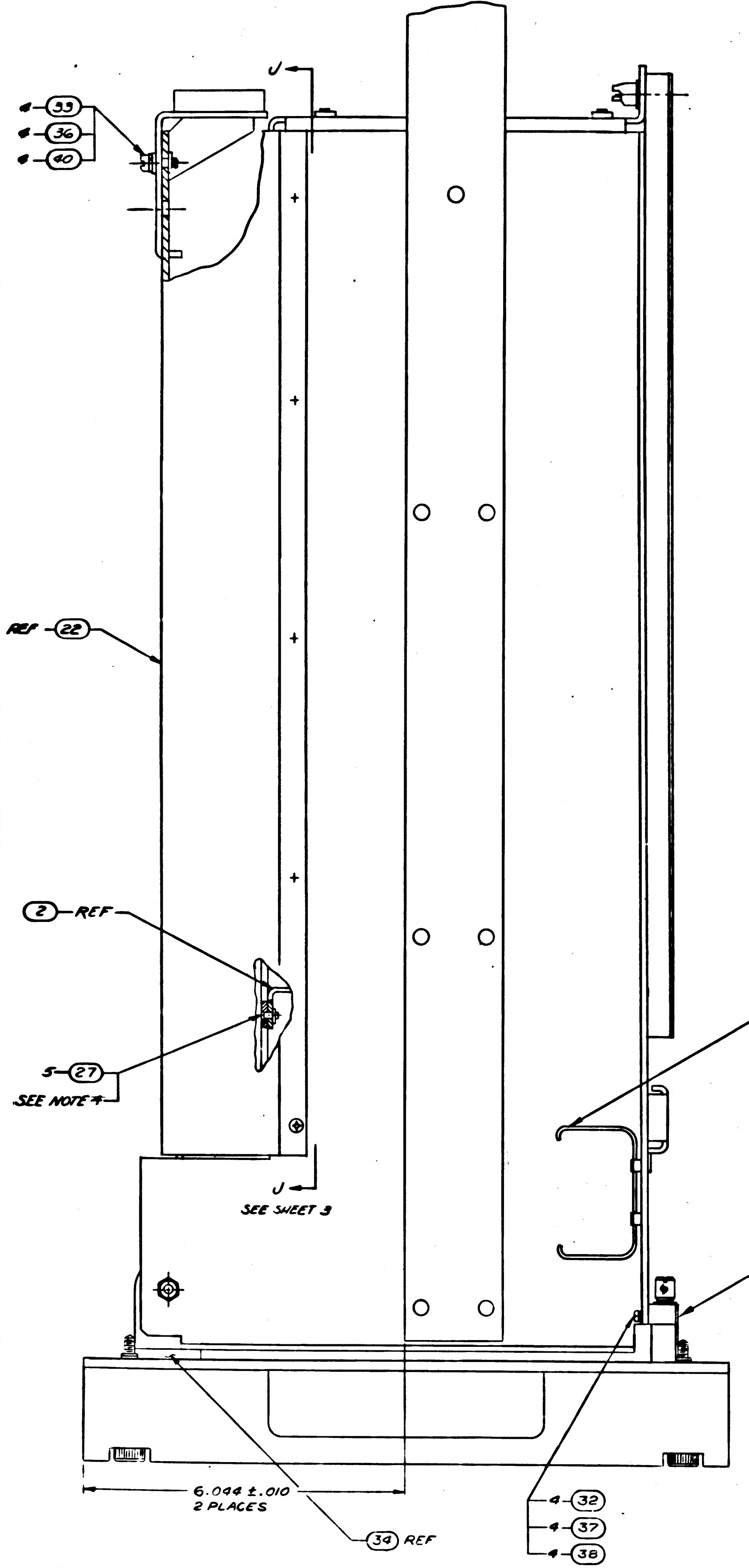
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014036
SCALE 1/1 WT SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014036

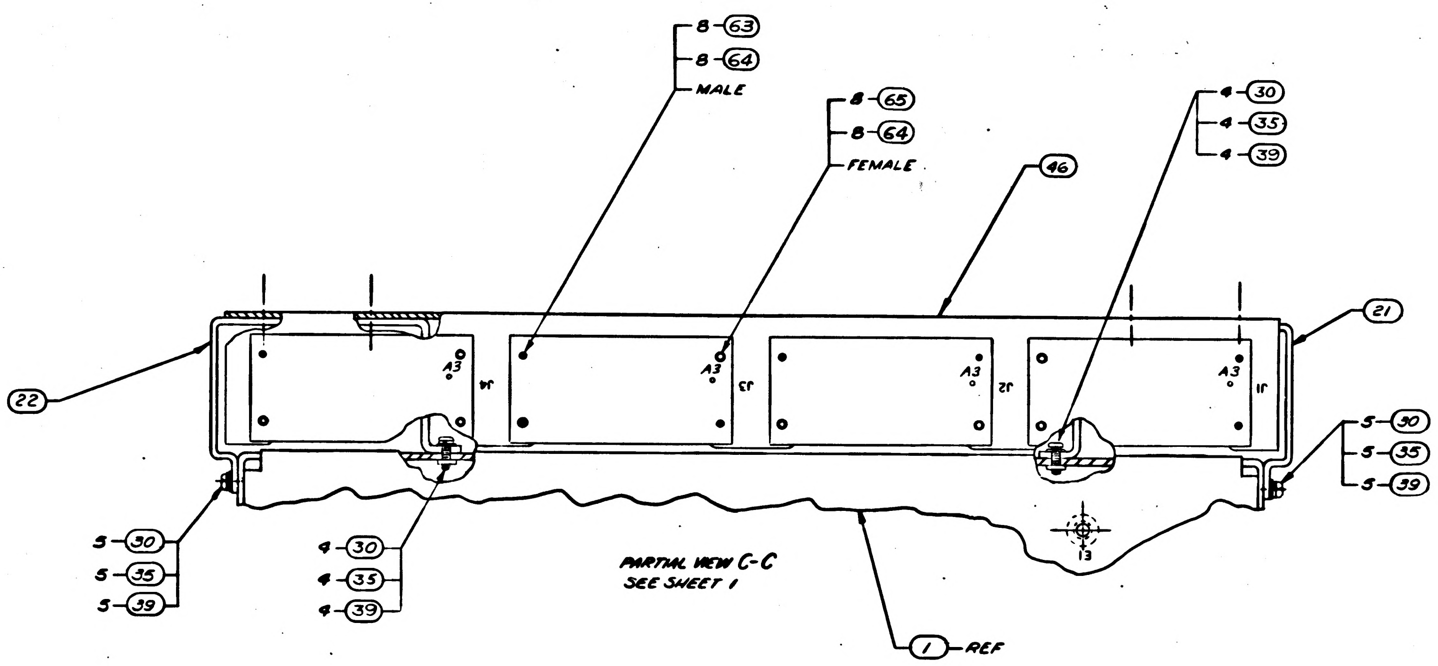
2014036 F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
C	RELEASED PER CCA 25044	11/3/65	
1	CHANGED PER CCA R25122 DR J.J.Baran CHK G. Kufer APPD		
-	CLASS B CHANGED PER CCA R2[illegible]5[illegible]2		
A	CHANGED PER CCA R25644 & CLASS A RELEASED FOR TDRR 254[illegible]	1/12/66	
B	CHANGED PER TDRR 26288 DR P. Wangsund CHK C.D. APPD	2/19/66	
C	CHANGED PER TDRR 2[illegible] DR B.J.Papia CHK C.Delnemia APPD	3/7/66	
D	CHANGED PER TDRR 28103 DR A.J. Biron CHK APPD	4/26/66	
E	CHANGED PER TDRR 2[illegible] DR P.Bather CHK. G. Kufer APPD PED	6/14/66	
F	CHANGED PER TDRR 31281 DR A.P.Giordano CHK G. Kufer APPD K=3	11/25/66	



4-(33)
4-(36)
4-(40)
J
REF-(22)
(2)-REF
5-(27)
SEE NOTE 4
J
SEE SHEET 3
(23)
(42)-REF
6.044 ±.010
2 PLACES
(34) REF
4-(32)
4-(37)
4-(38)

VIEW A-A



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MALE
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FEMALE
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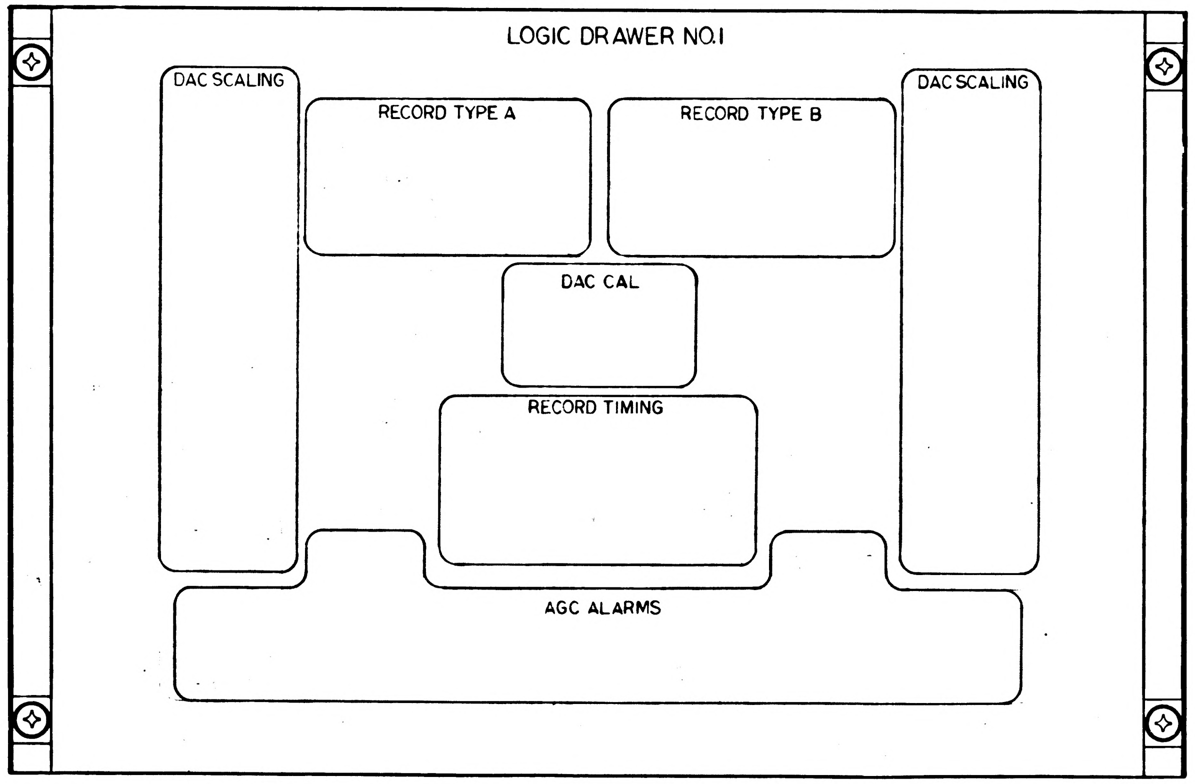
(1)-REF

PARTIAL VIEW C-C
SEE SHEET 1



LOGIC DRAWER NO.1
DAC SCALING
RECORD TYPE A
RECORD TYPE B
DAC SCALING
DAC CAL
RECORD TIMING
AGC ALARMS

VIEW B-B
SEE SHEET 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 27 MAY
CHECKED 3 JUN 65
APPROVAL 9 JUL 65
APPROVAL 7/8/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer
MIT APPROVAL C 1/26/66

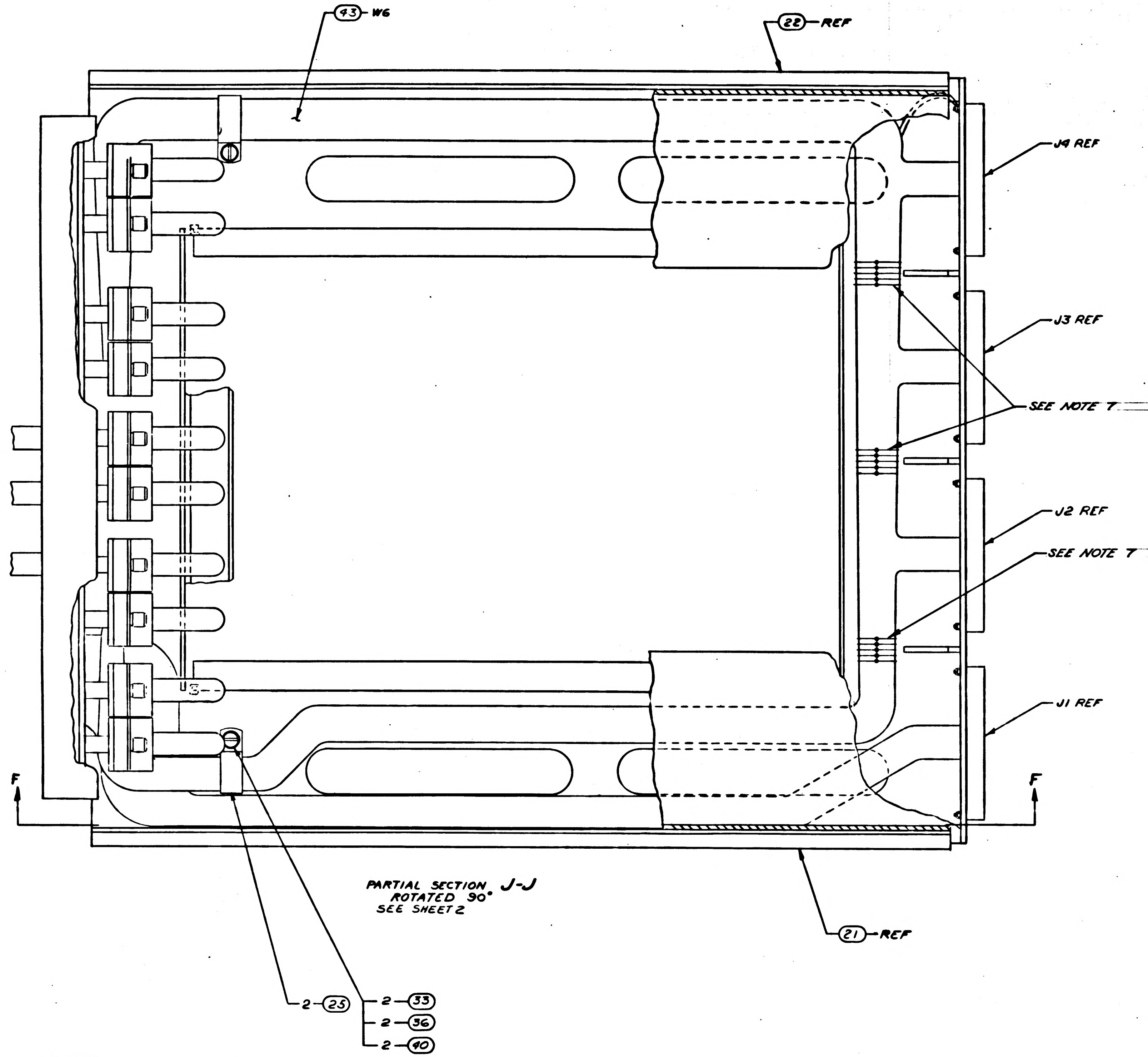
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO. 1
COMPUTER TEST SET

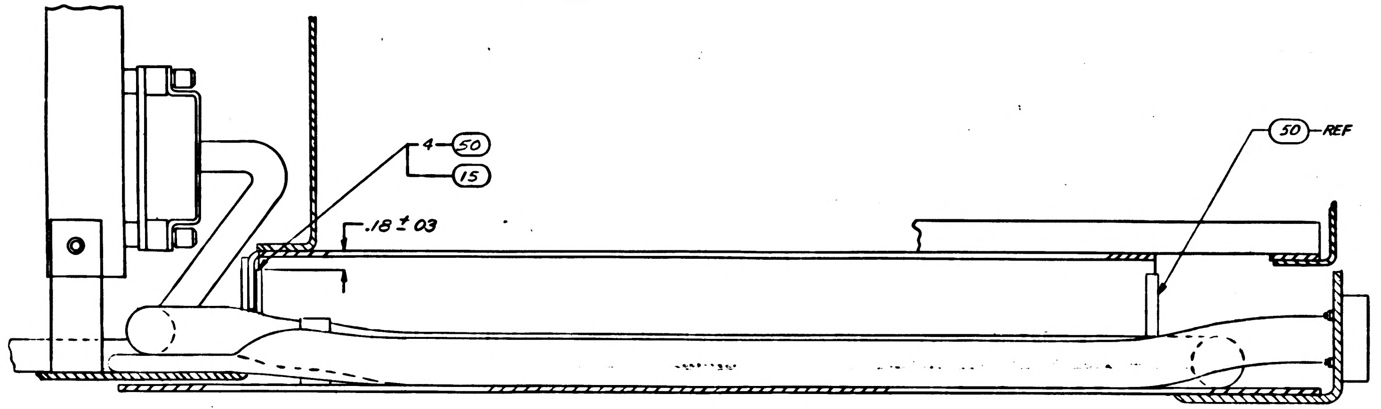
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014036
SCALE 1/1
WT
SHEET 2 OF 3

2014036 F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25044	1/9/65	G Havana
1	CHANGED PER CCA R25122 DR J Baran CHK J. Kaplan APPD D. Curley	12/3/65	J Smith
–	CLASS B CHANGED PER CCAR25502	1/14/65	Hh
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	1/7/66	Jnl
B	CHANGED PER TDRR 26288 DR P. Winfield CHK C.D. APPD PCD	2/9/66	Jnl
C	CHANGED PER TDRR 26702 DR B. Papia CHK C. Delhermio APPD D. Curley	3/4/66	Jnl
D	CHANGED PER TDRR 28103 DR A. Baran CHK APPD D. Curley	4/26/66	Jnl
E	CHANGED PER TDRR 29329 DR C. Cattt CHK C. Kaplan APPD PED	6/?/66	Jnl
F	CHANGED PER TDRR 31281 DR J Pbindano CHK J. Kaplan APPD RPB	9/26/66	Jnl



PARTIAL SECTION J-J
ROTATED 90°
SEE SHEET 2



PARTIAL SECTION F-F

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN 22 MAR
CHECKED 3 JAN 65
APPROVAL P C Dale 9 NOV 65
APPROVAL 7/1/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C S 1/24/66

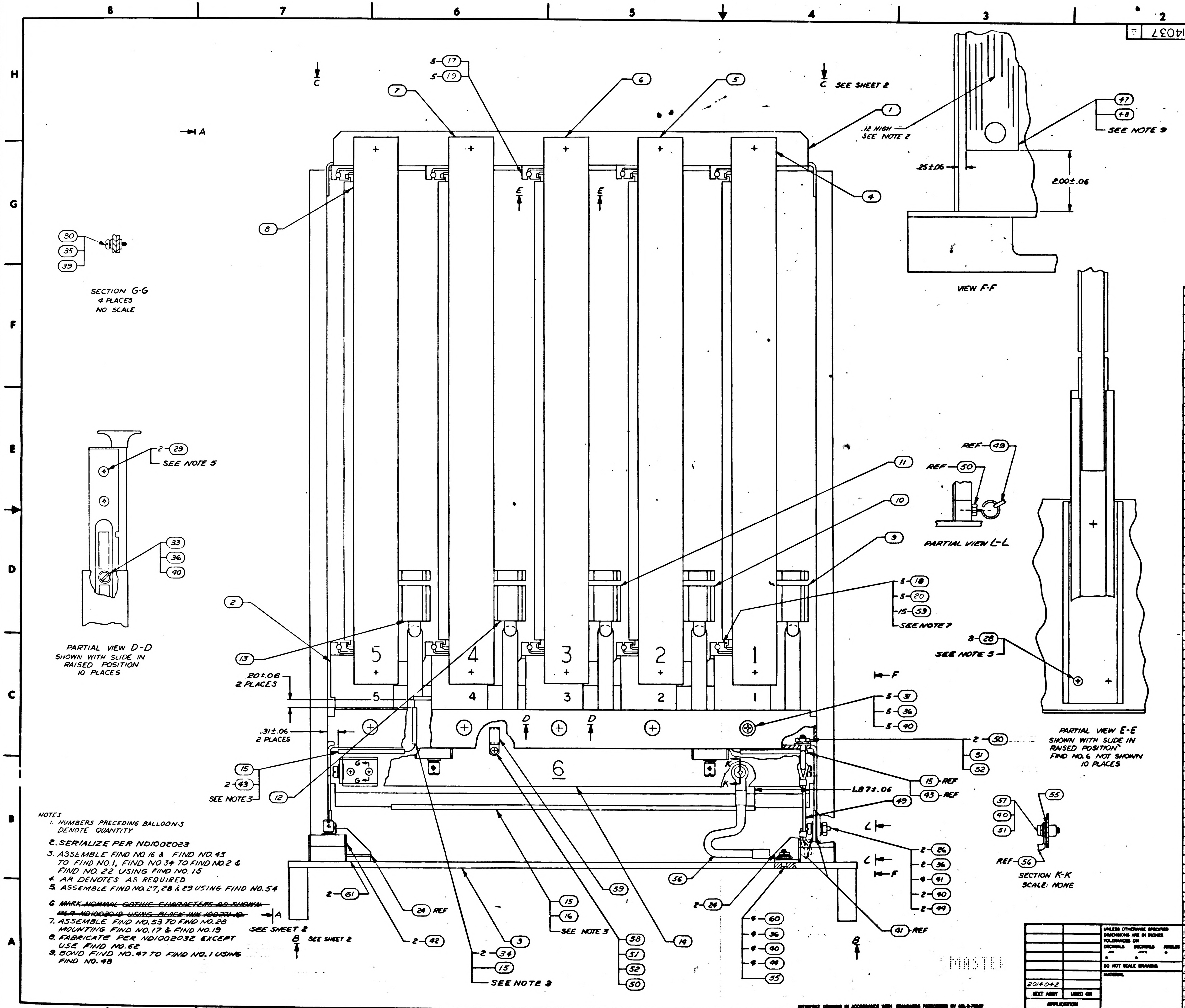
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO.1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014036
SCALE 1/1
WT
SHEET 3 OF 3

2014036 F

SYM	DESCRIPTION	DATE	APPROVED
	REVISIONS		
O	RELEASED PER C A R25064		
1	CHANGED PER CCA R25127 DR D. Belanger CHK'L Wilson APPD		
–	CLASS B CHANGED PER CCAR2 5532		
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472		



SECTION G-G
4 PLACES
NO SCALE
30
35
39
PARTIAL VIEW D-D
SHOWN WITH SLIDE IN RAISED POSITION
10 PLACES
2-29
SEE NOTE 5
33
36
40
VIEW F-F
.12 HIGH
SEE NOTE 2
.25±.06
2.00±.06
47
48
SEE NOTE 9
PARTIAL VIEW L-L
REF-49
REF-50
PARTIAL VIEW E-E
SHOWN WITH SLIDE IN RAISED POSITION
FIND NO. 6 NOT SHOWN
10 PLACES
3-28
SEE NOTE 5
SECTION K-K
SCALE: NONE
57
40
51
55
REF-56
C SEE SHEET 2
A
5-17
5-19
7
6
5
1
4
8
E
E
11
10
9
5-18
5-20
15-53
SEE NOTE 7
2
13
5 4 3 2 1
20±.06
2 PLACES
.31±.06
2 PLACES
5-31
5-36
5-40
2-50
51
52
15-REF
43-REF
1.87±.06
49
D
D
6
15
2-43
SEE NOTE 3
12
K
K
L
L
F
F
2-26
2-36
4-41
2-40
2-49
41-REF
2-61
24 REF
2-42
2-34
15
SEE NOTE 3
3
15
16
SEE NOTE 3
58
51
52
50
59
14
56
2-24
4-60
4-36
4-40
4-44
55
A
SEE SHEET 2
B SEE SHEET 2
B

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. ASSEMBLE FIND NO. 16 & FIND NO. 43 TO FIND NO. 1, FIND NO 34 TO FIND NO. 2 & FIND NO. 22 USING FIND NO. 15
4. AR DENOTES AS REQUIRED
5. ASSEMBLE FIND NO. 27, 28 & 29 USING FIND NO. 54
6. ~~MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1002710~~
7. ASSEMBLE FIND NO. 53 TO FIND NO. 28 MOUNTING FIND NO. 17 & FIND NO. 19
8. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 62
9. BOND FIND NO. 47 TO FIND NO. 1 USING FIND NO. 48

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014133	INTERCONNECTION DIAGRAM	REF
8	1006671-002	GUIDE, PIN	65
8	1006671-004	GUIDE, SOCKET	64
16	1006671-003	NUT, STOP	63
AR	1006458-004	TAPE, LACING	62
2	1014331	PLATE, SPACING	61
4	MS51959-48	SCR, FLAT HD, CROSS RECESSED	60
1	MS21333-73	CABLE CLAMP	59
1	MS51957-64	SCR, PAN HD, CROSS RECESSED	58
1	MS51957-62	SCR, PAN HD, CROSS RECESSED	57
1	2014238-011	GROUND STRAP ASSY	56
2	MS35335-61	WASHER, LOCK, FLAT EXT TOOTH	55
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	54
15	MS24680-22	NUT, PLAIN CAP	53
2	MS35338-81	WASHER, LOCK SPLIT	52
3	MS15795-808	WASHER, FLAT	51
3	MS35649-104	NUT, PLAIN HEX	50
1	1006239	LANYARD ASSY	49
AR	MIL-A-5092 TYPE II	ADHESIVE	48
1	1004260-220	PLATE, IDENTIFICATION	47
1	2014193-011	CABLE ASSY W6	46
1	1014304	BRACKET, CONNECTOR	45
6	MS35649-84	NUT, PLAIN HEXAGON	44
2	1006980-3	GROMMET, NYLON	43
2	1014013	RETAINER, CAPTIVE SCREW	42
4	1006982-8	WASHER, NYLON	41
28	MS35338-80	WASHER, LOCK SPLIT	40
22	MS35338-79	WASHER, LOCK SPLIT	39
4	MS35338-78	WASHER, LOCK SPLIT	38
4	MS15795-803	WASHER, FLAT	37
27	MS15795-807	WASHER, FLAT	36
22	MS15795-805	WASHER, FLAT	35
6	1006980-5	GROMMET, NYLON	34
16	MS51957-45	SCR, PAN HD, CROSS RECESSED	33
4	MS51957-13	SCR, PAN HD, CROSS-RECESSED	32
5	MS51957-45	SCR, PAN HD, CROSS-RECESSED	31
22	MS51957-26	SCR, PAN HD, CROSS-RECESSED	30
20	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	29
30	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	28
5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	27
2	1014005	SCREW, SHOULDER	26
2	MS25281-15	CLAMP, CABLE	25
2	2014236	BRACKET, PIVOT ARM	24
1	1014018	TOOL, EXTRACTING	23
1	1014028	CHANNEL, BOTTOM, LEFT	22
1	1014027	CHANNEL, BOTTOM, RIGHT	21
5	1006988-1	SLIDE, CHASSIS, LH	20
5	1006988-2	SLIDE, CHASSIS, RH	19
5	1006988-3	SLIDE, CHASSIS, LH	18
5	1006988-4	SLIDE, CHASSIS, RH	17
1	1006980-1	GROMMET, NYLON	16
AR	1006981	CEMENT	15
1	2014229-011	INTERCONN PLATE NO. 6	14
1	1014046-13	CABLE ASSY W5	13
1	1014046-12	CABLE ASSY W4	12
1	1014046-11	CABLE ASSY W3	11
1	1014046-10	CABLE ASSY W2	10
1	1014046-9	CABLE ASSY W1	9
1	2014223-011	LOGIC PLATE ASSY NO. 5	8
1	2014222-011	LOGIC PLATE ASSY NO. 4	7
1	2014221-011	LOGIC PLATE ASSY NO. 3	6
1	2014220-011	LOGIC PLATE ASSY NO. 2	5
1	2014224-011	LOGIC PLATE ASSY NO. 1	4
1	2014226-011	FRONT PANEL ASSY	3
1	2016377	BRACKET, CABLE GUIDE	2
1	2014417	CHASSIS STRUCTURE	1
-011	LIST OF MATERIALS		

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON DECIMALS DECIMALS ANGLES
.XX ± .XXX ± ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Etal DATE 24 MAY 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

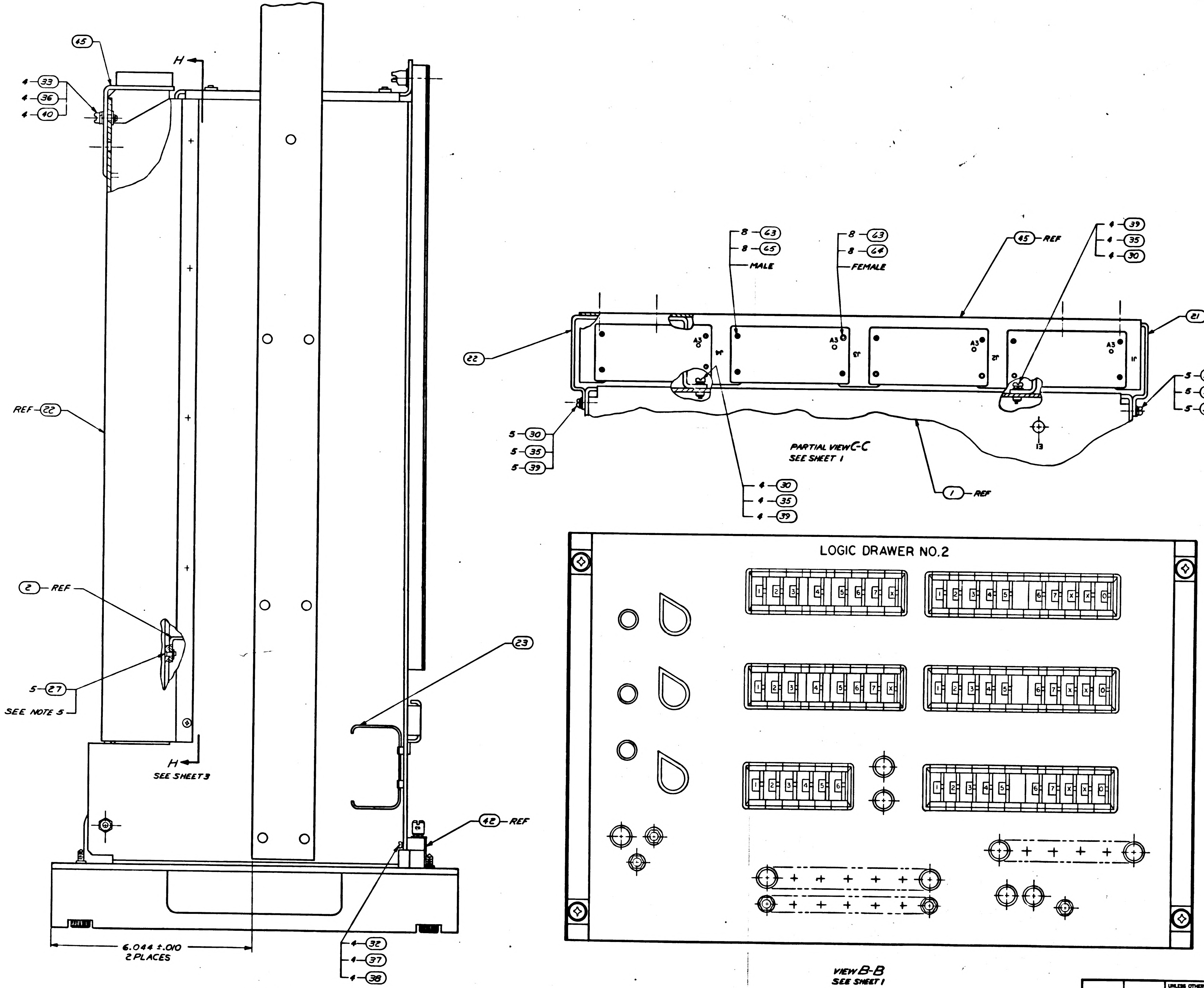
LOGIC DRAWER ASSY
LOGIC DRAWER NO. 2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014037
SCALE 1/1
WT
SHEET 1 OF 3

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25127 DR R. Bohanon CHK Urban APPD J Conley	19 Oct 65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25644 AND CLASS A RELEASED PER TDRR 25972	1/13/66	



65
4 33
4 36
4 40
H
REF 22
2 REF
5 27
SEE NOTE 5
H
SEE SHEET 3
6.044 ±.010
2 PLACES
4 32
4 37
4 38
42 REF
23
VIEW A-A
SEE SHEET 1
8 63
8 65
MALE
8 63
8 64
FEMALE
45 REF
4 39
4 35
4 30
21
22
A3
J4
J3
J2
J1
5 30
6 35
5 39
5 30
5 35
5 39
J3
PARTIAL VIEW C-C
SEE SHEET 1
4 30
4 35
4 39
1 REF
LOGIC DRAWER NO.2
1 2 3 4 5 6 7 X
1 2 3 4 5 6 7 X X 0
1 2 3 4 5 6 7 X
1 2 3 4 5 6 7 X X 0
1 2 3 4 5 6
1 2 3 4 5 6 7 X X 0
VIEW B-B
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NA[illegible]
DRAWN [illegible] DATE 24 MAY 65
CHECKED [illegible]
APPROVAL [illegible] JULY 65
APPROVAL D. O'Bryant 7/22/65
APPROVAL [illegible] 7/26/65
NASA A
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO.2
COMPUTER TEST SET

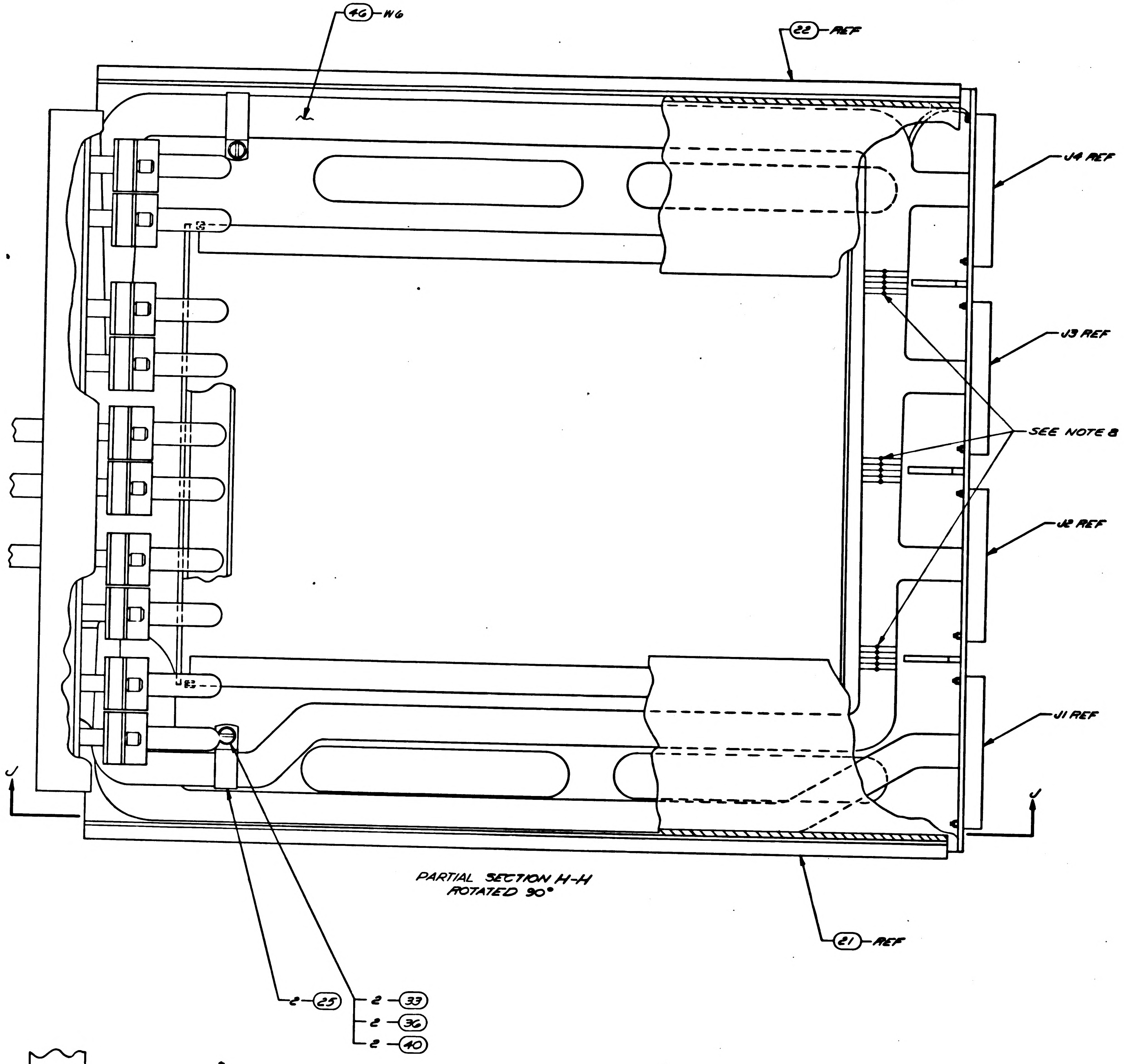
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014037
SCALE 1/1	WT	SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

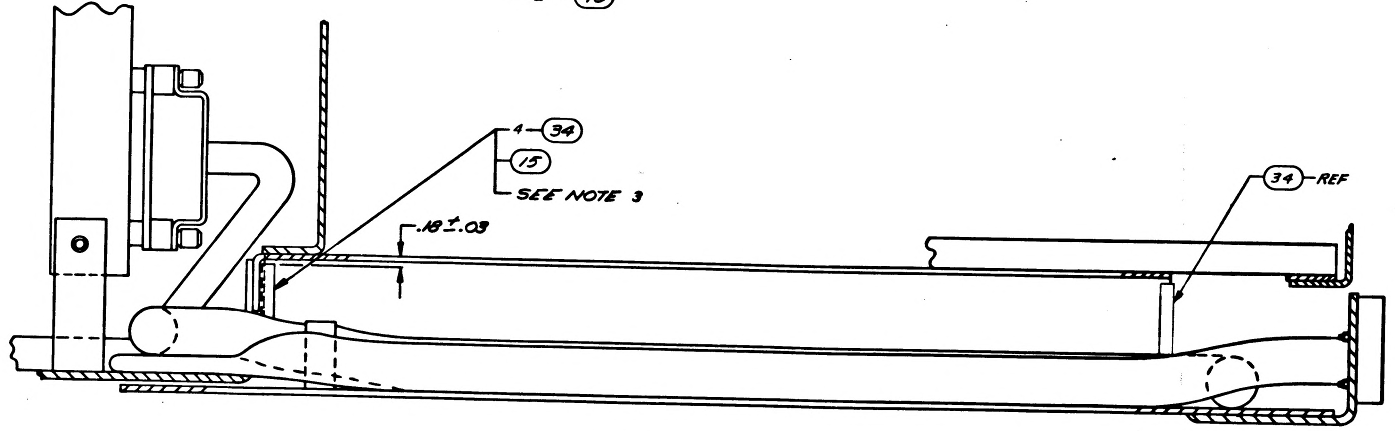
MASTER

2014037 A

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25127 OR D. Changed CHK.E [illegible] APPD	9 Oct 65	
–	CLASS B CHANGED PER CC R25502		
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	1/15/66	



PARTIAL SECTION H-H
ROTATED 90°



PARTIAL SECTION J-J

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN DATE 4 MAY 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

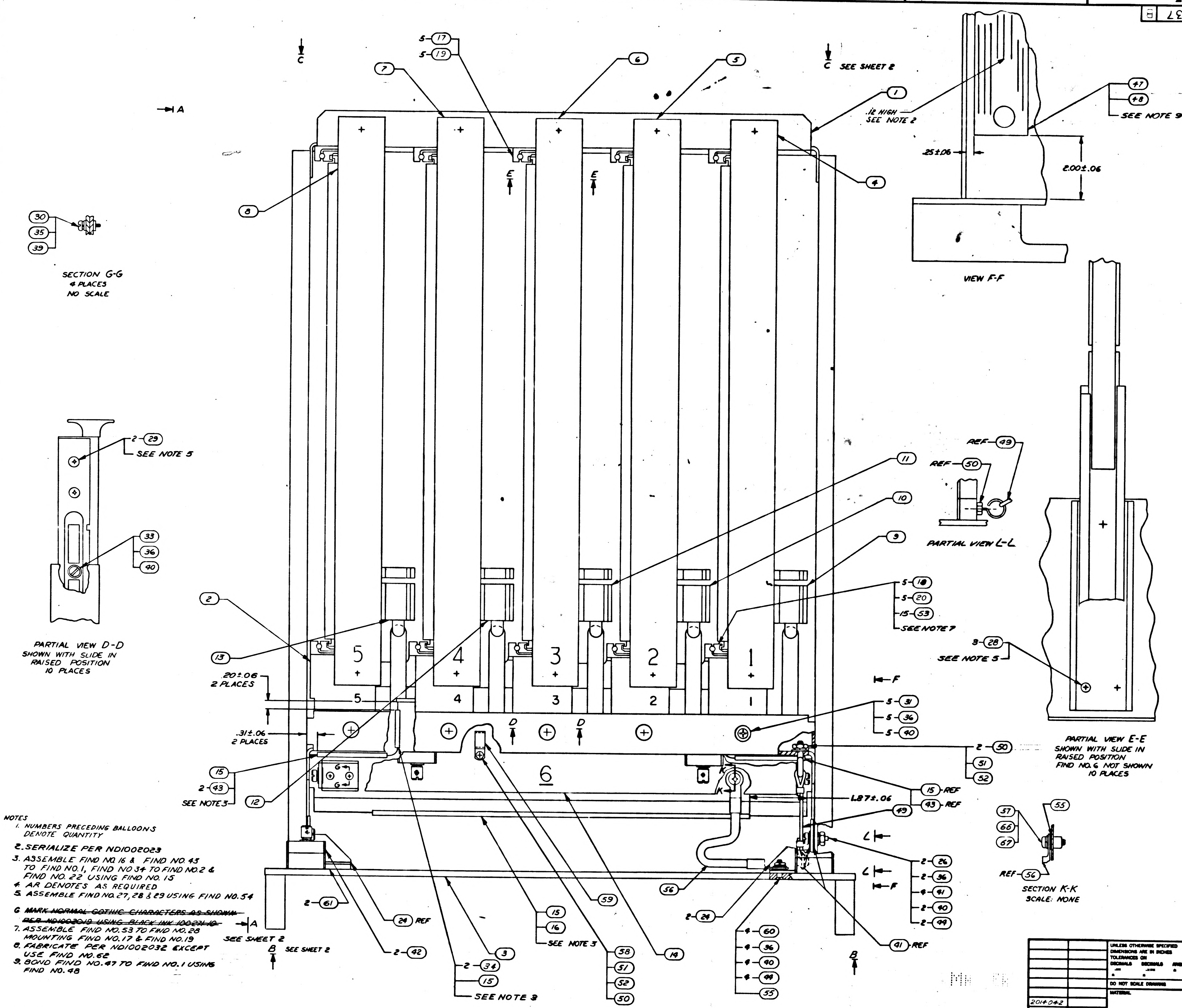
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO. 2
-
COMPUTER TEST SET

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014037
SCALE 1/1 | WT | SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
U	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25127 DR D. Belanger CHK Wilson APPD		
—	CLASS B CHANGED PER CCAR25502	12/14/65	
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25972	1/14/66	
B	CHANGED PER TDRR 26288 DR P. Winefeld CHK C.D. APPD P.C.D	2/10/66	



C
C SEE SHEET 2
A
SECTION G-G
4 PLACES
NO SCALE
30
35
39
2-29
SEE NOTE 5
33
36
40
PARTIAL VIEW D-D
SHOWN WITH SLIDE IN RAISED POSITION
10 PLACES
5-17
5-19
7
6
5
1
.12 HIGH SEE NOTE 2
4
8
E
E
11
10
9
5-18
5-20
15-53
SEE NOTE 7
2
13
5
4
3
2
1
20±.06
2 PLACES
.31±.06
2 PLACES
D
D
F
5-31
5-36
5-40
2-50
51
52
6
15
2-43
SEE NOTE 3
12
K
K
15 REF
43 REF
49
1.87±.06
L
L
F
2-26
2-36
4-41
2-40
2-44
91 REF
2-61
24 REF
2-42
2-34
15
SEE NOTE 3
3
15
16
SEE NOTE 3
58
51
52
50
59
14
56
2-24
4-60
4-36
4-40
4-44
55
A
SEE SHEET 2
B
SEE SHEET 2
B
47
48
SEE NOTE 9
.25±.06
2.00±.06
VIEW F-F
REF-49
REF-50
PARTIAL VIEW L-L
3-28
SEE NOTE 5
PARTIAL VIEW E-E
SHOWN WITH SLIDE IN RAISED POSITION
FIND NO. 6 NOT SHOWN
10 PLACES
57
66
67
55
REF-56
SECTION K-K
SCALE: NONE

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. ASSEMBLE FIND NO. 16 & FIND NO. 43 TO FIND NO. 1, FIND NO 34 TO FIND NO. 2 & FIND NO. 22 USING FIND NO. 15
4. AR DENOTES AS REQUIRED
5. ASSEMBLE FIND NO. 27, 28 & 29 USING FIND NO. 54
6. ~~MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1002710~~
7. ASSEMBLE FIND NO. 53 TO FIND NO. 28 MOUNTING FIND NO. 17 & FIND NO. 19
8. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 62
9. BOND FIND NO. 47 TO FIND NO. 1 USING FIND NO. 48

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014133	INTERCONNECTION DIAGRAM	REF
1	MS15795-810	WASHER, FLAT	67
1	MS35338-82	WASHER, LOCK	66
8	1006671-002	GUIDE, PIN	65
8	1006671-004	GUIDE, SOCKET	64
16	1006671-003	NUT, STOP	63
AR	1006458-004	TAPE, LACING	62
2	1014331	PLATE, SPACING	61
4	MS51959-48	SCR, FLAT HD, CROSS RECESSED	60
1	MS21333-73	CABLE CLAMP	59
1	MS51957-64	SCR, PAN HD, CROSS RECESSED	58
1	MS51957-82	SCR, PAN HD, CROSS RECESSED	57
1	2014238-011	GROUND STRAP ASSY	56
2	MS35335-61	WASHER, LOCK, FLAT EXT TOOTH	55
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	54
15	MS24680-22	NUT, PLAIN CAP	53
2	MS35338-81	WASHER, LOCK SPLIT	52
2	MS15795-808	WASHER, FLAT	51
3	MS35649-104	NUT, PLAIN HEX	50
1	1006239	LANYARD ASSY	49
AR	MIL-A-5092 TYPE II	ADHESIVE	48
1	1004260-220	PLATE, IDENTIFICATION	47
1	2014193-011	CABLE ASSY W6	46
1	1014304	BRACKET, CONNECTOR	45
6	MS35649-84	NUT, PLAIN HEXAGON	44
2	1006980-3	GROMMET, NYLON	43
2	1014013	RETAINER, CAPTIVE SCREW	42
4	1006982-8	WASHER, NYLON	41
27	MS35338-80	WASHER, LOCK SPLIT	40
22	MS35338-79	WASHER, LOCK SPLIT	39
4	MS35338-78	WASHER, LOCK SPLIT	38
4	MS15795-803	WASHER, FLAT	37
27	MS15795-807	WASHER, FLAT	36
22	MS15795-805	WASHER, FLAT	35
6	1006980-5	GROMMET, NYLON	34
16	MS51957-45	SCR, PAN HD, CROSS RECESSED	33
4	MS51957-13	SCR, PAN HD, CROSS-RECESSED	32
5	MS51957-45	SCR, PAN HD, CROSS-RECESSED	31
22	MS51957-29	SCR, PAN HD, CROSS-RECESSED	30
20	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	29
30	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	28
5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	27
2	1014005	SCREW, SHOULDER	26
2	MS25281-15	CLAMP, CABLE	25
2	2014236	BRACKET, PIVOT ARM	24
1	1014018	TOOL, EXTRACTING	23
1	1014028	CHANNEL, BOTTOM, LEFT	22
1	1014027	CHANNEL, BOTTOM, RIGHT	21
5	1006988-1	SLIDE, CHASSIS, LH	20
5	1006988-2	SLIDE, CHASSIS, RH	19
5	1006988-3	SLIDE, CHASSIS, LH	18
5	1006988-4	SLIDE, CHASSIS, RH	17
1	1006980-1	GROMMET, NYLON	16
AR	1006981	CEMENT	15
1	2014229-011	INTERCONN PLATE NO. 6	14
1	1014046-13	CABLE ASSY W5	13
1	1014046-12	CABLE ASSY W4	12
1	1014046-11	CABLE ASSY W3	11
1	1014046-10	CABLE ASSY W2	10
1	1014046-9	CABLE ASSY W1	9
1	2014223-011	LOGIC PLATE ASSY NO. 5	8
1	2014222-011	LOGIC PLATE ASSY NO. 4	7
1	2014221-011	LOGIC PLATE ASSY NO. 3	6
1	2014220-011	LOGIC PLATE ASSY NO. 2	5
1	2014224-011	LOGIC PLATE ASSY NO. 1	4
1	2014226-011	FRONT PANEL ASSY	3
1	2016347	BRACKET, CABLE GUIDE	2
1	2014417	CHASSIS STRUCTURE	1
-011	LIST OF MATERIALS		

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 24 MAY 65
CHECKED
APPROVAL 22 JULY 65
APPROVAL 7/22/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/4/66

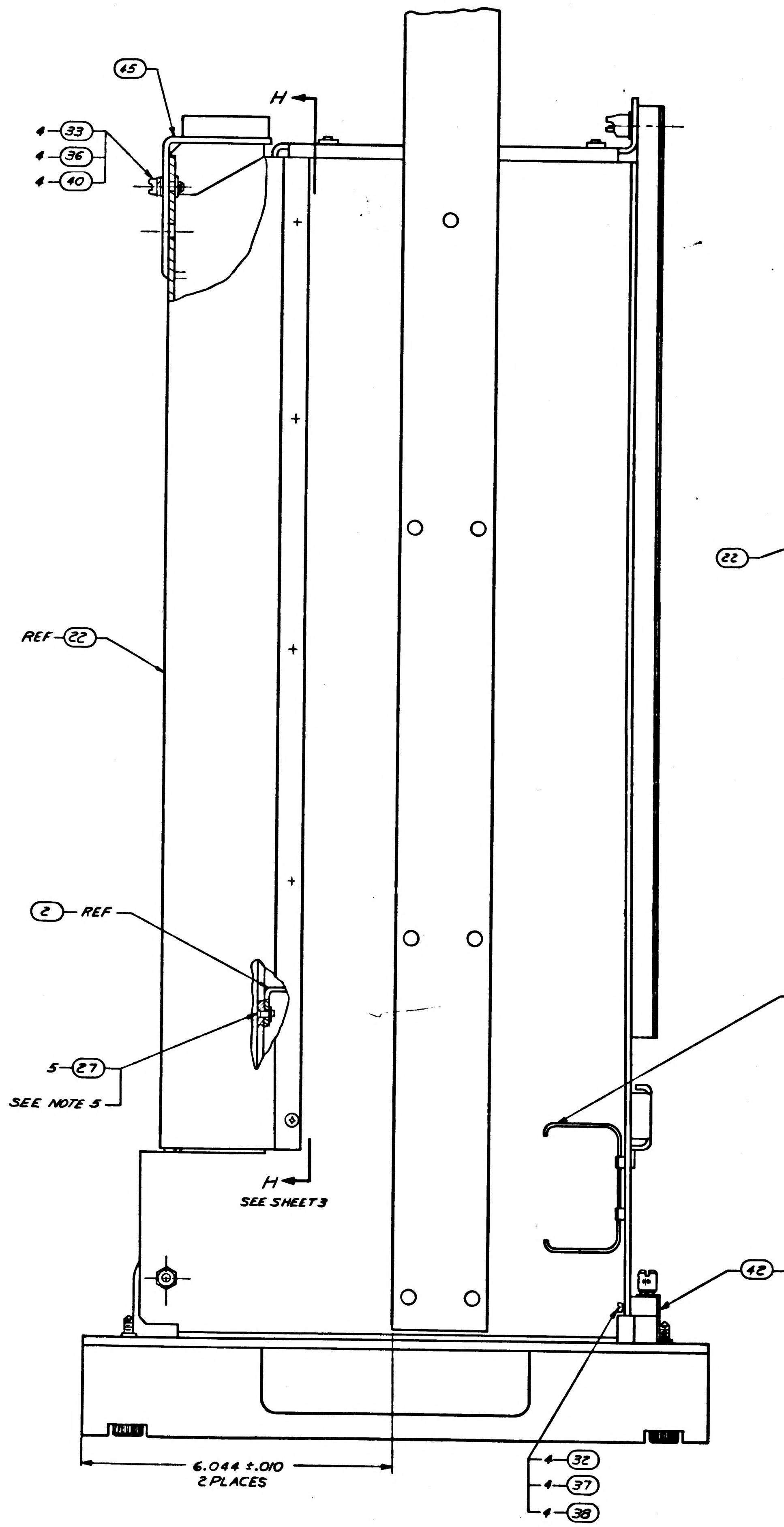
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO. 2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014037
SCALE 1/1
WT
SHEET 1 OF 3

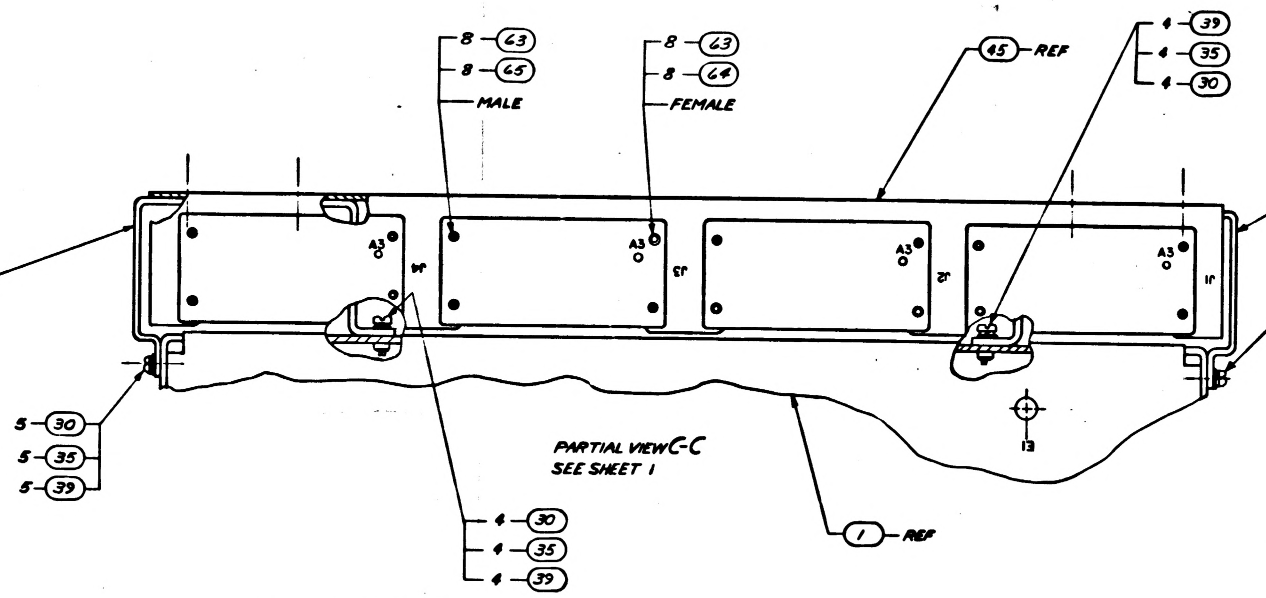
2014037 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25127 DR R. Behmond CHK E Urban APPD [illegible]	19 Oct 65	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25644 AND CLASS A RELEASED PER TDRR 25872	1/5/66	[illegible]
B	CHANGED PER TDRR 26288 DR P. Winsfield CHK C. [illegible] APPD P.C.O.	2/11/66	[illegible]



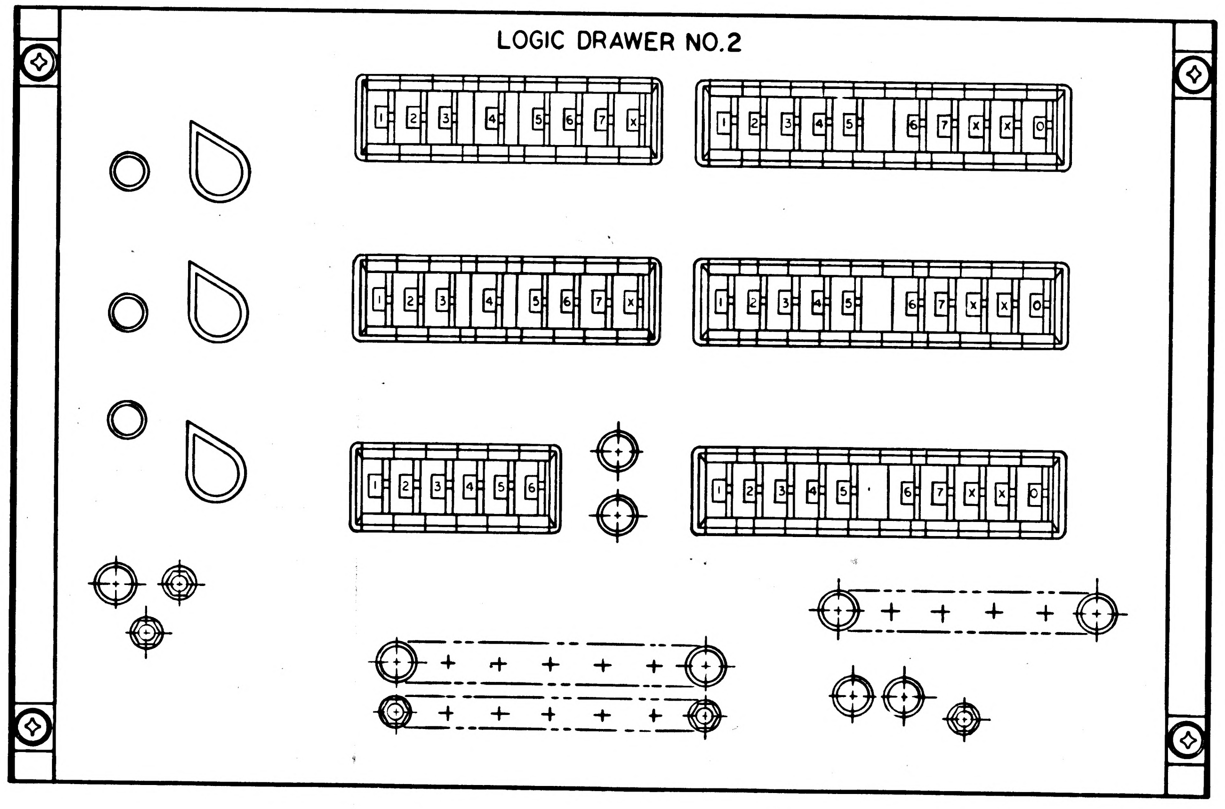
65
H
4 — 33
4 — 36
4 — 40
REF — 22
2 — REF
5 — 27
SEE NOTE 5
H
SEE SHEET 3
23
42 — REF
6.044 ±.010
2 PLACES
4 — 32
4 — 37
4 — 38

VIEW A-A
SEE SHEET 1



8 — 63
8 — 65
MALE
8 — 63
8 — 64
FEMALE
45 REF
4 — 39
4 — 35
4 — 30
21
22
A3
J4
A3
J3
A3
J2
A3
J1
5 — 30
5 — 35
5 — 39
5 — 30
5 — 35
5 — 39
4 — 30
4 — 35
4 — 39
1 REF
13

PARTIAL VIEW C-C
SEE SHEET 1



LOGIC DRAWER NO.2
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1 2 3 4 5 6 7 X X 0
1 2 3 4 5 6 7 X
1 2 3 4 5 6 7 X X 0
1 2 3 4 5 6
1 2 3 4 5 6 7 X X 0

VIEW B-B
SEE SHEET 1

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO. [illegible]
DRAWN [illegible] DATE 24 MAY 65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL D. O'Bryant 7/22/65
APPROVAL [illegible] 7/26/65
NASA A
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/26/66

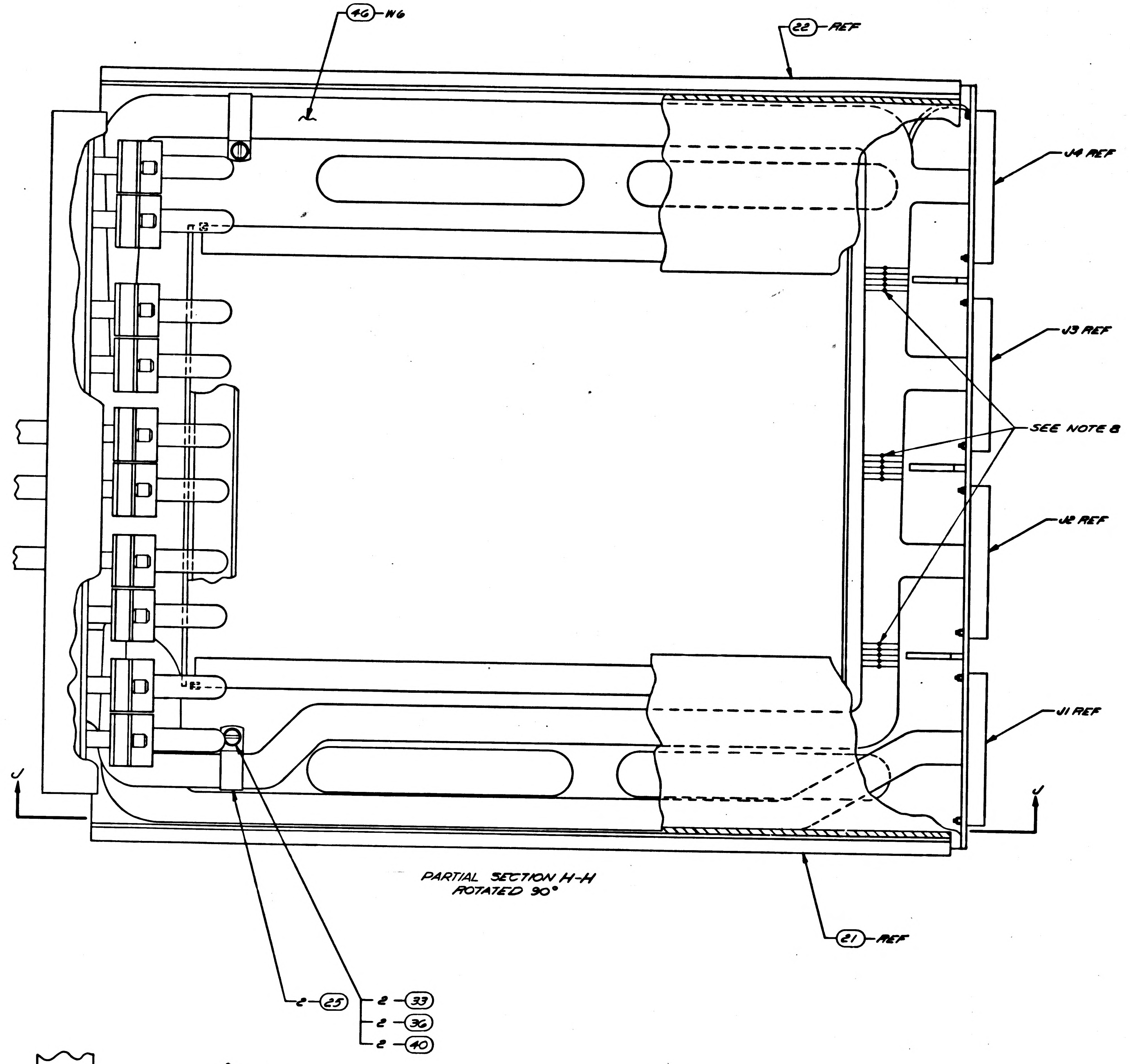
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO.2
COMPUTER TEST SET

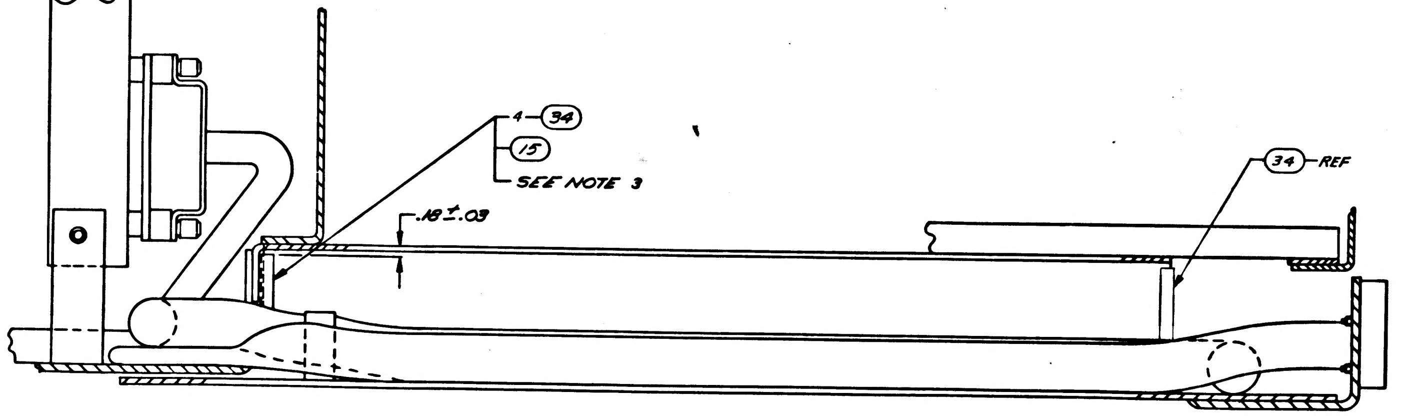
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014037
SCALE 1/1	WT	SHEET 2 OF 3

2014037 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25187 DR D. Belanger CHKE Urban APPD R Conley	19 Oct 65	
—	CLASS B CHANGED PER CCAR25502	11/24/65	
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	1/15/66	
B	CHANGED PER TDRR 26288 DR P. Winfield CHK Guerriere APPD	2/14/66	



PARTIAL SECTION H-H
ROTATED 90°



PARTIAL SECTION J-J

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO.
DRAWN DATE
CHECKED
APPROVAL 22 JULY 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

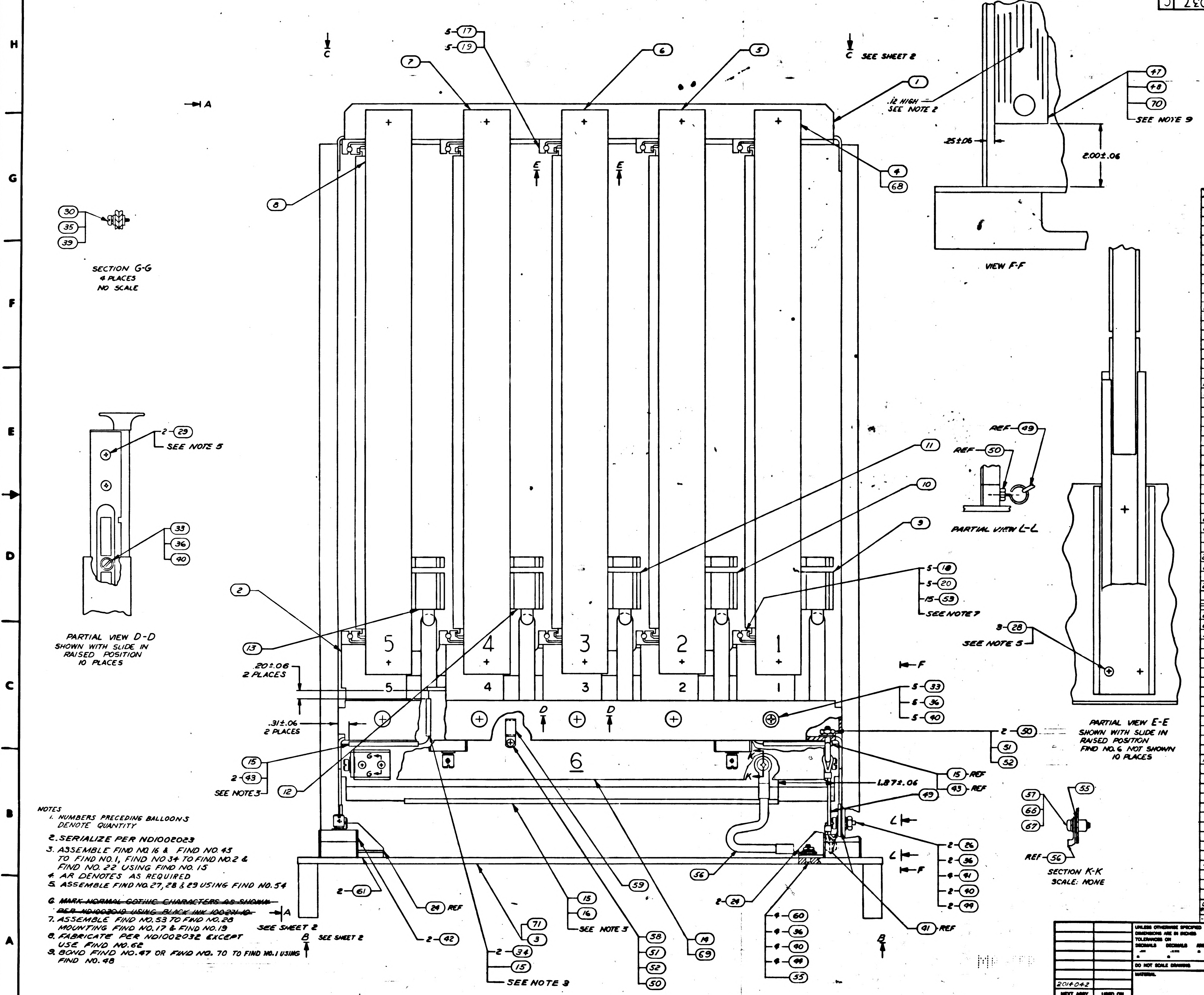
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO. 2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014037
SCALE 1/1
WT
SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
C	RELEASED PER C.A R25064		
1	CHANGED PER CCA R25127 DR D. Belanger CHK Wilson APPD		
—	CLASS B CHANGED PER CCAR25502		
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25972	1/14/66	
B	CHANGED PER TDRR 26288 DR CHK J.D. APPD	2/19/66	
C	CHANGED PER TDRR 28101 DR CHK APPD	8/66	



NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. ASSEMBLE FIND NO. 16 & FIND NO. 43 TO FIND NO. 1, FIND NO 34 TO FIND NO. 2 & FIND NO. 22 USING FIND NO. 15
4. AR DENOTES AS REQUIRED
5. ASSEMBLE FIND NO. 27, 28 & 29 USING FIND NO. 54
6. ~~MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1002710~~
7. ASSEMBLE FIND NO. 53 TO FIND NO. 28 MOUNTING FIND NO. 17 & FIND NO. 19
8. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 62
9. BOND FIND NO. 47 OR FIND NO. 70 TO FIND NO. 1 USING FIND NO. 48

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2016422	INTERCONNECTION DIAGRAM	REF
—	☒	2014133	INTERCONNECTION DIAGRAM	REF
1	—	2014226-021	FRONT PANEL ASSY	71
1	—	1004260-261	PLATE, IDENTIFICATION	70
1	—	2014229-021	INTERCONN PLATE NO. 6	69
1	—	2014224-021	LOGIC PLATE ASSY NO. 1	68
1	1	MS15795-810	WASHER, FLAT	67
1	1	MS35338-82	WASHER, LOCK	66
8	8	1006671-002	GUIDE, PIN	65
8	8	1006671-004	GUIDE, SOCKET	64
16	16	1006671-003	NUT, STOP	63
AR	AR	1006458-004	TAPE, LACING	62
2	2	1014331	PLATE, SPACING	61
4	4	MS51959-48	SCR, FLAT HD, CROSS RECESSED	60
1	1	MS21333-73	CABLE CLAMP	59
1	1	MS51957-64	SCR, PAN HD, CROSS RECESSED	58
1	1	MS51957-82	SCR, PAN HD, CROSS RECESSED	57
1	1	2014238-011	GROUND STRAP ASSY	56
2	2	MS35335-61	WASHER, LOCK, FLAT EXT TOOTH	55
AR	AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	54
15	15	MS24680-22	NUT, PLAIN CAP	53
2	2	MS35338-81	WASHER, LOCK SPLIT	52
2	2	MS15795-808	WASHER, FLAT	51
3	3	MS35649-104	NUT, PLAIN HEX	50
1	1	1006239	LANYARD ASSY	49
AR	AR	MIL-A-5092 TYPE II	ADHESIVE	48
—	1	1004260-220	PLATE, IDENTIFICATION	47
1	1	2014193-011	CABLE ASSY W6	46
1	1	1014304	BRACKET, CONNECTOR	45
6	6	MS35649-84	NUT, PLAIN HEXAGON	44
2	2	1006980-3	GROMMET, NYLON	43
2	2	1014013	RETAINER, CAPTIVE SCREW	42
4	4	1006982-8	WASHER, NYLON	41
27	27	MS35338-80	WASHER, LOCK SPLIT	40
22	22	MS35338-79	WASHER, LOCK SPLIT	39
4	4	MS35338-78	WASHER, LOCK SPLIT	38
4	4	MS15795-803	WASHER, FLAT	37
27	27	MS15795-807	WASHER, FLAT	36
22	22	MS15795-805	WASHER, FLAT	35
6	6	1006980-5	GROMMET, NYLON	34
21	21	MS51957-45	SCR, PAN HD, CROSS RECESSED	33
4	4	MS51957-16	SCR, PAN HD, CROSS-RECESSED	32
~~—~~	~~5~~	~~MS51957-45~~	~~SCR, PAN HD, CROSS-RECESSED~~	~~31~~
22	22	MS51957-30	SCR, PAN HD, CROSS-RECESSED	30
20	20	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	29
30	30	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	28
5	5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	27
2	2	1014005	SCREW, SHOULDER	26
2	2	MS25281-15	CLAMP, CABLE	25
2	2	2014236	BRACKET, PIVOT ARM	24
1	1	1014018	TOOL, EXTRACTING	23
1	1	1014028	CHANNEL, BOTTOM, LEFT	22
1	1	1014027	CHANNEL, BOTTOM, RIGHT	21
5	5	1006988-1	SLIDE, CHASSIS, LH	20
5	5	1006988-2	SLIDE, CHASSIS, RH	19
5	5	1006988-3	SLIDE, CHASSIS, LH	18
5	5	1006988-4	SLIDE, CHASSIS, RH	17
1	1	1006980-1	GROMMET, NYLON	16
AR	AR	1006981	CEMENT	15
—	1	2014229-011	INTERCONN PLATE NO. 6	14
1	1	1014046-13	CABLE ASSY W5	13
1	1	1014046-12	CABLE ASSY W4	12
1	1	1014046-11	CABLE ASSY W3	11
1	1	1014046-10	CABLE ASSY W2	10
1	1	1014046-9	CABLE ASSY W1	9
1	1	2014223-011	LOGIC PLATE ASSY NO. 5	8
1	1	2014222-011	LOGIC PLATE ASSY NO. 4	7
1	1	2014221-011	LOGIC PLATE ASSY NO. 3	6
1	1	2014220-011	LOGIC PLATE ASSY NO. 2	5
—	1	2014224-011	LOGIC PLATE ASSY NO. 1	4
—	1	2014226-011	FRONT PANEL ASSY	3
1	1	2016347	BRACKET, CABLE GUIDE	2
1	1	2014417	CHASSIS STRUCTURE	1

LIST OF MATERIALS

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

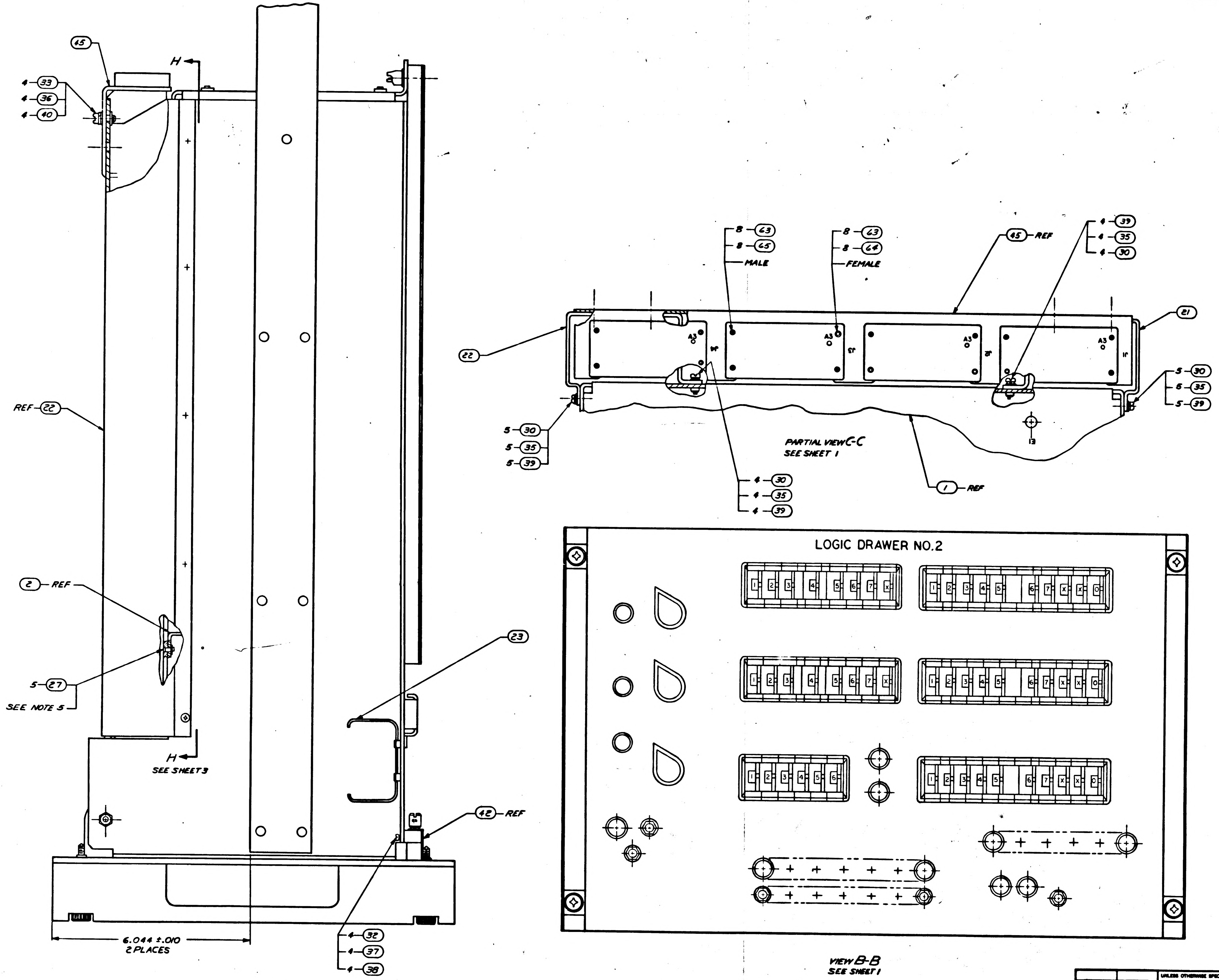
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 24 MAY 65
CHECKED
APPROVAL 22 MAY 65
APPROVAL 7/22/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 4/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO. 2
COMPUTER TEST SET

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014037
SCALE 1/1 | WT | SHEET 1 OF 3

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25127 DR P. Behrson CHK [illegible] APPD [illegible]	9 Oct 5[illegible]	[illegible]
–	CLASS B CHANGED PER CCAR255C2	7/16/[illegible]	[illegible]
A	CHANGED PER CCA R25644 AND CLASS A RELEASED PER TDRR 26472	[illegible]/66	[illegible]
B	CHANGED PER TDRR 26288 DR P. [illegible] CHK [illegible] APPD [illegible]	2/18/66	[illegible]
C	CHANGED PER TDRR 28 01 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]


45
4 — 33
4 — 36
4 — 40
H
REF — 22
2 — REF
5 — 27
SEE NOTE 5
H
SEE SHEET 3
23
42 — REF
4 — 32
4 — 37
4 — 38
6.044 ±.010
2 PLACES
8 — 63
8 — 65
MALE
8 — 63
8 — 64
FEMALE
45 — REF
4 — 39
4 — 35
4 — 30
21
22
A3
J4
J3
J2
J1
13
5 — 30
5 — 35
5 — 39
5 — 30
5 — 35
5 — 39
4 — 30
4 — 35
4 — 39
1 — REF
LOGIC DRAWER NO.2
1 2 3 4 5 6 7 X
1 2 3 4 5 6 7 X X 0
1 2 3 4 5 6

VIEW A-A
SEE SHEET 1

PARTIAL VIEW C-C
SEE SHEET 1

VIEW B-B
SEE SHEET 1

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

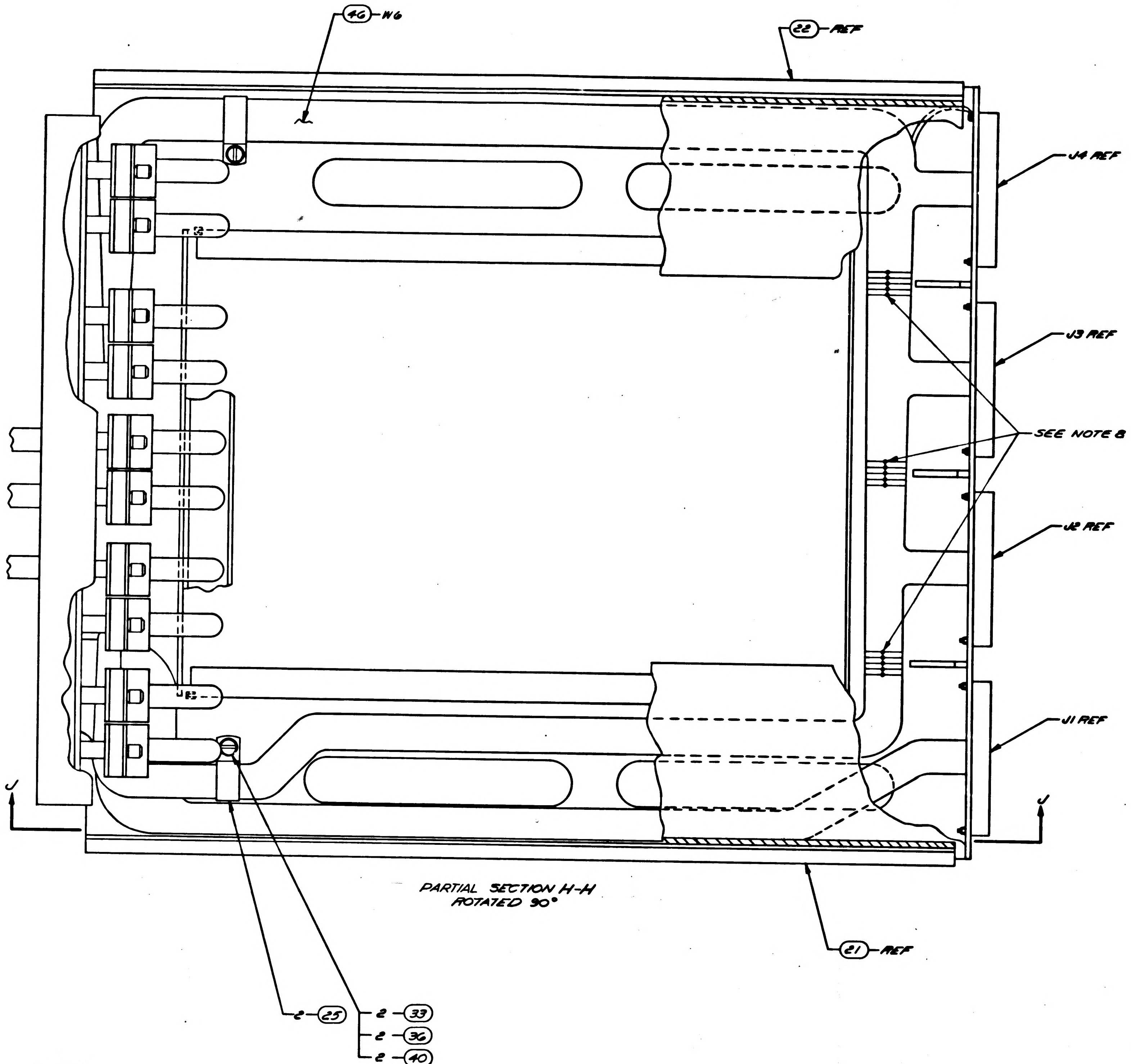
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NA[illegible]
DRAWN [illegible] DATE 24 MAY 65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL D. O'Bryan 7/22/65
APPROVAL [illegible]
NASA A
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

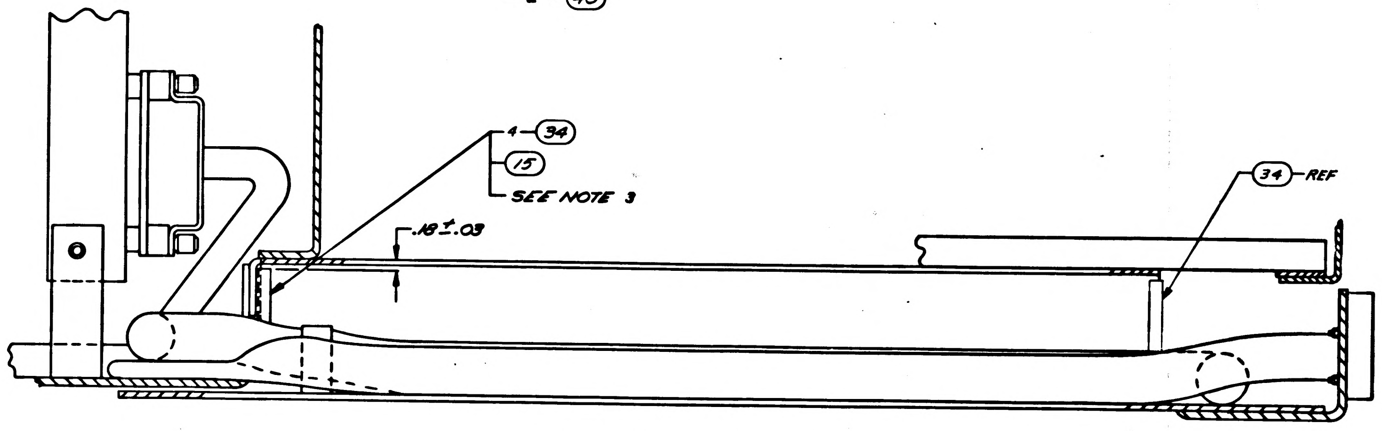
LOGIC DRAWER ASSY
LOGIC DRAWER NO. 2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014037
SCALE 1/1
WT
SHEET 2 OF 3

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25187 DR D. Changed CHKE Urban APPD R Cooley	9 Oct 65	
—	CLASS B CHANGED PER CC AR25502	12/14/65	
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	1/15/66	
B	CHANGED PER TDRR 26288 DR P. Winfield CHK G. Ducanis APPD	3/14/66	
C	CHANGED PER TDRR 28101 DR Fuller CHK APPD PED	5/3/66	



PARTIAL SECTION H-H
ROTATED 90°



PARTIAL SECTION J-J

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

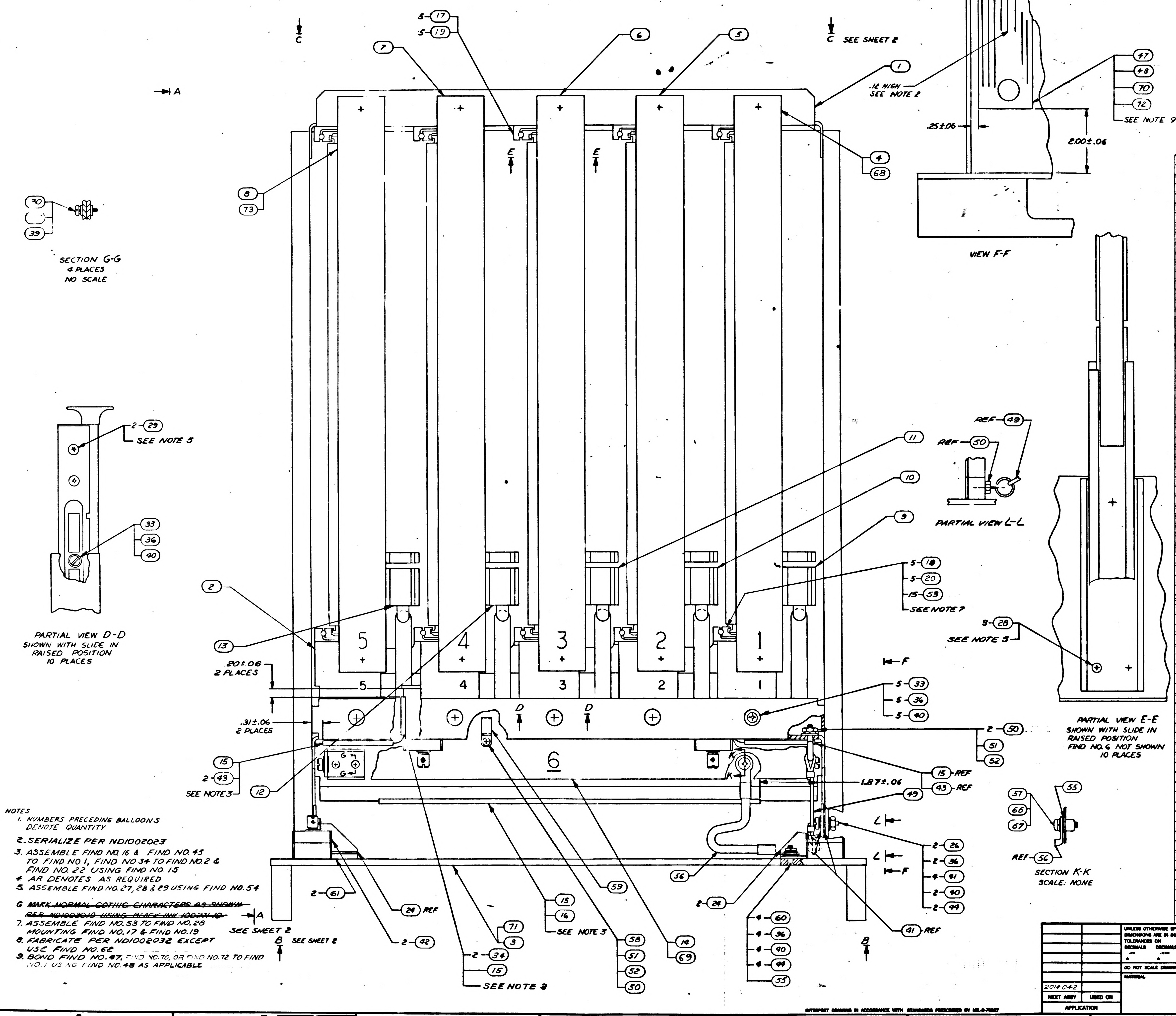
MATERIAL

RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
CONTRACT NO. NAS 9-497	
DRAWN DATE 4 MAY 65	LOGIC DRAWER ASSY LOGIC DRAWER NO. 2 COMPUTER TEST SET
CHECKED	
APPROVAL P. C. Dale 22 Jul 65	
APPROVAL	
APPROVAL 7/21	
NASA APPROVAL	CODE IDENT NO. 49956 · SIZE J · NASA DRAWING NO. 2014037
MIT APPROVAL	
MIT APPROVAL	SCALE 1/1 · WT · SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014037 C

SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25127 DR D. Belanger CHK APPD	[illegible]	
—	CLASS B CHANGED PER CCAR25502	[illegible]	
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	1/14/66	
B	CHANGED PER TDRR 26288 DR CHK C.D. APPD	2/13/66	
C	CHANGED PER TDRR 28101 DR CHK APPD	3/2/66	
D	CHANGED PER TDRR 29337 DR. CHK APPD		



8
7
6
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4
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H
G
F
E
D
C
B
A
C
C SEE SHEET 2
A
5-17
5-19
7
6
5
1
.12 HIGH SEE NOTE 2
4
68
8
73
30
39
SECTION G-G 4 PLACES NO SCALE
E
E
.25±.06
2.00±.06
47
48
70
72
SEE NOTE 9
VIEW F-F
2-29 SEE NOTE 5
33
36
40
PARTIAL VIEW D-D SHOWN WITH SLIDE IN RAISED POSITION 10 PLACES
REF-49
REF-50
PARTIAL VIEW L-L
11
10
9
2
5-18
5-20
15-53
SEE NOTE 7
3-28 SEE NOTE 5
PARTIAL VIEW E-E SHOWN WITH SLIDE IN RAISED POSITION FIND NO. 6 NOT SHOWN 10 PLACES
5 4 3 2 1
13
20±.06 2 PLACES
.31±.06 2 PLACES
F
5-33
5-36
5-40
D
D
6
K
K
2-50
51
52
15-REF
43-REF
1.87±.06
49
15
2-43
SEE NOTE 3
12
57
66
67
55
REF-56
SECTION K-K SCALE: NONE
L
L
F
2-26
2-36
4-41
2-40
2-99
56
2-24
4-60
4-36
4-40
4-44
55
41-REF
59
2-61
24 REF
2-42
71
3
15
16
SEE NOTE 3
58
51
52
50
14
69
2-34
15
SEE NOTE 8
A SEE SHEET 2
B SEE SHEET 2
B

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. ASSEMBLE FIND NO. 16 & FIND NO. 43 TO FIND NO. 1, FIND NO 34 TO FIND NO. 2 & FIND NO. 22 USING FIND NO. 15
4. AR DENOTES AS REQUIRED
5. ASSEMBLE FIND NO. 27, 28 & 29 USING FIND NO. 54
6. ~~MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1002719~~
7. ASSEMBLE FIND NO. 53 TO FIND NO. 28 MOUNTING FIND NO. 17 & FIND NO. 19
8. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 62
9. BOND FIND NO. 47, FIND NO. 70, OR FIND NO. 72 TO FIND NO. 1 USING FIND NO. 48 AS APPLICABLE

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
X	—	—	2016451	INTERCONNECTION DIAGRAM	REF
—	X	—	2016422	INTERCONNECTION DIAGRAM	REF
—		X	2014133	INTERCONNECTION DIAGRAM	REF
1	—	—	2014223-021	LOGIC PLATE ASSY NO.5	73
1	—	—	1004260-273	PLATE, IDENTIFICATION	72
1	1	—	2014226-021	FRONT PANEL ASSY	71
—	1	—	1004260-261	PLATE, IDENTIFICATION	70
1	1	—	2014229-021	INTERCONN PLATE NO. 6	69
1	1	—	2014224-021	LOGIC PLATE ASSY NO.1	68
1	1	1	MS15795-810	WASHER, FLAT	67
1	1	1	MS35338-82	WASHER, LOCK	66
8	8	8	1006671-002	GUIDE, PIN	65
8	8	8	1006671-004	GUIDE, SOCKET	64
16	16	16	1006671-003	NUT, STOP	63
AR	AR	AR	1006458-004	TAPE, LACING	62
2	2	2	1014331	PLATE, SPACING	61
4	4	4	MS51959-48	SCR, FLAT HD, CROSS RECESSED	60
1	1	1	MS21333-73	CABLE CLAMP	59
1	1	1	MS51957-64	SCR, PAN HD, CROSS RECESSED	58
1	1	1	MS51957-82	SCR, PAN HD, CROSS RECESSED	57
1	1	1	2014238-011	GROUND STRAP ASSY	56
2	2	2	MS35335-61	WASHER, LOCK, FLAT EXT TOOTH	55
AR	AR	AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	54
15	15	15	MS24680-22	NUT, PLAIN CAP	53
2	2	2	MS35338-81	WASHER, LOCK SPLIT	52
2	2	2	MS15795-808	WASHER, FLAT	51
3	3	3	MS35649-104	NUT, PLAIN HEX	50
1	1	1	1006239	LANYARD ASSY	49
AR	AR	AR	MIL-A-5092 TYPE II	ADHESIVE	48
—	—	1	1004260-220	PLATE, IDENTIFICATION	47
1	1	1	2014193-011	CABLE ASSY W6	46
1	1	1	1014304	BRACKET, CONNECTOR	45
6	6	6	MS35649-84	NUT, PLAIN HEXAGON	44
2	2	2	1006980-3	GROMMET, NYLON	43
2	2	2	1014013	RETAINER, CAPTIVE SCREW	42
4	4	4	1006982-8	WASHER, NYLON	41
27	27	27	MS35338-80	WASHER, LOCK SPLIT	40
22	22	22	MS35338-79	WASHER, LOCK SPLIT	39
4	4	4	MS35338-78	WASHER, LOCK SPLIT	38
4	4	4	MS15795-803	WASHER, FLAT	37
27	27	27	MS15795-807	WASHER, FLAT	36
22	22	22	MS15795-805	WASHER, FLAT	35
6	6	6	1006980-5	GROMMET, NYLON	34
21	21	21	MS51957-45	SCR, PAN HD, CROSS RECESSED	33
4	4	4	MS51957-16	SCR, PAN HD, CROSS-RECESSED	32
		~~5~~	~~MS51957-45~~	~~SCR, PAN HD, CROSS-RECESSED~~	~~31~~
22	22	22	MS51957-30	SCR, PAN HD, CROSS-RECESSED	30
20	20	20	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	29
30	30	30	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	28
5	5	5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	27
2	2	2	1014005	SCREW, SHOULDER	26
2	2	2	MS25281-15	CLAMP, CABLE	25
2	2	2	2014236	BRACKET, PIVOT ARM	24
1	1	1	1014018	TOOL, EXTRACTING	23
1	1	1	1014028	CHANNEL, BOTTOM, LEFT	22
1	1	1	1014027	CHANNEL, BOTTOM, RIGHT	21
5	5	5	1006988-1	SLIDE, CHASSIS, LH	20
5	5	5	1006988-2	SLIDE, CHASSIS, RH	19
5	5	5	1006988-3	SLIDE, CHASSIS, LH	18
5	5	5	1006988-4	SLIDE, CHASSIS, RH	17
1	1	1	1006980-1	GROMMET, NYLON	16
AR	AR	AR	1006981	CEMENT	15
—	—	1	2014229-011	INTERCONN PLATE NO. 6	14
1	1	1	1014046-13	CABLE ASSY W5	13
1	1	1	1014046-12	CABLE ASSY W4	12
1	1	1	1014046-11	CABLE ASSY W3	11
1	1	1	1014046-10	CABLE ASSY W2	10
1	1	1	1014046-9	CABLE ASSY W1	9
—	1	1	2014223-011	LOGIC PLATE ASSY NO. 5	8
1	1	1	2014222-011	LOGIC PLATE ASSY NO. 4	7
1	1	1	2014221-011	LOGIC PLATE ASSY NO. 3	6
1	1	1	2014220-011	LOGIC PLATE ASSY NO. 2	5
—	—	1	2014224-011	LOGIC PLATE ASSY NO. 1	4
—	—	1	2014226-011	FRONT PANEL ASSY	3
1	1	1	2016377	BRACKET, CABLE GUIDE	2
1	1	1	2014417	CHASSIS STRUCTURE	1

LIST OF MATERIALS

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN DATE
CHECKED
APPROVAL 22 ... 15
APPROVAL 7/22/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO. 2
COMPUTER TEST SET

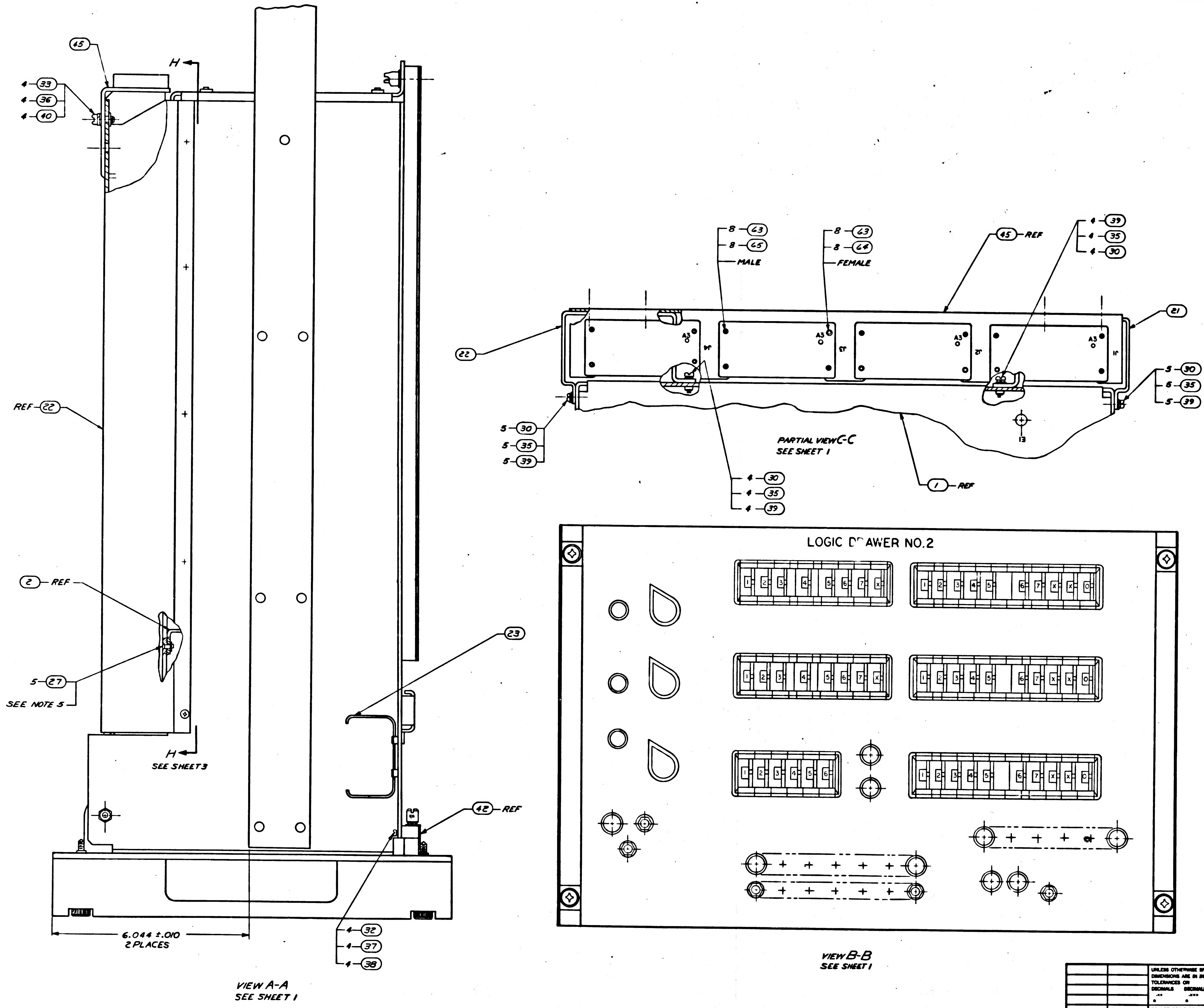
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014037

SCALE 1/1 WT SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014037

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25064		
I	CHANGED PER CCA R25127 DR P. Bateman CHK E. Urban APPD J. Conley	10 Oct 65	J.P. 10.F.C.
–	CLASS B CHANGED PER CCA R25502	7/16/65	
A	CHANGED PER CCA R25644 AND CLASS A RELEASED PER TDRR 25472	1/13/66	
B	CHANGED PER TDRR 26288 DR P. Winfield CHK C. APPD P.C.D.	7/19/66	
C	CHANGED PER TDRR 28101 DR B.K. Fuller CHK T. Stan APPD	9/9/66	
D	CHANGED PER TDRR 29337 DR. P. Bettet CHK APPD P.C.D.		



45
H
4-33
4-36
4-40
REF-22
2-REF
5-27
SEE NOTE 5
H
SEE SHEET 3
23
42-REF
6.044 ±.010
2 PLACES
4-32
4-37
4-38
VIEW A-A
SEE SHEET 1
8-63
8-65
MALE
8-63
8-64
FEMALE
45-REF
4-39
4-35
4-30
21
22
A3
J4
J3
J2
J1
5-30
5-35
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5-30
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5-39
13
PARTIAL VIEW C-C
SEE SHEET 1
1-REF
4-30
4-35
4-39
LOGIC DRAWER NO.2
1 2 3 4 5 6 7 X
1 2 3 4 5 6 7 X X 0
1 2 3 4 5 6
VIEW B-B
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN DATE 24 MAY 65
CHECKED
APPROVAL
APPROVAL D. D. 7/22/65
APPROVAL
NASA A
MIT APPROVAL
MIT APPROVAL 11/6/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

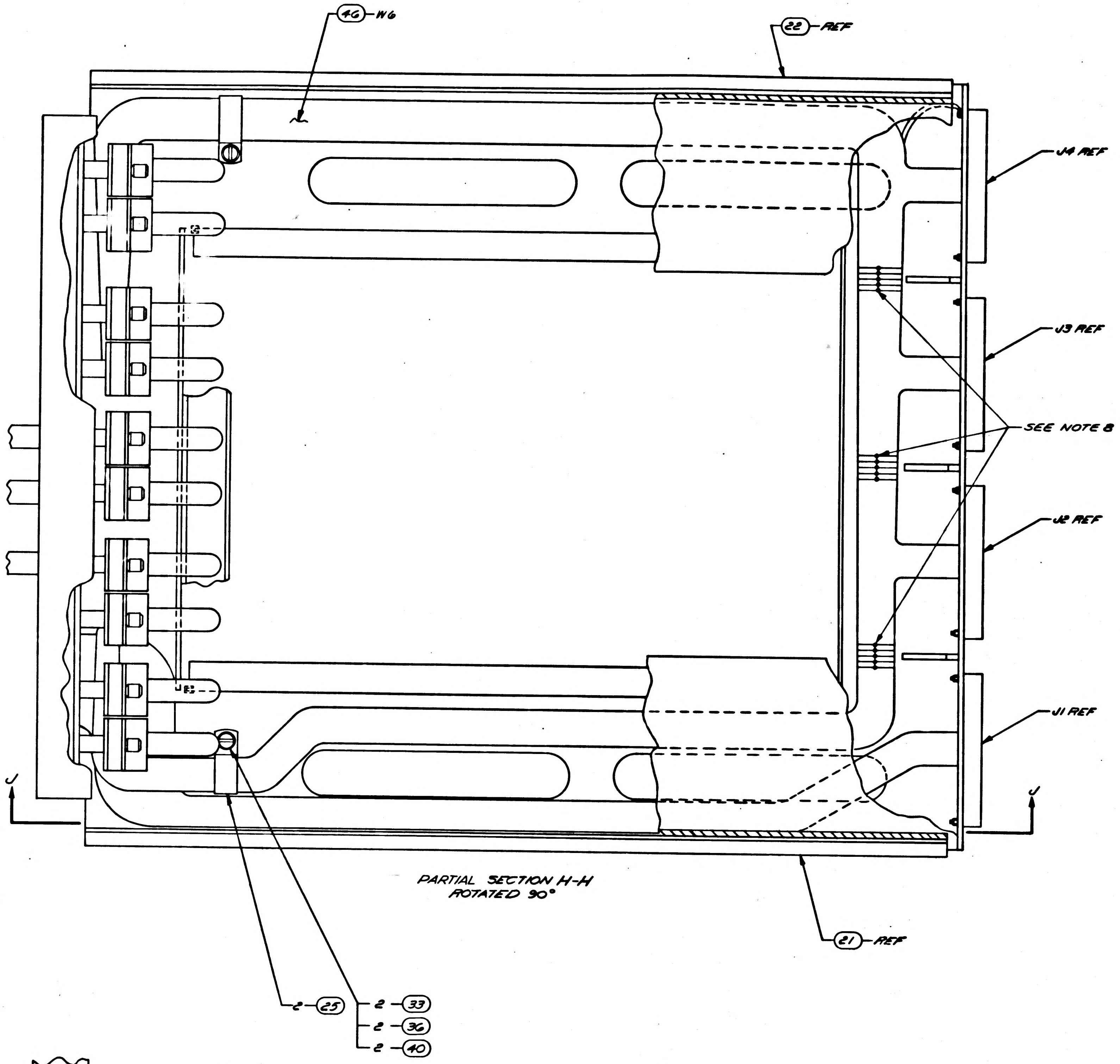
LOGIC DRAWER ASSY
LOGIC DRAWER NO.2
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014037
SCALE 1/1	WT	SHEET 2 OF 3

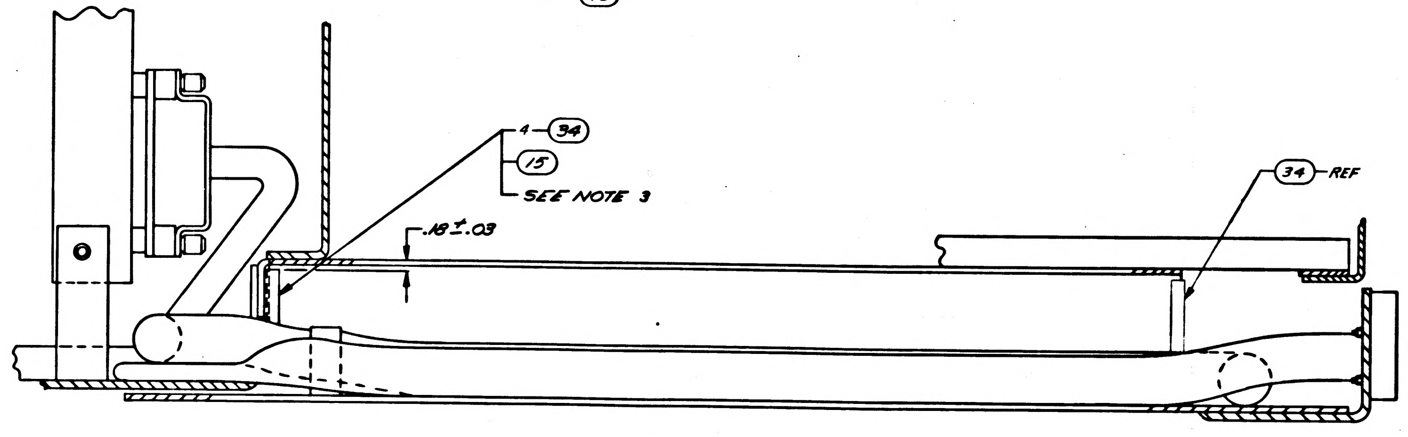
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014037 C

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25187 DR D. Belanger CHK Urban APPD R. Conley	9 Oct 65	9 Oct 65
—	CLASS B CHANGED PER CCA R25502	12/14/65	
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	1/15/66	
B	CHANGED PER TDRR 26288 DR P. Winchell CHK G. Greene APPD	2/14/66	
C	CHANGED PER TDRR 28 01 DR Guiller CHK APPD PED	5/3/66	
D	CHANGED PER TDRR 29337 DR P. CHK APPD		



PARTIAL SECTION H-H
ROTATED 90°



PARTIAL SECTION J-J

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

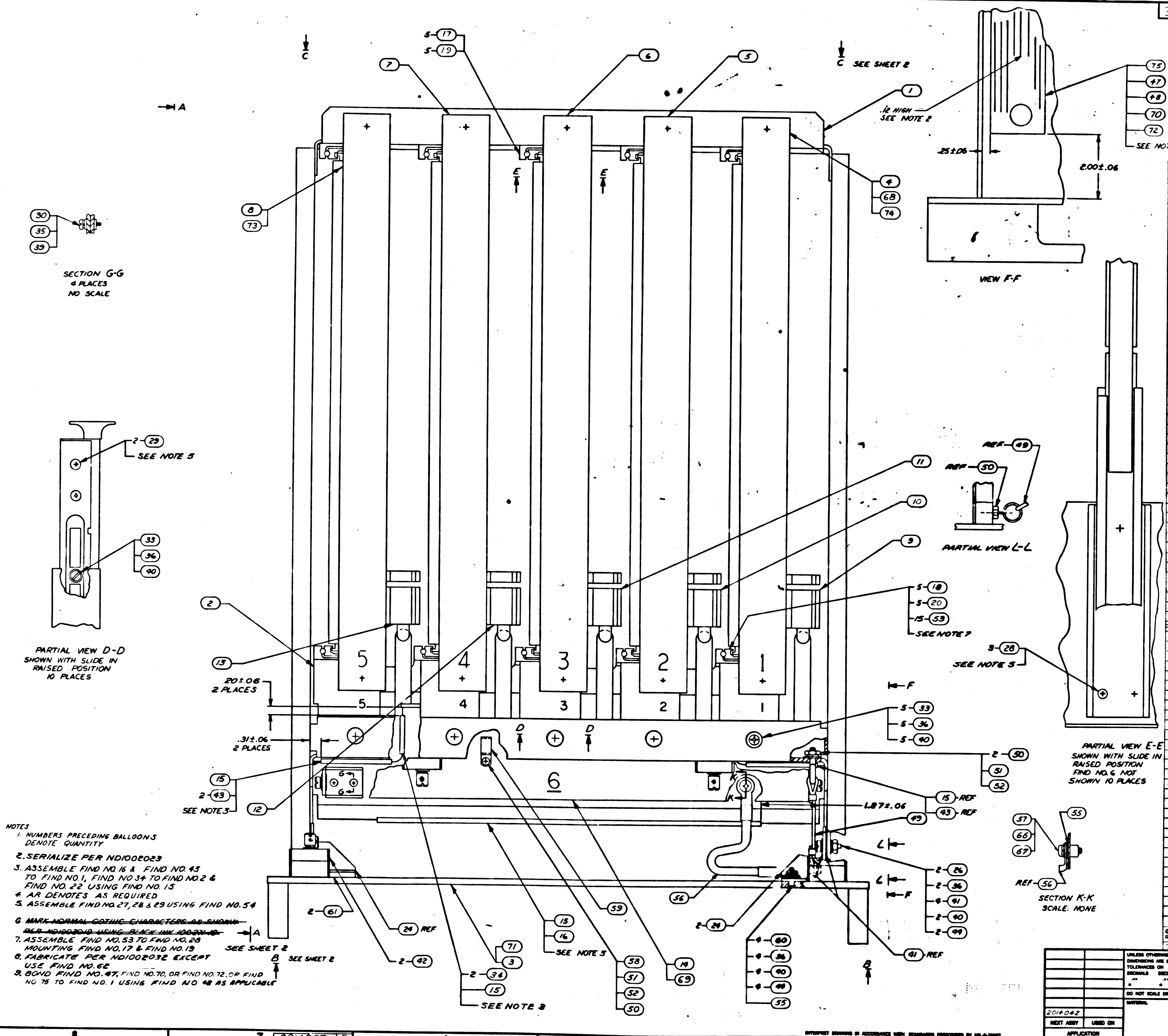
LOGIC DRAWER ASSY
LOGIC DRAWER NO. 2
-
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014037
SCALE 1/1	WT	SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014037 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25127 DR D. Belanger CHK Wilson APPD		
–	CLASS B CHANGED PER CCAR25502		
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	/64	
B	CHANGED PER TDRR 26288 DR CHK APPD	/64	
C	CHANGED PER TDRR 28101 DR CHK APPD RED	/66	
D	CHANGED PER TDRR 29337 DR. CHK APPD		
E	CHANGED PER TDRR 33456 DR. CHK. APPD	7/67	



NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. ASSEMBLE FIND NO. 16 & FIND NO. 43 TO FIND NO. 1, FIND NO 34 TO FIND NO. 2 & FIND NO. 22 USING FIND NO. 15
4. AR DENOTES AS REQUIRED
5. ASSEMBLE FIND NO. 27, 28 & 29 USING FIND NO. 54
6. ~~MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1002718~~
7. ASSEMBLE FIND NO. 53 TO FIND NO. 28 MOUNTING FIND NO. 17 & FIND NO. 19
8. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 62
9. BOND FIND NO. 47, FIND NO. 70, OR FIND NO. 72, OR FIND NO. 75 TO FIND NO. 1 USING FIND NO 48 AS APPLICABLE

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
–	–	☒	–	2016422	INTERCONNECTION DIAGRAM	REF
–	–	–	☒	2014133	INTERCONNECTION DIAGRAM	REF
–	☒	–	–	2016451	INTERCONNECTION DIAGRAM	REF
1	–	–	–	1004260-284	NAMEPLATE	75
1	–	–	–	2014224-031	LOGIC PLATE ASSY NO.1	74
1	1	–	–	2014223-021	LOGIC PLATE ASSY NO.5	73
–	1	–	–	1004260-273	PLATE, IDENTIFICATION	72
1	1	1	–	2014226-021	FRONT PANEL ASSY	71
–	–	1	–	1004260-261	PLATE, IDENTIFICATION	70
1	1	1	–	2014229-021	INTERCONN PLATE NO.6	69
–	1	1	–	2014224-021	LOGIC PLATE ASSY NO.1	68
1	1	1	1	MS15795-810	WASHER, FLAT	67
1	1	1	1	MS35338-82	WASHER, LOCK	66
8	8	8	8	1006671-002	GUIDE, PIN	65
8	8	8	8	1006671-004	GUIDE, SOCKET	64
16	16	16	16	1006671-003	NUT, STOP	63
AR	AR	AR	AR	1006458-004	TAPE, LACING	62
2	2	2	2	1014331	PLATE, SPACING	61
4	4	4	4	MS51959-48	SCR, FLAT HD, CROSS RECESSED	60
1	1	1	1	MS21333-73	CABLE CLAMP	59
1	1	1	1	MS51957-64	SCR, PAN HD, CROSS RECESSED	58
1	1	1	1	MS51957-82	SCR, PAN HD, CROSS RECESSED	57
1	1	1	1	2014238-011	GROUND STRAP ASSY	56
2	2	2	2	MS35335-61	WASHER, LOCK, FLAT EXT TOOTH	55
AR	AR	AR	AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	54
15	15	15	15	MS24680-22	NUT, PLAIN CAP	53
2	2	2	2	MS35338-81	WASHER, LOCK SPLIT	52
2	2	2	2	MS15795-808	WASHER, FLAT	51
3	3	3	3	MS35649-104	NUT, PLAIN HEX	50
1	1	1	1	1006239	LANYARD ASSY	49
AR	AR	AR	AR	MIL-A-5092 TYPE II	ADHESIVE	48
–	–	–	1	1004260-220	PLATE, IDENTIFICATION	47
1	1	1	1	2014193-011	CABLE ASSY W6	46
1	1	1	1	1014304	BRACKET, CONNECTOR	45
6	6	6	6	MS35649-84	NUT, PLAIN HEXAGON	44
2	2	2	2	1006980-3	GROMMET, NYLON	43
2	2	2	2	1014013	RETAINER, CAPTIVE SCREW	42
4	4	4	4	1006982-8	WASHER, NYLON	41
27	27	27	27	MS35338-80	WASHER, LOCK SPLIT	40
22	22	22	22	MS35338-79	WASHER, LOCK SPLIT	39
4	4	4	4	MS35338-78	WASHER, LOCK SPLIT	38
4	4	4	4	MS15795-803	WASHER, FLAT	37
27	27	27	27	MS15795-807	WASHER, FLAT	36
22	22	22	22	MS15795-805	WASHER, FLAT	35
6	6	6	6	1006980-5	GROMMET, NYLON	34
21	21	21	21	MS51957-45	SCR, PAN HD, CROSS RECESSED	33
4	4	4	4	MS51957-16	SCR, PAN HD, CROSS-RECESSED	32
			~~5~~	~~MS51957-45~~	~~SCR, PAN HD, CROSS-RECESSED~~	31
22	22	22	22	MS51957-30	SCR, PAN HD, CROSS-RECESSED	30
20	20	20	20	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	29
30	30	30	30	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	28
5	5	5	5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	27
2	2	2	2	1014005	SCREW, SHOULDER	26
2	2	2	2	MS25281-15	CLAMP, CABLE	25
2	2	2	2	2014236	BRACKET, PIVOT ARM	24
1	1	1	1	1014018	TOOL, EXTRACTING	23
1	1	1	1	1014028	CHANNEL, BOTTOM, LEFT	22
1	1	1	1	1014027	CHANNEL, BOTTOM, RIGHT	21
5	5	5	5	1006988-1	SLIDE, CHASSIS, LH	20
5	5	5	5	1006988-2	SLIDE, CHASSIS, RH	19
5	5	5	5	1006988-3	SLIDE, CHASSIS, LH	18
5	5	5	5	1006988-4	SLIDE, CHASSIS, RH	17
1	1	1	1	1006980-1	GROMMET, NYLON	16
AR	AR	AR	AR	1006981	CEMENT	15
–	–	–	1	2014229-011	INTERCONN PLATE NO. 6	14
1	1	1	1	1014046-13	CABLE ASSY W5	13
1	1	1	1	1014046-12	CABLE ASSY W4	12
1	1	1	1	1014046-11	CABLE ASSY W3	11
1	1	1	1	1014046-10	CABLE ASSY W2	10
1	1	1	1	1014046-9	CABLE ASSY W1	9
–	–	1	1	2014223-011	LOGIC PLATE ASSY NO. 5	8
1	1	1	1	2014222-011	LOGIC PLATE ASSY NO. 4	7
1	1	1	1	2014221-011	LOGIC PLATE ASSY NO. 3	6
1	1	1	1	2014220-011	LOGIC PLATE ASSY NO. 2	5
–	–	–	1	2014224-011	LOGIC PLATE ASSY NO. 1	4
–	–	–	1	2014226-011	FRONT PANEL ASSY	3
1	1	1	1	2014377	BRACKET, CABLE GUIDE	2
1	1	1	1	2014417	CHASSIS STRUCTURE	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

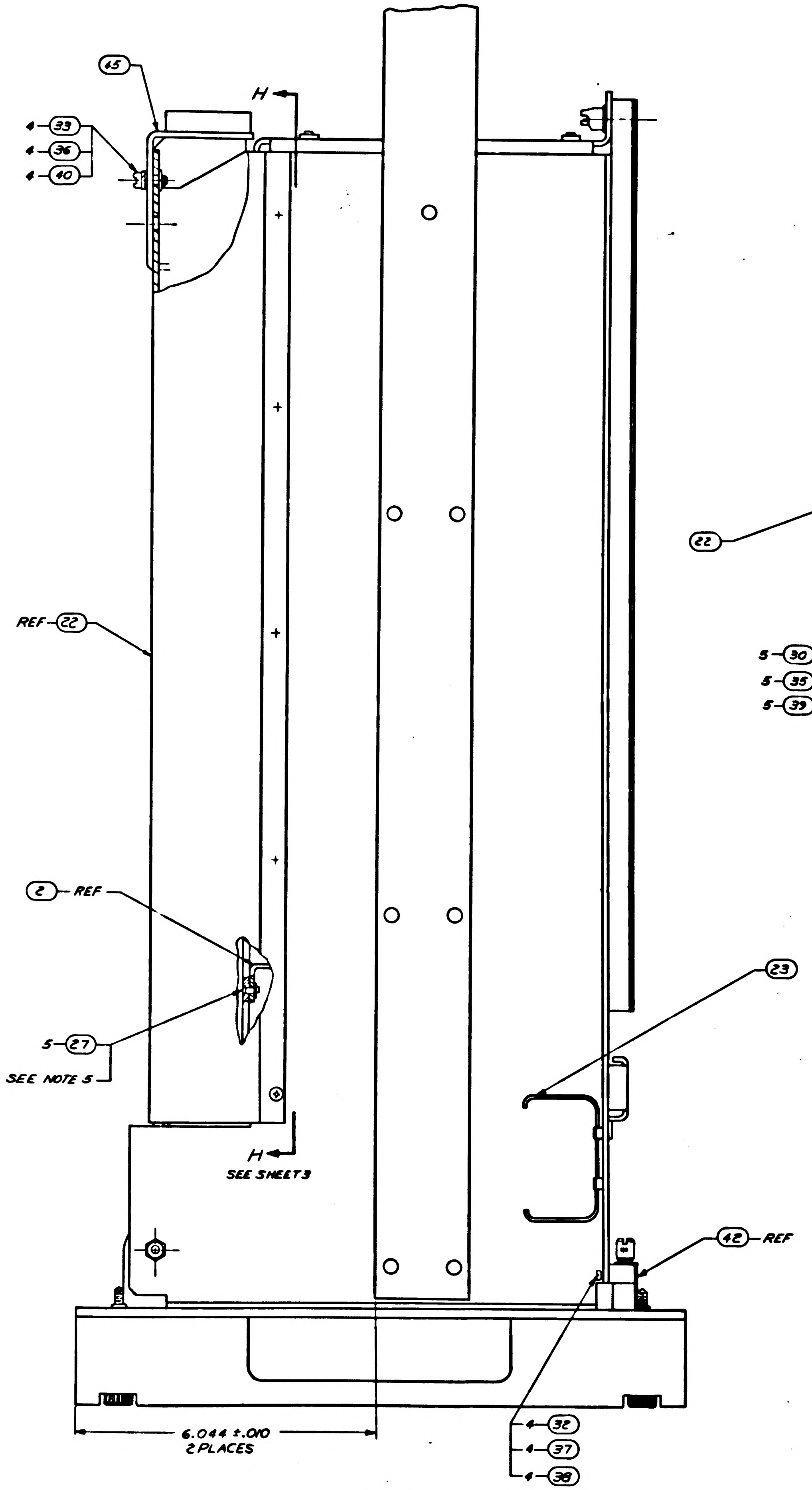
LOGIC DRAWER ASSY
LOGIC DRAWER NO. 2
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014037
SCALE 1/1 WT SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014037 F

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25127 DR P. [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
—	CLASS B CHANGED PER CCA R25552	[illegible]	[illegible]
A	CHANGED PER CCA R25644 AND CLASS A RELEASED PER TORR 2472	[illegible]/66	[illegible]
B	CHANGED PER TORR 26298 DR P. [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
C	CHANGED PER TORR 28101 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
D	CHANGED PER TORR 29337 DR P [illegible] CHK [illegible] APPD [illegible]		
E	CHANGED PER TORR 33454 DR. [illegible] CHK [illegible] APPD	[illegible]	



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SEE NOTE 5
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SEE SHEET 3
23
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2 PLACES
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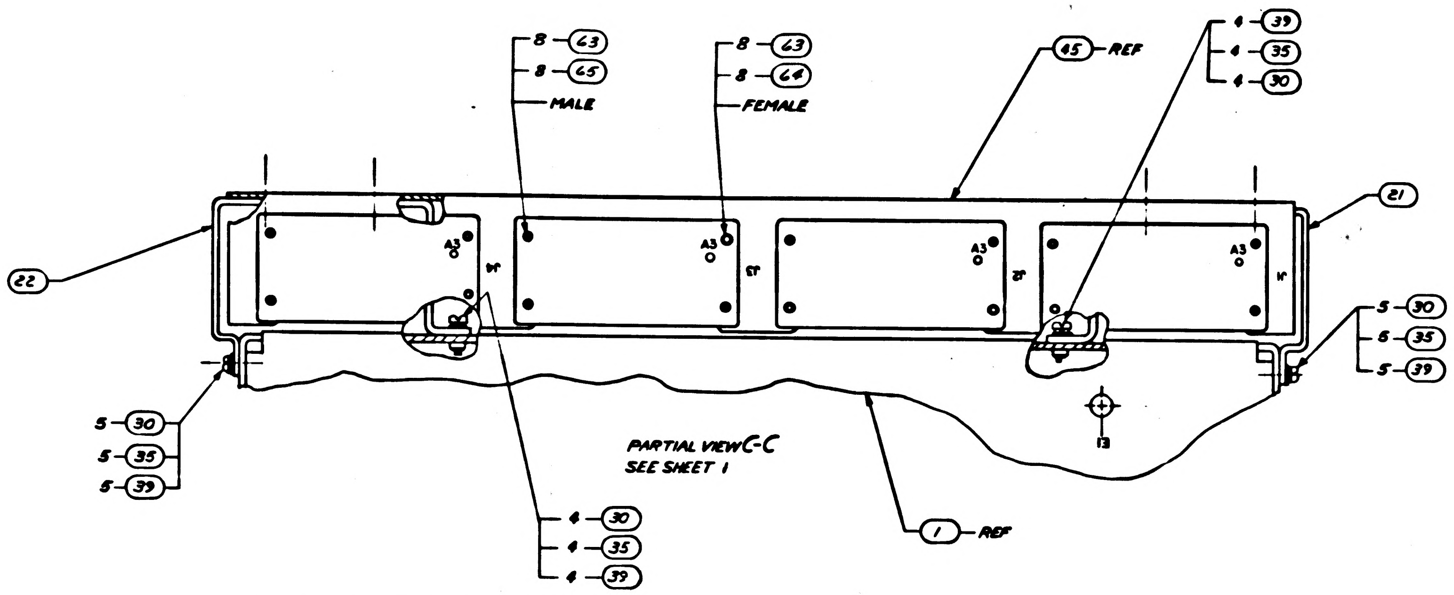
VIEW A-A
SEE SHEET 1



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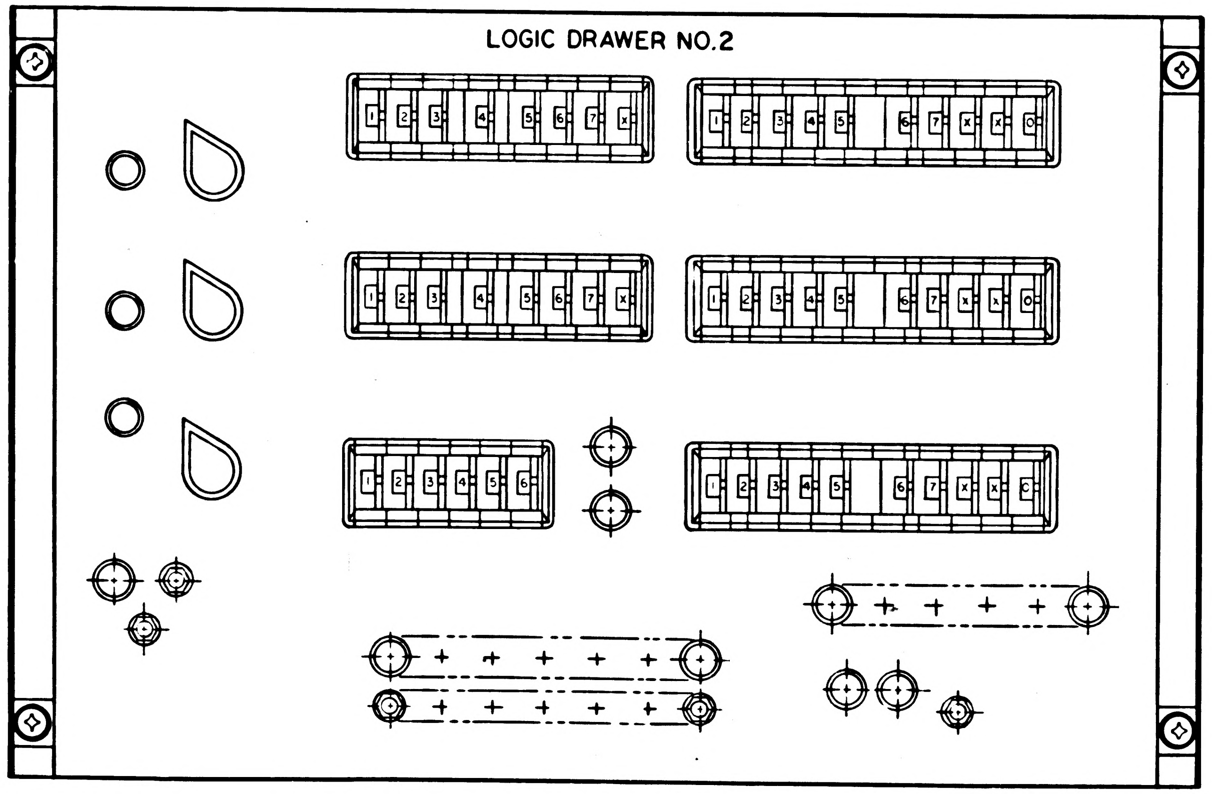
PARTIAL VIEW C-C
SEE SHEET 1



LOGIC DRAWER NO.2

VIEW B-B
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN
DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA A
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO.2
COMPUTER TEST SET

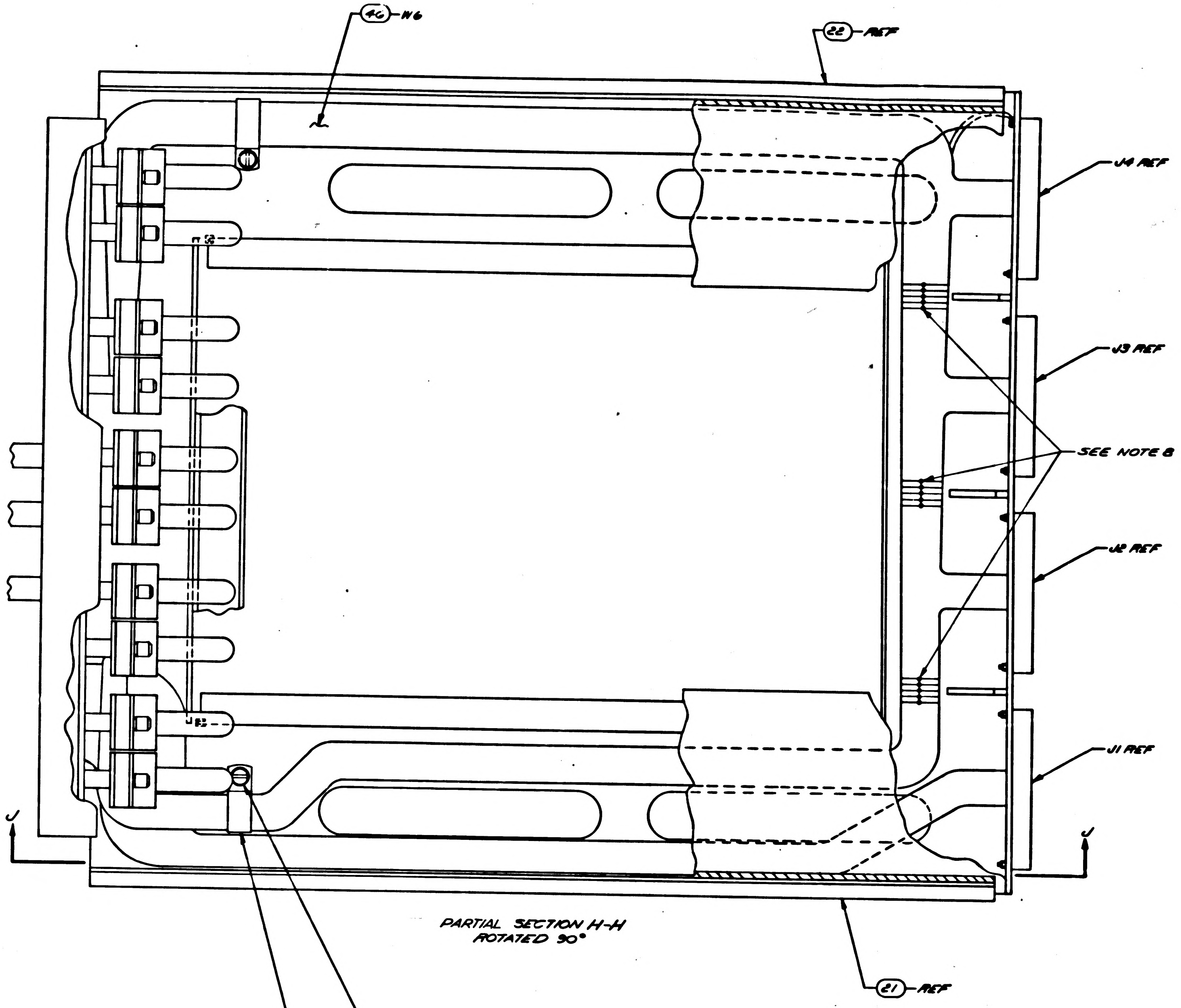
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014037
SCALE 1/1
WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

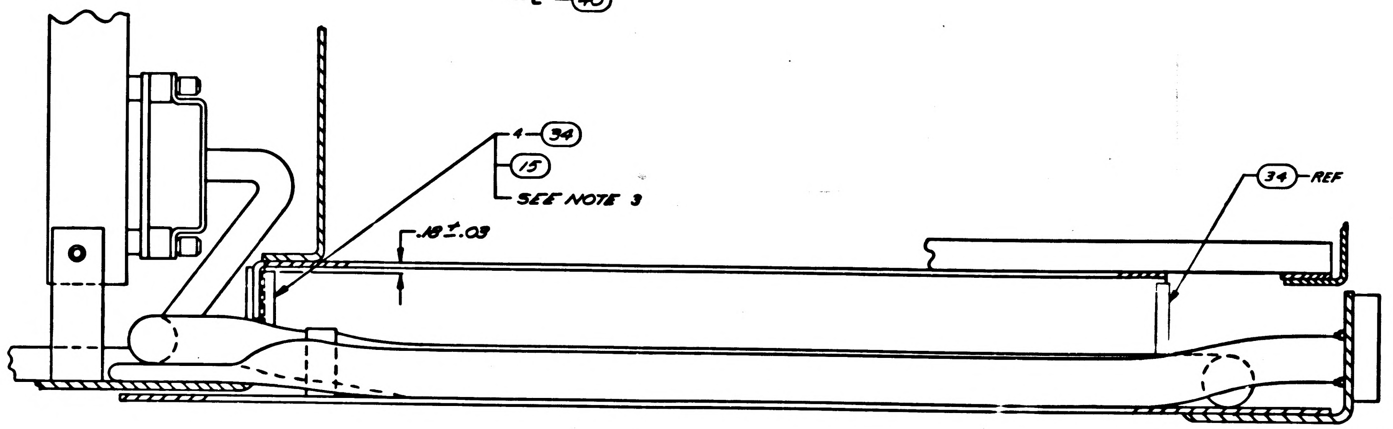
2014037 E

2014037 E

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25187 DR D. [illegible] CHKE [illegible] APPD R. [illegible]	[illegible]	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25644 & CLASS A RELEASED PER TDRR 25472	1/15/66	[illegible]
B	CHANGED PER TDRR 26288 DR P. [illegible] CHK [illegible] APPD [illegible]	7/1/66	[illegible]
C	CHANGED PER TDRR 28101 DR [illegible] CHK [illegible] APPD PED	5/3/66	[illegible]
D	CHANGED PER TDRR 29337 DR [illegible] CHK [illegible] APPD		
E	CHANGED PER TDRR 33454 DR J. Valentine CHK [illegible] APPD	[illegible]	[illegible]



PARTIAL SECTION H-H
ROTATED 90°



PARTIAL SECTION J-J

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DRAWER ASSY
LOGIC DRAWER NO. 2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014037
SCALE 1/1
WT
SHEET 3 OF 3

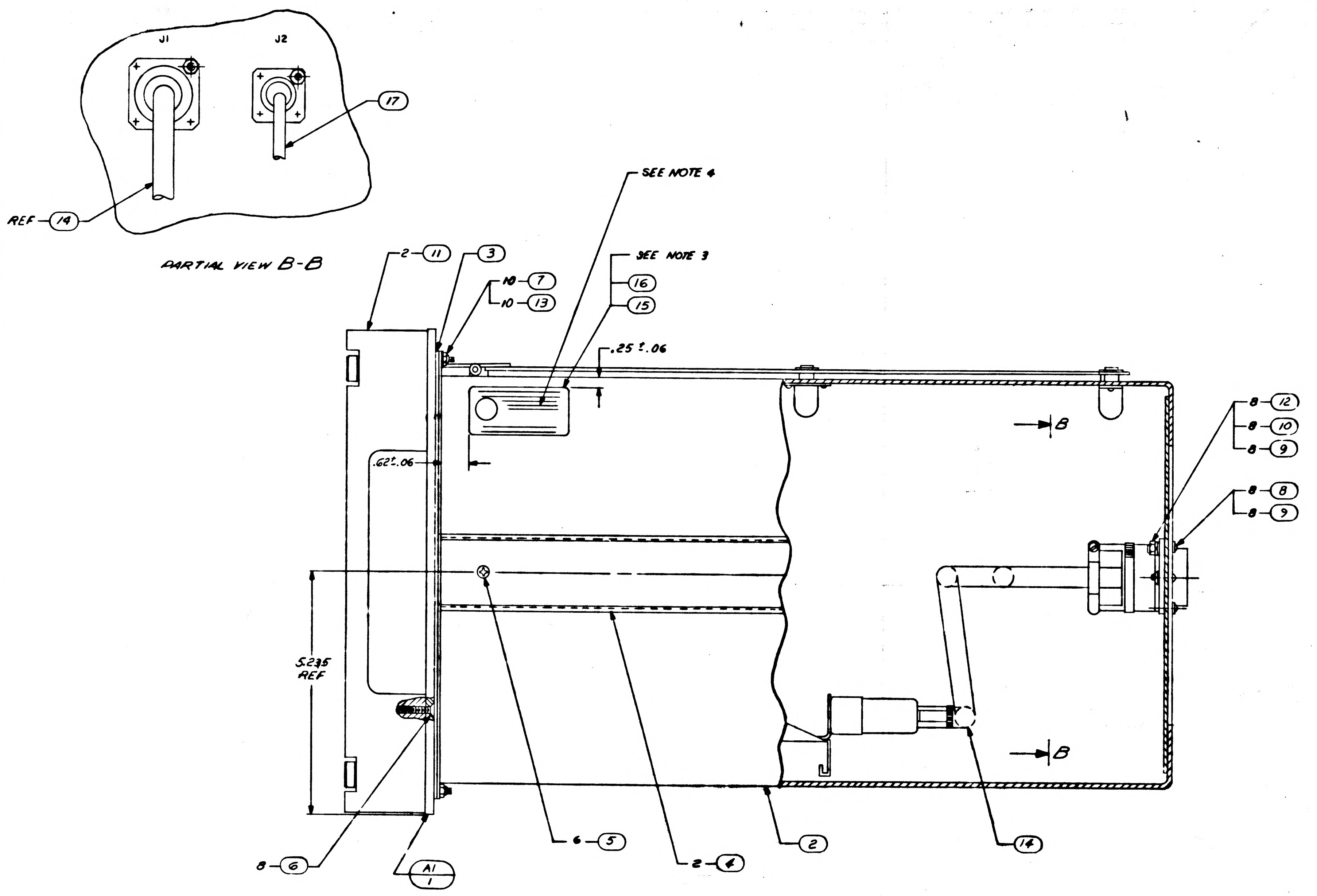
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014037 E

2014037

2014038 A

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25139	9/24/65	
1	CHANGED PER CCA R25299 DR H Wong CHK APPD	Oct 65	
2	CHANGED PER CCA R25525 DR C Bunker CHK APPD	11/16/65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26240 DR CHK APPD	2/17/66	



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. BOND USING FIND NO. 15
4. SERIALIZE PER ND1002023
5. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014138	INTERCONNECTION DIAGRAM	REF
1	2014140-011	CABLE ASSY, W8	17
1	1004260-244	PLATE, IDENT APOLLO GEN	16
AR	MIL-A-5092 TYPE II	CEMENT	15
1	2014135-011	CABLE ASSY W1	14
10	MS15795-807	WASHER, FLAT	13
8	MS35649-49	NUT, PLAIN	12
2	1014215-5	HANDLE ASSY	11
8	MS35337-78	WASHER, LOCK	10
16	MS15795-804	WASHER, FLAT	9
8	MS51957-15	SCREW MACH PAN HD	8
10	MS21044C08	NUT, SELF-LOCKING	7
8	MS51959-45	SCREW, ~~MACH~~, FLAT HD	6
6	MS51958-60	SCREW, MACH, PAN HD	5
2	2016353	SLIDE, CHASSIS	4
1	1006667-2	GASKET	3
1	2014374	COVER ASSY (RF SHIELD)	2
1	1006484	TAPE READER	1
-011	LIST OF MATERIALS		

2014038 A

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 3 JUNE 65
CHECKED 29 Jul 65
APPROVAL Q.E. 9 AUG 65
APPROVAL 3 AUG 65
APPROVAL 1 AUG 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

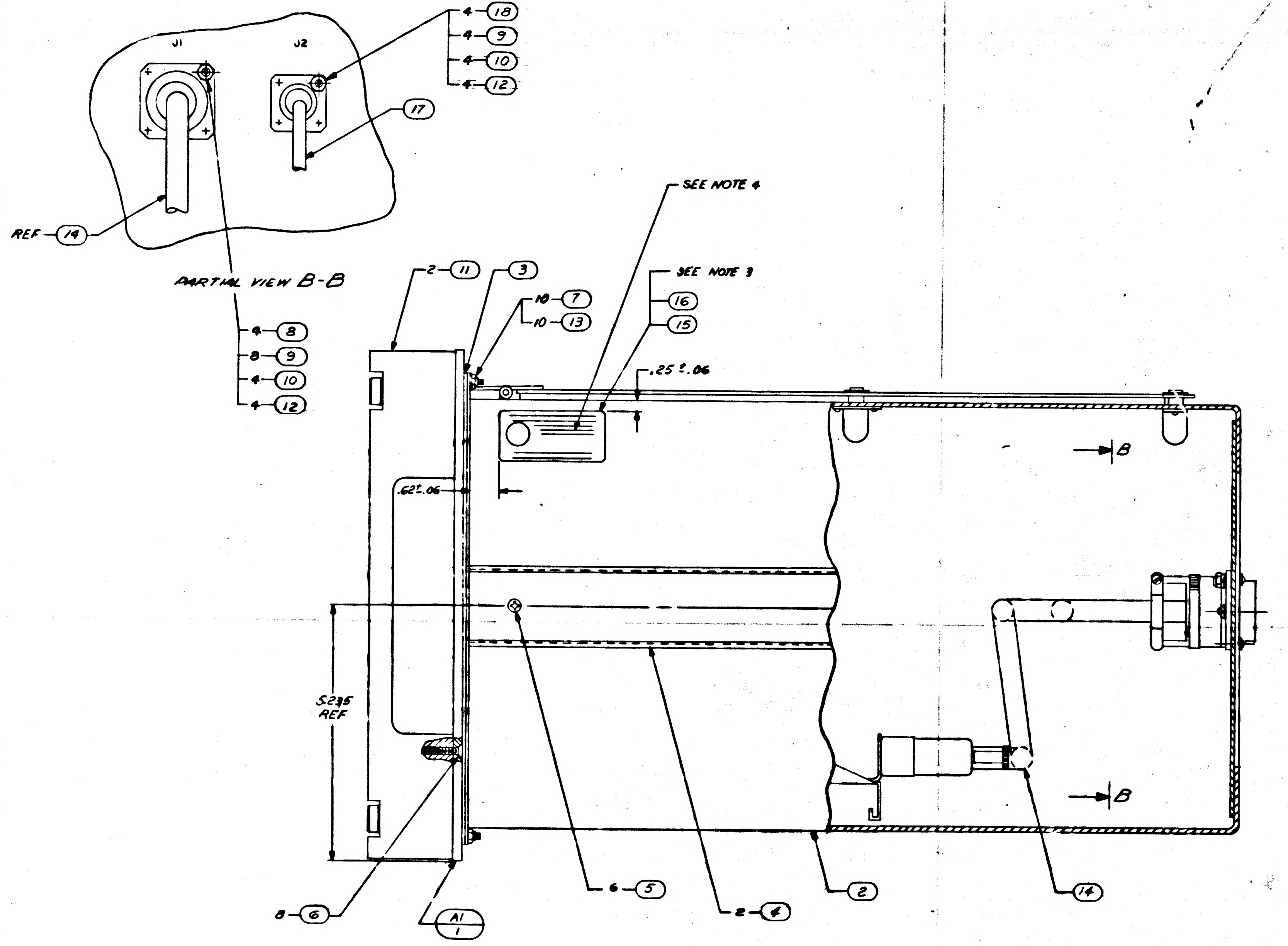
TAPE READER ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014038
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014038 B

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25139	7/26/65	
1	CHANGED PER CCA R25299 DR CHK APPD	1 OCT 65	
2	CHANGED PER CCA R25525 DR CHK APPD	10/26/65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26240 DR CHK APPD PED	2/17/66	
B	CHANGED PER TDRR 26679 DR CHK APPD PED	4/4/66	



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. BOND USING FIND NO. 15
4. SERIALIZE PER ND1002023
5. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014138	INTERCONNECTION DIAGRAM	REF
4	MS51959-15	SCREW, FLAT HD	18
1	2014140-011	CABLE ASSY, W2	17
1	1004260-244	PLATE, IDENT APOLLO GEN	16
AR	MIL-A-5092 TYPE II	CEMENT	15
1	2014135-011	CABLE ASSY W1	14
10	MS15795-807	WASHER, FLAT	13
8	MS35649-49	NUT, PLAIN	12
2	1014215-5	HANDLE ASSY	11
8	MS35337-78	WASHER, LOCK	10
12	MS15795-804	WASHER, FLAT	9
4	MS51957-15	SCREW MACH PAN HD	8
10	MS21044C08	NUT, SELF-LOCKING	7
8	MS51959-45	SCREW, ~~MACH~~, FLAT HD	6
6	MS51958-60	SCREW, MACH, PAN HD	5
2	2016353	SLIDE, CHASSIS	4
1	1006667-2	GASKET	3
1	2014374	COVER ASSY, (RF SHIELD)	2
1	1006484	TAPE READER	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 3 JUNE 65
CHECKED 29 JUL 65
APPROVAL 9 AUG 65
APPROVAL 3 AUG 65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

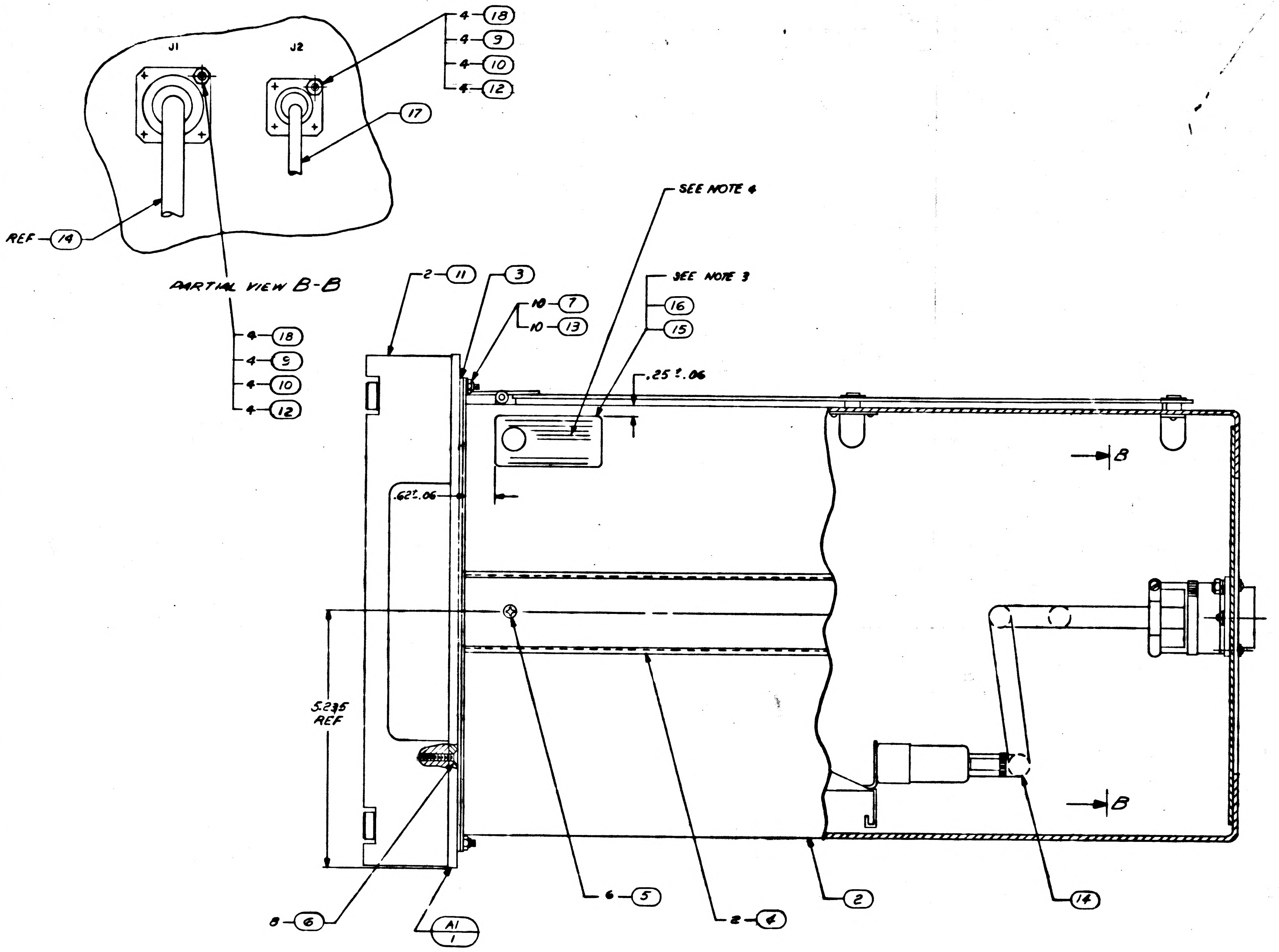
TAPE READER ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014038
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014038 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25139	9/3/65	
1	CHANGED PER CCA R25233 DR CHK APPD	5 OCT 65	
2	CHANGED PER CCA R25525 DR CHK APPD	11/16/65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26240 DR CHK APPD PED	2/17/66	
B	CHANGED PER TDRR 26679 DR CHK APPD PED	3/4/66	
C	CHANGED PER TDRR 26695 DR CHK APPD PED	7/20/66	



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. BOND USING FIND NO.15
4. SERIALIZE PER ND1002023
5. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014138	INTERCONNECTION DIAGRAM	REF
8	MS51959-15	SCREW, FLAT HD	18
1	2014140-011	CABLE ASSY, W2	17
1	1004260-244	PLATE, IDENT APOLLO GEN	16
AR	MIL-A-5092 TYPE II	CEMENT	15
1	2014135-011	CABLE ASSY W1	14
10	MS15795-807	WASHER, FLAT	13
8	MS35649-49	NUT, PLAIN	12
2	1014215-5	HANDLE ASSY	11
8	MS35337-78	WASHER, LOCK	10
8	MS15795-804	WASHER, FLAT	9
~~8~~	~~MS51957-13~~	~~SCREW MACH PAN HD~~	~~8~~
10	MS21044C08	NUT, SELF-LOCKING	7
8	MS51959-43	SCREW, ~~MACH~~, FLAT HD	6
6	MS51958-60	SCREW, MACH, PAN HD	5
2	2016353	SLIDE, CHASSIS	4
1	1006667-2	GASKET	3
1	2014374	COVER ASSY (RF SHIELD)	2
1	1006484	TAPE READER	1

-011 LIST OF MATERIALS

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS
CONTRACT NO. NAS 9-497
DRAWN DATE 3 AUG 65
CHECKED 29 JUL 65
APPROVAL Q.E. 9 AUG 65
APPROVAL 3 AUG 65
APPROVAL 1 SEP 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TAPE READER ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014038
SCALE 1/1
WT
SHEET 1 OF 1

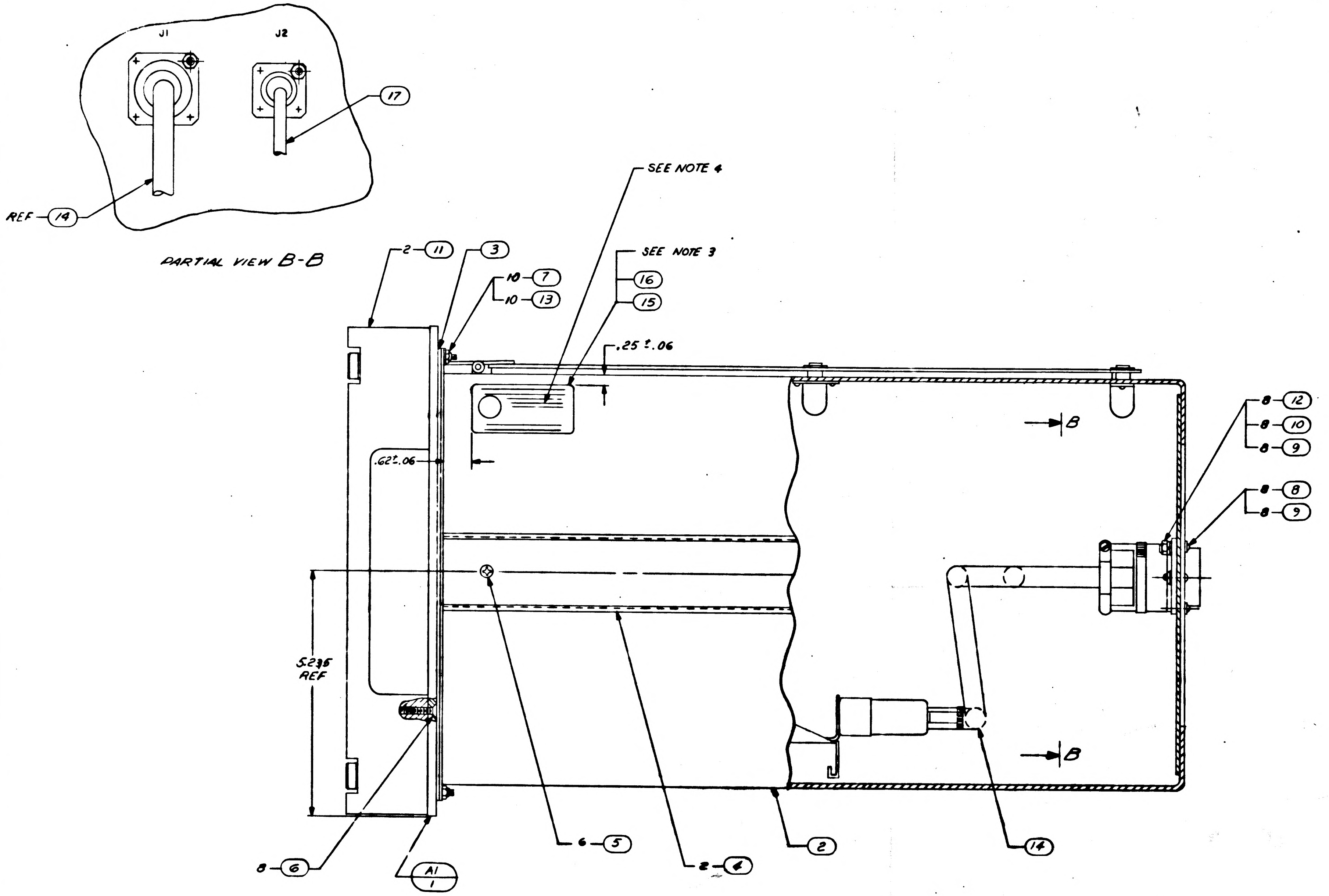
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014038 C

2014038 -

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25139	9/3/65	
1	CHANGED PER CCA R25299 DR CHK APPD	11 oct 65	
2	CHANGED PER CCA R25525 DR CHK APPD	[illegible]	
-	CLASS A RELEASED PER TDRR 25472		



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. BOND USING FIND NO. 15
4. SERIALIZE PER ND1002023
5. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014138	INTERCONNECTION DIAGRAM	REF
1	2014140-011	CABLE ASSY, W2	17
1	1004260-244	PLATE, IDENT APOLLO G&N	16
AR	MIL-A-5092 TYPE II	CEMENT	15
1	2014135-011	CABLE ASSY W1	14
10	MS15795-807	WASHER, FLAT	13
8	MS35649-49	NUT, PLAIN	12
2	1014215-5	HANDLE ASSY	11
8	MS35337-78	WASHER, LOCK	10
16	MS15795-804	WASHER, FLAT	9
8	MS51957-12	SCREW MACH PAN HD	8
10	MS21044C08	NUT, SELF-LOCKING	7
8	MS51959-45	SCREW, ~~MACH~~, FLAT HD	6
6	MS51958-60	SCREW, MACH, PAN HD	5
2	1006878-1	SLIDE, CHASSIS	4
1	1006667-2	GASKET	3
1	2014374	COVER ASSY (RF SHIELD)	2
1	1006484	TAPE READER	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 24 JUNE 65
CHECKED 29 Jul 65
APPROVAL 9 Aug 65
APPROVAL 9 Aug 65
APPROVAL 1 Sep 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TAPE READER ASSY
COMPUTER TEST SET

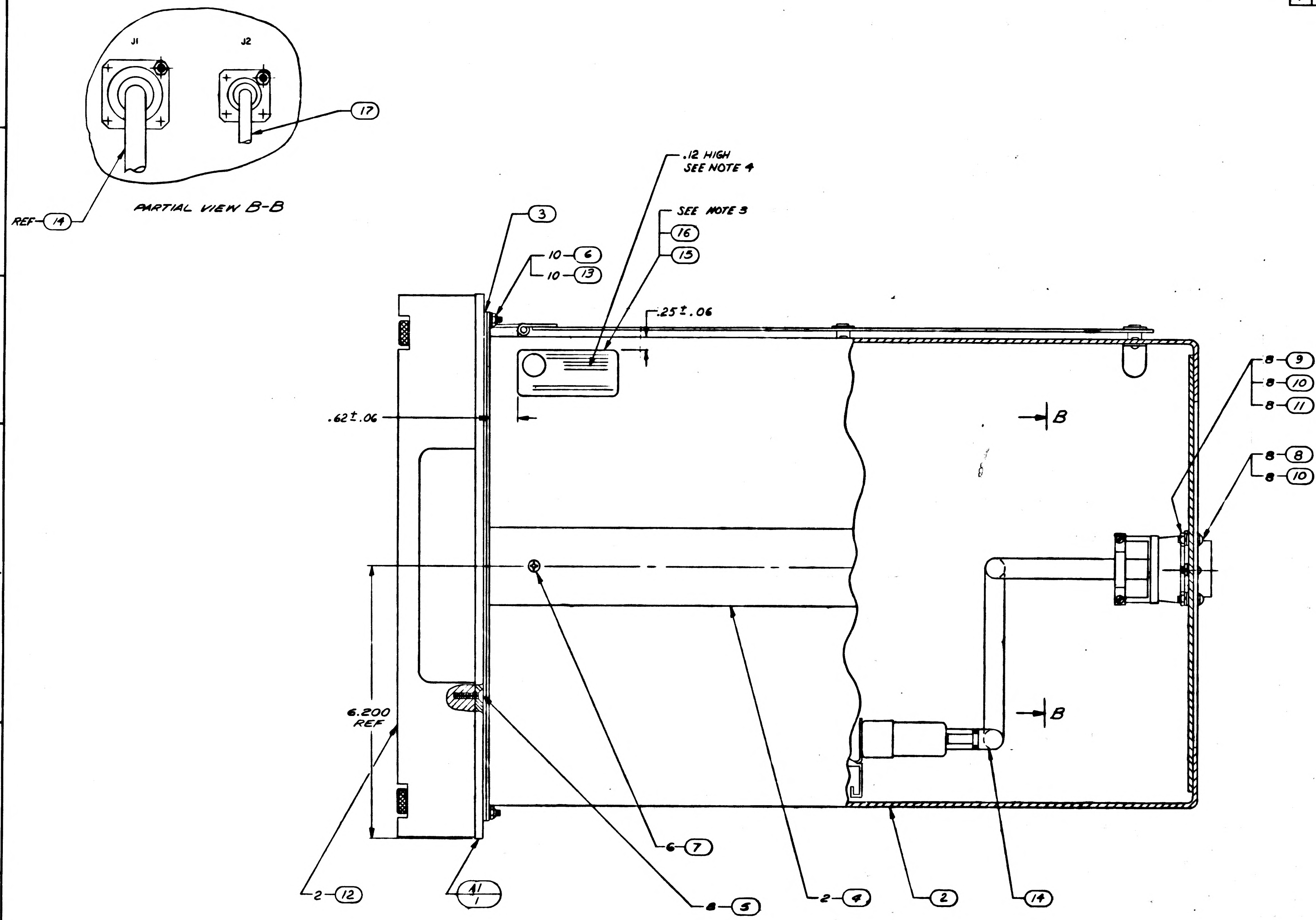
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014038
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014038 -

2014039 A

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25199	9/3/65	
1	CHANGED PER CCA R25525 DR CHK APPD		
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26240 DR CHK APPD P C O		



NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. BOND USING FIND NO.15
4. SERIALIZE PER ND1002023
5. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATION

☒	2014138	INTERCONNECTING DIAGRAM	REF
1	2014140-011	CABLE ASSY, W2	17
1	1004260-245	PLATE, IDENT APOLLO G&N	16
AR	MIL-A-5092 TYPE II	CEMENT	15
1	2014139-011	CABLE ASSY	14
10	MS15795-807	WASHER, FLAT	13
2	1014215-6	HANDLE	12
8	MS35649-44	NUT, PLAIN	11
16	MS15795-E04	WASHER, FLAT	10
8	MS35337-78	WASHER, LOCK	9
8	MS51957-15	SCREW, MACH, PAN HD	8
6	MS51958-60	SCREW, MACH, PAN HD	7
10	MS21044C08	NUT, SELF LOCKING	6
8	MS51959-45	SCREW, MACH, FLAT HD	5
2	2016353	SLIDE, CHASSIS	4
1	1006667-1	GASKET	3
1	2014431	COVER ASSY (RF SHIELD)	2
1	1006483	TAPE PUNCH	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

2014039 A

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED 28 JUL 65
APPROVAL 2 AUG 65
APPROVAL 2 AUG 65
APPROVAL 65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C. S. 1/19/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

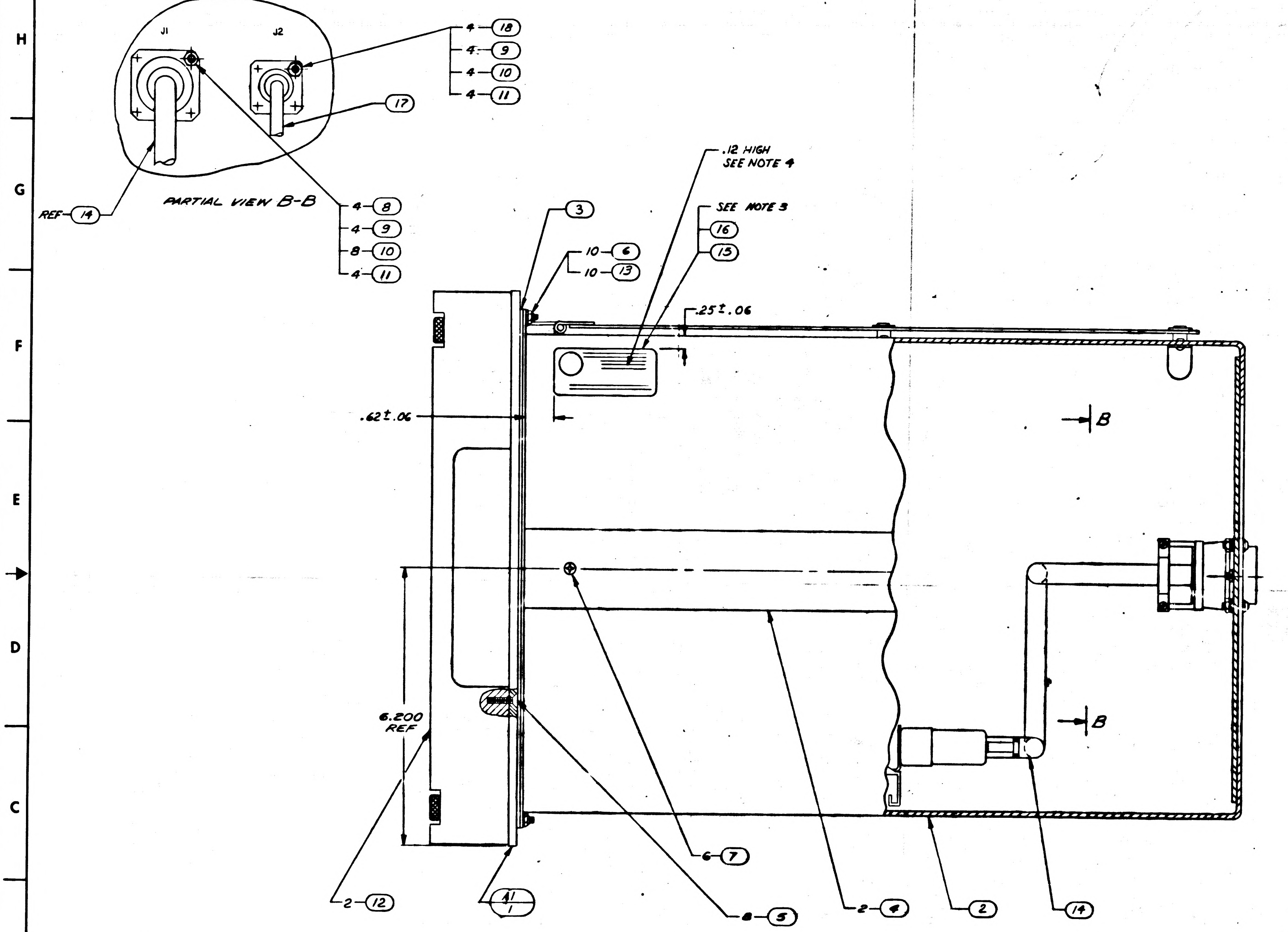
TAPE PUNCH ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014039
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014039 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25139	9/13/65	G. Harr
1	CHANGED PER CCA R25525 DR C Bunker CHK [illegible] APPD [illegible]	11/1/65	[illegible]
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26240 DR [illegible] CHK [illegible] APPD P.C.D.	4/19/66	[illegible]
B	CHANGED PER TDRR 26679 DR [illegible] CHK [illegible] APPD P.E.D	4/7/66	[illegible]



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. BOND USING FIND NO. 15
4. SERIALIZE PER ND1002023
5. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014138	INTERCONNECTING DIAGRAM	REF
4	MS51959-15	SCREW, FLAT HD	18
1	2014140-011	CABLE ASSY, W2	17
1	1004260-245	PLATE, IDENT APOLLO G&N	16
AR	MIL-A-5092 TYPE II	CEMENT	15
1	2014139-011	CABLE ASSY	14
10	MS15795-807	WASHER, FLAT	13
2	1014215-6	HANDLE	12
8	MS35649-44	NUT, PLAIN	11
12	MS15795-E04	WASHER, FLAT	10
8	MS35337-78	WASHER, LOCK	9
4	MS51957-15	SCREW, MACH, PAN HD	8
6	MS51958-60	SCREW, MACH, PAN HD	7
10	MS21044C08	NUT, SELF LOCKING	6
8	MS51959-45	SCREW, MACH, FLAT HD	5
2	2016353	SLIDE, CHASSIS	4
1	1006667-1	GASKET	3
1	2014431	COVER ASSY (RF SHIELD)	2
1	1006483	TAPE PUNCH	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 29 Jul 65
APPROVAL R E Dunk 2 AUG 65
APPROVAL [illegible] 2 AUG 65
APPROVAL [illegible] 6 Sep 65
NASA APPROVAL A. J. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C Snarly 1/14/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

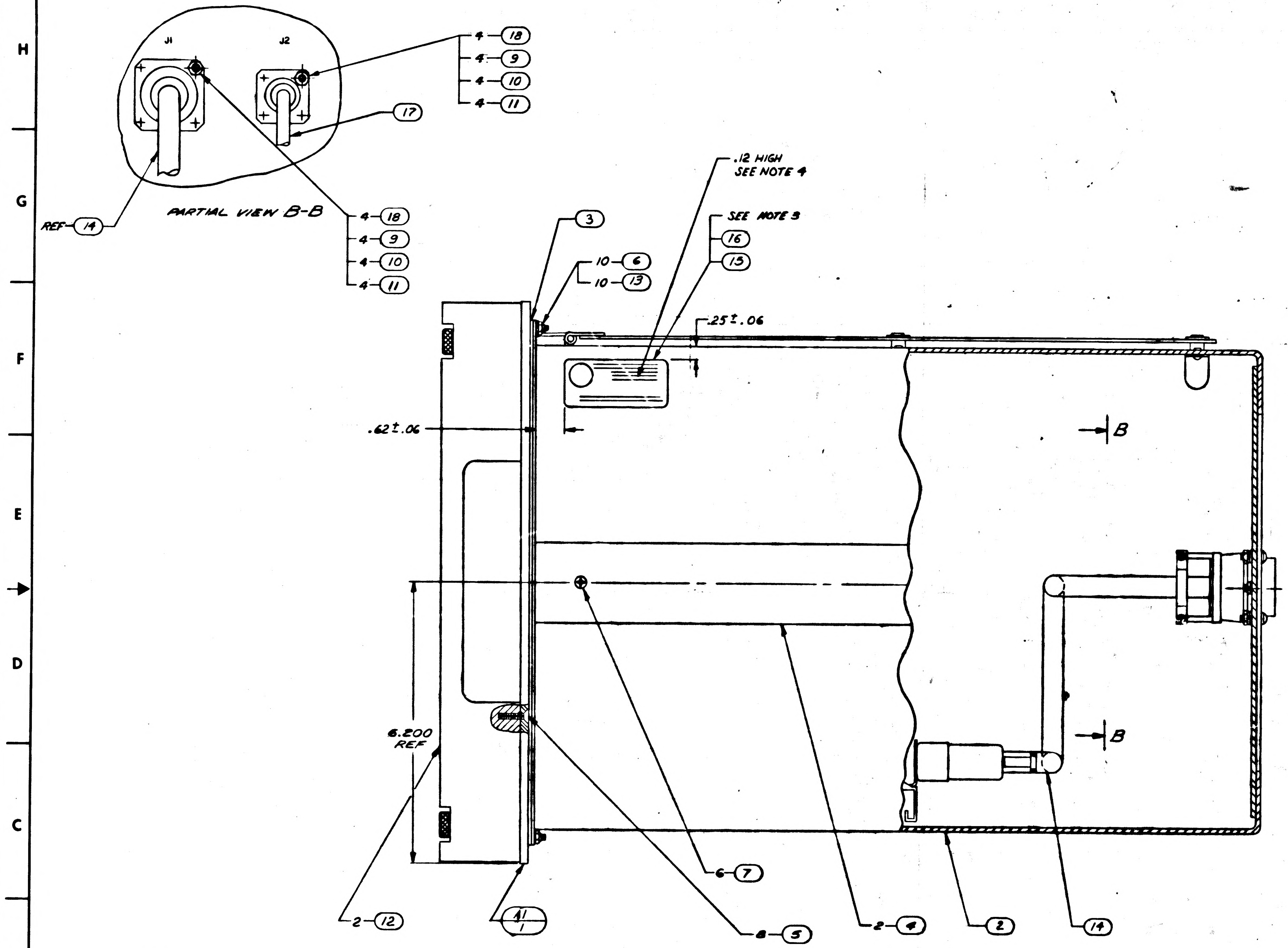
TAPE PUNCH ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014039
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014039 B

2014039 C



REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25199	9/13/65	
1	CHANGED PER CCA R25525 DR CHK APPD	9/14/65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26240 DR CHK APPD PCO	2/18/66	
B	CHANGED PER TDRR 26679 DR CHK APPD PE.D	4/7/66	
C	CHANGED PER TDRR 26695 DR CHK APPD PE.D	4/30/66	

☒	2014138	INTERCONNECTING DIAGRAM	REF
8	MS51959-15	SCREW, FLAT HD	18
1	2014140-011	CABLE ASSY, W2	17
1	1004260-245	PLATE, IDENT APOLLO G&N	16
AR	MIL-A-5092 TYPE II	CEMENT	15
1	2014139-011	CABLE ASSY	14
10	MS15795-807	WASHER, FLAT	13
2	1014215-6	HANDLE	12
8	MS35649-44	NUT, PLAIN	11
8	MS15795-804	WASHER, FLAT	10
8	MS35337-78	WASHER, LOCK	9
~~4~~	~~MS51957-15~~	~~SCREW, MACH, PAN HD~~	~~8~~
6	MS51958-60	SCREW, MACH, PAN HD	7
10	MS21044C08	NUT, SELF LOCKING	6
8	MS51959-45	SCREW, MACH, FLAT HD	5
2	2016353	SLIDE, CHASSIS	4
1	1006667-1	GASKET	3
1	2014431	COVER ASSY (RF SHIELD)	2
1	1006483	TAPE PUNCH	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. BOND USING FIND NO. 15
4. SERIALIZE PER ND 1002023
5. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATION

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE
CHECKED 29 Jul 65
APPROVAL 9 AUG 65
APPROVAL 9 AUG 65
APPROVAL
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL C 1/18/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TAPE PUNCH ASSY
COMPUTER TEST SET

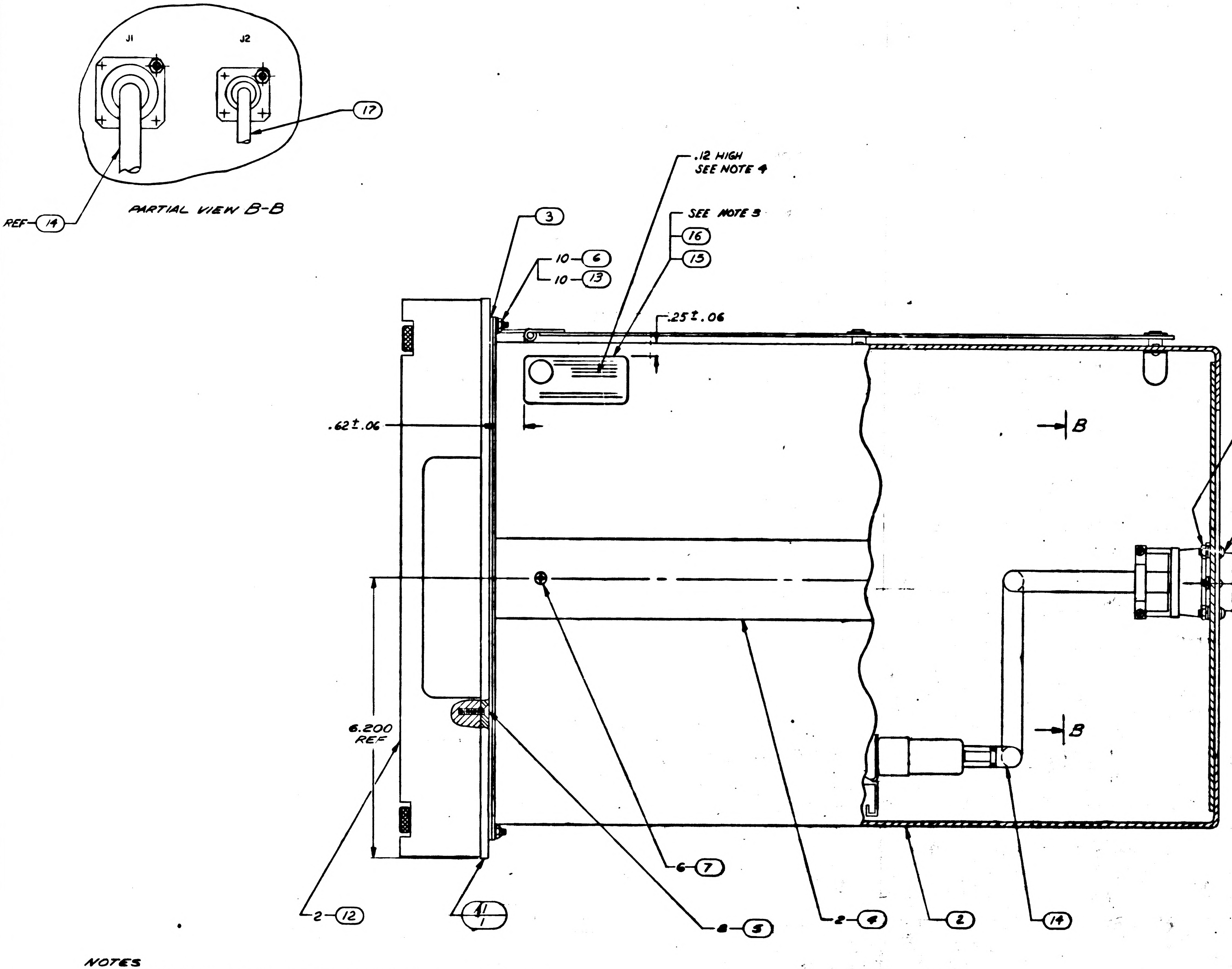
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014039
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014039

2014039 -

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25139	[illegible]	U Harang
1	CHANGED PER CCA R25525 DR P Barber CHK [illegible] APPD [illegible]	[illegible]	[illegible]
—	CLASS A RELEASED PER TDR.R 25472		



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. BOND USING FIND NO. 15
4. SERIALIZE PER ND1002023
5. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014138	INTERCONNECTING DIAGRAM	REF
1	2014140-011	CABLE ASSY, W2	17
1	1004260-245	PLATE, IDENT APOLLO G&N	16
AR	MIL-A-5092 TYPE II	CEMENT	15
1	2014139-011	CABLE ASSY	14
10	MS15795-807	WASHER, FLAT	13
2	1014215-6	HANDLE	12
8	MS35649-44	NUT, PLAIN	11
16	MS15795-804	WASHER, FLAT	10
8	MS35337-78	WASHER, LOCK	9
8	MS51957-12	SCREW MACH, PAN HD	8
6	MS51958-60	SCREW MACH, PAN HD	7
10	MS21044C08	NUT, SELF LOCKING	6
8	MS51959-45	SCREW MACH, FLAT HD	5
2	1006878-1	SLIDE, CHASSIS	4
1	1006667-1	GASKET	3
1	2014131	COVER ASSY (RF SHIELD)	2
1	1006483	TAPE PUNCH	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 29 Jul 65
APPROVAL R E Durk 2 AUG 65
APPROVAL [illegible] 2 AUG 65
APPROVAL [illegible]
NASA APPROVAL A. G METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C Sarly [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

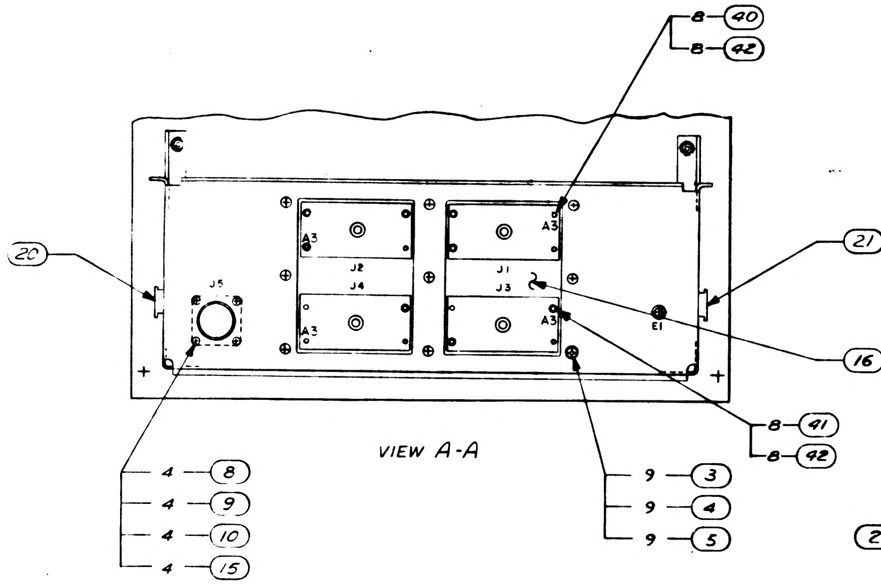
TAPE PUNCH ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014039
SCALE 1/1
WT
SHEET 1 OF 1

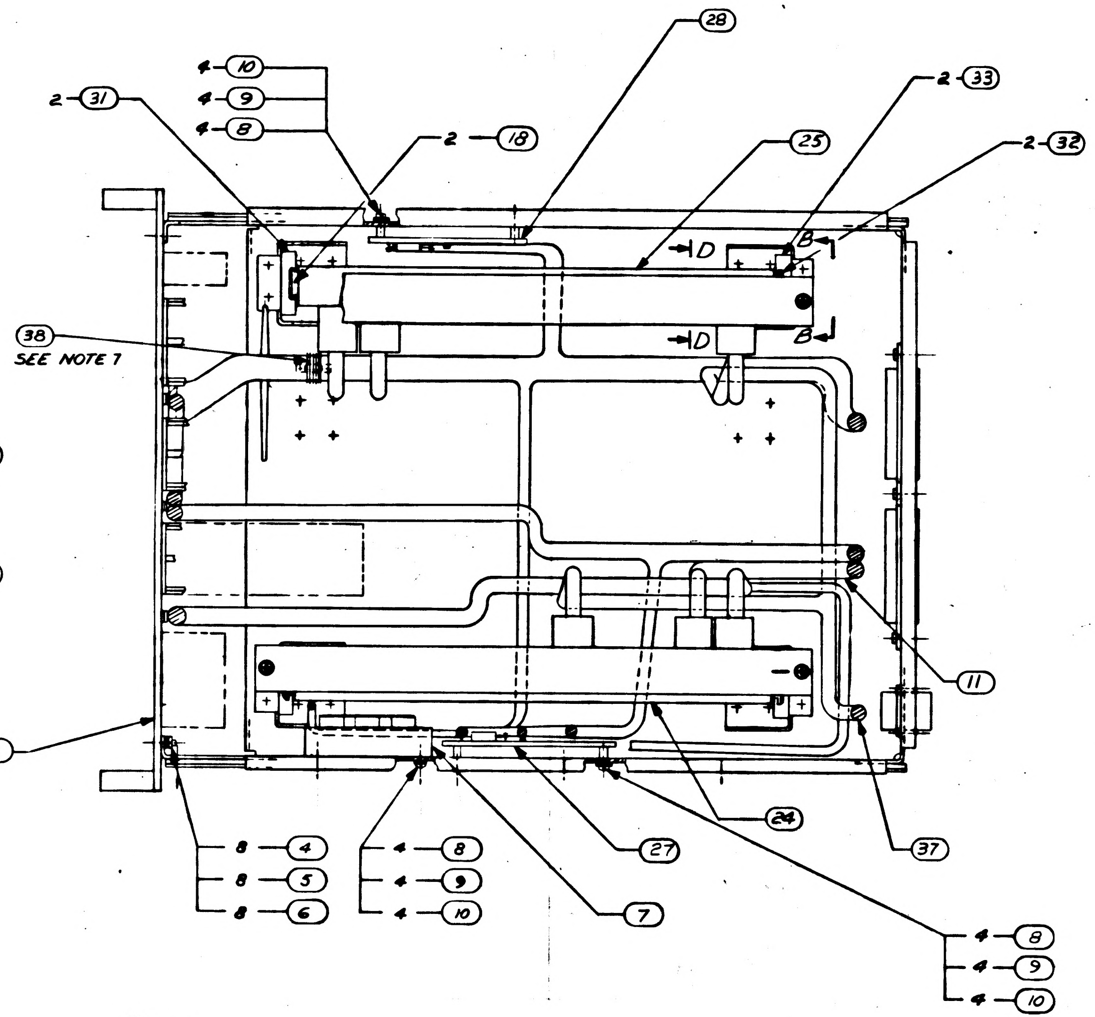
2014039 1

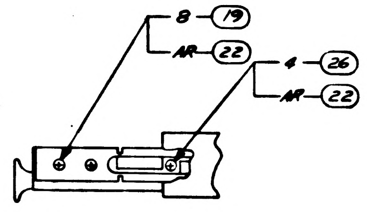
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
⊃	RELEASED PER CCA R25273		
/	CHANGED PER CCA R25458 DR CHKD APPD	11/65	
—	CLASS B CHANGED PER CCA R25502	12/3/65	
A	CHANGED PER CCA R25549 & CLASS A RELEASED PER TORR 35472	1/5/66	

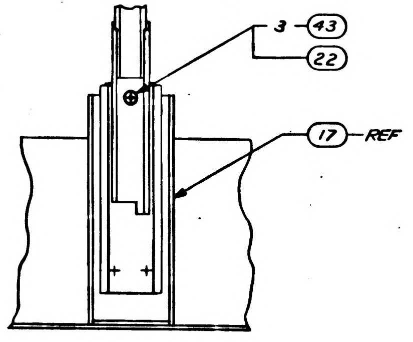


VIEW A-A

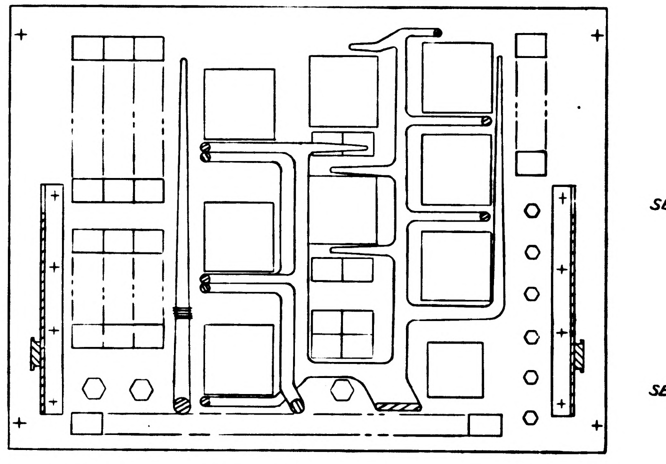




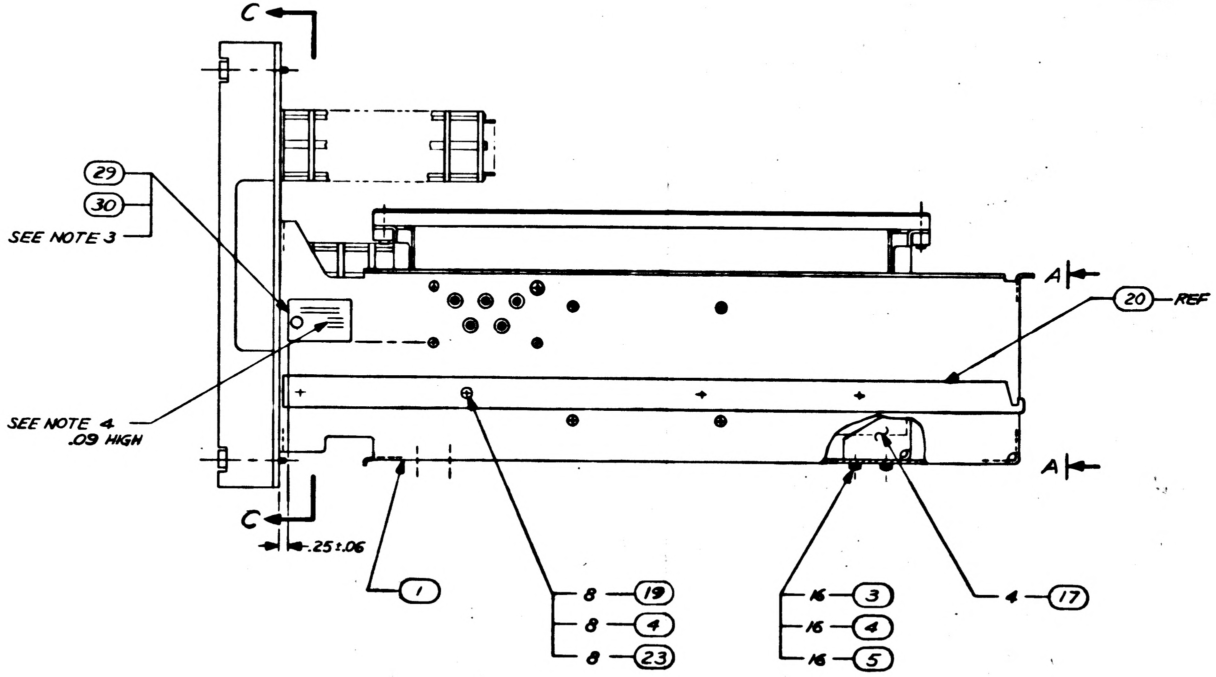
PARTIAL VIEW B-B
SHOWN WITH SLIDE EXTENDED



PARTIAL VIEW D-D
SHOWN WITH SLIDE EXTENDED
ROTATED 90° CCW
4 PLACES
SCALE NONE



SECTION C-C



NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. BOND FIND NO. 29 TO FIND NO. 1 USING FIND NO. 30
4. SERIALIZE PER ND1002023
5. ○ INDICATES MALE GUIDE PIN
6. ◉ INDICATES FEMALE GUIDE SOCKET
7. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 38
8. ~~QQ-W-343, TYPE S, SOFT COATED (a) AWG SIZE 22~~

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014179	SCHEMATIC	REF
~~☒~~	~~2014464~~	~~LEAD, ELEC~~	~~REF~~
12	MS51959-43	SCREW, FLAT HD, CROSS-RECESSED	43
16	1006671-003	NUT, STOP	42
8	1006671-004	SOCKET, GUIDE	41
8	1006671-002	PIN, GUIDE	40
~~NOT SHOWN * 2.0~~	~~MIL-W-16878/4 EEE~~	~~WIRE ELEC BL 4~~	~~39~~
AR	1006458-004	TAPE, LACING	38
1	2014466-011	WIRING HARNESS, B	37
~~1~~	~~2014468-011~~	~~WIRING HARNESS, C~~	~~36~~
~~1~~	~~2014467-011~~	~~WIRING HARNESS, D~~	~~35~~
~~1~~	~~2014465-011~~	~~WIRING HARNESS, E~~	~~34~~
2	1006988-4	SLIDE, RH CABINET SECTION	33
2	1006988-2	SLIDE, RH CHASSIS SECTION	32
2	1006938-3	SLIDE, LH CABINET SECTION	31
AR	MIL-A-5092 TYPE II	ADHESIVE	30
1	1004260-236	NAMEPLATE	29
1	2014383-011	COMPONENT BD ASSY A3	28
1	2014381-011	COMPONENT BD ASSY A2	27
4	MS51957-43	SCREW, PAN HD, CROSS-RECESSED	26
1	2014378-011	LOGIC ASSY NO. 2	25
1	2014377-011	LOGIC ASSY NO. 1	24
8	MS21043-08	NUT, SELF-LOCKING	23
AR	MIL-S-22473 GRADE HV	SEALING COMPOUND	22
1	1006930-13	SLIDE, LH CHASSIS SECTION	21
1	1006930-12	SLIDE, RH CHASSIS SECTION	20
16	MS51959-46	SCREW, FLAT HD, CROSS-RECESSED	19
2	1006988-1	SLIDE, LH CHASSIS SECTION	18
4	1014255-2	BRACKET ASSY	17
1	2014349	PLATE, CONNECTOR	16
4	MS35649-64	NUT, HEX	15
~~NOT SHOWN * 240~~	~~1006376-21~~	~~SLEEVING, INSULATION~~	~~14~~
~~NOT SHOWN * 330~~	~~SEE NOTE 8~~	~~WIRE ELEC~~	~~13~~
~~NOT SHOWN * 600~~	~~MIL-W-16878/4 E24~~	~~WIRE, ELEC, WHT~~	~~12~~
1	2014469-011	WIRING HARNESS, A	11
16	MS51957-30	SCREW, PAN HD, CROSS-RECESSED	10
16	MS15795-806	WASHER, FLAT	9
16	MS35338-79	WASHER, LOCK	8
1	2014348-011	POT. BRKT ASSY A1	7
8	MS35649-84	NUT, HEX	6
33	MS35338-80	WASHER, LOCK	5
41	MS15795-807	WASHER, FLAT	4
25	MS51957-45	SCREW, PAN HD, CROSS-RECESSED	3
1	2014375-011	FRONT PANEL ASSY	2
1	2014380	CHASSIS	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 10 JUL 65
CHECKED 5 Oct 65
APPROVAL 5 Oct 65
APPROVAL 10/5/65
APPROVAL 10/7/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1/4/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

XY INTERFACE ASSY
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014040
SCALE 1/2	WT	SHEET 1 OF 1

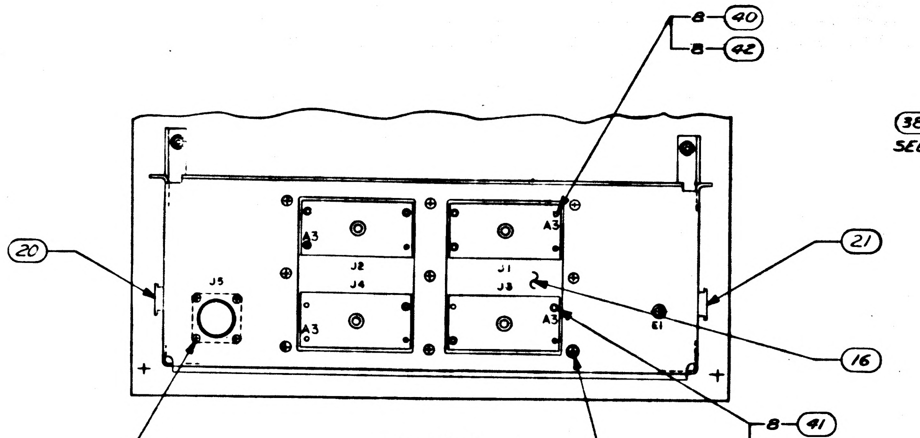
2014040 A

MASTER

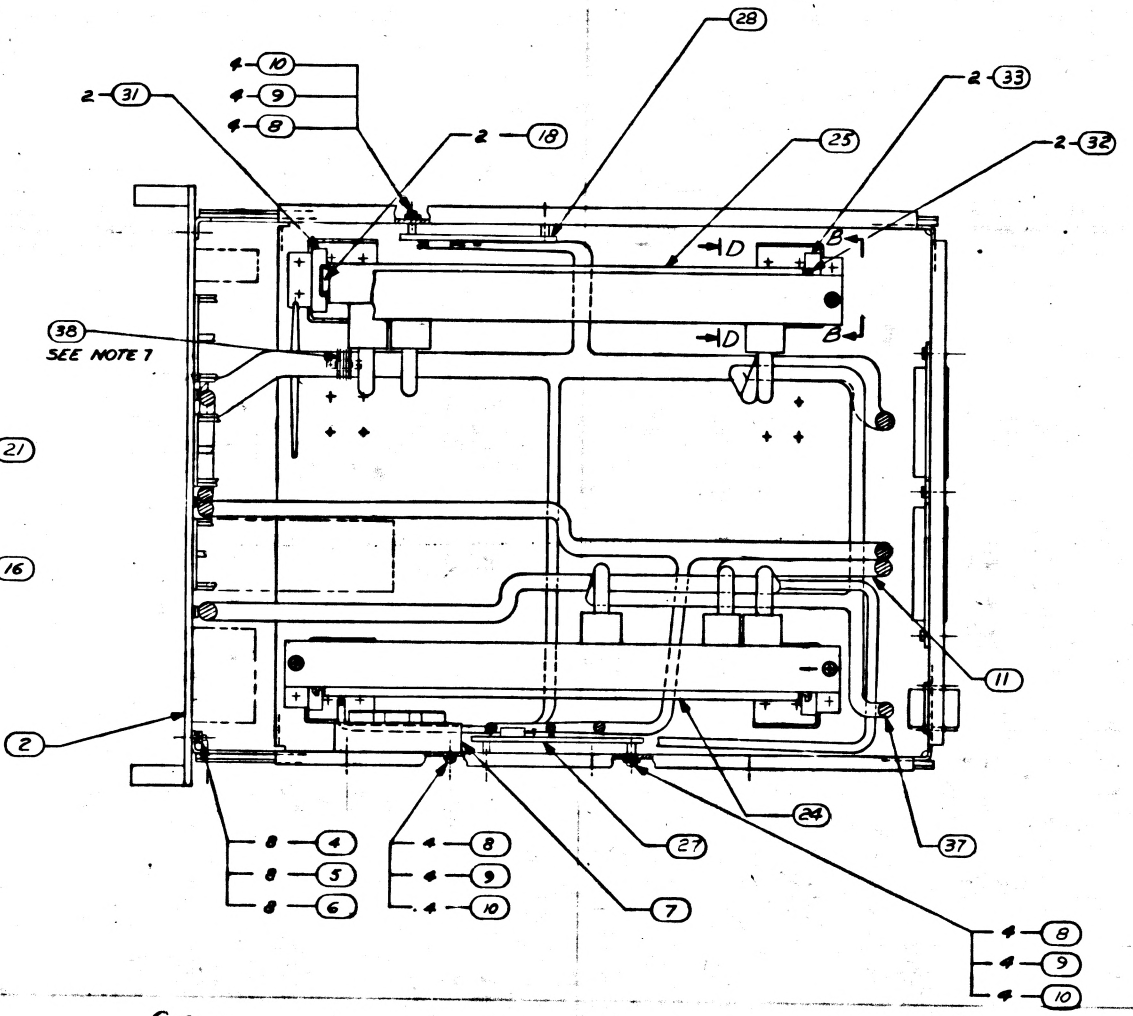
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

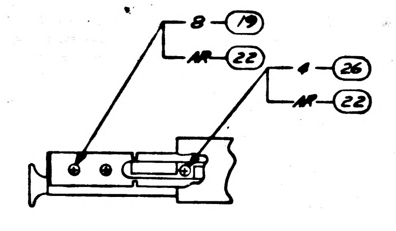
2014040 B

SYM	DESCRIPTION	DATE	APPROVED
J	RELEASED PER CCA R25273		
1	CHANGED PER CCA R25458 DR CHK APPD	9/11/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25549 & CLASS A RELEASED PER TDRR 25472	1/13/66	
B	CHANGED PER TDRR 26679 DR CHK APPD PED	7/4/66	

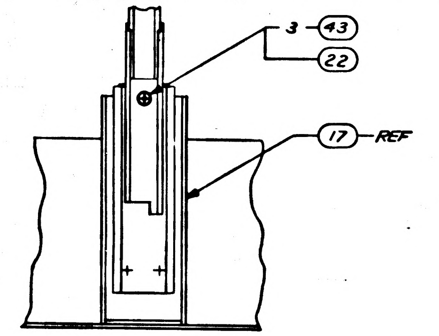


VIEW A-A

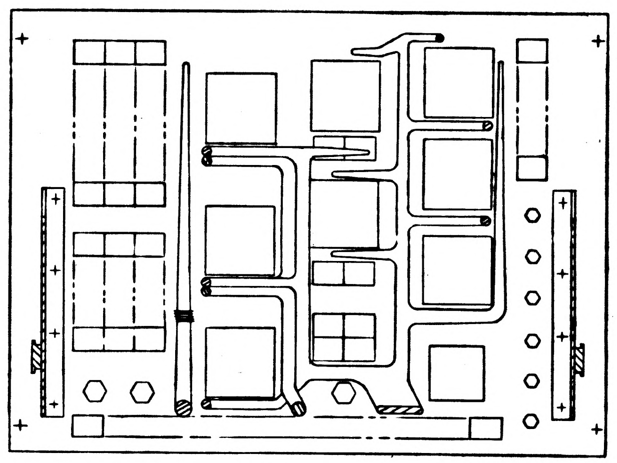




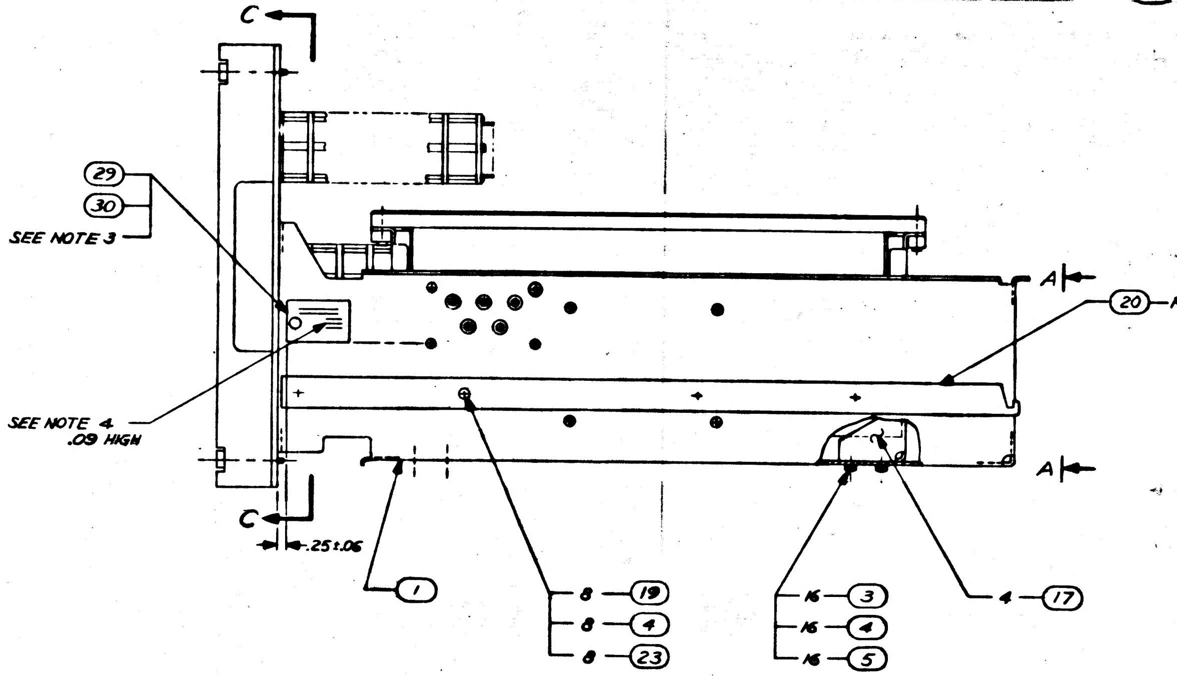
PARTIAL VIEW B-B
SHOWN WITH SLIDE EXTENDED



PARTIAL VIEW D-D
SHOWN WITH SLIDE EXTENDED
ROTATED 90° CCW
4 PLACES
SCALE NONE



SECTION C-C



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. BOND FIND NO. 29 TO FIND NO. 1 USING FIND NO. 30
4. SERIALIZE PER ND1002023
5. ○ INDICATES MALE GUIDE PIN
6. ● INDICATES FEMALE GUIDE SOCKET
7. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 38
8. ~~QQ-W-343, TYPE S, SOFT COATED (a) AWG SIZE 22~~

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014179	SCHEMATIC	REF
☒	~~2014464~~	~~LEAD, ELEC~~	~~REF~~
4	MS51959-30	SCREW, FLAT HD	44
12	MS51959-43	SCREW, FLAT HD, CROSS-RECESSED	43
16	1006671-003	NUT, STOP	42
8	1006671-004	SOCKET, GUIDE	41
8	1006671-002	PIN, GUIDE	40
~~NOT SHOWN * 2.0~~	~~MIL-W-16878/4 EEE~~	~~WIRE ELEC BLK~~	~~39~~
AR	1006455-004	TAPE, LACING	38
1	2014466-011	WIRING HARNESS, B	37
~~1~~	~~2014468-011~~	~~WIRING HARNESS, C~~	~~36~~
~~1~~	~~2014467-011~~	~~WIRING HARNESS, D~~	~~35~~
~~1~~	~~2014465-011~~	~~WIRING HARNESS, E~~	~~34~~
2	1006988-4	SLIDE, RH CABINET SECTION	33
2	1006988-2	SLIDE, RH CHASSIS SECTION	32
2	1006988-3	SLIDE, LH CABINET SECTION	31
AR	MIL-A-5092 TYPE II	ADHESIVE	30
1	1004260-236	NAMEPLATE	29
1	2014383-011	COMPONENT BD ASSY A3	28
1	2014381-011	COMPONENT BD ASSY A2	27
4	MS51957-43	SCREW, PAN HD, CROSS-RECESSED	26
1	2014378-011	LOGIC ASSY NO. 2	25
1	2014377-011	LOGIC ASSY NO. 1	24
8	MS21043-08	NUT, SELF-LOCKING	23
AR	MIL-S-22473 GRADE HV	SEALING COMPOUND	22
1	1006930-13	SLIDE, LH CHASSIS SECTION	21
1	1006930-12	SLIDE, RH CHASSIS SECTION	20
16	MS51959-46	SCREW, FLAT HD, CROSS-RECESSED	19
2	1006988-1	SLIDE, LH CHASSIS SECTION	18
4	1014255-2	BRACKET ASSY	17
1	2014349	PLATE, CONNECTOR	16
4	MS35649-64	NUT, HEX	15
~~NOT SHOWN * 240~~	~~1006776-21~~	~~SLEEVING, INSULATION~~	~~14~~
~~NOT SHOWN * 330~~	~~SEE NOTE 8~~	~~WIRE, ELEC~~	~~13~~
~~NOT SHOWN * 600~~	~~MIL-W-16878/4 E24~~	~~WIRE, ELEC, WHT~~	~~12~~
1	2014469-011	WIRING HARNESS, A	11
12	MS51957-30	SCREW, PAN HD, CROSS-RECESSED	10
16	MS15795-806	WASHER, FLAT	9
16	MS35338-79	WASHER, LOCK	8
1	2014348-011	POT. BRKT ASSY A1	7
8	MS35649-84	NUT, HEX	6
33	MS35338-80	WASHER, LOCK	5
41	MS15795-807	WASHER, FLAT	4
25	MS51957-45	SCREW, PAN HD, CROSS-RECESSED	3
1	2014375-011	FRONT PANEL ASSY	2
1	2014380	CHASSIS	1

-011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 10 JUL 65
CHECKED 5 Jul 65
APPROVAL 5 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C 1/11/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

XY INTERFACE ASSY
COMPUTER TEST SET

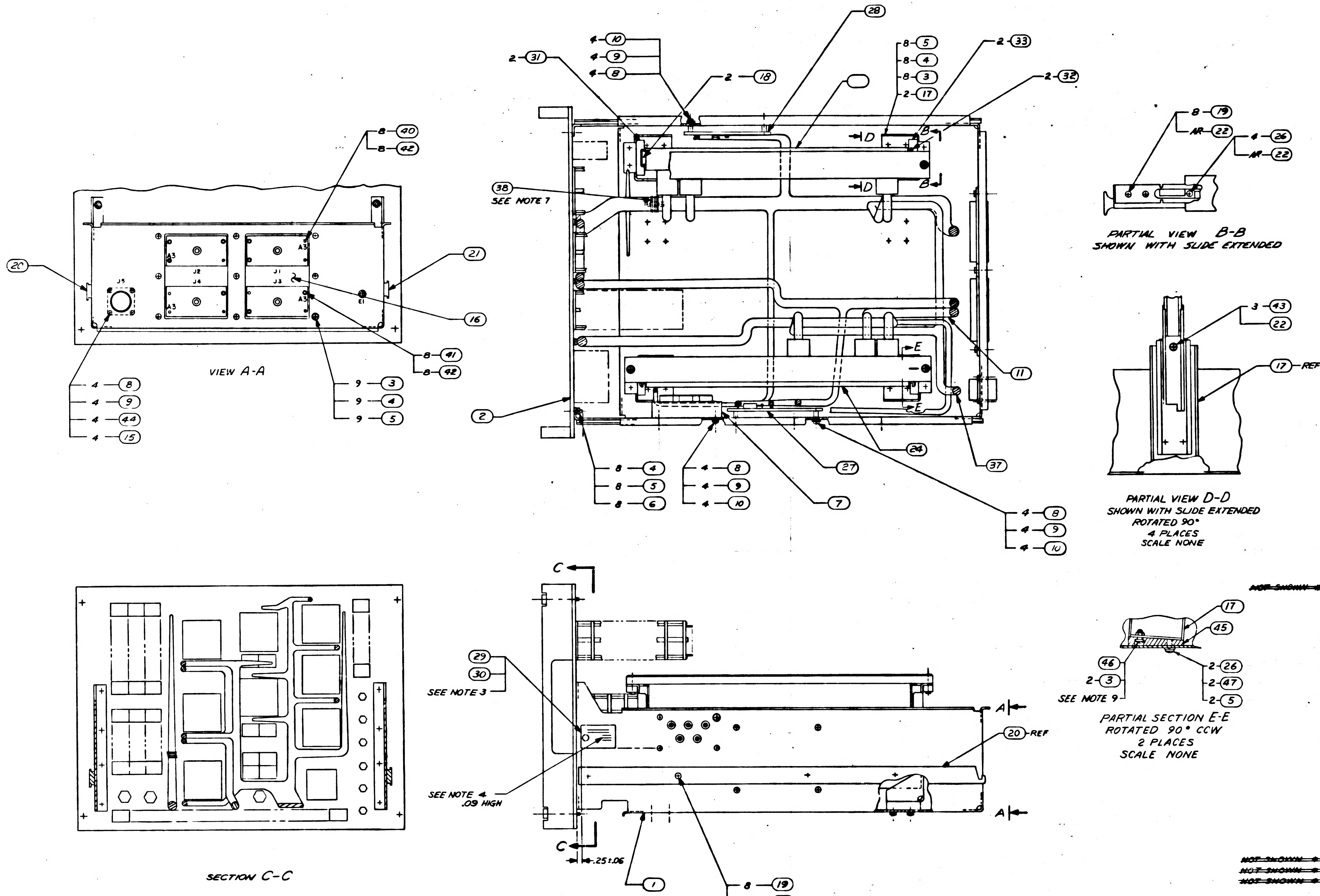
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014040
SCALE 1/2 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014040 B

2014040 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25273		
1	CHANGED PER CCA R25458 DR CHK APPD	11/61	
—	CLASS B CHANGED PER CCA R255C2		
A	CHANGED PER CCA R25549 & CLASS A RELEASED PER TDRR 25472	1/5/66	
B	CHANGED PER TDRR 26679 DR CHK APPD PED		
C	CHANGED PER TDRR 26694 DR CHK APPD PED		



QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	IND NO.
☒	2014179	SCHEMATIC	REF
~~☒~~	~~2014464~~	~~LEAD, ELEC~~	~~REF~~
4	MS15795-808	WASHER, FLAT	47
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	46
2	2016363	SPACER	45
4	MS51959-30	SCREW, FLAT HD	44
12	MS51959-43	SCREW, FLAT HD, CROSS-RECESSED	43
16	1006671-003	NUT, STOP	42
8	1006671-004	SOCKET, GUIDE	41
8	1006671-002	PIN, GUIDE	40
~~NOT SHOWN ✱ 2.0~~	~~MIL-W-16878/4 EEE~~	~~WIRE, ELEC BLK~~	~~39~~
AR	1006458-004	TAPE, LACING	38
1	2014466-011	WIRING HARNESS, B	37
~~1~~	~~2014468-011~~	~~WIRING HARNESS, C~~	~~36~~
~~1~~	~~2014467-011~~	~~WIRING HARNESS, D~~	~~35~~
~~1~~	~~2014465-011~~	~~WIRING HARNESS, E~~	~~34~~
2	1006988-4	SLIDE, RH CABINET SECTION	33
2	1006988-2	SLIDE, RH CHASSIS SECTION	32
2	1006988-3	SLIDE, LH CABINET SECTION	31
AR	MIL-A-5092 TYPE II	ADHESIVE	30
1	1004260-236	NAMEPLATE	29
1	2014383-011	COMPONENT BD ASSY A3	28
1	2014381-011	COMPONENT BD ASSY A2	27
8	MS51957-43	SCREW, PAN HD, CROSS-RECESSED	26
1	2014378-011	LOGIC ASSY NO. 2	25
1	2014377-011	LOGIC ASSY NO. 1	24
8	MS21043-08	NUT, SELF-LOCKING	23
AR	MIL-S-22473 GRADE HV	SEALING COMPOUND	22
1	1006930-13	SLIDE, LH CHASSIS SECTION	21
1	1006930-12	SLIDE, RH CHASSIS SECTION	20
16	MS51959-46	SCREW, FLAT HD, CROSS-RECESSED	19
2	1006988-1	SLIDE, LH CHASSIS SECTION	18
4	1014255-2	BRACKET ASSY	17
1	2014349	PLATE, CONNECTOR	16
4	MS35649-64	NUT, HEX	15
~~NOT SHOWN ✱ 240~~	~~1006376-21~~	~~SLEEVING, INSULATION~~	~~14~~
~~NOT SHOWN ✱ 330~~	~~SEE NOTE 8~~	~~WIRE, ELEC~~	~~13~~
~~NOT SHOWN ✱ 600~~	~~MIL-W-16878/4 E24~~	~~WIRE, ELEC, WHT~~	~~12~~
1	2014469-011	WIRING HARNESS, A	11
12	MS51957-30	SCREW, PAN HD, CROSS-RECESSED	10
16	MS15795-806	WASHER, FLAT	9
16	MS35338-79	WASHER, LOCK	8
1	2014348-011	POT. BRKT ASSY A1	7
8	MS35649-84	NUT, HEX	6
29	MS35338-80	WASHER, LOCK	5
33	MS15795-807	WASHER, FLAT	4
21	MS51957-45	SCREW, PAN HD, CROSS-RECESSED	3
1	2014375-011	FRONT PANEL ASSY	2
1	2014380	CHASSIS	1

-011 LIST OF MATERIALS

✱ DENOTES LENGTH IN FEET

2014040 C

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. BOND FIND NO. 29 TO FIND NO. 1 USING FIND NO. 30
4. SERIALIZE PER ND1002023
5. ○ INDICATES MALE GUIDE PIN
6. ◉ INDICATES FEMALE GUIDE SOCKET
7. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 38
8. ~~QQ-W-343, TYPE S, SOFT COATED (a) AWG SIZE 22~~
9. ASSEMBLE FIND 3 & FIND 45 TO FIND 17 USING FIND 46

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 10 JUL 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. WITZAR
MIT APPROVAL
MIT APPROVAL C. S. 1/6/66

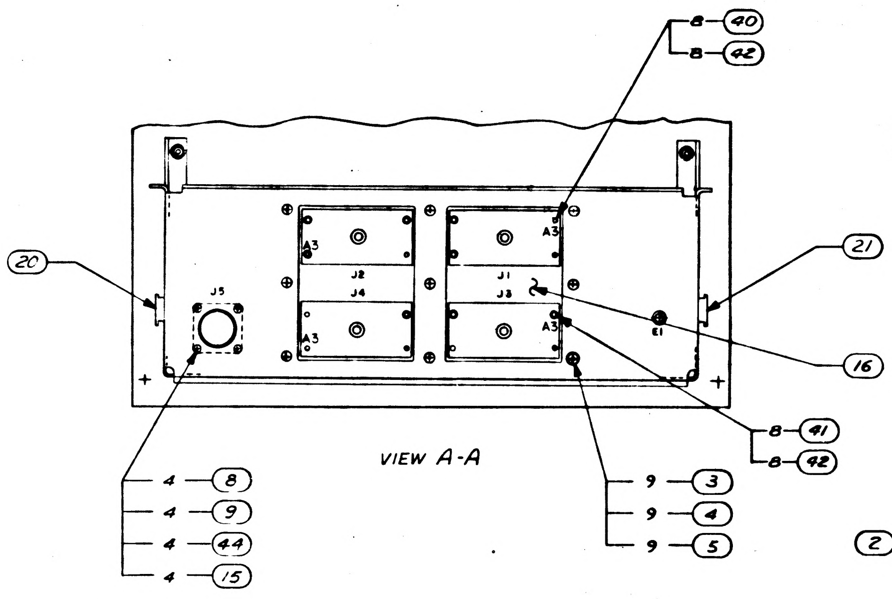
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

XY INTERFACE ASSY
COMPUTER TEST SET

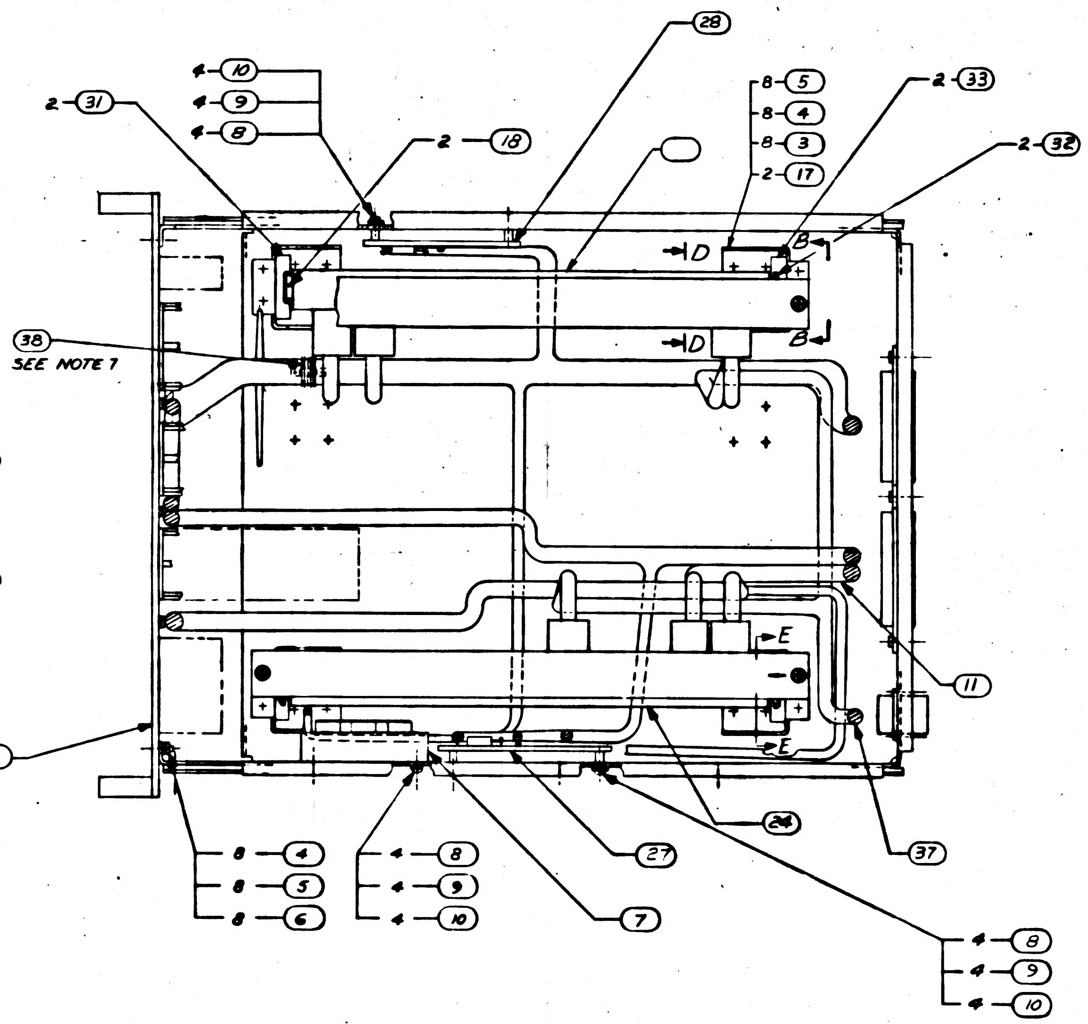
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014040
SCALE 1/2
WT
SHEET 1 OF 1

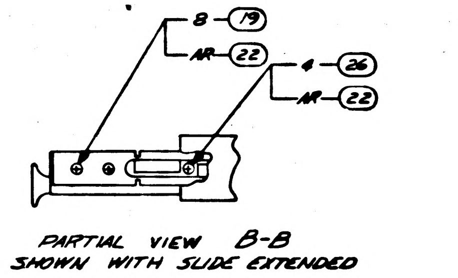
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25273	14	
1	CHANGED PER CCA R25458 DR CHK APPD	4/11/65	
—	CLASS B CHANGED PER CCAR25502		
A	CHANGED PER CCA R25549 & CLASS A RELEASED PER TDRR 25472	1/13/66	
B	CHANGED PER TDRR 26679 DR CHK APPD PED	7/4/66	
C	CHANGED PER TDRR 26694 DR CHK APPD PED		
D	CHANGED PER TDRR 26707 DR CHK APPD PED	25	

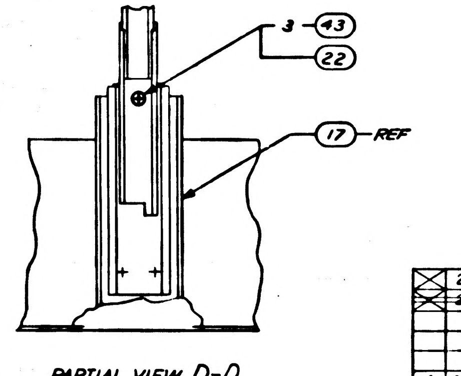


VIEW A-A

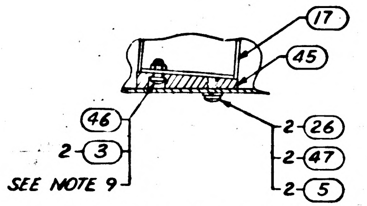




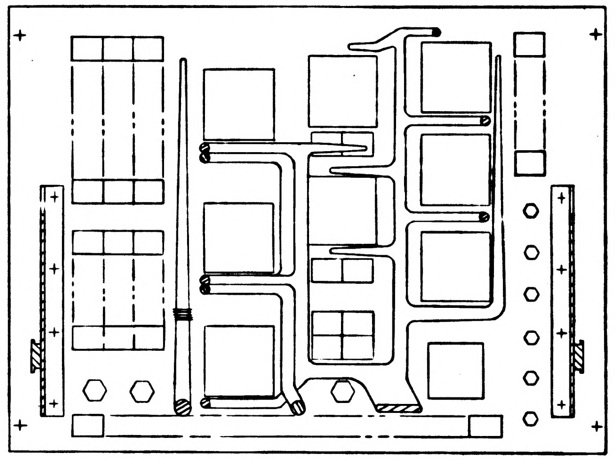
PARTIAL VIEW B-B
SHOWN WITH SLIDE EXTENDED



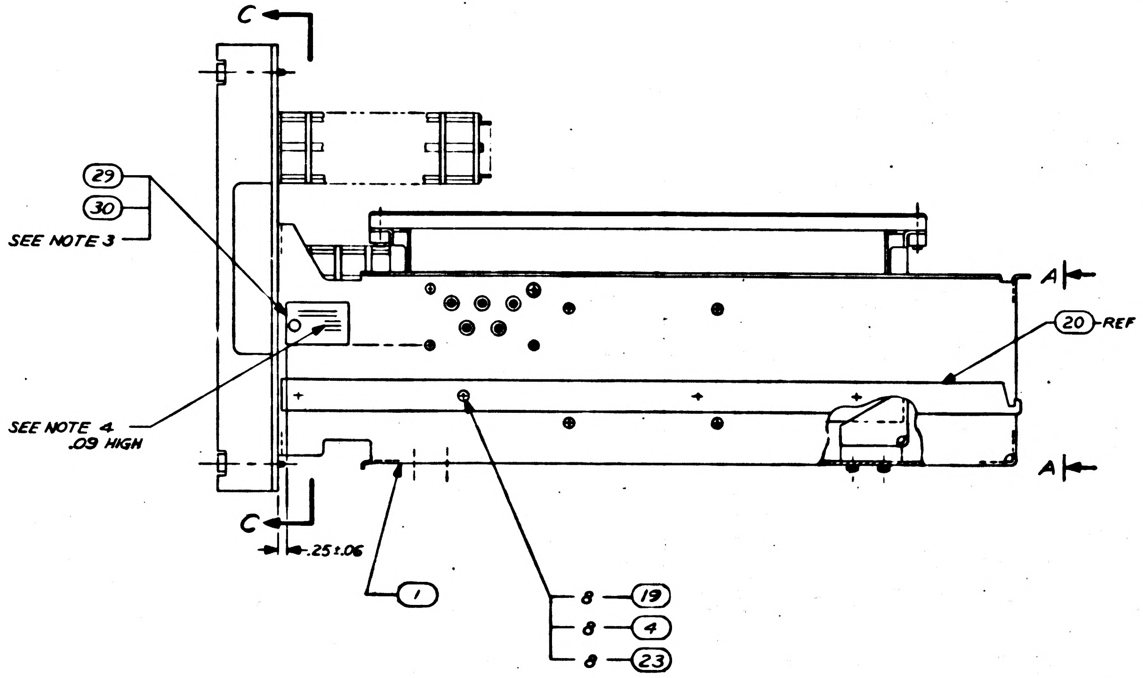
PARTIAL VIEW D-D
SHOWN WITH SLIDE EXTENDED
ROTATED 90°
4 PLACES
SCALE NONE



PARTIAL SECTION E-E
ROTATED 90° CCW
2 PLACES
SCALE NONE



SECTION C-C



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. BOND FIND NO. 29 TO FIND NO. 1 USING FIND NO. 30
4. SERIALIZE PER ND1002023
5. ○ INDICATES MALE GUIDE PIN
6. ◉ INDICATES FEMALE GUIDE SOCKET
7. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 38
8. ~~QQ-W-343 TYPE S, SOFT COATED (a) AWG SIZE 22~~
9. ASSEMBLE FIND 3 & FIND 45 TO FIND 17 USING FIND 46

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014179	SCHEMATIC	REF
☒	~~2014464~~	~~LEAD, ELEC~~	~~REF~~
4	MS15795-808	WASHER, FLAT	47
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	46
2	2016363	SPACER	45
4	MS51959-30	SCREW, FLAT HD	44
12	MS51959-43	SCREW, FLAT HD, CROSS-RECESSED	43
16	1006671-003	NUT, STOP	42
8	1006671-004	SOCKET, GUIDE	41
8	1006671-002	PIN, GUIDE	40
~~NOT SHOWN * 2.0~~	~~MIL-W-16878/4 EEE~~	~~WIRE, ELEC BLK~~	~~39~~
AR	1006458-004	TAPE, LACING	38
1	2014466-011	WIRING HARNESS, B	37
~~1~~	~~2014468-011~~	~~WIRING HARNESS, C~~	~~36~~
~~1~~	~~2014467-011~~	~~WIRING HARNESS, D~~	~~35~~
~~1~~	~~2014465-011~~	~~WIRING HARNESS, E~~	~~34~~
2	1006988-4	SLIDE, RH CABINET SECTION	33
2	1006988-2	SLIDE, RH CHASSIS SECTION	32
2	1006988-3	SLIDE, LH CABINET SECTION	31
AR	MIL-A-5092 TYPE II	ADHESIVE	30
1	1004260-236	NAMEPLATE	29
1	2014383-011	COMPONENT BD ASSY A3	28
1	2014381-011	COMPONENT BD ASSY A2	27
8	MS51957-43	SCREW, PAN HD, CROSS-RECESSED	[illegible]
1	2014378-011	LOGIC ASSY NO. 2	25
1	2014377-011	LOGIC ASSY NO. 1	24
8	MS21043-08	NUT, SELF-LOCKING	23
AR	MIL-S-22473 GRADE HV	SEALING COMPOUND	22
1	1006930-13	SLIDE, LH CHASSIS SECTION	21
1	1006930-12	SLIDE, RH CHASSIS SECTION	20
16	MS51959-46	SCREW, FLAT HD, CROSS-RECESSED	19
2	1006988-1	SLIDE, LH CHASSIS SECTION	18
4	1014255-2	BRACKET ASSY	17
1	2014349	PLATE, CONNECTOR	16
4	MS35649-64	NUT, HEX	15
~~NOT SHOWN * 24.0~~	~~1006776-21~~	~~SLEEVING, INSULATION~~	~~14~~
~~NOT SHOWN * 330~~	~~SEE NOTE 8~~	~~WIRE, ELEC~~	~~13~~
~~NOT SHOWN * 60.0~~	~~MIL-W-16878/4 EEE~~	~~WIRE, ELEC, WHT~~	~~12~~
1	2014469-011	WIRING HARNESS, A	11
12	MS51957-30	SCREW, PAN HD, CROSS-RECESSED	10
16	MS15795-806	WASHER, FLAT	9
16	MS35338-79	WASHER, LOCK	8
1	2014348-011	POT. BRKT ASSY A1	7
8	MS35649-84	NUT, HEX	6
29	MS35338-80	WASHER, LOCK	5
33	MS15795-807	WASHER, FLAT	4
21	MS51957-45	SCREW, PAN HD, CROSS-RECESSED	3
1	2014375-011	FRONT PANEL ASSY	2
1	2014380	CHASSIS	1

-011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014042		
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 10 JUL 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

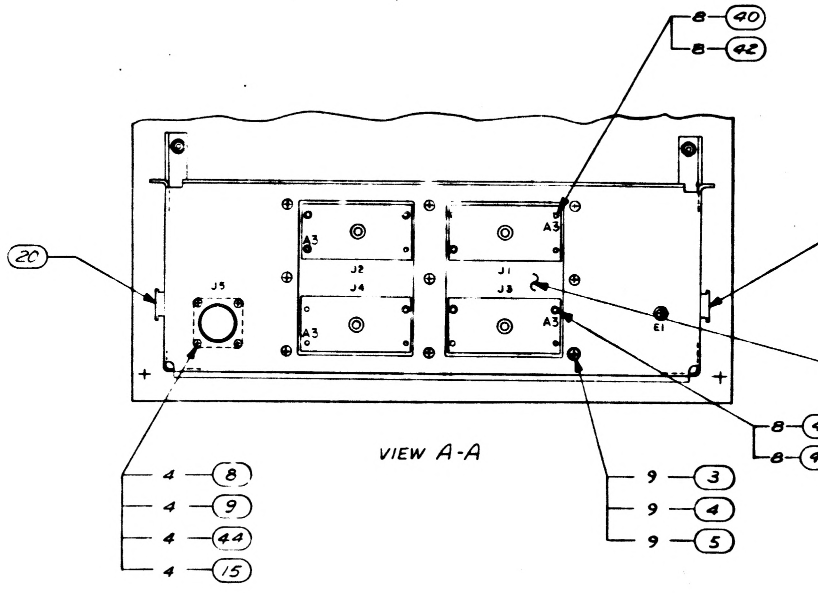
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

XY INTERFACE ASSY
COMPUTER TEST SET

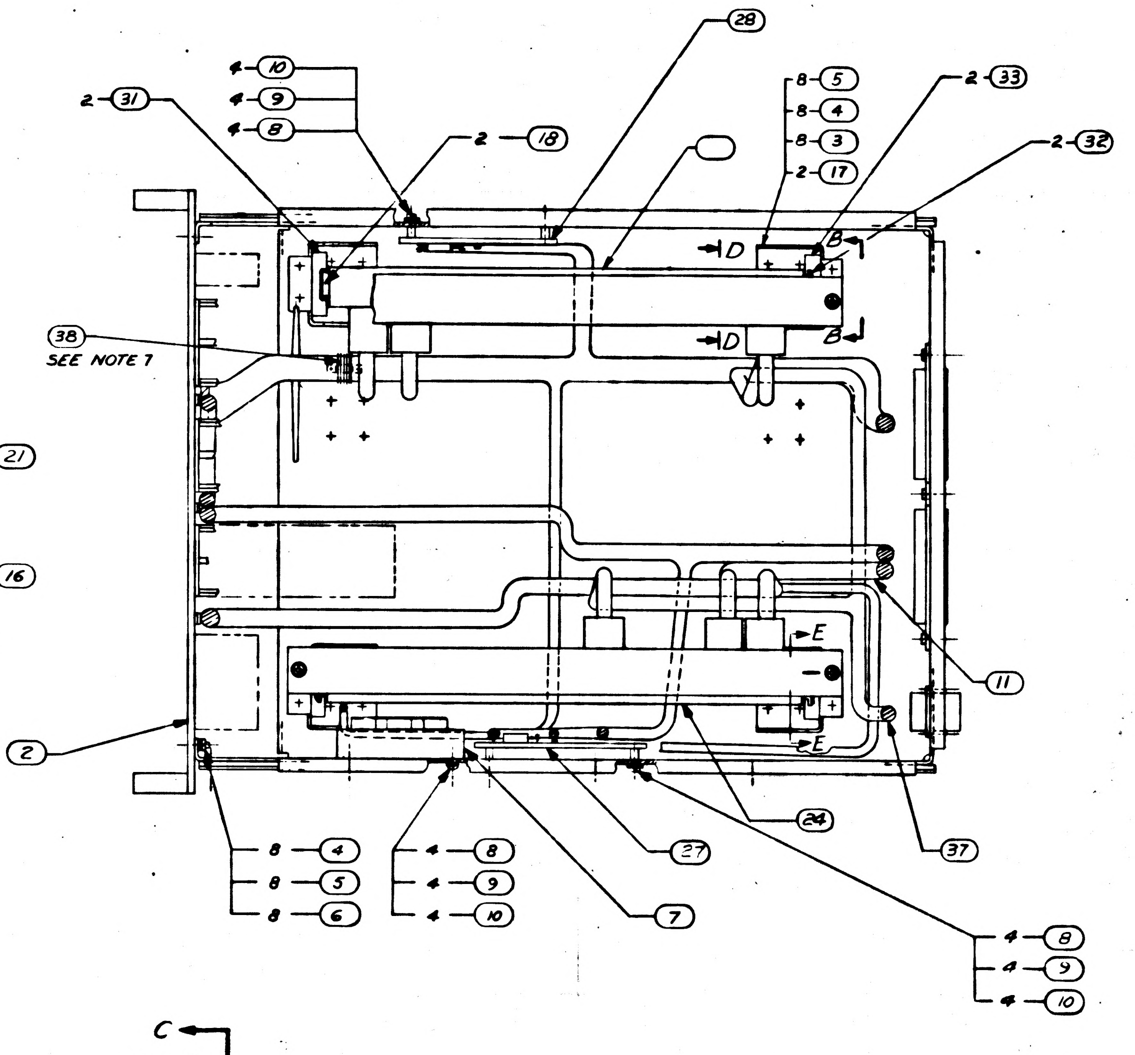
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014040
SCALE 1/2
WT
SHEET 1 OF 1

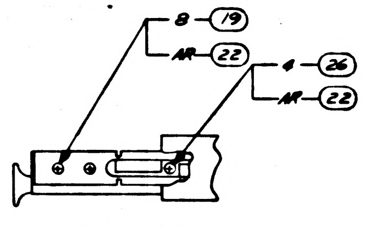
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25273	[illegible]	[illegible]
1	CHANGED PER CCA R25458 DR CHK APPD	8/11/65	
—	CLASS B CHANGED PER CCA R25562	[illegible]	
A	CHANGED PER CCA R25549 & CLASS A RELEASED PER TDRR 25472	1/14/66	
B	CHANGED PER TDRR 26679 DR CHK APPD PED	[illegible]/66	
C	CHANGED PER TDRR 26694 DR CHK APPD PED	[illegible] 66	
D	CHANGED PER TDRR 26707 DR CHK APPD PED	[illegible]	
E	CHANGED PER TDRR 27064 DR CHK C.D. APPD	5/14/66	

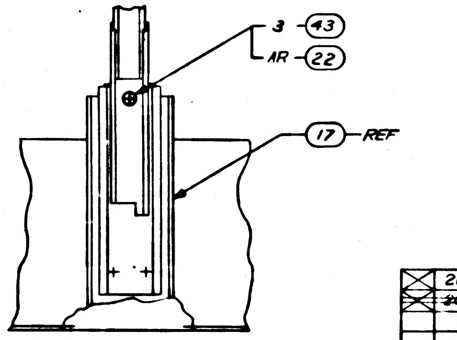


VIEW A-A

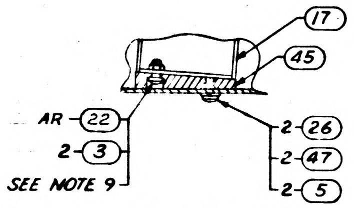




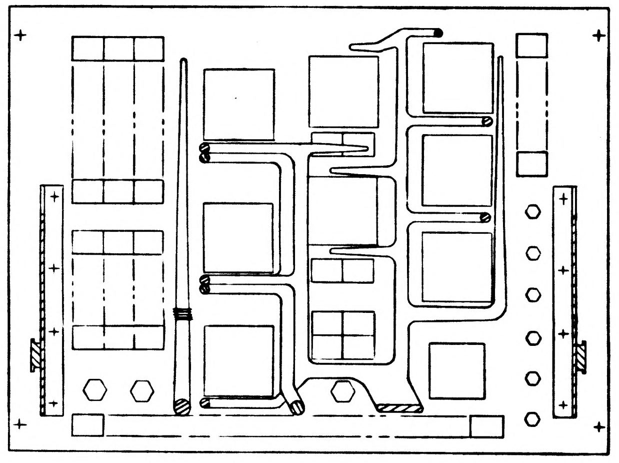
PARTIAL VIEW B-B
SHOWN WITH SLIDE EXTENDED



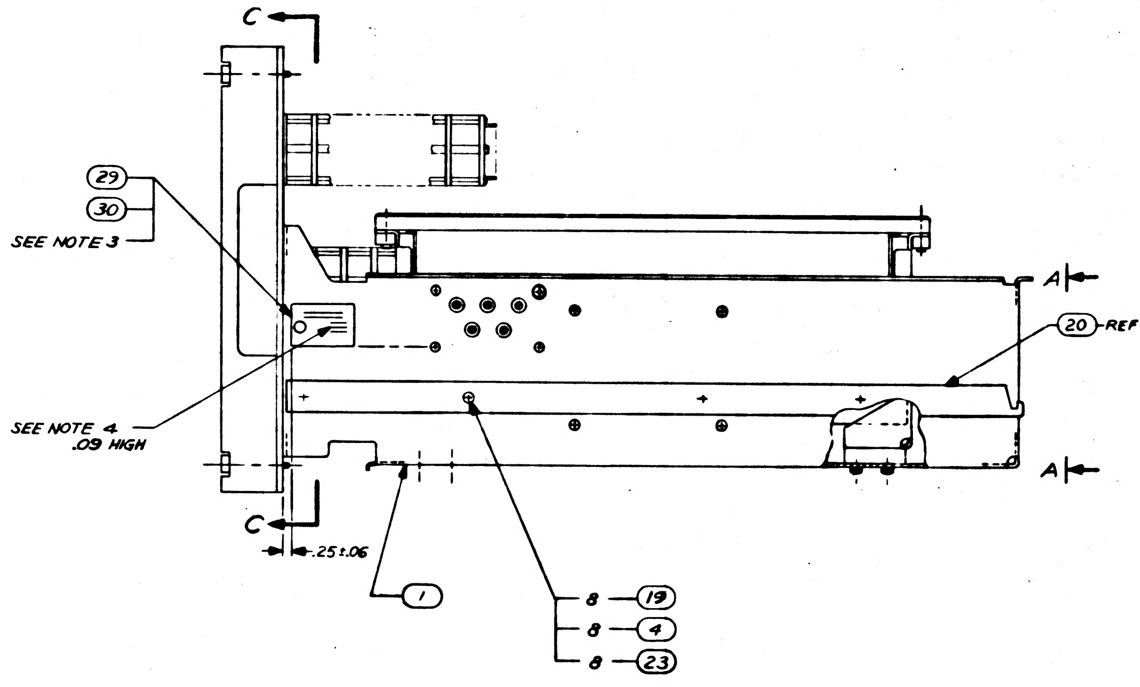
PARTIAL VIEW D-D
SHOWN WITH SLIDE EXTENDED
ROTATED 90°
4 PLACES
SCALE NONE



PARTIAL SECTION E-E
ROTATED 90° CCW
2 PLACES
SCALE NONE



SECTION C-C



NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. BOND FIND NO. 29 TO FIND NO. 1 USING FIND NO. 30
4. SERIALIZE PER ND1002023
5. ○ INDICATES MALE GUIDE PIN
6. ◉ INDICATES FEMALE GUIDE SOCKET
7. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 38
8. ~~QQ-W-343, TYPE S, SOFT COATED (a) AWG SIZE 22~~
9. ASSEMBLE FIND 3 & FIND 45 TO FIND 17 USING FIND 22

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014179	SCHEMATIC	REF
☒	~~2014464~~	~~LEAD, ELEC~~	~~REF~~
4	MS15795-808	WASHER, FLAT	47
~~AR~~	~~MIL-S-22473 GRADE HV~~	~~SEALING & RETAINING COMPOUND~~	~~46~~
2	2016363	SPACER	45
4	MS51959-30	SCREW, FLAT HD	44
12	MS51959-43	SCREW, FLAT HD, CROSS-RECESSED	43
16	1006671-003	NUT, STOP	42
8	1006671-004	SOCKET, GUIDE	41
8	1006671-002	PIN, GUIDE	40
~~NOT SHOWN * 2.0~~	~~MIL-W-16878/4 EEE~~	~~WIRE, ELEC BLK~~	~~39~~
AR	1006453-004	TAPE, LACING	38
1	2014466-011	WIRING HARNESS, B	37
~~1~~	~~2014468-011~~	~~WIRING HARNESS, C~~	~~36~~
~~1~~	~~2014467-011~~	~~WIRING HARNESS, D~~	~~35~~
~~1~~	~~2014465-011~~	~~WIRING HARNESS, E~~	~~34~~
2	1006988-4	SLIDE, RH CABINET SECTION	33
2	1006988-2	SLIDE, RH CHASSIS SECTION	32
2	1006988-3	SLIDE, LH CABINET SECTION	31
AR	MIL-A-5092 TYPE II	ADHESIVE	30
1	1004260-236	NAMEPLATE	29
1	2014383-011	COMPONENT BD ASSY A3	28
1	2014381-011	COMPONENT BD ASSY A2	27
8	MS51957-43	SCREW, PAN HD, CROSS-RECESSED	26
1	2014378-011	LOGIC ASSY NO. 2	25
1	2014377-011	LOGIC ASSY NO. 1	24
8	MS21043-08	NUT, SELF-LOCKING	23
AR	MIL-S-22473 GRADE HV	SEALING COMPOUND	22
1	1006930-13	SLIDE, LH CHASSIS SECTION	21
1	1006930-12	SLIDE, RH CHASSIS SECTION	20
16	MS51959-46	SCREW, FLAT HD, CROSS-RECESSED	19
2	1006988-1	SLIDE, LH CHASSIS SECTION	18
4	1014255-2	BRACKET ASSY	17
1	2014349	PLATE, CONNECTOR	16
4	MS35649-64	NUT, HEX	15
~~NOT SHOWN * 240~~	~~1006776-21~~	~~SLEEVING, INSULATION~~	~~14~~
~~NOT SHOWN * 330~~	~~SEE NOTE 8~~	~~WIRE, ELEC~~	~~13~~
~~NOT SHOWN * 60.0~~	~~MIL-W-16878/4 EE4~~	~~WIRE, ELEC, WHT~~	~~12~~
1	2014469-011	WIRING HARNESS, A	11
12	MS51957-30	SCREW, PAN HD, CROSS-RECESSED	10
16	MS15795-806	WASHER, FLAT	9
16	MS35338-79	WASHER, LOCK	8
1	2014348-011	POT. BRKT ASSY A1	7
8	MS35649-84	NUT, HEX	6
29	MS35338-80	WASHER, LOCK	5
33	MS15795-807	WASHER, FLAT	4
21	MS51957-45	SCREW, PAN HD, CROSS-RECESSED	3
1	2014375-011	FRONT PANEL ASSY	2
1	2014380	CHASSIS	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 JUL 65
CHECKED
APPROVAL 5 Oct 65
APPROVAL D. [illegible] 10/5/65
APPROVAL
NASA APPROVAL A. C. [illegible]
MIT APPROVAL
MIT APPROVAL 4/14/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

XY INTERFACE ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014040
SCALE 1/2
WT
SHEET 1 OF 1

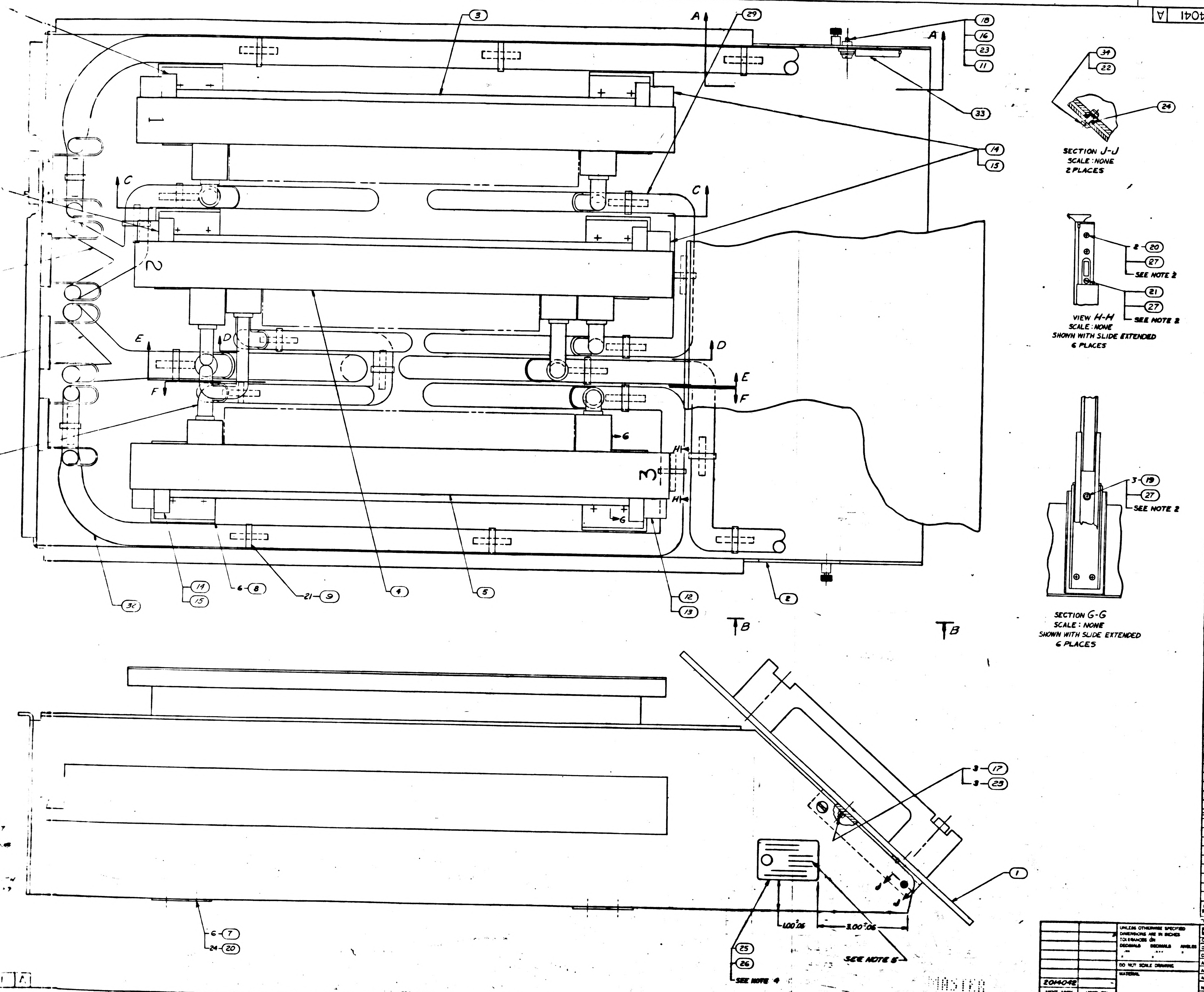
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014040 E

2014041	A

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160	9/10/65	[illegible]
1	CHANGED PER CCA R25379 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R255[illegible]	[illegible]	[illegible]
A	CHANGED PER CCA R25570 AND CLASS A RELEASED PER TDRR 25472	1/25/66	[illegible]



A
A
C
C
D
D
E
E
F
F
H
H
B
B
1
2
3
9
29
18
16
23
11
33
14
15
34
22
24
SECTION J-J
SCALE : NONE
2 PLACES
2-20
27
SEE NOTE 2
21
27
SEE NOTE 2
VIEW H-H
SCALE : NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES
3-19
27
SEE NOTE 2
SECTION G-G
SCALE : NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES
6
6
30
14
15
6-8
21-9
4
5
12
13
2
3-17
3-23
1
6-7
24-20
25
26
SEE NOTE 4
SEE NOTE 5
1.00±.06
2.00±.06

☒	2014160	INTERCONN DIAGRAM	REF
16	1006671-003	NUT, STOP	37
8	1006671-004	GUIDE SOCKET	36
8	1006671-002	GUIDE PIN	35
2	MS51957-31	SCREW, PAN HD CROSS REC	34
1	2014238-011	GROUND STRAP	33
1	2014167-011	CABLE ASSY W5	32
1	2014166-011	CABLE ASSY W4	31
1	2014165-011	CABLE ASSY W3	30
1	2014164-011	CABLE ASSY W2	29
1	2014163-011	CABLE ASSY W1	28
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	27
AR	MIL-A-5092 TYPE II	CEMENT	26
1	1004260-231	NAMEPLATE	25
2	1006982-5	WASHER, NYLON	24
5	MS15795-808	WASHER, FLAT	23
2	MS15795-806	WASHER, FLAT	22
6	MS51957-46	SCREW, PAN HD CROSS REC	21
36	MS51959-42	SCREW, FLATHD CROSS REC	20
18	MS51959-43	SCREW, FLAT HD CROSS REC	19
1	MS51958-64	SCREW, PAN HD, CROSS REC	18
4	MS21044-C3	NUT, SELF LOCKING, HEX	17
1	MS35338-81	WASHER, LOCK	16
3	1006988-4	SLIDE, CHASSIS	15
3	1006988-2	SLIDE, CHASSIS	14
3	1006988-3	SLIDE, CHASSIS	13
3	1006988-1	SLIDE, CHASSIS	12
2	MS35335-60	WASHER, LOCK EXT TOOTH	11
~~1~~	~~MS15795-808~~	~~WASHER, FLAT~~	~~10~~
31	MS17821-1-9	STRAP, CABLE	9
6	1014255-2	BRACKET ASSY	8
6	1020231	PLATE, SCREW SUPPORT	7
2	2014347	BRACKET, ANGLE	6
1	2014336-011	LOGIC PLATE ASSY NO.3	5
1	2014315-011	LOGIC PLATE ASSY NO.2	4
1	2014352-011	LOGIC PLATE ASSY NO.1	3
1	2014346	CHASSIS	2
1	2014231-011	PANEL ASSY, PROGRAMMER & MONITOR	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014042	–

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 28 JUN 65
CHECKED [illegible] 19 AUG 65
APPROVAL [illegible] 21 Aug 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/24/66

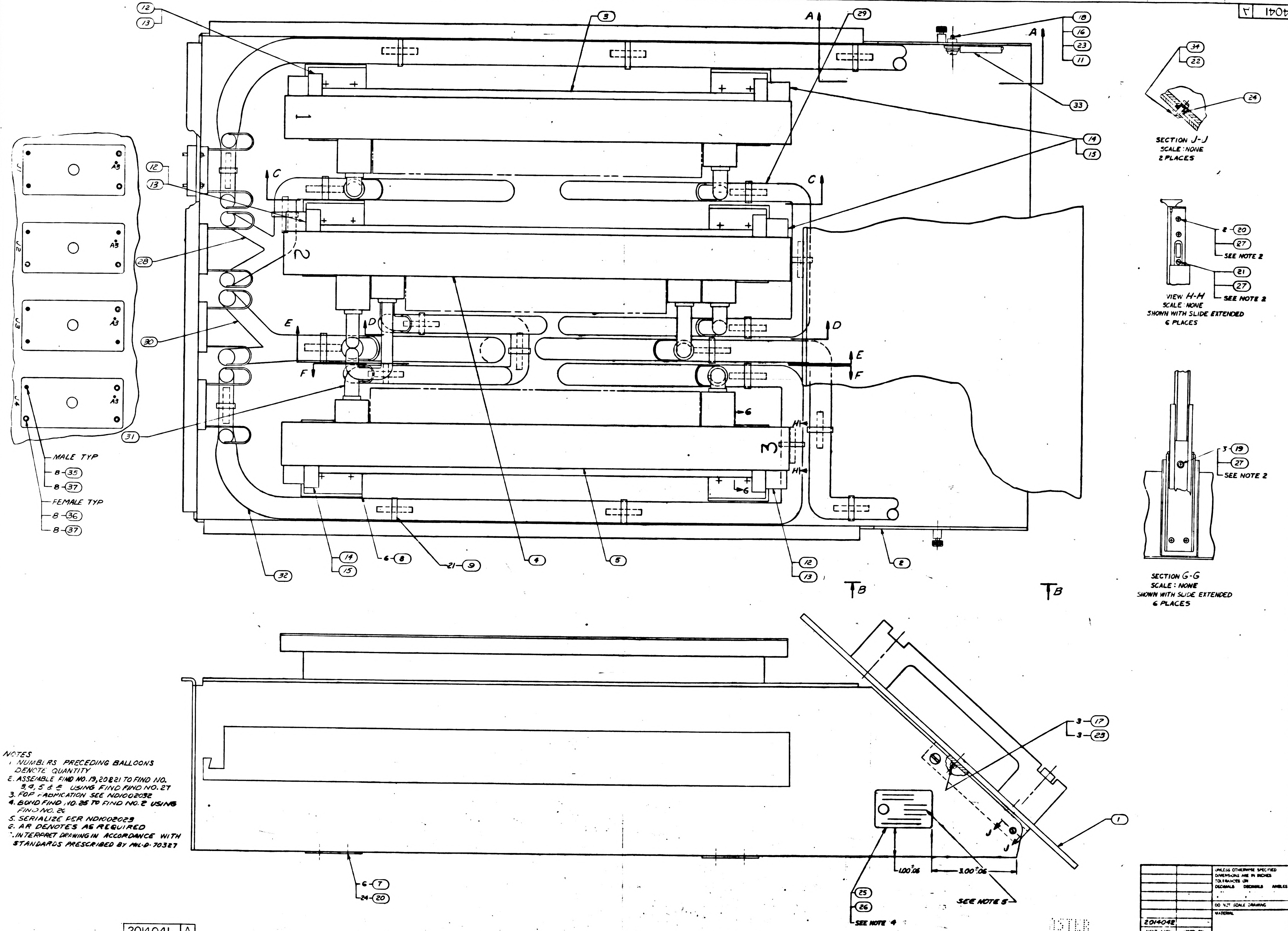
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014041
SCALE 1/1
WT
SHEET 1 OF 2

2014041 A

F2/2


1
2
3
A
C
D
E
F
H
J
B
12
13
3
29
18
16
23
11
33
14
15
28
30
31
MALE TYP
8-35
8-37
FEMALE TYP
8-36
8-37
J1
J2
J3
J4
A3
6
32
14
15
6-8
21-9
4
5
12
13
2
34
22
24
SECTION J-J
SCALE: NONE
2 PLACES
2-20
27
SEE NOTE 2
21
27
SEE NOTE 2
VIEW H-H
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES
3-19
27
SEE NOTE 2
SECTION G-G
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES
3-17
3-23
1
1.00±.06
3.00±.06
SEE NOTE 5
25
26
SEE NOTE 4
6-7
24-20

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE FIND NO. 19, 20 & 21 TO FIND NO. 3, 4, 5 & 6 USING FIND FIND NO. 27
3. FOR FABRICATION SEE ND1002032
4. BOND FIND NO. 25 TO FIND NO. 2 USING FIND NO. 26
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	
0	RELEASE
1	CHANGED DF [illegible]
–	CLASS
A	[illegible] CLASS A

QTY REQD	PART OR IDENTIFYING NO.
☒	2014160
16	10 6671-003
8	10 5671-004
8	10 4671-002
2	MS51957-31
1	2014238-011
1	2014167-011
1	2014166-011
1	2014165-011
1	2014164-011
1	2014163-011
AR	MIL-S-22473
AR	MIL-A-5092 TYPE
1	K04260-231
2	1006982-5
5	MS15795-803
2	MS15795-806
6	MS51957-40
36	MS51959-42
18	MS51959-43
1	MS51959-64
4	MS21044-3
	MS35335-81
3	1006988-4
3	1006988-2
3	1006988-3
3	1006988-1
2	MS35335-50
	~~MS15795-808~~
	MS[illegible]321-[illegible]
	10[illegible]255-2
6	1020231
2	2014347
1	2014336-011
1	2014315-011
	2014352-011
1	2014[illegible]46
	2014231-011

-011

2014042	
NEXT ASSY	USED ON
APPLICATION	

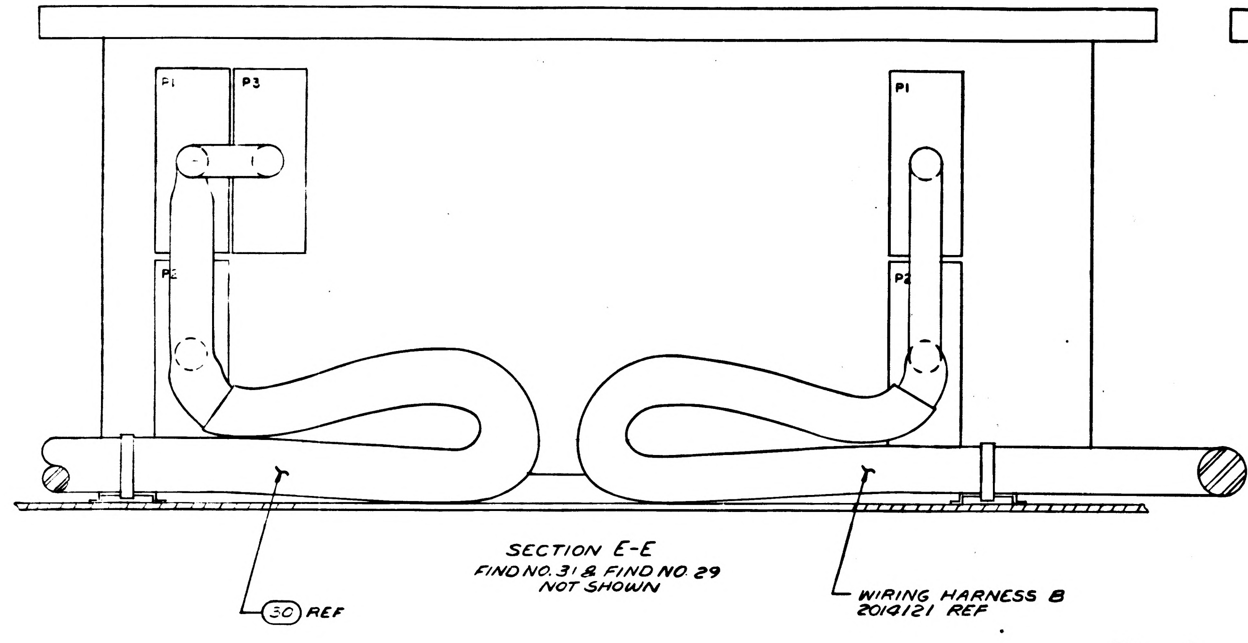
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING

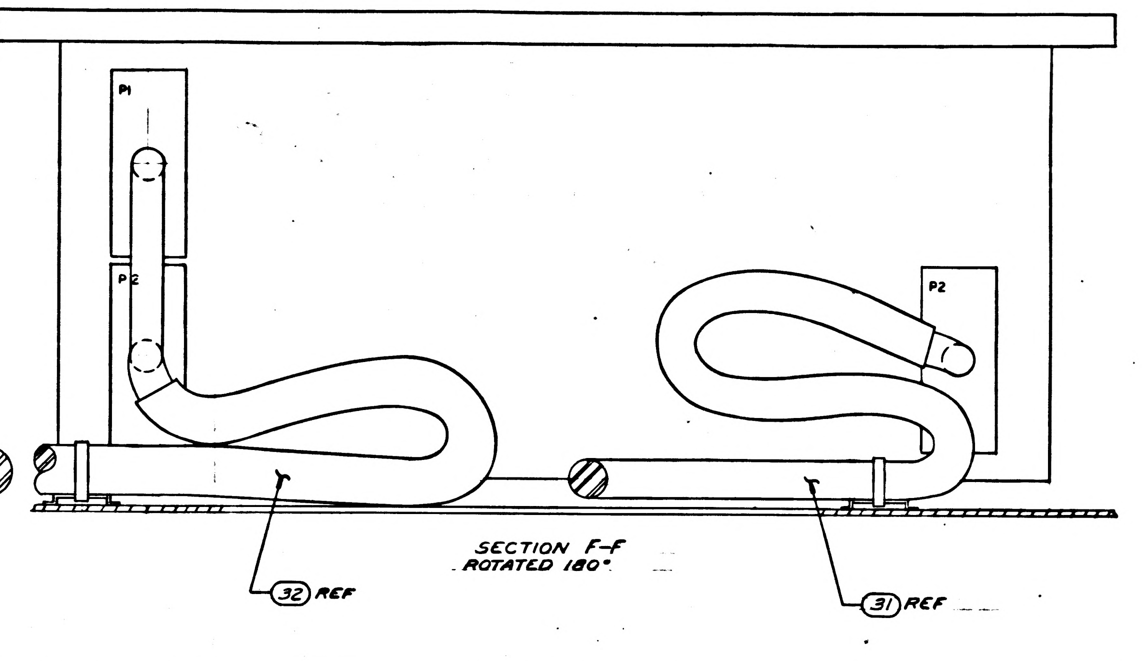
MATERIAL

RAYTHEON CO
LEXINGTON MASS
CONTRACT [illegible]
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 13 Aug 65
APPROVAL [illegible] 21 Aug 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROV [illegible]
MIT APPROV [illegible]
MIT APPROV [illegible]

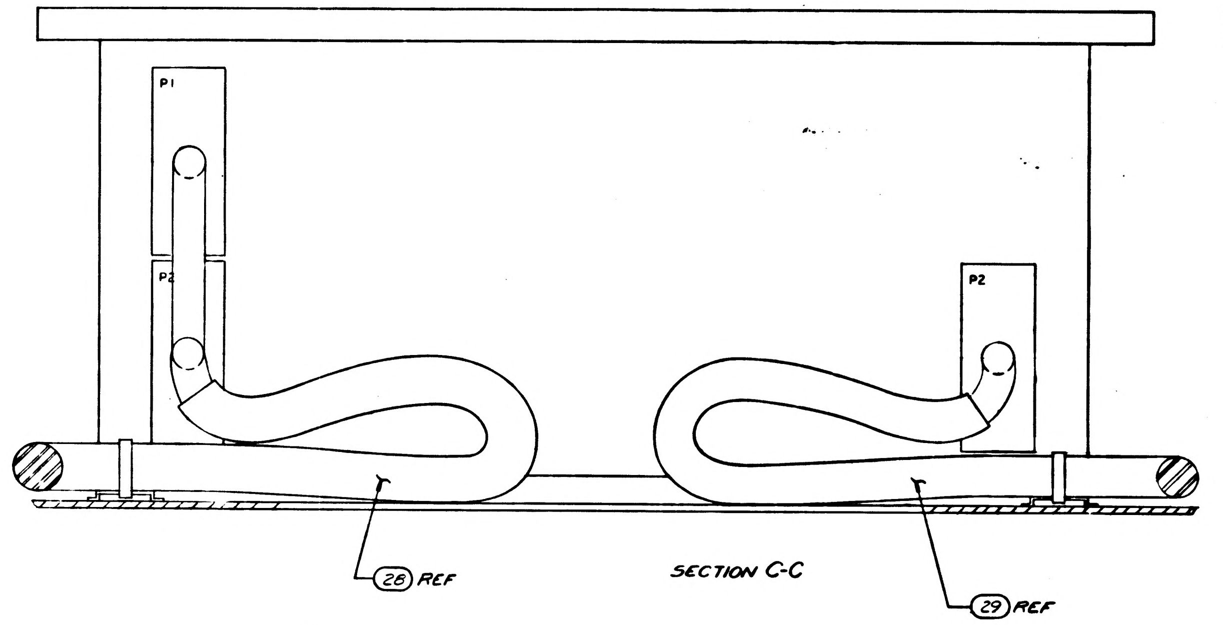
SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25160		
1	CHANGED PER CCA R25379 DR [illegible] CHK [illegible] APPD [illegible]	4/10/[illegible]	[illegible]
–	CLASS 3 CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25570 AND CLASS A RELEASED PER TDRP 29472	[illegible]/66	[illegible]


P1
P3
P2
P1
P2
30 REF
WIRING HARNESS B
2014121 REF

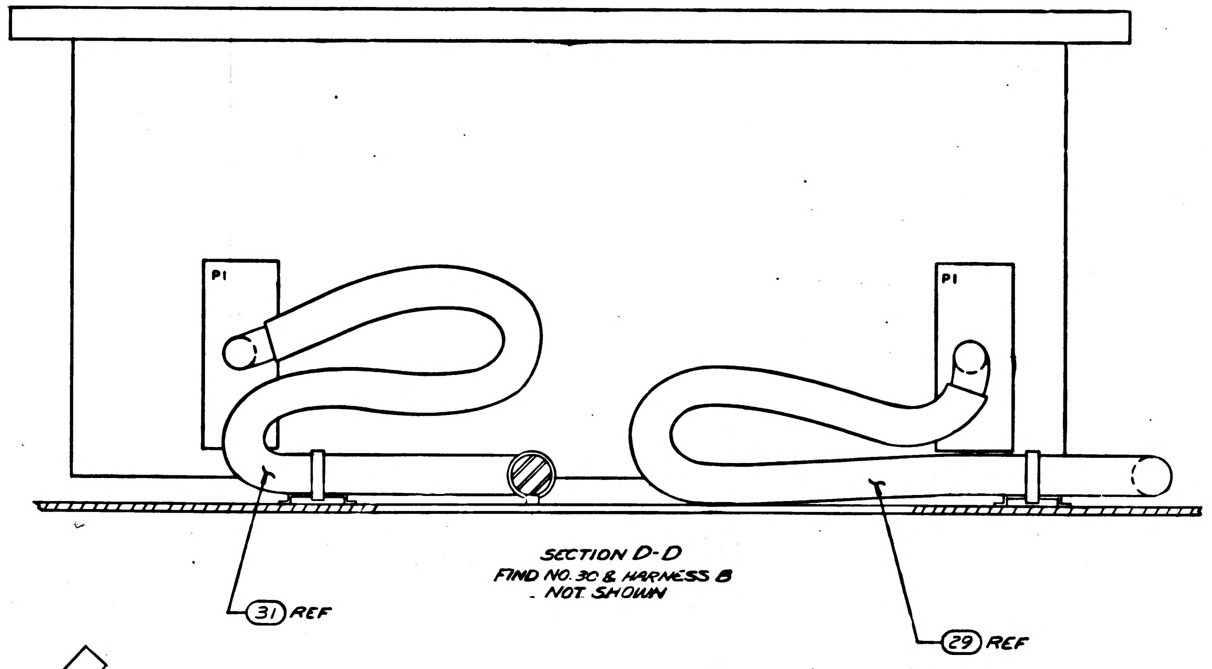
SECTION E-E
FIND NO. 31 & FIND NO. 29
NOT SHOWN


P1
P2
P2
32 REF
31 REF

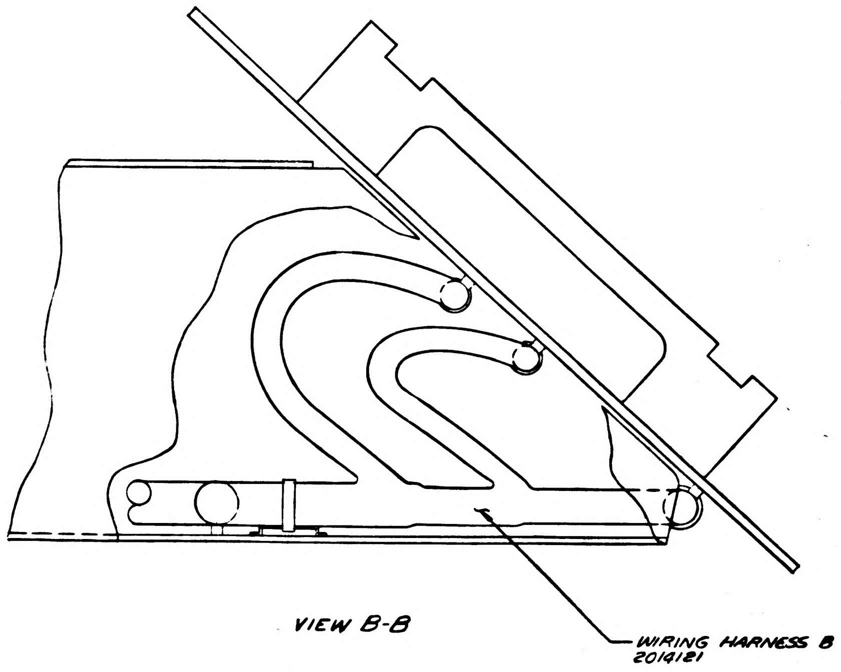
SECTION F-F
ROTATED 180°


P1
P2
P2
28 REF
29 REF

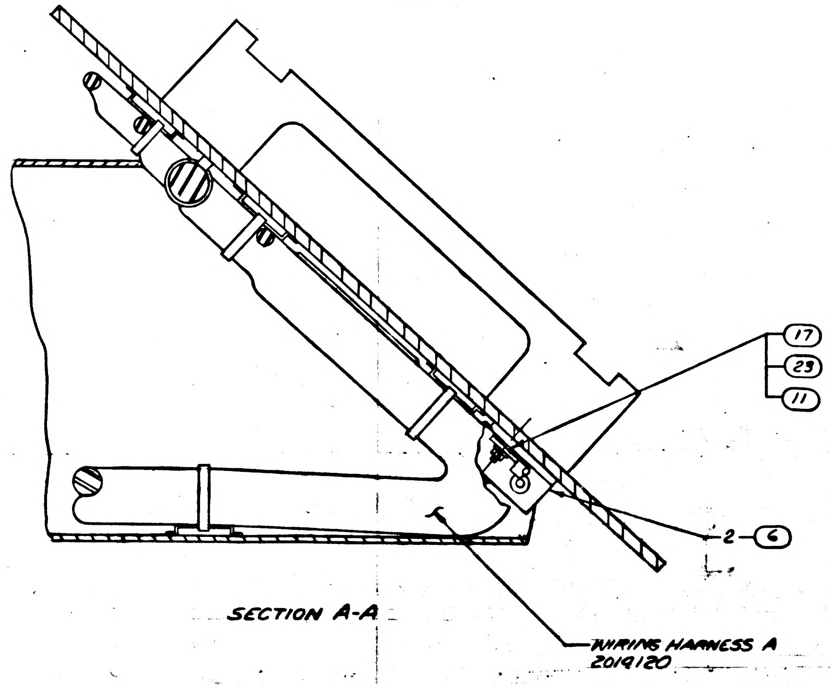
SECTION C-C


P1
P1
31 REF
29 REF

SECTION D-D
FIND NO. 30 & HARNESS B
NOT SHOWN


WIRING HARNESS B
2014121

VIEW B-B


17
29
11
2
6
WIRING HARNESS A
2019120

SECTION A-A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS [illegible]
DRAWN [illegible] DATE 19 Jul 65
CHECKED B.Y. [illegible] 13 AUG 65
APPROVAL [illegible] 21 AUG 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
PROGRAMMER & MONITOR
COMPUTER TEST SET

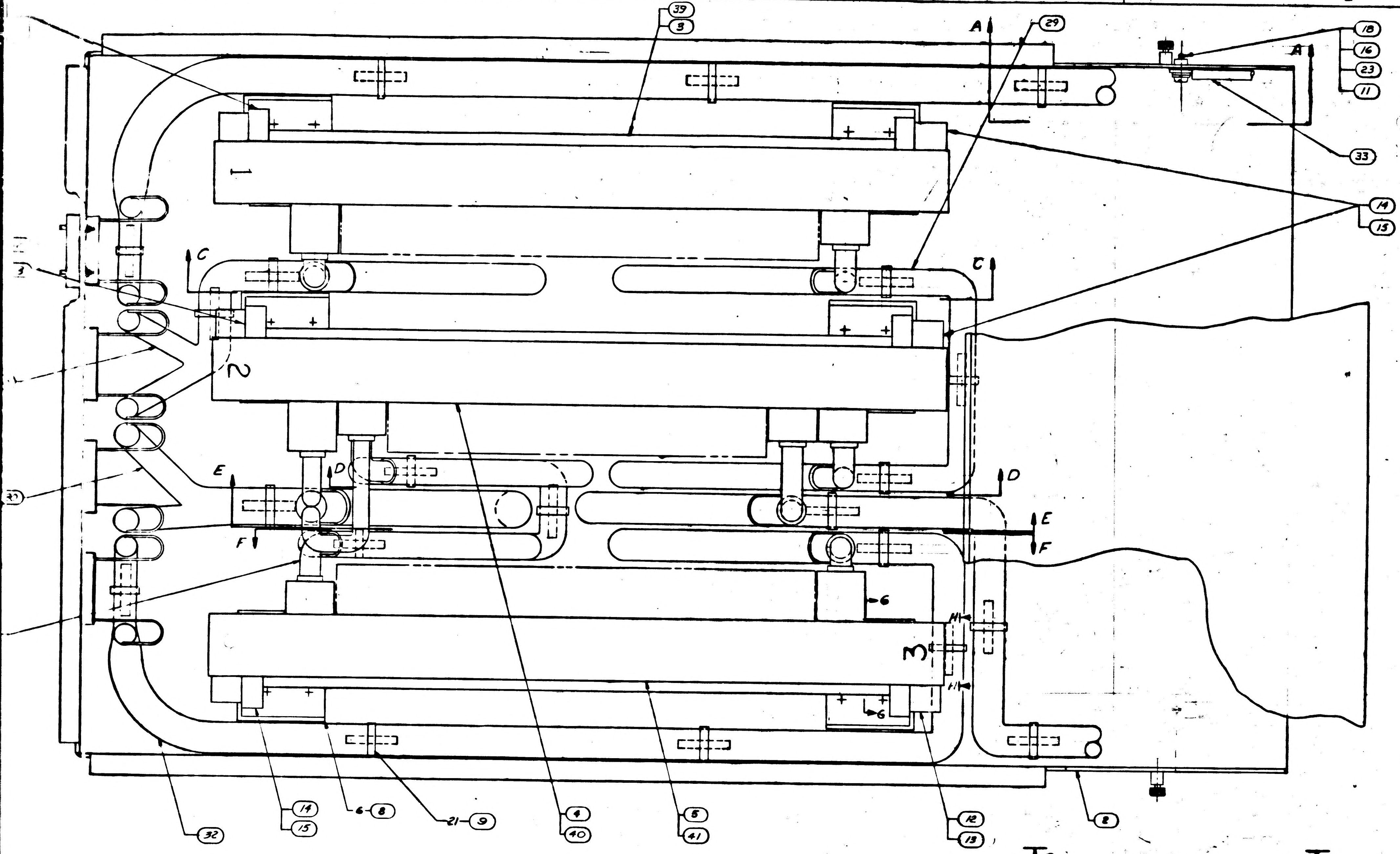
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014041
SCALE 1/1
WT
SHEET 2 OF 2

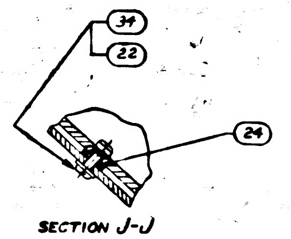
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

2014041	B

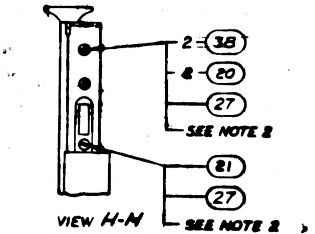
REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160	9/1/65	[illegible]
1	CHANGED PER CCA R25579 DR [illegible] CHK [illegible] APPD [illegible]	4/1/66	[illegible]
–	CLASS B CHANGED PER CCA R25502	1/1/65	[illegible]
A	CHANGED PER CCA R25570 AND CLASS A RELEASED PER TDRR 25572	1/5/66	[illegible]
B	CHANGED PER TDRR 28097 DR [illegible] CHK [illegible] APPD [illegible]	5/3/66	[illegible]

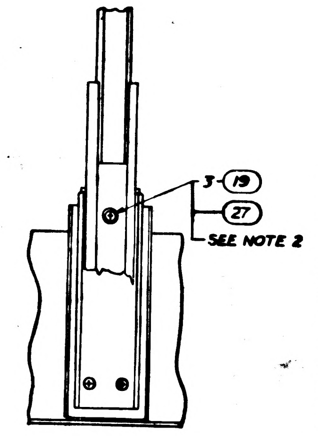




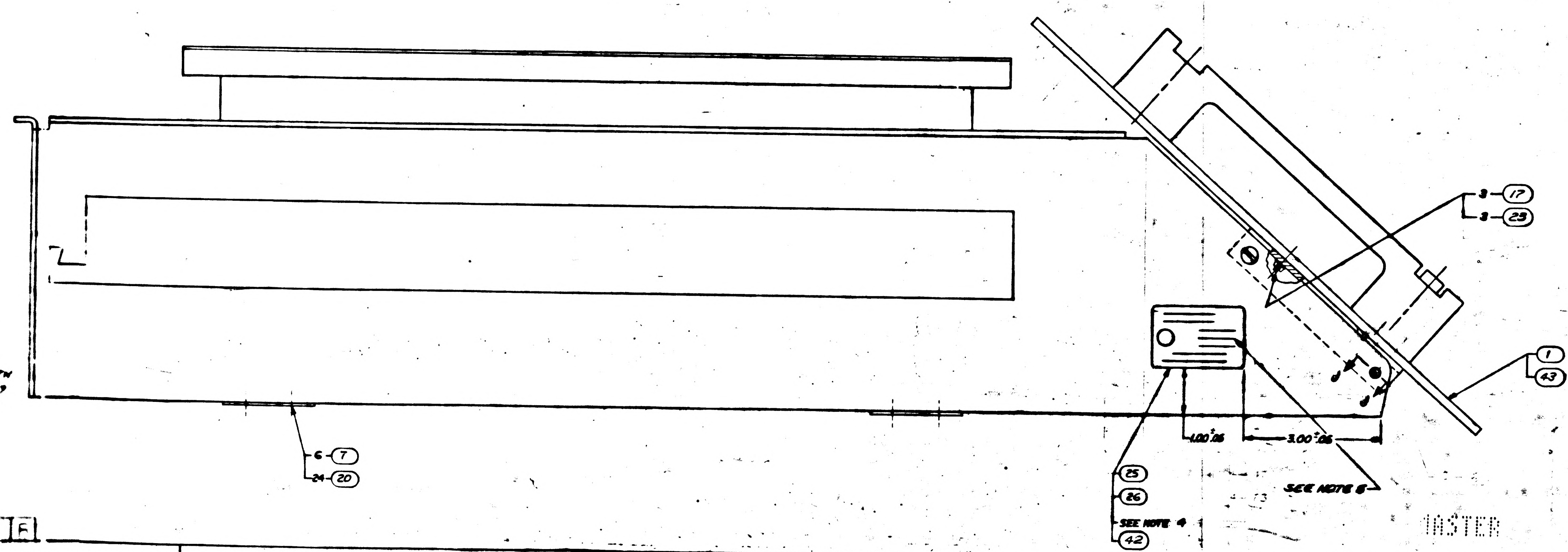
SECTION J-J
SCALE: NONE
2 PLACES



VIEW H-H
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES



SECTION G-G
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES



QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	F N
☒	–	2016420	INTERCONN DIAGRAM	REF
–	☒	2014160	INTERCONN DIAGRAM	REF
1	–	2014231-021	PANEL ASSY P & M	43
1	–	1004260-262	NAMEPLATE	42
1	–	2014336-021	LOGIC PLATE ASSY NO. 3	41
1	–	2014315-021	LOGIC PLATE ASSY NO. 2	40
1	–	2014352-021	LOGIC PLATE ASSY NO. 1	39
12	–	MS51959-46	SCREW, FLAT HD CROSS REC	38
16	16	1006671-003	NUT, STOP	37
8	8	1006671-004	GUIDE SOCKET	36
8	8	1006671-002	GUIDE PIN	35
2	2	MS51957-31	SCREW, PAN HD CROSS REC	34
1	1	2014238-011	GROUND STRAP	33
1	1	2014167-011	CABLE ASSY W5	32
1	1	2014166-011	CABLE ASSY W4	31
1	1	2014165-011	CABLE ASSY W3	30
1	1	2014164-011	CABLE ASSY W2	29
1	1	2014163-011	CABLE ASSY W1	28
AR	AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	27
AR	AR	MIL-A-5092 TYPE II	CEMENT	26
–	1	1004260-231	NAMEPLATE	25
2	2	1006982-5	WASHER, NYLON	24
5	5	MS15795-808	WASHER, FLAT	23
2	2	MS15795-806	WASHER, FLAT	22
6	6	MS51957-46	SCREW, PAN HD CROSS REC	21
24	36	MS51959-42	SCREW, FLATHD CROSS REC	20
18	18	MS51959-43	SCREW, FLAT HD CROSS REC	19
1	1	MS51958-64	SCREW, PAN HD, CROSS REC	18
4	4	MS21044-C3	NUT, SELF LOCKING, HEX	17
1	1	MS35338-81	WASHER, LOCK	16
3	3	1006988-4	SLIDE, CHASSIS	15
3	3	1006988-2	SLIDE, CHASSIS	14
3	3	1006988-3	SLIDE, CHASSIS	13
3	3	1006988-1	SLIDE, CHASSIS	12
2	2	MS35335-60	WASHER, LOCK EXT TOOTH	11
~~–~~	~~1~~	~~[illegible]~~	~~WASHER, FLAT~~	~~10~~
21	21	MS17821-1-9	STRAP, CABLE	9
6	6	1014255-2	BRACKET ASSY	8
6	6	1020231	PLATE, SCREW SUPPORT	7
2	2	2014347	BRACKET, ANGLE	6
–	1	2014336-011	LOGIC PLATE ASSY NO. 3	5
–	1	2014315-011	LOGIC PLATE ASSY NO. 2	4
–	1	2014352-011	LOGIC PLATE ASSY NO. 1	3
1	1	2014346	CHASSIS	2
–	1	2014231-011	PANEL ASSY, PROGRAMMER & MONITOR	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014042	–

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 20 JUN 65
CHECKED [illegible] 19 AUG 65
APPROVAL H. Moore 21 AUG 65
APPROVAL [illegible]
APPROVAL [illegible] 2-10-65
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

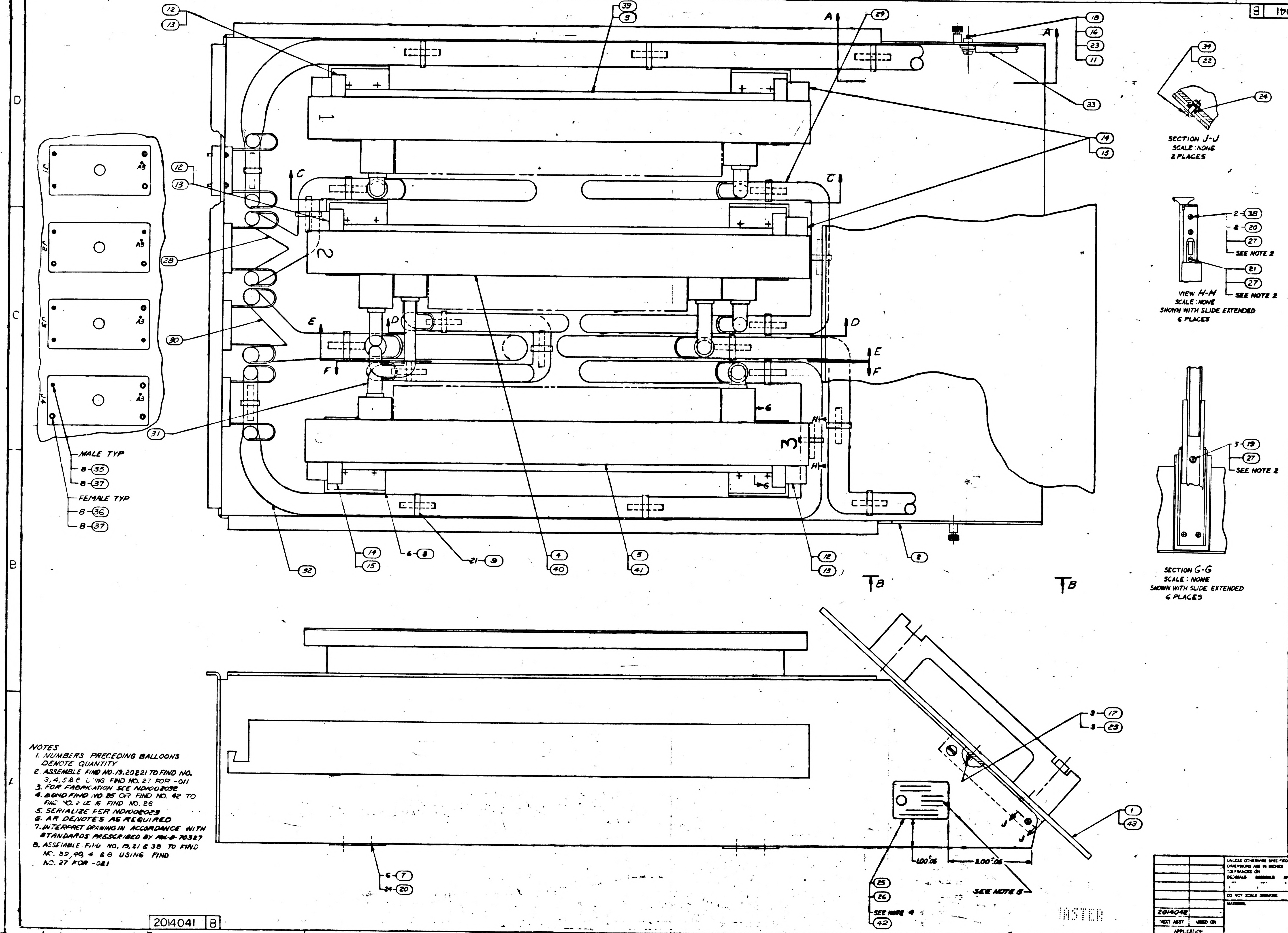
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014041
SCALE 1/1 WT – SHEET 1 OF 2

MASTER

F 2 / 2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SECTION J-J
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2 PLACES
A
C
D
E
F
1
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28
30
31
J1
J2
J3
J4
A3
MALE TYP
8-35
8-37
FEMALE TYP
8-36
8-37
2-38
2-20
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SEE NOTE 2
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VIEW H-H
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES
3-19
SECTION G-G
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES
32
6-8
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41
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B
3-17
3-23
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43
6-7
24-20
1.00 .06
3.00 .06
25
26
SEE NOTE 4
42
SEE NOTE 5
MASTER

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE FIND NO. 19, 20 & 21 TO FIND NO. 3, 4, 5 & 6 USING FIND NO. 27 FOR -011
3. FOR FABRICATION SEE ND1002092
4. BOND FIND NO. 25 OR FIND NO. 42 TO FIND NO. 2 USE 16 FIND NO. 26
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. ASSEMBLE FIND NO. 19, 21 & 38 TO FIND NO. 39, 40, 4 & 8 USING FIND NO. 27 FOR -021

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—	CLASS B CH
A	CHANGED D CLASS A RE
B	CHANGED D DR C

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—	☒	2014160	IN
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1	—	2014335-021	LO
1	—	201431 -021	LO
1	—	2014352-021	LO
12	—	MS51959-46	SC
16	16	1006671-003	NU
8	8	1006671-004	GU
8	8	1006671-002	GU
2	2	MS51957-31	SC
1	1	2014239-011	CR
1	1	2014167-011	CA
1	1	2014166-011	CA
1	1	2014165-011	CA
1	1	2014164-011	CA
1	1	2014163-011	CA
AR	AR	MIL-S-22473 GRADE AV	SEA
AR	AR	MIL-A-5092 TYPE II	CE
—	1	1004260-231	NAM
2	2	1006982-5	WAS
5	5	MS15795-808	WAS
2	2	MS15795-806	WAS
6	6	MS51957-46	SCRE
24	36	MS51959-42	SCRE
18	18	MS51959-43	SCRE
1	1	MS51957-64	SCR
4	4	MS21044-C3	NUT,
1	1	MS35339-81	WA
3	3	1006988-4	SL
3	3	1006988-2	SLI
3	3	1006988-3	SLI
3	3	1006988-1	SLI
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6	6	1014255-2	BRA
6	6	1080231	PLAT
2	2	2014347	BRA
—	1	2014336-011	LUG
—	1	2014315-011	LUG
—	1	2014352-011	LUG
1	1	2014346	
—	1	2014231-011	PAN
-021	-011		LIST OF

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS FRACTIONS ANGLES

DO NOT SCALE DRAWING

MATERIAL

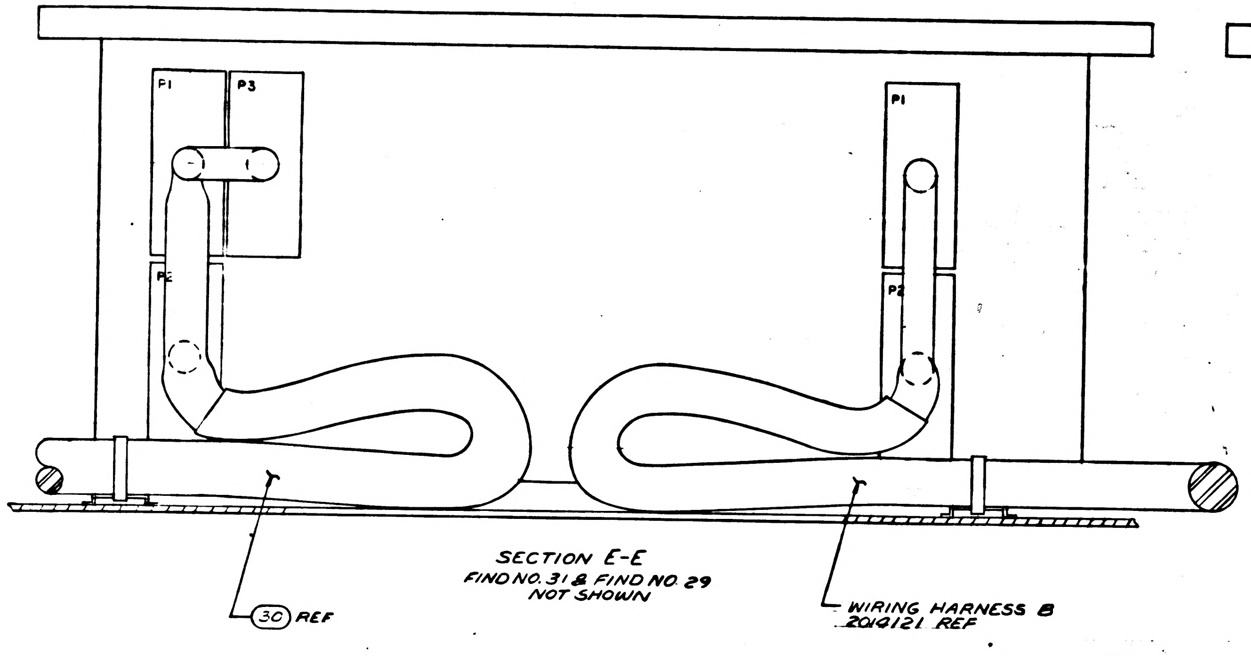
RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-4 7
DRAWN
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

49956
SCALE 1/1

2014041 B

SH1/2 F1/2

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25160	3/4/65	[illegible]
1	CHANGED PER CCA R25379 DR [illegible] CHK [illegible] APPD [illegible]	4/10/65	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25570 AND CLASS A RELEASED PER TDRR 25972	1/15/66	[illegible]
B	CHANGED PER TDRR 28097 DR [illegible] CHK [illegible] APPD [illegible]	5/3/66	[illegible]


P1
P3
P2
P1
P2
30 REF
WIRING HARNESS B
2014121 REF

SECTION E-E
FIND NO. 31 & FIND NO. 29
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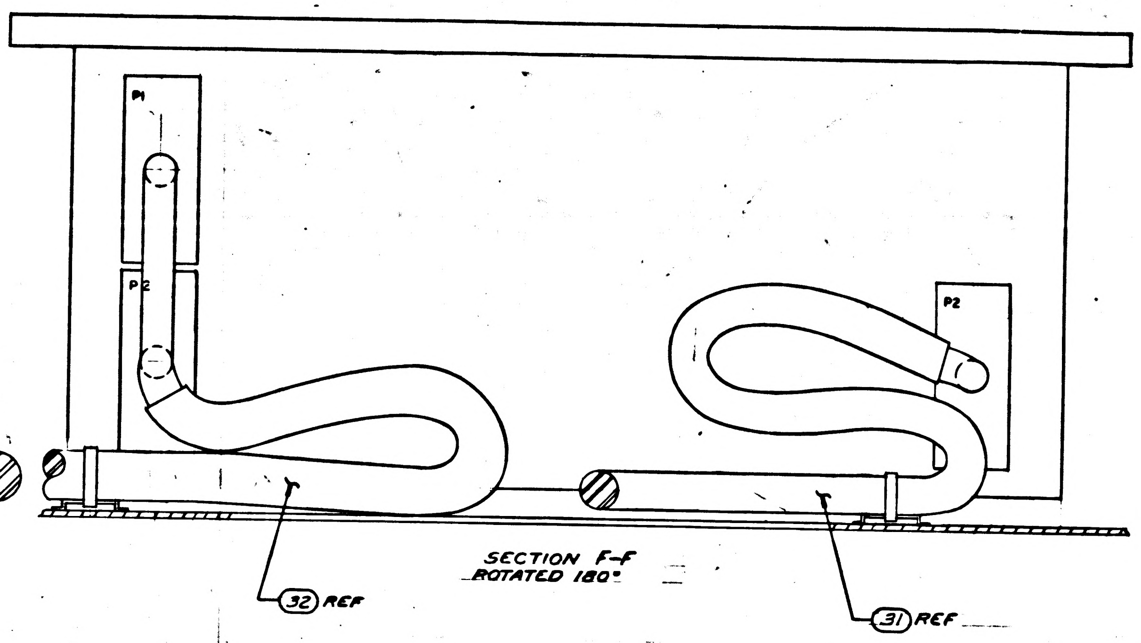
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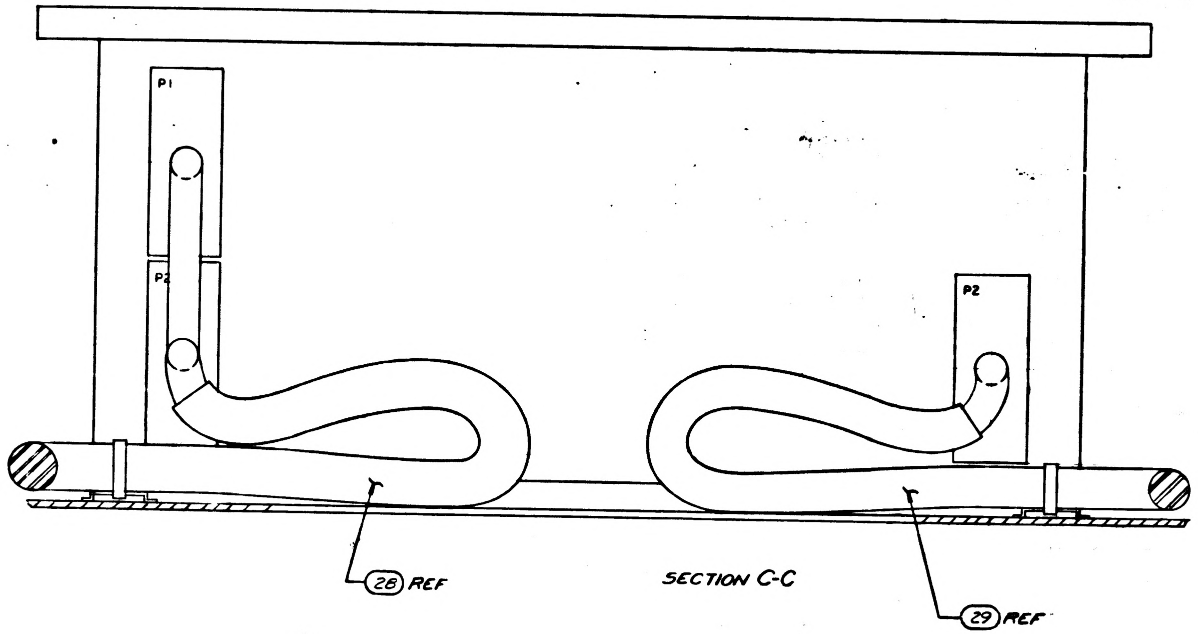
31 REF

SECTION F-F
ROTATED 180°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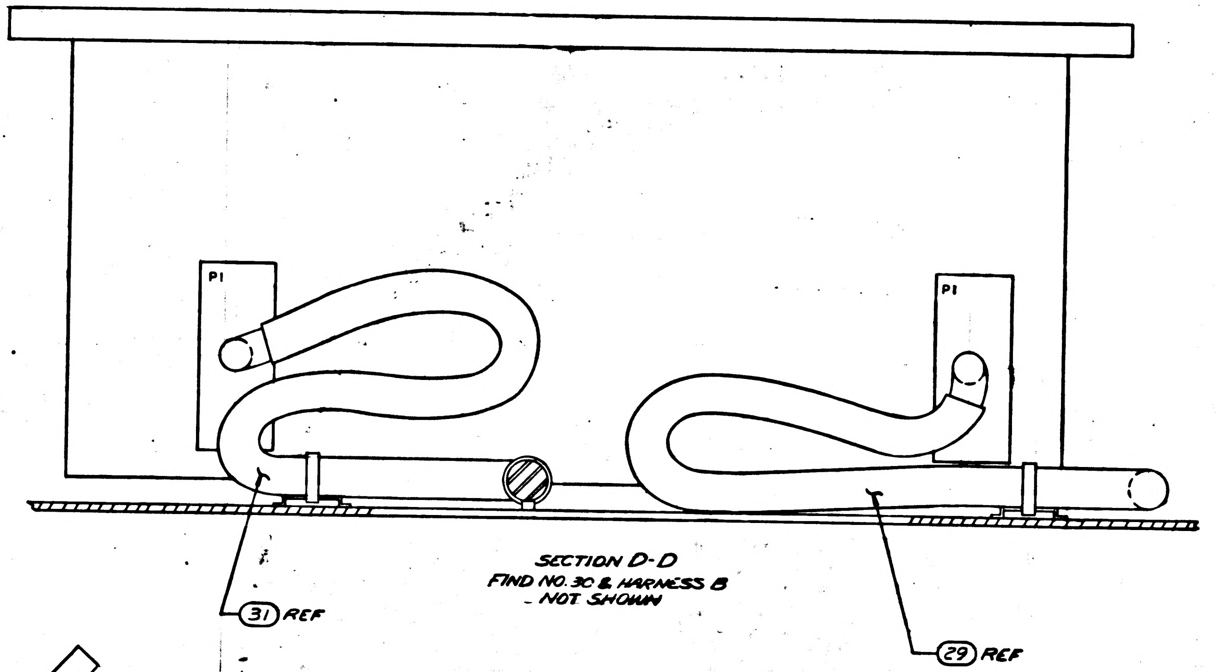
P2
28 REF
29 REF

SECTION C-C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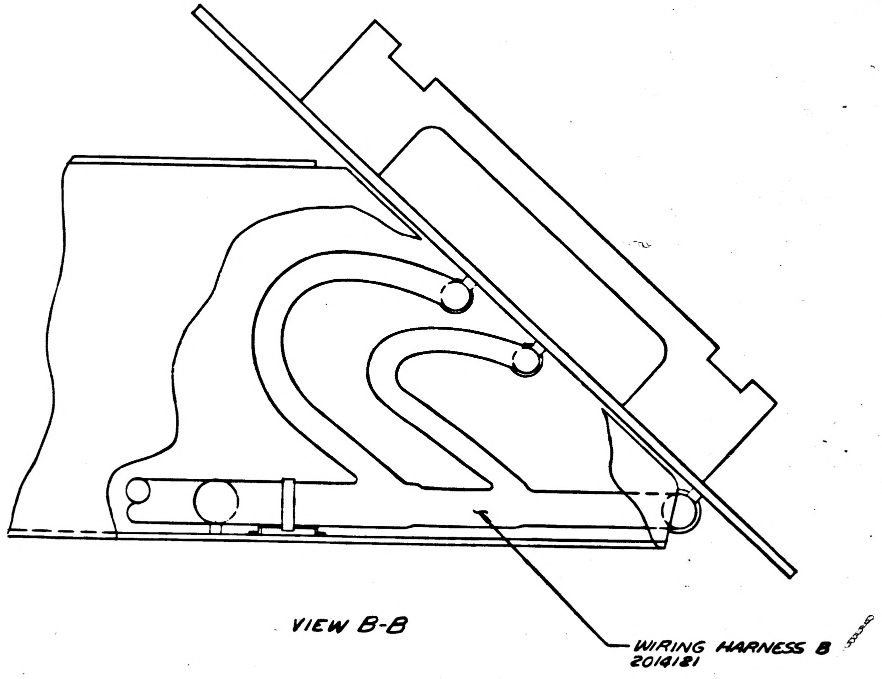
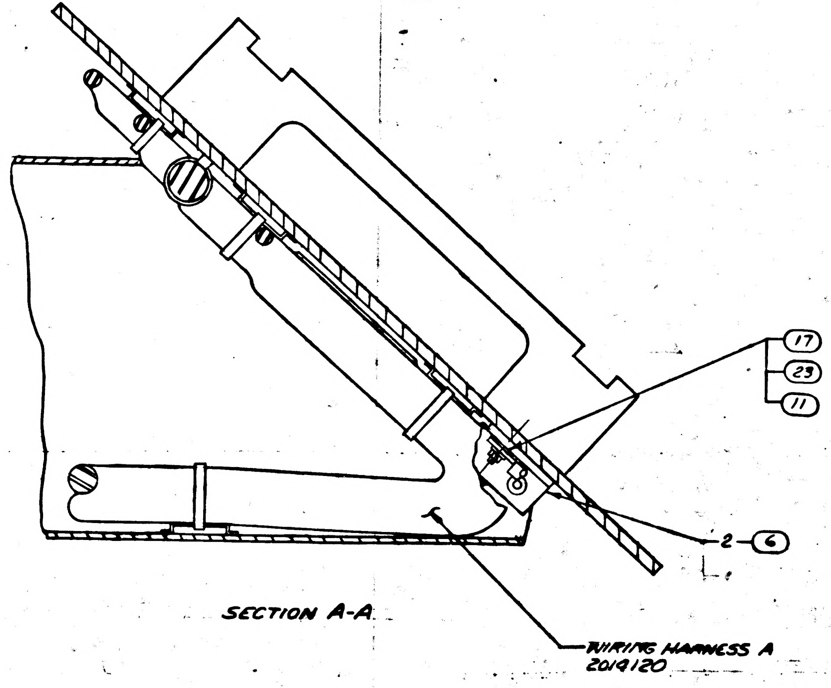
29 REF

SECTION D-D
FIND NO. 30 & HARNESS B
NOT SHOWN


WIRING HARNESS B
2014121

VIEW B-B


17
23
11
2-6
WIRING HARNESS A
2014120

SECTION A-A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 19 Jul 65
CHECKED B.T. [illegible] 13 AUG 65
APPROVAL H. [illegible] 21 AUG 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

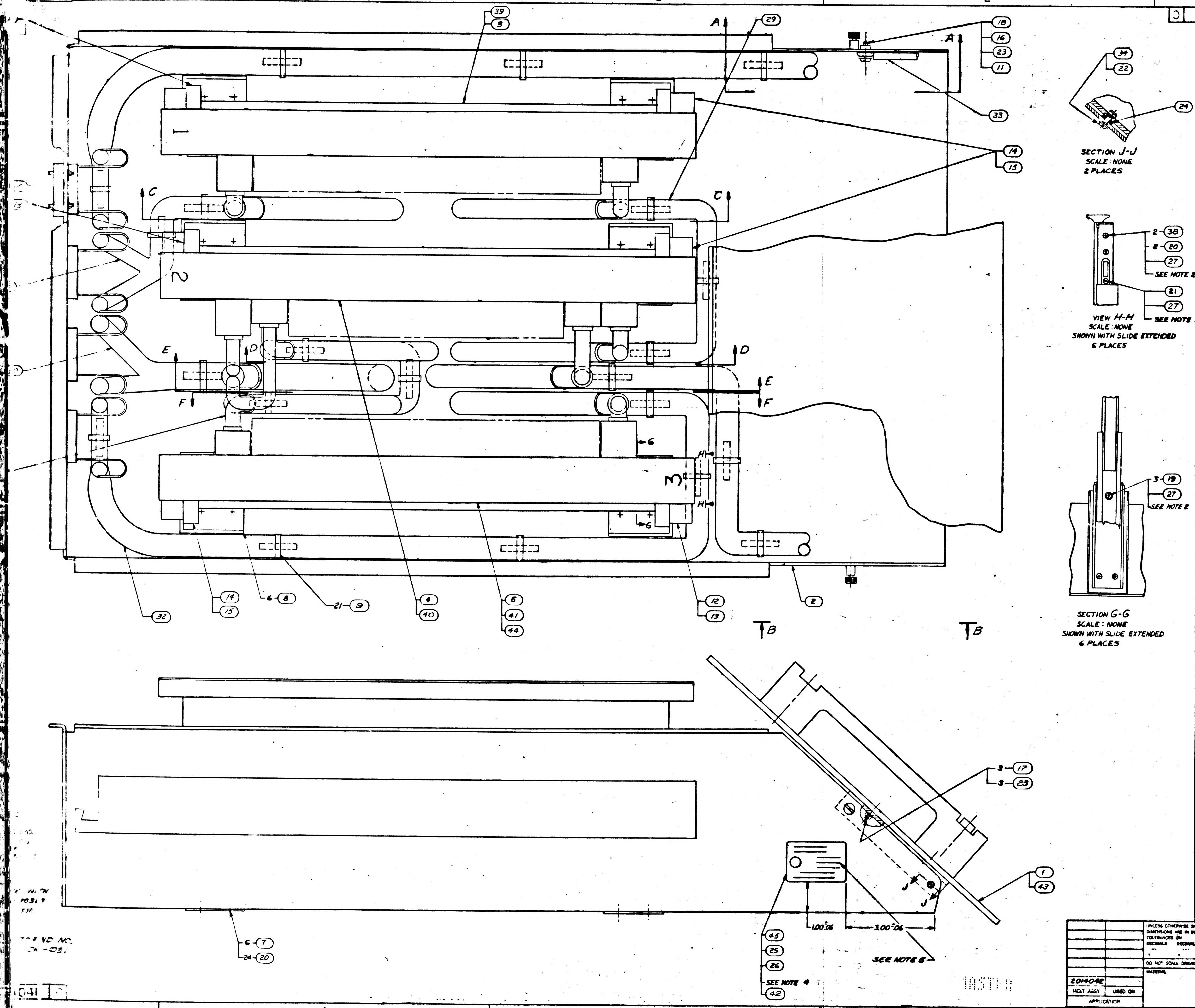
DRAWER ASSEMBLY
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014041
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWINGS IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

2014041 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160	9/10/65	
1	CHANGED PER CCA R25379 DR CHK APPD		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25570 AND CLASS A RELEASED PER TDRR 25472	1/15/66	
B	CHANGED PER TDRR 28097 DR CHK APPD	3/66	
C	CHANGED PER TDRR 29321 DR CHK APPD	6/16/66	



A
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C
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H
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G
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SECTION J-J
SCALE: NONE
2 PLACES
VIEW H-H
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES
SEE NOTE 2
SEE NOTE 2
SECTION G-G
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES
SEE NOTE 2
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6-7
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45
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SEE NOTE 4
42
SEE NOTE 5
1.00±.06
3.00±.06
J
J

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	F N
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–	–	X	2014160	INTERCONN DIAGRAM	REF
–	X	–	2016420	INTERCONN DIAGRAM	REF
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1	–	–	2014336-031	LOGIC PLATE ASSY NO. 3	44
1	1	–	2014231-021	PANEL ASSY P & M	43
–	1	–	1004260-262	NAMEPLATE	42
–	1	–	2014336-021	LOGIC PLATE ASSY NO. 3	41
1	1	–	2014315-021	LOGIC PLATE ASSY NO. 2	40
1	1	–	2014352-021	LOGIC PLATE ASSY NO. 1	39
12	12	–	MS51959-46	SCREW, FLAT HD CROSS REC	38
16	16	16	1006671-003	NUT, STOP	37
8	8	8	1006671-004	GUIDE SOCKET	36
8	8	8	1006671-002	GUIDE PIN	35
2	2	2	MS51957-31	SCREW, PAN HD CROSS REC	34
1	1	1	2014238-011	GROUND STRAP	33
1	1	1	2014167-011	CABLE ASSY W5	32
1	1	1	2014166-011	CABLE ASSY W4	31
1	1	1	2014165-011	CABLE ASSY W3	30
1	1	1	2014164-011	CABLE ASSY W2	29
1	1	1	2014163-011	CABLE ASSY W1	28
AR	AR	AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	27
AR	AR	AR	MIL-A-5092 TYPE II	CEMENT	26
–	–	1	1004260-231	NAMEPLATE	25
2	2	2	1006982-5	WASHER, NYLON	24
5	5	5	MS15795-808	WASHER, FLAT	23
2	2	2	MS15795-806	WASHER, FLAT	22
6	6	6	MS51957-46	SCREW, PAN HD CROSS REC	21
24	24	36	MS51959-42	SCREW, FLATHD CROSS REC	20
18	18	18	MS51959-43	SCREW FLATHD CROSS REC	19
1	1	1	MS51958-64	SCREW, PAN HD, CROSS REC	18
4	4	4	MS21044-C3	NUT, SELF LOCKING, HEX	17
1	1	1	MS35338-81	WASHER, LOCK	16
3	3	3	1006988-4	SLIDE, CHASSIS	15
3	3	3	1006988-2	SLIDE, CHASSIS	14
3	3	3	1006988-3	SLIDE, CHASSIS	13
3	3	3	1006988-1	SLIDE, CHASSIS	12
2	2	2	MS35335-60	WASHER, LOCK EXT TOOTH	11
		~~1~~	~~MS15795-808~~	~~WASHER, FLAT~~	~~10~~
21	21	21	MS17821-1-9	STRAP, CABLE	9
6	6	6	1014255-2	BRACKET ASSY	8
6	6	6	1020231	PLATE, SCREW SUPPORT	7
2	2	2	2014347	BRACKET, ANGLE	6
–	–	1	2014336-011	LOGIC PLATE ASSY NO. 3	5
–	–	1	2014315-011	LOGIC PLATE ASSY NO. 2	4
–	–	1	2014352-011	LOGIC PLATE ASSY NO. 1	3
1	1	1	2014346	CHASSIS	2
–	–	1	2014231-011	PANEL ASSY, PROGRAMMER & MONITOR	1

LIST OF MATERIALS

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 28 JUN 65
CHECKED 13 AUG 65
APPROVAL 21 AUG 65
APPROVAL AUG 65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

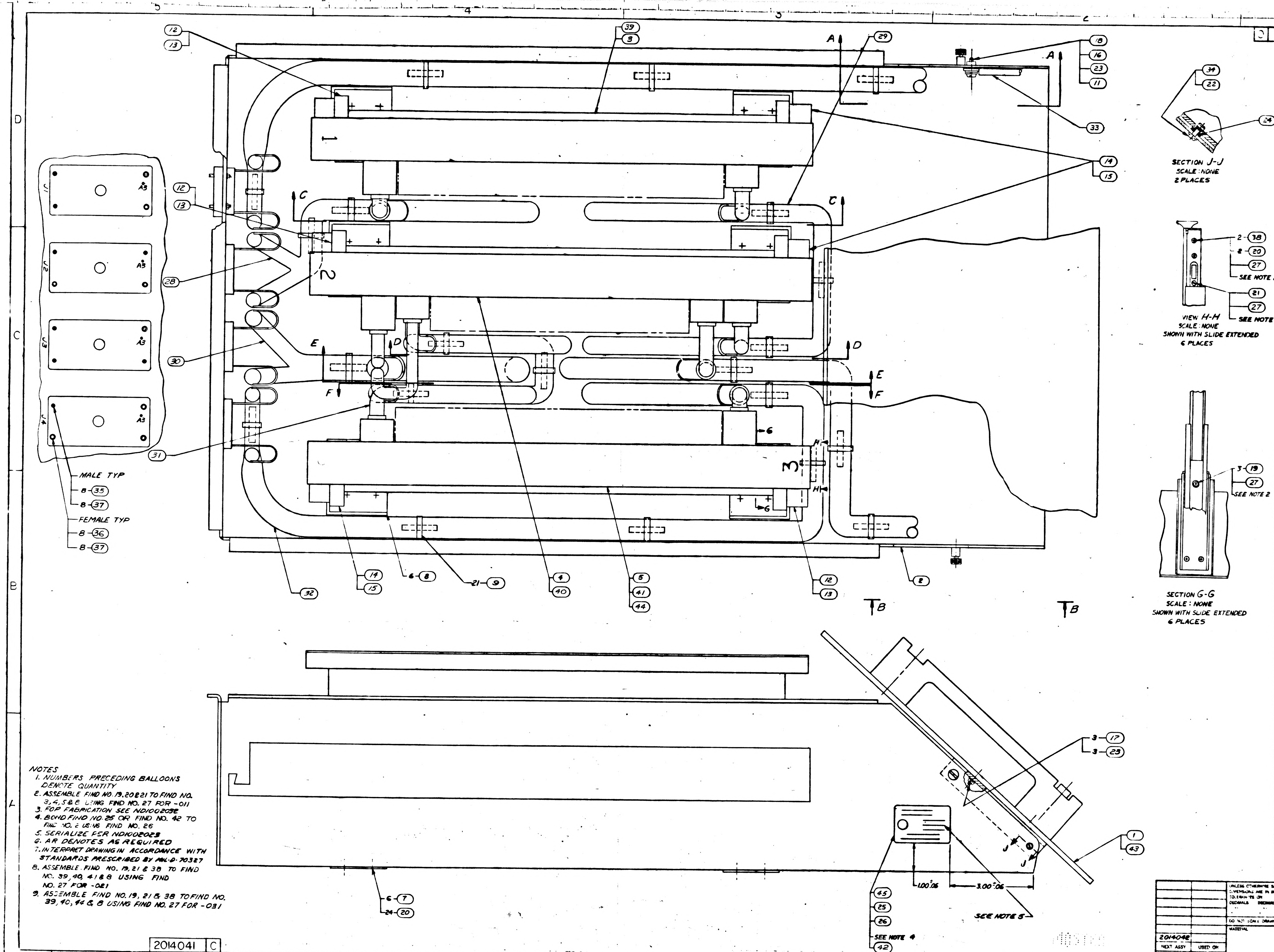
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014041
SCALE 1/1 WT SHEET 1 OF 2

2014041 C

F 2/2


2014041 C
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FEMALE TYP
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SCALE: NONE
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SEE NOTE 2
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SEE NOTE 2
VIEW H-H
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
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SEE NOTE 2
SECTION G-G
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
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43
J
J
1.00±.06
3.00±.06
SEE NOTE 5
45
25
26
SEE NOTE 4
42
6-7
24-20

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE FIND NO. 19, 20 & 21 TO FIND NO. 3, 4, 5 & 6 USING FIND NO. 27 FOR -011
3. FOR FABRICATION SEE ND1002032
4. BOND FIND NO. 25 OR FIND NO. 42 TO FIND NO. 2 USING FIND NO. 26
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. ASSEMBLE FIND NO. 19, 21 & 38 TO FIND NO. 39, 40, 41 & 8 USING FIND NO. 27 FOR -021
9. ASSEMBLE FIND NO. 19, 21 & 38 TO FIND NO. 39, 40, 44 & 8 USING FIND NO. 27 FOR -031

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–	1	–	1004260-
–	1	–	2014336-
1	1	–	2014315-
1	1	–	2014352-
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8	8	8	100661[illegible]-00
8	8	8	1006671-00
2	2	2	MS51[illegible]57
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1	1	1	2014167-01
1	1	1	2014[illegible]8-01
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1	1	1	2014164-
1	1	1	2014163-
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AR	AR	AR	MIL-A-[illegible]
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2	2	2	MS1579[illegible]-80
6	6	6	MS5195[illegible]-[illegible]
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QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING
-031	-021	-011	

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON
LEXINGTON, M

CONTRACT NO

DRAWN
DATE

CHECKED G. I. Cooling

APPROVAL H. Moss

APPROVAL

APPROVAL

NASA APPROVAL

MIT APPROVAL

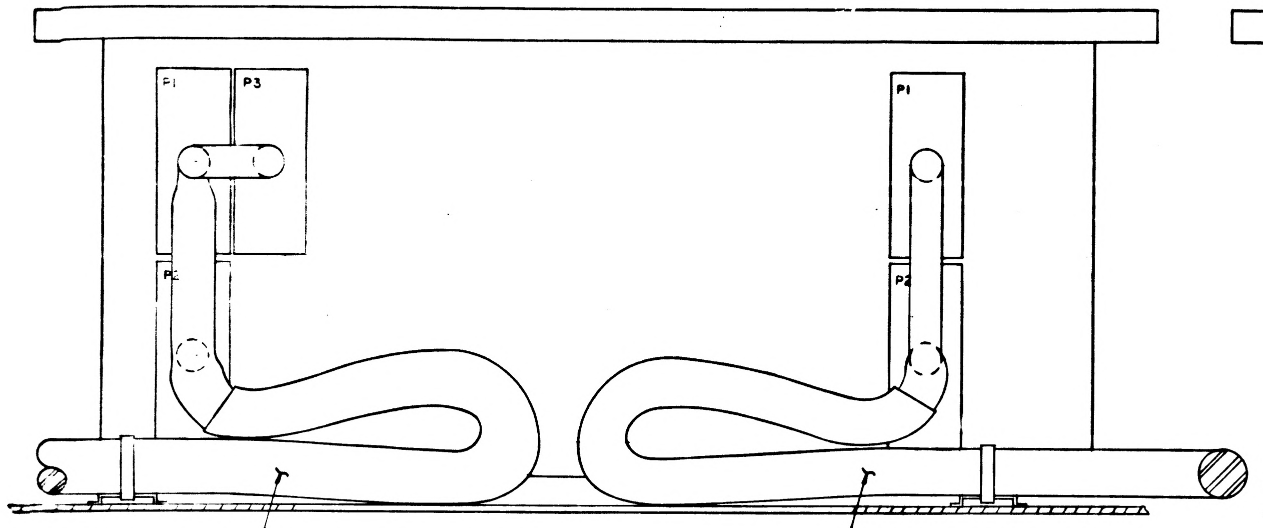
MIT APPROVAL

2014041 C

F1/2 SH1/2

2014041 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160	[illegible]	[illegible]
1	CHANGED PER CCA R25379 DR [illegible] CHK [illegible] APPD [illegible]	4/10/[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25570 AND CLASS A RELEASED PER TDRR 2[illegible]	[illegible]	[illegible]
B	CHANGED PER TDRR 28097 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/13/66	[illegible]
C	CHANGED PER TDRR 29321 DR [illegible] CHK [illegible] APPD [illegible]	6/15/66	[illegible]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30 REF
WIRING HARNESS B
2014121 REF

SECTION E-E
FIND NO. 31 & FIND NO 29
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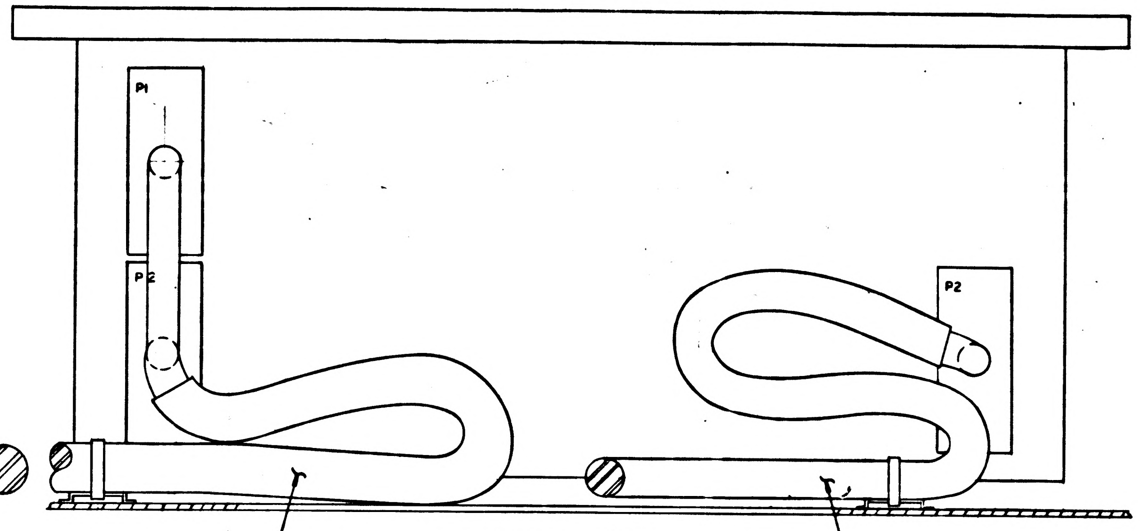
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P2
32 REF
31 REF

SECTION F-F
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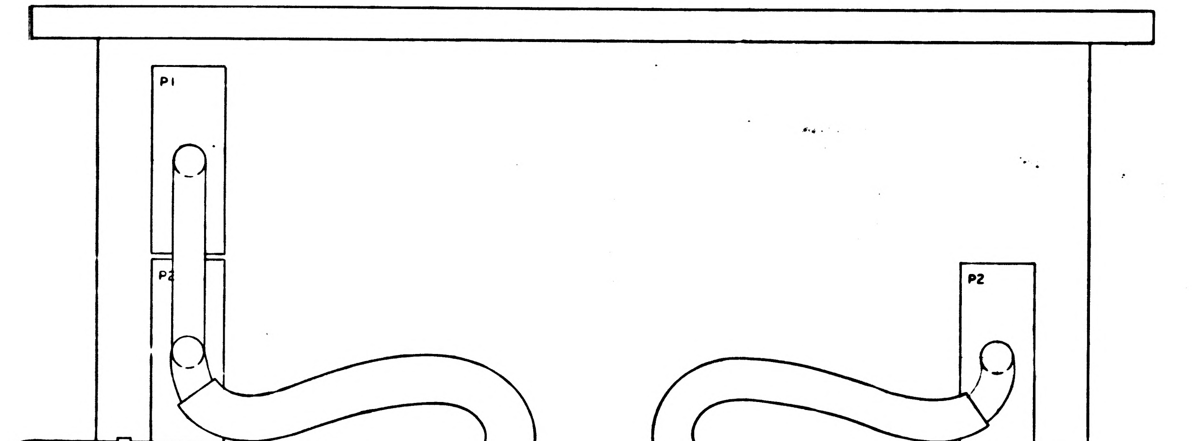
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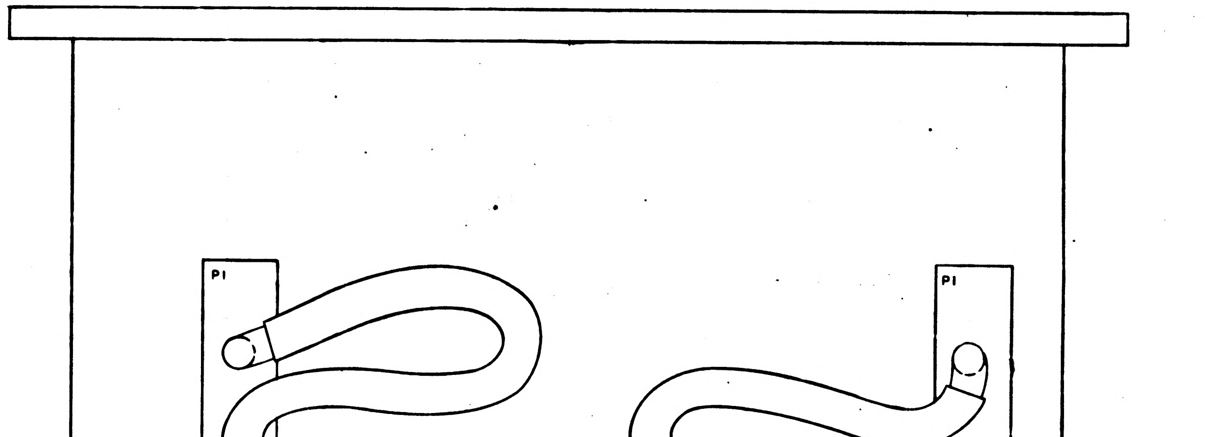
P2
28 REF
29 REF

SECTION C-C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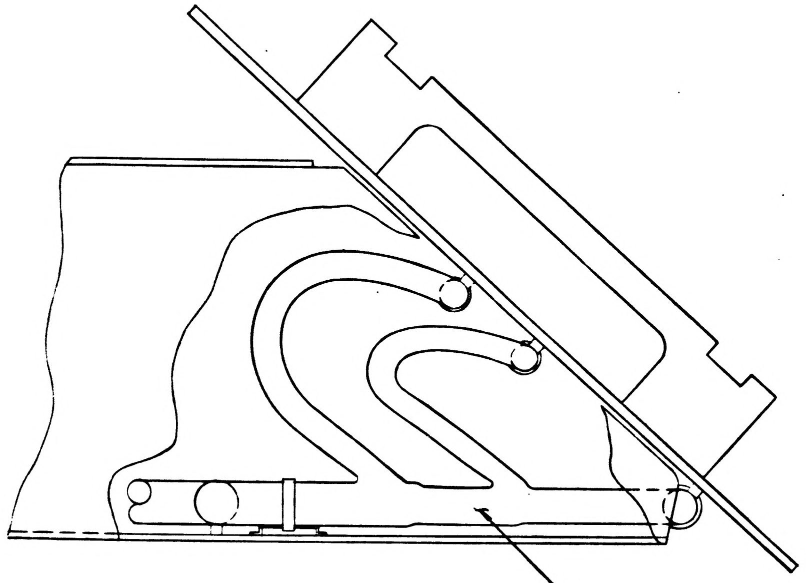
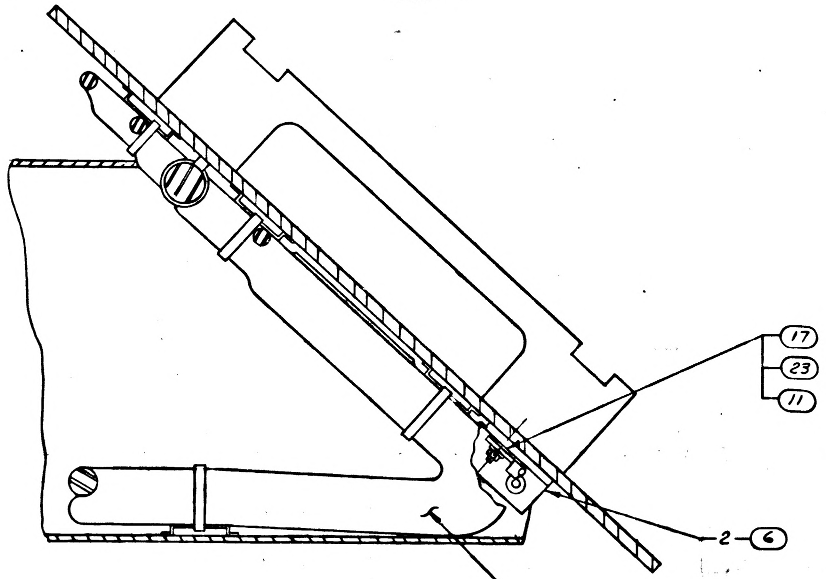

WIRING HARNESS B
2014121

VIEW B-B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23
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2-6
WIRING HARNESS A
2014120

SECTION A-A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 19 JUL 65
CHECKED G.T. [illegible] 13 AUG 65
APPROVAL [illegible] 21 AUG 65
APPROVAL [illegible] 21 AUG 65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

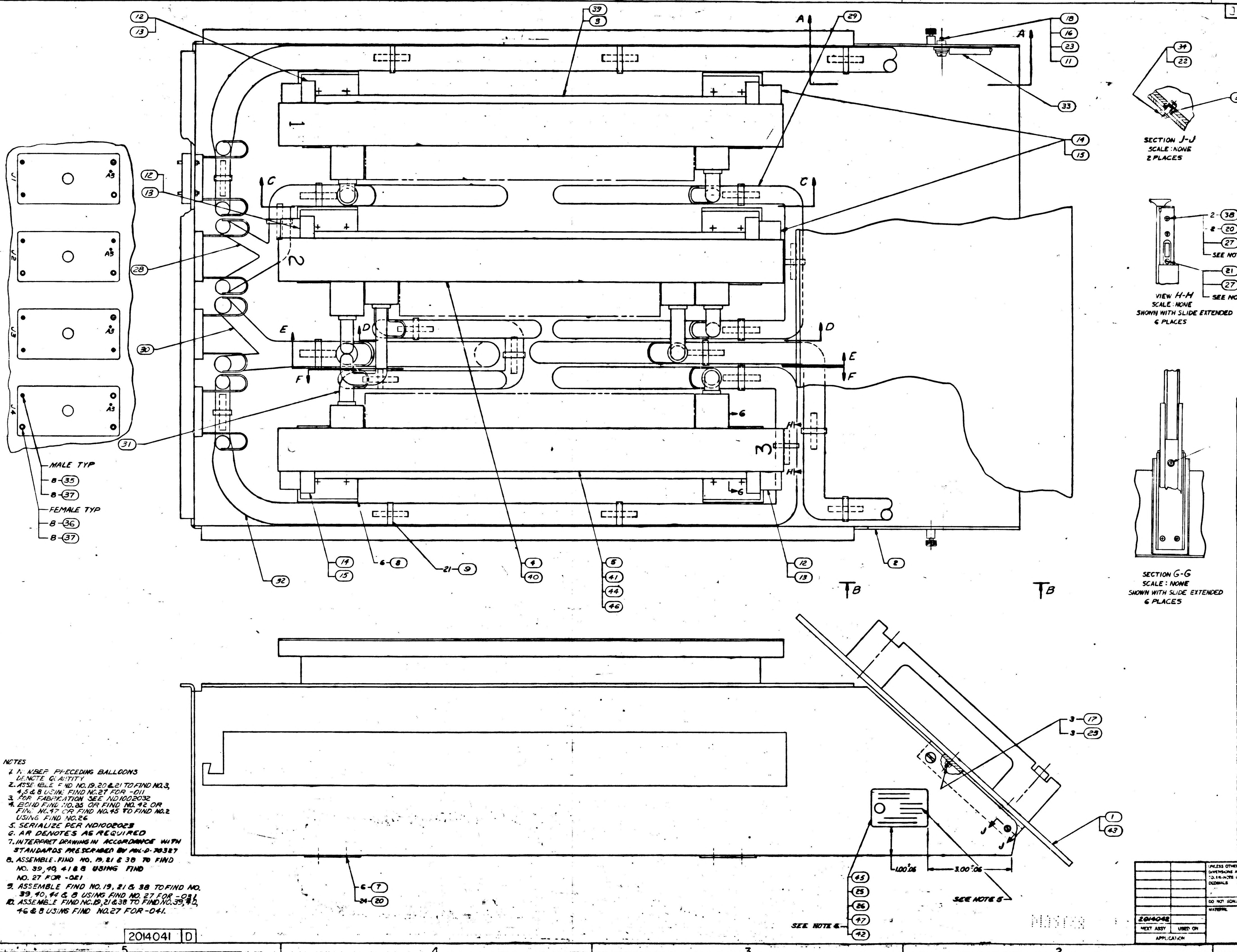
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014041
SCALE 1/1	WT	SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014041 C


12
13
39
9
29
A
A
18
16
23
11
33
34
22
24
SECTION J-J
SCALE: NONE
2 PLACES
14
15
C
C
1
2
3
28
30
31
32
J1
J2
J3
J4
A3
MALE TYP
8-35
8-37
FEMALE TYP
8-36
8-37
D
D
E
E
F
F
6
G
H
H
2-38
2-20
27
SEE NOTE 2
21
27
SEE NOTE 2
VIEW H-H
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES
SECTION G-G
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES
14
15
6-8
21-9
4
40
5
41
44
46
12
13
2
B
B
3-17
3-29
1
43
J
J
1.00 .06
3.00 .06
SEE NOTE 5
45
25
26
47
42
SEE NOTE 6
6-7
24-20

NOTES

1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE FIND NO. 19, 20 & 21 TO FIND NO. 3, 4, 5 & 8 USING FIND NO. 27 FOR -011
3. FOR FABRICATION SEE ND1002032
4. BOND FIND NO. 25 OR FIND NO. 42 OR FIND NO. 47 OR FIND NO. 45 TO FIND NO. 2 USING FIND NO. 26
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. ASSEMBLE FIND NO. 19, 21 & 38 TO FIND NO. 39, 40, 41 & 8 USING FIND NO. 27 FOR -021
9. ASSEMBLE FIND NO. 19, 21 & 38 TO FIND NO. 39, 40, 44 & 8 USING FIND NO. 27 FOR -031
10. ASSEMBLE FIND NO. 19, 21 & 38 TO FIND NO. 39, 40, 46 & 8 USING FIND NO. 27 FOR -041.

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	
☒	–	–	–	2014
1	–	–	–	100
1	–	–	–	201
–	☒	–	–	2014
	–	–	☒	2014
	–	☒	–	2016
	1	–		100
–	1	–	–	201
1	1	1	–	2014
–	–	1	–	100
–	–	1	–	2014
1	1	1	–	2014
1	1	1	–	2014
12	12	12	–	MS5
16	16	16	16	10066
8	8	8	8	1006
8	8	8	8	10066
2	2	2	2	MS5
1	1	1	1	2014
1	1	1	1	2014
1	1	1	1	2014
1	1	1	1	2014
1	1	1	1	2014
1	1	1	1	2014
AR	AR	AR	AR	MIL-5
AR	AR	AR	AR	MIL-
–	–	–	1	1004
2	2	2	2	1006
5	5	5	5	MS15
2	2	2	–	MS15
6	6	6	–	MS519
24	24	24	36	MS51
18	18	18	18	MS5
1	1	1	1	MS5
4	4	4	4	MS2
1	1	1	–	MS5
3	3	3	–	1006
3	3	3	–	1006
3	3	3	3	1006
3	3	3	3	1006
2	2	2	2	MS3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	2	2	2	MS
6	6	6	6	101
6	6	6	6	1080
2	2	2	2	2014
–	–	–	1	2014
–	–	–	1	2014
–	–	–	1	2014
1	1	1	1	2014
–	–	–	1	2014

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES

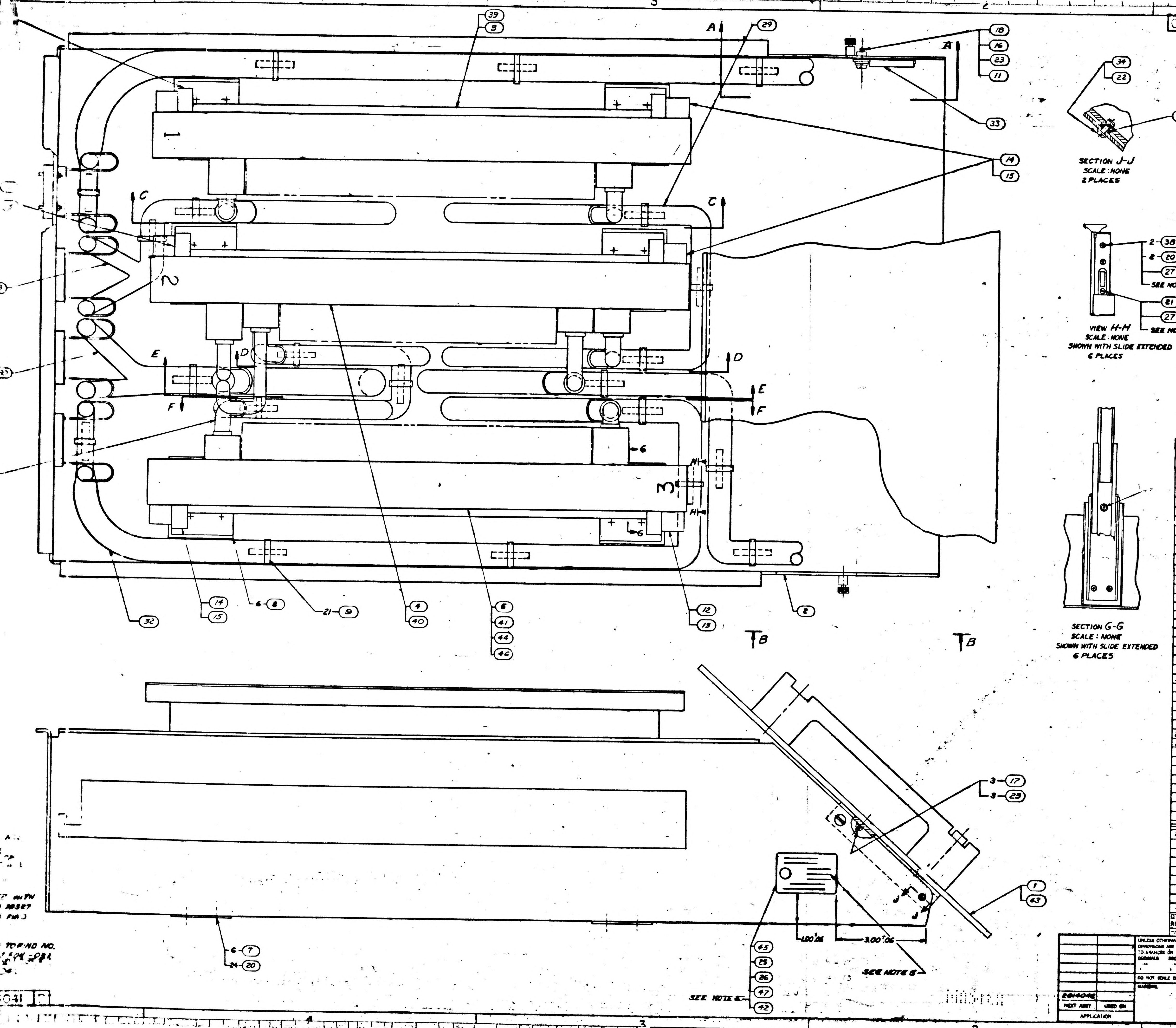
DO NOT SCALE DRAWING

MATERIAL

CONTRACT NO
DRAWN
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MT APPROVAL
MT APPROVAL

2014041 D

SH 1/2 F 1/2



2014041 D

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160		
1	CHANGED PER CCA R25379 DR CHK APPD		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25570 AND CLASS A RELEASED PER TDRR 25172	1/15/66	
B	CHANGED PER TDRR 28097 DR CHK APPD	3/66	
C	CHANGED PER TDRR 29327 DR CHK APPD		
D	CHANGED PER TDRR 30172 DR CHK APPD	/66	

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	F N
☒	–	–	–	2016454	INTERCONN. DIAGRAM	REF
1	–	–	–	1004260-276	NAMEPLATE	47
1	–	–	–	2014336-041	LOGIC PLATE ASSY. NO.3	46
–	☒	–	–	2016440	INTERCONN DIAGRAM	REF
–	–	–	☒	2014160	INTERCONN DIAGRAM	REF
–	–	☒	–	2016420	INTERCONN DIAGRAM	REF
–	1	–	–	1004260-272	NAMEPLATE	45
–	1	–	–	2014336-031	LOGIC PLATE ASSY NO.3	44
1	1	1	–	2014231-021	PANEL ASSY P & M	43
–	–	1	–	1004260-262	NAMEPLATE	42
–	–	1	–	2014336-021	LOGIC PLATE ASSY NO. 3	41
1	1	1	–	2014315-021	LOGIC PLATE ASSY NO. 2	40
1	1	1	–	2014352-021	LOGIC PLATE ASSY NO. 1	39
12	12	12	–	MS51959-46	SCREW, FLAT HD CROSS REC	38
16	16	16	16	1006671-003	NUT, STOP	37
8	8	8	8	1006671-004	GUIDE SOCKET	36
8	8	8	8	1006671-002	GUIDE PIN	35
2	2	2	2	MS51957-31	SCREW, PAN HD CROSS REC	34
1	1	1	1	2014238-011	GROUND STRAP	33
1	1	1	1	2014167-011	CABLE ASSY W5	32
1	1	1	1	2014166-011	CABLE ASSY W4	31
1	1	1	1	2014165-011	CABLE ASSY W3	30
1	1	1	1	2014164-011	CABLE ASSY W2	29
1	1	1	1	2014163-011	CABLE ASSY W1	28
AR	AR	AR	AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	27
AR	AR	AR	AR	MIL-A-5092 TYPE II	CEMENT	26
–	–	–	1	1004260-231	NAMEPLATE	25
2	2	2	2	1006982-5	WASHER, NYLON	24
5	5	5	5	MS15795-808	WASHER, FLAT	23
2	2	2	2	MS15795-806	WASHER, FLAT	22
6	6	6	6	MS51957-46	SCREW, PAN HD CROSS REC	21
24	24	24	36	MS51959-42	SCREW, FLATHD CROSS REC	20
18	18	18	18	MS51959-43	SCREW, FLAT HD CROSS REC	19
1	1	1	1	MS51958-64	SCREW, PAN HD, CROSS REC.	18
4	4	4	4	MS21044-C3	NUT, SELF LOCKING, HEX	17
1	1	1	1	MS35338-81	WASHER, LOCK	16
3	3	3	3	1006988-4	SLIDE, CHASSIS	15
3	3	3	3	1006988-2	SLIDE, CHASSIS	14
3	3	3	3	1006988-3	SLIDE, CHASSIS	13
3	3	3	3	1006988-1	SLIDE, CHASSIS	12
2	2	2	2	MS35335-60	WASHER, LOCK EXT TOOTH	11
			~~1~~	~~MS15795-808~~	~~WASHER, FLAT~~	~~10~~
21	21	21	21	MS17821-1-9	STRAP, CABLE	9
6	6	6	6	1014255-2	BRACKET ASSY	8
6	6	6	6	1080231	PLATE, SCREW SUPPORT	7
2	2	2	2	2014347	BRACKET, ANGLE	6
–	–	–	1	2014336-011	LOGIC PLATE ASSY NO.3	5
–	–	–	1	2014315-011	LOGIC PLATE ASSY NO.2	4
–	–	–	1	2014352-011	LOGIC PLATE ASSY NO.1	3
1	1	1	1	2014346	CHASSIS	2
–	–	–	1	2014231-011	PANEL ASSY, PROGRAMMER & MONITOR	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014042	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28 JUN 65
CHECKED 19 AUG 65
APPROVAL 21 AUG 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
PROGRAMMER & MONITOR
COMPUTER TEST SET

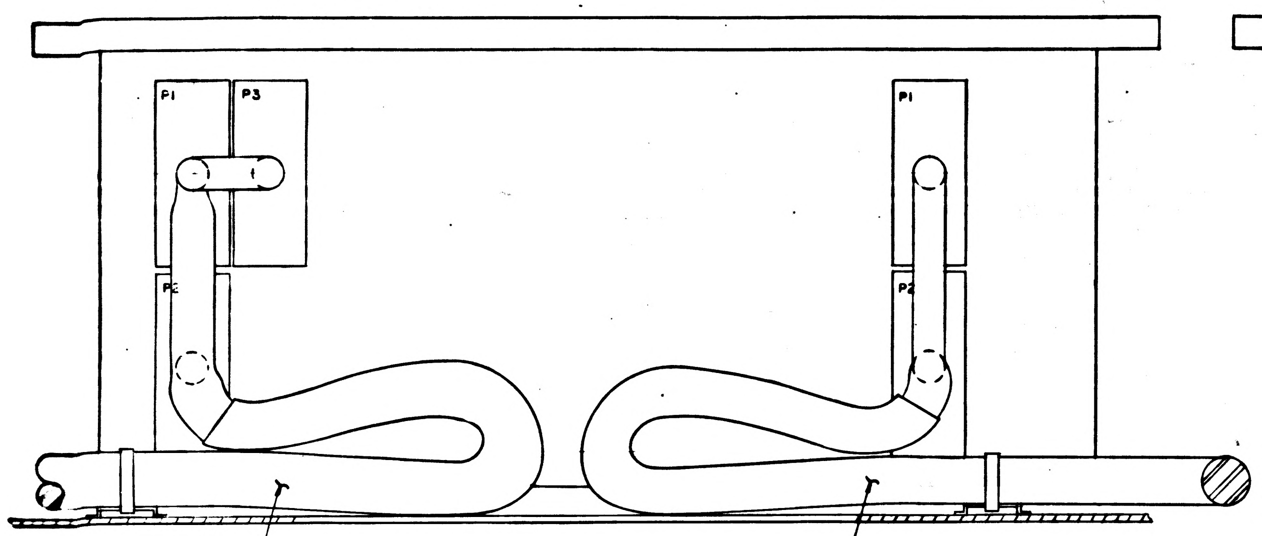
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014041
SCALE 1/2
WT
SHEET 1 OF 2

2014041 D

E 2/2

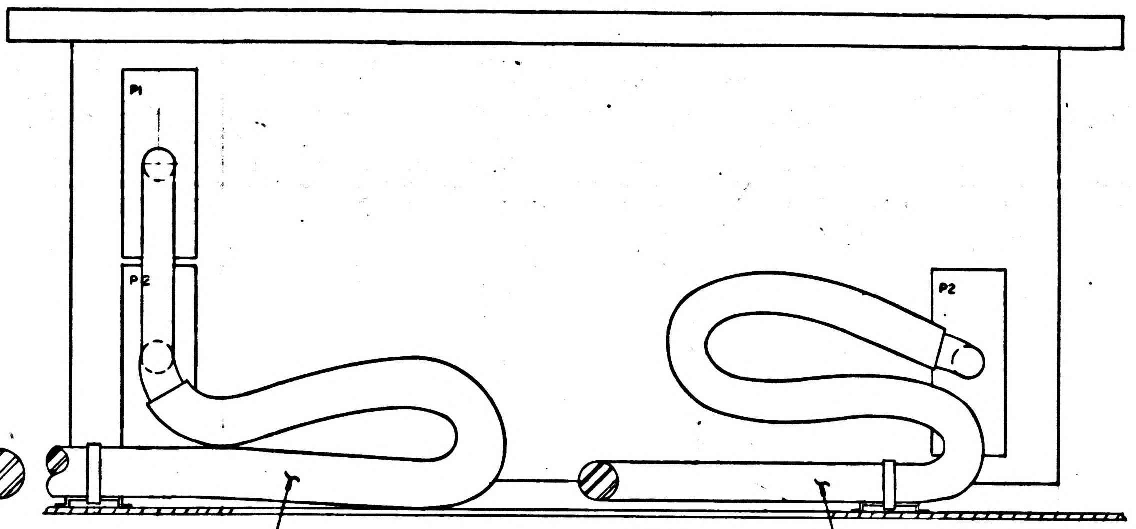
2014041 D

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160		
1	CHANGED PER CCA R25379 DR CHK APPD	4/10/	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25570 AND CLASS A RELEASED PER TDRR 2922	4/15/	
B	CHANGED PER TDRR 28097 DR CHK APPD	5/3/66	
C	CHANGED PER TDRR 29321 DR CHK APPD	6/15/66	
D	CHANGED PER TDRR 31172 DR CHK APPD	9/21/66	



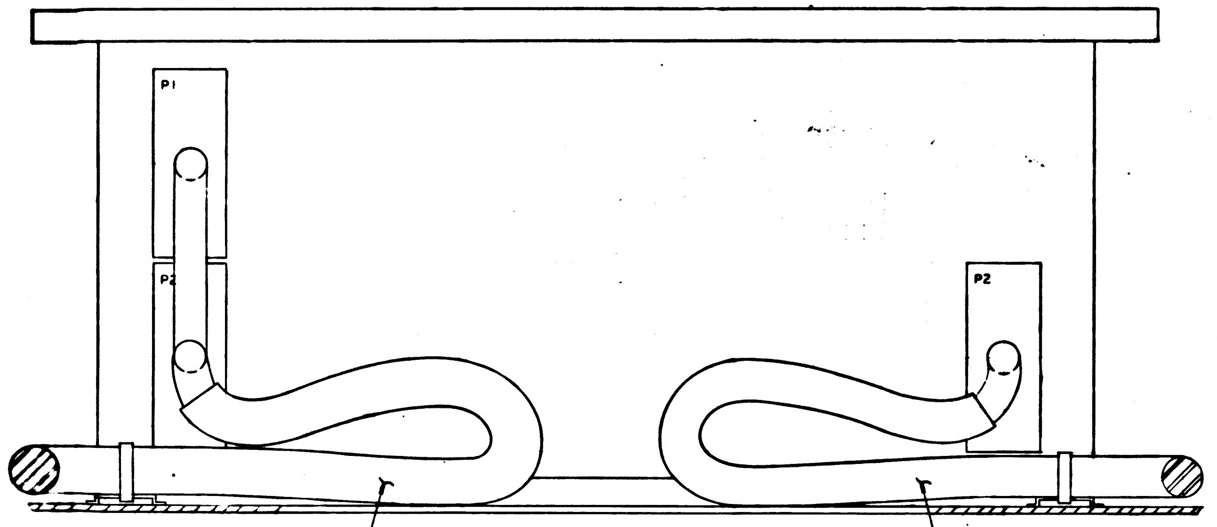
P1
P3
P2
P1
P2
(30) REF
WIRING HARNESS B
2014121 REF

SECTION E-E
FIND NO. 31 & FIND NO. 29
NOT SHOWN



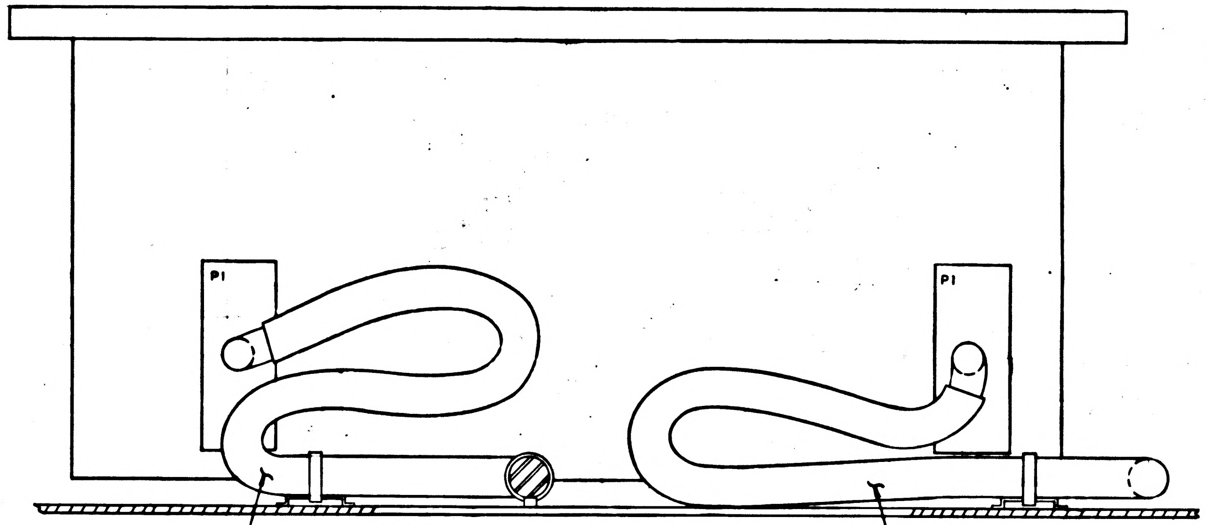
P1
P2
P2
(32) REF
(31) REF

SECTION F-F
ROTATED 180°



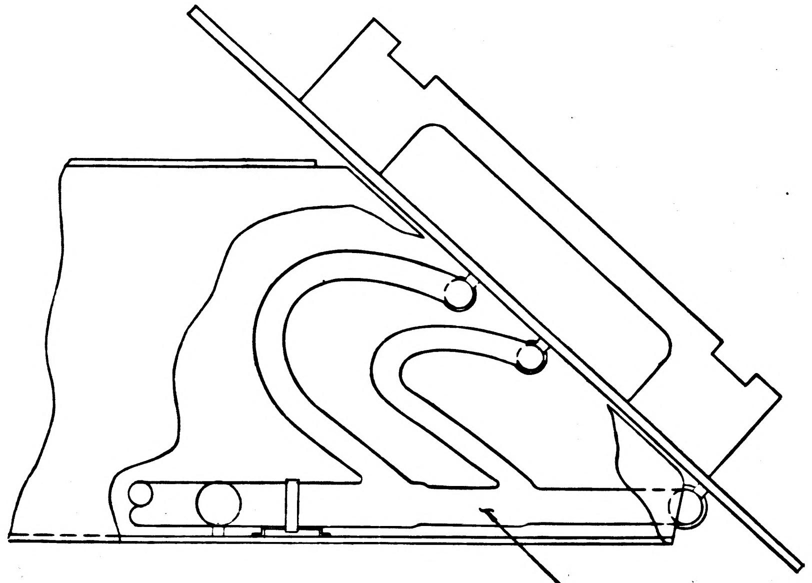
P1
P2
P2
(28) REF
(29) REF

SECTION C-C



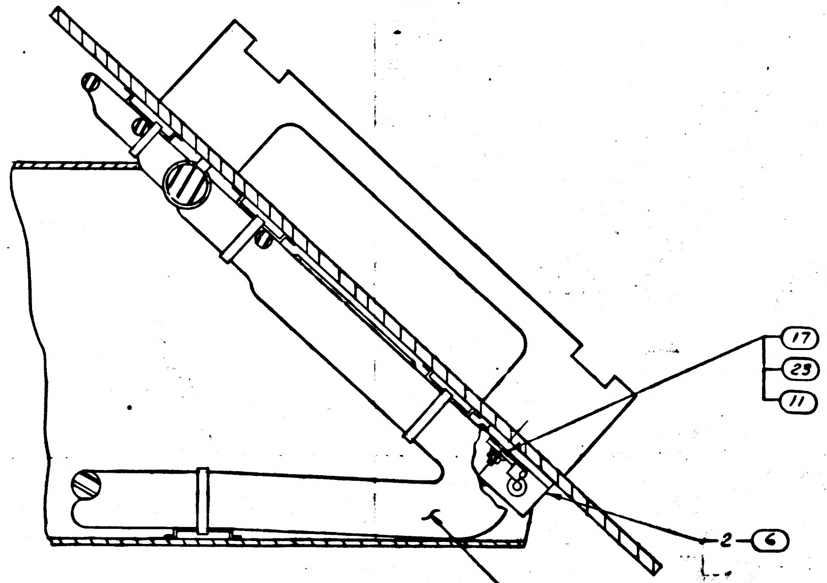
P1
P1
(31) REF
(29) REF

SECTION D-D
FIND NO. 30 & HARNESS B
NOT SHOWN



WIRING HARNESS B
2014121

VIEW B-B



(17)
(23)
(11)
2-(6)
WIRING HARNESS A
2019120

SECTION A-A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 19 Jul 65
CHECKED B.Y. 13 AUG 65
APPROVAL 21 AUG 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
PROGRAMMER & MONITOR
COMPUTER TEST SET

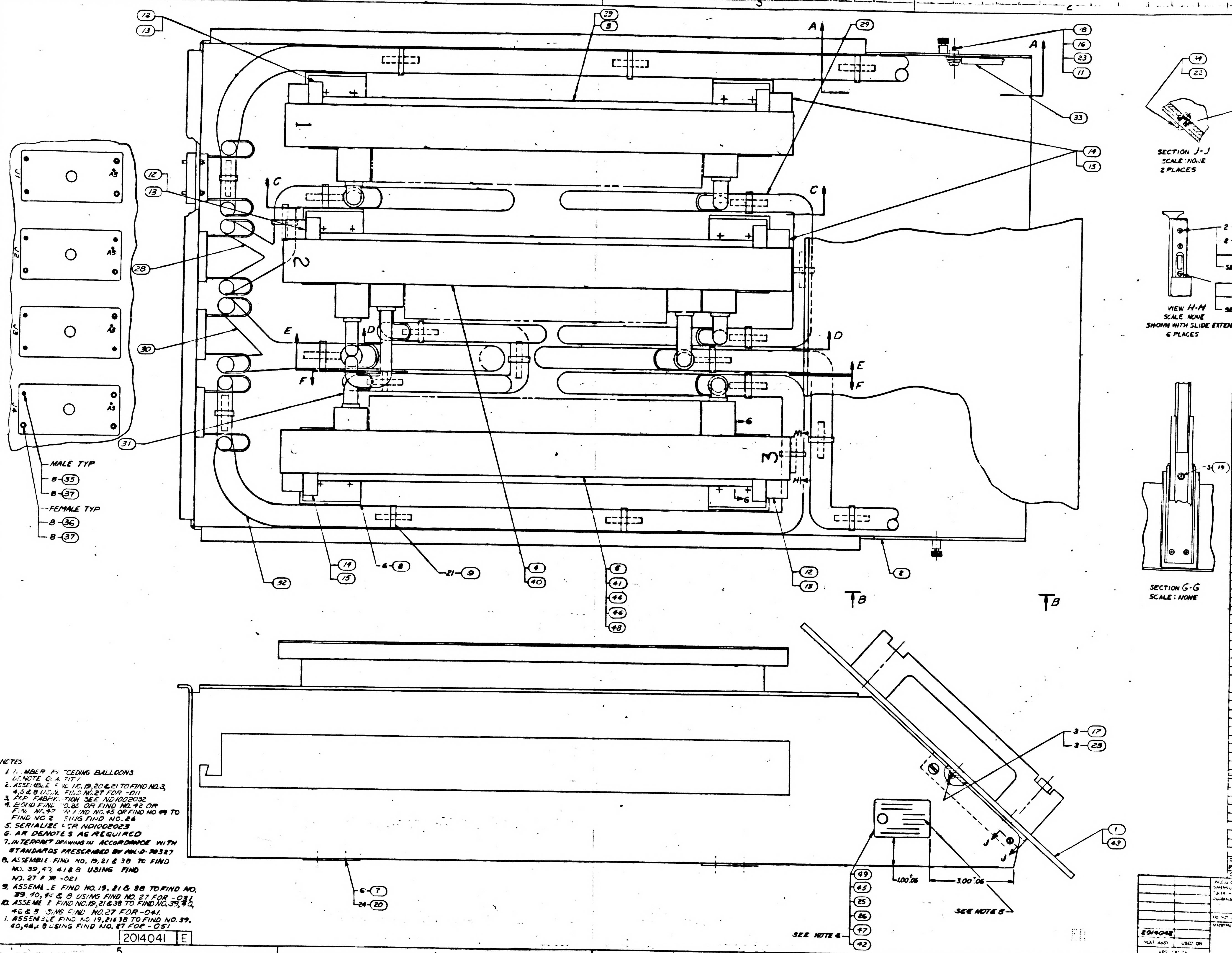
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014041
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

STER

2014041 D

2014041 J



12
13
39
3
29
A
A
18
16
23
11
33
14
15
14
22
24
SECTION J-J
SCALE: NONE
2 PLACES
1
2
3
C
C
D
D
E
E
F
F
H
H
G
G
J1
J2
J3
J4
A3
28
30
31
MALE TYP
8-35
8-37
FEMALE TYP
8-36
8-37
2-38
8-20
27
SEE NOTE 2,9,10&11
21
27
SEE NOTE 2,9,10&11
VIEW H-H
SCALE NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES
-3 19
SECTION G-G
SCALE: NONE
-6
32
14
15
6-8
21-9
4
40
5
41
44
46
48
12
13
2
B
B
3-17
3-23
1
43
1.00±.05
3.00±.05
SEE NOTE 5
49
45
25
26
47
42
SEE NOTE 4
6-7
24-20

NOTES

1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE FIND NO. 19, 20 & 21 TO FIND NO. 3, 4, 5 & 8 USING FIND NO. 27 FOR -011
3. FOR FABRICATION SEE ND1002032
4. BOND FIND NO. 25 OR FIND NO. 42 OR FIND NO. 47 OR FIND NO. 45 OR FIND NO 49 TO FIND NO 2 USING FIND NO. 26
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. ASSEMBLE FIND NO. 19, 21 & 38 TO FIND NO. 39, 40, 41 & 8 USING FIND NO. 27 FOR -021
9. ASSEMBLE FIND NO. 19, 21 & 38 TO FIND NO. 39, 40, 44 & 8 USING FIND NO. 27 FOR -031
10. ASSEMBLE FIND NO. 19, 21 & 38 TO FIND NO. 39, 40, 46 & 8 USING FIND NO. 27 FOR -041.
11. ASSEMBLE FIND NO. 19, 21 & 38 TO FIND NO. 39, 40, 48, & 8 USING FIND NO. 27 FOR -051

QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART IDENTIFYING
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-	1	-	-	-	[illegible]
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-	-	-	-	X	2014160
-	-	-	X	-	2016420
-	-	1	-	-	100[illegible]
-	-	1	-	-	2014[illegible]
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-	-	-	1	-	1004260
-	-	-	1	-	2014[illegible]
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1	1	1	1	-	2014352
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16	16	16	16	16	[illegible]
8	8	8	8	8	[illegible]
8	8	8	8	8	[illegible]
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1	1	1	1	1	2014[illegible]
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AR	AR	AR	AR	AR	MIL-A-[illegible]
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2	2	2	2	2	1006982-
5	5	5	5	5	MS15795
2	2	2	2	2	MS15795
6	6	6	6	6	MS51957-
24	24	24	24	36	MS519[illegible]
18	18	18	18	18	MS51959-
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4	-	4	4	4	MS2104[illegible]
1	1	1	1	1	MS[illegible]
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3	3	3	3	3	1006988-
3	3	3	3	3	1006380-
3	3	3	3	3	[illegible]6988-
2	2	2	2	2	MS35[illegible]
					[illegible]
2	[illegible]	2	2	[illegible]	[illegible]
6	6	6	6	6	[illegible]28
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-	-	-	-	1	2014356
-	-	-	-	1	2014315-0
-	-	-	-	1	[illegible]
1	1	-	-	1	2014[illegible]
-	-	-	-	1	2014231-0

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING
MATERIAL

LEXINGTON
CONTRACT NO
DRAWN
CHECKED
APPROVAL
APPROVAL

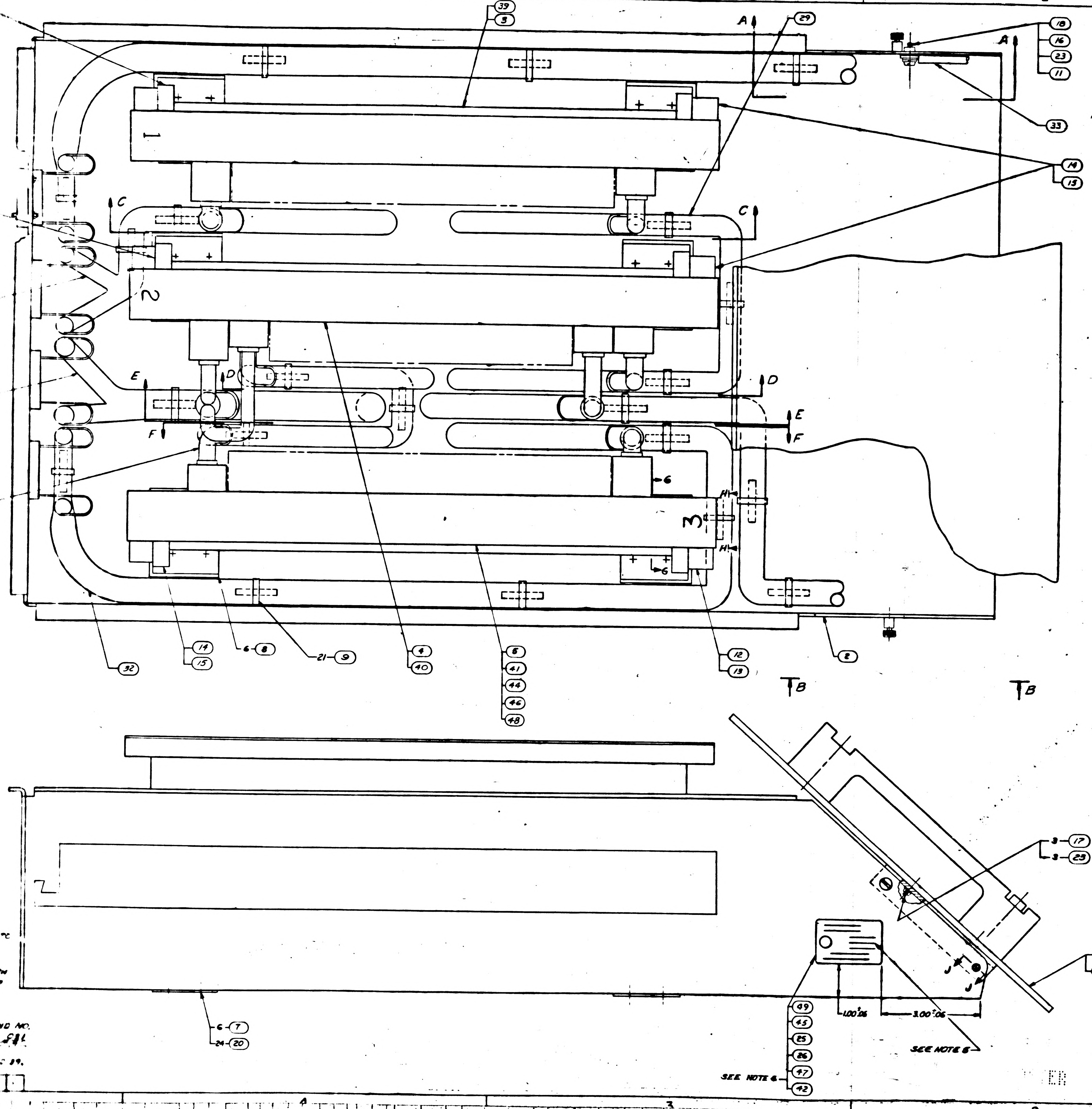
2014042
NEXT ASSY USED ON
APPLICATION

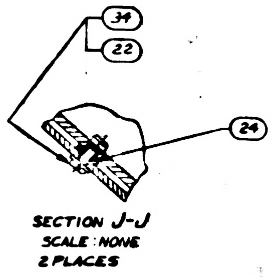
2014041 E

SH 1/2 F 1/2

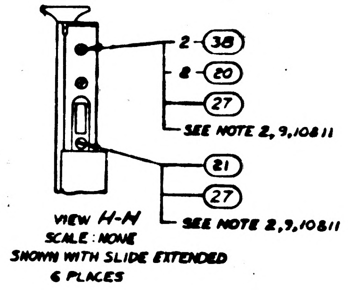
2014041 E

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160	[illegible]	[illegible]
1	CHANGED PER CCA R25879 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25570 AND CLASS A RELEASED PER TDRR 25402	[illegible]/66	[illegible]
B	CHANGED PER TDRR 28097 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
C	CHANGED PER TDRR 29321 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
D	CHANGED PER TDRR 30172 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
E	CHANGED PER TDRR 33453 DR [illegible] CHK [illegible] APPD	[illegible]/67	T.L.Y.

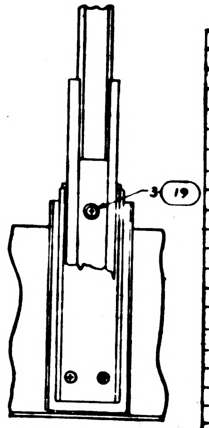




SECTION J-J
SCALE: NONE
2 PLACES



VIEW H-H
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES



SECTION G-G
SCALE: NONE

QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	F N
☒	☒	–	–	–	2016454	INTERCONN DIAGRAM	REF
1	–	–	–	–	1004260-283	NAMEPLATE	49
1	–	–	–	–	2014336-051	LOGIC PLATE ASSY NO 3	48
–	1	–	–	–	1004260-276	NAMEPLATE	47
–	1	–	–	–	2014336-041	LOGIC PLATE ASSY NO.3	46
–	–	☒	–	–	2016440	INTERCONN DIAGRAM	REF
–	–	–	–	☒	2014160	INTERCONN DIAGRAM	REF
–	–	–	☒	–	2016420	INTERCONN DIAGRAM	REF
–	–	1	–	–	1004260-272	NAMEPLATE	45
–	–	1	–	–	2014336-031	LOGIC PLATE ASSY NO 3	44
1	1	1	1	–	2014231-021	PANEL ASSY P & M	43
–	–	–	1	–	1004260-262	NAMEPLATE	42
–	–	–	1	–	2014336-021	LOGIC PLATE ASSY NO. 3	41
1	1	1	1	–	2014315-021	LOGIC PLATE ASSY NO. 2	40
1	1	1	1	–	2014352-021	LOGIC PLATE ASSY NO. 1	39
12	12	12	12	–	MS51959-46	SCREW, FLAT HD CROSS REC	38
16	16	16	16	16	1006671-003	NUT, STOP	37
8	8	8	8	8	1006671-004	GUIDE SOCKET	36
8	8	8	8	8	1006671-002	GUIDE PIN	35
2	2	2	2	2	MS51957-31	SCREW, PAN HD CROSS REC	34
1	1	1	1	1	2014238-011	GROUND STRAP	33
1	1	1	1	1	2014167-011	CABLE ASSY W5	32
1	1	1	1	1	2014166-011	CABLE ASSY W4	31
1	1	1	1	1	2014165-011	CABLE ASSY W3	30
1	1	1	1	1	2014164-011	CABLE ASSY W2	29
1	1	1	1	1	2014163-011	CABLE ASSY W1	28
AR	AR	AR	AR	AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	27
AR	AR	AR	AR	AR	MIL-A-5092 TYPE II	CEMENT	26
–	–	–	–	1	1004260-231	NAMEPLATE	25
2	2	2	2	2	1006982-5	WASHER, NYLON	24
5	5	5	5	5	MS15795-808	WASHER, FLAT	23
2	2	2	2	2	MS15795-806	WASHER, FLAT	22
6	6	6	6	6	MS51957-46	SCREW, PAN HD CROSS REC	21
24	24	24	24	36	MS51959-48	SCREW, FLAT HD CROSS REC	20
18	18	18	18	18	MS51959-43	SCREW, FLAT HD CROSS REC	19
1	1	1	1	1	MS51958-64	SCREW, PAN HD, CROSS REC	18
4	4	4	4	4	MS21044-C3	NUT, SELF LOCKING, HEX	17
1	1	1	1	1	MS35338-81	WASHER, LOCK	16
3	3	3	3	3	1006988-4	SLIDE, CHASSIS	15
3	3	3	3	3	1006988-2	SLIDE, CHASSIS	14
3	3	3	3	3	1006988-3	SLIDE, CHASSIS	13
3	3	3	3	3	1006988-1	SLIDE, CHASSIS	12
2	2	2	2	2	MS35335-60	WASHER, LOCK EXT TOOTH	11
				~~1~~	~~MS15795-808~~	~~WASHER, FLAT~~	~~10~~
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6	6	6	6	6	1014255-2	BRACKET ASSY	8
6	6	6	6	6	1020231	PLATE, SCREW SUPPORT	7
2	2	2	2	2	2014347	BRACKET, ANGLE	6
–	–	–	–	1	2014336-011	LOGIC PLATE ASSY NO.3	5
–	–	–	–	1	2014315-011	LOGIC PLATE ASSY NO.2	4
–	–	–	–	1	2014352-011	LOGIC PLATE ASSY NO.1	3
1	1	1	1	1	2014346	CHASSIS	2
–	–	–	–	1	2014231-011	PANEL ASSY, PROGRAMMER & MONITOR	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX .XXX
± ± ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE [illegible] JUN 65
CHECKED [illegible] 19 AUG 65
APPROVAL [illegible] 21 AUG 65
APPROVAL [illegible] AUG 65
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO 2014041
SCALE 1/1 WT SHEET 1 OF 2

2014041 E

F 2 / 2

2014041 E

SYM	DESCRIPTION	DATE	APPROVED
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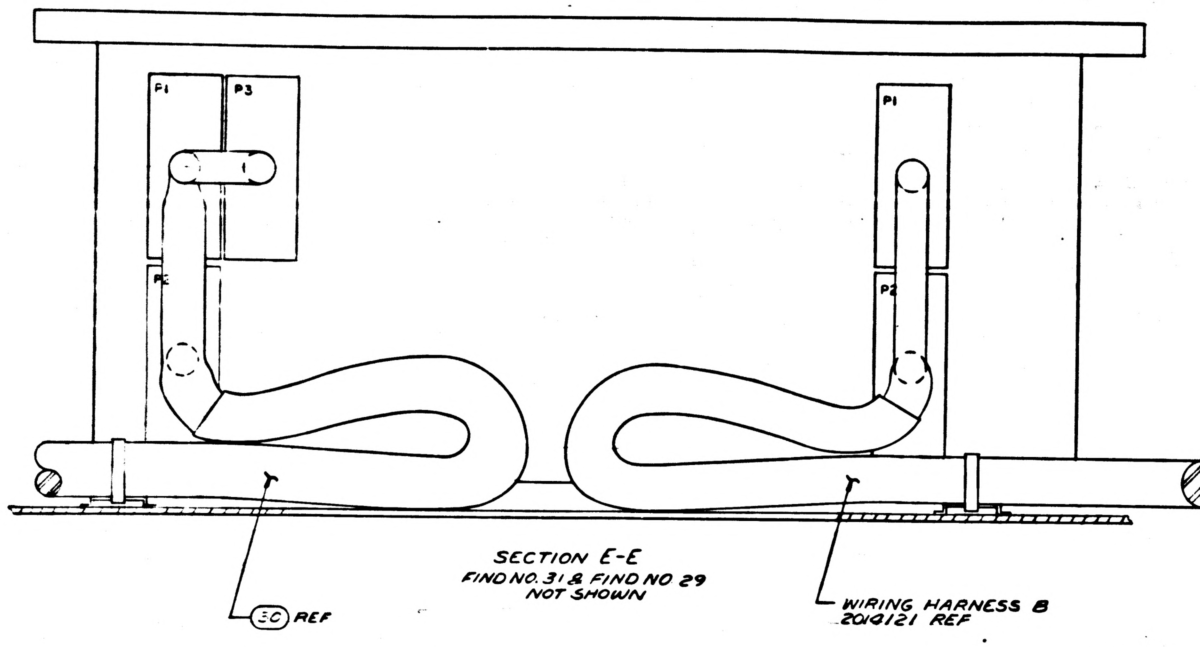
–	CLASS B CHANGED PER CCA R25[illegible]	[illegible]	[illegible]
A	CHANGED PER CCA R25570 AND CLASS A RELEASED PER TORR 2[illegible]	[illegible]	[illegible]
B	CHANGED PER TORR 28097 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
C	CHANGED PER TORR 29321 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
D	CHANGED PER TORR 30172 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
E	CHANGED PER TORR 33453 DR [illegible] CHK [illegible] APPD	[illegible]/67	[illegible]


P1
P3
P2
P1
P2
30 REF
WIRING HARNESS B
2014121 REF

SECTION E-E
FIND NO. 31 & FIND NO 29
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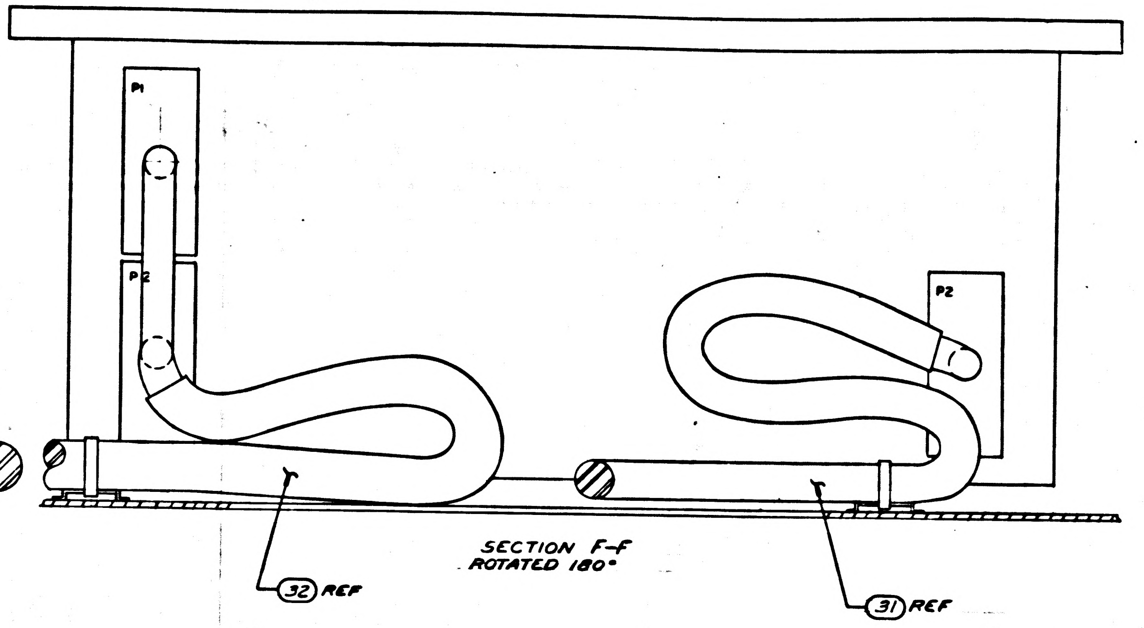
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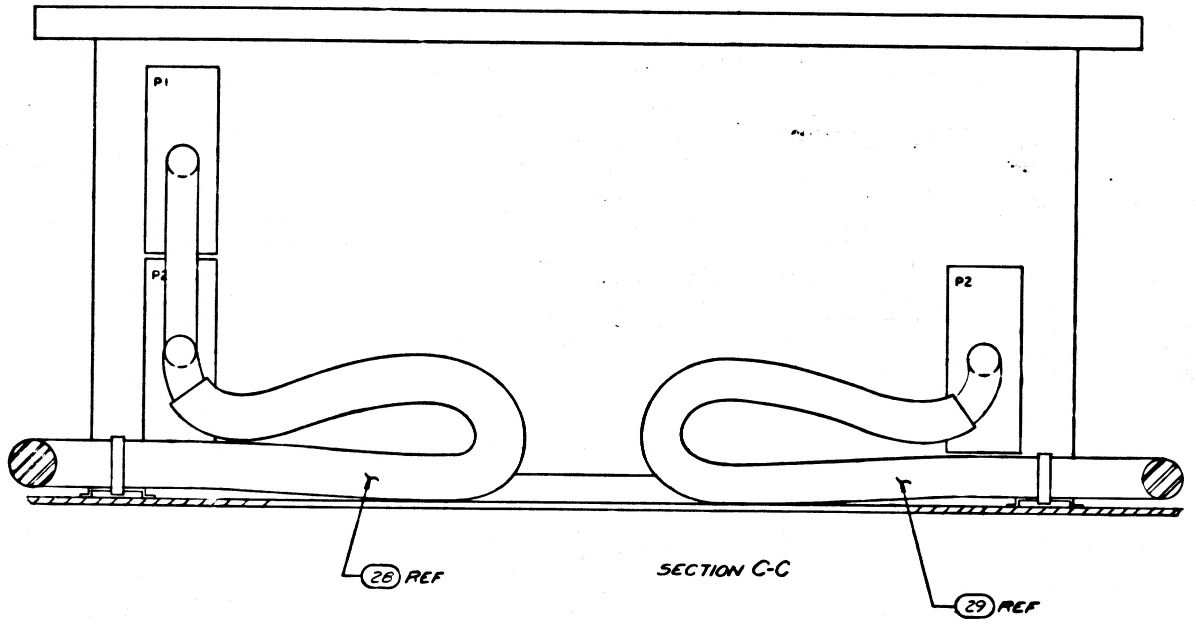
32 REF
31 REF

SECTION F-F
ROTATED 180°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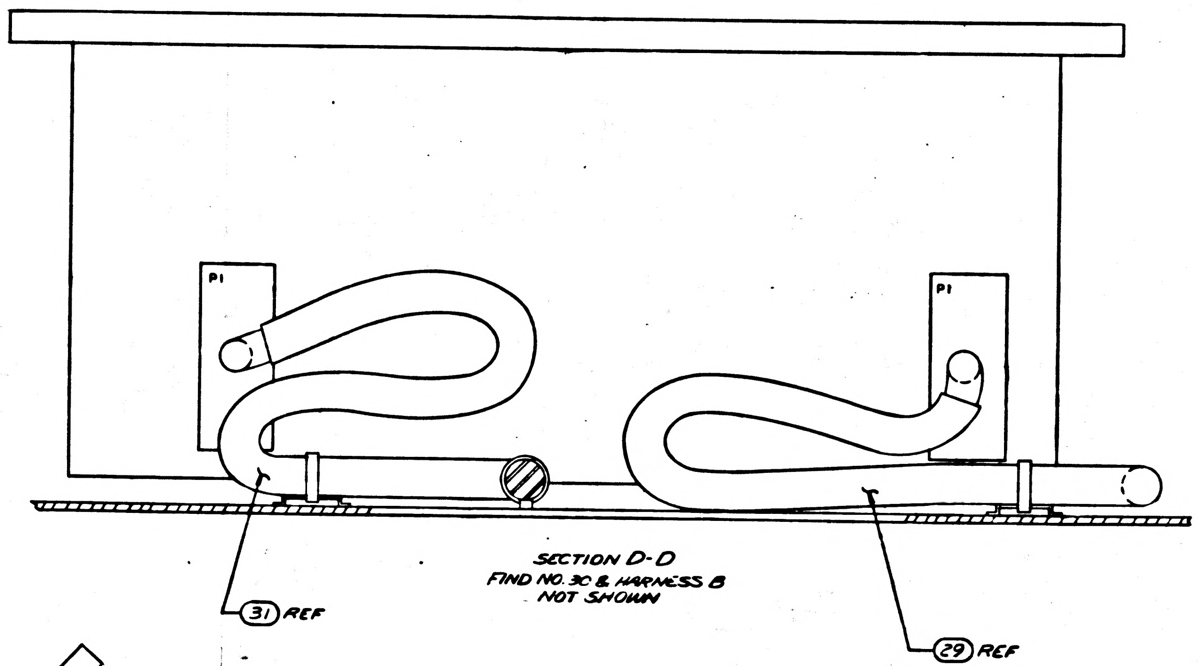
P2
28 REF
29 REF

SECTION C-C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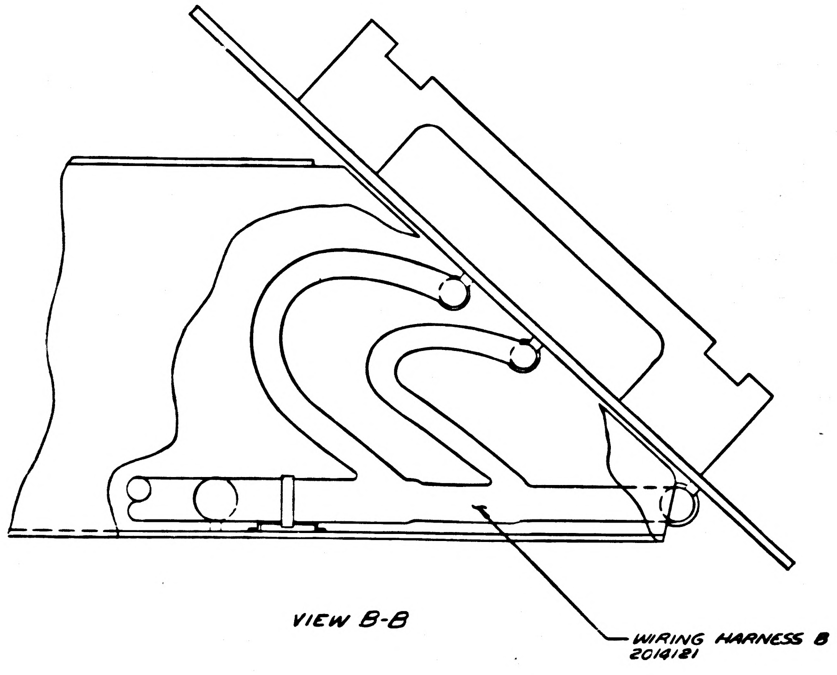
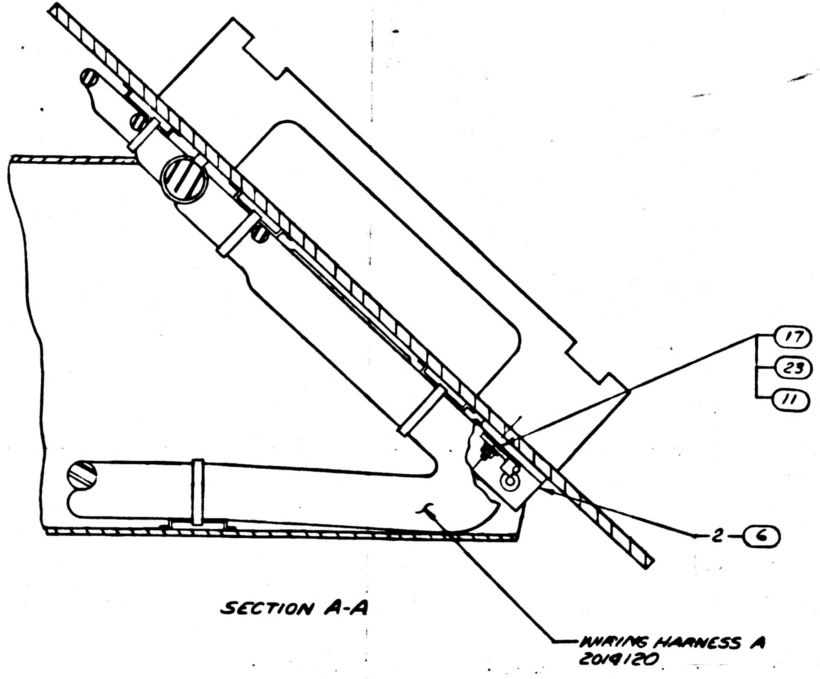
P1
31 REF
29 REF

SECTION D-D
FIND NO. 30 & HARNESS B
NOT SHOWN


WIRING HARNESS B
2014121

VIEW B-B


17
23
11
2—6
WIRING HARNESS A
2014120

SECTION A-A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX .XXX ±
± ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO [illegible]
DRAWN [illegible] DATE 9 JUL 65
CHECKED [illegible] 13 AUG 65
APPROVAL [illegible] 21 AUG 65
APPROVAL [illegible] 21 AUG 65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

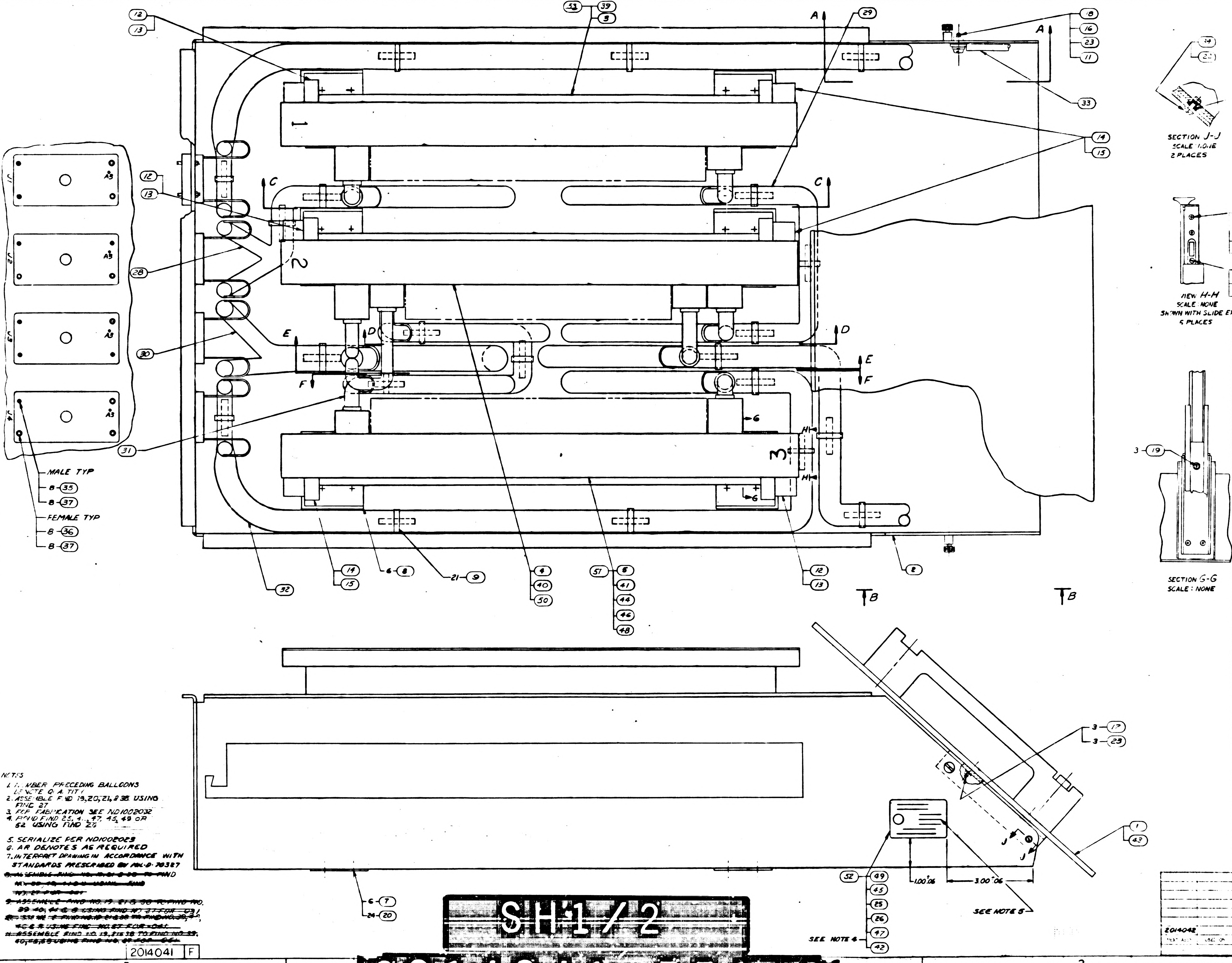
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO 2014041
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014041 E



1
2
3
A
B
C
D
E
F
G
H
J
MALE TYP
8-35
8-37
FEMALE TYP
8-36
8-37
SECTION J-J
SCALE: NONE
2 PLACES
VIEW H-H
SCALE: NONE
SHOWN WITH SLIDE EXTENDED
6 PLACES
SEE NOTE 2
SECTION G-G
SCALE: NONE
SEE NOTE 4
SEE NOTE 5
1.00±.06
3.00±.06
6-7
24-20
6-8
21-9
3-17
3-23
3-19

NOTES
1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE FIND 19, 20, 21, & 38 USING FIND 27
3. FOR FABRICATION SEE ND1002032
4. BOND FIND 25, 4[illegible], 47, 45, 49 OR 52 USING FIND 26
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
~~8. ASSEMBLE FIND NO. [illegible] TO FIND NO. [illegible] USING FIND NO. 27 FOR [illegible]~~
~~9. ASSEMBLE FIND NO. 19, 21 & 38 TO FIND NO. 39, 40, [illegible] USING FIND NO. 27 FOR -031,~~
~~[illegible] FIND NO. 19, 21 & 38 TO FIND NO. 39, 40, [illegible] USING FIND NO. 27 FOR -041~~
~~11. ASSEMBLE FIND NO. 19, 21 & 38 TO FIND NO. 39, 40, 48, 53 USING FIND NO. 27 FOR -051~~

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1	—			—	—	1004260
1	—	—	—	—	—	2014336
1	—		—	—	—	2014[illegible]
—	1	—	—	—	—	[illegible]
—	1	—	—	—	—	2014[illegible]
—	—	1	—	—	—	10042[illegible]
—	—	1	—	—	—	20143[illegible]
—	—	—		—	—	2016440
—	—		—	—		2014160
—	—		—		—	2016420
—	—		1	—		[illegible]
—	—	—	1	—	—	2014[illegible]
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—	—	—	—	1	—	100426[illegible]
—		—	—	1	—	2014[illegible]
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—	1	1	1	1	—	2014352
12	12	12	12	12	—	MS519[illegible]
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8	8	8	8	8	8	[illegible]
8	8	8	8	8	8	[illegible]
2	2	2	2	2	2	MS5[illegible]
1	1	1	1	1	1	[illegible]
1	1	1	1	1	1	[illegible]
1	1	1	1	1	1	[illegible]
1	1	1	1	1	1	[illegible]
1	1	1	1	1	1	[illegible]
	1	1	1		1	2014[illegible]
AR	AR	AR	AR	AR	AR	MIL-S[illegible]
AR	AR	AR	AR	AR	AR	MIL[illegible]
—	—	—	—	—	1	1004[illegible]
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6	6	6	6	6		MS5195[illegible]
24	24	24	24	24	36	MS51[illegible]
[illegible]	[illegible]	8	[illegible]	[illegible]	18	MS5[illegible]
		1	[illegible]	1	[illegible]	[illegible]
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	[illegible]	[illegible]				MS[illegible]
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						[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	21	[illegible]
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—		—	—	—	1	2014[illegible]
—		—	—		1	2014[illegible]
—		—	—		1	[illegible]
1	1	[illegible]		1	1	[illegible]
—		—	—			2014[illegible]

2014042

NEXT ASSY | USED ON

SH 1/2

2014041 F

2014041 FF 1/2

2014041 F

SYM	DESCRIPTION	DATE	APPROVED
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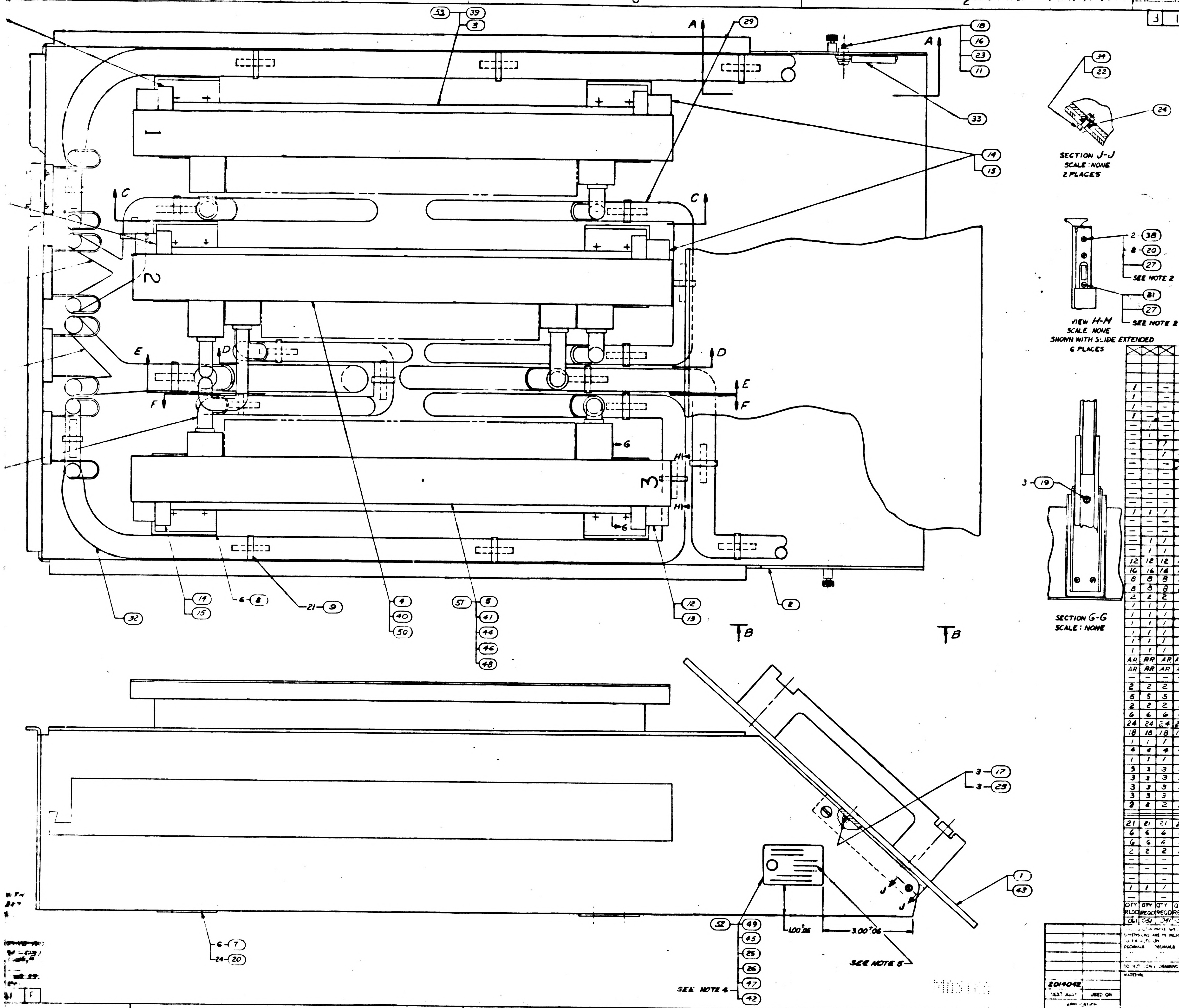
1	CHANGED PER CCA R25879 DR CHK APPD		
–	CLASS B CHANGED PER CCA R25503		
A	CHANGED PER CCA R25570 AND CLASS A RELEASED PER TDRR 25412	1/66	
B	CHANGED PER TDRR 29097 DR CHK APPD	3/66	
C	CHANGED PER TDRR 29321 DR CHK APPD		
D	CHANGED PER TDRR 30172 DR CHK APPD	/66	
E	CHANGED PER TDRR 33453 DR CHK APPD		
F	CHANGED PER TDRR 35533 DR CHK APPD		



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1	–	–	–	–	–	2014315-031	LOGIC PLATE ASSY NO 2	50
–	1	–	–	–	–	1004260-283	NAMEPLATE	49
–	1	–	–	–	–	2014336-051	LOGIC PLATE ASSY NO 3	48
–	–	1	–	–	–	1004260-276	NAMEPLATE	47
–	–	1	–	–	–	2014336-041	LOGIC PLATE ASSY NO.3	46
–	–	–	☒	–	–	2016440	INTERCONN DIAGRAM	REF
–	–	–	–	–	☒	2014160	INTERCONN DIAGRAM	REF
–	–	–	–	☒	–	2016420	INTERCONN DIAGRAM	REF
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–	–	–	–	1	–	1004260-262	NAMEPLATE	42
–	–	–	–	1	–	2014336-021	LOGIC PLATE ASSY NO. 3	41
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–	1	1	1	1	–	2014352-021	LOGIC PLATE ASSY NO. 1	39
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16	16	16	16	16	16	1006671-003	NUT, STOP	37
8	8	8	8	8	8	1006671-004	GUIDE SOCKET	36
8	8	8	8	8	8	1006671-002	GUIDE PIN	35
2	2	2	2	2	2	MS51957-31	SCREW, PAN HD CROSS REC	34
1	1	1	1	1	1	2014238-011	GROUND STRAP	33
1	1	1	1	1	1	2014167-011	CABLE ASSY W5	32
1	1	1	1	1	1	2014166-011	CABLE ASSY W4	31
1	1	1	1	1	1	2014165-011	CABLE ASSY W3	30
1	1	1	1	1	1	2014164-011	CABLE ASSY W2	29
1	1	1	1	1	1	2014163-011	CABLE ASSY W1	28
AR	AR	AR	AR	AR	AR	MIL-S-22473 GRADE N	SEALING & RETAINING COMPOUND	27
AR	AR	AR	AR	AR	AR	MIL-A-5092 TYPE II	CEMENT	26
–	–	–	–	–	1	1004260-231	NAMEPLATE	25
2	2	2	2	2	2	1006982-5	WASHER, NYLON	24
5	5	5	5	5	5	MS15795-808	WASHER, FLAT	23
2	2	2	2	2	2	MS15795-806	WASHER, FLAT	22
6	6	6	6	6	6	MS51957-46	SCREW PAN HD CROSS REC	21
24	24	24	24	24	36	MS51959-42	SCREW, FLAT HD CROSS REC	20
18	18	18	18	18	18	MS51959-43	SCREW, FLAT HD CROSS REC	19
1	1	1	1	1	1	MS51958-64	SCREW, PAN HD, CROSS REC	18
4	4	4	4	4	4	MS21044-C3	NUT, SELF LOCKING, HEX	17
1	1	1	1	1	1	MS35338-81	WASHER, LOCK	16
3	3	3	3	3	3	1006988-4	SLIDE, CHASSIS	15
3	3	3	3	3	3	1006988-2	SLIDE, CHASSIS	14
3	3	3	3	3	3	1006988-3	SLIDE, CHASSIS	13
3	3	3	3	3	3	1006988-1	SLIDE, CHASSIS	12
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~~–~~	~~–~~	~~–~~	~~–~~	~~–~~	~~1~~	~~MS15795-808~~	~~WASHER, F.~~	~~8~~
21	21	21	21	21	21	MS17821-1-9	STRAP, CABLE	9
6	6	6	6	6	6	1014255-2	BRACKET ASSY	8
6	6	6	6	6	6	1020231	PLATE SCREEN SUPPORT	7
2	2	2	2	2	2	2014347	BRACKET ANGLE	6
–	–	–	–	–	1	2014336-011	LOGIC PLATE ASSY NO.3	5
–	–	–	–	–	1	2014315-011	LOGIC PLATE ASSY NO.2	4
–	–	–	–	–	1	2014352-011	LOGIC PLATE ASSY NO.1	3
1	1	1	1	1	1	2014346	CHASSIS	2
–	–	–	–		1	2014231-011	PANEL ASSY, PROGRAMMER & MONITOR	1

LIST OF MATERIALS

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON MASS
CONTRACT NO NAS 9-497
DRAWN DATE 18 AUG 65
CHECKED A.I. Rayfield 18 AUG 65
APPROVAL M. Moore 21 AUG 65
APPROVAL AUG 65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

DRAWER ASSEMBLY
PROGRAMMER & MONITOR
COMPUTER TEST SET

49956 J 2014041

SCALE 1/1 SHEET 1 OF 2

2014041 F

2014041 F F 2/2 SH 1/2

2014041 F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
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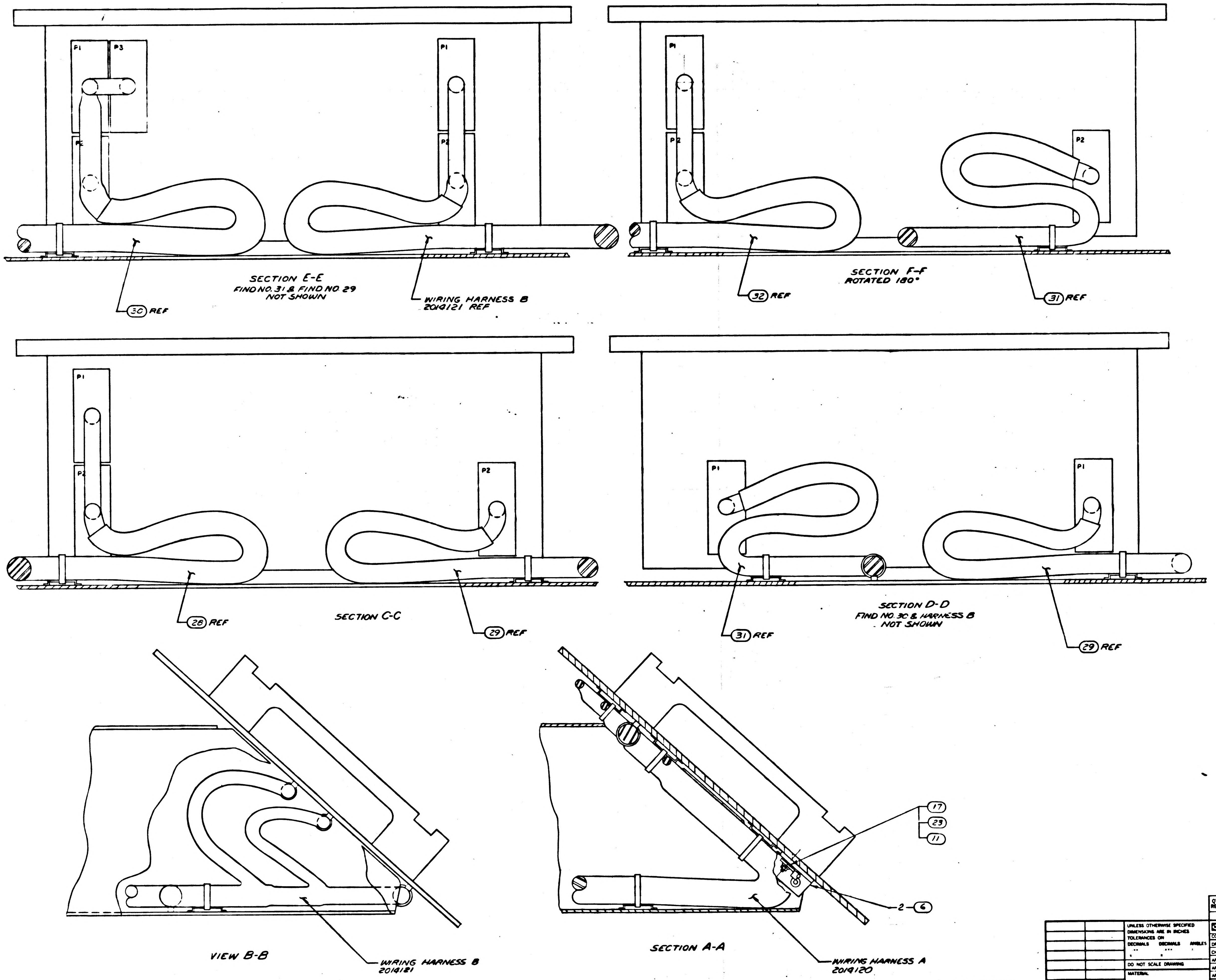
1	CHANGED PER CCA P25379 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA P25502	[illegible]	[illegible]
A	CHANGED PER CCA P25570 AND CLASS A RELEASED PER TDRR 2902	[illegible]	[illegible]
B	CHANGED PER TDRR 28C97 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
C	CHANGED PER TDRR 29321 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
D	CHANGED PER TDRR 3172 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
E	CHANGED PER TDRR 33453 DR [illegible] CHK [illegible] APPD	[illegible]	TSR
F	CHANGED PER TDRR 35533 DR [illegible] CHK [illegible] APPD	[illegible]	T&L


P1
P3
P2
P1
P2
SECTION E-E
FIND NO. 31 & FIND NO. 29
NOT SHOWN
30 REF
WIRING HARNESS B
2014121 REF
P1
P2
P2
SECTION F-F
ROTATED 180°
32 REF
31 REF
P1
P2
P2
SECTION C-C
28 REF
29 REF
P1
P1
SECTION D-D
FIND NO. 30 & HARNESS B
NOT SHOWN
31 REF
29 REF
VIEW B-B
WIRING HARNESS B
2014121
SECTION A-A
17
23
11
2
6
WIRING HARNESS A
2014120

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO NAS [illegible]
DRAWN [illegible] DATE 9 [illegible]
CHECKED [illegible] 13 AUG 65
APPROVAL [illegible] 21 AUG 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014041
SCALE 1/1
WT
SHEET 2 OF 2

2014041 F

SYM	DESCRIPTION	DATE	APPROVED
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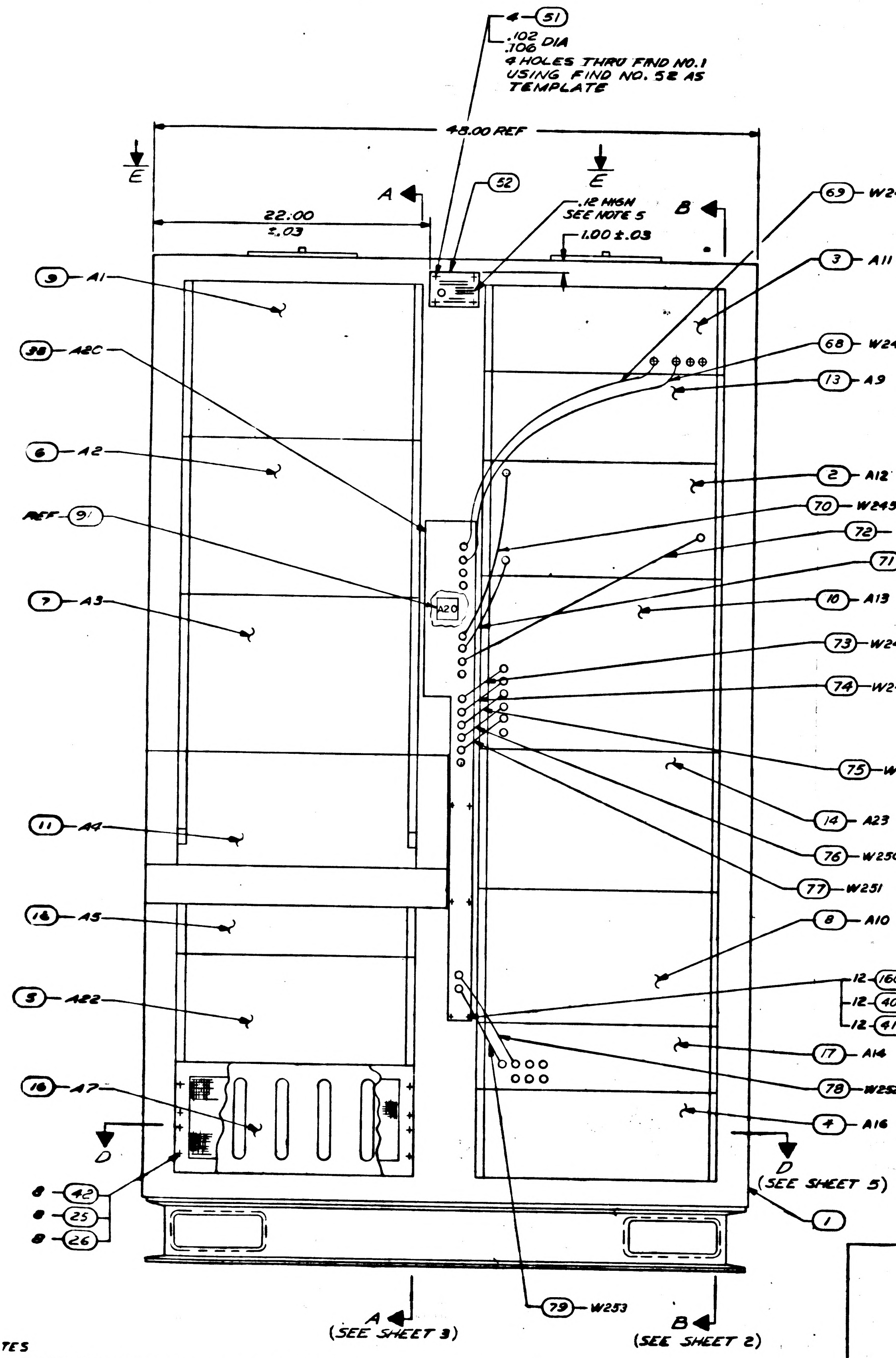
—	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25563 DR CHK APPD	4/27/65	
B	CHANGED PER CCA R25659 DR CHK APPD	[illegible]/66	
C	CHANGED PER CCA R25736 DR CHK APPD	[illegible]/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 2553.	[illegible]/66	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.102 .106 DIA
4 HOLES THRU FIND NO. 1 USING FIND NO. 52 AS TEMPLATE
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22.00 ±.03
E
A
(52)
.12 HIGH SEE NOTE 5
B
1.00 ±.03
(69)-W244
(3)-A11
(9)-A1
(38)-A2C
(68)-W243
(13)-A9
(6)-A2
(2)-A12
REF-(91)
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(72)-W247
(71)-W246
(7)-A3
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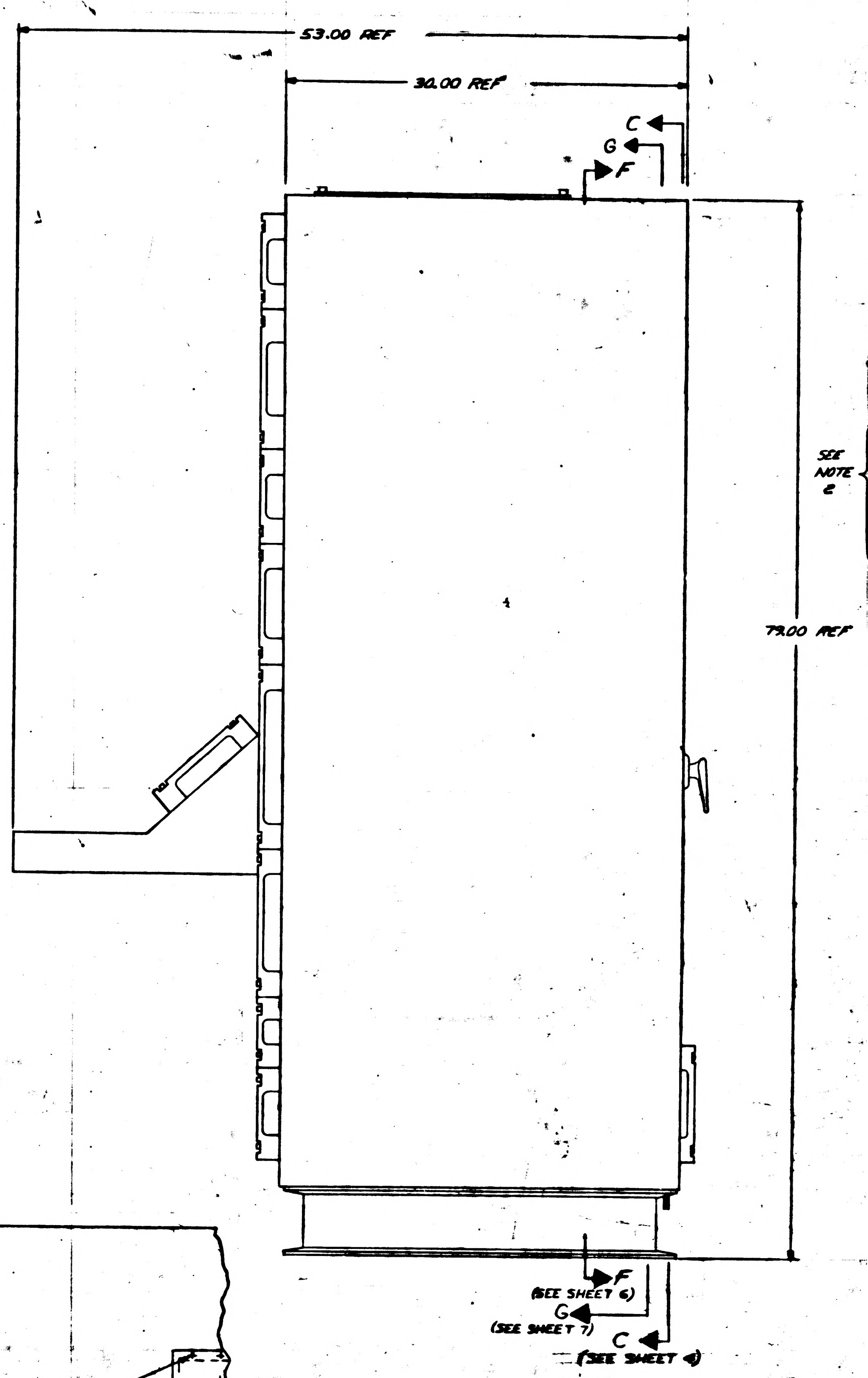
(14)-A23
(76)-W250
(77)-W251
(18)-A5
(8)-A10
12-(160)
12-(40)
12-(41)
(5)-A22
(17)-A14
(16)-A7
(78)-W252
(4)-A16
D
D (SEE SHEET 5)
8-(42)
8-(25)
8-(26)
(1)
(79)-W253
A (SEE SHEET 3)
B (SEE SHEET 2)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30.00 REF
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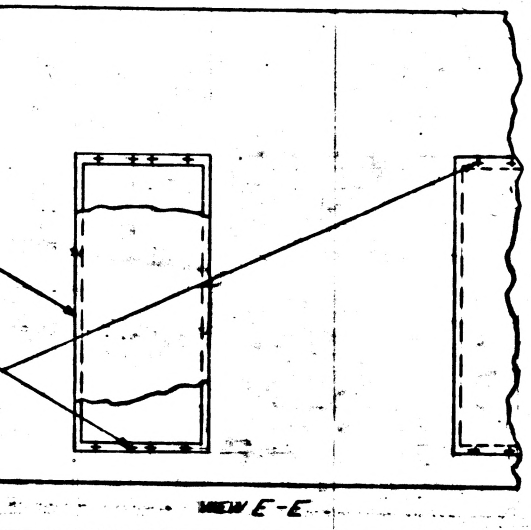
G
F
73.00 REF
F (SEE SHEET 6)
G (SEE SHEET 7)
C (SEE SHEET 4)


2-(19)
16-(42)
16-(25)
16-(26)
VIEW E-E

NOTES

1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89) ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH ~~STANDARDS PRESCRIBED~~ BY MIL-D-70327
4. STORE FIND 82 IN DOOR COMPARTMENT
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014082

CONTINUED ON SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2014461-031	CABLE ASSY, W245	70
1	2014461-021	CABLE ASSY, W244	69
1	2014461-011	CABLE ASSY, W243	68
1	2014432	PLATE, BAFFLE, TERM. BD	67
1	1014480-19	DECAL, IDENTIFICATION	66
1	-18		65
1	-17		64
4	-16		63
4	-23		62
4	-14		61
4	-13		60
4	-12		59
4	-11		58
4	-10		57
4	-9		56
1	1014480-8	DECAL, IDENTIFICATION	55
4	MS35649-84	NUT, HEX PLAIN	54
1	MS35649-104	NUT, PLAIN HEX	53
1	1004260-203	PLATE, IDENTIFICATION	52
4	AN535-4-3	DRIVE SCREW	51
1	MS51957-63	SCREW, PAN HD	50
18	MS51958-65	SCREW, PAN HEAD	49
2	MS51957-35	SCREW, PAN HEAD	48
1	2016346-011	TERMINAL BOARD ASSY	47
9	2014425	PLATE, BAFFLE	46
8	2014424	PLATE, BAFFLE	45
1	2014046-011	A18 INTERCONNECTION ASSY	44
93	MS51958-63	SCREW, PAN HEAD	43
34	MS51958-64	SCREW, PAN HEAD	42
12	MS35339-80	WASHER, LOCK	41
12	MS15795-807	WASHER	40
~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1020352	PLATE CONNECTOR ASSY	38
1	MS21919DG11	CLAMP, LOOP	37
4	1014157-2	SLIDE BRACKET ASSY	36
8	1014157-3	SLIDE BRACKET ASSY	35
16	MS35650-104	NUT, HEX PLAIN	34
4	1014301-2	SLIDE, ADAPTER	33
4	1006878-2	SLIDE, CABINET SECTION	32
4	1014301-1	SLIDE ADAPTER	31
1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	MS35649-64	NUT HEX, PLAIN	29
12	1014157-4	SLIDE BRACKET ASSY	28
2	1006938-3	SLIDE WITH CABLE CARRIER	27
226	MS35338-81	WASHER, LOCK	26
220	MS15795-808	WASHER, FLAT	25
72	MS51958-61	SCREW, PAN HEAD	24
88	MS51959-43	SCREW, FLAT HEAD	23
8	1014157-1	SLIDE BRACKET ASSY	22
4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	1006918	FILTER, AIR, RFI	19
1	2014274-011	AUX. OUTLET ASSY 115VAC	18
1	2014366-011	SELF TEST ASSY	17
1	1006897	FAN, VENTILATION, RFI SHIELD	16
1	2014047-011	CONNECTOR INTERFACE ASSY	15
1	2014045-011	RDC INTERFACE ASSY	14
1	2014044-011	POWER CONTROL ASSY	13
1	2014043-011	AC INPUT PANEL ASSY	12
1	2014041-011	PROGRAMMER & MONITOR ASSY	11
1	2014040-011	XY INTERFACE ASSY	10
1	2014039-011	TAPE PUNCH ASSY	9
1	2014038-011	TAPE READER ASSY	8
1	2014037-011	LOGIC DRAWER NO. 2 ASSY	7
1	2014036-011	LOGIC DRAWER NO. 1 ASSY	6
1	2014235-011	POWER SUPPLY 10, 13, 28VDC ASSY	5
1	2014234-011	POWER SUPPLY 3VDC ASSY	4
1	2014233-011	FREQUENCY COUNTER ASSY	3
1	2014232-011	OSCILLOSCOPE ASSY	2
1	1006923-001	CABINET, ELECTRICAL EQUIP	1

LIST OF MATERIALS

2014042 U

1900000 NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 4 JUNE 65
CHECKED 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/26/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

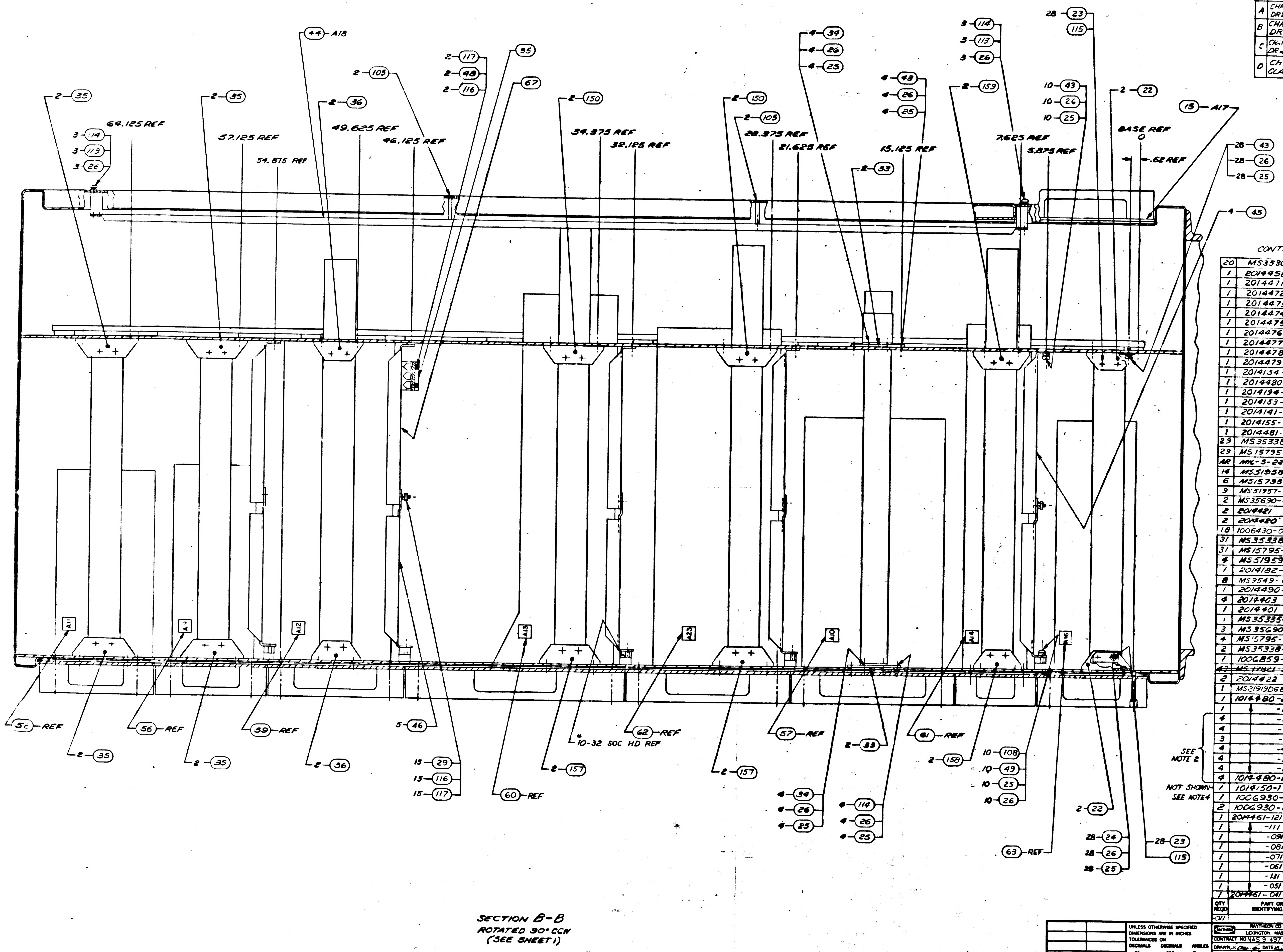
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
DRAWING NO. 2014042
SCALE 1/4
WT
SHEET 1 OF 7

MASTER

2014042 D

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25497		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK [illegible] APPD [illegible]	[illegible]	
B	CHANGED PER CCA R25659 DR B.K. Fuller CHK [illegible] APPD R C D	1/11/66	
C	CHANGED PER CCA R25736 DR [illegible] CHK P. [illegible] APPD R C D	1/18/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TORR 5973	1/20/66	



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63 REF
2-22
28-24
28-26
28-25
28-23
115

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 1)

CONTINUED ON SHEET 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	2014458-191	CABLE ASSY, GROUND	134
1	2014471-011	CABLE ASSY W27	133
1	2014472-011	CABLE ASSY W26	132
1	2014473-011	CABLE ASSY W25	131
1	2014474-011	CABLE ASSY W24	130
1	2014475-011	CABLE ASSY W23	129
1	2014476-011	CABLE ASSY W22	128
1	2014477-011	CABLE ASSY W21	127
1	2014478-011	CABLE ASSY W20	126
1	2014479-011	CABLE ASSY W19	125
1	2014154-011	CABLE ASSY W18	124
1	2014480-011	CABLE ASSY W17	123
1	2014194-011	CABLE ASSY W16	122
1	2014153-011	CABLE ASSY W15	121
1	2014141-011	CABLE ASSY W14	120
1	2014155-011	CABLE ASSY W13	119
1	2014481-011	CABLE ASSY W12	118
29	MS35338-79	WASHER, LOCK	117
29	MS15795-806	WASHER, FLAT	116
AR	MIL-S-22473GRHV	SEALING AND RETAINING COMPOUND	115
14	MS51958-62	SCREW, PAN HD	114
6	MS15795-809	WASHER, FLAT	113
9	MS51957-79	SCREW PAN HD	112
2	MS35690-410	NUT HEX	111
2	2014421	SUPPORT RAIL	110
2	2014420	SUPPORT RAIL	109
18	1006430-097	SPACER	108
31	MS35338-82	WASHER, LOCK	107
31	MS15795-810	WASHER, FLAT	106
4	MS51959-17	SCREW, FLAT HD	105
1	2014182-011	WIRING HARNESS, DC DIST	104
8	MS9549-09	WASHER, FLAT	103
1	2014490-011	WIRING HARNESS, BRANCHED	102
4	2014403	BLOCK, MOUNTING	101
1	2014401	BUSS, BAR	100
1	MS35335-63	WASHER, LOCK, EXTERNAL TOOTH	99
3	MS35690-610	NUT, PLAIN	98
4	MS15795-815	WASHER, FLAT	97
2	MS35338-84	WASHER, LOCK	96
1	1006859-2	TERMINAL BLOCK	95
~~43~~	~~MS 17821-2-9~~	~~TIE WRAP~~	~~94~~
2	2014422	COUPLING	93
1	MS21919DG8	CLAMP, LOOP	92
1	1014480-20	DECAL, IDENTIFICATION	91
1	-21		90
4	-22		89
4	-7		88
3	-5		87
4	-4		86
4	-3		85
4	-2		84
4	1014480-1	DECAL, IDENTIFICATION	83
1	1014150-1	CABLE, POWER	82
1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	2014461-121	CABLE ASSY W253	79
1	-111	W252	78
1	-091	W251	77
1	-081	W250	76
1	-071	W249	75
1	-061	W248	74
1	-131	W240	73
1	-051	W247	72
1	2014461-041	CABLE ASSY W246	71
-011	LIST OF MATERIALS		

SEE NOTE 2

NOT SHOWN SEE NOTE 4

2014042 D

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN [illegible] DATE 18 [illegible] 65
CHECKED [illegible] 13 OCT. 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

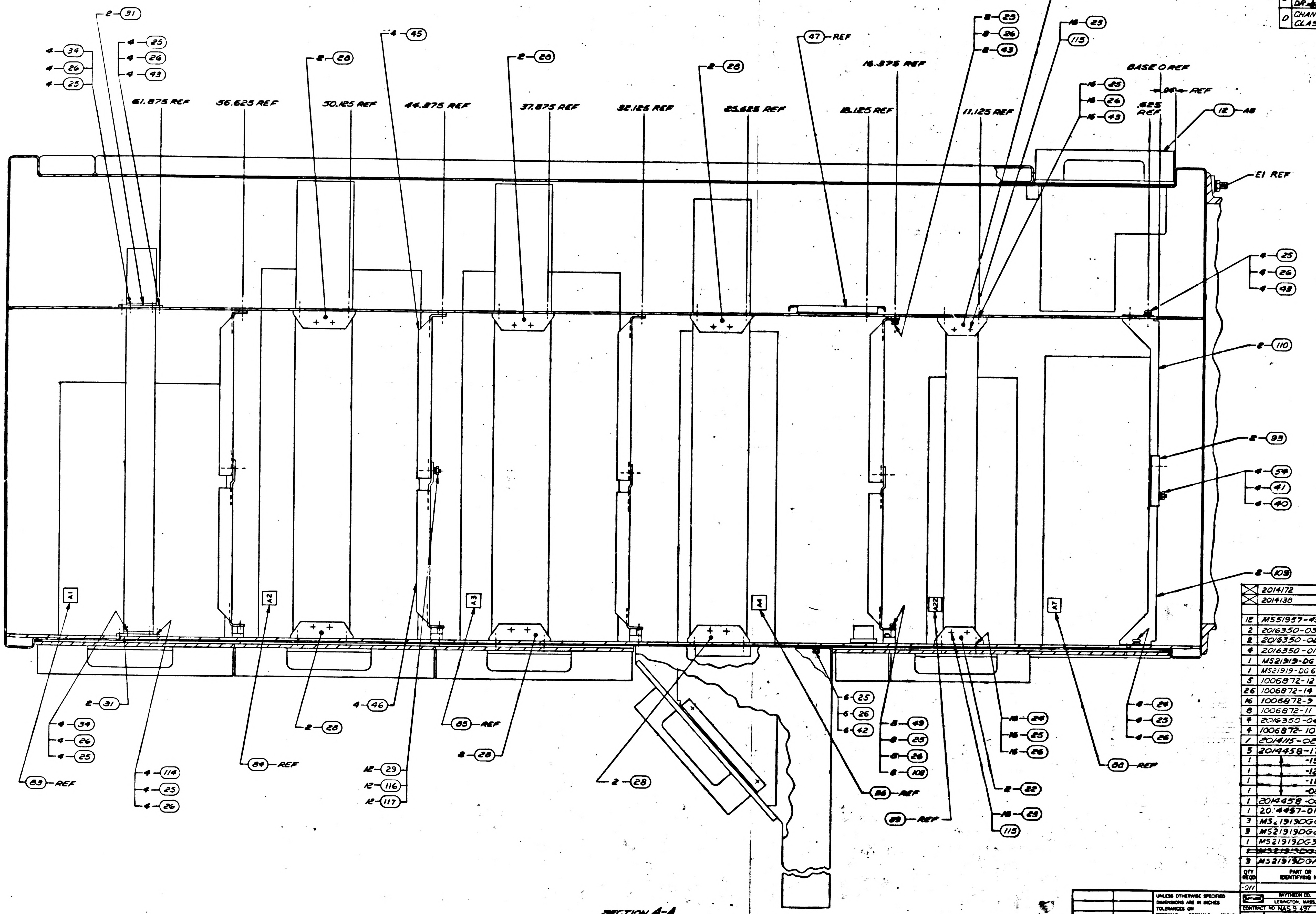
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 2 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	12/1/65	
A	CHANGED PER CCA R25563 DR CHK APPD	12/27/65	
B	CHANGED PER CCA R25659 DR CHK APPD P.C.Q.	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D.	1/19/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 2573	1/24/66	



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2-28
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47-REF
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88-REF

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014172	ELEC. SCHEM AC & DC PWR DISTRIB.	REF
☒	2014138	INTERCONN DIAGRAM	REF
12	MS51957-45	SCREW, PAN HD	160
2	2016350-031	SLIDE, BRACKET ASSY	159
2	2016350-021	SLIDE, BRACKET ASSY	158
4	2016350-011	SLIDE, BRACKET ASSY	157
1	MS21919-DG7	CLAMP, LOOP	156
1	MS21919-DG6	CLAMP, LOOP	155
5	1006872-12	CLAMP, LOOP	154
26	1006872-14	CLAMP, LOOP	153
16	1006872-9	CLAMP, LOOP	152
8	1006872-11	CLAMP, LOOP	151
4	2016350-041	SLIDE, BRACKET ASSY	150
4	1006872-10	CLAMP, LOOP	149
1	2014115-021	STRAP, GROUND	148
5	2014458-171	CABLE ASSY, GROUND	147
1	-151		146
1	-121		145
1	-111		144
1	-081		143
1	2014458-061		142
1	2014457-011	CABLE ASSY, GROUND	141
3	MS21919DG64	CLAMP, LOOP	140
3	MS21919DG24	CLAMP, LOOP	139
1	MS21919DG36	CLAMP, LOOP	138
~~1~~	~~MS21919DG10~~	~~CLAMP, LOOP~~	~~137~~
3	MS21919DG14	CLAMP, LOOP	136
-011	LIST OF MATERIALS		

2014042 D

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9 497
DRAWN DATE 16 June 65
CHECKED 19 OCT 65
APPROVAL 1 Nov 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C. 1/4/66

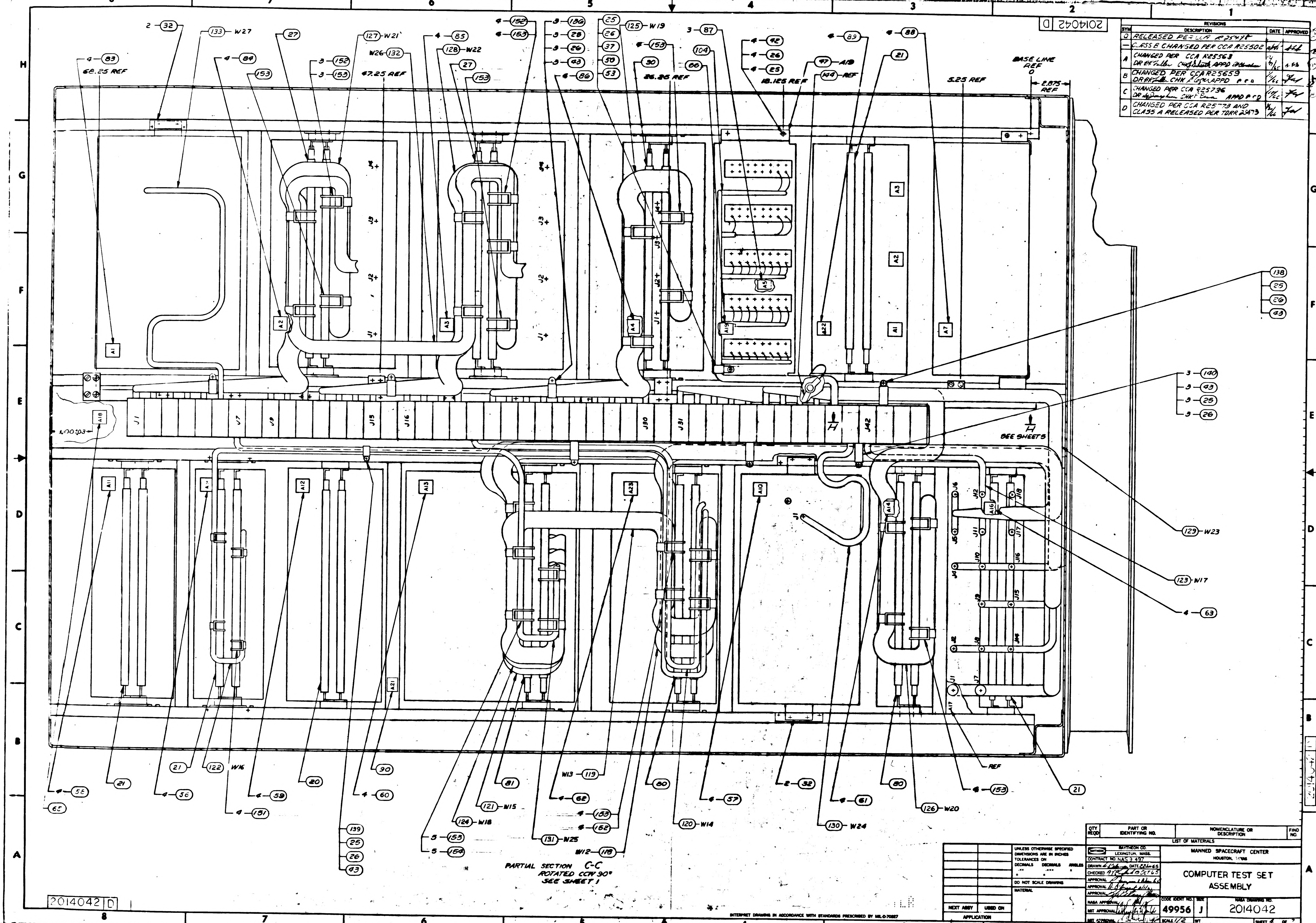
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 3 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 D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130 — W24
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126 — W20
4 — 153
REF
21

PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR BK Fuller CHK J Schrath APPD	12/7/65	
B	CHANGED PER CCA R25659 DR BK Fuller CHK APPD	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD	1/17/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	2/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 22 Jun 65
CHECKED 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

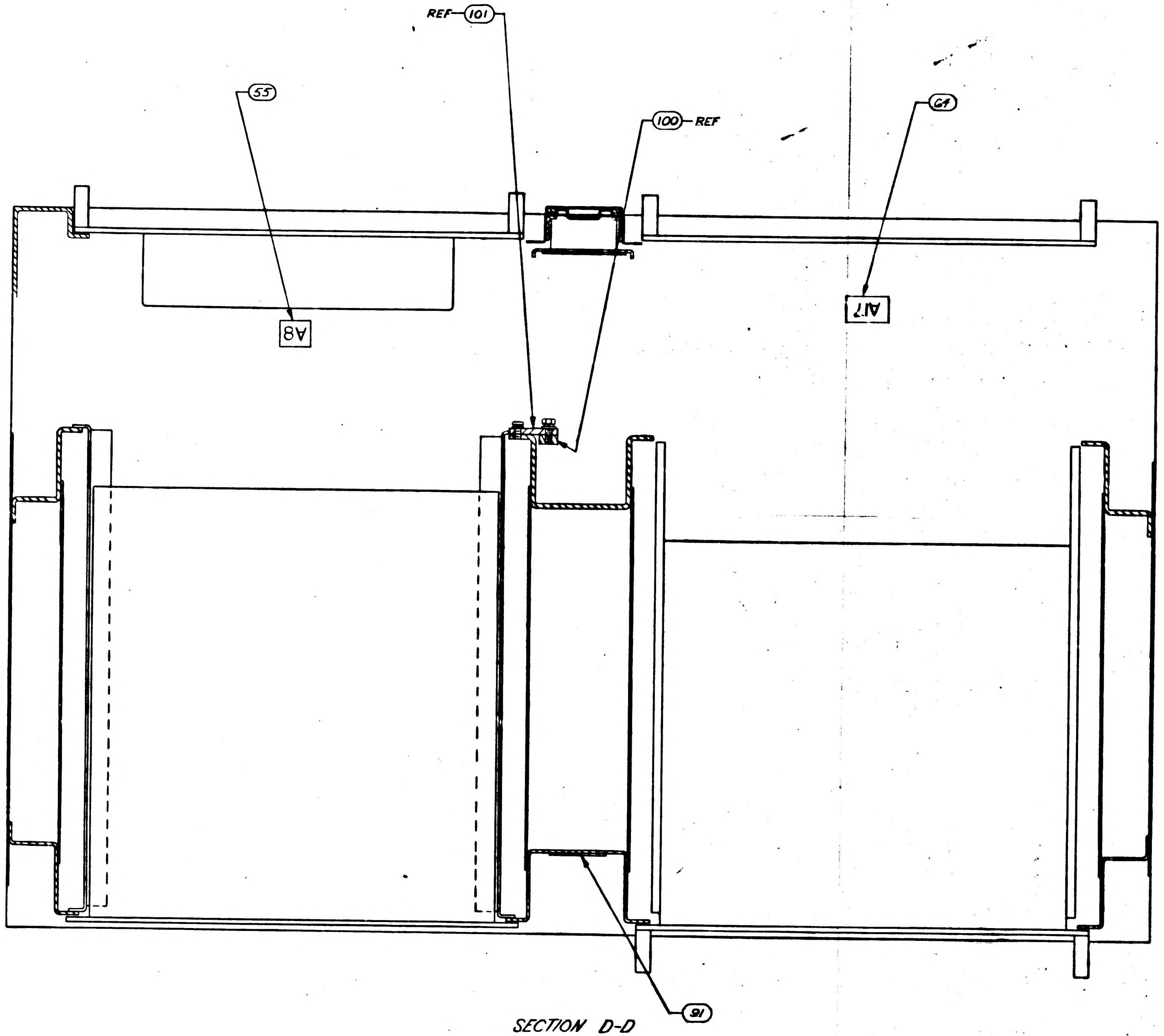
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 4 OF 7

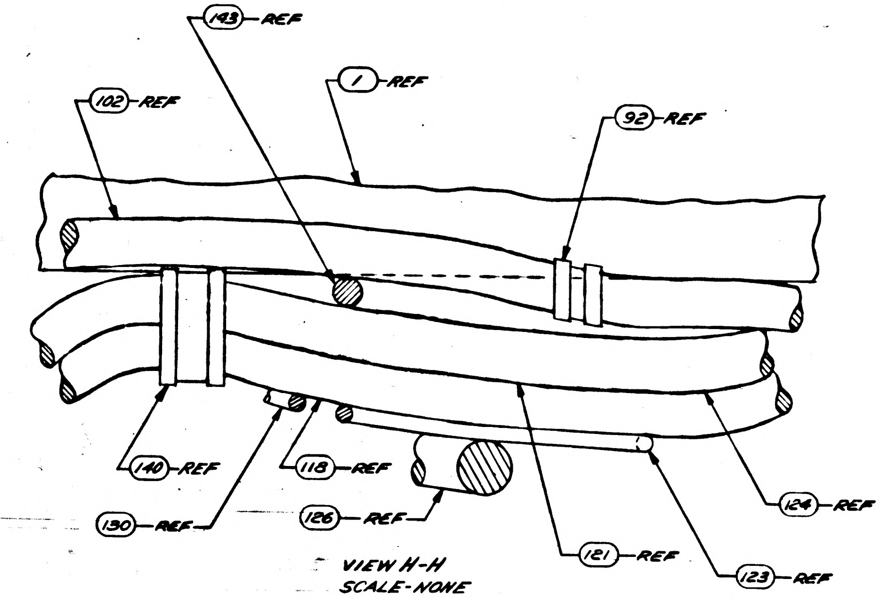
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 D

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	11/15/65	
A	CHANGED PER CCA R25563 DR EK Fuller CHK J. Gilbreath APPD R.P.	12/27/65	
B	CHANGED PER CCA R25659 DR CHK APFD	1/14/66	
C	CHANGED PER CCA R25736 DR CHK P. APPD	1/18/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TORR	2/7/66	



SECTION D-D
(SEE SHEET 1)



VIEW H-H
SCALE-NONE
SEE SHEET 4

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN K. DATE 15 Jun 65
CHECKED 19 OCT 65
APPROVAL
APPROVAL 11/15/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C. 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014042
SCALE 1/2 | WT | SHEET 5 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

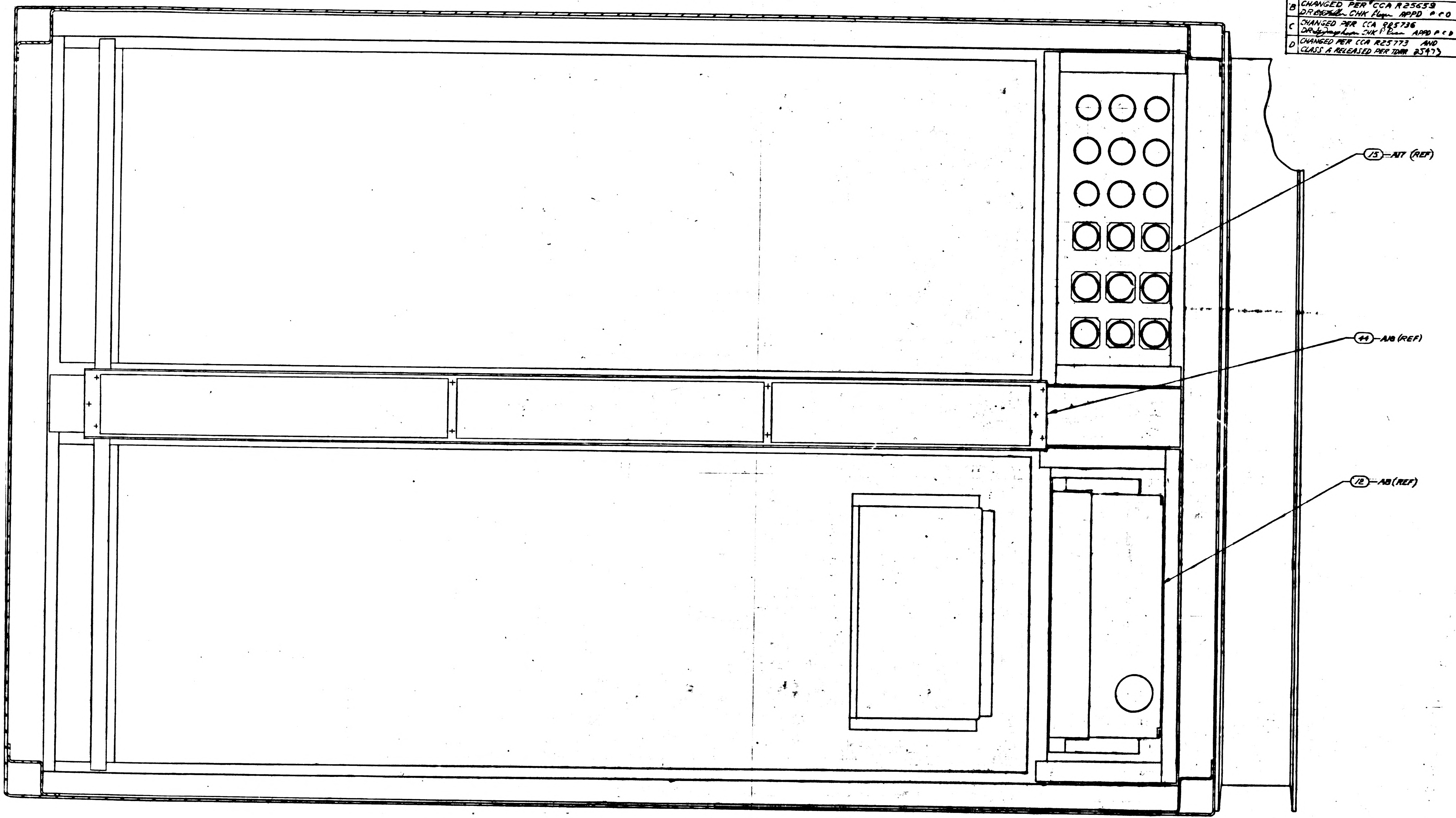
2014042 D

2014042 D

2014042 D

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25562		
A	CHANGED PER CCA R25563 DR B R Zuller CHK APPD	12/27/65	
B	CHANGED PER CCA R25659 DR B R Zuller CHK APPD P C D	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD P C D	1/ /66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/20/66	



SECTION F-F
ROTATED 90° CCW
(SEE SHEET 1)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 AUG 65
CHECKED BY 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

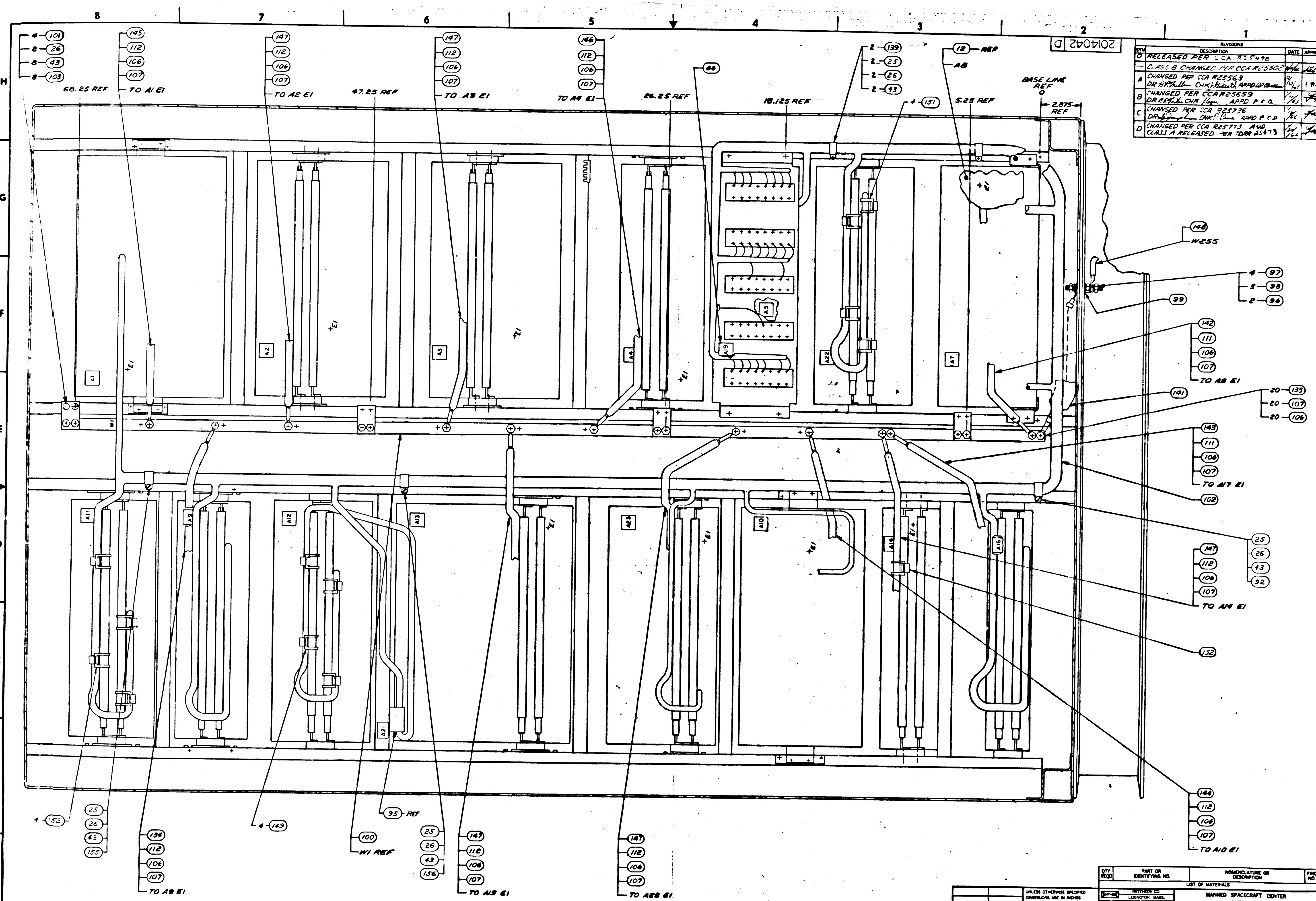
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 6 OF 7

2014042 D

2014042 D

MASTER

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR B.R. Muller CHK Galbraith APPD	4/27/65	
B	CHANGED PER CCA R25659 DR B.R. Muller CHK APPD P C D	11/11/65	
C	CHANGED PER CCA R25736 DR CHK APPD P C D	1/4/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/20/66	



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TO A3 E1
TO A4 E1
TO A8 E1
TO A17 E1
TO A14 E1
TO A10 E1
TO A9 E1
TO A13 E1
TO A23 E1
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A8
W255
W1 REF
95 REF
A1
A2
A3
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A5
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A12
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A16
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A23
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W1
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146 112 106 107
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143 111 106 107
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25 26 43 92
147 112 106 107
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144 112 106 107
4 152
25 26 43 155
136 112 106 107
4 149
100
25 26 43 156
147 112 106 107
147 112 106 107

SECTION G-G
ROTATED CCW 90°
SEE SHEET 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Miller DATE 4 OCT 65
CHECKED 9 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

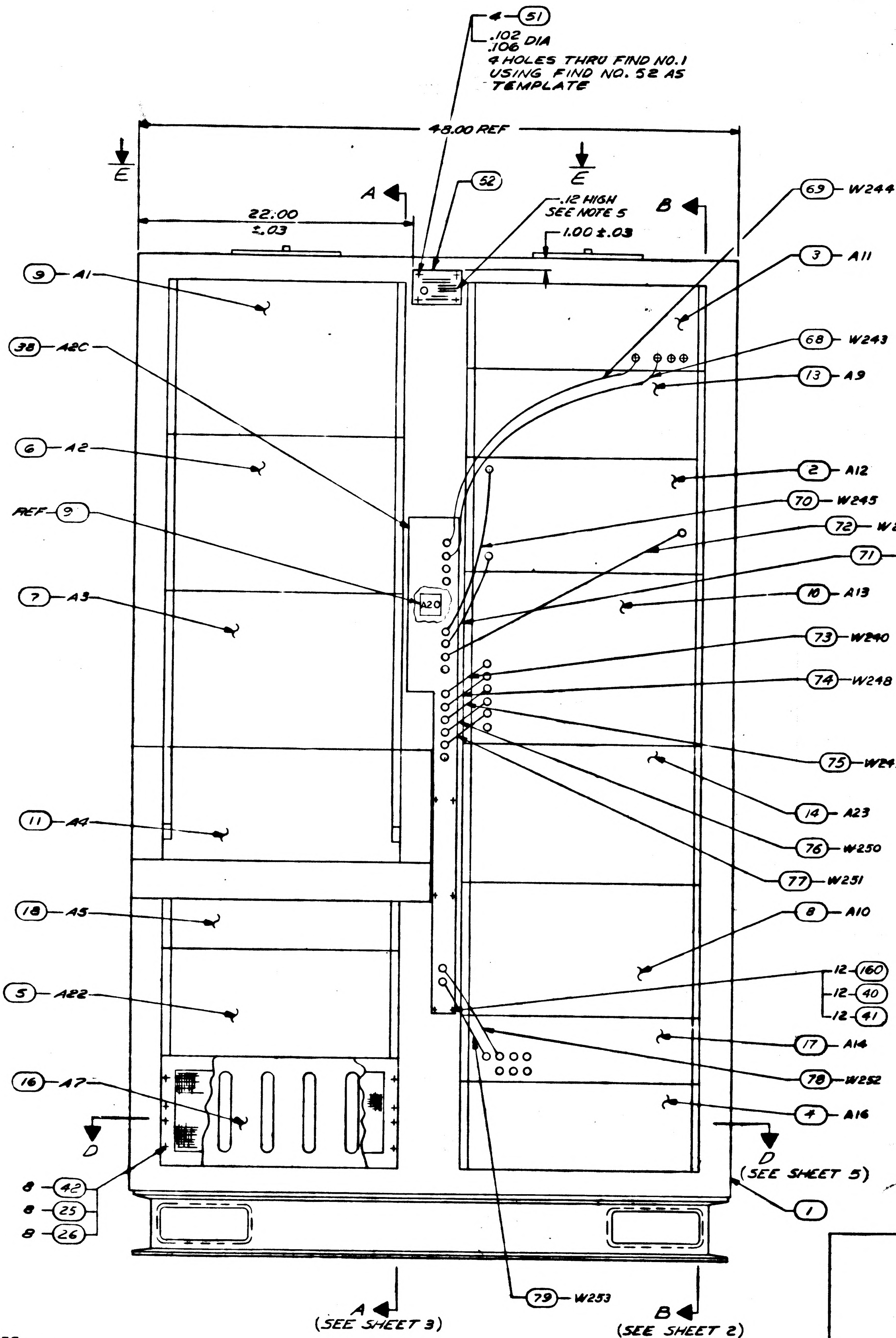
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 7 OF 7

2014042 E

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R2556		
A	CHANGED PER CCA R25563 DR CHK APPD	11/22/65	
B	CHANGED PER CCA R25659 DR CHK APPD PCD	1/10/66	
C	CHANCED PER CCA R25736 DR CHK APPD PCD	1/19/66	
D	CHANGED PER CCA R25775 AND CLASS A RELEASED PER TORR 25973	1/31/66	
E	CHANGED PER TORR 26316 DR CHK APPD PCD	3/17/66	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.102 .106 DIA
4 HOLES THRU FIND NO. 1 USING FIND NO. 52 AS TEMPLATE
48.00 REF
E
22.00 ±.03
A
(52)
.12 HIGH SEE NOTE 5
1.00 ±.03
B
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(3) A11
(9) A1
(38) A2C
(68) W243
(13) A9
(6) A2
(2) A12
(70) W245
(72) W247
REF (9)
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(71) W246
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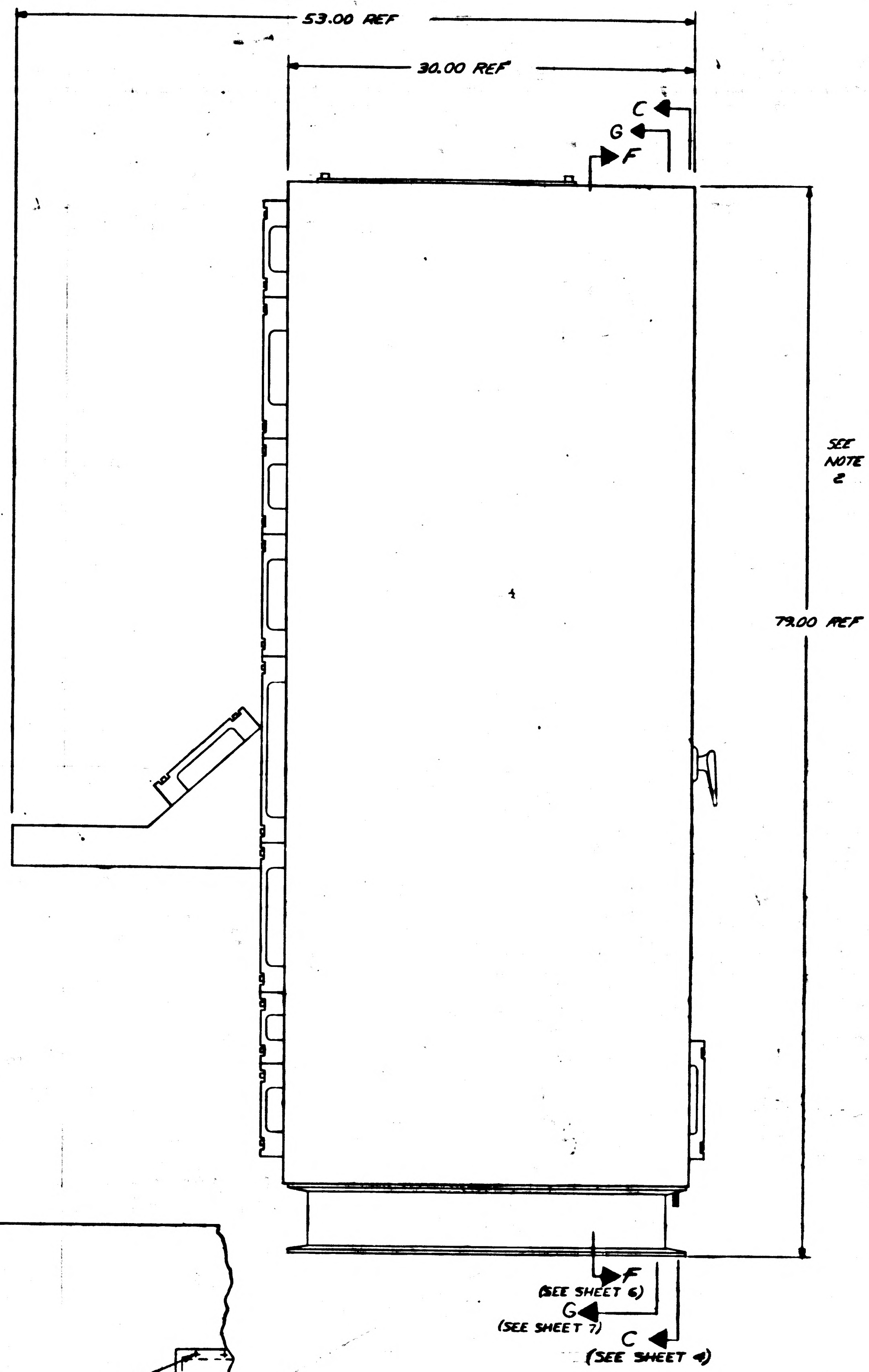
(74) W248
(75) W249
(11) A4
(14) A23
(76) W250
(77) W251
(18) A5
(8) A10
12 (160)
12 (40)
12 (41)
(5) A22
(17) A14
(16) A7
(78) W252
(4) A16
D
D (SEE SHEET 5)
8 (42)
8 (25)
8 (26)
(1)
(79) W253
A (SEE SHEET 3)
B (SEE SHEET 2)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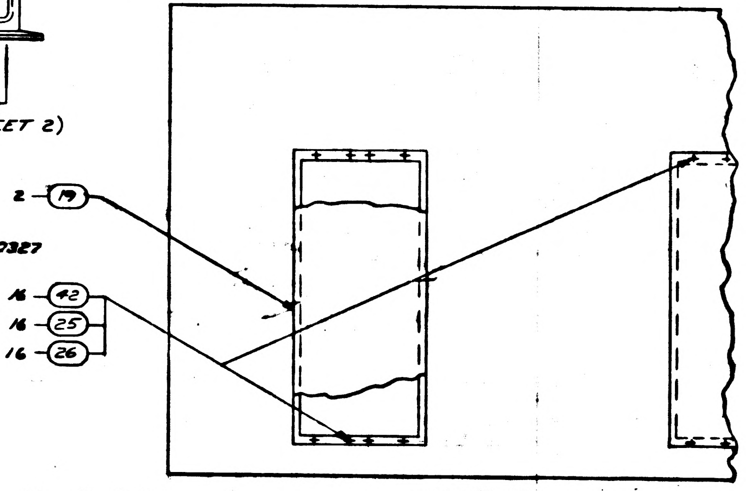
30.00 REF
C
G
F
79.00 REF
F (SEE SHEET 6)
G (SEE SHEET 7)
C (SEE SHEET 4)


2 (19)
16 (42)
16 (25)
16 (26)

VIEW E-E

NOTES
1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89) ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH ~~STANDARDS PRESCRIBED~~ BY MIL-D-70327
4. STORE FIND 82 IN DOOR COMPARTMENT
5. SERIALIZE PER ND 1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014082
8. ASSEMBLE FIND 49 USING FIND 161

CONTINUED ON SHEET 2

SEE NOTE 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2014461-031	CABLE ASSY, W245	70
1	2014461-021	CABLE ASSY, W244	69
1	2014461-011	CABLE ASSY, W243	68
1	2014432	PLATE, BAFFLE, TERM. BD	67
1	1014480 -19	DECAL, IDENTIFICATION	66
1	-18		65
1	-17		64
4	-16		63
4	-23		62
4	-14		61
4	-13		60
4	-12		59
4	-11		58
4	-10		57
4	-9		56
1	1014480-8	DECAL, IDENTIFICATION	55
4	MS35649-84	NUT, HEX PLAIN	54
1	MS35649-104	NUT, PLAIN HEX	53
1	1004260-203	PLATE, IDENTIFICATION	52
4	AN535-4-3	DRIVE SCREW	51
1	MS51957-63	SCREW, PAN HD	50
18	MS51958-67	SCREW, PAN HEAD	49
2	MS51957-35	SCREW, PAN HEAD	48
1	2016346-011	TERMINAL BOARD ASSY	47
9	2014425	PLATE, BAFFLE	46
8	2014424	PLATE, BAFFLE	45
1	2014046-011	A18 INTERCONNECTION ASSY	44
93	MS51958-63	SCREW, PAN HEAD	43
34	MS51958-64	SCREW, PAN HEAD	42
12	MS35338-80	WASHER, LOCK	41
12	MS15795-807	WASHER	40
~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1020352	PLATE CONNECTOR ASSY	38
1	MS21919DG11	CLAMP, LOOP	37
4	1014157-2	SLIDE BRACKET ASSY	36
8	1014157-3	SLIDE BRACKET ASSY	35
16	MS35650-104	NUT, HEX PLAIN	34
4	1014301-2	SLIDE, ADAPTER	33
4	1006878-2	SLIDE, CABINET SECTION	32
4	1014301-1	SLIDE ADAPTER	31
1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	MS35649-64	NUT HEX, PLAIN	29
12	1014157-4	SLIDE BRACKET ASSY	28
2	1006938-3	SLIDE WITH CABLE CARRIER	27
208	MS35338-81	WASHER, LOCK	26
220	MS15795-808	WASHER, FLAT	25
72	MS51958-61	SCREW, PAN HEAD	24
88	MS51959-43	SCREW, FLAT HEAD	23
8	1014157-1	SLIDE BRACKET ASSY	22
4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	1006918	FILTER, AIR, RFI	19
1	2014274-011	AUX. OUTLET ASSY 115VAC	18
1	2014366-011	SELF TEST ASSY	17
1	1006897	FAN, VENTILATION, RFI SHIELD	16
1	2014047-011	CONNECTOR INTERFACE ASSY	15
1	2014045-011	RDC INTERFACE ASSY	14
1	2014044-011	POWER CONTROL ASSY	13
1	2014043-011	AC INPUT PANEL ASSY	12
1	2014041-011	PROGRAMMER & MONITOR ASSY	11
1	2014040-011	XY INTERFACE ASSY	10
1	2014039-011	TAPE PUNCH ASSY	9
1	2014038-011	TAPE READER ASSY	8
1	2014037-011	LOGIC DRAWER NO. 2 ASSY	7
1	2014036-011	LOGIC DRAWER NO. 1 ASSY	6
1	2014235-011	POWER SUPPLY 10, 13, 28VDC ASSY	5
1	2014234-011	POWER SUPPLY 3VDC ASSY	4
1	2014233-011	FREQUENCY COUNTER ASSY	3
1	2014232-011	OSCILLOSCOPE ASSY	2
1	1006423-001	CABINET, ELECTRICAL EQUIP	1

-011 LIST OF MATERIALS

1900090	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN Joe Roper DATE 7 JUNE 65
CHECKED 13 OCT 65
APPROVAL 1 Nov 65
APPROVAL 11/1/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/6/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET ASSEMBLY

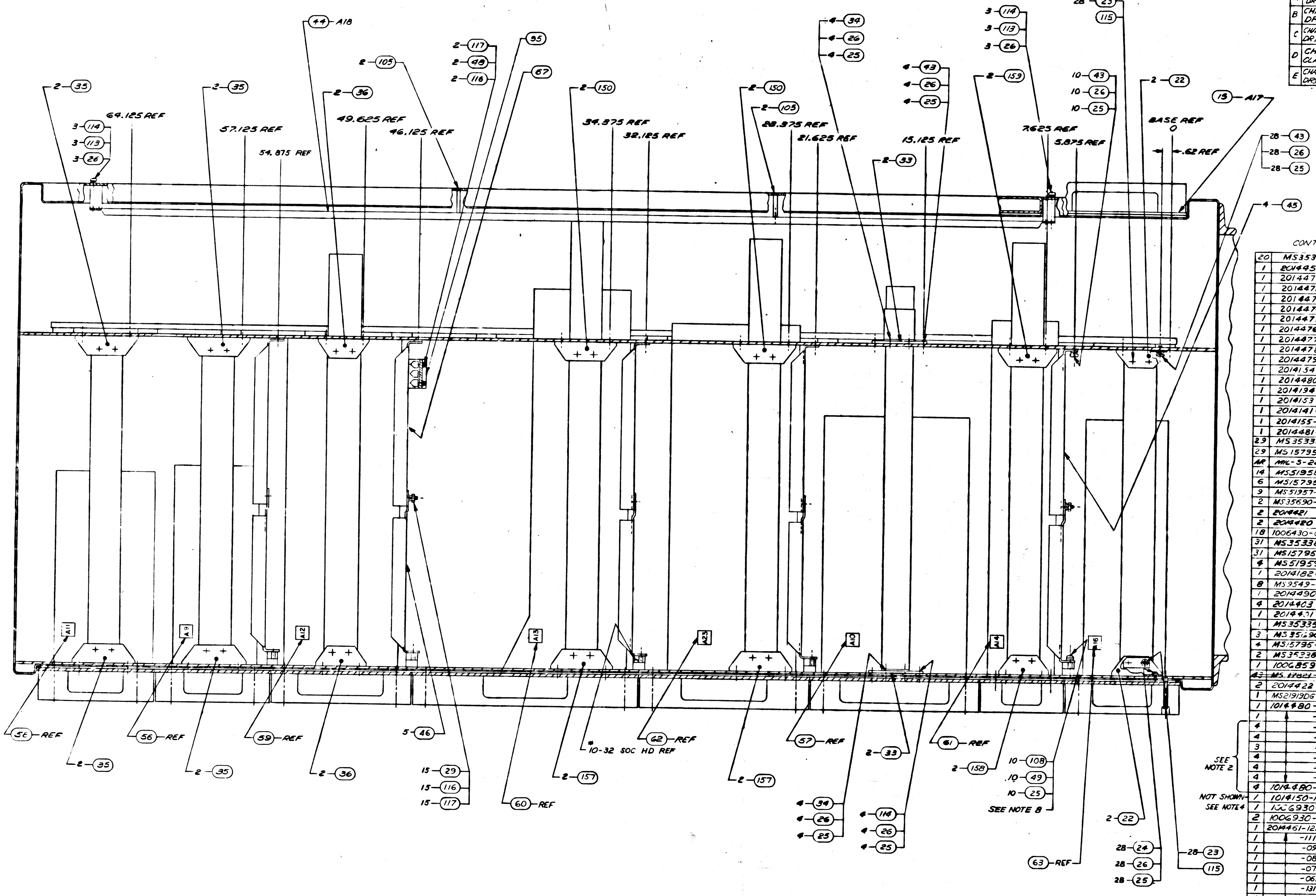
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014042
SCALE 1/4	WT	SHEET 1 OF 7

2014042 E

2014042 E

2014042 E

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK APPD		
B	CHANGED PER CCA R25659 DR CHK APPD PCD	1/14/66	
C	CHANGED PER CCA R25736 DR CHK APPD PCD	1/18/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TORR 25973	1/24/66	
E	CHANGED PER TORR 26316 DR CHK APPD PCD	3/17/66	



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61-REF
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10-108
10-49
10-25
SEE NOTE 8
63-REF
2-22
28-24
28-26
28-25
28-23
115

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 1)

CONTINUED ON SHEET 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	2014458-191	CABLE ASSY, GROUND	134
1	2014471-011	CABLE ASSY W27	133
1	2014472-011	CABLE ASSY W26	132
1	2014473-011	CABLE ASSY W25	131
1	2014474-011	CABLE ASSY W24	130
1	2014475-011	CABLE ASSY W23	129
1	2014476-011	CABLE ASSY W22	128
1	2014477-011	CABLE ASSY W21	127
1	2014478-011	CABLE ASSY W20	126
1	2014479-011	CABLE ASSY W19	125
1	2014154-011	CABLE ASSY W18	124
1	2014480-011	CABLE ASSY W17	123
1	2014194-011	CABLE ASSY W16	122
1	2014153-011	CABLE ASSY W15	121
1	2014141-011	CABLE ASSY W14	120
1	2014155-011	CABLE ASSY W13	119
1	2014481-011	CABLE ASSY W12	118
29	MS35338-79	WASHER, LOCK	117
29	MS15795-806	WASHER, FLAT	116
AR	MIL-S-22473GRHV	SEALING AND RETAINING COMPOUND	115
14	MS51958-62	SCREW, PAN HD	114
6	MS15795-809	WASHER, FLAT	113
9	MS51957-79	SCREW PAN HD	112
2	MS35690-410	NUT HEX	111
2	2014421	SUPPORT RAIL	110
2	2014420	SUPPORT RAIL	109
18	1006430-097	SPACER	108
31	MS35338-82	WASHER, LOCK	107
31	MS15795-810	WASHER, FLAT	106
4	MS51959-17	SCREW, FLAT HD	105
1	2014182-011	WIRING HARNESS, DC DIST	104
8	MS9549-09	WASHER, FLAT	103
1	2014490-011	WIRING HARNESS, BRANCHED	102
4	2014403	BLOCK, MOUNTING	101
1	2014401	BUSS, BAR	100
1	MS35335-63	WASHER, LOCK, EXTERNAL TOOTH	99
3	MS35690-610	NUT, PLAIN	98
4	MS15795-815	WASHER, FLAT	97
2	MS35338-84	WASHER, LOCK	96
1	1006859-2	TERMINAL BLOCK	95
~~43~~	~~MS 17821-2-9~~	~~TIE WRAP~~	~~94~~
2	2014422	COUPLING	93
1	MS21919DG8	CLAMP, LOOP	92
1	1014480-20	DECAL, IDENTIFICATION	91
1	-21		90
4	-22		89
4	-7		88
3	-5		87
4	-4		86
4	-3		85
4	-2		84
4	1014480-1	DECAL, IDENTIFICATION	83
1	1014150-1	CABLE, POWER	82
1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	2014461-121	CABLE ASSY W253	79
1	-111	W252	78
1	-091	W251	77
1	-081	W250	76
1	-071	W249	75
1	-061	W248	74
1	-131	W240	73
1	-051	W247	72
1	2014461-041	CABLE ASSY W246	71
-011	LIST OF MATERIALS		

SEE NOTE 2 (items 90–84)

NOT SHOWN – SEE NOTE 4 (item 82)

2014042 E

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO. NAS 9 497
DRAWN DATE 18 Jun 65
CHECKED 19 OCT 65
APPROVAL 1 Nov 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

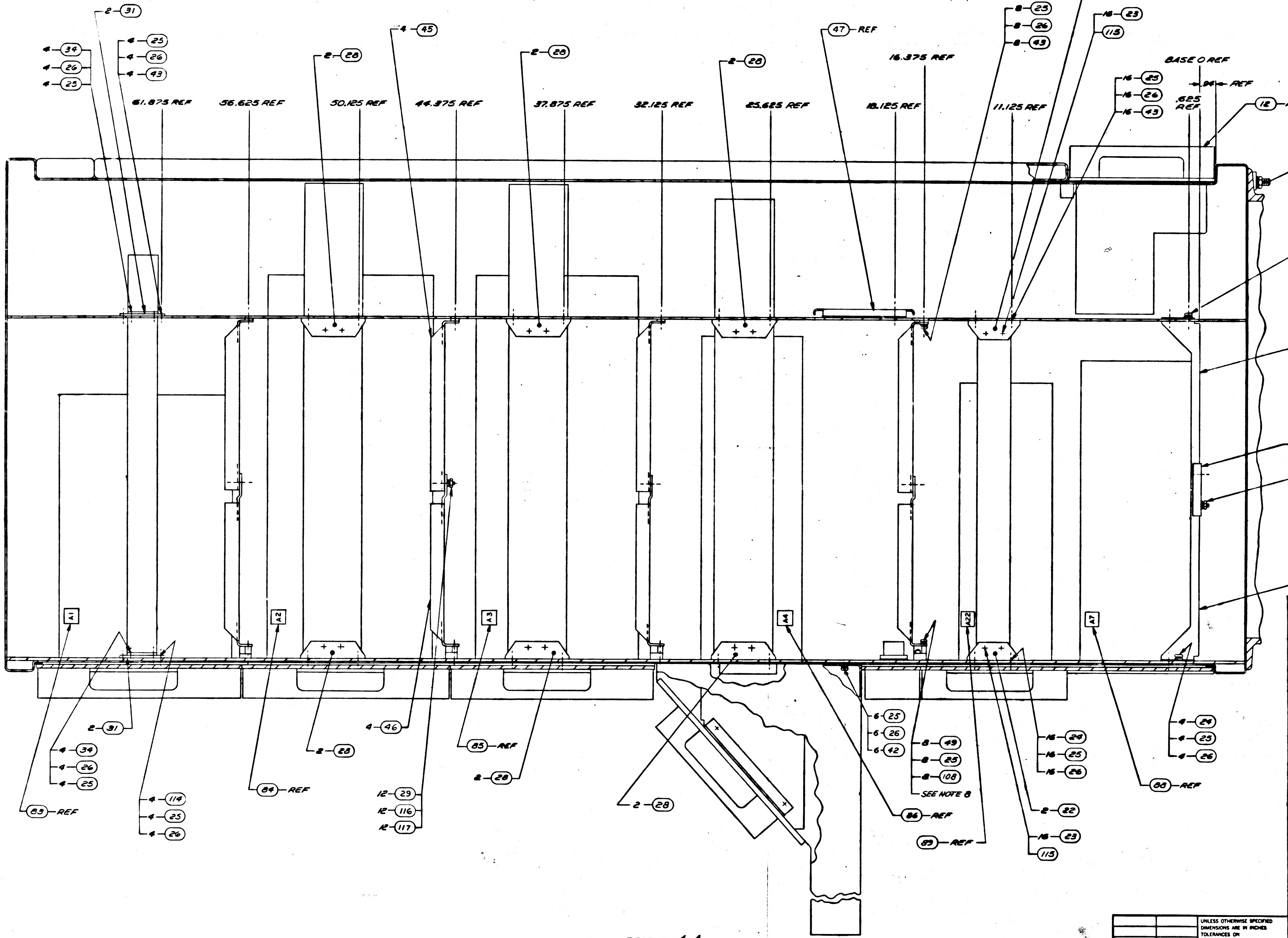
CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014042

SCALE 1/2 | WT | SHEET 2 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 E

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD	12/27/65	
B	CHANGED PER CCA R25659 DR CHK APPD P.C.D.	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D.	1/18/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25773	4/20/66	
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D.	2/1/66	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SEE NOTE 8
(86)-REF
(89)-REF
16-(24)
16-(25)
16-(26)
2-(22)
16-(23)
(115)
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4-(26)
(88)-REF

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014172	ELEC. SCHEM AC & DC PWR DISTRIB.	REF
☒	2014138	INTERCONN DIAGRAM	REF
AR	MIL-S-22437, GR HV	SEALING & RETAINING COMPOUND	161
12	MS5 957-45	SCREW, PAN HD	160
2	2016350-031	SLIDE, BRACKET ASSY	159
2	2016350-021	SLIDE, BRACKET ASSY	158
4	2016350-011	SLIDE, BRACKET ASSY	157
1	MS21919-DG7	CLAMP, LOOP	156
1	MS21919-DG6	CLAMP, LOOP	155
5	1006872-12	CLAMP, LOOP	154
26	1006872-14	CLAMP, LOOP	153
16	1006872-9	CLAMP, LOOP	152
8	1006872-11	CLAMP, LOOP	151
4	2016350-041	SLIDE, BRACKET ASSY	150
4	1006872-10	CLAMP, LOOP	149
1	2014115-021	STRAP, GROUND	148
5	2014458-171	CABLE ASSY, GROUND	147
1	-151		146
1	-121		145
1	-111		144
1	-081		143
1	2014458-061		142
1	2014457-011	CABLE ASSY, GROUND	141
3	MS21919DG64	CLAMP, LOOP	140
3	MS21919DG24	CLAMP, LOOP	139
1	MS21919DG36	CLAMP, LOOP	138
~~1~~	~~MS21919DG10~~	~~CLAMP, LOOP~~	~~137~~
3	MS21919DG14	CLAMP, LOOP	136
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 16 Jun 65
CHECKED 13 OCT 65
APPROVAL 1 Nov 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 4/4/66

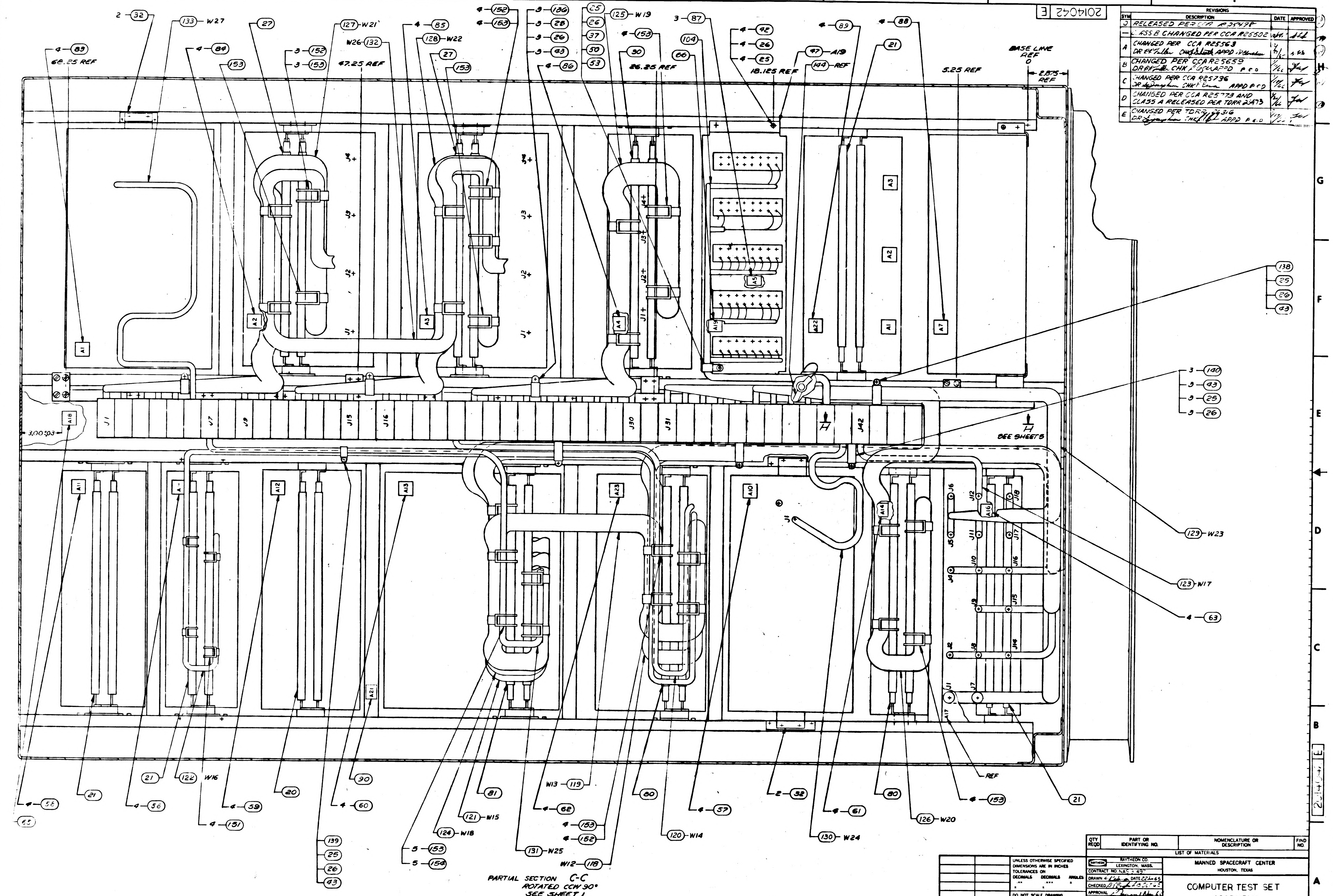
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014042
SCALE 1/8 | WT | SHEET 3 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR EK Fuller CHK APPD	7/65	
B	CHANGED PER CCA R25659 DR BK Fuller CHK APPD P.C.D	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D	1/17/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	4/20/66	
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D		


2 —32
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W26 — 132
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128 — W22
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4 — 152
4 — 153
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3 — 153
47.25 REF
4 — 83
68.25 REF
4 — 84
153
3 — 186
3 — 28
3 — 26
3 — 43
3 — 43
4 — 86
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53
125 — W19
4 — 153
30
26.25 REF
3 — 87
104
66
4 — 92
4 — 26
4 — 25
97 — A19
144 — REF
18.125 REF
4 — 89
21
4 — 88
5.25 REF
BASE LINE REF 0
2.875 REF
A1
A2
A3
A4
A5
A19
A22
A1
A2
A3
A7
J1
J2
J3
J4
J1
J2
J3
J4
J1
J2
J3
J4
A18
3.00±.03
J1
J7
J9
J15
J16
J30
J31
J42
H
H
SEE SHEET 5
138
25
26
43
3 — 140
3 — 43
3 — 25
3 — 26
A11
A
A12
A13
A21
A23
A10
J1
A14
A16
J6
J5
J4
J3
J2
J1
J12
J11
J10
J9
J8
J7
J18
J17
J16
J15
J14
A17
129 — W23
123 — W17
4 — 63
REF
4 — 153
21
4 — 58
65
21
4 — 56
21
122
W16
4 — 151
4 — 59
20
4 — 60
90
139
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26
43
81
121 — W15
124 — W18
5 — 153
5 — 154
131 — W25
W13 — 119
4 — 62
4 — 153
4 — 152
W12 — 118
80
120 — W14
2 — 32
4 — 57
130 — W24
4 — 61
80
126 — W20

PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 22 Jun 65
CHECKED 13 Oct 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

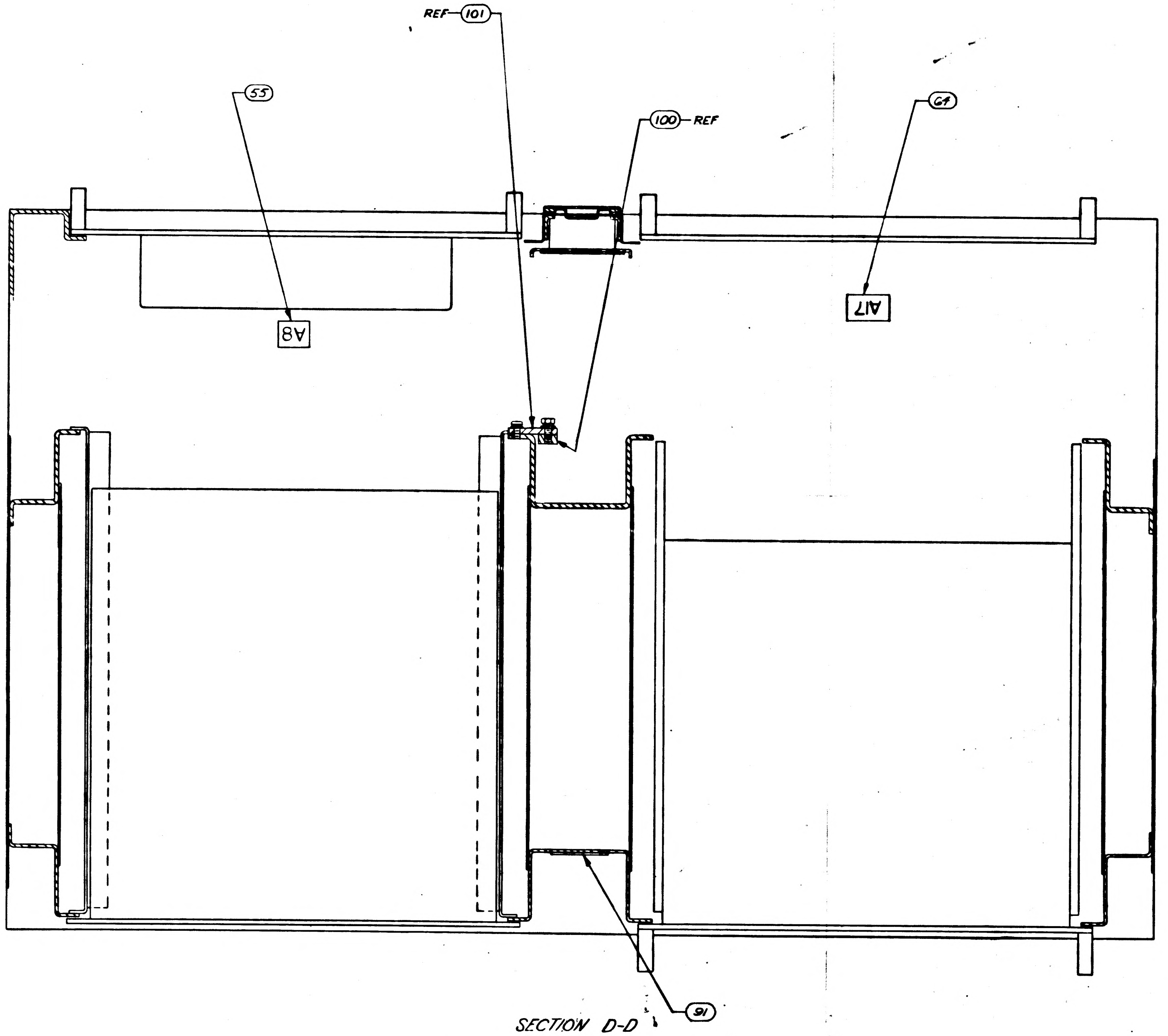
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 4 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

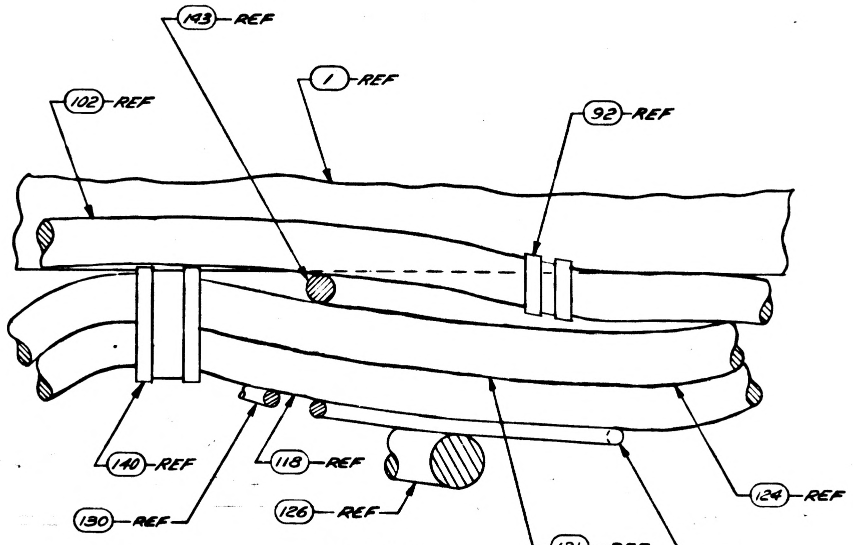
2014042 E

2014042 E

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER ICF R25498		
—	CLASS B CHANGED PER CCA R25502	11/1/65	
A	CHANGED PER CCA R25563 DR SK Fuller CHK Gilbreath APPD R.P.	12/27/65	
B	CHANGED PER CCA R25659 DR Fuller CHK Flege APPD P.C.D.	1/14/66	
C	CHANGED PER CCA R25736 DR CHK P. APPD P.C.D.	1/18/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TORR 8040	1/24/66	
E	CHANGED PER TORR 2636 DR CHK APPD P.C.D.	2/17/66	



SECTION D-D
(SEE SHEET 1)



VIEW H-H
SCALE-NONE
SEE SHEET 4

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN K. DATE 15 ...
CHECKED 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/26/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

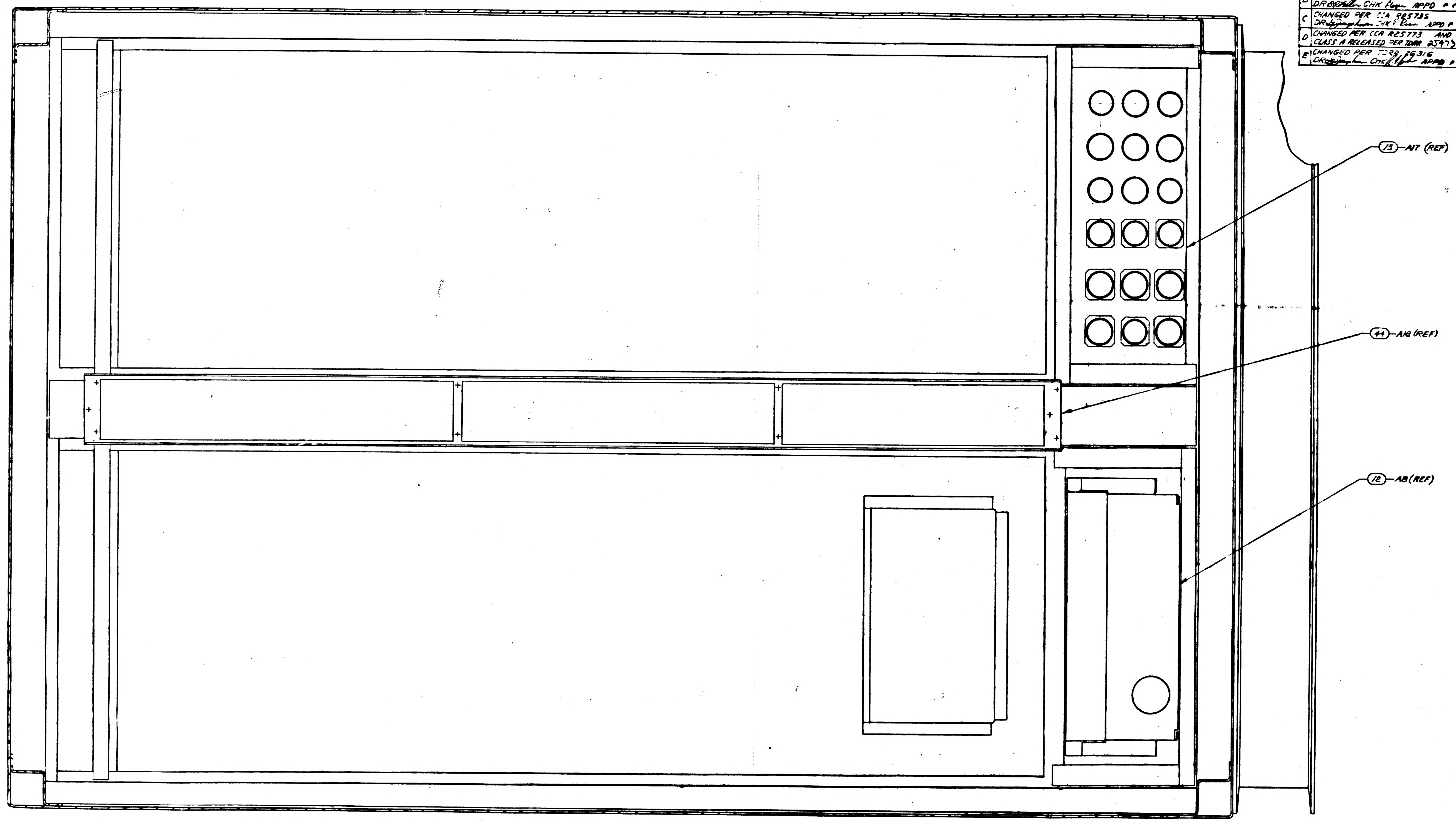
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 5 OF 7

2014042 E

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	11/4/65	
A	CHANGED PER CCA R25563 DR B.R. Fuller CHK [illegible] APPD [illegible]	12/27/65	
B	CHANGED PER CCA R25659 DR B.R. Fuller CHK [illegible] APPD P.C.D.	1/11/66	
C	CHANGED PER CCA R25735 DR [illegible] CHK P. [illegible] APPD P.C.D.	1/24/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/20/66	
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	4/7/66	



SECTION F-F
ROTATED 90° CCW
(SEE SHEET 1)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±	
DO NOT SCALE DRAWING	
MATERIAL	
NEXT ASSY	USED ON
APPLICATION	

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO NAS9-497
DRAWN J.J. B[illegible] DATE 12 AUG 65
CHECKED BY [illegible] 19 OCT 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible] 11/1/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C S[illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

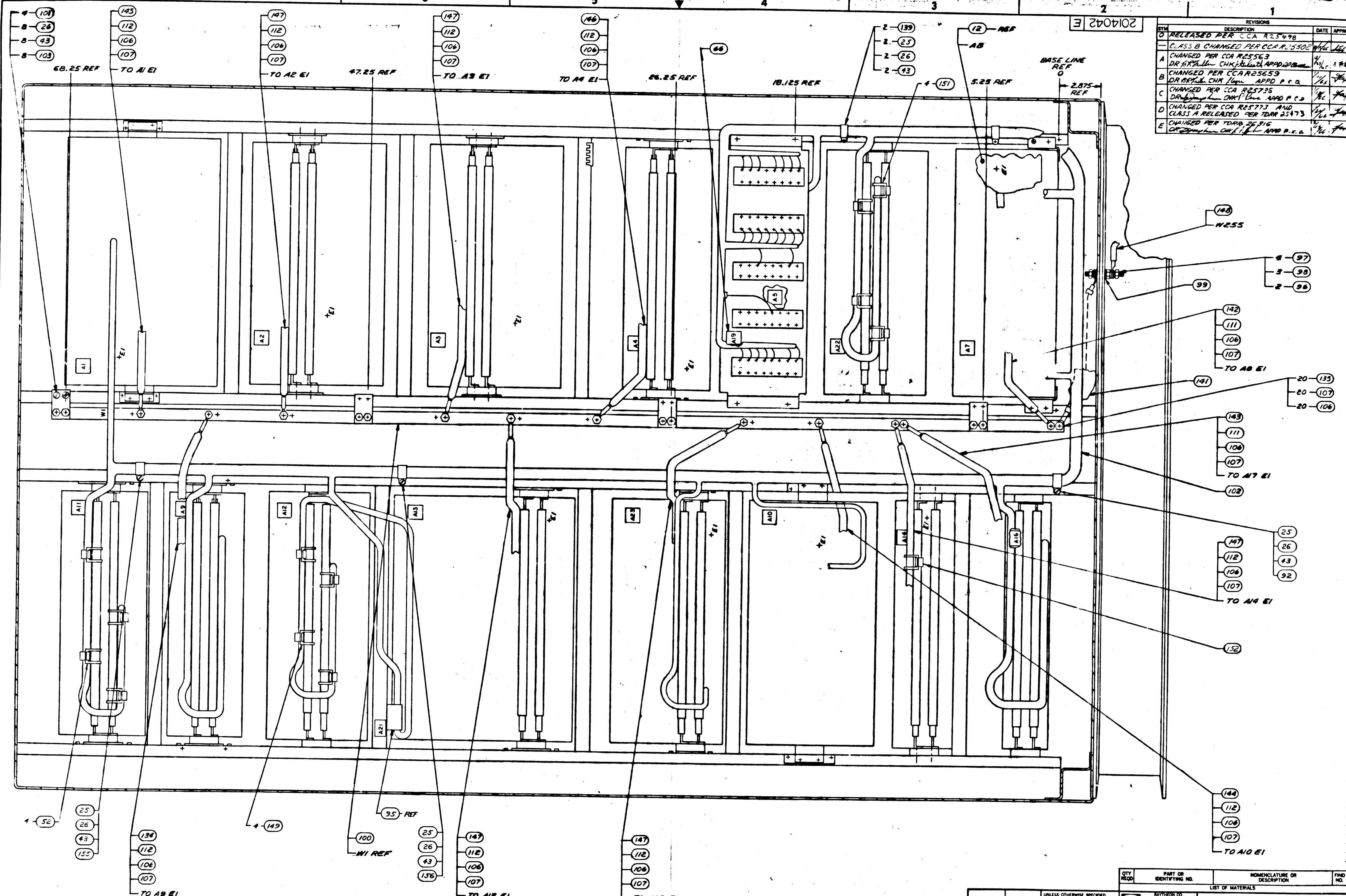
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 6 OF 7

MASTER

2014042 E

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD		
B	CHANGED PER CCA R25659 DR CHK APPD P C O		
C	CHANGED PER CCA R25735 DR CHK APPD P C O		
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473		
E	CHANGED PER TDRR 26916 DR CHK APPD P.C.O		



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8-103
145
112
106
107
TO A1 E1
68.25 REF
147
112
106
107
TO A2 E1
47.25 REF
147
112
106
107
TO A3 E1
146
112
106
107
TO A4 E1
26.25 REF
66
18.125 REF
2-139
2-25
2-26
2-43
4-151
12 REF
A8
5.25 REF
BASE LINE REF 0
2.875 REF
148
W255
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142
111
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TO A8 E1
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111
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TO A17 E1
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147
112
106
107
TO A14 E1
152
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TO A10 E1
A1
A2
A3
A4
A19
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A7
A11
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A13
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A10
A18
A16
W1
E1
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112
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107
TO A9 E1
4-149
95 REF
100
W1 REF
25
26
43
156
147
112
106
107
TO A13 E1
147
112
106
107
TO A23 E1

SECTION G-G
ROTATED CCW 90°
SEE SHEET 1

2014042 E

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN H. Miller DATE 4 OCT 65
CHECKED 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

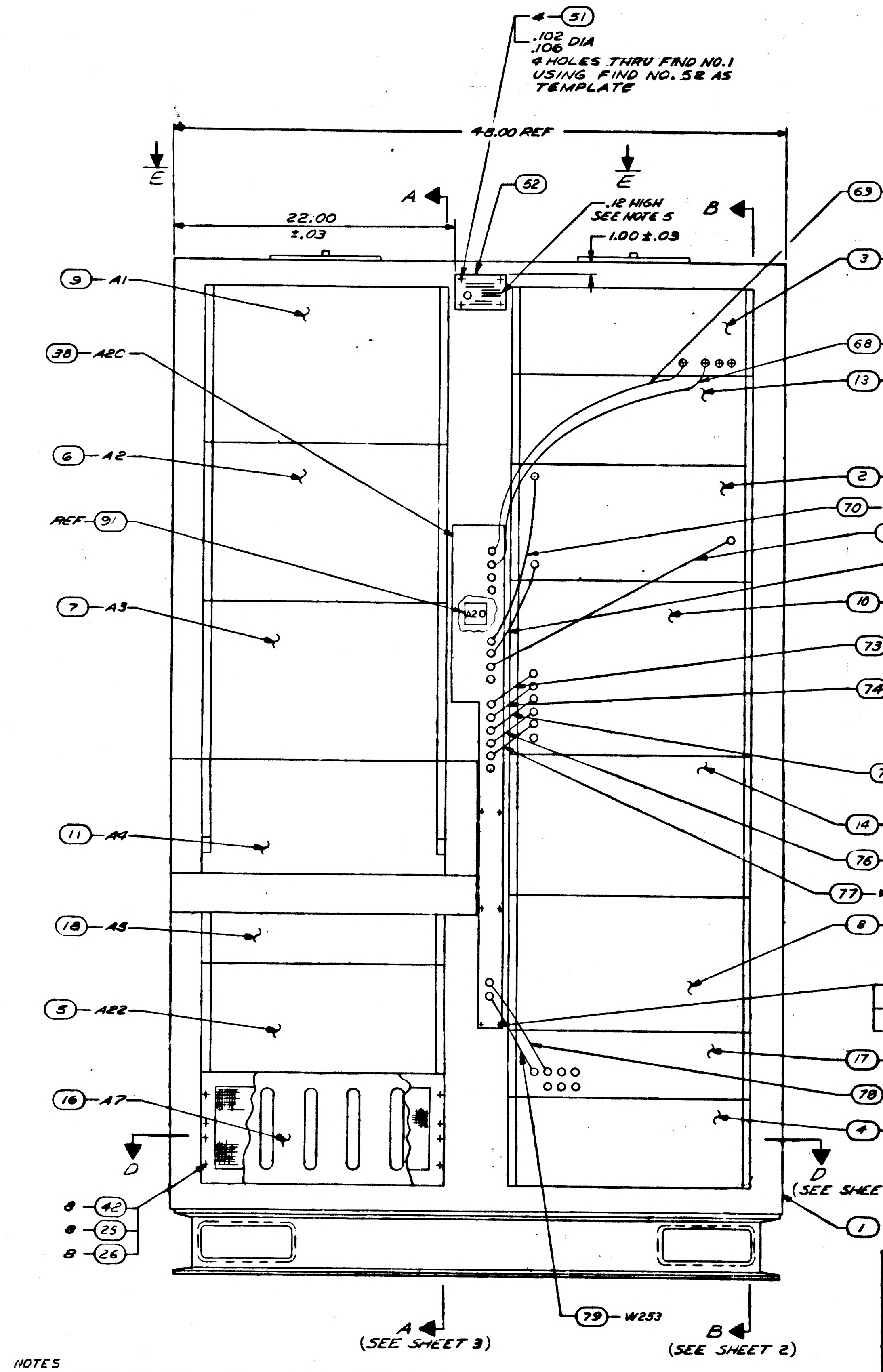
COMPUTER TEST SET
ASSEMBLY

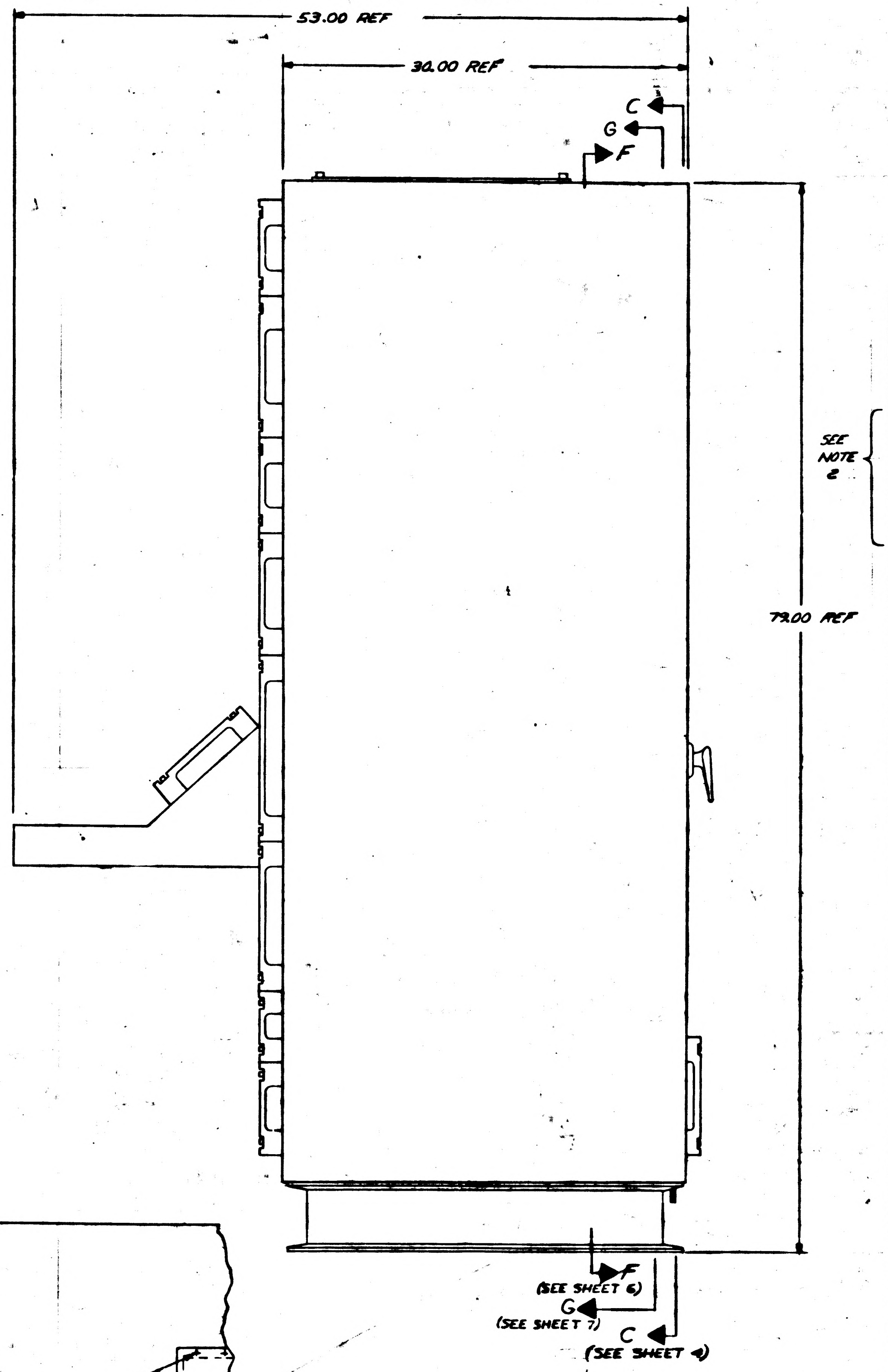
SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 7 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 F

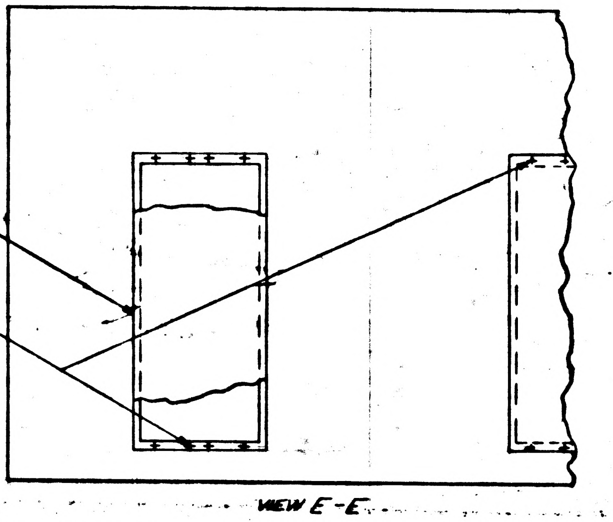
SYM	DESCRIPTION	DATE	APPROVAL
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25503 DR [illegible] CHK [illegible] APPD [illegible]	12/27/65	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.C.D.	1/[illegible]/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]/66	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TORR 25973	[illegible]/66	[illegible]
E	CHANGED PER TORR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]/66	[illegible]
F	CHANGED PER TORR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]


4 — (51)
.102 / .106 DIA
4 HOLES THRU FIND NO.1 USING FIND NO. 52 AS TEMPLATE
48.00 REF
E
A
(52)
.12 HIGH SEE NOTE 5
B
1.00 ±.03
22.00 ±.03
(69) — W244
(9) — A1
(3) — A11
(38) — A2C
(68) — W243
(13) — A9
(6) — A2
(2) — A12
(70) — W245
REF — (91)
(72) — W247
(71) — W246
(10) — A13
(7) — A3
A20
(73) — W240
(74) — W248
(75) — W249
(11) — A4
(14) — A23
(76) — W250
(77) — W251
(18) — A5
(8) — A10
12 — (160)
12 — (40)
12 — (41)
(5) — A22
(17) — A14
(78) — W252
(16) — A7
(4) — A16
D
D (SEE SHEET 5)
8 — (42)
8 — (25)
8 — (26)
(1)
(79) — W253
A (SEE SHEET 3)
B (SEE SHEET 2)


53.00 REF
30.00 REF
C
G
F
79.00 REF
F (SEE SHEET 6)
G (SEE SHEET 7)
C (SEE SHEET 4)

NOTES

1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89, ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. STORE FIND 82 IN DOOR COMPARTMENT
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014042
8. ASSEMBLE FIND 49 USING FIND 161


2 — (19)
16 — (42)
16 — (25)
16 — (26)
VIEW E-E

CONTINUED ON SHEET 2

SEE NOTE 2 (FIND 56 THRU 63)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2014461-031	CABLE ASSY, W245	70
1	2014461-021	CABLE ASSY, W244	69
1	2014461-011	CABLE ASSY, W243	68
1	2014432	PLATE, BAFFLE, TERM. BD	67
1	1014480 -19	DECAL, IDENTIFICATION	66
1	-18		65
1	-17		64
4	-16		63
4	-23		62
4	-14		61
4	-13		60
4	-12		59
4	-11		58
4	-10		57
4	-9		56
1	1014480-8	DECAL, IDENTIFICATION	55
4	MS35649-84	NUT, HEX PLAIN	54
1	MS35649-104	NUT, PLAIN HEX	53
1	1004260-203	PLATE, IDENTIFICATION	52
4	AN535-4-3	DRIVE SCREW	51
1	MS51957-63	SCREW, PAN HD	50
18	MS51958-67	SCREW, PAN HEAD	49
2	MS51957-35	SCREW, PAN HEAD	48
1	2016346-011	TERMINAL BOARD ASSY	47
9	2014425	PLATE, BAFFLE	46
8	2014424	PLATE, BAFFLE	45
1	2014046-011	A18 INTERCONNECTION ASSY	44
93	MS51958-63	SCREW, PAN HEAD	43
34	MS51958-64	SCREW, PAN HEAD	42
12	MS35338-80	WASHER, LOCK	41
12	MS15795-807	WASHER	40
~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1020352	PLATE CONNECTOR ASSY	38
1	MS21919DG11	CLAMP, LOOP	37
8	1014157-2	SLIDE BRACKET ASSY	36
8	1014157-3	SLIDE BRACKET ASSY	35
16	MS35650-104	NUT, HEX PLAIN	34
4	1014301-2	SLIDE, ADAPTER	33
4	1006878-2	SLIDE, CABINET SECTION	32
4	1014301-1	SLIDE ADAPTER	31
1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	MS35649-64	NUT HEX, PLAIN	29
12	1014157-4	SLIDE BRACKET ASSY	28
2	1006938-3	SLIDE WITH CABLE CARRIER	27
208	MS35338-81	WASHER, LOCK	26
230	MS15795-808	WASHER, FLAT	25
72	MS51958-61	SCREW, PAN HEAD	24
88	MS51959-43	SCREW, FLAT HEAD	23
8	1014157-1	SLIDE BRACKET ASSY	22
4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	1006918	FILTER, AIR, RFI	19
1	2014274-011	AUX. OUTLET ASSY 115VAC	18
1	2014366-011	SELF TEST ASSY	17
1	1006897	FAN, VENTILATION, RFI SHIELD	16
1	2014047-011	CONNECTOR INTERFACE ASSY	15
1	2014045-011	RDC INTERFACE ASSY	14
1	2014044-011	POWER CONTROL ASSY	13
1	2014043-011	AC INPUT PANEL ASSY	12
1	2014041-011	PROGRAMMER & MONITOR ASSY	11
1	2014040-011	XY INTERFACE ASSY	10
1	2014039-011	TAPE PUNCH ASSY	9
1	2014038-011	TAPE READER ASSY	8
1	2014037-011	LOGIC DRAWER NO.2 ASSY	7
1	2014036-011	LOGIC DRAWER NO.1 ASSY	6
1	2014235-011	POWER SUPPLY NO.13 28VDC ASSY	5
1	2014234-011	POWER SUPPLY 3VDC ASSY	4
1	2014233-011	FREQUENCY COUNTER ASSY	3
1	2014232-011	OSCILLOSCOPE ASSY	2
1	1006423-001	CABINET, ELECTRICAL EQUIP	1

-011 LIST OF MATERIALS

1900080	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 4 JUNE 65
CHECKED [illegible] 13 OCT 65
APPROVAL [illegible]
APPROVAL [illegible] 11/1/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/26/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

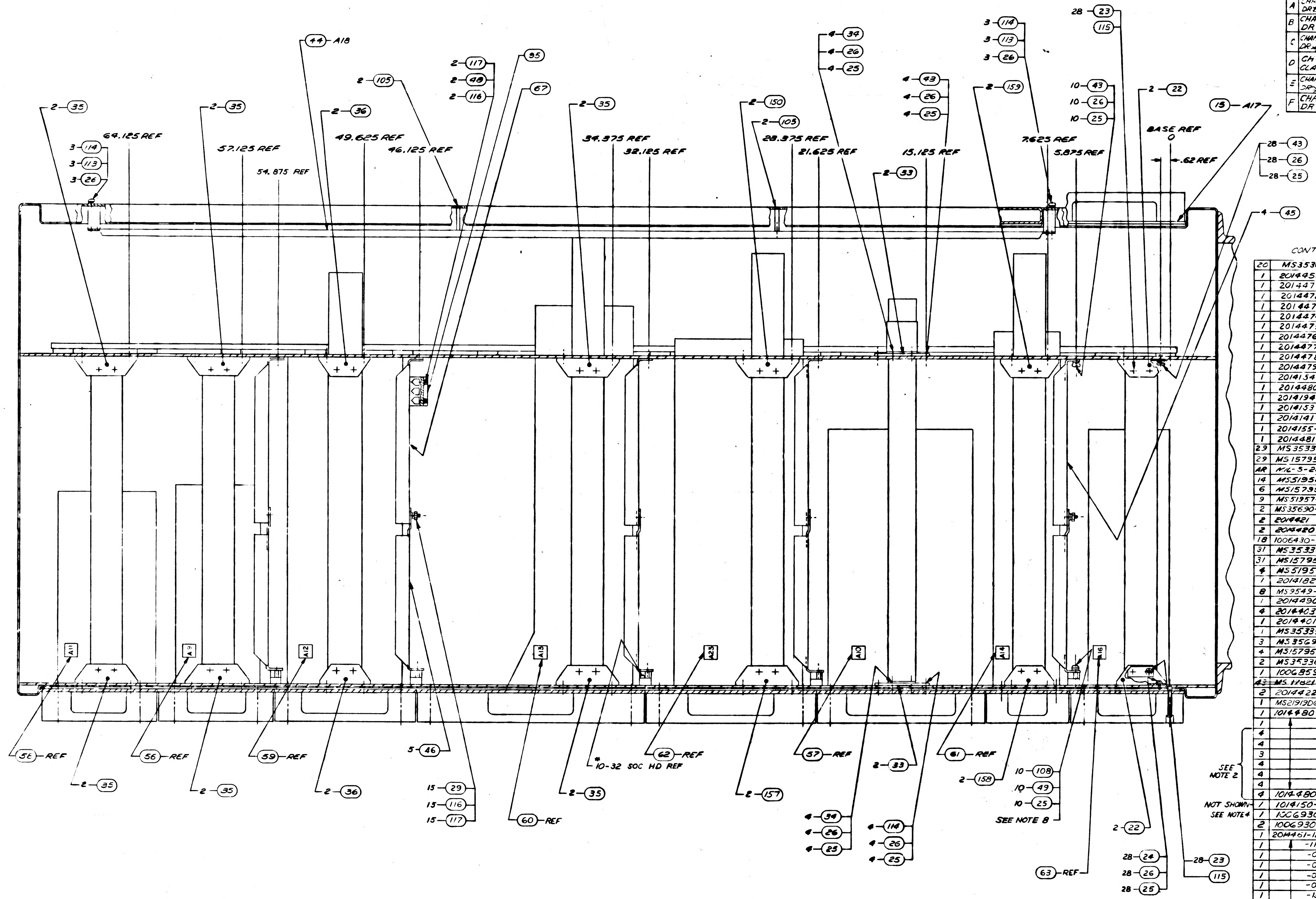
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/4
WT
SHEET 1 OF 7

2014042 F

MASTER

2014042 F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD	1/27/66	
B	CHANGEC PER CCA R25659 DR CHK APPD PCD	1/1/66	
C	CHANGED PER CCA R25736 DR CHK APPD PCD	1/18/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	1/20/66	
E	CHANGED PER TDRR 26316 DR CHK APPD PCD	2/17/66	
F	CHANGED PER TDRR 26317 DR CHK APPD	3/2/66	



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32.125 REF
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SEE NOTE 8
63-REF
2-22
28-24
28-26
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28-23
115

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 1)

CONTINUED ON SHEET 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	2014458-191	CABLE ASSY, GROUND	134
1	2014471-011	CABLE ASSY W27	133
1	2014472-011	CABLE ASSY W26	132
1	2014473-011	CABLE ASSY W25	131
1	2014474-011	CABLE ASSY W24	130
1	2014475-011	CABLE ASSY W23	129
1	2014476-011	CABLE ASSY W22	128
1	2014477-011	CABLE ASSY W21	127
1	2014478-011	CABLE ASSY W20	126
1	2014479-011	CABLE ASSY W19	125
1	2014154-011	CABLE ASSY W18	124
1	2014480-011	CABLE ASSY W17	123
1	2014194-011	CABLE ASSY W16	122
1	2014153-011	CABLE ASSY W15	121
1	2014141-011	CABLE ASSY W14	120
1	2014155-011	CABLE ASSY W13	119
1	2014481-011	CABLE ASSY W12	118
29	MS35338-79	WASHER, LOCK	117
29	MS15795-806	WASHER, FLAT	116
AR	MIL-S-22473GRHV	SEALING AND RETAINING COMPOUND	115
14	MS51958-62	SCREW, PAN HD	114
6	MS15795-809	WASHER, FLAT	113
9	MS51957-79	SCREW PAN HD	112
2	MS35690-410	NUT HEX	111
2	2014421	SUPPORT RAIL	110
2	2014420	SUPPORT RAIL	109
18	1006430-097	SPACER	108
31	MS35338-82	WASHER, LOCK	107
31	MS15795-810	WASHER, FLAT	106
4	MS51959-17	SCREW, FLAT HD	105
1	2014182-011	WIRING HARNESS, DC DIST	104
8	MS9549-09	WASHER, FLAT	103
1	2014490-011	WIRING HARNESS, BRANCHED	102
4	2014403	BLOCK, MOUNTING	101
1	2014401	BUSS, BAR	100
1	MS35335-63	WASHER LOCK, EXTERNAL TOOTH	99
3	MS35690-610	NUT, PLAIN	98
4	MS15795-815	WASHER, FLAT	97
2	MS35338-84	WASHER, LOCK	96
1	1006859-2	TERMINAL BLOCK	95
~~43~~	~~MS 17821-2-9~~	~~TIE WRAP~~	~~94~~
2	2014422	COUPLING	93
1	MS21919DG8	CLAMP, LOOP	92
1	1014480-20	DECAL, IDENTIFICATION	91
1	-21		90
4	-22		89
4	-7		88
3	-5		87
4	-4		86
4	-3		85
4	-2		84
4	1014480-1	DECAL, IDENTIFICATION	83
1	1014150-1	CABLE, POWER	82
1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	2014461-121	CABLE ASSY W253	79
1	-111	W252	78
1	-091	W251	77
1	-081	W250	76
1	-071	W249	75
1	-061	W248	74
1	-131	W240	73
1	-051	W247	72
1	2014461-041	CABLE ASSY W246	71

SEE NOTE 2 (find nos. 89–83)

NOT SHOWN (find no. 82)

SEE NOTE 4 (find no. 81)

LIST OF MATERIALS

2014042 F

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY	USED ON
APPLICATION	

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 18 65
CHECKED 19 OCT. 65
APPROVAL 1 Nov 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

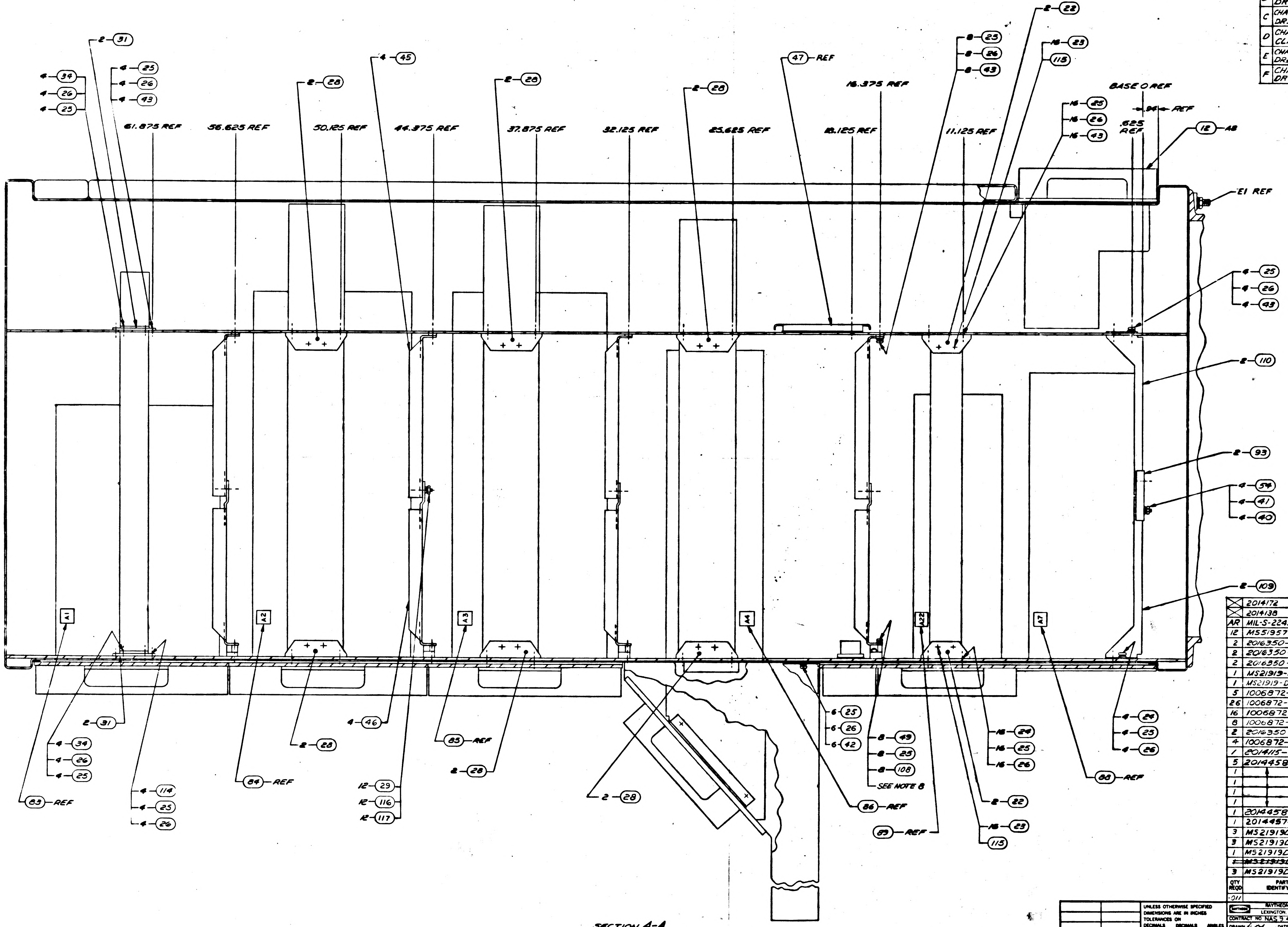
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 2 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 F

2014042 F

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25500		
A	CHANGED PER CCA R25563 DR BK Fuller CHK APPD		
B	CHANGED PER CCA R25659 DR CHK APPD		
C	CHANGED PER CCA R25736 DR CHK APPD		
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973		
E	CHANGED PER TDRR 26316 DR CHK APPD		
F	CHANGED PER TDRR 26317 DR CHK APPD		



4-34
4-26
4-25
2-31
4-25
4-26
4-43
61.875 REF
56.625 REF
2-28
50.125 REF
4-45
44.375 REF
2-28
37.875 REF
32.125 REF
2-28
25.625 REF
47-REF
18.125 REF
16.375 REF
8-25
8-26
8-43
2-22
16-23
115
11.125 REF
16-25
16-26
16-43
BASE 0 REF
.94 REF
.625 REF
12-A8
E1 REF
4-25
4-26
4-43
2-110
2-93
4-54
4-41
4-40
2-109
A1
A2
A3
A4
A22
A7
2-31
4-34
4-26
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4-114
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4-26
84-REF
2-28
4-46
12-29
12-116
12-117
85-REF
2-28
2-28
6-25
6-26
6-42
8-49
8-25
8-108
SEE NOTE 8
86-REF
89-REF
16-24
16-25
16-26
2-22
16-23
115
4-24
4-25
4-26
88-REF

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014172	ELEC SCHEM AC & DC PWR DISTRIB.	REF
☒	2014138	INTERCONN DIAGRAM	REF
AR	MIL-S-22437, GR HV	SEALING & RETAINING COMPOUND	161
12	MS51957-45	SCREW, PAN HD	160
2	2016350-031	SLIDE, BRACKET ASSY	159
2	2016350-021	SLIDE, BRACKET ASSY	158
2	2016350-011	SLIDE, BRACKET ASSY	157
1	MS21919-DG7	CLAMP, LOOP	156
1	MS21919-DG6	CLAMP, LOOP	155
5	1006872-12	CLAMP, LOOP	154
26	1006872-14	CLAMP, LOOP	153
16	1006872-9	CLAMP, LOOP	152
8	1006872-11	CLAMP, LOOP	151
2	2016350-041	SLIDE, BRACKET ASSY	150
4	1006872-10	CLAMP, LOOP	149
1	2014115-021	STRAP, GROUND	148
5	2014458-171	CABLE ASSY, GROUND	147
1	-151		146
1	-121		145
1	-111		144
1	-081		143
1	2014458-061		142
1	2014457-011	CABLE ASSY, GROUND	141
3	MS21919DG64	CLAMP, LOOP	140
3	MS21919DG24	CLAMP, LOOP	139
1	MS21919DG36	CLAMP, LOOP	138
~~1~~	~~MS21919DG10~~	~~CLAMP, LOOP~~	~~137~~
3	MS21919DG14	CLAMP, LOOP	136
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 16 Jun 65
CHECKED 13 OCT 65
APPROVAL 1 Nov 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014042

SCALE 1/8 WT SHEET 3 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

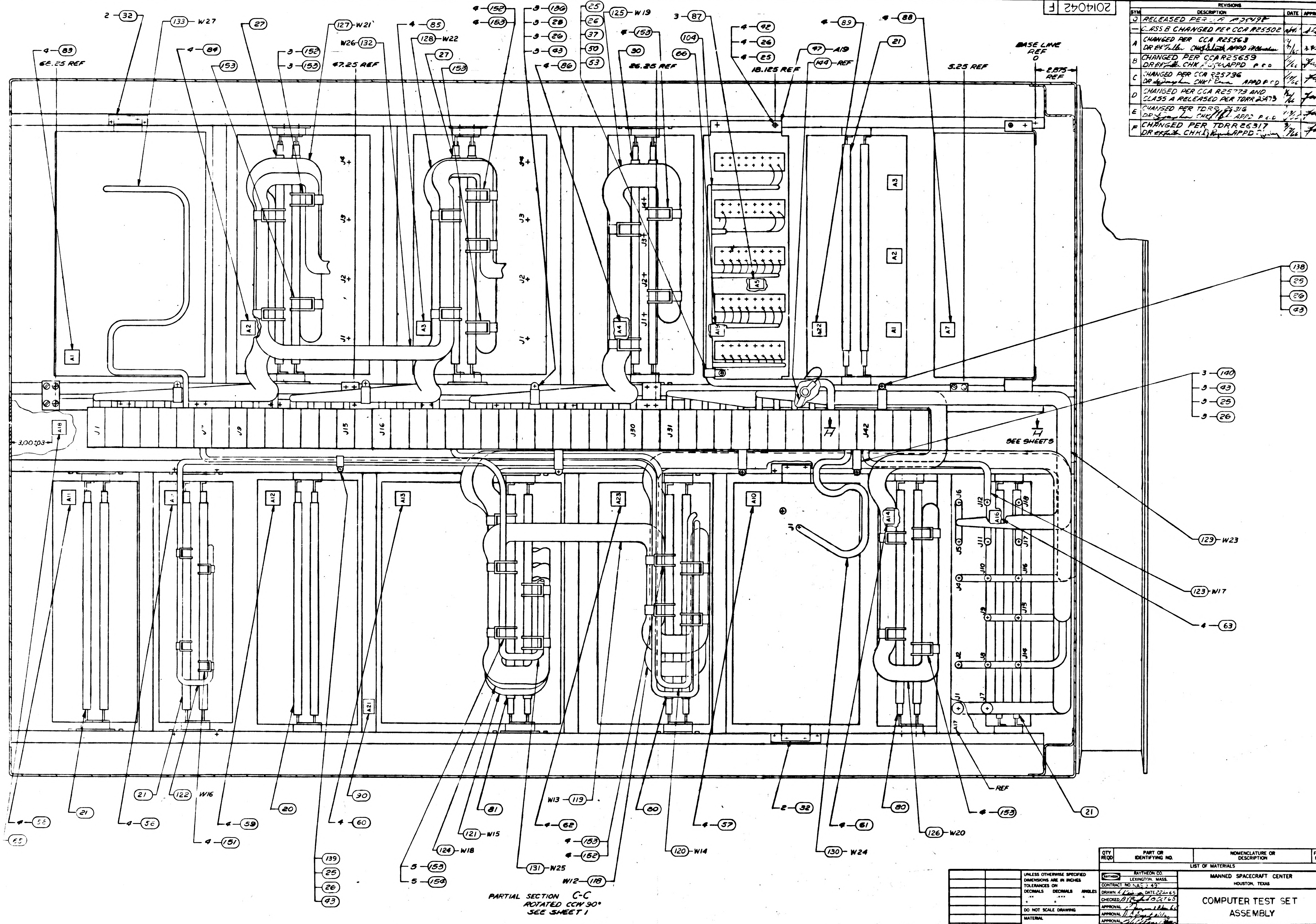
MASTER

2014042 F

2014042 F

2014042 F

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK APPD	12/?/65	
B	CHANGED PER CCA R25659 DR B.K. Fuller CHK APPD P.E.D	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.E.D	1/17/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TORR 25473	4/?/66	
E	CHANGED PER TORR 26316 DR CHK APPD P.E.D		
F	CHANGED PER TORR 26317 DR B.K. Fuller CHK APPD	8/?/66	



2 — 32
133 — W27
4 — 83
66.25 REF
4 — 84
153
27
127 — W21
3 — 152
3 — 153
W26 — 132
47.25 REF
4 — 85
128 — W22
27
153
4 — 152
4 — 153
3 — 136
3 — 28
3 — 26
3 — 43
4 — 86
25
26
37
50
53
125 — W19
4 — 153
90
26.25 REF
66
104
3 — 87
4 — 42
4 — 26
4 — 25
18.125 REF
47 — A19
144 — REF
4 — 89
21
4 — 88
5.25 REF
BASE LINE REF 0
2.875 REF
J1
J2
J3
J4
A1
A2
A3
A4
A5
A7
A15
A22
A18
3.00±.03
J7
J9
J15
J16
J30
J31
J42
H
SEE SHEET 5
138
25
26
43
3 — 140
3 — 43
3 — 25
3 — 26
A11
A12
A13
A23
A10
A14
A16
A17
A21
J5
J6
J8
J10
J11
J12
J14
J15
J16
J17
J18
129 — W23
123 — W17
4 — 63
REF
4 — 55
65
21
21
122 — W16
4 — 56
4 — 151
4 — 59
20
30
4 — 60
139
25
26
43
81
121 — W15
124 — W18
5 — 153
5 — 154
131 — W25
W13 — 119
4 — 62
4 — 153
4 — 152
W12 — 118
80
120 — W14
4 — 57
2 — 32
4 — 61
130 — W24
80
126 — W20
4 — 153
21

PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 22 Jun 65
CHECKED BY 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014042
SCALE 1/2	WT	SHEET 4 OF 7

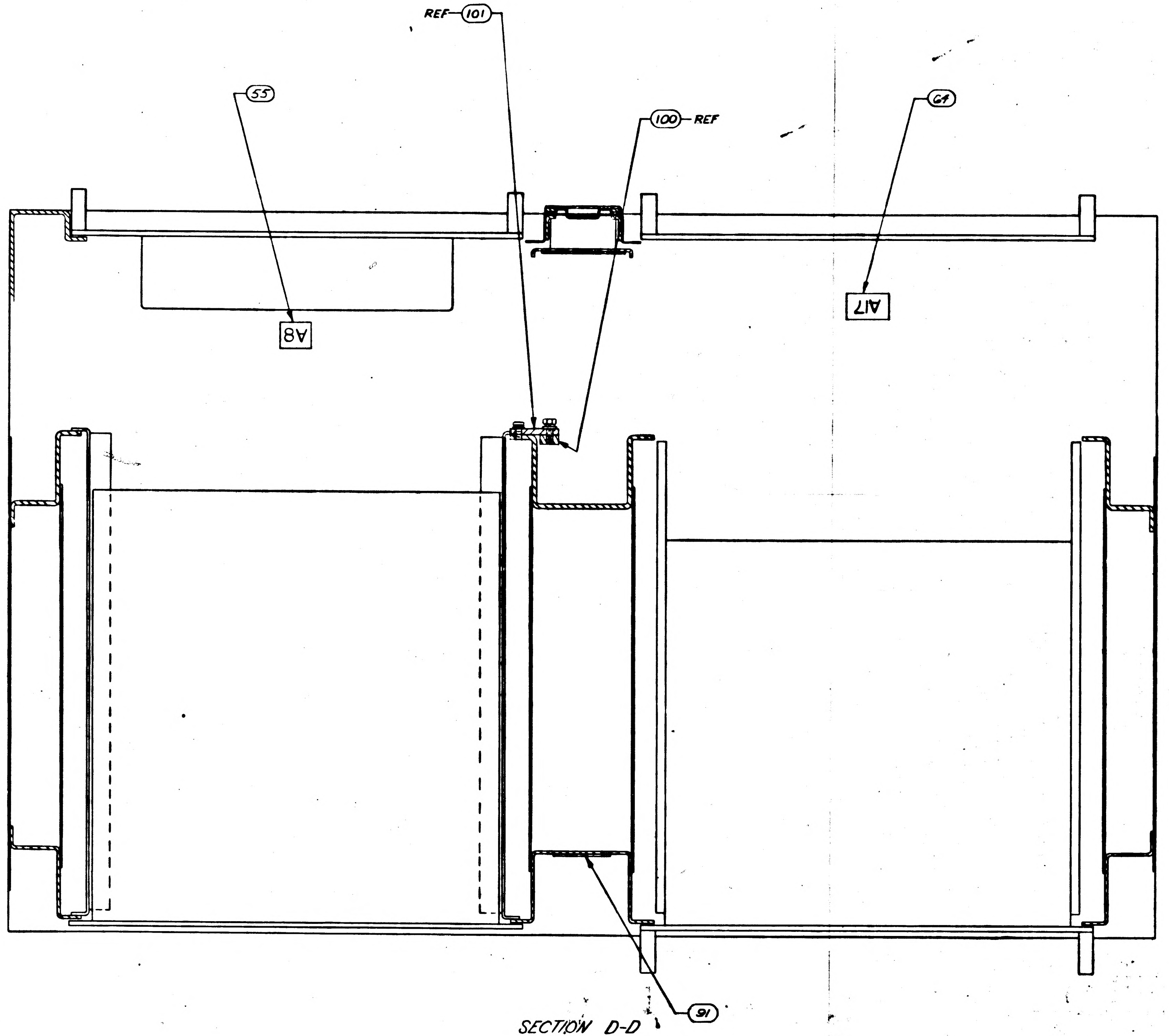
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 F

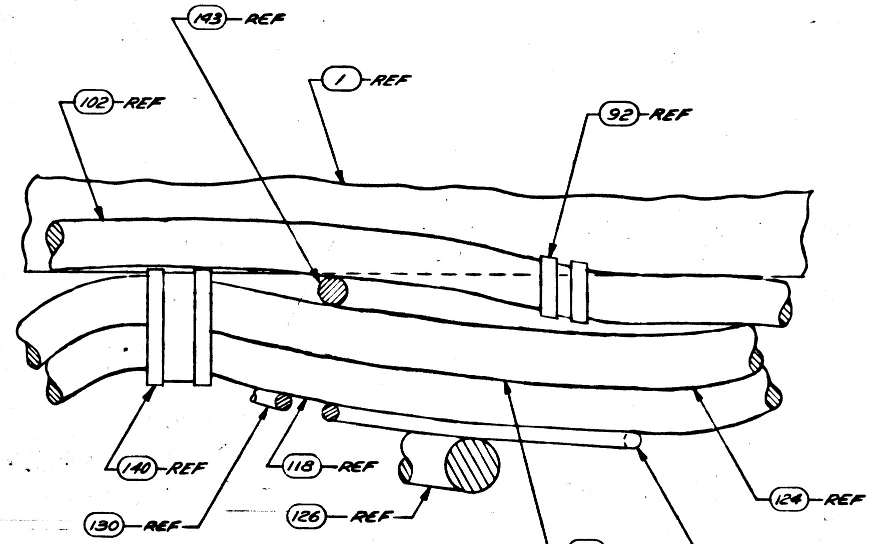
2014042 F

2014042 F

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	10/1/65	
A	CHANGED PER CCA R25563 DR EX Fuller CHK Gilbreath APPD RP	12/27/65	
B	CHANGED PER CCA R25659 DR CHK APPD PCD	1/4/66	
C	CHANGED PER CCA R25736 DR CHK PB APPD PCD	1/5/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR	/66	
E	CHANGED PER TDRR 26316 DR CHK APPD PCD	7/13/66	
F	CHANGED PER TDRR 26317 DR CHK APPD	/66	



SECTION D-D
(SEE SHEET 1)



VIEW H-H
SCALE-NONE
SEE SHEET 4.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±   DECIMALS .XXX ±   ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN K   DATE 13
CHECKED 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 5 OF 7

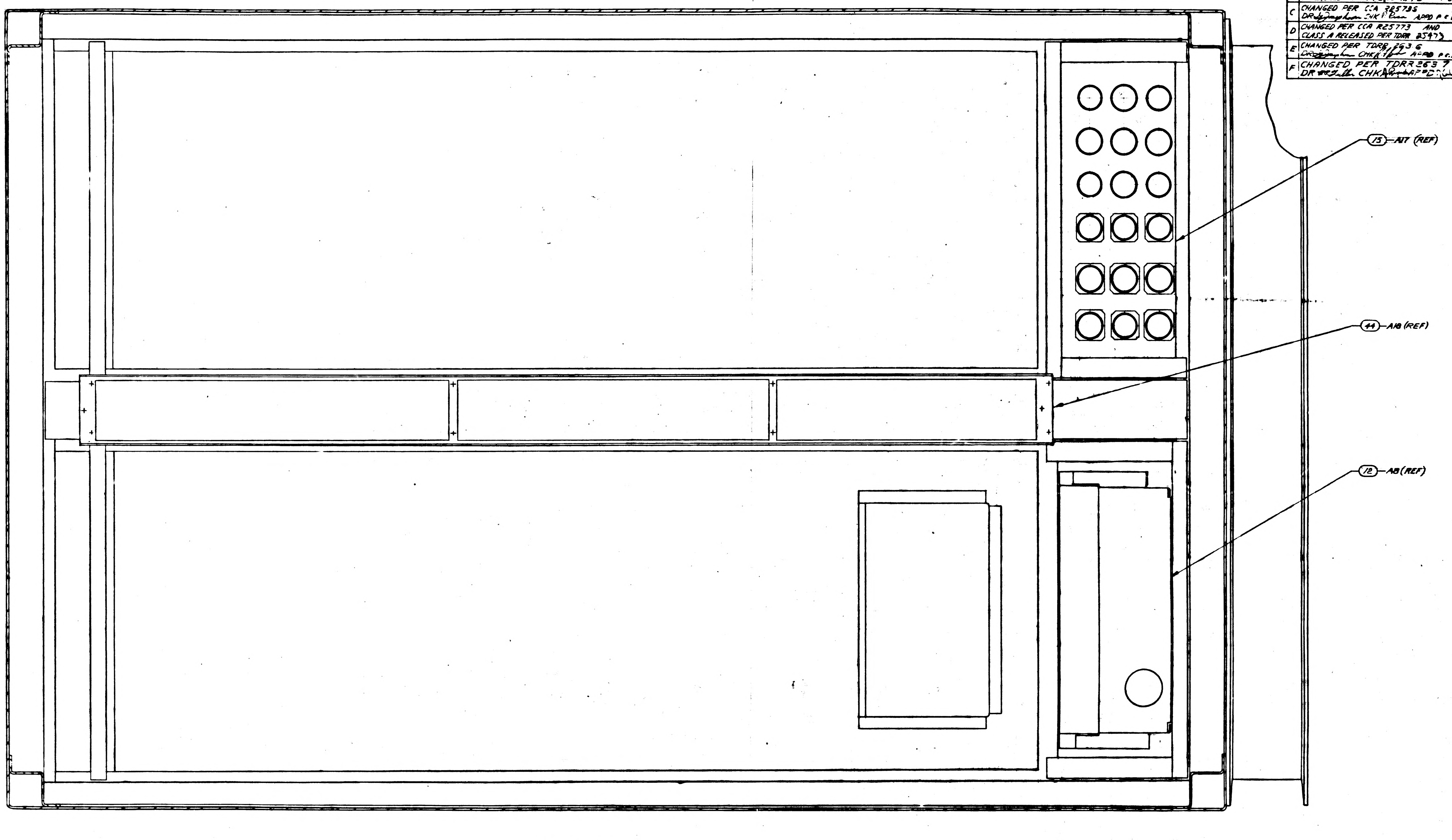
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042

2014042 F

2014042 F

	REVISIONS		
SYM	DESCRIPTION	DATE	APPROVAL
0	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		DL
A	CHANGED PER CCA R25563 DR B R Fuller CHK J Wheath APPD	12/27/65	
B	CHANGED PER CCA R25659 DR B R Fuller CHK APPD P C D	1/11/66	
C	CHANGED PER CCA R25735 DR CHK APPD P C D	1/10/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/20/66	
E	CHANGED PER TDRR 263 6 DR CHK APPD P.C.D.	2/24/66	
F	CHANGED PER TDRR 263 7 DR B R Fuller CHK APPD	3/7/66	



SECTION F-F
ROTATED 90° CCW
(SEE SHEET 1)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .xx ± DECIMALS .xxx ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN J.J. DATE 12 AUG 65
CHECKED BY 19 OCT 65
APPROVAL 1 Nov 65
APPROVAL 11/1/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

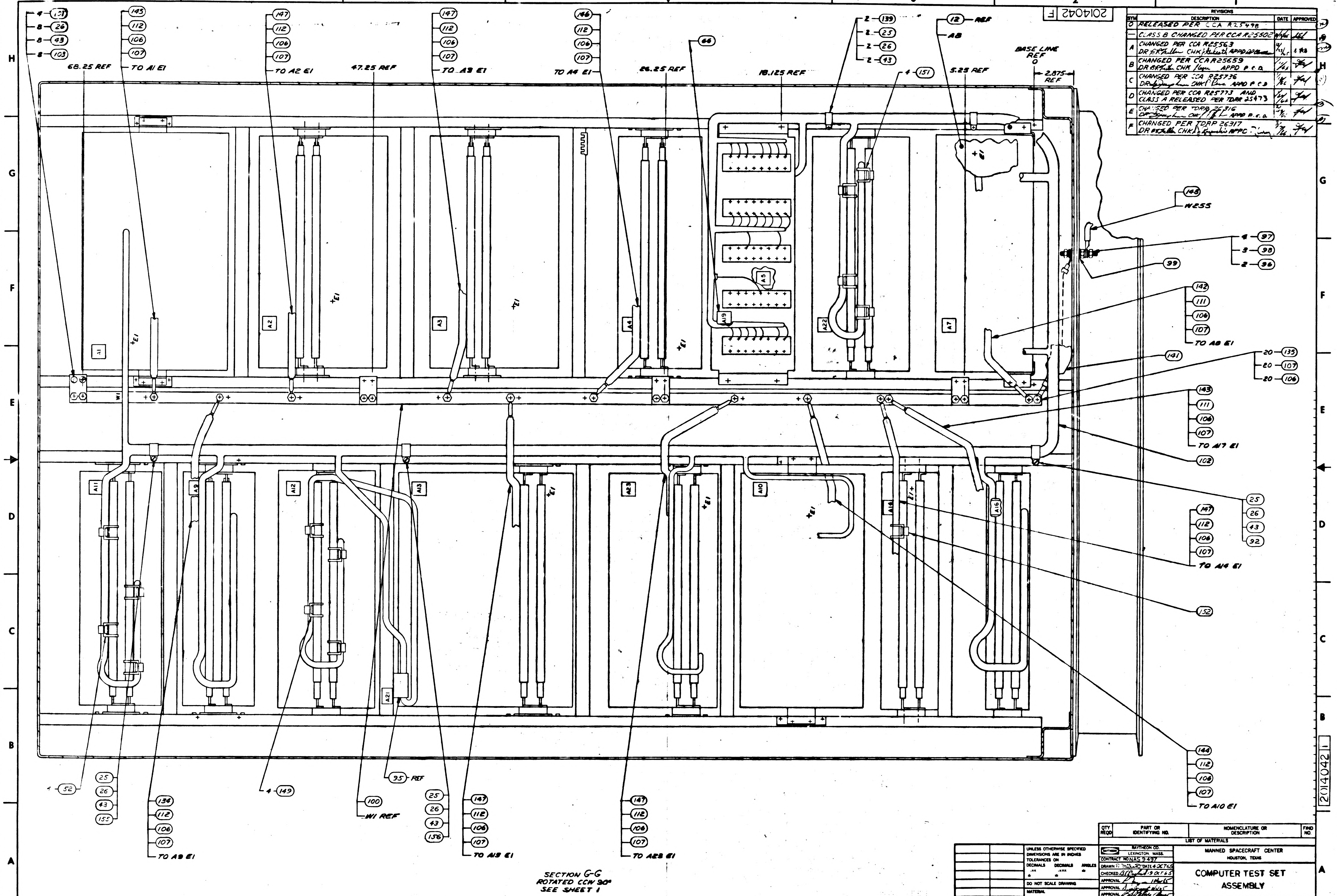
COMPUTER TEST SET ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 6 OF 7

MASTER

2014042 F

2014042 F


4—(101)
8—(26)
8—(43)
8—(103)
(145) (112) (106) (107) TO A1 E1
(147) (112) (106) (107) TO A2 E1
(147) (112) (106) (107) TO A3 E1
(146) (112) (106) (107) TO A4 E1
68.25 REF
47.25 REF
26.25 REF
18.125 REF
5.25 REF
BASE LINE REF 0
2.875 REF
(66)
2—(139)
2—(25)
2—(26)
2—(43)
4—(151)
(12)—REF
A8
(148)
HESS
4—(97)
3—(98)
2—(96)
(99)
(142) (111) (106) (107) TO A8 E1
(141)
20—(135)
20—(107)
20—(106)
(143) (111) (106) (107) TO A17 E1
(102)
(25) (26) (43) (92)
(147) (112) (106) (107) TO A14 E1
(152)
(144) (112) (106) (107) TO A10 E1
4—(52)
(25) (26) (43) (155)
(136) (112) (106) (107) TO A9 E1
4—(149)
(100) W1 REF
(95)—REF
(25) (26) (43) (156)
(147) (112) (106) (107) TO A19 E1
(147) (112) (106) (107) TO A23 E1
A1
A2
A3
A4
A19
A5
A22
A7
A11
A9
A12
A13
A21
A23
A10
A18
A16
W1
E1

SECTION G-G
ROTATED CCW 90°
SEE SHEET 1

2014042 F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR B.K. Muller CHK J. Galbreath APPD	12/27/65	
B	CHANGED PER CCA R25659 DR B.K. Muller CHK APPD P.C.D.	1/11/65	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D.	1/18/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/24/66	
E	CHANGED PER TDRP 26316 DR CHK APPD P.C.D.	2/4/66	
F	CHANGED PER TDRP 26317 DR B.K. Muller CHK Kozminski APPD	3/7/66	

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN F. Miller DATE 4 OCT 65
CHECKED B. English 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

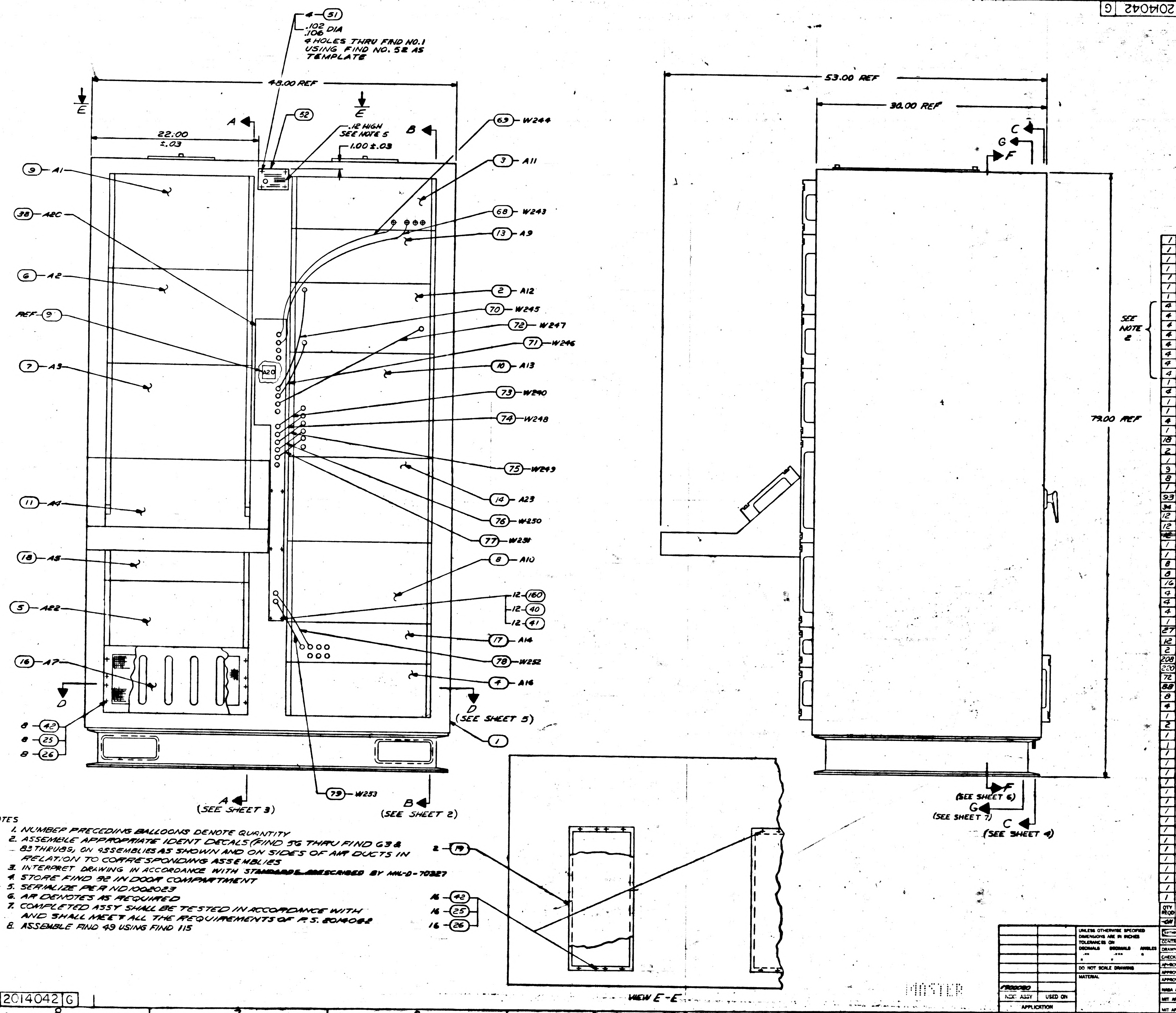
COMPUTER TEST SET
ASSEMBLY

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014042

SCALE 1/2 WT SHEET 7 OF 7

2014042 1

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25478		
—	CLASS B CHANGED PER CCA R2556[illegible]	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/11/65	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.C.D.	1/[illegible]/66	[illegible]
C	CHANGED PER CCA R257[illegible]6 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]/66	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25[illegible]3	[illegible]/66	[illegible]
E	CHANGED PER TDRR 26[illegible] DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]/66	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD PED	[illegible]/66	[illegible]


4-(51)
.102 DIA
.106
4 HOLES THRU FIND NO.1 USING FIND NO. 52 AS TEMPLATE
48.00 REF
E
E
22.00 ±.03
A
(52)
.12 HIGH SEE NOTE 5
1.00 ±.03
B
(63)-W244
(9)-A1
(3)-A11
(38)-A20
(68)-W243
(13)-A9
(6)-A2
(2)-A12
(70)-W245
REF-(9)
(72)-W247
(71)-W246
A20
(7)-A3
(10)-A13
(73)-W240
(74)-W248
(75)-W249
(11)-A4
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(76)-W250
(77)-W251
(18)-A5
(8)-A10
12-(160)
12-(40)
12-(41)
(5)-A22
(17)-A14
(78)-W252
(16)-A7
(4)-A16
D
D (SEE SHEET 5)
8-(42)
8-(25)
8-(26)
(1)
A (SEE SHEET 3)
(79)-W253
B (SEE SHEET 2)
53.00 REF
30.00 REF
C
G
F
79.00 REF
F (SEE SHEET 6)
G (SEE SHEET 7)
C (SEE SHEET 4)
2-(19)
16-(42)
16-(25)
16-(26)
VIEW E-E

NOTES
1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 85, ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH ~~STANDARDS PRESCRIBED~~ BY MIL-D-70327
4. STORE FIND 92 IN DOOR COMPARTMENT
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014042
8. ASSEMBLE FIND 49 USING FIND 115

CONTINUED ON SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2014461-031	CABLE ASSY, W245	70
1	2014461-021	CABLE ASSY, W244	69
1	2014461-011	CABLE ASSY, W243	68
1	2014432	PLATE, BAFFLE, TERM. BD	67
1	1014480 -19	DECAL, IDENTIFICATION	66
1	-18		65
1	-17		64
4	-16		63
4	-23		62
4	-14		61
4	-13		60
4	-12		59
4	-11		58
4	-10		57
4	-9		56
1	1014480-8	DECAL, IDENTIFICATION	55
4	MS35649-[illegible]	NUT, HEX PLAIN	54
1	MS35649-104	NUT, PLAIN HEX	53
1	1004260-203	PLATE, IDENTIFICATION	52
4	AN535-4-3	DRIVE SCREW	51
1	MS51957-63	SCREW, PAN HD	50
18	MS51958-67	SCREW, PAN HEAD	49
2	MS51957-35	SCREW, PAN HEAD	48
1	2016346-011	TERMINAL BOARD ASSY	47
9	2014425	PLATE, BAFFLE	46
8	2014424	PLATE, BAFFLE	45
1	2014046-011	A18 INTERCONNECTION ASSY	44
93	MS51958-63	SCREW, PAN HEAD	43
34	MS51958-64	SCREW, PAN HEAD	42
12	MS35338-80	WASHER, LOCK	41
12	MS15795-807	WASHER	40
~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1020352	PLATE CONNECTOR ASSY	38
1	MS21919DG11	CLAMP, LOOP	37
8	1014157-2	SLIDE BRACKET ASSY	36
8	1014157-3	SLIDE BRACKET ASSY	35
16	MS35650-104	NUT, HEX PLAIN	34
4	1014301-2	SLIDE, ADAPTER	33
4	1006878-2	SLIDE, CABINET SECTION	32
4	1014301-1	SLIDE ADAPTER	31
1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	MS35649-64	NUT HEX, PLAIN	29
12	1014157-4	SLIDE BRACKET ASSY	28
2	1006938-3	SLIDE WITH CABLE CARRIER	27
208	MS35338-81	WASHER, LOCK	26
220	MS15795-808	WASHER, FLAT	25
72	MS51958-61	SCREW, PAN HEAD	24
88	MS51959-43	SCREW, FLAT HEAD	23
8	1014157-1	SLIDE BRACKET ASSY	22
4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	1006918	FILTER, AIR, RFI	19
1	2014274-011	AUX. OUTLET ASSY 115VAC	18
1	2014366-011	SELF TEST ASSY	17
1	1006897	FAN, VENTILATION, RFI SHIELD	16
1	2014047-011	CONNECTOR INTERFACE ASSY	15
1	2014045-011	RDC INTERFACE ASSY	14
1	2014044-011	POWER CONTROL ASSY	13
1	2014043-011	AC INPUT PANEL ASSY	12
1	2014041-011	PROGRAMMER & MONITOR ASSY	11
1	2014040-011	XY INTERFACE ASSY	10
1	2014039-011	TAPE PUNCH ASSY	9
1	2014038-011	TAPE READER ASSY	8
1	2014037-011	LOGIC DRAWER NO.2 ASSY	7
1	2014036-011	LOGIC DRAWER NO.1 ASSY	6
1	2014235-011	POWER SUPPLY ±12, 13, 28VDC ASSY	5
1	2014234-011	POWER SUPPLY 3VDC ASSY	4
1	2014233-011	FREQUENCY COUNTER ASSY	3
1	2014232-011	OSCILLOSCOPE ASSY	2
1	1006423-001	CABINET, ELECTRICAL EQUIP	1

-011 LIST OF MATERIALS

SEE NOTE 2

1500080	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Joe Roper DATE 4 JUNE 65
CHECKED [illegible] 19 OCT 65
APPROVAL [illegible]
APPROVAL [illegible] 11/4/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C. S. [illegible] 11/4/65

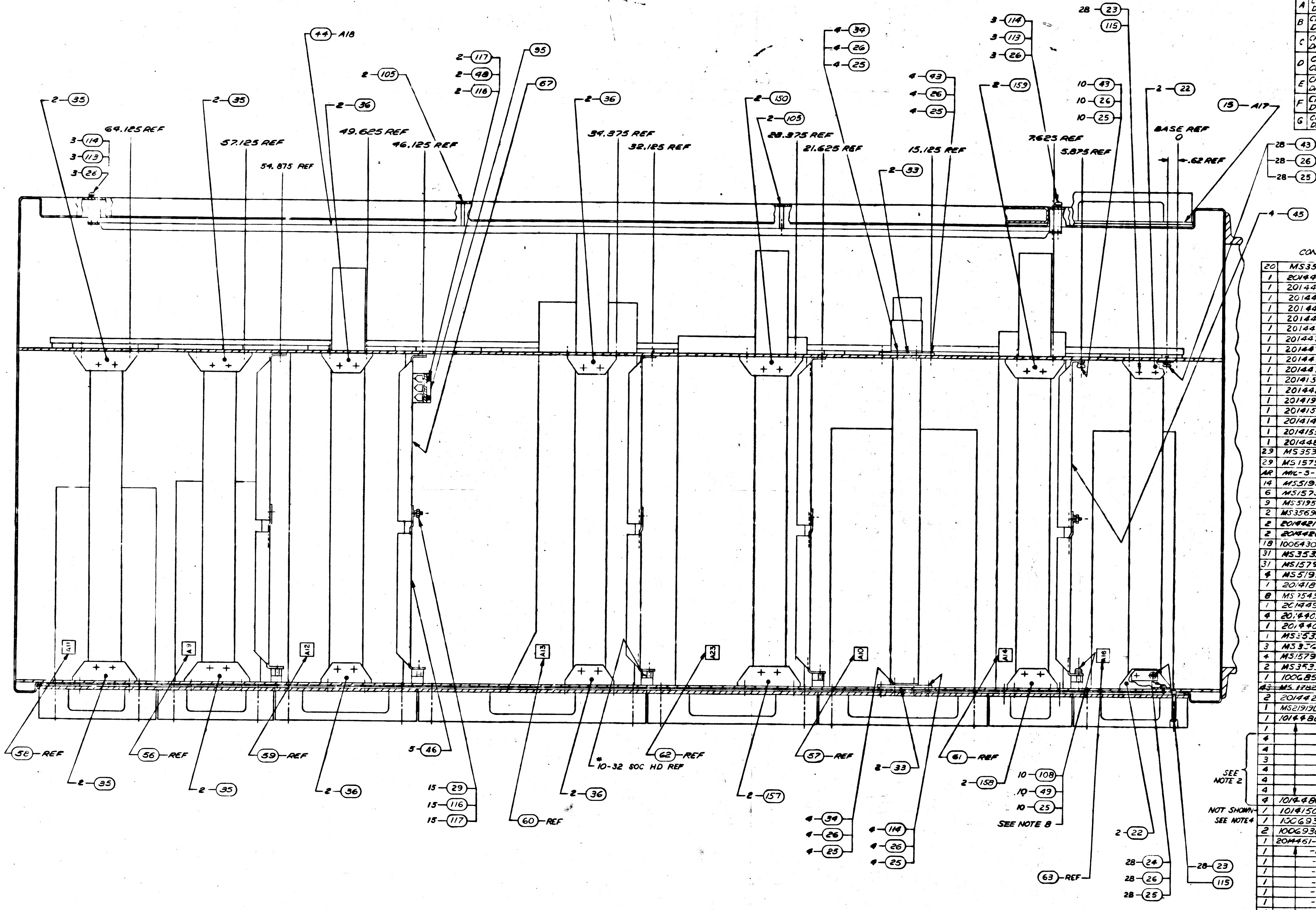
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET ASSEMBLY

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014042
SCALE 1/4 WT SHEET 1 OF 7

MASTER

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25659 DR B.K. Fuller CHK [illegible] APPD P.C.D	1/4/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D	1/14/66	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	1/24/66	[illegible]
E	CHANGED PER TDRR 26 [illegible] DR [illegible] CHK [illegible] APPD P.C.D	3/1/66	[illegible]
F	CHANGED PER TDRR 26317 DR B.K. Fuller CHK [illegible] APPD [illegible]	3/?/66	[illegible]
G	CHANGED PER TDRR 26 [illegible] 5 DR Tom Allison CHK [illegible] APPD P.C.D	3/23/66	[illegible]



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46.125 REF
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SEE NOTE 8
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28-(23)
(115)

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 1)

CONTINUED ON SHEET 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION		FIND NO.
20	MS35307-307	SCREW, CAP, HEX HEAD		135
1	2014458-191	CABLE ASSY, GROUND		134
1	2014471-011	CABLE ASSY	W27	133
1	2014472-011	CABLE ASSY	W26	132
1	2014473-011	CABLE ASSY	W25	131
1	2014474-011	CABLE ASSY	W24	130
1	2014475-011	CABLE ASSY	W23	129
1	2014476-011	CABLE ASSY	W22	128
1	2014477-011	CABLE ASSY	W21	127
1	2014478-011	CABLE ASSY	W20	126
1	2014479-011	CABLE ASSY	W19	125
1	2014154-011	CABLE ASSY	W18	124
1	2014480-011	CABLE ASSY	W17	123
1	2014194-011	CABLE ASSY	W16	122
1	2014153-011	CABLE ASSY	W15	121
1	2014141-011	CABLE ASSY	W14	120
1	2014155-011	CABLE ASSY	W13	119
1	2014481-011	CABLE ASSY	W12	118
29	MS35338-79	WASHER, LOCK		117
29	MS15795-806	WASHER, FLAT		116
AR	MIL-S-22473GRHV	SEALING AND RETAINING COMPOUND		115
14	MS51958-62	SCREW, PAN HD		114
6	MS15795-809	WASHER, FLAT		113
9	MS51957-79	SCREW PAN HD		112
2	MS35690-410	NUT HEX		111
2	2014421	SUPPORT RAIL		110
2	2014420	SUPPORT RAIL		109
18	1006430-097	SPACER		108
31	MS35338-82	WASHER, LOCK		107
31	MS15795-810	WASHER, FLAT		106
4	MS51959-17	SCREW, FLAT HD		105
1	2014182-011	WIRING HARNESS, DC DIST		104
8	MS?549-09	WASHER, FLAT		103
1	2014490-011	WIRING HARNESS, BRANCHED		102
4	2014403	BLOCK, MOUNTING		101
1	2014401	BUSS, BAR		100
1	MS35335-63	WASHER, LOCK, EXTERNAL TOOTH		99
3	MS35690-610	NUT, PLAIN		98
4	MS15795-815	WASHER, FLAT		97
2	MS35338-84	WASHER, LOCK		96
1	1006859-2	TERMINAL BLOCK		95
~~43~~	~~MS 17821-2-9~~	~~TIE WRAP~~		~~94~~
2	2014422	COUPLING		93
1	MS21919DG8	CLAMP, LOOP		92
1	1014480-20	DECAL, IDENTIFICATION		91
1	-21			90
4	-22			89
4	-7			88
3	-5			87
4	-4			86
4	-3			85
4	-2			84
4	1014480-1	DECAL, IDENTIFICATION		83
1	1014150-1	CABLE, POWER		82
1	1006930-14	SLIDE, WITH CABLE CARRIER		81
2	1006930-17	SLIDE, WITH CABLE CARRIER		80
1	2014461-121	CABLE ASSY	W253	79
1	-111		W252	78
1	-091		W251	77
1	-081		W250	76
1	-071		W249	75
1	-061		W248	74
1	-131		W240	73
1	-051		W247	72
1	2014461-041	CABLE ASSY	W246	71

SEE NOTE 2 (find nos. 84–89)
NOT SHOWN-SEE NOTE 4 (find no. 82)

-011 LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

NEXT ASSY	USED ON
APPLICATION	

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN [illegible] DATE 18 Jun 65
CHECKED [illegible] 19 OCT 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

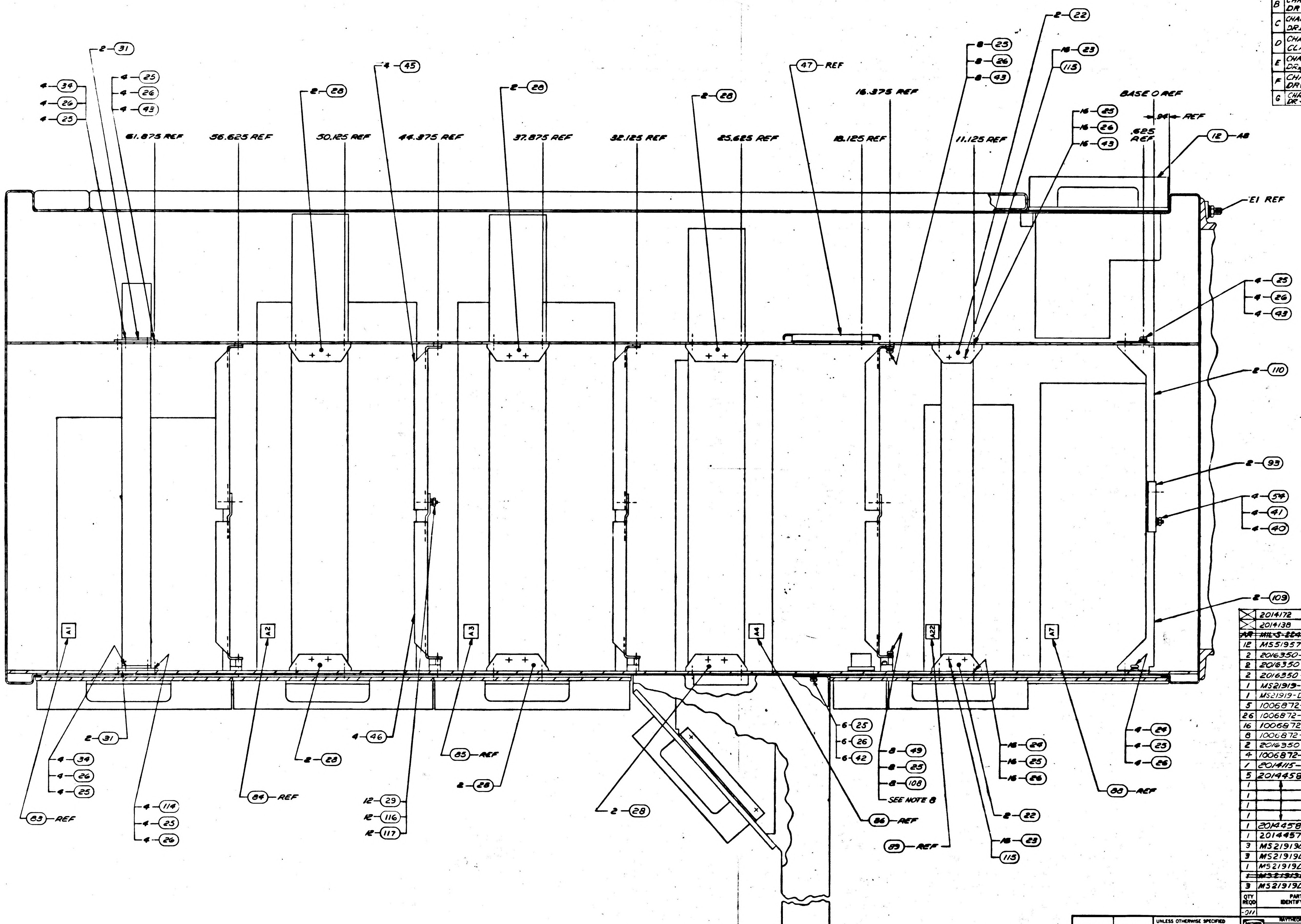
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 2 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	12/1/65	
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK APPD	12/27/65	
B	CHANGED PER CCA R25659 DR CHK APPD P.C.D.	1/10/66	
C	CHANGED PER CCA R25736 DR CHK APPD PCD	1/18/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25773	1/20/66	
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D.	2/17/66	
F	CHANGED PER TDRR 26317 DR CHK APPD	3/7/66	
G	CHANGED PER TDRR 263 5 DR CHK CAP APPD P.C.D.	3/23/66	



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SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014172	ELEC. SCHEM AC & DC PWR DISTRIB.	REF
☒	2014138	INTERCONN DIAGRAM	REF
~~AR~~	~~MIL-S-22473, GR HV~~	~~SEALING & RETAINING COMPOUND~~	~~161~~
12	MS51957-45	SCREW, PAN HD	160
2	2016350-031	SLIDE, BRACKET ASSY	159
2	2016350-021	SLIDE, BRACKET ASSY	158
2	2016350-011	SLIDE, BRACKET ASSY	157
1	MS21919-DG7	CLAMP, LOOP	156
1	MS21919-DG6	CLAMP, LOOP	155
5	1006872-12	CLAMP, LOOP	154
26	1006872-14	CLAMP, LOOP	153
16	1006872-9	CLAMP, LOOP	152
8	1006872-11	CLAMP, LOOP	151
2	2016350-041	SLIDE, BRACKET ASSY	150
4	1006872-10	CLAMP, LOOP	149
1	2014115-021	STRAP, GROUND	148
5	2014458-171	CABLE ASSY, GROUND	147
1	-151		146
1	-121		145
1	-111		144
1	-081		143
1	2014458-061		142
1	2014457-071	CABLE ASSY, GROUND	141
3	MS21919DG64	CLAMP, LOOP	140
3	MS21919DG24	CLAMP, LOOP	139
1	MS21919DG36	CLAMP, LOOP	138
~~1~~	~~MS21919DG10~~	~~CLAMP, LOOP~~	~~137~~
3	MS21919DG14	CLAMP, LOOP	136

-011 LIST OF MATERIALS

2014042 G

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 16 Jun 65
CHECKED 19 OCT 65
APPROVAL 1 Nov 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C 1/4/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

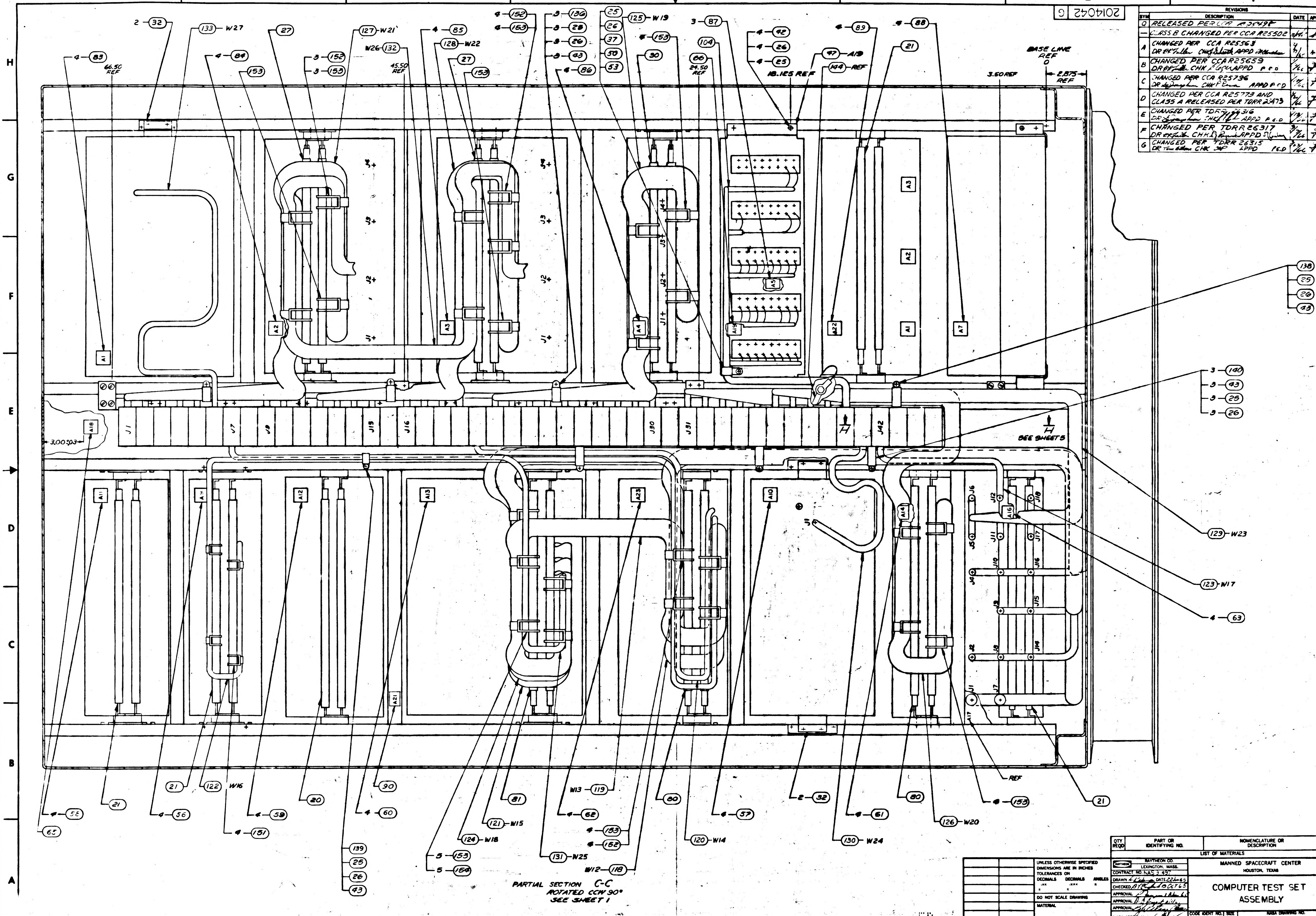
COMPUTER TEST SET
ASSEMBLY

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 3 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD	4/7/65	
B	CHANGED PER CCA R25659 DR CHK APPD P.C.D	1/7/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D	1/17/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/20/66	
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D	2/19/66	
F	CHANGED PER TDRR 26317 DR CHK APPD	3/7/66	
G	CHANGED PER TDRR 26315 DR CHK APPD P.C.D	3/23/66	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PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 22 Jun 65
CHECKED BY 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

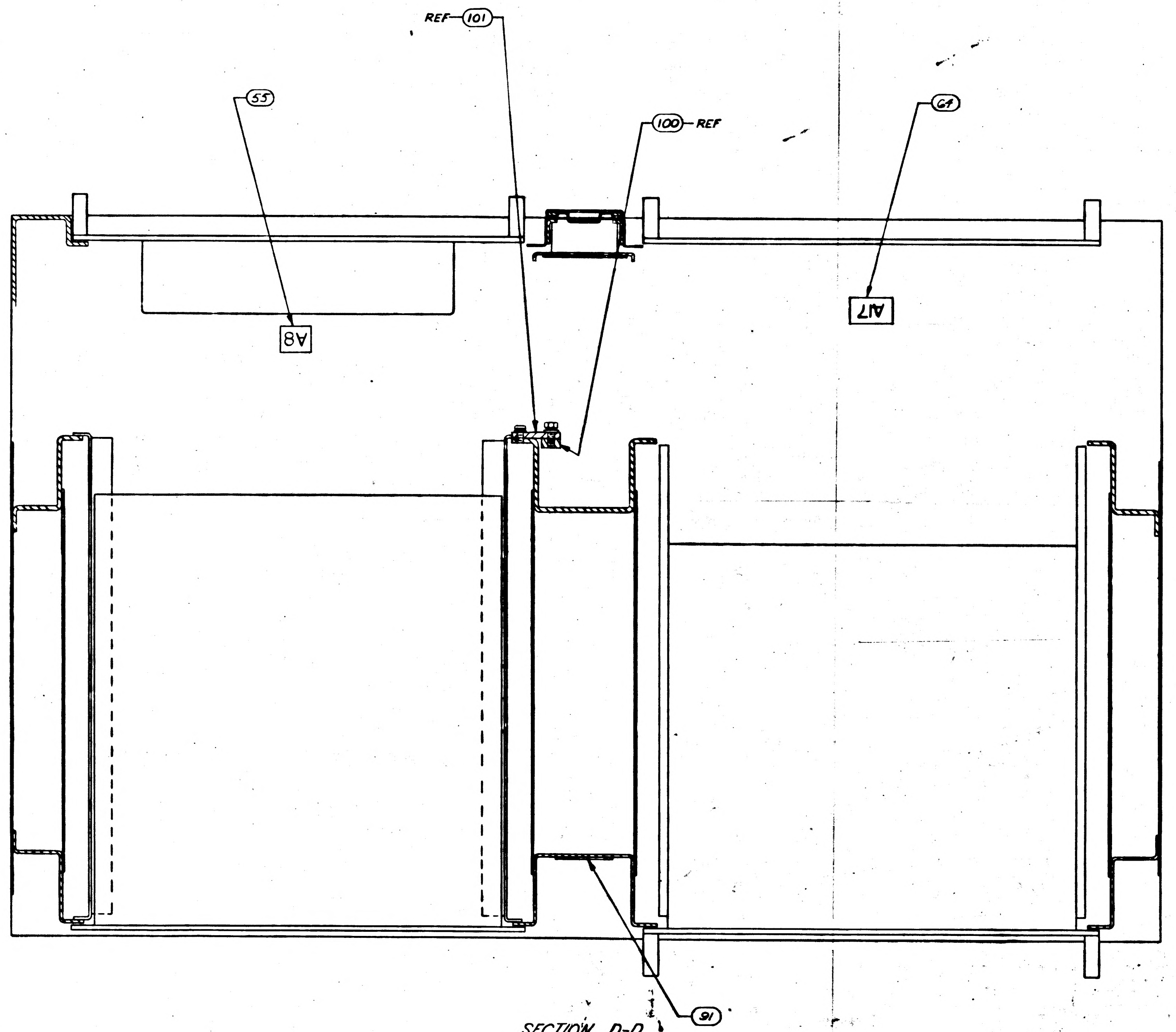
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 4 OF 7

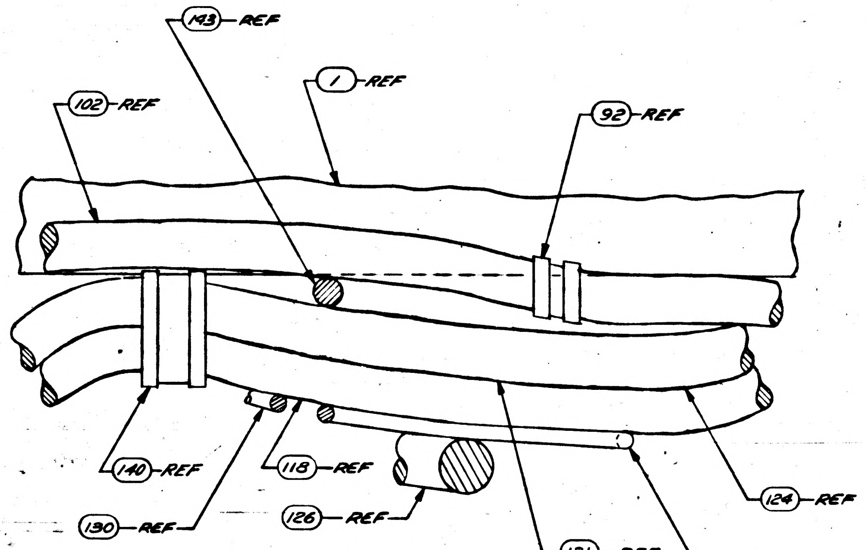
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 G

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR EK Fuller CHK J Gulbrath APPD RP [illegible]	12/27/65	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD PED	1/14/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK P[illegible] APPD PCD	1/14/66	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25[illegible]	1/[illegible]/66	[illegible]
E	CHANGED PER TDRR 26[illegible]6 DR [illegible] CHK [illegible] APPD PED	1/12/66	[illegible]
F	CHANGED PER TDRR 26317 DR EK Fuller CHK [illegible] APPD [illegible]	2/[illegible]/66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD PED	2/[illegible]/66	[illegible]



SECTION D-D
(SEE SHEET 1)



VIEW H-H
SCALE-NONE
SEE SHEET 4

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R [illegible] DATE [illegible]
CHECKED [illegible] 19 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/2/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

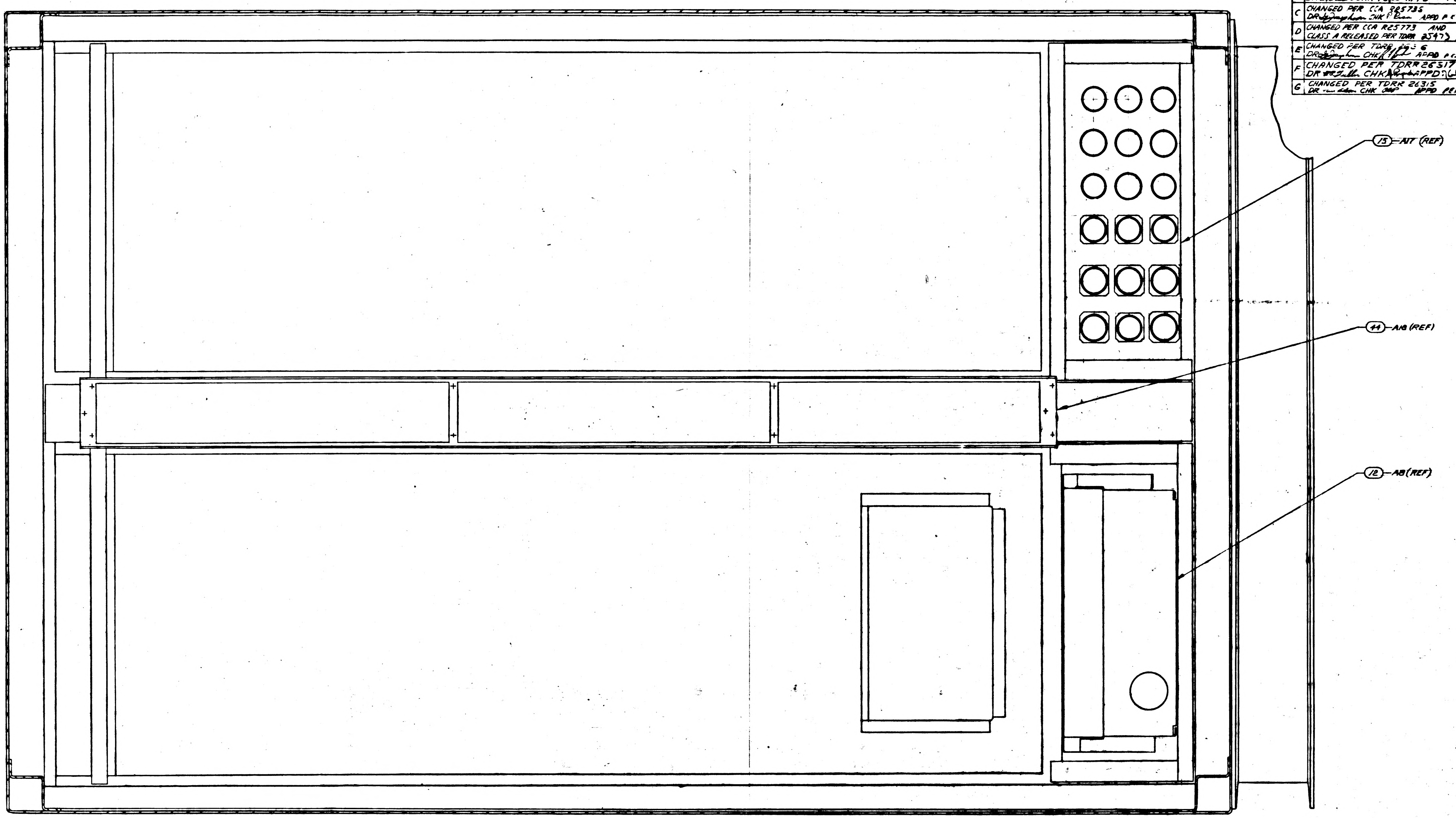
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014042
SCALE 1/2 | WT | SHEET 5 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 G

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR B.R. Fuller CHK [illegible] APPD [illegible]	12/27/65	[illegible]
B	CHANGED PER CCA R25659 DR B.R. Fuller CHK [illegible] APPD P.C.D	1/11/66	[illegible]
C	CHANGED PER CCA R25735 DR [illegible] CHK P. [illegible] APPD P.C.D	1/10/66	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/20/66	[illegible]
E	CHANGED PER TDRR 26[illegible]6 DR [illegible] CHK [illegible] APPD P.C.D.	1/18/66	[illegible]
F	CHANGED PER TDRR 26317 DR B.R. Fuller CHK [illegible] APPD [illegible]	3/7/66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.C.D	3/12/66	[illegible]



SECTION F-F
ROTATED 90° CCW
(SEE SHEET 1)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9-497
DRAWN J.J. [illegible] DATE 12 AUG 65
CHECKED B.Y. [illegible] 19 OCT 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C. S[illegible] 1/20/66

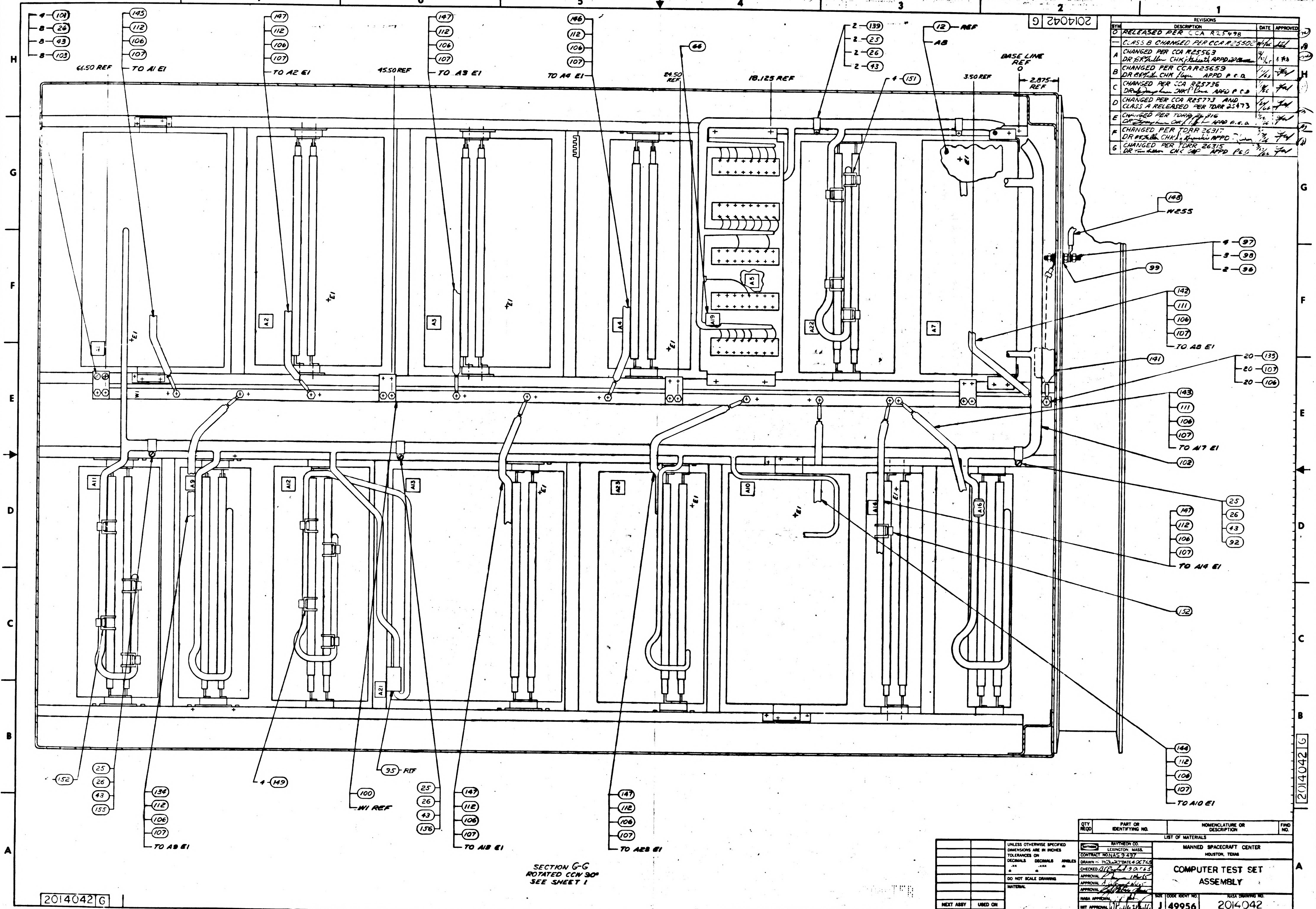
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 6 OF 7

2014042 G

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK Galbraith APPD [illegible]	12/21/65	
B	CHANGED PER CCA R25659 DR B.K. Fuller CHK [illegible] APPD P.C.D.	1/11/66	
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D.	1/?/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/?/66	
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	
F	CHANGED PER TDRR 26317 DR B.K. Fuller CHK [illegible] APPD [illegible]	[illegible]	
G	CHANGED PER TDRR 26315 DR Tom Hilton CHK [illegible] APPD P.C.D.	[illegible]	


8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
4 — 101
8 — 26
8 — 43
8 — 103
145
112
106
107
TO A1 E1
66.50 REF
147
112
106
107
TO A2 E1
45.50 REF
147
112
106
107
TO A3 E1
146
112
106
107
TO A4 E1
24.50 REF
66
18.125 REF
2 — 139
2 — 25
2 — 26
2 — 43
4 — 151
12 — REF
A8
BASE LINE REF 0
3.50 REF
2.875 REF
148
W255
4 — 97
3 — 98
2 — 96
99
142
111
106
107
TO A8 E1
141
20 — 135
20 — 107
20 — 106
143
111
106
107
TO A17 E1
102
25
26
43
92
147
112
106
107
TO A14 E1
152
144
112
106
107
TO A10 E1
A2
A3
A4
A5
A7
A19
A22
A11
A9
A12
A13
A21
A23
A10
A18
A16
E1
W1
152
25
26
43
155
136
112
106
107
TO A9 E1
4 — 149
100
W1 REF
95 — REF
25
26
43
156
147
112
106
107
TO A18 E1
147
112
106
107
TO A23 E1

SECTION G-G
ROTATED CCW 90°
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN H. Milner DATE 4 OCT 65
CHECKED B. England 19 OCT 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible] 1 Nov 65
APPROVAL
NASA APPROVAL
MIT APPROVAL [illegible] 1/1/66
MIT APPROVAL [illegible] 1/1/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

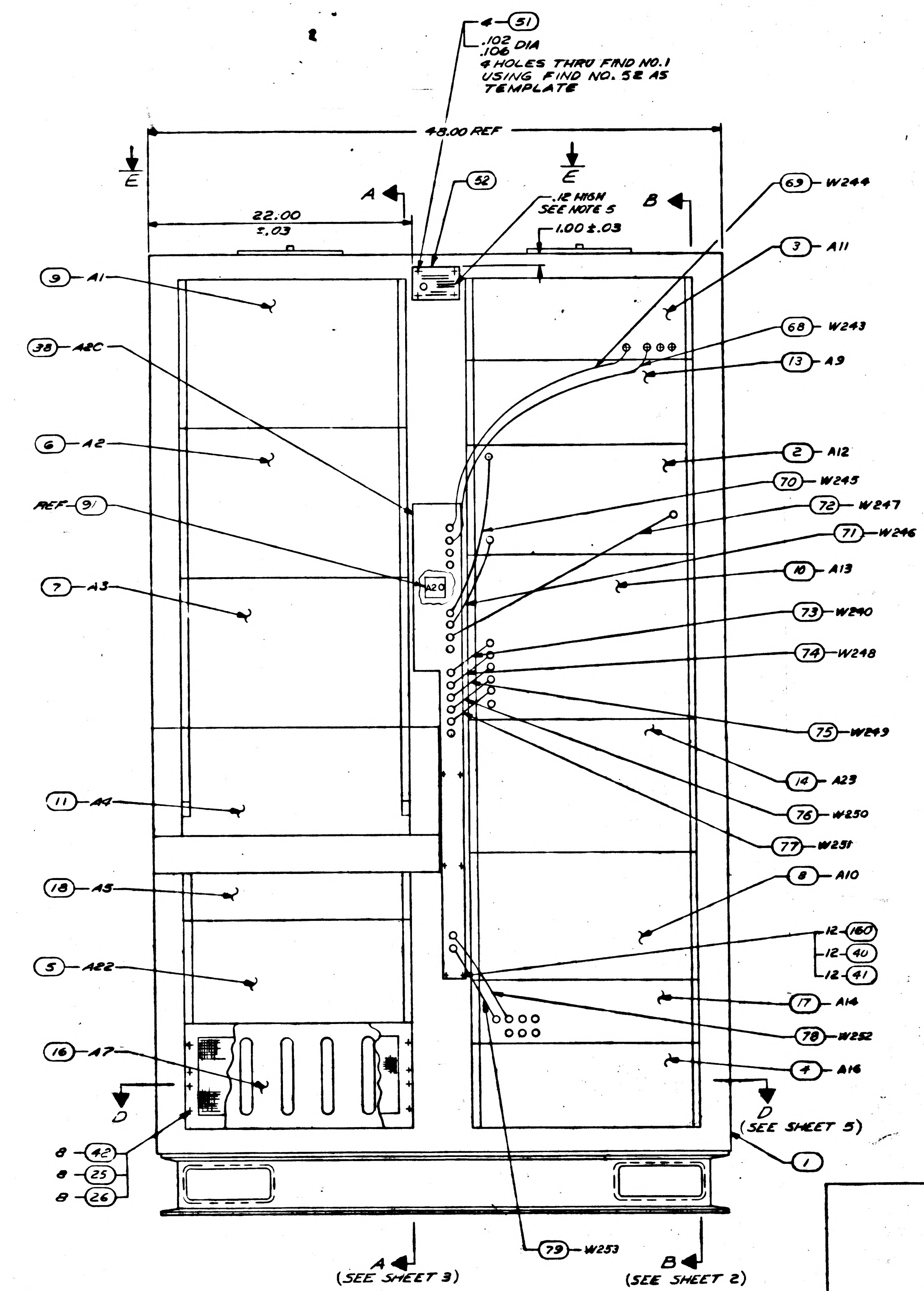
COMPUTER TEST SET ASSEMBLY

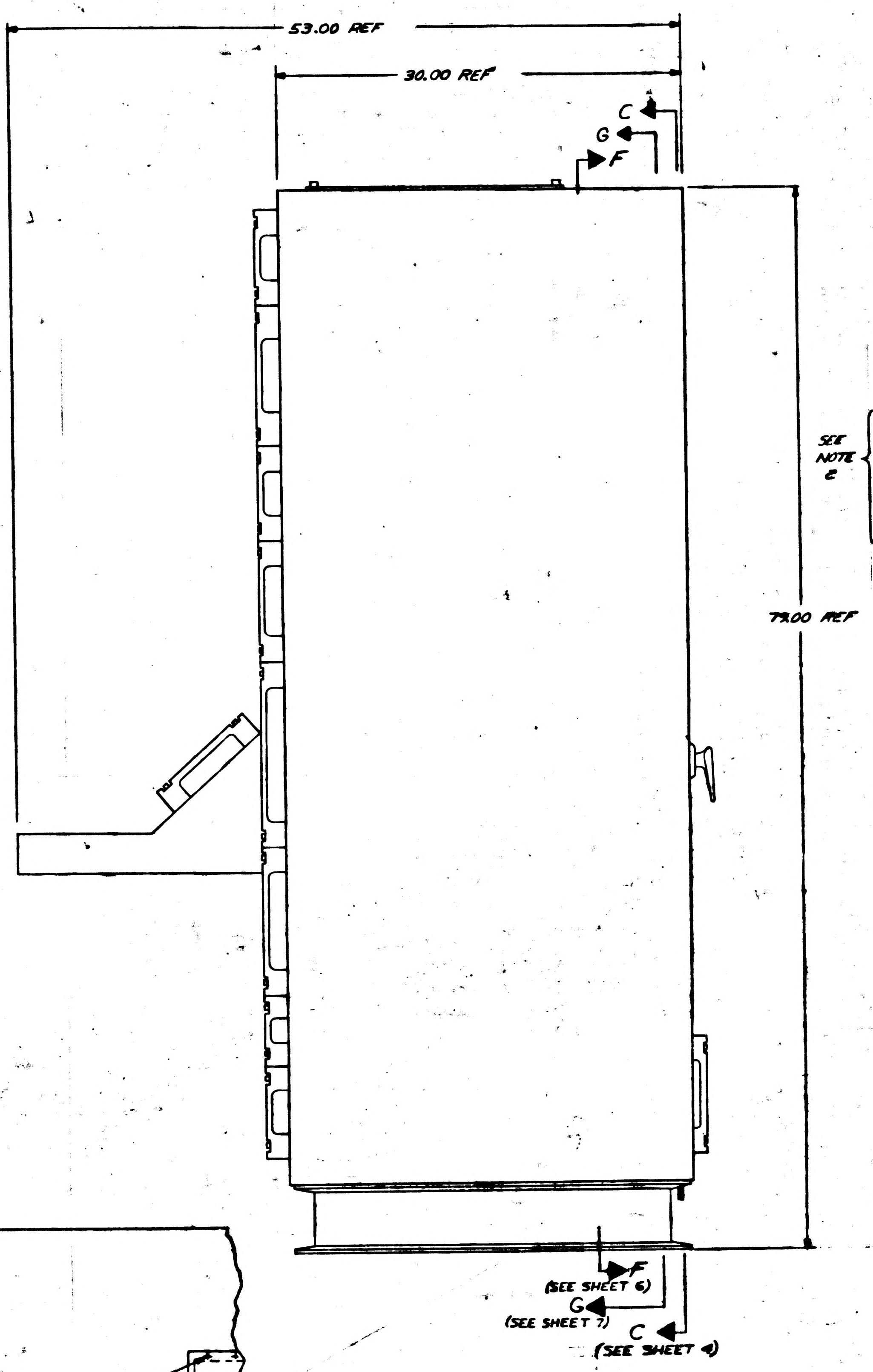
SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 7 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

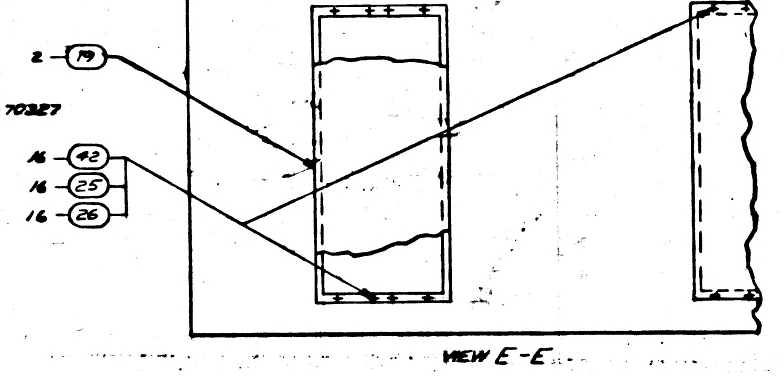
2014042 H

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25563 DR CHK APPD	12/7/65	
B	CHANGED PER CCA R25659 DR CHK APPD PCD	1/4/66	
C	CHANGED PER CCA R25736 DR CHK APPD PCD	1/19/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25913	1/24/66	
E	CHANGED PER TDRR 26316 DR CHK APPD PCD	3/9/66	
F	CHANGED PER TDRR 26317 DR CHK APPD	8/4/66	
G	CHANGED PER TDRR 26315 DR CHK APPD PCD	8/23/66	
H	CHANGED PER TDRR 25545 DR CHK EPPD PCD	9/2/66	


4-(51)
.102
.106 DIA
4 HOLES THRU FIND NO.1
USING FIND NO. 52 AS
TEMPLATE
48.00 REF
E
E
(52)
.12 HIGH
SEE NOTE 5
1.00 ±.03
A
B
22.00
±.03
(69)-W244
(3)-A11
(9)-A1
(68)-W243
(38)-A2C
(13)-A9
(6)-A2
(2)-A12
(70)-W245
(72)-W247
REF-(91)
(71)-W246
(10)-A13
(7)-A3
A20
(73)-W240
(74)-W248
(75)-W249
(14)-A23
(11)-A4
(76)-W250
(77)-W251
(8)-A10
(18)-A5
12-(160)
12-(40)
12-(41)
(5)-A22
(17)-A14
(78)-W252
(16)-A7
(4)-A16
D
D
(SEE SHEET 5)
(1)
8-(42)
8-(25)
8-(26)
(79)-W253
A
(SEE SHEET 3)
B
(SEE SHEET 2)


53.00 REF
30.00 REF
C
G
F
73.00 REF
F
(SEE SHEET 6)
G
(SEE SHEET 7)
C
(SEE SHEET 4)

NOTES
1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89) ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH ~~STANDARDS PRESCRIBED~~ BY MIL-D-70327
4. STORE FIND 92 IN DOOR COMPARTMENT
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014042
8. ASSEMBLE FIND 49 USING FIND 115


2-(19)
16-(42)
16-(25)
16-(26)
VIEW E-E

MASTER

CONTINUED ON SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2014461-031	CABLE ASSY, W245	70
1	2014461-021	CABLE ASSY, W244	69
1	2014461-011	CABLE ASSY, W243	68
1	2014432	PLATE, BAFFLE, TERM. BD	67
1	1014480 -19	DECAL, IDENTIFICATION	66
1	-18		65
1	-17		64
4	-16		63
4	-23		62
4	-14		61
4	-13		60
4	-12		59
4	-11		58
4	-10		57
4	-9		56
1	1014480-8	DECAL, IDENTIFICATION	55
4	MS35649-[illegible]	NUT, HEX PLAIN	54
1	MS35649-104	NUT, PLAIN HEX	53
1	1004260-203	PLATE, IDENTIFICATION	52
4	AN535-4-3	DRIVE SCREW	51
1	MS51957-63	SCREW, PAN HD	50
18	MS51958-67	SCREW, PAN HEAD	49
2	MS51957-35	SCREW, PAN HEAD	48
1	2016346-011	TERMINAL BOARD ASSY	47
9	2014425	PLATE, BAFFLE	46
8	2014424	PLATE, BAFFLE	45
1	2014046-011	A18 INTERCONNECTION ASSY	44
93	MS51958-63	SCREW, PAN HEAD	43
34	MS51958-64	SCREW, PAN HEAD	42
12	MS35338-80	WASHER, LOCK	41
12	MS15795-807	WASHER	40
~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1020352	PLATE CONNECTOR ASSY	38
1	MS21919DG11	CLAMP, LOOP	37
8	1014157-2	SLIDE BRACKET ASSY	36
8	1014157-3	SLIDE BRACKET ASSY	35
16	MS35650-104	NUT, HEX PLAIN	34
4	1014301-2	SLIDE, ADAPTER	33
4	1006878-2	SLIDE, CABINET SECTION	32
4	1014301-1	SLIDE ADAPTER	31
1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	MS35649-64	NUT HEX, PLAIN	29
12	1014157-4	SLIDE BRACKET ASSY	28
2	1006938-3	SLIDE WITH CABLE CARRIER	27
208	MS35338-81	WASHER, LOCK	26
226	MS15795-808	WASHER, FLAT	25
72	MS51958-61	SCREW, PAN HEAD	24
88	MS51959-43	SCREW, FLAT HEAD	23
8	1014157-1	SLIDE BRACKET ASSY	22
4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	1006918	FILTER, AIR, RFI	19
1	2014274-011	AUX. OUTLET ASSY 115VAC	18
1	2014366-011	SELF TEST ASSY	17
1	1006897	FAN, VENTILATION, RFI SHIELD	16
1	2014047-011	CONNECTOR INTERFACE ASSY	15
1	2014045-011	RDC INTERFACE ASSY	14
1	2014044-011	POWER CONTROL ASSY	13
1	2014043-011	AC INPUT PANEL ASSY	12
1	2014041-011	PROGRAMMER & MONITOR ASSY	11
1	2014040-011	XY INTERFACE ASSY	10
1	2014039-011	TAPE PUNCH ASSY	9
1	2014038-011	TAPE READER ASSY	8
1	2014037-011	LOGIC DRAWER NO.2 ASSY	7
1	2014036-011	LOGIC DRAWER NO.1 ASSY	6
1	2014235-011	POWER SUPPLY NO.13, 28VDC ASSY	5
1	2014234-011	POWER SUPPLY 3VDC ASSY	4
1	2014233-011	FREQUENCY COUNTER ASSY	3
1	2014232-011	OSCILLOSCOPE ASSY	2
1	1006423-001	CABINET, ELECTRICAL EQUIP	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1900080	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 4 JUNE 65
CHECKED 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

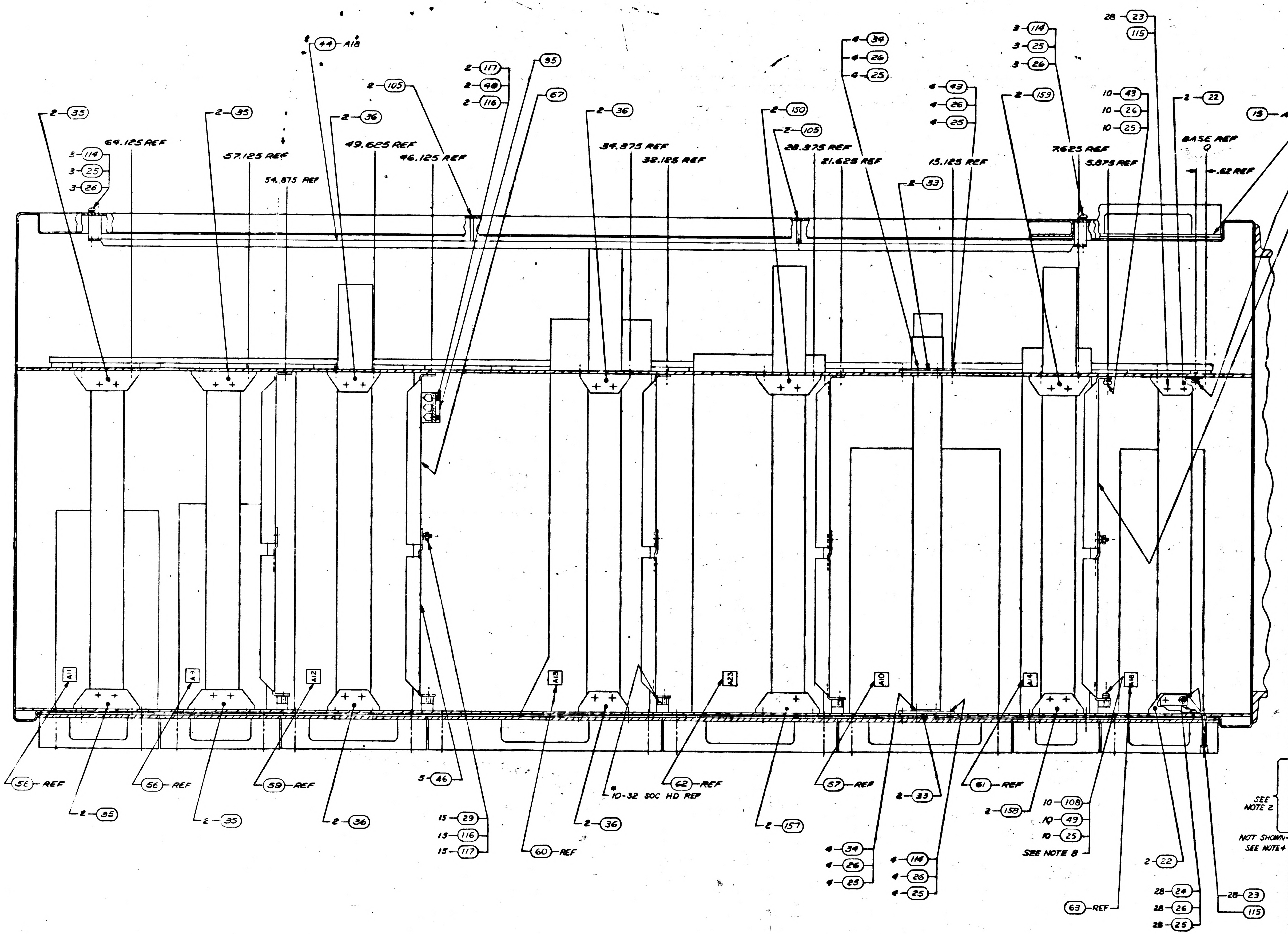
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/4
WT
SHEET 1 OF 7

2014042 H

2014042 H

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR B.F. Fuller CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25659 DR B.F. Fuller CHK [illegible] APPD PED	1/11/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK P [illegible] APPD PED	1/14/66	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	1/20/66	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD PED	2/17/66	[illegible]
F	CHANGED PER TDRR 26317 DR B.F. Fuller CHK [illegible] APPD [illegible]	3/?/66	[illegible]
G	CHANGED PER TDRR 26315 DR Tom Allison CHK [illegible] APPD PED	3/23/66	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD PED	[illegible]/66	[illegible]



64.125 REF
57.125 REF
54.875 REF
49.625 REF
46.125 REF
34.375 REF
32.125 REF
28.375 REF
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15.125 REF
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5.875 REF
BASE REF
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44-A18
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3-114
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15-117
60-REF
2-36
2-157
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10-108
10-49
10-25
SEE NOTE 8
4-34
4-26
4-25
4-114
4-26
4-25
2-22
28-24
28-26
28-25
28-23
115
63-REF

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 1)

CONTINUED ON SHEET 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	2014958-191	CABLE ASSY, GROUND	134
1	2014471-011	CABLE ASSY W27	133
1	2014472-011	CABLE ASSY W26	132
1	2014473-011	CABLE ASSY W25	131
1	2014474-011	CABLE ASSY W24	130
1	2014475-011	CABLE ASSY W23	129
1	2014476-011	CABLE ASSY W22	128
1	2014477-011	CABLE ASSY W21	127
1	2014478-011	CABLE ASSY W20	126
1	2014479-011	CABLE ASSY W19	125
1	2014154-011	CABLE ASSY W18	124
1	2014480-011	CABLE ASSY W17	123
1	2014194-011	CABLE ASSY W16	122
1	2014153-011	CABLE ASSY W15	121
1	2014141-011	CABLE ASSY W14	120
1	2014155-011	CABLE ASSY W13	119
1	2014481-011	CABLE ASSY W12	118
29	MS35338-79	WASHER, LOCK	117
29	MS15795-806	WASHER, FLAT	116
AR	MIL-S-22473GRHV	SEALING AND RETAINING COMPOUND	115
14	MS51958-62	SCREW, PAN HD	114
~~6~~	~~MS15795-803~~	~~WASHER, FLAT~~	~~113~~
9	MS51957-79	SCREW PAN HD	112
2	MS35690-410	NUT HEX	111
2	2014421	SUPPORT RAIL	110
2	2014420	SUPPORT RAIL	109
18	1006430-097	SPACER	108
31	MS35338-82	WASHER, LOCK	107
31	MS15795-810	WASHER, FLAT	106
4	MS51959-17	SCREW, FLAT HD	105
1	2014182-011	WIRING HARNESS, DC DIST	104
8	MS9549-09	WASHER, FLAT	103
1	2014490-011	WIRING HARNESS, BRANCHED	102
4	2014403	BLOCK, MOUNTING	101
1	2014401	BUSS, BAR	100
1	MS35335-63	WASHER, LOCK, EXTERNAL TOOTH	99
3	MS35690-610	NUT, PLAIN	98
4	MS15795-815	WASHER, FLAT	97
2	MS35338-84	WASHER, LOCK	96
1	1006859-2	TERMINAL BLOCK	95
~~43~~	~~MS 17821-2-9~~	~~TIE WRAP~~	~~94~~
2	2014422	COUPLING	93
1	MS21919DG8	CLAMP, LOOP	92
1	1014480-20	DECAL, IDENTIFICATION	91
1	-21		90
4	-22		89
4	-7		88
3	-5		87
4	-4		86
4	-3		85
4	-2		84
4	1014480-1	DECAL, IDENTIFICATION	83
1	1014150-1	CABLE, POWER	82
1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	2014461-121	CABLE ASSY W253	79
1	-111	W252	78
1	-091	W251	77
1	-081	W250	76
1	-071	W249	75
1	-061	W248	74
1	-131	W240	73
1	-051	W247	72
1	2014461-041	CABLE ASSY W246	71
-011	LIST OF MATERIALS		

SEE NOTE 2 (items 84–90)

NOT SHOWN- SEE NOTE 4 (item 82)

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN [illegible] DATE 18 Jun 65
CHECKED B.J. [illegible] 13 OCT. 65
APPROVAL [illegible] 1 Nov 65
APPROVAL D. [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C.S. [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET ASSEMBLY

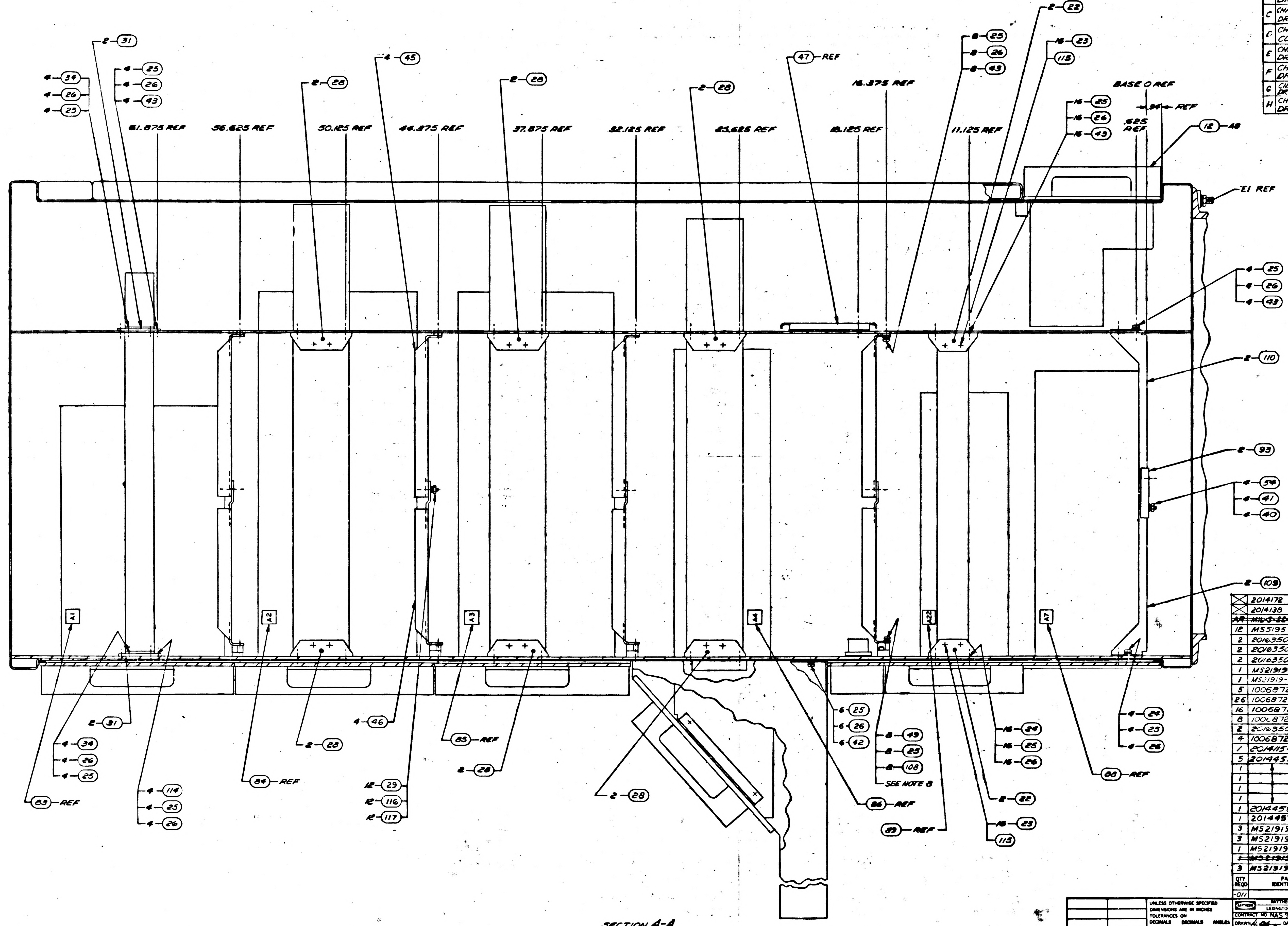
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014042
SCALE 1/2 WT SHEET 2 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014042 H

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	2/1/65	
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK APPD	2/27/65	
B	CHANGED PER CCA R25659 DR B.K. Fuller CHK APPD P.E.D.		
C	CHANGED PER CCA R25736 DR CHK APPD P.E.D.		
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25873	/66	
E	CHANGED PER TDRR 26316 DR CHK APPD P.E.D.	/66	
F	CHANGED PER TDRR 26317 DR B.K. Fuller CHK APPD	/66	
G	CHANGED PER TDRR 26315 DR CHK CAP APPD P.E.D.	/66	
H	CHANGED PER TDRR 26545 DR B.K. Fuller CHK APPD P.E.D.	/66	



8
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18.125 REF
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16-26
16-43
BASE 0 REF
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.94 REF
12-A8
E1 REF
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A2
A3
A4
A22
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4-26
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12-116
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8-49
8-25
8-108
SEE NOTE 8
86-REF
89-REF
16-24
16-25
16-26
2-82
16-23
115
88-REF
4-24
4-25
4-26

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014172	ELEC. SCHEM AC & DC PWR DISTRIB.	REF
☒	2014138	INTERCONN DIAGRAM	REF
~~AR~~	~~MIL-S-22473, GR HV~~	~~SEALING & RETAINING COMPOUND~~	~~161~~
12	MS51957-45	SCREW, PAN HD	160
2	2016350-031	SLIDE, BRACKET ASSY	159
2	2016350-021	SLIDE, BRACKET ASSY	158
2	2016350-011	SLIDE, BRACKET ASSY	157
1	MS21919-DG7	CLAMP, LOOP	156
1	MS21919-DG6	CLAMP, LOOP	155
5	1006872-12	CLAMP, LOOP	154
26	1006872-14	CLAMP, LOOP	153
16	1006872-9	CLAMP, LOOP	152
8	1006872-11	CLAMP, LOOP	151
2	2016350-041	SLIDE, BRACKET ASSY	150
4	1006872-10	CLAMP, LOOP	149
1	2014115-021	STRAP, GROUND	148
5	2014458-171	CABLE ASSY, GROUND	147
1	-151		146
1	-121		145
1	-111		144
1	-081		143
1	2014458-061		142
1	2014457-071	CABLE ASSY, GROUND	141
3	MS21919DG64	CLAMP, LOOP	140
3	MS21919DG24	CLAMP, LOOP	139
1	MS21919DG36	CLAMP, LOOP	138
~~1~~	~~MS21919DG10~~	~~CLAMP, LOOP~~	~~137~~
3	MS21919DG14	CLAMP, LOOP	136

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 16 Jun 65
CHECKED 19 OCT 65
APPROVAL 1 Nov 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL /66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

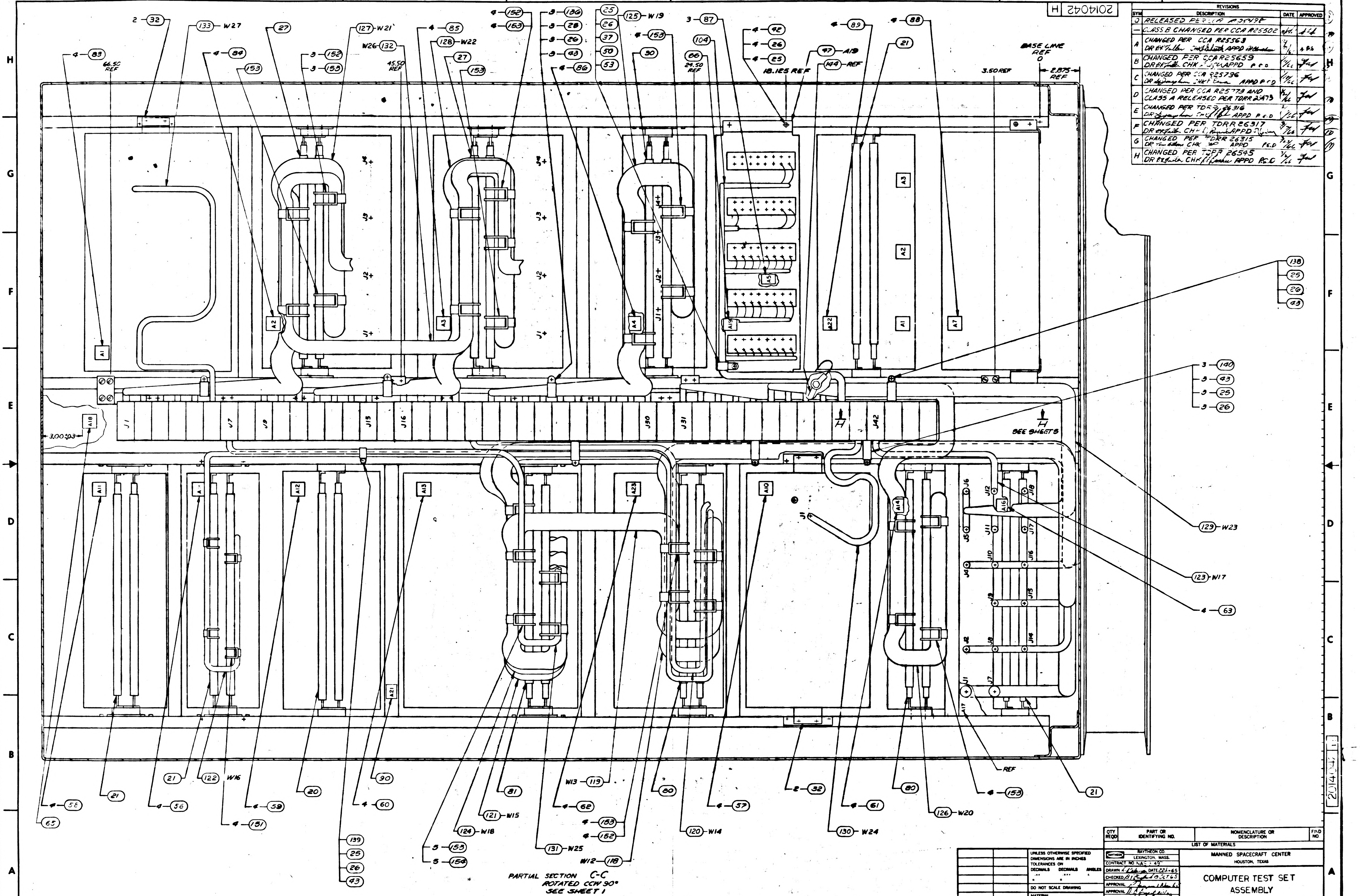
SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 3 OF 7

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 H

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK APPD		
B	CHANGED PER CCA R25659 DR B.K. Fuller CHK APPD P.C.D	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D	1/17/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	2/2/66	
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D	2/26/66	
F	CHANGED PER TDRR 26317 DR B.K. Fuller CHK APPD	3/7/66	
G	CHANGED PER TDRR 26315 DR Tom Hillman CHK APPD P.C.D	3/23/66	
H	CHANGED PER TDRR 26545 DR B.K. Fuller CHK APPD P.C.D	7/2/66	



8
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A
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133 — W27
4 — 83
66.50 REF
4 — 84
153
27
3 — 152
3 — 153
127 — W21
W26 — 132
45.50 REF
4 — 85
128 — W22
27
153
4 — 152
4 — 153
3 — 186
3 — 28
3 — 26
3 — 43
4 — 86
25
26
37
50
53
125 — W19
4 — 153
30
66
24.50 REF
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3 — 87
4 — 42
4 — 26
4 — 25
47 — A19
144 — REF
18.125 REF
4 — 89
4 — 88
21
BASE LINE REF
2.875 REF
3.50 REF
A1
A2
A3
A4
A5
A7
A10
A11
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A21
A22
A23
J1
J2
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J31
J42
H
SEE SHEETS
138
25
26
43
3 — 140
3 — 43
3 — 25
3 — 26
3.00±.03
129 — W23
123 — W17
4 — 63
REF
4 — 58
65
21
21
122
W16
4 — 56
4 — 151
20
4 — 59
4 — 60
90
139
25
26
43
5 — 155
5 — 154
124 — W18
121 — W15
81
131 — W25
W13 — 119
4 — 62
4 — 153
4 — 152
W12 — 118
80
120 — W14
2 — 32
4 — 57
130 — W24
4 — 61
80
126 — W20
4 — 153
21
PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 22 Jul 65
CHECKED 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

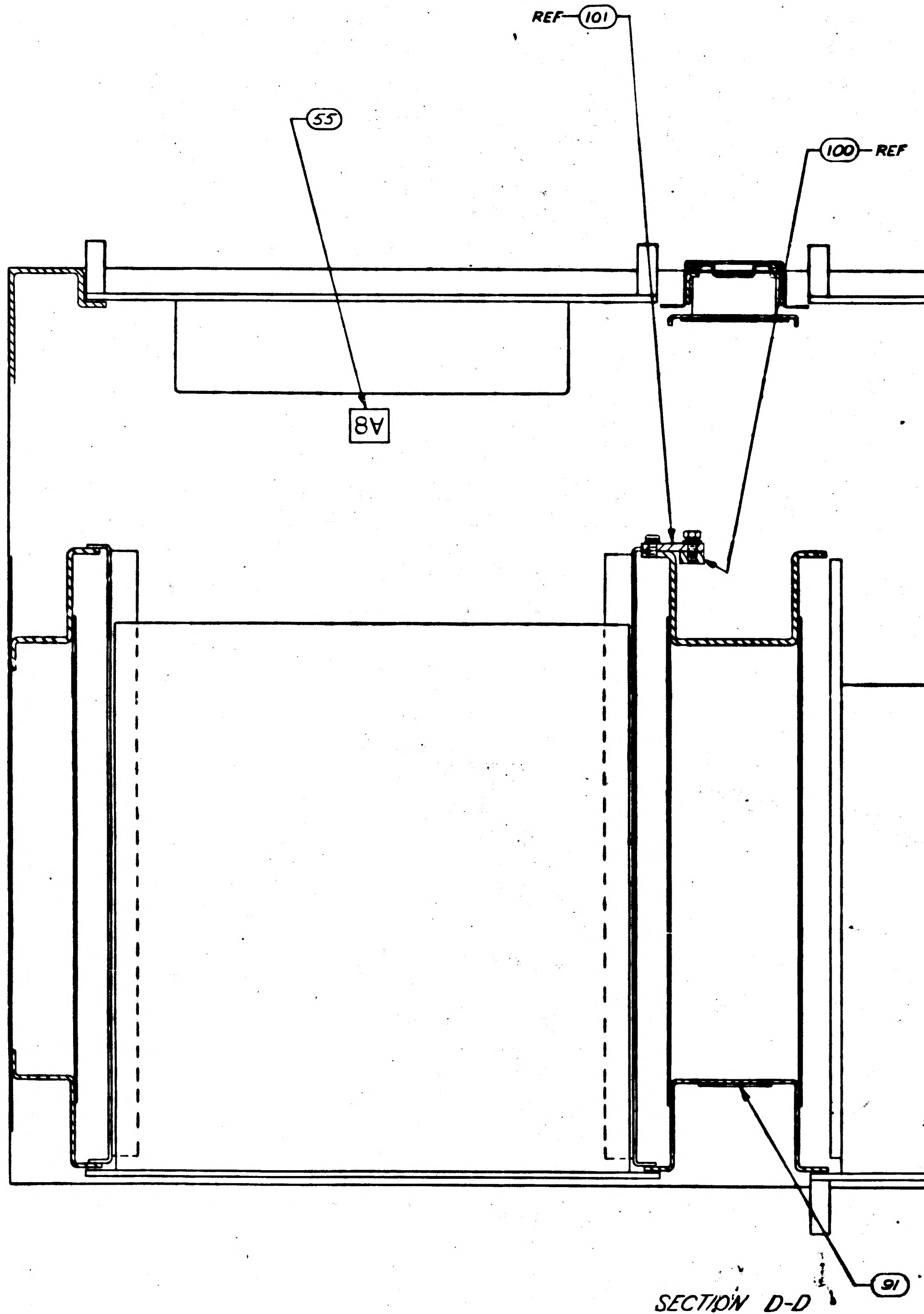
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

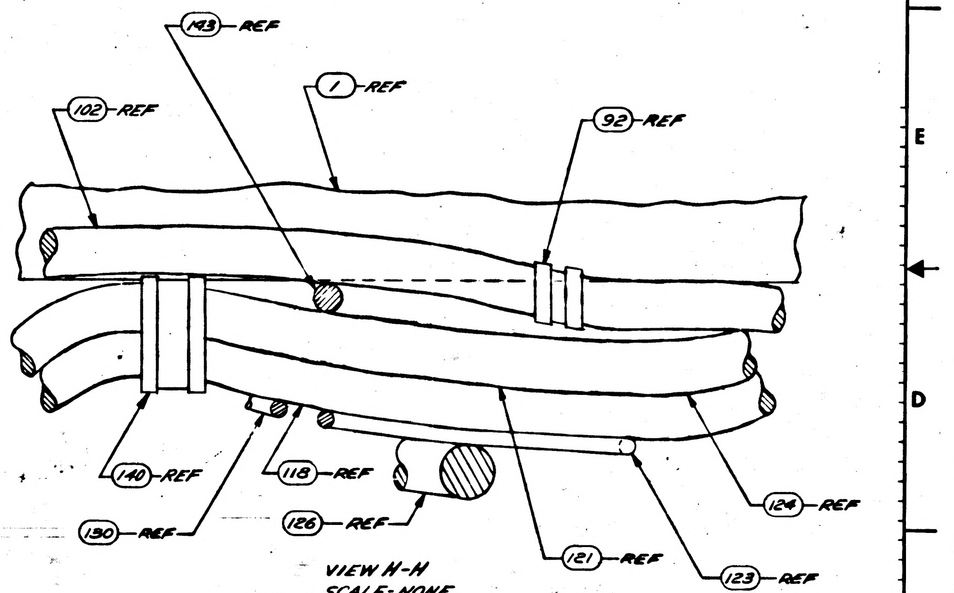
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 4 OF 7

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	11/15/65	
A	CHANGED PER CCA R25563 DR CK Fuller CHK APPD RP	12/27/65	
B	CHANGED PER CCA R25659 DR CHK APPD PCD	1/4/66	
C	CHANGED PER CCA R25736 DR CHK P APPD PCD	1/18/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TORR		
E	CHANGED PER TDRR 2636 DR CHK APPD PCD		
F	CHANGED PER TDRR 26317 DR CK Fuller CHK APPD		
G	CHANGED PER TDRR 26315 DR CHK APPD PCD		
H	CHANGED PER TDRR 26545 DR CHK APPD PCD		



SECTION D-D
(SEE SHEET 1)



VIEW H-H
SCALE-NONE
SEE SHEET 4

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE
CHECKED 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/20/66

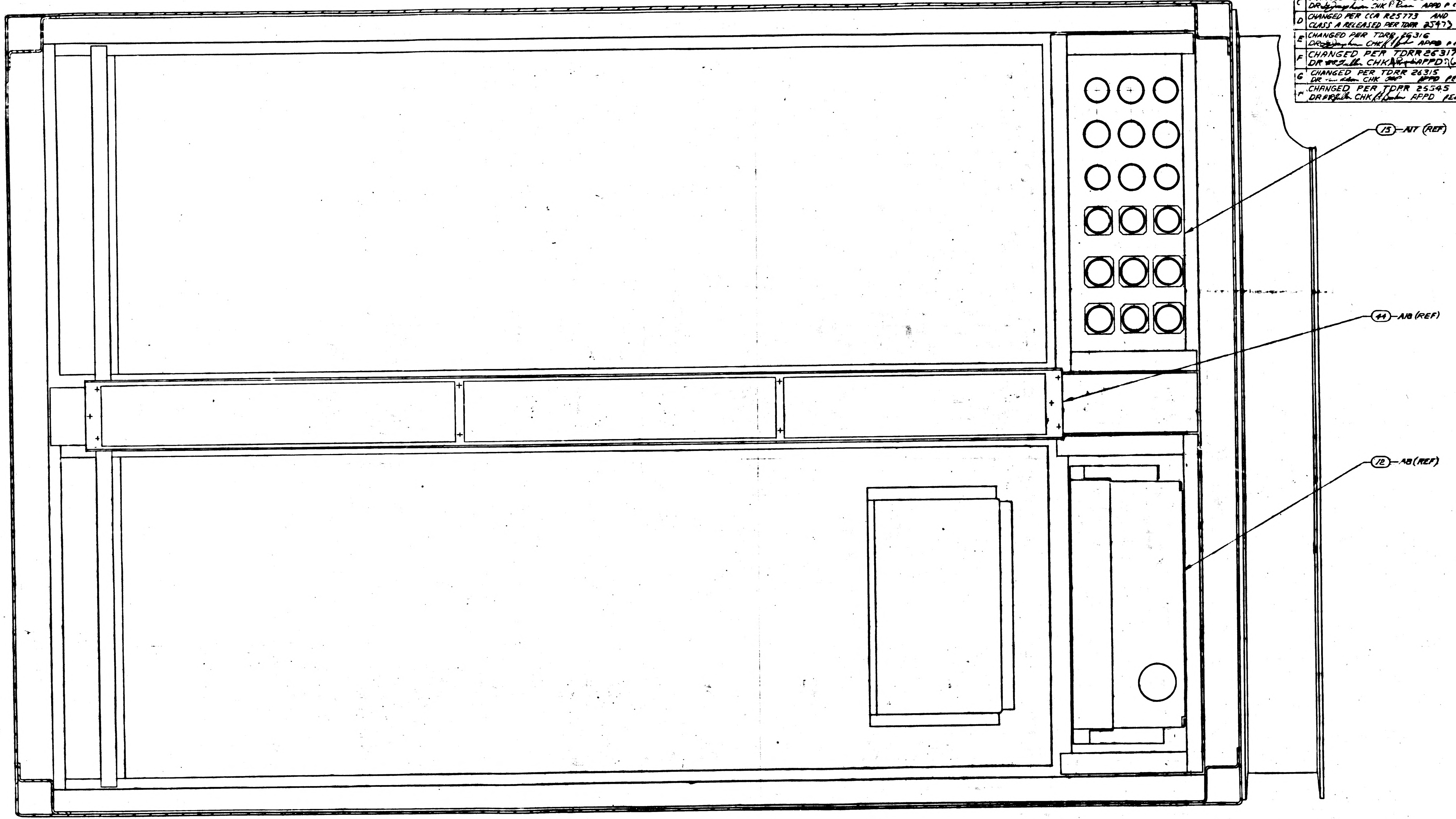
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 5 OF 7

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25602	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR B.R. Fuller CHK [illegible] APPD [illegible]	12/27/65	[illegible]
B	CHANGED PER CCA R25659 DR B.R. Fuller CHK [illegible] APPD P.C.D.	1/11/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D.	1/10/66	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/20/66	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
F	CHANGED PER TDRR 26317 DR B.R. Fuller CHK [illegible] APPD [illegible]	3/7/66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.E.D.	3/23/66	[illegible]
H	CHANGED PER TDRR 25545 DR B.R. Fuller CHK [illegible] APPD P.E.D.	4/1/66	[illegible]



SECTION F-F
ROTATED 90° CCW
(SEE SHEET 1)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN J. J. B[illegible] DATE 12 AUG 65
CHECKED [illegible] 29 OCT 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C S[illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

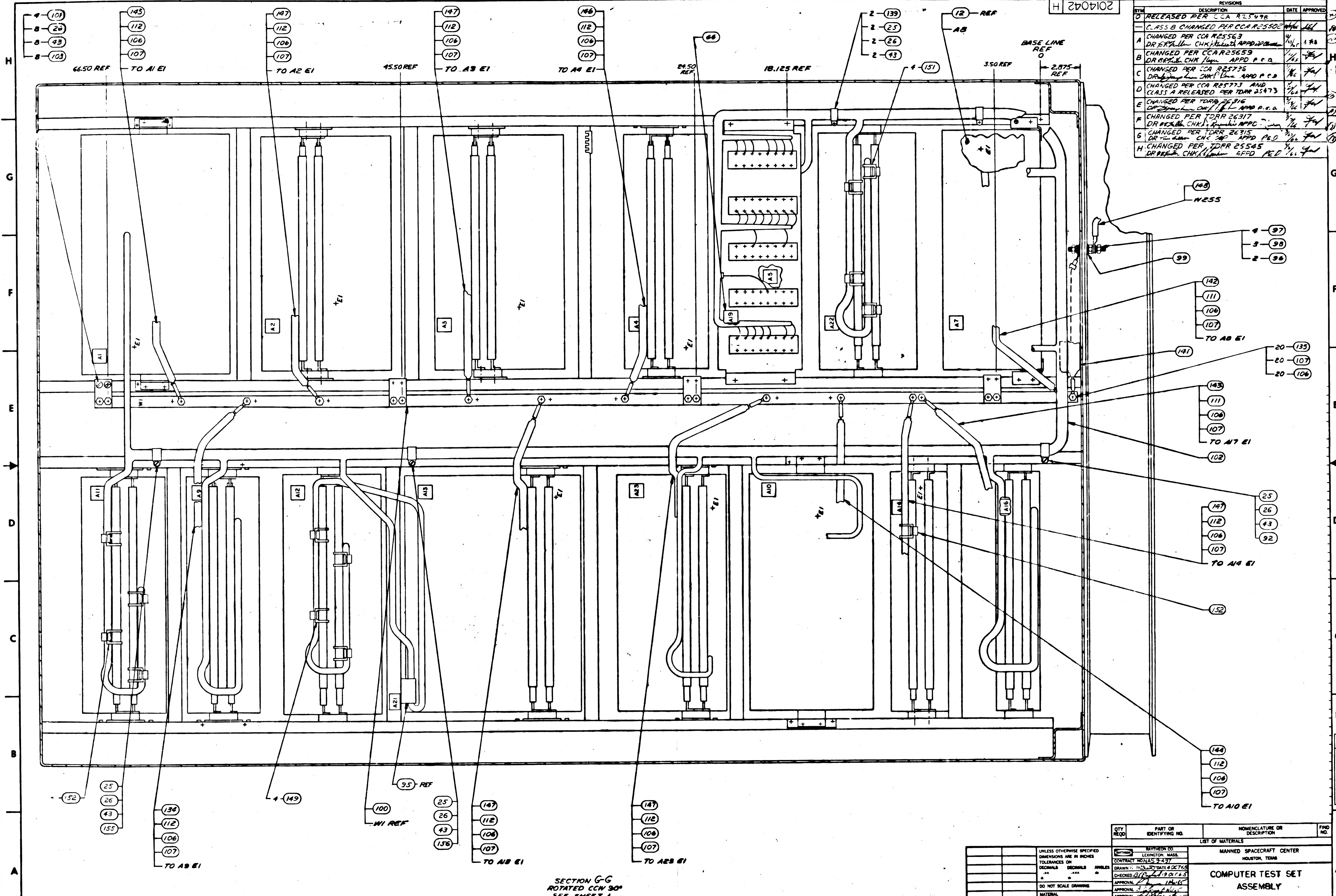
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 6 OF 7

MASTER

2014042 H

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK J. Galbraith APPD	12/27/65	
B	CHANGED PER CCA R25659 DR B.K. Fuller CHK APPD P.C.D.	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D.	1/ /66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	2/ /66	
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D.	2/ /66	
F	CHANGED PER TDRR 26317 DR B.K. Fuller CHK APPD	3/ /66	
G	CHANGED PER TDRR 26315 DR CHK APPD P.C.D.	3/ /66	
H	CHANGED PER TDRR 25545 DR B.K. Fuller CHK APPD P.C.D.	4/ /66	



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4 (101)
8 (26)
8 (43)
8 (103)
66.50 REF
(145)
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(106)
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TO A1 E1
(147)
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(106)
(107)
TO A2 E1
45.50 REF
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TO A3 E1
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(107)
TO A4 E1
24.50 REF
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18.125 REF
2 (139)
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2 (26)
2 (43)
4 (151)
(12) REF
A8
3.50 REF
BASE LINE REF
2.875 REF
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TO A8 E1
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TO A17 E1
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(112)
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TO A14 E1
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(144)
(112)
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TO A10 E1
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A22
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E1
W1
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(106)
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TO A9 E1
4 (149)
(100)
W1 REF
(95) REF
(25)
(26)
(43)
(156)
(147)
(112)
(106)
(107)
TO A18 E1
(147)
(112)
(106)
(107)
TO A23 E1

SECTION G-G
ROTATED CCW 90°
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B. Miller DATE 4 OCT 65
CHECKED B. England 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

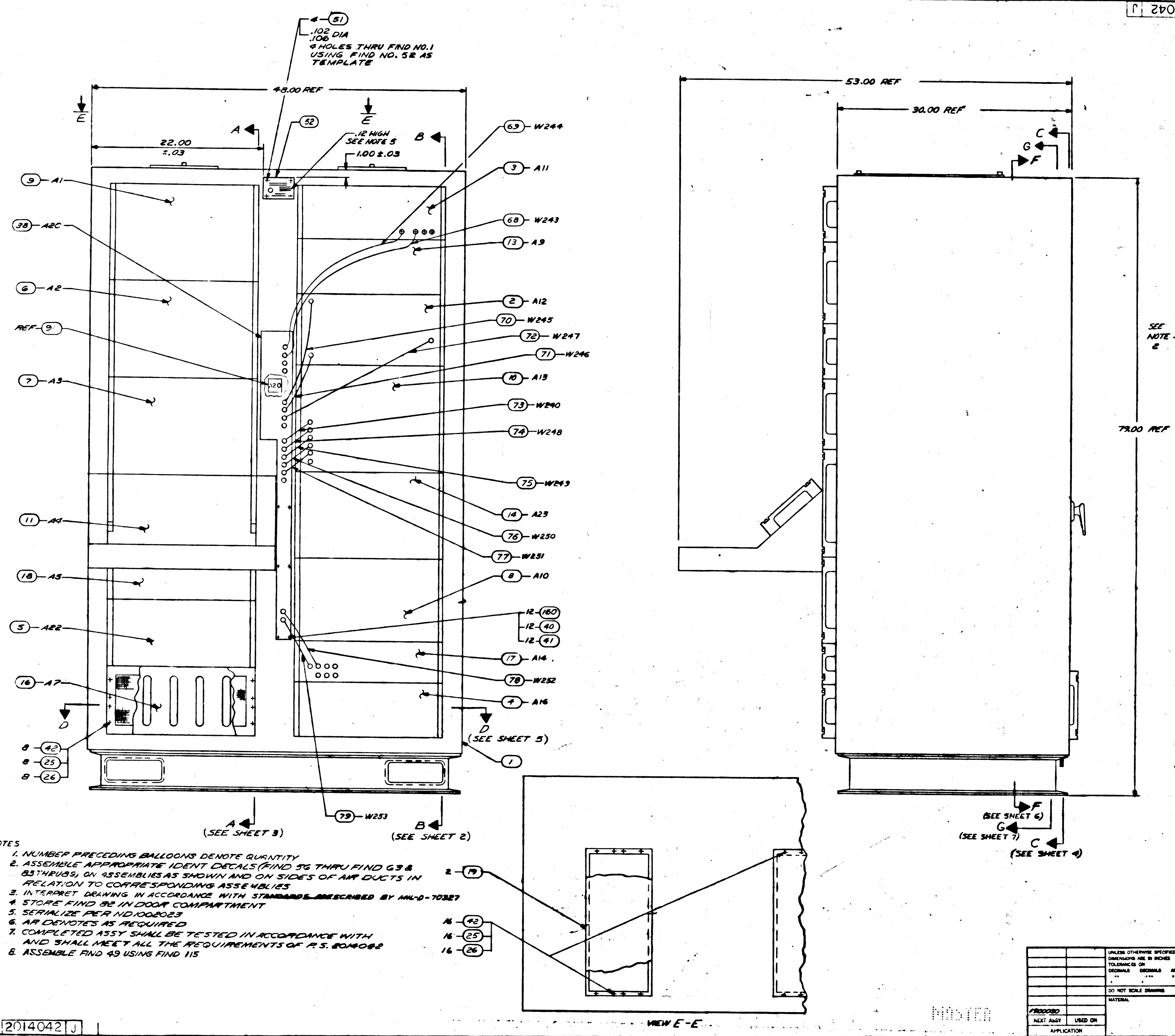
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014042
SCALE 1/2 | WT | SHEET 7 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR CHK APPD	[illegible]/65	
B	CHANGED PER CCAR25659 DR CHK APPD PED	[illegible]/66	
C	CHANGED PER CCA R25736 DR CHK APPD PED	[illegible]	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	[illegible]/66	
E	CHANGED PER TDRR 26316 DR CHK APPD PED	[illegible]/66	
F	CHANGED PER TDRR 26317 DR CHK APPD	[illegible]/66	
G	CHANGED PER TDRR 26315 DR CHK APPD PED	[illegible]/66	
H	CHANGED PER TDRR 26545 DR CHK APPD PED	[illegible]/66	
J	CHANGED PER TDRR 26573 DR. CHK APPD.	[illegible] APR 66	



4-(51)
.102 / .106 DIA
4 HOLES THRU FIND NO. 1 USING FIND NO. 52 AS TEMPLATE
48.00 REF
22.00 ±.03
E
A
B
(52)
.12 HIGH SEE NOTE 5
1.00 ±.03
(9)-A1
(38)-A2C
(6)-A2
REF-(9)
(7)-A3
(11)-A4
(18)-A5
(5)-A22
(16)-A7
A20
(69)-W244
(3)-A11
(68)-W243
(13)-A9
(2)-A12
(70)-W245
(72)-W247
(71)-W246
(10)-A13
(73)-W240
(74)-W248
(75)-W249
(14)-A23
(76)-W250
(77)-W251
(8)-A10
12-(160)
12-(40)
12-(41)
(17)-A14
(78)-W252
(4)-A16
D
D (SEE SHEET 5)
(1)
8-(42)
8-(25)
8-(26)
(79)-W253
A (SEE SHEET 3)
B (SEE SHEET 2)
53.00 REF
30.00 REF
C
G
F
79.00 REF
F (SEE SHEET 6)
G (SEE SHEET 7)
C (SEE SHEET 4)
2-(19)
16-(42)
16-(25)
16-(26)
VIEW E-E

NOTES

1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89) ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH ~~STANDARDS PRESCRIBED~~ BY MIL-D-70327
4. STORE FIND 82 IN DOOR COMPARTMENT
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014042
8. ASSEMBLE FIND 49 USING FIND 115

CONTINUED ON SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2014461-031	CABLE ASSY, W245	70
1	2014461-021	CABLE ASSY, W244	69
1	2014461-011	CABLE ASSY, W243	68
1	2014432	PLATE, BAFFLE, TERM. BD	67
1	1014480 -19	DECAL, IDENTIFICATION	66
1	-18		65
1	-17		64
4	-16		63
4	-23		62
4	-14		61
4	-13		60
4	-12		59
4	-11		58
4	-10		57
4	-9		56
1	1014480-8	DECAL, IDENTIFICATION	55
4	MS35649-84	NUT, HEX PLAIN	54
1	MS35649-104	NUT, PLAIN HEX	53
1	1004260-203	PLATE, IDENTIFICATION	52
4	AN535-4-3	DRIVE SCREW	51
1	MS51957-63	SCREW, PAN HD	50
18	MS51958-67	SCREW, PAN HEAD	49
2	MS51957-35	SCREW, PAN HEAD	48
1	2016346-011	TERMINAL BOARD ASSY	47
9	2014425	PLATE, BAFFLE	46
8	2014424	PLATE, BAFFLE	45
1	2014046-011	A18 INTERCONNECTION ASSY	44
94	MS51958-63	SCREW, PAN HEAD	43
34	MS51958-64	SCREW, PAN HEAD	42
12	MS35338-80	WASHER, LOCK	41
12	MS15795-807	WASHER	40
~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1020352	PLATE CONNECTOR ASSY	38
~~1~~	~~MS21919DG11~~	~~CLAMP, LOOP~~	~~37~~
8	1014157-2	SLIDE BRACKET ASSY	36
8	1014157-3	SLIDE BRACKET ASSY	35
16	MS35650-104	NUT, HEX PLAIN	34
4	1014301-2	SLIDE, ADAPTER	33
4	1006878-2	SLIDE, CABINET SECTION	32
4	1014301-1	SLIDE ADAPTER	31
1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	MS35649-64	NUT HEX, PLAIN	29
12	1014157-4	SLIDE BRACKET ASSY	28
2	1006938-3	SLIDE WITH CABLE CARRIER	27
208	MS35338-81	WASHER, LOCK	26
218	MS15795-808	WASHER, FLAT	25
72	MS51958-61	SCREW, PAN HEAD	24
88	MS51959-43	SCREW, FLAT HEAD	23
8	1014157-1	SLIDE BRACKET ASSY	22
4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	1006918	FILTER, AIR, RFI	19
1	2014274-011	AUX. OUTLET ASSY 115VAC	18
1	2014366-011	SELF TEST ASSY	17
1	1006897	FAN, VENTILATION, RFI SHIELD	16
1	2014047-011	CONNECTOR INTERFACE ASSY	15
1	2014045-011	RDC INTERFACE ASSY	14
1	2014044-011	POWER CONTROL ASSY	13
1	2014043-011	AC INPUT PANEL ASSY	12
1	2014041-011	PROGRAMMER & MONITOR ASSY	11
1	2014040-011	XY INTERFACE ASSY	10
1	2014039-011	TAPE PUNCH ASSY	9
1	2014038-011	TAPE READER ASSY	8
1	2014037-011	LOGIC DRAWER NO. 2 ASSY	7
1	2014036-011	LOGIC DRAWER NO. 1 ASSY	6
1	2014235-011	POWER SUPPLY 18, 13, 28VDC ASSY	5
1	2014234-011	POWER SUPPLY 3VDC ASSY	4
1	2014233-011	FREQUENCY COUNTER ASSY	3
1	2014232-011	OSCILLOSCOPE ASSY	2
1	1006423-001	CABINET, ELECTRICAL EQUIP	1

LIST OF MATERIALS

1900030	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN Joe Roper DATE 4 JUNE 65
CHECKED 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

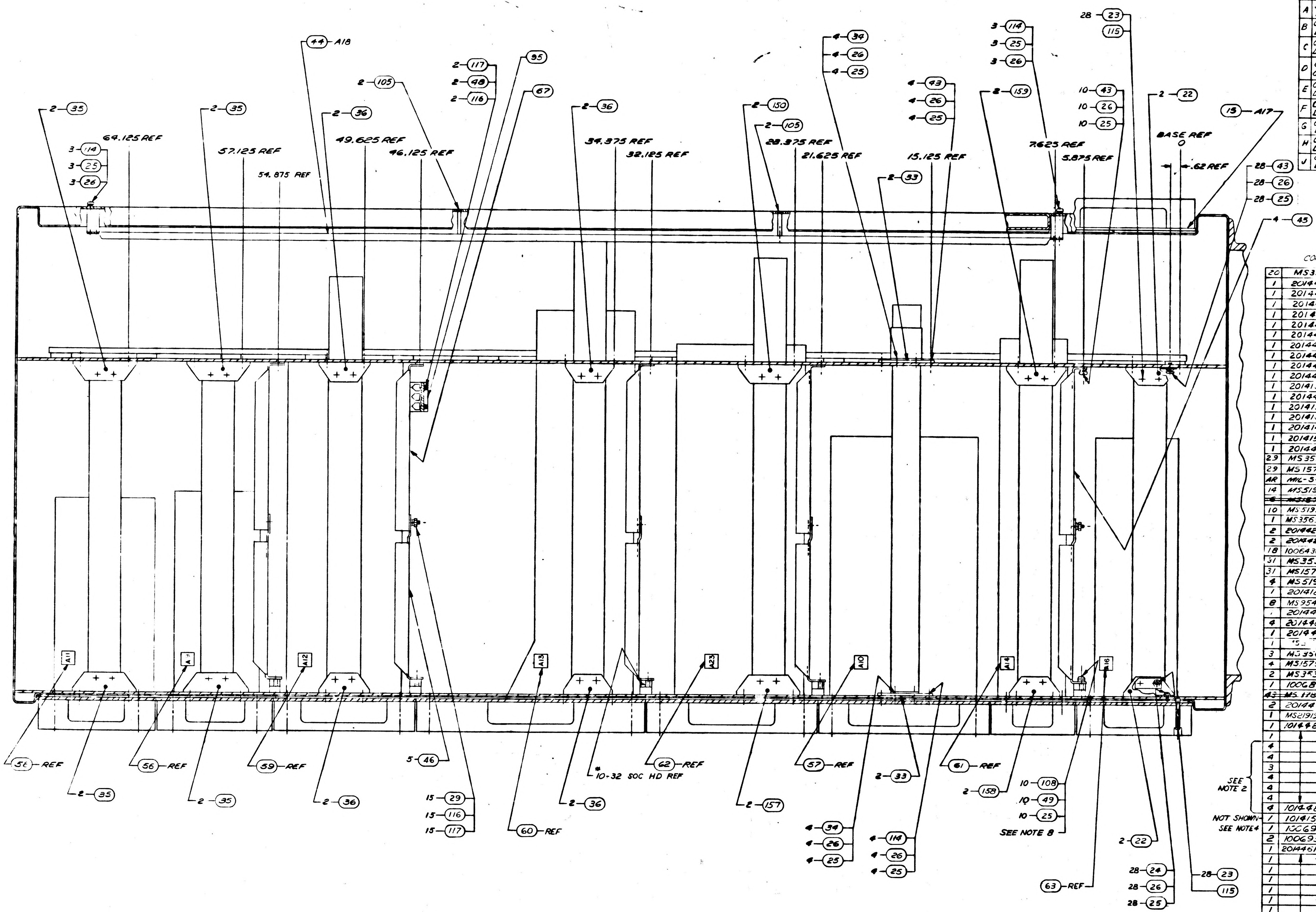
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014042
SCALE 1/4	WT	SHEET 1 OF 7

2014042 J

SYM	DESCRIPTION	DATE	APPROVED
	REVISIONS		
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD	12/27/65	
B	CHANGED PER CCA R25659 DR CHK APPD PED	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD PED	1/19/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	1/20/66	
E	CHANGED PER TDRR 26316 DR CHK APPD PED	3/11/66	
F	CHANGED PER TDRR 26317 DR CHK APPD	3/3/66	
G	CHANGED PER TDRR 26315 DR Tom Allison CHK APPD PED	3/23/66	
H	CHANGED PER TDRR 25545 DR CHK APPD PED	4/1/66	
J	CHANGED PER TDRR 26673 DR. W. L. Davis CHK APPD	12 APR 66	



64.125 REF
57.125 REF
54.875 REF
49.625 REF
46.125 REF
34.375 REF
32.125 REF
28.375 REF
21.625 REF
15.125 REF
7.625 REF
5.875 REF
BASE REF
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3-26
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10-32 SOC HD REF
62-REF
57-REF
61-REF
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2-35
2-36
15-29
15-116
15-117
60-REF
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2-157
4-34
4-26
4-25
2-33
4-114
4-26
4-25
2-158
10-108
10-49
10-25
SEE NOTE 8
2-22
63-REF
28-24
28-26
28-25
28-23
115

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 1)

CONTINUED ON SHEET 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	2014458-191	CABLE ASSY, GROUND	134
1	2014471-011	CABLE ASSY W27	133
1	2014472-011	CABLE ASSY W26	132
1	2014473-011	CABLE ASSY W25	131
1	2014474-011	CABLE ASSY W24	130
1	2014475-011	CABLE ASSY W23	129
1	2014476-011	CABLE ASSY W22	128
1	2014477-011	CABLE ASSY W21	127
1	2014478-011	CABLE ASSY W20	126
1	2014479-011	CABLE ASSY W19	125
1	2014154-011	CABLE ASSY W18	124
1	2014480-011	CABLE ASSY W17	123
1	2014194-011	CABLE ASSY W16	122
1	2014153-011	CABLE ASSY W15	121
1	2014141-011	CABLE ASSY W14	120
1	2014155-011	CABLE ASSY W13	119
1	2014481-011	CABLE ASSY W12	118
29	MS35338-79	WASHER, LOCK	117
29	MS15795-806	WASHER, FLAT	116
AR	MIL-S-22473GRHV	SEALING AND RETAINING COMPOUND	115
14	MS51958-62	SCREW, PAN HD	114
~~6~~	~~MS15795-809~~	~~WASHER, FLAT~~	~~113~~
10	MS51957-79	SCREW PAN HD	112
1	MS35690-410	NUT HEX	111
2	2014421	SUPPORT RAIL	110
2	2014420	SUPPORT RAIL	109
18	1006430-097	SPACER	105
31	MS35338-82	WASHER, LOCK	107
31	MS15795-810	WASHER, FLAT	106
4	MS51959-17	SCREW, FLAT HD	105
1	2014182-011	WIRING HARNESS, DC DIST	104
8	MS9549-09	WASHER, FLAT	103
1	2014490-011	WIRING HARNESS, BRANCHED	102
4	2014403	BLOCK, MOUNTING	101
1	2014401	BUSS, BAR	100
1	[illegible]35-63	WASHER LOCK, EXTERNAL TOOTH	99
3	MS35690-610	NUT, PLAIN	98
4	MS15795-815	WASHER, FLAT	97
2	MS35338-84	WASHER, LOCK	96
1	1006859-2	TERMINAL BLOCK	95
~~43~~	~~MS 17821-2-9~~	~~TIE WRAP~~	~~94~~
2	2014422	COUPLING	93
1	MS21919DG8	CLAMP, LOOP	92
1	1014480-20	DECAL, IDENTIFICATION	91
1	-21		90
4	-22		89
4	-7		88
3	-5		87
4	-4		86
4	-3		85
4	-2		84
4	1014480-1	DECAL, IDENTIFICATION	83
1	1014150-1	CABLE, POWER	82
1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	2014461-121	CABLE ASSY W253	79
1	-111	W252	78
1	-091	W251	77
1	-081	W250	76
1	-071	W249	75
1	-061	W248	74
1	-131	W240	73
1	-051	W247	72
1	2014461-041	CABLE ASSY W246	71

SEE NOTE 2 (find nos. 89–83)

NOT SHOWN - SEE NOTE 4 (find no. 82)

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 18 Oct 65
CHECKED 30 Oct 65
APPROVAL 1 Nov 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

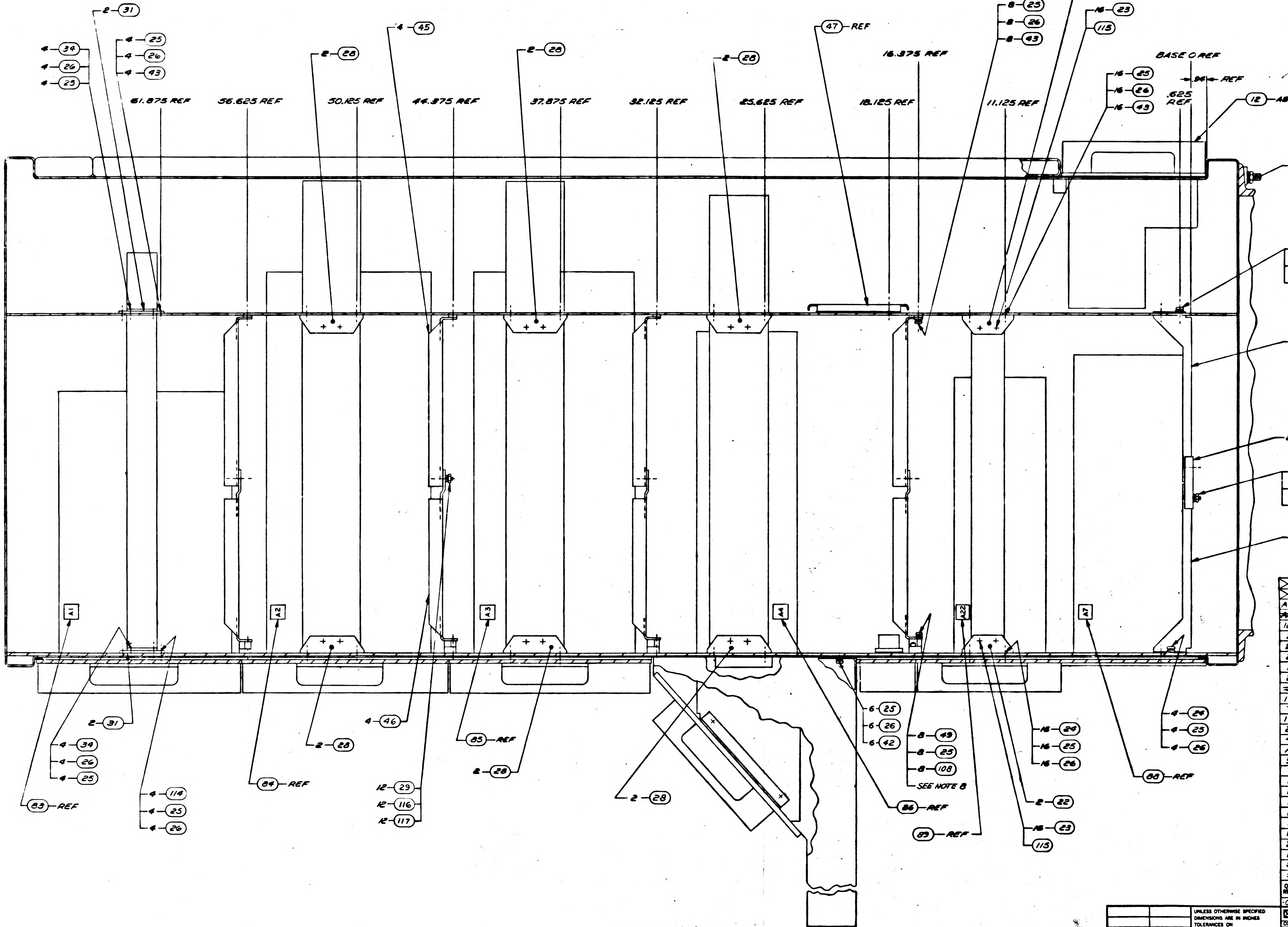
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014042
SCALE 1/2	WT	SHEET 2 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 J

2014042 J

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	12/65	
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK APPD	12/21/65	
B	CHANGED PER CCA R25659 DR B.K. Fuller CHK APPD P.C.D.	1/12/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D.	1/18/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	2/24/66	
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D.	3/14/66	
F	CHANGED PER TDRR 26317 DR B.K. Fuller CHK APPD	3/7/66	
G	CHANGED PER TDRR 26315 DR CHK APPD P.E.D.	3/23/66	
H	CHANGED PER TDRR 26545 DR B.K. Fuller CHK APPD P.E.D.	4/1/66	
J	CHANGED PER TDRR 26673 DR. W. L. Davis CHK APPD	18 APR 66	



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56.625 REF
50.125 REF
44.375 REF
37.875 REF
32.125 REF
25.625 REF
18.125 REF
16.375 REF
11.125 REF
.625 REF
BASE 0 REF
.94 REF
E1 REF
12 — A8
47 — REF
2 — 31
4 — 34
4 — 26
4 — 25
4 — 43
2 — 28
4 — 45
8 — 25
8 — 26
8 — 43
2 — 22
16 — 23
115
16 — 25
16 — 26
16 — 43
4 — 25
4 — 26
4 — 43
2 — 110
2 — 93
4 — 54
4 — 41
4 — 40
A1
A2
A3
A4
A22
A7
83 — REF
84 — REF
4 — 46
85 — REF
12 — 29
12 — 116
12 — 117
4 — 114
6 — 25
6 — 26
6 — 42
8 — 49
8 — 25
8 — 108
SEE NOTE 8
86 — REF
89 — REF
16 — 24
16 — 25
16 — 26
2 — 22
16 — 23
115
88 — REF
4 — 24
4 — 25
4 — 26

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014138	INTERCONN DIAGRAM	REF
☒	2014172	ELEC SCHEM AC & DC PWR DISTRIB.	REF
AR	1006458-004	TAPE, LACING	162
~~AR~~	~~MIL-S-22473, GR HV~~	~~SEALING & RETAINING COMPOUND~~	~~161~~
12	MS51957-45	SCREW, PAN HD	160
2	2016350-031	SLIDE, BRACKET ASSY	159
2	2016350-021	SLIDE, BRACKET ASSY	158
2	2016350-011	SLIDE, BRACKET ASSY	157
1	MS21919-DG7	CLAMP, LOOP	156
2	MS21919-DG6	CLAMP, LOOP	155
~~5~~	~~1006872-12~~	~~CLAMP, LOOP~~	~~154~~
16	1006872-14	CLAMP, LOOP	153
7	1006872-9	CLAMP, LOOP	152
11	1006872-11	CLAMP, LOOP	151
2	2016350-041	SLIDE, BRACKET ASSY	150
4	1006872-10	CLAMP, LOOP	149
1	2014115-021	STRAP, GROUND	148
5	2014458-171	CABLE ASSY, GROUND	147
1	-151		146
1	-121		145
1	-111		144
1	-081		143
1	2014458-061		142
1	2014457-071	CABLE ASSY, GROUND	141
1	MS21919DG13	CLAMP, LOOP	140
2	MS21919DG24	CLAMP, LOOP	139
1	MS21919DG10	CLAMP, LOOP	138
~~1~~	~~[illegible]~~	~~CLAMP, LOOP~~	~~137~~
5	MS21919DG14	CLAMP, LOOP	136

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9 497
DRAWN D. [illegible] DATE 16 Jun 65
CHECKED 10 OCT 65
APPROVAL 1 Nov 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 4/26/66

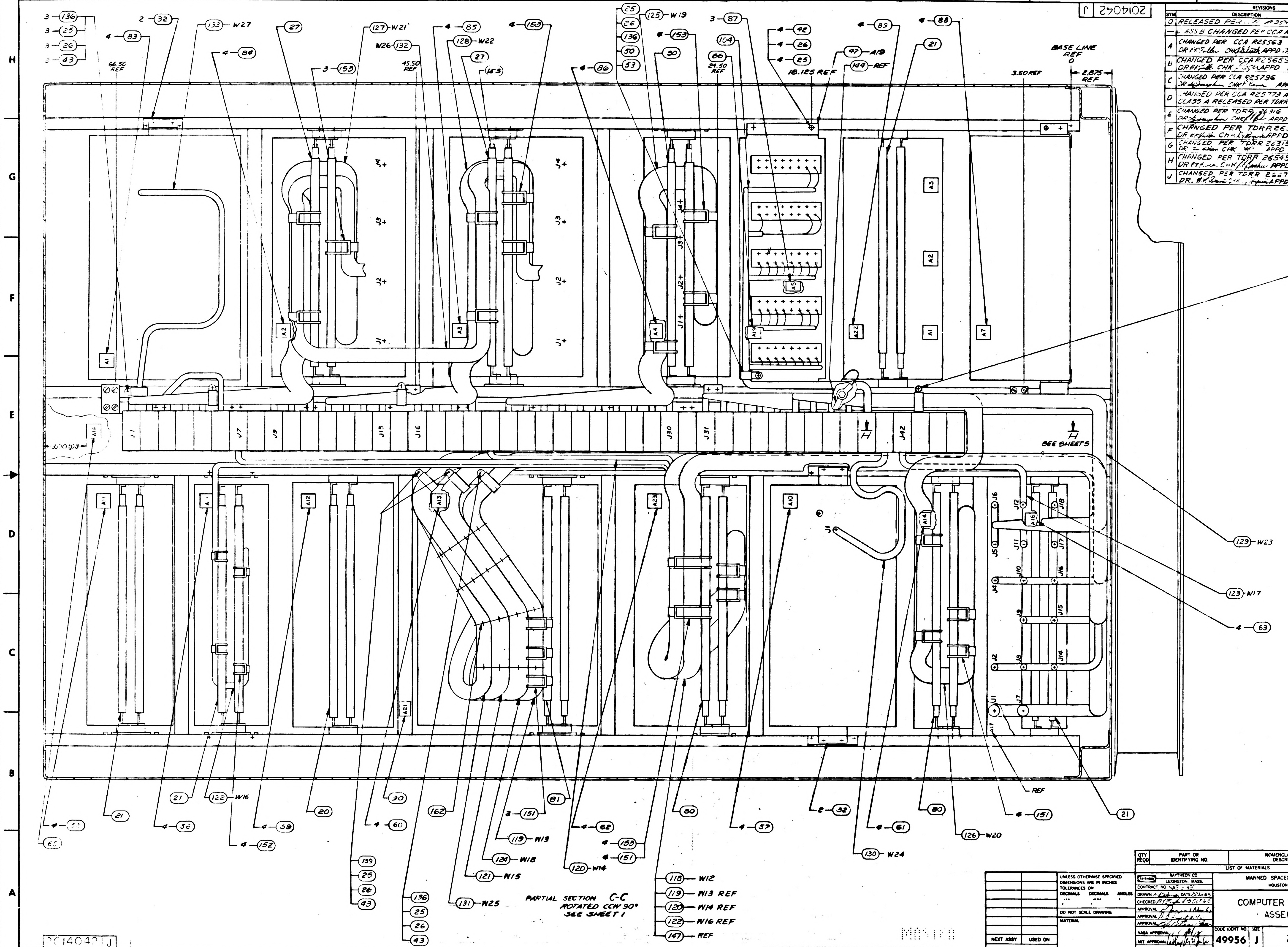
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE J CODE IDENT NO. 49956 NASA DRAWING NO. 2014042
SCALE 1/2 WT SHEET 3 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	4/?/6-	
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.E.D	1/11/66	
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.E.D	1/17/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/?/66	
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.E.D	2/?/66	
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	3/7/66	
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.E.D	3/23/66	
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD P.E.D	7/2/66	
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	4 APR 6?	



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43
83
32
133 W27
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66.50 REF
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127 W21
W26 132
45.50 REF
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128 W22
27
153
125 W19
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104
24.50 REF
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88
47 A19
144 REF
18.125 REF
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BASE LINE REF 0
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2.875 REF
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J3
J2
J1
A1
A2
A3
A4
A5
A7
A22
A19
A16
A18
J7
J9
J15
J16
J30
J31
J42
H
SEE SHEETS
138
139
129 W23
123 W17
63
A11
A12
A13
A23
A10
A14
A17
A21
J5
J6
J8
J10
J11
J12
J14
J17
J18
21
122 W16
152
56
59
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60
162
151
119 W13
124 W18
121 W15
131 W25
120 W14
81
62
80
57
32
61
130 W24
80
126 W20
REF
65
118 W12
119 W13 REF
120 W14 REF
122 W16 REF
147 REF

PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 22 Jun 65
CHECKED BY [illegible] 19 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

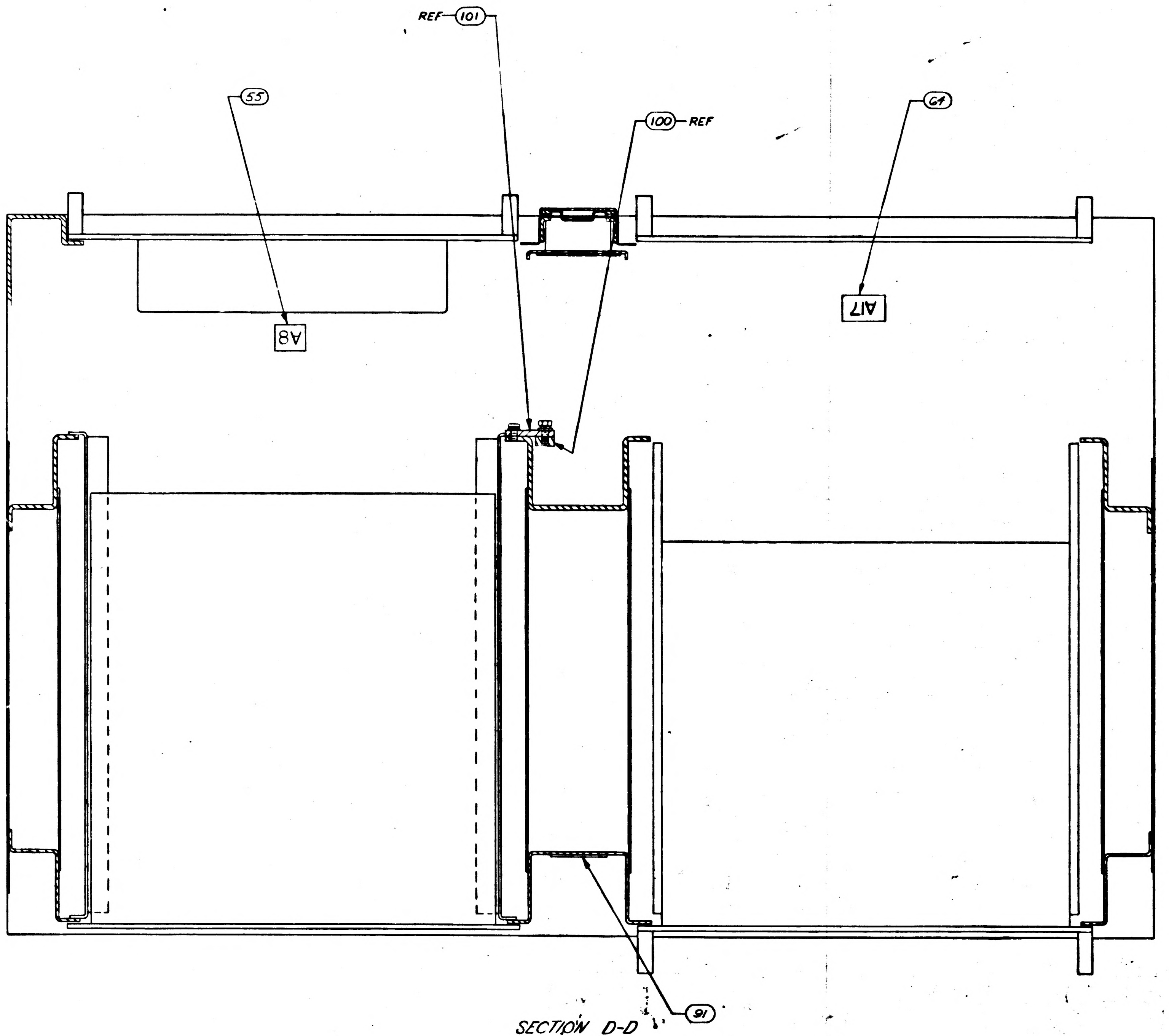
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

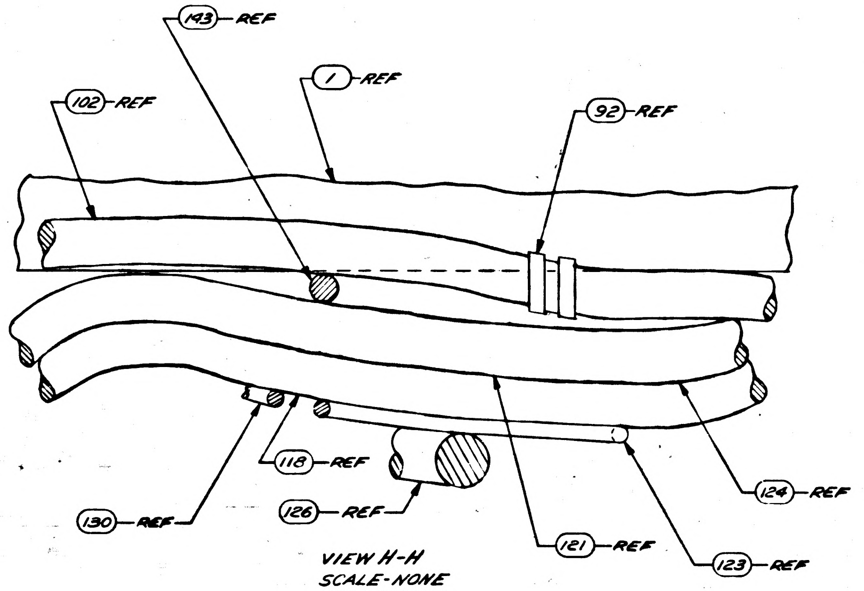
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 4 OF 7

2014042 J

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR [illegible] Fuller CHK [illegible] APPD [illegible]	11/27/65	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD R.C.D	1/4/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK P.B. [illegible] APPD R.C.D	1/18/66	[illegible]
D	CHANGED PER CCA R25-73 AND CLASS A RELEASED PE? TORR25813	1/24/66	[illegible]
E	CHANGED PER TDRR 263 6 DR [illegible] CHK [illegible] APPD R.C.D	1/14/66	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	3/2/66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD R.C.D	3/22/66	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD RCD	3/1/66	[illegible]
J	CHANGED PER TDRR 26273 DR. W.V. Davis CHK [illegible] APPD [illegible]	12 APR 66	[illegible]



SECTION D-D
(SEE SHEET 1)



VIEW H-H
SCALE-NONE
SEE SHEET 4

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN K [illegible] DATE 15 [illegible]
CHECKED B [illegible] 19 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C [illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014042
SCALE 1/2	WT	SHEET 5 OF 7

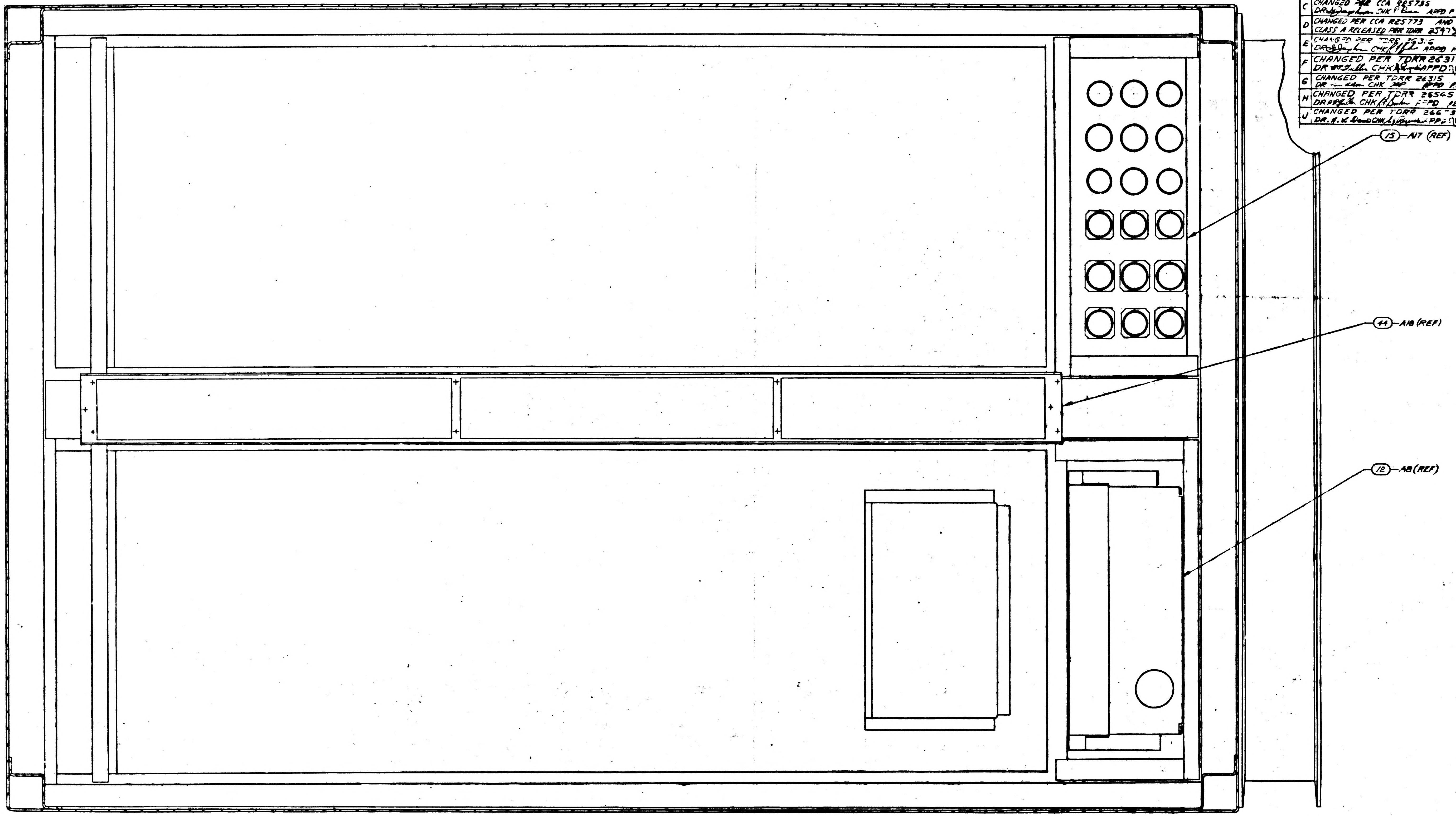
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 J

2014042 J

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	11/65	
A	CHANGED PER CCA R25563 DR B.R. Fuller CHK [illegible] APPD [illegible]	12/27/65	
B	CHANGED PER CCA R25659 DR B.R. Fuller CHK [illegible] APPD P.C.D.	1/11/66	
C	CHANGED PER CCA R25735 DR [illegible] CHK [illegible] APPD P.C.D.	1/19/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/21/66	
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	
F	CHANGED PER TDRR 26317 DR B.R. Fuller CHK [illegible] APPD [illegible]	[illegible]	
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.E.D.	[illegible]	
H	CHANGED PER TDRR 26545 DR B.R. Fuller CHK [illegible] APPD P.E.D.	7/1/66	
J	CHANGED PER TDRR 266-3 DR. H. L. Davis CHK [illegible] APPD [illegible]	10 APR 66	



SECTION F-F
ROTATED 90° CCW
(SEE SHEET 1)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS9-497
DRAWN J.J. [illegible] DATE 12 AUG 65
CHECKED [illegible] 19 OCT 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible] 11/1/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

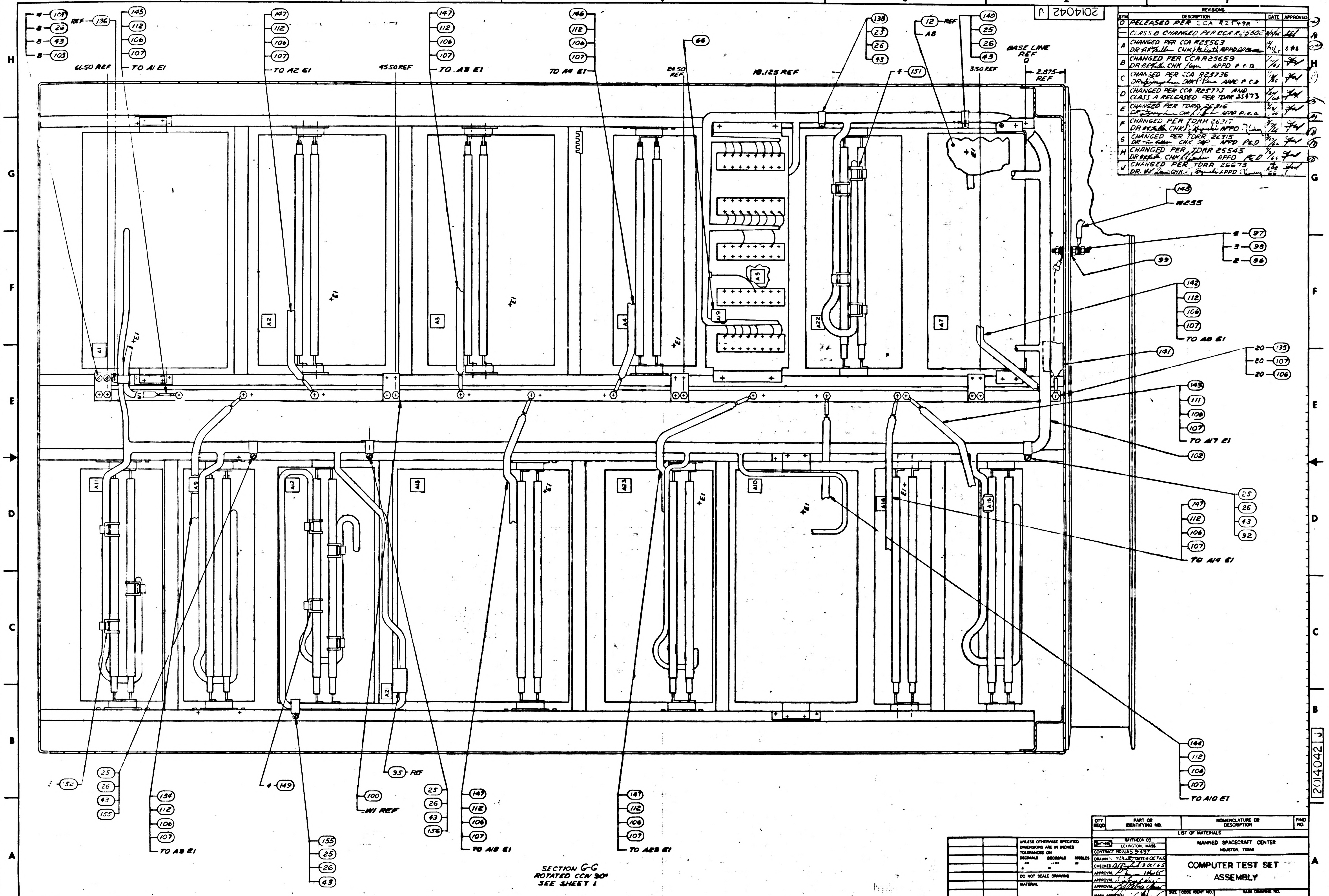
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 6 OF 7

2014042 J

MASTER

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	11/17/65	
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK [illegible] APPD [illegible]	12/27/65	
B	CHANGED PER CCA R25659 DR B.K. Fuller CHK [illegible] APPD P.C.D.	1/11/66	
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D.	1/18/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/24/66	
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	2/24/66	
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	3/7/66	
G	CHANGED PER TDRR 26315 DR [illegible] CHK CAP APPD P.C.D.	3/23/66	
H	CHANGED PER TDRR 25545 DR [illegible] CHK [illegible] APPD P.C.D.	4/1/66	
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	14 APR 66	



2014042 J
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TO A3 E1
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TO A4 E1
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A3
A4
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A7
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A13
A23
A10
A18
A16
A21
E1
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TO A9 E1
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100
W1 REF
95 REF
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156
147
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TO A18 E1
147
112
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107
TO A23 E1
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G
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E
D
C
B
A

SECTION G-G
ROTATED CCW 90°
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 4 OCT 65
CHECKED [illegible] 19 OCT 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

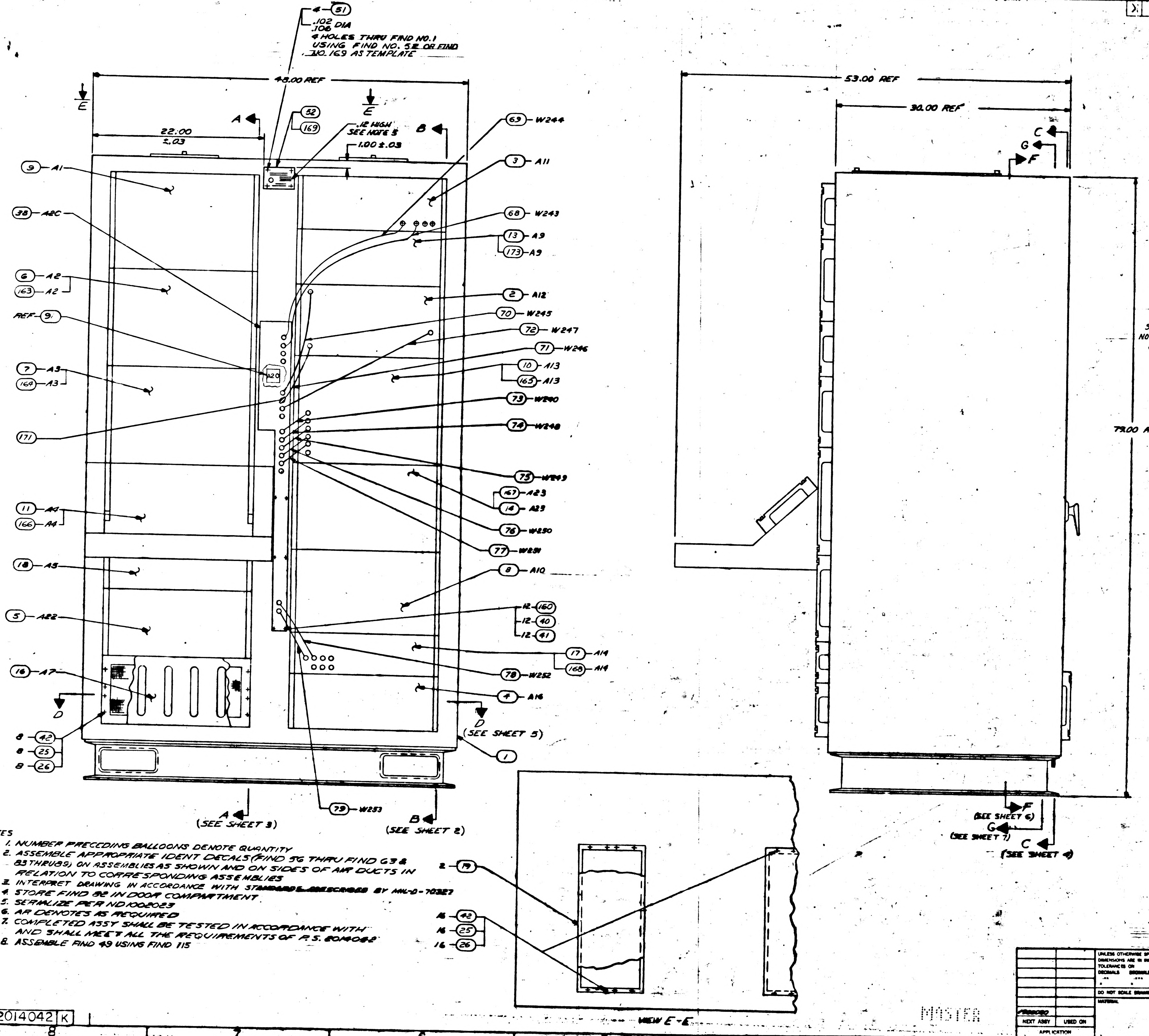
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 7 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 J



4-(51)
.102 DIA
.106
4 HOLES THRU FIND NO. 1
USING FIND NO. 52 OR FIND
NO. 169 AS TEMPLATE
48.00 REF
22.00 ±.03
E
A
(52)
(169)
.12 HIGH SEE NOTE 5
E
B
1.00 ±.03
(69)-W244
(3)-A11
(9)-A1
(38)-A2C
(68)-W243
(13)-A9
(173)-A9
(6)-A2
(163)-A2
(2)-A12
REF-(9)
(70)-W245
(72)-W247
(71)-W246
A20
(10)-A13
(165)-A13
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(169)-A3
(73)-W240
(74)-W248
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(75)-W249
(167)-A23
(14)-A23
(11)-A4
(166)-A4
(76)-W250
(77)-W251
(18)-A5
(8)-A10
(5)-A22
12-(160)
12-(40)
12-(41)
(17)-A14
(168)-A14
(16)-A7
(78)-W252
(4)-A16
D
D
(SEE SHEET 5)
8-(42)
8-(25)
8-(26)
(1)
A
(SEE SHEET 3)
(79)-W253
B
(SEE SHEET 2)
53.00 REF
30.00 REF
C
G
F
79.00 REF
F
(SEE SHEET 6)
G
(SEE SHEET 7)
C
(SEE SHEET 4)
2-(19)
16-(42)
16-(25)
16-(26)
VIEW E-E

NOTES
1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89) ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH ~~STANDARDS PRESCRIBED~~ BY MIL-D-70327
4. STORE FIND 82 IN DOOR COMPARTMENT
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014042
8. ASSEMBLE FIND 49 USING FIND 115

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER [illegible] R25478		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25913	[illegible]	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
H	CHANGED PER TDRR 25545 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	16 APR 66	[illegible]
K	CHANGED PER TDRR 28099 DR [illegible] CHK C. [illegible] APPD [illegible]	[illegible]	[illegible]

CONTINUED ON SHEET 2

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1	2014461-031	CABLE ASSY, W245	70
1	1	2014461-021	CABLE ASSY, W244	69
1	1	2014461-011	CABLE ASSY, W243	68
1	1	2014432	PLATE, BAFFLE, TERM. BD	67
1	1	1014480 -19	DECAL, IDENTIFICATION	66
1	1	-18		65
1	1	-17		64
4	4	-16		63
4	4	-23		62
4	4	-14		61
4	4	-13		60
4	4	-12		59
4	4	-11		58
4	4	-10		57
4	4	-9		56
1	1	1014480-8	DECAL, IDENTIFICATION	55
4	4	MS35649-[illegible]	NUT, HEX PLAIN	54
1	1	MS35649-104	NUT, PLAIN HEX	53
—	1	1004260-203	PLATE, IDENTIFICATION	52
4	4	AN535-4-3	DRIVE SCREW	51
1	1	MS51957-63	SCREW, PAN HD	50
18	18	MS51958-67	SCREW, PAN HEAD	49
2	2	MS51957-35	SCREW, PAN HEAD	48
1	1	2016346-011	TERMINAL BOARD ASSY	47
9	9	2014425	PLATE, BAFFLE	46
8	8	2014424	PLATE, BAFFLE	45
—	1	2014046-011	A18 INTERCONNECTION ASSY	44
94	94	MS51958-63	SCREW, PAN HEAD	43
34	34	MS51958-64	SCREW, PAN HEAD	42
12	12	MS35338-80	WASHER, LOCK	41
12	12	MS15795-807	WASHER	40
	~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1	1020352	PLATE CONNECTOR ASSY	38
	~~1~~	~~MS21919DG11~~	~~CLAMP, LOOP~~	~~37~~
8	8	1014157-2	SLIDE BRACKET ASSY	36
8	8	1014157-3	SLIDE BRACKET ASSY	35
16	16	MS35650-104	NUT, HEX PLAIN	34
4	4	1014301-2	SLIDE, ADAPTER	33
4	4	1006878-2	SLIDE, CABINET SECTION	32
4	4	1014301-1	SLIDE ADAPTER	31
1	1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	27	MS35649-64	NUT HEX, PLAIN	29
12	12	1014157-4	SLIDE BRACKET ASSY	28
2	2	1006938-3	SLIDE WITH CABLE CARRIER	27
208	208	MS35338-81	WASHER, LOCK	26
218	218	MS15795-808	WASHER, FLAT	25
72	72	MS51958-61	SCREW, PAN HEAD	24
88	88	MS51959-43	SCREW, FLAT HEAD	23
8	8	1014157-1	SLIDE BRACKET ASSY	22
4	4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	2	1006918	FILTER, AIR, RFI	19
1	1	2014274-011	AUX. OUTLET ASSY 115VAC	18
—	1	2014366-011	SELF TEST ASSY	17
1	1	1006897	FAN, VENTILATION, RFI SHIELD	16
1	1	2014047-011	CONNECTOR INTERFACE ASSY	15
—	1	2014045-011	RDC INTERFACE ASSY	14
—	1	2014044-011	POWER CONTROL ASSY	13
1	1	2014043-011	AC INPUT PANEL ASSY	12
—	1	2014041-011	PROGRAMMER & MONITOR ASSY	11
—	1	2014040-011	XY INTERFACE ASSY	10
1	1	2014039-011	TAPE PUNCH ASSY	9
1	1	2014038-011	TAPE READER ASSY	8
—	1	2014037-011	LOGIC DRAWER NO.2 ASSY	7
—	1	2014036-011	LOGIC DRAWER NO.1 ASSY	6
1	1	2014235-011	POWER SUPPLY ±13, 28VDC ASSY	5
1	1	2014234-011	POWER SUPPLY 3VDC ASSY	4
1	1	2014233-011	FREQUENCY COUNTER ASSY	3
1	1	2014232-011	OSCILLOSCOPE ASSY	2
1	1	1006423-001	CABINET, ELECTRICAL EQUIP	1
-021	-011			

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN: [illegible] DATE 9 JUNE 65
CHECKED [illegible] 13 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

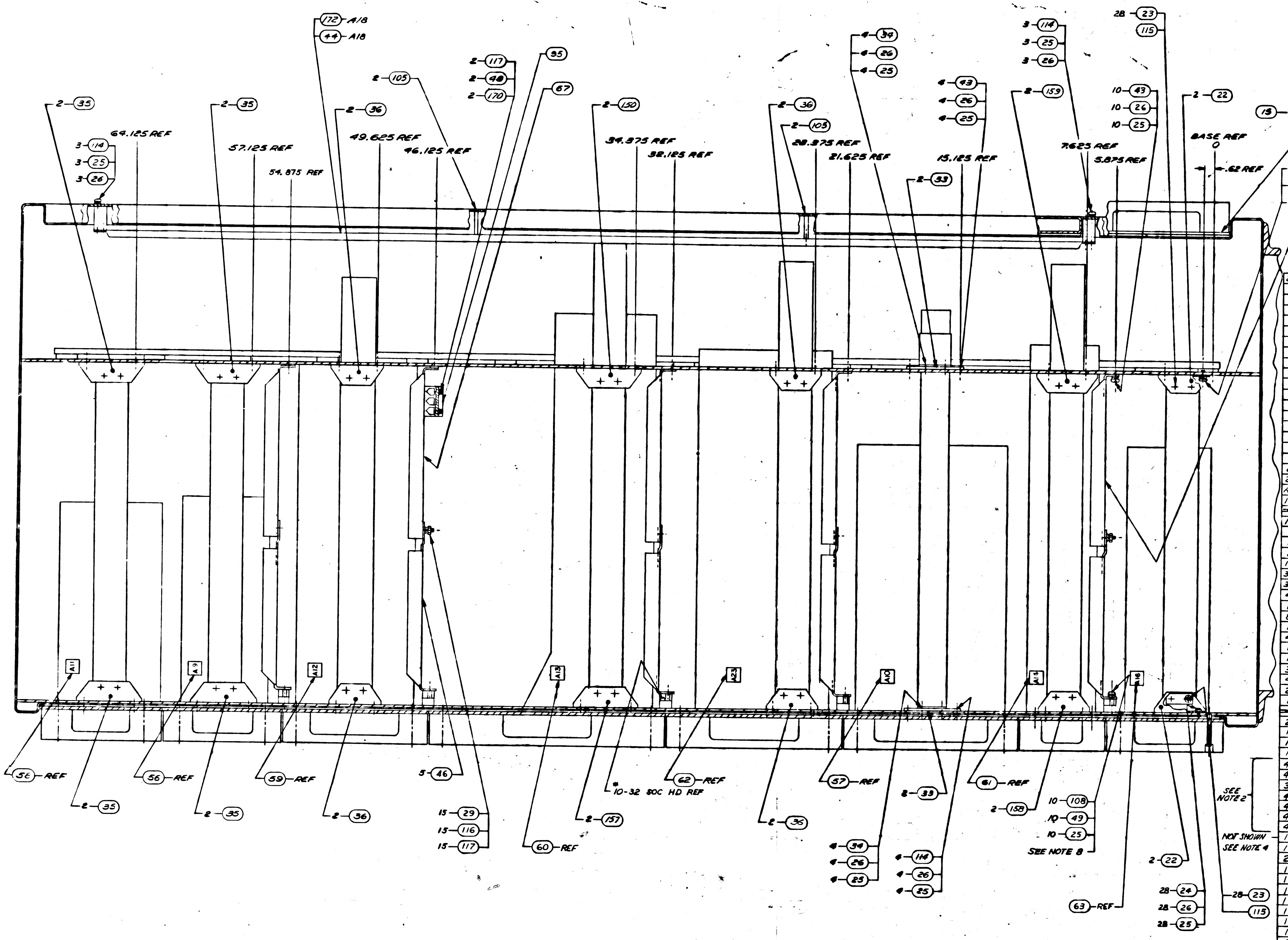
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET ASSEMBLY

CODE IDENT NO. 49956
SIZE J
DRAWING NO. 2014042
SCALE 1/4
WT
SHEET 1 OF 7

MASTER

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	12/7/65	[illegible]
B	CHANGED PER CCAR25659 DR [illegible] CHK [illegible] APPD PED	1/4/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD PED	1/13/66	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	1/24/66	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD PED	3/10/66	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	3/ /66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD PED	3/23/66	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD PED	4/ /66	[illegible]
J	CHANGED PER TDRR 26673 DR. W. F. Davis CHK [illegible] APPD [illegible]	18 APR 66	[illegible]
K	CHANGED PER TDRR 29099 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]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15-117
60 REF
2-157
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2-36
57 REF
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4-34
4-26
4-25
4-114
4-26
4-25
61 REF
2-158
10-108
10-49
10-25
SEE NOTE 8
63 REF
2-22
28-24
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28-25
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115
SEE NOTE 2
NOT SHOWN SEE NOTE 4

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 1)

CONTINUED ON SHEET 3

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
20	20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	1	2014458-191	CABLE ASSY, GROUND	134
1	1	2014471-011	CABLE ASSY W27	133
1	1	2014472-011	CABLE ASSY W26	132
1	1	2014473-011	CABLE ASSY W25	131
1	1	2014474-011	CABLE ASSY W24	130
1	1	2014475-011	CABLE ASSY W23	129
1	1	2014476-011	CABLE ASSY W22	128
1	1	2014477-011	CABLE ASSY W21	127
1	1	2014478-011	CABLE ASSY W20	126
1	1	2014479-011	CABLE ASSY W19	125
1	1	2014154-011	CABLE ASSY W18	124
1	1	2014480-011	CABLE ASSY W17	123
1	1	2014194-011	CABLE ASSY W16	122
1	1	2014153-011	CABLE ASSY W15	121
1	1	2014141-011	CABLE ASSY W14	120
1	1	2014155-011	CABLE ASSY W13	119
1	1	2014481-011	CABLE ASSY W12	118
29	29	MS35338-79	WASHER, LOCK	117
27	29	MS15795-806	WASHER, FLAT	116
AR	AR	MIL-S-22473GRHV	SEALING AND RETAINING COMPOUND	115
14	14	MS51958-62	SCREW, PAN HD	114
~~—~~	~~6~~	~~MS15795-809~~	~~WASHER, FLAT~~	~~113~~
10	10	MS51957-79	SCREW PAN HD	112
1	1	MS35690-410	NUT HEX	111
2	2	2014421	SUPPORT RAIL	110
2	2	2014420	SUPPORT RAIL	109
18	18	1006430-097	SPACER	108
31	31	MS35338-82	WASHER, LOCK	107
31	31	MS15795-810	WASHER, FLAT	106
4	4	MS51959-17	SCREW, FLAT HD	105
1	1	2014182-011	WIRING HARNESS, DC DIST	104
8	8	MS9549-09	WASHER, FLAT	103
1	1	2014490-011	WIRING HARNESS, BRANCHED	102
4	4	2014403	BLOCK, MOUNTING	101
1	1	2014401	BUSS, BAR	100
1	1	MS35335-63	WASHER, LOCK, EXTERNAL TOOTH	99
3	3	MS35690-610	NUT, PLAIN	98
4	4	MS15795-815	WASHER, FLAT	97
2	2	MS35338-84	WASHER, LOCK	96
1	1	1006859-2	TERMINAL BLOCK	95
~~—~~	~~43~~	~~MS17821-2-9~~	~~TIE WRAP~~	~~94~~
2	2	2014422	COUPLING	93
1	1	MS21919DG8	CLAMP, LOOP	92
1	1	1014480-20	DECAL, IDENTIFICATION	91
1	1	↕ -21	↕	90
4	4	-22		89
4	4	-7		88
3	3	-5		87
4	4	-4		86
4	4	-3		85
4	4	-2		84
4	4	1014480-1	DECAL, IDENTIFICATION	83
1	1	1014150-1	CABLE, POWER	82
1	1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	1	2014461-121	CABLE ASSY W253	79
1	1	↕ -111	↕ W252	78
1	1	-091	W251	77
1	1	-081	W250	76
1	1	-071	W249	75
1	1	-061	W248	74
1	1	-131	W240	73
1	1	-051	W247	72
1	1	2014461-041	CABLE ASSY W246	71
-021	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 18 [illegible] 65
CHECKED [illegible] 19 OCT. 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

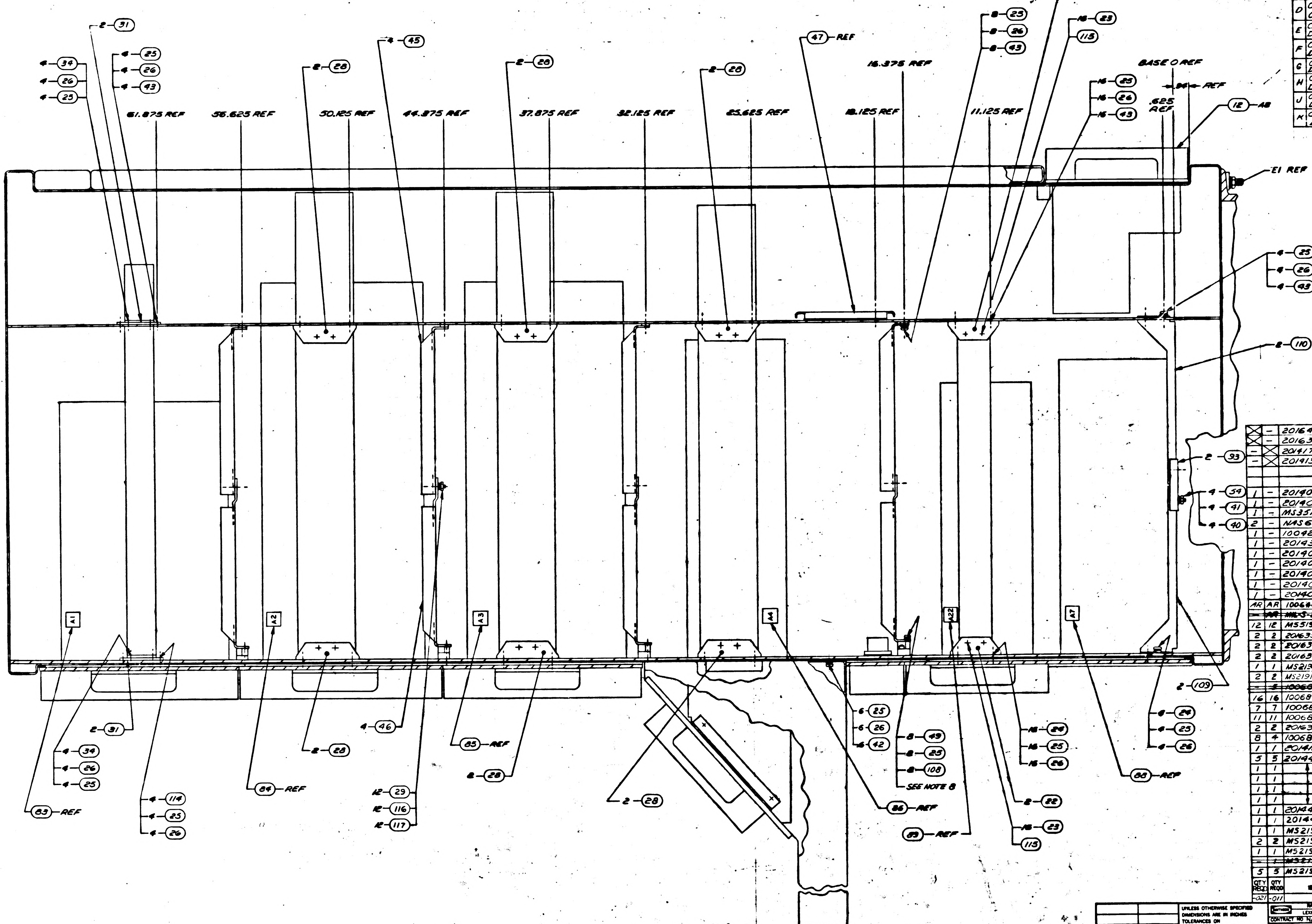
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/8
WT
SHEET 2 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 K

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	[illegible]	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK CAF APPD P.C.D.	[illegible]	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
J	CHANGED PER TDRR 26673 DR. W. L. Davis CHK [illegible] APPD [illegible]	12 APR 66	[illegible]
K	CHANGED PER TDRR 28099 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]



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A4
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12 — 29
12 — 116
12 — 117
85 — REF
2 — 28
2 — 28
6 — 25
6 — 26
6 — 42
8 — 43
8 — 25
8 — 108
SEE NOTE 8
86 — REF
89 — REF
16 — 24
16 — 25
16 — 26
2 — 22
16 — 23
115
88 — REF
4 — 24
4 — 25
4 — 26

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2016414	ELEC SCHEM AC & DC PWR DISTR	REF
☒	—	2016387	INTERCONN DIAGRAM	REF
—	☒	2014172	ELEC SCHEM AC & DC PWR DISTR	REF
—	☒	2019138	INTERCONN DIAGRAM	REF
1	—	2014044-021	POWER CONTROL ASSY	173
1	—	2014046-021	A18 INTERCONNECTION ASSY	172
1	—	MS35173-274B	CONNECTOR, ADAPTER TEE (MIL-C-360	171
2	—	NAS620C6	WASHER, FLAT	170
1	—	1004260-258	NAME PLATE	169
1	—	2014366-021	SELF TEST ASSY	168
1	—	2014045-021	RDC INTERFACE ASSY	167
1	—	2014041-021	PROGRAMMERS MONITOR ASSY	166
1	—	2014040-021	XY INTERFACE ASSY	165
1	—	2014037-021	LOGIC DRAWER NO. 2 ASSY	164
1	—	2014036-021	LOGIC DRAWER NO. 1 ASSY	163
AR	AR	1006458-004	TAPE, LACING	162
~~—~~	~~AR~~	~~MIL-S-22473, GR HV~~	~~SEALING & RETAINING COMPOUND~~	~~161~~
12	12	MS51957-45	SCREW, PAN HD	160
2	2	2016350-031	SLIDE, BRACKET ASSY	159
2	2	2016350-021	SLIDE, BRACKET ASSY	158
2	2	2016350-011	SLIDE, BRACKET ASSY	157
1	1	MS21919-DG7	CLAMP, LOOP	156
2	2	MS21919-DG6	CLAMP, LOOP	155
~~—~~	~~5~~	~~1006872-18~~	~~CLAMP, LOOP~~	~~154~~
16	16	1006872-14	CLAMP, LOOP	153
7	7	1006872-9	CLAMP, LOOP	152
11	11	1006872-11	CLAMP, LOOP	151
2	2	2016350-041	SLIDE, BRACKET ASSY	150
8	4	1006872-10	CLAMP, LOOP	149
1	1	2014115-021	STRAP, GROUND	148
5	5	2014458-171	CABLE ASSY, GROUND	147
1	1	-151		146
1	1	-121		145
1	1	-111		144
1	1	-081		143
1	1	2014458-061		142
1	1	2014457-071	CABLE ASSY, GROUND	141
1	1	MS21919DG13	CLAMP, LOOP	140
2	2	MS21919DG24	CLAMP, LOOP	139
1	1	MS21919DG10	CLAMP, LOOP	138
~~—~~	~~1~~	~~MS21919DG10~~	~~CLAMP, LOOP~~	~~137~~
5	5	MS21919DG14	CLAMP, LOOP	136

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 19 OCT 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C. [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

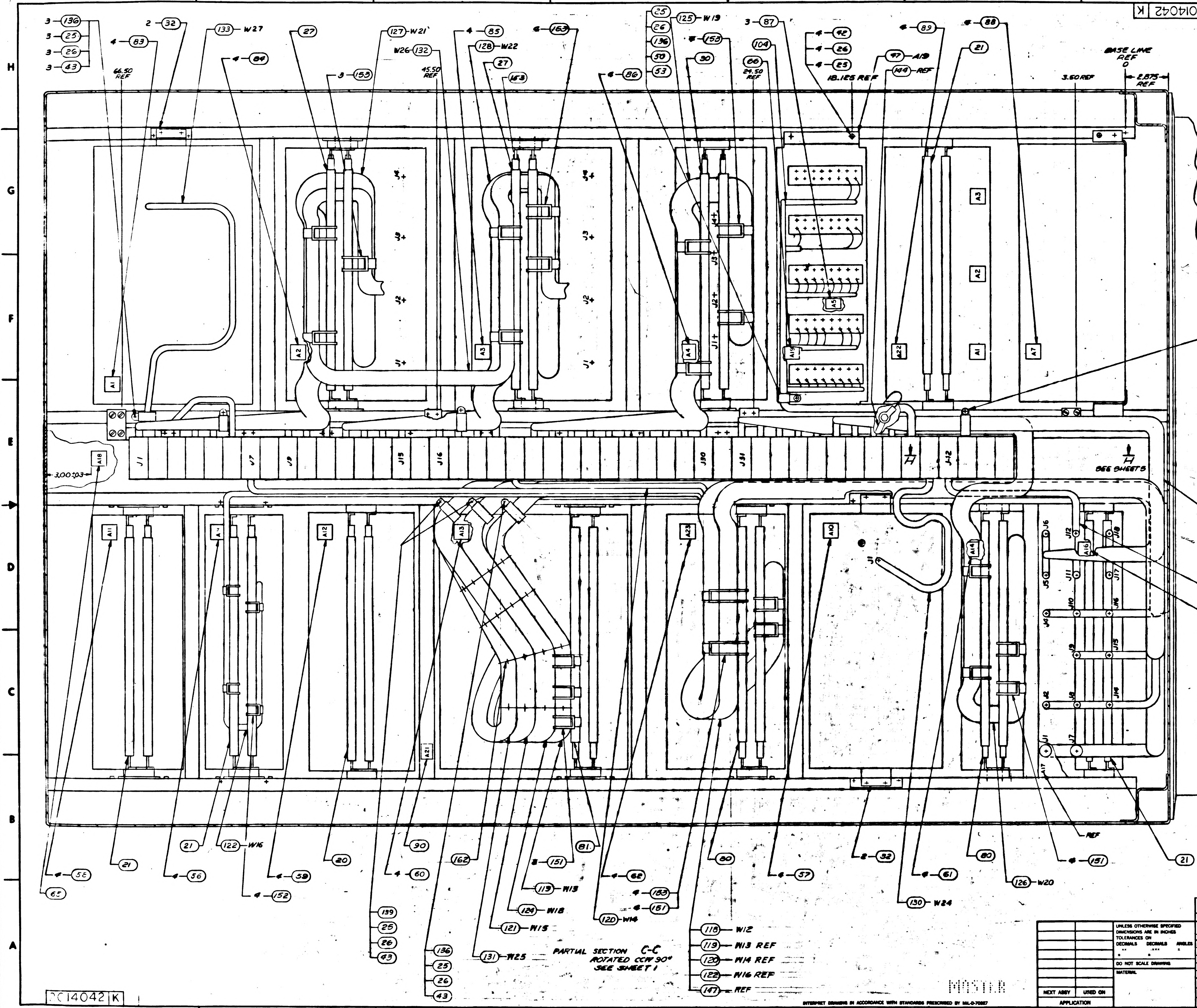
SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 3 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014042 K

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD	4/1/66	
B	CHANGED PER CCA R25659 DR CHK APPD P.C.D	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D	1/17/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473		
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D	7/19/66	
F	CHANGED PER TDRR 26317 DR CHK APPD		
G	CHANGED PER TDRR 26315 DR CHK APPD P.C.D		
H	CHANGED PER TDRR 26545 DR CHK APPD P.C.D		
J	CHANSED PER TDRR 26673 DR. CHK APPD		
K	CHANGED PER TDRR 28093 DR CHK C.D. APPD		



3 – 136
3 – 25
3 – 26
3 – 43
2 – 32
4 – 83
66.50 REF
133 – W27
4 – 84
27
3 – 153
127 – W21
W26 132
45.50 REF
4 – 85
128 – W22
27
163
4 – 163
25
26
136
50
53
125 – W19
4 – 86
4 – 158
30
66
24.50 REF
104
3 – 87
4 – 92
4 – 26
4 – 25
18.125 REF
97 – A19
144 – REF
4 – 89
21
4 – 88
3.50 REF
BASE LINE REF 0
2.875 REF
A1
A2
A3
A4
A5
A7
A19
A22
J1
J2
J3
J4
A18
3.00±.03
J1
J7
J9
J15
J16
J30
J31
H
J12
H
SEE SHEET 5
138
25
26
43
129 – W23
123 – W17
4 – 63
A11
A
A12
A13
A21
A23
A10
A14
A16
J1 J2 J3 J4 J5 J6 J7 J8 J9 J10 J11 J12 J14 J15 J16 J17 J18
4 – 58
65
21
4 – 56
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122 – W16
4 – 152
4 – 59
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139
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26
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4 – 60
90
136
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26
43
162
131 – W25
3 – 151
113 – W13
124 – W18
121 – W15
81
4 – 62
4 – 183
4 – 151
120 – W14
80
118 – W12
119 – W13 REF
120 – W14 REF
122 – W16 REF
147 – REF
4 – 57
2 – 32
130 – W24
4 – 61
80
126 – W20
4 – 151
REF
21

PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 22 Jun 65
CHECKED 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

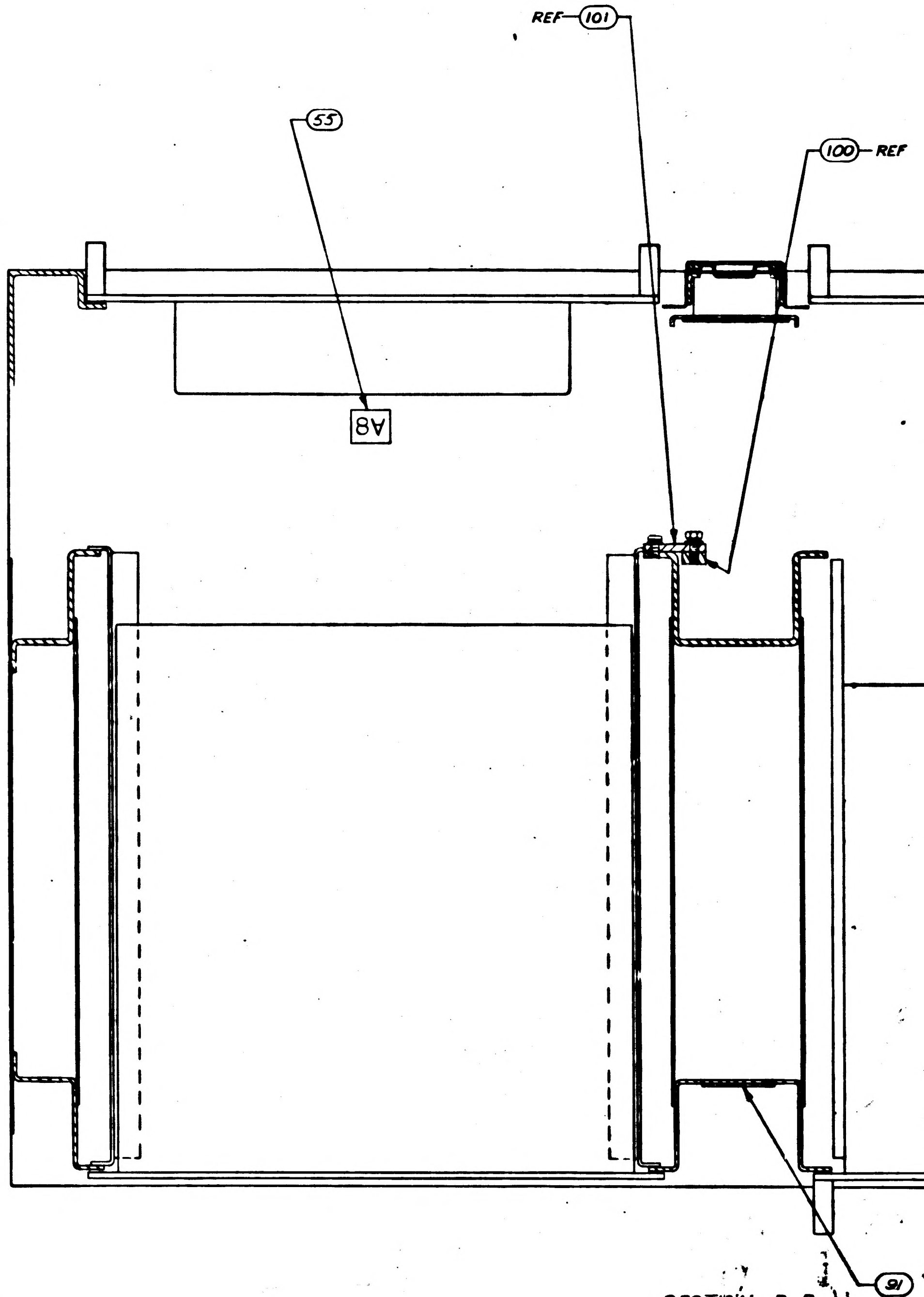
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 4 OF 7

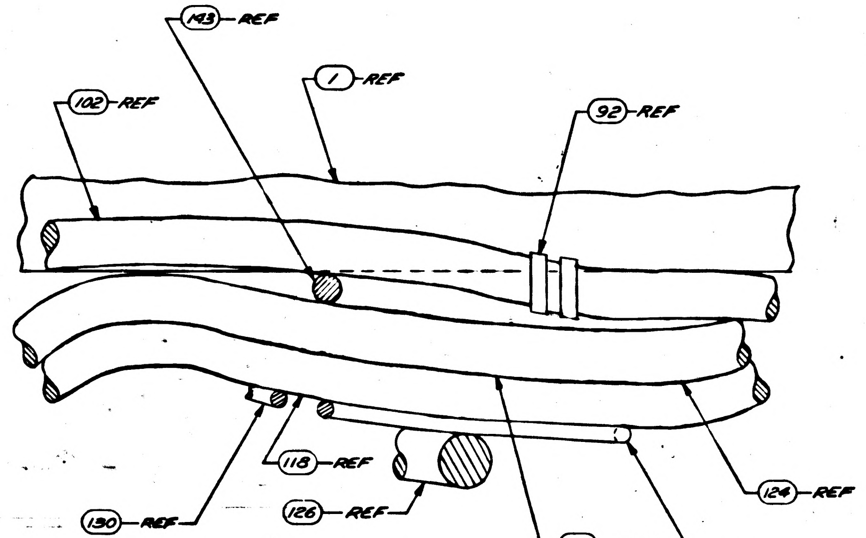
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 K

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	12/27/65	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.C.D	1/4/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D	[illegible]	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR [illegible]	[illegible]	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D	2/17/66	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.C.D	[illegible]	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD PCD	[illegible]	[illegible]
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	APR 66	[illegible]
K	CHANGED PER TDRR 28059 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]



SECTION D-D
(SEE SHEET 1)



VIEW H-H
SCALE-NONE
SEE SHEET 4

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 19 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 5 OF 7

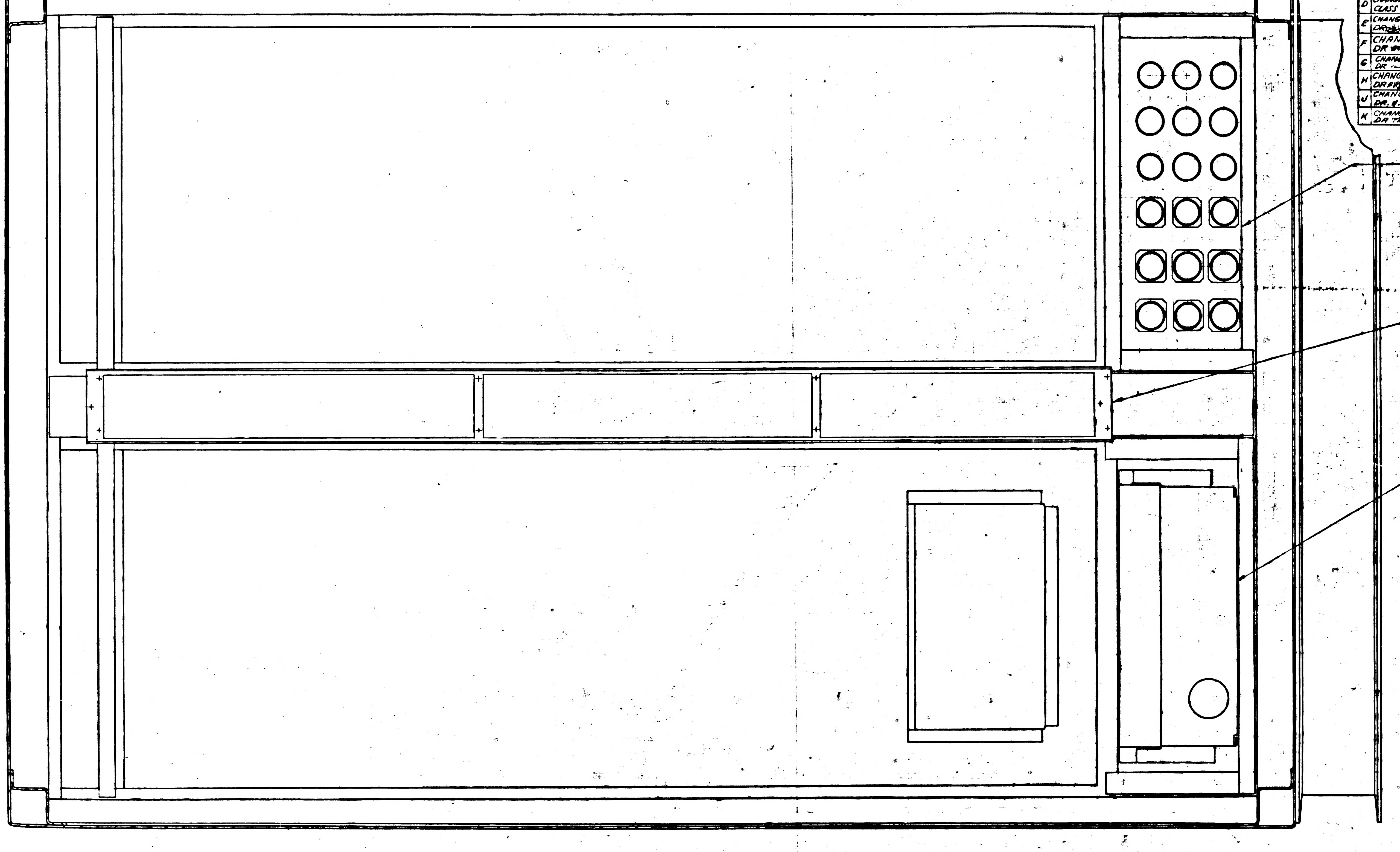
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 K

2014042 K

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25508	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR B R Fuller CHK [illegible] APPD [illegible]	9/27/65	[illegible]
B	CHANGED PER CCA R25659 DR B R Fuller CHK [illegible] APPD P.E.D	[illegible]	[illegible]
C	CHANGED PER CCA R25738 DR [illegible] CHK [illegible] APPD P.E.D	[illegible]	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	[illegible]	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.E.D.	[illegible]	[illegible]
F	CHANGED PER TDRR 26317 DR B R Fuller CHK [illegible] APPD [illegible]	[illegible]	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD PED	[illegible]	[illegible]
H	CHANGED PER TDRR 26545 DR B R Fuller CHK [illegible] APPD PED	[illegible]	[illegible]
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	14 APR 66	[illegible]
K	CHANGED PER TDRR 28099 DR [illegible] CHK C. [illegible] APPD [illegible]	[illegible]	[illegible]



SECTION F-F
ROTATED 90° CCW
(SEE SHEET 1)

2014042 K

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 29 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C [illegible] 1/20/66

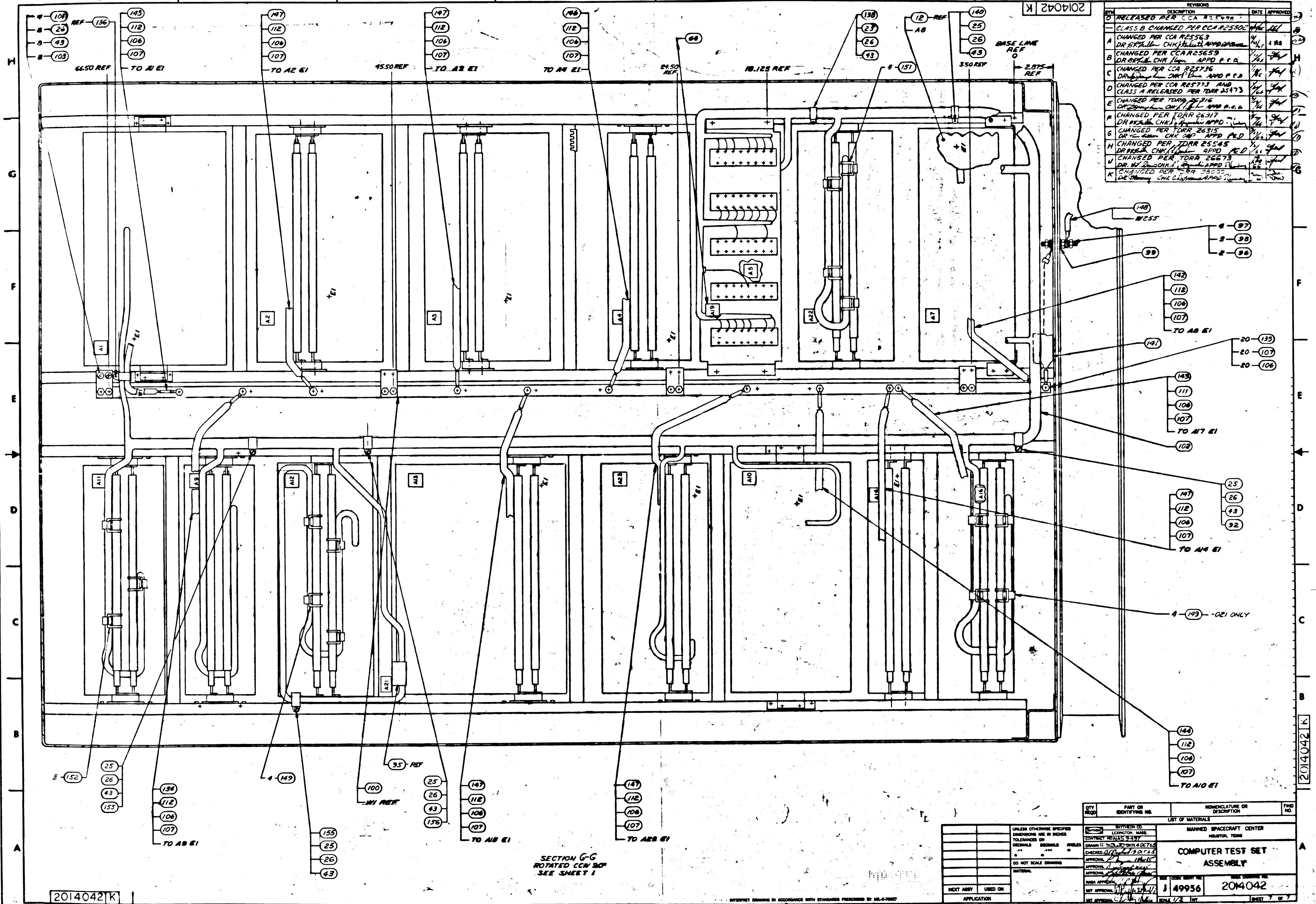
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 6 OF 7

2014042 K

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25563 DR CHK APPD	12/23/65	
B	CHANGED PER CCA R25659 DR CHK APPD P.C.D.	[illegible]	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D.	[illegible]	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	[illegible]	
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D.	[illegible]	
F	CHANGED PER TDRR 26317 DR CHK APPD	[illegible]	
G	CHANGED PER TDRR 26315 DR CHK APPD P.C.D.	[illegible]	
H	CHANGED PER TDRR 25545 DR CHK APPD P.C.D.	[illegible]	
J	CHANGED PER TDRR 26673 DR. CHK APPD	APR 66	
K	CHANGED PER TDRR 28033 DR CHK C. APPD		



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3 — 43
8 — 103
REF — 136
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112
106
107
TO A1 E1
66.50 REF
147
112
106
107
TO A2 E1
45.50 REF
147
112
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107
TO A3 E1
146
112
106
107
TO A4 E1
66
24.50 REF
18.125 REF
138
23
26
43
4 — 151
12 — REF
A8
140
25
26
43
3.50 REF
BASE LINE REF
0
2.875 REF
148
W255
4 — 97
3 — 98
2 — 96
99
142
112
106
107
TO A8 E1
141
20 — 135
20 — 107
20 — 106
143
111
106
107
TO A17 E1
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25
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92
147
112
106
107
TO A14 E1
4 — 149 — -021 ONLY
144
112
106
107
TO A10 E1
A1
A2
A3
A4
A5
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A9
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A23
A15
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3 — 152
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155
134
112
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107
TO A9 E1
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155
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100
W1 REF
95 — REF
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156
147
112
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107
TO A18 E1
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106
107
TO A23 E1

SECTION G-G
ROTATED CCW 90°
SEE SHEET 1

2014042 K

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4597
DRAWN R. DATE 4 OCT 65
CHECKED 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

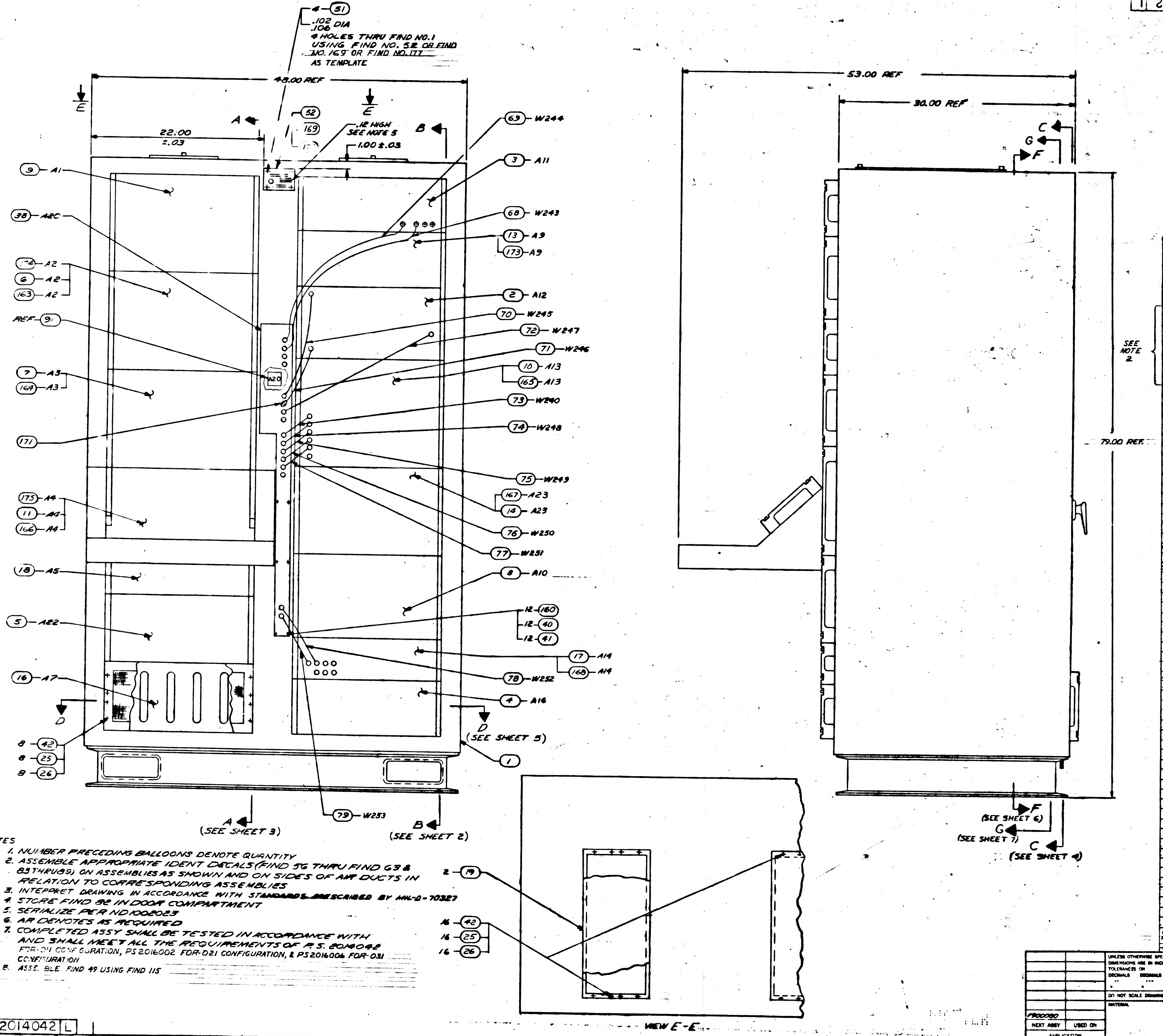
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 7 OF 7

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25562	[illegible]	
A	CHANGED PER CCA R25563 DR CHK APPD	[illegible]	
B	CHANGED PER CCA R25659 DR CHK APPD P.C.D	[illegible]	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D	[illegible]	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25773	[illegible]	
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D	[illegible]	
F	CHANGED PER TDRR 26317 DR CHK APPD	[illegible]	
G	CHANGED PER TDRR 26315 DR CHK APPD P.C.D	[illegible]	
H	CHANGED PER TDRR 26545 DR CHK APPD P.C.D	[illegible]	
J	CHANGED PER TDRR 26673 DR. CHK APPD	APR 66	
K	CHANGED PER TDRR 28099 DR CHK C. APPD	[illegible]	
L	CHANGED PER TDRR 29330 DR. CHK APPD P.C.D	[illegible]	

CONTINUED ON SHEET 2



4 — (51)
.102 / .106 DIA
4 HOLES THRU FIND NO.1
USING FIND NO. 52 OR FIND
NO. 169 OR FIND NO. 177
AS TEMPLATE
48.00 REF
22.00 ±.03
E
A
B
(52)
(169)
(177)
.12 HIGH SEE NOTE 5
1.00 ±.03
(69) — W244
(3) — A11
(9) — A1
(38) — A2C
(68) — W243
(13) — A9
(173) — A9
(172) — A2
(6) — A2
(163) — A2
(2) — A12
REF — (91)
(70) — W245
(72) — W247
(71) — W246
A20
(10) — A13
(165) — A13
(7) — A3
(164) — A3
(73) — W240
(171)
(74) — W248
(75) — W249
(175) — A4
(11) — A4
(166) — A4
(167) — A23
(14) — A23
(76) — W250
(77) — W251
(18) — A5
(8) — A10
12 — (160)
12 — (40)
12 — (41)
(5) — A22
(17) — A14
(168) — A14
(16) — A7
(78) — W252
(4) — A16
D
D (SEE SHEET 5)
8 — (42)
8 — (25)
8 — (26)
(1)
(79) — W253
A (SEE SHEET 3)
B (SEE SHEET 2)
53.00 REF
30.00 REF
C
G
F
79.00 REF
F (SEE SHEET 6)
G (SEE SHEET 7)
C (SEE SHEET 4)
2 — (19)
16 — (42)
16 — (25)
16 — (26)
VIEW E-E

NOTES

1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89) ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. STORE FIND 82 IN DOOR COMPARTMENT
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014042 FOR-011 CONFIGURATION, PS 2016002 FOR-021 CONFIGURATION, & PS 2016006 FOR-031 CONFIGURATION
8. ASSEMBLE FIND 49 USING FIND 115

SEE NOTE 2 (FIND 56 THRU 63)

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1	1	2014461-031	CABLE ASSY, W245	70
1	1	1	2014461-021	CABLE ASSY, W244	69
1	1	1	2014461-011	CABLE ASSY, W243	68
1	1	1	2014432	PLATE, BAFFLE, TERM. BD	67
1	1	1	1014480-19	DECAL, IDENTIFICATION	66
1	1	1	-18		65
1	1	1	-17		64
4	4	4	-16		63
4	4	4	-23		62
4	4	4	-14		61
4	4	4	-13		60
4	4	4	-12		59
4	4	4	-11		58
4	4	4	-10		57
4	4	4	-9		56
1	1	1	1014480-8	DECAL, IDENTIFICATION	55
4	4	4	MS35649-84	NUT, HEX PLAIN	54
1	1	1	MS35649-104	NUT, PLAIN HEX	53
—	—	1	1004260-203	PLATE, IDENTIFICATION	52
4	4	4	AN535-4-3	DRIVE SCREW	51
1	1	1	MS51957-63	SCREW, PAN HD	50
18	18	18	MS51958-67	SCREW, PAN HEAD	49
2	2	2	MS51957-35	SCREW, PAN HEAD	48
1	1	1	2016346-011	TERMINAL BOARD ASSY	47
9	9	9	2014425	PLATE, BAFFLE	46
8	8	8	2014424	PLATE, BAFFLE	45
—	—	1	2014046-011	A18 INTERCONNECTION ASSY	44
94	94	94	MS51958-63	SCREW, PAN HEAD	43
34	34	34	MS51958-64	SCREW, PAN HEAD	42
12	12	12	MS35338-80	WASHER, LOCK	41
12	12	12	MS15795-807	WASHER	40
		~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1	1	1020352	PLATE CONNECTOR ASSY	38
		~~1~~	~~MS21919DG11~~	~~CLAMP, LOOP~~	~~37~~
8	8	8	1014157-2	SLIDE BRACKET ASSY	36
8	8	8	1014157-3	SLIDE BRACKET ASSY	35
16	16	16	MS35650-104	NUT, HEX PLAIN	34
4	4	4	1014301-2	SLIDE, ADAPTER	33
4	4	4	1006878-2	SLIDE, CABINET SECTION	32
4	4	4	1014301-1	SLIDE ADAPTER	31
1	1	1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	27	27	MS35649-64	NUT HEX, PLAIN	29
12	12	12	1014157-4	SLIDE BRACKET ASSY	28
2	2	2	1006938-3	SLIDE WITH CABLE CARRIER	27
208	208	208	MS35338-81	WASHER, LOCK	26
218	218	218	MS15795-808	WASHER, FLAT	25
72	72	72	MS51958-61	SCREW, PAN HEAD	24
88	88	88	MS51959-43	SCREW, FLAT HEAD	23
8	8	8	1014157-1	SLIDE BRACKET ASSY	22
4	4	4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1	1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	2	2	1006918	FILTER, AIR, RFI	19
1	1	1	2014274-011	AUX. OUTLET ASSY 115VAC	18
—	—	1	2014366-011	SELF TEST ASSY	17
1	1	1	1006897	FAN, VENTILATION, RFI SHIELD	16
1	1	1	2014047-011	CONNECTOR INTERFACE ASSY	15
—	—	1	2014045-011	RDC INTERFACE ASSY	14
—	—	1	2014044-011	POWER CONTROL ASSY	13
1	1	1	2014043-011	AC INPUT PANEL ASSY	12
—	—	1	2014041-011	PROGRAMMER & MONITOR ASSY	11
—	—	1	2014040-011	XY INTERFACE ASSY	10
1	1	1	2014039-011	TAPE PUNCH ASSY	9
1	1	1	2014038-011	TAPE READER ASSY	8
—	—	1	2014037-011	LOGIC DRAWER NO.2 ASSY	7
—	—	1	2014036-011	LOGIC DRAWER NO.1 ASSY	6
1	1	1	2014235-011	POWER SUPPLY NO.13, 28VDC ASSY	5
1	1	1	2014234-011	POWER SUPPLY 3VDC ASSY	4
1	1	1	2014233-011	FREQUENCY COUNTER ASSY	3
1	1	1	2014232-011	OSCILLOSCOPE ASSY	2
1	1	1	1006423-001	CABINET, ELECTRICAL EQUIP	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1900030	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN: DATE 4 JUNE 65
CHECKED 13 OCT 65
APPROVAL
APPROVAL 11/4/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/26/66

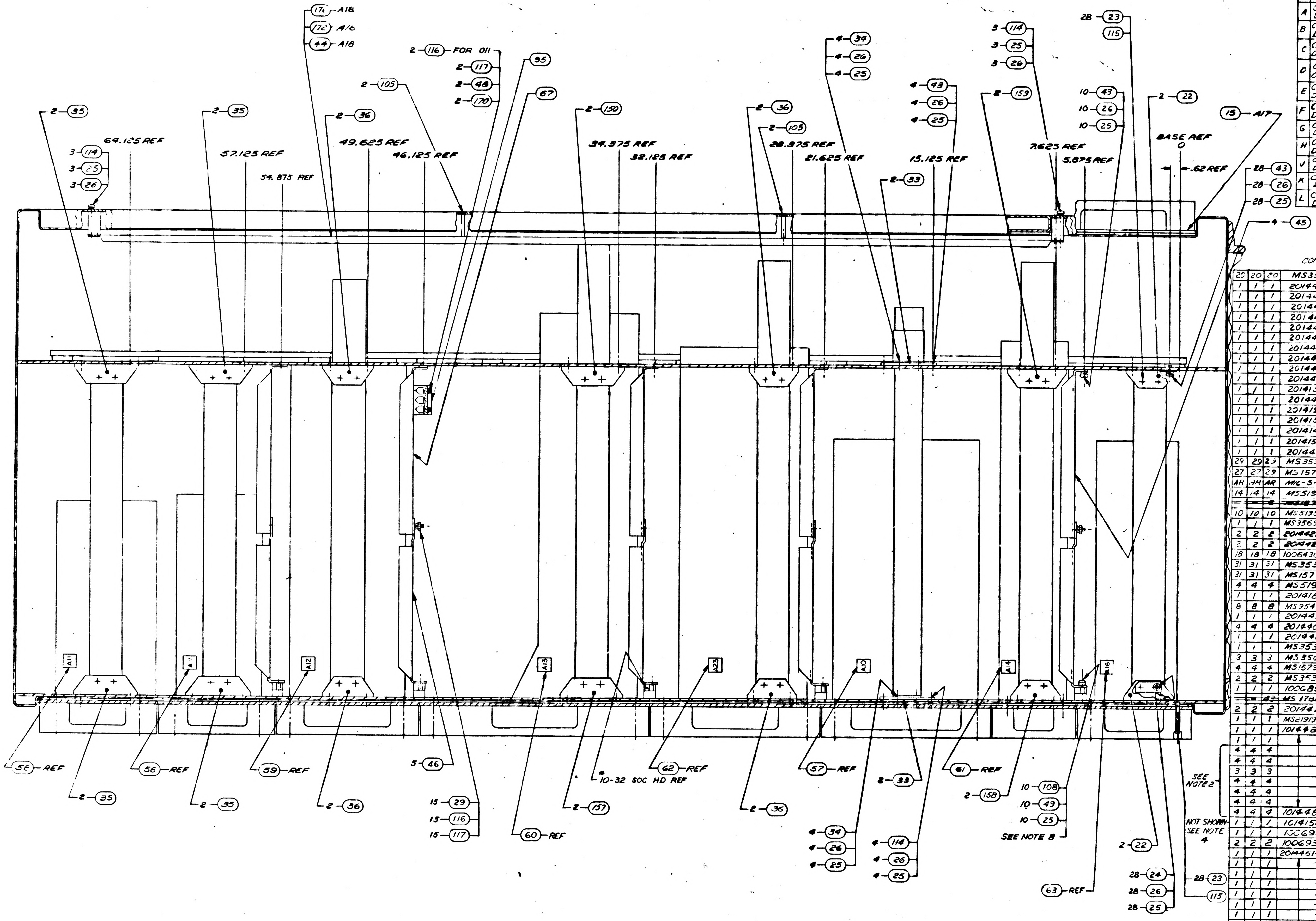
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/4
WT
SHEET 1 OF 7

2014042 L

SYM	DESCRIPTION	DATE	APPROVED
C	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR R.F. Fuller CHK [illegible] APPD [illegible]	4/27/65	[illegible]
B	CHANGED PER CCA R25659 DR R.F. Fuller CHK [illegible] APPD P.E.D.	1/11/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.E.D.	1/19/66	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	1/24/66	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.E.D.	3/19/66	[illegible]
F	CHANGED PER TDRR 26317 DR R.F. Fuller CHK [illegible] APPD [illegible]	3/3/66	[illegible]
G	CHANGED PER TDRR 26315 DR Tom Dillon CHK [illegible] APPD P.E.D.	3/23/66	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD P.E.D.	4/7/66	[illegible]
J	CHANGED PER TDRR 26673 DR. W.L. Davis CHK [illegible] APPD [illegible]	6 APR 66	[illegible]
K	CHANGED PER TDRR 28099 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
L	CHANGED PER TDRR 29330 DR. [illegible] CHK [illegible] APPD P.E.D.	7/14/66	[illegible]



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28-(25)
28-(23)
(115)
SEE NOTE 2
NOT SHOWN SEE NOTE 4

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 1)

CONTINUED ON SHEET 3

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
20	20	20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	1	1	2014458-191	CABLE ASSY, GROUND	134
1	1	1	2014471-011	CABLE ASSY W27	133
1	1	1	2014472-011	CABLE ASSY W26	132
1	1	1	2014473-011	CABLE ASSY W25	131
1	1	1	2014474-011	CABLE ASSY W24	130
1	1	1	2014475-011	CABLE ASSY W23	129
1	1	1	2014476-011	CABLE ASSY W22	128
1	1	1	2014477-011	CABLE ASSY W21	127
1	1	1	2014478-011	CABLE ASSY W20	126
1	1	1	2014479-011	CABLE ASSY W19	125
1	1	1	2014154-011	CABLE ASSY W18	124
1	1	1	2014480-011	CABLE ASSY W17	123
1	1	1	2014194-011	CABLE ASSY W16	122
1	1	1	2014153-011	CABLE ASSY W15	121
1	1	1	2014141-011	CABLE ASSY W14	120
1	1	1	2014155-011	CABLE ASSY W13	119
1	1	1	2014481-011	CABLE ASSY W12	118
29	29	29	MS35338-79	WASHER, LOCK	117
27	27	29	MS15795-806	WASHER, FLAT	116
AR	AR	AR	MIL-S-22473GRHV	SEALING AND RETAINING COMPOUND	115
14	14	14	MS51958-62	SCREW, PAN HD	114
~~—~~	~~—~~	~~6~~	~~MS15795-803~~	~~WASHER, FLAT~~	~~113~~
10	10	10	MS51957-79	SCREW PAN HD	112
1	1	1	MS35690-410	NUT HEX	111
2	2	2	2014421	SUPPORT RAIL	110
2	2	2	2014420	SUPPORT RAIL	109
18	18	18	1006430-097	SPACER	108
31	31	31	MS35338-82	WASHER, LOCK	107
31	31	31	MS15795-810	WASHER, FLAT	106
4	4	4	MS51959-17	SCREW, FLAT HD	105
1	1	1	2014182-011	WIRING HARNESS, DC DIST	104
8	8	8	MS9549-09	WASHER, FLAT	103
1	1	1	2014490-011	WIRING HARNESS, BRANCHED	102
4	4	4	2014403	BLOCK, MOUNTING	101
1	1	1	2014401	BUSS, BAR.	100
1	1	1	MS35335-63	WASHER, LOCK, EXTERNAL TOOTH	99
3	3	3	MS35690-610	NUT, PLAIN	98
4	4	4	MS15795-815	WASHER, FLAT	97
2	2	2	MS35338-84	WASHER, LOCK	96
1	1	1	1006859-2	TERMINAL BLOCK	95
~~—~~	~~—~~	~~43~~	~~MS 17821-2-9~~	~~TIE WRAP~~	~~94~~
2	2	2	2014422	COUPLING	93
1	1	1	MS21919DG8	CLAMP, LOOP	92
1	1	1	1014480-20	DECAL, IDENTIFICATION	91
1	1	1	-21		90
4	4	4	-22		89
4	4	4	-7		88
3	3	3	-5		87
4	4	4	-4		86
4	4	4	-3		85
4	4	4	-2		84
4	4	4	1014480-1	DECAL, IDENTIFICATION	83
1	1	1	1014150-1	CABLE, POWER	82
1	1	1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	2	2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	1	1	2014461-121	CABLE ASSY W253	79
1	1	1	-111	W252	78
1	1	1	-091	W251	77
1	1	1	-081	W250	76
1	1	1	-071	W249	75
1	1	1	-061	W248	74
1	1	1	-131	W240	73
1	1	1	-051	W247	72
1	1	1	2014461-041	CABLE ASSY W246	71

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 18 Oct 65
CHECKED [illegible] 19 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

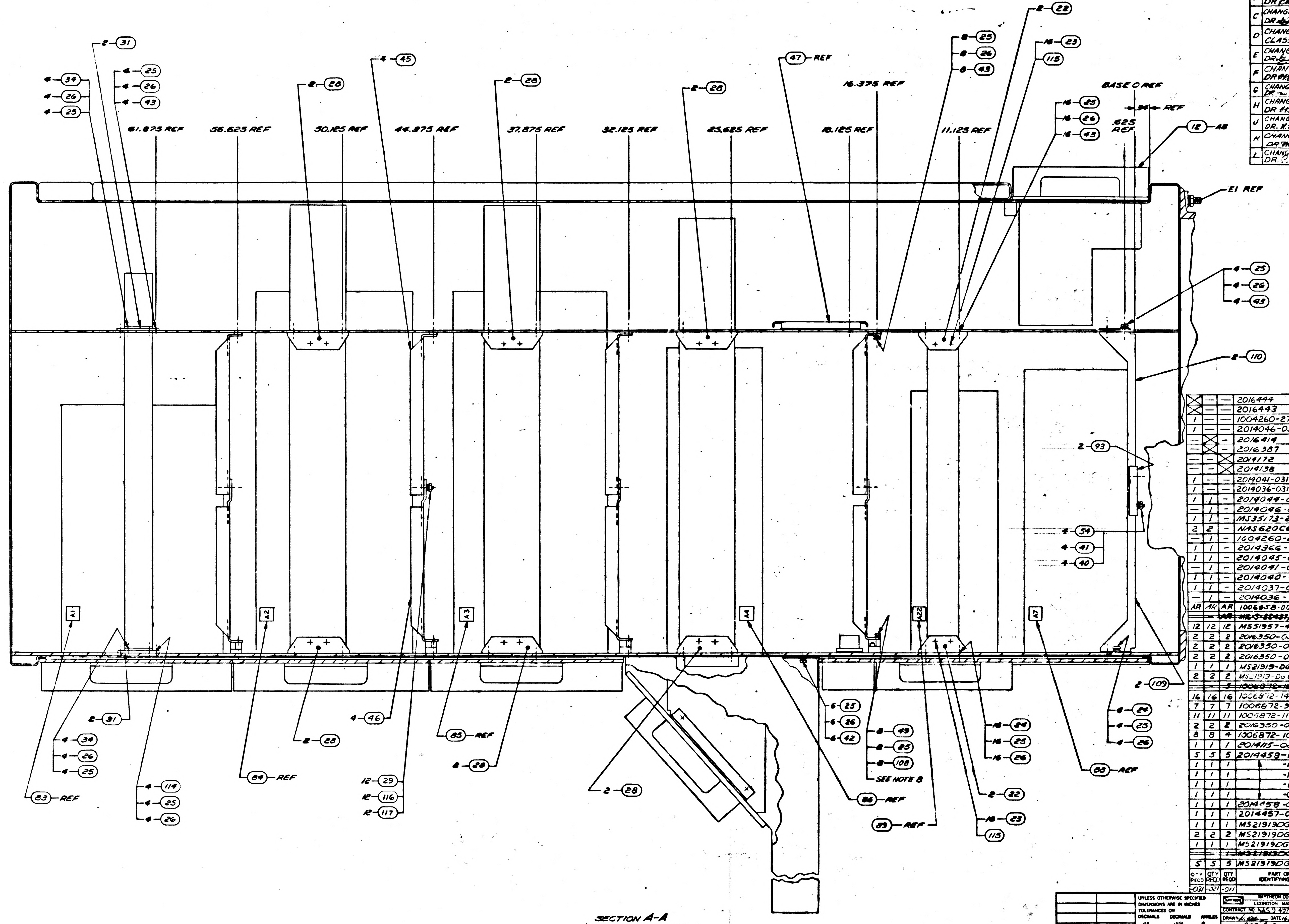
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 2 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 L

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD PCD	[illegible]	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25773	[illegible]/66	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD PCD	[illegible]/66	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD PCD	7/[illegible]/66	[illegible]
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	[illegible] APR 66	[illegible]
K	CHANGED PER TDRR 28099 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
L	CHANGED PER TDRR 29330 DR. [illegible] CHK [illegible] APPD PCD	[illegible]/66	[illegible]



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88—REF
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2—26

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	—	2016444	INTERCONNECTION DIAGRAM	REF
☒	—	—	2016443	ELEC. SCHEM. AC & DC PWR DISTR	REF
1	—	—	1004260-270	NAME PLATE	177
1	—	—	2014046-031	A18 INTERCONNECTION ASSY	176
—	☒	-	2016414	ELEC SCHEM AC & DC PWR DISTR	REF
—	☒	-	2016387	INTERCONN DIAGRAM	REF
—	-	☒	2014172	ELEC SCHEM AC & DC PWR DISTR	REF
—	-	☒	2014138	INTERCONN DIAGRAM	REF
1	—	—	2014041-031	PROGRAMMER & MONITOR ASSY	175
1	—	—	2014036-031	LOGIC DRAWER ASSY NO. 1	174
1	1	-	2014044-021	POWER CONTROL ASSY	173
—	1	-	2014046-021	A18 INTERCONNECTION ASSY	172
1	1	-	MS35173-274B	CONNECTOR, ADAPTER TEE (MIL-C-300[illegible]	171
2	2	-	NAS620C6	WASHER, FLAT	170
—	1	-	1004260-258	NAME PLATE	169
1	1	-	2014366-021	SELF TEST ASSY	168
1	1	-	2014045-021	RDC INTERFACE ASSY	167
—	1	-	2014041-021	PROGRAMMER & MONITOR ASSY	166
1	1	-	2014040-021	XY INTERFACE ASSY	165
1	1	-	2014037-021	LOGIC DRAWER NO. 2 ASSY	164
—	1	-	2014036-021	LOGIC DRAWER NO. 1 ASSY	163
AR	AR	AR	1006458-004	TAPE, LACING	162
~~—~~	~~—~~	~~AR~~	~~MIL-S-22437, GR HV~~	~~SEALING & RETAINING COMPOUND~~	~~161~~
12	12	12	MS51957-45	SCREW, PAN HD	160
2	2	2	2016350-031	SLIDE, BRACKET ASSY	159
2	2	2	2016350-021	SLIDE, BRACKET ASSY	158
2	2	2	2016350-011	SLIDE, BRACKET ASSY	157
1	1	1	MS21919-DG7	CLAMP, LOOP	156
2	2	2	MS21919-DG6	CLAMP, LOOP	155
~~—~~	~~—~~	~~5~~	~~1006872-12~~	~~CLAMP, LOOP~~	~~154~~
16	16	16	1006872-14	CLAMP, LOOP	153
7	7	7	1006872-9	CLAMP, LOOP	152
11	11	11	1006872-11	CLAMP, LOOP	151
2	2	2	2016350-041	SLIDE, BRACKET ASSY	150
8	8	4	1006872-10	CLAMP, LOOP	149
1	1	1	2014115-021	STRAP, GROUND	148
5	5	5	2014458-171	CABLE ASSY, GROUND	147
1	1	1	-151		146
1	1	1	-121		145
1	1	1	-111		144
1	1	1	-081		143
1	1	1	2014458-061		142
1	1	1	2014457-071	CABLE ASSY, GROUND	141
1	1	1	MS21919DG13	CLAMP, LOOP	140
2	2	2	MS21919DG24	CLAMP, LOOP	139
1	1	1	MS21919DG10	CLAMP LOOP	138
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5	5	5	MS21919DG14	CLAMP, LOOP	136

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .xx ± DECIMALS .xxx ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN [illegible] DATE 16 June 65
CHECKED [illegible] 13 OCT 65
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APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

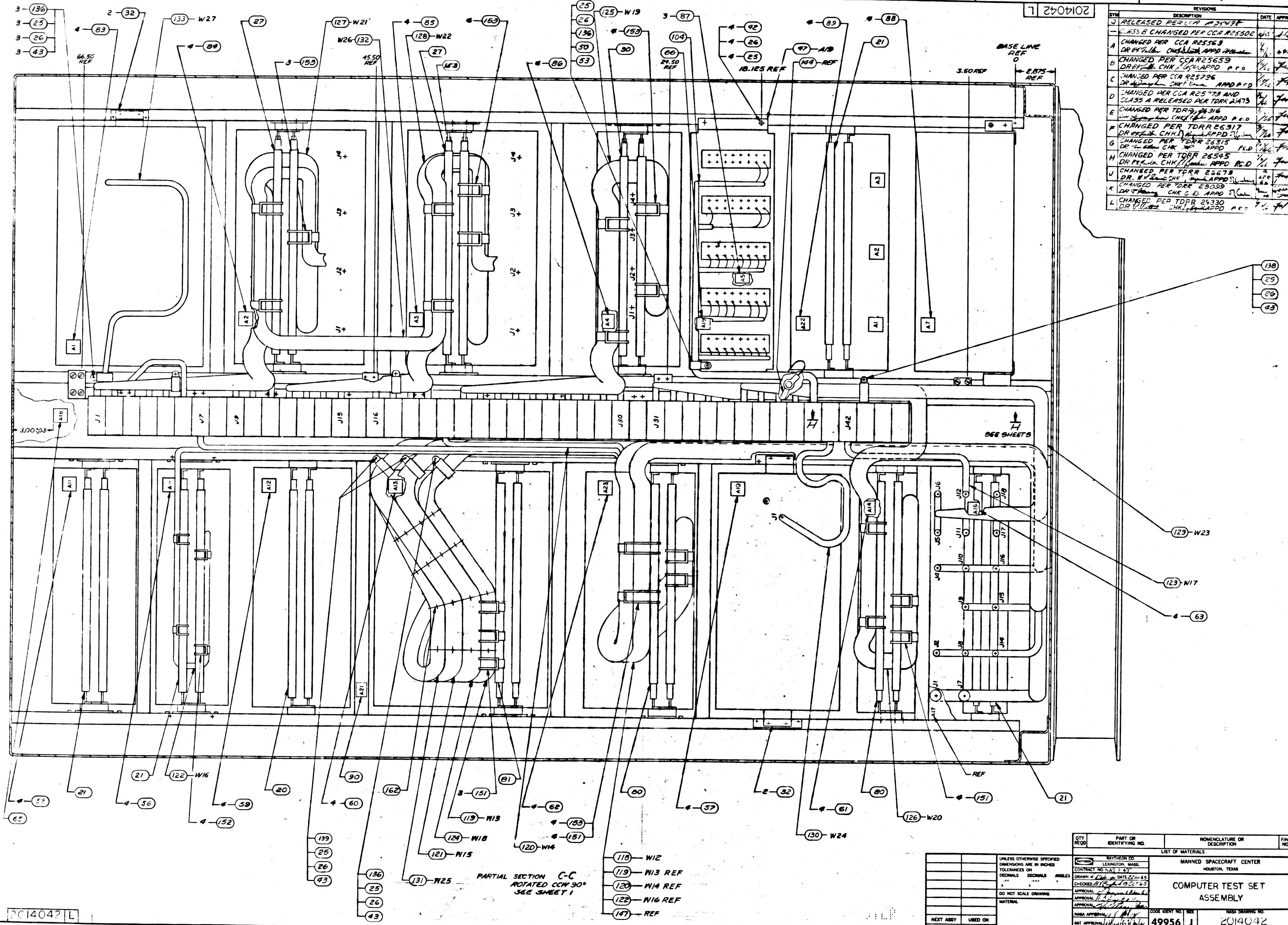
COMPUTER TEST SET
ASSEMBLY

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 3 OF 7

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
Ɔ	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD		
B	CHANGED PER CCA R25659 DR CHK APPD P.E.D		
C	CHANGED PER CCA R25736 DR CHK APPD P.E.D		
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473		
E	CHANGED PER TDRR 26316 DR CHK APPD P.E.D		
F	CHANGED PER TDRR 26317 DR CHK APPD		
G	CHANGED PER TDRR 26315 DR CHK APPD P.E.D		
H	CHANGED PER TDRR 26545 DR CHK APPD P.E.D	7/1/66	
J	CHANGED PER TDRR 26673 DR. CHK APPD		
K	CHANGED PER TDRR 28099 DR CHK C.D. APPD		
L	CHANGED PER TDRB 29330 DR CHK APPD P.E.D		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120-W14 REF
122-W16 REF
147-REF

PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 22 65
CHECKED BY 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

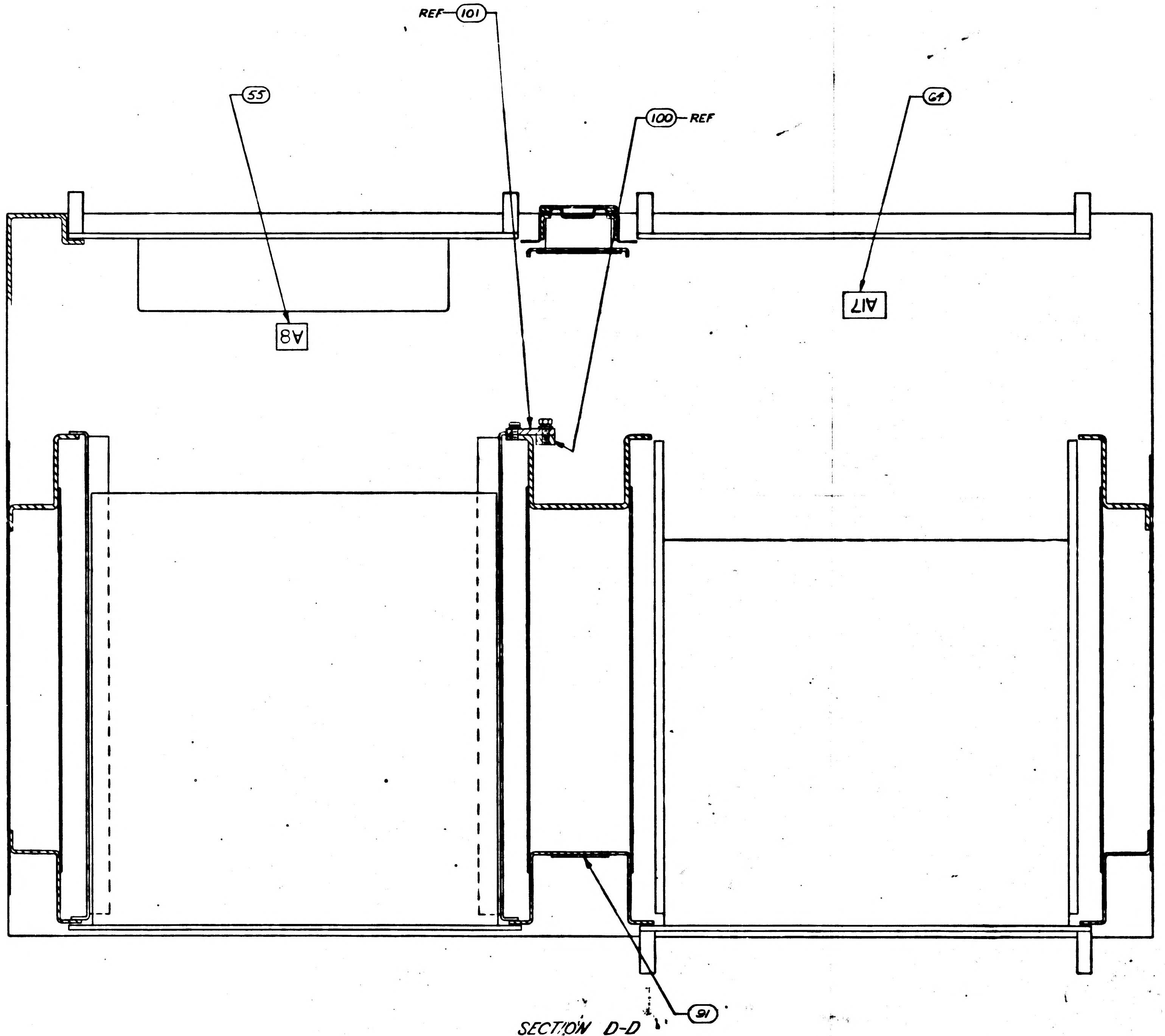
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 4 OF 7

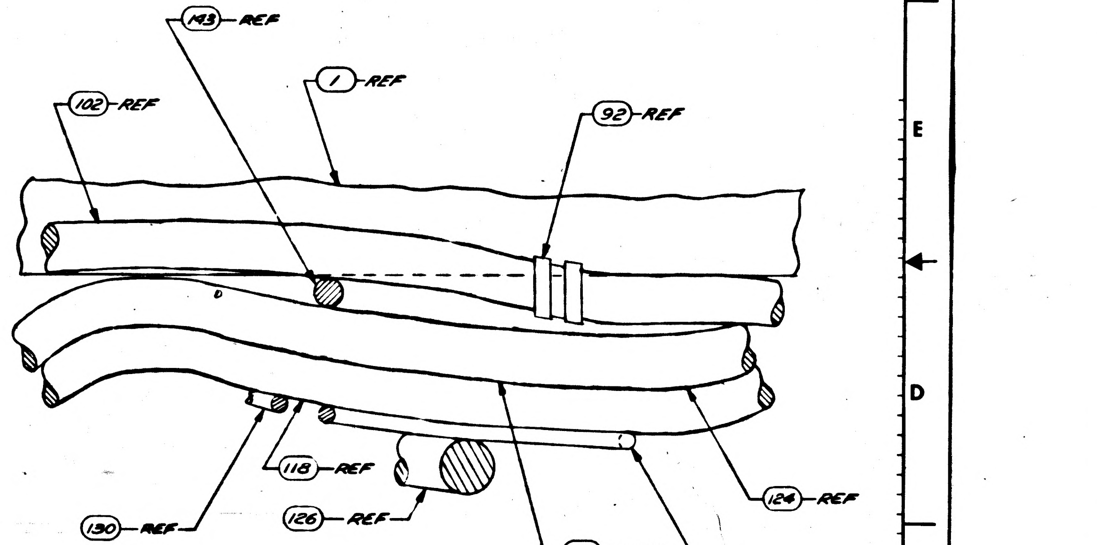
INTERPRET DRAWINGS IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 L

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	12/27/65	
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.E.D	1/4/66	
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.E.D	1/18/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR [illegible]	[illegible]/66	
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.E.D	[illegible]	
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.E.D	[illegible]/66	
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD P.E.D	[illegible]/66	
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	18 APR 66	
K	CHANGED PER TDRR 28039 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	
L	CHANGED PER TDRR 29330 DR. C. [illegible] CHK [illegible] APPD P.E.D	[illegible]/66	



SECTION D-D
(SEE SHEET 1)



VIEW H-H
SCALE-NONE
SEE SHEET 4

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 13 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C. [illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014042

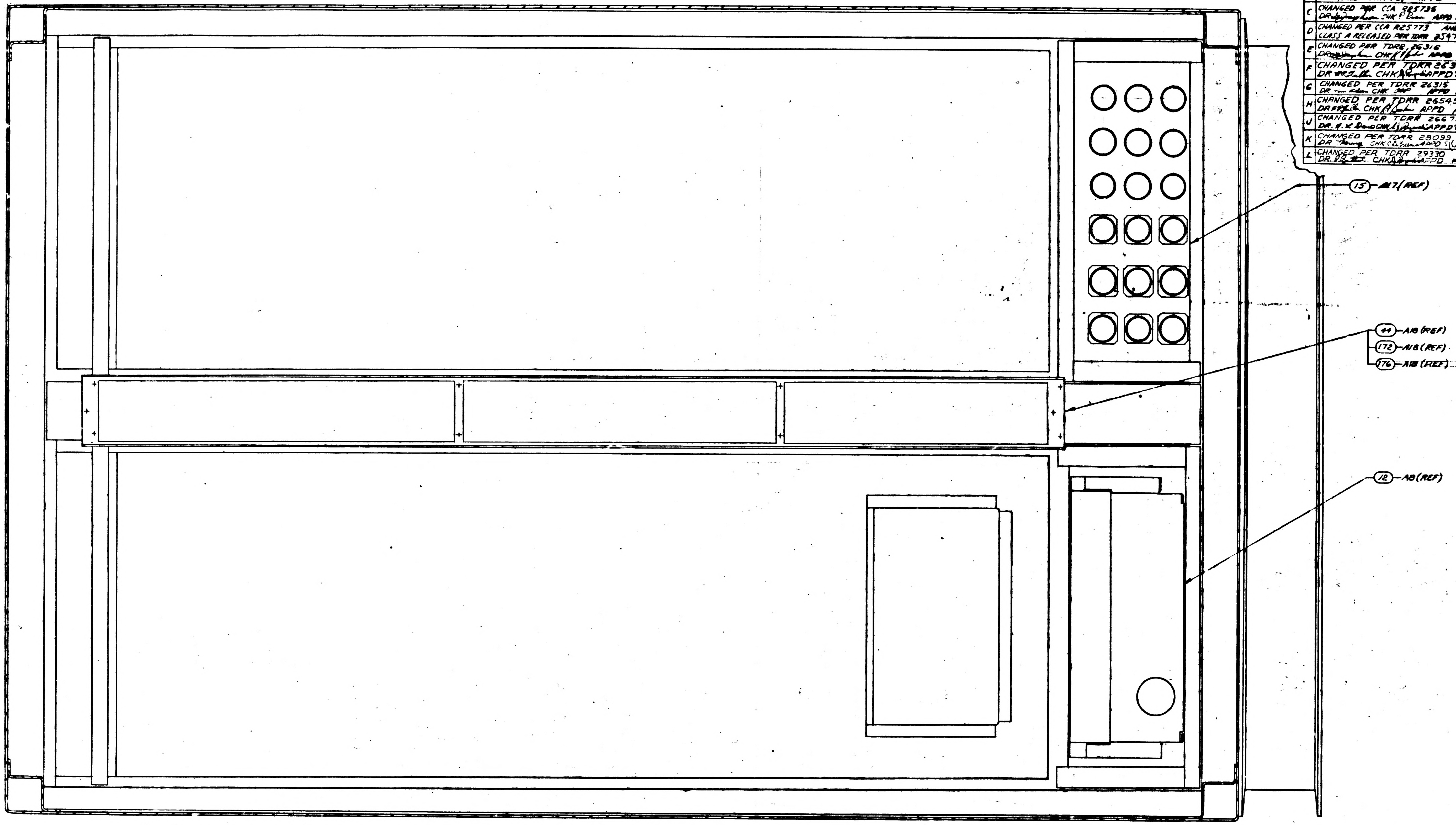
SCALE 1/2 WT SHEET 5 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 L

2014042 L

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR B.R. Fuller CHK APPD	12/27/65	
B	CHANGED PER CCA R25659 DR CHK APPD P.C.D.	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D.	1/20/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/20/66	
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D.		
F	CHANGED PER TDRR 26317 DR B.R. Fuller CHK APPD		
G	CHANGED PER TDRR 26315 DR CHK APPD P.C.D.		
H	CHANGED PER TDRR 26545 DR CHK APPD P.C.D.	4/1/66	
J	CHANGED PER TDRR 26673 DR. CHK APPD	18 APR 66	
K	CHANGED PER TDRR 28099 DR CHK APPD		
L	CHANGED PER TDRR 29330 DR. CHK APPD P.C.D.		



SECTION F-F
ROTATED 90° CCW
(SEE SHEET 1)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 AUG 65
CHECKED 19 OCT 65
APPROVAL 1 Nov 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO	SIZE	NASA DRAWING NO
49956	J	2014042

SCALE 1/2 WT SHEET 6 OF 7

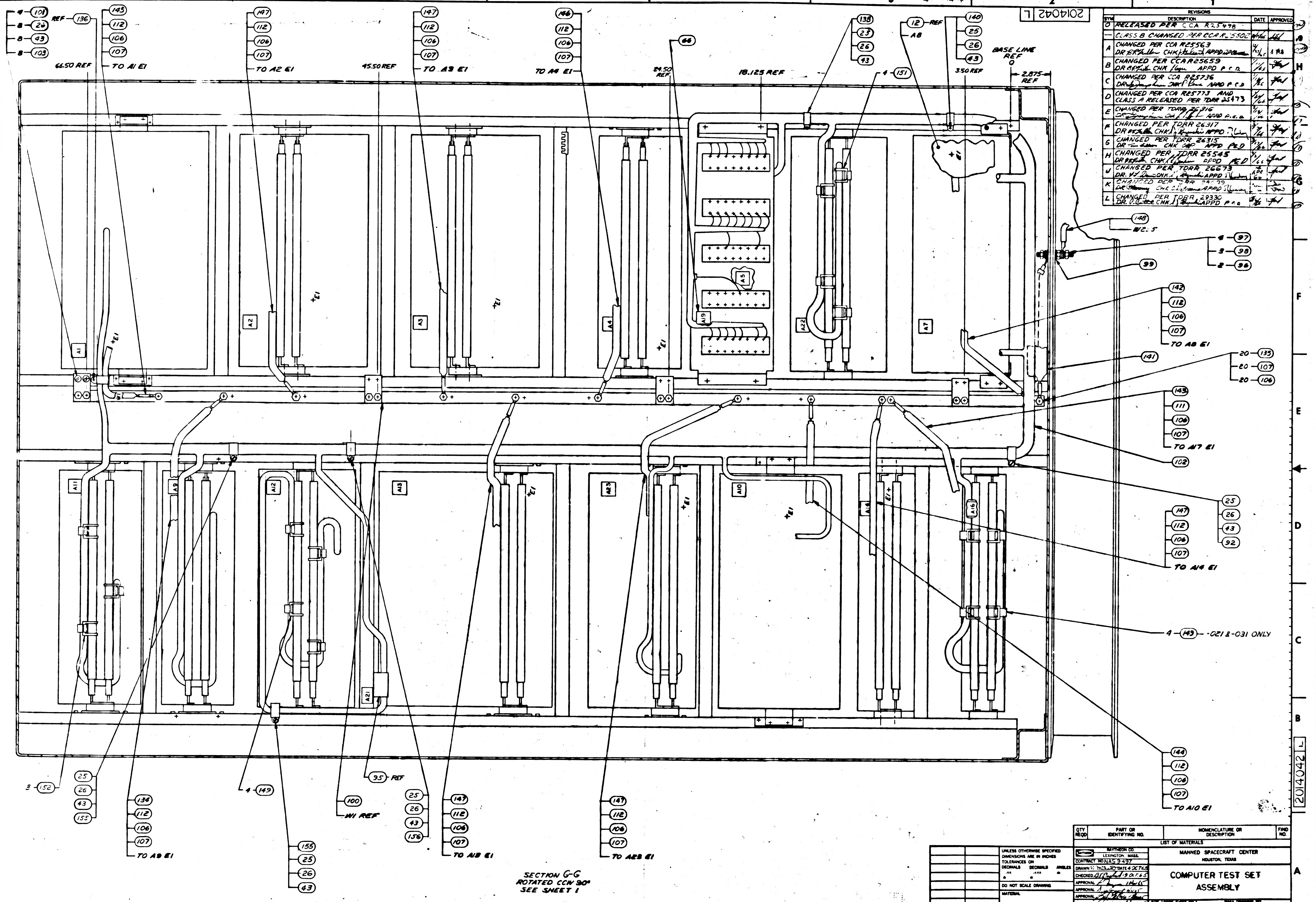
MASTER

2014042 L

2014042 L

2014042 L

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R-25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK [illegible] APPD [illegible]	12/21/65	[illegible]
B	CHANGED PER CCA R25659 DR B.K. Fuller CHK [illegible] APPD P.C.D.	1/11/65	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D.	1/18/66	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/24/66	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	2/14/66	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	3/7/66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK CAP APPD P.C.D.	3/23/66	[illegible]
H	CHANGED PER TDRR 25545 DR [illegible] CHK [illegible] APPD P.C.D.	4/2/66	[illegible]
J	CHANGED PER TDRR 26673 DR. V.J. [illegible] CHK [illegible] APPD [illegible]	14 APR 66	[illegible]
K	CHANGED PER TDRR 2[illegible] DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
L	CHANGED PER TDRR 29330 DR. C. [illegible] CHK [illegible] APPD P.C.D.	5/6/66	[illegible]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8 – (26)
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24.50 REF
(66)
18.125 REF
(138) (23) (26) (43)
4 – (151)
(12) – REF
A8
(140) (25) (26) (43)
3.50 REF
BASE LINE REF 0
2.875 REF
(148)
W2.5
4 – (97)
3 – (98)
2 – (96)
(99)
(142) (112) (106) (107) – TO A8 E1
(141)
20 – (135)
20 – (107)
20 – (106)
(143) (111) (106) (107) – TO A17 E1
(102)
(25) (26) (43) (92)
(147) (112) (106) (107) – TO A14 E1
4 – (149) – -021 & -031 ONLY
(144) (112) (106) (107) – TO A10 E1
3 – (152)
(25) (26) (43) (155)
(134) (112) (106) (107) – TO A9 E1
4 – (149)
(155) (25) (26) (43)
(100) – W1 REF
(95) – REF
(25) (26) (43) (156)
(147) (112) (106) (107) – TO A18 E1
(147) (112) (106) (107) – TO A23 E1
A1
A2
A3
A4
A19
A5
A22
A7
A11
A9
A12
A13
A23
A10
A14
A16
A21
E1

SECTION G-G
ROTATED CCW 90°
SEE SHEET 1

2014042 L

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN F. Miller DATE 4 OCT 65
CHECKED B.[illegible] 19 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

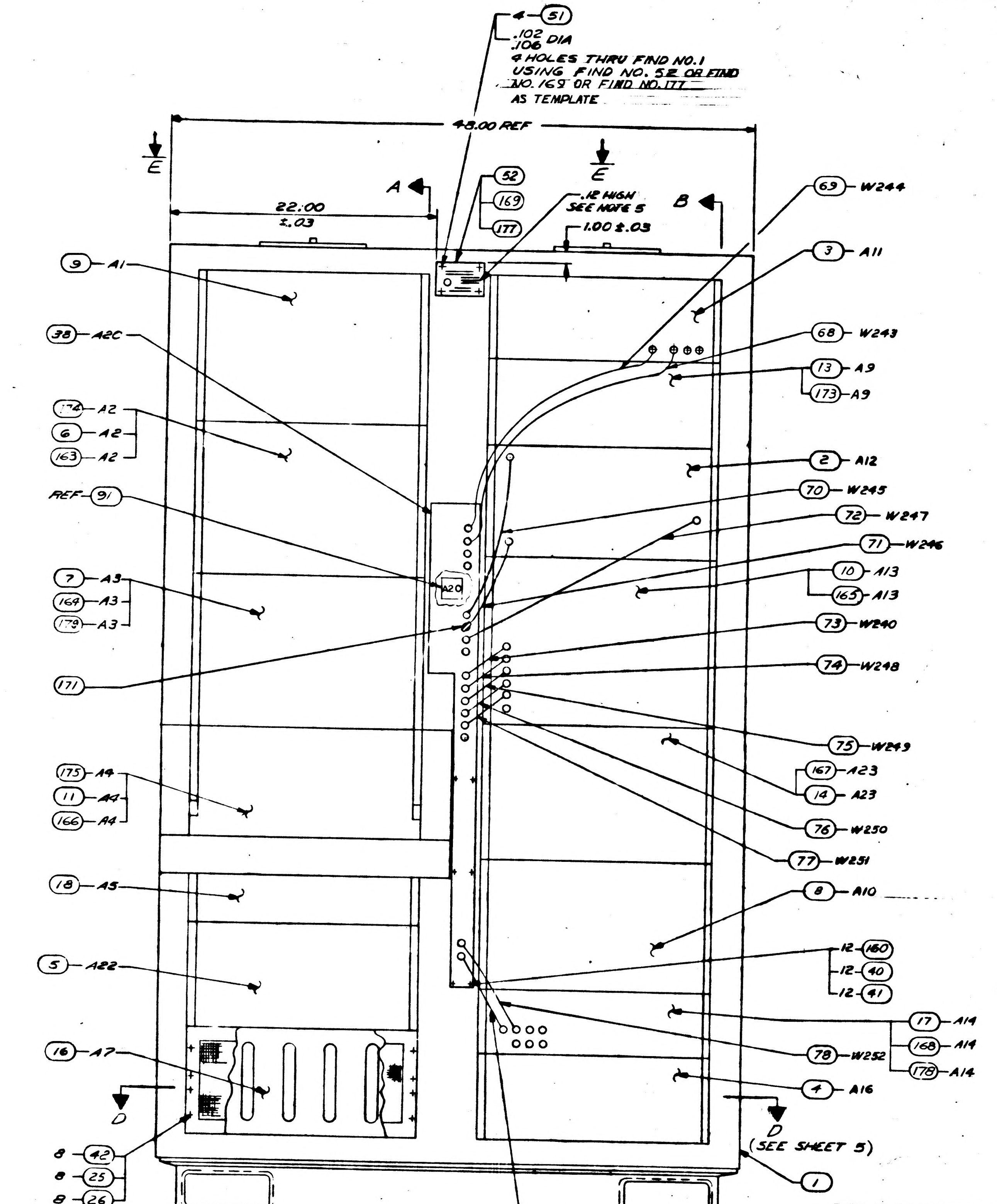
SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 7 OF 7

2014042 L

SYM	DESCRIPTION	DATE	APPROVED
M	CHANGED PER TDRR 29336 DR CHK APPD	7/8/66	

SYM	DESCRIPTION	DATE	APPROVED
C	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD		
B	CHANGED PER CCAR25659 DR CHK APPD PCD		
C	CHANGED PER CCA R25736 DR CHK APPD PCD		
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 2973		
E	CHANGED PER TDRR 2:316 DR CHK APPD PCD		
F	CHANGED PER TDRR 26417 DR CHK APPD		
G	CHANGED PER TDRR 26315 DR CHK APPD PCD		
H	CHANGED PER TDRR 26545 DR CHK APPD PCD		
J	CHANGED PER TDRR 26673 DR. CHK APPD		
K	CHANGED PER TDRR 28099 DR CHK C. APPD		
L	CHANGED PER TDRR 29330 DR. CHK APPD PCD	6/14/66	

CONTINUED ON SHEET 2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.106 DIA
4 HOLES THRU FIND NO. 1
USING FIND NO. 52 OR FIND
NO. 169 OR FIND NO. 177
AS TEMPLATE
48.00 REF
E
A
22.00
±.03
(52)
(169)
(177)
.12 HIGH
SEE NOTE 5
B
1.00 ±.03
(69)-W244
(3)-A11
(9)-A1
(38)-A2C
(68)-W243
(13)-A9
(173)-A9
(174)-A2
(6)-A2
(163)-A2
(2)-A12
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(71)-W246
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(77)-W251
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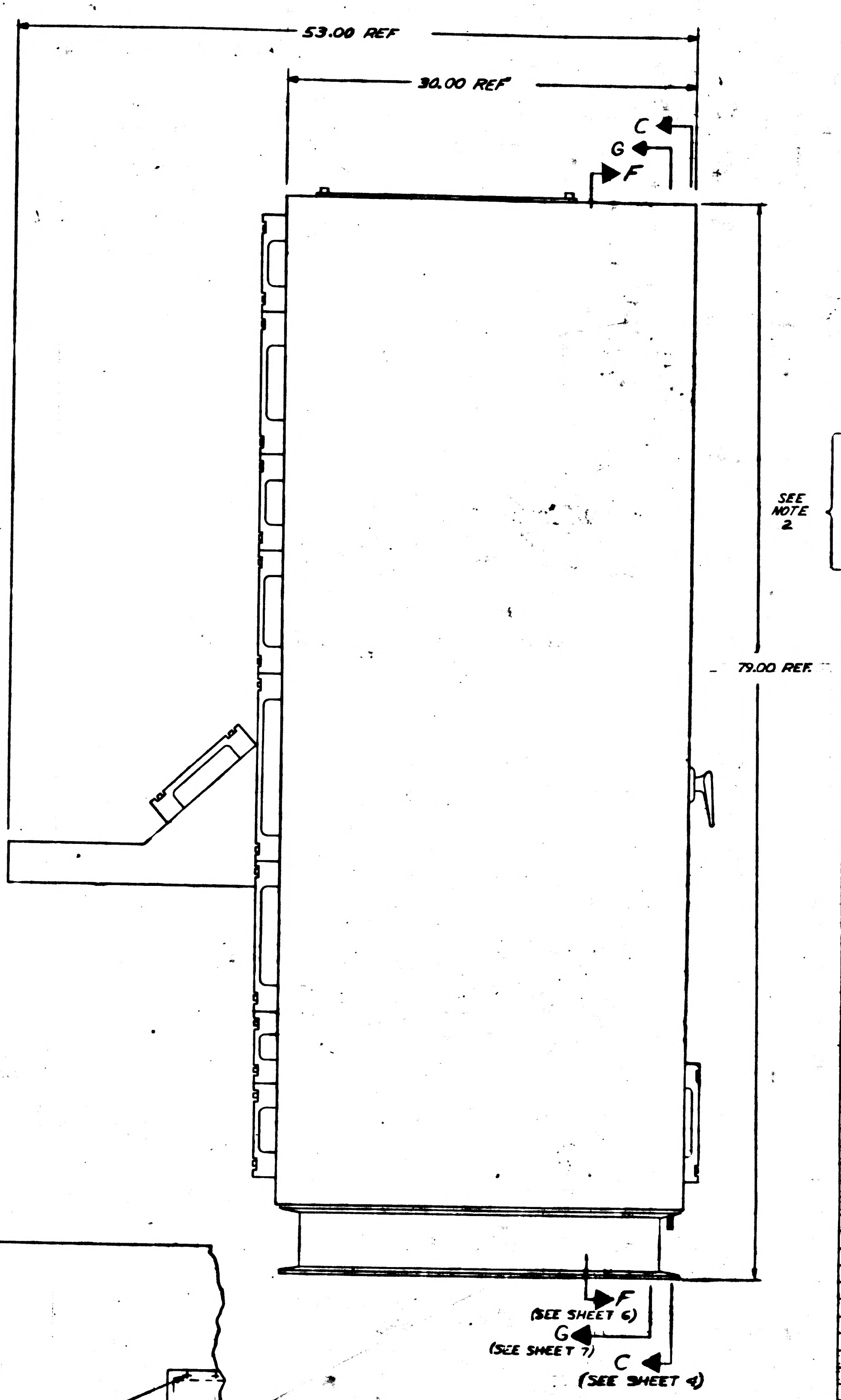
(8)-A10
(5)-A22
12-(160)
12-(40)
12-(41)
(17)-A14
(168)-A14
(178)-A14
(78)-W252
(16)-A7
(4)-A16
D
D
(SEE SHEET 5)
(1)
8-(42)
8-(25)
8-(26)
(79)-W253
A
(SEE SHEET 3)
B
(SEE SHEET 2)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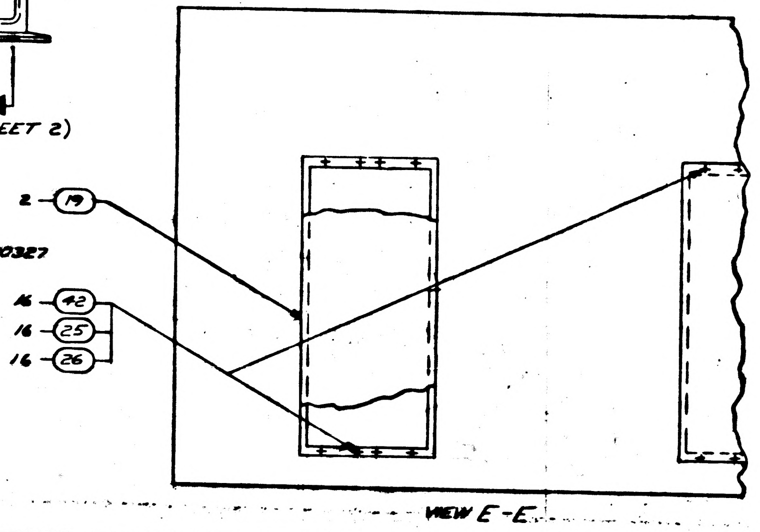
30.00 REF
C
G
F
79.00 REF
SEE NOTE 2
F
(SEE SHEET 6)
G
(SEE SHEET 7)
C
(SEE SHEET 4)


2-(19)
16-(42)
16-(25)
16-(26)

VIEW E-E

NOTES

1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89) ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. STORE FIND 82 IN DOOR COMPARTMENT
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014042 FOR-011 CONFIGURATION, PS2016002 FOR-021 CONFIGURATION, & PS2016006 FOR-031 CONFIGURATION
8. ASSEMBLE FIND 49 USING FIND 115

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1	1	2014461-031	CABLE ASSY, W245	70
1	1	1	2014461-021	CABLE ASSY, W244	69
1	1	1	2014461-011	CABLE ASSY, W243	68
1	1	1	2014432	PLATE, BAFFLE, TERM. BD	67
1	1	1	1014480 -19	DECAL, IDENTIFICATION	66
1	1	1	-18		65
1	1	1	-17		64
4	4	4	-16		63
4	4	4	-23		62
4	4	4	-14		61
4	4	4	-13		60
4	4	4	-12		59
4	4	4	-11		58
4	4	4	-10		57
4	4	4	-9		56
1	1	1	1014480-8	DECAL, IDENTIFICATION	55
4	4	4	MS35649-84	NUT, HEX PLAIN	54
1	1	1	MS35649-104	NUT, PLAIN HEX	53
—	—	1	1004260-203	PLATE, IDENTIFICATION	52
4	4	4	AN535-4-3	DRIVE SCREW	51
1	1	1	MS51957-63	SCREW, PAN HD	50
18	18	18	MS51958-67	SCREW, PAN HEAD	49
2	2	2	MS51957-35	SCREW, PAN HEAD	48
1	1	1	2016346-011	TERMINAL BOARD ASSY	47
9	9	9	2014425	PLATE, BAFFLE	46
8	8	8	2014424	PLATE, BAFFLE	45
—	—	1	2014046-011	A18 INTERCONNECTION ASSY	44
94	94	94	MS51958-63	SCREW, PAN HEAD	43
34	34	34	MS51958-64	SCREW, PAN HEAD	42
12	12	12	MS35338-80	WASHER, LOCK	41
12	12	12	MS15795-807	WASHER	40
		~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1	1	1020352	PLATE CONNECTOR ASSY	38
		~~1~~	~~MS21919DG11~~	~~CLAMP, LOOP~~	~~37~~
8	8	8	1014157-2	SLIDE BRACKET ASSY	36
8	8	8	1014157-3	SLIDE BRACKET ASSY	35
16	16	16	MS35650-104	NUT, HEX PLAIN	34
4	4	4	1014301-2	SLIDE, ADAPTER	33
4	4	4	1006878-2	SLIDE, CABINET SECTION	32
4	4	4	1014301-1	SLIDE ADAPTER	31
1	1	1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	27	27	MS35649-64	NUT HEX, PLAIN	29
12	12	12	1014157-4	SLIDE BRACKET ASSY	28
2	2	2	1006938-3	SLIDE WITH CABLE CARRIER	27
208	208	208	MS35338-81	WASHER, LOCK	26
218	218	218	MS15795-808	WASHER, FLAT	25
72	72	72	MS51958-61	SCREW, PAN HEAD	24
88	88	88	MS51959-43	SCREW, FLAT HEAD	23
8	8	8	1014157-1	SLIDE BRACKET ASSY	22
4	4	4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1	1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	2	2	1006918	FILTER, AIR, RFI	19
1	1	1	2014274-011	AUX. OUTLET ASSY 115VAC	18
—	—	1	2014366-011	SELF TEST ASSY	17
1	1	1	1006897	FAN, VENTILATION, RFI SHIELD	16
1	1	1	2014047-011	CONNECTOR INTERFACE ASSY	15
—	—	1	2014045-011	RDC INTERFACE ASSY	14
—	—	1	2014044-011	POWER CONTROL ASSY	13
1	1	1	2014043-011	AC INPUT PANEL ASSY	12
—	—	1	2014041-011	PROGRAMMER & MONITOR ASSY	11
—	—	1	2014040-011	XY INTERFACE ASSY	10
1	1	1	2014039-011	TAPE PUNCH ASSY	9
1	1	1	2014038-011	TAPE READER ASSY	8
—	—	1	2014037-011	LOGIC DRAWER NO. 2 ASSY	7
—	—	1	2014036-011	LOGIC DRAWER NO. 1 ASSY	6
1	1	1	2014235-011	POWER SUPPLY NO. 13, 28VDC ASSY	5
1	1	1	2014234-011	POWER SUPPLY 3VDC ASSY	4
1	1	1	2014233-011	FREQUENCY COUNTER ASSY	3
1	1	1	2014232-011	OSCILLOSCOPE ASSY	2
1	1	1	1006423-001	CABINET, ELECTRICAL EQUIP	1

LIST OF MATERIALS

1900080	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

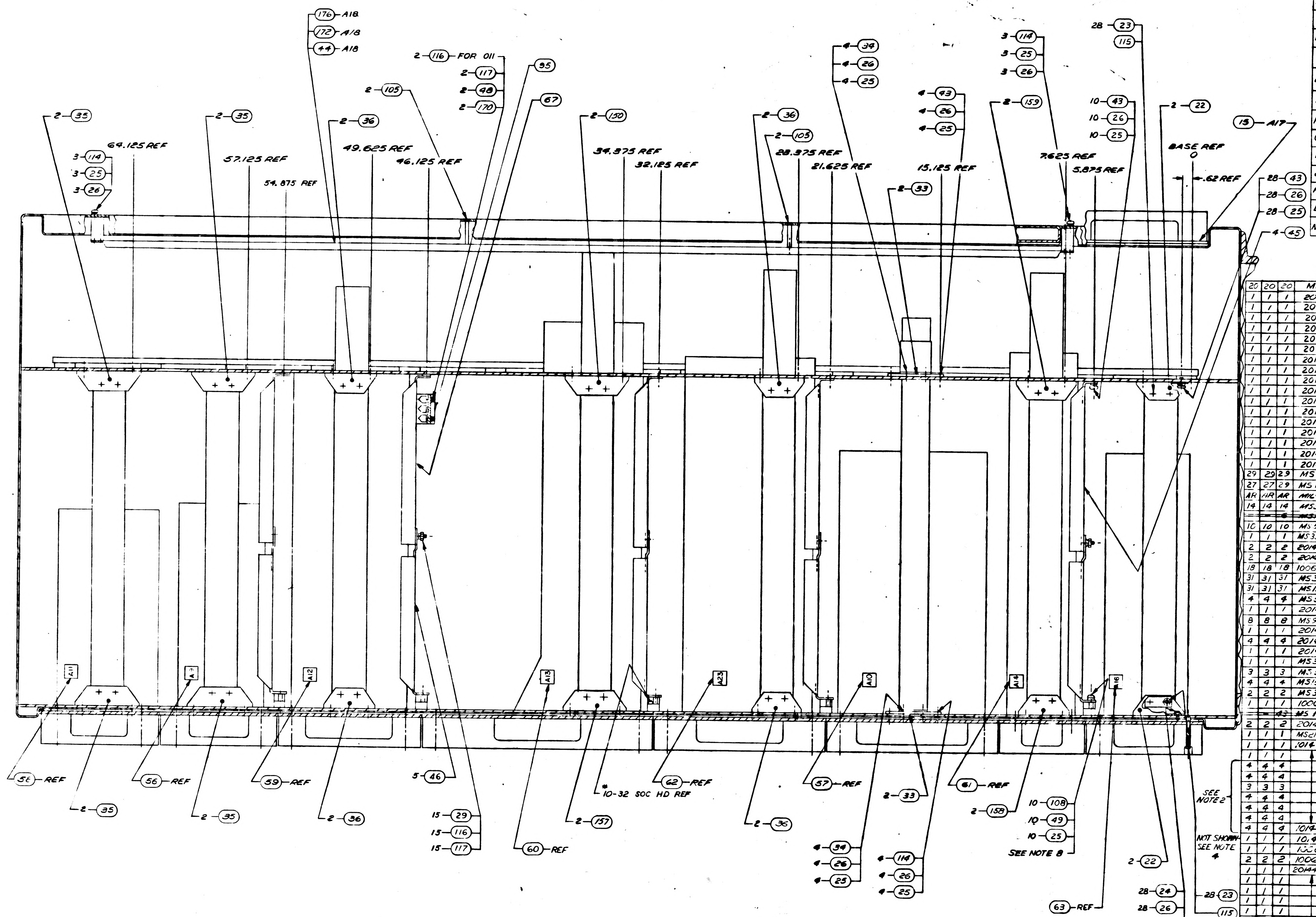
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 4 JUNE 65
CHECKED 13 OCT 65
APPROVAL
APPROVAL 11/4/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/4/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014042
SCALE 1/4 | WT | SHEET 1 OF 7

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25497		
—	CLASS B CHANGED PER CCA R25502	3/4/66	
A	CHANGED PER CCA R25563 DR CHK APPD	1/27/66	
B	CHANGED PER CCA R25659 DR CHK APPD PCD	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD PCD	1/18/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	1/24/66	
E	CHANGED PER TDRR 26316 DR CHK APPD PCD	3/17/66	
F	CHANGED PER TDRR 26317 DR CHK APPD	3/31/66	
G	CHANGED PER TDRR 26315 DR CHK APPD PCD	3/23/66	
H	CHANGED PER TDRR 25545 DR CHK APPD PCD	3/2/66	
J	CHANGED PER TDRR 26673 DR. W. L. Davis CHK APPD	18 APR 66	
K	CHANGED PER TDRR 28039 DR CHK APPD	5 May 66	
L	CHANGED PER TDRR 29330 DR. CHK APPD PCD	9/16/66	
M	CHANGED PER TDRR 29336 DR CHK APPD		



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SEE NOTE 8
2-22
63-REF
28-24
28-26
28-25
28-23
115

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 1)

CONTINUED ON SHEET 3

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
20	20	20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	1	1	2014458-191	CABLE ASSY, GROUND	134
1	1	1	2014471-011	CABLE ASSY W27	133
1	1	1	2014472-011	CABLE ASSY W26	132
1	1	1	2014473-011	CABLE ASSY W25	131
1	1	1	2014474-011	CABLE ASSY W24	130
1	1	1	2014475-011	CABLE ASSY W23	129
1	1	1	2014476-011	CABLE ASSY W22	128
1	1	1	2014477 011	CABLE ASSY W21	127
1	1	1	2014478-011	CABLE ASSY W20	126
1	1	1	2014479-011	CABLE ASSY W19	125
1	1	1	2014154-011	CABLE ASSY W18	124
1	1	1	2014480-011	CABLE ASSY W17	123
1	1	1	2014194-011	CABLE ASSY W16	122
1	1	1	2014153-011	CABLE ASSY W15	121
1	1	1	2014141-011	CABLE ASSY W14	120
1	1	1	2014155-011	CABLE ASSY W13	119
1	1	1	2014481-011	CABLE ASSY W12	118
29	29	29	MS35338-79	WASHER, LOCK	117
27	27	29	MS15795-806	WASHER, FLAT	116
AR	AR	AR	MIL-S-22473GRHV	SEALING AND RETAINING COMPOUND	115
14	14	14	MS51958-62	SCREW, PAN HD	114
~~—~~	~~—~~	~~6~~	~~MS15795-809~~	~~WASHER, FLAT~~	~~113~~
10	10	10	MS51957-79	SCREW PAN HD	112
1	1	1	MS35690-410	NUT HEX	111
2	2	2	2014421	SUPPORT RAIL	110
2	2	2	2014420	SUPPORT RAIL	109
18	18	18	1006430-097	SPACER	108
31	31	31	MS35338-82	WASHER, LOCK	107
31	31	31	MS15795-610	WASHER, FLAT	106
4	4	4	MS51959-17	SCREW, FLAT HD	105
1	1	1	2014182-011	WIRING HARNESS, DC DIST	104
8	8	8	MS9549-09	WASHER, FLAT	103
1	1	1	2014490-011	WIRING HARNESS, BRANCHED	102
4	4	4	2014403	BLOCK, MOUNTING	101
1	1	1	2014401	BUSS, BAR	100
1	1	1	MS35335-63	WASHER, LOCK, EXTERNAL TOOTH	99
3	3	3	MS35690-610	NUT, PLAIN	98
4	4	4	MS15795-815	WASHER, FLAT	97
2	2	2	MS35338-84	WASHER, LOCK	96
1	1	1	1006859-2	TERMINAL BLOCK	95
~~—~~	~~—~~	~~43~~	~~MS 17821-2-9~~	~~TIE WRAP~~	~~94~~
2	2	2	2014422	COUPLING	93
1	1	1	MS21919DG8	CLAMP, LOOP	92
1	1	1	1014480-20	DECAL, IDENTIFICATION	91
1	1	1	-21		90
4	4	4	-22		89
4	4	4	-7		88
3	3	3	-5		87
4	4	4	-4		86
4	4	4	-3		85
4	4	4	-2		84
4	4	4	1014480-1	DECAL, IDENTIFICATION	83
1	1	1	1014150-1	CABLE, POWER	82
1	1	1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	2	2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	1	1	2014461-121	CABLE ASSY W253	79
1	1	1	-111	W252	78
1	1	1	-091	W251	77
1	1	1	-081	W250	76
1	1	1	-071	W249	75
1	1	1	-061	W248	74
1	1	1	-131	W240	73
1	1	1	-051	W247	72
1	1	1	2014461-041	CABLE ASSY W246	71

SEE NOTE 2

NOT SHOWN SEE NOTE 4

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 18 Jun 65
CHECKED 30 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

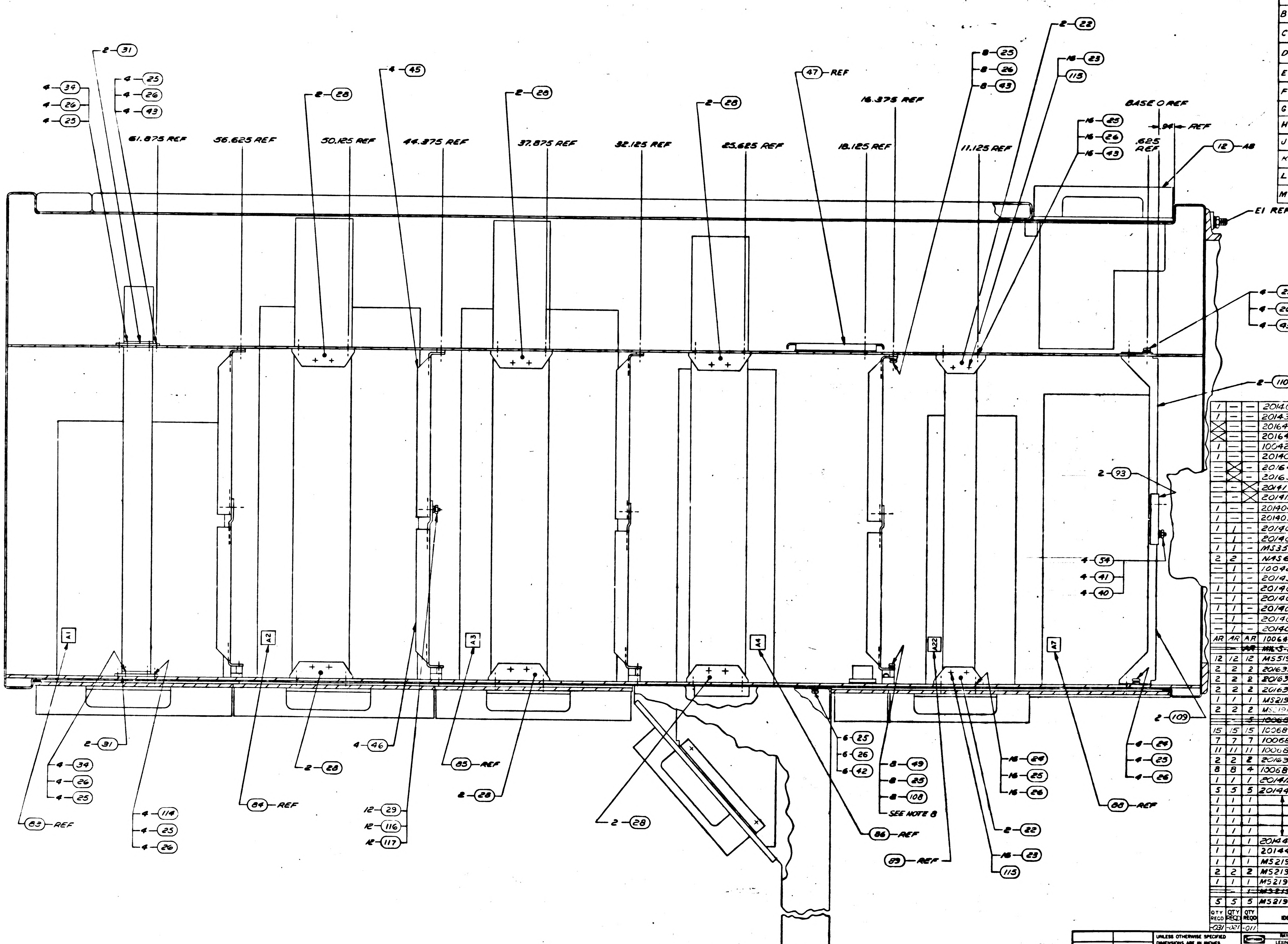
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 2 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014042 M

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	12/65	
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK APPD	12/21/65	ATB
B	CHANGED PER CCA R25659 DR B.K. Fuller CHK APPD P.C.D.	1/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D.	1/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	1/66	
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D.	2/66	
F	CHANGED PER TDRR 26317 DR B.K. Fuller CHK APPD	3/66	
G	CHANGED PER TDRR 26315 DR CHK CAP APPD P.C.D.	3/66	
H	CHANGED PER TDRR 26545 DR B.K. Fuller CHK APPD P.C.D.	4/66	
J	CHANGED PER TDRR 26673 DR. W.L. Davis CHK APPD	18 APR 66	
K	CHANGED PER TDRR 28099 DR CHK APPD		
L	CHANGED PER TDRR 29330 DR. CHK APPD P.C.D.	5/4/66	
M	CHANGED PER TDRR 29335 DR R. Pudelle CHK APPD	11/4/66	



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SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	—	—	2014037-031	LOGIC DRAWER NO.2 ASSY	179
1	—	—	2014366-031	SELF TEST ASSY	178
☒	—	—	2016444	INTERCONNECTION DIAGRAM	REF
☒	—	—	2016443	ELEC. SCHEM. AC & DC PWR DISTR	REF
1	—	—	1004260-270	NAME PLATE	177
1	—	—	2014046-031	A18 INTERCONNECTION ASSY	176
—	☒	-	2016414	ELEC SCHEM AC & DC PWR DISTR	REF
—	☒	-	2016387	INTERCONN DIAGRAM	REF
—	-	☒	2014172	ELEC SCHEM AC & DC PWR DISTR	REF
—	-	☒	2014138	INTERCONN DIAGRAM	REF
1	—	—	2014041-031	PROGRAMMER & MONITOR ASSY	175
1	—	—	2014036-031	LOGIC DRAWER ASSY NO.1	174
1	1	-	2014044-021	POWER CONTROL ASSY	173
—	1	-	2014046-021	A18 INTERCONNECTION ASSY	172
1	1	-	MS35173-274B	CONNECTOR, ADAPTER TEE (MIL-C-3	171
2	2	-	NAS620C6	WASHER, FLAT	170
—	1	-	1004260-258	NAME PLATE	169
—	1	-	2014366-021	SELF TEST ASSY	168
1	1	-	2014045-021	RDC INTERFACE ASSY	167
—	1	-	2014041-021	PROGRAMMER & MONITOR ASSY	166
1	1	-	2014040-021	XY INTERFACE ASSY	165
—	1	-	2014037-021	LOGIC DRAWER NO.2 ASSY	164
—	1	-	2014036-021	LOGIC DRAWER NO.1 ASSY	163
AR	AR	AR	1006458-004	TAPE, LACING	162
~~—~~	~~—~~	~~AR~~	~~MIL-S-22473, GR HV~~	~~SEALING & RETAINING COMPOUND~~	~~161~~
12	12	12	MS51957-45	SCREW, PAN HD	160
2	2	2	2016350-031	SLIDE, BRACKET ASSY	159
2	2	2	2016350-021	SLIDE, BRACKET ASSY	158
2	2	2	2016350-011	SLIDE, BRACKET ASSY	157
1	1	1	MS21919-DG7	CLAMP, LOOP	156
2	2	2	MS21919-DG6	CLAMP, LOOP	155
~~—~~	~~—~~	~~5~~	~~1006872-12~~	~~CLAMP, LOOP~~	~~154~~
15	15	15	1006872-14	CLAMP, LOOP	153
7	7	7	1006872-9	CLAMP, LOOP	152
11	11	11	1006872-11	CLAMP, LOOP	151
2	2	2	2016350-041	SLIDE, BRACKET ASSY	150
8	8	4	1006872-10	CLAMP, LOOP	149
1	1	1	2014115-021	STRAP, GROUND	148
5	5	5	2014458-171	CABLE ASSY, GROUND	147
1	1	1	-151		146
1	1	1	-121		145
1	1	1	-111		144
1	1	1	-081		143
1	1	1	2014458-061		142
1	1	1	2014457-071	CABLE ASSY, GROUND	141
1	1	1	MS21919DG13	CLAMP, LOOP	140
2	2	2	MS21919DG24	CLAMP, LOOP	139
1	1	1	MS21919DG10	CLAMP LOOP	138
~~—~~	~~—~~	~~1~~	~~MS21919DG18~~	~~CLAMP, LOOP~~	~~137~~
5	5	5	MS21919DG14	CLAMP, LOOP	136

LIST OF MATERIALS

2014042 M

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 16 JUNE 65
CHECKED 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

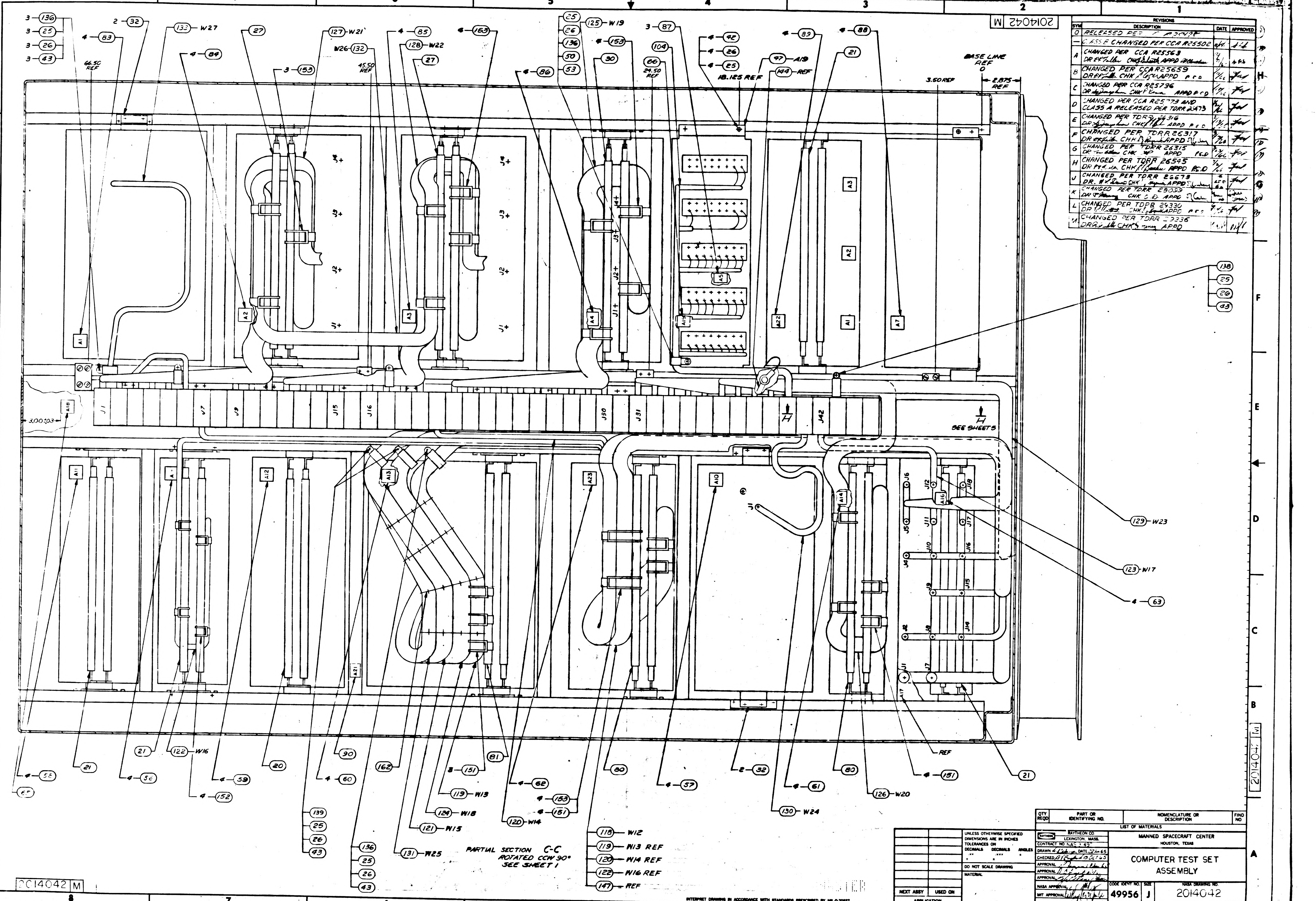
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET ASSEMBLY

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014042

SCALE 1/2 WT SHEET 3 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327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27
127-W21
W26-132
4-85
128-W22
4-163
3-153
45.50 REF
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125-W19
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24.50 REF
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SEE SHEET 5
138
25
26
43
129-W23
123-W17
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131-W25
118-W12
119-W13 REF
120-W14 REF
122-W16 REF
147-REF
PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 1
8
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2014042 M

SYM	DESCRIPTION	DATE	APPROVED
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—	CLASS E CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCAR25659 DR [illegible] CHK [illegible] APPD P.C.D	[illegible]	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK P [illegible] APPD P.C.D	[illegible]	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	[illegible]	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D	[illegible]	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.C.D	[illegible]	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD P.C.D	[illegible]	[illegible]
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
K	CHANGED PER TDRR 28099 DR [illegible] CHK C.D. APPD [illegible]	[illegible]	[illegible]
L	CHANGED PER TDPB 29330 DR [illegible] CHK [illegible] APPD P.C.D	[illegible]	[illegible]
M	CHANGED PER TDRR 29336 DR [illegible] CHK [illegible] APPD	[illegible]	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 22 [illegible] 65
CHECKED [illegible] 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014042
SCALE 1/2	WT	SHEET 4 OF 7

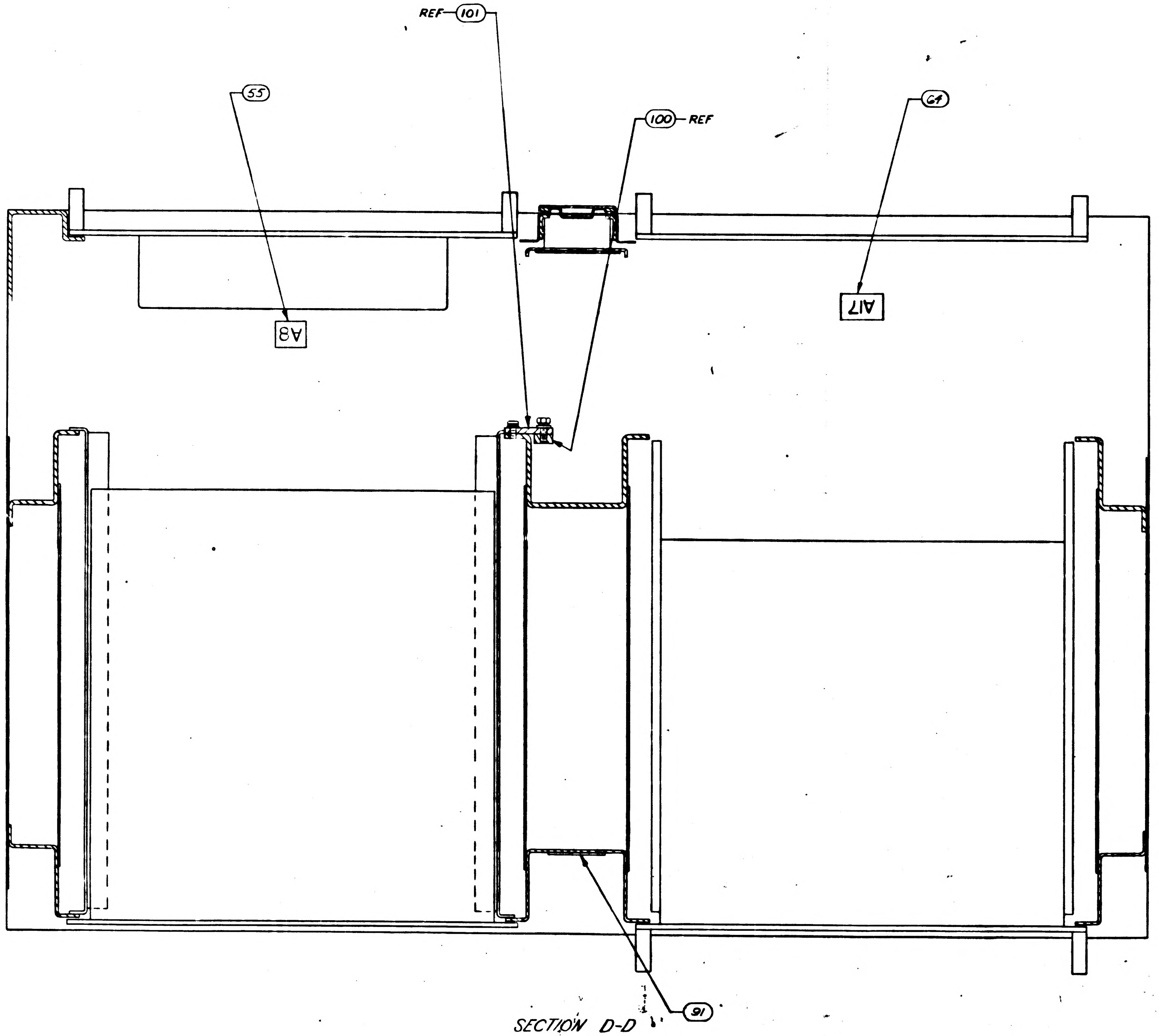
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 M

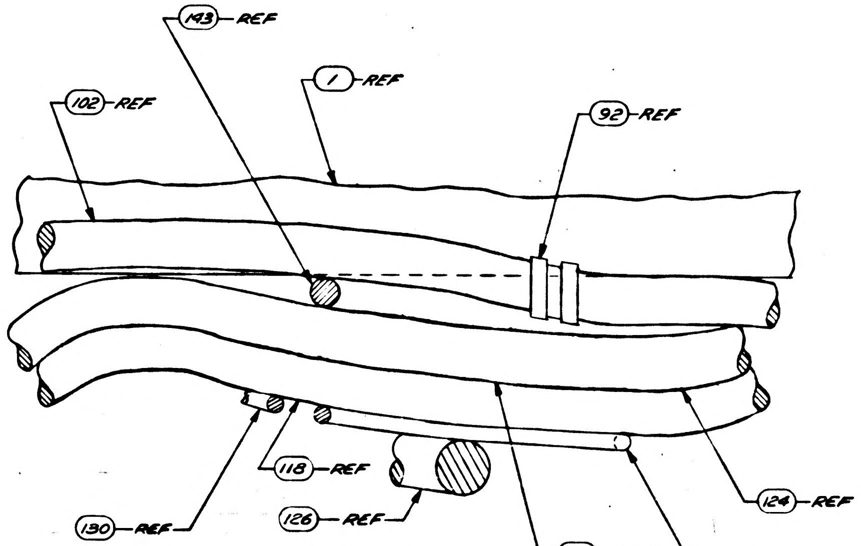
2014042 M

2014042 M

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR E.X. Fuller CHK J. Gilbreath APPD R.P. [illegible]	12/27/65	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.E.D.	1/4/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK P. [illegible] APPD P.E.D.	[illegible]	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR [illegible]	[illegible]	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.E.D.	[illegible]	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible] 66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.E.D.	[illegible]	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD P.E.D.	[illegible]	[illegible]
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	[illegible] 66	[illegible]
K	CHANGED PER TDRR 28039 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
L	CHANGED PER TDRR 29330 DR. C. [illegible] CHK [illegible] APPD P.E.D.	[illegible]/66	[illegible]
M	CHANGED PER TDRR 29336 DR R. [illegible] CHK [illegible] APPD	[illegible]	[illegible]



SECTION D-D
(SEE SHEET 1)



VIEW H-H
SCALE-NONE
SEE SHEET 4

2014042 M

MAST

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN K. [illegible] DATE [illegible]
CHECKED BY [illegible] 13 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

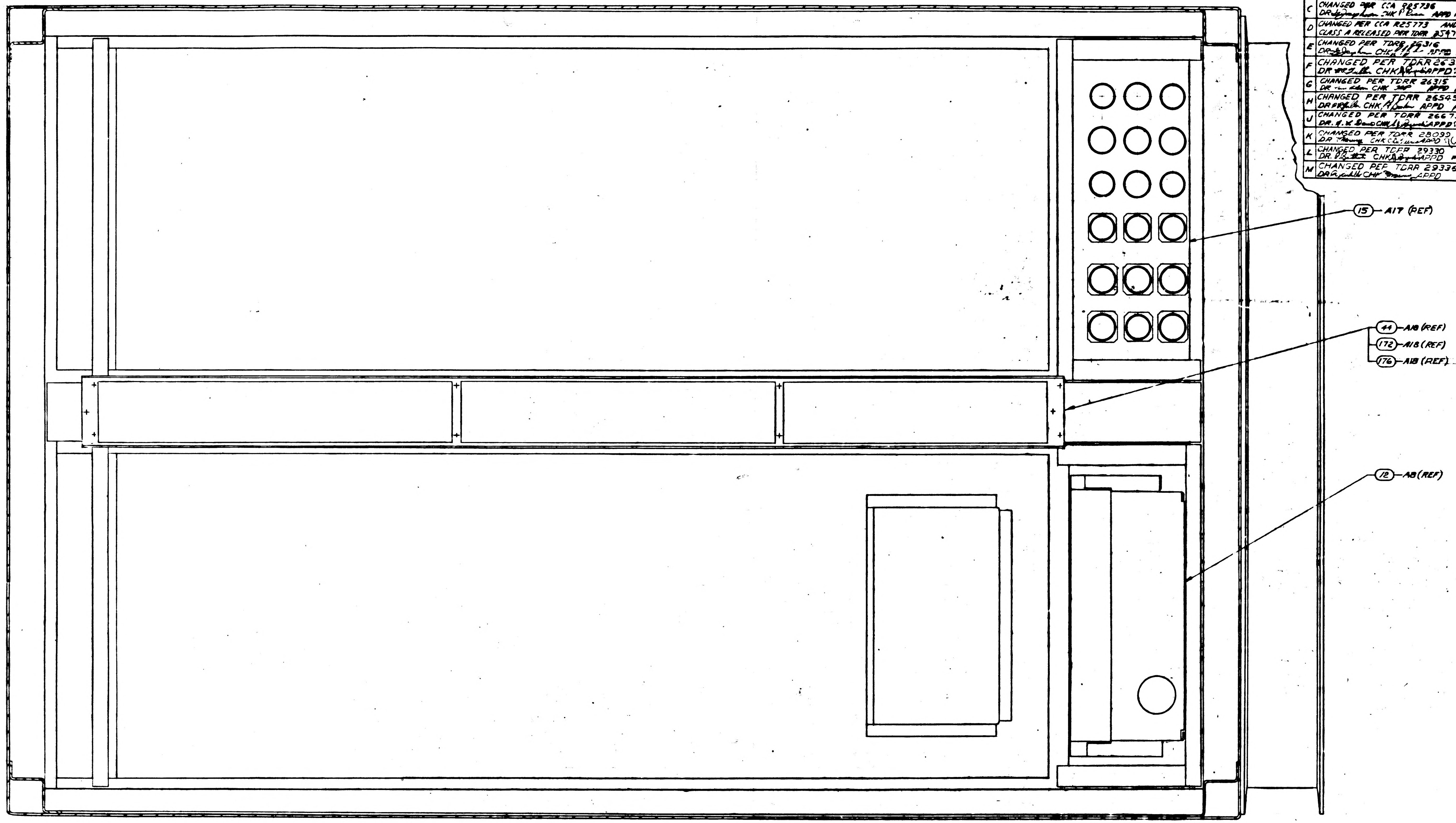
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 5 OF 7

2014042 M

2014042 M

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25563 DR B R Fuller CHK APPD	12/21/65	
B	CHANGED PER CCA R25659 DR CHK APPD PCD	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD PCS	1/[illegible]/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/20/66	
E	CHANGED PER TDRR 26316 DR CHK APPD	[illegible]	
F	CHANGED PER TDRR 26317 DR CHK APPD	[illegible]	
G	CHANGED PER TDRR 26315 DR CHK APPD PED	[illegible]/66	
H	CHANGED PER TDRR 26545 DR CHK APPD PED	4/1/66	
J	CHANGED PER TDRR 26673 DR. CHK APPD	18 APR 66	
K	CHANGED PER TDRR 28099 DR CHK APPD	[illegible]	
L	CHANGED PER TDRR 29330 DR. CHK APPD PCD	7/[illegible]/66	
M	CHANGED PER TDRR 29336 DR CHK APPD	[illegible]/66	



SECTION F-F
ROTATED 90° CCW
(SEE SHEET 1)

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 AUG 65
CHECKED 17 OCT 65
APPROVAL 1 Nov 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C Sully 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO 49956
SIZE J
USA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 6 OF 7

2014042 M

2014042 M

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	[illegible]	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK CAP APPD PED	[illegible]	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD PED	[illegible]	[illegible]
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	APR 66	[illegible]
K	CHANGED PER TDRR [illegible] DR [illegible] CHK C. [illegible] APPD [illegible]	[illegible]	[illegible]
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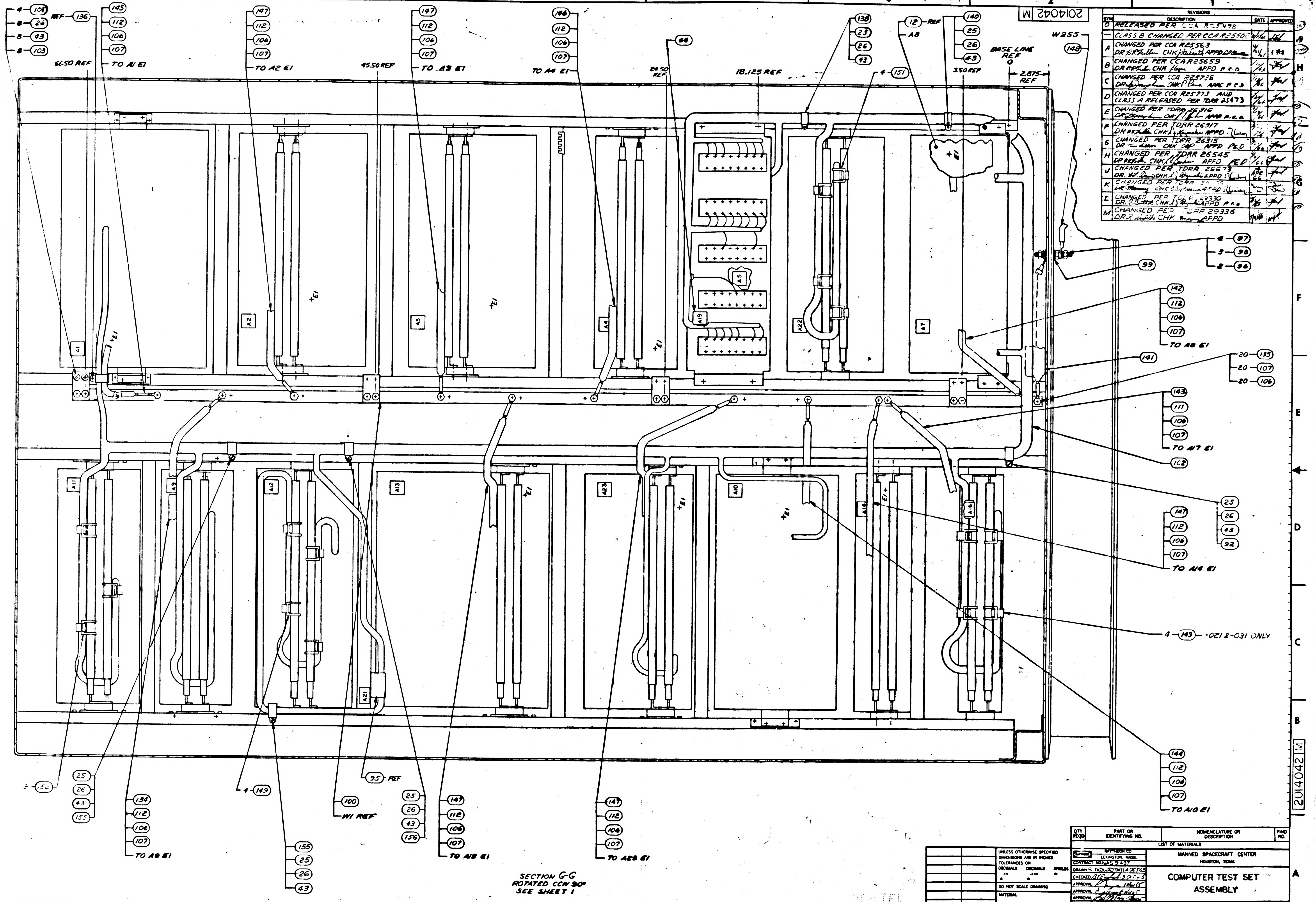
M	CHANGED PER TDRR 29336 DR. [illegible] CHK [illegible] APPD	[illegible]	[illegible]



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147
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TO A18 E1
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TO A23 E1
SECTION G-G
ROTATED CCW 90°
SEE SHEET 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN F. Miller DATE 4 OCT 65
CHECKED [illegible] 9 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

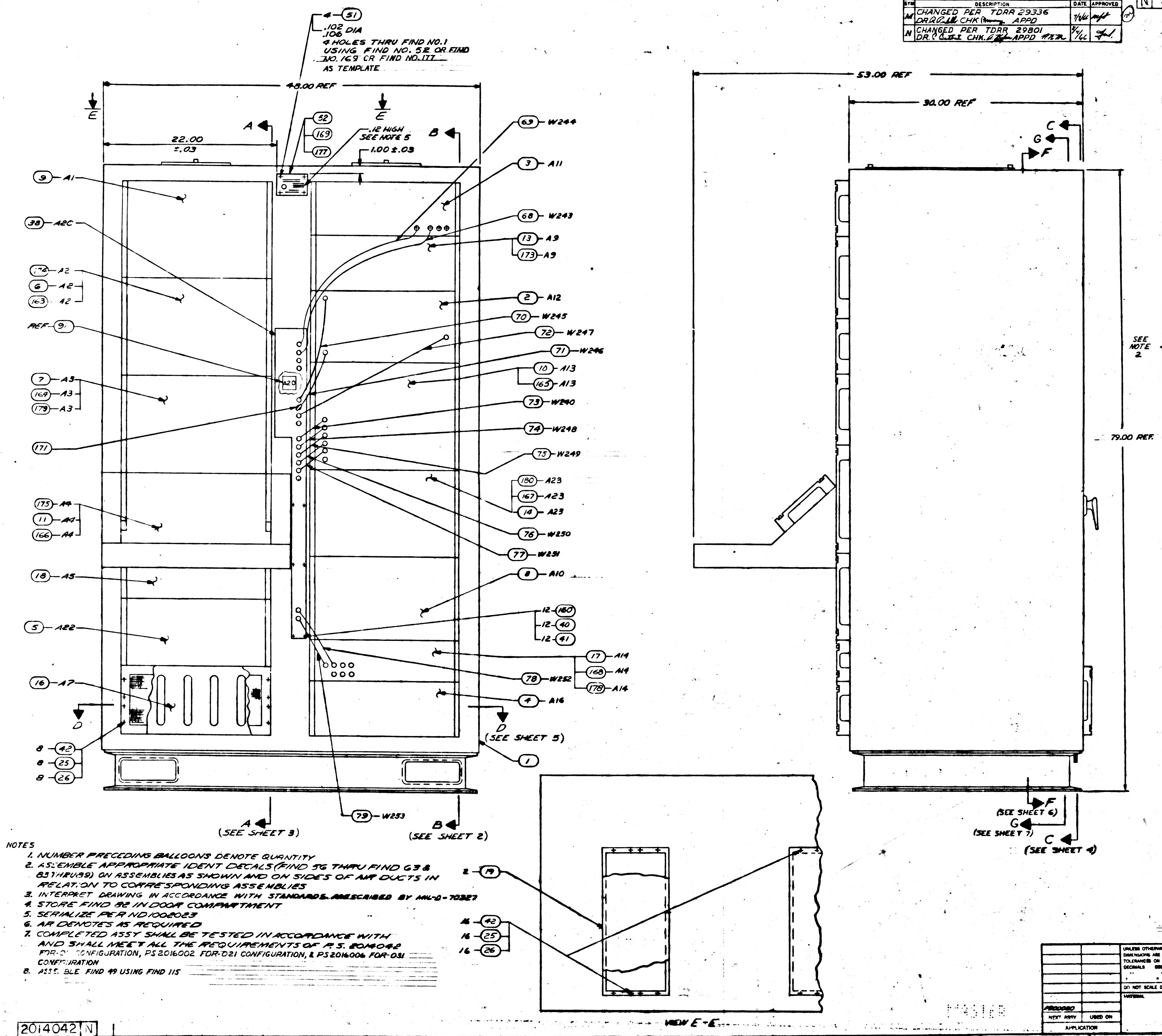
COMPUTER TEST SET
ASSEMBLY

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 7 OF 7

REVISIONS		
SYM	DESCRIPTION	DATE	APPROVED
M	CHANGED PER TDRR 29336 DR CHK APPD	7/8/66	
N	CHANGED PER TDRR 29801 DR. CHK. APPD	8/4/66	

REVISIONS			
SYM	DESCRIPTION	DATE	APP
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD	[illegible]	
B	CHANGED PER CCA R25659 DR CHK APPD	[illegible]	
C	CHANGED PER CCA R25736 DR CHK APPD	[illegible]	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	[illegible]	
E	CHANGED PER TDRR 26316 DR CHK APPD	[illegible]	
F	CHANGED PER TDRR 26317 DR CHK APPD	[illegible]	
G	CHANGED PER TDRR 26315 DR CHK APPD	[illegible]	
H	CHANGED PER TDRR 26545 DR CHK APPD	[illegible]	
J	CHANGED PER TDRR 26673 DR. CHK APPD	[illegible]	
K	CHANGED PER TDRR 28099 DR CHK C. APPD	[illegible]	
L	CHANGED PER TDRR 29330 DR. CHK APPD	6/14/66	

CONTINUED ON SHEET 2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22.00 ±.03
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B
(52)
(169)
(177)
.12 HIGH SEE NOTE 5
1.00 ±.03
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(38)-A2C
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D (SEE SHEET 5)
(1)
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A (SEE SHEET 3)
B (SEE SHEET 2)
53.00 REF
30.00 REF
C
G
F
SEE NOTE 2
79.00 REF
F (SEE SHEET 6)
G (SEE SHEET 7)
C (SEE SHEET 4)
2-(19)
16-(42)
16-(25)
16-(26)
VIEW E-E

NOTES

1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89) ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. STORE FIND 82 IN DOOR COMPARTMENT
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014042 FOR-011 CONFIGURATION, PS 2016002 FOR-021 CONFIGURATION, & PS 2016006 FOR-031 CONFIGURATION
8. ASSEMBLE FIND 49 USING FIND 115

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1	1	2014461-031	CABLE ASSY, W245	70
1	1	1	2014461-021	CABLE ASSY, W244	69
1	1	1	2014461-011	CABLE ASSY, W243	68
1	1	1	2014432	PLATE, BAFFLE, TERM. BD	67
1	1	1	1014480 -19	DECAL, IDENTIFICATION	66
1	1	1	-18		65
1	1	1	-17		64
4	4	4	-16		63
4	4	4	-23		62
4	4	4	-14		61
4	4	4	-13		60
4	4	4	-12		59
4	4	4	-11		58
4	4	4	-10		57
4	4	4	-9		56
1	1	1	1014480-8	DECAL, IDENTIFICATION	55
4	4	4	MS35649-84	NUT, HEX PLAIN	54
1	1	1	MS35649-104	NUT, PLAIN HEX	53
—	—	1	1004260-203	PLATE, IDENTIFICATION	52
4	4	4	AN535-4-3	DRIVE SCREW	51
1	1	1	MS51957-63	SCREW, PAN HD	50
18	18	18	MS51958-67	SCREW, PAN HEAD	49
2	2	2	MS51957-35	SCREW, PAN HEAD	48
1	1	1	2016346-011	TERMINAL BOARD ASSY	47
9	9	9	2014425	PLATE, BAFFLE	46
8	8	8	2014424	PLATE, BAFFLE	45
—	—	1	2014046-011	A18 INTERCONNECTION ASSY	44
94	94	94	MS51958-63	SCREW, PAN HEAD	43
34	34	34	MS51958-64	SCREW, PAN HEAD	42
12	12	12	MS35338-80	WASHER, LOCK	41
12	12	12	MS15795-807	WASHER	40
		~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1	1	1020352	PLATE CONNECTOR ASSY	38
		~~1~~	~~MS21919DG11~~	~~CLAMP, LOOP~~	~~37~~
8	8	8	1014157-2	SLIDE BRACKET ASSY	36
8	8	8	1014157-3	SLIDE BRACKET ASSY	35
16	16	16	MS35650-104	NUT, HEX PLAIN	34
4	4	4	1014301-2	SLIDE, ADAPTER	33
4	4	4	1006878-2	SLIDE, CABINET SECTION	32
4	4	4	1014301-1	SLIDE ADAPTER	31
1	1	1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	27	27	MS35649-64	NUT HEX, PLAIN	29
12	12	12	1014157-4	SLIDE BRACKET ASSY	28
2	2	2	1006939-3	SLIDE WITH CABLE CARRIER	27
208	208	208	MS35338-81	WASHER, LOCK	26
218	218	218	MS15795-808	WASHER, FLAT	25
72	72	72	MS51958-61	SCREW, PAN HEAD	24
88	88	88	MS51959-43	SCREW, FLAT HEAD	23
8	8	8	1014157-1	SLIDE BRACKET ASSY	22
4	4	4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1	1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	2	2	1006918	FILTER, AIR, RFI	19
1	1	1	2014274-011	AUX. OUTLET ASSY 115VAC	18
—	—	1	2014366-011	SELF TEST ASSY	17
1	1	1	1006897	FAN, VENTILATION, RFI SHIELD	16
1	1	1	2014047-011	CONNECTOR INTERFACE ASSY	15
—	—	1	2014045-011	RDC INTERFACE ASSY	14
—	—	1	2014044-011	POWER CONTROL ASSY	13
1	1	1	2014043-011	AC INPUT PANEL ASSY	12
—	—	1	2014041-011	PROGRAMMER & MONITOR ASSY	11
—	—	1	2014040-011	XY INTERFACE ASSY	10
1	1	1	2014039-011	TAPE PUNCH ASSY	9
1	1	1	2014038-011	TAPE READER ASSY	8
—	—	1	2014037-011	LOGIC DRAWER NO.2 ASSY	7
—	—	1	2014036-011	LOGIC DRAWER NO.1 ASSY	6
1	1	1	2014235-011	POWER SUPPLY 10, 13, 28VDC ASSY	5
1	1	1	2014234-011	POWER SUPPLY 3VDC ASSY	4
1	1	1	2014233-011	FREQUENCY COUNTER ASSY	3
1	1	1	2014232-011	OSCILLOSCOPE ASSY	2
1	1	1	1006423-001	CABINET, ELECTRICAL EQUIP	1

LIST OF MATERIALS

1800080	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 4 JUNE 65
CHECKED 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

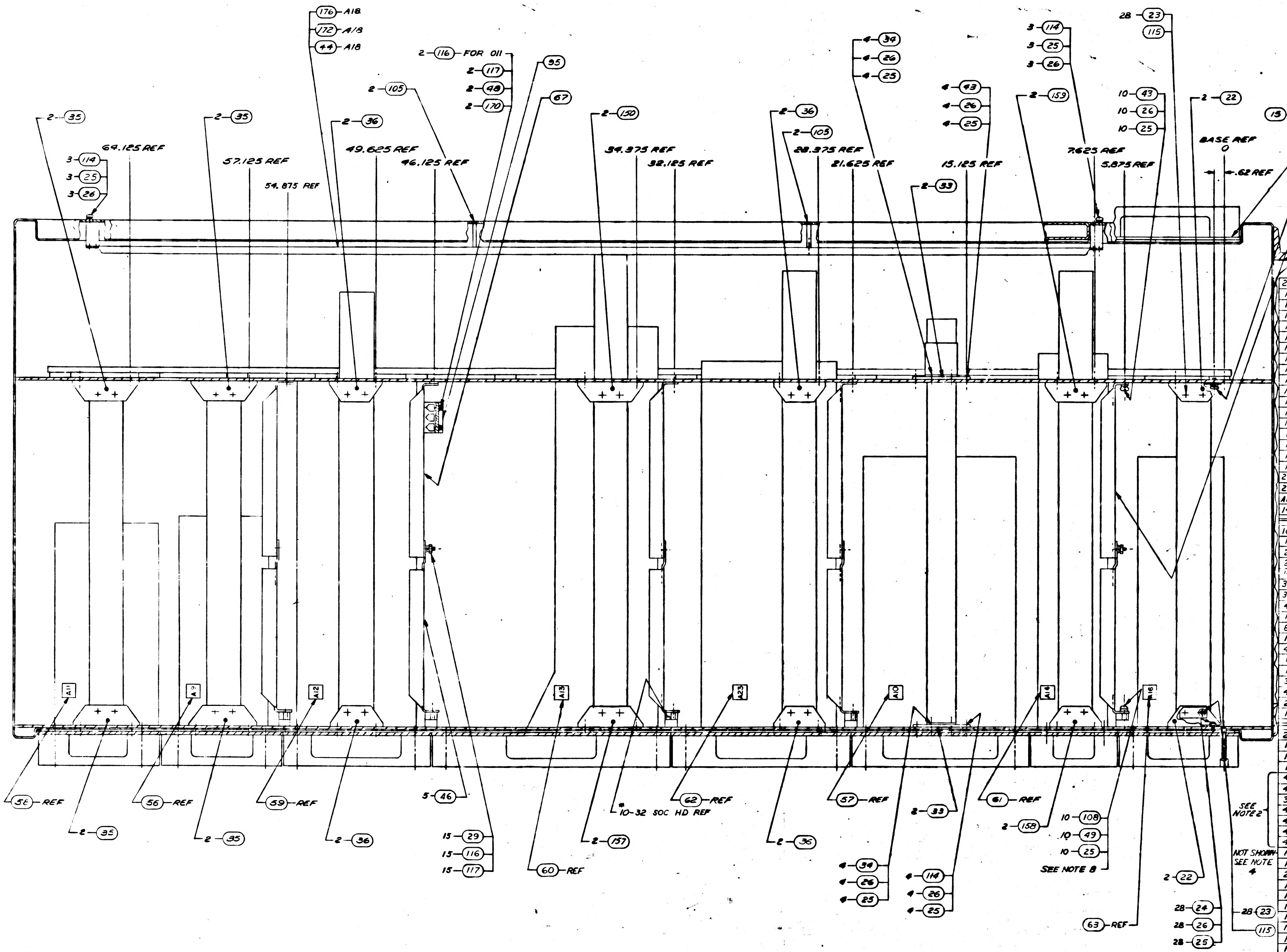
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/4
WT
SHEET 1

2014042 N

2014042 N

SYM	DESCRIPTION	DATE	APP	OVED
O	RELEASED PER CCA R25498			
—	CLASS B CHANGED PER CCA R25502			
A	CHANGED PER CCA R25563 DR CHK APPD	12/27/65		
B	CHANGED PER CCA R25659 DR CHK APPD P.E.D	1/11/66		✓
C	CHANGED PER CCA R25736 DR CHK APPD P.E.D	1/19/66		✓
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	1/29/66		✓
E	CHANGED PER TDRR 26316 DR CHK APPD P.E.D.	3/10/66		✓
F	CHANGED PER TDRR 26317 DR CHK APPD	3/2/66		✓
G	CHANGED PER TDRR 26315 DR Tom Allison CHK APPD PED	3/23/66		✓
H	CHANGED PER TDRR 26545 DR CHK APPD PED	4/2/66		✓
J	CHANGED PER TDRR 26673 DR. W. L. Dove CHK APPD	15 APR 66		✓
K	CHANGED PER TDRR 28099 DR CHK APPD			
L	CHANGED PER TDRR 29330 DR. CHK APPD P.E.D			✓
M	CHANGED PER TDRR 29336 DR CHK APPD			
N	CHANGED PER TDRR 29801 DR. CHK APPD			

CONTINUED ON SHEET 3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SEE NOTE 8
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(115)

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 1)

QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
20	20	20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	1	1	2014458-191	CABLE ASSY, GROUND	134
1	1	1	2014471-011	CABLE ASSY W27	133
1	1	1	2014472-011	CABLE ASSY W26	132
1	1	1	2014473-011	CABLE ASSY W25	131
1	1	1	2014474-011	CABLE ASSY W24	130
1	1	1	2014475-011	CABLE ASSY W23	129
1	1	1	2014476-011	CABLE ASSY W22	128
1	1	1	2014477-011	CABLE ASSY W21	127
1	1	1	2014478-011	CABLE ASSY W20	126
1	1	1	2014479-011	CABLE ASSY W19	125
1	1	1	2014154-011	CABLE ASSY W18	124
1	1	1	2014480-011	CABLE ASSY W17	123
1	1	1	2014194-011	CABLE ASSY W16	122
1	1	1	2014153-011	CABLE ASSY W15	121
1	1	1	2014141-011	CABLE ASSY W14	120
1	1	1	2014155-011	CABLE ASSY W13	119
1	1	1	2014481-011	CABLE ASSY W12	118
29	29	29	MS35338-79	WASHER, LOCK	117
27	27	29	MS15795-806	WASHER, FLAT	116
AR	AR	AR	MIL-S-22473GRHV	SEALING AND RETAINING COMPOUND	115
14	14	14	MS51958-62	SCREW, PAN HD	114
~~—~~	~~—~~	~~6~~	~~MS15795-803~~	~~WASHER, FLAT~~	~~113~~
10	10	10	MS51957-79	SCREW PAN HD	112
1	1	1	MS35690-410	NUT HEX	111
2	2	2	2014421	SUPPORT RAIL	110
2	2	2	2014420	SUPPORT RAIL	109
19	18	18	1006430-097	SPACER	108
31	31	31	MS35338-82	WASHER, LOCK	107
31	31	31	MS15795-810	WASHER, FLAT	106
4	4	4	MS51959-17	SCREW, FLAT HD	105
1	1	1	2014182-011	WIRING HARNESS, DC DIST	104
8	8	8	MS9549-09	WASHER, FLAT	103
1	1	1	2014490-011	WIRING HARNESS, BRANCHED	102
4	4	4	2014403	BLOCK, MOUNTING	101
1	1	1	2014401	BUSS, BAR	100
1	1	1	MS35335-63	WASHER, LOCK, EXTERNAL TOOTH	99
3	3	3	MS35690-610	NUT, PLAIN	98
4	4	4	MS15795-815	WASHER, FLAT	97
2	2	2	MS35338-84	WASHER, LOCK	96
1	1	1	1006859-2	TERMINAL BLOCK	95
~~—~~	~~—~~	~~43~~	~~MS 17821-2-9~~	~~TIE WRAP~~	~~94~~
2	2	2	2014422	COUPLING	93
1	1	1	MS21919DG8	CLAMP, LOOP	92
1	1	1	1014480-20	DECAL, IDENTIFICATION	91
1	1	1	-21		90
4	4	4	-22		89
4	4	4	-7		88
3	3	3	-5		87
4	4	4	-4		86
4	4	4	-3		85
4	4	4	-2		84
4	4	4	1014480-1	DECAL, IDENTIFICATION	83
1	1	1	1014150-1	CABLE, POWER	82
1	1	1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	2	2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	1	1	2014461-121	CABLE ASSY W253	79
1	1	1	-111	W252	78
1	1	1	-091	W251	77
1	1	1	-081	W250	76
1	1	1	-071	W249	75
1	1	1	-061	W248	74
1	1	1	-131	W240	73
1	1	1	-051	W247	72
1	1	1	2014461-041	CABLE ASSY W246	71
-031	-021	-011	LIST OF MATERIALS		

SEE NOTE 2

NOT SHOWN SEE NOTE 4

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 18 Jun 65
CHECKED 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

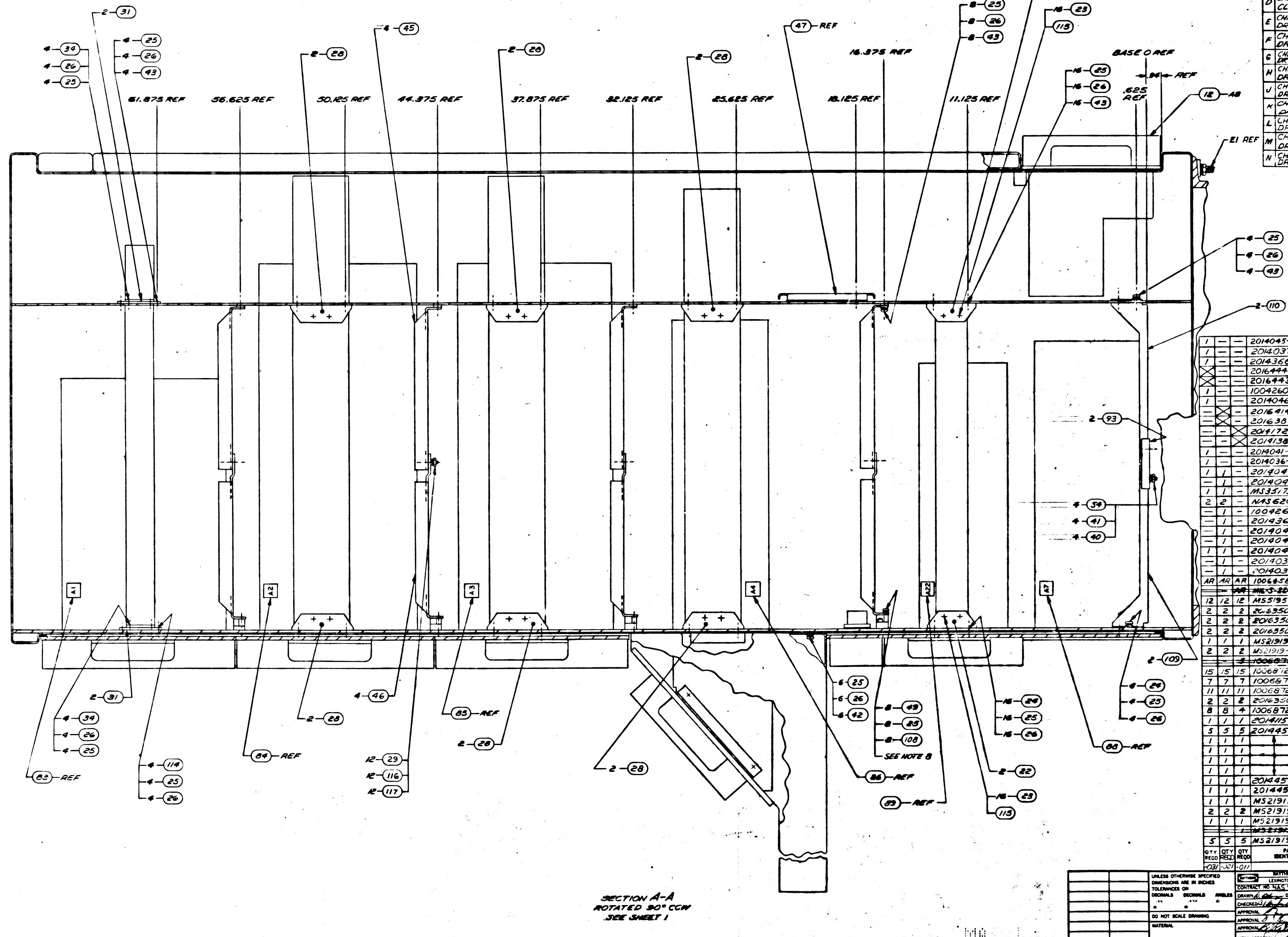
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 2 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014042 N

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25500	12/[illegible]	✓
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	12/21/[illegible]	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.E.O.	[illegible]	✓
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]/66	✓
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	[illegible]/66	✓
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	✓
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	✓
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.E.D.	[illegible]/66	✓
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD P.E.D.	[illegible]/66	✓
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	18 APR 66	✓
K	CHANGED PER TDRR 28099 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
L	CHANGED PER TDRR 29330 DR. [illegible] CHK [illegible] APPD P.C.D.	[illegible]/66	✓
M	CHANGED PER TDRR 29335 DR [illegible] CHK [illegible] APPD	[illegible]/66	✓
N	CHANGED PER TDRR 29801 DR. [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	✓



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SEE NOTE 8
86 REF
89 REF
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16-23
115
88 REF
4-24
4-25
4-26

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

1	—	—	2014045-031	RDC INTERFACE ASSY	180
1	—	—	2014037-031	LOGIC DRAWER NO.2 ASSY	179
1	—	—	2014366-031	SELF TEST ASSY	178
X	—	—	2016444	INTERCONNECTION DIAGRAM	REF
X	—	—	2016443	ELEC. SCHEM. AC & DC PWR DIST	REF
1	—	—	1004260-270	NAME PLATE	177
1	—	—	2014046-031	A18 INTERCONNECTION ASSY	176
—	X	-	2016414	ELEC SCHEM AC & DC PWR DIST	REF
—	X	-	2016387	INTERCONN DIAGRAM	REF
—	-	X	2014172	ELEC SCHEM AC & DC PWR DIST	REF
—	-	X	2014138	INTERCONN DIAGRAM	REF
1	—	—	2014041-031	PROGRAMMER & MONITOR ASSY	175
1	—	—	2014036-031	LOGIC DRAWER ASSY NO.1	174
1	1	-	2014044-021	POWER CONTROL ASSY	173
—	1	-	2014096-021	A18 INTERCONNECTION ASSY	172
1	1	-	MS35173-274B	CONNECTOR, ADAPTER TEE (MALE)	171
2	2	-	NAS620C6	WASHER, FLAT	170
—	1	-	1004260-258	NAME PLATE	169
—	1	-	2014366-021	SELF TEST ASSY	168
—	1	-	2014045-021	RDC INTERFACE ASSY	167
—	1	-	2014041-021	PROGRAMMER & MONITOR ASSY	166
1	1	-	2014040-021	XY INTERFACE ASSY	165
—	1	-	2014037-021	LOGIC DRAWER NO.2 ASSY	164
—	1	-	2014036-021	LOGIC DRAWER NO.1 ASSY	163
AR	AR	AR	1006458-004	TAPE, LACING	162
~~—~~	~~—~~	~~AR~~	~~MIL-S-22473, GR HV~~	~~SEALING & RETAINING COMPOUND~~	~~161~~
12	12	12	MS51957-45	SCREW, PAN HD	160
2	2	2	2016350-031	SLIDE, BRACKET ASSY	159
2	2	2	2016350-021	SLIDE, BRACKET ASSY	158
2	2	2	2016350-011	SLIDE, BRACKET ASSY	157
1	1	1	MS21919-DG7	CLAMP, LOOP	156
2	2	2	MS21919-DG6	CLAMP, LOOP	155
~~—~~	~~—~~	~~5~~	~~1006872-12~~	~~CLAMP, LOOP~~	~~154~~
15	15	15	1006872-14	CLAMP, LOOP	153
7	7	7	1006872-9	CLAMP, LOOP	152
11	11	11	1006872-11	CLAMP, LOOP	151
2	2	2	2016350-041	SLIDE, BRACKET ASSY	150
8	8	4	1006872-10	CLAMP, LOOP	149
1	1	1	2014115-021	STRAP, GROUND	148
5	5	5	2014458-171	CABLE ASSY, GROUND	147
1	1	1	-151		146
1	1	1	-121		145
1	1	1	-111		144
1	1	1	-081		143
1	1	1	2014458-061		142
1	1	1	2014457-071	CABLE ASSY, GROUND	141
1	1	1	MS21919DG13	CLAMP, LOOP	140
2	2	2	MS21919DG24	CLAMP, LOOP	139
1	1	1	MS21919DG10	CLAMP LOOP	138
~~—~~	~~—~~	~~1~~	~~MS21919DG18~~	~~CLAMP, LOOP~~	~~137~~
5	5	5	MS21919DG14	CLAMP, LOOP	136
QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-031	-021	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

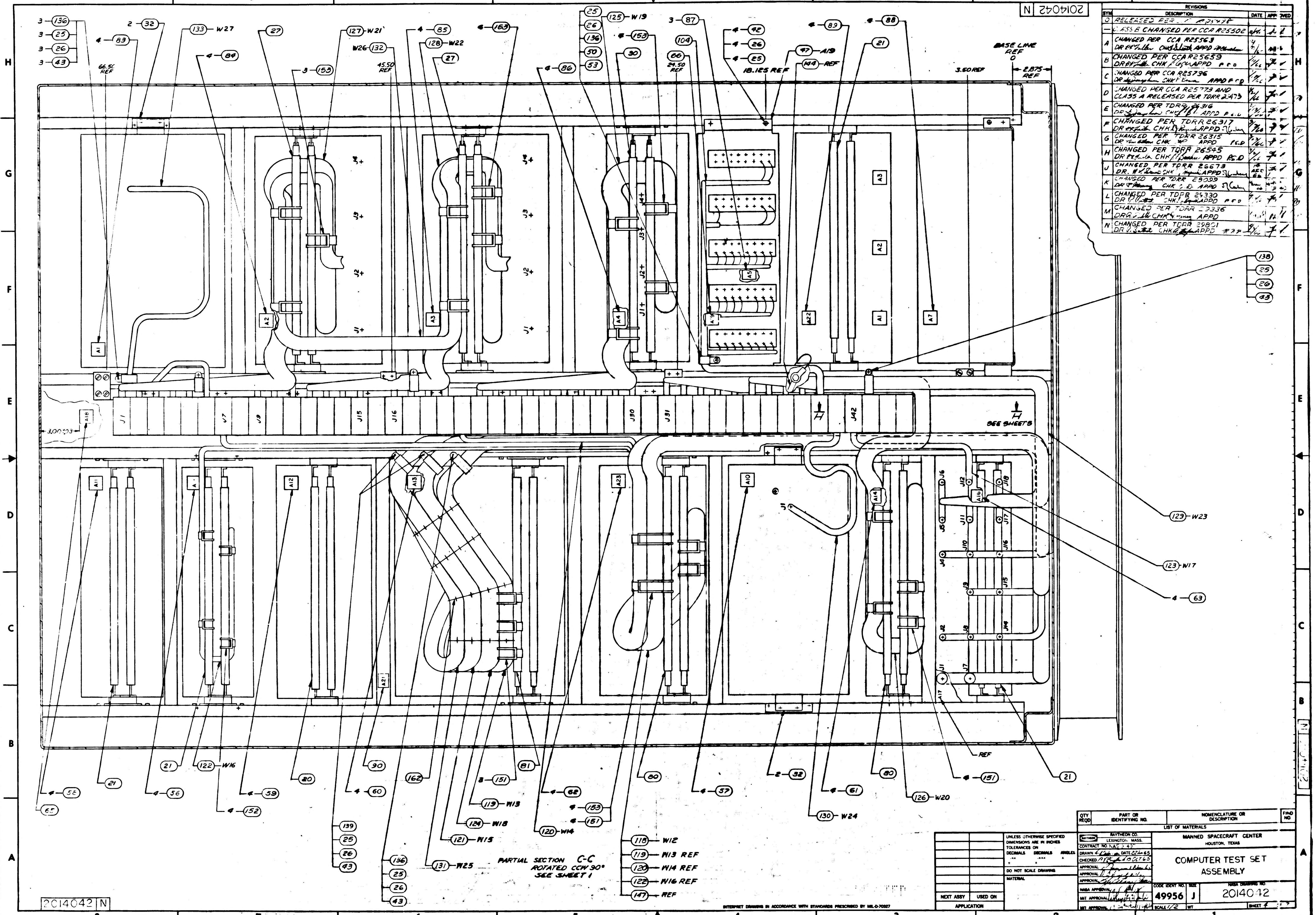
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9 497
DRAWN [illegible] DATE 16 June 65
CHECKED [illegible] 13 OCT 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET ASSEMBLY

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2 WT
SHEET 3 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327



2014042 N
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D
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3 — 136
3 — 25
3 — 26
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4 — 83
2 — 32
133 — W27
4 — 84
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3 — 153
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W26 — 132
45.50 REF
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66.50 REF
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125 — W19
4 — 153
30
3 — 87
104
66
24.50 REF
4 — 92
4 — 26
4 — 25
47 — A19
144 — REF
18.125 REF
4 — 89
21
4 — 88
3.60 REF
BASE LINE REF 0
2.875 REF
A1
A2
A3
A4
A5
A6
A7
A22
A1
A2
A3
J1
J2
J3
J4
J1
J7
J9
J15
J16
J30
J31
J42
H
H
SEE SHEET 5
A18
3.00 ±.03
138
25
26
43
A11
A12
A13
A21
A23
A10
A14
A16
J1
J2
J5
J6
J7
J8
J9
J10
J11
J12
J14
J15
J16
J17
J18
J4
J17
129 — W23
123 — W17
4 — 63
REF
21
4 — 58
65
21
4 — 56
122 — W16
4 — 152
4 — 59
20
4 — 60
90
162
139
25
26
43
136
25
26
43
131 — W25
3 — 151
81
119 — W13
124 — W18
121 — W15
4 — 62
4 — 153
4 — 151
120 — W14
118 — W12
119 — W13 REF
120 — W14 REF
122 — W16 REF
147 — REF
80
4 — 57
2 — 32
4 — 61
130 — W24
80
126 — W20
4 — 151
21
PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 1
2014042 N

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER ... R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	4/ /66	
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.C.D	1/11/66	✓
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D	1/ /66	✓
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473		✓
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D	2/ /66	✓
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	3/ /66	✓
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.C.D	3/ /66	✓
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD P.C.D	4/2/66	✓
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	14 APR 66	✓
K	CHANGED PER TDRR 28099 DR [illegible] CHK C.D. APPD [illegible]		
L	CHANGED PER TDRR 29330 DR [illegible] CHK [illegible] APPD P.C.D		✓
M	CHANGED PER TDRR 29336 DR [illegible] CHK [illegible] APPD		
N	CHANGED PER TDRR 29801 DR [illegible] CHK [illegible] APPD [illegible]	9/ /66	✓

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 22 Jun 65
CHECKED [illegible] 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

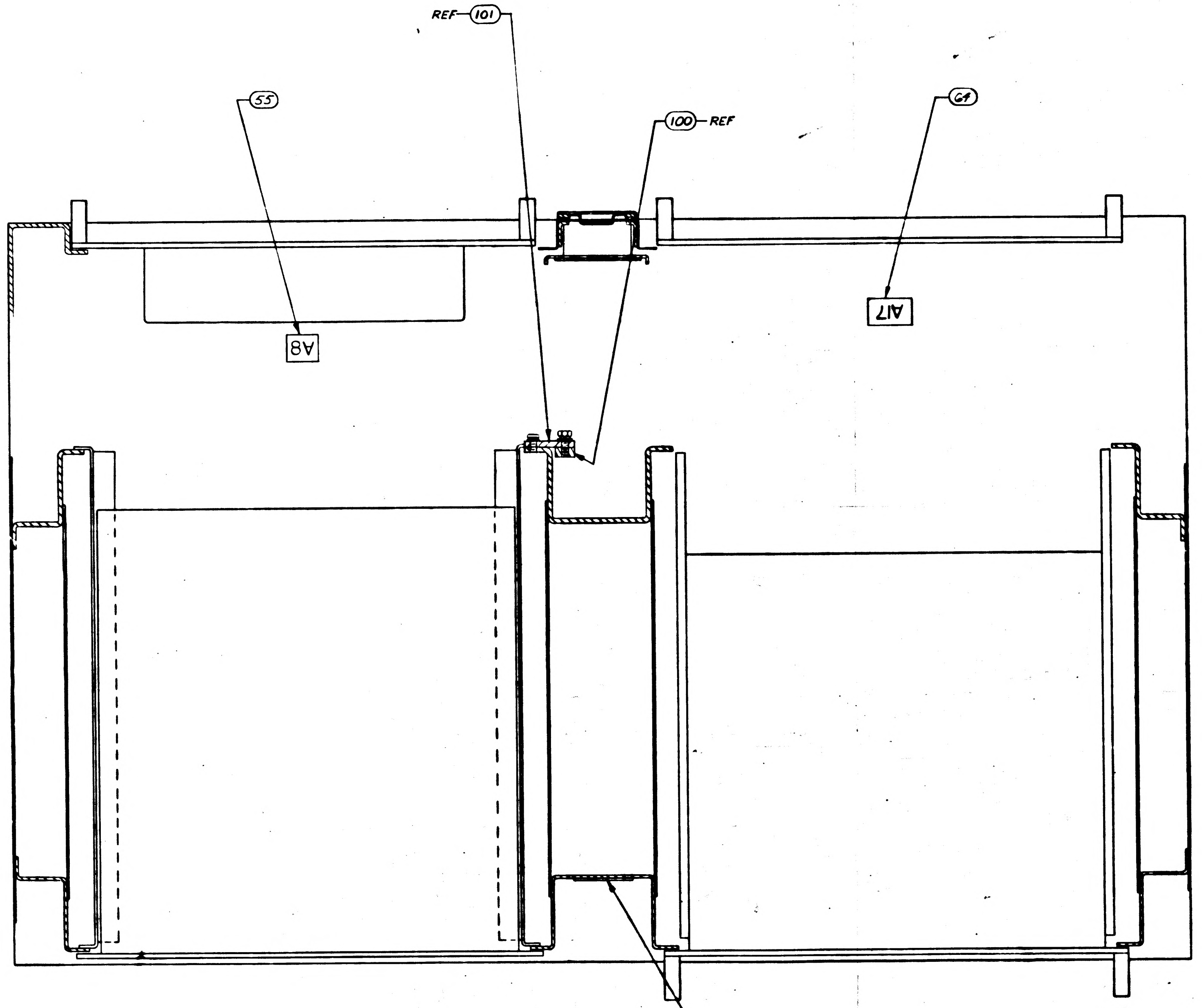
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 4

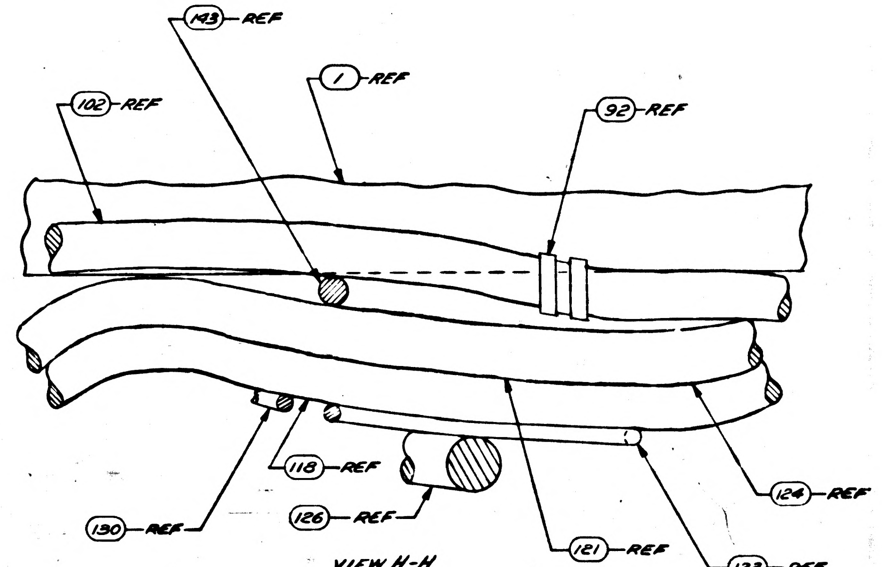
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 N

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCF R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25563 DR E.X. Fuller CHK [illegible] APPD R.P. [illegible]	[illegible]	
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.E.D.	1/4/66	✓
C	CHANGED PER CCA R25736 DR [illegible] CHK P[illegible] APPD P.C.D.	[illegible]	✓
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR [illegible]	[illegible]/66	✓
E	CHANGED PER TDRR 263.6 DR [illegible] CHK [illegible] APPD P.E.D.	[illegible]/66	✓
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	✓
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.E.D.	[illegible]	✓
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD PED	[illegible]	✓
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	[illegible] 66	✓
K	CHANGED PER TDRR 28099 DR [illegible] CHK C. [illegible] APPD [illegible]	[illegible]	
L	CHANGED PER TDRR 29330 DR. C. [illegible] CHK [illegible] APPD P.E.D.	[illegible]/66	
M	CHANGED PER TDRR 29336 DR R. [illegible] CHK [illegible] APPD	[illegible]	
N	CHANGED PER TDRR 29801 DR C. [illegible] CHK G. [illegible] APPD R.P.[illegible]	[illegible]/66	



SECTION D-D
(SEE SHEET 1)



VIEW H-H
SCALE-NONE
SEE SHEET 4

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN K. [illegible] DATE [illegible]
CHECKED [illegible] 19 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/24/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET ASSEMBLY

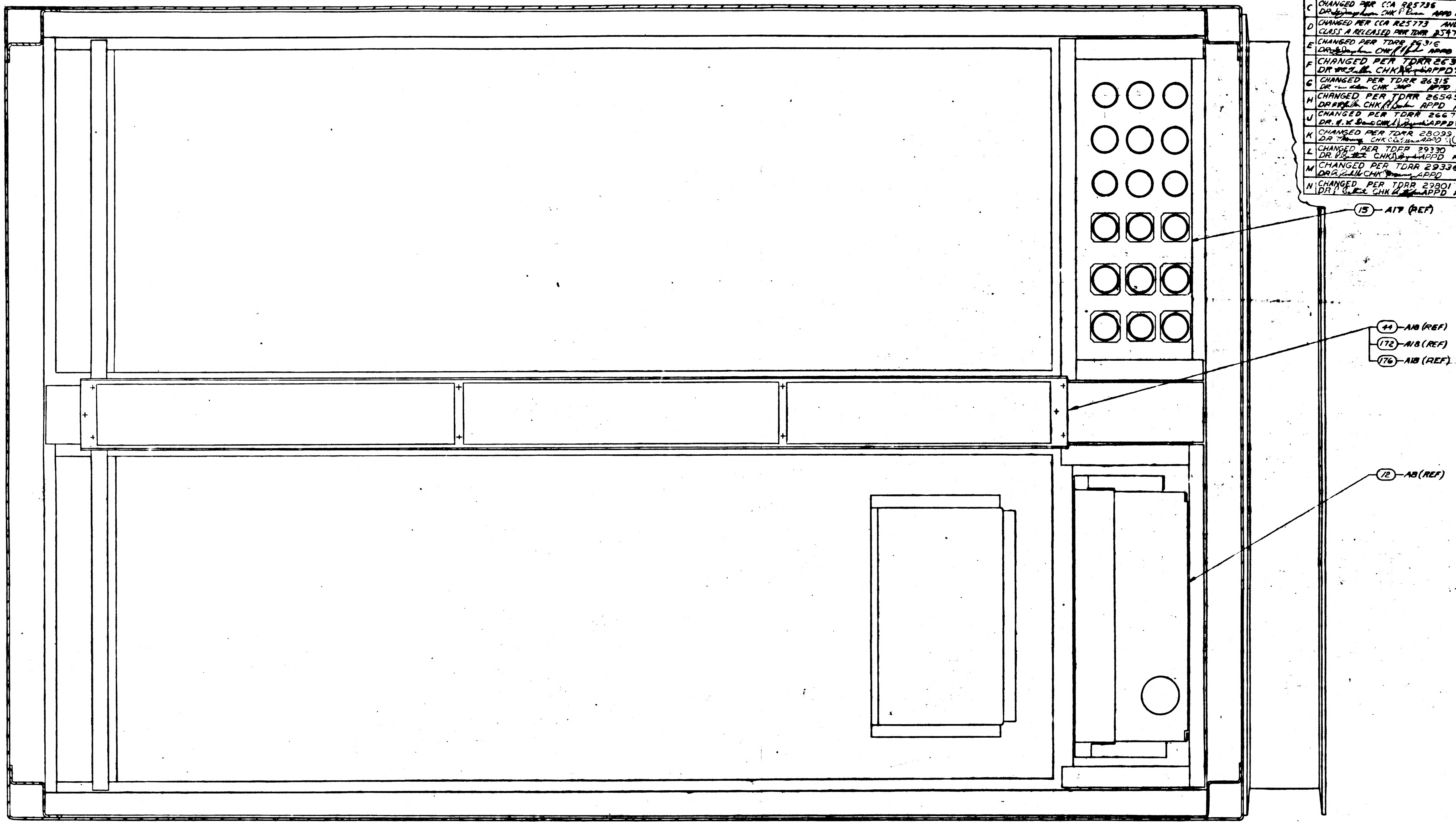
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 5 of 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 N

2014042 N

REVISIONS				
SYM	DESCRIPTION	DATE		APPROVED
O	RELEASED PER CCA R25498			
—	CLASS B CHANGED PER CCA R25508	[illegible]		
A	CHANGED PER CCA R25563 DR B R Fuller CHK [illegible] APPD [illegible]	[illegible]/27/65		
B	CHANGED PER CCA R25659 DR B R Fuller CHK [illegible] APPD P C D	[illegible]		
C	CHANGED PER CCA R25736 DR [illegible] CHK P [illegible] APPD P C D	[illegible]/66		
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	[illegible]/66		
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]		
F	CHANGED PER TDRR 26317 DR B R Fuller CHK [illegible] APPD [illegible]	[illegible]		
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD PED	[illegible]		
H	CHANGED PER TDRR 26545 DR B R Fuller CHK [illegible] APPD PED	4/[illegible]/66		
J	CHANGED PER TDRR 26673 DR. A. L. Davis CHK [illegible] APPD [illegible]	[illegible]		
K	CHANGED PER TDRR 28099 DR [illegible] CHK C. [illegible] APPD [illegible]	[illegible]		
L	CHANGED PER TDFP 29330 DR. [illegible] CHK [illegible] APPD P C D	[illegible]/66		
M	CHANGED PER TDRR 29336 DR [illegible] CHK [illegible] APPD	[illegible]/66		
N	CHANGED PER TDRR 29801 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66		



SECTION F-F
ROTATED 90° CCW
(SEE SHEET 1)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX .XXX
± ± ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN J. J. [illegible] DATE 12 AUG 65
CHECKED BY [illegible] 17 OCT 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C [illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

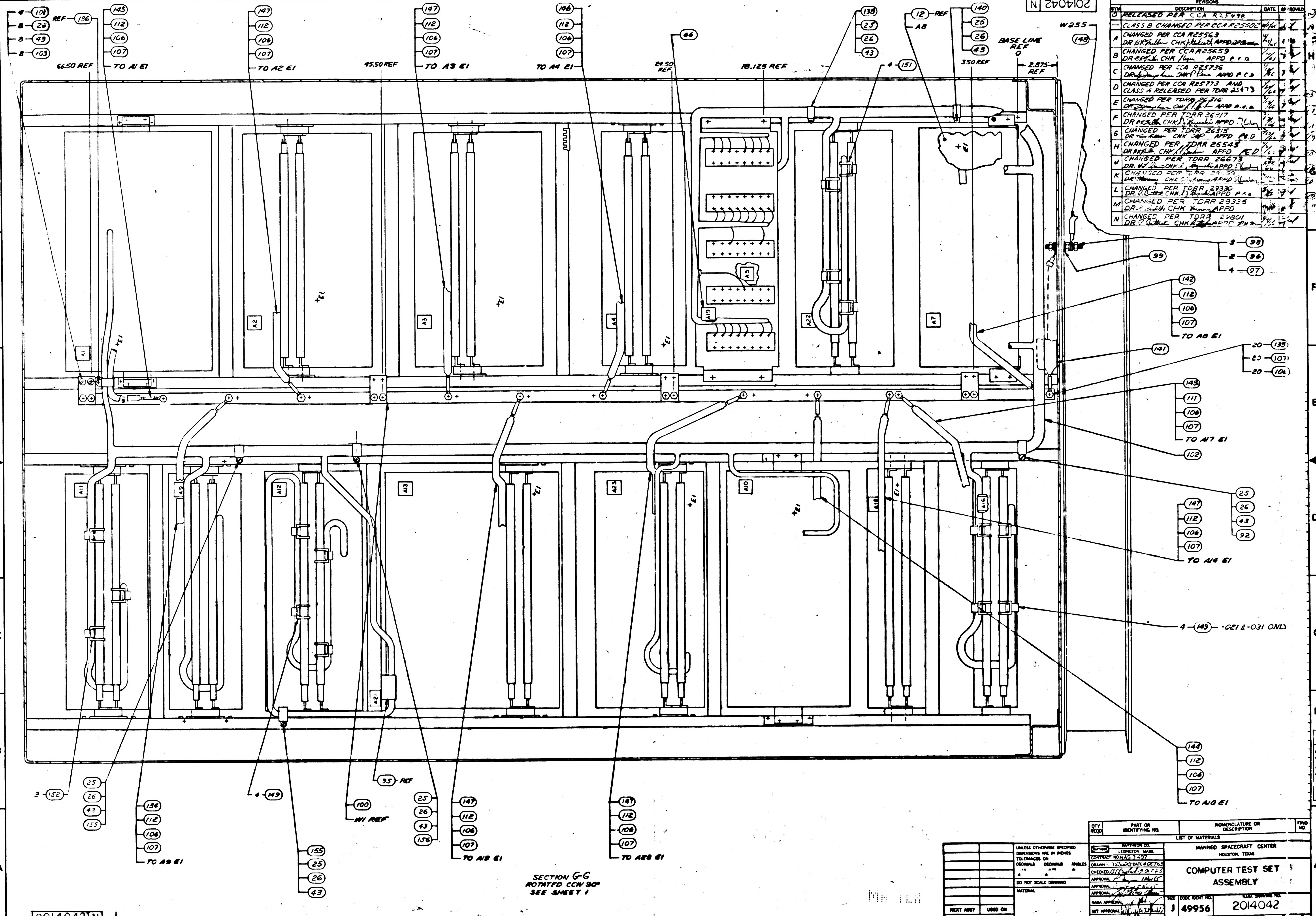
CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014042
SCALE 1/2
WT
SHEET 6 of 7

2014042 N

2014042 N

MASTER

2014042 N


4—(101)
8—(20)
8—(93)
8—(103)
REF—(136)
(145) (112) (106) (107) TO A1 E1
66.50 REF
(147) (112) (106) (107) TO A2 E1
45.50 REF
(147) (112) (106) (107) TO A3 E1
(146) (112) (106) (107) TO A4 E1
24.50 REF
(66)
18.125 REF
(138) (25) (26) (43)
4—(151)
(12)—REF
A8
(140) (25) (26) (43)
3.50 REF
BASE LINE REF 0
2.875 REF
W255
(148)
3—(98)
2—(96)
4—(97)
(99)
(142) (112) (106) (107) TO A8 E1
(141)
20—(135)
20—(107)
20—(106)
(143) (111) (106) (107) TO A17 E1
(102)
(25) (26) (43) (92)
(147) (112) (106) (107) TO A14 E1
4—(149) -021 & -031 ONLY
(144) (112) (106) (107) TO A10 E1
3—(152)
(25) (26) (43) (155)
(134) (112) (106) (107) TO A9 E1
4—(149)
(155) (25) (26) (43)
(100) W1 REF
(95) REF
(25) (26) (43) (156)
(147) (112) (106) (107) TO A18 E1
(147) (112) (106) (107) TO A23 E1
A1
A2
A3
A4
A5
A19
A22
A7
A11
A9
A12
A21
A13
A23
A10
A15
A16
E1

SECTION G-G
ROTATED CCW 90°
SEE SHEET 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD		
B	CHANGED PER CCA R25659 DR CHK APPD P.C.D.		
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D.		
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473		
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D.		
F	CHANGED PER TDRR 26317 DR CHK APPD		
G	CHANGED PER TDRR 26315 DR CHK APPD PED		
H	CHANGED PER TDRR 26545 DR CHK APPD PED		
J	CHANGED PER TDRR 26673 DR. CHK APPD	4 APR 66	
K	CHANGED PER TDRR 29099 DR CHK APPD		
L	CHANGED PER TDRR 29330 DR. CHK APPD P.C.D.		
M	CHANGED PER TDRR 29336 DR. CHK APPD		
N	CHANGED PER TDRR 29801 DR CHK APPD		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 4 OCT 65
CHECKED 9 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014042

SCALE 1/2 WT SHEET OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

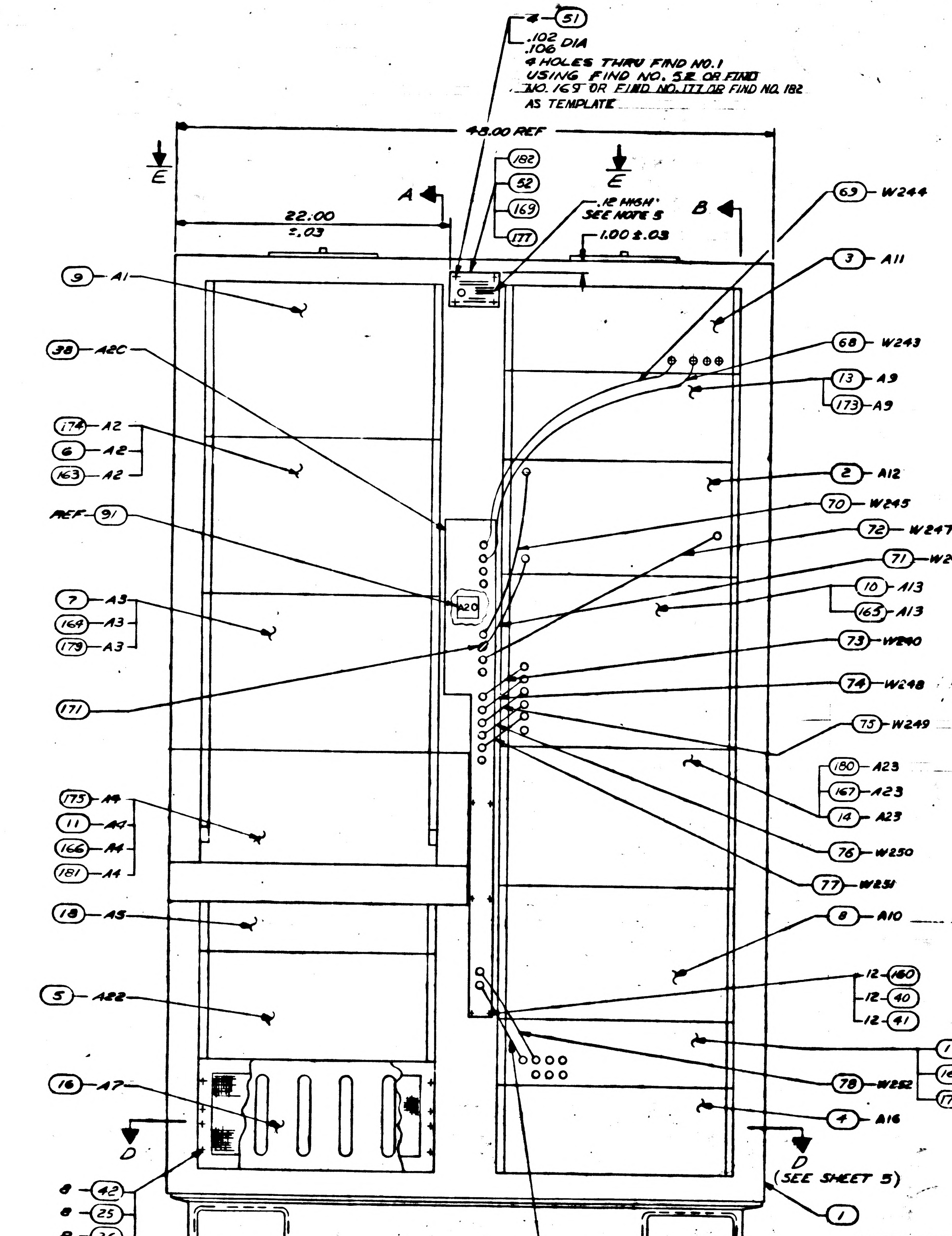
2014042 N

SYM	DESCRIPTION	DATE	APPROVED
M	CHANGED PER TDRR 29336 DR CHK APPD	7/14/66	
N	CHANGED PER TDRR 29801 DR. CHK. APPD	8/4/66	
P	CHANGED PER TDRR 30172 DR CHK APPD K.F.B.	8/14/66	

2014042 P

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25556		
A	CHANGED PER CCA R25563 DR CHK APPD	12/23/65	
B	CHANGED PER CCA R25659 DR CHK APPD P.C.D.	1/24/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D.	1/19/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25913	2/1/66	
E	CHANGED PER TDRR 25316 DR CHK APPD P.C.D.	3/1/66	
F	CHANGED PER TDRR 26317 DR CHK APPD	3/1/66	
G	CHANGED PER TDRR 26315 DR CHK APPD PED	3/23/66	
H	CHANGED PER TDRR 25545 DR CHK APPD PED	4/2/66	
J	CHANGED PER TDRR 26673 DR. CHK APPD	15 APR 66	
K	CHANGED PER TDRR 28099 DR CHK C. APPD		
L	CHANGED PER TDRR 29330 DR. CHK APPD P.C.D.	6/4/66	

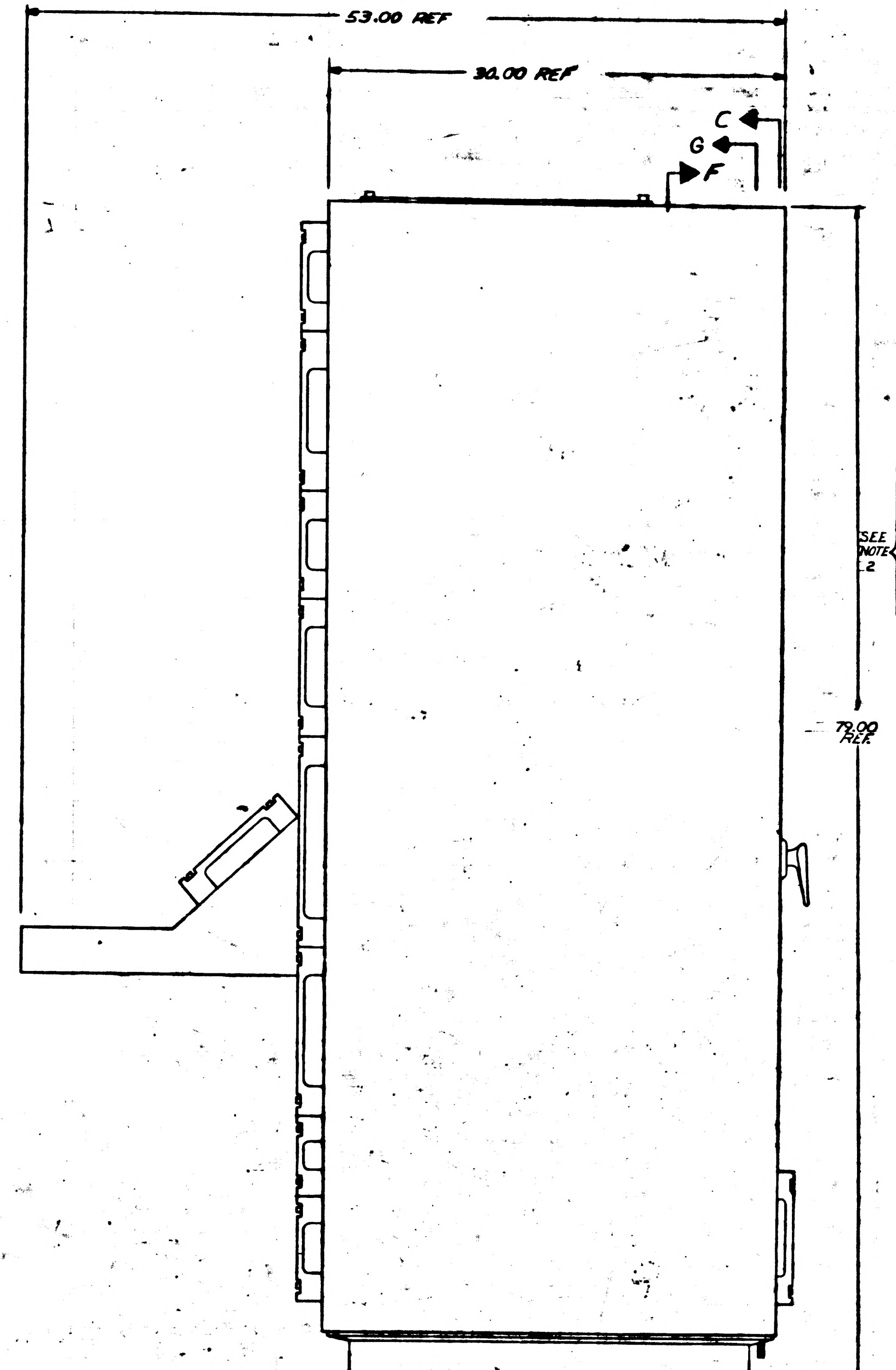
CONTINUED UN SHEET 2


4-(51)
.102 DIA
.106
4 HOLES THRU FIND NO.1
USING FIND NO. 52 OR FIND
NO. 169 OR FIND NO. 177 OR FIND NO. 182
AS TEMPLATE
48.00 REF
E
22.00
±.03
A
(182)
(52)
(169)
(177)
E
.12 HIGH
SEE NOTE 5
1.00±.03
B
(69)-W244
(3)-A11
(9)-A1
(38)-A2C
(68)-W243
(13)-A9
(173)-A9
(174)-A2
(6)-A2
(163)-A2
(2)-A12
(70)-W245
REF-(91)
A20
(72)-W247
(71)-W246
(10)-A13
(165)-A13
(7)-A3
(169)-A3
(179)-A3
(73)-W240
(171)
(74)-W248
(75)-W249
(180)-A23
(167)-A23
(14)-A23
(175)-A4
(11)-A4
(166)-A4
(181)-A4
(76)-W250
(77)-W251
(18)-A5
(8)-A10
12-(160)
12-(40)
12-(41)
(5)-A22
(17)-A14
(168)-A14
(178)-A14
(16)-A7
(78)-W252
(4)-A16
D
D
(SEE SHEET 5)
8-(42)
8-(25)
8-(26)
(1)

A (SEE SHEET 3)

(79)-W253

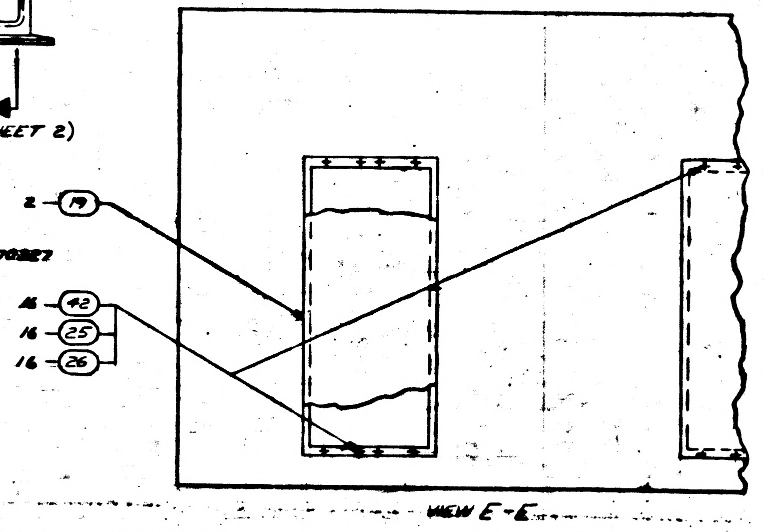
B (SEE SHEET 2)


53.00 REF
30.00 REF
C
G
F
79.00 REF

(SEE SHEET 6) F

G (SEE SHEET 7)

C (SEE SHEET 4)


2-(19)
16-(42)
16-(25)
16-(26)

VIEW E-E

NOTES

1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89) ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH ~~STANDARDS PRESCRIBED~~ BY MIL-D-70327
4. STORE FIND 82 IN DOOR COMPARTMENT
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014042 FOR-011 CONFIGURATION, PS 2016002 FOR-021 CONFIGURATION, & PS 2016006 FOR-031 OR-041 CONFIGURATION
8. ASSEMBLE FIND 49 USING FIND 115

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1	1	1	2014461-031	CABLE ASSY, W245	70
1	1	1	1	2014461-021	CABLE ASSY, W244	69
1	1	1	1	2014461-011	CABLE ASSY, W243	68
1	1	1	1	2014432	PLATE, BAFFLE, TERM. BD	67
1	1	1	1	1014480 -19	DECAL, IDENTIFICATION	66
1	1	1	1	-18		65
1	1	1	1	-17		64
4	4	4	4	-16		63
4	4	4	4	-23		62
4	4	4	4	-14		61
4	4	4	4	-13		60
4	4	4	4	-12		59
4	4	4	4	-11		58
4	4	4	4	-10		57
4	4	4	4	-9		56
1	1	1	1	1014480-8	DECAL, IDENTIFICATION	55
4	4	4	4	MS35649-84	NUT, HEX PLAIN	54
1	1	1	1	MS35649-104	NUT, PLAIN HEX	53
—	—	—	1	1004260-203	PLATE, IDENTIFICATION	52
4	4	4	4	AN535-4-3	DRIVE SCREW	51
1	1	1	1	MS51957-63	SCREW, PAN HD	50
18	18	18	18	MS51958-67	SCREW, PAN HEAD	49
2	2	2	2	MS51957-35	SCREW, PAN HEAD	48
1	1	1	1	2016346-011	TERMINAL BOARD ASSY	47
9	9	9	9	2014425	PLATE, BAFFLE	46
8	8	8	8	2014424	PLATE, BAFFLE	45
—	—	—	1	2014046-011	A18 INTERCONNECTION ASSY	44
94	94	94	94	MS51958-63	SCREW, PAN HEAD	43
34	34	34	34	MS51958-64	SCREW, PAN HEAD	42
12	12	12	12	MS35338-80	WASHER, LOCK	41
12	12	12	12	MS15795-807	WASHER	40
			~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1	1	1	1020352	PLATE CONNECTOR ASSY	38
			~~1~~	~~MS21919DG11~~	~~CLAMP, LOOP~~	~~37~~
8	8	8	8	1014157-2	SLIDE BRACKET ASSY	36
8	8	8	8	1014157-3	SLIDE BRACKET ASSY	35
16	16	16	16	MS35650-104	NUT, HEX PLAIN	34
4	4	4	4	1014301-2	SLIDE, ADAPTER	33
4	4	4	4	1001878-2	SLIDE, CABINET SECTION	32
4	4	4	4	1014301-1	SLIDE ADAPTER	31
1	1	1	1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	27	27	27	MS35649-64	NUT HEX, PLAIN	29
12	12	12	12	1014157-4	SLIDE BRACKET ASSY	28
2	2	2	2	1006938-3	SLIDE WITH CABLE CARRIER	27
208	208	208	208	MS35338-81	WASHER, LOCK	26
218	218	218	218	MS15795-808	WASHER, FLAT	25
72	72	72	72	MS51958-61	SCREW, PAN HEAD	24
88	88	88	88	MS51959-43	SCREW, FLAT HEAD	23
8	8	8	8	1014157-1	SLIDE BRACKET ASSY	22
4	4	4	4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1	1	1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	2	2	2	1006918	FILTER, AIR, RFI	19
1	1	1	1	2014274-011	AUX. OUTLET ASSY 115VAC	18
—	—	—	1	2014366-011	SELF TEST ASSY	17
1	1	1	1	1006897	FAN, VENTILATION, RFI SHIELD	16
1	1	1	1	2014047-011	CONNECTOR INTERFACE ASSY	15
—	—	—	1	2014045-011	RDC INTERFACE ASSY	14
—	—	—	1	2014044-011	POWER CONTROL ASSY	13
1	1	1	1	2014043-011	AC INPUT PANEL ASSY	12
—	—	—	1	2014041-011	PROGRAMMER & MONITOR ASSY	11
—	—	—	1	2014040-011	XY INTERFACE ASSY	10
1	1	1	1	2014039-011	TAPE PUNCH ASSY	9
1	1	1	1	2014038-011	TAPE READER ASSY	8
—	—	—	1	2014037-011	LOGIC DRAWER NO.2 ASSY	7
—	—	—	1	2014036-011	LOGIC DRAWER NO.1 ASSY	6
1	1	1	1	2014235-011	POWER SUPPLY NO.13 28VDC ASSY	5
1	1	1	1	2014234-011	POWER SUPPLY 3VDC ASSY	4
1	1	1	1	2014233-011	FREQUENCY COUNTER ASSY	3
1	1	1	1	2014232-011	OSCILLOSCOPE ASSY	2
1	1	1	1	1006423-001	CABINET, ELECTRICAL EQUIP	1

SEE NOTE 2

LIST OF MATERIALS

NEXT ASSY	USED ON
1800080	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN: DATE 4 JUNE 65
CHECKED 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET ASSEMBLY

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014042

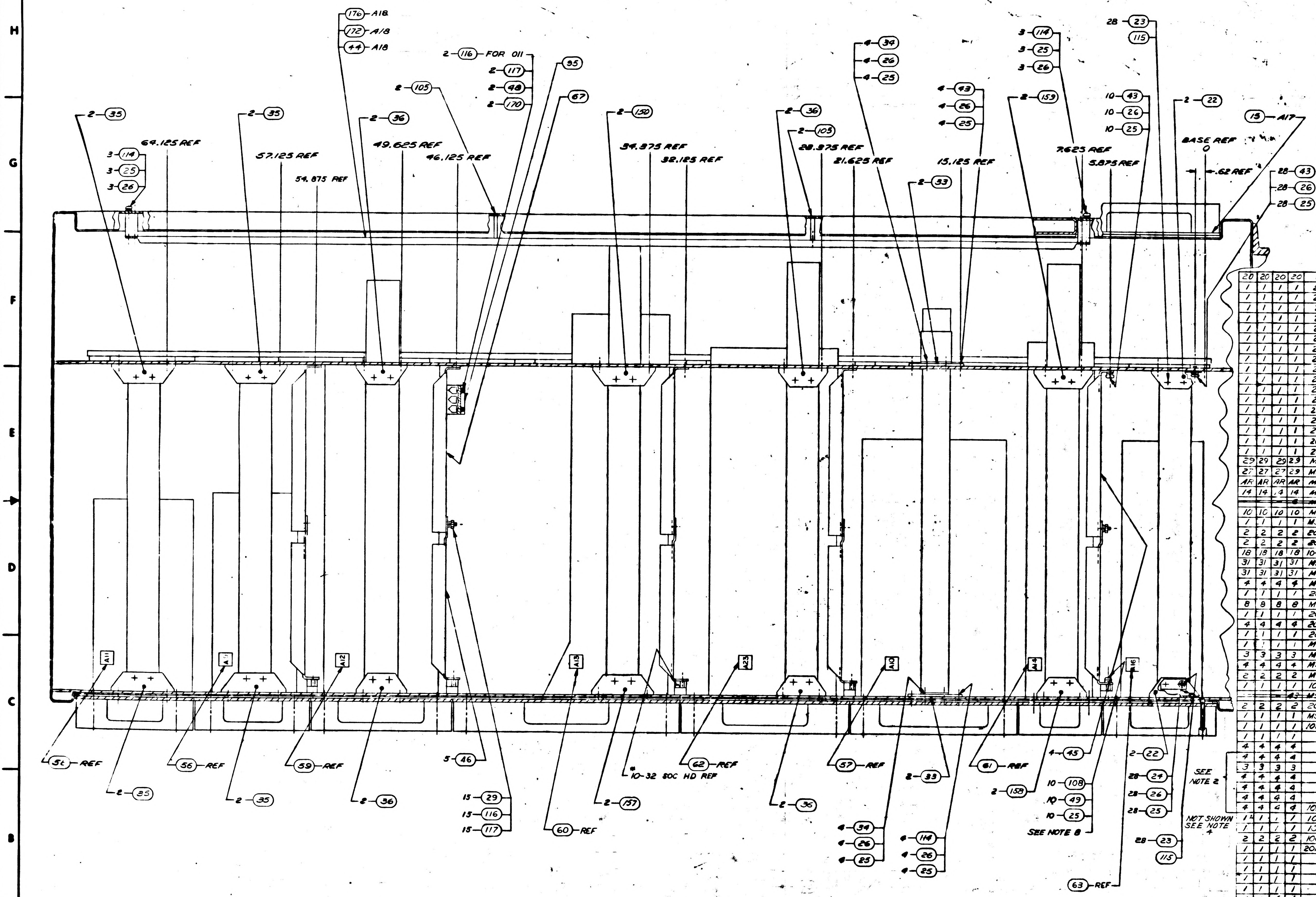
SCALE 1/4 WT SHEET 1 OF 7

2014042 P

2014042 P

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD	11/17/65	
B	CHANGED PER CCA R25659 DR CHK APPD PED	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD PED	1/14/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25773	1/24/66	
E	CHANGED PER TDRR 26316 DR CHK APPD PED	1/17/66	
F	CHANGED PER TDRR 26317 DR CHK APPD	3/7/66	
G	CHANGED PER TDRR 26315 DR CHK APPD PED	3/23/66	
H	CHANGED PER TDRR 26545 DR CHK APPD PED	4/1/66	
J	CHANGED PER TDRR 26673 DR. W. F. Davis CHK APPD		
K	CHANGED PER TDRR 28099 DR CHK C. DeWreenis APPD		
L	CHANGED PER TDRR 29330 DR. CHK APPD PED	7/14/66	
M	CHANGED PER TDRR 29336 DR CHK APPD		
N	CHANGED PER TDRR 29801 DR CHK APPD		
P	CHANGED PER TDRR 30172 DR CHK APPD		

CONTINUED ON SHEET 3



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SEE NOTE 8
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SEE NOTE 2
NOT SHOWN SEE NOTE 4

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 1)

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
20	20	20	20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	1	1	1	2014458-191	CABLE ASSY, GROUND	134
1	1	1	1	2014471-011	CABLE ASSY W27	133
1	1	1	1	2014472-011	CABLE ASSY W26	132
1	1	1	1	2014473-011	CABLE ASSY W25	131
1	1	1	1	2014474-011	CABLE ASSY W24	130
1	1	1	1	2014475-011	CABLE ASSY W23	129
1	1	1	1	2014476-011	CABLE ASSY W22	128
1	1	1	1	2014477-011	CABLE ASSY W21	127
1	1	1	1	2014478-011	CABLE ASSY W20	126
1	1	1	1	2014479-011	CABLE ASSY W19	125
1	1	1	1	2014154-011	CABLE ASSY W18	124
1	1	1	1	2014480-011	CABLE ASSY W17	123
1	1	1	1	2014194-011	CABLE ASSY W16	122
1	1	1	1	2014153-011	CABLE ASSY W15	121
1	1	1	1	2014141-011	CABLE ASSY W14	120
1	1	1	1	2014155-011	CABLE ASSY W13	119
1	1	1	1	2014481-011	CABLE ASSY W12	118
29	29	29	29	MS35338-79	WASHER, LOCK	117
27	27	27	29	MS15795-806	WASHER, FLAT	116
AR	AR	AR	AR	MIL-S-22473GRHV	SEALING AND RETAINING COMPOUND	115
14	14	14	14	MS51958-62	SCREW, PAN HD	114
			~~6~~	~~MS15795-809~~	~~WASHER, FLAT~~	~~113~~
10	10	10	10	MS51957-79	SCREW PAN HD	112
1	1	1	1	MS35690-410	NUT HEX	111
2	2	2	2	2014421	SUPPORT RAIL	110
2	2	2	2	2014420	SUPPORT RAIL	109
18	18	18	18	1006430-097	SPACER	105
31	31	31	31	MS35338-82	WASHER, LOCK	107
31	31	31	31	MS15795-810	WASHER, FLAT	106
4	4	4	4	MS51959-17	SCREW, FLAT HD	105
1	1	1	1	2014182-011	WIRING HARNESS, DC DIST	104
8	8	8	8	MS9549-09	WASHER, FLAT	103
1	1	1	1	2014490-011	WIRING HARNESS, BRANCHED	102
4	4	4	4	2014403	BLOCK, MOUNTING	101
1	1	1	1	2014401	BUSS, BAR	100
1	1	1	1	MS35335-63	WASHER, LOCK, EXTERNAL TOOTH	99
3	3	3	3	MS35690-610	NUT, PLAIN	98
4	4	4	4	MS15795-815	WASHER, FLAT	97
2	2	2	2	MS35338-84	WASHER, LOCK	96
1	1	1	1	1006859-2	TERMINAL BLOCK	95
			~~43~~	~~MS 17821-2-9~~	~~TIE WRAP~~	~~94~~
2	2	2	2	2014422	COUPLING	93
1	1	1	1	MS21919DG8	CLAMP, LOOP	92
1	1	1	1	1014480-20	DECAL, IDENTIFICATION	91
1	1	1	1	-21		90
4	4	4	4	-22		89
4	4	4	4	-7		88
3	3	3	3	-5		87
4	4	4	4	-4		86
4	4	4	4	-3		85
4	4	4	4	-2		84
4	4	4	4	1014480-1	DECAL, IDENTIFICATION	85
1	1	1	1	1014150-1	CABLE, POWER	82
1	1	1	1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	2	2	2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	1	1	1	2014461-121	CABLE ASSY W253	79
1	1	1	1	-111	W252	78
1	1	1	1	-091	W251	77
1	1	1	1	-081	W250	76
1	1	1	1	-071	W249	75
1	1	1	1	-061	W248	74
1	1	1	1	-131	W240	73
1	1	1	1	-051	W247	72
1	1	1	1	2014461-041	CABLE ASSY W246	71

LIST OF MATERIALS

2014042 -

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 13 Jan 65
CHECKED 13 OCT. 65
APPROVAL 1 Nov 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C. S. 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

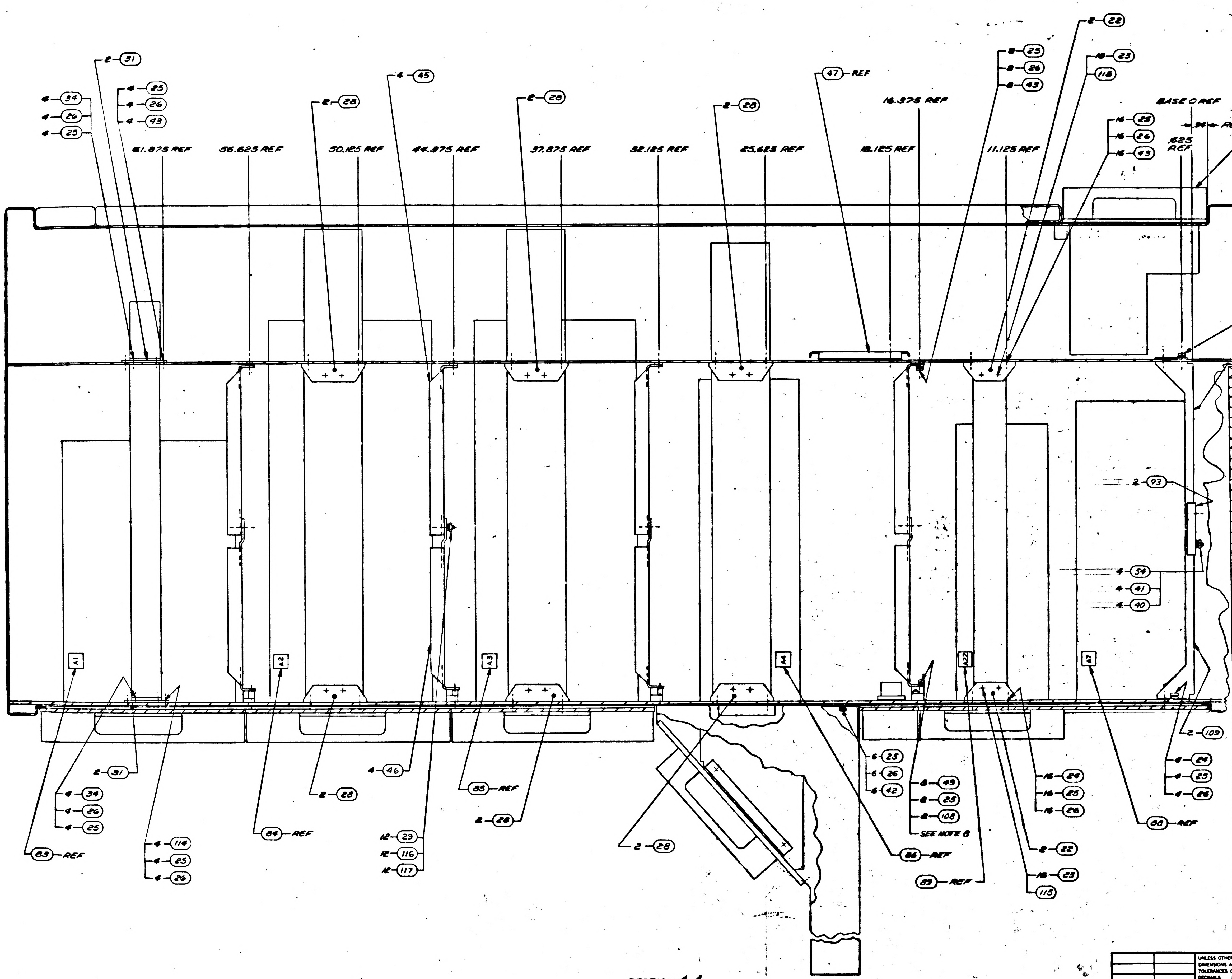
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 2 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 P

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	3/66	AJL
A	CHANGED PER CCA R25563 DR CHK APPD	2/7/65	
B	CHANGED PER CCA R25659 DR CHK APPD P.C.D.		
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D.		
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25873		
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D.		
F	CHANGED PER TDRR 26317 DR CHK APPD	3/66	
G	CHANGED PER TDRR 26315 DR CHK APPD P.C.D.		
H	CHANGED PER TDRR 26545 DR CHK APPD P.C.D.		
J	CHANGED PER TDRR 26673 DR. CHK APPD	APR 66	
K	CHANGED PER TDRR 28099 DR CHK APPD		
L	CHANGED PER TDRR 29330 DR. CHK APPD P.C.D.	/66	
M	CHANGED PER TDRR 29335 DR CHK APPD		
N	CHANGED PER TDRR 29801 DR. CHK APPD	/66	
P	CHANGED PER TDRR 30172 DR CHK APPD		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8-108
SEE NOTE 8
86 REF
16-24
16-25
16-26
2-22
16-23
115
89 REF
88 REF

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	—	—	2016453	INTERCONNECTION DIAGRAM	REF
1	—	—	—	1004260-277	NAMEPLATE	182
1	—	—	—	2014041-041	PROGRAMMER & MONITOR ASSY.	181
1	1	—	—	2014045-031	RDC INTERFACE ASSY	180
1	1	—	—	2014037-031	LOGIC DRAWER NO.2 ASSY	179
1	1	—	—	2014366-031	SELF TEST ASSY	178
—	☒	—	—	2016444	INTERCONNECTION DIAGRAM	REF
☒	☒	—	—	2016443	ELEC. SCHEM. AC & DC PWR DISTR	REF
—	1	—	—	1004260-270	NAME PLATE	177
1	1	—	—	2014046-031	A18 INTERCONNECTION ASSY	176
—	—	☒	—	2016414	ELEC SCHEM AC & DC PWR DISTR	REF
—	—	☒	—	2016387	INTERCONN DIAGRAM	REF
—	—	—	☒	2014172	ELEC SCHEM AC & DC PWR DISTR	REF
—	—	—	☒	2014138	INTERCONN DIAGRAM	REF
—	1	—	—	2014041-031	PROGRAMMER & MONITOR ASSY	175
1	1	—	—	2014036-031	LOGIC DRAWER ASSY NO.1	174
1	1	1	—	2014044-021	POWER CONTROL ASSY	173
—	—	1	—	2014046-021	A18 INTERCONNECTION ASSY	172
1	1	1	—	MS35173-274B	CONNECTOR, ADAPTER TEE (MIL-C-3	171
2	2	2	—	NAS620C6	WASHER, FLAT	170
—	—	1	—	1004260-258	NAME PLATE	169
—	—	1	—	2014366-021	SELF TEST ASSY	168
—	—	1	—	2014045-021	RDC INTERFACE ASSY	167
—	—	1	—	2014041-021	PROGRAMMER & MONITOR ASSY	166
1	1	1	—	2014040-021	XY INTERFACE ASSY	165
—	—	1	—	2014037-021	LOGIC DRAWER NO.2 ASSY	164
—	—	1	—	2014036-021	LOGIC DRAWER NO.1 ASSY	163
AR	AR	AR	AR	1006458-004	TAPE, LACING	162
~~—~~	~~—~~	~~—~~	~~AR~~	~~MIL-S-22473, GR HV~~	~~SEALING & RETAINING COMPOUND~~	~~161~~
12	12	12	12	MS51957-45	SCREW, PAN HD	160
2	2	2	2	2016350-031	SLIDE, BRACKET ASSY	159
2	2	2	2	2016350-021	SLIDE, BRACKET ASSY	158
2	2	2	2	2016350-011	SLIDE, BRACKET ASSY	157
1	1	1	1	MS21919-DG7	CLAMP, LOOP	156
2	2	2	2	MS21919-DG6	CLAMP, LOOP	155
~~—~~	~~—~~	~~—~~	~~5~~	~~1006872-12~~	~~CLAMP, LOOP~~	~~154~~
15	15	15	15	1006872-14	CLAMP, LOOP	153
7	7	7	7	1006872-9	CLAMP, LOOP	152
11	11	11	11	1006872-11	CLAMP, LOOP	151
2	2	2	2	2016350-041	SLIDE, BRACKET ASSY	150
8	8	8	4	1006872-10	CLAMP, LOOP	149
1	1	1	1	2014115-021	STRAP, GROUND	148
5	5	5	5	2014458-171	CABLE ASSY, GROUND	147
1	1	1	1	-151		146
1	1	1	1	-121		145
1	1	1	1	-111		144
1	1	1	1	-081		143
1	1	1	1	2014458-061		142
1	1	1	1	2014457-071	CABLE ASSY, GROUND	141
1	1	1	1	MS21919DG13	CLAMP, LOOP	140
2	2	2	2	MS21919DG24	CLAMP, LOOP	139
1	1	1	1	MS21919DG10	CLAMP LOOP	138
~~—~~	~~—~~	~~—~~	~~1~~	~~MS21919DG12~~	~~CLAMP, LOOP~~	~~137~~
5	5	5	5	MS21919DG14	CLAMP, LOOP	136

LIST OF MATERIALS

NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±	RAYTHEON CO. LEXINGTON, MASS.
APPLICATION		DO NOT SCALE DRAWING	CONTRACT NO. NAS 9 497
		MATERIAL	DRAWN DATE 16 June 65
			CHECKED 19 OCT 65
			APPROVAL 1 Nov 65
			APPROVAL
			APPROVAL
			NASA APPROVAL
			MIT APPROVAL
			MIT APPROVAL

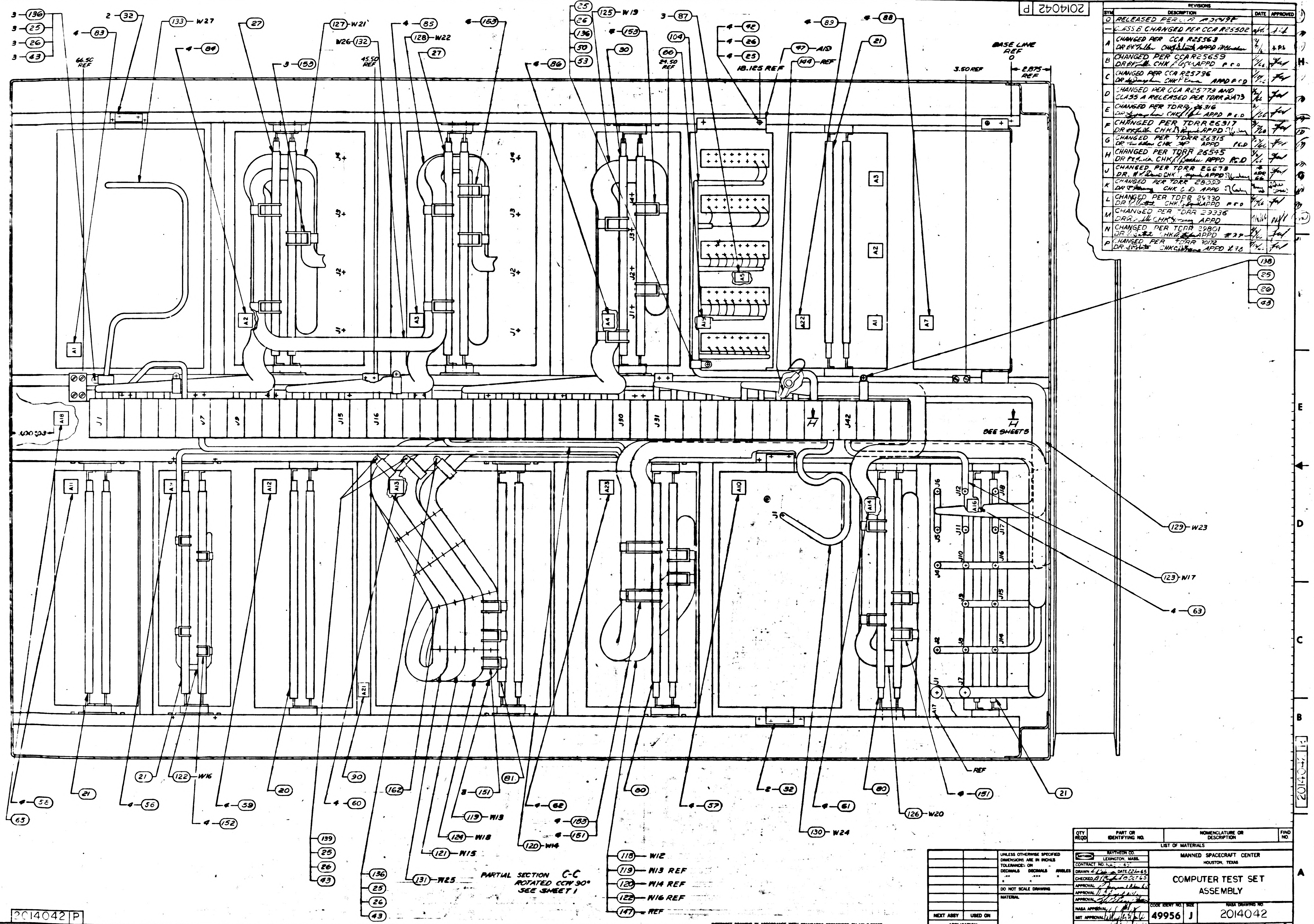
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014042
SCALE 1/2	WT	SHEET 3 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD		
B	CHANGED PER CCA R25659 DR CHK APPD P C D	1/11/66	
C	CHANGED PER CCA R25736 DR CHK P APPD P C D	1/17/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TORR 25473	1/20/66	
E	CHANGED PER TDRR 26316 DR CHK APPD P C D	2/ /66	
F	CHANGED PER TDRR 26317 DR CHK APPD	3/7/66	
G	CHANGED PER TDRR 26315 DR CHK APPD P.C.D	3/23/66	
H	CHANGED PER TDRR 26545 DR CHK APPD P.C.D	4/2/66	
J	CHANGED PER TDRR 26673 DR. CHK APPD	14 APR 66	
K	CHANGED PER TDRR 28093 DR CHK C.D. APPD		
L	CHANGED PER TDPR 24330 DR CHK APPD P C D	6/4/66	
M	CHANGED PER TDRR 29336 DR CHK APPD	7/13/66	
N	CHANGED PER TDRR 29801 DR CHK APPD		
P	CHANGED PER TDRR 30172 DR CHK APPD		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130 — W24
4 — 61
80
126 — W20
REF
4 — 151
21

PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 22 Jun 65
CHECKED 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

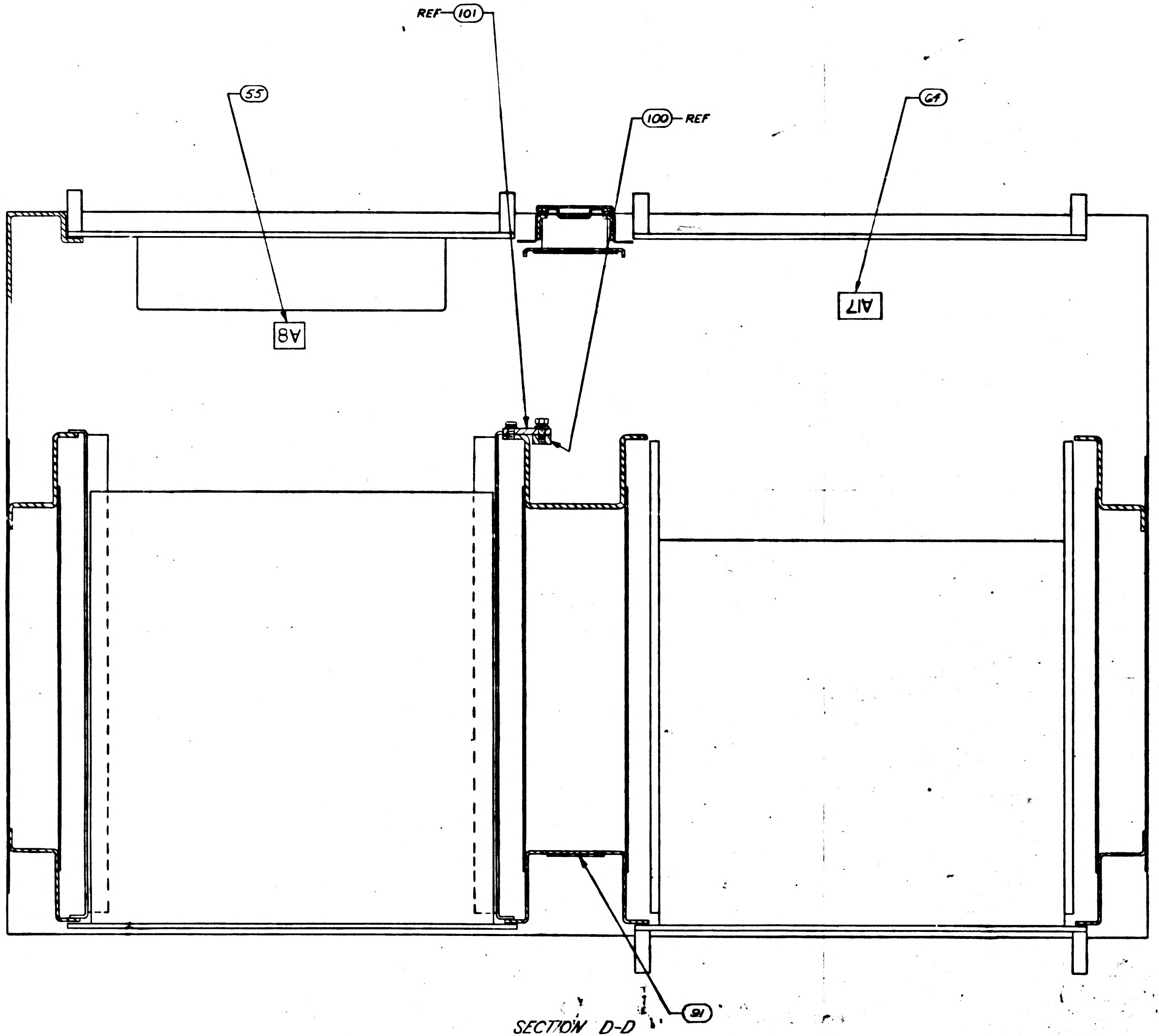
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 4 OF 7

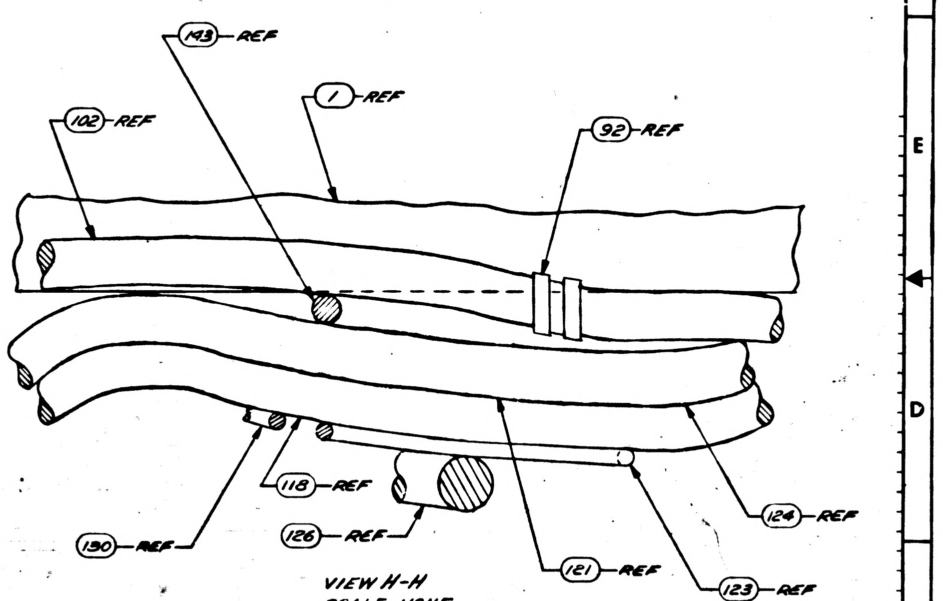
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 P

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK [illegible] APPD R.P. [illegible]	12/27/65	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.C.D.	1/4/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR [illegible]	[illegible]	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]/66	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	18 APR 66	[illegible]
K	CHANGED PER TDRR 28059 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
L	CHANGED PER TDRR 29330 DR. [illegible] CHK [illegible] APPD P.C.D.	[illegible]/66	[illegible]
M	CHANGED PER TDRR 29336 DR [illegible] CHK [illegible] APPD	[illegible]	[illegible]
N	CHANGED PER TDRR 29801 DR [illegible] CHK [illegible] APPD R.P.[illegible]	[illegible]/66	[illegible]
P	CHANGED PER TDRR 30172 DR [illegible] CHK C.B. APPD R.T.B.	[illegible]/66	[illegible]



SECTION D-D
(SEE SHEET 1)



VIEW H-H
SCALE-NONE
SEE SHEET 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

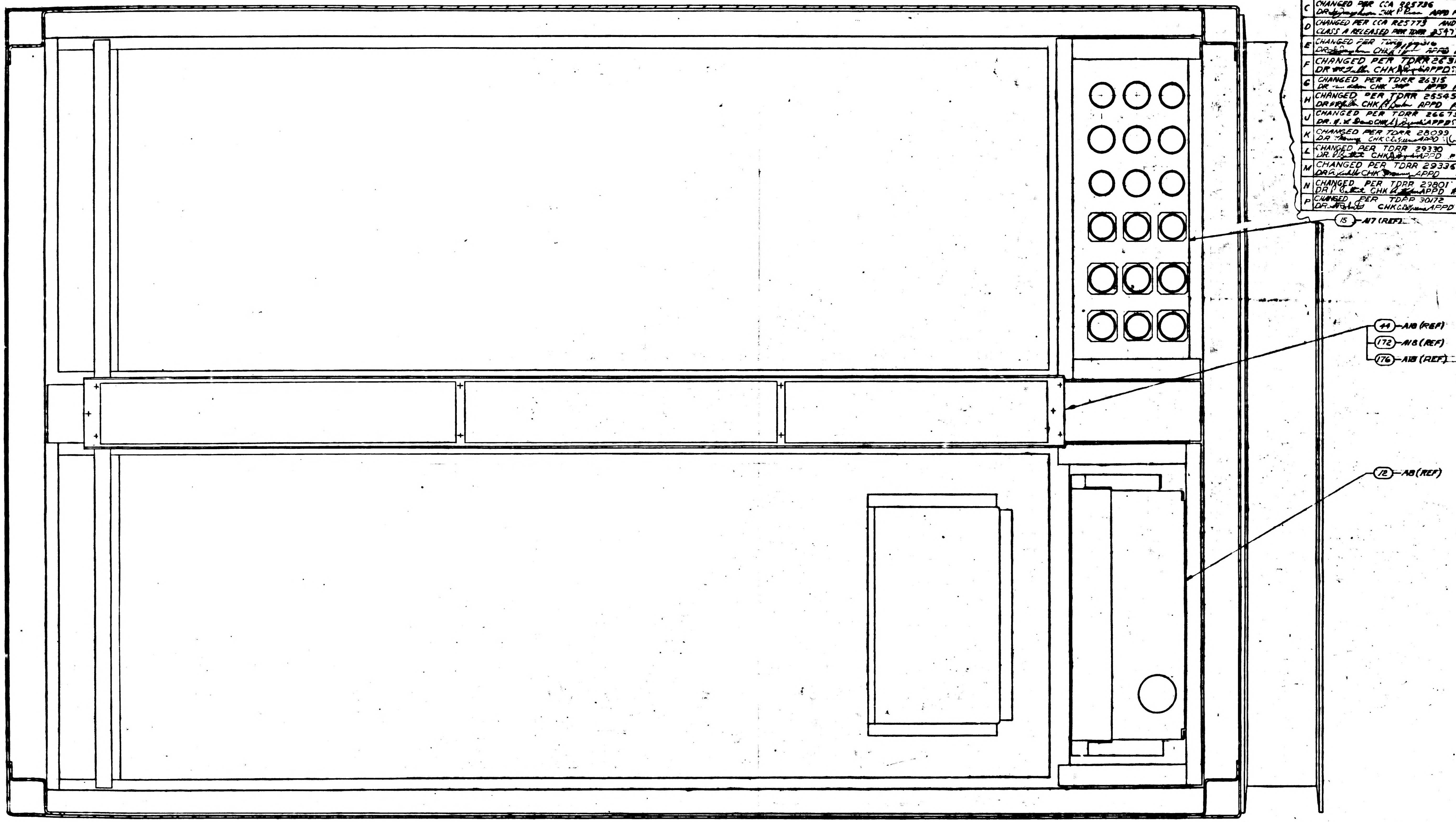
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 5 OF 7

2014042 P

2014042 P

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25508	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR B R Fuller CHK [illegible] APPD [illegible]	12/27/65	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD PCO	1/11/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK P. [illegible] APPD PCO	[illegible]	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/20/66	[illegible]
E	CHANGED PER TDRR [illegible] DR [illegible] CHK [illegible] APPD PCO	[illegible]	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] Fuller CHK [illegible] APPD [illegible]	3/[illegible]/66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD PED	3/[illegible]/66	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD PED	4/4/66	[illegible]
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	14 APR 66	[illegible]
K	CHANGED PER TDRR 28099 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
L	CHANGED PER TDRR 29330 DR. [illegible] CHK [illegible] APPD PCO	[illegible]/66	[illegible]
M	CHANGED PER TDRR 29336 DR [illegible] CHK [illegible] APPD	[illegible]	[illegible]
N	CHANGED PER TDRR 29801 DR [illegible] CHK [illegible] APPD [illegible]	8/4/66	[illegible]
P	CHANGED PER TDRR 30172 DR [illegible] CHK [illegible] APPD [illegible]	8/14/66	[illegible]



SECTION F-F
ROTATED 90° CCW
(SEE SHEET 1)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX .XXX ±
± ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 12 AUG 65
CHECKED BY [illegible] 19 OCT 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTE
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

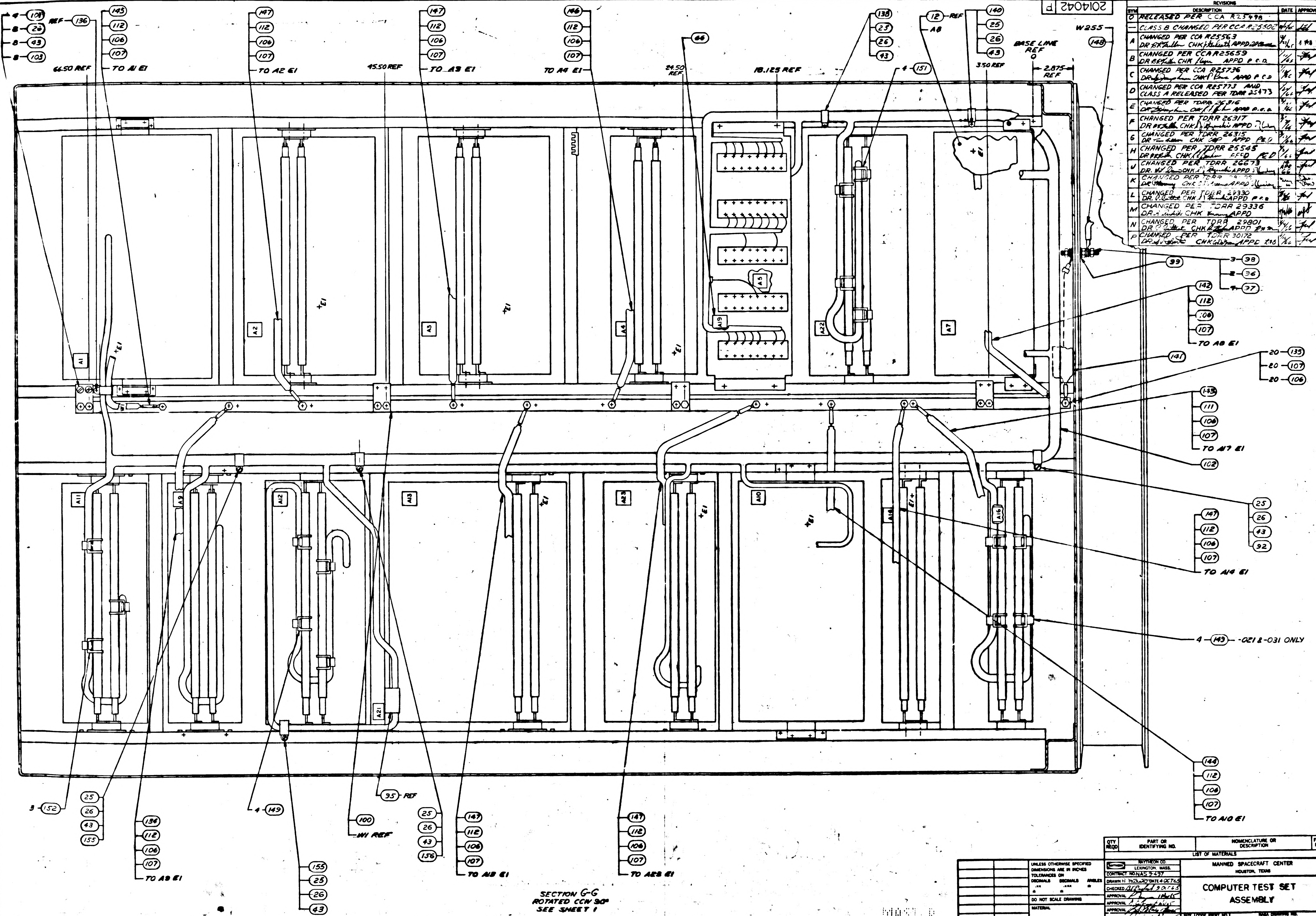
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 6 OF 7

2014042 P

MASTER

2014042 P

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D	[illegible]	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	[illegible]	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK CAP APPD P.C.D	[illegible]	[illegible]
H	CHANGED PER TDRR 25545 DR [illegible] CHK [illegible] APPD P.C.D	[illegible]	[illegible]
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	APR 66	[illegible]
K	CHANGED PER TDRR [illegible] DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
L	CHANGED PER TDRR 29330 DR. [illegible] CHK [illegible] APPD P.C.D	[illegible]	[illegible]
M	CHANGED PER TDRR 29336 DR [illegible] CHK [illegible] APPD	[illegible]	[illegible]
N	CHANGED PER TDRR 29801 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
P	CHANGED PER TDRR 30172 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]


8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
4 108
8 26
8 43
8 103
REF 136
145
112
106
107
TO A1 E1
66.50 REF
147
112
106
107
TO A2 E1
45.50 REF
147
112
106
107
TO A3 E1
146
112
106
107
TO A4 E1
24.50 REF
66
18.125 REF
138
25
26
43
4 151
12 REF
A8
140
25
26
43
3.50 REF
BASE LINE REF
2.875 REF
W255
148
99
3 38
2 36
4 37
142
112
106
107
TO A8 E1
141
20 135
20 107
20 106
143
111
106
107
TO A17 E1
102
25
26
43
92
147
112
106
107
TO A14 E1
4 149 -021 & -031 ONLY
144
112
106
107
TO A10 E1
A1
A2
A3
A4
A5
A19
A22
A7
A11
A9
A12
A21
A13
A23
A10
A18
A16
+E1
3 152
25
26
43
155
136
112
106
107
TO A9 E1
4 149
155
25
26
43
100
W1 REF
95 REF
25
26
43
156
147
112
106
107
TO A18 E1
147
112
106
107
TO A23 E1

SECTION G-G
ROTATED CCW 90°
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FINC NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

NEXT ASSY
USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Miller DATE 4 OCT 65
CHECKED [illegible] 9 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 7 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014042 P

2014042 P

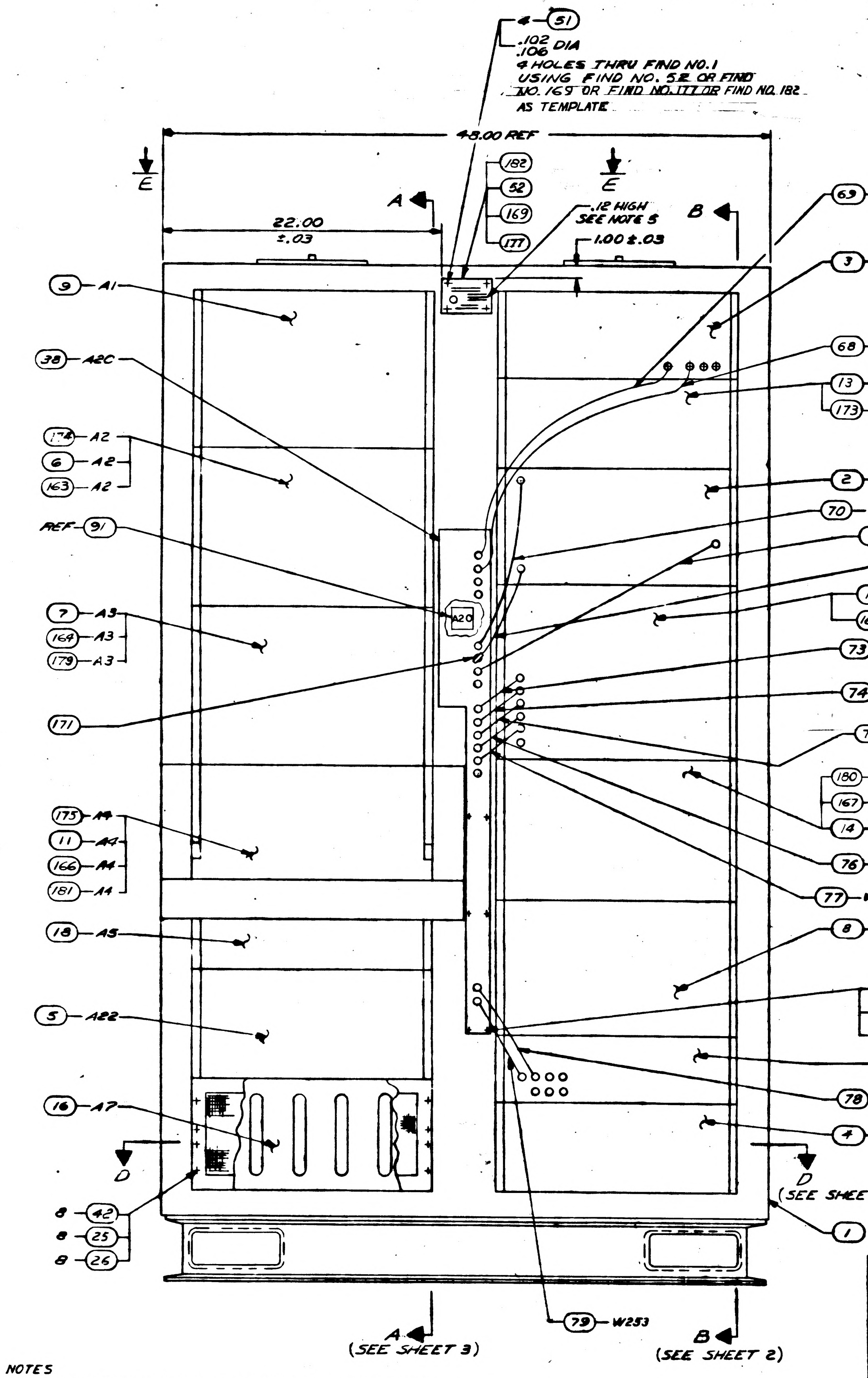
Ⓡ REPLACED BY REV S WITH CHANGE

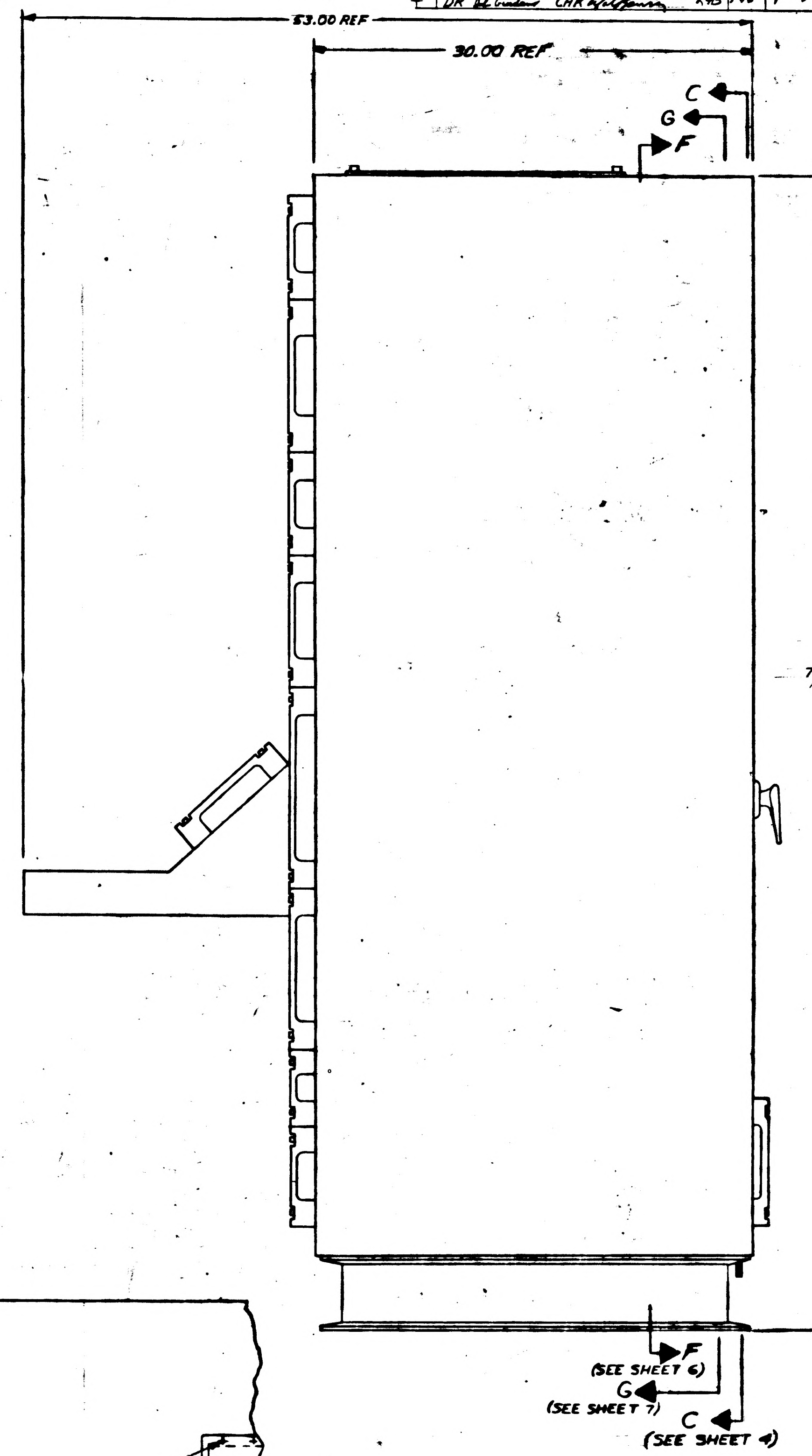
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
M	CHANGED PER TDRR 29336 DR CHK APPD	[illegible]	
N	CHANGED PER TDRR 29801 DR. CHK. APPD	8/4/66	
P	CHANGED PER TDRR 30172 DR CHK APPD K.F.B.	8/14/66	
R	REPLACED BY REV S WITH CHANGE PER TDRR 31278 DR CHK X7B	9/29/66	

2014042 R

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25508	[illegible]	
A	CHANGED PER CCA R25563 DR CHK APPD	11/31/65	
B	CHANGED PER CCA R25659 DR CHK APPD P.C.D.	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.C.D.	1/19/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	1/24/66	
E	CHANGED PER TDRR 26316 DR CHK APPD P.C.D.	3/4/66	
F	CHANGED PER TDRR 26317 DR CHK APPD	3/7/66	
G	CHANGED PER TDRR 26315 DR CHK APPD P.C.D.	3/23/66	
H	CHANGED PER TDRR 26545 DR CHK APPD P.C.D.	4/6/66	
J	CHANGED PER TDRR 26673 DR. CHK APPD.	15 APR 66	
K	CHANGED PER TDRR 28099 DR CHK C. APPD.	[illegible]	
L	CHANGED PER TDRR 29330 DR. CHK APPD P.C.D.	6/4/66	

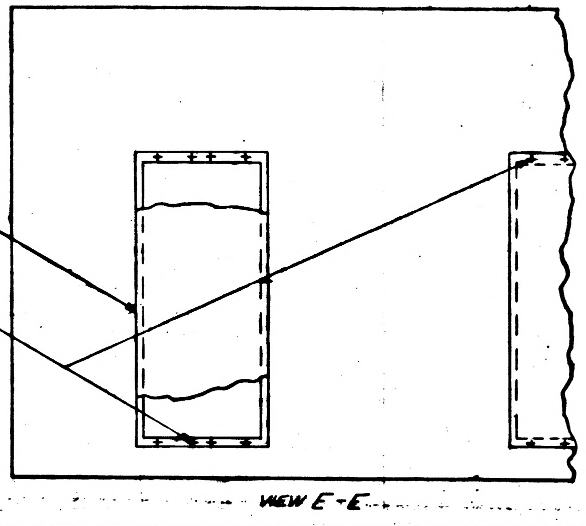
CONTINUED ON SHEET 2


4-(51)
.102 DIA
.106
4 HOLES THRU FIND NO.1
USING FIND NO. 52 OR FIND
NO. 169 OR FIND NO. 177 OR FIND NO. 182
AS TEMPLATE
48.00 REF
22.00 ±.03
.12 HIGH SEE NOTE 5
1.00 ±.03
E
A
B
(182)
(52)
(169)
(177)
(69)-W244
(3)-A11
(68)-W243
(13)-A9
(173)-A9
(9)-A1
(38)-A2C
(174)-A2
(6)-A2
(163)-A2
(2)-A12
(70)-W245
(72)-W247
(71)-W246
REF-(91)
A20
(10)-A13
(165)-A13
(7)-A3
(164)-A3
(179)-A3
(73)-W240
(74)-W248
(171)
(75)-W249
(180)-A23
(167)-A23
(14)-A23
(175)-A4
(11)-A4
(166)-A4
(181)-A4
(76)-W250
(77)-W251
(18)-A5
(8)-A10
12-(180)
12-(40)
12-(41)
(5)-A22
(17)-A14
(168)-A14
(178)-A14
(78)-W252
(16)-A7
(4)-A16
D
D (SEE SHEET 5)
8-(42)
8-(25)
8-(26)
(1)
(79)-W253
A (SEE SHEET 3)
B (SEE SHEET 2)


53.00 REF
30.00 REF
C
G
F
79.00 REF
F (SEE SHEET 6)
G (SEE SHEET 7)
C (SEE SHEET 4)

NOTES

1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89) ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. STORE FIND 82 IN DOOR COMPARTMENT
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014042 FOR-011 CONFIGURATION, PS 2016002 FOR-021 CONFIGURATION, & PS 2016006 FOR-031 OR-041 CONFIGURATION
8. ASSEMBLE FIND 49 USING FIND 115


2-(19)
16-(42)
16-(25)
16-(26)
VIEW E-E

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1	1	1	2014461-031	CABLE ASSY, W245	70
1	1	1	1	2014461-021	CABLE ASSY, W244	69
1	1	1	1	2014461-011	CABLE ASSY, W243	68
1	1	1	1	2014432	PLATE, BAFFLE, TERM. BD	67
1	1	1	1	1014480 -19	DECAL, IDENTIFICATION	66
1	1	1	1	-18		65
1	1	1	1	-17		64
4	4	4	4	-16		63
4	4	4	4	-23		62
4	4	4	4	-14		61
4	4	4	4	-13		60
4	4	4	4	-12		59
4	4	4	4	-11		58
4	4	4	4	-10		57
4	4	4	4	-9		56
1	1	1	1	1014480-8	DECAL, IDENTIFICATION	55
4	4	4	4	MS35649-84	NUT, HEX PLAIN	54
1	1	1	1	MS35649-104	NUT, PLAIN HEX	53
—	—	—	1	1004260-203	PLATE, IDENTIFICATION	52
4	4	4	4	AN535-4-3	DRIVE SCREW	51
1	1	1	1	MS51957-63	SCREW, PAN HD	50
18	18	18	18	MS51958-67	SCREW, PAN HEAD	49
2	2	2	2	MS51957-35	SCREW, PAN HEAD	48
1	1	1	1	2016346-011	TERMINAL BOARD ASSY	47
9	9	9	9	2014425	PLATE, BAFFLE	46
8	8	8	8	2014424	PLATE, BAFFLE	45
—	—	—	1	2014046-011	A18 INTERCONNECTION ASSY	44
94	94	94	94	MS51958-63	SCREW, PAN HEAD	43
34	34	34	34	MS51958-64	SCREW, PAN HEAD	42
12	12	12	12	MS35338-80	WASHER, LOCK	41
12	12	12	12	MS15795-807	WASHER	40
			~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1	1	1	1020352	PLATE CONNECTOR ASSY	38
			~~1~~	~~MS21919DG11~~	~~CLAMP, LOOP~~	~~37~~
8	8	8	8	1014157-2	SLIDE BRACKET ASSY	36
8	8	8	8	1014157-3	SLIDE BRACKET ASSY	35
16	16	16	16	MS35650-104	NUT, HEX PLAIN	34
4	4	4	4	1014301-2	SLIDE, ADAPTER	33
4	4	4	4	1006878-2	SLIDE, CABINET SECTION	32
4	4	4	4	1014301-1	SLIDE ADAPTER	31
1	1	1	1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	27	27	27	MS35649-64	NUT HEX, PLAIN	29
12	12	12	12	1014157-4	SLIDE BRACKET ASSY	28
2	2	2	2	1006938-3	SLIDE WITH CABLE CARRIER	27
208	208	208	208	MS35338-81	WASHER, LOCK	26
218	218	218	218	MS15795-808	WASHER, FLAT	25
72	72	72	72	MS51958-61	SCREW, PAN HEAD	24
88	88	88	88	MS51959-43	SCREW, FLAT HEAD	23
8	8	8	8	1014157-1	SLIDE BRACKET ASSY	22
4	4	4	4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1	1	1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	2	2	2	1006918	FILTER, AIR, RFI	19
1	1	1	1	2014274-011	AUX. OUTLET ASSY 115VAC	18
—	—	—	1	2014366-011	SELF TEST ASSY	17
1	1	1	1	1006897	FAN, VENTILATION, RFI SHIELD	16
1	1	1	1	2014047-011	CONNECTOR INTERFACE ASSY	15
—	—	—	1	2014045-011	RDC INTERFACE ASSY	14
—	—	—	1	2014044-011	POWER CONTROL ASSY	13
1	1	1	1	2014043-011	AC INPUT PANEL ASSY	12
—	—	—	1	2014041-011	PROGRAMMER & MONITOR ASSY	11
—	—	—	1	2014040-011	XY INTERFACE ASSY	10
1	1	1	1	2014039-011	TAPE PUNCH ASSY	9
1	1	1	1	2014038-011	TAPE READER ASSY	8
—	—	—	1	2014037-011	LOGIC DRAWER NO. 2 ASSY	7
—	—	—	1	2014036-011	LOGIC DRAWER NO. 1 ASSY	6
1	1	1	1	2014235-011	POWER SUPPLY 10,13,28VDC ASSY	5
1	1	1	1	2014234-011	POWER SUPPLY 3VDC ASSY	4
1	1	1	1	2014233-011	FREQUENCY COUNTER ASSY	3
1	1	1	1	2014232-011	OSCILLOSCOPE ASSY	2
1	1	1	1	1006423-001	CABINET, ELECTRICAL EQUIP	1

SEE NOTE 2

LIST OF MATERIALS

1900030	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN Joe Roper DATE 4 JUNE 65
CHECKED 13 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

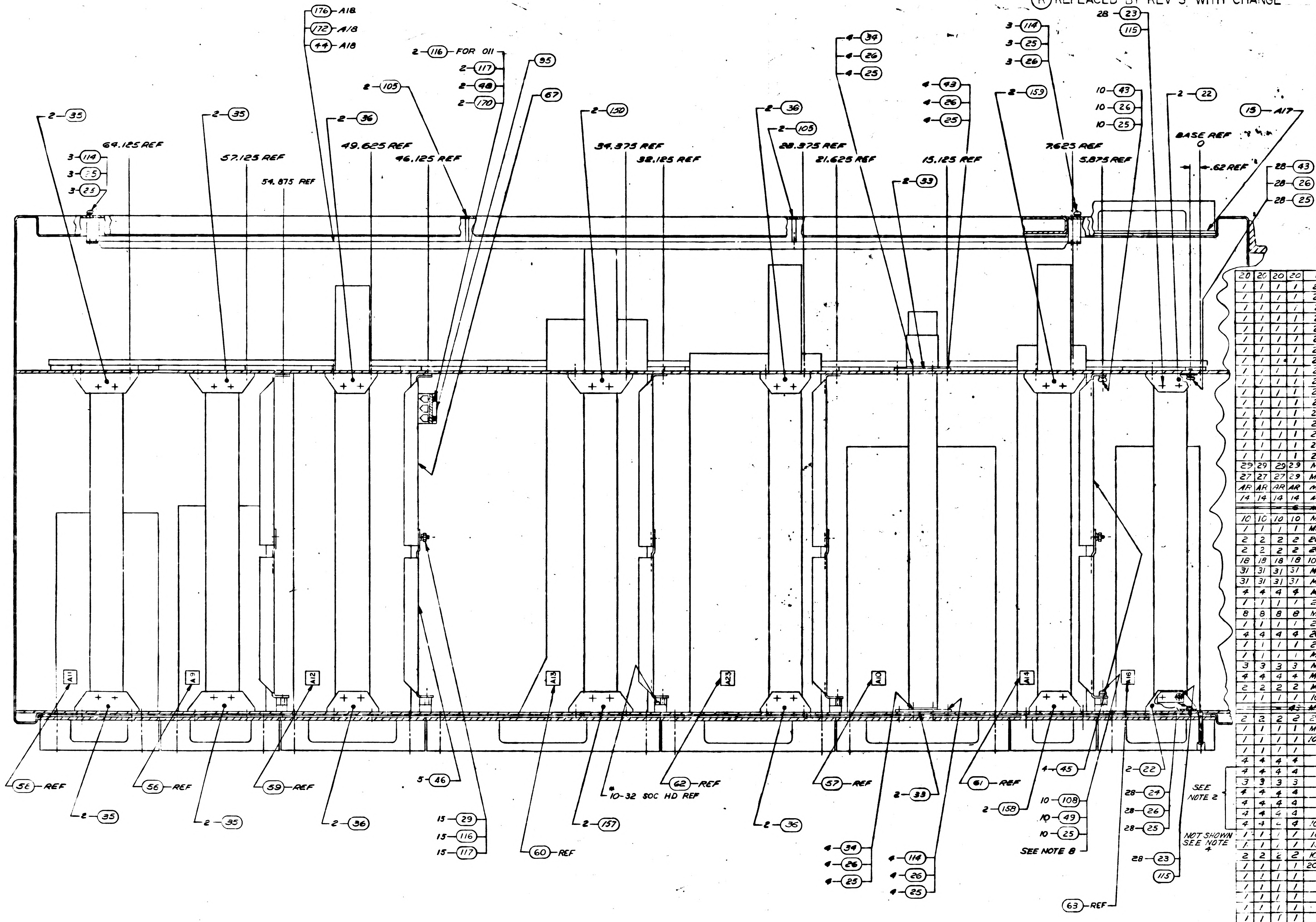
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014042
SCALE 1/4	WT	SHEET 1 OF 7

2014042 R

SYM	DESCRIPTION	DATE	APPROVAL
R	REPLACED BY REV S WITH CHANGES PER TDRR 31278 DR CHK	10/24/66	

2014042 R

Ⓡ REPLACED BY REV S WITH CHANGE



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57.125 REF
54.875 REF
49.625 REF
46.125 REF
34.375 REF
32.125 REF
28.375 REF
21.625 REF
15.125 REF
7.625 REF
5.875 REF
BASE REF
0
.62 REF
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3-(114)
3-(25)
3-(25)
(176)-A18
(172)-A18
(44)-A18
2-(116)-FOR 011
2-(117)
2-(48)
2-(170)
2-(105)
2-(36)
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(67)
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4-(25)
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4-(43)
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4-(25)
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3-(25)
3-(26)
28-(23)
(115)
10-(43)
10-(26)
10-(25)
2-(22)
(13)-A17
28-(43)
28-(26)
28-(25)
A11
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A12
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(60)-REF
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2-(33)
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4-(114)
4-(26)
4-(25)
2-(158)
10-(108)
10-(49)
10-(25)
10-(25)
SEE NOTE 8
2-(22)
28-(24)
28-(26)
28-(25)
28-(23)
(115)
(63)-REF
SEE NOTE 2
NOT SHOWN SEE NOTE 4

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 1)

2014042 R

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD	[illegible]	
B	CHANGED PER CCA R25659 DR CHK APPD P E D	[illegible]/66	
C	CHANGED PER CCA R25736 DR CHK APPD P E D	[illegible]/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25973	1/24/66	
E	CHANGED PER TDRR 26316 DR CHK APPD P E D	[illegible]	
F	CHANGED PER TDRR 26317 DR CHK APPD	[illegible]/66	
G	CHANGED PER TDRR 26315 DR CHK APPD PED	[illegible]/66	
H	CHANGED PER TDRR 26545 DR CHK APPD PED	[illegible]/66	
J	CHANGED PER TDRR 26673 DR. W. L. CHK APPD	[illegible]	
K	CHANGED PER TDRR 28099 DR CHK C. APPD	[illegible]	
L	CHANGED PER TDRR 29330 DR. CHK APPD PED	[illegible]	
M	CHANGED PER TDRR 29335 DR CHK APPD	[illegible]	
N	CHANGED PER TDRR 29801 DR. CHK APPD	[illegible]	
P	CHANGED PER TDRR 30[illegible] DR CHK APPD	[illegible]	

CONTINUED ON SHEET 3

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
20	20	20	20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	1	1	1	2014458-191	CABLE ASSY, GROUND	134
1	1	1	1	2014471-011	CABLE ASSY W27	133
1	1	1	1	2014472-011	CABLE ASSY W26	132
1	1	1	1	2014473-011	CABLE ASSY W25	131
1	1	1	1	2014474-011	CABLE ASSY W24	130
1	1	1	1	2014475-011	CABLE ASSY W23	129
1	1	1	1	2014476-011	CABLE ASSY W22	128
1	1	1	1	2014477-011	CABLE ASSY W21	127
1	1	1	1	2014478-011	CABLE ASSY W20	126
1	1	1	1	2014479-011	CABLE ASSY W19	125
1	1	1	1	2014154-011	CABLE ASSY W18	124
1	1	1	1	2014480-011	CABLE ASSY W17	123
1	1	1	1	2014194-011	CABLE ASSY W16	122
1	1	1	1	2014153-011	CABLE ASSY W15	121
1	1	1	1	2014141-011	CABLE ASSY W14	120
1	1	1	1	2014155-011	CABLE ASSY W13	119
1	1	1	1	2014481-011	CABLE ASSY W12	118
29	29	29	29	MS35338-79	WASHER, LOCK	117
27	27	27	29	MS15795-806	WASHER, FLAT	116
AR	AR	AR	AR	MIL-S-22473CRHV	SEALING AND RETAINING COMPOUND	115
14	14	14	14	MS51958-62	SCREW, PAN HD	114
~~—~~	~~—~~	~~—~~	~~6~~	~~MS15795-809~~	~~WASHER, FLAT~~	~~113~~
10	10	10	10	MS51957-79	SCREW PAN HD	112
1	1	1	1	MS35690-410	NUT HEX	111
2	2	2	2	2014421	SUPPORT RAIL	110
2	2	2	2	2014420	SUPPORT RAIL	109
18	18	18	18	1006430-097	SPACER	108
31	31	31	31	MS35338-82	WASHER, LOCK	107
31	31	31	31	MS15795-810	WASHER, FLAT	106
4	4	4	4	MS51959-17	SCREW, FLAT HD	105
1	1	1	1	2014182-011	WIRING HARNESS, DC DIST	104
8	8	8	8	MS9549-09	WASHER, FLAT	103
1	1	1	1	2014490-011	WIRING HARNESS, BRANCHED	102
4	4	4	4	2014403	BLOCK, MOUNTING	101
1	1	1	1	2014401	BUSS, BAR	100
1	1	1	1	MS35335-63	WASHER, LOCK, EXTERNAL TOOTH	99
3	3	3	3	MS35690-610	NUT, PLAIN	98
4	4	4	4	MS15795-815	WASHER, FLAT	97
2	2	2	2	MS35338-84	WASHER, LOCK	96
1	1	1	1	1006859-2	TERMINAL BLOCK	95
~~—~~	~~—~~	~~—~~	~~43~~	~~MS 17821-2-9~~	~~TIE WRAP~~	~~94~~
2	2	2	2	2014422	COUPLING	93
1	1	1	1	MS21919DG8	CLAMP, LOOP	92
1	1	1	1	1014480-20	DECAL, IDENTIFICATION	91
1	1	1	1	-21		90
4	4	4	4	-22		89
4	4	4	4	-7		88
3	3	3	3	-5		87
4	4	4	4	-4		86
4	4	4	4	-3		85
4	4	4	4	-2		84
4	4	4	4	1014480-1	DECAL, IDENTIFICATION	83
1	1	1	1	1014150-1	CABLE, POWER	82
1	1	1	1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	2	2	2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	1	1	1	2014461-121	CABLE ASSY W253	79
1	1	1	1	-111	W252	78
1	1	1	1	-091	W251	77
1	1	1	1	-081	W250	76
1	1	1	1	-071	W249	75
1	1	1	1	-061	W248	74
1	1	1	1	-131	W24[illegible]	73
1	1	1	1	-051	W24[illegible]	72
1	1	1	1	2014461-041	CABLE ASSY W24[illegible]	71

SEE NOTE 2

NOT SHOWN SEE NOTE 4

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 18 Jun 65
CHECKED 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 2 OF 7

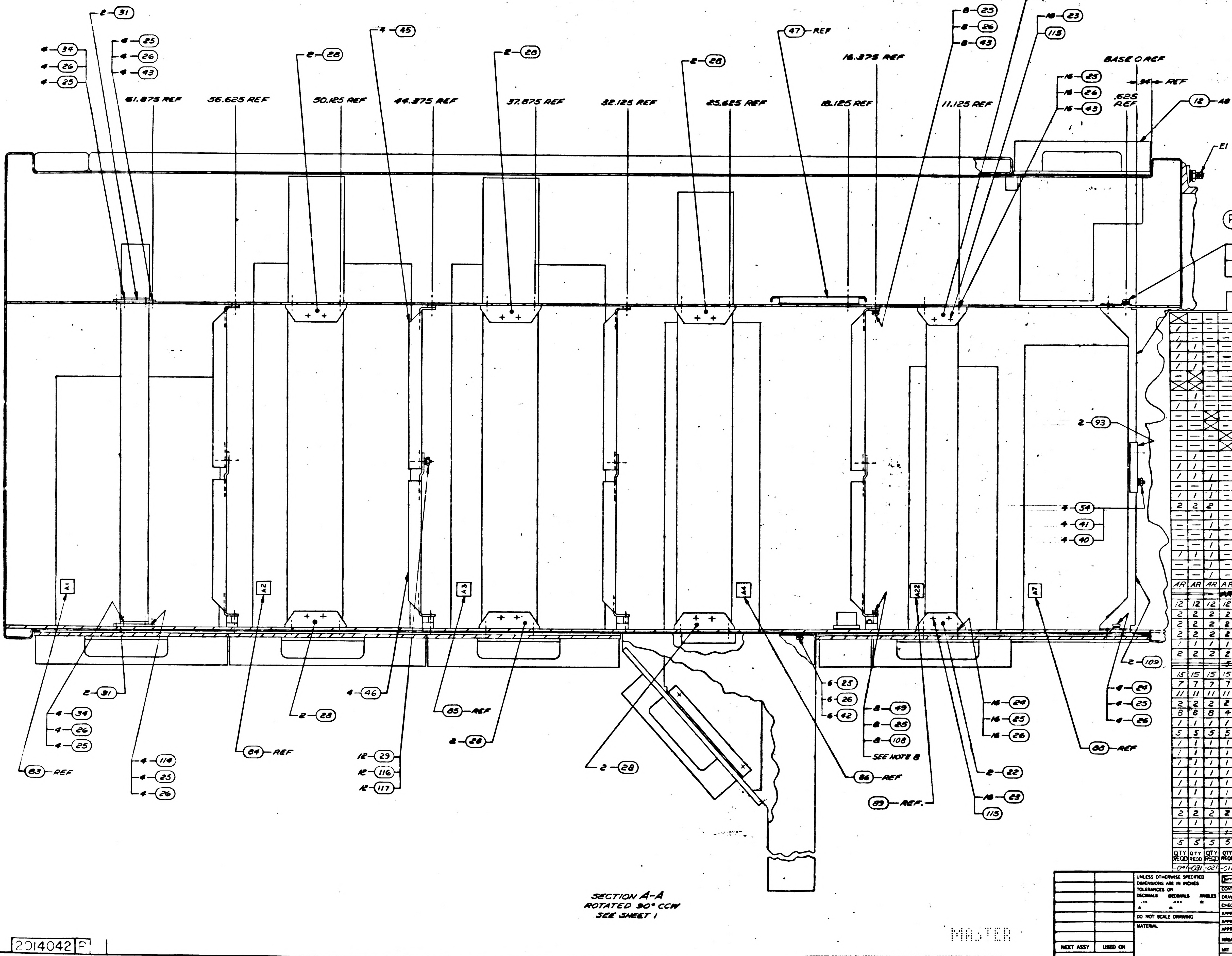
2014042 H

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 R

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	12/6	
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK [illegible] APPD [illegible]	12/29/65	
B	CHANGED PER CCA R25659 DR B.K. Fuller CHK [illegible] APPD P.C.D.	1/14/66	
C	CHANGED PER CCA R25736 DR [illegible] CHK [illegible] APPD P.C.D.	1/14/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/24/66	
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	2/14/66	
F	CHANGED PER TDRR 26317 DR B.K. Fuller CHK [illegible] APPD [illegible]	3/7/66	
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.C.D.	3/13/66	
H	CHANGED PER TDRR 26545 DR B.K. Fuller CHK [illegible] APPD P.C.D.	4/2/66	
J	CHANGED PER TDRR 26673 DR. W. L. Davis CHK [illegible] APPD [illegible]	15 APR 66	
K	CHANGED PER TDRR 28099 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	
L	CHANGED PER TDRR 29330 DR. C. [illegible] CHK [illegible] APPD P.C.D.	8/4/66	
M	CHANGED PER TDRR 29336 DR [illegible] CHK [illegible] APPD	9/8/66	
N	CHANGED PER TDRR 29801 DR. C. [illegible] CHK [illegible] APPD [illegible]	9/7/66	
P	CHANGED PER TDRR 30172 DR [illegible] CHK C. [illegible] APPD [illegible]	9/14/66	
R	REPLACED BY REV S WITH CHANGE: PER TDRR 31278 DR [illegible] CHK [illegible]	11/2/66	

Ⓡ REPLACED BY REV S WITH CHANGE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6-42
8-49
8-25
8-108
SEE NOTE 8
86-REF
89-REF.
16-24
16-25
16-26
2-22
16-23
115
88-REF

SECTION A-A
ROTATED 90° CCW
SEE SHEET 1

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	—	—	2016453	INTERCONNECTION DIAGRAM	REF
1	—	—	—	1004260-277	NAMEPLATE	182
1	—	—	—	2014041-041	PROGRAMMER & MONITOR ASSY.	181
1	1	—	—	2014045-031	RDC INTERFACE ASSY	180
1	1	—	—	2014037-031	LOGIC DRAWER NO.2 ASSY	179
1	1	—	—	2014366-031	SELF TEST ASSY	178
—	☒	—	—	2016444	INTERCONNECTION DIAGRAM	REF
☒	☒	—	—	2016443	ELEC. SCHEM. AC & DC PWR DISTR	REF
—	1	—	—	1004260-270	NAME PLATE	177
1	1	—	—	2014046-031	A18 INTERCONNECTION ASSY	176
—	—	☒	—	2016419	ELEC SCHEM AC & DC PWR DISTR	REF
—	—	☒	—	2016387	INTERCONN DIAGRAM	REF
—	—	—	☒	2014172	ELEC SCHEM AC & DC PWR DISTR	REF
—	—	—	☒	2014138	INTERCONN DIAGRAM	REF
—	1	—	—	2014041-031	PROGRAMMER & MONITOR ASSY	175
1	1	—	—	2014036-031	LOGIC DRAWER ASSY NO.1	174
1	1	1	—	2014044-021	POWER CONTROL ASSY	173
—	—	1	—	2014046-021	A18 INTERCONNECTION ASSY	172
1	1	1	—	MS35173-274B	CONNECTOR, ADAPTER TEE (MIL-C-[illegible]	171
2	2	2	—	NAS620C6	WASHER, FLAT	170
—	—	1	—	1004260-258	NAME PLATE	169
—	—	1	—	2014366-021	SELF TEST ASSY	168
—	—	1	—	2014045-021	RDC INTERFACE ASSY	167
—	—	1	—	2014041-021	PROGRAMMER & MONITOR ASSY	166
1	1	1	—	2014040-021	XY INTERFACE ASSY	165
—	—	1	—	2014037-021	LOGIC DRAWER NO.2 ASSY	164
—	—	1	—	2014036-021	LOGIC DRAWER NO.1 ASSY	163
AR	AR	AR	AR	1006458-004	TAPE, LACING	162
~~—~~	~~—~~	~~—~~	~~AR~~	~~MIL-S-22437, GR IV~~	~~SEALING & RETAINING COMPOUND~~	~~161~~
12	12	12	12	MS51957-45	SCREW, PAN HD	160
2	2	2	2	2016350-031	SLIDE, BRACKET ASSY	159
2	2	2	2	2016350-021	SLIDE, BRACKET ASSY	158
2	2	2	2	2016350-011	SLIDE, BRACKET ASSY	157
1	1	1	1	MS21919-DG7	CLAMP, LOOP	156
2	2	2	2	MS21919-DG6	CLAMP, LOOP	155
~~—~~	~~—~~	~~—~~	~~5~~	~~1006872-12~~	~~CLAMP, LOOP~~	~~154~~
15	15	15	15	1006872-14	CLAMP, LOOP	153
7	7	7	7	1006872-9	CLAMP, LOOP	152
11	11	11	11	1006872-11	CLAMP, LOOP	151
2	2	2	2	2016350-041	SLIDE, BRACKET ASSY	150
8	8	8	4	1006872-10	CLAMP, LOOP	149
1	1	1	1	2014115-021	STRAP, GROUND	148
5	5	5	5	2014458-171	CABLE ASSY, GROUND	147
1	1	1	1	-151		146
1	1	1	1	-121		145
1	1	1	1	-111		144
1	1	1	1	-081		143
1	1	1	1	2014458-061		142
1	1	1	1	2014457-071	CABLE ASSY, GROUND	141
1	1	1	1	MS21919DG13	CLAMP, LOOP	140
2	2	2	2	MS21919DG24	CLAMP, LOOP	139
1	1	1	1	MS21919DG10	CLAMP, LOOP	138
~~—~~	~~—~~	~~—~~	~~1~~	~~[illegible]~~	~~CLAMP, LOOP~~	~~137~~
5	5	5	5	MS21919DG14	CLAMP, LOOP	136

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9 497
DRAWN [illegible] DATE 16 June 65
CHECKED [illegible] 19 OCT 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET . ASSEMBLY

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014042
SCALE 1/8 | WT | SHEET 3 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

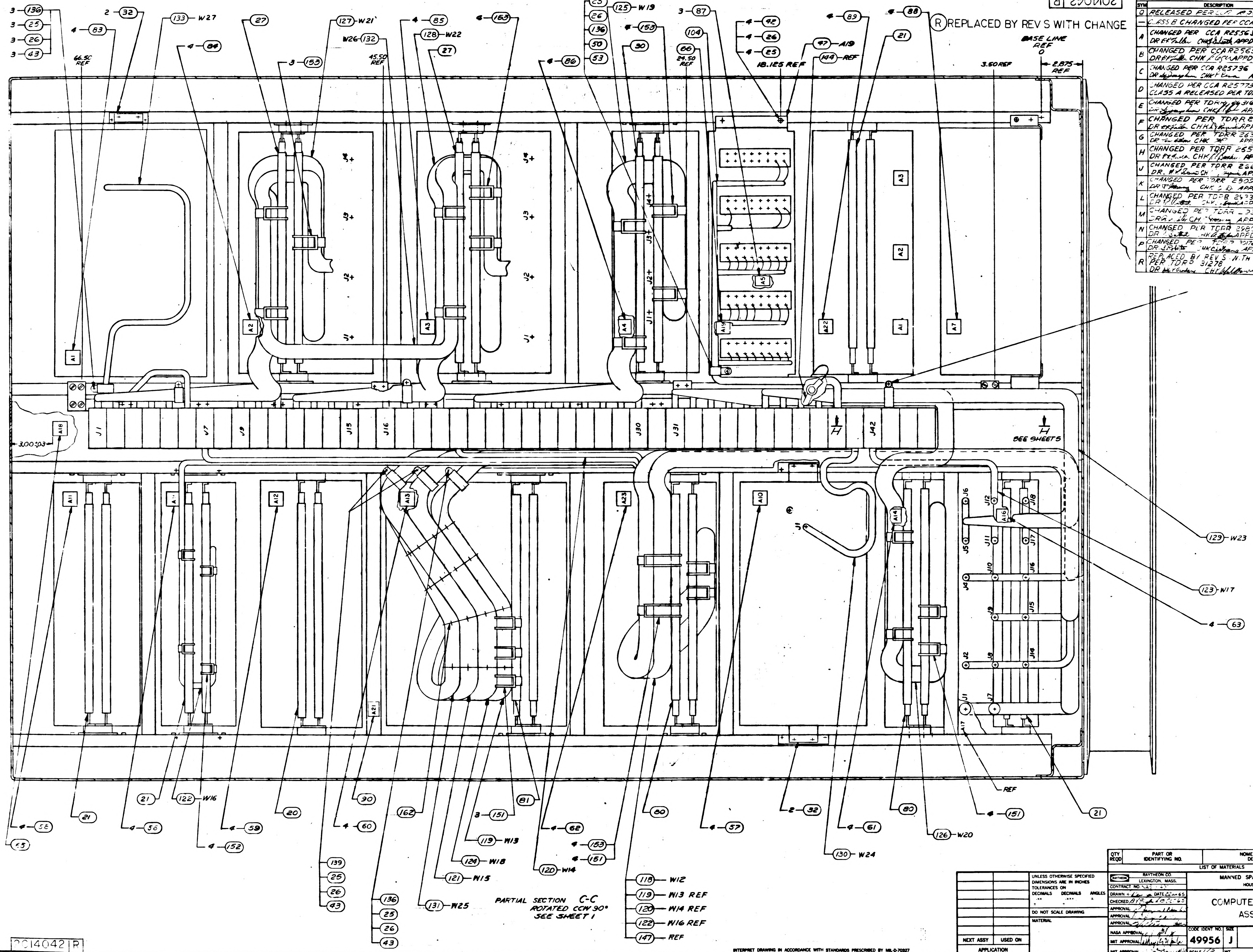
MASTER

2014042 R

2014042 R

Ⓡ REPLACED BY REV S WITH CHANGE

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25563 DR CHK APPD		
B	CHANGED PER CCA R25659 DR CHK APPD P.E.D	1/11/66	
C	CHANGED PER CCA R25736 DR CHK APPD P.E.D	1/17/66	
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/20/66	
E	CHANGED PER TDRR 26316 DR CHK APPD P.E.D		
F	CHANGED PER TDRR 26317 DR CHK APPD	3/7/66	
G	CHANGED PER TDRR 26315 DR CHK APPD P.E.D	3/23/66	
H	CHANGED PER TDRR 25545 DR CHK APPD P.E.D	4/2/66	
J	CHANGED PER TDRR 26673 DR. CH APPD	14 APR 66	
K	CHANGED PER TDRR 29099 DR CHK C.D. APPD		
L	CHANGED PER TDRR 29330 DR CHK APPD P.E.D	7/66	
M	CHANGED PER TDRR 29336 DR CH APPD	11/66	
N	CHANGED PER TDRR 29801 DR CHK APPD	11/66	
P	CHANGED PER TDRR 30172 DR CHK APPD	11/66	
R	REPLACED BY REV S WITH CHANGES PER TDRR 31278 DR CHK	12/27/66	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119 — W13 REF
120 — W14 REF
122 — W16 REF
147 — REF
PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS
DRAWN DATE 22 65
CHECKED 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

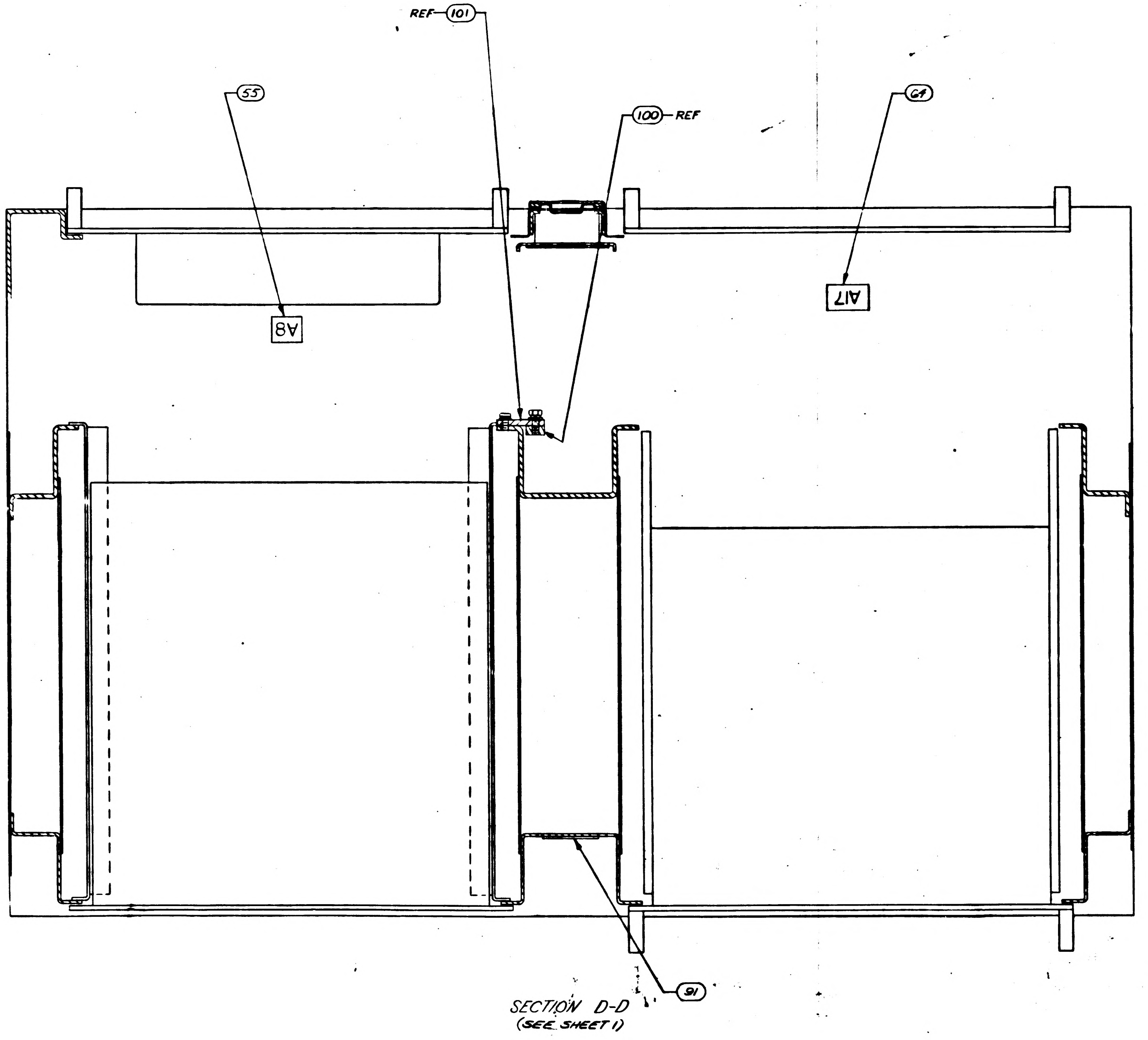
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 4 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

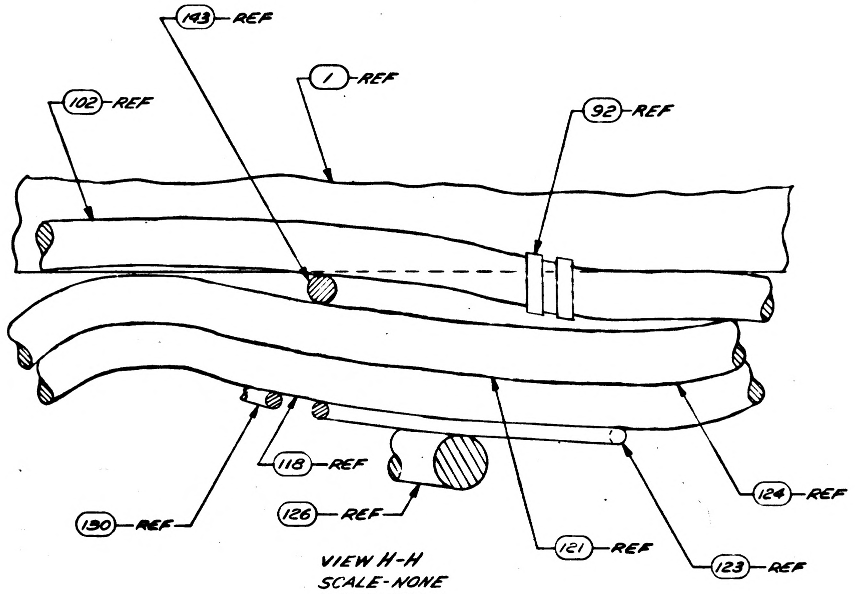
2014042 R

SYM	DESCRIP	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR B.K. Fuller CHK J. Galbreath APPD R.P. [illegible]	12/27/65	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.E.D.	1/14/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK P. [illegible] APPD P.E.D.	1/18/66	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR [illegible]	[illegible]/66	[illegible]
E	CHANGED PER TDRR 2636 DR [illegible] CHK [illegible] APPD P.E.D.	2/19/66	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	3/7/66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.E.D.	3/23/66	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD PED	4/1/66	[illegible]
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	18 APR 66	[illegible]
K	CHANGED PER TDRR 28039 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
L	CHANGED PER TDRR 29330 DR. O. [illegible] CHK [illegible] APPD P.E.D.	6/16/66	[illegible]
M	CHANGED PER TDRR 29336 DR R. [illegible] CHK [illegible] APPD	[illegible]	[illegible]
N	CHANGED PER TDRR 29801 DR O. [illegible] CHK [illegible] APPD R.A.[illegible]	[illegible]/66	[illegible]
P	CHANGED PER TDRR 30172 DR [illegible] CHK C.B. APPD [illegible]	9/16/66	[illegible]
R	REPLACED BY REV S WITH CHANGES PER TDRR 31278 DR John P. Giordano CHK [illegible]	11/29/66	[illegible]

Ⓡ REPLACED BY REV S WITH CHANGE



SECTION D-D
(SEE SHEET 1)



VIEW H-H
SCALE-NONE
SEE SHEET 4

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN
DATE
CHECKED [illegible] 19 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014042

SCALE 1/2
WT
SHEET 5 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

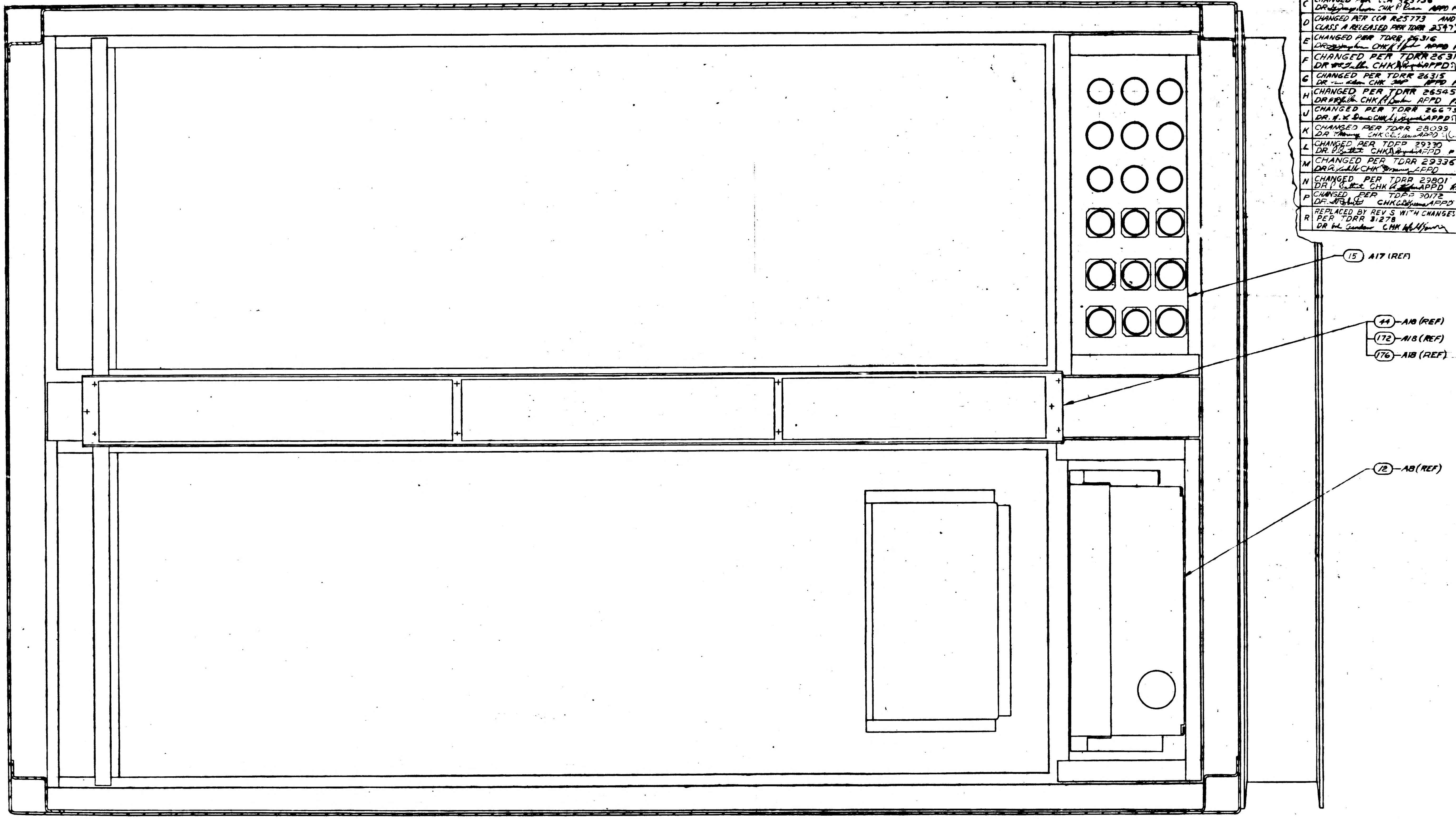
2014042 R

2014042 R

2014042 R

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/27/65	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK [illegible] APPD P.C.D	1/11/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK P. [illegible] APPD P.C.D	[illegible]/66	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/24/66	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
F	CHANGED PER TDRR 26317 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD PED	[illegible]	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD PED	4/4/66	[illegible]
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	4 APR 66	[illegible]
K	CHANGED PER TDRR 28099 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
L	CHANGED PER TDRR 29330 DR. [illegible] CHK [illegible] APPD P.C.D	[illegible]/66	[illegible]
M	CHANGED PER TDRR 29336 DR [illegible] CHK [illegible] APPD	[illegible]/66	[illegible]
N	CHANGED PER TDRR 29801 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
P	CHANGED PER TDRR 30172 DR. [illegible] CHK [illegible] APPD [illegible]	8/14/66	[illegible]
R	REPLACED BY REV S WITH CHANGES PER TDRR 31278 DR [illegible] CHK [illegible]	10/24/66	[illegible]



SECTION F-F
ROTATED 90° CCW
(SEE SHEET 1)

Ⓡ REPLACED BY REV S WITH CHANGE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS9-497
DRAWN [illegible] DATE 12 AUG 65
CHECKED [illegible] 17 OCT 65
APPROVAL [illegible] 1 Nov 65
APPROVAL [illegible] 11/1/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C [illegible]

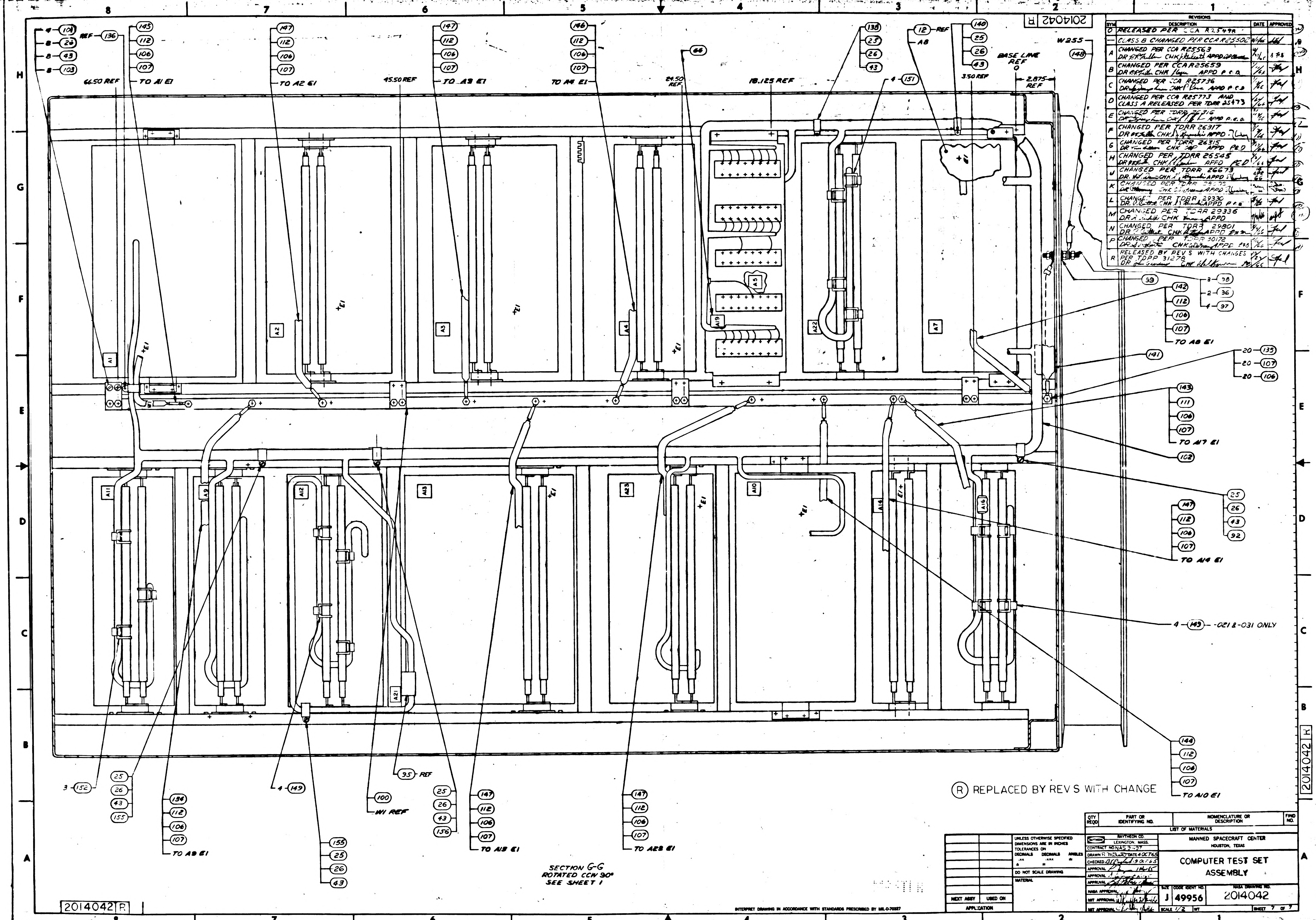
MANNED SPACECRAFT CENTE
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO 49956 | SIZE J | NASA DRAWING NO 2014042
SCALE 1/2 | WT | SHEET 6 7

2014042 R

2014042 R



4 – 101
8 – 20
8 – 43
8 – 103
REF – 136
145
112
106
107
TO A1 E1
66.50 REF
147
112
106
107
TO A2 E1
45.50 REF
147
112
106
107
TO A3 E1
TO A4 E1
146
112
106
107
24.50 REF
66
18.125 REF
138
23
26
43
4 – 151
12 – REF
A8
140
25
26
43
3.50 REF
BASE LINE REF
0
2.875 REF
W255
148
A1
A2
A3
A4
A5
A19
A22
A7
+E1
99
3 – 98
2 – 36
4 – 97
142
112
106
107
TO A8 E1
141
20 – 135
20 – 107
20 – 106
143
111
106
107
TO A17 E1
102
25
26
43
92
147
112
106
107
TO A14 E1
4 – 149 – 021 & – 031 ONLY
A11
A9
A12
A13
A23
A10
A14
A16
A21
144
112
106
107
TO A10 E1
3 – 152
25
26
43
155
134
112
106
107
TO A9 E1
4 – 149
155
25
26
43
100
W1 REF
95 – REF
25
26
43
156
147
112
106
107
TO A13 E1
147
112
106
107
TO A23 E1
SECTION G-G
ROTATED CCW 90°
SEE SHEET 1

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25563 DR BK Muller CHK J Gilbreath APPD [illegible]	12/21/65	[illegible]
B	CHANGED PER CCA R25659 DR BK Muller CHK [illegible] APPD P.C.D.	1/11/66	[illegible]
C	CHANGED PER CCA R25736 DR [illegible] CHK P [illegible] APPD P.C.D.	1/4/66	[illegible]
D	CHANGED PER CCA R25773 AND CLASS A RELEASED PER TDRR 25473	1/27/66	[illegible]
E	CHANGED PER TDRR 26316 DR [illegible] CHK [illegible] APPD P.C.D.	2/4/66	[illegible]
F	CHANGED PER TDRR 26317 DR BK Muller CHK [illegible] APPD [illegible]	3/4/66	[illegible]
G	CHANGED PER TDRR 26315 DR [illegible] CHK [illegible] APPD P.C.D.	3/12/66	[illegible]
H	CHANGED PER TDRR 26545 DR [illegible] CHK [illegible] APPD P.C.D.	4/1/66	[illegible]
J	CHANGED PER TDRR 26673 DR. [illegible] CHK [illegible] APPD [illegible]	14 APR 66	[illegible]
K	CHANGED PER TDRR [illegible] DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
L	CHANGED PER TDRR 29330 DR. [illegible] CHK [illegible] APPD P.C.D.	[illegible]	[illegible]
M	CHANGED PER TDRR 29336 DR [illegible] CHK [illegible] APPD	7/13/66	[illegible]
N	CHANGED PER TDRR 29801 DR [illegible] CHK [illegible] APPD [illegible]	8/4/66	[illegible]
P	CHANGED PER TDPP 30172 DR [illegible] CHK [illegible] APPD [illegible]	8/16/66	[illegible]
R	RELEASED BY REV S WITH CHANGES PER TDPP 31278 DR [illegible] CHK [illegible]	12/2/66	[illegible]

Ⓡ REPLACED BY REV S WITH CHANGE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Miller DATE 4 OCT 65
CHECKED [illegible] 19 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 7 OF 7

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014042 R

S | 2014042

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31278 E45	9/27/66	

Ⓢ REPLACES REV R WITH CHANGE

FOR NOTES SEE SHEET 2

QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	—	—	—	—	1006923-005	CABINET, ELECTRICAL EQUIP	185
1	—	—	—	—	2014036-041	LOGIC DRAWER ASSY NO. 1	184
1	—	—	—	—	1009260-280	NAMEPLATE	183
X	—	—	—	—	2016455	INTERCONNECTION DIAGRAM	REF
—	X	—	—	—	2016453	INTERCONNECTION DIAGRAM	REF
—	1	—	—	—	1009260-277	NAMEPLATE	182
1	1	—	—	—	2014041-041	PROGRAMMER & MONITOR ASSY	181
1	1	1	—	—	2014045-031	RDC INTERFACE ASSY	180
1	1	1	—	—	2014037-031	LOGIC DRAWER NO. 2 ASSY	179
1	1	1	—	—	2014366-031	SELF TEST ASSY	178
—	—	X	—	—	2016444	INTERCONNECTION DIAGRAM	REF
X	X	X	—	—	2016443	ELEC SCHEM AC & DC PWR DISTR	REF
—	—	1	—	—	1009260-270	NAMEPLATE	177
1	1	1	—	—	2016046-031	AIB INTERCONNECTION ASSY	176
—	—	—	X	—	2016414	ELEC SCHEM AC & DC PWR DISTR	REF
—	—	—	X	—	2016387	INTERCONN DIAGRAM	REF
—	—	—	—	X	2014172	ELEC SCHEM AC & DC PWR DISTR	REF
—	—	—	—	X	2014138	INTERCONN DIAGRAM	REF
—	—	1	—	—	2014041-031	PROGRAMMER & MONITOR ASSY	175
—	1	1	—	—	2014036-031	LOGIC DRAWER ASSY NO. 1	174
1	1	1	1	—	2014044-021	POWER CONTROL ASSY	173
—	—	—	1	—	2014046-021	AIB INTERCONNECTION ASSY	172
1	1	1	1	—	MS35173-274B	CONNECTOR, ADAPTER TEE (MIL-C-3643)	171
2	2	2	2	—	NAS620C6	WASHER, FLAT	170
—	—	—	1	—	1009260-258	NAMEPLATE	169
—	—	—	1	—	2014336-021	SELF TEST ASSY	168
—	—	—	1	—	2014045-021	RDC INTERFACE ASSY	167
—	—	—	1	—	2014041-021	PROGRAMMER & MONITOR ASSY	166
1	1	1	1	—	2014040-021	XY INTERFACE ASSY	165
—	—	—	1	—	2014037-021	LOGIC DRAWER NO. 2 ASSY	164
—	—	—	1	—	2014036-021	LOGIC DRAWER NO. 1 ASSY	163
AR	AR	AR	AR	AR	1006458-004	TAPE, LACING	162
				~~AR~~	~~MIL-S-22473 GR HV~~	~~SEALING & RETAINING COMPOUND~~	~~161~~
12	12	12	12	12	MS51957-45	SCREW, PAN HD	160
2	2	2	2	2	2016350-031	SLIDE, BRACKET ASSY	159
2	2	2	2	2	2016350-021	SLIDE, BRACKET ASSY	158
2	2	2	2	2	2016350-011	SLIDE, BRACKET ASSY	157
1	1	1	1	1	MS21919-DG7	CLAMP, LOOP	156
2	2	2	2	2	MS21919-DG6	CLAMP, LOOP	155
				~~5~~	~~1006872-18~~	~~CLAMP, LOOP~~	~~154~~
15	15	15	15	15	1006872-14	CLAMP, LOOP	153
7	7	7	7	7	1006872-9	CLAMP, LOOP	152
11	11	11	11	11	1006872-11	CLAMP, LOOP	151
2	2	2	2	2	2016350-041	SLIDE, BRACKET ASSY	150
8	8	8	8	4	1006872-10	CLAMP, LOOP	149
1	1	1	1	1	2014115-021	STRAP, GROUND	148
5	5	5	5	5	2014958-171	CABLE ASSY, GROUND	147
1	1	1	1	1	151		146
1	1	1	1	1	121		145
1	1	1	1	1	111		144
1	1	1	1	1	081		143
1	1	1	1	1	2014958-061		142
1	1	1	1	1	2014957-071	CABLE ASSY, GROUND	141
					LIST OF MATERIALS		

SEE NOTE 2 (find nos. 83–89)

NOT SHOWN SEE NOTE 4 (find no. 82)

QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1	1	1	1	MS21919DG13	CLAMP, LOOP	140
2	2	2	2	2	MS21919DG29	CLAMP, LOOP	139
1	1	1	1	1	MS21919DG10	CLAMP, LOOP	138
				~~1~~	~~MS21919DG16~~	~~CLAMP LOOP~~	~~137~~
5	5	5	5	5	MS21919DG14	CLAMP LOOP	136
20	20	20	20	20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	1	1	1	1	2014958-191	CABLE ASSY, GROUND	134
1	1	1	1	1	2014971-011	CABLE ASSY W27	133
1	1	1	1	1	2014972-011	CABLE ASSY W26	132
1	1	1	1	1	2014973-011	CABLE ASSY W25	131
1	1	1	1	1	2014974-011	CABLE ASSY W24	130
1	1	1	1	1	2014975-011	CABLE ASSY W23	129
1	1	1	1	1	2014976-011	CABLE ASSY W22	128
1	1	1	1	1	2014977-011	CABLE ASSY W21	127
1	1	1	1	1	2014978-011	CABLE ASSY W20	126
1	1	1	1	1	2014979-011	CABLE ASSY W19	125
1	1	1	1	1	2014154 011	CABLE ASSY W18	124
1	1	1	1	1	2014980-011	CABLE ASSY W17	123
1	1	1	1	1	2014144-011	CABLE ASSY W16	122
1	1	1	1	1	2014153-011	CABLE ASSY W15	121
1	1	1	1	1	2014141-011	CABLE ASSY W14	120
1	1	1	1	1	2014155-011	CABLE ASSY W13	119
1	1	1	1	1	2014981-011	CABLE ASSY W12	118
29	29	29	29	29	MS35338-79	WASHER, LOCK	117
27	27	27	27	29	MS15795-806	WASHER, FLAT	116
AR	AR	AR	AR	AR	MIL-S-22473 GRHV	SEALING AND RETAINING COMPOUND	115
14	14	14	14	14	MS51958-62	SCREW, PAN HD	114
				~~8~~	~~MS15795-803~~	~~WASHER FLAT~~	~~113~~
10	10	10	10	10	MS51957-79	SCREW, PAN HD	112
1	1	1	1	1	MS35690-410	NUT, HEX	111
2	2	2	2	2	2014921	SUPPORT RAIL	110
2	2	2	2	2	2014920	SUPPORT RAIL	109
18	18	18	18	18	1006930-097	SPACER	108
31	31	31	31	31	MS35338-82	WASHER, LOCK	107
31	31	31	31	31	MS15795-810	WASHER, FLAT	106
4	4	4	4	4	MS51959-17	SCREW, FLAT HD	105
1	1	1	1	1	2014182-011	WIRING HARNESS, DC DIST	104
8	8	8	8	8	MS9549-09	WASHER, FLAT	103
1	1	1	1	1	2014490-011	WIRING HARNESS, BRANCHED	102
4	4	4	4	4	2014403	BLOCK, MOUNTING	101
1	1	1	1	1	2014401	BUSS, BAR	100
1	1	1	1	1	MS35335-63	WASHER LOCK, EXTERNAL TOOTH	99
3	3	3	3	3	MS35690-610	NUT, PLAIN	98
4	4	4	4	4	MS15795-815	WASHER, FLAT	97
2	2	2	2	2	MS35338-84	WASHER, LOCK	96
1	1	1	1	1	1006859-2	TERMINAL, BLOCK	95
				~~43~~	~~MS17821-2-3~~	~~TIE WRAP~~	~~94~~
2	2	2	2	2	2014422	COUPLING	93
1	1	1	1	1	MS21919DG8	CLAMP, LOOP	92
1	1	1	1	1	1014480-20	DECAL, IDENTIFICATION	91
1	1	1	1	1	-21		90
4	4	4	4	4	-22		89
4	4	4	4	4	-7		88
3	3	3	3	3	-5		87
4	4	4	4	4	-4		86
4	4	4	4	4	-3		85
4	4	4	4	4	-2		84
4	4	4	4	4	1014480-1	DECAL, IDENTIFICATION	83
1	1	1	1	1	1014150-1	CABLE, POWER	82
1	1	1	1	1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	2	2	2	2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	1	1	1	1	2014461 121	CABLE ASSY W253	79
1	1	1	1	1	-111	W252	78
1	1	1	1	1	-091	W251	77
1	1	1	1	1	-081	W250	76
1	1	1	1	1	-071	W249	75
1	1	1	1	1	-061	W248	74
1	1	1	1	1	-131	W240	73
1	1	1	1	1	-051	W247	72
1	1	1	1	1	2014461-041	CABLE ASSY W246	71
					LIST OF MATERIALS		

SEE NOTE 2 (find nos. 56–63)

QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1	1	1	1	2014461-031	CABLE ASSY, W245	70
1	1	1	1	1	2014461-021	CABLE ASSY, W244	69
1	1	1	1	1	2014461-011	CABLE ASSY, W243	68
1	1	1	1	1	2014432	PLATE, BAFFLE TERM. BD	67
1	1	1	1	1	1014480 -19	DECAL, IDENTIFICATION	66
1	1	1	1	1	-18		65
1	1	1	1	1	-17		64
4	4	4	4	4	-16		63
4	4	4	4	4	-23		62
4	4	4	4	4	-14		61
4	4	4	4	4	-13		60
4	4	4	4	4	-12		59
4	4	4	4	4	-11		58
4	4	4	4	4	-10		57
4	4	4	4	4	-9		56
1	1	1	1	1	1014480 -8	DECAL, IDENTIFICATION	55
4	4	4	4	4	MS35649-84	NUT, HEX PLAIN	54
1	1	1	1	1	MS35649-104	NUT, PLAIN HEX	53
—	—	—	—	1	1009260-203	PLATE, IDENTIFICATION	52
4	4	4	4	4	AN535-4-3	DRIVE SCREW	51
1	1	1	1	1	MS51957-63	SCREW, PAN HD	50
18	18	18	18	18	MS51958-67	SCREW, PAN HEAD	49
2	2	2	2	2	MS51957-35	SCREW, PAN HEAD	48
1	1	1	1	1	2016346-011	TERMINAL BOARD ASSY	47
9	9	9	9	9	2014425	PLATE, BAFFLE	46
8	8	8	8	8	2014424	PLATE, BAFFLE	45
—	—	—	—	1	2014046-011	AIB INTERCONNECTION ASSY	44
94	94	94	94	94	MS51958-63	SCREW, PAN HEAD	43
34	34	34	34	34	MS51958-64	SCREW, PAN HEAD	42
12	12	12	12	12	MS35338-80	WASHER, LOCK	41
12	12	12	12	12	MS15795-807	WASHER	40
				~~12~~	~~MS51957-46~~	~~SCREW PAN HEAD~~	~~39~~
1	1	1	1	1	1020352	PLATE CONNECTOR ASSY	38
				~~1~~	~~MS21919DG11~~	~~CLAMP LOOP~~	~~37~~
8	8	8	8	8	1014157-2	SLIDE, BRACKET ASSY	36
8	8	8	8	8	1014157-3	SLIDE, BRACKET ASSY	35
16	16	16	16	16	MS35650-104	NUT, HEX PLAIN	34
4	4	4	4	4	1014301-2	SLIDE, ADAPTER	33
4	4	4	4	4	1006878-2	SLIDE, CABINET SECTION	32
4	4	4	4	4	1014301-1	SLIDE ADAPTER	31
1	1	1	1	1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	27	27	27	27	MS35649-64	NUT, HEX, PLAIN	29
12	12	12	12	12	1014157-4	SLIDE BRACKET ASSY	28
2	2	2	2	2	1006938-3	SLIDE WITH CABLE CARRIER	27
208	208	208	208	208	MS35338-81	WASHER, LOCK	26
218	218	218	218	218	MS15795-808	WASHER, FLAT	25
72	72	72	72	72	MS51958-61	SCREW, PAN HEAD	24
88	88	88	88	88	MS51959-43	SCREW, FLAT HEAD	23
8	8	8	8	8	1014157-1	SLIDE BRACKET ASSY	22
4	4	4	4	4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1	1	1	1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	2	2	2	2	1006918	FILTER, AIR, RFI	19
1	1	1	1	1	2014274-011	AUX. OUTLET ASSY 115VAC	18
—	—	—	—	1	2014366-011	SELF TEST ASSY	17
1	1	1	1	1	1006897	FAN, VENTILATION RFI SHLD	16
1	1	1	1	1	2014047-011	CONNECTOR INTERFACE ASSY	15
—	—	—	—	1	2014045-011	RDC INTERFACE ASSY	14
—	—	—	—	1	2014044-011	POWER CONTROL ASSY	13
1	1	1	1	1	2014043-011	AC INPUT PANEL ASSY	12
—	—	—	—	1	2014041-011	PROGRAMMER & MONITOR ASSY	11
—	—	—	—	1	2014040-011	XY INTERFACE ASSY	10
1	1	1	1	1	2014039-011	TAPE PUNCH ASSY	9
1	1	1	1	1	2014038-011	TAPE READER ASSY	8
—	—	—	—	1	2014037-011	LOGIC DRAWER NO. 2 ASSY	7
—	—	—	—	1	2014036-011	LOGIC DRAWER NO. 1 ASSY	6
1	1	1	1	1	2014235-011	POWER SUPPLY ±13,28VDC ASSY	5
1	1	1	1	1	2014234-011	POWER SUPPLY 3VDC ASSY	4
1	1	1	1	1	2014233-011	FREQUENCY COUNTER ASSY	3
1	1	1	1	1	2014232-011	OSCILLOSCOPE ASSY	2
—	1	1	1	1	1006423-001	CABINET, ELECTRICAL EQUIP	
					LIST OF MATERIALS		

NEXT ASSY	USED ON
1900030	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
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LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
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APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

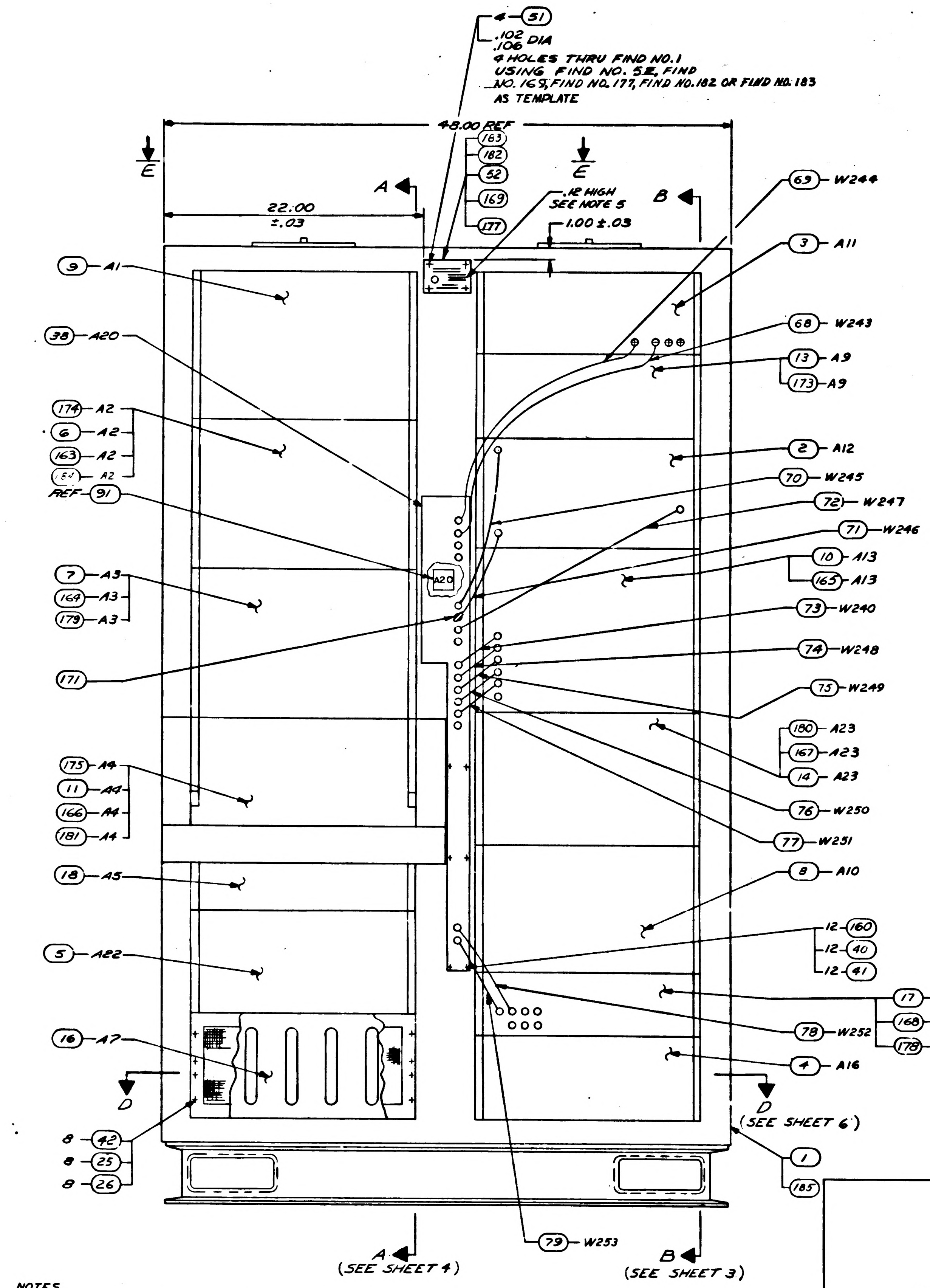
SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014042
SCALE 1/4 | WT | SHEET 1 OF 2

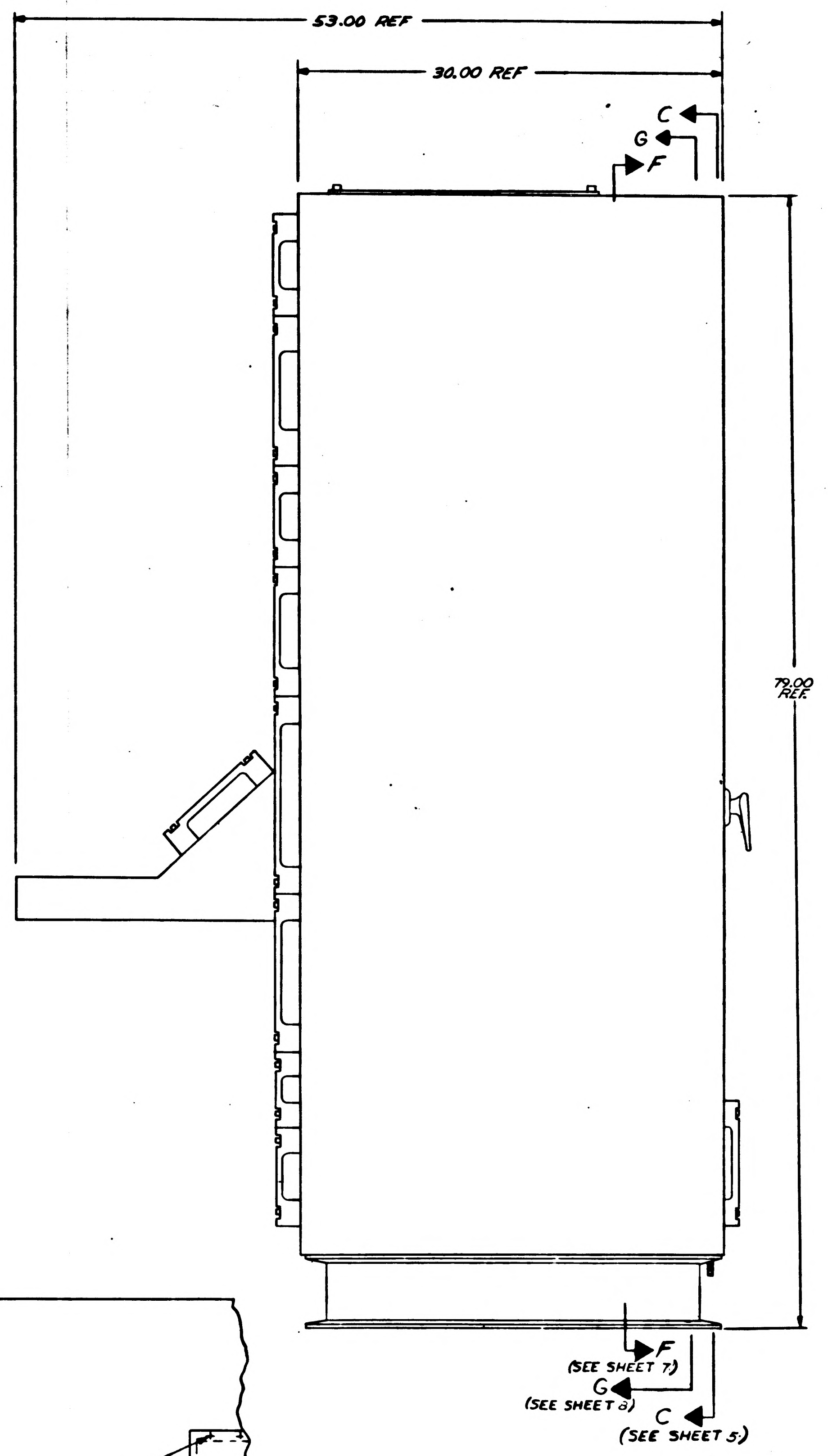
2014042 | S

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TCRR 31270 XYS	9/2/66	

2014042 S

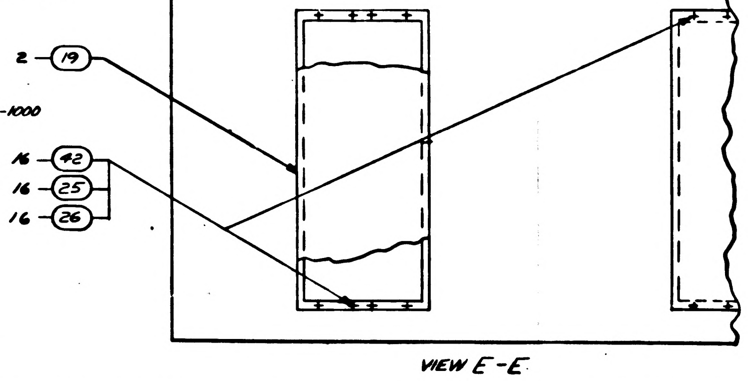
Ⓢ REPLACES REV R WITH CHANGE


4-(51)
.102/.106 DIA
4 HOLES THRU FIND NO.1
USING FIND NO. 52, FIND
NO. 165, FIND NO. 177, FIND NO. 182 OR FIND NO. 183
AS TEMPLATE
48.00 REF
(163)
(182)
(52)
(169)
(177)
E
.12 HIGH
SEE NOTE 5
1.00 ±.03
22.00 ±.03
A
B
(9)-A1
(38)-A20
(174)-A2
(6)-A2
(163)-A2
(52)-A2
REF-(91)
A20
(7)-A3
(169)-A3
(179)-A3
(171)
(175)-A4
(11)-A4
(166)-A4
(181)-A4
(18)-A5
(5)-A22
(16)-A7
D
8-(42)
8-(25)
8-(26)
(69)-W244
(3)-A11
(68)-W243
(13)-A9
(173)-A9
(2)-A12
(70)-W245
(72)-W247
(71)-W246
(10)-A13
(165)-A13
(73)-W240
(74)-W248
(75)-W249
(180)-A23
(167)-A23
(14)-A23
(76)-W250
(77)-W251
(8)-A10
12-(160)
12-(40)
12-(41)
(17)-A14
(168)-A14
(178)-A14
(78)-W252
(4)-A16
D (SEE SHEET 6)
(1)
(185)
(79)-W253
A (SEE SHEET 4)
B (SEE SHEET 3)


53.00 REF
30.00 REF
C
G
F
79.00 REF
F (SEE SHEET 7)
G (SEE SHEET 8)
C (SEE SHEET 5)

NOTES

1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89) ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-STD-1000
4. STORE FIND 82 IN DOOR COMPARTMENT
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014042 FOR-011 CONFIGURATION, PS 2016002 FOR-021 CONFIGURATION, & PS 2016006 FOR-031, 041 OR 051 CONFIGURATION
8. ASSEMBLE FIND 49 USING FIND 115


2-(19)
16-(42)
16-(25)
16-(26)

VIEW E-E

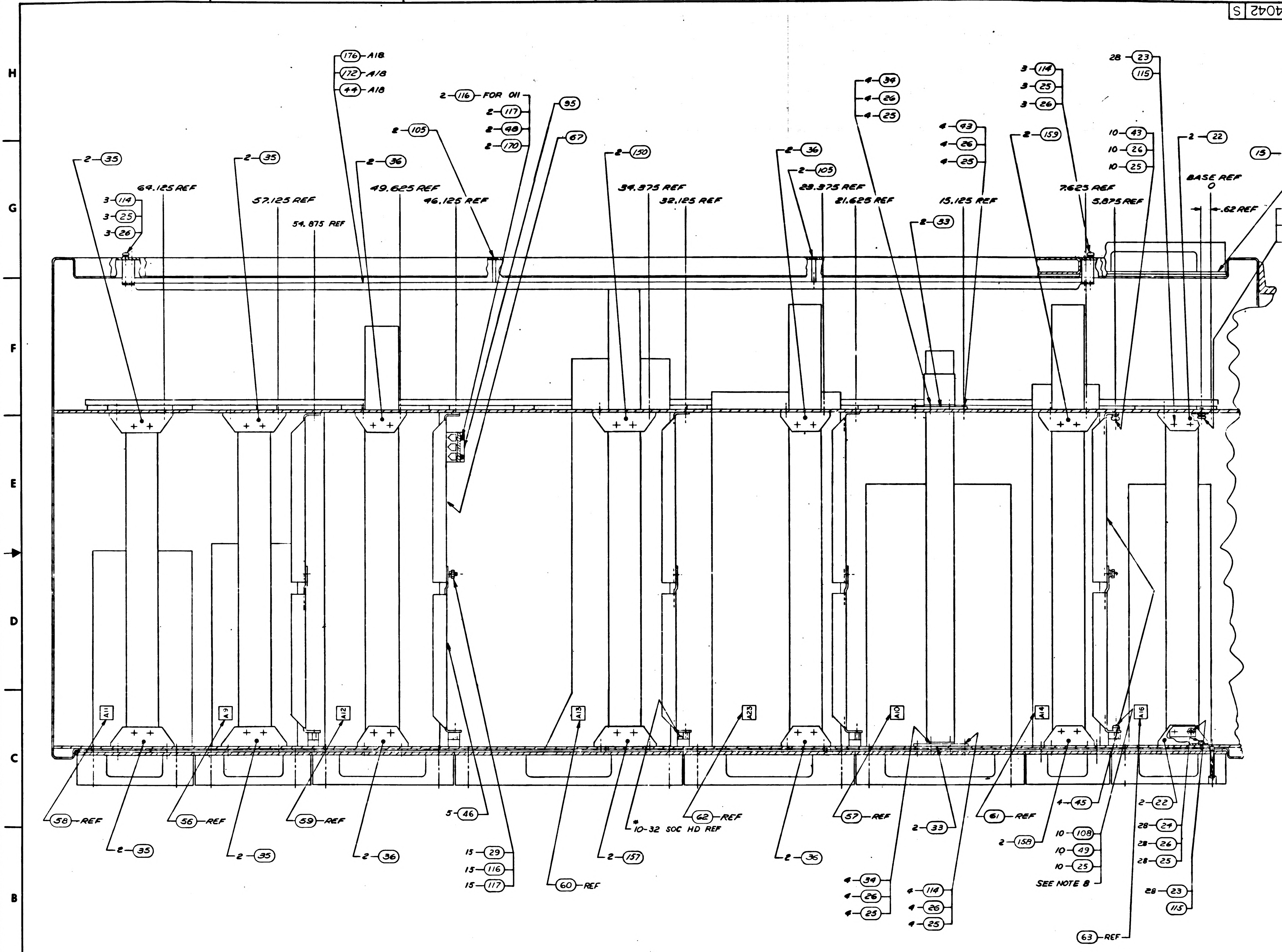
2014042 S

NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .xx ± DECIMALS .xxx ± ANGLES ±	RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
APPLICATION		DO NOT SCALE DRAWING	CONTRACT NO. NAS 9-497	COMPUTER TEST SET ASSEMBLY
		MATERIAL	DRAWN	
			CHECKED	
			APPROVAL	
			APPROVAL	
			APPROVAL	
			NASA APPROVAL R. Jacob 9/2/66	CODE IDENT NO. 49956
			MIT APPROVAL	SIZE J
			MIT APPROVAL	NASA DRAWING NO. 2014042
				SCALE 1/4
				WT
				SHEET 2 OF 8

2014042

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31278 x#3	9/7/66	

2014042 S



8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
176 A18
172 A18
44 A18
2 116 FOR 011
2 117
2 48
2 170
95
67
2 105
2 35
2 35
2 36
2 150
2 36
2 105
4 34
4 26
4 25
4 43
4 26
4 25
2 53
2 159
3 114
3 25
3 26
10 43
10 26
10 25
28 23
115
2 22
15 A17
28 43
28 26
28 25
3 114
3 25
3 26
64.125 REF
57.125 REF
54.875 REF
49.625 REF
46.125 REF
34.375 REF
32.125 REF
28.375 REF
21.625 REF
15.125 REF
7.625 REF
5.875 REF
BASE REF
0
.62 REF
A11
A9
A12
A13
A23
A10
A14
A16
58 REF
56 REF
59 REF
2 35
2 35
2 36
5 46
15 29
15 116
15 117
60 REF
2 157
10-32 SOC HD REF
62 REF
2 36
57 REF
4 34
4 26
4 25
2 33
4 114
4 26
4 25
61 REF
2 158
4 45
10 108
10 49
10 25
SEE NOTE 8
2 22
28 24
28 26
28 25
28 23
115
63 REF

Ⓢ REPLACES REV R WITH CHANGE

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 2)

2014042 S

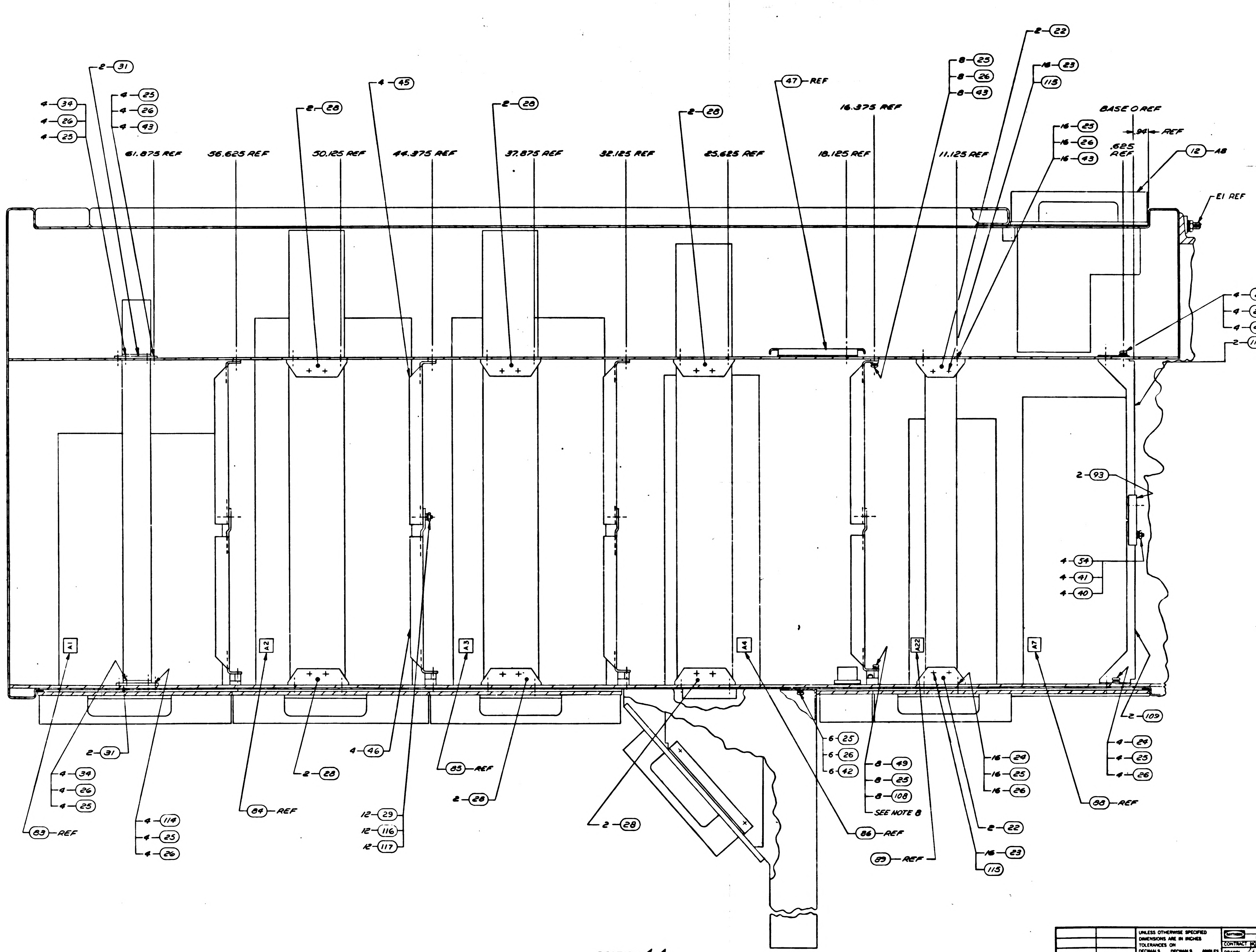
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±	RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
		DO NOT SCALE DRAWING	CONTRACT NO. NAS 9 497	COMPUTER TEST SET ASSEMBLY
		MATERIAL	DRAWN DATE	
			CHECKED	
			APPROVAL	
			APPROVAL	
			APPROVAL	
			APPROVAL	CODE IDENT NO. 49956
			NASA APPROVAL 9/23/66	SIZE J
NEXT ASSY	USED ON		MIT APPROVAL	NASA DRAWING NO. 2014042
APPLICATION				SCALE 1/2 WT SHEET 3 OF 8

2014042

2014042 S

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31270	9/1/70	

Ⓢ REPLACES REV R WITH CHANGE

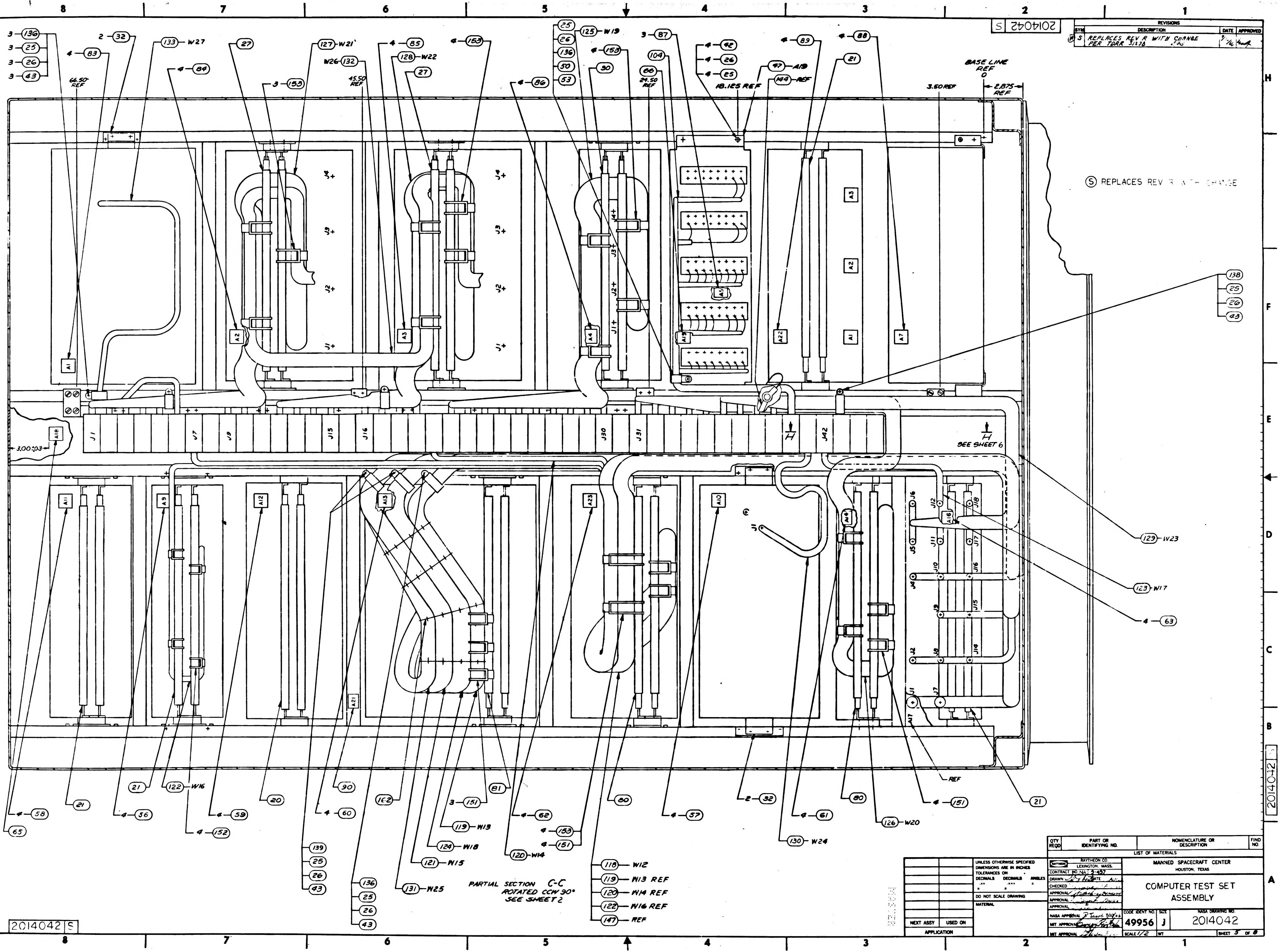


2-31
4-34
4-26
4-25
4-25
4-26
4-43
2-28
4-45
2-28
2-28
47-REF
16.375 REF
8-25
8-26
8-43
2-22
16-23
115
BASE O REF
.94 REF
16-23
16-26
16-43
.625 REF
12-A8
E1 REF
61.875 REF
56.625 REF
50.125 REF
44.375 REF
37.875 REF
32.125 REF
25.625 REF
18.125 REF
11.125 REF
4-25
4-26
4-43
2-110
2-93
4-54
4-41
4-40
A1
A2
A3
A4
A22
A7
2-109
2-31
4-34
4-26
4-25
4-114
4-25
4-26
83-REF
84-REF
2-28
4-46
12-29
12-116
12-117
85-REF
2-28
2-28
6-25
6-26
6-42
8-49
8-25
8-108
SEE NOTE 8
86-REF
89-REF
16-24
16-25
16-26
2-22
16-23
115
88-REF
4-24
4-25
4-26

SECTION A-A
ROTATED 90° CCW
SEE SHEET 2

NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±	RAYTHEON CO. LEXINGTON MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
APPLICATION		DO NOT SCALE DRAWING	CONTRACT NO. NAS 9 497	COMPUTER TEST SET ASSEMBLY
		MATERIAL	DRAWN DATE	
			CHECKED	
			APPROVAL	
			APPROVAL	
			APPROVAL	
			NASA APPROVAL R. Jacob 1/13/60	SIZE J · CODE IDENT NO. 49956 · NASA DRAWING NO. 2014042
			MIT APPROVAL	
			MIT APPROVAL	SCALE 1/2 · WT · SHEET 4 OF 8

2014042 S


2014042 S
BASE LINE REF 0
2.875 REF
3.50 REF
18.125 REF
29.50 REF
45.50 REF
66.50 REF
3.00±.03
3 — 136
3 — 25
3 — 26
3 — 43
4 — 83
2 — 32
133 — W27
4 — 84
27
3 — 153
127 — W21
W26 — 132
4 — 85
128 — W22
27
4 — 153
4 — 86
25
26
136
50
53
125 — W19
4 — 153
30
3 — 87
104
66
4 — 92
4 — 26
4 — 25
97 — A19
144 — REF
4 — 89
4 — 88
21
A1
A2
A3
A4
A5
A7
A15
A22
A18
J1
J2
J3
J4
J7
J9
J15
J16
J30
J31
J42
H
H
SEE SHEET 6
138
25
26
43
A11
A9
A12
A13
A23
A10
A14
A16
A17
A21
J5
J6
J8
J10
J11
J12
J14
J15
J16
J17
J18
129 — W23
123 — W17
4 — 63
REF
21
4 — 151
126 — W20
80
4 — 61
130 — W24
2 — 32
4 — 57
80
4 — 62
4 — 153
4 — 151
120 — W14
81
3 — 151
119 — W13
124 — W18
121 — W15
162
4 — 60
90
20
4 — 59
122 — W16
4 — 152
21
4 — 56
21
4 — 58
65
139
25
26
43
136
25
26
43
131 — W25
118 — W12
119 — W13 REF
120 — W14 REF
122 — W16 REF
147 — REF

PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 2

Ⓢ REPLACES REV R WITH CHANGE

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31278	9/ /66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL R Jacot 9/23/66
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 5 OF 8

2014042 S

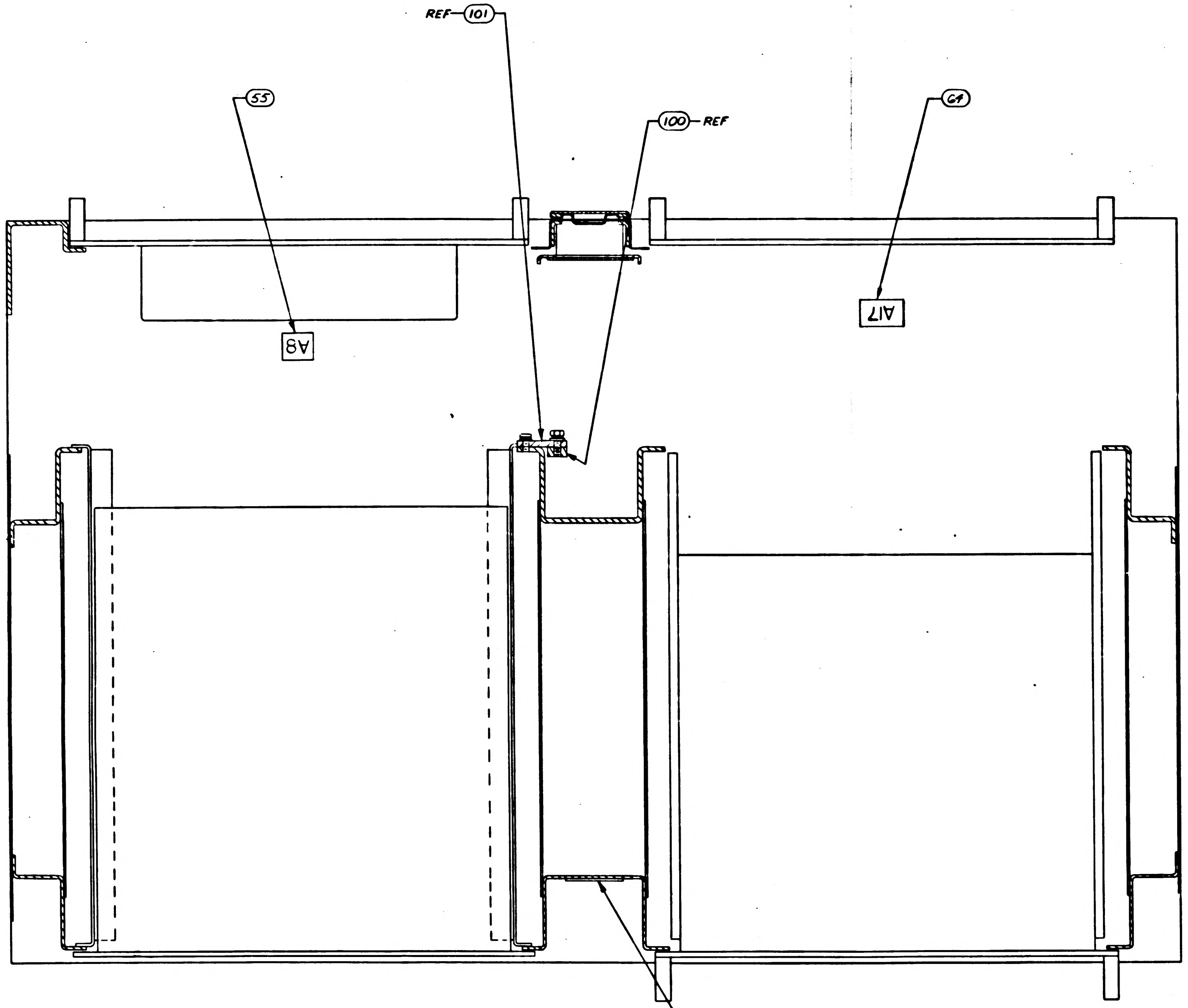
2014042

2014042 S

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31278 x=3	9/-/66	

Ⓢ REPLACES REV R WITH CHANGE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(100) REF
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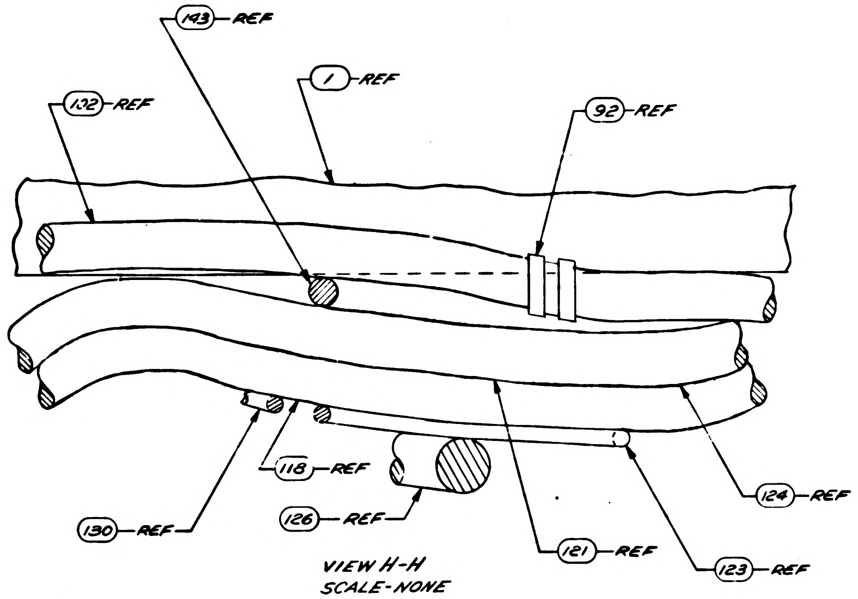
A17
(91)

SECTION D-D
(SEE SHEET 2)


(143) REF
(1) REF
(132) REF
(92) REF
(118) REF
(126) REF
(130) REF
(121) REF
(124) REF
(123) REF

VIEW H-H
SCALE-NONE
SEE SHEET 5

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .xx ± DECIMALS .xxx ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL R Frost 9/-/66
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

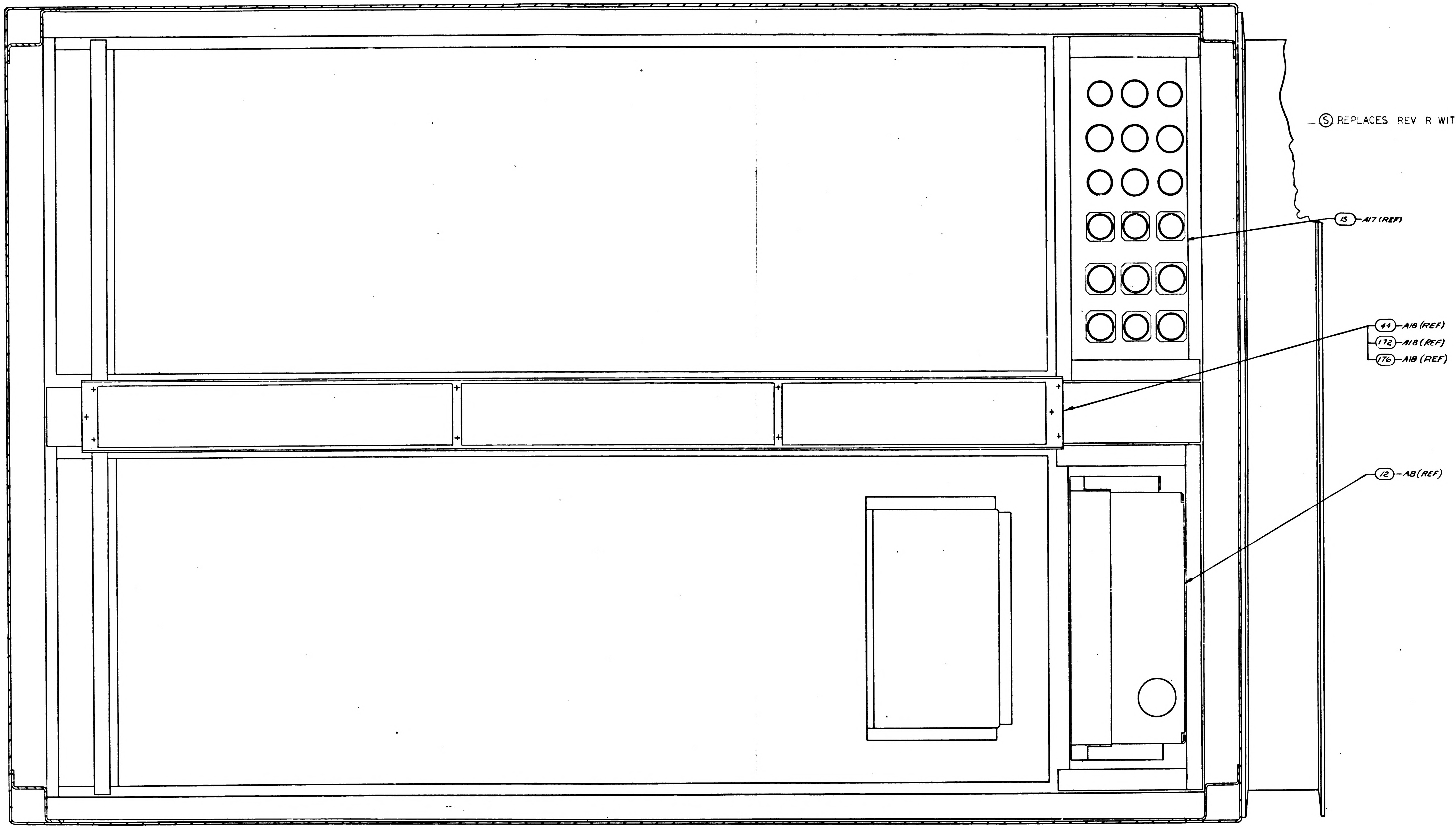
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 6 OF 8

2014042 S

2014042 S

SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31278 X73		



SECTION F-F
ROTATED 90° CCW
(SEE SHEET 2)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO NAS9 497
DRAWN DATE
CHECKED AUG 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL R. Jacob 1/28/66
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTE
HOUSTON, TEXAS

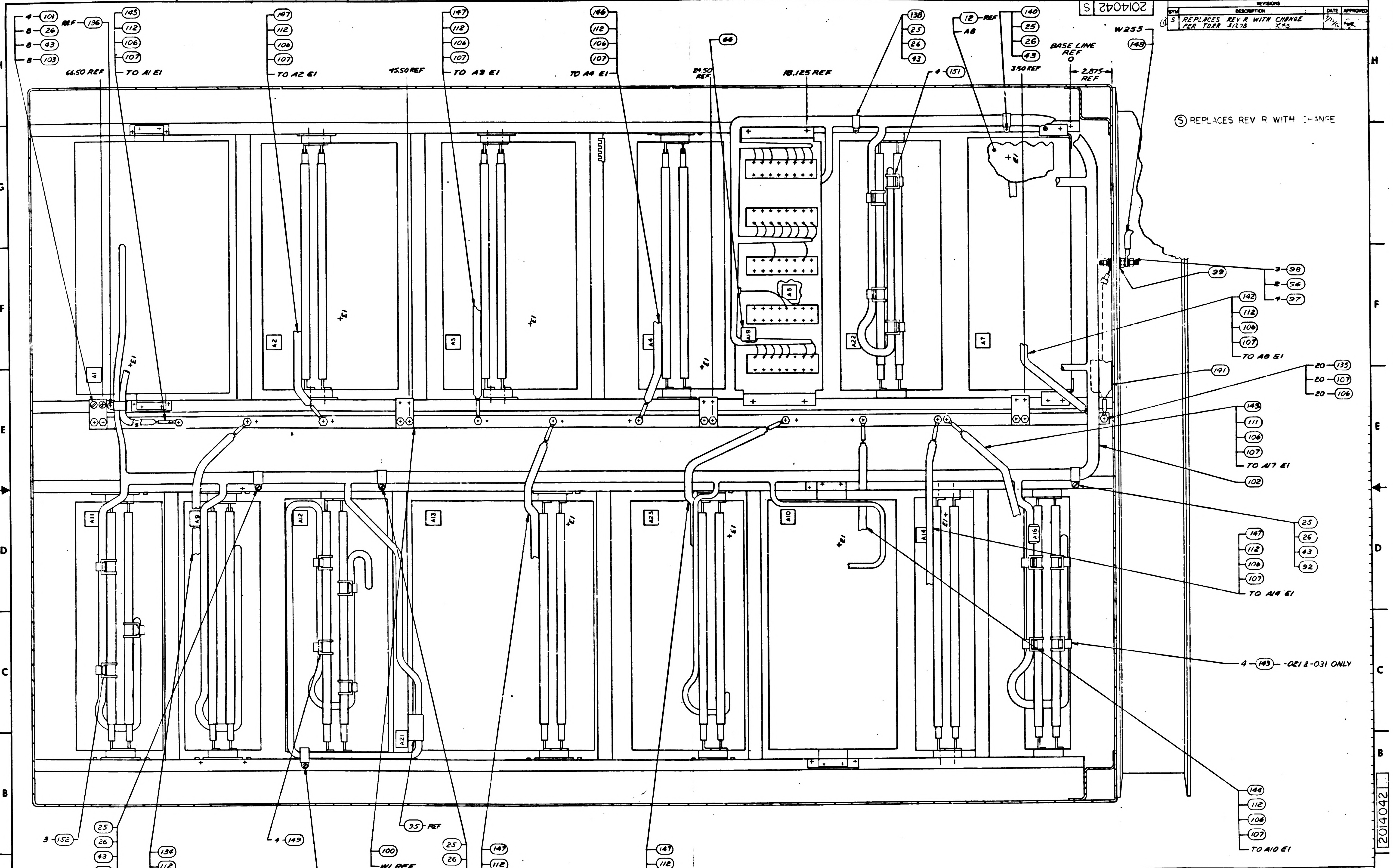
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO 2014042
SCALE 1/2
WT
SHEET 7 OF 8

2014042 S

2014042 S

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31278	5/22/66	



8
7
6
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H
G
F
E
D
C
B
A
4 (101)
8 (26)
8 (43)
8 (103)
REF (136)
(145)
(112)
(106)
(107)
TO A1 E1
66.50 REF
(147)
(112)
(106)
(107)
TO A2 E1
45.50 REF
(147)
(112)
(106)
(107)
TO A3 E1
(146)
(112)
(106)
(107)
TO A4 E1
(66)
24.50 REF
18.125 REF
(138)
(25)
(26)
(43)
4 (151)
(12) REF
A8
(140)
(25)
(26)
(43)
3.50 REF
BASE LINE REF 0
2.875 REF
W255
(148)
Ⓢ REPLACES REV R WITH CHANGE
A1
A2
A3
A4
A5
A7
A19
A22
E1
3 (98)
2 (56)
4 (97)
(99)
(142)
(112)
(106)
(107)
TO A8 E1
(141)
20 (135)
20 (107)
20 (106)
(143)
(111)
(106)
(107)
TO A17 E1
(102)
(25)
(26)
(43)
(92)
A11
A9
A12
A13
A23
A10
A14
A16
A21
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(112)
(106)
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TO A14 E1
4 (149) -021 & -031 ONLY
(144)
(112)
(106)
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TO A10 E1
3 (152)
(25)
(26)
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(155)
(134)
(112)
(106)
(107)
TO A9 E1
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(26)
(43)
(95) REF
(100)
W1 REF
(25)
(26)
(43)
(156)
(147)
(112)
(106)
(107)
TO A13 E1
(147)
(112)
(106)
(107)
TO A23 E1
2014042

SECTION G-G
ROTATED CCW 90°
SEE SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible]
CHECKED [illegible] AUG 66
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible] 1/28/66
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014042

SCALE 1/2 WT SHEET 8 OF 8

2014042 S

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
S	REPLACES REV R WITH CHANGE PER TORR 31278		
T	CHANGED PER TORR 33456 DR CHK		

FOR NOTES SEE SHEET 2

QTY REQD -061	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	—	—	—	—	—	2014037-091	LOGIC DRAWER NO.2 ASSY	189
1	—	—	—	—	—	2014366-091	SELF TEST ASSY	188
1	—	—	—	—	—	1004260-282	NAMEPLATE	187
1	—	—	—	—	—	2014091-051	PROGRAMER& MONITOR ASSY	186
1	1	—	—	—	—	1006423-005	CABINET, ELECTRICAL EQUIP	185
1	1	—	—	—	—	2014036-091	LOGIC DRAWER ASSY NO.1	184
—	1	—	—	—	—	1004260-280	NAMEPLATE	183
X	X	—	—	—	—	2016455	INTERCONNECTION DIAGRAM	REF
—	—	X	—	—	—	2016953	INTERCONNECTION DIAGRAM	REF
—	—	1	—	—	—	1004260-277	NAMEPLATE	182
—	1	1	—	—	—	2014091-091	PROGRAMMER & MONITOR ASSY	181
1	1	1	1	—	—	2014045-031	RDC INTERFACE ASSY	180
—	1	1	1	—	—	2014037-031	LOGIC DRAWER NO.2 ASSY	179
—	1	1	1	—	—	2014366-031	SELF TEST ASSY	178
—	—	—	X	—	—	2016444	INTERCONNECTION DIAGRAM	REF
X	X	X	X	—	—	2016443	ELEC SCHEM AC&DC PWR DISTR	REF
—	—	—	1	—	—	1004260-270	NAMEPLATE	177
1	1	1	1	—	—	2016046-031	AIB INTERCONNECTION ASSY	176
—	—	—	—	X	—	2016414	ELEC SCHEM AC&DC PWR DISTR	REF
—	—	—	—	X	—	2016387	INTERCONN DIAGRAM	REF
—	—	—	—	—	X	2014172	ELEC SCHEM AC&DC PWR DISTR	REF
—	—	—	—	—	X	2014138	INTERCONN DIAGRAM	REF
—	—	—	1	—	—	2014091-031	PROGRAMMER & MONITOR ASSY	175
—	—	1	1	—	—	2014036-031	LOGIC DRAWER ASSY NO.1	174
1	1	1	1	1	—	2014044-021	POWER CONTROL ASSY	173
—	—	—	—	1	—	2014046-021	AIB INTERCONNECTION ASSY	172
1	1	1	1	1	—	MS35173-274B	CONNECTOR, ADAPTER TEE(MIL-C-36[illegible]	171
2	2	2	2	2	—	NAS620C6	WASHER, FLAT	170
—	—	—	—	1	—	1004260-258	NAMEPLATE	169
—	—	—	—	1	—	2014336-021	SELF TEST ASSY	168
—	—	—	—	1	—	2014045-021	RDC INTERFACE ASSY	167
—	—	—	—	1	—	2014091-021	PROGRAMMER & MONITOR ASSY	166
1	1	1	1	1	—	2014040-021	XY INTERFACE ASSY	165
—	—	—	—	1	—	2014037-021	LOGIC DRAWER NO. 2 ASSY	164
—	—	—	—	1	—	2014036-021	LOGIC DRAWER NO.1 ASSY	163
AR	AR	AR	AR	AR	AR	1006458-004	TAPE, LACING	162
					~~AR~~	~~MIL-S-22473 GRN~~	~~SEALING & RETAINING COMPOUND~~	~~161~~
12	12	12	12	12	12	MS51957-45	SCREW, PAN HD	160
2	2	2	2	2	2	2016350-031	SLIDE, BRACKET ASSY	159
2	2	2	2	2	2	2016350-021	SLIDE, BRACKET ASSY	158
2	2	2	2	2	2	2016350-011	SLIDE, BRACKET ASSY	157
1	1	1	1	1	1	MS21919-067	CLAMP, LOOP	156
2	2	2	2	2	2	MS21919-066	CLAMP, LOOP	155
					~~5~~	~~1006872-18~~	~~CLAMP, LOOP~~	~~154~~
15	15	15	15	15	15	1006872-14	CLAMP, LOOP	153
7	7	7	7	7	7	1006872-9	CLAMP, LOOP	152
11	11	11	11	11	11	1006872-11	CLAMP, LOOP	151
2	2	2	2	2	2	2016350-041	SLIDE, BRACKET ASSY	150
8	8	8	8	8	4	1006872-10	CLAMP, LOOP	149
1	1	1	1	1	1	2014115-021	STRAP, GROUND	148
5	5	5	5	5	5	2014458-171	CABLE ASSY, GROUND	147
1	1	1	1	1	1	151		146
1	1	1	1	1	1	121		145
1	1	1	1	1	1	111		144
1	1	1	1	1	1	081		143
1	1	1	1	1	1	2014458-061		142
1	1	1	1	1	1	2014457-071	CABLE ASSY, GROUND	141
						LIST OF MATERIALS		

SEE NOTE 2

NOT SHOWN SEE NOTE 4

QTY REQD -061	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1	1	1	1	1	MS21919DG13	CLAMP, LOOP	140
2	2	2	2	2	2	MS21919DG29	CLAMP, LOOP	139
1	1	1	1	1	1	MS21919DG10	CLAMP, LOOP	138
					~~1~~	~~MS21919DG16~~	~~CLAMP LOOP~~	~~137~~
5	5	5	5	5	5	MS21919DG14	CLAMP LOOP	136
20	20	20	20	20	20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	1	1	1	1	1	2014458-191	CABLE ASSY, GROUND	134
1	1	1	1	1	1	2014971-011	CABLE ASSY W27	133
1	1	1	1	1	1	2014972-011	CABLE ASSY W26	132
1	1	1	1	1	1	2014973-011	CABLE ASSY W25	131
1	1	1	1	1	1	2014974-011	CABLE ASSY W24	130
1	1	1	1	1	1	2014975-011	CABLE ASSY W23	129
1	1	1	1	1	1	2014976-011	CABLE ASSY W22	128
1	1	1	1	1	1	2014977-011	CABLE ASSY W21	127
1	1	1	1	1	1	2014978-011	CABLE ASSY W20	126
1	1	1	1	1	1	2014979-011	CABLE ASSY W19	125
1	1	1	1	1	1	2014154 011	CABLE ASSY W18	124
1	1	1	1	1	1	2014980-011	CABLE ASSY W17	123
1	1	1	1	1	1	2014144-011	CABLE ASSY W16	122
1	1	1	1	1	1	2014153-011	CABLE ASSY W15	121
1	1	1	1	1	1	2014141-011	CABLE ASSY W14	120
1	1	1	1	1	1	2014155-011	CABLE ASSY W13	119
1	1	1	1	1	1	2014981-011	CABLE ASSY W12	118
29	29	29	29	29	29	MS35338-79	WASHER, LOCK	117
27	27	27	27	27	29	MS15795-806	WASHER, FLAT	116
AR	AR	AR	AR	AR	AR	MIL-S-22473 GRN	SEALING AND RETAINING COMPOUND	115
14	14	14	14	14	14	MS51958-62	SCREW, PAN HD	114
					~~8~~	~~MS15795-808~~	~~WASHER, FLAT~~	~~113~~
10	10	10	10	10	10	MS51957-79	SCREW, PAN HD	112
1	1	1	1	1	1	MS35690-410	NUT, HEX	111
2	2	2	2	2	2	2014921	SUPPORT RAIL	110
2	2	2	2	2	2	2014920	SUPPORT RAIL	109
18	18	18	18	18	18	1006930-097	SPACER	108
31	31	31	31	31	31	MS35338-82	WASHER, LOCK	107
31	31	31	31	31	31	MS15795-810	WASHER, FLAT	106
4	4	4	4	4	4	MS51959-17	SCREW, FLAT HD	105
1	1	1	1	1	1	2014182-011	WIRING HARNESS, DC DIST	104
8	8	8	8	8	8	MS9549-09	WASHER, FLAT	103
1	1	1	1	1	1	2014490-011	WIRING HARNESS, BRANCHED	102
4	4	4	4	4	4	2014403	BLOCK, MOUNTING	101
1	1	1	1	1	1	2014401	BUSS, BAR	100
1	1	1	1	1	1	MS35335-63	WASHER LOCK, EXTERNAL TOOTH	99
3	3	3	3	3	3	MS35690-610	NUT, PLAIN	98
4	4	4	4	4	4	MS15795-815	WASHER, FLAT	97
2	2	2	2	2	2	MS35338-84	WASHER, LOCK	96
1	1	1	1	1	1	1006859-2	TERMINAL, BLOCK	95
					~~45~~	~~[illegible]~~	~~TIE WRAP~~	~~94~~
2	2	2	2	2	2	2014422	COUPLING	93
1	1	1	1	1	1	MS21919DG8	CLAMP, LOOP	92
1	1	1	1	1	1	1014480-20	DECAL, IDENTIFICATION	91
1	1	1	1	1	1	-21		90
4	4	4	4	4	4	-22		89
4	4	4	4	4	4	-7		88
3	3	3	3	3	3	-5		87
4	4	4	4	4	4	-4		86
4	4	4	4	4	4	-3		85
4	4	4	4	4	4	-2		84
4	4	4	4	4	4	1014480-1	DECAL, IDENTIFICATION	83
1	1	1	1	1	1	1014150-1	CABLE, POWER	82
1	1	1	1	1	1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	2	2	2	2	2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	1	1	1	1	1	2014461 121	CABLE ASSY W253	79
1	1	1	1	1	1	-111	W252	78
1	1	1	1	1	1	-091	W251	77
1	1	1	1	1	1	-081	W250	76
1	1	1	1	1	1	-071	W249	75
1	1	1	1	1	1	-061	W248	74
1	1	1	1	1	1	-131	W240	73
1	1	1	1	1	1	-051	W247	72
1	1	1	1	1	1	2014461-041	CABLE ASSY W246	71
						LIST OF MATERIALS		

Ⓢ REPLACES REV R WITH CHANGE

SEE NOTE 2

QTY REQD -061	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1	1	1	1	1	2014461-031	CABLE ASSY, W245	70
1	1	1	1	1	1	2014461-021	CABLE ASSY, W244	69
1	1	1	1	1	1	2014461-011	CABLE ASSY, W243	68
1	1	1	1	1	1	2014432	PLATE, BAFFLE TERM BD	67
1	1	1	1	1	1	1014480 -19	DECAL, IDENTIFICATION	66
1	1	1	1	1	1	-18		65
1	1	1	1	1	1	-17		64
4	4	4	4	4	4	-16		63
4	4	4	4	4	4	-23		62
4	4	4	4	4	4	-14		61
4	4	4	4	4	4	-13		60
4	4	4	4	4	4	-12		59
4	4	4	4	4	4	-11		58
4	4	4	4	4	4	-10		57
4	4	4	4	4	4	-9		56
1	1	1	1	1	1	1014480 -8	DECAL, IDENTIFICATION	55
4	4	4	4	4	4	MS35649-84	NUT, HEX PLAIN	54
1	1	1	1	1	1	MS35649-104	NUT, PLAIN HEX	53
—	—	—	—	—	1	1004260-203	PLATE, IDENTIFICATION	52
4	4	4	4	4	4	AN535-4-3	DRIVE SCREW	51
1	1	1	1	1	1	MS51957-63	SCREW, PAN HD	50
18	18	18	18	18	18	MS51958-67	SCREW, PAN HEAD	49
20	2	2	2	2	2	MS51957-35	SCREW, PAN HEAD	48
1	1	1	1	1	1	2016396-011	TERMINAL BOARD ASSY	47
9	9	9	9	9	9	2014425	PLATE, BAFFLE	46
8	8	8	8	8	8	2014424	PLATE, BAFFLE	45
—	—	—	—	—	1	2014046-011	AIB INTERCONNECTION ASSY	44
94	94	94	94	94	94	MS51958-63	SCREW, PAN HEAD	43
34	34	34	34	34	34	MS51958-64	SCREW, PAN HEAD	42
12	12	12	12	12	12	MS35338-80	WASHER, LOCK	41
12	12	12	12	12	12	MS15795-807	WASHER	40
					~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1	1	1	1	1	1020352	PLATE CONNECTOR ASSY	38
					~~1~~	~~MS21919DG11~~	~~CLAMP LOOP~~	~~37~~
8	8	8	8	8	8	1014157-2	SLIDE, BRACKET ASSY	36
8	8	8	8	8	8	1014157-3	SLIDE, BRACKET ASSY	35
16	16	16	16	16	16	MS35650-104	NUT, HEX PLAIN	34
4	4	4	4	4	4	1014301-2	SLIDE, ADAPTER	33
4	4	4	4	4	4	1006878-2	SLIDE, CABINET SECTION	32
4	4	4	4	4	4	1014301-1	SLIDE ADAPTER	31
1	1	1	1	1	1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	27	27	27	27	27	MS35649-64	NUT, HEX, PLAIN	29
12	12	12	12	12	12	1014157-4	SLIDE BRACKET ASSY	28
2	2	2	2	2	2	1006938-3	SLIDE WITH CABLE CARRIER	27
208	208	208	208	208	208	MS35338-81	WASHER, LOCK	26
218	218	218	218	218	218	MS15795-808	WASHER, FLAT	25
72	72	72	72	72	72	MS51958-61	SCREW, PAN HEAD	24
88	88	88	88	88	88	MS51959-43	SCREW, FLAT HEAD	23
8	8	8	8	8	8	1014157-1	SLIDE BRACKET ASSY	22
4	4	4	4	4	4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1	1	1	1	1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	2	2	2	2	2	1006918	FILTER, AIR, RFI	19
1	1	1	1	1	1	2014274-011	AUX. OUTLET ASSY 115VAC	18
—	—	—	—	—	1	2014366-011	SELF TEST ASSY	17
1	1	1	1	1	1	1006897	FAN, VENTILATION RF S-.D	16
1	1	1	1	1	1	2014047-011	CONNECTOR INTERFACE ASSY	15
—	—	—	—	—	1	2014045-011	RDC INTERFACE ASSY	14
—	—	—	—	—	1	2014044-011	POWER CONTROL ASSY	13
1	1	1	1	1	1	2014093-011	AC INPUT PANEL ASSY	12
—	—	—	—	—	1	2014091-011	PROGRAMMER& MONITOR ASSY	11
—	—	—	—	—	1	2014040-011	XY INTERFACE ASSY	10
1	1	1	1	1	1	2014039-011	TAPE PUNCH ASSY	9
1	1	1	1	1	1	2014038-011	TAPE READER ASSY	8
—	—	—	—	—	1	2014037-011	LOGIC DRAWER NO.2 ASSY	7
—	—	—	—	—	1	2014036-011	LOGIC DRAWER NO.1 ASSY	6
1	1	1	1	1	1	2014235-011	POWER SUPPLY ±3, 28 VDC [illegible]	5
1	1	1	1	1	1	2014239-011	POWER SUPPLY 3VDC ASSY	4
1	1	1	1	1	1	2014233-011	FREQUENCY COUNTER ASSY	3
1	1	1	1	1	1	2014232-011	OSCILLOSCOPE ASSY	2
—	—	1	1	1	1	1006423-001	CABINET, ELECTRICAL EQUIP	
						LIST OF MATERIALS		

NEXT ASSY	USED ON
1900030	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 22 AUG 66
CHECKED 23 AUG 66
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

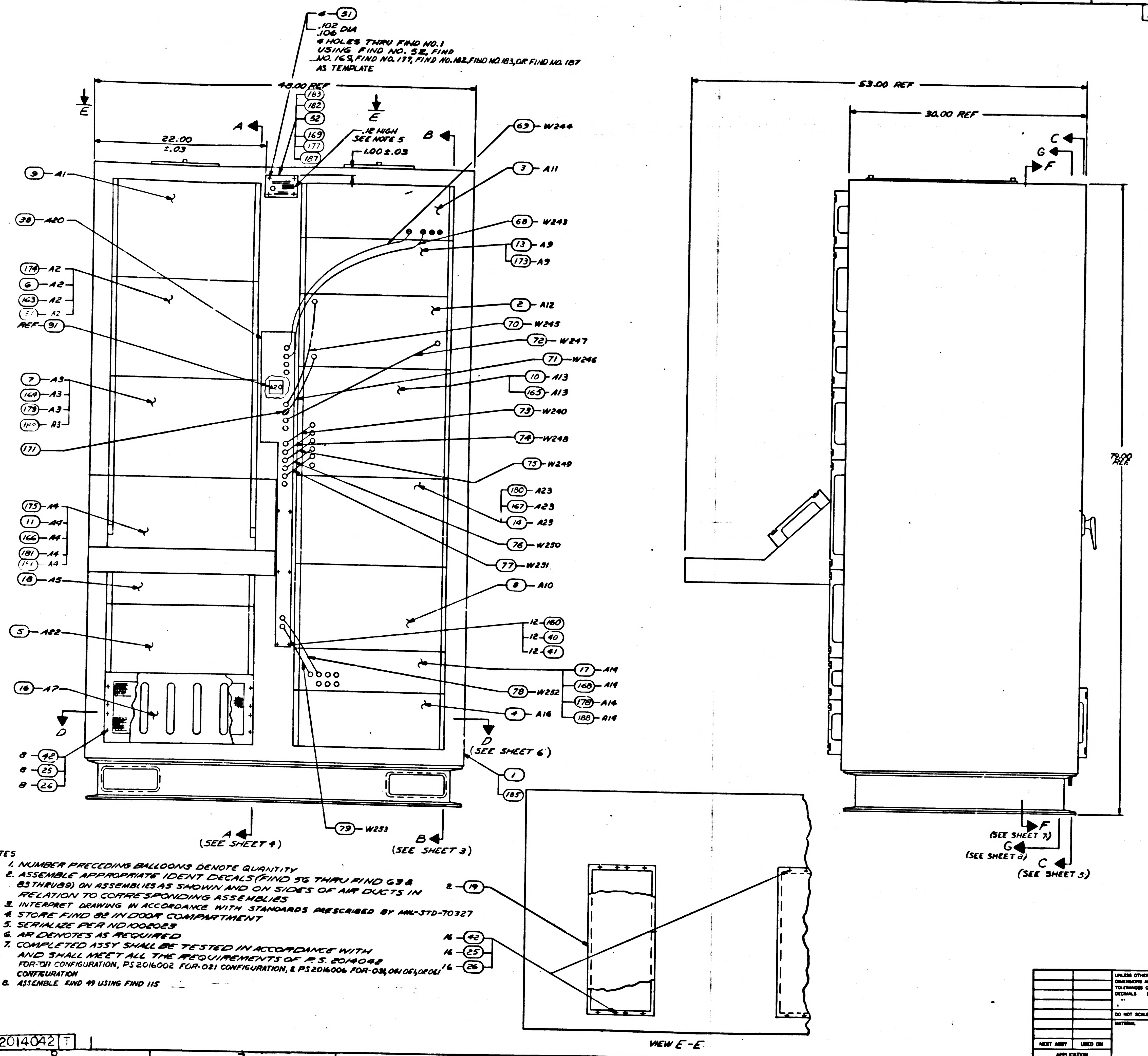
COMPUTER TEST SET
ASSEMBLY

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014042
SCALE 1/4
WT
SHEET OF 2

2014042 T

SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31278		
T	CHANGED PER TDRR 33456 DR P Valentine CHK		

Ⓢ REPLACES REV R WITH CHANGE


4 - (51)
.102 .106 DIA
4 HOLES THRU FIND NO.1 USING FIND NO. 52, FIND NO. 169, FIND NO. 177, FIND NO. 182, FIND NO. 183, OR FIND NO. 187 AS TEMPLATE
48.00 REF
22.00 ±.03
.12 HIGH SEE NOTE 5
1.00±.03
(183) (182) (52) (169) (177) (187)
E
A
B
(9)-A1
(38)-A20
(174)-A2
(6)-A2
(163)-A2
A2
REF-(91)
(7)-A3
(169)-A3
(179)-A3
A3
(171)
(175)-A4
(11)-A4
(166)-A4
(181)-A4
A4
(18)-A5
(5)-A22
(16)-A7
8-(42)
8-(25)
8-(26)
D
A20
(69)-W244
(3)-A11
(68)-W243
(13)-A9
(173)-A9
(2)-A12
(70)-W245
(72)-W247
(71)-W246
(10)-A13
(165)-A13
(73)-W240
(74)-W248
(75)-W249
(180)-A23
(167)-A23
(14)-A23
(76)-W250
(77)-W251
(8)-A10
12-(160)
12-(40)
12-(41)
(17)-A14
(168)-A14
(178)-A14
(188)-A14
(78)-W252
(4)-A16
D (SEE SHEET 6)
(1)
(185)
(79)-W253
A (SEE SHEET 4)
B (SEE SHEET 3)
53.00 REF
30.00 REF
C
G
F
79.00 REF
F (SEE SHEET 7)
G (SEE SHEET 8)
C (SEE SHEET 5)
8-(19)
16-(42)
16-(25)
16-(26)
VIEW E-E

NOTES

1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89) ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-STD-70327
4. STORE FIND 82 IN DOOR COMPARTMENT
5. SERIALIZE PER ND1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014042 FOR-011 CONFIGURATION, PS 2016002 FOR-021 CONFIGURATION, & PS 2016006 FOR-031, 041, 051, OR 061 CONFIGURATION
8. ASSEMBLE FIND 49 USING FIND 115

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

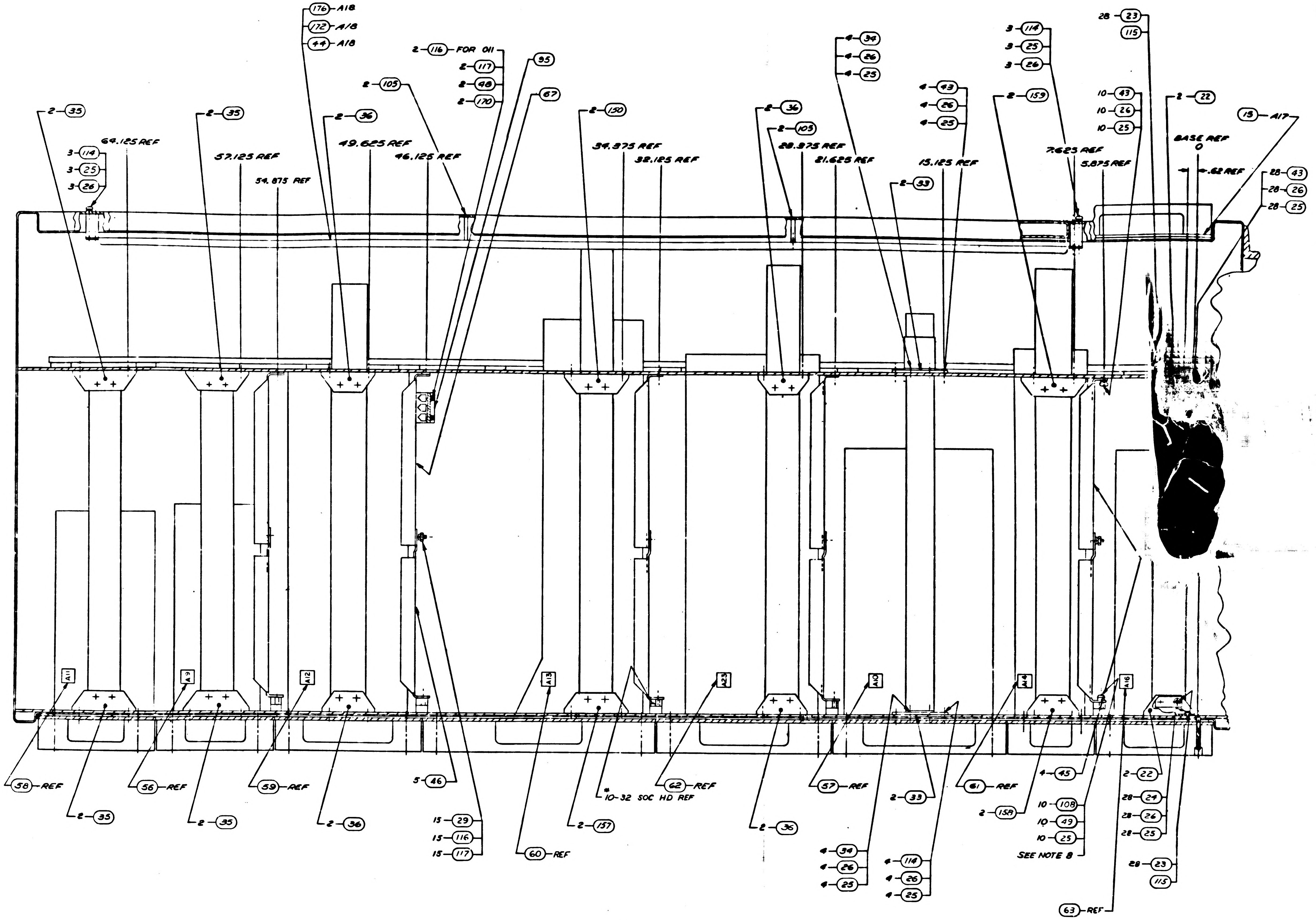
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO 2014042
SCALE 1/4
WT
SHEET 2 OF 8

2014042 T

SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31278		
-	CHANGED PER TDRR 33456 DR J Valentine CHK		

Ⓢ REPLACES REV R WITH CHANGE



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2-(172)-A18
(44)-A18
2-(116)-FOR 011
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2-(170)
(95)
(67)
2-(105)
2-(35)
2-(35)
2-(36)
2-(150)
64.125 REF
57.125 REF
54.875 REF
49.625 REF
46.125 REF
34.875 REF
32.125 REF
28.375 REF
21.625 REF
15.125 REF
7.625 REF
5.875 REF
BASE REF 0
.62 REF
3-(114)
3-(25)
3-(26)
4-(34)
4-(26)
4-(25)
2-(36)
2-(105)
4-(43)
4-(26)
4-(25)
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28-(23)
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A16
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15-(29)
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2-(36)
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4-(45)
10-(108)
10-(49)
10-(25)
SEE NOTE 8
2-(22)
28-(24)
28-(26)
28-(25)
28-(23)
(115)
4-(34)
4-(26)
4-(25)
4-(114)
4-(26)
4-(25)
(63)-REF

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 2)

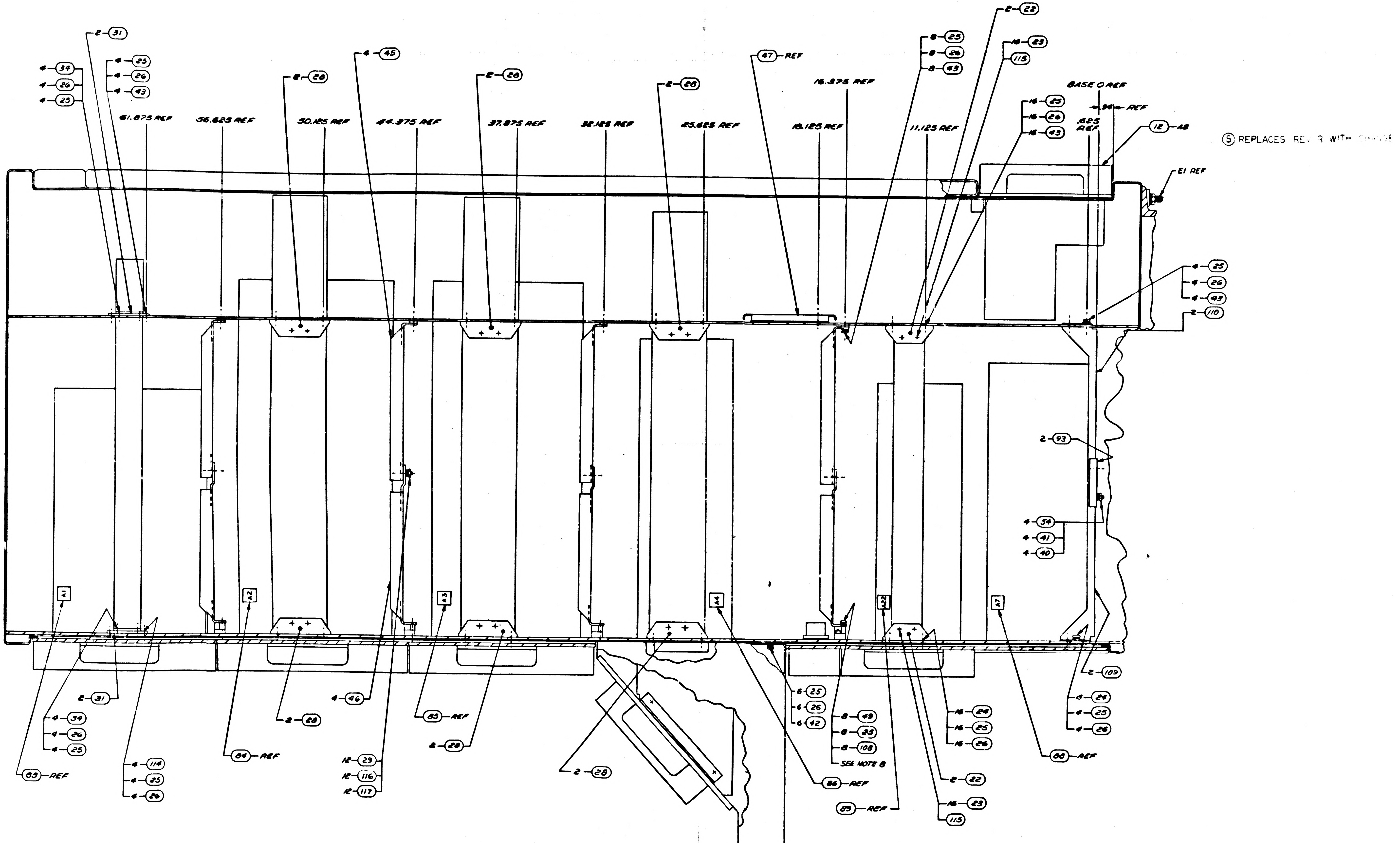
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±	RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
		DO NOT SCALE DRAWING	CONTRACT NO NAS 9 497	COMPUTER TEST SET ASSEMBLY
		MATERIAL	DRAWN DATE	
			CHECKED	
			APPROVAL	
			APPROVAL	
			APPROVAL	
			APPROVAL	CODE IDENT NO. 49956
NEXT ASSY	USED ON		APPROVAL	SIZE J
APPLICATION			APPROVAL	NASA DRAWING NO. 2014042
				SCALE 1/2 WT SHEET 3 OF 8

2014042 T

2014042

2014042 T

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31278		
T	CHANGED PER TDRR 33456 DR /		



2-31
4-25
4-26
4-43
4-34
4-26
4-25
61.875 REF
56.625 REF
2-28
50.125 REF
4-45
44.375 REF
2-28
37.875 REF
32.125 REF
2-28
25.625 REF
47 REF
16.375 REF
18.125 REF
8-25
8-26
8-43
2-22
16-23
115
11.125 REF
16-25
16-26
16-43
BASE 0 REF
.94 REF
.625 REF
12-A8
E1 REF
4-25
4-26
4-43
2-110
2-93
4-54
4-41
4-40
A1
A2
A3
A4
A22
A7
2-31
4-34
4-26
4-25
83 REF
4-114
4-25
4-26
84 REF
2-28
4-46
12-29
12-116
12-117
85 REF
2-28
2-28
6-25
6-26
6-42
8-49
8-35
8-108
SEE NOTE 8
86 REF
89 REF
16-24
16-25
16-26
2-22
16-23
115
88 REF
2-109
4-24
4-25
4-26

SECTION A-A
ROTATED 90° CCW
SEE SHEET 2

Ⓢ REPLACES REV R WITH CHANGE

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX .XXX
± ± ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON MASS
CONTRACT NO NAS 9 497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

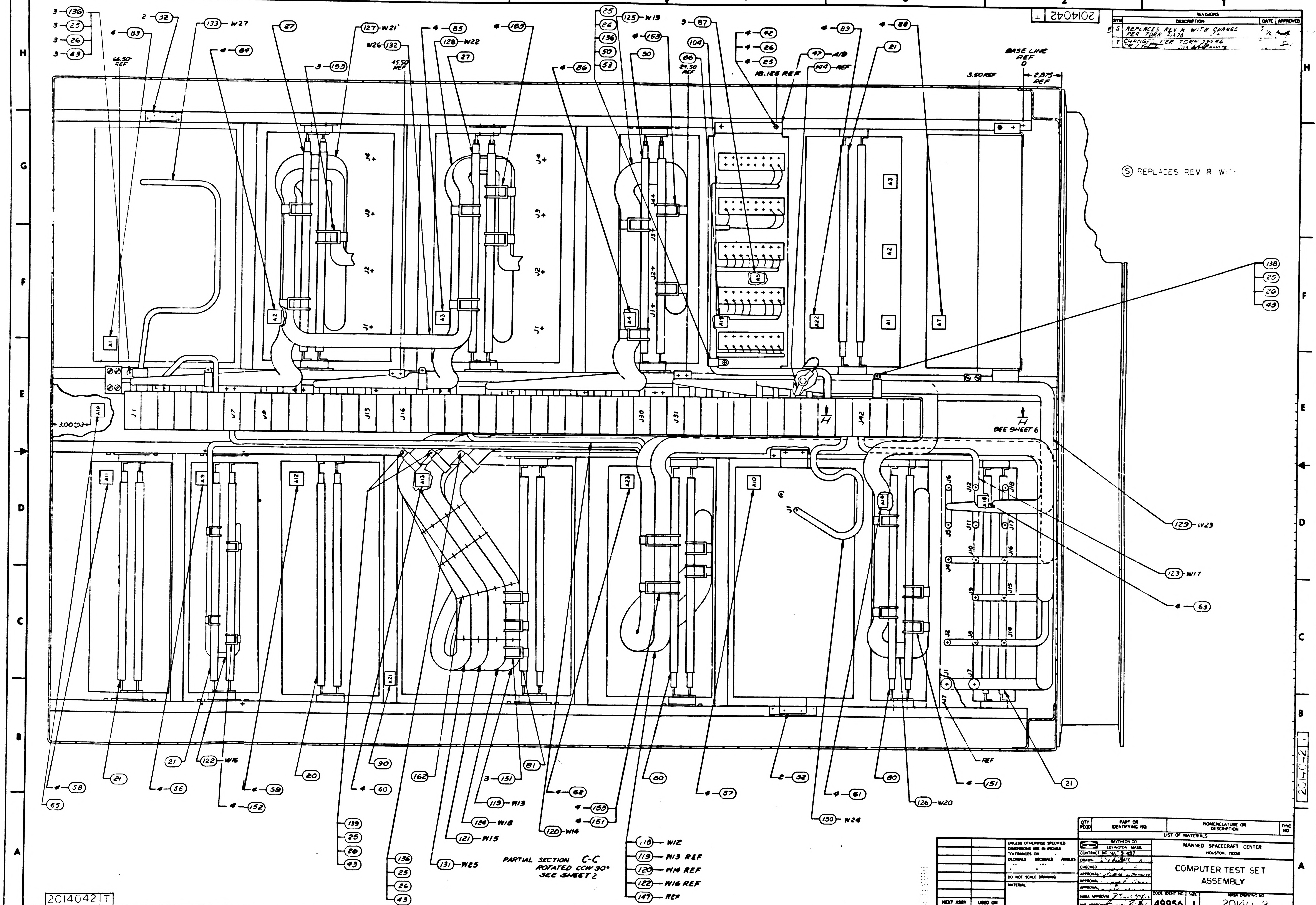
SIZE J
CODE IDENT NO 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 4 OF 8

2014042 T

2014042 T

2014042 T

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TORR 31278		
T	CHANGED PER TORR 33456		



3 — 136
3 — 25
3 — 26
3 — 43
2 — 32
4 — 83
66.50 REF
133 — W27
4 — 84
27
127 — W21
W26 — 132
45.50 REF
3 — 153
4 — 85
128 — W22
27
4 — 163
4 — 86
25
26
136
50
53
125 — W19
4 — 153
30
3 — 87
104
66
24.50 REF
4 — 42
4 — 26
4 — 25
97 — A19
144 — REF
18.125 REF
4 — 89
4 — 88
21
BASE LINE REF 0
3.50 REF
2.875 REF
Ⓢ REPLACES REV R WITH
138
25
26
43
A1
A2
A3
A4
A5
A7
A18
A22
J1
J2
J3
J4
J7
J8
J15
J16
J30
J31
J42
A18
3.00 ±.03
H
SEE SHEET 6
A11
A9
A12
A13
A21
A23
A10
A16
A17
J5
J6
J9
J10
J11
J12
J13
J14
J17
J18
129 — W23
123 — W17
4 — 63
4 — 58
65
21
4 — 56
21
122 — W16
4 — 152
4 — 59
20
139
25
26
43
90
4 — 60
136
25
26
43
162
131 — W25
121 — W15
124 — W18
119 — W13
3 — 151
81
120 — W14
4 — 62
4 — 153
4 — 151
118 — W12
119 — W13 REF
120 — W14 REF
122 — W16 REF
147 — REF
80
2 — 32
4 — 57
130 — W24
4 — 61
80
126 — W20
4 — 151
REF
21

PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN
DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

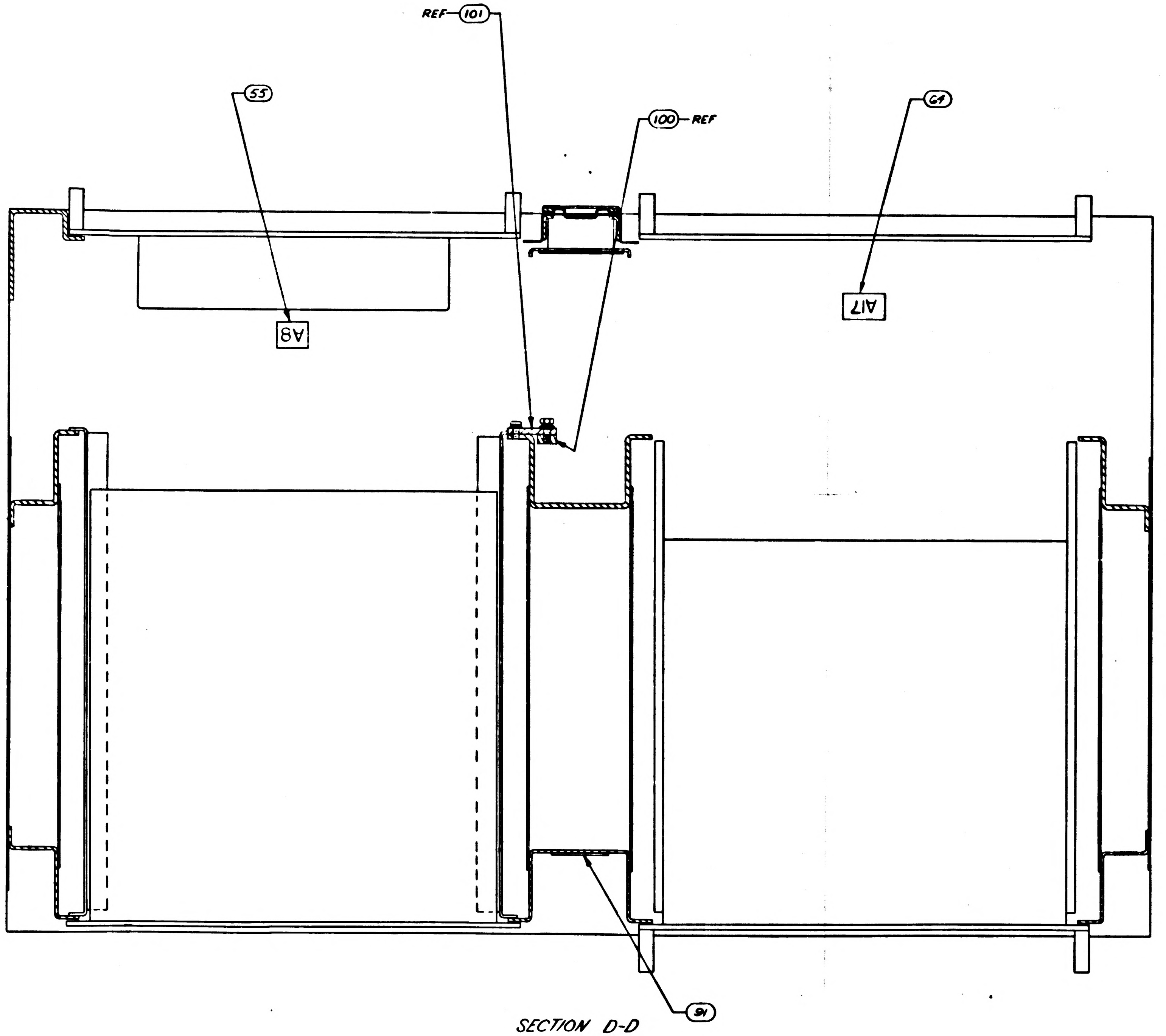
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO 2014042
SCALE 1/2
WT
SHEET 5 OF 8

2014042 T

2014042 T

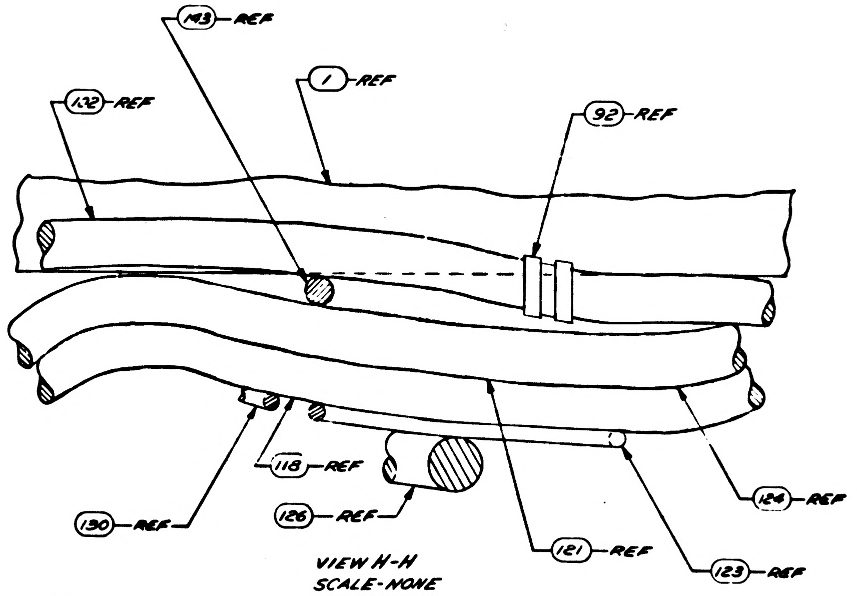
SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31279		
T	CHANGED PER TDRR 33456 CR Valentine CHK		

Ⓢ REPLACES REV R WITH CHANGE



REF
101
55
100
REF
69
A8
A17
91

SECTION D-D
(SEE SHEET 2)



143 REF
1 REF
132 REF
92 REF
118 REF
126 REF
130 REF
121 REF
123 REF
124 REF

VIEW H-H
SCALE-NONE
SEE SHEET 5

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO NAS 9 497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014042
SCALE 1/2
WT
SHEET 6 OF 8

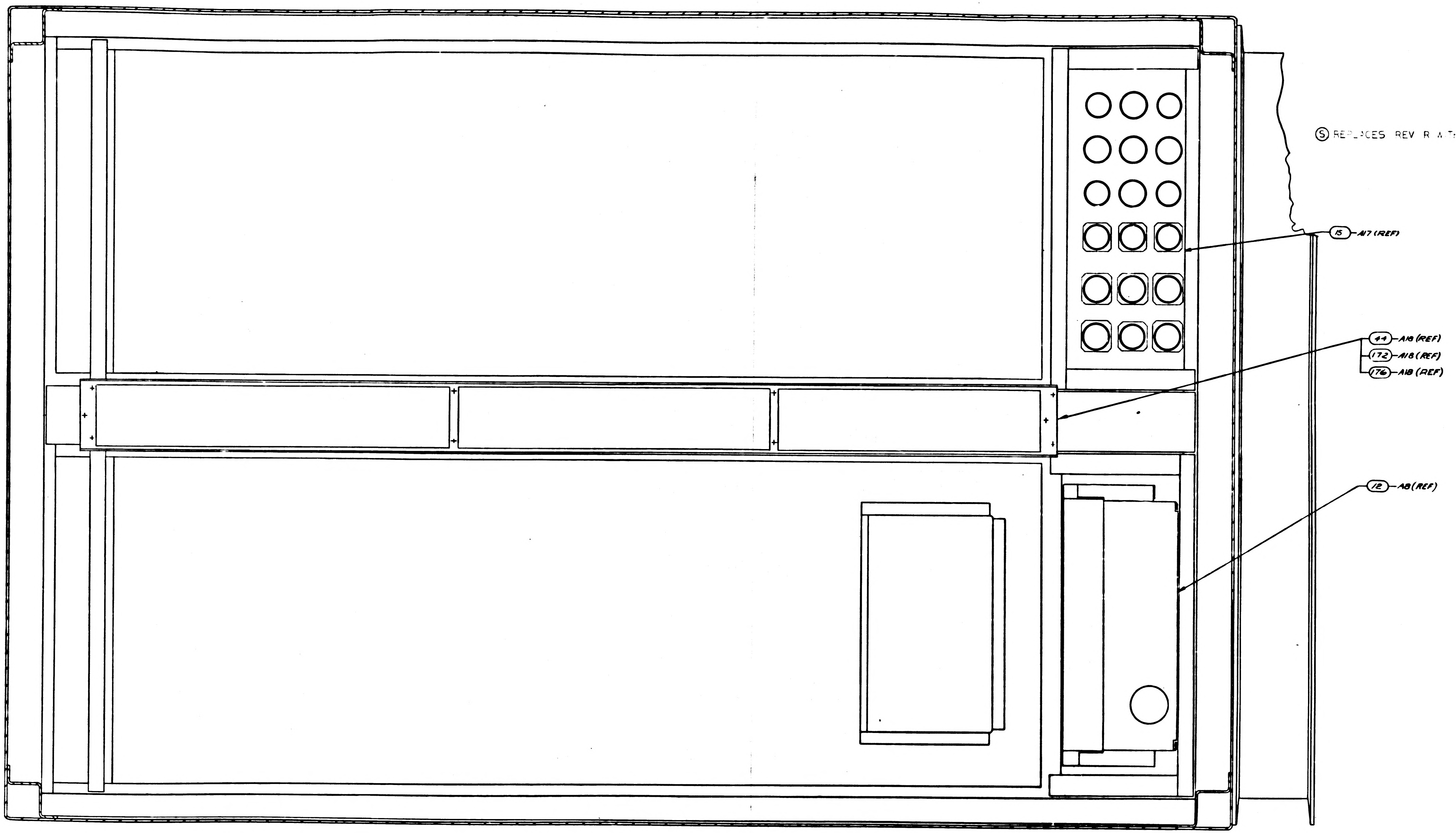
2014042 T

2014042

2014042 T

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31278		
T	CHANGED PER TDRR 33456 DR CHK		



(S) REPLACES REV R WITH CHANGE

SECTION F-F
ROTATED 90° CCW
(SEE SHEET 2)

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY	USED ON

APPLICATION

RAYTHEON CO
LEXINGTON MASS
CONTRACT NO NAS 9 497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

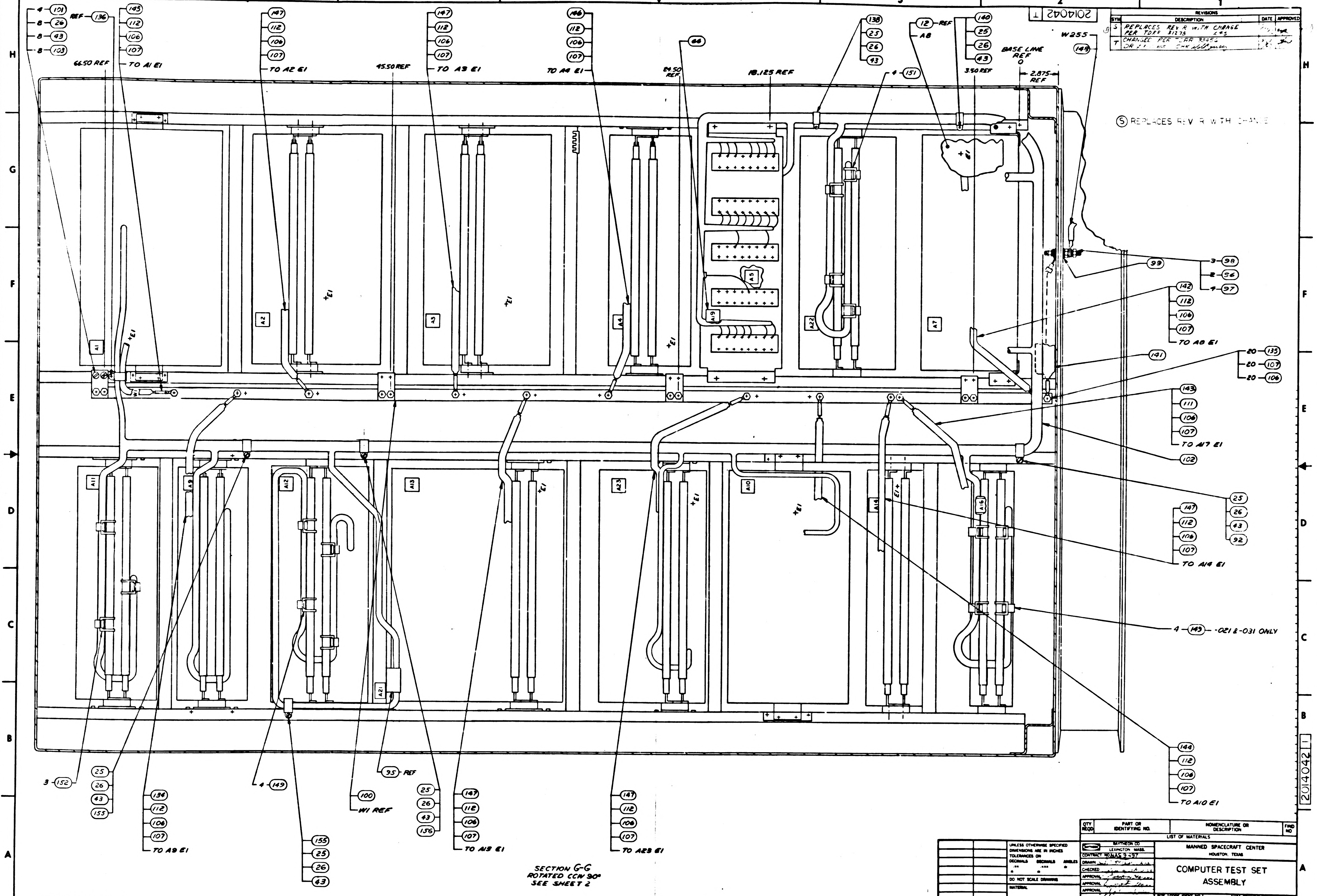
MANNED SPACECRAFT CENTE
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014042
SCALE 1/2
WT
SHEET 7 OF 8

2014042 T

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31279 X#3		
T	CHANGED PER TDRR 33456 DR [illegible] CHK [illegible]		



2014042 T
Ⓢ REPLACES REV R WITH CHANGE
4 (101)
8 (26)
8 (43)
8 (103)
REF (136)
(145)
(112)
(106)
(107)
66.50 REF
TO A1 E1
(147)
(112)
(106)
(107)
TO A2 E1
45.50 REF
TO A3 E1
(146)
TO A4 E1
(66)
24.50 REF
18.125 REF
(138)
(25)
(26)
(43)
4 (151)
(12) REF
A8
(140)
BASE LINE REF 0
3.50 REF
2.875 REF
W255
(148)
3 (98)
2 (56)
4 (97)
(99)
(142)
TO A8 E1
(141)
20 (135)
20 (107)
20 (106)
(143)
(111)
TO A17 E1
(102)
(25)
(26)
(43)
(92)
TO A14 E1
4 (149) -021 & -031 ONLY
(144)
TO A10 E1
A1
A2
A3
A4
A19
A5
A22
A7
A11
A9
A12
A13
A23
A10
A14
A16
A21
E1
3 (152)
(155)
(139)
TO A9 E1
4 (149)
(100)
W1 REF
(95) REF
(156)
TO A13 E1
TO A23 E1
SECTION G-G
ROTATED CCW 90°
SEE SHEET 2
2014042 T
2014042 T
8
7
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G
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D
C
B
A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

SIZE J
CODE IDENT NO 49956
NASA DRAWING NO. 2014042
SCALE 1/2
WT
SHEET 8 OF 8

SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TORR 31279	[illegible]	[illegible]
T	CHANGED PER TORR 33456 DR [illegible] CHK [illegible]	[illegible]	[illegible]
U	CHANGED PER TORR 35567 DR [illegible] CHK [illegible]	[illegible]	[illegible]

REVISIONS

Ⓢ REPLACES REV R WITH CHANGE

FOR NOTES SEE SHEET 2

QTY REQD -071	QTY REQD -061	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	—	—	—	—	—	—	2014037-051	LOGIC DRAWER ASSY NO.2	194
1	—	—	—	—	—	—	2014046-041	AIB INTERCONNECTION ASSY	193
1	—	—	—	—	—	—	2014036-051	LOGIC DRAWER ASSY NO.1	192
1	—	—	—	—	—	—	1004260-287	NAMEPLATE	191
1	—	—	—	—	—	—	2014041-061	PROGRAMMER & MONITOR ASSY	190
—	1	—	—	—	—	—	2014037-041	LOGIC DRAWER NO.2 ASSY	189
1	1	—	—	—	—	—	2014366-041	SELF TEST ASSY	188
—	1	—	—	—	—	—	1004260-282	NAMEPLATE	187
—	1	—	—	—	—	—	2014041-051	PROGRAMMER & MONITOR ASSY	186
1	1	1	—	—	—	—	1006423-005	CABINET, ELECTRICAL EQUIP	185
—	1	1	—	—	—	—	2014036-041	LOGIC DRAWER ASSY NO.1	184
—	—	1	—	—	—	—	1004260-280	NAMEPLATE	183
X	X	X	—	—	—	—	2016455	INTERCONNECTION DIAGRAM	REF
—	—	—	X	—	—	—	2016453	INTERCONNECTION DIAGRAM	REF
—	—	—	1	—	—	—	1004260-277	NAMEPLATE	182
—	—	1	1	—	—	—	2014041-041	PROGRAMMER & MONITOR ASSY	181
1	1	1	1	1	—	—	2014045-031	RDC INTERFACE ASSY	180
—	—	1	1	1	—	—	2014037-031	LOGIC DRAWER NO.2 ASSY	179
—	—	1	1	1	—	—	2014366-031	SELF TEST ASSY	178
—	—	—	—	X	—	—	2016444	INTERCONNECTION DIAGRAM	REF
X	X	X	X	X	—	—	2016443	ELEC SCHEM AC & DC PWR DISTR	REF
—	—	—	—	1	—	—	1004260-270	NAMEPLATE	177
—	1	1	1	1	—	—	2016046-031	AIB INTERCONNECTION ASSY	176
—	—	—	—	—	X	—	2016414	ELEC SCHEM AC & DC PWR DISTR	REF
—	—	—	—	—	X	—	2016387	INTERCONN DIAGRAM	REF
—	—	—	—	—	—	X	2014172	ELEC SCHEM AC & DC PWR DISTR	REF
—	—	—	—	—	—	X	2014138	INTERCONN DIAGRAM	REF
—	—	—	—	1	—	—	2014041-031	PROGRAMMER & MONITOR ASSY	175
—	—	—	1	1	—	—	2014036-031	LOGIC DRAWER ASSY NO.1	174
1	1	1	1	1	1	—	2014044-021	POWER CONTROL ASSY	173
—	—	—	—	—	1	—	2014046-021	AIB INTERCONNECTION ASSY	172
1	1	1	1	1	1	—	MS35173-274B	CONNECTOR, ADAPTER TEE (MIL-C-36[illegible]	171
2	2	2	2	2	2	—	NAS620C6	WASHER, FLAT	170
—	—	—	—	—	1	—	1004260-258	NAMEPLATE	169
—	—	—	—	—	1	—	2014366-021	SELF TEST ASSY	168
—	—	—	—	—	1	—	2014045-021	RDC INTERFACE ASSY	167
—	—	—	—	—	1	—	2014041-021	PROGRAMMER & MONITOR ASSY	166
1	1	1	1	1	1	—	2014040-021	XY INTERFACE ASSY	165
—	—	—	—	—	1	—	2014037-021	LOGIC DRAWER NO. 2 ASSY	164
—	—	—	—	—	1	—	2014036-021	LOGIC DRAWER NO.1 ASSY	163
AR	AR	AR	AR	AR	AR	AR	1006458-004	TAPE, LACING	162
						~~AR~~	~~MIL-S-22473 GRN~~	~~SEALING & RETAINING COMPOUND~~	~~161~~
12	12	12	12	12	12	12	MS51957-45	SCREW, PAN HD	160
2	2	2	2	2	2	2	2016350-031	SLIDE, BRACKET ASSY	159
2	2	2	2	2	2	2	2016350-021	SLIDE, BRACKET ASSY	158
2	2	2	2	2	2	2	2016350-011	SLIDE, BRACKET ASSY	157
1	1	1	1	1	1	1	MS21919-DG7	CLAMP, LOOP	156
2	2	2	2	2	2	2	MS21919-DG6	CLAMP, LOOP	155
						~~1~~	~~1006872-18~~	~~CLAMP, LOOP~~	~~154~~
15	15	15	15	15	15	15	1006872-14	CLAMP, LOOP	153
7	7	7	7	7	7	7	1006872-9	CLAMP, LOOP	152
11	11	11	11	11	11	11	1006872-11	CLAMP, LOOP	151
2	2	2	2	2	2	2	2016350-041	SLIDE, BRACKET ASSY	150
8	8	8	8	8	8	4	1006872-10	CLAMP, LOOP	149
1	1	1	1	1	1	1	2014115-021	STRAP, GROUND	148
1	5	5	5	5	5	5	2014958-171	CABLE ASSY, GROUND	147
1	1	1	1	1	1	1	151		146
1	1	1	1	1	1	1	121		145
1	1	1	1	1	1	1	111		144
1	1	1	1	1	1	1	081		143
1	1	1	1	1	1	1	2014958-061		142
1	1	1	1	1	1	1	2014957-071	CABLE ASSY, GROUND	141

LIST OF MATERIALS

QTY REQD -071	QTY REQD -061	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1	1	1	1	1	1	MS21919DG13	CLAMP, LOOP	140
2	2	2	2	2	2	2	MS21919DG29	CLAMP, LOOP	139
1	1	1	1	1	1	1	MS21919DG10	CLAMP, LOOP	138
						~~1~~	~~MS21919[illegible]~~	~~CLAMP LOOP~~	~~137~~
5	5	5	5	5	5	5	MS21919DG14	CLAMP LOOP	136
20	20	20	20	20	20	20	MS35307-307	SCREW, CAP, HEX HEAD	135
1	1	1	1	1	1	1	2014958-191	CABLE ASSY, GROUND	134
1	1	1	1	1	1	1	2014971-011	CABLE ASSY W27	133
1	1	1	1	1	1	1	2014972-011	CABLE ASSY W26	132
1	1	1	1	1	1	1	2014973-011	CABLE ASSY W25	131
1	1	1	1	1	1	1	2014974-011	CABLE ASSY W24	130
1	1	1	1	1	1	1	2014975-011	CABLE ASSY W23	129
1	1	1	1	1	1	1	2014976-011	CABLE ASSY W22	128
1	1	1	1	1	1	1	2014977-011	CABLE ASSY W21	127
1	1	1	1	1	1	1	2014978-011	CABLE ASSY W20	126
1	1	1	1	1	1	1	2014979-011	CABLE ASSY W19	125
1	1	1	1	1	1	1	2014159-011	CABLE ASSY W18	124
1	1	1	1	1	1	1	2014980-011	CABLE ASSY W17	123
1	1	1	1	1	1	1	2014144-011	CABLE ASSY W16	122
1	1	1	1	1	1	1	2014153-011	CABLE ASSY W15	121
1	1	1	1	1	1	1	2014141-011	CABLE ASSY W14	120
1	1	1	1	1	1	1	2014155-011	CABLE ASSY W13	119
1	1	1	1	1	1	1	2014981-011	CABLE ASSY W12	118
29	29	29	29	29	29	29	MS35338-79	WASHER, LOCK	117
27	27	27	27	27	27	29	MS15795-806	WASHER, FLAT	116
AR	AR	AR	AR	AR	AR	AR	MIL-S-22473 GRN	SEALING AND RETAINING COMPOUND	115
14	14	14	14	14	14	14	MS51958-62	SCREW, PAN HD	114
						~~8~~	~~MS15795-803~~	~~WASHER, FLAT~~	~~113~~
10	10	10	10	10	10	10	MS51957-79	SCREW, PAN HD	112
1	1	1	1	1	1	1	MS35690-410	NUT, HEX	111
2	2	2	2	2	2	2	2014921	SUPPORT RAIL	110
2	2	2	2	2	2	2	2014920	SUPPORT RAIL	109
18	18	18	18	18	18	18	1006930-097	SPACER	108
31	31	31	31	31	31	31	MS35338-82	WASHER, LOCK	107
31	31	31	31	31	31	31	MS15795-810	WASHER, FLAT	106
4	4	4	4	4	4	4	MS51959-17	SCREW, FLAT HD	105
1	1	1	1	1	1	1	2014182-011	WIRING HARNESS, DC DIST	104
8	8	8	8	8	8	8	MS9549-09	WASHER, FLAT	103
1	1	1	1	1	1	1	2014990-011	WIRING HARNESS, BRANCHED	102
4	4	4	4	4	4	4	2014903	BLOCK, MOUNTING	101
1	1	1	1	1	1	1	2014901	BUSS, BAR	100
1	1	1	1	1	1	1	MS35335-63	WASHER LOCK, EXTERNAL TOOTH	99
3	3	3	3	3	3	3	MS35690-610	NUT, PLAIN	98
4	4	4	4	4	4	4	MS15795-815	WASHER, FLAT	97
2	2	2	2	2	2	2	MS35338-84	WASHER, LOCK	96
1	1	1	1	1	1	1	1006859-2	TERMINAL, BLOCK	95
						~~93~~	~~MS1[illegible]~~	~~TIE WRAP~~	~~94~~
2	2	2	2	2	2	2	2014922	COUPLING	93
1	1	1	1	1	1	1	MS21919DG8	CLAMP, LOOP	92
1	1	1	1	1	1	1	1014480-20	DECAL, IDENTIFICATION	91
1	1	1	1	1	1	1	-21		90
4	4	4	4	4	4	4	-22		89
4	4	4	4	4	4	4	-7		88
3	3	3	3	3	3	3	-5		87
4	4	4	4	4	4	4	-4		86
4	4	4	4	4	4	4	-3		85
4	4	4	4	4	4	4	-2		84
4	4	4	4	4	4	4	1014480-1	DECAL, IDENTIFICATION	83
1	1	1	1	1	1	1	1014150-1	CABLE, POWER	82
1	1	1	1	1	1	1	1006930-14	SLIDE, WITH CABLE CARRIER	81
2	2	2	2	2	2	2	1006930-17	SLIDE, WITH CABLE CARRIER	80
1	1	1	1	1	1	1	2014461-121	CABLE ASSY W253	79
1	1	1	1	1	1	1	-111	W252	78
1	1	1	1	1	1	1	-091	W251	77
1	1	1	1	1	1	1	-081	W250	76
1	1	1	1	1	1	1	-071	W249	75
1	1	1	1	1	1	1	-061	W248	74
1	1	1	1	1	1	1	-131	W240	73
1	1	1	1	1	1	1	-051	W247	72
1	1	1	1	1	1	1	2014461-041	CABLE ASSY W246	71

LIST OF MATERIALS

SEE NOTE 2 (find nos. 89 to 83)

NOT SHOWN - SEE NOTE 4 (find no. 82)

QTY REQD -071	QTY REQD -061	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1	1	1	1	1	1	2014461-031	CABLE ASSY, W245	70
1	1	1	1	1	1	1	2014461-021	CABLE ASSY, W244	69
1	1	1	1	1	1	1	2014461-011	CABLE ASSY, W243	68
1	1	1	1	1	1	1	2014432	PLATE, BAFFLE TERM BD	67
1	1	1	1	1	1	1	1014480-19	DECAL, IDENTIFICATION	66
1	1	1	1	1	1	1	-18		65
1	1	1	1	1	1	1	-17		64
4	4	4	4	4	4	4	-16		63
4	4	4	4	4	4	4	-23		62
4	4	4	4	4	4	4	-14		61
4	4	4	4	4	4	4	-13		60
4	4	4	4	4	4	4	-12		59
4	4	4	4	4	4	4	-11		58
4	4	4	4	4	4	4	-10		57
4	4	4	4	4	4	4	-9		56
1	1	1	1	1	1	1	1014480-8	DECAL, IDENTIFICATION	55
4	4	4	4	4	4	4	MS35649-84	NUT, HEX PLAIN	54
1	1	1	1	1	1	1	MS35649-104	NUT, PLAIN HEX	53
—	—	—	—	—	—	1	1004260-203	PLATE, IDENTIFICATION	52
4	4	4	4	4	4	4	AN535-4-3	DRIVE SCREW	51
1	1	1	1	1	1	1	MS51957-63	SCREW, PAN HD	50
18	18	18	18	18	18	18	MS51958-67	SCREW, PAN HEAD	49
20	20	2	2	2	2	2	MS51957-35	SCREW, PAN HEAD	48
1	1	1	1	1	1	1	2016346-011	TERMINAL BOARD ASSY	47
9	9	9	9	9	9	9	2014425	PLATE, BAFFLE	46
8	8	8	8	8	8	8	2014424	PLATE, BAFFLE	45
—	—	—	—	—	—	1	2014046-011	AIB INTERCONNECTION ASSY	44
94	94	94	94	94	94	94	MS51958-63	SCREW, PAN HEAD	43
34	34	34	34	34	34	34	MS51958-64	SCREW, PAN HEAD	42
12	12	12	12	12	12	12	MS35338-80	WASHER, LOCK	41
12	12	12	12	12	12	12	MS15795-807	WASHER	40
						~~12~~	~~MS51957-46~~	~~SCREW, PAN HEAD~~	~~39~~
1	1	1	1	1	1	1	1020352	PLATE CONNECTOR ASSY	38
						~~1~~	~~MS21919DG[illegible]~~	~~CLAMP LOOP~~	~~37~~
8	8	8	8	8	8	8	1014157-2	SLIDE, BRACKET ASSY	36
8	8	8	8	8	8	8	1014157-3	SLIDE, BRACKET ASSY	35
16	16	16	16	16	16	16	MS35650-104	NUT, HEX PLAIN	34
4	4	4	4	4	4	4	1014301-2	SLIDE, ADAPTER	33
4	4	4	4	4	4	4	1006878-2	SLIDE, CABINET SECTION	32
4	4	4	4	4	4	4	1014301-1	SLIDE ADAPTER	31
1	1	1	1	1	1	1	1006938-4	SLIDE WITH CABLE CARRIER	30
27	27	27	27	27	27	27	MS35649-64	NUT, HEX, PLAIN	29
12	12	12	12	12	12	12	1014157-4	SLIDE BRACKET ASSY	28
2	2	2	2	2	2	2	1006938-3	SLIDE WITH CABLE CARRIER	27
208	208	208	208	208	208	208	MS35338-81	WASHER, LOCK	26
218	218	218	218	218	218	218	MS15795-808	WASHER, FLAT	25
72	72	72	72	72	72	72	MS51958-61	SCREW, PAN HEAD	24
88	88	88	88	88	88	88	MS51959-43	SCREW, FLAT HEAD	23
8	8	8	8	8	8	8	1014157-1	SLIDE BRACKET ASSY	22
4	4	4	4	4	4	4	1006930-8	SLIDE WITH CABLE CARRIER	21
1	1	1	1	1	1	1	1006930-18	SLIDE WITH CABLE CARRIER	20
2	2	2	2	2	2	2	1006918	FILTER, AIR, RFI	19
1	1	1	1	1	1	1	2014274-011	AUX. OUTLET ASSY 115VAC	18
—	—	—	—	—	—	1	2014366-011	SELF TEST ASSY	17
1	1	1	1	1	1	1	1006897	FAN, VENTILATION RF S[illegible]	16
1	1	1	1	1	1	1	2014397-011	CONNECTOR INTERFACE ASSY	15
—	—	—	—	—	—	1	2014045-011	RDC INTERFACE ASSY	14
—	—	—	—	—	—	1	2014044-011	POWER CONTROL ASSY	13
1	1	1	1	1	1	1	2014043-011	AC INPUT PANEL ASSY	12
—	—	—	—	—	—	1	2014041-011	PROGRAMMER & MONITOR ASSY	11
—	—	—	—	—	—	1	2014040-011	XY INTERFACE ASSY	10
1	1	1	1	1	1	1	2014039-011	TAPE PUNCH ASSY	9
1	1	1	1	1	1	1	2014038-011	TAPE READER ASSY	8
—	—	—	—	—	—	1	2014037-011	LOGIC DRAWER NO.2 ASSY	7
—	—	—	—	—	—	1	2014036-011	LOGIC DRAWER NO.1 ASSY	6
1	1	1	1	1	1	1	2014235-011	POWER SUPPLY [illegible] ASSY	5
1	1	1	1	1	1	1	2014239-011	POWER SUPPLY [illegible] ASSY	4
1	1	1	1	1	1	1	2014233-011	FREQUENCY COUNTER ASSY	3
1	1	1	1	1	1	1	2014232-011	OSCILLOSCOPE ASSY	2
—	—	—	1	1	1	1	1006423-001	CABINET, ELECTRICAL EQU[illegible]	1

LIST OF MATERIALS

SEE NOTE 2 (find nos. 63 to 56)

NEXT ASSY	USED ON
1900030	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO [illegible]
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 23 AUG [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

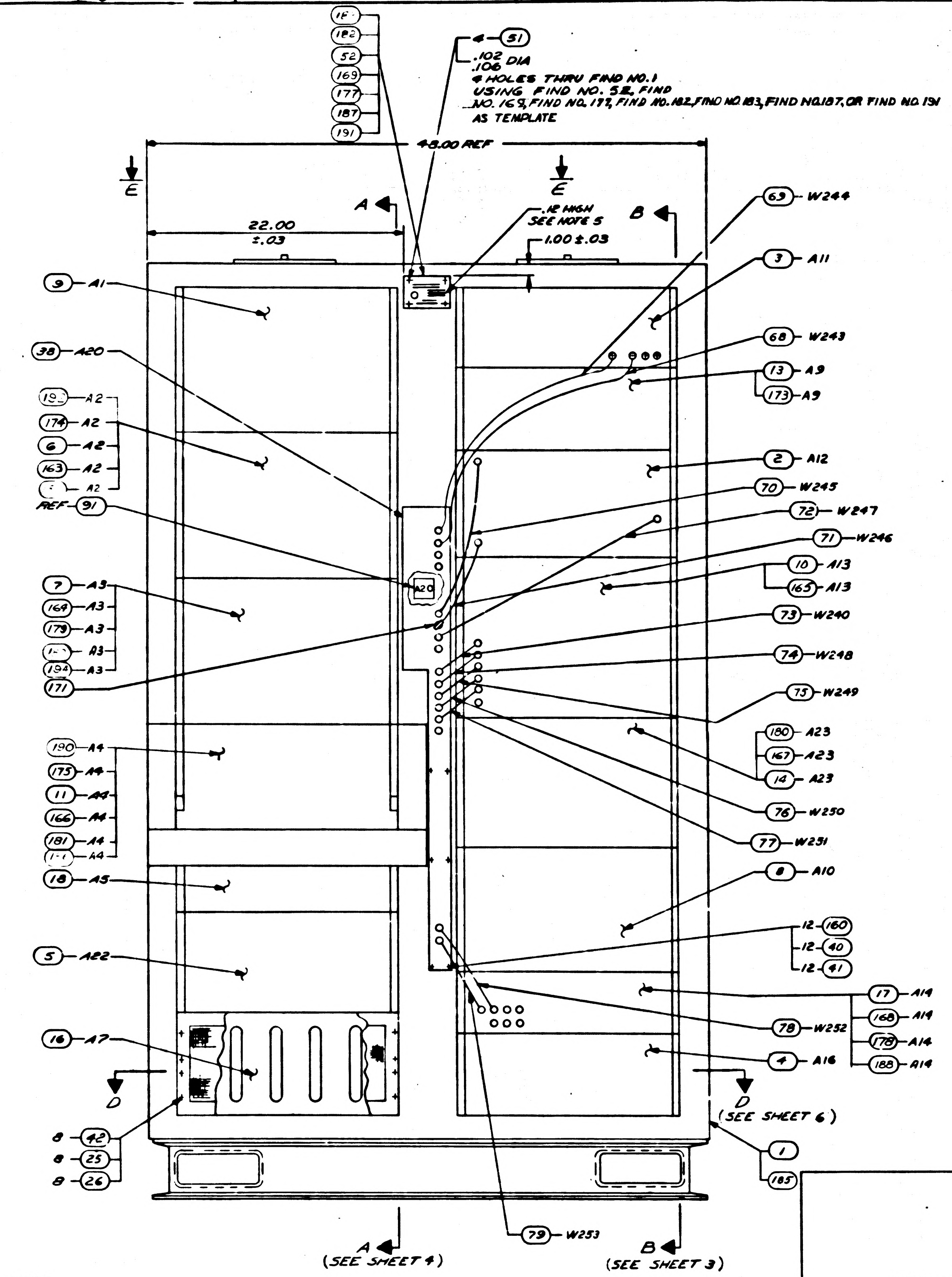
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET ASSEMBLY

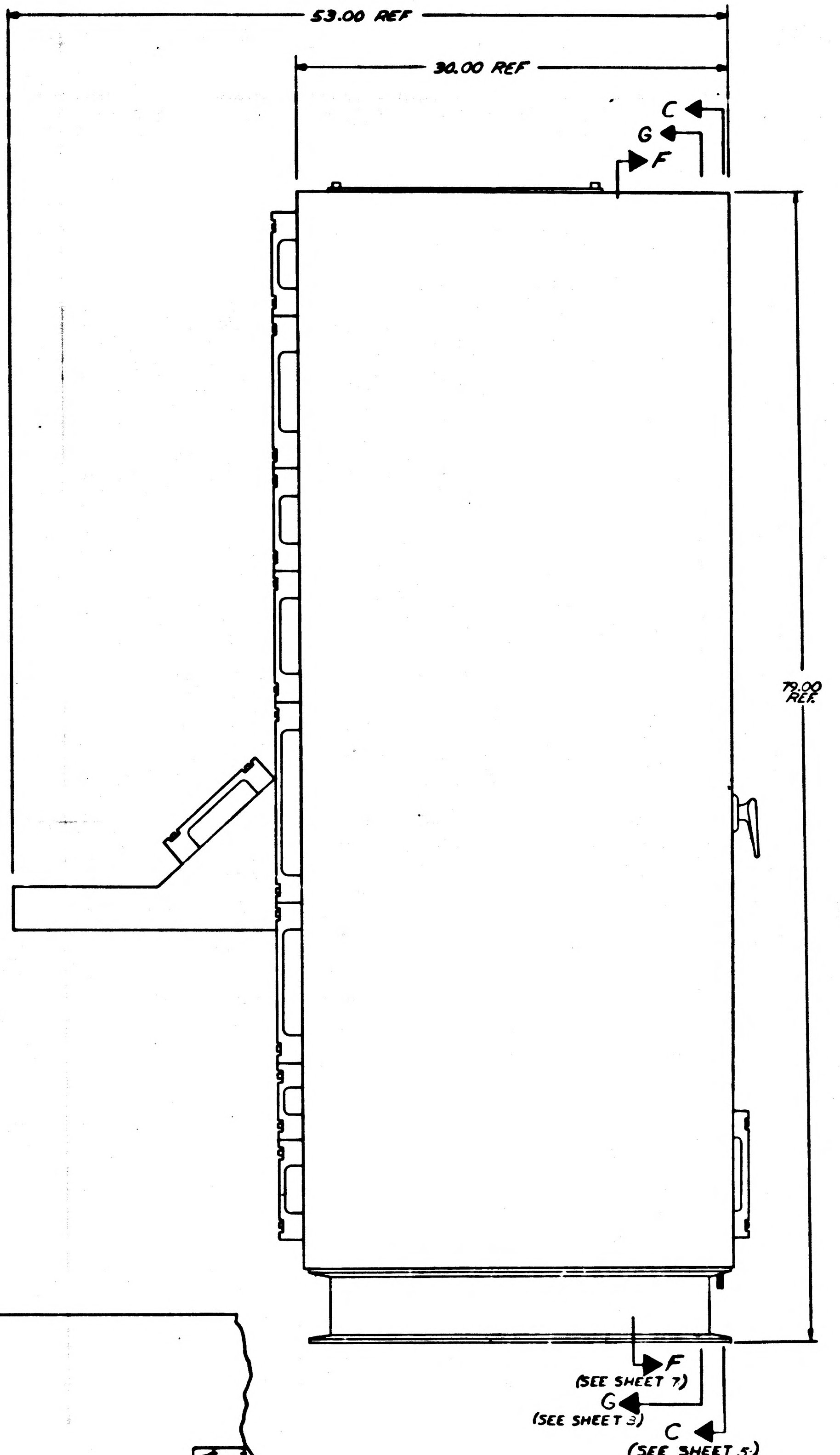
SIZE J
CODE IDENT NO 49956
NASA DRAWING NO 2014042
SCALE 1/4 WT SHEET OF

2014042 U

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31278		
T	CHANGED PER TDRR 33456		
U	CHANGED PER TDRR 35527		



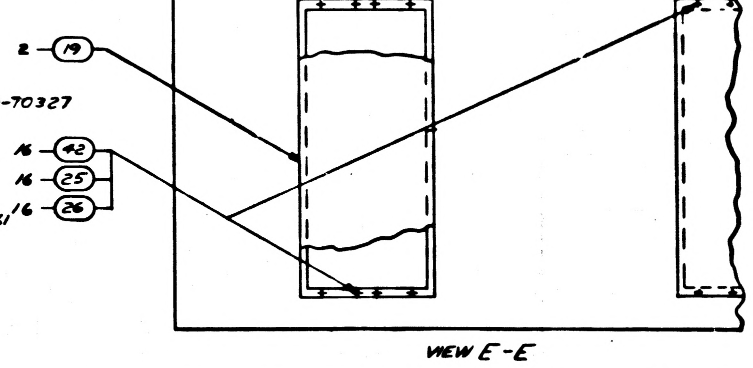
183
182
52
169
177
187
191
4-(51)
.102/.106 DIA
4 HOLES THRU FIND NO.1
USING FIND NO. 52, FIND
NO. 169, FIND NO. 177, FIND NO. 182, FIND NO 183, FIND NO.187, OR FIND NO 191
AS TEMPLATE
48.00 REF
E
E
22.00 ±.03
A
B
.12 HIGH SEE NOTE 5
1.00 ±.03
(9)-A1
(38)-A20
(19?)-A2
(174)-A2
(6)-A2
(163)-A2
A2
REF-(91)
A20
(7)-A3
(164)-A3
(179)-A3
A3
(184)-A3
(171)
(190)-A4
(175)-A4
(11)-A4
(166)-A4
(181)-A4
A4
(18)-A5
(5)-A22
(16)-A7
8-(42)
8-(25)
8-(26)
D
(69)-W244
(3)-A11
(68)-W243
(13)-A9
(173)-A9
(2)-A12
(70)-W245
(72)-W247
(71)-W246
(10)-A13
(165)-A13
(73)-W240
(74)-W248
(75)-W249
(180)-A23
(167)-A23
(14)-A23
(76)-W250
(77)-W251
(8)-A10
12-(160)
12-(40)
12-(41)
(17)-A14
(168)-A14
(178)-A14
(188)-A14
(78)-W252
(4)-A16
D (SEE SHEET 6)
(1)
(185)
(79)-W253
A (SEE SHEET 4)
B (SEE SHEET 3)



53.00 REF
30.00 REF
C
G
F
79.00 REF
F (SEE SHEET 7)
G (SEE SHEET 3)
C (SEE SHEET 5)

Ⓢ REPLACES REV R WITH CHANGE

NOTES
1. NUMBER PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE APPROPRIATE IDENT DECALS (FIND 56 THRU FIND 63 & 83 THRU 89) ON ASSEMBLIES AS SHOWN AND ON SIDES OF AIR DUCTS IN RELATION TO CORRESPONDING ASSEMBLIES
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-STD-70327
4. STORE FIND 82 IN DOOR COMPARTMENT
5. SERIALIZE PER ND 1002023
6. AR DENOTES AS REQUIRED
7. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2014042 FOR-011 CONFIGURATION, PS 2016002 FOR-021 CONFIGURATION, & PS 2016006 FOR-031, 041 051, OR 061 CONFIGURATION & PS 2016026 FOR -071 CONFIGURATION
8. ASSEMBLE FIND 49 USING FIND 115



2-(19)
16-(42)
16-(25)
16-(26)

VIEW E-E

2014042 U

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON MASS
CONTRACT NO NAS 9 497
DRAWN
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

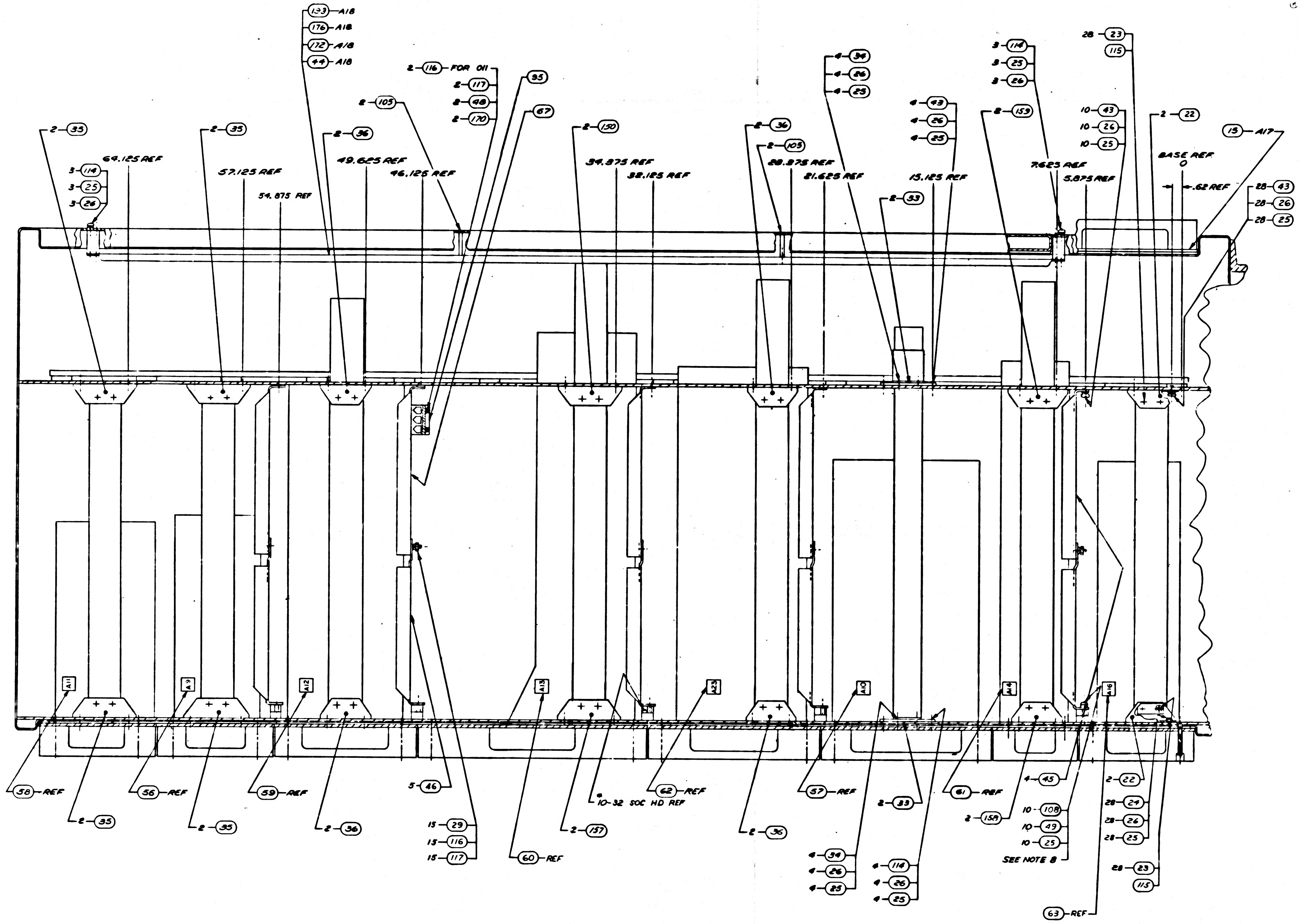
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014042
SCALE 1/4
WT
SHEET 2 OF 8

2014042 U

SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31278 x#3	7/14/66	
T	CHANGED PER TDRR 33456 DR J Valentin CHK [illegible]	[illegible]	[illegible]
U	CHANGED PER TDRR 35527 DR [illegible]	[illegible]	[illegible]



133-A18
176-A18
172-A18
44-A18
2-116-FOR 011
2-117
2-48
2-170
95
67
2-105
2-35
2-35
2-36
2-150
2-36
2-105
2-33
4-34
4-26
4-25
4-43
4-26
4-25
8-159
3-114
3-25
3-26
28-23
115
10-43
10-26
10-25
2-22
15-A17
28-43
28-26
28-25
3-114
3-25
3-26
64.125 REF
57.125 REF
54.875 REF
49.625 REF
46.125 REF
34.875 REF
32.125 REF
28.375 REF
21.625 REF
15.125 REF
7.625 REF
5.875 REF
BASE REF
0
.62 REF
A11
A9
A12
A13
A23
A10
A14
A16
58-REF
56-REF
59-REF
5-46
10-32 SOC HD REF
62-REF
57-REF
61-REF
4-45
2-22
28-24
28-26
28-25
2-35
2-35
2-36
15-29
15-116
15-117
60-REF
2-157
2-36
4-34
4-26
4-25
2-33
4-114
4-26
4-25
2-159
10-108
10-49
10-25
SEE NOTE 8
28-23
115
63-REF

Ⓢ REPLACES REV R WITH CHANGE

SECTION B-B
ROTATED 90° CCW
(SEE SHEET 2)

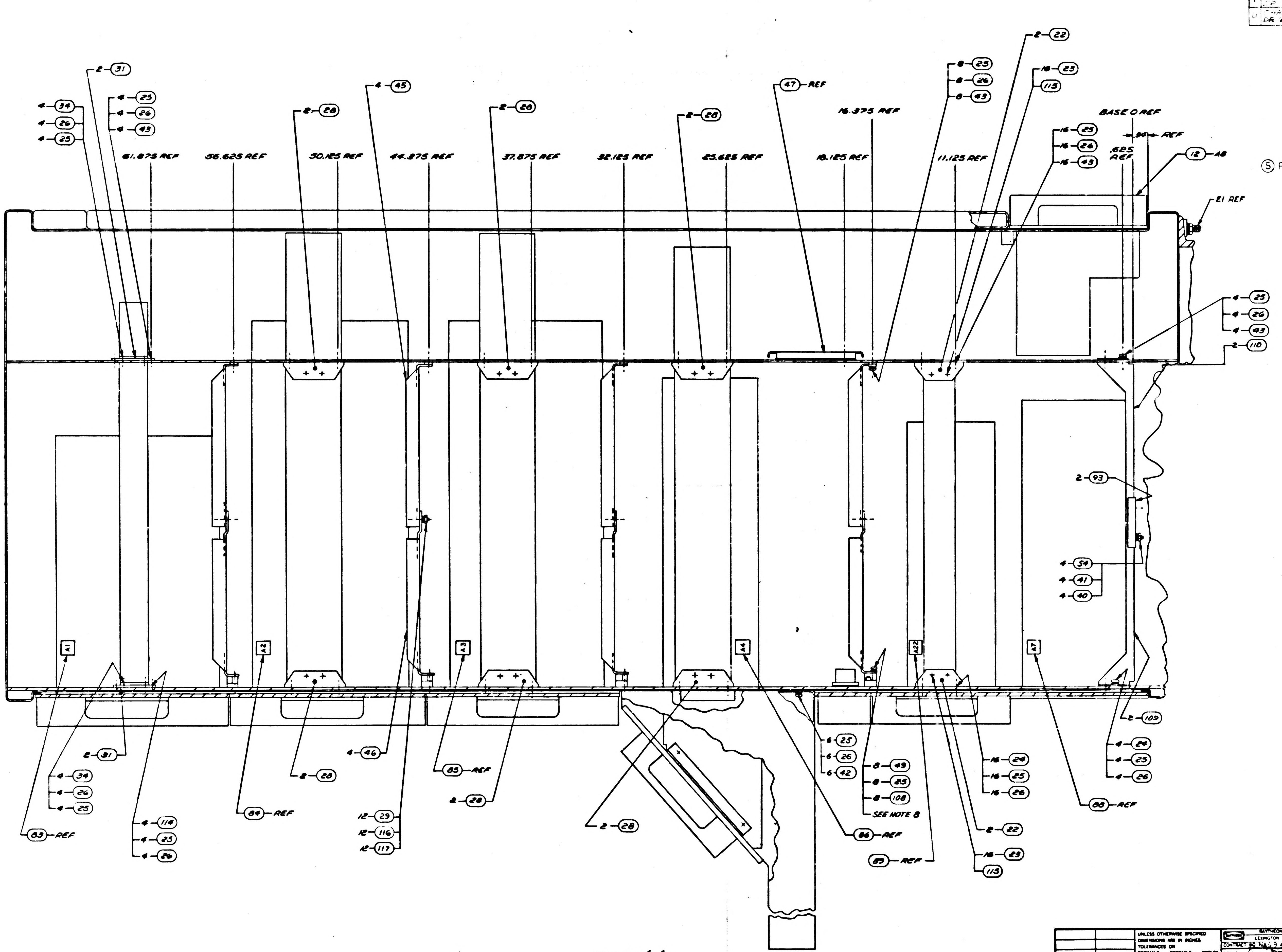
2014042 U

NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±	RAYTHEON CO. LEXINGTON MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
APPLICATION		DO NOT SCALE DRAWING	CONTRACT NO NAS 9 497	COMPUTER TEST SET ASSEMBLY
		MATERIAL	DRAWN DATE	
			CHECKED	
			APPROVAL	
			APPROVAL	
			APPROVAL	
			NASA APPROVAL	CODE IDENT NO. 49956
			APPROVAL	SIZE J
			MIT APPROVAL	NASA DRAWING NO. 2014042
				SCALE 1/2 WT SHEET 3 OF 8

2014042 U

SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31270	[illegible]	[illegible]
T	CHANGED PER TDRR [illegible]456 [illegible]	[illegible]	[illegible]
U	CHANGED PER T[illegible]R [illegible]527 DR [illegible]	[illegible]	[illegible]

Ⓢ REPLACES REV R WITH CHANGE


8
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G
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D
C
B
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2-(31)
4-(34)
4-(26)
4-(25)
4-(25)
4-(26)
4-(43)
2-(28)
4-(45)
2-(28)
2-(28)
(47)-REF
8-(25)
8-(26)
8-(43)
2-(22)
16-(23)
(115)
61.875 REF
56.625 REF
50.125 REF
44.875 REF
37.875 REF
32.125 REF
25.625 REF
18.125 REF
16.375 REF
11.125 REF
BASE 0 REF
.94 REF
.625 REF
16-(25)
16-(26)
16-(43)
(12)-A8
E1 REF
4-(25)
4-(26)
4-(43)
2-(110)
2-(93)
4-(54)
4-(41)
4-(40)
A1
A2
A3
A4
A22
A7
2-(109)
4-(24)
4-(25)
4-(26)
2-(31)
4-(34)
4-(26)
4-(25)
(83)-REF
4-(114)
4-(25)
4-(26)
(84)-REF
2-(28)
4-(46)
12-(29)
12-(116)
12-(117)
(85)-REF
2-(28)
2-(28)
6-(25)
6-(26)
6-(42)
8-(49)
8-(25)
8-(108)
SEE NOTE 8
(86)-REF
(89)-REF
16-(24)
16-(25)
16-(26)
2-(22)
16-(23)
(115)
(88)-REF

SECTION A-A
ROTATED 90° CCW
SEE SHEET 2

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO NAS 9 437
DRAWN [illegible] DATE [illegible]
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL P Jones [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

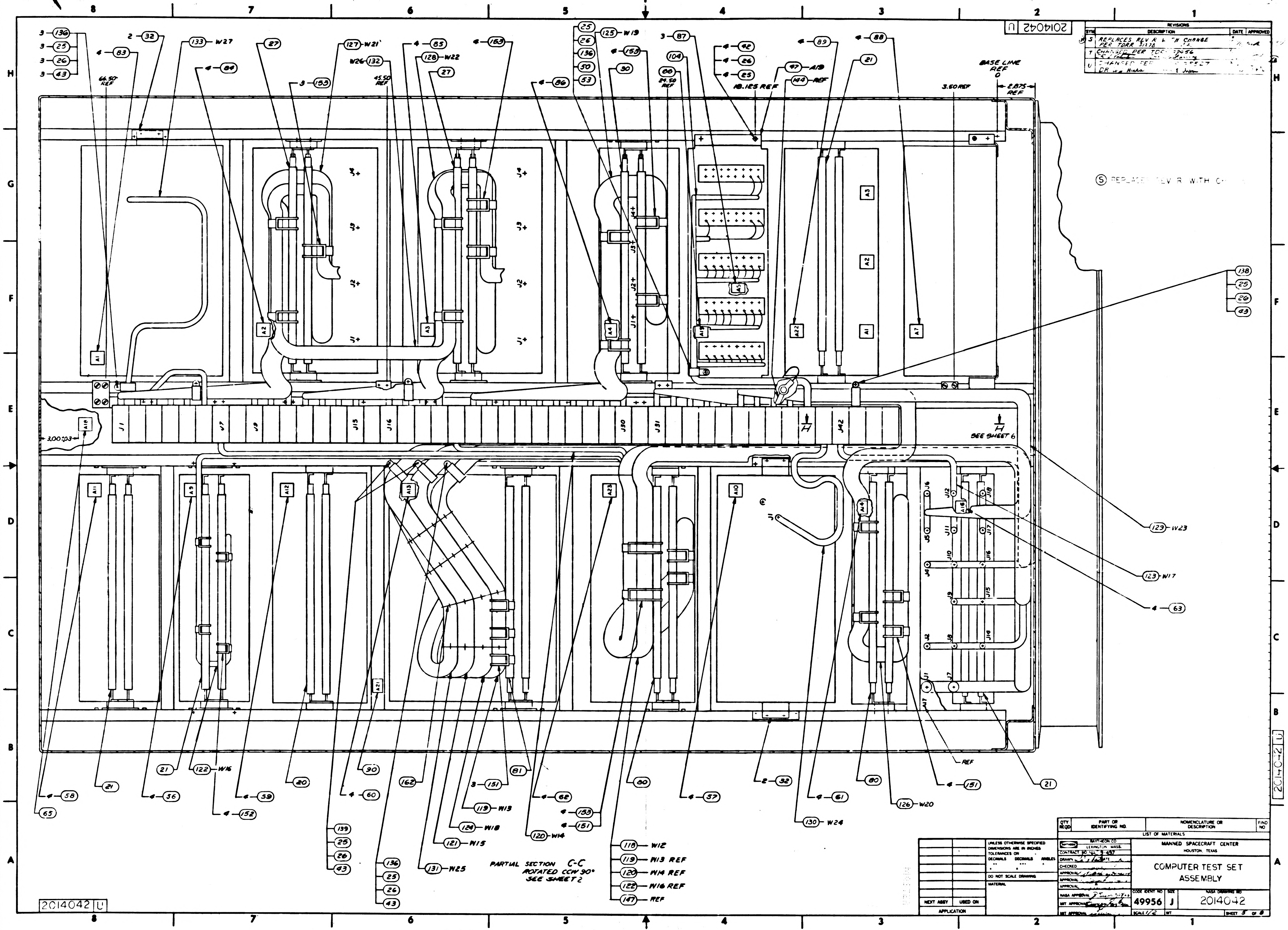
COMPUTER TEST SET
ASSEMBLY

SIZE	CODE IDENT NO	NASA DRAWING NO
J	49956	2014042

SCALE 1/2 WT SHEET 4 OF 8

2014042 U

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31278		
T	CHANGED PER TDRR 33456		
U	CHANGED PER TDRR 35527 DR W. Hicks		



2014042 U
8
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6
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4
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2
1
H
G
F
E
D
C
B
A
3 — 136
3 — 25
3 — 26
3 — 43
2 — 32
4 — 83
133 — W27
4 — 84
27
3 — 155
127 — W21
W26 — 132
45.50 REF
4 — 85
128 — W22
27
4 — 163
25
26
136
50
53
125 — W19
4 — 153
30
3 — 87
104
66
24.50 REF
4 — 42
4 — 26
4 — 25
97 — A19
144 — REF
18.125 REF
4 — 89
4 — 88
21
BASE LINE REF
0
3.60 REF
2.875 REF
66.50 REF
4 — 86
A1
A2
A3
A4
A5
A7
A22
A19
A18
A11
A9
A12
A13
A21
A23
A10
A14
A16
A17
J1
J2
J3
J4
J5
J6
J7
J8
J9
J10
J11
J12
J14
J15
J16
J17
J18
J30
J31
J42
H
SEE SHEET 6
3.00 ± .03
138
25
26
43
129 — W23
123 — W17
4 — 63
REF
21
65
4 — 58
21
21
4 — 56
122 — W16
4 — 152
4 — 59
20
30
4 — 60
162
3 — 151
119 — W13
124 — W18
121 — W15
81
4 — 62
4 — 153
4 — 151
120 — W14
80
2 — 32
4 — 57
4 — 61
130 — W24
80
126 — W20
4 — 151
139
25
26
43
136
25
26
43
131 — W25
118 — W12
119 — W13 REF
120 — W14 REF
122 — W16 REF
147 — REF
PARTIAL SECTION C-C
ROTATED CCW 90°
SEE SHEET 2
Ⓢ REPLACES REV R WITH CH
2014042 U

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX .XXX ±
± ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

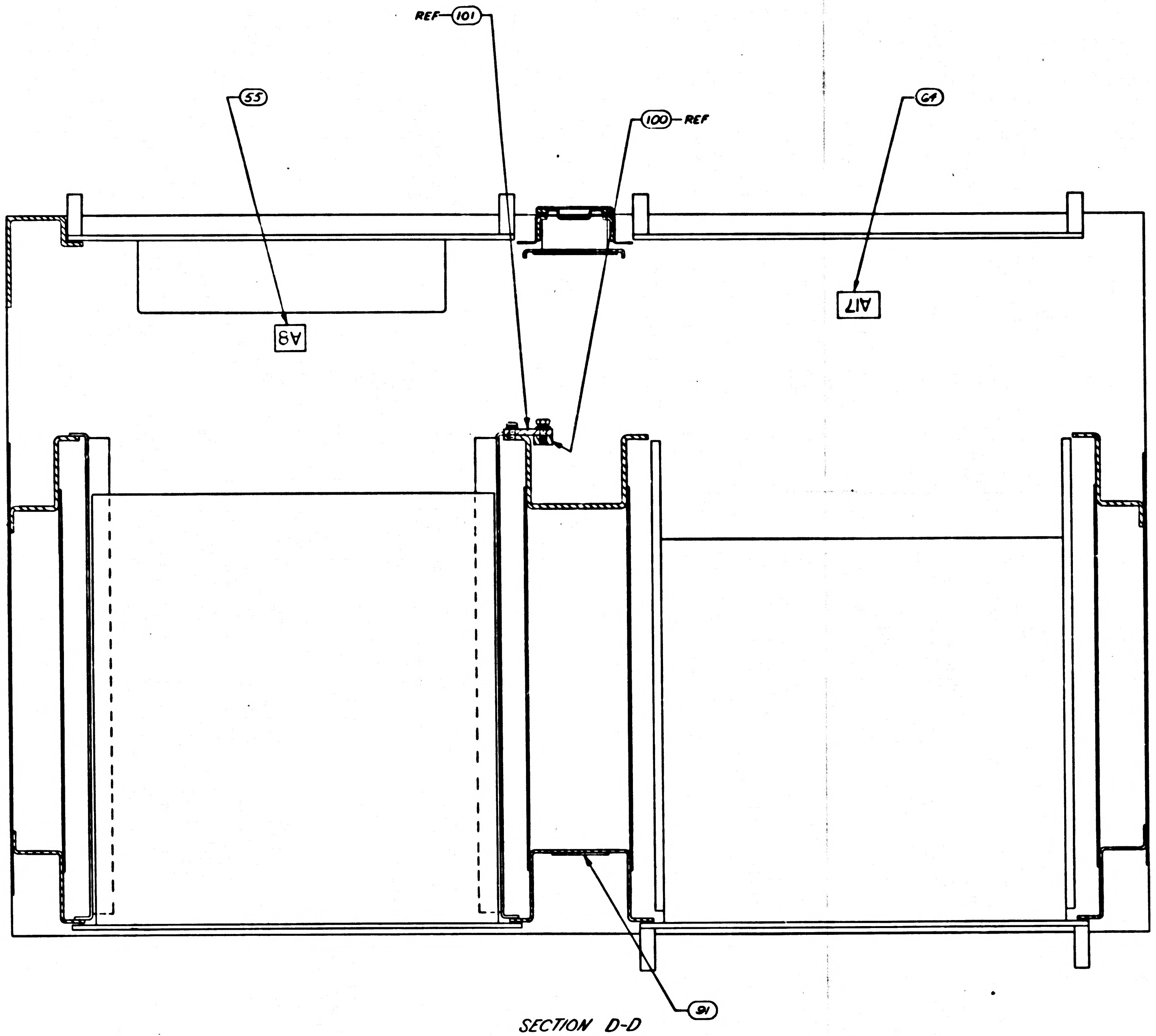
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014042
SCALE 1/2
WT
SHEET 5 OF 8

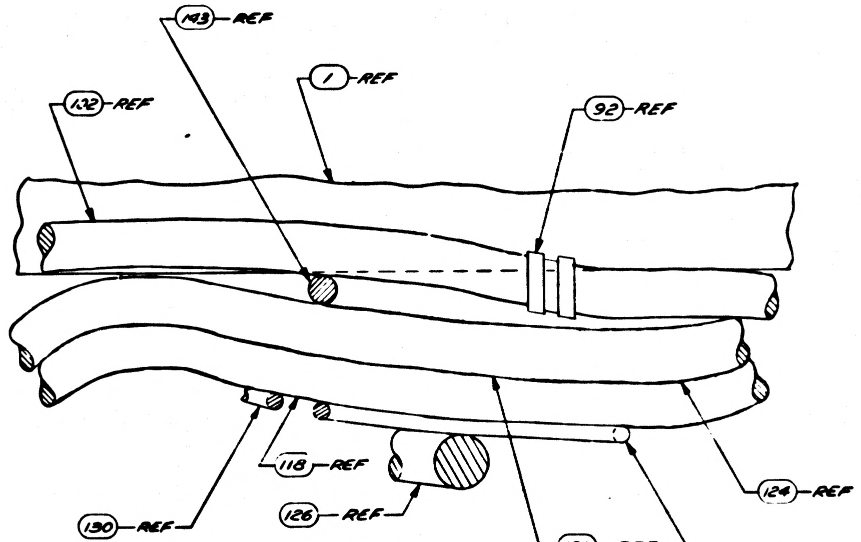
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV K WITH CHANGE PER TDRR 3127[illegible]	[illegible]	[illegible]
T	CHANGED PER TDRR 33456 CR [illegible] CHA[illegible]	[illegible]	[illegible]
U	CHANGED PER TDRR [illegible] DR WG Mahr [illegible]	[illegible]	[illegible]

Ⓢ REPLACES [illegible] WITH CHANGE



REF—101
55
100—REF
64
A8
A17
91

SECTION D-D
(SEE SHEET 2)



143—REF
1—REF
132—REF
92—REF
118—REF
126—REF
130—REF
121—REF
123—REF
124—REF

VIEW H-H
SCALE-NONE
SEE SHEET 5

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

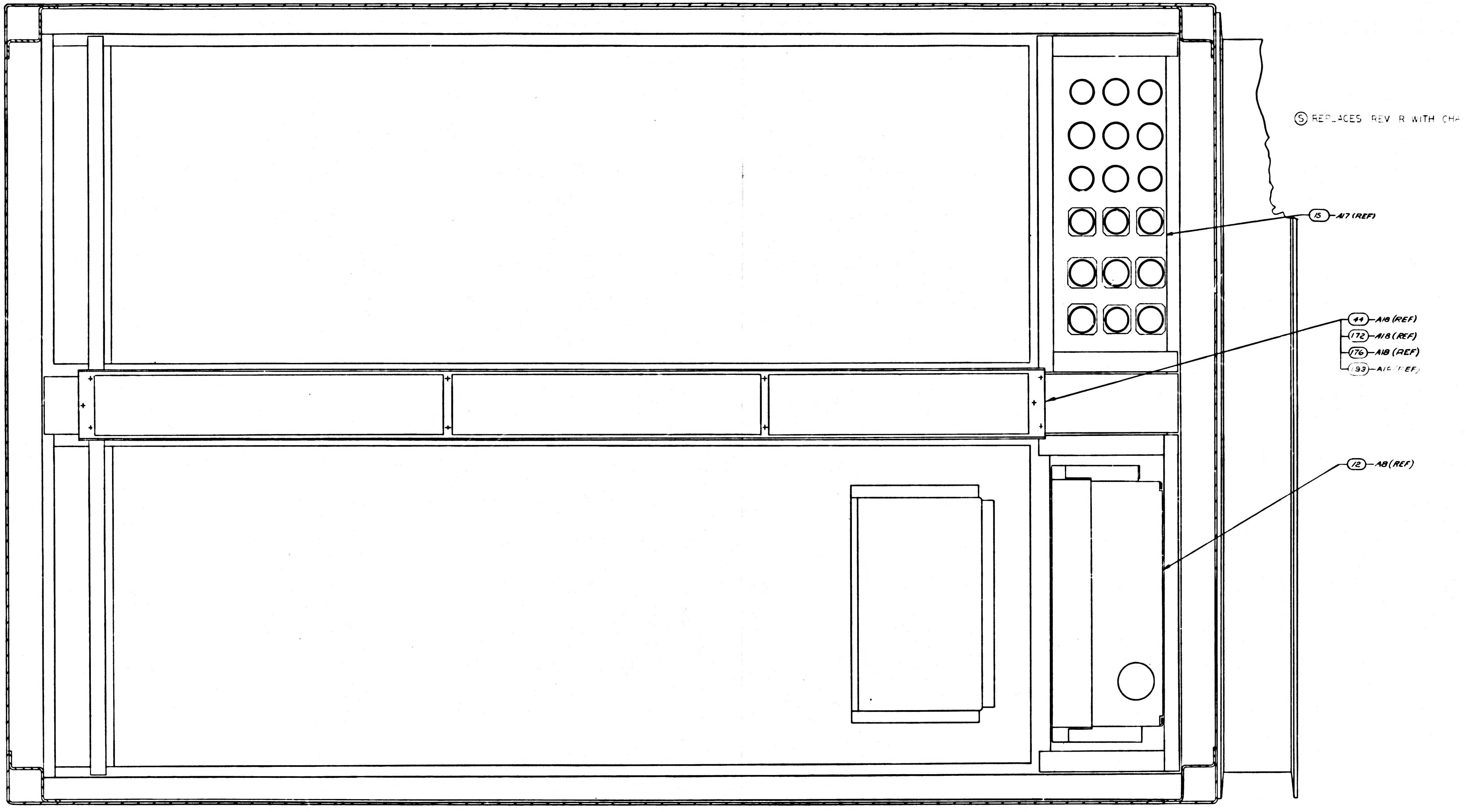
COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO
49956	J	2014042
SCALE 1/2	WT	SHEET 6 OF 8

2014042 U

2014042 U

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
S	REPLACES REV R WITH CHANGE PER TDRR 31278		
T	CHANGED PER TDRR 33456 DR [illegible] CHK [illegible]		
U	CHANGED PER TDRR 35527 DR [illegible] CHK [illegible]		



Ⓢ REPLACES REV R WITH CHA
15 - A17 (REF)
44 - A18 (REF)
172 - A18 (REF)
176 - A18 (REF)
93 - A1[illegible] (REF)
12 - A8 (REF)

SECTION F-F
ROTATED 90° CCW
(SEE SHEET 2)

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION
LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING

MATERIAL

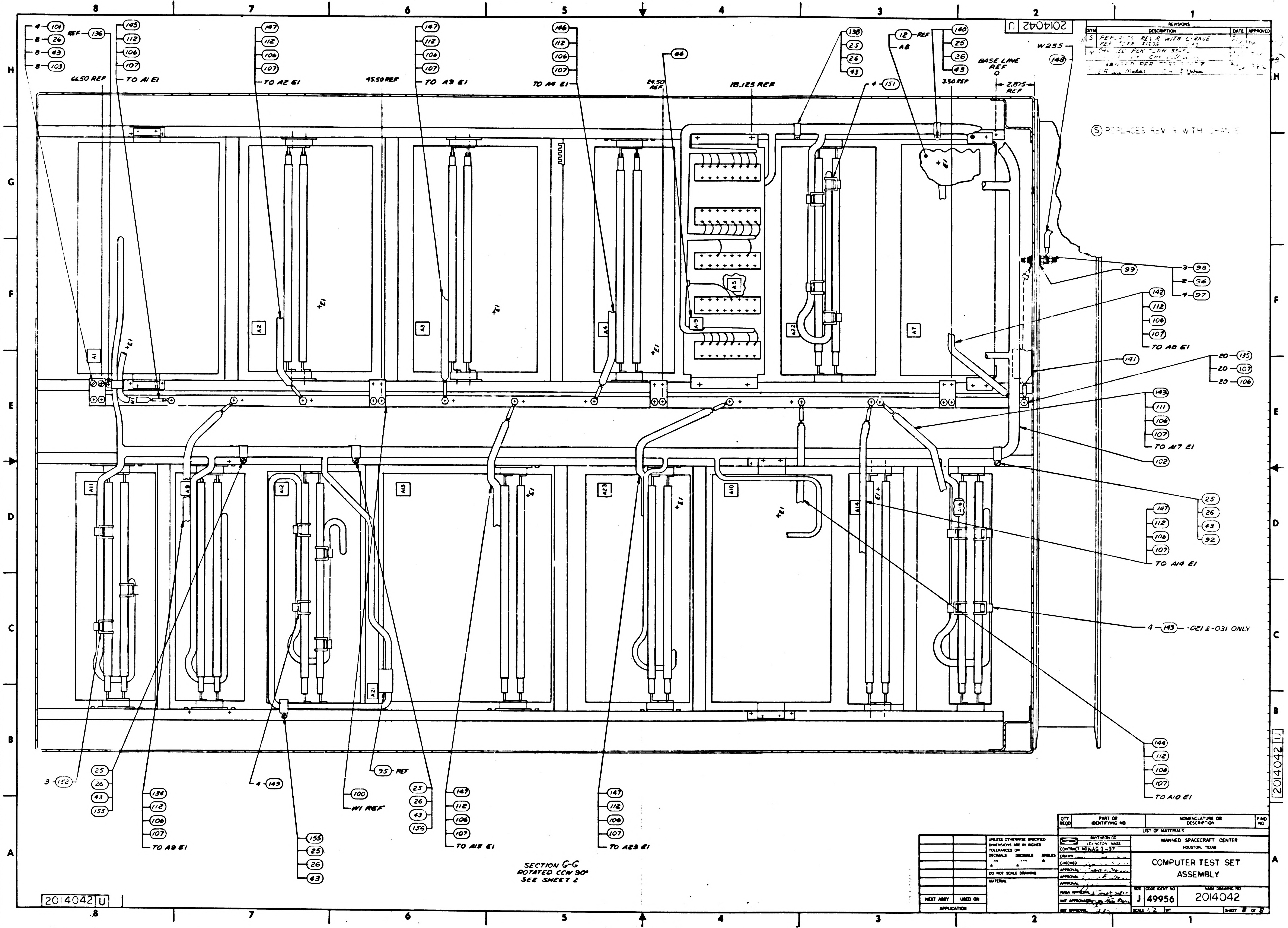
RAYTHEON CO
LEXINGTON MASS
CONTRACT NO NAS 9 497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTE
HOUSTON, TEXAS

COMPUTER TEST SET
ASSEMBLY

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014042
SCALE 1/2
WT
SHEET 7 OF 8

2014042 U


2014042 U
REF
66.50 REF
TO A1 E1
TO A2 E1
45.50 REF
TO A3 E1
TO A4 E1
24.50 REF
18.125 REF
3.50 REF
BASE LINE REF
2.875 REF
A8
W255
TO A8 E1
TO A17 E1
TO A14 E1
-021 & -031 ONLY
TO A10 E1
95 REF
W1 REF
TO A9 E1
TO A13 E1
TO A23 E1
A1
A2
A3
A4
A5
A7
A9
A10
A11
A12
A13
A14
A16
A19
A21
A22
A23
E1
(S) REPLACES REV R WITH CHANGE
SECTION G-G
ROTATED CCW 90°
SEE SHEET 2

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
S	REPLACES REV R WITH CHANGE PER TDRR 31275	[illegible]	[illegible]
T	CHANGED PER TDRR [illegible]	[illegible]	[illegible]
[illegible]	CHANGED PER TDRR [illegible]	[illegible]	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN
CHECKED
APPROVAL
APPROVAL
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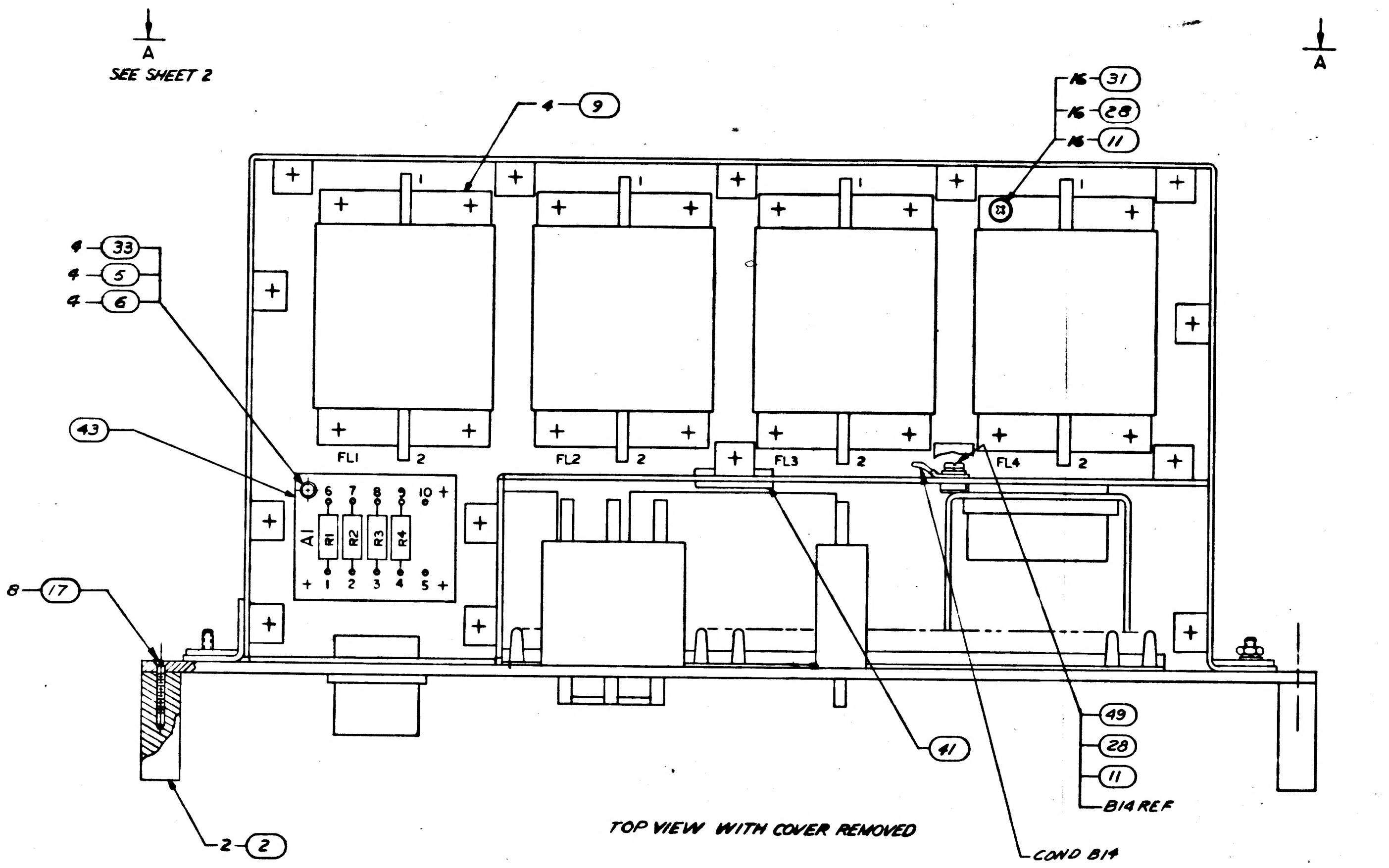
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

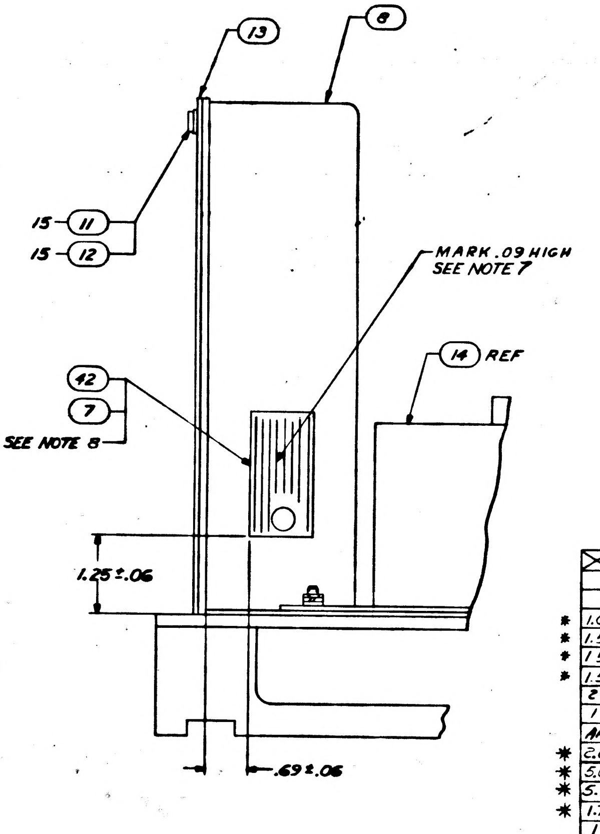
COMPUTER TEST SET
ASSEMBLY

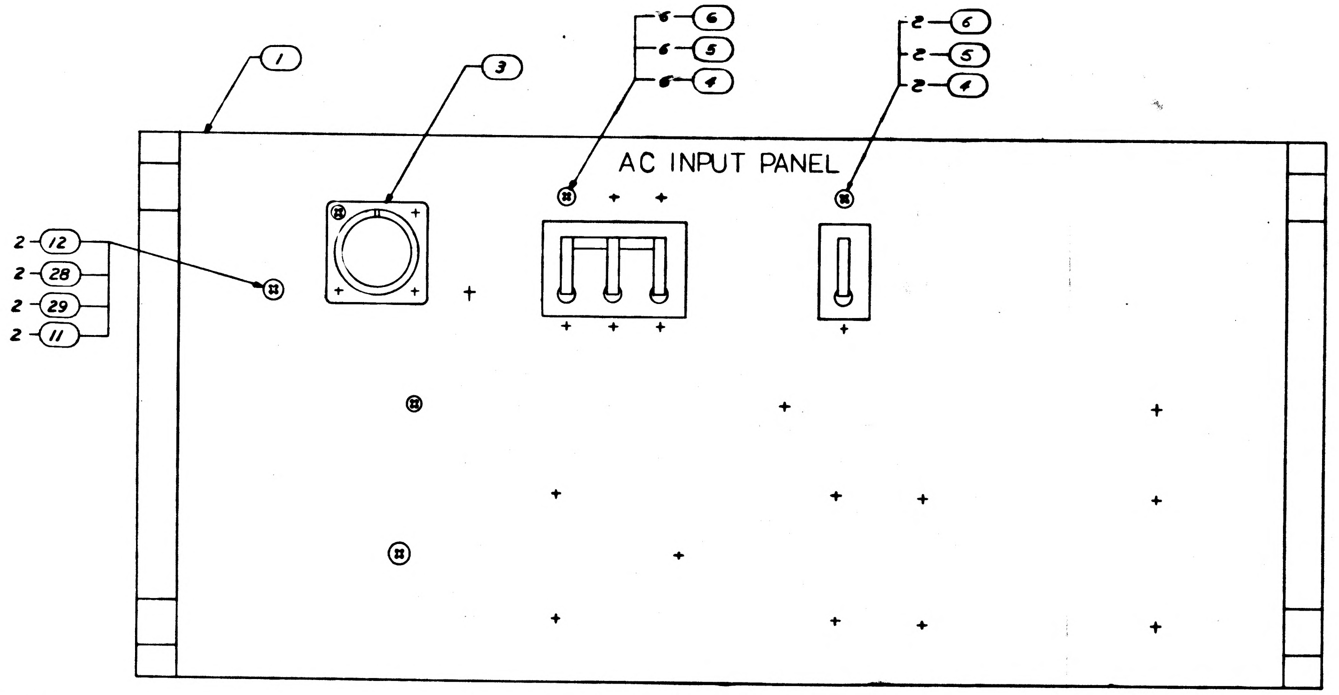
SIZE J
CODE IDENT NO 49956
NASA DRAWING NO 2014042
SCALE 1/2
WT
SHEET 8 OF 8

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER [illegible] 35160		
1	CHANGED PER CCAR 25456 DR B Kalinko CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26312 DR [illegible] CHK [illegible] APPD P C D	7/1/66	[illegible]



TOP VIEW WITH COVER REMOVED





FRONT VIEW

NOTES:

1. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50 ±.06 DO NOT TIN
2. STRIP .25 DO NOT TIN & ATTACH FIND NO.38 AND 1.00±.06 OF FIND NO.51
3. STRIP .31 DO NOT TIN & ATTACH FIND NO.39 AND 1.00±.06 OF FIND NO.53
4. SOLDER & TIN PER ND 1002071
5. FOR FABRICATION, SEE ND1002032, EXCEPT USE FIND NO 48.
6. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
7. SERIALIZE PER ND1002023.
8. BOND FIND NO. 42 TO FIND NO.8 USING FIND NO.7.
9. MIL-I-23053 CLASS I, BLK, ID .250
10. SLEEVE USING .75 LG OF FIND NO. 40.
11. STRIP .19 DO NOT TIN & ATTACH FIND NO.37 AND 1.00±.06 OF FIND NO.52
12. STRIP .19 DO NOT TIN & ATTACH FIND NO.36 AND 1.00±.06 OF FIND NO.52
13. STRIP .25 DO NOT TIN & ATTACH FIND NO.35 AND 1.00±.06 OF FIND NO.53
14. ~~CRIMP PER ND1002206~~
15. AR DENOTES AS REQUIRED
16. STRIP .25 DO NOT TIN & ATTACH FIND NO.50 AND 1.00±.06 OF FIND NO.51 (BOTH ENDS)
17. MIL-I-23053, CLASS I, WHT, ID .187 FOR FIND NO.51, ID .125 FOR FIND NO.52, ID .250 FOR FIND NO.53
18. MARK SLEEVING WITH REF DESTINATIONS .12 HIGH BLACK PER ND 1002019
19. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
20. ATTACH FIND NO.38 AND 1.75±.06 OF FIND NO.51

☒	2014162	SCHEMATIC	REF
* 1.0	MIL-W-16878/5 EE10	WIRE, ELEC, BLACK	54
* 1.5	SEE NOTE 17	INSULATION SLEEVING	53
* 1.5	SEE NOTE 17	INSULATION SLEEVING	52
* 1.5	SEE NOTE 17	INSULATION SLEEVING	51
2	MS25036-56	TERMINAL LUG	50
1	MS51957-43	SCREW, PAN HD	49
AR	1006458-004	LACING CORD	48
* 2.8	MIL-W-16878/5 EE8	WIRE, ELEC, WHT	47
* 5.0	MIL-W-16878/5 EE10	WIRE, ELEC, WHT	46
* 5.6	MIL-W-16878/5 EE18	WIRE, ELEC, WHT	45
* 1.7	MIL-W-16878/5 EE18	WIRE, ELEC, BLK	44
1	2014390-011	COMPONENT BOARD A1 ASSY	43
1	1004260-238	PLATE, IDENT	42
1	MS 35489-45	GROMMET, RUBBER	41
* 1.0	SEE NOTE 9	INSULATION SLEEVING	40
2	MS25036-15	TERMINAL LUG	39
9	MS25036-12	TERMINAL LUG	38
4	MS25036-3	TERMINAL LUG	37
1	MS25036-49	TERMINAL LUG	36
1	MS35430-11	TERMINAL LUG	35
6	MS51957-47	SCREW, PAN HD	34
8	MS 51957-30	SCREW, PAN HD	33
16	MS 35337-80	WASHER, LOCK	32
16	MS 51957-44	SCREW, PAN HD	31
2	1006926	RELAY, ARMATURE	30
16	MS 35649-84	NUT, PLAIN	29
33	MS 35338-80	WASHER LOCK	28
1	2014149-011	WIRING HARNESS	27
24	MS 35649-64	NUT, HEX	26
1	1006914-32	CIRCUIT BREAKER ASSY	25
1	MS27212-1-20	TERMINAL BOARD ASSY	24
1	1006915-11	CIRCUIT BREAKER	23
8	MS 35335-60	WASHER, LOCK EXT TOOTH	22
7	MS 35649-44	NUT, HEX	21
7	MS15795-803	WASHER, FLAT	20
7	MS 35338-78	WASHER, LOCK	19
3	MS 51957-16	SCREW, PAN HD	18
8	MS 51959-48	SCREW, FLAT HD	17
4	MS 26226-2-3	BUS, TERMINAL BD	16
1	1014249	BRACKET, CONN	15
1	1020360	COVER	14
1	1020359	COVER, FILTER HOUSING	13
21	MS 51957-46	SCREW, PAN HD	12
48	MS15795-807	WASHER, FLAT	11
4	MS 51957-18	SCREW, PAN HD	10
4	1006654	FILTER, RI	9
1	2014404	HOUSING, FILTER	8
AR	MIL-A-5092, TYPE II	CEMENT	7
36	MS15795-805	WASHER, FLAT	6
36	MS 35338-79	WASHER, LOCK	5
8	MS 51957-28	SCREW, PAN HD	4
1	MS 3102R-22-22P	CONNECTOR, RECEPTACLE	3
2	1014215-4	HANDLE ASSY	2
1	2014405	PANEL, FRONT	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 9 Jul 65
CHECKED [illegible] 31 [illegible] 65
APPROVAL P.E. [illegible] 9 AUG 65
APPROVAL [illegible] 9 Aug [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

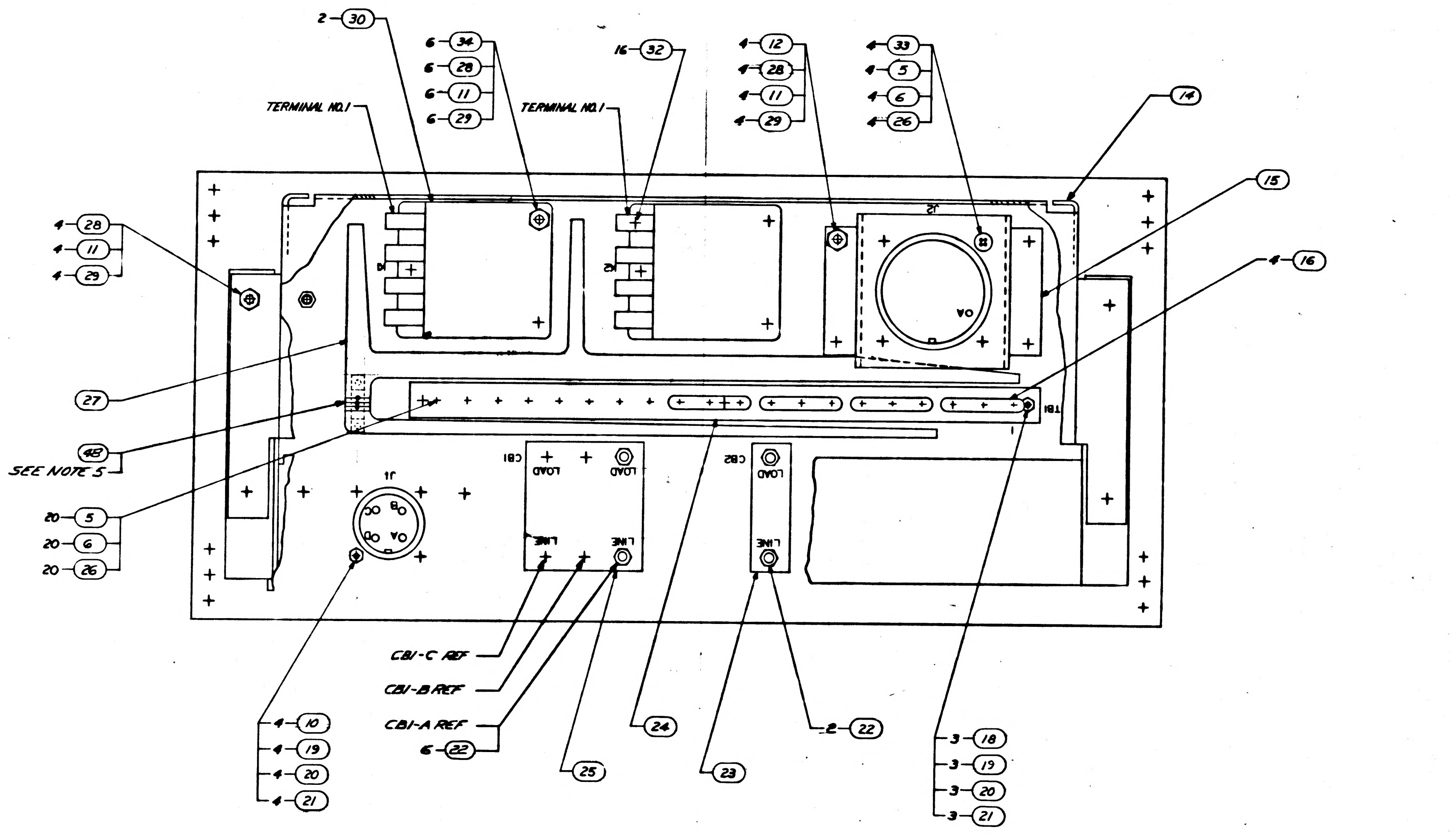
AC INPUT PANEL ASSEMBLY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014043
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014043 A

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25160		
1	CHANGED PER CCA R25456 DR B CHK APPD		
–	CLASS A RELEASED PER TDRR 2472		
A	CHANGED PER TDRR 2632 DR CHK APPD		


2-30
6-34
6-28
6-11
6-29
TERMINAL NO.1
16-32
TERMINAL NO.1
4-12
4-28
4-11
4-29
4-33
4-5
4-6
4-26
14
15
4-16
4-28
4-11
4-29
K1
K2
J2
OA
TB1
27
48
SEE NOTE 5
20-5
20-6
20-26
J1
OA
OB
OC
OD
CB1
LOAD
LOAD
LINE
LINE
CB2
LOAD
LINE
CB1-C REF
CB1-B REF
CB1-A REF
6-22
4-10
4-19
4-20
4-21
25
24
23
2-22
3-18
3-19
3-20
3-21

VIEW A-A
SEE SHEET 1

JUMPER CHART									
COND IDENT	FROM		DESCRIPTION				TO	
	REMARKS	DESTINATION	COLOR	AWG	LENGTH	FIND NO.	DESTINATION	REMARKS
B1		A1-1	WHT	18	.8FT	45	FL1-1	SEE NOTE 11
B2		A1-7	WHT	18	1.2FT	45	FL2-1	↕
B3		A1-2	WHT	18	1.6FT	45	FL3-1	↕
B4		A1-6	WHT	18	2.0FT	45	FL4-1	SEE NOTE 11
B5	STRIP .25 SEE NOTES 4&10	J1-C	WHT	10	.9FT	46	FL1-1	SEE NOTE 2
B6	STRIP .25 SEE NOTES 4&10	J1-B	WHT	10	1.0FT	46	FL2-1	↕
B7	STRIP .25 SEE NOTES 4&10	J1-A	WHT	10	1.3FT	46	FL3-1	SEE NOTE 2
B8	STRIP .25 SEE NOTES 4&10	J1-D	WHT	8	1.6FT	47	FL4-1	SEE NOTE 3
B9		A1-4	BLK	18	1.7FT	44	K1-4A	SEE NOTE 12
B10	SEE NOTE 2	FL1-2	WHT	10	.9FT	46	CB1-C LINE	SEE NOTE 20
B11	↕	FL2-2	WHT	10	.5FT	46	CB1-B LINE	↕
B12	SEE NOTE 2	FL3-2	WHT	10	.4FT	46	CB1-A LINE	SEE NOTE 20
B13	SEE NOTE 3	FL4-2	WHT	8	1.2FT	47	TB1-3	SEE NOTE 13
B14	SEE NOTE 16	K1-4B	BLK	10	1.0FT	54	E2	SEE NOTE 16

ROUTE THRU FIND NO. 41 (B9–B14)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. Doty DATE 9 Jul 65
CHECKED C. Wharton 9 Jul 65
APPROVAL G.E. Dube 9 AUG 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC INPUT PANEL ASSEMBLY
COMPUTER TEST SET

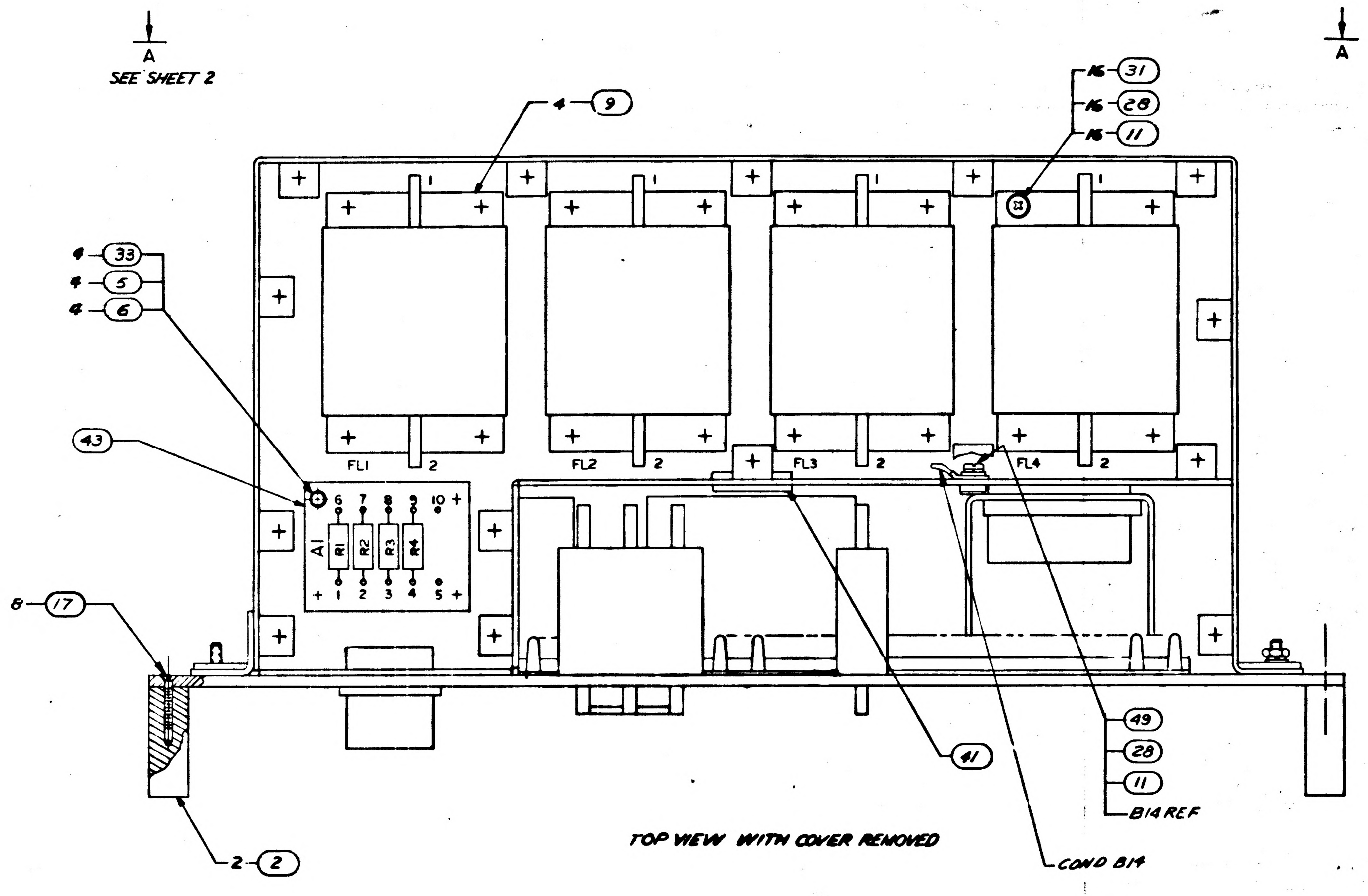
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014043
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

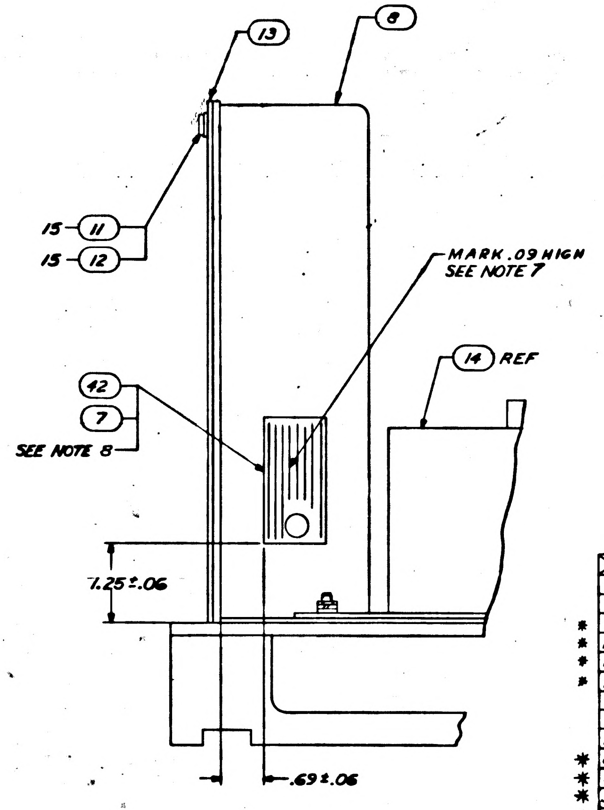
2014043 A

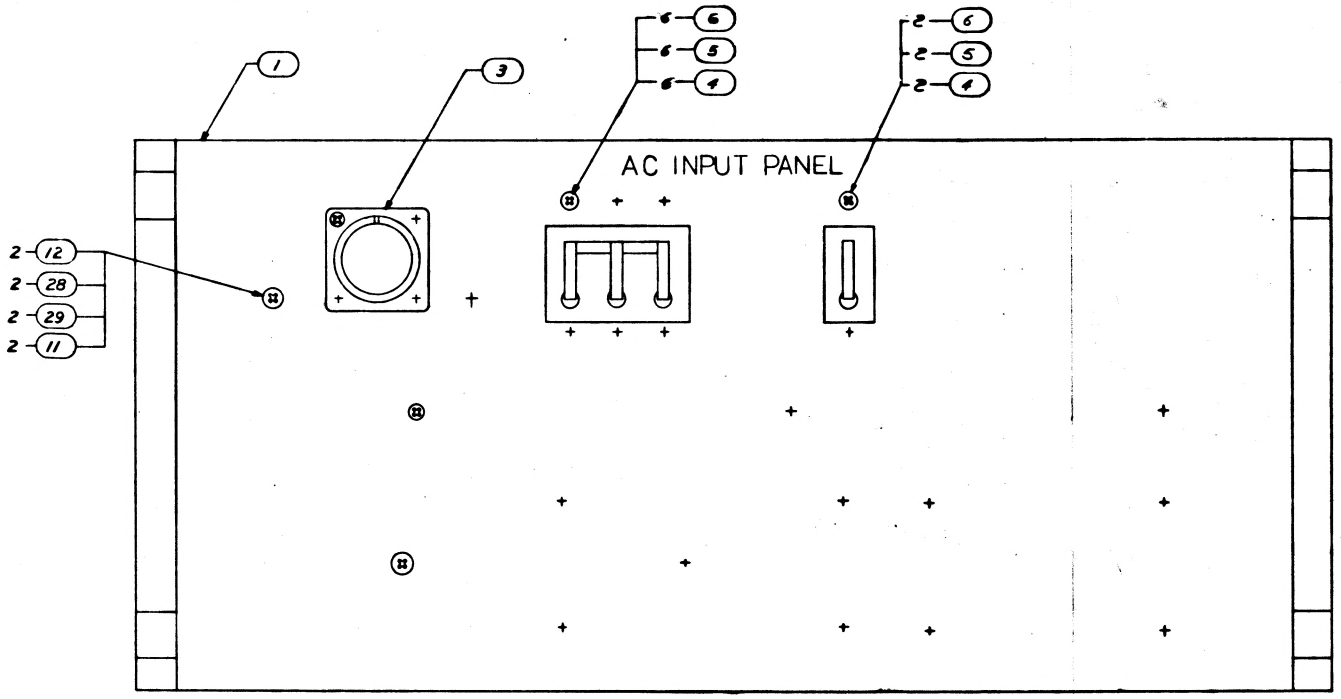
2014043 1

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
○	RELEASED PER CCA 25160		
1	CHANGED PER CCAR25456 DR B Kolenko CHK APPD	11-13-65	
–	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26312 DR CHK APPD	7/9/66	
B	CHANGED PER TDRR 26313 DR CHK APPD	3/7/66	



TOP VIEW WITH COVER REMOVED





FRONT VIEW

NOTES:

1. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50±.06 & TIN PER ND1002071
2. STRIP.25 DO NOT TIN & ATTACH FIND NO.38 AND 1.00±.06 OF FIND NO.51
3. STRIP.25 DO NOT TIN & ATTACH FIND NO.39 AND 1.00±.06 OF FIND NO.53
4. SOLDER & TIN PER ND 1002071
5. FOR FABRICATION, SEE ND1002032, EXCEPT USE FIND NO 48.
6. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
7. SERIALIZE PER ND1002023.
8. BOND FIND NO.42 TO FIND NO.8 USING FIND NO.7.
9. MIL-I-23053 CLASS 1, BLK, ID .250
10. SLEEVE USING .75 LG OF FIND NO. 40
11. STRIP.19 DO NOT TIN & ATTACH FIND NO.37 AND 1.00±.06 OF FIND NO.52
12. STRIP.19 DO NOT TIN & ATTACH FIND NO.36 AND 1.00±.06 OF FIND NO.52
13. STRIP.25 DO NOT TIN & ATTACH FIND NO.35 AND 1.00±.06 OF FIND NO.53
14. CRIMP PER ND1002206
15. AR DENOTES AS REQUIRED
16. STRIP.25 DO NOT TIN & ATTACH FIND NO.50 AND 1.00±.06 OF FIND NO.51 (BOTH ENDS)
17. MIL-I-23053, CLASS 1, WHT. ID .187 FOR FIND NO.51, ID .125 FOR FIND NO.52, ID .250 FOR FIND NO. 53
18. MARK SLEEVING WITH REF DESTINATIONS .12 HIGH BLACK PER ND 1002019
19. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
20. STRIP .25 DO NOT TIN & ATTACH FIND NO.38 AND 1.75±.06 OF FIND NO.51

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
⊠	2014162	SCHEMATIC	REF
* 1.0	MIL-W-16878/5 EE10	WIRE, ELEC, BLACK	54
* 1.5	SEE NOTE 17	INSULATION SLEEVING	53
* 1.5	SEE NOTE 17	INSULATION SLEEVING	52
* 1.5	SEE NOTE 17	INSULATION SLEEVING	51
2	MS25036-56	TERMINAL LUG	50
1	MS 51957-43	SCREW, PAN HD	49
AR	1006458-004	LACING CORD	48
* 2.8	MIL-W-16878/5 EE8	WIRE, ELEC, WHT	47
* 5.0	MIL-W-16878/5 EE10	WIRE, ELEC, WHT	46
* 5.6	MIL-W-16878/5 EE18	WIRE, ELEC, WHT	45
* 1.7	MIL-W-16878/5 EE18	WIRE, ELEC, BLK	44
1	2014390-011	COMPONENT BOARD A1 ASSY	43
1	1004260-238	PLATE, IDENT	42
1	MS 35489-45	GROMMET, RUBBER	41
* 1.0	SEE NOTE 9	INSULATION SLEEVING	40
2	MS25036-15	TERMINAL LUG	39
9	MS25036-12	TERMINAL LUG	38
4	MS25036-3	TERMINAL LUG	37
1	MS25036-49	TERMINAL LUG	36
1	MS35430-11	TERMINAL LUG	35
6	MS51957-47	SCREW, PAN HD	34
8	MS 51957-30	SCREW, PAN HD	33
16	MS 35337-80	WASHER, LOCK	32
16	MS 51957-44	SCREW, PAN HD	31
2	1006926	RELAY, ARMATURE	30
16	MS 35649-84	NUT, PLAIN	29
33	MS 35338-80	WASHER LOCK	28
1	2014149-011	WIRING HARNESS	27
24	MS 35649-64	NUT, HEX	26
1	1006914-32	CIRCUIT BREAKER ASSY	25
1	MS 27212-1-20	TERMINAL BOARD ASSY	24
1	1006915-11	CIRCUIT BREAKER	23
8	MS 35335-60	WASHER, LOCK EXT TOOTH	22
7	MS 35649-44	NUT, HEX	21
7	MS15795-803	WASHER, FLAT	20
7	MS 35338-78	WASHER, LOCK	19
3	MS 51957-16	SCREW, PAN HD	18
8	MS 51959-48	SCREW, FLAT HD	17
4	MS 26226-2-3	BUS, TERMINAL BD	16
1	1014249	BRACKET, CONN	15
1	1020360	COVER	14
1	1020359	COVER, FILTER HOUSING	13
21	MS 51957-46	SCREW, PAN HD	12
48	MS15795-807	WASHER, FLAT	11
4	MS 51957-18	SCREW, PAN HD	10
4	1006654	FILTER, R.I.	9
1	2014404	HOUSING, FILTER	8
AR	MIL-A-5092, TYPE II	CEMENT	7
36	MS 15795-805	WASHER, FLAT	6
36	MS 35338-79	WASHER, LOCK	5
8	MS 51957-28	SCREW, PAN HD	4
1	MS 3102R-22-22P	CONNECTOR, RECEPTACLE	3
2	1014215-4	HANDLE ASSY	2
1	2014405	PANEL, FRONT	1
-011	LIST OF MATERIALS		

✱ DENOTES LENGTH IN FEET

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9 Jul 65
CHECKED 31 Jul 65
APPROVAL 9 AUG 65
APPROVAL 9 AUG 65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

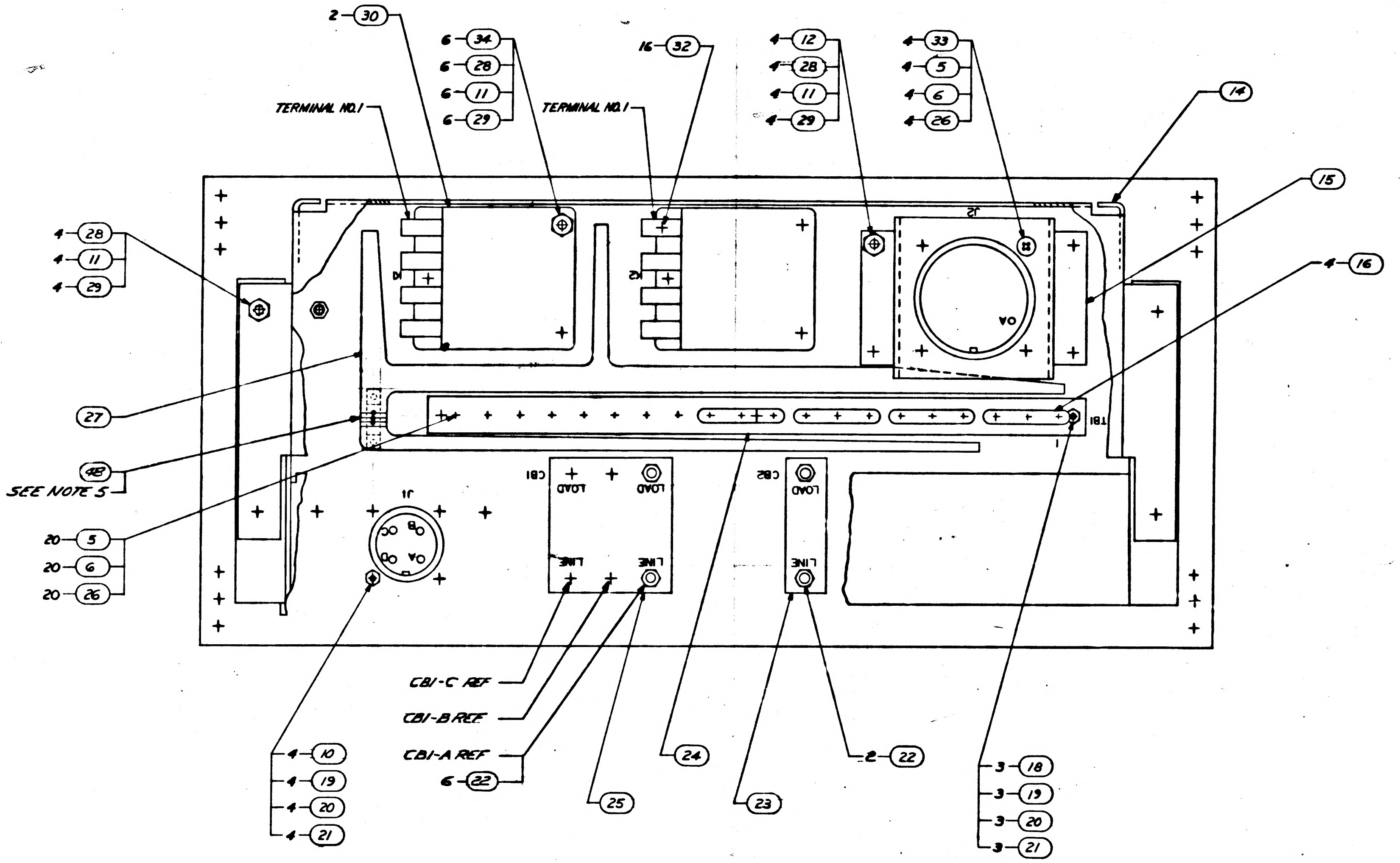
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC INPUT PANEL ASSEMBLY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014043
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25160		
1	CHANGED PER CCA R25456 DR B [illegible] CHK [illegible] APPD [illegible]		
–	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26312 DR [illegible] CHK [illegible] APPD [illegible]		
B	CHANGED PER TDRR 26313 DR [illegible] CHK [illegible] APPD [illegible]		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6-(34)
6-(28)
6-(11)
6-(29)
TERMINAL NO.1
TERMINAL NO.1
16-(32)
4-(12)
4-(28)
4-(11)
4-(29)
4-(33)
4-(5)
4-(6)
4-(26)
(14)
(15)
4-(16)
4-(28)
4-(11)
4-(29)
K1
K2
J2
OA
TB1
(27)
(48)
SEE NOTE 5
20-(5)
20-(6)
20-(26)
J1
CB1
LOAD
LOAD
LINE
LINE
CB2
LOAD
LINE
CB1-C REF
CB1-B REF
CB1-A REF
6-(22)
4-(10)
4-(19)
4-(20)
4-(21)
(25)
(24)
(23)
2-(22)
3-(18)
3-(19)
3-(20)
3-(21)

VIEW A-A
SEE SHEET 1

COND IDENT	FROM REMARKS	FROM DESTINATION	DESCRIPTION COLOR	DESCRIPTION AWG	DESCRIPTION LENGTH	DESCRIPTION FIND NO.	TO DESTINATION	TO REMARKS
B1		A1-1	WHT	18	.8FT	45	FL1-1	SEE NOTE 11
B2		A1-7	WHT	18	1.2FT	45	FL2-1	↕
B3		A1-2	WHT	18	1.6FT	45	FL3-1	
B4		A1-6	WHT	18	2.0FT	45	FL4-1	SEE NOTE 11
B5	STRIP .25 SEE NOTES 4&10	J1-C	WHT	10	.9FT	46	FL1-1	SEE NOTE 2
B6	STRIP .25 SEE NOTES 4&10	J1-B	WHT	10	1.0 FT	46	FL2-1	↕
B7	STRIP .25 SEE NOTES 4&10	J1-A	WHT	10	1.3FT	46	FL3-1	SEE NOTE 2
B8	STRIP .25 SEE NOTES 4&10	J1-D	WHT	8	1.6FT	47	FL4-1	SEE NOTE 3
B9		A1-4	BLK	18	1.7FT	44	K1-4A	SEE NOTE 12
B10	SEE NOTE 2	FL1-2	WHT	10	.9FT	46	CB1-C LINE	SEE NOTE 20
B11	↕	FL2-2	WHT	10	.5FT	46	CB1-B LINE	↕
B12	SEE NOTE 2	FL3-2	WHT	10	.4FT	46	CB1-A LINE	SEE NOTE 20
B13	SEE NOTE 3	FL4-2	WHT	8	1.2FT	47	TB1-3	SEE NOTE 13
B14	SEE NOTE 16	K1-4B	BLK	10	1.0FT	54	E2	SEE NOTE 16

JUMPER CHART — ROUTE THRU FIND NO. 41 (B9–B14)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 9 Jul 65
CHECKED [illegible] 3 Jul 65
APPROVAL [illegible] 9 Aug 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

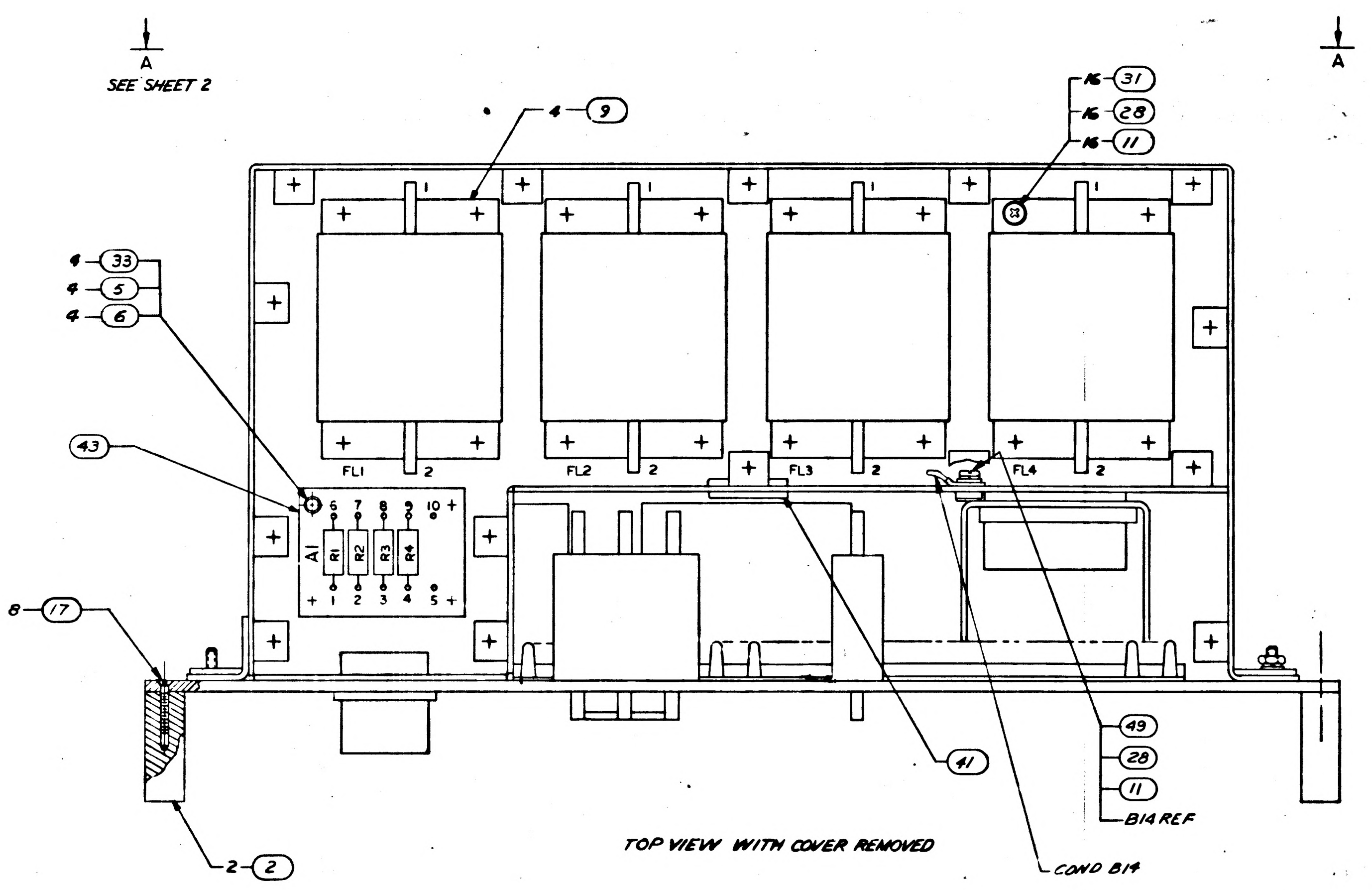
AC INPUT PANEL ASSEMBLY
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014043
SCALE 1/1 WT SHEET 2 OF 2

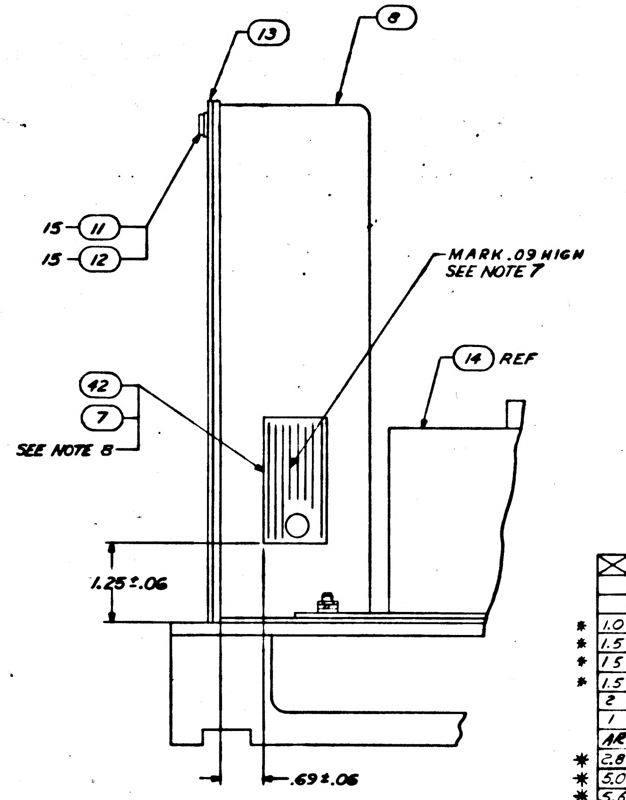
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

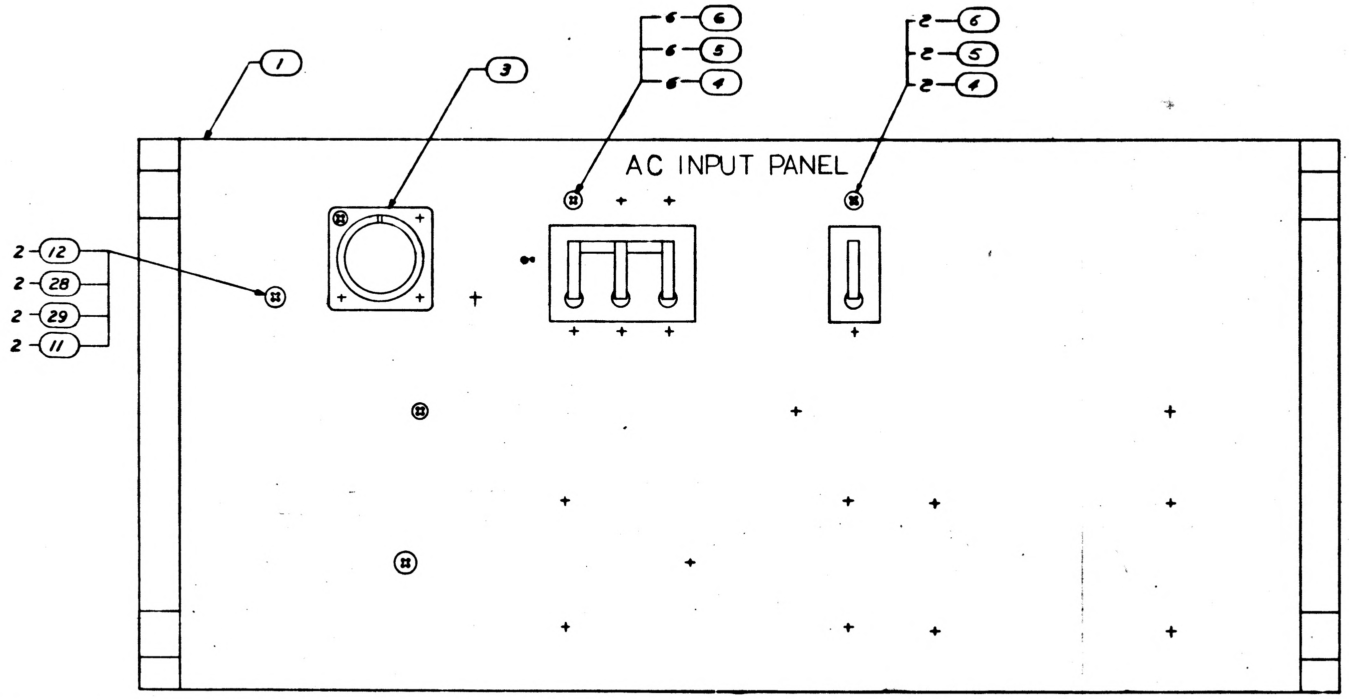
2014043 C

SYM	DESCRIPTION	DATE	APPROVED
-	RELEASED PER [illegible]		
1	CHANGED PER CCAR 25456 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	
-	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26312 DR [illegible] CHK [illegible] APPD	7/7/66	
B	CHANGED PER TDRR 26313 DR [illegible] CHK [illegible] APPD	3/7/66	
C	CHANGED PER TDRR [illegible]314 DR [illegible] CHK [illegible] APPD	[illegible]/66	



TOP VIEW WITH COVER REMOVED





FRONT VIEW

NOTES:

1. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50±.06 & TIN PER ND1002071
2. STRIP .25 DO NOT TIN & ATTACH FIND NO.38 AND 1.00±.06 OF FIND NO.51
3. STRIP .31 DO NOT TIN & ATTACH FIND NO.39 AND 1.00±.06 OF FIND NO.53
4. SOLDER & TIN PER ND 1002071
5. FOR FABRICATION, SEE ND1002032, EXCEPT USE FIND NO 48.
6. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
7. SERIALIZE PER ND1002023.
8. BOND FIND NO.42 TO FIND NO.8 USING FIND NO.7.
9. MIL-I-23053 CLASS 1, BLK, ID .250
10. SLEEVE USING .75 LG OF FIND NO. 40
11. STRIP .19 DO NOT TIN & ATTACH FIND NO.37 AND 1.00±.06 OF FIND NO.52
12. STRIP .19 DO NOT TIN & ATTACH FIND NO.36 AND 1.00±.06 OF FIND NO.52
13. STRIP .25 DO NOT TIN & ATTACH FIND NO.35 AND 1.00±.06 OF FIND NO.53
14. ~~CRIMP PER ND1002206~~
15. AR DENOTES AS REQUIRED
16. STRIP .25 DO NOT TIN & ATTACH FIND NO.50 AND 1.00±.06 OF FIND NO.51 (BOTH ENDS)
17. MIL-I-23053, CLASS 1, WHT. ID .187 FOR FIND NO.51, ID .125 FOR FIND NO.52, ID .250 FOR FIND NO 53
18. MARK SLEEVING WITH REF DESTINATIONS .12 HIGH BLACK PER ND 1002019
19. MARK CONDUCTOR IDENTIFICATION PER ND1002019
20. STRIP .25 DO NOT TIN & ATTACH FIND NO.38 AND 1.75±.06 OF FIND NO.51

	☒	2014162	SCHEMATIC	REF
*	1.0	MIL-W-16878/5 EE10	WIRE, ELEC, BLACK	54
*	1.5	SEE NOTE 17	INSULATION SLEEVING	53
*	1.5	SEE NOTE 17	INSULATION SLEEVING	52
*	1.5	SEE NOTE 17	INSULATION SLEEVING	51
	2	MS25036-56	TERMINAL LUG	50
	1	MS51957-43	SCREW, PAN HD	49
	AR	1006458-004	LACING CORD	48
*	2.8	MIL-W-16878/5 EE8	WIRE, ELEC, WHT	47
*	5.0	MIL-W-16878/5 EE10	WIRE, ELEC, WHT	46
*	5.6	MIL-W-16878/5 EE18	WIRE, ELEC, WHT	45
*	1.7	MIL-W-16878/5 EE18	WIRE, ELEC, BLK	44
	1	2014390-011	COMPONENT BOARD A1 ASSY	43
	1	1004260-238	PLATE, IDENT	42
	1	MS35489-45	GROMMET, RUBBER	41
*	1.0	SEE NOTE 9	INSULATION SLEEVING	40
	2	MS25036-15	TERMINAL LUG	39
	9	MS25036-12	TERMINAL LUG	38
	4	MS25036-3	TERMINAL LUG	37
	1	MS25036-49	TERMINAL LUG	36
	1	MS35430-11	TERMINAL LUG	35
	6	MS51957-47	SCREW, PAN HD	34
	8	MS51957-30	SCREW, PAN HD	33
	16	MS35337-80	WASHER, LOCK	32
	16	MS51957-44	SCREW, PAN HD	31
	2	1006926	RELAY, ARMATURE	30
	16	MS35649-84	NUT, PLAIN	29
	33	MS35338-80	WASHER LOCK	28
	1	2014149-011	WIRING HARNESS	27
	24	MS35649-64	NUT, HEX	26
	1	1006914-32	CIRCUIT BREAKER ASSY	25
	1	MS27212-1-20	TERMINAL BOARD ASSY	24
	1	1006915-11	CIRCUIT BREAKER	23
	8	MS35335-60	WASHER, LOCK EXT TOOTH	22
	7	MS35649-44	NUT, HEX	21
	7	MS15795-803	WASHER, FLAT	20
	7	MS35338-78	WASHER, LOCK	19
	3	MS51957-16	SCREW, PAN HD	18
	8	MS51959-48	SCREW, FLAT HD	17
	4	MS25226-2-3	BUS, TERMINAL BD	16
	1	1014249	BRACKET, CONN	15
	1	1020360	COVER	14
	1	1020359	COVER, FILTER HOUSING	13
	21	MS51957-46	SCREW, PAN HD	12
	48	MS15795-807	WASHER, FLAT	11
	4	MS51957-18	SCREW, PAN HD	10
	4	1006654	FILTER, R.I.	9
	1	2014404	HOUSING, FILTER	8
	AR	MIL-A-5092, TYPE II	CEMENT	7
	36	MS15795-805	WASHER, FLAT	6
	36	MS35338-79	WASHER, LOCK	5
	8	MS51957-28	SCREW, PAN HD	4
	1	MS3102R-22-22P	CONNECTOR, RECEPTACLE	3
	2	1014215-4	HANDLE ASSY	2
	1	2014405	PANEL, FRONT	1
	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 7 Jul 65
CHECKED [illegible] 31 Jul 65
APPROVAL [illegible] 9 AUG 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC INPUT PANEL ASSEMBLY
COMPUTER TEST SET

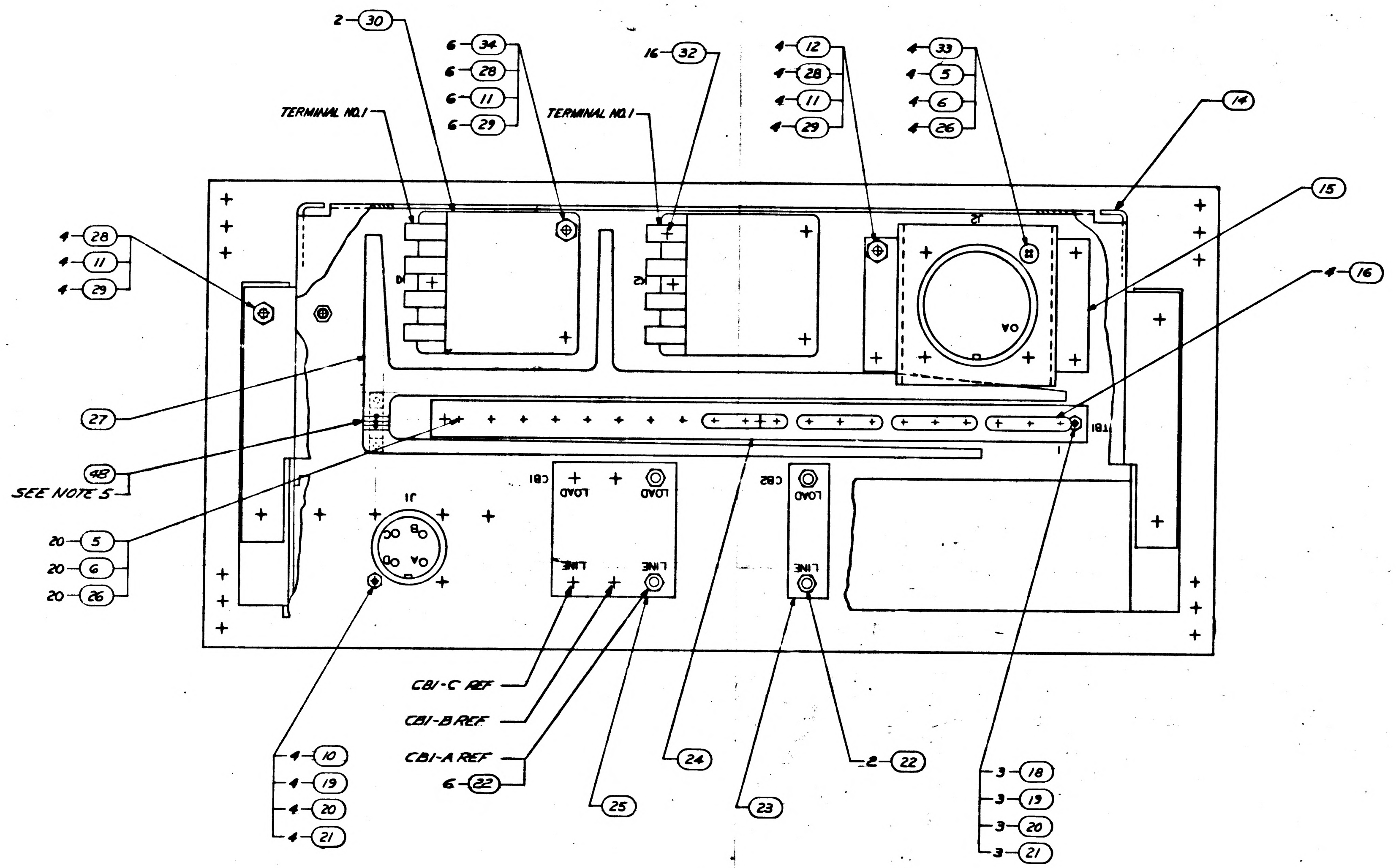
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014043
SCALE 1/1
WT
SHEET 1 OF 2

2014043 C

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014043 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25160		
1	CHANGED PER CCA R25456 DR B CHK APPD		
–	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 2_312 DR CHK APPD		
B	CHANGED PER TDRR 26313 DR CHK APPD	3/7/66	
C	CHANGED PER TDRR 263_ DR CHK APPD	3/_/66	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6-34
6-28
6-11
6-29
TERMINAL NO. 1
16-32
TERMINAL NO. 1
4-12
4-28
4-11
4-29
4-33
4-5
4-6
4-26
14
15
4-16
4-28
4-11
4-29
K1
K2
J2
TB1
27
48
SEE NOTE 5
20-5
20-6
20-26
J1
CB1
LOAD
LOAD
LINE
LINE
CB2
LOAD
LINE
CB1-C REF
CB1-B REF
CB1-A REF
6-22
24
2-22
4-10
4-19
4-20
4-21
25
23
3-18
3-19
3-20
3-21

VIEW A-A
SEE SHEET 1

JUMPER CHART								
COND IDENT	FROM		DESCRIPTION				TO	
	REMARKS	DESTINATION	COLOR	AWG	LENGTH	FIND NO.	DESTINATION	REMARKS
B1		A1-1	WHT	18	.8FT	45	FL1-1	SEE NOTE 11
B2		A1-2	WHT	18	1.2FT	45	FL2-1	↕
B3		A1-3	WHT	18	1.6FT	45	FL3-1	↕
B4		A1-4	WHT	18	2.0FT	45	FL4-1	SEE NOTE 11
B5	STRIP .25 SEE NOTES 4 & 10	J1-C	WHT	10	.9FT	46	FL1-1	SEE NOTE 2
B6	STRIP .25 SEE NOTES 4 & 10	J1-B	WHT	10	1.0 FT	46	FL2-1	↕
B7	STRIP .25 SEE NOTES 4 & 10	J1-A	WHT	10	1.3FT	46	FL3-1	SEE NOTE 2
B8	STRIP .25 SEE NOTES 4 & 10	J1-D	WHT	8	1.6FT	47	FL4-1	SEE NOTE 3
B9		A1-9	BLK	18	1.7FT	44	K1-4A	SEE NOTE 12
B10	SEE NOTE 2	FL1-2	WHT	10	.9FT	46	CB1-C LINE	SEE NOTE 20
B11	↕	FL2-2	WHT	10	.5 FT	46	CB1-B LINE	↕
B12	SEE NOTE 2	FL3-2	WHT	10	.4FT	46	CB1-A LINE	SEE NOTE 20
B13	SEE NOTE 3	FL4-2	WHT	8	1.2FT	47	TB1-3	SEE NOTE 13
B14	SEE NOTE 16	K1-4B	BLK	10	1.0FT	54	E2	SEE NOTE 16

ROUTE THRU FIND NO. 41

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 9 Jul 65
CHECKED 9 Jul 65
APPROVAL 9 Aug 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

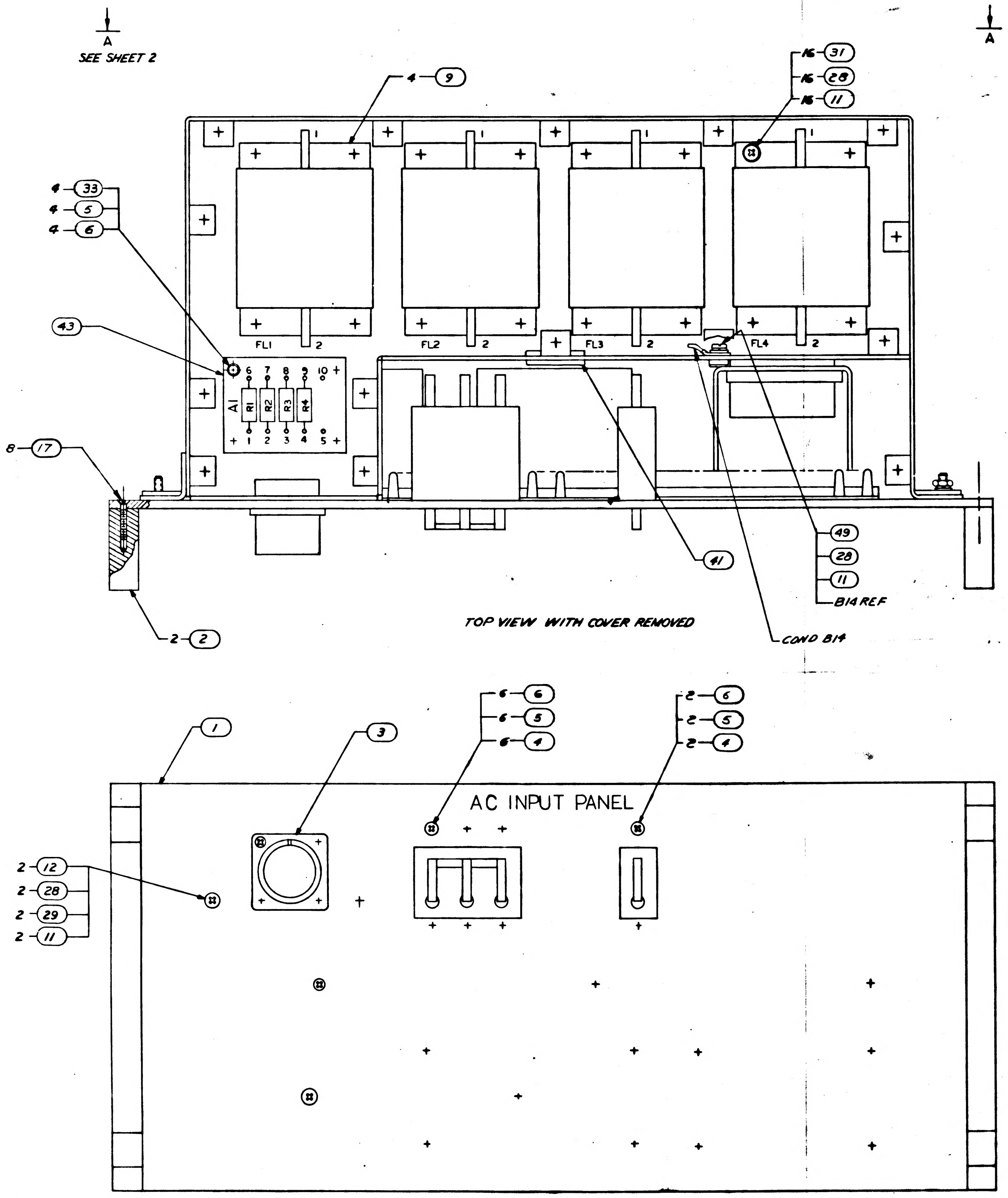
AC INPUT PANEL ASSEMBLY
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014043
SCALE 1/1	WT	SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

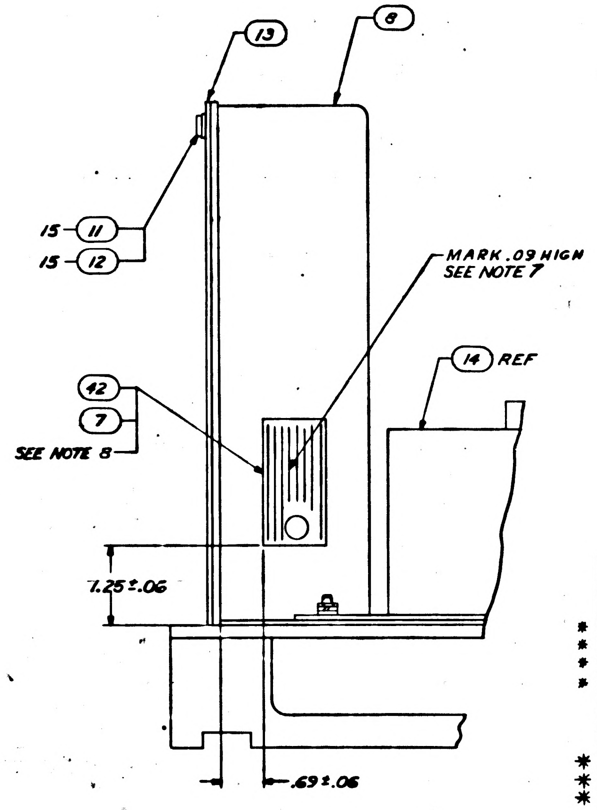
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25100		
1	CHANGED PER CCAR 25456 DR B Kalanta CHK APPD		
–	CLASS A RELEASED PER TDRR 25472		

2014043 —



TOP VIEW WITH COVER REMOVED

FRONT VIEW



QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014162	SCHEMATIC	REF
* 1.0	MIL-W-16878/5 EE10	WIRE, ELEC, BLACK	54
* 1.5	SEE NOTE 17	INSULATION SLEEVING	53
* 1.5	SEE NOTE 17	INSULATION SLEEVING	52
* 1.5	SEE NOTE 17	INSULATION SLEEVING	51
2	MS25036-56	TERMINAL LUG	50
1	MS 51957-43	SCREW, PAN HD	49
AR	1006458-004	LACING CORD	48
* 2.8	MIL-W-16878/5 EE8	WIRE, ELEC, WHT	47
* 5.0	MIL-W-16878/5 EE10	WIRE, ELEC, WHT	46
* 5.6	MIL-W-16878/5 EE18	WIRE, ELEC, WHT	45
* 1.7	MIL-W-16878/5 EE18	WIRE, ELEC, BLK	44
1	2014390-011	COMPONENT BOARD A1 ASSY	43
1	1004260-238	PLATE, IDENT	42
1	MS 35489-45	GROMMET, RUBBER	41
* 1.0	SEE NOTE 9	INSULATION SLEEVING	40
2	MS25036-15	TERMINAL LUG	39
9	MS25036-12	TERMINAL LUG	38
4	MS25036-3	TERMINAL LUG	37
1	MS25036-49	TERMINAL LUG	36
1	MS35430-11	TERMINAL LUG	35
6	MS51957-47	SCREW, PAN HD	34
8	MS 51957-30	SCREW, PAN HD	33
16	MS 35337-80	WASHER, LOCK	32
16	MS 51957-44	SCREW, PAN HD	31
2	1006926	RELAY, ARMATURE	30
16	MS 35649-84	NUT, PLAIN	29
33	MS 35338-80	WASHER LOCK	28
1	2014149-011	WIRING HARNESS	27
24	MS 35649-64	NUT, HEX	26
1	1006914-32	CIRCUIT BREAKER ASSY	25
1	MS 27212-1-20	TERMINAL BOARD ASSY	24
1	1006915-11	CIRCUIT BREAKER	23
8	MS 35335-60	WASHER, LOCK EXT TOOTH	22
7	MS 35649-44	NUT, HEX	21
7	MS15795-803	WASHER, FLAT	20
7	MS 35338-78	WASHER, LOCK	19
3	MS 51957-16	SCREW, PAN HD	18
8	MS 51959-48	SCREW, FLAT HD	17
4	MS 25226-2-3	BUS, TERMINAL BD	16
1	1014249	BRACKET, CONN	15
1	1020360	COVER	14
1	1020359	COVER, FILTER HOUSING	13
21	MS 51957-46	SCREW, PAN HD	12
48	MS15795-807	WASHER, FLAT	11
4	MS 51957-18	SCREW, PAN HD	10
4	1006654	FILTER, R.I.	9
1	2014404	HOUSING, FILTER	8
AR	MIL-A-5092, TYPE II	CEMENT	7
36	MS 15795-805	WASHER, FLAT	6
36	MS 35338-79	WASHER, LOCK	5
8	MS 51957-28	SCREW, PAN HD	4
1	MS 3102R-22-22P	CONNECTOR, RECEPTACLE	3
2	1014215-4	HANDLE ASSY	2
1	2014405	PANEL, FRONT	
-011	LIST OF MATERIALS		

2014043 –

* DENOTES LENGTH IN FEET

NOTES:

1. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50 ±.06 DO NOT TIN
2. ATTACH FIND NO. 38 AND 1.00 ±.06 OF FIND NO. 51
3. ATTACH FIND NO. 39 AND 1.00 ±.06 OF FIND NO. 53
4. SOLDER & TIN PER ND 1002071
5. FOR FABRICATION, SEE ND1002032, EXCEPT USE FIND NO 48.
6. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
7. SERIALIZE PER ND1002023.
8. BOND FIND NO. 42 TO FIND NO. 8 USING FIND NO. 7.
9. MIL-I-23053 CLASS 1, BLK, ID .250.
10. SLEEVE USING .75 LG OF FIND NO. 40.
11. ATTACH FIND NO. 37 AND 1.00 ±.06 OF FIND NO. 52
12. ATTACH FIND NO. 36 AND 1.00 ±.06 OF FIND NO. 52
13. ATTACH FIND NO. 35 AND 1.00 ±.06 OF FIND NO. 53
14. ~~CRIMP PER ND1002206~~
15. AR DENOTES AS REQUIRED
16. ATTACH FIND NO. 50 AND 1.00 ~~±.06~~ OF FIND NO. 51 (BOTH ENDS)
17. MIL-I-23053, CLASS 1, WHT, ID .187 FOR FIND NO. 51, ID .125 FOR FIND NO. 52, ID .250 FOR FIND NO. 53
18. MARK SLEEVING WITH REF DESTINATIONS .12 HIGH BLACK PER ND 1002019
19. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
20. ATTACH FIND NO. 38 AND 1.75 ±.06 OF FIND NO. 51

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9 Jul 65
CHECKED 31 Jul 65
APPROVAL R.E. 9 AUG 65
APPROVAL 9 AUG 65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

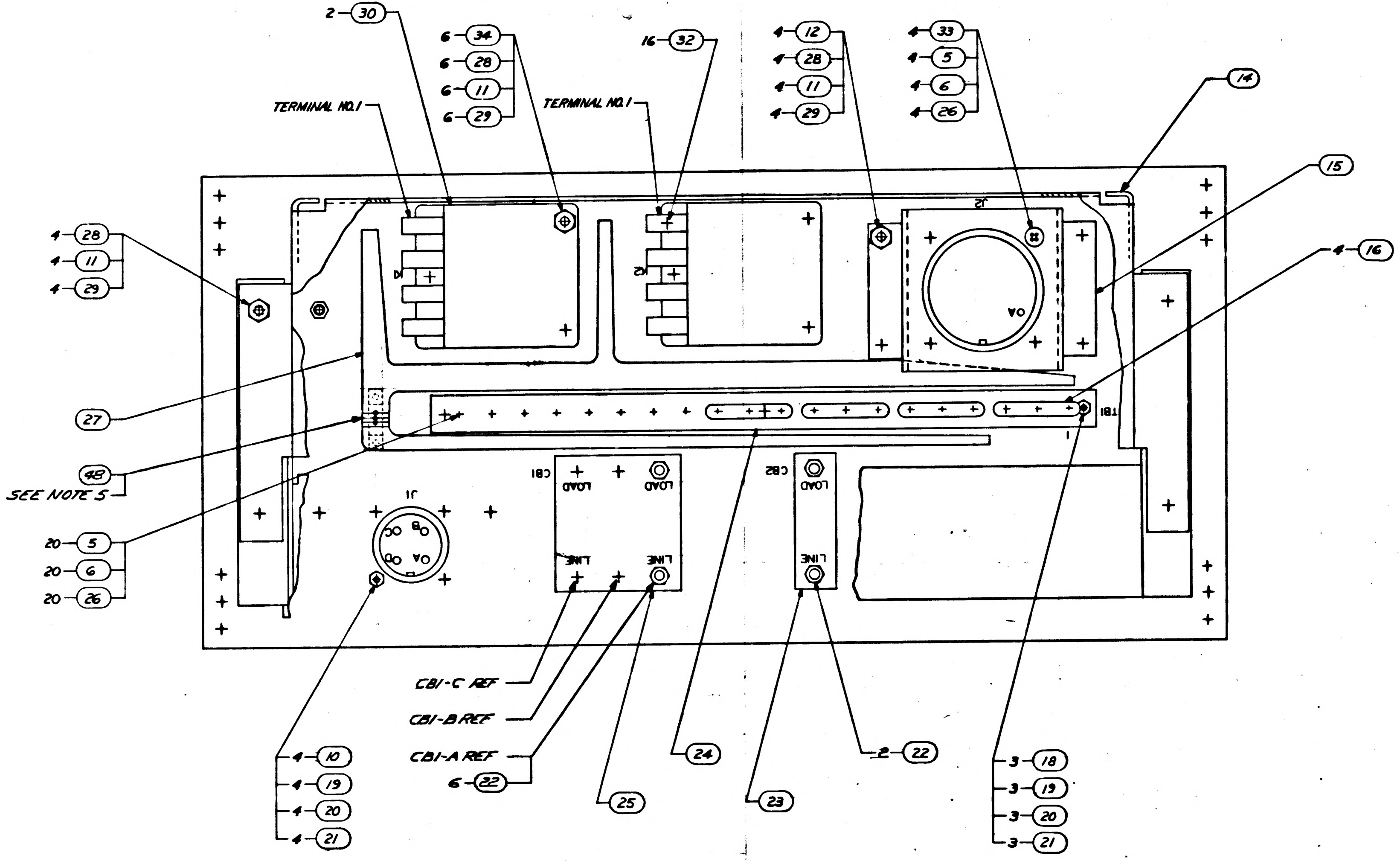
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC INPUT PANEL ASSEMBLY
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014043
SCALE 1/1 WT SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25160		
1	CHANGED PER CCA R25456 DR B KaJenkins CHK APPD		
-	CLASS A RELEASED PER TDRR 25-72		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6-28
6-11
6-29
16-32
4-12
4-28
4-11
4-29
4-33
4-5
4-6
4-26
14
15
4-16
TERMINAL NO. 1
TERMINAL NO. 1
K1
K2
J2
4-28
4-11
4-29
27
48
SEE NOTE 5
20-5
20-6
20-26
TB1
1
J1
A
B
C
D
CB1
LOAD
LOAD
LINE
LINE
CB2
LOAD
LINE
CB1-C REF
CB1-B REF
CB1-A REF
6-22
4-10
4-19
4-20
4-21
25
24
23
2-22
3-18
3-19
3-20
3-21

VIEW A-A
SEE SHEET 1

JUMPER CHART								
COND IDENT	FROM		DESCRIPTION				TO	
	REMARKS	DESTINATION	COLOR	AWG	LENGTH	FIND NO.	DESTINATION	REMARKS
B1		A1-1	WHT	18	.8FT	45	FL1-1	SEE NOTE 11
B2		A1-7	WHT	18	1.2FT	45	FL2-1	↕
B3		A1-2	WHT	18	1.6FT	45	FL3-1	
B4		A1-6	WHT	18	2.0FT	45	FL4-1	SEE NOTE 11
B5	STRIP .25 SEE NOTES 4&10	J1-C	WHT	10	.9FT	46	FL1-1	SEE NOTE 2
B6	STRIP .25 SEE NOTES 4&10	J1-B	WHT	10	1.0FT	46	FL2-1	↕
B7	STRIP .25 SEE NOTES 4&10	J1-A	WHT	10	1.3FT	46	FL3-1	SEE NOTE 2
B8	STRIP .25 SEE NOTES 4&10	J1-D	WHT	8	1.6FT	47	FL4-1	SEE NOTE 3
B9		A1-4	BLK	18	1.7FT	44	K1-4A	SEE NOTE 12
B10	SEE NOTE 2	FL1-2	WHT	10	.9FT	46	CB1-C LINE	SEE NOTE 20
B11	↕	FL2-2	WHT	10	.5FT	46	CB1-B LINE	↕
B12	SEE NOTE 2	FL3-2	WHT	10	.4FT	46	CB1-A LINE	SEE NOTE 20
B13	SEE NOTE 3	FL4-2	WHT	8	1.2FT	47	TB1-3	SEE NOTE 13
B14	SEE NOTE 16	K1-4B	BLK	10	1.0FT	54	E2	SEE NOTE 16

ROUTE THRU FIND NO. 47

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. Dots DATE 9 Jul 65
CHECKED E. Wlentin 3 Jun 65
APPROVAL G.E. Dubs 9 AUG 65
APPROVAL 1 AUG 65
APPROVAL 9 ... 65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC INPUT PANEL ASSEMBLY
COMPUTER TEST SET

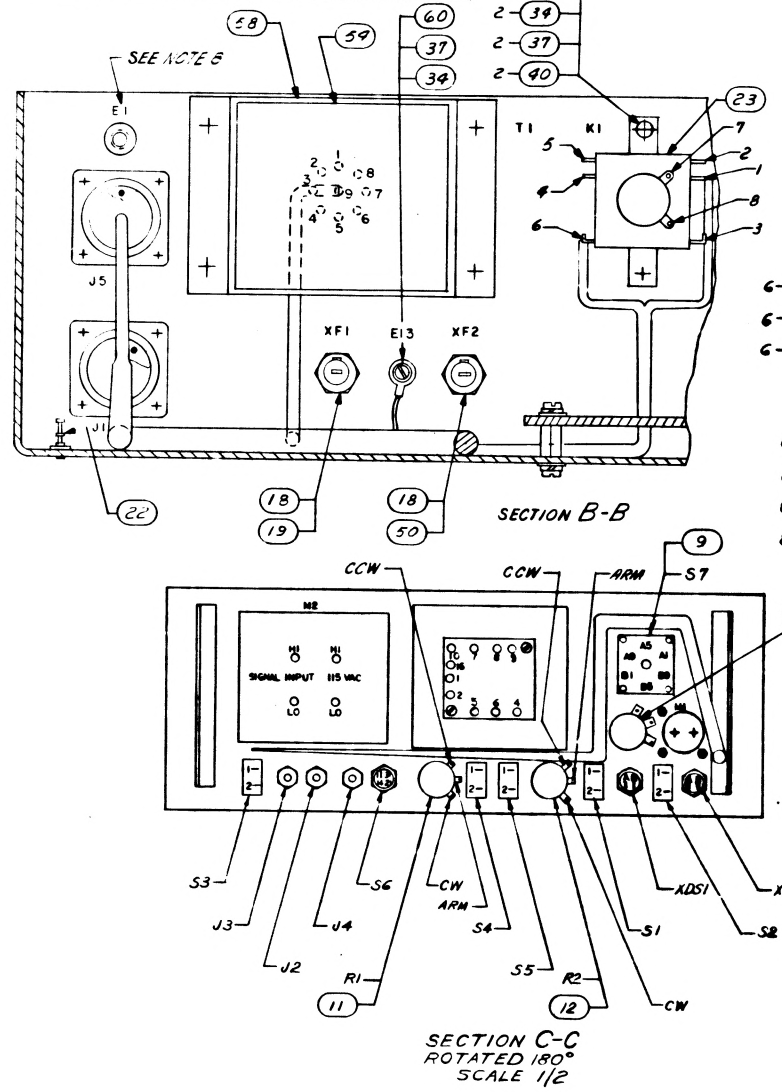
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014043
SCALE 1/1
WT
SHEET 2 OF 2

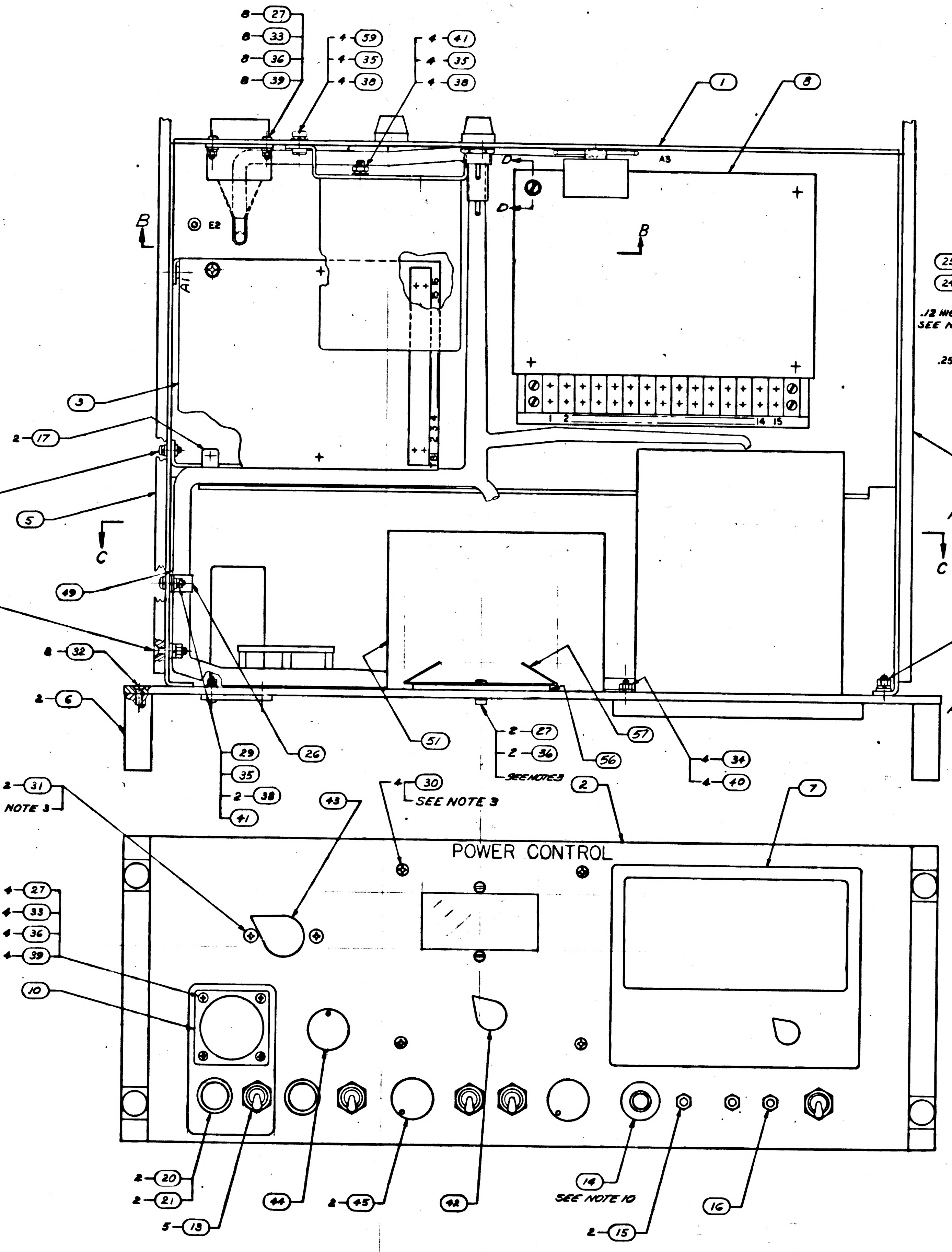
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

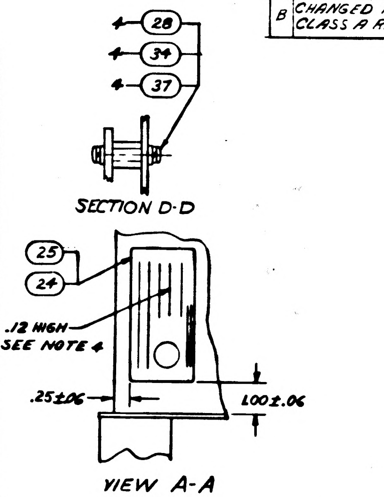
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160	[illegible]	[illegible]
1	CHANGED PER CCA R25477 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
-	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25569 DR Q. J. Bm CHK [illegible] APPD	[illegible]	[illegible]
B	CHANGED PER CCA R25627 AND CLASS A RELEASED PER TDRR 25472	[illegible]	[illegible]

JUMPER CHART

COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
B1	S7-A1	S7-B1	46	22	SEE NOTE 9
B2	S2-2	XDS2-A	↓	↓	↓
B3	XDS1-B	XDS2-B	↓	↓	↓
B4	XDS1-A	S1-2	↓	↓	↓
B5	J4	S6-1	46	↓	SEE NOTE 9
B6	S6-1	S6-3	47	↓	SEE NOTE 7
B7	S7-B2	S7-B3	↓	↓	↓
B8	S7-B3	S7-B4	↓	↓	↓
B9	S7-B4	S7-B5	↓	↓	↓
B10	S7-B5	S7-B6	↓	↓	↓
B11	S7-B6	S7-B7	↓	↓	↓
B12	S7-B7	S7-B8	↓	↓	↓
B13	T1-1	T1-2	↓	↓	↓
B14	T1-3	T1-4	47	22	SEE NOTE 7







NOTES

1. AR DENOTES AS REQUIRED
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. ASSEMBLE FIND 22,30&31 USING FIND NO. 48
4. SERIALIZE PER ND1002023
5. FOR FABRICATION SEE ND1002032 EXCEPT USE FIND NO. 53
6. SOLDER PER ND1002071
7. QQ-W-343, TYPE S, SOFT, COATED (a), AWG SIZE 22.
   FOR FIND NO. 47
8. MARKING (E1) DENOTES CABINET BUS BAR
   GROUND CONNECTIONS.
9. STRIP .50±.12 & TIN PER ND1002071
10. APPLY FIND 48 TO INTERNAL THREADS OF FIND 14

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014116	SCHEMATIC	REF
1	MS51957-28	SCREW, PAN HD	60
4	MS51957-44	SCREW, PAN HD	59
1	2016329	BRACKET, TRANSFORMER	58
1	2016317	MASK, METER WINDOW	57
1	2014410	WINDOW, METER	56
~~1~~	~~2016343~~	~~BRACKET, TRANSFORMER~~	~~55~~
1	1006440	TRANSFORMER, POWER	54
AR	1006458-004	TAPE, LACING	53
1	1006427	POTENTIOMETER	52
1	1006489-002	INDICATOR, DIGITAL	51
1	F02A250V 1/8A	FUSE (MIL-F-15160/02)	50
1	2014117-011	WIRING HARNESS	49
AR	MIL-S-22473 GR. HV	SEALING & RETAINING COMPOUND	48
* 1.2	SEE NOTE 7	WIRE, ELECTRICAL	47
* 1.5	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHT	46
2	MS91528-2C2B	KNOB, CONTROL	45
1	MS91528-2N2B	KNOB, CONTROL	44
1	MS91528-2K2B	KNOB, CONTROL	43
1	MS91528-1P2B	KNOB, CONTROL	42
19	MS35649-84	NUT, HEX	41
6	MS35649-64	NUT, HEX	40
12	MS35649-44	NUT, HEX	39
24	MS15795-807	WASHER, FLAT	38
13	MS15795-805	WASHER, FLAT	37
14	MS15795-803	WASHER, FLAT	36
23	MS35338-80	WASHER, LOCK	35
17	MS35338-79	WASHER, LOCK	34
12	MS35338-78	WASHER, LOCK	33
16	MS51959-46	SCREW, FLAT HD	32
2	MS51959-43	SCREW, FLAT HD	31
4	MS51959-28	SCREW, FLAT HD	30
1	MS51957-45	SCREW, PAN HD	29
12	MS51957-29	SCREW, PAN HD	28
14	MS51957-16	SCREW, PAN HD	27
1	MS21919-D67	CLAMP, CUSHIONED	26
AR	MIL-A-5092 TYPE II	ADHESIVE	25
1	1004260-232	NAMEPLATE	24
1	1006234	RELAY, ARMATURE	23
1	SE07-9801 MIL-T-55155/7	TERMINAL STUD (INSULATED)	22
2	1006869	LAMP, GLOW	21
2	1006905-6	INDICATOR, LIGHT	20
1	F02A250V 1/2A	FUSE, (MIL-F-15160/02)	19
2	MS26572-1	FUSEHOLDER	18
2	1006262-004	BRACKET, ANGLE-PANEL MTG	17
1	MS16108-3A	JACK, TIP, LOW VOLTAGE	16
2	MS16108-2A	JACK, TIP, LOW VOLTAGE	15
1	MS25089-3C	SWITCH, PUSH	14
5	MS35058-22	SWITCH, TOGGLE	13
1	RV4NBYSD252A	RESISTOR, VAR.	12
1	1006468-007	RESISTOR, VAR. COMP 2 WATT	11
1	1006927	INDICATOR, TOTAL TIME	10
1	1006465-001	SWITCH, ROTARY	9
1	1006489-001	AMPLIFIER	8
1	1006473	VOLTMETER AC	7
2	1014215-3	HANDLE	6
1	1006930-2	SLIDE WITH CABLE CARR LH	5
1	1006930-1	SLIDE WITH CABLE CARR RH	4
1	2014344-011	COMPONENT BD ASSY A1	3
1	2014342	PANEL	2
1	2014345	CHASSIS	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014042	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS9-497
DRAWN [illegible] DATE 22 JUN 65
CHECKED [illegible] 27 JUL 65
APPROVAL [illegible] 9 AUG 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

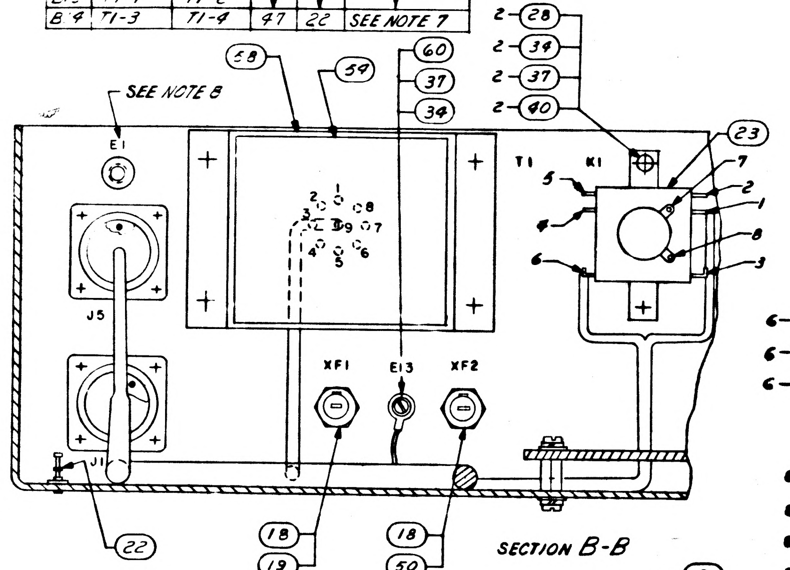
POWER CONTROL ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014044
SCALE 1/1
WT
SHEET OF 1

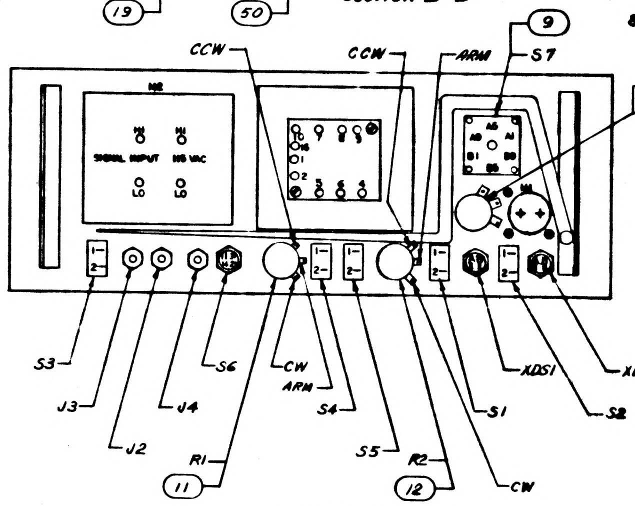
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

JUMPER CHART					
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
B1	S7-A1	S7-B1	46	22	SEE NOTE 9
B2	S2-2	XDS2-A			
B3	XDS1-B	XDS2-B			
B4	XDS1-A	S1-2			
B5	J4	S6-1			
B6	S6-1	S6-3	46		SEE NOTE 9
B7	S7-B2	S7-B3	47		SEE NOTE 7
B8	S7-B3	S7-B4			
B9	S7-B4	S7-B5			
B10	S7-B5	S7-B6			
B11	S7-B6	S7-B7			
B12	S7-B7	S7-B8			
B13	T1-1	T1-2			
B14	T1-3	T1-4	47	22	SEE NOTE 7

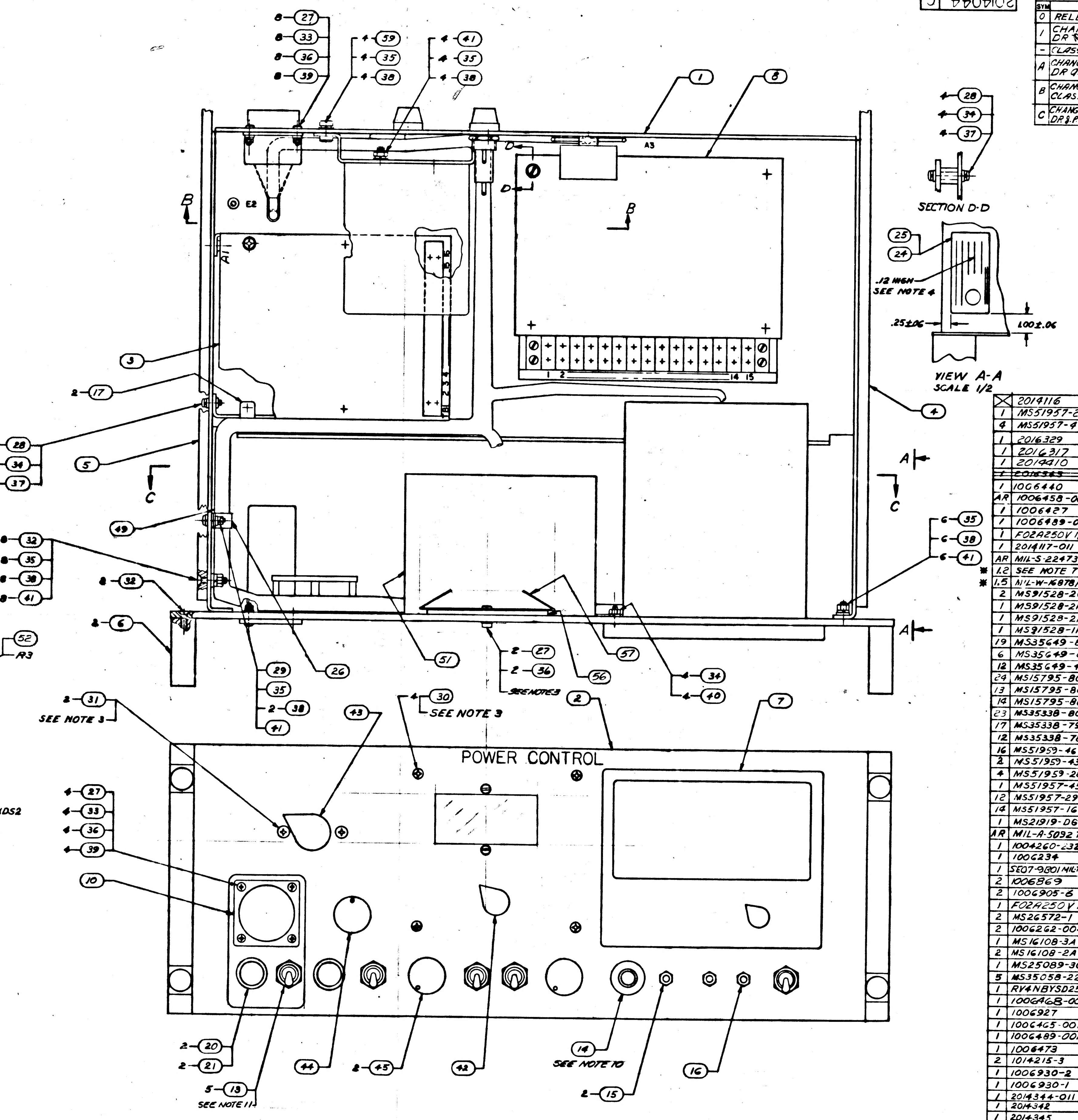
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160	[illegible]	
1	CHANGED PER CCA R25477 DR [illegible] CHK [illegible] APPD [illegible]	4/19/65	
-	CLASS B CHANGED PER CCA R255[illegible]	[illegible]	
A	CHANGED PER CCA R25569 DR Q. J. Binn CHK [illegible] APPD	[illegible]	
B	CHANGED PER CCA R25627 AND CLASS A RELEASED PER TDRR 25472	[illegible]/66	
C	CHANGED PER TDRR 26239 DR J. P. Leonard CHK [illegible] APPD [illegible]	[illegible]/66	


SEE NOTE 8
E1
58
59
60
37
34
2-28
2-39
2-37
2-40
T1
K1
23
5
4
6
7
2
1
8
3
J5
XF1
E13
XF2
J1
22
18
19
18
50

SECTION B-B


CCW
CCW
ARM
S7
9
52
R3
SIGNAL INPUT
115 VAC
HI
LO
S3
J3
J2
J4
S6
R1
11
CW
ARM
S4
S5
R2
12
XDS1
S1
CW
S2
XDS2

SECTION C-C
ROTATED 180°
SCALE 1/2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A3
D
D
B
B
E2
A1
1 2
14 15
3
2-17
6-28
6-34
6-37
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C
C
49
8-32
8-35
8-38
8-41
8-32
8-6
29
35
2-38
41
26
51
2-27
2-36
SEE NOTE 3
56
57
4-34
4-40
4
A
A
6-35
6-38
6-41
2-31
SEE NOTE 3
4-30
SEE NOTE 3
43
2
7
POWER CONTROL
4-27
4-33
4-36
4-39
10
2-20
2-21
5-13
SEE NOTE 11
44
2-45
42
14
SEE NOTE 10
2-15
16
4-28
4-34
4-37
SECTION D-D
25
24
.12 HIGH SEE NOTE 4
.25±.06
1.00±.06
VIEW A-A
SCALE 1/2

☒	2014116	SCHEMATIC	REF
1	MS51957-28	SCREW, PAN HD	60
4	MS51957-44	SCREW, PAN HD	59
1	2016329	BRACKET, TRANSFORMER	58
1	2016317	MASK, METER WINDOW	57
1	2014410	WINDOW, METER	56
~~1~~	~~2016343~~	~~BRACKET, TRANSFORMER~~	55
1	1006440	TRANSFORMER, POWER	54
AR	1006458-004	TAPE, LACING	53
1	1006427	POTENTIOMETER	52
1	1006489-002	INDICATOR, DIGITAL	51
1	F02A250V 1/8A	FUSE (MIL-F-15160/02)	50
1	2014117-011	WIRING HARNESS	49
AR	MIL-S-22473 GR. HV	SEALING & RETAINING COMPOUND	48
* 1.2	SEE NOTE 7	WIRE, ELECTRICAL	47
* 1.5	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHT	46
2	MS91528-2C2B	KNOB, CONTROL	45
1	MS91528-2N2B	KNOB, CONTROL	44
1	MS91528-2K2B	KNOB, CONTROL	43
1	MS91528-1P2B	KNOB, CONTROL	42
19	MS35649-84	NUT, HEX	41
6	MS35649-64	NUT, HEX	40
12	MS35649-44	NUT, HEX	39
24	MS15795-807	WASHER, FLAT	38
13	MS15795-805	WASHER, FLAT	37
14	MS15795-803	WASHER, FLAT	36
23	MS35338-80	WASHER, LOCK	35
17	MS35338-79	WASHER, LOCK	34
12	MS35338-78	WASHER, LOCK	33
16	MS51959-46	SCREW, FLAT HD	32
2	MS51959-43	SCREW, FLAT HD	31
4	MS51959-28	SCREW, FLAT HD	30
1	MS51957-45	SCREW, PAN HD	29
12	MS51957-29	SCREW, PAN HD	28
14	MS51957-16	SCREW, PAN HD	27
1	MS21919-D67	CLAMP, CUSHIONED	26
AR	MIL-A-5092 TYPE II	ADHESIVE	25
1	1004260-232	NAMEPLATE	24
1	1006234	RELAY, ARMATURE	23
1	SE07-9B01 MIL-T-55155/7	TERMINAL STUD (INSULATED)	22
2	1006869	LAMP, GLOW	21
2	1006905-6	INDICATOR, LIGHT	20
1	F02A250V 1/2A	FUSE, (MIL-F-15160/02)	19
2	MS26572-1	FUSEHOLDER	18
2	1006262-004	BRACKET, ANGLE-PANEL MTG	17
1	MS16108-3A	JACK, TIP, LOW VOLTAGE	16
2	MS16108-2A	JACK, TIP, LOW VOLTAGE	15
1	MS25089-3C	SWITCH, PUSH	14
5	MS35058-22	SWITCH, TOGGLE	13
1	RV4NBYSD252A	RESISTOR, VAR.	12
1	1006468-007	RESISTOR, VAR. COMP 2 WATT	11
1	1006927	INDICATOR, TOTAL TIME	10
1	1006465-001	SWITCH ROTARY	9
1	1006489-001	AMPLIFIER	8
1	1006473	VOLTMETER, AC	7
2	1014215-3	HANDLE	6
1	1006930-2	SLIDE WITH CABLE CARR LH	5
1	1006930-1	SLIDE WITH CABLE CARR RH	4
1	2014344-011	COMPONENT BD ASSY A1	3
1	2014342	PANEL	2
1	2014345	CHASSIS	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NOTES
1. AR DENOTES AS REQUIRED
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. ASSEMBLE FIND 27,30&31 USING FIND NO. 48
4. SERIALIZE PER ND1002023
5. FOR FABRICATION SEE ND1002032 EXCEPT USE FIND NO. 53
6. SOLDER PER ND1002071
7. QQ-W-343, TYPE S, SOFT, COATED (A), AWG SIZE 22, FOR FIND NO 47
8. MARKING (E1) DENOTES CABINET BUS BAR GROUND CONNECTIONS.
9. STRIP .50±.12 & TIN PER ND1002071
10. APPLY FIND 48 TO INTERNAL THREADS OF FIND 14
11. REMOVE HARDWARE FROM TERMINALS OF FIND 13 & DISCARD

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS9-497
DRAWN [illegible] DATE 22 JUN 65
CHECKED [illegible] 27 JUL 65
APPROVAL [illegible] 9 AUG 65
APPROVAL [illegible] 9 AUG 65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

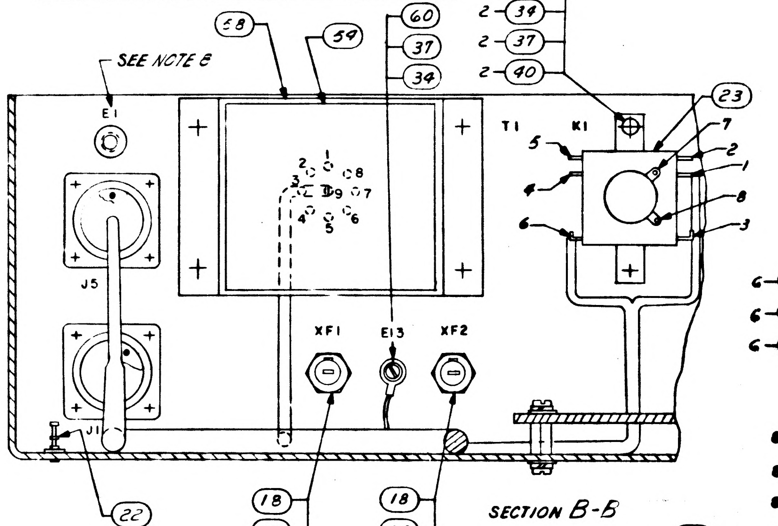
POWER CONTROL ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014044
SCALE 1/1 WT SHEET OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160	[illegible]	[illegible]
1	CHANGED PER CCA R25477 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
-	CLASS B CHANGED PER CCA R25572	[illegible]	[illegible]
A	CHANGED PER CCA R25569 DR Q.J. Bim CHK [illegible] APPD	[illegible]	[illegible]
B	CHANGED PER CCA R25627 AND CLASS A RELEASED PER TDRR 25472	[illegible]	[illegible]
C	CHANGED PER TDRR 26239 DR J.P. Leonard CHK [illegible] APPD [illegible]	[illegible]	[illegible]
D	CHANGED PER TDRR 26227 DR Q.J. Bim CHK [illegible] APPD [illegible]	[illegible]	[illegible]

JUMPER CHART					
COND POINT	FROM	TO	FIND NO.	AWG	REMARKS
B1	S7-A1	S7-B1	46	22	SEE NOTE 9
B2	S2-2	XDS2-A			
B3	XDS1-B	XDS2-B			
B4	XDS1-A	S1-2			
B5	J4	S6-1			
B6	S6-1	S6-3	46		SEE NOTE 9
B7	S7-B2	S7-B3	47		SEE NOTE 7
B8	S7-B3	S7-B4			
B9	S7-B4	S7-B5			
B10	S7-B5	S7-B6			
B11	S7-B6	S7-B7			
B12	S7-B7	S7-B8			
B13	T1-1	T1-2			
B14	T1-3	T1-4	47	22	SEE NOTE 7



SEE NOTE 8
E1
58
59
60
37
34
2-28
2-39
2-37
2-40
23
T1
K1
5
4
6
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J5
J1
XF1
E13
XF2
22
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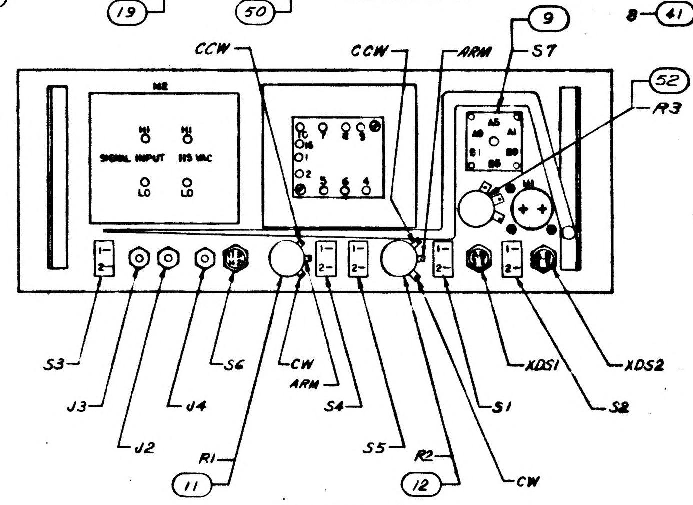
19
18
50

SECTION B-B



CCW
CCW
ARM
S7
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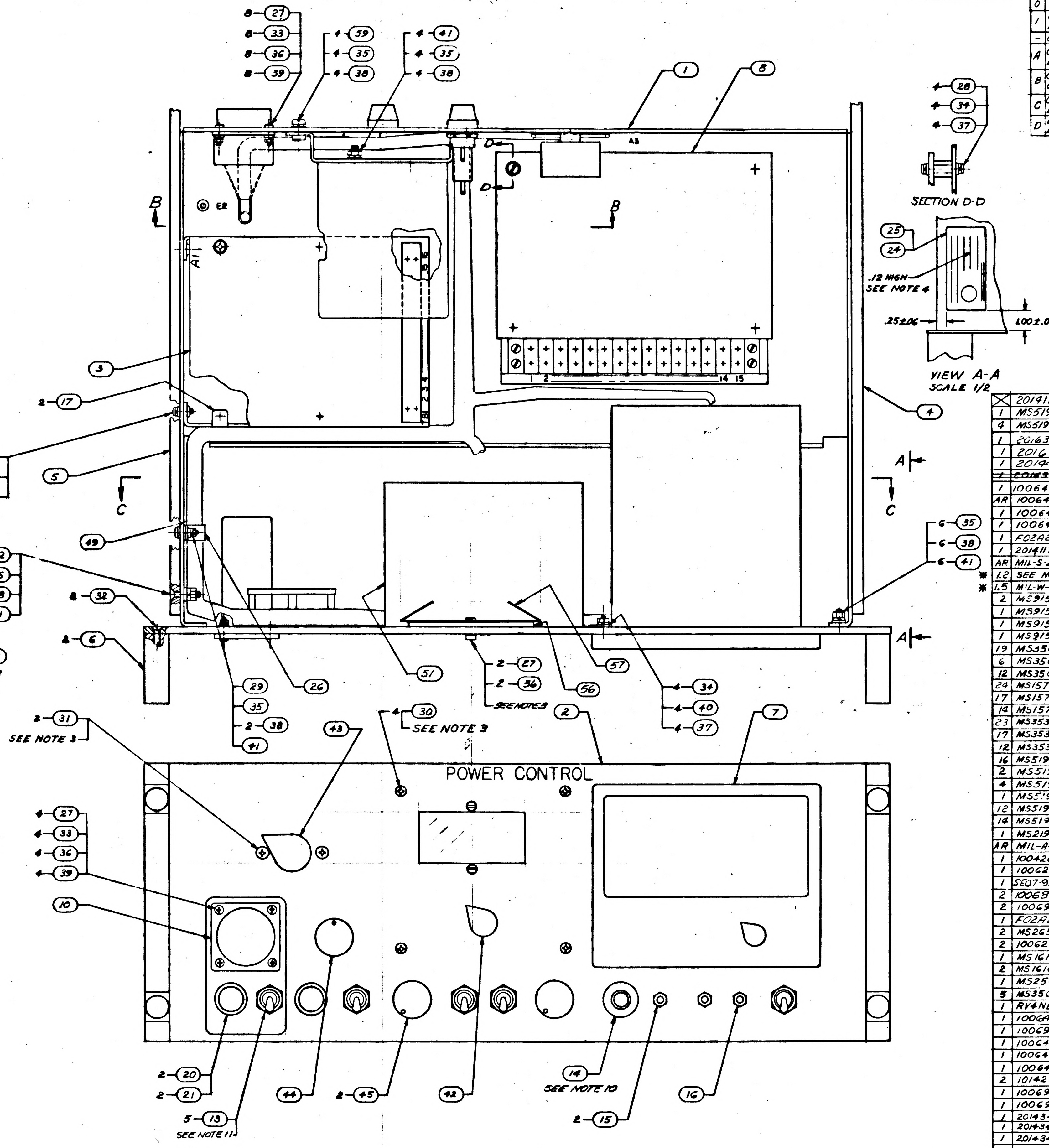
52
R3
M2
SIGNAL INPUT
115 VAC
HI
LO
S3
J3
J2
J4
S6
CW
ARM
S4
S5
S1
XDS1
S2
XDS2
R1
R2
11
12
CW

SECTION C-C
ROTATED 180°
SCALE 1/2



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4-38
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E2
B
B
A1
14
15
3
2-17
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C
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49
8-32
8-35
8-38
8-41
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29
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2-38
41
26
51
2-27
2-56
SEE NOTE 3
56
57
2
4-34
4-40
4-37
A
A
6-35
6-38
6-41
4
4-28
4-34
4-37
SECTION D-D
25
24
.12 HIGH SEE NOTE 4
.25±.06
1.00±.06
VIEW A-A
SCALE 1/2
2-31
SEE NOTE 3
43
4-30
SEE NOTE 3
7
POWER CONTROL
4-27
4-33
4-36
4-39
10
2-20
2-21
5-13
SEE NOTE 11
44
2-45
42
14
SEE NOTE 10
2-15
16

NOTES
1. AR DENOTES AS REQUIRED
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. ASSEMBLE FIND 22,30&31 USING FIND NO. 48
4. SERIALIZE PER ND1002023
5. FOR FABRICATION SEE ND1002032 EXCEPT USE FIND NO. 53
6. SOLDER PER ND1002071
7. QC-W-343, TYPE S, SOFT, COATED (●), AWG SIZE 22. FOR FIND NO 47
8. MARKING (E1) DENOTES CABINET BUS BAR GROUND CONNECTIONS.
9. STRIP .50±.12 & TIN PER ND1002071
10. APPLY FIND 48 TO INTERNAL THREADS OF FIND 14
11. REMOVE HARDWARE FROM TERMINALS OF FIND 13 & DISCARD

✱ DENOTES LENGTH IN FEET

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014116	SCHEMATIC	REF
	1	MS51957-28	SCREW, PAN HD	60
	4	MS51957-44	SCREW, PAN HD	59
	1	2016329	BRACKET, TRANSFORMER	58
	1	2016317	MASK, METER WINDOW	57
	1	2014410	WINDOW, METER	56
	~~1~~	~~2016363~~	~~BRACKET, TRANSFORMER~~	~~55~~
	1	1006440	TRANSFORMER, POWER	54
	AR	1006458-004	TAPE, LACING	53
	1	1006427	POTENTIOMETER	52
	1	1006489-002	INDICATOR, DIGITAL	51
	1	F02A250V 1/8A	FUSE (MIL-F-15160/02)	50
	1	2014117-011	WIRING HARNESS	49
	AR	MIL-S-22473 GR. HV	SEALING & RETAINING COMPOUND	48
✱	1.2	SEE NOTE 7	WIRE, ELECTRICAL	47
✱	1.5	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHT	46
	2	MS91528-2C2B	KNOB, CONTROL	45
	1	MS91528-2N2B	KNOB, CONTROL	44
	1	MS91528-2K2B	KNOB, CONTROL	43
	1	MS91528-1P2B	KNOB, CONTROL	42
	19	MS35649-84	NUT, HEX	41
	6	MS35649-64	NUT, HEX	40
	12	MS35649-44	NUT, HEX	39
	24	MS15795-807	WASHER, FLAT	38
	17	MS15795-805	WASHER, FLAT	37
	14	MS15795-803	WASHER, FLAT	36
	23	MS35338-80	WASHER, LOCK	35
	17	MS35338-79	WASHER, LOCK	34
	12	MS35338-78	WASHER, LOCK	33
	16	MS51959-46	SCREW, FLAT HD	32
	2	MS51959-43	SCREW, FLAT HD	31
	4	MS51959-28	SCREW, FLAT HD	30
	1	MS51957-45	SCREW, PAN HD	29
	12	MS51957-29	SCREW, PAN HD	28
	14	MS51957-16	SCREW, PAN HD	27
	1	MS21919-D67	CLAMP, CUSHIONED	26
	AR	MIL-A-5092 TYPE II	ADHESIVE	25
	1	1004260-232	NAMEPLATE	24
	1	1006234	RELAY, ARMATURE	23
	1	SE07-9B01 MIL-T-55155/7	TERMINAL STUD (INSULATED)	22
	2	1006869	LAMP, GLOW	21
	2	1006905-6	INDICATOR, LIGHT	20
	1	F02A250V 1/2A	FUSE, (MIL-F-15160/02)	19
	2	MS26572-1	FUSEHOLDER	18
	2	1006262-004	BRACKET, ANGLE-PANEL MTG	17
	1	MS16108-3A	JACK, TIP, LOW VOLTAGE	16
	2	MS16108-2A	JACK, TIP, LOW VOLTAGE	15
	1	MS25089-3C	SWITCH, PUSH	14
	5	MS35058-22	SWITCH, TOGGLE	13
	1	RV4NBYSD252A	RESISTOR, VAR.	12
	1	1006468-007	RESISTOR, VAR. COMP 2 WATT	11
	1	1006927	INDICATOR, TOTAL TIME	10
	1	1006465-001	SWITCH ROTARY	9
	1	1006489-001	AMPLIFIER	8
	1	1006473	VOLTMETER, AC	7
	2	1014215-3	HANDLE	6
	1	1006930-2	SLIDE WITH CABLE CARR L H	5
	1	1006930-1	SLIDE WITH CABLE CARR R.H	4
	1	2014344-011	COMPONENT BD ASSY A1	3
	1	2014342	PANEL	2
	1	2014345	CHASSIS	1
	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	-011	LIST OF MATERIALS		

2014044

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS9-497
DRAWN [illegible] DATE 22 JUN 65
CHECKED [illegible] 27 JUL 65
APPROVAL [illegible] 9 AUG 65
APPROVAL [illegible] 9 AUG 65
APPROVAL [illegible]
NASA APPROVAL A. C. [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER CONTROL ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014044
SCALE 1/1
WT
SHEET OF

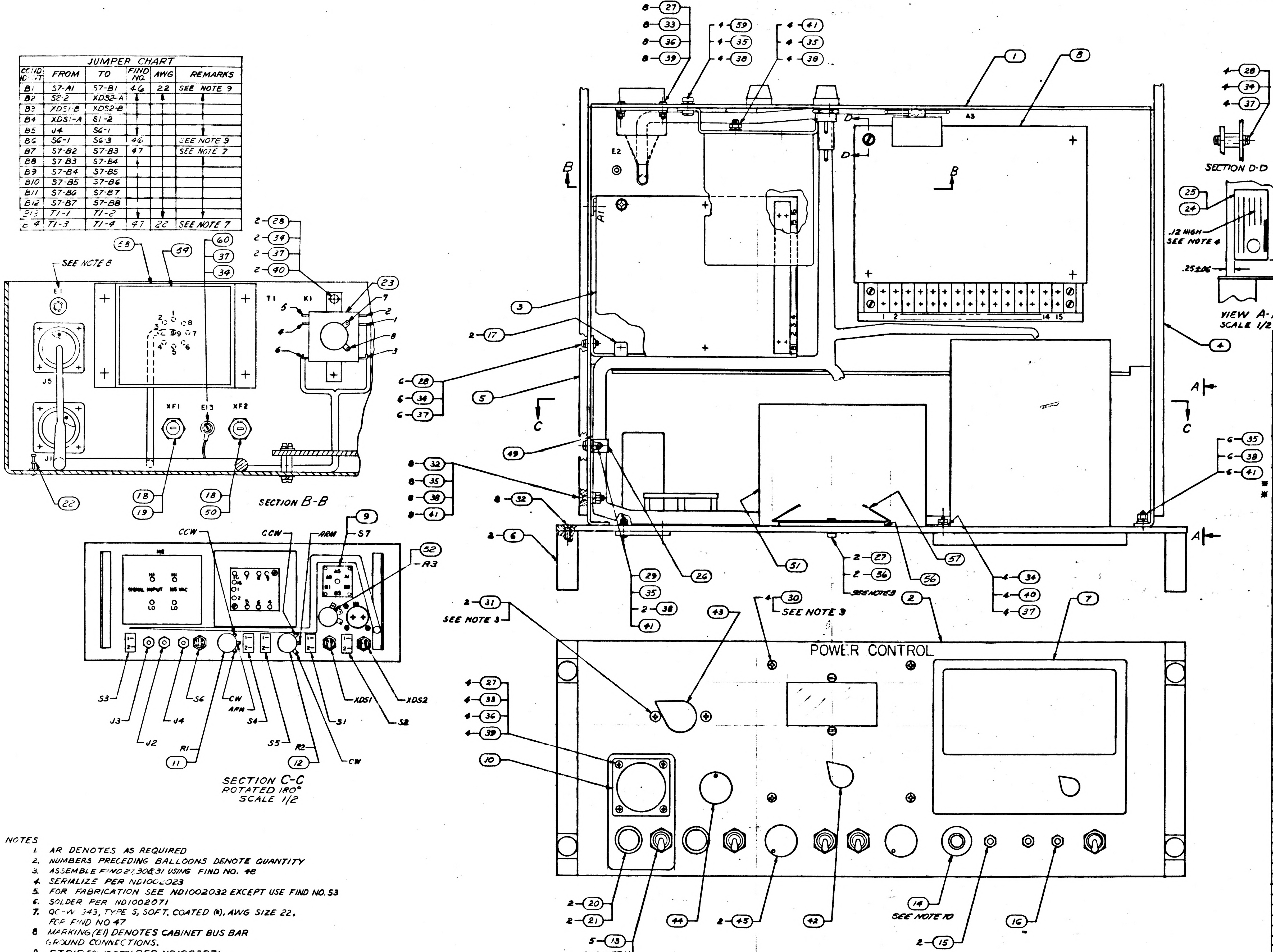
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014044 E

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25160	[illegible]	[illegible]
1	CHANGED PER CCA R25477 DR CHK APPD	1/17/6-	
-	CLASS B CHANGED PER CCA R25512	[illegible]	
A	CHANGED PER CCA R25569 DR Q. J. Bum CHK APPD	[illegible]	
B	CHANGED PER CCA R25627 AND CLASS A RELEASED PER TDRR 25412	[illegible]	
C	CHANGED PER TDRR 26239 DR J.P. Leonard CHK APPD	[illegible]	
D	CHANGED PER TDRR 26227 DR Q. J. Bum CHK APPD	[illegible]	
E	CHANGED PER TDRR 26228 DR CHK APPD	[illegible]	

JUMPER CHART

COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
B1	S7-A1	S7-B1	46	22	SEE NOTE 9
B2	S2-2	XDS2-A	↑	↑	↑
B3	XDS1-B	XDS2-B			
B4	XDS1-A	S1-2			
B5	J4	S6-1	↓		↓
B6	S6-1	S6-3	46		SEE NOTE 9
B7	S7-B2	S7-B3	47		SEE NOTE 7
B8	S7-B3	S7-B4	↑		↑
B9	S7-B4	S7-B5			
B10	S7-B5	S7-B6			
B11	S7-B6	S7-B7			
B12	S7-B7	S7-B8			
B13	T1-1	T1-2	↓	↓	↓
B14	T1-3	T1-4	47	22	SEE NOTE 7



NOTES

1. AR DENOTES AS REQUIRED
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. ASSEMBLE FIND 27,30&31 USING FIND NO. 48
4. SERIALIZE PER ND1002023
5. FOR FABRICATION SEE ND1002032 EXCEPT USE FIND NO. 53
6. SOLDER PER ND1002071
7. QC-W-343, TYPE S, SOFT, COATED (a), AWG SIZE 22. FOR FIND NO 47
8. MARKING (E1) DENOTES CABINET BUS BAR GROUND CONNECTIONS.
9. STRIP .50±.12 & TIN PER ND1002071
10. APPLY FIND 48 TO INTERNAL THREADS OF FIND 14
11. REMOVE HARDWARE FROM TERMINALS OF FIND 13 & DISCARD

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014116	SCHEMATIC	REF
1	MS51957-28	SCREW, PAN HD	60
4	MS51957-44	SCREW, PAN HD	59
1	2016329	BRACKET, TRANSFORMER	58
1	2016317	MASK, METER WINDOW	57
1	2014410	WINDOW, METER	56
~~1~~	~~2016343~~	~~BRACKET, TRANSFORMER~~	~~55~~
1	1006440	TRANSFORMER, POWER	54
AR	1006458-004	TAPE, LACING	53
1	1006427	POTENTIOMETER	52
1	1006489-002	INDICATOR, DIGITAL	51
1	F02A250V 1/4A	FUSE (MIL-F-15160/02)	50
1	2014117-011	WIRING HARNESS	49
AR	MIL-S-22473 GR HV	SEALING & RETAINING COMPOUND	48
* 1.2	SEE NOTE 7	WIRE, ELECTRICAL	47
* 1.5	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHT	46
2	MS91528-2C2B	KNOB, CONTROL	45
1	MS91528-2N2B	KNOB, CONTROL	44
1	MS91528-2K2B	KNOB, CONTROL	43
1	MS91528-1P2B	KNOB, CONTROL	42
19	MS35649-84	NUT, HEX	41
6	MS35649-64	NUT, HEX	40
12	MS35649-44	NUT, HEX	39
24	MS15795-807	WASHER, FLAT	38
17	MS15795-805	WASHER, FLAT	37
14	MS15795-803	WASHER, FLAT	36
23	MS35338-80	WASHER, LOCK	35
17	MS35338-79	WASHER, LOCK	34
12	MS35338-78	WASHER, LOCK	33
16	MS51959-46	SCREW, FLAT HD	32
2	MS51959-43	SCREW, FLAT HD	31
4	MS51959-28	SCREW, FLAT HD	30
1	MS51957-45	SCREW, PAN HD	29
12	MS51957-29	SCREW, PAN HD	28
14	MS51957-16	SCREW, PAN HD	27
1	MS21919-D67	CLAMP, CUSHIONED	26
AR	MIL-A-5092 TYPE II	ADHESIVE	25
1	1004260-232	NAMEPLATE	24
1	1006234	RELAY, ARMATURE	23
1	SE07-9B01 MIL-T-55155/7	TERMINAL STUD (INSULATED)	22
2	1006869	LAMP, GLOW	21
2	1006905-6	INDICATOR, LIGHT	20
1	F02A250V 1/2A	FUSE, (MIL-F-15160/02)	19
2	MS26572-1	FUSEHOLDER	18
2	1006262-004	BRACKET, ANGLE-PANEL MTG	17
1	MS16108-3A	JACK, TIP, LOW VOLTAGE	16
2	MS16108-2A	JACK, TIP, LOW VOLTAGE	15
1	MS25089-3C	SWITCH, PUSH	14
5	MS35058-22	SWITCH, TOGGLE	13
1	RV4NBYSD252A	RESISTOR, VAR.	12
1	1006468-007	RESISTOR, VAR. COMP 2 WATT	11
1	1006927	INDICATOR, TOTAL TIME	10
1	1006465-001	SWITCH ROTARY	9
1	1006489-001	AMPLIFIER	8
1	1006473	VOLTMETER, AC	7
2	1014215-3	HANDLE	6
1	1006930-2	SLIDE WITH CABLE CARR L H	5
1	1006930-1	SLIDE WITH CABLE CARR R.H	4
1	2014344-011	COMPONENT BD ASSY A1	3
1	2014342	PANEL	2
1	2014345	CHASSIS	1
-011	LIST OF MATERIALS		

2014044 E

* DENOTES LENGTH IN FEET

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9-497
DRAWN DATE 22JUN65
CHECKED 27JUL65
APPROVAL 9AUG 65
APPROVAL
APPROVAL
NASA APPROVAL A. C.
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER CONTROL ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014044
SCALE WT SHEET OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

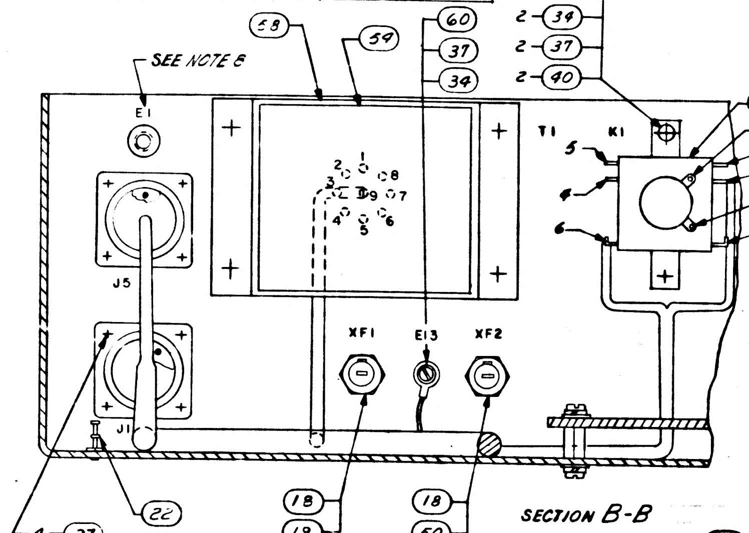
2014044 E

2014044 F

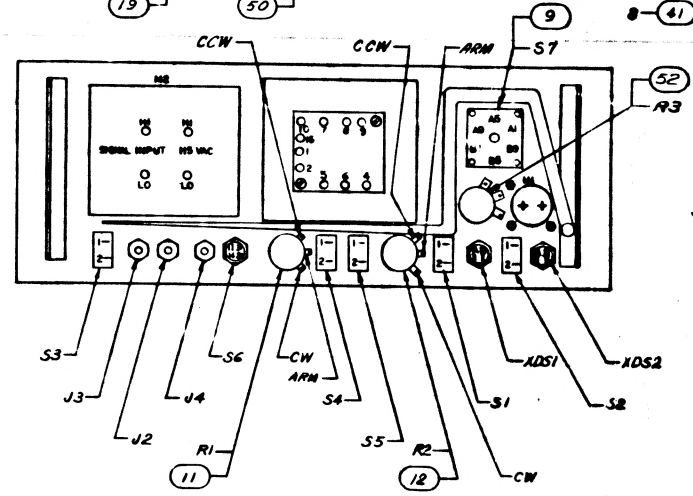
SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25160		
1	CHANGED PER CCA R25477 DR CHK APPD	[illegible]	
-	CLASS B CHANGED PER CCA R255 2		
A	CHANGED PER CCA R25569 DR Q. J. Bim CHK APPD	[illegible] /65	
B	CHANGED PER CCA R25627 AND CLASS A RELEASED PER TDRR 25472	[illegible] /66	
C	CHANGED PER TDRR 26239 DR J. P. Leonard CHK APPD	[illegible] /66	
D	CHANGED PER TDRR 26227 DR Q. J. Bim CHK APPD	3/4/66	
E	CHANGED PER TDRR 26228 DR CHK APPD	3/19/66	
F	CHANGED PER TDPR 26679 DR CHK APPD PED	7/4/66	

JUMPER CHART

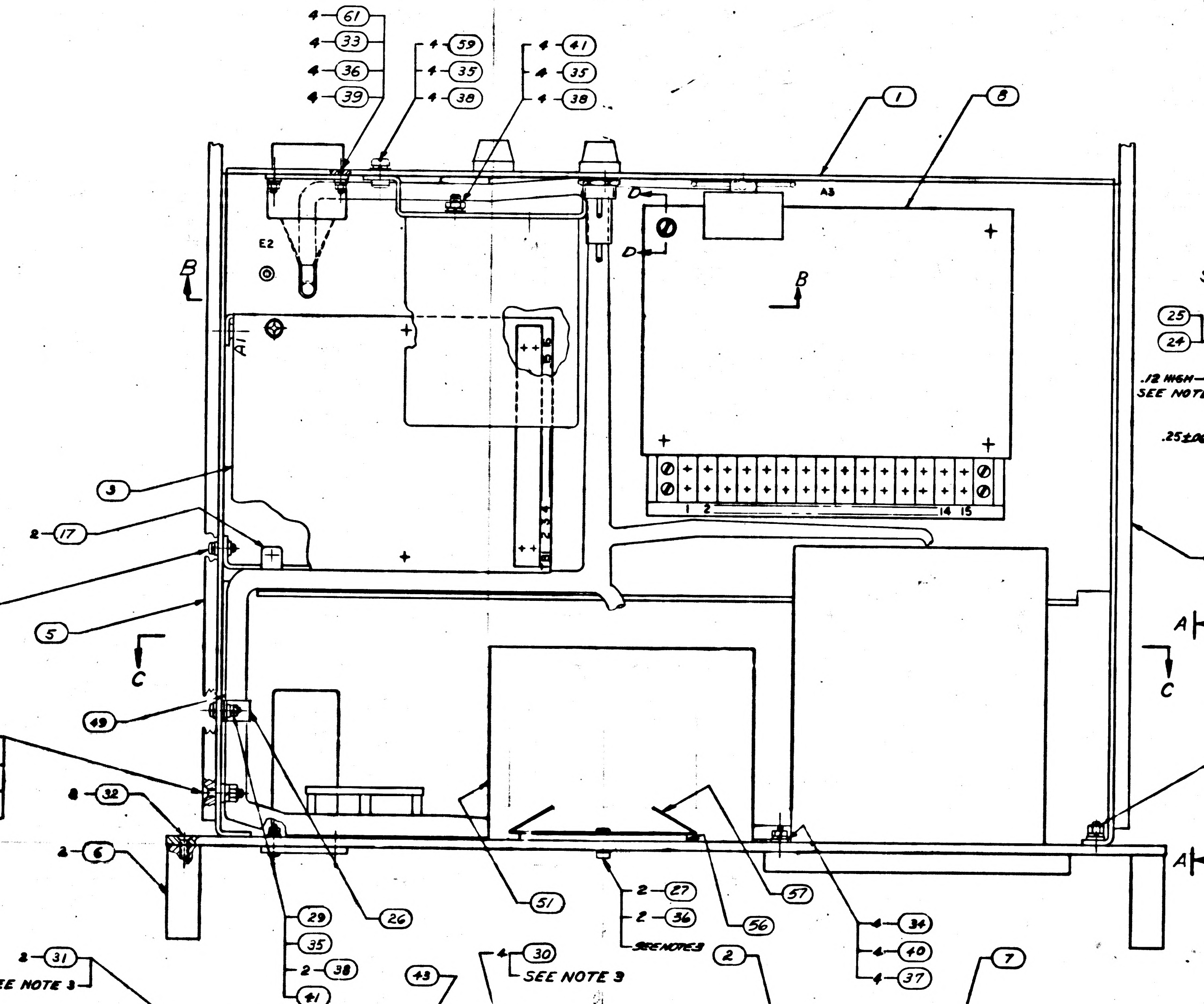
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
B1	S7-A1	S7-B1	46	22	SEE NOTE 9
B2	S2-2	XDS2-A			
B3	XDS1-B	XDS2-B			
B4	XDS1-A	S1-2			
B5	J4	S6-1			
B6	S6-1	S6-3	46		SEE NOTE 9
B7	S7-B2	S7-B3	47		SEE NOTE 7
B8	S7-B3	S7-B4			
B9	S7-B4	S7-B5			
B10	S7-B5	S7-B6			
B11	S7-B6	S7-B7			
B12	S7-B7	S7-B8			
B13	T1-1	T1-2			
B14	T1-3	T1-4	47	22	SEE NOTE 7

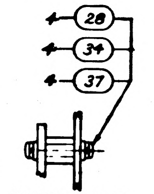

SEE NOTE 8
58
59
60
37
34
2-28
2-34
2-37
2-40
E1
T1
K1
23
5
6
7
2
1
8
3
J5
J1
XF1
E13
XF2
22
18
19
18
50
4-27
4-33
4-36
4-39

SECTION B-B

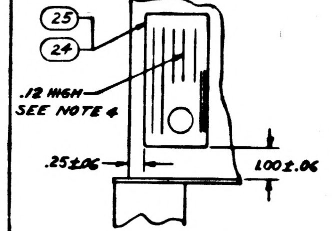

CCW
CCW
ARM
S7
9
52
R3
M8
SIGNAL INPUT
115 VAC
S3
J3
J4
S6
CW
ARM
S4
S5
R2
S1
XDS1
XDS2
S2
J2
R1
11
12
CW

SECTION C-C
ROTATED 180°
SCALE 1/2

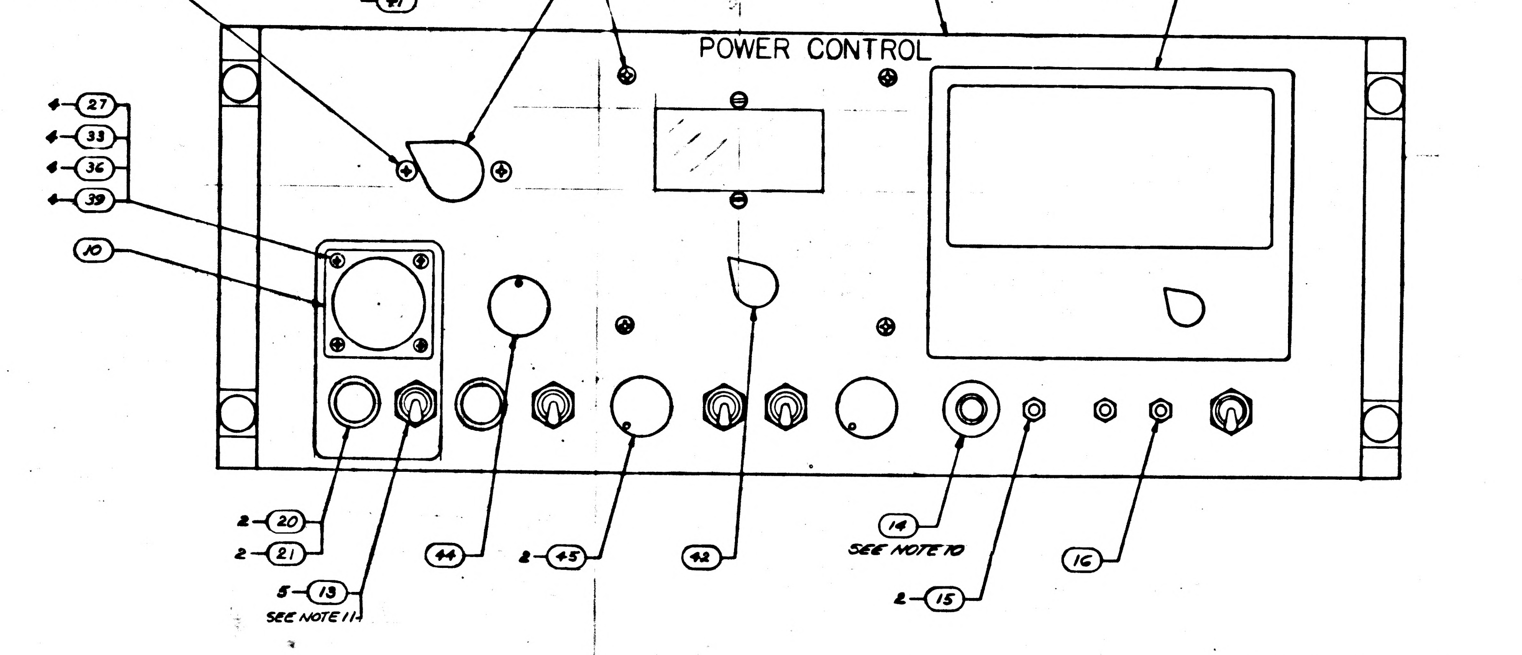

4-61
4-33
4-36
4-39
4-59
4-35
4-38
4-41
4-35
4-38
1
8
E2
B
A1
A3
D
D
B
2-28
2-34
2-37
2-40
3
2-17
6-28
6-34
6-37
5
C
C
A
A
4
6-35
6-36
6-41
49
8-32
8-35
8-38
8-41
8-32
2-6
29
35
2-38
41
26
51
2-27
2-36
SEE NOTE 3
56
57
4-34
4-40
4-37
1 2 14 15



SECTION D-D


25
24
.12 HIGH
SEE NOTE 4
.25±.06
.100±.06

VIEW A-A
SCALE 1/2


2-31
SEE NOTE 3
43
4-30
SEE NOTE 3
2
7
POWER CONTROL
4-27
4-33
4-36
4-39
10
2-20
2-21
5-13
SEE NOTE 11
44
2-45
42
14
SEE NOTE 10
2-15
16

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	MS51959-15	SCREW, FLAT HD	61
☒	2014116	SCHEMATIC	REF
1	MS51957-28	SCREW, PAN HD	60
4	MS51957-44	SCREW, PAN HD	59
1	2016329	BRACKET, TRANSFORMER	58
1	2016317	MASK, METER WINDOW	57
1	2014410	WINDOW, METER	56
~~1~~	~~[illegible]~~	~~BRACKET, TRANSFORMER~~	~~55~~
1	1006440	TRANSFORMER, POWER	54
AR	1006458-004	TAPE, LACING	53
1	1006427	POTENTIOMETER	52
1	1006489-002	INDICATOR, DIGITAL	51
1	F02A250V 1/4A	FUSE (MIL-F-15160/02)	50
1	2014117-011	WIRING HARNESS	49
AR	MIL-S-22473 GR HV	SEALING & RETAINING COMPOUND	48
* 1.2	SEE NOTE 7	WIRE, ELECTRICAL	47
* 1.5	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHT	46
2	MS91528-2C2B	KNOB, CONTROL	45
1	MS91528-2N2B	KNOB, CONTROL	44
1	MS91528-2K2B	KNOB, CONTROL	43
1	MS91528-1P2B	KNOB, CONTROL	42
19	MS35649-84	NUT, HEX	41
6	MS35649-64	NUT, HEX	40
12	MS35649-44	NUT, HEX	39
24	MS15795-807	WASHER, FLAT	38
17	MS15795-805	WASHER, FLAT	37
14	MS15795-803	WASHER, FLAT	36
23	MS35338-80	WASHER, LOCK	35
17	MS35338-79	WASHER, LOCK	34
12	MS35338-78	WASHER, LOCK	33
16	MS51959-46	SCREW, FLAT HD	32
2	MS51959-43	SCREW, FLAT HD	31
4	MS51959-28	SCREW, FLAT HD	30
1	MS51957-45	SCREW, PAN HD	29
12	MS51957-29	SCREW, PAN HD	28
10	MS51957-16	SCREW, PAN HD	27
1	MS21919-DG7	CLAMP, CUSHIONED	26
AR	MIL-A-5092 TYPE II	ADHESIVE	25
1	1004260-232	NAMEPLATE	24
1	1006234	RELAY, ARMATURE	23
1	SE07-9801 MIL-T-55155/7	TERMINAL STUD (INSULATED)	22
2	1006869	LAMP, GLOW	21
2	1006905-6	INDICATOR, LIGHT	20
1	F02A250V 1/2A	FUSE, (MIL-F-15160/02)	19
2	MS26572-1	FUSEHOLDER	18
2	1006262-004	BRACKET, ANGLE-PANEL MTG	17
1	MS16108-3A	JACK, TIP, LOW VOLTAGE	16
2	MS16108-2A	JACK, TIP, LOW VOLTAGE	15
1	MS25089-3C	SWITCH, PUSH	14
5	MS35058-22	SWITCH, TOGGLE	13
1	RV4NBYSD252A	RESISTOR, VAR.	12
1	1006468-007	RESISTOR, VAR. COMP 2 WATT	11
1	1006927	INDICATOR, TOTAL TIME	10
1	1006465-001	SWITCH ROTARY	9
1	1006489-001	AMPLIFIER	8
1	1006473	VOLTMETER AC	7
2	1014215-3	HANDLE	6
1	1006930-2	SLIDE WITH CABLE CARR LH	5
1	1006930-1	SLIDE WITH CABLE CARR RH	4
1	2014344-011	COMPONENT BD ASSY A1	3
1	2014342	PANEL	2
1	2014345	CHASSIS	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NOTES
1. AR DENOTES AS REQUIRED
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. ASSEMBLE FIND 27, 30 & 31 USING FIND NO. 48
4. SERIALIZE PER ND1002023
5. FOR FABRICATION SEE ND1002032 EXCEPT USE FIND NO. 53
6. SOLDER PER ND1002071
7. QQ-W-343, TYPE S, SOFT, COATED (a), AWG SIZE 22, FOR FIND NO. 47
8. MARKING (E1) DENOTES CABINET BUS BAR GROUND CONNECTIONS.
9. STRIP .50±.12 & TIN PER ND1002071
10. APPLY FIND 48 TO INTERNAL THREADS OF FIND 14
11. REMOVE HARDWARE FROM TERMINALS OF FIND 13 & DISCARD

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9 497
DRAWN DATE 22 JUN 65
CHECKED 27 JUL 65
APPROVAL 9 AUG 65
APPROVAL 9 AUG 65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER CONTROL ASSY
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014044
SCALE 1/1	WT	SHEET OF

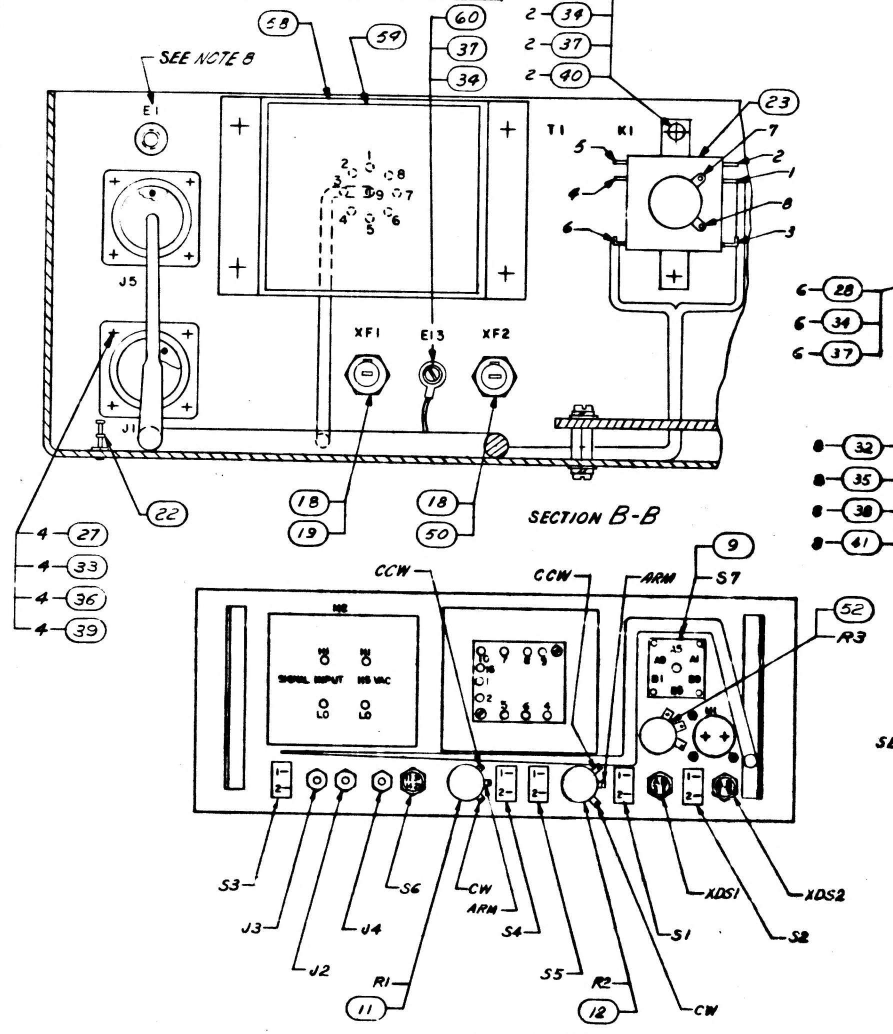
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014044 F

2014044 G

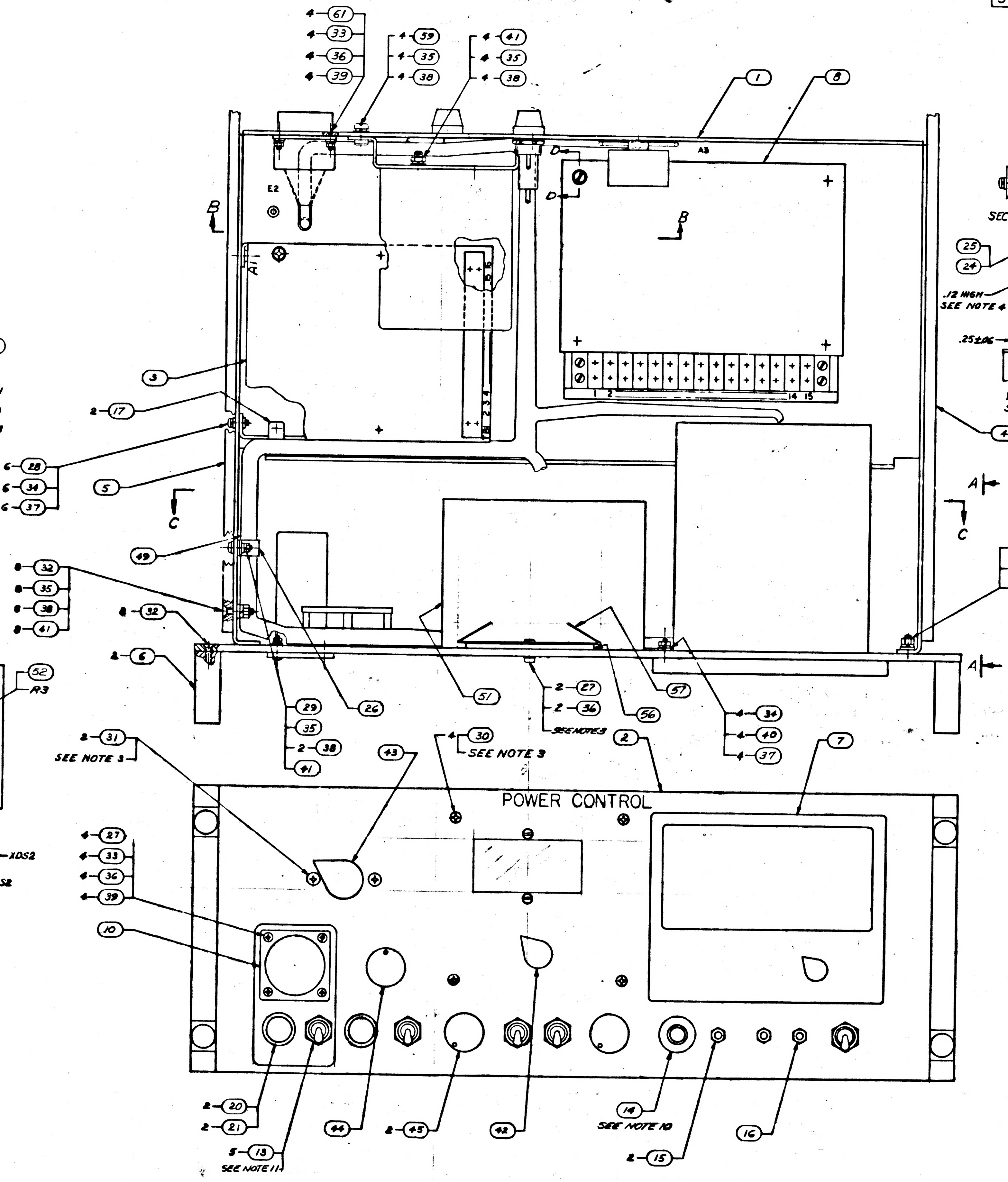
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160	[illegible]	
1	CHANGED PER CCA R25477 DR CHK: APPD	[illegible]	
-	CLASS B CHANGED PER CCA R25512	[illegible]	
A	CHANGED PER CCA R25569 DR Q.J. Bim CHK APPD	[illegible]	
B	CHANGED PER CCA R25627 AND CLASS A RELEASED PER TDRR 25472	[illegible]/66	
C	CHANGED PER TDRR 26239 DR J.P. Leonard CHK: APPD	2/21/66	
D	CHANGED PER TDRR 26227 DR CHK APPD	[illegible]/66	
E	CHANGED PER TDRR 26228 DR CHK APPD	3/17/66	
F	CHANGED PER TDRR 26679 DR CHK APPD PED	[illegible]	
G	CHANGED PER TDRR 26705 DR. CHK APPD PED	APR 66	

JUMPER CHART					
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
B1	S7-A1	S7-B1	46	22	SEE NOTE 9
B2	S2-2	XDS2-A			
B3	XDS1-B	XDS2-B			
B4	XDS1-A	S1-2			
B5	J4	S6-1			
B6	S6-1	S6-3	46		SEE NOTE 9
B7	S7-B2	S7-B3	47		SEE NOTE 7
B8	S7-B3	S7-B4			
B9	S7-B4	S7-B5			
B10	S7-B5	S7-B6			
B11	S7-B6	S7-B7			
B12	S7-B7	S7-B8			
B13	T1-1	T1-2			
B14	T1-3	T1-4	47	22	SEE NOTE 7


SEE NOTE 8
E1
58
59
60
37
34
2-28
2-34
2-37
2-40
23
T1
K1
J5
J1
XF1
E13
XF2
22
18
19
18
50
4-27
4-33
4-36
4-39
CCW
CCW
ARM
S7
9
52
R3
S3
J3
J2
S6
J4
R1
CW
ARM
S4
S5
R2
S1
XDS1
S2
XDS2
CW
11
12
SIGNAL INPUT
115 VAC

SECTION B-B

SECTION C-C
ROTATED 180°
SCALE 1/2


4-61
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4-41
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4-38
1
8
E2
A3
B
B
A1
D
D
3
2-17
6-28
6-34
6-37
5
C
C
4
A
A
49
8-32
8-35
8-38
8-41
8-32
2-6
29
35
2-38
41
26
51
2-27
2-36
SEE NOTE 3
56
57
4-34
4-40
4-37
6-35
6-38
6-41
2-31
SEE NOTE 3
43
4-30
SEE NOTE 3
2
7
POWER CONTROL
4-27
4-33
4-36
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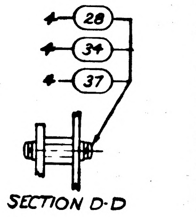
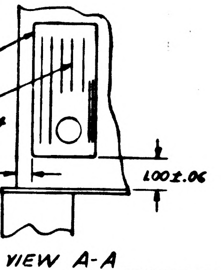
5-13
SEE NOTE 11
44
2-45
42
14
SEE NOTE 10
2-15
16



SECTION D-D


25
24
.12 HIGH
SEE NOTE 4
.25±.06
1.00±.06

VIEW A-A
SCALE 1/2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	MS51959-15	SCREW, FLAT HD	61
	2014116	SCHEMATIC	REF
1	MS51957-28	SCREW, PAN HD	60
4	MS51957-44	SCREW, PAN HD	59
1	2016329	BRACKET, TRANSFORMER	58
1	2016317	MASK, METER WINDOW	57
1	2014410	WINDOW, METER	56
~~1~~	~~2016343~~	~~BRACKET, TRANSFORMER~~	55
1	1006440	TRANSFORMER, POWER	54
AR	1006458-004	TAPE, LACING	53
1	1006427	POTENTIOMETER	52
1	1006489-002	INDICATOR, DIGITAL	51
1	F02A250V 1/4A	FUSE (MIL-F-15160/02)	50
1	2014117-011	WIRING HARNESS	49
AR	MIL-S-22473 GR HV	SEALING & RETAINING COMPOUND	48
* 1.2	SEE NOTE 7	WIRE, ELECTRICAL	47
* 1.5	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHT	46
2	MS91528-2C2B	KNOB, CONTROL	45
1	MS91528-2N2B	KNOB, CONTROL	44
1	MS91528-2K2B	KNOB, CONTROL	43
1	MS91528-1P2B	KNOB, CONTROL	42
19	MS35649-84	NUT, HEX	41
6	MS35649-64	NUT, HEX	40
12	MS35649-44	NUT, HEX	39
24	MS15795-807	WASHER, FLAT	38
17	MS15795-805	WASHER, FLAT	37
14	MS15795-803	WASHER, FLAT	36
23	MS35338-80	WASHER, LOCK	35
17	MS35338-79	WASHER, LOCK	34
12	MS35338-78	WASHER, LOCK	33
16	MS51959-46	SCREW, FLAT HD	32
2	MS51959-43	SCREW, FLAT HD	31
4	MS51959-28	SCREW, FLAT HD	30
1	MS51957-45	SCREW, PAN HD	29
12	MS51957-29	SCREW, PAN HD	28
10	MS51957-16	SCREW, PAN HD	27
1	MS21919-DG7	CLAMP, CUSHIONED	26
AR	MIL-A-5092 TYPE II	ADHESIVE	25
1	1004260-232	NAMEPLATE	24
1	1006234	RELAY, ARMATURE	23
1	SE07-9B01 MIL-T-55155/7	TERMINAL STUD (INSULATED)	22
2	1006869	LAMP, GLOW	21
2	1006905-6	INDICATOR, LIGHT	20
1	F02A250V 1/2A	FUSE, (MIL-F-15160/02)	19
2	MS26572-1	FUSEHOLDER	18
2	1006262-004	BRACKET, ANGLE-PANEL MTG	17
1	MS16108-3A	JACK, TIP, LOW VOLTAGE	16
2	MS16108-2A	JACK, TIP, LOW VOLTAGE	15
1	MS25089-3C	SWITCH, PUSH	14
5	MS35058-22	SWITCH, TOGGLE	13
1	RV4NBYSD252A	RESISTOR, VAR.	12
1	1006468-008	RESISTOR, VAR. 2.25 WATT	11
1	1006927	INDICATOR, TOTAL TIME	10
1	1006465-001	SWITCH, ROTARY	9
1	1006489-001	AMPLIFIER	8
1	1006473	VOLTMETER, AC	7
2	1014215-3	HANDLE	6
1	1006930-2	SLIDE WITH CABLE CARR LH	5
1	1006930-1	SLIDE WITH CABLE CARR RH	4
1	2014344-011	COMPONENT BD ASSY A1	3
1	2014342	PANEL	2
1	2014345	CHASSIS	1
-011	LIST OF MATERIALS		

2014044 J

NOTES
1. AR DENOTES AS REQUIRED
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. ASSEMBLE FIND 27, 30 & 31 USING FIND NO. 48
4. SERIALIZE PER ND1002023
5. FOR FABRICATION SEE ND1002032 EXCEPT USE FIND NO. 53
6. SOLDER PER ND1002071
7. QQ-W-343, TYPE S, SOFT, COATED (●), AWG SIZE 22. FOR FIND NO 47
8. MARKING (E1) DENOTES CABINET BUS BAR GROUND CONNECTIONS.
9. STRIP .50±.12 & TIN PER ND1002071
10. APPLY FIND 48 TO INTERNAL THREADS OF FIND 14
11. REMOVE HARDWARE FROM TERMINALS OF FIND 13 & DISCARD

* DENOTES LENGTH IN FEET

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 22JUN65
CHECKED 27JUL65
APPROVAL 9AUG65
APPROVAL 9AUG65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER CONTROL ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014044
SCALE 1/2
WT
SHEET OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

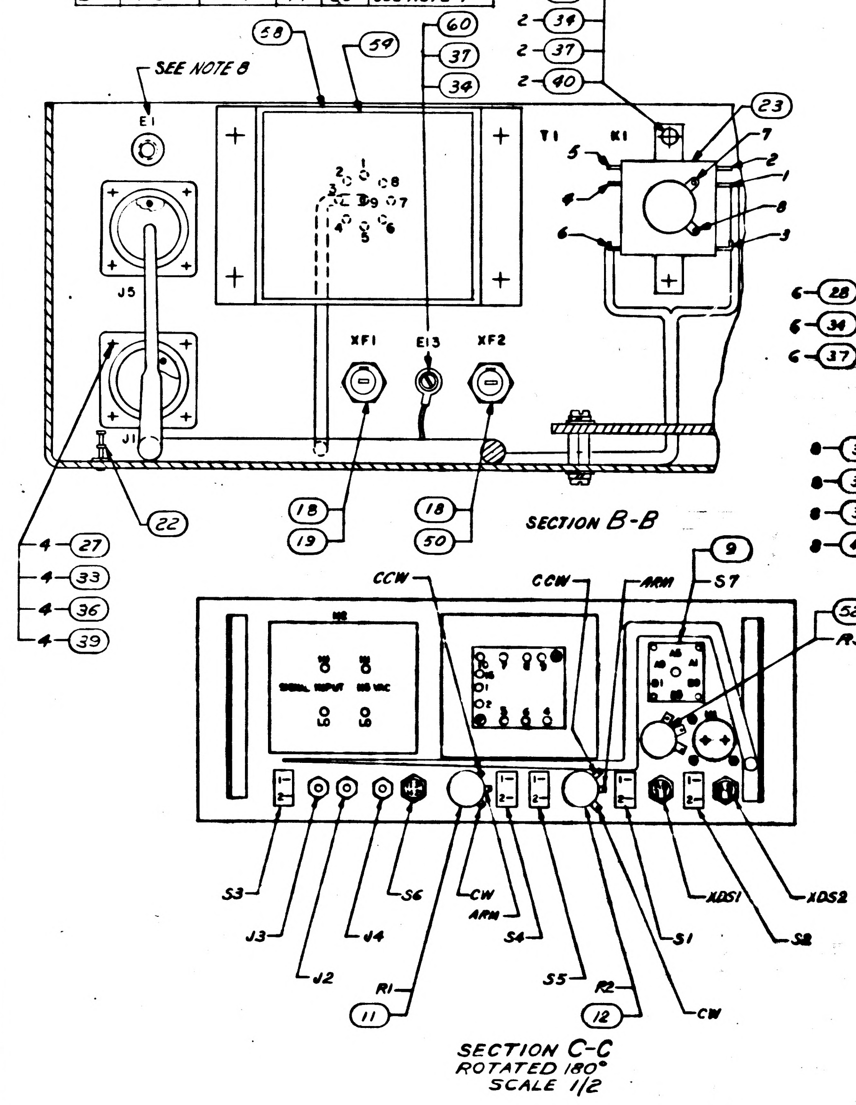
2014044 F

2014044 H

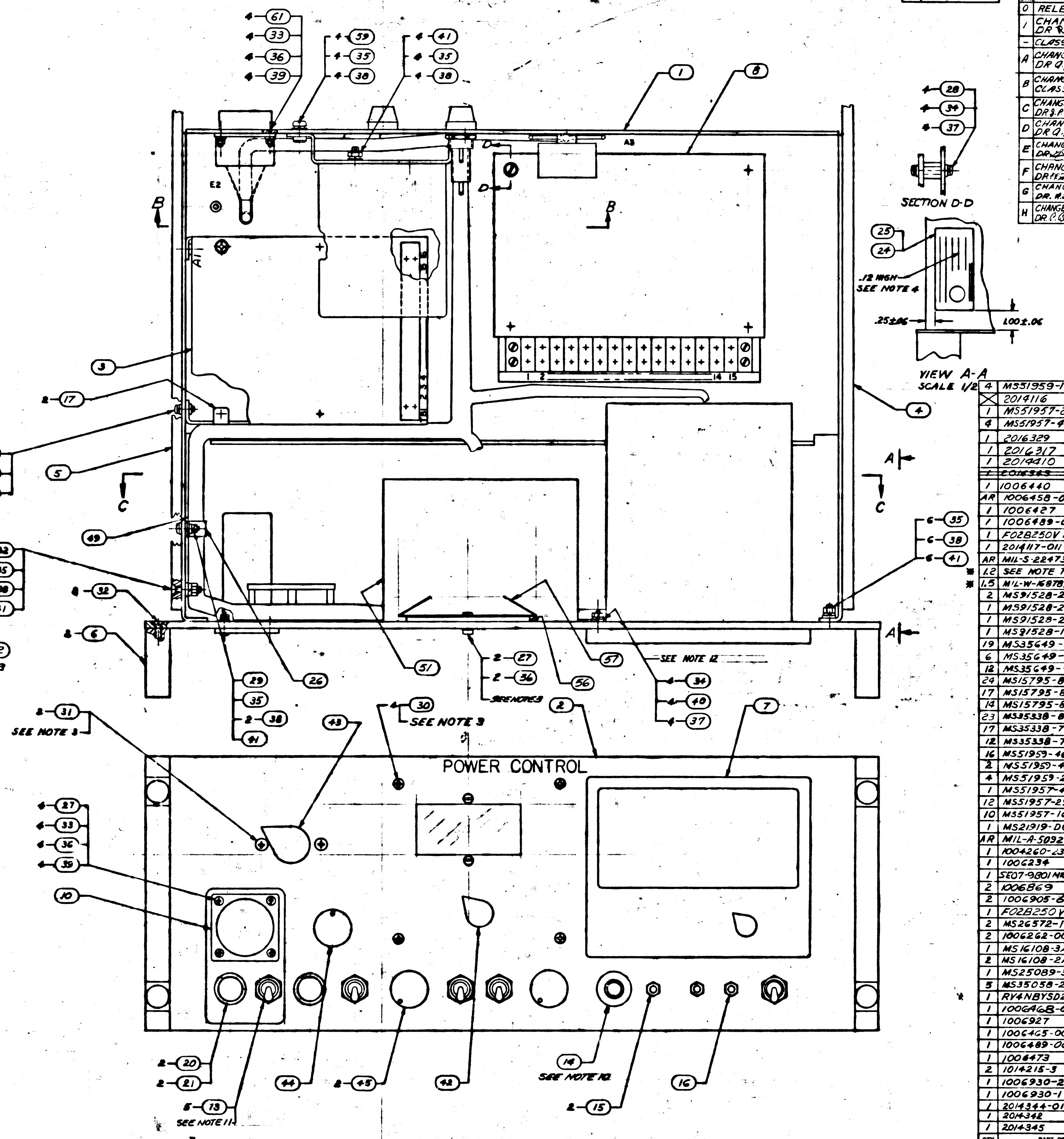
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160	[illegible]	[illegible]
1	CHANGED PER CCA R25477 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
-	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25569 DR Q.J. Binn CHK [illegible] APPD	[illegible]	[illegible]
B	CHANGED PER CCA R25627 AND CLASS A RELEASED PER TDRR 25472	[illegible]/66	[illegible]
C	CHANGED PER TDRR 26239 DR J.P. Leonard CHK C. [illegible] APPD [illegible]	[illegible]/66	[illegible]
D	CHANGED PER TDRR 26227 DR Q.J. Binn CHK [illegible] APPD [illegible]	[illegible]	[illegible]
E	CHANGED PER TDRR 26228 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
F	CHANGED PER TDRR 26679 DR [illegible] CHK [illegible] APPD P.E.D	[illegible]	[illegible]
G	CHANGED PER TDRR 26705 DR. [illegible] CHK [illegible] APPD P.E.D	APR 66	[illegible]
H	CHANGED PER TDRR 27731 DR. P. [illegible] CHK C. [illegible] APPD. [illegible]	[illegible]	[illegible]

JUMPER CHART

COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
B1	S7-A1	S7-B1	46	22	SEE NOTE 9
B2	S2-2	XDS2-A			
B3	XDS1-B	XDS2-B			
B4	XDS1-A	S1-2			
B5	J4	S6-1			
B6	S6-1	S6-3	46		SEE NOTE 9
B7	S7-B2	S7-B3	47		SEE NOTE 7
B8	S7-B3	S7-B4			
B9	S7-B4	S7-B5			
B10	S7-B5	S7-B6			
B11	S7-B6	S7-B7			
B12	S7-B7	S7-B8			
B13	T1-1	T1-2			
B14	T1-3	T1-4	47	22	SEE NOTE 7


SEE NOTE 8
E1
58
59
60
37
34
2-28
2-34
2-37
2-40
23
T1
K1
7
2
1
8
3
4
6
J5
J1
XF1
E13
XF2
22
4-27
4-33
4-36
4-39
18
19
18
50
SECTION B-B
CCW
CCW
ARM
S7
9
52
R3
S3
J3
J2
J4
S6
R1
11
CW
ARM
S4
S5
R2
12
S1
CW
XDS1
S2
XDS2

SECTION C-C
ROTATED 180°
SCALE 1/2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1
8
E2
B
A1
A3
D
D
B
3
2-17
6-28
6-34
6-37
5
C
49
8-32
8-35
8-38
8-41
4-32
4-6
29
35
2-38
41
26
51
2-27
2-56
SEE NOTE 3
56
57
SEE NOTE 12
4-34
4-40
4-37
4
A
C
A
6-35
6-38
6-41
2-28
4-34
4-37
SECTION D-D
25
24
.12 HIGH SEE NOTE 4
.25±.06
1.00±.06
VIEW A-A
SCALE 1/2
2-31
SEE NOTE 3
43
4-30
SEE NOTE 3
2
7
POWER CONTROL
4-27
4-33
4-36
4-39
10
2-20
2-21
5-13
SEE NOTE 11
44
2-45
42
14
SEE NOTE 10
2-15
16

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	MS51959-15	SCREW, FLAT HD	61
☒	2014116	SCHEMATIC	REF
1	MS51957-28	SCREW, PAN HD	60
4	MS51957-44	SCREW, PAN HD	59
1	2016329	BRACKET, TRANSFORMER	58
1	2016317	MASK, METER WINDOW	57
1	2014410	WINDOW, METER	56
~~1~~	~~2016343~~	~~BRACKET, TRANSFORMER~~	~~55~~
1	1006440	TRANSFORMER, POWER	54
AR	1006458-004	TAPE, LACING	53
1	1006427	POTENTIOMETER	52
1	1006489-002	INDICATOR, DIGITAL	51
1	F02B250V 1/4A	FUSE (MIL-F-15160/02B)	50
1	2014117-011	WIRING HARNESS	49
AR	MIL-S-22473 GR. HV	SEALING & RETAINING COMPOUND	48
* 1.2	SEE NOTE 7	WIRE, ELECTRICAL	47
* 1.5	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHT	46
2	MS91528-2C2B	KNOB, CONTROL	45
1	MS91528-2N2B	KNOB, CONTROL	44
1	MS91528-2K2B	KNOB, CONTROL	43
1	MS91528-1P2B	KNOB, CONTROL	42
19	MS35649-84	NUT, HEX	41
6	MS35649-64	NUT, HEX	40
12	MS35649-44	NUT, HEX	39
24	MS15795-807	WASHER, FLAT	38
17	MS15795-805	WASHER, FLAT	37
14	MS15795-803	WASHER, FLAT	36
23	MS35338-80	WASHER, LOCK	35
17	MS35338-79	WASHER, LOCK	34
12	MS35338-78	WASHER, LOCK	33
16	MS51959-46	SCREW, FLAT HD	32
2	MS51959-43	SCREW, FLAT HD	31
4	MS51959-28	SCREW, FLAT HD	30
1	MS51957-45	SCREW, PAN HD	29
12	MS51957-29	SCREW, PAN HD	28
10	MS51957-16	SCREW, PAN HD	27
1	MS21919-D67	CLAMP, CUSHIONED	26
AR	MIL-A-5092 TYPE II	ADHESIVE	25
1	1004260-232	NAMEPLATE	24
1	1006234	RELAY, ARMATURE	23
1	SE07-9801 MIL-T-55155/7	TERMINAL, STUD (INSULATED)	22
2	1006869	LAMP, GLOW	21
2	1006905-6	INDICATOR, LIGHT	20
1	F02B250V 1/2A	FUSE, (MIL-F-15160/02B)	19
2	MS26572-1	FUSEHOLDER	18
2	1006262-004	BRACKET, ANGLE-PANEL MTG	17
1	MS16108-3A	JACK, TIP, LOW VOLTAGE	16
2	MS16108-2A	JACK, TIP, LOW VOLTAGE	15
1	MS25089-3C	SWITCH, PUSH	14
5	MS35058-22	SWITCH, TOGGLE	13
1	RV4NBYSD252A	RESISTOR, VAR.	12
1	1006468-008	RESISTOR, VAR. 2.25 WATT	11
1	1006927	INDICATOR, TOTAL TIME	10
1	1006465-001	SWITCH, ROTARY	9
1	1006489-001	AMPLIFIER	8
1	1006473	VOLTMETER, AC	7
2	1014215-3	HANDLE	6
1	1006930-2	SLIDE WITH CABLE CARR LH	5
1	1006930-1	SLIDE WITH CABLE CARR RH	4
1	2014344-011	COMPONENT BD ASSY A1	3
1	2014342	PANEL	2
1	2014345	CHASSIS	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NOTES
1. AR DENOTES AS REQUIRED
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. ASSEMBLE FIND 27, 30 & 31 USING FIND NO. 48
4. SERIALIZE PER ND1002023
5. FOR FABRICATION SEE ND1002032 EXCEPT USE FIND NO. 53
6. SOLDER PER ND1002071
7. QQ-W-343, TYPE S, SOFT, COATED (A), AWG SIZE 22. FOR FIND NO. 47
8. MARKING (E1) DENOTES CABINET BUS BAR GROUND CONNECTIONS.
9. STRIP .50±.12 & TIN PER ND1002071
10. APPLY FIND 48 TO INTERNAL THREADS OF FIND 14
11. REMOVE HARDWARE FROM TERMINALS OF FIND 13 & DISCARD
12. MAX. TORQUE: 2 IN. LB.

2014042		
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 22 JUN 65
CHECKED [illegible] 27 JUL 65
APPROVAL [illegible] 3 AUG 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER CONTROL ASSY
COMPUTER TEST SET

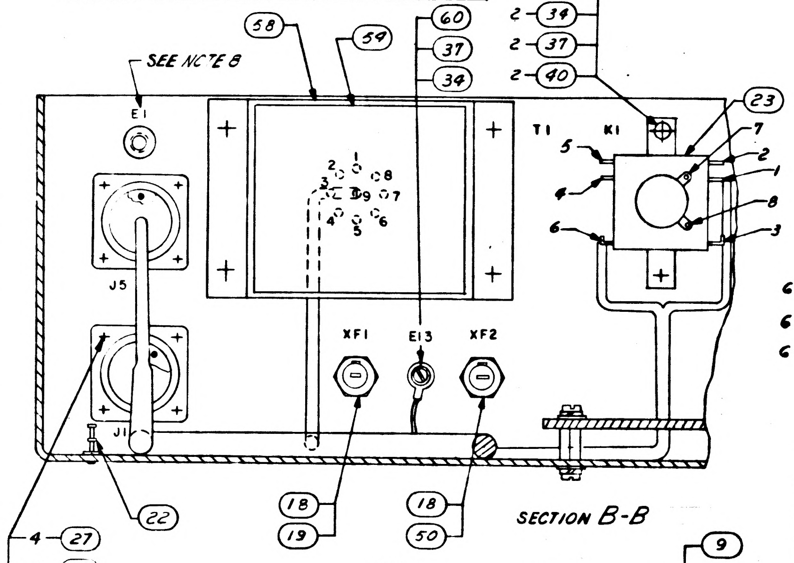
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014044
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

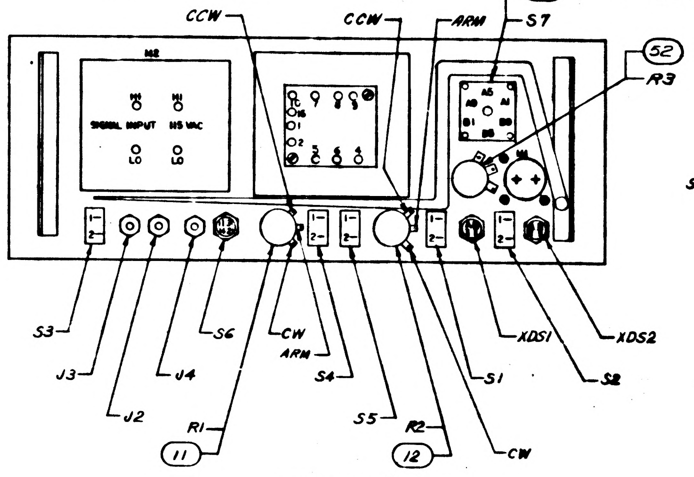
MASTER

2014044 H

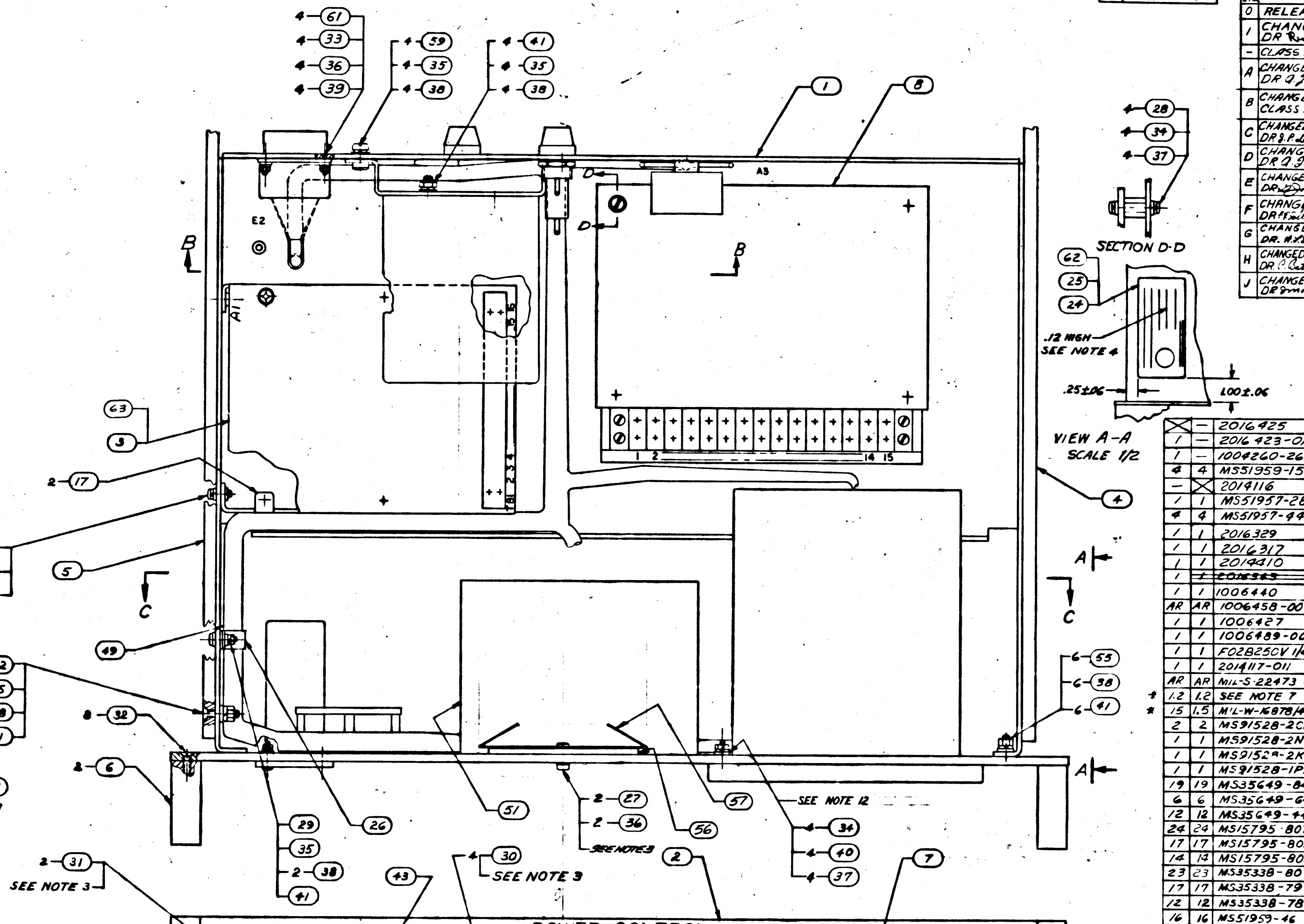
JUMPER CHART					
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
B1	S7-A1	S7-B1	46	22	SEE NOTE 9
B2	S2-2	XDS2-A	↕	↕	↕
B3	XDS1-B	XDS2-B	↕	↕	↕
B4	XDS1-A	S1-2	↕	↕	↕
B5	J4	S6-1	↕	↕	↕
B6	S6-1	S6-3	46	↕	SEE NOTE 9
B7	S7-B2	S7-B3	47	↕	SEE NOTE 7
B8	S7-B3	S7-B4	↕	↕	↕
B9	S7-B4	S7-B5	↕	↕	↕
B10	S7-B5	S7-B6	↕	↕	↕
B11	S7-B6	S7-B7	↕	↕	↕
B12	S7-B7	S7-B8	↕	↕	↕
B13	T1-1	T1-2	↕	↕	↕
B14	T1-3	T1-4	47	22	SEE NOTE 7


SEE NOTE 8
E1
58
59
60
37
34
2-28
2-34
2-37
2-40
23
T1
K1
7
2
1
8
3
5
4
6
J5
J1
XF1
E13
XF2
22
18
19
18
50
4-27
4-33
4-36
4-39

SECTION B-B


CCW
CCW
ARM
S7
9
52
R3
S3
J3
J2
J4
S6
CW
ARM
S4
S5
R1
11
R2
12
CW
S1
XDS1
S2
XDS2

SECTION C-C
ROTATED 180°
SCALE 1/2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1
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E2
A3
D
D
B
B
A1
63
3
2-17
6-28
6-34
6-37
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C
C
49
8-32
8-35
8-38
8-41
8-32
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41
26
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2-27
2-36
SEE NOTE 3
56
57
SEE NOTE 12
4-34
4-40
4-37
2-31
SEE NOTE 3
4-30
SEE NOTE 3
43
2
7
A
A
4
6-55
6-38
6-41
4-28
4-34
4-37
SECTION D-D
62
25
24
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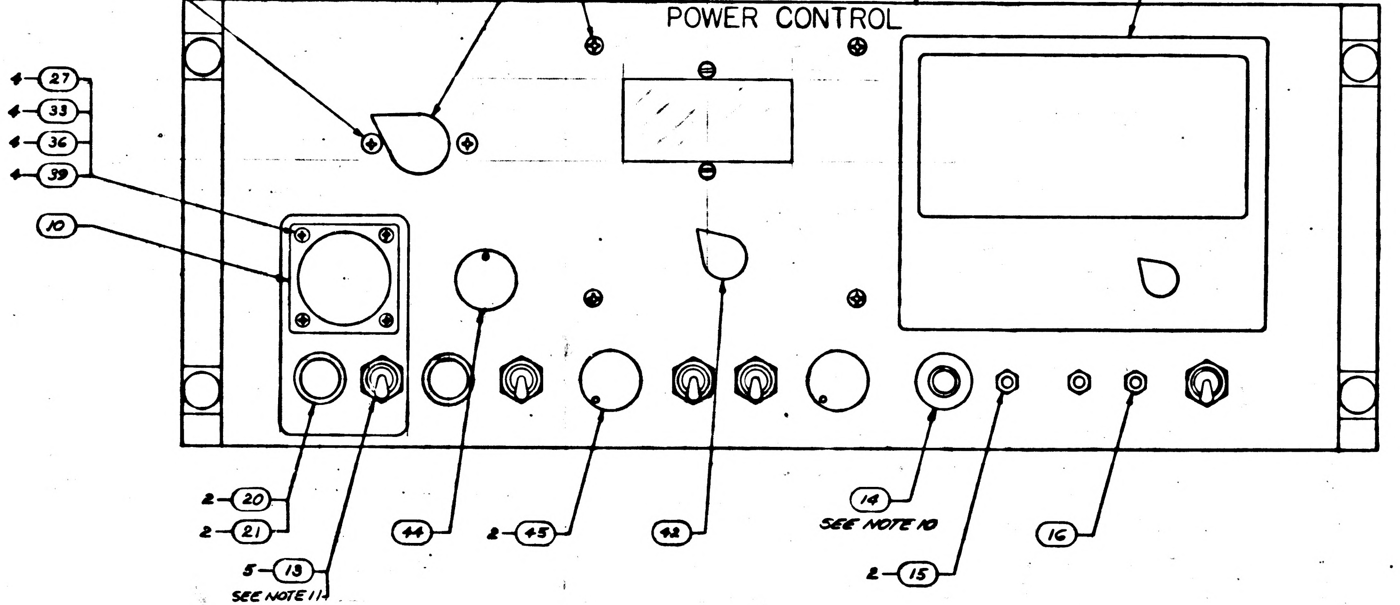
SEE NOTE 4
.25±.06
1.00±.06
VIEW A-A
SCALE 1/2
1
2
14 15


POWER CONTROL
4-27
4-33
4-36
4-39
10
2-20
2-21
5-13
SEE NOTE 11
44
2-45
42
14
SEE NOTE 10
2-15
16

NOTES

1. AR DENOTES AS REQUIRED
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. ASSEMBLE FIND 2?,30&31 USING FIND NO. 48
4. SERIALIZE PER ND1002023
5. FOR FABRICATION SEE ND1002032 EXCEPT USE FIND NO. 53
6. SOLDER PER ND1002071
7. QQ-W-343, TYPE S, SOFT, COATED (a), AWG SIZE 22, FOR FIND NO 47
8. MARKING (E1) DENOTES CABINET BUS BAR GROUND CONNECTIONS.
9. STRIP .50±.12 & TIN PER ND1002071
10. APPLY FIND 48 TO INTERNAL THREADS OF FIND 14
11. REMOVE HARDWARE FROM TERMINALS OF FIND 13 & DISCARD
12. MAX. TORQUE: 2 IN. LB.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160	9/17/65	[illegible]
1	CHANGED PER CCA R25477 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25569 DR Q. J. Bian CHK A. Kyle APPD	[illegible]	[illegible]
B	CHANGED PER CCA R25667 AND CLASS A RELEASED PER TDRR 25472	[illegible]/66	[illegible]
C	CHANGED PER TDRR 26239 DR J. P. Leonard CHK C. DeGrenier APPD [illegible]	2/21/66	[illegible]
D	CHANGED PER TDRR 26227 DR Q. J. Bian CHK A. Kyle APPD [illegible]	[illegible]/66	[illegible]
E	CHANGED PER TDRR 26228 DR [illegible] CHK [illegible] APPD [illegible]	3/[illegible]/66	[illegible]
F	CHANGED PER TDRR 26679 DR [illegible] CHK [illegible] APPD PED	4/[illegible]/66	[illegible]
G	CHANGED PER TDRR 26705 DR. W. L. Bean CHK A. Hoo APPD PED	18 APR 66	[illegible]
H	CHANGED PER TDRR 27731 DR. C. Battist CHK C. DeGrenier APPD [illegible]	[illegible]	[illegible]
J	CHANGED PER TDRR 28110 DR [illegible] CHK Haywood APPD PED	24 May 66	[illegible]

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	–	2016425	SCHEMATIC	REF
1	–	2016423-011	COMPONENT BOARD ASSY A1	63
1	–	1004260-269	NAME PLATE	62
4	4	MS51959-15	SCREW, FLAT HD	61
–	☒	2014116	SCHEMATIC	REF
1	1	MS51957-28	SCREW, PAN HD	60
4	4	MS51957-44	SCREW, PAN HD	59
1	1	2016329	BRACKET, TRANSFORMER	58
1	1	2016317	MASK, METER WINDOW	57
1	1	2014410	WINDOW, METER	56
1	~~1~~	~~2016363~~	~~BRACKET, TRANSFORMER~~	~~55~~
1	1	1006440	TRANSFORMER, POWER	54
AR	AR	1006458-004	TAPE, LACING	53
1	1	1006427	POTENTIOMETER	52
1	1	1006489-002	INDICATOR, DIGITAL	51
1	1	F02B250V 1/4A	FUSE (MIL-F-15160/02B)	50
1	1	2014117-011	WIRING HARNESS	49
AR	AR	MIL-S-22473 GR. HV	SEALING & RETAINING COMPOUND	48
* 1.2	1.2	SEE NOTE 7	WIRE, ELECTRICAL	47
* 15	1.5	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHT	46
2	2	MS91528-2C2B	KNOB, CONTROL	45
1	1	MS91528-2N2B	KNOB, CONTROL	44
1	1	MS91528-2K2B	KNOB, CONTROL	43
1	1	MS91528-1P2B	KNOB, CONTROL	42
19	19	MS35649-84	NUT, HEX	41
6	6	MS35649-64	NUT, HEX	40
12	12	MS35649-44	NUT, HEX	39
24	24	MS15795-807	WASHER, FLAT	38
17	17	MS15795-805	WASHER, FLAT	37
14	14	MS15795-803	WASHER, FLAT	36
23	23	MS35338-80	WASHER, LOCK	35
17	17	MS35338-79	WASHER, LOCK	34
12	12	MS35338-78	WASHER, LOCK	33
16	16	MS51959-46	SCREW, FLAT HD	32
2	2	MS51959-43	SCREW, FLAT HD	31
4	4	MS51959-28	SCREW, FLAT HD	30
1	1	MS51957-45	SCREW, PAN HD	29
12	12	MS51957-29	SCREW, PAN HD	28
10	10	MS51957-16	SCREW, PAN HD	27
1	1	MS21919-DG7	CLAMP, CUSHIONED	26
AR	AR	MIL-A-5092 TYPE II	ADHESIVE	25
–	1	1004260-232	NAMEPLATE	24
1	1	1006234	RELAY, ARMATURE	23
1	1	SE07-9B01 MIL-T-55155/7	TERMINAL STUD (INSULATED)	22
2	2	1006869	LAMP, GLOW	21
2	2	1006905-6	INDICATOR, LIGHT	20
1	1	F02B250V 1/2A	FUSE, (MIL-F-15160/02B)	19
2	2	MS26572-1	FUSEHOLDER	18
2	2	1006262-004	BRACKET, ANGLE-PANEL MTG	17
1	1	MS16108-3A	JACK, TIP, LOW VOLTAGE	16
2	2	MS16108-2A	JACK, TIP, LOW VOLTAGE	15
1	1	MS25089-3C	SWITCH, PUSH	14
5	5	MS35058-22	SWITCH, TOGGLE	13
1	1	RV4NBYSD252A	RESISTOR, VAR.	12
1	1	1006468-008	RESISTOR, VAR. 2.25 WATT	11
1	1	1006927	INDICATOR, TOTAL TIME	10
1	1	1006465-001	SWITCH ROTARY	9
1	1	1006489-001	AMPLIFIER	8
1	1	1006473	VOLTMETER, AC	7
2	2	1014215-3	HANDLE	6
1	1	1006930-2	SLIDE WITH CABLE CARR LH	5
1	1	1006930-1	SLIDE WITH CABLE CARR RH	4
–	1	2014344-011	COMPONENT BD ASSY A1	3
1	1	2014342	PANEL	2
1	1	2014345	CHASSIS	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9-497
DRAWN [illegible] DATE 22 JUN 65
CHECKED [illegible] 27 JUL 65
APPROVAL [illegible] 9 AUG 65
APPROVAL [illegible] 7 AUG 65
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

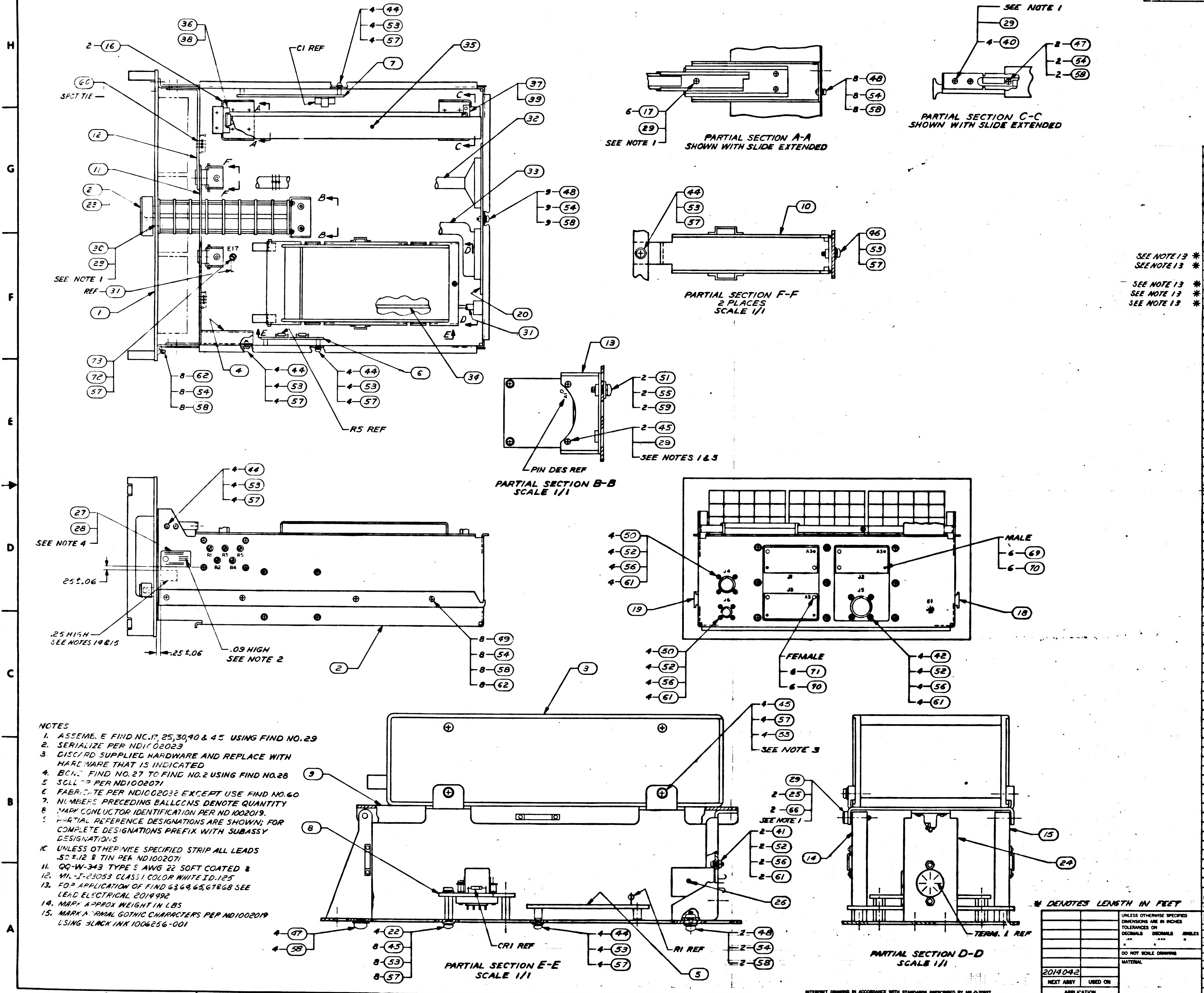
POWER CONTROL ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014044
SCALE 1/1 WT SHEET OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014045 C

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25160		
1	CHANGED PER CCA R25394 DR G.J. Binn CHK APPD		
—	CLASS B NO CHANGE PER CCA R25502		
A	CHANGED PER CCA R25577 DR CHK APPD		
B	CHANGED PER CCA R25669 DR CHK APPD		
C	CHANGED PER CCA R25747 AND CLASS A RELEASED PER TCRR 25472		



NOTES

1. ASSEMBLE FIND NO.17, 25, 30, 40 & 45 USING FIND NO.29
2. SERIALIZE PER ND1002023
3. DISCARD SUPPLIED HARDWARE AND REPLACE WITH HARDWARE THAT IS INDICATED
4. BOND FIND NO. 27 TO FIND NO. 2 USING FIND NO.28
5. SOLDER PER ND1002071
6. FABRICATE PER ND1002032 EXCEPT USE FIND NO.60
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. MARK CONDUCTOR IDENTIFICATION PER ND 1002019.
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUBASSY DESIGNATIONS
10. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50±.12 & TIN PER ND1002071
11. QQ-W-343 TYPE S AWG 22 SOFT COATED
12. MIL-I-23053 CLASS I, COLOR WHITE I.D. .125
13. FOR APPLICATION OF FIND 63, 64, 65, 67 & 68 SEE LEAD ELECTRICAL 2014492
14. MARK APPROX WEIGHT IN LBS
15. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006256-001

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014125	SCHEMATIC	REF
	☒	2014492	LEAD ELECTRICAL	REF
	1	MS51957-27	SCREW, MACHINE-PAN HD	73
	1	MS35333-71	WASHER, LOCK, INTERNAL TOOTH	72
	6	1006671-004	GUIDE, SOCKET	71
	12	1006671-003	NUT, STOP	70
	6	1006671-002	GUIDE, PIN	69
SEE NOTE 13 *	0.8	SEE NOTE 12	INSULATION, SLEEVING	68
SEE NOTE 13 *	20.0	1006776-21	INSULATION, SLEEVING, ELEC	67
	2	1006982-8	WASHER, NYLON	66
SEE NOTE 13 *	100.0	SEE NOTE 11	WIRE ELEC	65
SEE NOTE 13 *	8.0	1014341-11	WIRE, ELEC TW. PR	64
SEE NOTE 13 *	16.0	MIL-W-16878/4E22	WIRE, ELEC (WHITE)	63
	16	MS35649-84	NUT, PLAIN, HEX	62
	14	MS35649-44	NUT, PLAIN, HEX	61
	AR	1006458-004	TAPE, LACING	60
	2	MS15795-808	WASHER, FLAT	59
	41	MS15795-807	WASHER, FLAT	58
	37	MS15795-805	WASHER, FLAT	57
	14	MS15795-803	WASHER, FLAT	56
	2	MS35338-81	WASHER, LOCK	55
	37	MS35338-80	WASHER, LOCK	54
	36	MS35338-79	WASHER, LOCK	53
	14	MS35338-78	WASHER, LOCK	52
	2	MS51958-63	SCREW, MACHINE-PAN HD	51
	8	MS51957-17	SCREW, MACHINE-PAN HD	50
	8	MS51959-47	SCREW, MACHINE-FLAT, CSK HD	49
	19	MS51957-45	SCREW, MACHINE-PAN HD	48
	6	-43		47
	2	-31		46
	14	-30		45
	22	MS51957-29	SCREW, MACHINE-PAN HD	44
	~~12~~	~~-28~~		~~43~~
	4	MS51957-18	SCREW, MACHINE-PAN HD	42
	2	MS51957-15	SCREW, MACHINE-PAN HD	41
	4	MS51959-46	SCREW, MACH.-FLAT CSK HD	40
	1	1006988-4	SLIDE, CHASSIS	39
	1	1006988-3	SLIDE, CHASSIS	38
	1	1006988-2	SLIDE, CHASSIS	37
	1	1006988-1	SLIDE, CHASSIS	36
	1	2014376-011	LOGIC PLATE ASSY NO.1	35
	1	2014177-011	HARNESS ASSY D	34
	1	2014176-011	HARNESS ASSY C	33
	1	2014175-011	HARNESS ASSY B	32
	1	2014174-011	HARNESS ASSY A	31
	2	MS51959-42	SCREW, MACH.-FLAT CSK HD	30
	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	29
	AR	MIL-A-5092 TYPE II	CEMENT	28
	1	1004260-235	NAMEPLATE, IDENT	27
	1	1006444	TRANSFORMER	26
	2	MS16638-1	SCREW, SHOULDER	25
	1	2014331	BRACKET, TRANSFORMER	24
	1	1006928	KNOB, BAR	23
	4	1006480-007	POST, ELECTRICAL	22
	1	1006892-4	SWITCH, ROTARY	21
	1	2014416	PLATE, CONN	20
	1	1006930-15	SLIDE, CHASSIS, RH	19
	1	1006930-16	SLIDE, CHASSIS, LH	18
	6	MS51959-43	SCREW, MACH.-FLAT CSK HD	17
	2	1014255-2	BRACKET ASSY	16
	1	2014379	BRACKET, PIVOT, LH	15
	1	2014332	BRACKET, PIVOT, RH	14
	1	2014335	BRACKET, SWITCH SUPPORT	13
	1	2014373	HARNESS SUPPORT, LH	12
	1	2014357	HARNESS SUPPORT, RH	11
	2	2014356	BAR, SUPPORT	10
	1	2014330	BRACKET, AMPLIFIER	9
	1	2014292-011	COMPONENT BOARD ASSY A5	8
	1	2014294-011	COMPONENT BOARD ASSY A4	7
	1	2014296-011	COMPONENT BOARD ASSY A3	6
	1	2014290-011	COMPONENT BOARD ASSY A2	5
	1	2014334-011	POT. BRKT ASSY A1	4
	1	2014386	AMPLIFIER, MODIFICATION	3
	1	2014314	CHASSIS	2
	1	2014327-011	FRONT PANEL ASSEMBLY	1
	-011	LIST OF MATERIALS		

2014045 C

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014042	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4 7
DRAWN DATE 15 JUL 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

RDC INTERFACE ASSY
COMPUTER TEST SET

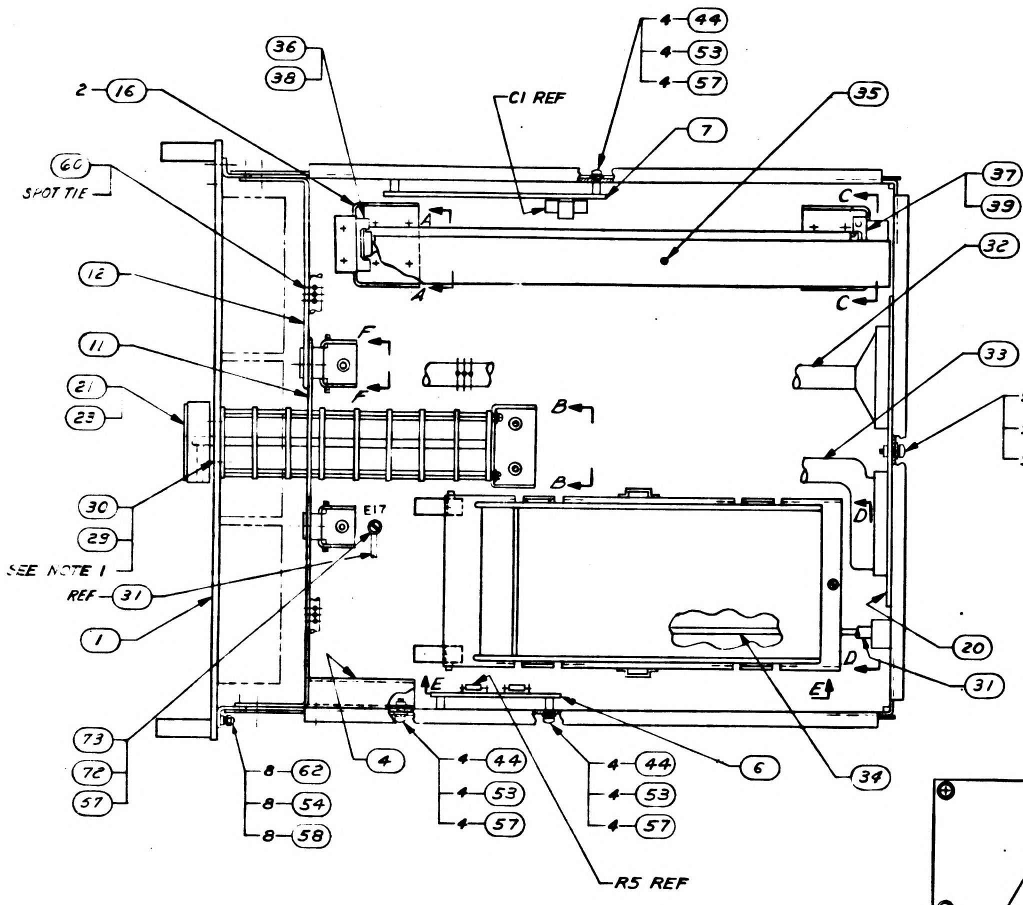
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014045
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014045 C

2014045 D

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25160		
1	CHANGED PER CCA R25394 DR G.J. Binn CHK APPD	[illegible]	[illegible]
—	CLASS B NO CHANGE PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25577 DR CHK APPD	[illegible]	[illegible]
B	CHANGED PER CCA R25669 DR CHK C. Ott APPD	[illegible]	[illegible]
C	CHANGED PER CCA R25727 AND CLASS A RELEASED PER TDRR 25472	[illegible]	[illegible]
D	CHANGED PER TDRR 26430 DR E. Yhung CHK APPD	[illegible] /66	[illegible]



2-16
36
38
4-44
4-53
4-57
C1 REF
7
35
37
39
32
33
9-48
9-54
9-58
60
SPOT TIE
12
11
21
23
30
29
SEE NOTE 1
REF-31
1
73
72
57
E17
A
B
C
D
E
F
20
31
34
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8-62
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4-44
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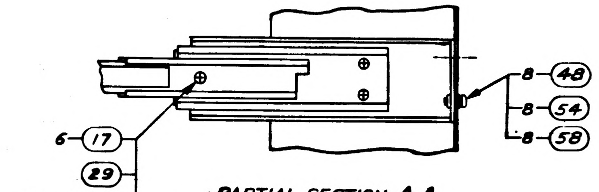
4-57
R5 REF



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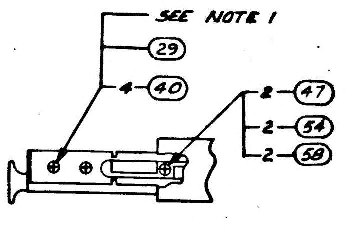
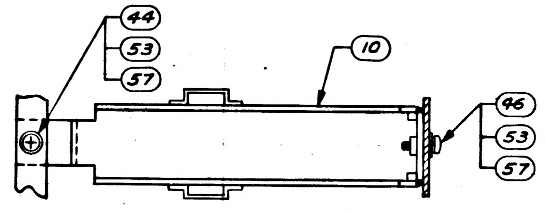
8-54
8-58
6-17
29
SEE NOTE 1

PARTIAL SECTION A-A
SHOWN WITH SLIDE EXTENDED



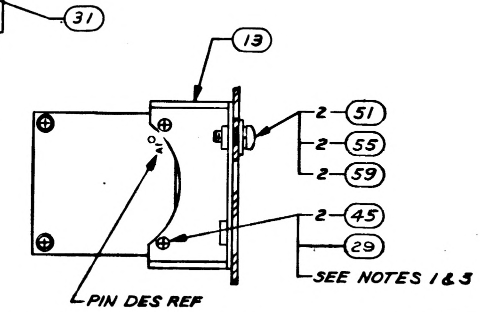
SEE NOTE 1
29
4-40
2-47
2-54
2-58

PARTIAL SECTION C-C
SHOWN WITH SLIDE EXTENDED



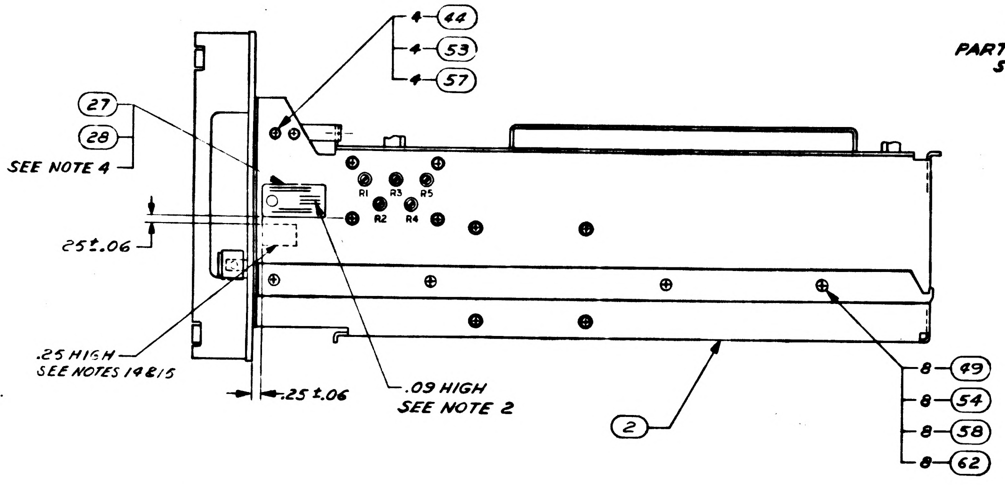
44
53
57
10
46
53
57

PARTIAL SECTION F-F
2 PLACES
SCALE 1/1

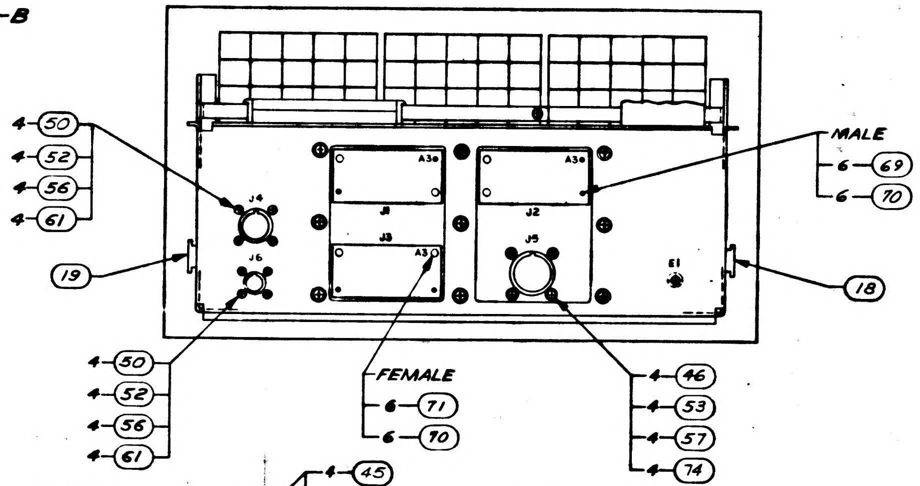


13
2-51
2-55
2-59
2-45
29
SEE NOTES 1 & 3
PIN DES REF

PARTIAL SECTION B-B
SCALE 1/1

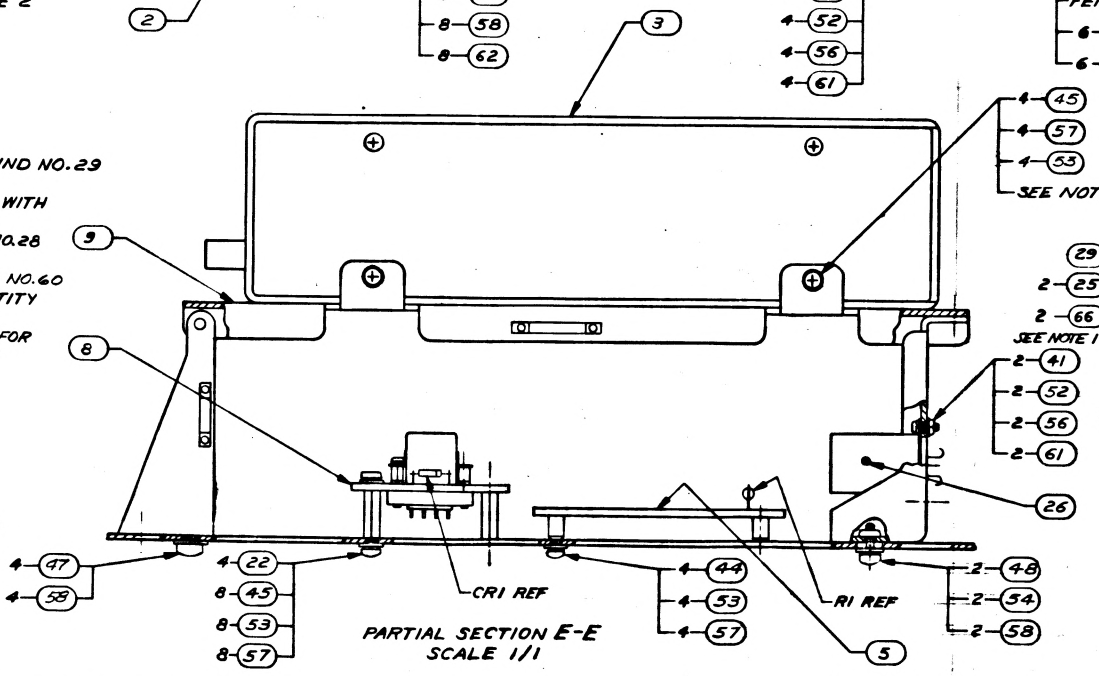


4-44
4-53
4-57
27
28
SEE NOTE 4
R1
R3
R5
R2
R4
.25 ± .06
.25 HIGH
SEE NOTES 14 & 15
.25 ± .06
.09 HIGH
SEE NOTE 2
2
8-49
8-54
8-58
8-62



MALE
6-69
6-70
4-50
4-52
4-56
4-61
19
J4
J6
J1
J2
J3
J5
A3
E1
18
4-50
4-52
4-56
4-61
FEMALE
6-71
6-70
4-46
4-53
4-57
4-74

NOTES
1. ASSEMBLE FIND NO.17, 25, 30, 40 & 45 USING FIND NO. 29
2. SERIALIZE PER ND1002025
3. DISCARD SUPPLIED HARDWARE AND REPLACE WITH HARDWARE THAT IS INDICATED
4. BOND FIND NO. 27 TO FIND NO. 2 USING FIND NO. 28
5. SOLDER PER ND1002071
6. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 60
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. MARK CONDUCTOR IDENTIFICATION PER ND 1002019.
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUBASSY DESIGNATIONS
10. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50 ± .12 & TIN PER ND 1002071
11. QQ-W-343 TYPE S AWG 22 SOFT COATED 2
12. MIL-I-23053, CLASS 1 COLOR WHITE I.D. .125
13. FOR APPLICATION OF FIND 63, 64, 65, 67 & 68 SEE LEAD ELECTRICAL 2014492
14. MARK APPROX WEIGHT IN LBS
15. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006256-001



3
4-45
4-57
4-53
SEE NOTE 3
9
8
CR1 REF
4-47
4-58
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8-45
8-53
8-57
4-44
4-53
4-57
R1 REF
5
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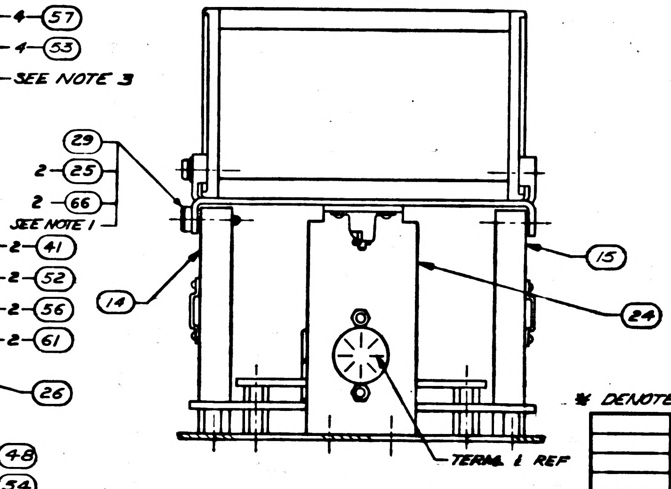
2-56
2-61
26
2-48
2-54
2-58

PARTIAL SECTION E-E
SCALE 1/1



29
2-25
2-66
SEE NOTE 1
14
15
24
TERM. 1 REF

PARTIAL SECTION D-D
SCALE 1/1

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014125	SCHEMATIC	REF
	☒	2014492	LEAD ELECTRICAL	REF
	4	MS35649-64	NUT, PLAIN, HEX	74
	1	MS51957-27	SCREW, MACHINE-PAN HD	73
	1	MS35333-71	WASHER, LOCK, INTERNAL TOOTH	72
	6	1006671-004	GUIDE, SOCKET	71
	12	1006671-003	NUT, STOP	70
	6	1006671-002	GUIDE, PIN	69
SEE NOTE 13 *	0.8	SEE NOTE 12	INSULATION, SLEEVING	68
SEE NOTE 13 *	20.0	1006776-21	INSULATION, SLEEVING, ELEC	67
	2	1006982-8	WASHER, NYLON	66
SEE NOTE 13 *	100.0	SEE NOTE 11	WIRE, ELEC	65
SEE NOTE 13 *	8.0	1014341-11	WIRE, ELEC TW. PR	64
SEE NOTE 13 *	16.0	MIL-W-16878/4E22	WIRE, ELEC (WHITE)	63
	16	MS35649-84	NUT, PLAIN, HEX	62
	10	MS35649-44	NUT, PLAIN, HEX	61
	AR	1006458-004	TAPE, LACING	60
	2	MS15795-808	WASHER, FLAT	59
	41	MS15795-807	WASHER, FLAT	58
	41	MS15795-805	WASHER, FLAT	57
	10	MS15795-803	WASHER, FLAT	56
	2	MS35338-81	WASHER, LOCK	55
	37	MS35338-80	WASHER, LOCK	54
	40	MS35338-79	WASHER, LOCK	53
	10	MS35338-78	WASHER, LOCK	52
	2	MS51958-63	SCREW, MACHINE-PAN HD	51
	8	MS51957-17	SCREW, MACHINE-PAN HD	50
	8	MS51959-47	SCREW, MACHINE-FLAT, CSK HD	49
	19	MS51957-45	SCREW, MACHINE-PAN HD	48
	6	-43		47
	6	-31		46
	14	-30		45
	22	MS51957-29	SCREW, MACHINE-PAN HD	44
	~~12~~	~~-28~~		~~43~~
	~~4~~	~~MS51957-18~~	~~SCREW, MACHINE-PAN HD~~	~~42~~
	2	MS51957-15	SCREW, MACHINE-PAN HD	41
	4	MS51959-46	SCREW, MACH.-FLAT CSK HD	40
	1	1006988-4	SLIDE, CHASSIS	39
	1	1006988-3	SLIDE, CHASSIS	38
	1	1006988-2	SLIDE, CHASSIS	37
	1	1006988-1	SLIDE, CHASSIS	36
	1	2014376-011	LOGIC PLATE ASSY NO. 1	35
	1	2014177-011	HARNESS ASSY D	34
	1	2014176-011	HARNESS ASSY C	33
	1	2014175-011	HARNESS ASSY B	32
	1	2014174-011	HARNESS ASSY A	31
	2	MS51959-42	SCREW, MACH.-FLAT CSK HD	30
	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	29
	AR	MIL-A-5092 TYPE II	CEMENT	28
	1	1004260-235	NAMEPLATE, IDENT	27
	1	1006444	TRANSFORMER	26
	2	MS16638-1	SCREW, SHOULDER	25
	1	2014331	BRACKET, TRANSFORMER	24
	1	1006928	KNOB, BAR	23
	4	1006480-007	POST, ELECTRICAL	22
	1	1006892-4	SWITCH, ROTARY	21
	1	2014416	PLATE, CONN	20
	1	1006930-15	SLIDE, CHASSIS, RH	19
	1	1006930-16	SLIDE, CHASSIS, LH	18
	6	MS51959-43	SCREW, MACH.-FLAT CSK HD	17
	2	1014255-2	BRACKET ASSY	16
	1	2014379	BRACKET, PIVOT, LH	15
	1	2014332	BRACKET, PIVOT, RH	14
	1	2014335	BRACKET, SWITCH SUPPORT	13
	1	2014373	HARNESS SUPPORT, LH	12
	1	2014357	HARNESS SUPPORT, RH	11
	2	2014356	BAR, SUPPORT	10
	1	2014330	BRACKET, AMPLIFIER	9
	1	2014292-011	COMPONENT BOARD ASSY A5	8
	1	2014294-011	COMPONENT BOARD ASSY A4	7
	1	2014296-011	COMPONENT BOARD ASSY A3	6
	1	2014290-011	COMPONENT BOARD ASSY A2	5
	1	2014334-011	POT. BRKT ASSY A1	4
	1	2014386	AMPLIFIER, MODIFICATION	3
	1	2014314	CHASSIS	2
	1	2014327-011	FRONT PANEL ASSEMBLY	1

-011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9-4 7
DRAWN E. Fuller DATE 1 [illegible] 65
CHECKED [illegible]
APPROVAL G. E. Oule 6/16/[illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

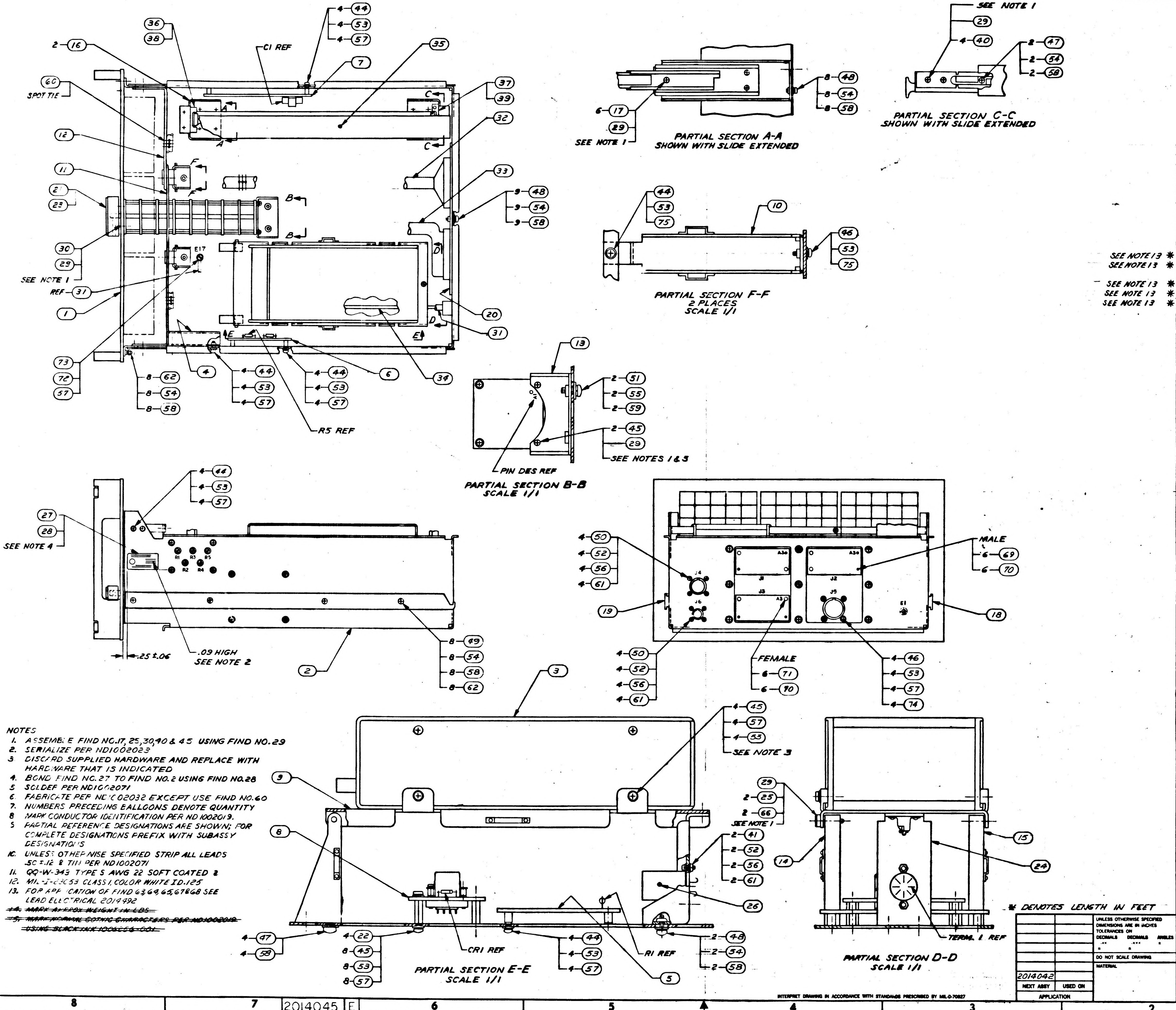
RDC INTERFACE ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014045
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014045 D

2014045 F



NOTES

1. ASSEMBLE FIND NO.17, 25, 30, 40 & 45 USING FIND NO. 29
2. SERIALIZE PER ND1002023
3. DISCARD SUPPLIED HARDWARE AND REPLACE WITH HARDWARE THAT IS INDICATED
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7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
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13. FOR APPLICATION OF FIND 63, 64, 65, 67 & 68 SEE LEAD ELECTRICAL 2014492
~~14. MARK APPROX WEIGHT IN LBS~~
~~15. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006256-001~~

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160		
1	CHANGED PER CCA R25394 DR G.J. Binn CHK [illegible] APPD [illegible]	[illegible]	[illegible]
—	CLASS B NO CHANGE PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25577 DR [illegible] CHK [illegible] APPD	[illegible]	[illegible]
B	CHANGED PER CCA R25639 DR [illegible] CHK C. [illegible] APPD [illegible]	1/7/66	[illegible]
C	CHANGED PER CCA R25737 AND CLASS A RELEASED PER TDRR 25472	[illegible]	[illegible]
D	CHANGED PER TDRR 26430 DR E. Utting CHK [illegible] APPD [illegible]	[illegible]	[illegible]
E	CHANGED PER TDRR 26539 DR P. Winfield CHK [illegible] APPD [illegible]	3/17/66	[illegible]

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014125	SCHEMATIC	REF
	☒	2014492	LEAD ELECTRICAL	REF
	4	2016359	WASHER, FLAT	75
	4	MS35649-64	NUT, PLAIN, HEX	74
	1	MS51957-27	SCREW, MACHINE-PAN HD	73
	1	MS35333-71	WASHER, LOCK, INTERNAL TOOTH	72
	6	1006671-004	GUIDE, SOCKET	71
	12	1006671-003	NUT, STOP	70
	6	1006671-002	GUIDE, PIN	69
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SEE NOTE 13 *	20.0	1006776-21	INSULATION, SLEEVING, ELEC	67
	2	1006982-8	WASHER, NYLON	66
SEE NOTE 13 *	100.0	SEE NOTE 11	WIRE, ELEC	65
SEE NOTE 13 *	8.0	1014341-11	WIRE, ELEC TW. PR	64
SEE NOTE 13 *	16.0	MIL-W-16878/4E22	WIRE, ELEC (WHITE)	63
	16	MS35649-84	NUT, PLAIN, HEX	62
	10	MS35649-44	NUT, PLAIN, HEX	61
	AR	1006458-004	TAPE, LACING	60
	2	MS15795-808	WASHER, FLAT	59
	41	MS15795-807	WASHER, FLAT	58
	37	MS15795-805	WASHER, FLAT	57
	10	MS15795-803	WASHER, FLAT	56
	2	MS35338-81	WASHER, LOCK	55
	37	MS35338-80	WASHER, LOCK	54
	40	MS35338-79	WASHER, LOCK	53
	10	MS35338-78	WASHER, LOCK	52
	2	MS51958-63	SCREW, MACHINE-PAN HD	51
	8	MS51957-17	SCREW, MACHINE-PAN HD	50
	8	MS51959-47	SCREW, MACHINE-FLAT, CSK HD	49
	19	MS51957-45	SCREW, MACHINE-PAN HD	48
	6	-43		47
	6	-31		46
	4	-30		45
	22	MS51957-29	SCREW, MACHINE-PAN HD	44
	~~12~~	~~-28~~		~~43~~
	~~4~~	~~MS51957-18~~	~~SCREW, MACHINE-PAN HD~~	~~42~~
	2	MS51957-15	SCREW, MACHINE-PAN HD	41
	4	MS51959-46	SCREW, MACH.-FLAT CSK HD	40
	1	1006988-4	SLIDE, CHASSIS	39
	1	1006988-3	SLIDE, CHASSIS	38
	1	1006988-2	SLIDE, CHASSIS	37
	1	1006988-1	SLIDE, CHASSIS	36
	1	2014376-011	LOGIC PLATE ASSY NO. 1	35
	1	2014177-011	HARNESS ASSY D	34
	1	2014176-011	HARNESS ASSY C	33
	1	2014175-011	HARNESS ASSY B	32
	1	2014174-011	HARNESS ASSY A	31
	2	MS51959-42	SCREW, MACH.-FLAT CSK HD	30
	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	29
	AR	MIL-A-5092 TYPE II	CEMENT	28
	1	1004260-235	NAMEPLATE, IDENT	27
	1	1006444	TRANSFORMER	26
	2	MS16638-1	SCREW, SHOULDER	25
	1	2014331	BRACKET, TRANSFORMER	24
	1	1006928	KNOB, BAR	23
	4	1006480-007	POST, ELECTRICAL	22
	1	1006892-4	SWITCH, ROTARY	21
	1	2014416	PLATE, CONN	20
	1	1006930-15	SLIDE, CHASSIS, RH	19
	1	1006930-16	SLIDE, CHASSIS, LH	18
	6	MS51959-43	SCREW, MACH.-FLAT CSK HD	17
	2	1014255-2	BRACKET ASSY	16
	1	2014379	BRACKET, PIVOT, LH	15
	1	2014332	BRACKET, PIVOT, RH	14
	1	2014335	BRACKET, SWITCH SUPPORT	13
	1	2014373	HARNESS SUPPORT, LH	12
	1	2014357	HARNESS SUPPORT, RH	11
	2	2014356	BAR, SUPPORT	10
	1	2014330	BRACKET, AMPLIFIER	9
	1	2014292-011	COMPONENT BOARD ASSY A5	8
	1	2014294-011	COMPONENT BOARD ASSY A4	7
	1	2014296-011	COMPONENT BOARD ASSY A3	6
	1	2014290-011	COMPONENT BOARD ASSY A2	5
	1	2014334-011	POT. BRKT ASSY A1	4
	1	2014386	AMPLIFIER, MODIFICATION	3
	1	2014314	CHASSIS	2
	1	2014327-011	FRONT PANEL ASSEMBLY	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4 7
DRAWN E. Fuller DATE 1- -65
CHECKED [illegible]
APPROVAL [illegible] 9/16/6
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

RDC INTERFACE ASSY
COMPUTER TEST SET

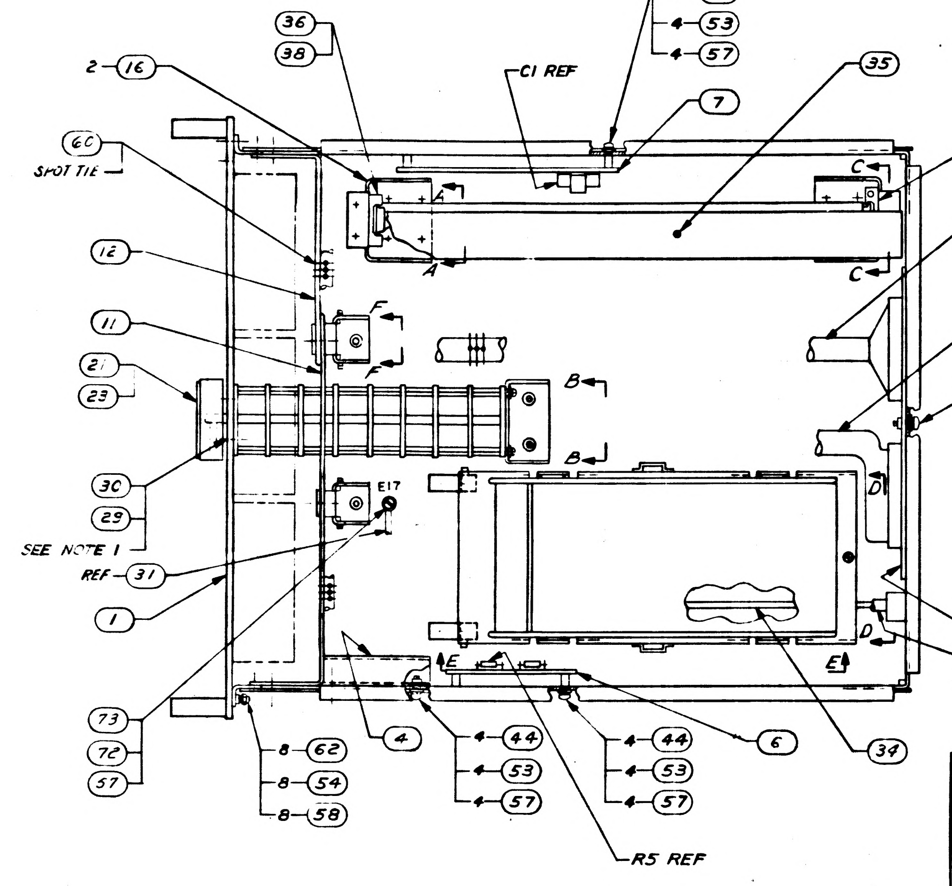
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014045
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014045 E

2014045 E

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25160		
1	CHANGED PER CCA R25394 DR G.J. Binn CHK [illegible] APPD R. Conley	[illegible]	[illegible]
–	CLASS B NO CHANGE PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25577 DR [illegible] CHK [illegible] APPD	[illegible]/65	[illegible]
B	CHANGED PER CCA R25669 DR [illegible] CHK C. Dotson APPD	1/4/66	[illegible]
C	CHANGED PER CCA R25737 AND CLASS A RELEASED PER TDRR 26172	1/15/66	[illegible]
D	CHANGED PER TDRR 26430 DR E. Utting CHK [illegible] APPD [illegible]	7/2/66	[illegible]
E	CHANGED PER TDRR 26539 DR P. Winfield CHK [illegible] APPD [illegible]	9/1/66	[illegible]
F	CHANGED PER TDRR 26691 DR [illegible] CHK [illegible] APPD [illegible]	9/19/66	[illegible]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36
38
CI REF
4-44
4-53
4-57
7
35
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32
33
9-48
9-54
9-58
60
SPOT TIE
12
11
21
23
30
29
SEE NOTE 1
REF-31
1
73
72
57
8-62
8-54
8-58
4
4-44
4-53
4-57
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4-57
6
34
R5 REF
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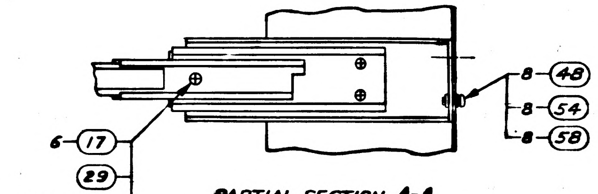
31
E17
A
B
C
D
E
F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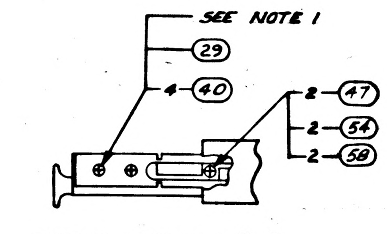
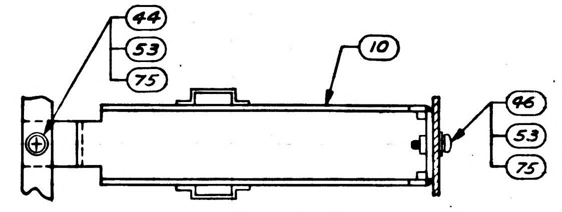
SEE NOTE 1
8-48
8-54
8-58

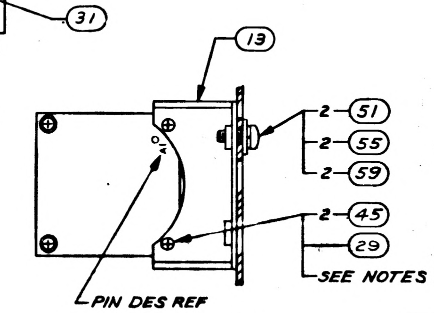
PARTIAL SECTION A-A
SHOWN WITH SLIDE EXTENDED


SEE NOTE 1
29
4-40
2-47
2-54
2-58

PARTIAL SECTION C-C
SHOWN WITH SLIDE EXTENDED


44
53
75
10
46
53
75

PARTIAL SECTION F-F
2 PLACES
SCALE 1/1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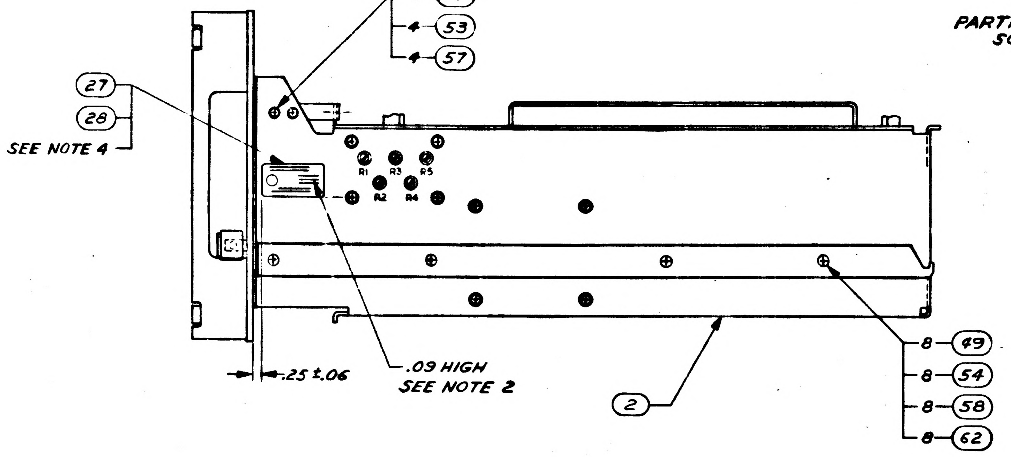
2-59
2-45
29
SEE NOTES 1&3
PIN DES REF

PARTIAL SECTION B-B
SCALE 1/1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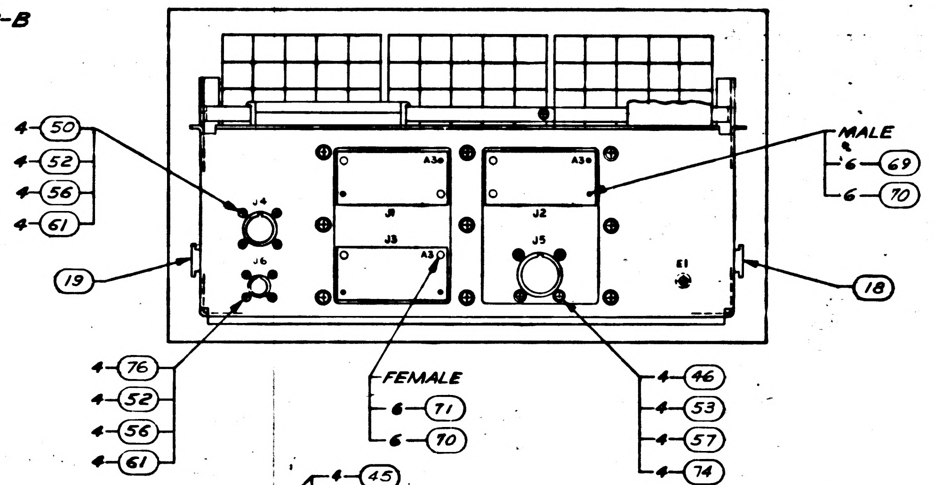
27
28
SEE NOTE 4
R1
R2
R3
R4
R5
.09 HIGH
SEE NOTE 2
.25±.06
2
8-49
8-54
8-58
8-62


4-50
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4-56
4-61
J4
J6
J1
J3
J2
J5
A3
E1
19
18
MALE
6-69
6-70
FEMALE
6-71
6-70
4-76
4-52
4-56
4-61
4-46
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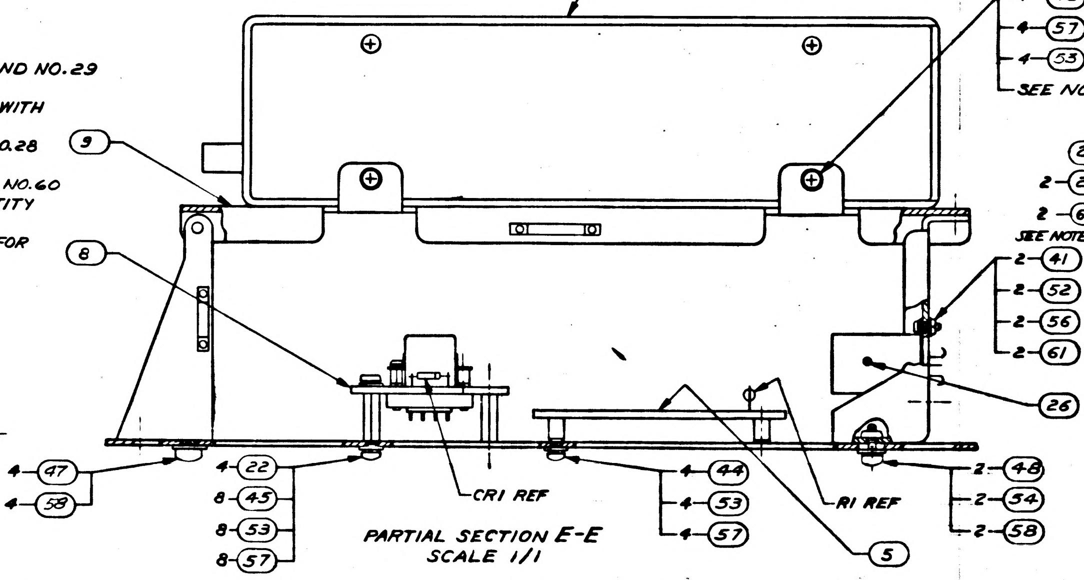
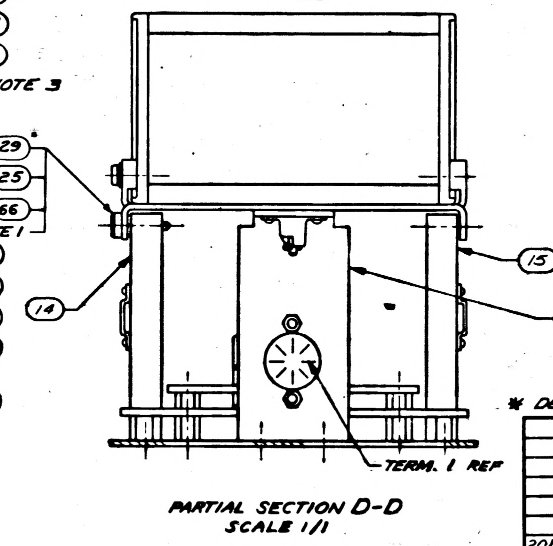
4-57
4-74


3
4-45
4-57
4-53
SEE NOTE 3
9
8
2-41
2-52
2-56
2-61
26
4-47
4-58
4-22
8-45
8-53
8-57
CR1 REF
4-44
4-53
4-57
R1 REF
5
2-48
2-54
2-58

PARTIAL SECTION E-E
SCALE 1/1


29
2-25
2-66
SEE NOTE 1
14
15
24
TERM. 1 REF

PARTIAL SECTION D-D
SCALE 1/1

NOTES
1. ASSEMBLE FIND NO.17, 25, 30, 40 & 45 USING FIND NO.29
2. SERIALIZE PER ND1002023
3. DISCARD SUPPLIED HARDWARE AND REPLACE WITH HARDWARE THAT IS INDICATED
4. BOND FIND NO. 27 TO FIND NO. 2 USING FIND NO. 28
5 SOLDER PER ND1002071
6. FABRICATE PER ND1002032 EXCEPT USE FIND NO.60
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8 MARK CONDUCTOR IDENTIFICATION PER ND 1002019.
9 PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUBASSY DESIGNATIONS
10 UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50±.12 & TIN PER ND1002071
11. QQ-W-343 TYPE S AWG 22 SOFT COATED
12. MIL-I-23053 CLASS I, COLOR WHITE I.D. .125
13. FOR APPLICATION OF FIND 63, 64, 65, 67 & 68 SEE LEAD ELECTRICAL 2014492
~~14. MARK APPROX WEIGHT IN LBS~~
~~15. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006656-001~~

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014125	SCHEMATIC	REF
	☒	2014492	LEAD ELECTRICAL	REF
	4	MS51959-17	SCREW, MACH, FLAT HD	76
	4	2016359	WASHER, FLAT	75
	4	MS35649-64	NUT, PLAIN, HEX	74
	1	MS51957-27	SCREW, MACHINE-PAN HD	73
	1	MS35333-71	WASHER, LOCK, INTERNAL TOOTH	72
	6	1006671-004	GUIDE, SOCKET	71
	12	1006671-003	NUT, STOP	70
	6	1006671-002	GUIDE, PIN	69
SEE NOTE 13 *	0.8	SEE NOTE 12	INSULATION, SLEEVING	68
SEE NOTE 13 *	20.0	1006776-21	INSULATION, SLEEVING, ELEC	67
	2	1006982-8	WASHER, NYLON	66
SEE NOTE 13 *	100.0	SEE NOTE 11	WIRE, ELEC	65
SEE NOTE 13 *	8.0	1014341-11	WIRE, ELEC TW. PR	64
SEE NOTE 13 *	16.0	MIL-W-16878/4E22	WIRE, ELEC (WHITE)	63
	16	MS35649-84	NUT, PLAIN, HEX	62
	10	MS35649-44	NUT, PLAIN, HEX	61
	AR	1006458-004	TAPE, LACING	60
	2	MS15795-808	WASHER, FLAT	59
	41	MS15795-807	WASHER, FLAT	58
	37	MS15795-805	WASHER, FLAT	57
	10	MS15795-803	WASHER, FLAT	56
	2	MS35338-81	WASHER, LOCK	55
	37	MS35338-80	WASHER, LOCK	54
	40	MS35338-79	WASHER, LOCK	53
	10	MS35338-78	WASHER, LOCK	52
	2	MS51958-63	SCREW, MACHINE-PAN HD	51
	4	MS51957-17	SCREW, MACHINE-PAN HD	50
	8	MS51959-47	SCREW, MACHINE-FLAT, CSK HD	49
	19	MS51957-45	SCREW, MACHINE-PAN HD	48
	6	-43		47
	6	-31		46
	14	-30		45
	22	MS51957-29	SCREW, MACHINE-PAN HD	44
	~~12~~	~~-28~~		~~43~~
	~~4~~	~~MS51957-18~~	~~SCREW, MACHINE-PAN HD~~	~~42~~
	2	MS51957-15	SCREW, MACHINE-PAN HD	41
	4	MS51959-46	SCREW, MACH.-FLAT CSK HD	40
	1	1006988-4	SLIDE, CHASSIS	39
	1	1006988-3	SLIDE, CHASSIS	38
	1	1006988-2	SLIDE, CHASSIS	37
	1	1006988-1	SLIDE, CHASSIS	36
	1	2014376-011	LOGIC PLATE ASSY NO.1	35
	1	2014177-011	HARNESS ASSY D	34
	1	2014176-011	HARNESS ASSY C	33
	1	2014175-011	HARNESS ASSY B	32
	1	2014174-011	HARNESS ASSY A	31
	2	MS51959-42	SCREW, MACH.-FLAT CSK HD	30
	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	29
	AR	MIL-A-5092 TYPE II	CEMENT	28
	1	1004260-235	NAMEPLATE, IDENT	27
	1	1006444	TRANSFORMER	26
	2	MS16638-1	SCREW, SHOULDER	25
	1	2014331	BRACKET, TRANSFORMER	24
	1	1006928	KNOB, BAR	23
	4	1006480-007	POST, ELECTRICAL	22
	1	1006892-4	SWITCH, ROTARY	21
	1	2014416	PLATE, CONN	20
	1	1006930-15	SLIDE, CHASSIS, RH	19
	1	1006930-16	SLIDE, CHASSIS, LH	18
	6	MS51959-43	SCREW, MACH.-FLAT CSK HD	17
	2	1014255-2	BRACKET ASSY	16
	1	2014379	BRACKET, PIVOT, LH	15
	1	2014332	BRACKET, PIVOT, RH	14
	1	2014335	BRACKET, SWITCH SUPPORT	13
	1	2014373	HARNESS SUPPORT, LH	12
	1	2014357	HARNESS SUPPORT, RH	11
	2	2014356	BAR, SUPPORT	10
	1	2014330	BRACKET, AMPLIFIER	9
	1	2014292-011	COMPONENT BOARD ASSY A5	8
	1	2014294-011	COMPONENT BOARD ASSY A4	7
	1	2014296-011	COMPONENT BOARD ASSY A3	6
	1	2014290-011	COMPONENT BOARD ASSY A2	5
	1	2014334-011	POT. BRKT ASSY A1	4
	1	2014386	AMPLIFIER, MODIFICATION	3
	1	2014314	CHASSIS	2
	1	2014327-011	FRONT PANEL ASSEMBLY	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS9-4[illegible]7
DRAWN E. Faber DATE 15 JUL 65
CHECKED [illegible]
APPROVAL G.E. Ouk 9/16/65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

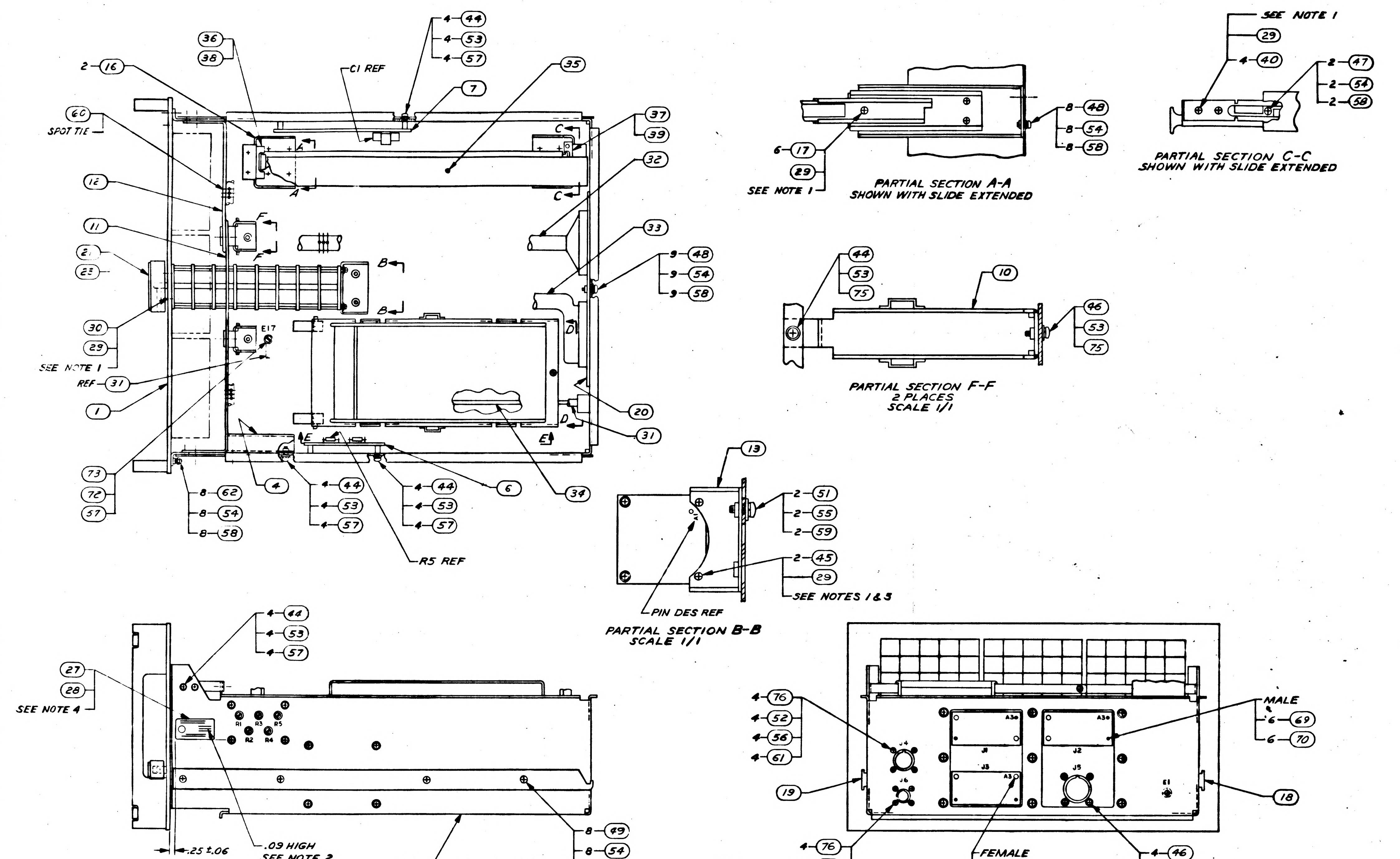
RDC INTERFACE ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014045
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014045 G

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25160		
1	CHANGED PER CCA R25394 DR G.J. [illegible] CHK [illegible] APPD [illegible]	[illegible]/65	[illegible]
–	~~CLASS B NO CHANGE PER CCA R25502~~	[illegible]	[illegible]
A	CHANGED PER CCA R25577 DR [illegible] CHK [illegible] APPD	[illegible]/65	[illegible]
B	CHANGED PER CCA R25669 DR [illegible] CHK C. [illegible] APPD	1/[illegible]/66	[illegible]
C	CHANGED PER CCA R25717 AND CLASS A RELEASED PER TDRR 25472	[illegible]/66	[illegible]
D	CHANGED PER TDRR 26490 DR E. [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
E	CHANGED PER TDRR 26599 DR P. Winfield CHK [illegible] APPD [illegible]	3/17/66	[illegible]
F	CHANGED PER TDRR 26691 DR A. Pepin CHK [illegible] APPD [illegible]	3/19/66	[illegible]
G	CHANGED PER TDRR 26690 DR K. [illegible] CHK [illegible] APPD	4/2/66	[illegible]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38
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CI REF
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4-57
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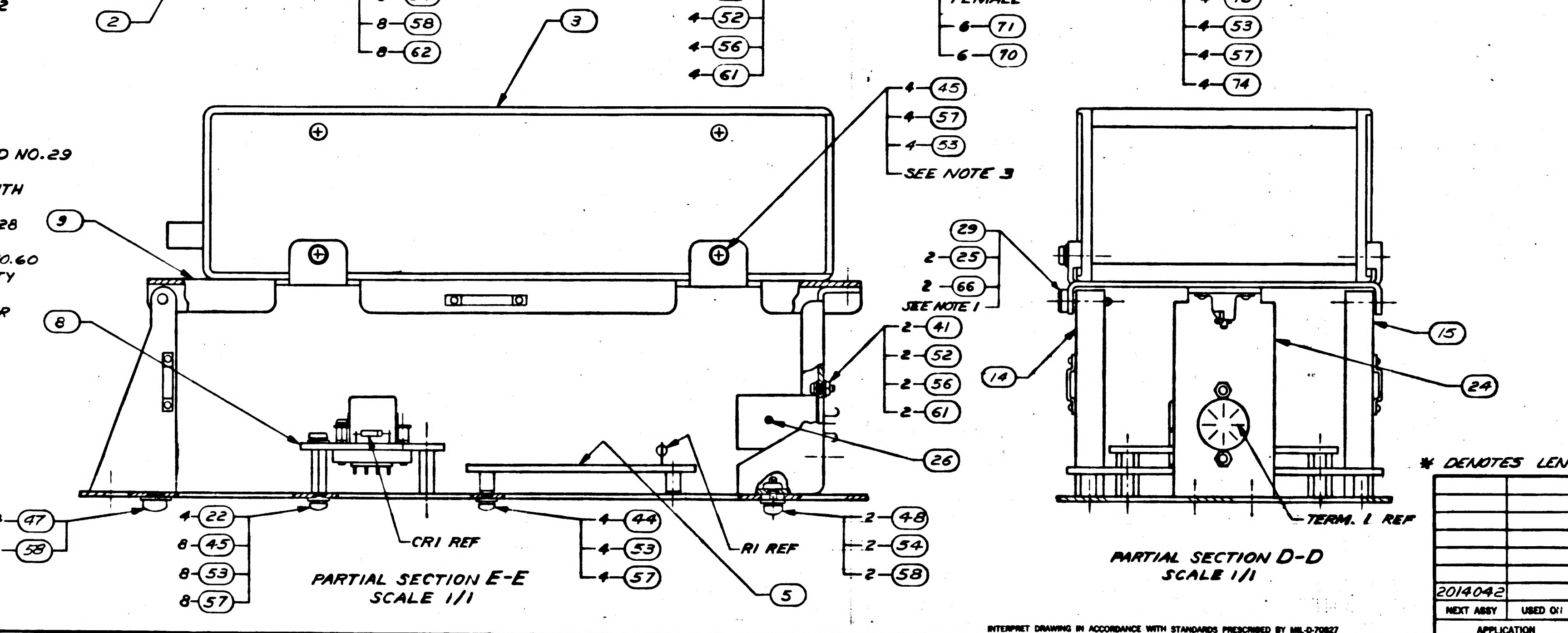
60
SPOT TIE
37
39
12
32
11
33
9-48
9-54
9-58
21
23
B
E17
30
29
SEE NOTE 1
REF
31
1
20
31
73
72
57
4
6
34
8-62
8-54
8-58
R5 REF
A
C
D
E
F
6-17
29
SEE NOTE 1
8-48
8-54
8-58
SEE NOTE 1
2-47
2-54
2-58
44
53
75
10
46
53
75
13
2-51
2-55
2-59
2-45
29
SEE NOTES 1 & 3
PIN DES REF
27
28
SEE NOTE 4
R1
R2
R3
R4
R5
.09 HIGH
SEE NOTE 2
.25 ±.06
8-49
8-54
8-58
8-62
4-76
4-52
4-56
4-61
19
J4
J6
J1
J3
J2
J5
A3e
E1
18
MALE
6-69
6-70

PARTIAL SECTION A-A
SHOWN WITH SLIDE EXTENDED

PARTIAL SECTION C-C
SHOWN WITH SLIDE EXTENDED

PARTIAL SECTION F-F
2 PLACES
SCALE 1/1

PARTIAL SECTION B-B
SCALE 1/1


2
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FEMALE
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4-74
3
4-45
4-57
4-53
SEE NOTE 3
9
8
2-41
2-52
2-56
2-61
SEE NOTE 1
26
4-47
4-58
4-22
8-45
8-53
8-57
CR1 REF
4-44
4-53
4-57
R1 REF
5
2-48
2-54
2-58
29
2-25
2-66
14
15
24
TERM. 1 REF

PARTIAL SECTION E-E
SCALE 1/1

PARTIAL SECTION D-D
SCALE 1/1

NOTES
1. ASSEMBLE FIND NO.17, 25, 30, 40 & 45 USING FIND NO.29
2. SERIALIZE PER ND1002023
3. DISCARD SUPPLIED HARDWARE AND REPLACE WITH HARDWARE THAT IS INDICATED
4. BOND FIND NO.27 TO FIND NO.2 USING FIND NO.28
5. SOLDER PER ND1002071
6. FABRICATE PER ND1002032 EXCEPT USE FIND NO.60
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. MARK CONDUCTOR IDENTIFICATION PER ND 1002019.
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUBASSY DESIGNATIONS
10. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50 ±.12 & TIN PER ND1002071
11. QQ-W-343 TYPE S AWG 22 SOFT COATED
12. MIL-I-23053 CLASS I, COLOR WHITE I.D. .125
13. FOR APPLICATION OF FIND 63, 64, 65, 67 & 68 SEE LEAD ELECTRICAL 2014492
~~14. MARK APPROX WEIGHT IN LBS~~
~~15. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006256-001~~

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014492	LEAD ELECTRICAL	REF
	☒	2014125	SCHEMATIC	REF
	8	MS51959-17	SCREW, MACH. FLAT HD	76
	4	2016359	WASHER, FLAT	75
	4	MS35649-64	NUT, PLAIN, HEX	74
	1	MS51957-27	SCREW, MACHINE-PAN HD	73
	1	MS35333-71	WASHER, LOCK, INTERNAL TOOTH	72
	6	1006671-004	GUIDE, SOCKET	71
	12	1006671-003	NUT, STOP	70
	6	1006671-002	GUIDE, PIN	69
SEE NOTE 13 *	0.8	SEE NOTE 12	INSULATION, SLEEVING	68
SEE NOTE 13 *	20.0	1006776-21	INSULATION, SLEEVING, ELEC	67
	2	1006982-8	WASHER, NYLON	66
SEE NOTE 13 *	100.0	SEE NOTE 11	WIRE ELEC	65
SEE NOTE 13 *	8.0	1014341-11	WIRE ELEC TW. PR	64
SEE NOTE 13 *	16.0	MIL-W-16878/4E22	WIRE, ELEC (WHITE)	63
	16	MS35649-84	NUT, PLAIN, HEX	62
	10	MS35649-44	NUT, PLAIN, HEX	61
	AR	1006458-004	TAPE, LACING	60
	2	MS15795-808	WASHER, FLAT	59
	41	MS15795-807	WASHER, FLAT	58
	37	MS15795-805	WASHER, FLAT	57
	10	MS15795-803	WASHER, FLAT	56
	2	MS35338-81	WASHER, LOCK	55
	37	MS35338-80	WASHER, LOCK	54
	40	MS35338-79	WASHER, LOCK	53
	10	MS35338-78	WASHER, LOCK	52
	2	MS51958-63	SCREW, MACHINE-PAN HD	51
	~~4~~	~~MS51957-17~~	~~SCREW, MACHINE-PAN HD~~	~~50~~
	8	MS51959-47	SCREW, MACHINE-FLAT, CSK HD	49
	19	MS51957-45	SCREW, MACHINE-PAN HD	48
	6	-43		47
	6	-31		46
	14	-30		45
	22	MS51957-29	SCREW, MACHINE-PAN HD	44
	~~12~~	~~-28~~		~~43~~
	~~4~~	~~MS51957-18~~	~~SCREW, MACHINE-PAN HD~~	~~42~~
	2	MS51957-15	SCREW, MACHINE-PAN HD	41
	4	MS51959-46	SCREW, MACH.-FLAT CSK HD	40
	1	1006988-4	SLIDE, CHASSIS	39
	1	1006988-3	SLIDE, CHASSIS	38
	1	1006988-2	SLIDE, CHASSIS	37
	1	1006988-1	SLIDE, CHASSIS	36
	1	2014376-011	LOGIC PLATE ASSY NO.1	35
	1	2014177-011	HARNESS ASSY D	34
	1	2014176-011	HARNESS ASSY C	33
	1	2014175-011	HARNESS ASSY B	32
	1	2014174-011	HARNESS ASSY A	31
	2	MS51959-42	SCREW, MACH.-FLAT CSK HD	30
	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	29
	AR	MIL-A-5092 TYPE II	CEMENT	28
	1	1004260-235	NAMEPLATE, IDENT	27
	1	1006444	TRANSFORMER	26
	2	MS16638-1	SCREW, SHOULDER	25
	1	2014331	BRACKET, TRANSFORMER	24
	1	1006928	KNOB, BAR	23
	4	1006480-007	POST, ELECTRICAL	22
	1	1006892-4	SWITCH, ROTARY	21
	1	2014416	PLATE, CONN	20
	1	1006930-15	SLIDE, CHASSIS, RH	19
	1	1006930-16	SLIDE, CHASSIS, LH	18
	6	MS51959-43	SCREW, MACH.-FLAT CSK HD	17
	2	1014255-2	BRACKET ASSY	16
	1	2014379	BRACKET, PIVOT, LH	15
	1	2014332	BRACKET, PIVOT, RH	14
	1	2014335	BRACKET, SWITCH SUPPORT	13
	1	2014373	HARNESS SUPPORT, LH	12
	1	2014357	HARNESS SUPPORT, RH	11
	2	2014356	BAR, SUPPORT	10
	1	2014330	BRACKET, AMPLIFIER	9
	1	2014292-011	COMPONENT BOARD ASSY A5	8
	1	2014294-011	COMPONENT BOARD ASSY A4	7
	1	2014296-011	COMPONENT BOARD ASSY A3	6
	1	2014290-011	COMPONENT BOARD ASSY A2	5
	1	2014334-011	POT. BRKT ASSY A1	4
	1	2014386	AMPLIFIER, MODIFICATION	3
	1	2014314	CHASSIS	2
	1	2014327-011	FRONT PANEL ASSEMBLY	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS9-4[illegible]7
DRAWN [illegible] DATE 15 JUL 65
CHECKED [illegible]
APPROVAL [illegible] 8/16/65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

RDC INTERFACE ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014045
SCALE 1/2 | WT | SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

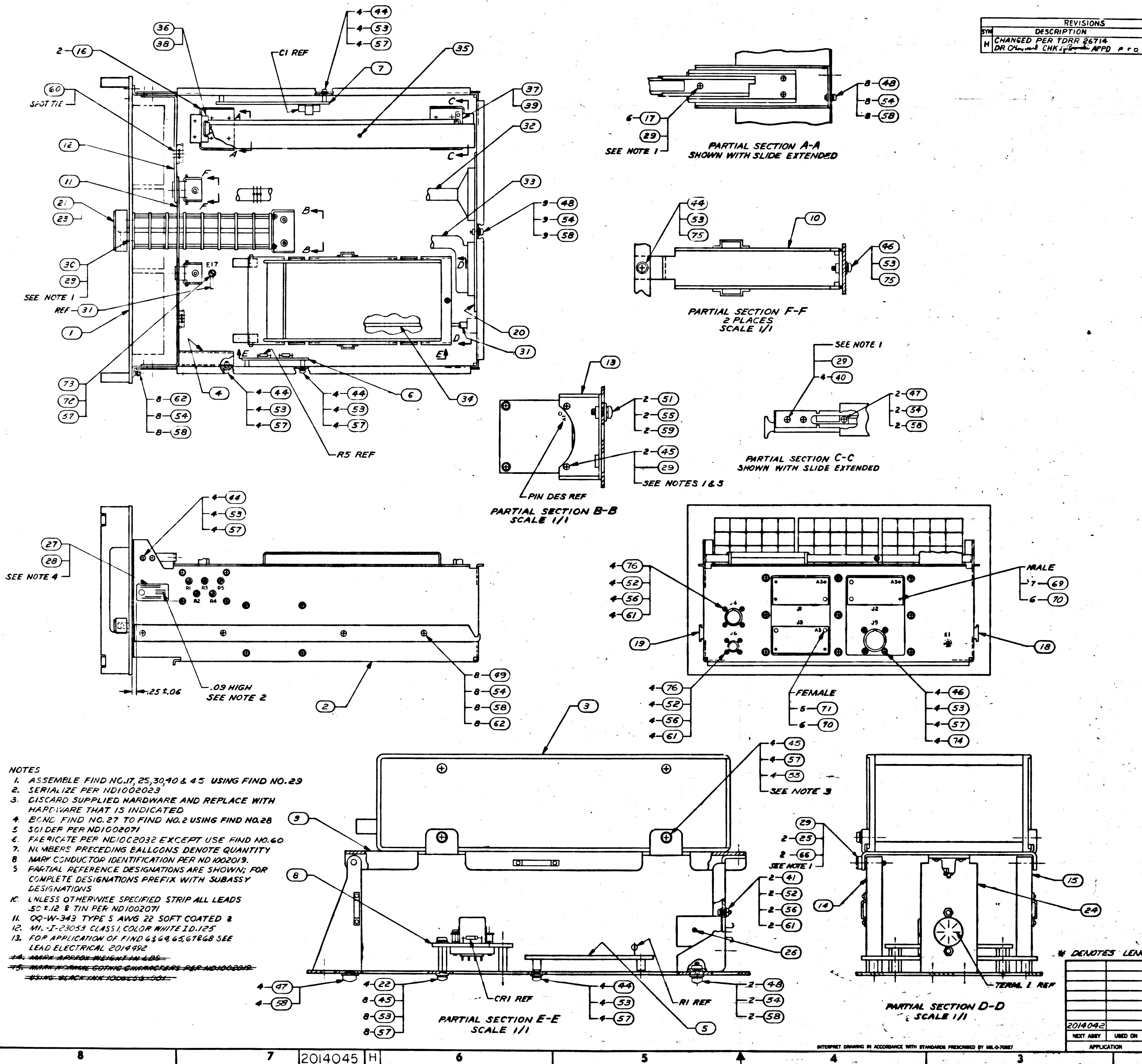
2014045 G

2014045 G

2014045 H

SYM	DESCRIPTION	DATE	APPROVED
H	CHANGED PER TDRR 26714 DR C. Hayward CHK [illegible] APPD P F D.	[illegible]/66	[illegible]

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25180	[illegible]	[illegible]
1	CHANGED PER CCA R25394 DR G. J. Binn CHK [illegible] APPD [illegible]	[illegible]/65	[illegible]
—	CLASS B NO CHANGE PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25577 DR [illegible] CHK [illegible] APPD	[illegible]/65	[illegible]
B	CHANGED PER CCA R25659 DR [illegible] CHK C. [illegible] APPD P F D	[illegible]/66	[illegible]
C	CHANGED PER CCA R25747 AND CLASS A RELEASED PER TDRR 26472	[illegible]/66	[illegible]
D	CHANGED PER TDRR 26490 DR E. Uthring CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
E	CHANGED PER TDRR 26539 DR P. Winfield CNK [illegible] APPD [illegible]	3/[illegible]/66	[illegible]
F	CHANGED PER TDRR 26691 DR [illegible] CHK [illegible] APPD [illegible]	3/[illegible]/66	[illegible]
G	CHANGED PER TDRR 26690 DR R [illegible] CHK [illegible] APPD P F C	4/[illegible]/66	[illegible]



NOTES

1. ASSEMBLE FIND NO.17, 25, 30, 40 & 45 USING FIND NO.29
2. SERIALIZE PER ND1002023
3. DISCARD SUPPLIED HARDWARE AND REPLACE WITH HARDWARE THAT IS INDICATED
4. BOND FIND NO. 27 TO FIND NO. 2 USING FIND NO. 28
5. SOLDER PER ND1002071
6. FABRICATE PER ND1002032 EXCEPT USE FIND NO.60
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. MARK CONDUCTOR IDENTIFICATION PER ND1002019.
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUBASSY DESIGNATIONS
10. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50 ±.12 & TIN PER ND1002071
11. QQ-W-343 TYPE S AWG 22 SOFT COATED 2
12. MIL-I-23053 CLASS I, COLOR WHITE I.D.125
13. FOR APPLICATION OF FIND 63, 64, 65, 67 & 68 SEE LEAD ELECTRICAL 2014492
~~14. MARK APPROX WEIGHT IN LBS~~
~~15. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006256-001~~

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014492	LEAD ELECTRICAL	REF
	☒	2014125	SCHEMATIC	REF
	8	MS51959-17	SCREW, MACH, FLAT HD	76
	4	2016359	WASHER, FLAT	75
	4	MS35649-64	NUT, PLAIN, HEX	74
	1	MS51957-27	SCREW, MACHINE-PAN HD	73
	1	MS35333-71	WASHER, LOCK, INTERNAL TOOTH	72
	5	1006671-004	GUIDE, SOCKET	71
	12	1006671-003	NUT, STOP	70
	7	1006671-002	GUIDE, PIN	69
SEE NOTE 13 *	0.8	SEE NOTE 12	INSULATION, SLEEVING	68
SEE NOTE 13 *	20.0	1006776-21	INSULATION, SLEEVING, ELEC	67
	2	1006982-8	WASHER, NYLON	66
SEE NOTE 13 *	100.0	SEE NOTE 11	WIRE, ELEC	65
SEE NOTE 13 *	8.0	1014341-11	WIRE, ELEC TW. PR	64
SEE NOTE 13 *	16.0	MIL-W-16878/4E22	WIRE, ELEC (WHITE)	63
	16	MS35649-84	NUT, PLAIN, HEX	62
	10	MS35649-44	NUT, PLAIN, HEX	61
	AR	1006458-004	TAPE, LACING	60
	2	MS15795-808	WASHER, FLAT	59
	41	MS15795-807	WASHER, FLAT	58
	37	MS15795-805	WASHER, FLAT	57
	10	MS15795-803	WASHER, FLAT	56
	2	MS35338-81	WASHER, LOCK	55
	37	MS35338-80	WASHER, LOCK	54
	40	MS35338-79	WASHER, LOCK	53
	10	MS35338-78	WASHER, LOCK	52
	2	MS51958-63	SCREW, MACHINE-PAN HD	51
	~~4~~	~~MS51957-17~~	~~SCREW, MACHINE-PAN HD~~	~~50~~
	8	MS51959-47	SCREW, MACHINE-FLAT, CSK HD	49
	19	MS51957-45	SCREW, MACHINE-PAN HD	48
	6	-43		47
	6	-31		46
	14	-30		45
	22	MS51957-29	SCREW, MACHINE-PAN HD	44
	~~12~~	~~-28~~		~~43~~
	~~4~~	~~MS51957-18~~	~~SCREW, MACHINE-PAN HD~~	~~42~~
	2	MS51957-15	SCREW, MACHINE-PAN HD	41
	4	MS51959-46	SCREW, MACH.-FLAT CSK HD	40
	1	1006988-4	SLIDE, CHASSIS	39
	1	1006988-3	SLIDE, CHASSIS	38
	1	1006988-2	SLIDE, CHASSIS	37
	1	1006988-1	SLIDE, CHASSIS	36
	1	2014376-011	LOGIC PLATE ASSY NO. 1	35
	1	2014177-011	HARNESS ASSY D	34
	1	2014176-011	HARNESS ASSY C	33
	1	2014175-011	HARNESS ASSY B	32
	1	2014174-011	HARNESS ASSY A	31
	2	MS51959-42	SCREW, MACH.-FLAT CSK HD	30
	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	29
	AR	MIL-A-5092 TYPE II	CEMENT	28
	1	1004260-235	NAMEPLATE, IDENT	27
	1	1006444	TRANSFORMER	26
	2	MS16638-1	SCREW, SHOULDER	25
	1	2014331	BRACKET, TRANSFORMER	24
	1	1006928	KNOB, BAR	23
	4	1006480-007	POST, ELECTRICAL	22
	1	1006892-4	SWITCH, ROTARY	21
	1	2014416	PLATE, CONN	20
	1	1006930-15	SLIDE, CHASSIS, RH	19
	1	1006930-16	SLIDE, CHASSIS, LH	18
	6	MS51959-43	SCREW, MACH.-FLAT CSK HD	17
	2	1014255-2	BRACKET ASSY	16
	1	2014379	BRACKET, PIVOT, LH	15
	1	2014332	BRACKET, PIVOT, RH	14
	1	2014335	BRACKET, SWITCH SUPPORT	13
	1	2014373	HARNESS SUPPORT, LH	12
	1	2014357	HARNESS SUPPORT, RH	11
	2	2014356	BAR, SUPPORT	10
	1	2014330	BRACKET, AMPLIFIER	9
	1	2014292-011	COMPONENT BOARD ASSY A5	8
	1	2014294-011	COMPONENT BOARD ASSY A4	7
	1	2014296-011	COMPONENT BOARD ASSY A3	6
	1	2014290-011	COMPONENT BOARD ASSY A2	5
	1	2014334-011	POT. BRKT ASSY A1	4
	1	2014386	AMPLIFIER, MODIFICATION	3
	1	2014314	CHASSIS	2
	1	2014327-011	FRONT PANEL ASSEMBLY	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±   DECIMALS .XXX ±   ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN E. Fuller DATE 15 JUL 65
CHECKED [illegible] 10 AUG 65
APPROVAL G. E. Ouls 8/16/65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

RDC INTERFACE ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956   SIZE J   NASA DRAWING NO. 2014045
SCALE 1/2   WT   SHEET 1 OF 1

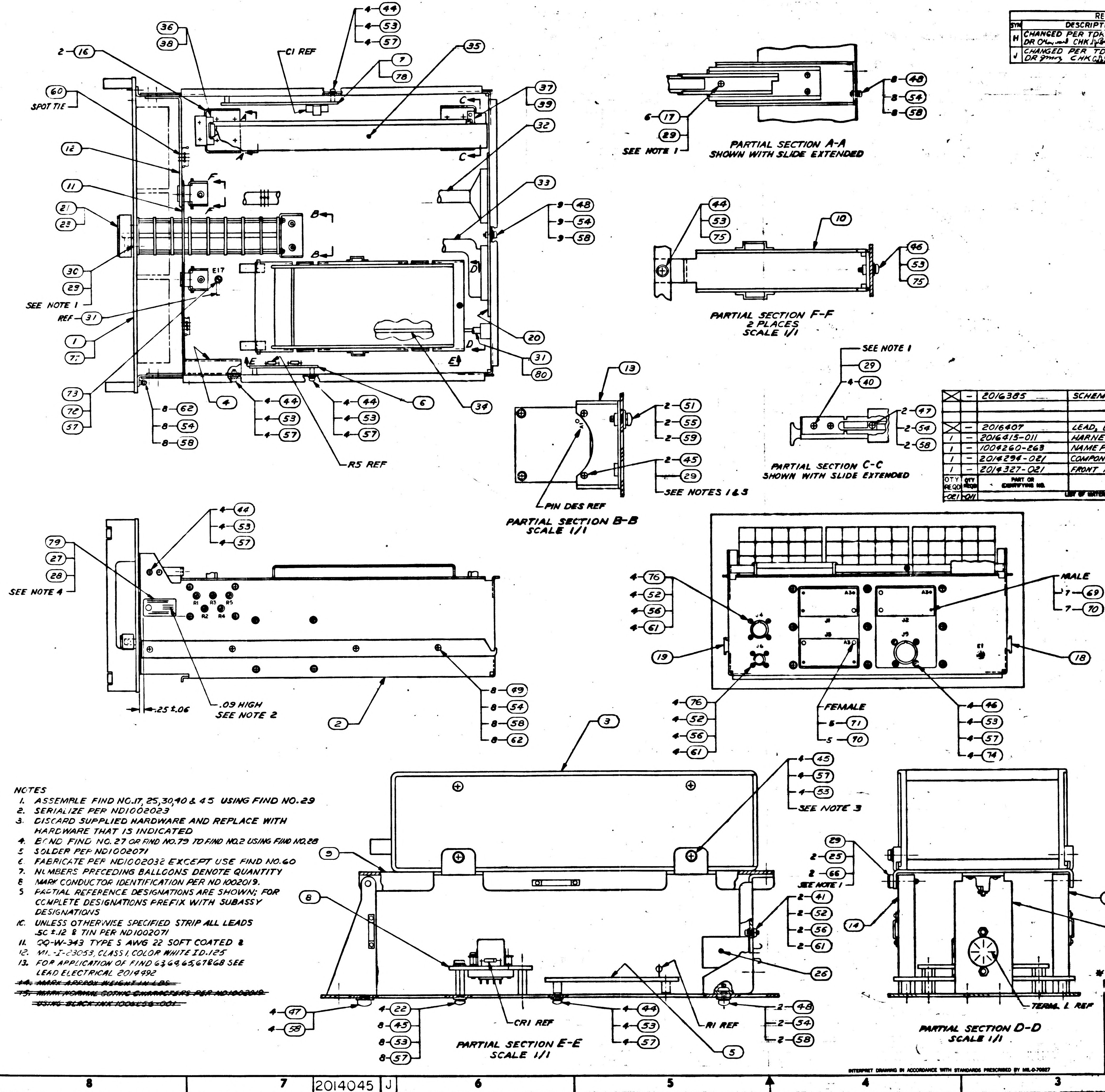
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014045 H

2014045 J

SYM	DESCRIPTION	DATE	APPROVED
H	CHANGED PER TDRR 26714 DR CHK APPD	[illegible]	[illegible]
J	CHANGED PER TDRR 28112 DR CHK APPD	[illegible]	[illegible]

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25187		
1	CHANGED PER CCA R25394 DR CHK APPD	[illegible]	[illegible]
—	CLASS B NO CHANGE PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25577 DR CHK APPD	[illegible]	[illegible]
B	CHANGED PER CCA R25669 DR CHK APPD	[illegible]	[illegible]
C	CHANGED PER CCA R25787 AND CLASS A RELEASED PER TDRR 26172	[illegible]	[illegible]
D	CHANGED PER TDRR 26490 DR CHK APPD	[illegible]	[illegible]
E	CHANGED PER TDRR 26539 DR CHK APPD	[illegible]	[illegible]
F	CHANGED PER TDRR 26691 DR CHK APPD	[illegible]	[illegible]
G	CHANGED PER TDRR 26690 DR CHK APPD	[illegible]	[illegible]



PARTIAL SECTION A-A
SHOWN WITH SLIDE EXTENDED

PARTIAL SECTION F-F
2 PLACES
SCALE 1/1

PARTIAL SECTION B-B
SCALE 1/1

PARTIAL SECTION C-C
SHOWN WITH SLIDE EXTENDED

PARTIAL SECTION E-E
SCALE 1/1

PARTIAL SECTION D-D
SCALE 1/1

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2016385	SCHEMATIC	REF
☒	—	2016407	LEAD, ELECTRICAL	REF
1	—	2016415-011	HARNESS ASSY A	80
1	—	1004260-263	NAMEPLATE, IDENT	79
1	—	2014294-021	COMPONENT BOARD ASSY A4	78
1	—	2014327-021	FRONT PANEL ASSEMBLY	77

LIST OF MATERIALS

NOTES
1. ASSEMBLE FIND NO.17, 25, 30, 40 & 45 USING FIND NO.29
2. SERIALIZE PER ND1002023
3. DISCARD SUPPLIED HARDWARE AND REPLACE WITH HARDWARE THAT IS INDICATED
4. BOND FIND NO. 27 OR FIND NO.79 TO FIND NO.2 USING FIND NO.28
5. SOLDER PER ND1002071
6. FABRICATE PER ND1002032 EXCEPT USE FIND NO.60
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. MARK CONDUCTOR IDENTIFICATION PER ND 1002019.
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUBASSY DESIGNATIONS
10. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50 ±.12 & TIN PER ND1002071
11. QQ-W-343 TYPE S AWG 22 SOFT COATED &
12. MIL-I-23053, CLASS I, COLOR WHITE I.D. .125
13. FOR APPLICATION OF FIND 63, 64, 65, 67 & 68 SEE LEAD ELECTRICAL 2014492
~~14. MARK APPROX WEIGHT IN LBS~~
~~15. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006256-001~~

	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	—	☒	2014492	LEAD ELECTRICAL	REF
	—	☒	2014125	SCHEMATIC	REF
	8	8	MS51959-17	SCREW, MACH, FLAT HD	76
	4	4	2016359	WASHER, FLAT	75
	4	4	MS35649-64	NUT, PLAIN, HEX	74
	1	1	MS51957-27	SCREW, MACHINE-PAN HD	73
	1	1	MS35333-71	WASHER, LOCK, INTERNAL TOOTH	72
	5	5	1006671-004	GUIDE, SOCKET	71
	12	12	1006671-003	NUT, STOP	70
	7	7	1006671-002	GUIDE, PIN	69
SEE NOTE 13*	0.8	0.8	SEE NOTE 12	INSULATION, SLEEVING	68
SEE NOTE 13*	20.0	20.0	1006776-21	INSULATION, SLEEVING, ELEC	67
	2	2	1006982-8	WASHER, NYLON	66
SEE NOTE 13*	100.0	100.0	SEE NOTE 11	WIRE, ELEC	65
SEE NOTE 13*	8.0	8.0	1014341-11	WIRE, ELEC TW. PR	64
SEE NOTE 13*	16.0	16.0	MIL-W-16878/4E22	WIRE, ELEC (WHITE)	63
	16	16	MS35649-84	NUT, PLAIN, HEX	62
	10	10	MS35649 44	NUT, PLAIN, HEX	61
	AR	AR	1006458-004	TAPE, LACING	60
	2	2	MS15795-808	WASHER, FLAT	59
	41	41	MS15795-807	WASHER, FLAT	58
	37	37	MS15795-805	WASHER, FLAT	57
	10	10	MS15795-803	WASHER, FLAT	56
	2	2	MS35338-81	WASHER, LOCK	55
	37	37	MS35338-80	WASHER, LOCK	54
	40	40	MS35338-79	WASHER, LOCK	53
	10	10	MS35338-78	WASHER, LOCK	52
	2	2	MS51958-63	SCREW, MACHINE-PAN HD	51
	~~2~~	~~2~~	~~MS51957-17~~	~~SCREW, MACHINE-PAN HD~~	~~50~~
	8	8	MS51959-47	SCREW, MACHINE-FLAT, CSK HD	49
	19	19	MS51957-45	SCREW, MACHINE-PAN HD	48
	6	6	-43		47
	6	6	-31		46
	14	14	-30		45
	22	22	MS51957-29	SCREW, MACHINE-PAN HD	44
	~~12~~	~~12~~	~~-28~~		~~43~~
	~~4~~	~~4~~	~~MS51957-18~~	~~SCREW, MACHINE-PAN HD~~	~~42~~
	2	2	MS51957-15	SCREW, MACHINE-PAN HD	41
	4	4	MS51959-46	SCREW, MACH.-FLAT CSK HD	40
	1	1	1006988-4	SLIDE, CHASSIS	39
	1	1	1006988-3	SLIDE, CHASSIS	38
	1	1	1006988-2	SLIDE, CHASSIS	37
	1	1	1006988-1	SLIDE, CHASSIS	36
	1	1	2014376-011	LOGIC PLATE ASSY NO.1	35
	1	1	2014177-011	HARNESS ASSY D	34
	1	1	2014176-011	HARNESS ASSY C	33
	1	1	2014175-011	HARNESS ASSY B	32
	—	1	2014174-011	HARNESS ASSY A	31
	2	2	MS51959-42	SCREW, MACH.-FLAT CSK HD	30
	AR	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	29
	AR	AR	MIL-A-5092 TYPE II	CEMENT	28
	—	1	1004260-235	NAMEPLATE, IDENT	27
	1	1	1006444	TRANSFORMER	26
	2	2	MS16638-1	SCREW, SHOULDER	25
	1	1	2014331	BRACKET, TRANSFORMER	24
	1	1	1006928	KNOB, BAR	23
	4	4	1006480-007	POST, ELECTRICAL	22
	1	1	1006892-4	SWITCH, ROTARY	21
	1	1	2014416	PLATE, CONN	20
	1	1	1006930-15	SLIDE, CHASSIS, RH	19
	1	1	1006930-16	SLIDE, CHASSIS, LH	18
	6	6	MS51959-43	SCREW, MACH.-FLAT CSK HD	17
	2	2	1014255-2	BRACKET ASSY	16
	1	1	2014379	BRACKET, PIVOT, LH	15
	1	1	2014332	BRACKET, PIVOT, RH	14
	1	1	2014335	BRACKET, SWITCH SUPPORT	13
	1	1	2014373	HARNESS SUPPORT, LH	12
	1	1	2014357	HARNESS SUPPORT, RH	11
	2	2	2014356	BAR, SUPPORT	10
	1	1	2014330	BRACKET, AMPLIFIER	9
	1	1	2014292-011	COMPONENT BOARD ASSY A5	8
	—	1	2014294-011	COMPONENT BOARD ASSY A4	7
	1	1	2014296-011	COMPONENT BOARD ASSY A3	6
	1	1	2014290-011	COMPONENT BOARD ASSY A2	5
	1	1	2014334-011	POT. BRKT ASSY A1	4
	1	1	2014386	AMPLIFIER, MODIFICATION	3
	1	1	2014314	CHASSIS	2
	—	1	2014327-011	FRONT PANEL ASSEMBLY	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4?7
DRAWN DATE 15 JUL 65
CHECKED
APPROVAL 9/16/65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

RDC INTERFACE ASSY
COMPUTER TEST SET

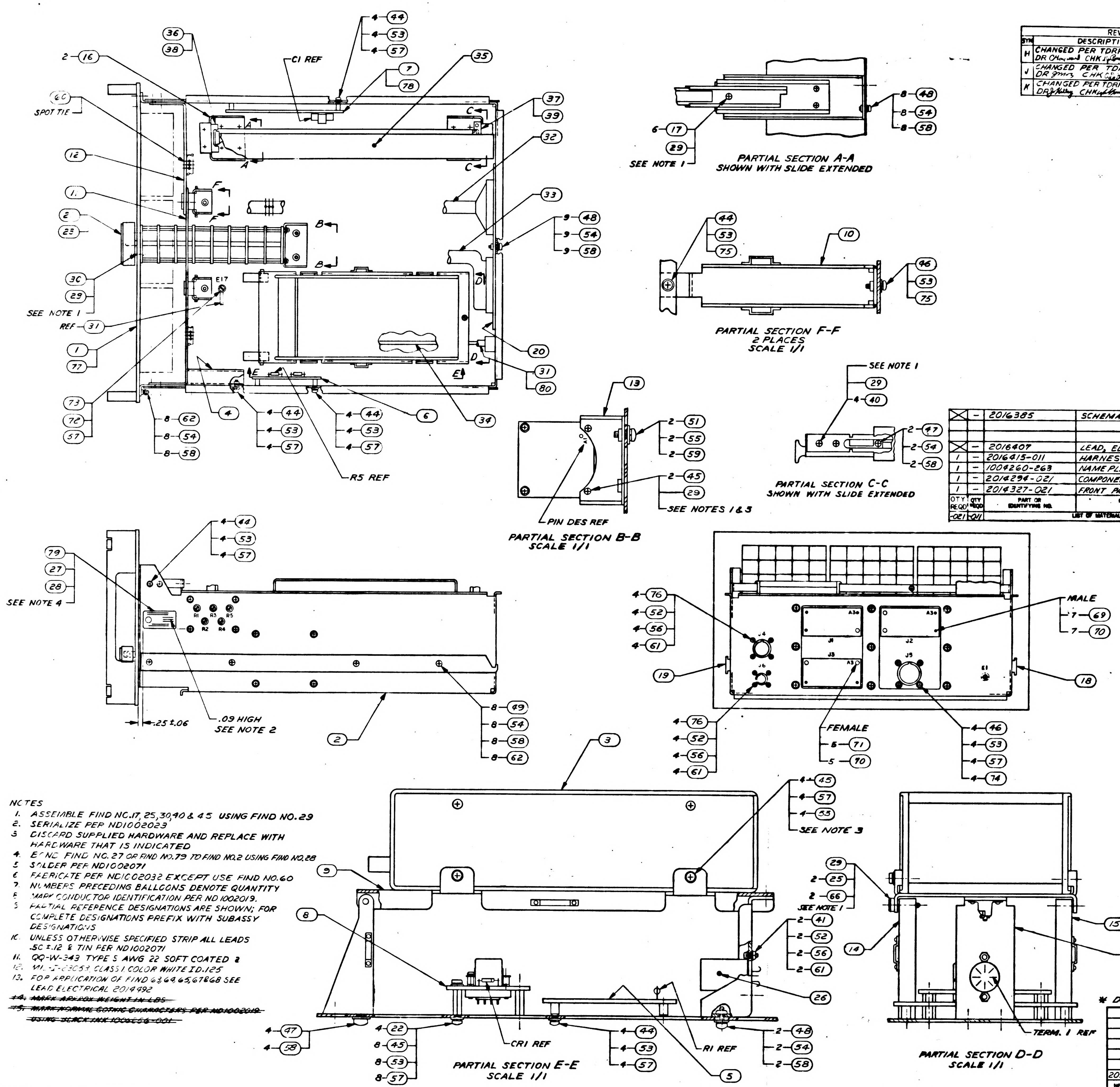
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014045
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014045 J

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
H	CHANGED PER TDRR 26714 DR C. Hayward CHK [illegible] APPD P.C.D.	4/13/66	[illegible]
J	CHANGED PER TDRR 28112 DR [illegible] CHK [illegible] APPD	5/10/66	[illegible]
K	CHANGED PER TDRR 29115 DR J. Kelley CHK [illegible] APPD	6/1/66	[illegible]

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
C	RELEASED PER CCA R25250		
1	CHANGED PER CCA R25394 DR G. J. Binn CHK [illegible] APPD R. Conley	[illegible]	[illegible]
—	CLASS B NO CHANGE PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25577 DR [illegible] CHK [illegible] APPD	[illegible]/65	[illegible]
B	CHANGED PER CCA R25669 DR [illegible] CHK C. [illegible] APPD P.C.D.	[illegible]	[illegible]
C	CHANGED PER CCA R25727 AND CLASS A RELEASED PER TDRR 25472	[illegible]	[illegible]
D	CHANGED PER TDRR 26470 DR E. Uthing CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
E	CHANGED PER TDRR 26539 DR P. Winfield CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
F	CHANGED PER TDRR 26691 DR [illegible] CHK [illegible] APPD [illegible]	3/[illegible]/66	[illegible]
G	CHANGED PER TDRR 26690 DR [illegible] CHK [illegible] APPD P.C.D.	4/2/66	[illegible]



PARTIAL SECTION A-A
SHOWN WITH SLIDE EXTENDED

PARTIAL SECTION F-F
2 PLACES
SCALE 1/1

PARTIAL SECTION B-B
SCALE 1/1

PARTIAL SECTION C-C
SHOWN WITH SLIDE EXTENDED

PARTIAL SECTION E-E
SCALE 1/1

PARTIAL SECTION D-D
SCALE 1/1

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2016385	SCHEMATIC	REF
☒	—	2016407	LEAD, ELECTRICAL	REF
1	—	2016415-011	HARNESS ASSY A	80
1	—	1004260-263	NAMEPLATE, IDENT	79
1	—	2014294-021	COMPONENT BOARD ASSY A4	78
1	—	2014327-021	FRONT PANEL ASSEMBLY	77

LIST OF MATERIALS

NOTES

1. ASSEMBLE FIND NO.17, 25, 30, 40 & 45 USING FIND NO. 29
2. SERIALIZE PER ND1002023
3. DISCARD SUPPLIED HARDWARE AND REPLACE WITH HARDWARE THAT IS INDICATED
4. BOND FIND NO. 27 OR FIND NO. 79 TO FIND NO. 2 USING FIND NO. 28
5. SOLDER PER ND1002071
6. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 60
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. MARK CONDUCTOR IDENTIFICATION PER ND 1002019.
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUBASSY DESIGNATIONS
10. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50 ±.12 & TIN PER ND1002071
11. QQ-W-343 TYPE S AWG 22 SOFT COATED 2
12. MIL-I-23053, CLASS 1, COLOR WHITE I.D. .125
13. FOR APPLICATION OF FIND 63, 64, 65, 67 & 68 SEE LEAD ELECTRICAL 2014492
14. ~~MARK APPROX WEIGHT IN LBS~~
15. ~~MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006256-001~~

* DENOTES LENGTH IN FEET

	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	—	☒	2014492	LEAD ELECTRICAL	REF
	—	☒	2014125	SCHEMATIC	REF
	8	8	MS51959-17	SCREW, MACH, FLAT HD	76
	4	4	2016359	WASHER, FLAT	75
	4	4	MS35649-64	NUT, PLAIN, HEX	74
	1	1	MS51957-27	SCREW, MACHINE-PAN HD	73
	1	1	MS35333-71	WASHER, LOCK, INTERNAL TOOTH	72
	5	5	1006671-004	GUIDE, SOCKET	71
	12	12	1006671-003	NUT, STOP	70
	7	7	1006671-002	GUIDE, PIN	69
SEE NOTE 13*	0.8	0.8	SEE NOTE 12	INSULATION, SLEEVING	68
SEE NOTE 13*	20.0	20.0	1006776-21	INSULATION, SLEEVING, ELEC	67
	2	2	1006982-8	WASHER, NYLON	66
SEE NOTE 13*	100.0	100.0	SEE NOTE 11	WIRE ELEC	65
SEE NOTE 13*	8.0	8.0	1014341-11	WIRE ELEC TW. PR	64
SEE NOTE 13*	16.0	16.0	MIL-W-16878/4E22	WIRE ELEC (WHITE)	63
	16	16	MS35649-84	NUT, PLAIN, HEX	62
	10	10	MS35649-44	NUT, PLAIN, HEX	61
	AR	AR	1006458-004	TAPE, LACING	60
	2	2	MS15795-808	WASHER, FLAT	59
	41	41	MS15795-807	WASHER, FLAT	58
	37	37	MS15795-805	WASHER, FLAT	57
	10	10	MS15795-803	WASHER, FLAT	56
	2	2	MS35338-81	WASHER, LOCK	55
	37	37	MS35338-80	WASHER, LOCK	54
	40	40	MS35338-79	WASHER, LOCK	53
	10	10	MS35338-78	WASHER, LOCK	52
	2	2	MS51958-63	SCREW, MACHINE-PAN HD	51
	~~—~~	~~4~~	~~MS51957-17~~	~~SCREW, MACHINE-PAN HD~~	~~50~~
	8	8	MS51959-47	SCREW, MACHINE-FLAT, CSK HD	49
	19	19	MS51957-45	SCREW, MACHINE-PAN HD	48
	6	6	-43		47
	6	6	-31		46
	14	14	-30		45
	22	22	MS51957-29	SCREW MACHINE-PAN HD	44
	~~—~~	~~12~~	~~-28~~		~~43~~
	~~—~~	~~4~~	~~MS51957-18~~	~~SCREW, MACHINE-PAN HD~~	~~42~~
	2	2	MS51957-15	SCREW, MACHINE-PAN HD	41
	4	4	MS51959-46	SCREW, MACH.-FLAT CSK HD	40
	1	1	1006988-4	SLIDE, CHASSIS	39
	1	1	1006988-3	SLIDE, CHASSIS	38
	1	1	1006988-2	SLIDE, CHASSIS	37
	1	1	1006988-1	SLIDE, CHASSIS	36
	1	1	2014376-011	LOGIC PLATE ASSY NO. 1	35
	1	1	2014177-011	HARNESS ASSY D	34
	1	1	2014176-011	HARNESS ASSY C	33
	1	1	2014175-011	HARNESS ASSY B	32
	—	1	2014174-011	HARNESS ASSY A	31
	2	2	MS51959-42	SCREW, MACH.-FLAT CSK HD	30
	AR	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	29
	AR	AR	MIL-A-5092 TYPE II	CEMENT	28
	—	1	1004260-235	NAMEPLATE, IDENT	27
	1	1	1006444	TRANSFORMER	26
	2	2	MS16638-1	SCREW, SHOULDER	25
	1	1	2014331	BRACKET, TRANSFORMER	24
	1	1	1006928	KNOB, BAR	23
	4	4	1006480-007	POST, ELECTRICAL	22
	1	1	1006892-4	SWITCH, ROTARY	21
	1	1	2014416	PLATE, CONN	20
	1	1	1006930-15	SLIDE, CHASSIS, RH	19
	1	1	1006930-16	SLIDE, CHASSIS, LH	18
	6	6	MS51959-43	SCREW, MACH.-FLAT CSK HD	17
	2	2	1014255-2	BRACKET ASSY	16
	1	1	2014379	BRACKET, PIVOT, LH	15
	1	1	2014332	BRACKET, PIVOT, RH	14
	1	1	2014335	BRACKET, SWITCH SUPPORT	13
	1	1	2014373	HARNESS SUPPORT, LH	12
	1	1	2014357	HARNESS SUPPORT, RH	11
	2	2	2014356	BAR, SUPPORT	10
	1	1	2014330	BRACKET, AMPLIFIER	9
	1	1	2014292-011	COMPONENT BOARD ASSY A5	8
	—	1	2014294-011	COMPONENT BOARD ASSY A4	7
	1	1	2014296-011	COMPONENT BOARD ASSY A3	6
	1	1	2014290-011	COMPONENT BOARD ASSY A2	5
	1	1	2014334-011	POT. BRKT ASSY A1	4
	1	1	2014386	AMPLIFIER, MODIFICATION	3
	1	1	2014314	CHASSIS	2
	—	1	2014327-011	FRONT PANEL ASSEMBLY	1

LIST OF MATERIALS

2014042		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±	RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
NEXT ASSY	USED ON	DO NOT SCALE DRAWING	CONTRACT NO. NAS 9-4[illegible]	RDC INTERFACE ASSY COMPUTER TEST SET	
APPLICATION		MATERIAL	DRAWN [illegible] DATE 15 JUL 65		
			CHECKED [illegible]		
			APPROVAL P.C. Dale 8/16/[illegible]		
			APPROVAL [illegible]		
			APPROVAL [illegible]		
			NASA APPROVAL	CODE IDENT NO. 49956	SIZE J
			MIT APPROVAL [illegible]	NASA DRAWING NO. 2014045	
			MIT APPROVAL [illegible]	SCALE 1/2	WT	SHEET 1 OF 1

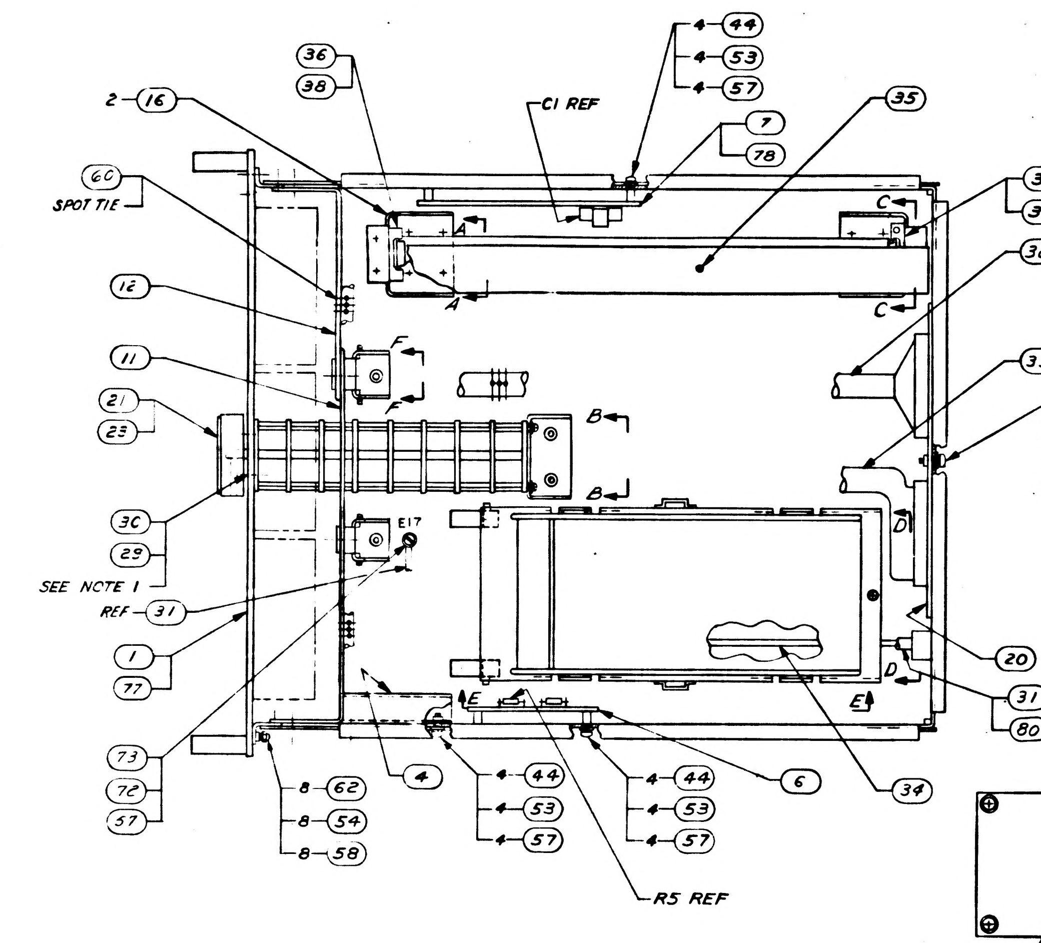
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014045 L

SYM	DESCRIPTION	DATE	APPROVED
H	CHANGED PER TDRR 26714 DR C. Hayward CHK APPD	5/23/66	
J	CHANGED PER TDRR 28112 DR CHK APPD	5/19/66	
K	CHANGED PER TDRR 29115 DR CHK APPD	6/1/66	
L	CHANGED PER TDRR 29346 DR CHK APPD	7/8/66	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
J	RELEASED PER CCA R25160		
I	CHANGED PER CCA R25394 DR CHK APPD		
—	CLASS B NO CHANGE PER CCA R25502		
A	CHANGED PER CCA R25577 DR CHK APPD		
B	CHANGED PER CCA R25669 DR CHK C. APPD	1/7/66	
C	CHANGED PER CCA R25737 AND CLASS A RELEASED PER TDRR 25472	1/13/66	
D	CHANGED PER TDRR 26430 DR E. CHK APPD	2/2/66	
E	CHANGED PER TDRR 26539 DR P. CHK APPD	3/1/66	
F	CHANGED PER TDRR 26691 DR CHK APPD	3/19/66	
G	CHANGED PER TDRR 26690 DR CHK APPD	4/2/66	



2-16
36
38
4-44
4-53
4-57
C1 REF
7
78
35
60
SPOT TIE
37
39
32
12
11
33
9-48
9-54
9-58
21
23
30
29
SEE NOTE 1
REF-31
1
77
73
76
57
8-62
8-54
8-58
4
4-44
4-53
4-57
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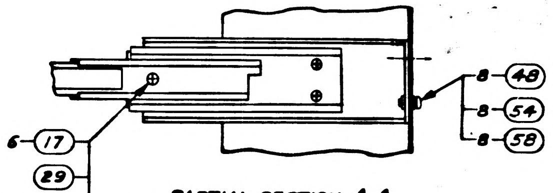
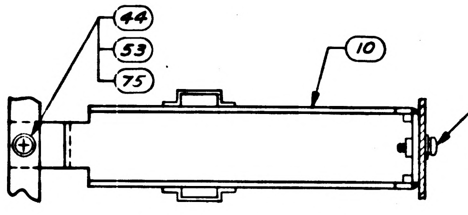
6
R5 REF
34
20
31
80
E17
A
B
C
D
E
F



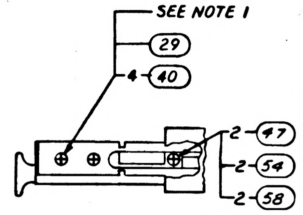
6-17
29
SEE NOTE 1
8-48
8-54
8-58

PARTIAL SECTION A-A
SHOWN WITH SLIDE EXTENDED



44
53
75
10
46
53
75

PARTIAL SECTION F-F
2 PLACES
SCALE 1/1

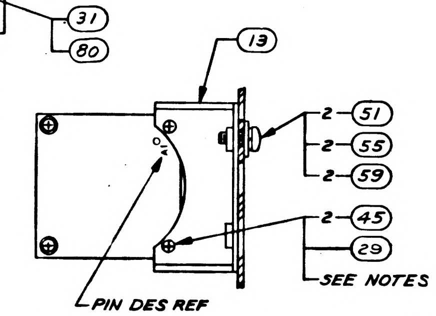


SEE NOTE 1
29
4-40
2-47
2-54
2-58

PARTIAL SECTION C-C
SHOWN WITH SLIDE EXTENDED

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	–	2016385	SCHEMATIC	REF
~~–~~	~~–~~	~~2016407~~	~~LEAD, ELECTRICAL~~	~~REF~~
1	–	2016415-011	HARNESS ASSY A	80
1	–	1004260-263	NAME PLATE, IDENT	79
1	–	2014294-021	COMPONENT BOARD ASSY A4	78
1	–	2014327-021	FRONT PANEL ASSEMBLY	77

LIST OF MATERIALS



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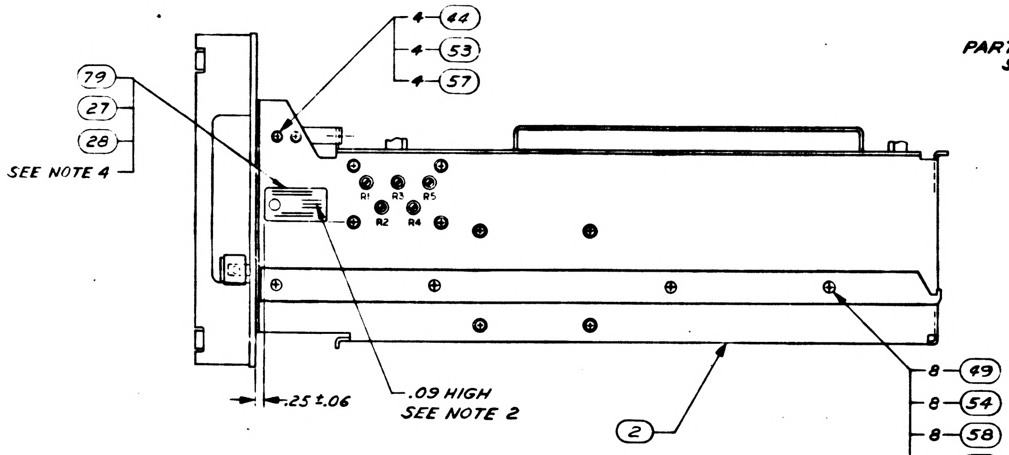
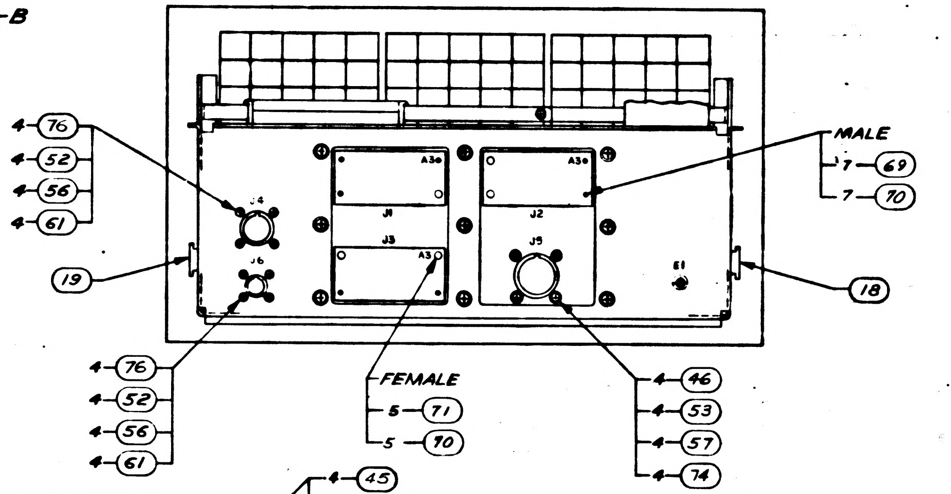
2-51
2-55
2-59
2-45
29
SEE NOTES 1 & 3
PIN DES REF

PARTIAL SECTION B-B
SCALE 1/1



4-44
4-53
4-57
79
27
28
SEE NOTE 4
R1
R2
R3
R4
R5
.25 ±.06
.09 HIGH
SEE NOTE 2
2
8-49
8-54
8-58
8-62



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4-56
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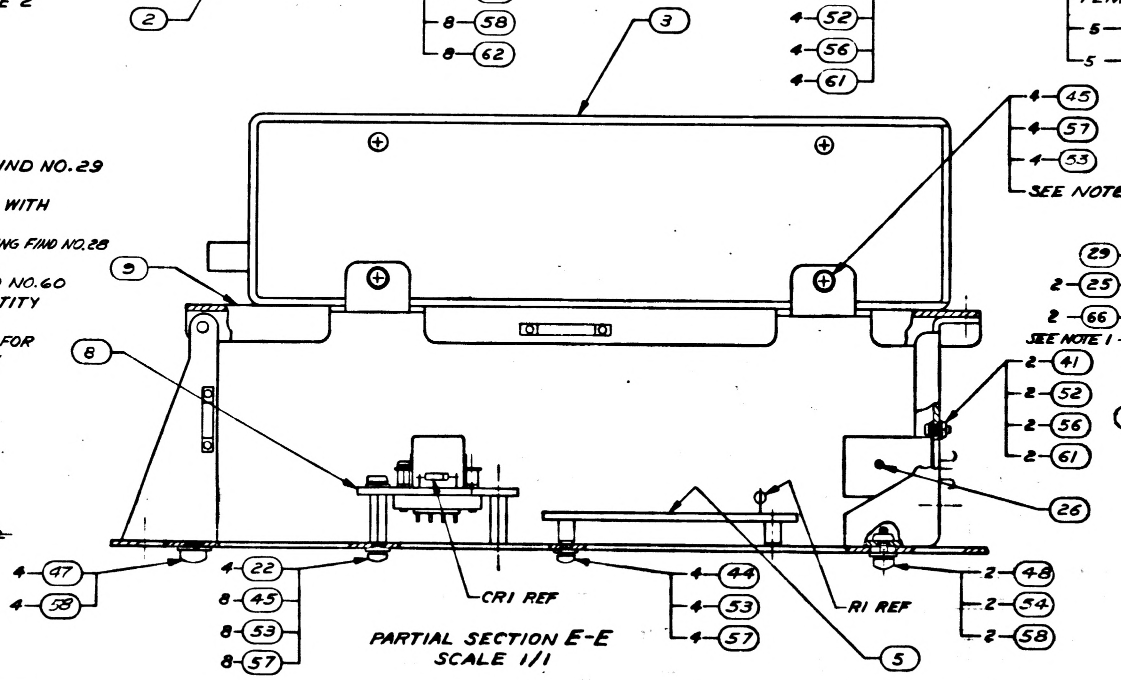
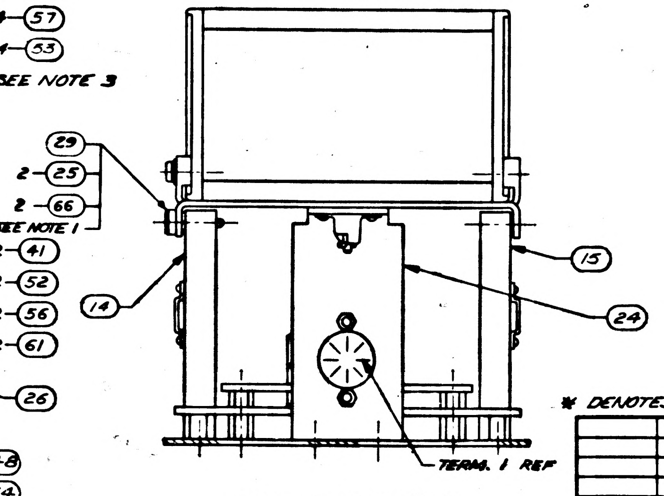
19
J4
J6
J1
J2
J3
J5
A3
MALE
7-69
7-70
18
4-76
4-52
4-56
4-61
FEMALE
5-71
5-70
4-46
4-53
4-57
4-74



3
4-45
4-57
4-53
SEE NOTE 3
9
8
2-41
2-52
2-56
2-61
26
4-47
4-58
4-22
8-45
8-53
8-57
CR1 REF
4-44
4-53
4-57
R1 REF
5
2-48
2-54
2-58

PARTIAL SECTION E-E
SCALE 1/1



29
2-25
2-66
SEE NOTE 1
14
15
24
TERM. 1 REF

PARTIAL SECTION D-D
SCALE 1/1

NOTES
1. ASSEMBLE FIND NO.17, 25, 30, 40 & 45 USING FIND NO.29
2. SERIALIZE PER ND1002023
3. DISCARD SUPPLIED HARDWARE AND REPLACE WITH HARDWARE THAT IS INDICATED
4. BOND FIND NO. 27 OR FIND NO.79 TO FIND NO.2 USING FIND NO.28
5. SOLDER PER ND1002071
6. FABRICATE PER ND1002032 EXCEPT USE FIND NO.60
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. MARK CONDUCTOR IDENTIFICATION PER ND 1002019.
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUBASSY DESIGNATIONS
10. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50 ±.12 & TIN PER ND1002071
11. QQ-W-343 TYPE S AWG 22 SOFT COATED
12. MIL-I-23053, CLASS I, COLOR WHITE I.D.125
13. FOR APPLICATION OF FIND 63, 64, 65, 67 & 68 SEE LEAD ELECTRICAL 2014492
~~14. MARK APPROX WEIGHT IN LBS~~
~~15. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006256-001~~

	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			2014492	LEAD ELECTRICAL	REF
	—		2014125	SCHEMATIC	REF
	8	8	MS51959-17	SCREW, MACH, FLAT HD	76
	4	4	2016359	WASHER, FLAT	75
	4	4	MS35649-64	NUT, PLAIN, HEX	74
	1	1	MS51957-27	SCREW, MACHINE-PAN HD	73
	1	1	MS35333-71	WASHER, LOCK, INTERNAL TOOTH	72
	5	5	1006671-004	GUIDE, SOCKET	71
	12	12	1006671-003	NUT, STOP	70
	7	7	1006671-002	GUIDE, PIN	69
SEE NOTE 13 *	0.8	0.8	SEE NOTE 12	INSULATION, SLEEVING	68
SEE NOTE 13 *	20.0	20.0	1006776-21	INSULATION, SLEEVING, ELEC	67
	2	2	1006982-8	WASHER, NYLON	66
SEE NOTE 13 *	100.0	100.0	SEE NOTE 11	WIRE ELEC	65
SEE NOTE 13 *	8.0	8.0	1014341-11	WIRE ELEC TW. PR	64
SEE NOTE 13 *	16.0	16.0	MIL-W-16878/4E22	WIRE, ELEC (WHITE)	63
	16	16	MS35649-84	NUT, PLAIN, HEX	62
	10	10	MS35649-44	NUT, PLAIN, HEX	61
	AR	AR	1006458-004	TAPE, LACING	60
	2	2	MS15795-808	WASHER, FLAT	59
	41	41	MS15795-807	WASHER, FLAT	58
	37	37	MS15795-805	WASHER, FLAT	57
	10	10	MS15795-803	WASHER, FLAT	56
	2	2	MS35338-81	WASHER, LOCK	55
	37	37	MS35338-80	WASHER, LOCK	54
	40	40	MS35338-79	WASHER, LOCK	53
	10	10	MS35338-78	WASHER, LOCK	52
	2	2	MS51958-63	SCREW, MACHINE-PAN HD	51
	~~4~~	~~4~~	~~MS51957-17~~	~~SCREW, MACHINE-PAN HD~~	~~50~~
	8	8	MS51959-47	SCREW, MACHINE-FLAT, CSK HD	49
	19	19	MS51957-45	SCREW, MACHINE-PAN HD	48
	6	6	-43		47
	6	6	-31		46
	14	14	-30		45
	22	22	MS51957-29	SCREW, MACHINE-PAN HD	44
	~~–~~	~~12~~	~~-28~~		~~43~~
	~~–~~	~~4~~	~~MS51957-18~~	~~SCREW, MACHINE-PAN HD~~	~~42~~
	2	2	MS51957-15	SCREW, MACHINE-PAN HD	41
	4	4	MS51959-46	SCREW, MACH.-FLAT CSK HD	40
	1	1	1006988-4	SLIDE, CHASSIS	39
	1	1	1006988-3	SLIDE, CHASSIS	38
	1	1	1006988-2	SLIDE, CHASSIS	37
	1	1	1006988-1	SLIDE, CHASSIS	36
	1	1	2014376-011	LOGIC PLATE ASSY NO.1	35
	1	1	2014177-011	HARNESS ASSY D	34
	1	1	2014176-011	HARNESS ASSY C	33
	1	1	2014175-011	HARNESS ASSY B	32
	–	1	2014174-011	HARNESS ASSY A	31
	2	2	MS51959-42	SCREW, MACH.-FLAT CSK HD	30
	AR	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	29
	AR	AR	MIL-A-5092 TYPE II	CEMENT	28
	–	1	1004260-235	NAMEPLATE, IDENT	27
	1	1	1006444	TRANSFORMER	26
	2	2	MS16638-1	SCREW, SHOULDER	25
	1	1	2014331	BRACKET, TRANSFORMER	24
	1	1	1006928	KNOB, BAR	23
	4	4	1006480-007	POST, ELECTRICAL	22
	1	1	1006892-4	SWITCH, ROTARY	21
	1	1	2014416	PLATE, CONN	20
	1	1	1006930-15	SLIDE, CHASSIS, RH	19
	1	1	1006930-16	SLIDE, CHASSIS, LH	18
	6	6	MS51959-43	SCREW, MACH.-FLAT CSK HD	17
	2	2	1014255-2	BRACKET ASSY	16
	1	1	2014379	BRACKET, PIVOT, LH	15
	1	1	2014332	BRACKET, PIVOT, RH	14
	1	1	2014335	BRACKET, SWITCH SUPPORT	13
	1	1	2014373	HARNESS SUPPORT, LH	12
	1	1	2014357	HARNESS SUPPORT, RH	11
	2	2	2014356	BAR, SUPPORT	10
	1	1	2014330	BRACKET, AMPLIFIER	9
	1	1	2014292-011	COMPONENT BOARD ASSY A5	8
	–	1	2014294-011	COMPONENT BOARD ASSY A4	7
	1	1	2014296-011	COMPONENT BOARD ASSY A3	6
	1	1	2014290-011	COMPONENT BOARD ASSY A2	5
	1	1	2014334-011	POT. BRKT ASSY A1	4
	1	1	2014386	AMPLIFIER, MODIFICATION	3
	1	1	2014314	CHASSIS	2
	–	1	2014327-011	FRONT PANEL ASSEMBLY	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4 7
DRAWN DATE 15 JUL 65
CHECKED
APPROVAL 9/16/65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

RDC INTERFACE ASSY
COMPUTER TEST SET

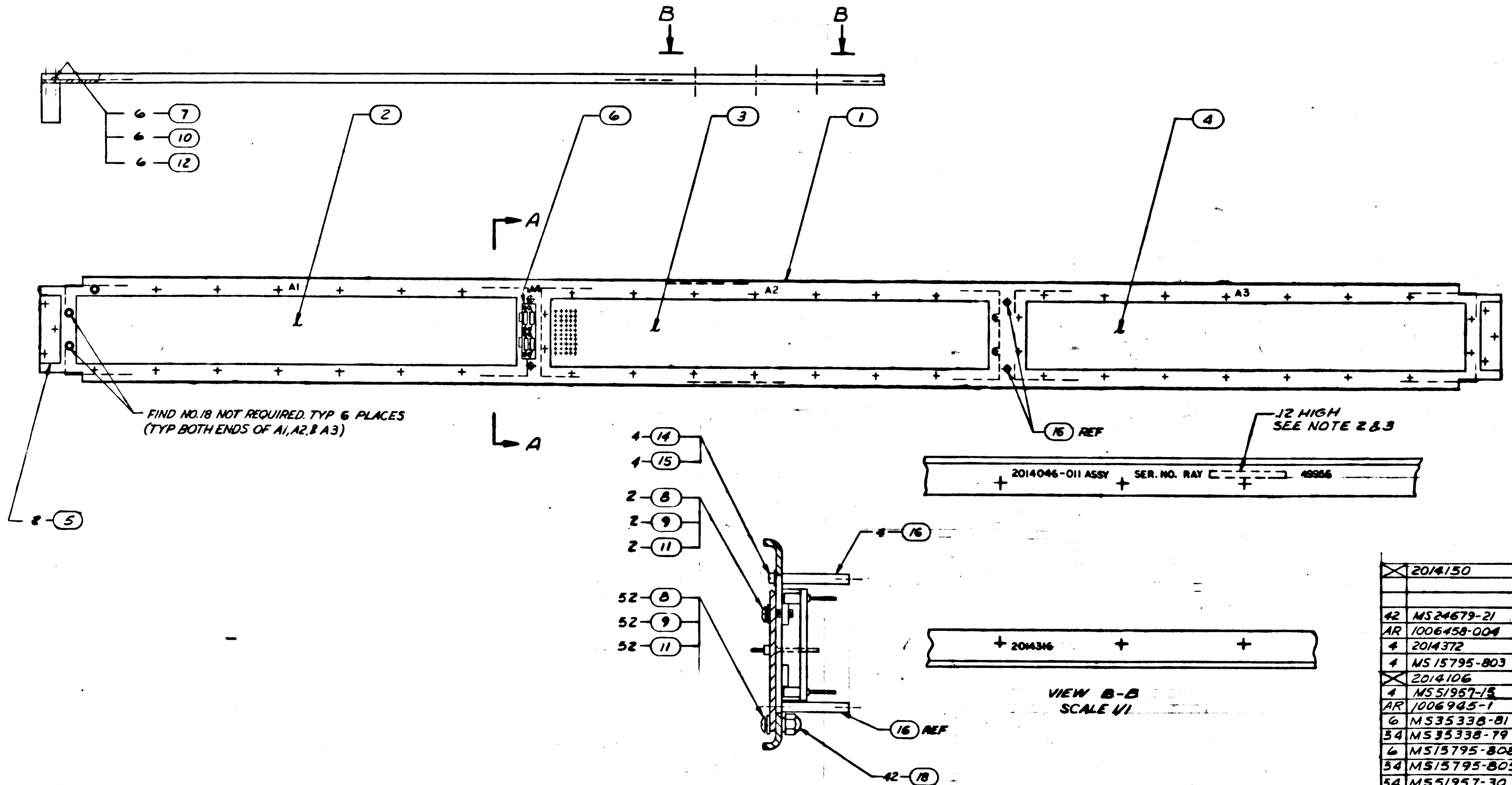
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014045
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014045 L

B 2014046

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25120 DR CHK APPD	9 Sept 65	
2	CHANGED PER CCA R25458 DR CHK APPD		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25562 DR CHK APPD		
B	CHANGED PER CCAR 25753 AND CLASS A RELEASED PER TORR 25472	1/19/66	



VIEW B-B
SCALE 1/1

SECTION A-A
SCALE 1/1

NOTES:
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. MARK SER NO. PER ND1002023
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING INK 1006271-10
4. WIRE WRAP 2014046-011 USING FIND NO.13 PER 2014106, ND1002031, AND ND1002032 EXCEPT USING FIND NO.17
5. WIRES BETWEEN A1, A2 & A3 SHALL BE ROUTED OUTSIDE OF THE WIREWRAP PINS, THEY SHOULD BE DISTRIBUTED AS EVENLY AS POSSIBLE ON EACH SIDE OF FRAME AND SPOT TIED USING FIND NO.17, EXCEPT WITHIN 2.00 INCHES OF FIND NO. 16.
6. AR DENOTES AS REQUIRED.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014150	INTERCONNECTION DIAG	REF
42	MS24679-21	NUT, CAP, LOW CROWN	18
AR	1006458-004	TAPE, LACING	17
4	2014372	SPACER	16
4	MS15795-803	WASHER, FLAT	15
☒	2014106	HAND WIRE WRAP	REF
4	MS51957-15	SCREW, PAN HD, CROSS-REC	14
AR	1006945-1	WIRE, ELEC	13
6	MS35338-81	WASHER, LOCK	12
54	MS35338-79	WASHER, LOCK	11
6	MS15795-808	WASHER, FLAT	10
54	MS15795-805	WASHER, FLAT	9
54	MS51957-30	SCREW, PAN HD	8
6	MS51958-63	SCREW, PAN HD	7
1	2014319-011	RESISTOR BRACKET ASSY	6
2	2014318	MOUNTING BLOCK	5
1	2014275-031	CONN PLATE ASSY	4
1	2014275-021	CONN PLATE ASSY	3
1	2014275-011	CONN PLATE ASSY	2
1	2014316	MOUNTING FRAME	1

-011 LIST OF MATERIALS

2014042
NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 21 JUN 65
CHECKED 24 JUN 65
APPROVAL 21 JUN 65
APPROVAL 6/28/65
APPROVAL 7/2/65
NASA APPROVAL METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

A18 INTERCONNECTION ASSY
COMPUTER TEST SET

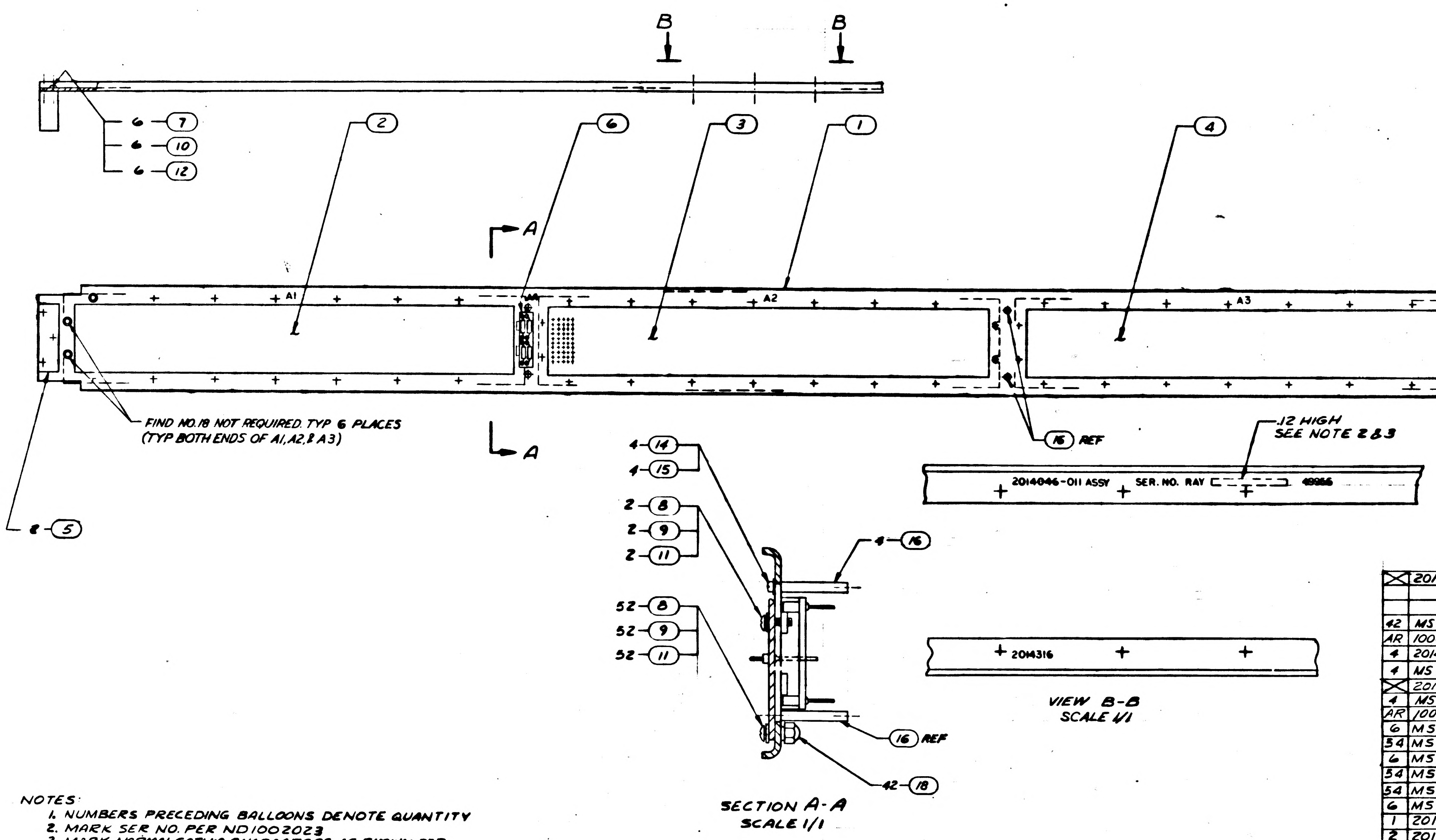
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014046
SCALE 1/2
WT
SHEET 1 OF 1

2014046 H

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014046 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25120 DR CHK APPD	9 Sept 65	
2	CHANGED PER CCA R25458 DR CHK APPD		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25562 DR CHK APPD		
B	CHANGED PER CCAF 25759 AND CLASS A RELEASED PER TDRR 25472		
C	CHANGED PER TDRR 26481 DR CHK APPD	3/24/66	



NOTES:

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. MARK SER NO. PER ND1002023
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING INK 1006271-10
4. WIRE WRAP 2014046-011 USING FIND NO. 13 PER 2014106, ND1002031, AND ND1002032 EXCEPT USING FIND NO. 17
5. WIRES BETWEEN A1, A2 & A3 SHALL BE ROUTED OUTSIDE OF THE WIREWRAP PINS, THEY SHOULD BE DISTRIBUTED AS EVENLY AS POSSIBLE ON EACH SIDE OF FRAME AND SPOT TIED USING FIND NO. 17, EXCEPT WITHIN 2.00 INCHES OF FIND NO. 16.
6. AR DENOTES AS REQUIRED.
7. IN THE AREA OF FIND 6, WIRES MAY BE DRESSED ON INSIDE OF WIREWRAP PINS AT FIND 6 BUT NOT ON TOP OF PINS.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014150	INTERCONNECTION DIAG	REF
42	MS24679-21	NUT, CAP, LOW CROWN	18
AR	1006458-004	TAPE, LACING	17
4	2014372	SPACER	16
4	MS15795-803	WASHER, FLAT	15
☒	2014106	HAND WIRE WRAP	REF
4	MS51957-15	SCREW, PAN HD. CROSS-REC	14
AR	1006945-1	WIRE, ELEC	13
6	MS35338-81	WASHER, LOCK	12
54	MS35338-79	WASHER, LOCK	11
6	MS15795-808	WASHER, FLAT	10
54	MS15795-805	WASHER, FLAT	9
54	MS51957-30	SCREW, PAN HD	8
6	MS51958-63	SCREW, PAN HD	7
1	2014319-011	RESISTOR BRACKET ASSY	6
2	2014318	MOUNTING BLOCK	5
1	2014275-031	CONN PLATE ASSY	4
1	2014275-021	CONN PLATE ASSY	3
1	2014275-011	CONN PLATE ASSY	2
1	2014316	MOUNTING FRAME	1
-011	LIST OF MATERIALS		

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN K. Kloof DATE 21 JUN 65
CHECKED 24 JUN 65
APPROVAL 21 JUN 65
APPROVAL
APPROVAL 7/27/65
NASA APPROVAL METZGER
MIT APPROVAL
MIT APPROVAL C. S.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

A18 INTERCONNECTION ASSY
COMPUTER TEST SET

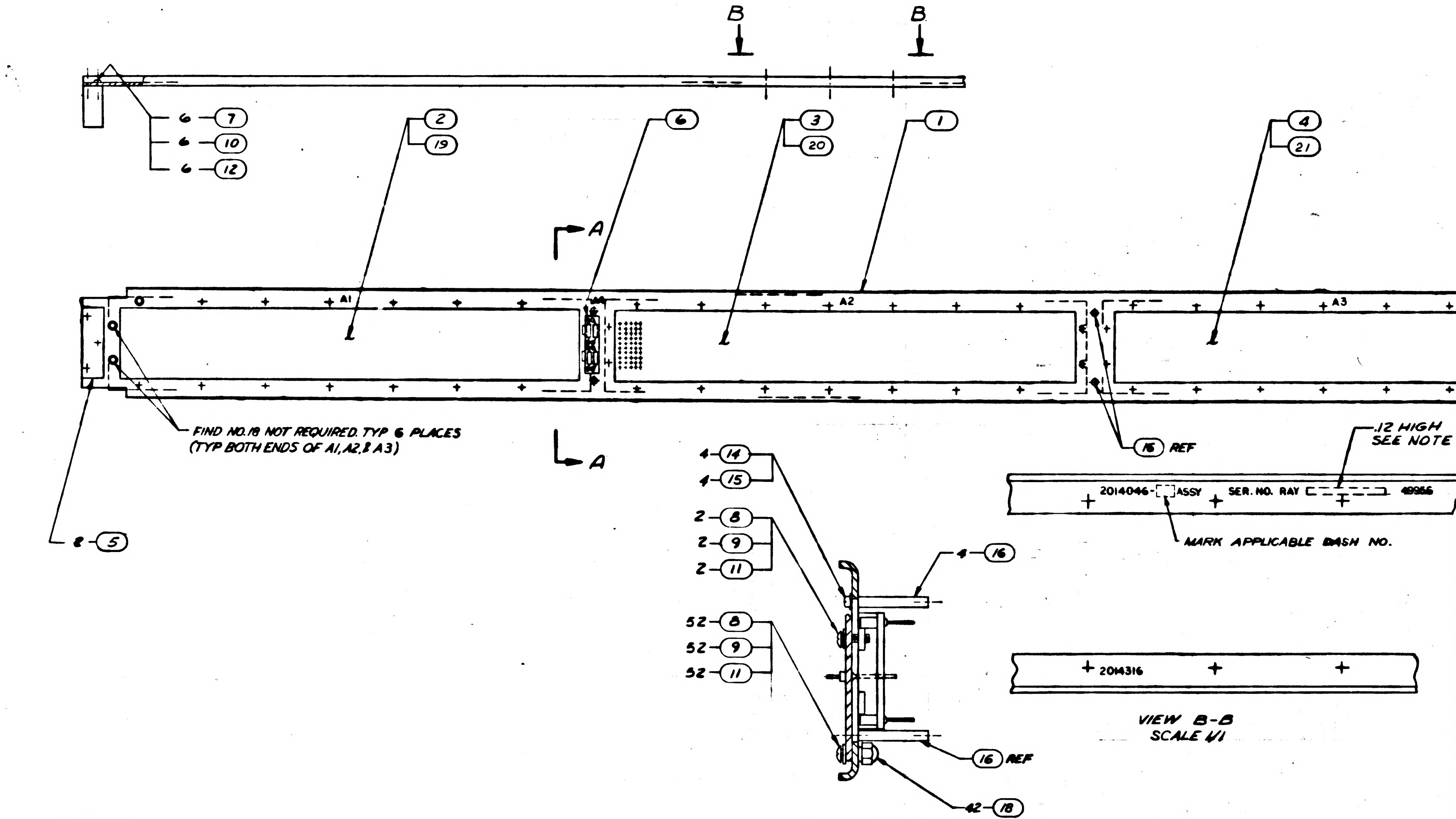
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014046
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014046

2014046 D

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25064	[illegible]	
1	CHANGED PER CCA R25120 DR CHK APPD	9 Sept 65	
2	CHANGED PER CCA R25458 DR CHK APPD	[illegible]	
–	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25562 DR CHK APPD	[illegible]	
B	CHANGED PER CCAR 25753 AND CLASS A RELEASED PER TCRR 25472	[illegible]	
C	CHANGED PER TDRR 26481 DR CHK APPD	3/24/66	
D	CHANGED PER TDRR 28106 DR CHK APPD	5/9/66	



SECTION A-A
SCALE 1/1

VIEW B-B
SCALE 1/1

NOTES:

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. MARK SER NO. PER ND1002023
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING INK 1006271-10
4. WIRE WRAP 2014046-011 USING FIND NO.13 PER 2014106, ND1002031, AND ND1002032 EXCEPT USING FIND NO.17
5. WIRES BETWEEN A1, A2 & A3 SHALL BE ROUTED OUTSIDE OF THE WIREWRAP PINS, THEY SHOULD BE DISTRIBUTED AS EVENLY AS POSSIBLE ON EACH SIDE OF FRAME AND SPOT TIED USING FIND NO.17, EXCEPT WITHIN 2.00 INCHES OF FIND NO. 16.
6. AR DENOTES AS REQUIRED.
7. IN THE AREA OF FIND 6, WIRES MAY BE DRESSED ON INSIDE OF WIREWRAP PINS AT FIND 6 BUT NOT ON TOP OF PINS
8. WIREWRAP 2014046-021 USING FIND 13 PER 2016382, ND1002031 AND ND1002032 EXCEPT USING FIND 17

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	-	2016393	INTERCONNECTION DIAG	REF
☒	-	2016382	HAND WIREWRAP	REF
	☒	2014150	INTERCONNECTION DIAG	REF
1	-	2014275-061	CONN PLATE ASSY	21
1	-	2014275-051	CONN PLATE ASSY	20
1	-	2014275-041	CONN PLATE ASSY	19
42	42	MS24679-21	NUT, CAP, LOW CROWN	18
AR	AR	1006458-004	TAPE, LACING	17
4	4	2014372	SPACER	16
4	4	MS15795-803	WASHER, FLAT	15
-	☒	2014106	HAND WIRE WRAP	REF
4	4	[illegible]S51957-15	SCREW, PAN HD. CROSS-REC	14
AR	AR	1[illegible]945-1	WIRE, ELEC	13
6	6	M[illegible]35338-81	WASHER, LOCK	12
54	54	MS35338-79	WASHER, LOCK	11
6	[illegible]	MS15795-808	WASHER, FLAT	10
54	54	M[illegible]15795-803	WASHER, FLAT	9
54	54	MS51957-30	SCREW, PAN HD	8
6	6	MS51958-63	SCREW, PAN HD	7
1	1	2014319-011	RESISTOR BRACKET ASSY	6
2	2	2014318	MOUNTING BLOCK	5
-	1	2014275-031	CONN PLATE ASSY	4
-	1	2014275-021	CONN PLATE ASSY	3
-	1	2014275-011	CONN PLATE ASSY	2
1	1	2014316	MOUNTING FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 21 JUN 65
CHECKED 24 JUN 65
APPROVAL 21 JUN 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

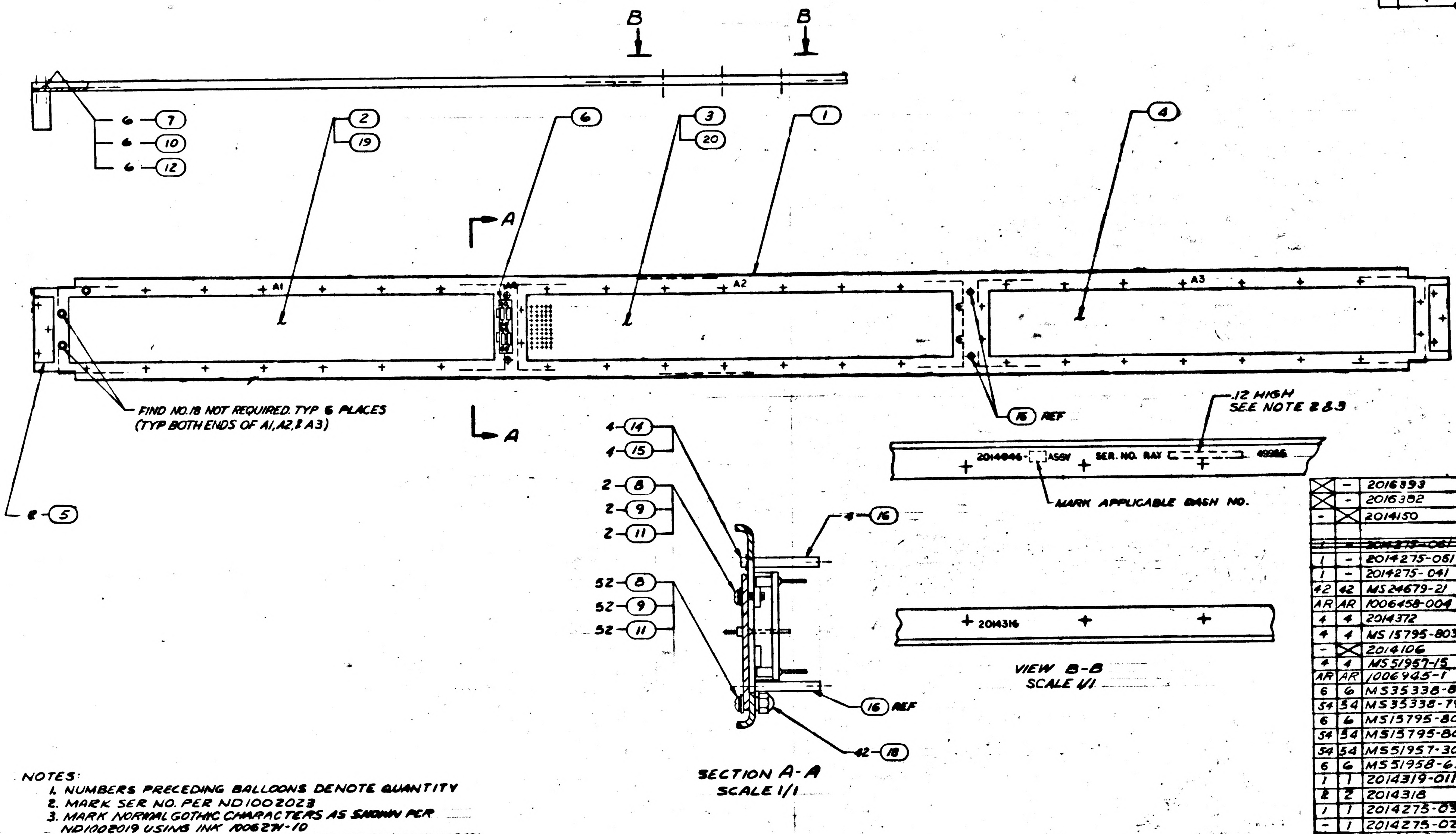
A18 INTERCONNECTION ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014046
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014046 E

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25064	7/20/65	
1	CHANGED PER CCA R25120 DR CHK APPD	9 Sept 65	
2	CHANGED PER CCA R25458 DR CHK APPD		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25562 DR CHK APPD PCO		
B	CHANGED PER CCA R25753 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 26481 DR CHK APPD	3/24/66	
D	CHANGED PER TDRR 28106 DR CHK APPD PED	5/ /66	
E	CHANGED PER TDRR 28607 CHK APPD PED	66	



SECTION A-A
SCALE 1/1

VIEW B-B
SCALE 1/1

NOTES:

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. MARK SER NO. PER ND1002023
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING INK 1006271-10
4. WIRE WRAP 2014046-011 USING FIND NO.13 PER 2014106, ND1002031, AND ND1002032 EXCEPT USING FIND NO.17
5. WIRES BETWEEN A1, A2 & A3 SHALL BE ROUTED OUTSIDE OF THE WIREWRAP PINS, THEY SHOULD BE DISTRIBUTED AS EVENLY AS POSSIBLE ON EACH SIDE OF FRAME AND SPOT TIED USING FIND NO.17, EXCEPT WITHIN 2.00 INCHES OF FIND NO. 16.
6. AR DENOTES AS REQUIRED.
7. IN THE AREA OF FIND 6, WIRES MAY BE DRESSED ON INSIDE OF WIREWRAP PINS AT FIND 6 BUT NOT ON TOP OF PINS
8. WIREWRAP 2014046-021 USING FIND 13 PER 2016382, ND1002031 AND ND1002032 EXCEPT USING FIND 17

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
X	-	2016393	INTERCONNECTION DIAG	REF
X	-	2016382	HAND WIREWRAP	REF
-	X	2014150	INTERCONNECTION DIAG	REF
~~1~~	~~-~~	~~2014275-061~~	~~CONN PLATE ASSY~~	~~21~~
1	-	2014275-051	CONN PLATE ASSY	20
1	-	2014275-041	CONN PLATE ASSY	19
42	42	MS24679-21	NUT, CAP, LOW CROWN	18
AR	AR	1006458-004	TAPE, LACING	17
4	4	2014372	SPACER	16
4	4	MS15795-803	WASHER, FLAT	15
-	X	2014106	HAND WIRE WRAP	REF
4	4	MS51957-15	SCREW, PAN HD, CROSS-REC	14
AR	AR	1006945-1	WIRE, ELEC	13
6	6	MS35338-81	WASHER, LOCK	12
54	54	MS35338-79	WASHER, LOCK	11
6	6	MS15795-808	WASHER, FLAT	10
54	54	MS15795-805	WASHER, FLAT	9
54	54	MS51957-30	SCREW, PAN HD	8
6	6	MS51958-63	SCREW, PAN HD	7
1	1	2014319-011	RESISTOR BRACKET ASSY	6
2	2	2014318	MOUNTING BLOCK	5
1	1	2014275-031	CONN PLATE ASSY	4
-	1	2014275-021	CONN PLATE ASSY	3
-	1	2014275-011	CONN PLATE ASSY	2
1	1	2014316	MOUNTING FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. Kle DATE 21 JUN 65
CHECKED 24 JUN 65
APPROVAL 23 JUN 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

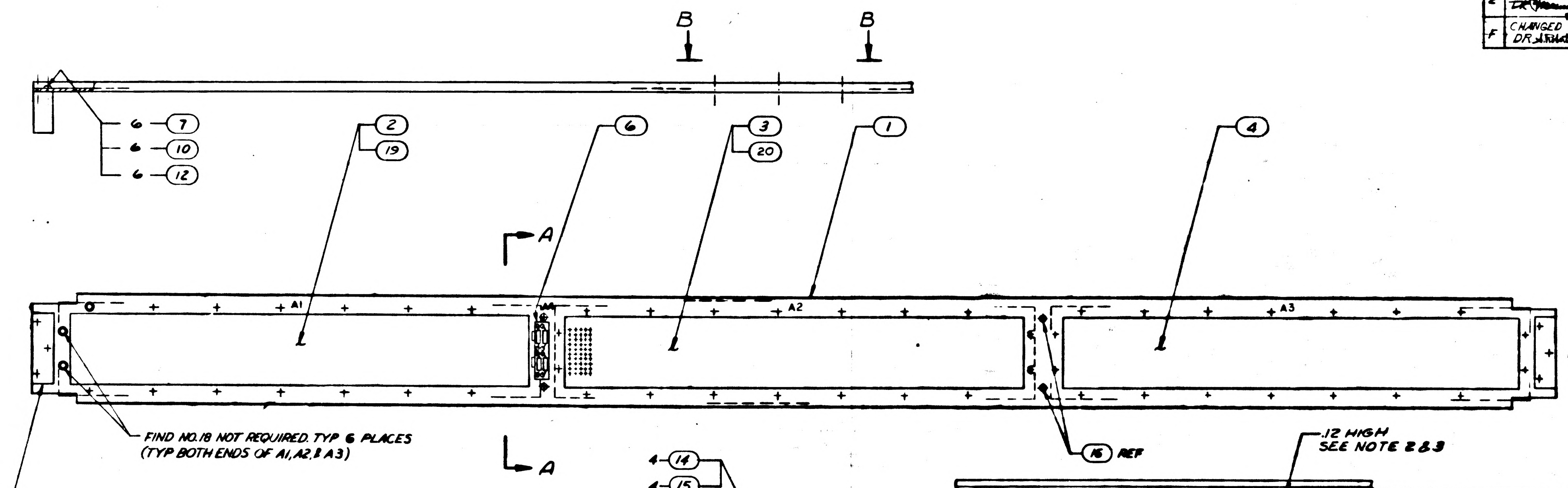
A18 INTERCONNECTION ASSY
COMPUTER TEST SET

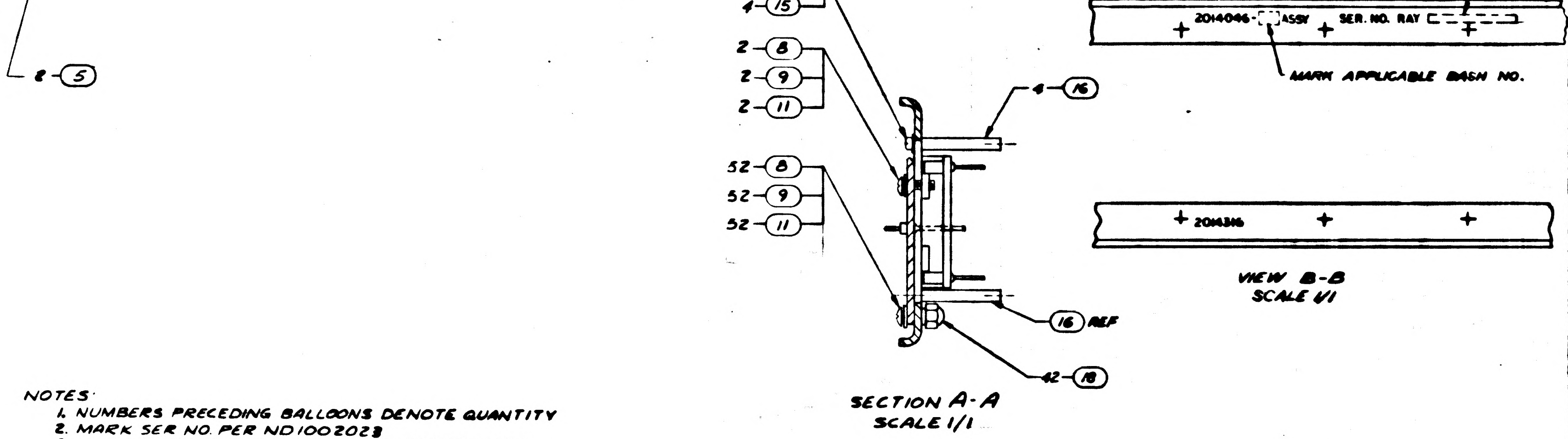
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014046
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014046 F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25064		
1	CHANGED PER CCA R25120 DR CHK APPD	9 Sept 65	
2	CHANGED PER CCA R25458 DR CHK APPD		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25562 DR CHK APPD P.E.D	1/4/66	
B	CHANGED PER CCAP 25753 AND CLASS A RELEASED PER TDRR 25072	1/14/66	
C	CHANGED PER TDRR 26481 DR CHK R.W.E. APPD	2/24/66	
D	CHANGED PER TDRR 28106 DR CHK- APPD P.E.D	5/3/66	
E	CHANGED PER TDRR 28607 DR CHK APPD P.E.D	66	
F	CHANGED PER TDRR 29325 DR CHK APPD P.E.D		





NOTES:
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. MARK SER NO. PER ND1002023
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING INK 1006271-10
4. WIRE WRAP 2014046-011 USING FIND NO.13 PER 2014106, ND1002031, AND ND1002032 EXCEPT USING FIND NO.17
5. WIRES BETWEEN A1, A2 & A3 SHALL BE ROUTED OUTSIDE OF THE WIREWRAP PINS, THEY SHOULD BE DISTRIBUTED AS EVENLY AS POSSIBLE ON EACH SIDE OF FRAME AND SPOT TIED USING FIND NO.17, EXCEPT WITHIN 2.00 INCHES OF FIND NO. 16.
6. AR DENOTES AS REQUIRED.
7. IN THE AREA OF FIND 6, WIRES MAY BE DRESSED ON INSIDE OF WIREWRAP PINS AT FIND 6 BUT NOT ON TOP OF PINS
8. WIREWRAP 2014046-021 USING FIND 13 PER 2016382, ND1002031 AND ND1002032 EXCEPT USING FIND 17
9. WIREWRAP 2014046-031 USING FIND 13 PER 2016442, ND1002031 AND ND1002032, EXCEPT USING FIND 17.

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	–	–	2016442	HAND WIREWRAP	REF
☒	–	–	2016441	INTERCONNECTION DIAG	REF
–	☒	–	2016393	INTERCONNECTION DIAG	REF
–	☒	–	2016382	HAND WIREWRAP	REF
–	–	☒	2014150	INTERCONNECTION DIAG	REF
~~1~~	~~1~~	~~–~~	~~2014275-061~~	~~CONN PLATE ASSY~~	~~21~~
1	1	–	2014275-051	CONN PLATE ASSY	20
1	1	–	2014275-041	CONN PLATE ASSY	19
42	42	42	MS24679-21	NUT, CAP, LOW CROWN	18
AR	AR	AR	1006458-004	TAPE, LACING	17
4	4	4	2014372	SPACER	16
4	4	4	MS15795-803	WASHER, FLAT	15
–	–	☒	2014106	HAND WIRE WRAP	REF
4	4	4	MS51957-15	SCREW, PAN HD, CROSS-REC	14
AR	AR	AR	1006945-1	WIRE, ELEC	13
6	6	6	MS35338-81	WASHER, LOCK	12
54	54	54	MS35338-79	WASHER, LOCK	11
6	6	6	MS15795-808	WASHER, FLAT	10
54	54	54	MS15795-805	WASHER, FLAT	9
54	54	54	MS51957-30	SCREW, PAN HD	8
6	6	6	MS51958-63	SCREW, PAN HD	7
1	1	1	2014319-011	RESISTOR BRACKET ASSY	6
2	2	2	2014318	MOUNTING BLOCK	5
1	1	1	2014275-031	CONN PLATE ASSY	4
–	–	1	2014275-021	CONN PLATE ASSY	3
–	–	1	2014275-011	CONN PLATE ASSY	2
1	1	1	2014316	MOUNTING FRAME	1

LIST OF MATERIALS

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX DECIMALS .XXX ANGLES
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 21 JUN 65
CHECKED 24 JUN 65
APPROVAL 21 JUN 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

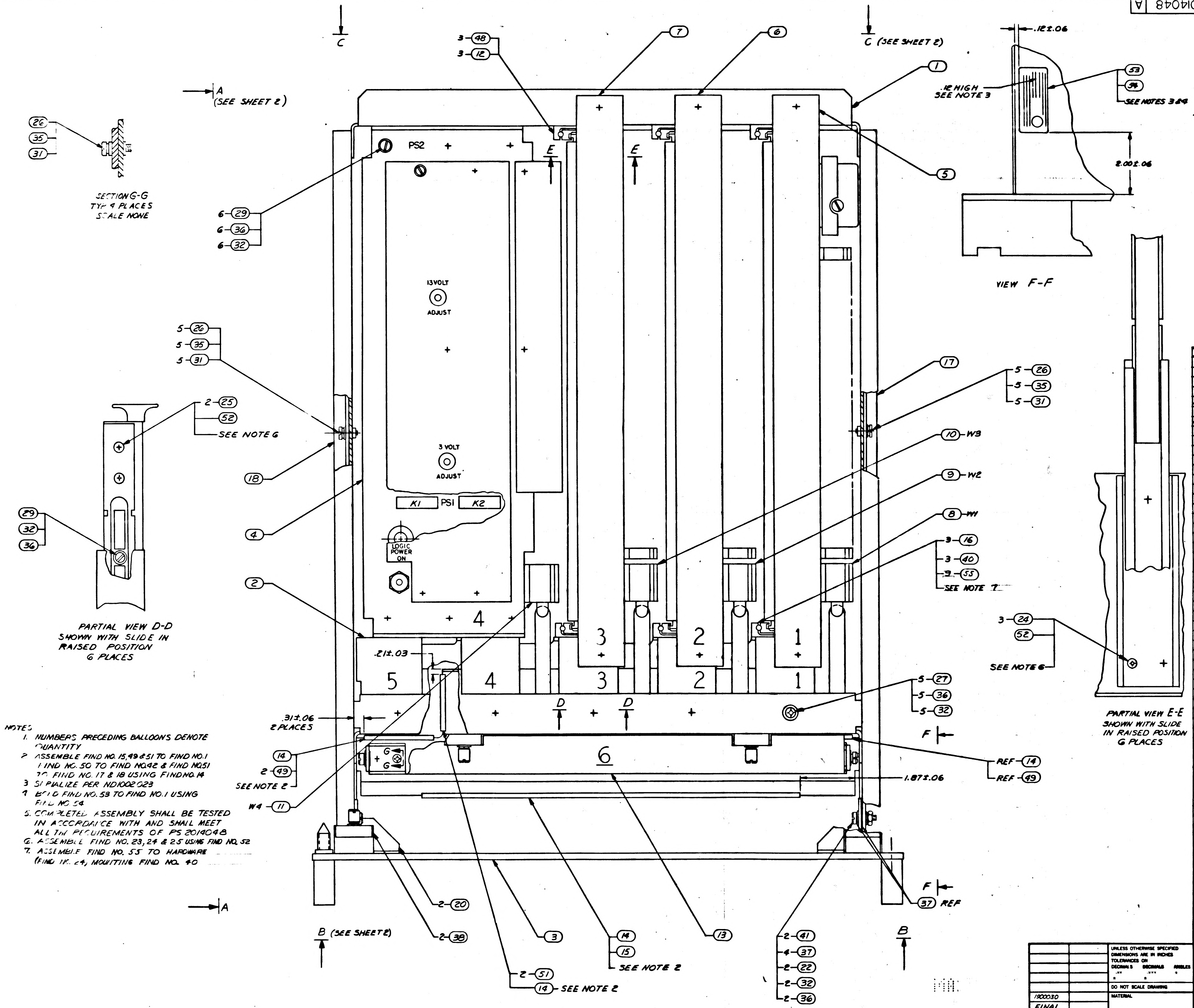
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

A18 INTERCONNECTION ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014046
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
	RELEASED PER [illegible]	7 9/65	
—	CLASS A RELEASE PER TDRR 21380		
A	CHANGED PER TDRR 21640 DR CHK APPD	27 AUG 65	



C
C (SEE SHEET 2)
A (SEE SHEET 2)
SECTION G-G
TYP 4 PLACES
SCALE NONE
PS2
13 VOLT
ADJUST
3 VOLT
ADJUST
K1
PS1
K2
LOGIC POWER ON
E
E
4
3
2
1
5
4
3
2
1
6
D
D
.21±.03
.31±.06
2 PLACES
.12±.06
.12 HIGH
SEE NOTE 3
SEE NOTES 3 & 4
2.00±.06
VIEW F-F
PARTIAL VIEW D-D
SHOWN WITH SLIDE IN
RAISED POSITION
6 PLACES
PARTIAL VIEW E-E
SHOWN WITH SLIDE
IN RAISED POSITION
6 PLACES
SEE NOTE 6
SEE NOTE 7
SEE NOTE 2
1.87±.06
REF
F
F
B (SEE SHEET 2)
B
A
W4
W3
W2
W1

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE FIND NO. 15, 49 & 51 TO FIND NO. 1 FIND NO. 50 TO FIND NO. 42 & FIND NO. 51 TO FIND NO. 17 & 18 USING FIND NO. 14
3. SERIALIZE PER ND1002023
4. BOND FIND NO. 53 TO FIND NO. 1 USING FIND NO. 54
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014048
6. ASSEMBLE FIND NO. 23, 24 & 25 USING FIND NO. 52
7. ASSEMBLE FIND NO. 55 TO HARDWARE (FIND NO. 24) MOUNTING FIND NO. 40

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014028	INTERCONN DIAGRAM	REF
9	MS24679-22	NUT, PLAIN CAP, LOW CROWN	55
AR	MIL-A-5092 TYPE II	ADHESIVE	54
1	1004260-202	NAMEPLATE, APOLLO G&N	53
AR	MIL-S-22473, GR HV	COMPOUND, SEALING	52
4	1006980-5	GROMMET, NYLON	51
1	1006980-4	GROMMET, NYLON	50
2	1006980-3	GROMMET, NYLON	49
3	1006988-3	SLIDE, CHASSIS LH	48
4	MS25281-10	CLAMP, CABLE	47
1	1014112-4	CABLE ASSY W9	46
1	2014071-031	CABLE ASSY W8	45
1	2014071-021	CABLE ASSY W7	44
1	2014071-011	CABLE ASSY W6	43
1	1014094	BRACKET, CONNECTOR	42
6	MS35649-84	NUT, PLAIN HEX	41
3	1006988-2	SLIDE, CHASSIS RH	40
16	MS35649-44	NUT, PLAIN HEX	39
2	1014013	RETAINER, CAPTIVE SCREW	38
4	1006982-8	WASHER, NYLON	37
43	MS35338-80	WASHER, LOCK SPLIT	36
22	MS35338-79	WASHER, LOCK SPLIT	35
20	MS35338-78	WASHER, LOCK SPLIT	34
20	MS15795-803	WASHER, FLAT	33
43	MS15795-807	WASHER, FLAT	32
22	MS15795-805	WASHER, FLAT	31
16	MS51957-16	SCR, PAN HD, CROSS-RECESSED	30
32	MS51957-45	SCR, PAN HD, CROSS-RECESSED	29
4	MS51957-13	SCR, PAN HD, CROSS-RECESSED	28
5	MS51957-44	SCR, PAN HD, CROSS-RECESSED	27
22	MS51957-29	SCR, PAN HD, CROSS-RECESSED	26
16	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	25
18	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	24
5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	23
2	1014005	SCREW, SHOULDER	22
2	1014081	BRACKET, SUPPORT	21
2	2014236	BRACKET, PIVOT ARM	20
1	1014018	TOOL EXTRACTING	19
1	1014028	CHANNEL BOTTOM LEFT	18
1	1014027	CHANNEL BOTTOM RIGHT	17
3	1006988-4	SLIDE, CHASSIS, RH	16
1	1006980-1	GROMMET, NYLON	15
AR	1006981	ADHESIVE, SELF-CURING	14
1	2014034-011	INTERCONN PLATE NO 6	13
3	1006988-1	SLIDE, CHASSIS LH	12
1	1014120	CABLE ASSY W4	11
1	1014046-3	CABLE ASSY W3	10
1	1014046-2	CABLE ASSY W2	9
1	1014046-1	CABLE ASSY W1	8
1	2014033-011	LOGIC PLATE ASSY	7
1	2014032-011	LOGIC PLATE ASSY	6
1	2014030-011	LOGIC PLATE ASSY	5
1	1020205-011	CHASSIS ASSY DC PWR SUPPLY	4
1	2014031-011	PANEL, FRONT	3
1	1014017	BRACKET, CABLE GUIDE	2
1	1014045-8	CHASSIS STRUCTURE	1
-011	LIST OF MATERIALS		

1900030	
FINAL	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12775
DRAWN DATE 12 MAY 65
CHECKED 8 JUL 65
APPROVAL 9 JULY 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

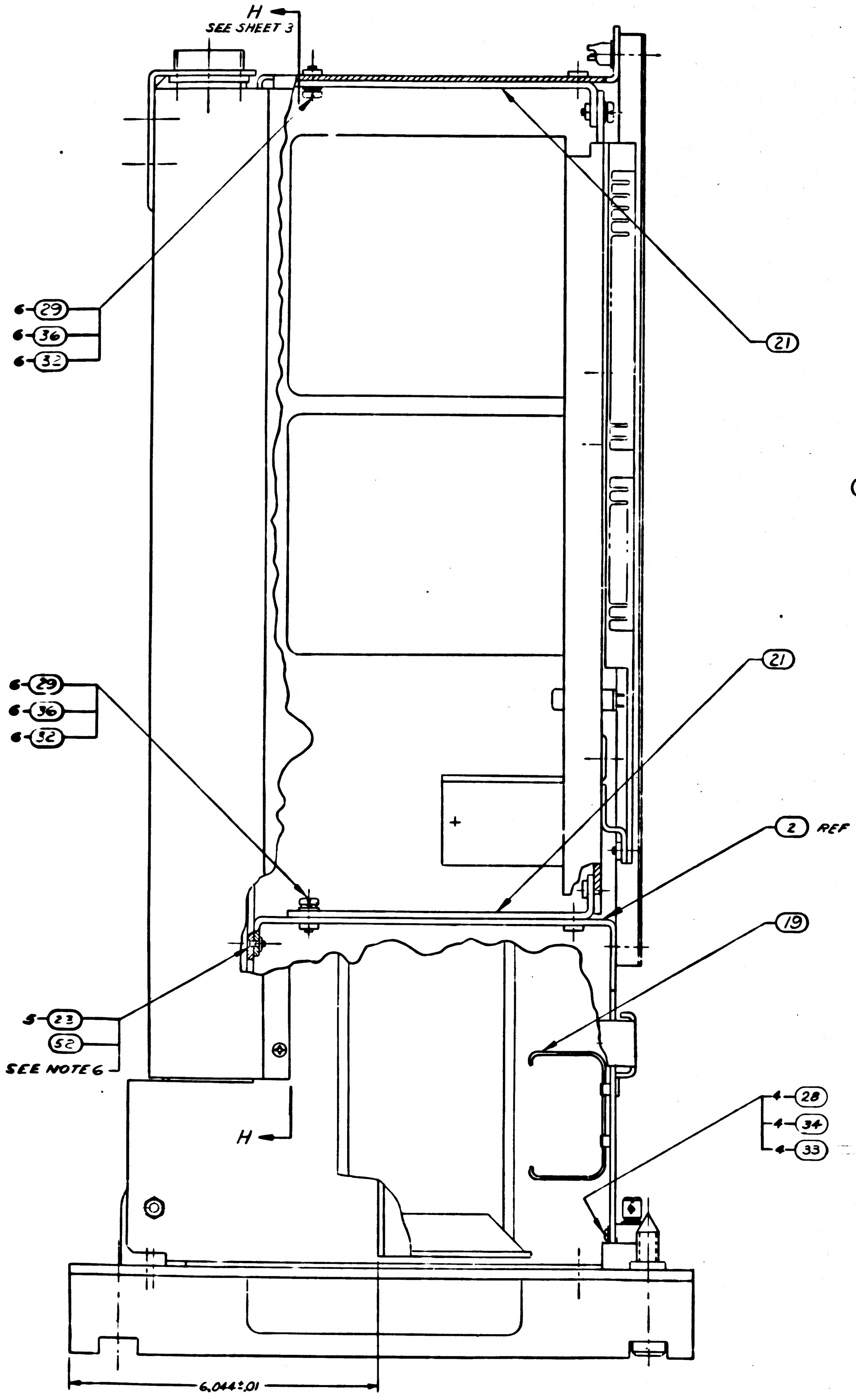
DRAWER ASSEMBLY
APOLLO COMPUTER SIMULATOR

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014048
SCALE 1/1
WT
SHEET 1 OF 3

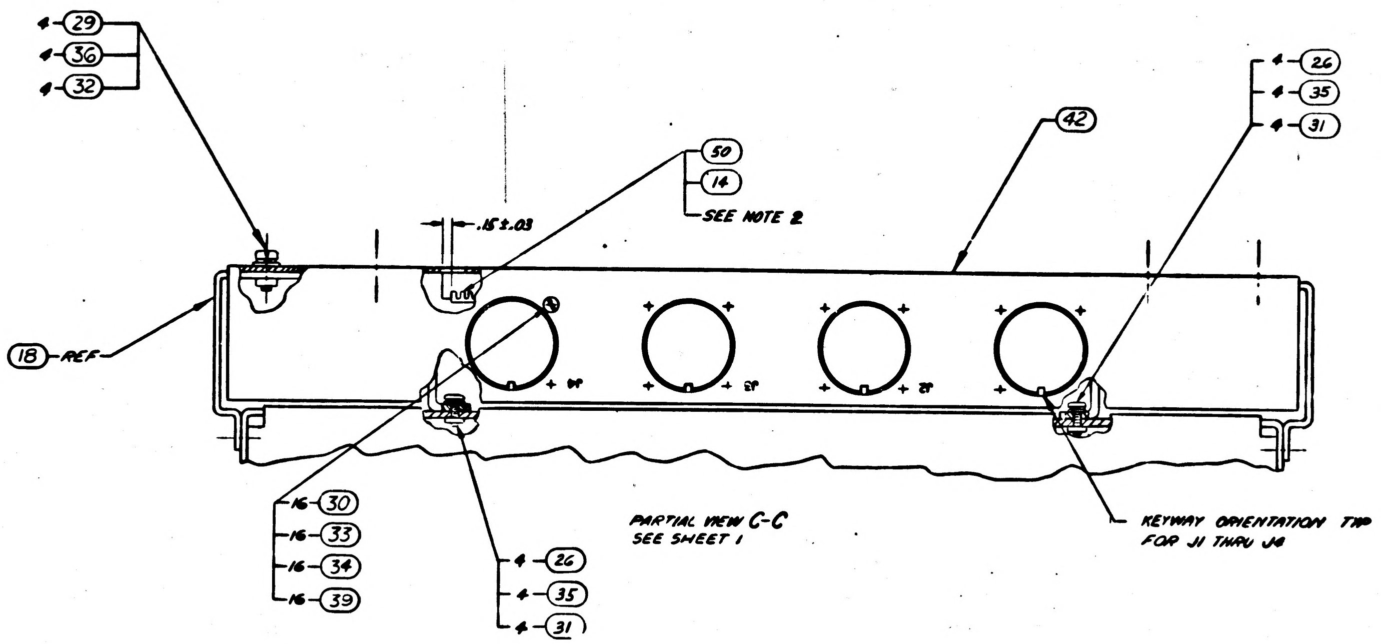
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014048 A

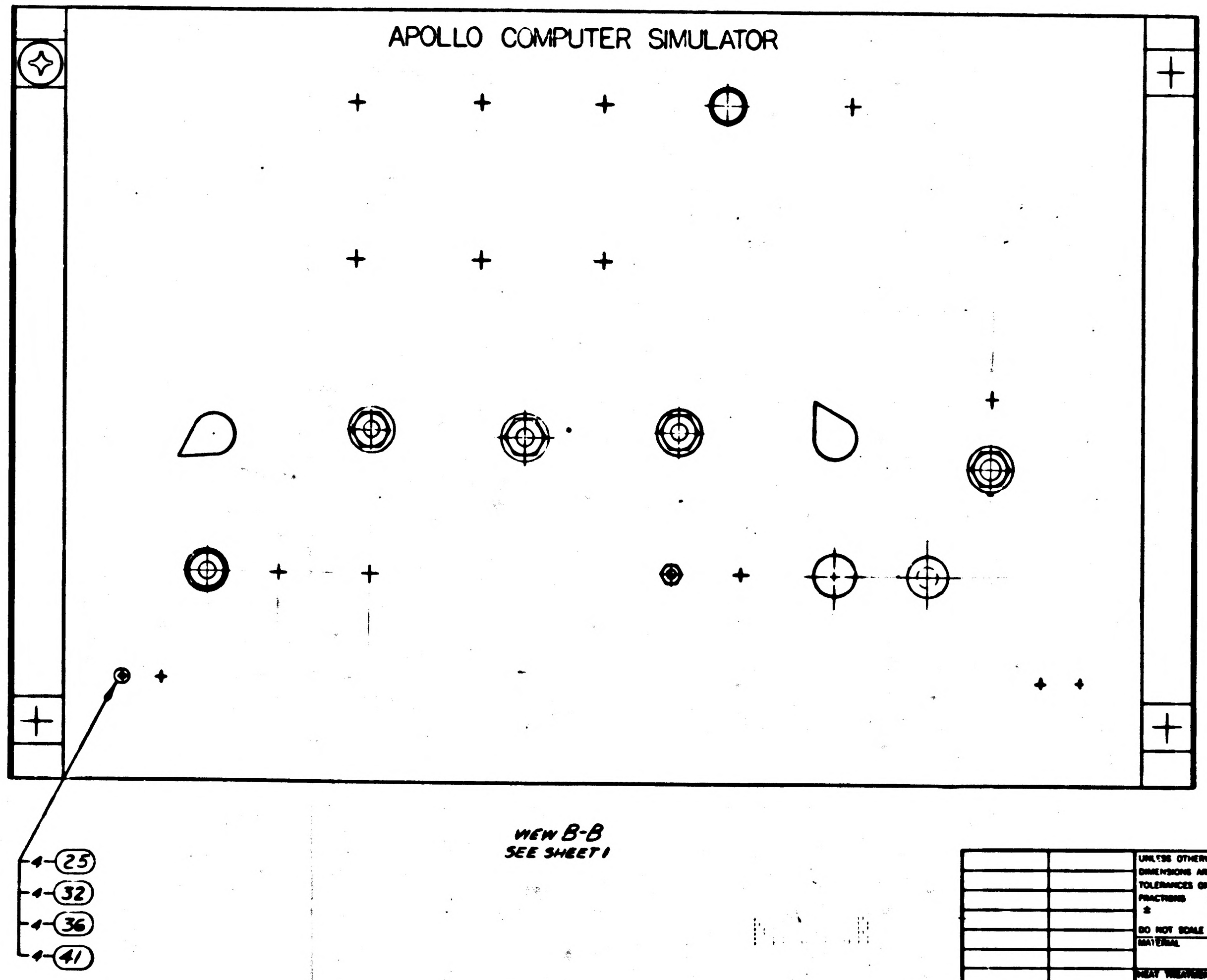
SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER ... 25045	1/9/65	
–	CLASS A RELEASE PER TDRR 21380		
A	CHANGED PER TDRR 2640 DR. CHK. APPD	27 AUG 65	


H
SEE SHEET 3
6-29
6-36
6-32
21
21
6-29
6-36
6-32
2 REF
19
5-23
52
SEE NOTE 6
H
4-28
4-34
4-33
6.044±.01

VIEW A-A
SEE SHEET 1


4-29
4-36
4-32
18-REF
.15±.03
50
14
SEE NOTE 2
42
4-26
4-35
4-31
16-30
16-33
16-34
16-39
4-26
4-35
4-31
KEYWAY ORIENTATION TYP FOR J1 THRU J4

PARTIAL VIEW C-C
SEE SHEET 1


APOLLO COMPUTER SIMULATOR
4-25
4-32
4-36
4-41

VIEW B-B
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12775
DRAWN DATE 12 APR 65
CHECKED J. ... 8 JUN 65
APPROVAL P. C. Duck 9 JULY 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
APOLLO COMPUTER SIMULATOR

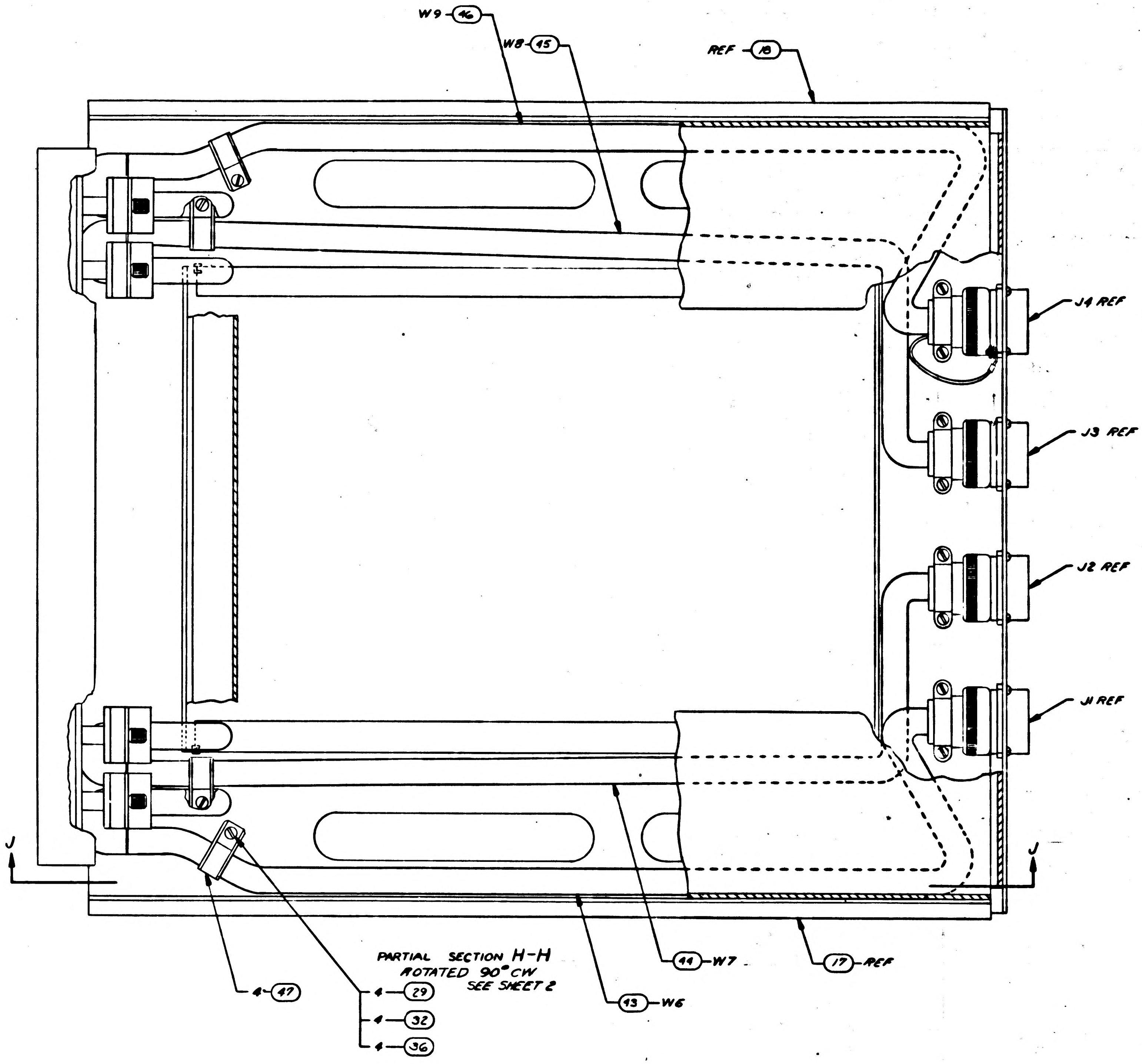
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014048
SCALE 1/1
WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

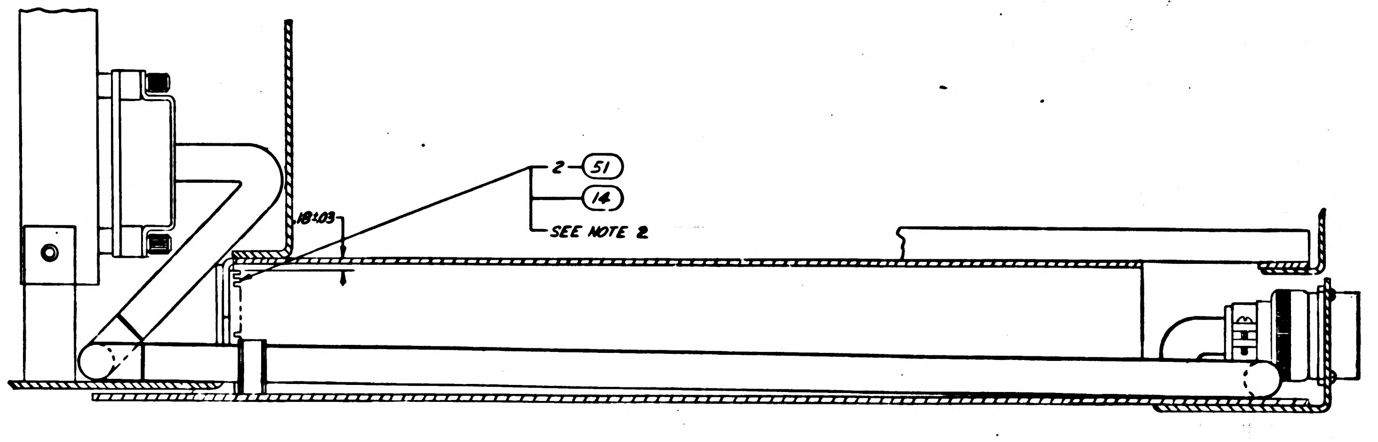
2014048 A

ANY USE OF THIS DOCUMENT FOR OTHER THAN GOVERNMENTAL PURPOSES IS SUBJECT TO PRIOR WRITTEN CONSENT OF RAYTHEON CO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER S-A 25095	1/3/65	
—	CLASS A RELEASE PER TDRR 2,380		
A	CHANGED PER TDRR 2,640 DR R. CHK APPD	27 AUG 65	



PARTIAL SECTION H-H
ROTATED 90° CW
SEE SHEET 2



PARTIAL SECTION J-J

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY | USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

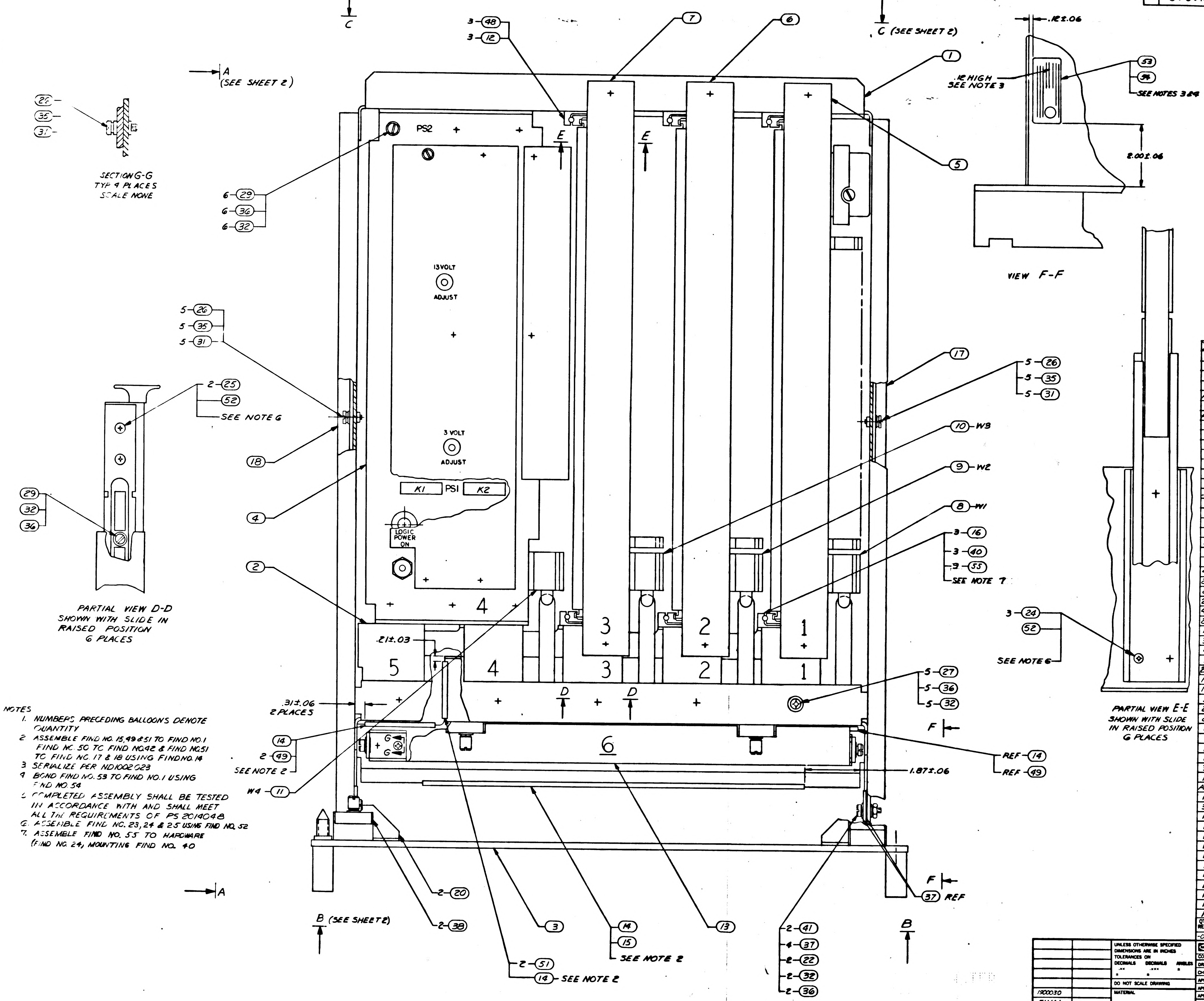
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-
DRAWN DATE 3/11/65
CHECKED J. 3 JUN 65
APPROVAL E. E. Dale 2 JULY 65
APPROVAL R.G. 7/9/65
APPROVAL 7/5/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
APOLLO COMPUTER SIMULATOR

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014048
SCALE 1/1
WT
SHEET 3 OF 3

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 85095	7/9/65	
—	CLASS A RELEASE PER TDRR 21380		
A	CHANGED PER TDRR 21640 DR R. Emmett CHK C. Fagin APPD	27 AUG 65	
B	CHANGED PER TDRR 23263 DR 13 Kitch CHK J. Poganski APPD	23 OCT 65	



2014048 B
C
C (SEE SHEET 2)
A (SEE SHEET 2)
SECTION G-G
TYP 4 PLACES
SCALE NONE
26
35
31
PS2
PS1
K1
K2
13VOLT ADJUST
3 VOLT ADJUST
LOGIC POWER ON
E
E
3-48
3-12
7
6
1
5
6-29
6-36
6-32
.12±.06
12 HIGH SEE NOTE 3
53
54
SEE NOTES 3 & 4
2.00±.06
VIEW F-F
5-26
5-35
5-31
17
2-25
52
SEE NOTE 6
18
4
10-W3
9-W2
8-W1
3-16
3-40
3-55
SEE NOTE 7
2
29
32
36
PARTIAL VIEW D-D
SHOWN WITH SLIDE IN
RAISED POSITION
6 PLACES
.21±.03
5
4
3
2
1
6
D
D
.31±.06
2 PLACES
5-27
5-36
5-32
14
2-49
SEE NOTE 2
W4-11
F
REF-14
REF-49
1.87±.06
3-24
52
SEE NOTE 6
PARTIAL VIEW E-E
SHOWN WITH SLIDE
IN RAISED POSITION
6 PLACES
F
37 REF
A
2-20
2-38
B (SEE SHEET 2)
3
14
15
SEE NOTE 2
13
2-41
2-37
2-22
2-32
2-36
B
2-51
14 SEE NOTE 2

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE FIND NO. 15, 49 & 51 TO FIND NO. 1 FIND NO. 50 TO FIND NO. 42 & FIND NO. 51 TO FIND NO. 17 & 18 USING FIND NO. 14
3. SERIALIZE PER ND1002023
4. BOND FIND NO. 53 TO FIND NO. 1 USING FIND NO. 54
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014048
6. ASSEMBLE FIND NO. 23, 24 & 25 USING FIND NO. 52
7. ASSEMBLE FIND NO. 55 TO HARDWARE (FIND NO. 24), MOUNTING FIND NO. 40

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014028	INTERCONN DIAGRAM	REF
1	MS51957-28	SCR, PAN HD CROSS-RECESSED	56
9	MS24679-22	NUT, PLAIN CAP, LOW CROWN	55
AR	MIL-A-5092 TYPE II	ADHESIVE	54
1	1004260-202	NAMEPLATE, APOLLO G&N	53
AR	MIL-S-22473, GR HV	COMPOUND, SEALING	52
4	1006980-5	GROMMET, NYLON	51
1	1006980-4	GROMMET, NYLON	50
2	1006980-3	GROMMET, NYLON	49
3	1006988-3	SLIDE, CHASSIS LH	48
4	MS21919DG12	CLAMP, CABLE	47
1	1014112-4	CABLE ASSY W9	46
1	2014071-031	CABLE ASSY W8	45
1	2014071-021	CABLE ASSY W7	44
1	2014071-011	CABLE ASSY W6	43
1	1014094	BRACKET, CONNECTOR	42
6	MS35649-84	NUT, PLAIN HEX	41
3	1006988-2	SLIDE, CHASSIS RH	40
16	MS35649-44	NUT, PLAIN HEX	39
2	1014013	RETAINER, CAPTIVE SCREW	38
4	1006982-8	WASHER, NYLON	37
43	MS35338-80	WASHER, LOCK SPLIT	36
22	MS35338-79	WASHER, LOCK SPLIT	35
20	MS35338-78	WASHER, LOCK SPLIT	34
20	MS15795-803	WASHER, FLAT	33
43	MS15795-807	WASHER, FLAT	32
22	MS15795-805	WASHER, FLAT	31
16	MS51957-16	SCR, PAN HD, CROSS-RECESSED	30
32	MS51957-45	SCR, PAN HD, CROSS-RECESSED	29
4	MS51957-13	SCR, PAN HD CROSS-RECESSED	28
5	MS51957-44	SCR, PAN HD, CROSS-RECESSED	27
21	MS51957-29	SCR, PAN HD, CROSS-RECESSED	26
16	MS51959-46	SCR, FLAT HD. CROSS-RECESSED	25
18	MS51959-44	SCR, FLAT HD. CROSS-RECESSED	24
5	MS51959-28	SCR, FLAT HD. CROSS-RECESSED	23
2	1014005	SCREW, SHOULDER	22
2	1014081	BRACKET, SUPPORT	21
2	2014236	BRACKET, PIVOT ARM	20
1	1014018	TOOL EXTRACTING	19
1	1014028	CHANNEL BOTTOM LEFT	18
1	1014027	CHANNEL BOTTOM RIGHT	17
3	1006988-4	SLIDE, CHASSIS, RH	16
1	1006980-1	GROMMET, NYLON	15
AR	1006981	ADHESIVE, SELF-CURING	14
1	2014034-011	INTERCONN PLATE NO 6	13
3	1006988-1	SLIDE, CHASSIS LH	12
1	1014120	CABLE ASSY W4	11
1	1014046-3	CABLE ASSY W3	10
1	1014046-2	CABLE ASSY W2	9
1	1014046-1	CABLE ASSY W1	8
1	2014033-011	LOGIC PLATE ASSY	7
1	2014032-011	LOGIC PLATE ASSY	6
1	2014030-011	LOGIC PLATE ASSY	5
1	1020205-011	CHASSIS ASSY DC PWR SUPPLY	4
1	2014031-011	PANEL, FRONT	3
1	1014017	BRACKET, CABLE GUIDE	2
1	1014045-8	CHASSIS STRUCTURE	1
-011	LIST OF MATERIALS		

2014048 B

1900030	
FINAL	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 12 MAY 65
CHECKED [illegible] 8 JUL 65
APPROVAL P. E. Duck 9 JULY 65
APPROVAL [illegible] 7/9/65
APPROVAL [illegible] 7/9/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

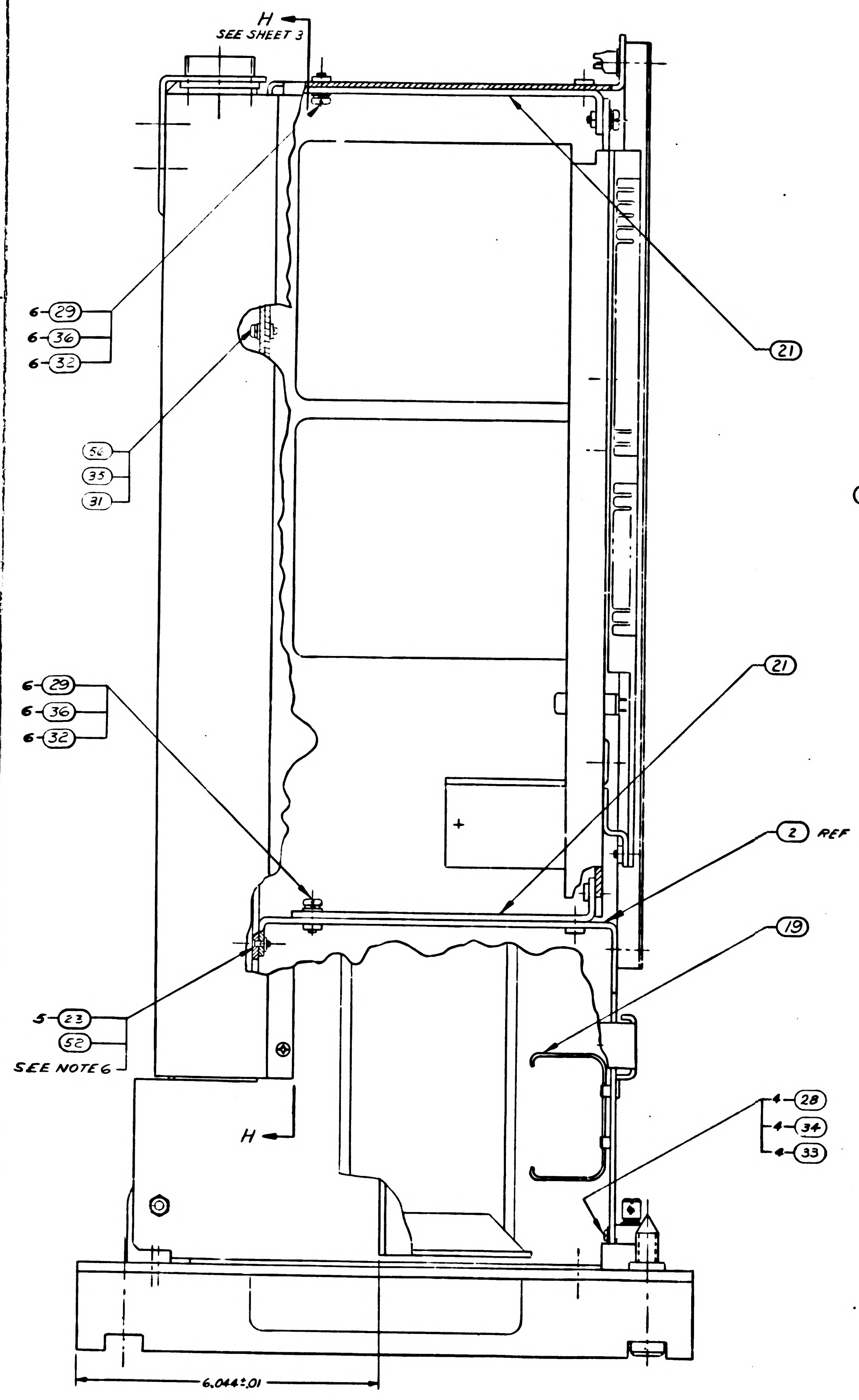
DRAWER ASSEMBLY
APOLLO COMPUTER SIMULATOR

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014048
SCALE 1/1
WT
SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

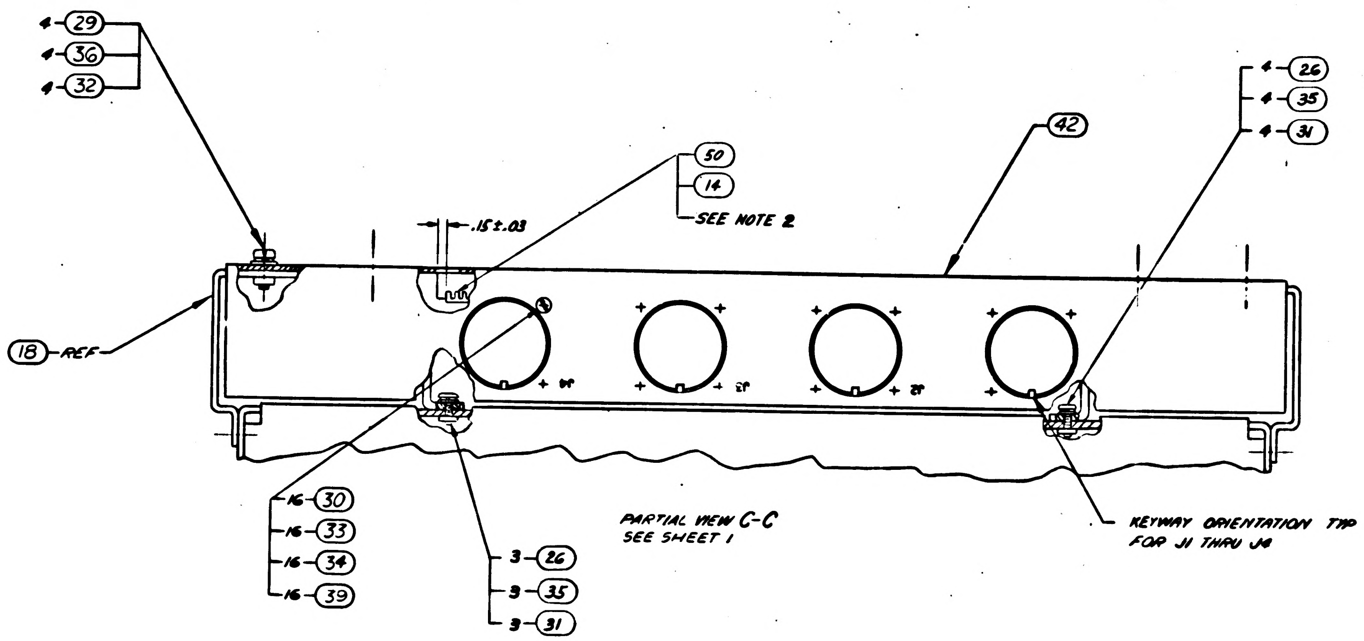
2014048 B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCF 35045	1965	
–	CLASS A RELEASE PER TDRR 2350		
A	CHANGED PER TDRR 2640 DR CHK APPD		
B	CHANGED PER TDRR 23263 DR CHK APPD		



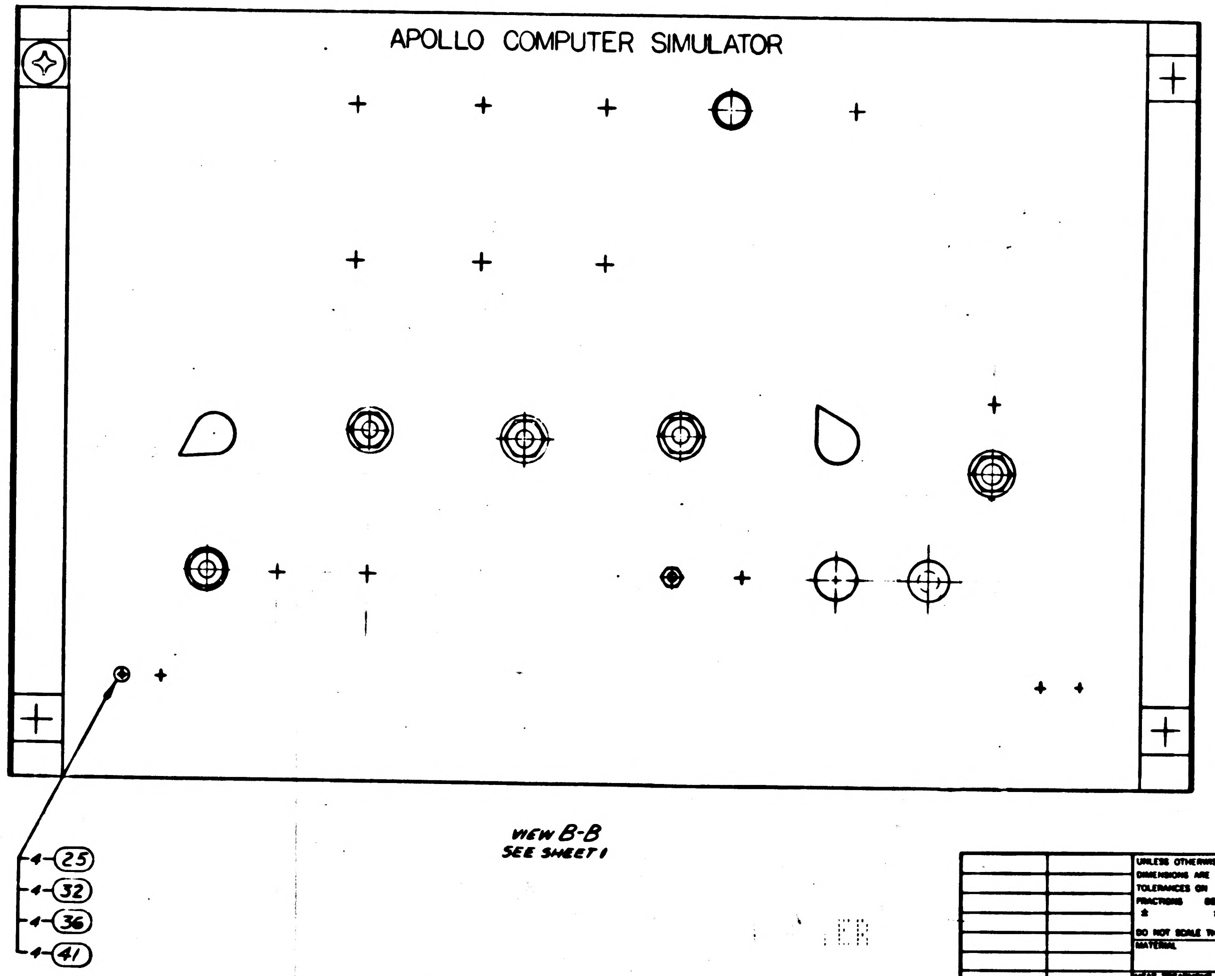
H
SEE SHEET 3
6-29
6-36
6-32
56
35
31
21
6-29
6-36
6-32
21
2 REF
19
5-23
52
SEE NOTE 6
H
4-28
4-34
4-33
6.044±.01

VIEW A-A
SEE SHEET 1



4-29
4-36
4-32
18-REF
.15±.03
50
14
SEE NOTE 2
42
4-26
4-35
4-31
16-30
16-33
16-34
16-39
3-26
3-35
3-31
KEYWAY ORIENTATION TAB
FOR J1 THRU J4

PARTIAL VIEW C-C
SEE SHEET 1



APOLLO COMPUTER SIMULATOR
4-25
4-32
4-36
4-41

VIEW B-B
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN W. Wellesley DATE 12 APR 65
CHECKED J. Bom 3 JUN 65
APPROVAL R. C. Davis 9 JUN 65
APPROVAL 2/19/65
APPROVAL 2/19/65
NASA APPROVAL
MIT APPROVAL 3 Aug 65
MIT APPROVAL 11/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
APOLLO COMPUTER SIMULATOR

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014048
SCALE 1/1
WT
SHEET 2 OF 3

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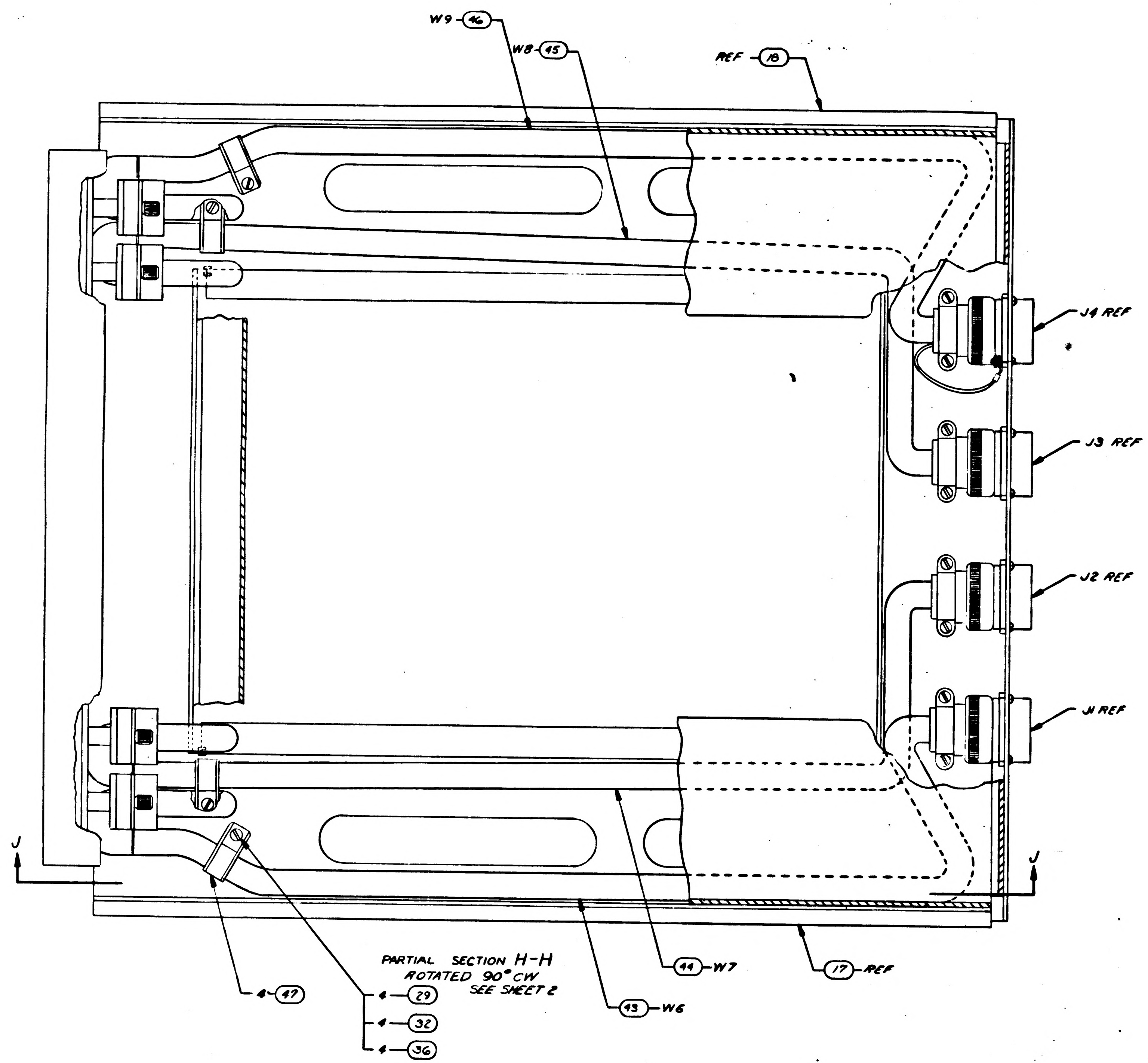
2014048 B

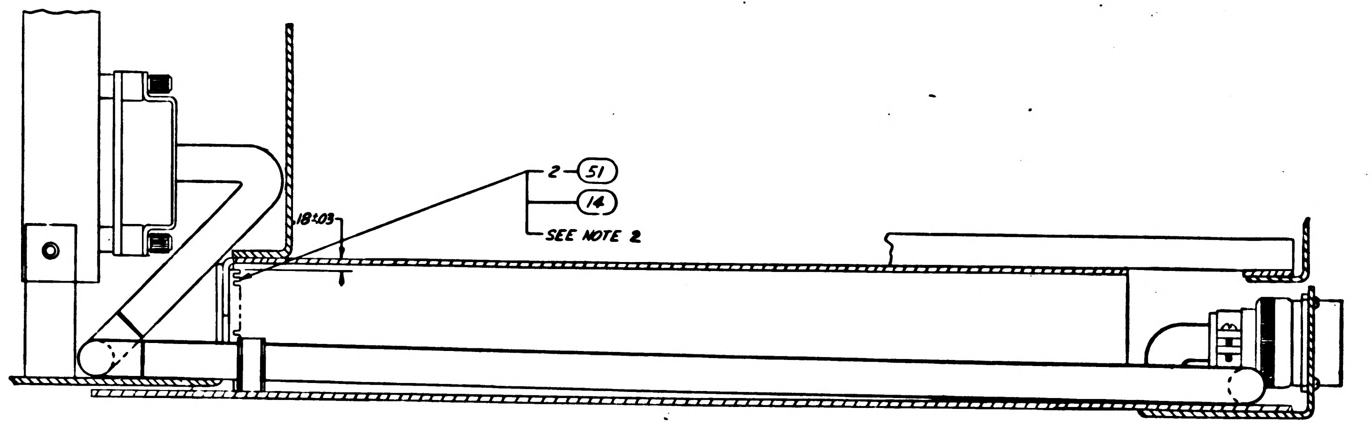
ANY USE OF THIS DOCUMENT FOR OTHER THAN GOVERNMENTAL PURPOSES IS SUBJECT TO PRIOR WRITTEN CONSENT OF RAYTHEON CO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25095	[illegible]	[illegible]
—	CLASS A RELEASE PER TDRR 21380		
A	CHANGED PER TDRR 21640 DR R.[illegible] CHK [illegible] APPD [illegible]	[illegible] AUG 65	[illegible]
B	CHANGED PER TDRR 23268 DR B Kato CHK [illegible] APPD [illegible]	23OC 65	[illegible]



PARTIAL SECTION H-H
ROTATED 90° CW
SEE SHEET 2



PARTIAL SECTION J-J

2014048 B

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

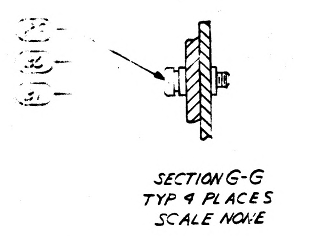
LIST OF MATERIALS

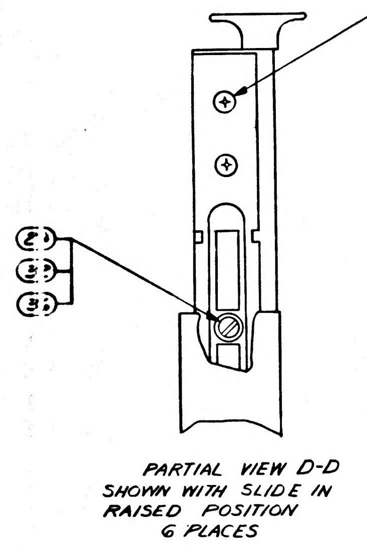
NEXT ASSY	USED ON
APPLICATION	

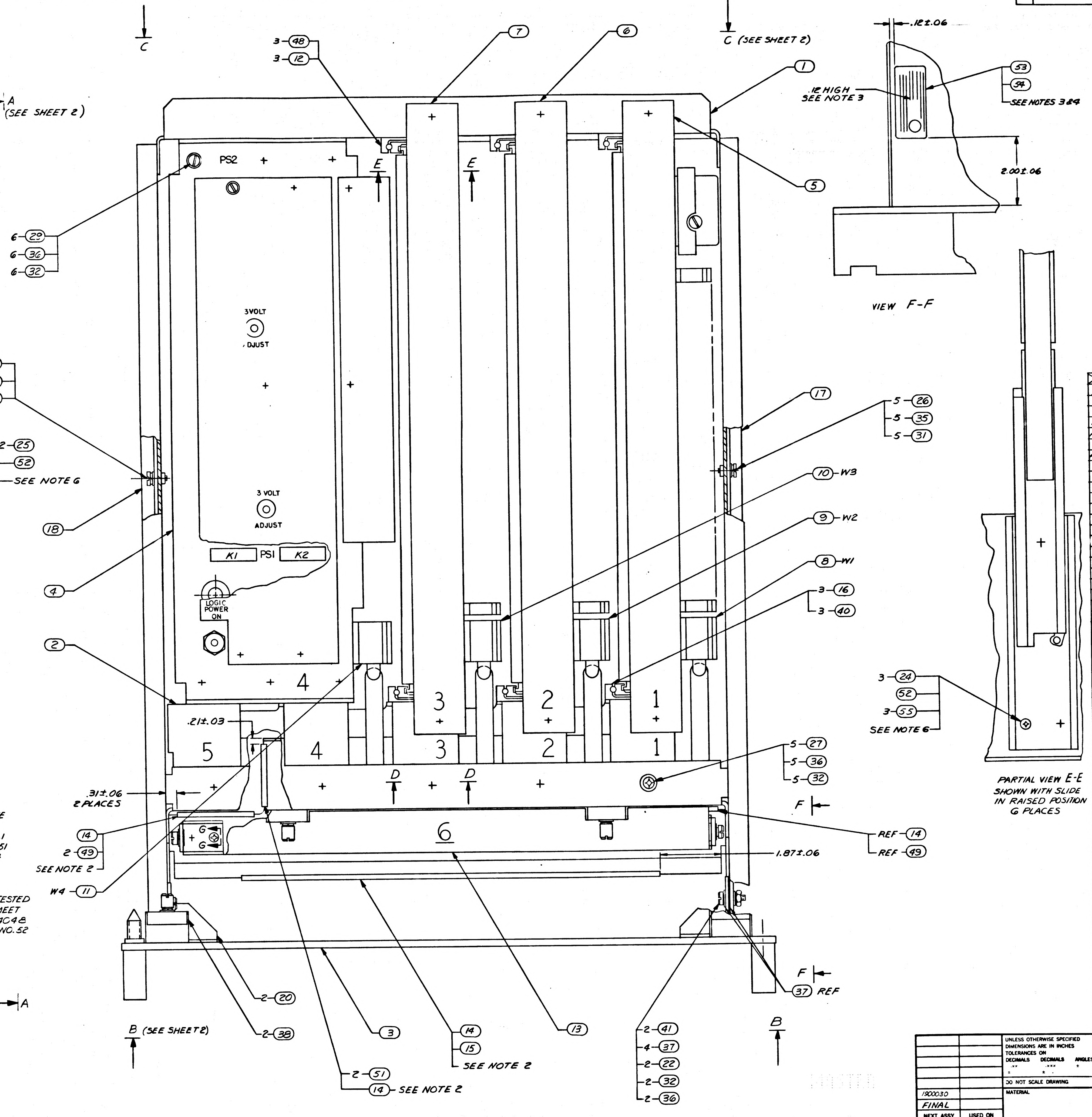
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
CONTRACT NO NAS 9-497	
DRAWN [illegible] DATE 3/10/65	DRAWER ASSEMBLY APOLLO COMPUTER SIMULATOR
CHECKED [illegible] 3 JUN 65	
APPROVAL [illegible] 9 JULY 65	
APPROVAL R G [illegible]	
APPROVAL [illegible]	
NASA APPROVAL [illegible]	CODE IDENT NO 49956
MIT APPROVAL [illegible]	SIZE J
MIT APPROVAL [illegible]	NASA DRAWING NO. 2014048
SCALE 1/1	WT
SHEET 3 OF 3	

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25095	7/9/65	
—	CLASS A RELEASE PER TDRR 21380		


SECTION G-G
TYP 4 PLACES
SCALE NONE


2-(25)
(52)
SEE NOTE 6
PARTIAL VIEW D-D
SHOWN WITH SLIDE IN
RAISED POSITION
6 PLACES


A (SEE SHEET 2)
C
C (SEE SHEET 2)
3-(48)
3-(12)
(7)
(6)
(1)
(5)
6-(29)
6-(30)
6-(32)
PS2
E
3 VOLT ADJUST
3 VOLT ADJUST
K1 PS1 K2
LOGIC POWER ON
5-(26)
5-(35)
5-(31)
(18)
(4)
(2)
(17)
(10)-W3
(9)-W2
(8)-W1
3-(16)
3-(40)
4 3 2 1
5 4 3 2 1
.21±.03
.31±.06 2 PLACES
D
5-(27)
5-(36)
5-(32)
6
(14)
2-(49)
SEE NOTE 2
W4-(11)
REF-(14)
REF-(49)
1.87±.06
F
(37) REF
2-(20)
2-(38)
(3)
(14)
(15)
SEE NOTE 2
(13)
2-(51)
(14)- SEE NOTE 2
2-(41)
4-(37)
2-(22)
2-(32)
2-(36)
B (SEE SHEET 2)
B
A
.12±.06
.12 HIGH SEE NOTE 3
(53)
(54)
SEE NOTES 3&4
2.00±.06
VIEW F-F
3-(24)
(52)
3-(55)
SEE NOTE 6
PARTIAL VIEW E-E
SHOWN WITH SLIDE
IN RAISED POSITION
6 PLACES

NOTE:
1 NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2 ASSEMBLE FIND NO. 15,49 & 51 TO FIND NO. 1 FIND NO. 50 TO FIND NO. 42 & FIND NO. 51 TO FIND NO. 17 & 18 USING FIND NO. 14
3 SERIALIZE PER ND1002023
4 BOND FIND NO. 53 TO FIND NO. 1 USING FIND NO. 54
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014048
6. ASSEMBLE FIND NO. 25 USING FIND NO. 52

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014028	INTERCONN DIAGRAM	REF
18	MS24679-82	NUT, PLAIN CAP, LOW CROWN	55
AR	MIL-A-5092 TYPE II	ADHESIVE	54
1	1004260-202	NAMEPLATE, APOLLO G&N	53
AR	MIL-S-22473, GR HV	COMPOUND, SEALING	52
4	1006980-5	GROMMET, NYLON	51
1	1006980-4	GROMMET, NYLON	50
2	1006980-3	GROMMET, NYLON	49
3	1006988-3	SLIDE, CHASSIS LH	48
4	MS25281-10	CLAMP, CABLE	47
1	1014112-4	CABLE ASSY W9	46
1	2014071-031	CABLE ASSY W8	45
1	2014071-021	CABLE ASSY W7	44
1	2014071-011	CABLE ASSY W6	43
1	1014094	BRACKET, CONNECTOR	42
6	MS35649-84	NUT, PLAIN HEX	41
3	1006988-2	SLIDE, CHASSIS RH	40
16	MS35649-44	NUT, PLAIN HEX	39
2	1014013	RETAINER, CAPTIVE SCREW	38
4	1006982-8	WASHER, NYLON	37
43	MS35338-80	WASHER, LOCK SPLIT	36
22	MS35338-79	WASHER, LOCK SPLIT	35
20	MS35338-78	WASHER, LOCK SPLIT	34
16	MS15795-803	WASHER, FLAT	33
43	MS15795-807	WASHER, FLAT	32
22	MS15795-805	WASHER, FLAT	31
16	MS51957-16	SCR, PAN HD, CROSS-RECESSED	30
32	MS51957-45	SCR, PAN HD, CROSS-RECESSED	29
4	MS51957-13	SCR, PAN HD, CROSS-RECESSED	28
5	MS51957-44	SCR, PAN HD, CROSS-RECESSED	27
22	MS51957-29	SCR, PAN HD, CROSS-RECESSED	26
16	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	25
18	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	24
5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	23
2	1014005	SCREW, SHOULDER	22
2	1014081	BRACKET, SUPPORT	21
2	2014236	BRACKET, PIVOT ARM	20
1	1014018	TOOL EXTRACTING	19
1	1014028	CHANNEL BOTTOM LEFT	18
1	1014027	CHANNEL BOTTOM RIGHT	17
3	1006988-4	SLIDE, CHASSIS, RH	16
1	1006980-1	GROMMET, NYLON	15
AR	1006981	ADHESIVE, SELF-CURING	14
1	2014034-011	INTERCONN PLATE NO. 6	13
3	1006988-1	SLIDE, CHASSIS LH	12
1	1014120	CABLE ASSY W4	11
1	1014046-3	CABLE ASSY W3	10
1	1014046-2	CABLE ASSY W2	9
1	1014046-1	CABLE ASSY W1	8
1	2014033-011	LOGIC PLATE ASSY	7
1	2014032-011	LOGIC PLATE ASSY	6
1	2014030-011	LOGIC PLATE ASSY	5
1	1020205	CHASSIS ASSY DC PWR SUPPLY	4
1	2014031-011	PANEL, FRONT	3
1	1014017	BRACKET, CABLE GUIDE	2
1	1014045-8	CHASSIS STRUCTURE	1

-011 LIST OF MATERIALS

2014048 | —

1900030	
FINAL	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .xx ± DECIMALS .xxx ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12775
DRAWN DATE 12 MAY 65
CHECKED 8 JUL 65
APPROVAL 9 JULY 65
APPROVAL 7/9/65
APPROVAL 7/9/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 7/9/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
APOLLO COMPUTER SIMULATOR

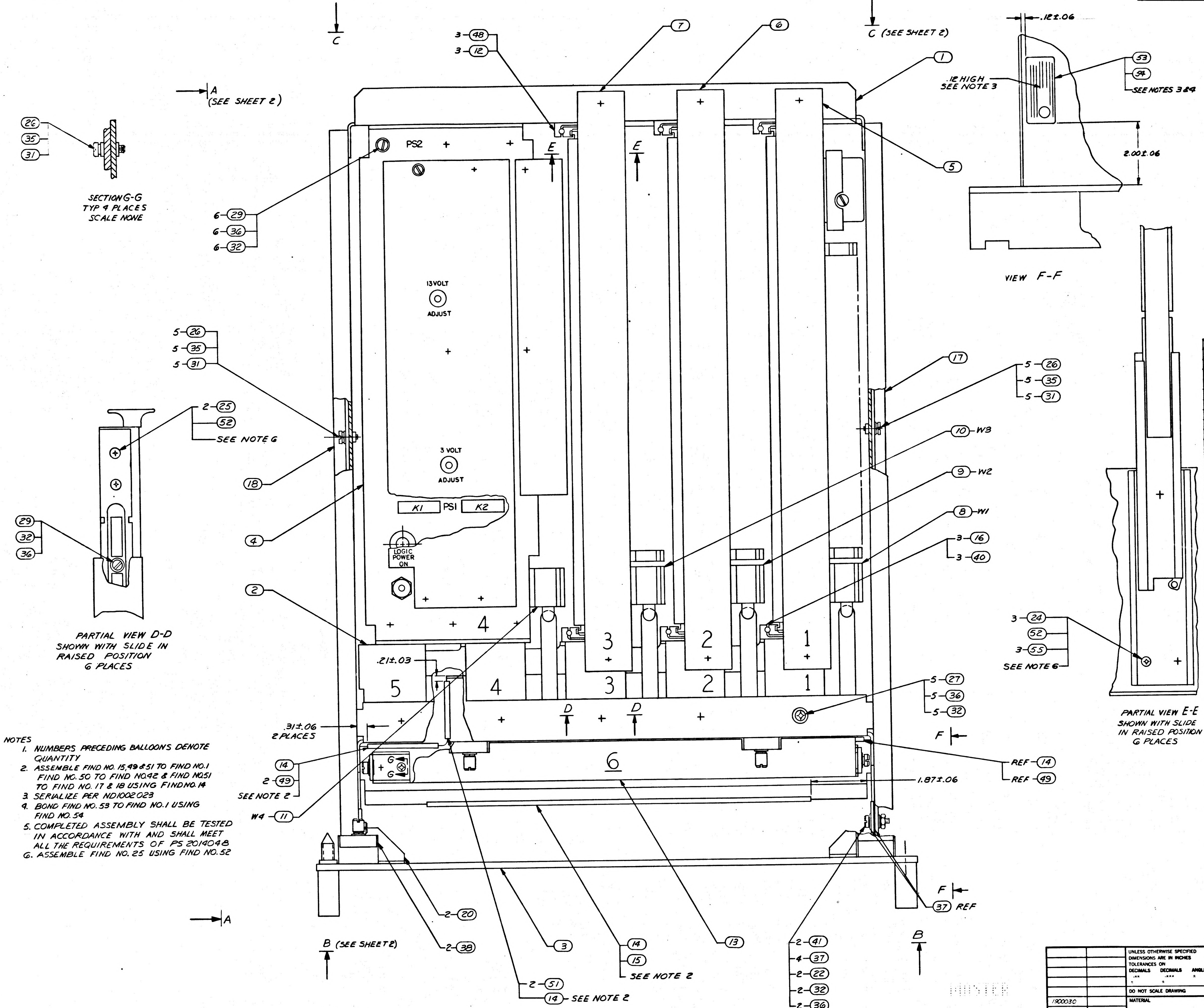
CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014048
SCALE 1/1 | WT | SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

24

E-2

SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER CCA 25095	7/9/65	
—	CLASS A RELEASE PER TDRR 21380		


C
C (SEE SHEET 2)
A (SEE SHEET 2)
SECTION G-G
TYP 4 PLACES
SCALE NONE
26
35
31
3-48
3-12
7
6
1
5
E
E
PS2
6-29
6-36
6-32
13 VOLT ADJUST
3 VOLT ADJUST
K1
PS1
K2
LOGIC POWER ON
5-26
5-35
5-31
18
4
2
2-25
52
SEE NOTE 6
29
32
36
PARTIAL VIEW D-D
SHOWN WITH SLIDE IN RAISED POSITION
6 PLACES
.21±.03
5
4
3
2
1
.31±.06
2 PLACES
D
D
14
2-49
SEE NOTE 2
W4-11
G
G
6
1.87±.06
17
5-26
-5-35
-5-31
10-W3
9-W2
8-W1
3-16
3-40
5-27
-5-36
-5-32
F
F
REF-14
REF-49
37 REF
2-20
2-38
3
14
15
SEE NOTE 2
13
2-51
14-SEE NOTE 2
2-41
4-37
2-22
2-32
2-36
B (SEE SHEET 2)
B
A
.12±.06
.12 HIGH
SEE NOTE 3
53
54
SEE NOTES 3 & 4
2.00±.06
VIEW F-F
3-24
52
3-55
SEE NOTE 6
PARTIAL VIEW E-E
SHOWN WITH SLIDE IN RAISED POSITION
6 PLACES

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. ASSEMBLE FIND NO. 15,49 & 51 TO FIND NO.1 FIND NO. 50 TO FIND NO.42 & FIND NO.51 TO FIND NO. 17 & 18 USING FIND NO. 14
3. SERIALIZE PER ND1002023
4. BOND FIND NO. 53 TO FIND NO. 1 USING FIND NO. 54
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014048
6. ASSEMBLE FIND NO. 25 USING FIND NO. 52

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014028	INTERCONN DIAGRAM	REF
18	MS24679-82	NUT, PLAIN CAP, LOW CROWN	55
AR	MIL-A-5092 TYPE II	ADHESIVE	54
1	1004260-202	NAMEPLATE, APOLLO G&N	53
AR	MIL-S-22473, GR HV	COMPOUND, SEALING	52
4	1006980-5	GROMMET, NYLON	51
1	1006980-4	GROMMET, NYLON	50
2	1006980-3	GROMMET, NYLON	49
3	1006988-3	SLIDE, CHASSIS LH	48
4	MS25281-10	CLAMP, CABLE	47
1	1014112-4	CABLE ASSY W9	46
1	2014071-031	CABLE ASSY W8	45
1	2014071-021	CABLE ASSY W7	44
1	2014071-011	CABLE ASSY W6	43
1	1014094	BRACKET, CONNECTOR	42
6	MS35649-84	NUT, PLAIN HEX	41
3	1006988-2	SLIDE, CHASSIS RH	40
16	MS35649-44	NUT, PLAIN HEX	39
2	1014013	RETAINER, CAPTIVE SCREW	38
4	1006982-8	WASHER, NYLON	37
43	MS35338-80	WASHER, LOCK SPLIT	36
22	MS35338-79	WASHER, LOCK SPLIT	35
20	MS35338-78	WASHER, LOCK SPLIT	34
16	MS15795-803	WASHER, FLAT	33
43	MS15795-807	WASHER, FLAT	32
22	MS15795-805	WASHER, FLAT	31
16	MS51957-16	SCR, PAN HD, CROSS-RECESSED	30
32	MS51957-45	SCR, PAN HD, CROSS-RECESSED	29
4	MS51957-13	SCR, PAN HD, CROSS-RECESSED	28
5	MS51957-44	SCR, PAN HD, CROSS-RECESSED	27
22	MS51957-29	SCR, PAN HD, CROSS-RECESSED	26
16	MS51959-46	SCR, FLAT HD, CROSS-RECESSED	25
18	MS51959-44	SCR, FLAT HD, CROSS-RECESSED	24
5	MS51959-28	SCR, FLAT HD, CROSS-RECESSED	23
2	1014005	SCREW, SHOULDER	22
2	1014081	BRACKET, SUPPORT	21
2	2014236	BRACKET, PIVOT ARM	20
1	1014018	TOOL EXTRACTING	19
1	1014028	CHANNEL BOTTOM LEFT	18
1	1014027	CHANNEL BOTTOM RIGHT	17
3	1006988-4	SLIDE, CHASSIS RH	16
1	1006980-1	GROMMET, NYLON	15
AR	1006981	ADHESIVE, SELF-CURING	14
1	2014034-011	INTERCONN PLATE NO 6	13
3	1006988-1	SLIDE, CHASSIS LH	12
1	1014120	CABLE ASSY W4	11
1	1014046-3	CABLE ASSY W3	10
1	1014046-2	CABLE ASSY W2	9
1	1014046-1	CABLE ASSY W1	8
1	2014033-011	LOGIC PLATE ASSY	7
1	2014032-011	LOGIC PLATE ASSY	6
1	2014030-011	LOGIC PLATE ASSY	5
1	1020205	CHASSIS ASSY DC PWR SUPPLY	4
1	2014031-011	PANEL, FRONT	3
1	1014017	BRACKET, CABLE GUIDE	2
1	1014045-8	CHASSIS STRUCTURE	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
1900030	
FINAL	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. [illegible]P-2775
DRAWN DATE 12 MAY 65
CHECKED 8 JUL 65
APPROVAL 9 JULY 65
APPROVAL 7/9/65
APPROVAL 7/9/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 7/9/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWER ASSEMBLY
APOLLO COMPUTER SIMULATOR

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014048
SCALE 1/1
WT
SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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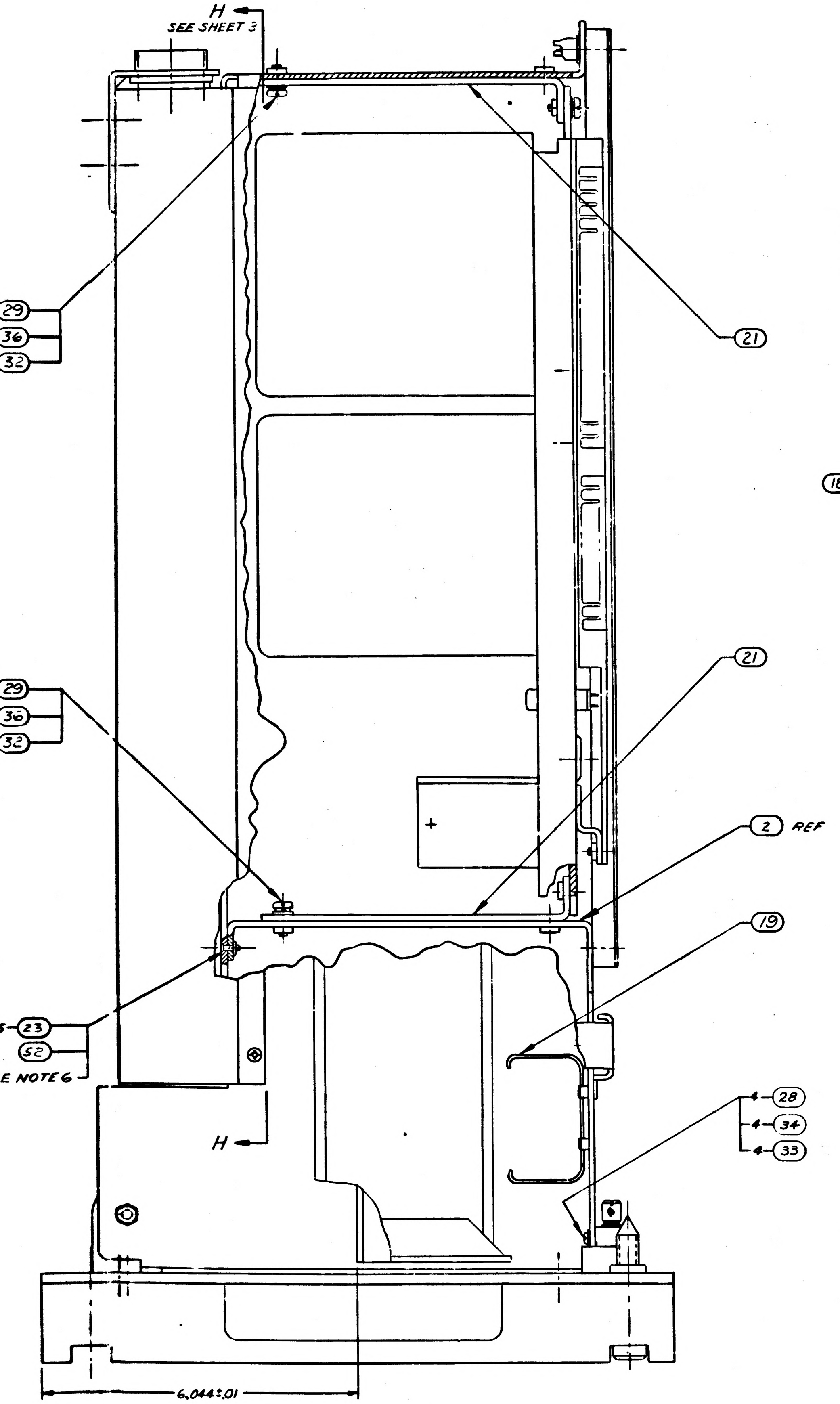
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25045	7/9/65	G. Hanane
-	CLASS A RELEASE PER TDRR 2.350		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SEE SHEET 3
29
36
32
21
29
36
32
21
2 REF
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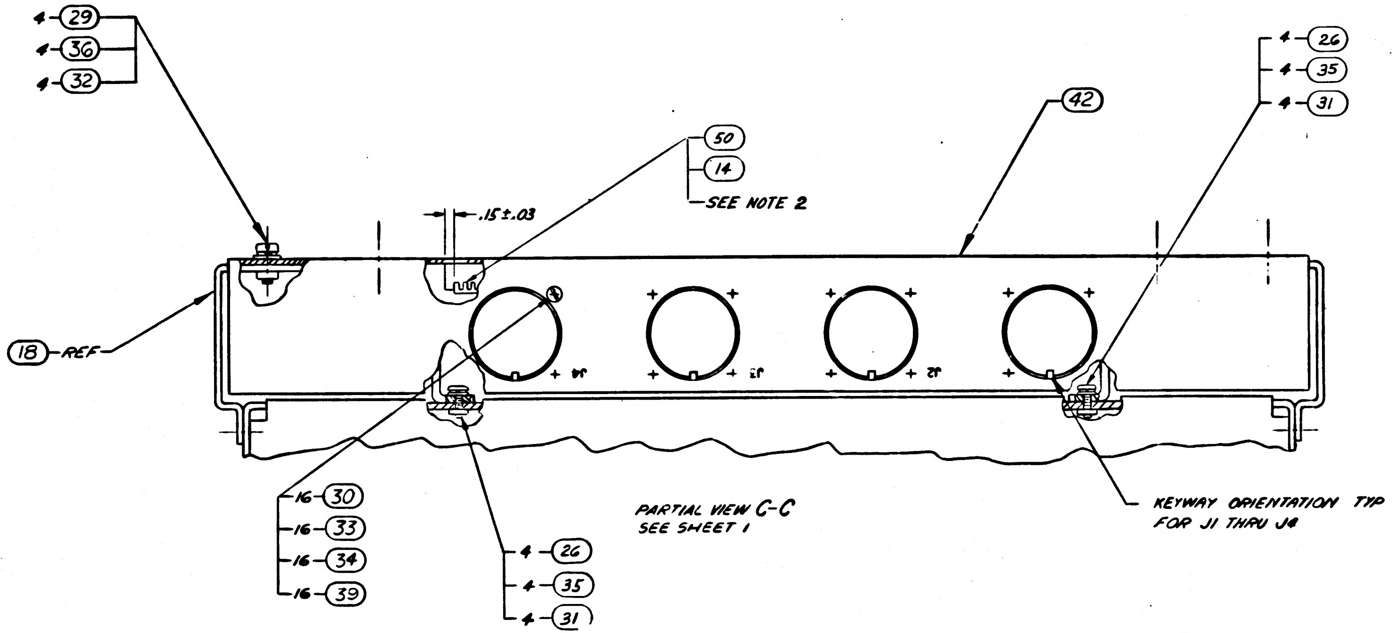
23
52
E NOTE 6
4-28
4-34
4-33
H
6.044±.01

VIEW A-A
SEE SHEET 1


4-29
4-36
4-32
50
14
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.15±.03
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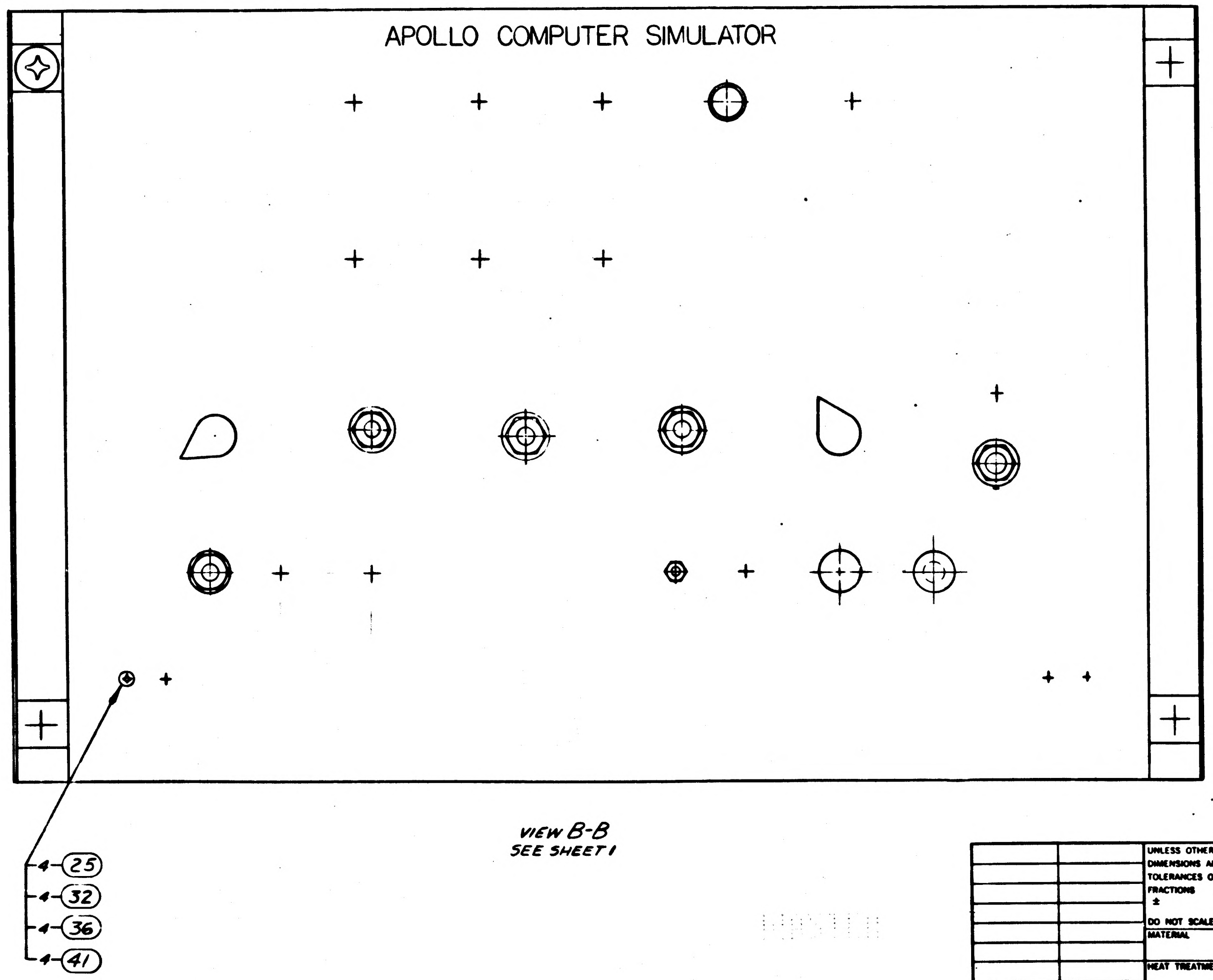
4-26
4-35
4-31
18 REF
J4
J3
J2
J1
16-30
16-33
16-34
16-39
4-26
4-35
4-31
KEYWAY ORIENTATION TYP FOR J1 THRU J4

PARTIAL VIEW C-C
SEE SHEET 1


APOLLO COMPUTER SIMULATOR
4-25
4-32
4-36
4-41

VIEW B-B
SEE SHEET 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
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MATERIAL
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FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO FNP-12775
DRAWN W. Kellenberg DATE 12 MAY 65
CHECKED J. Ham 3 JUN 65
APPROVAL P. C. Dunk 9 JULY 65
APPROVAL D. O'Bryant 7/9/65
APPROVAL 7/9/65
NASA APPROVAL 7/9/65
MIT APPROVAL 3 Aug 65
MIT APPROVAL

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DRAWER ASSEMBLY
APOLLO COMPUTER SIMULATOR

CODE IDENT NO	SIZE	NASA DRAWING NO
49956	J	2014048
SCALE 1/1	WT	SHEET 2 OF 3

F-2

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REVISIONS		
SYM	DESCRIPTION	
O	RELEASED PER CCA 25?45	
–	CLASS A RELEASE PER TDRR 2350	

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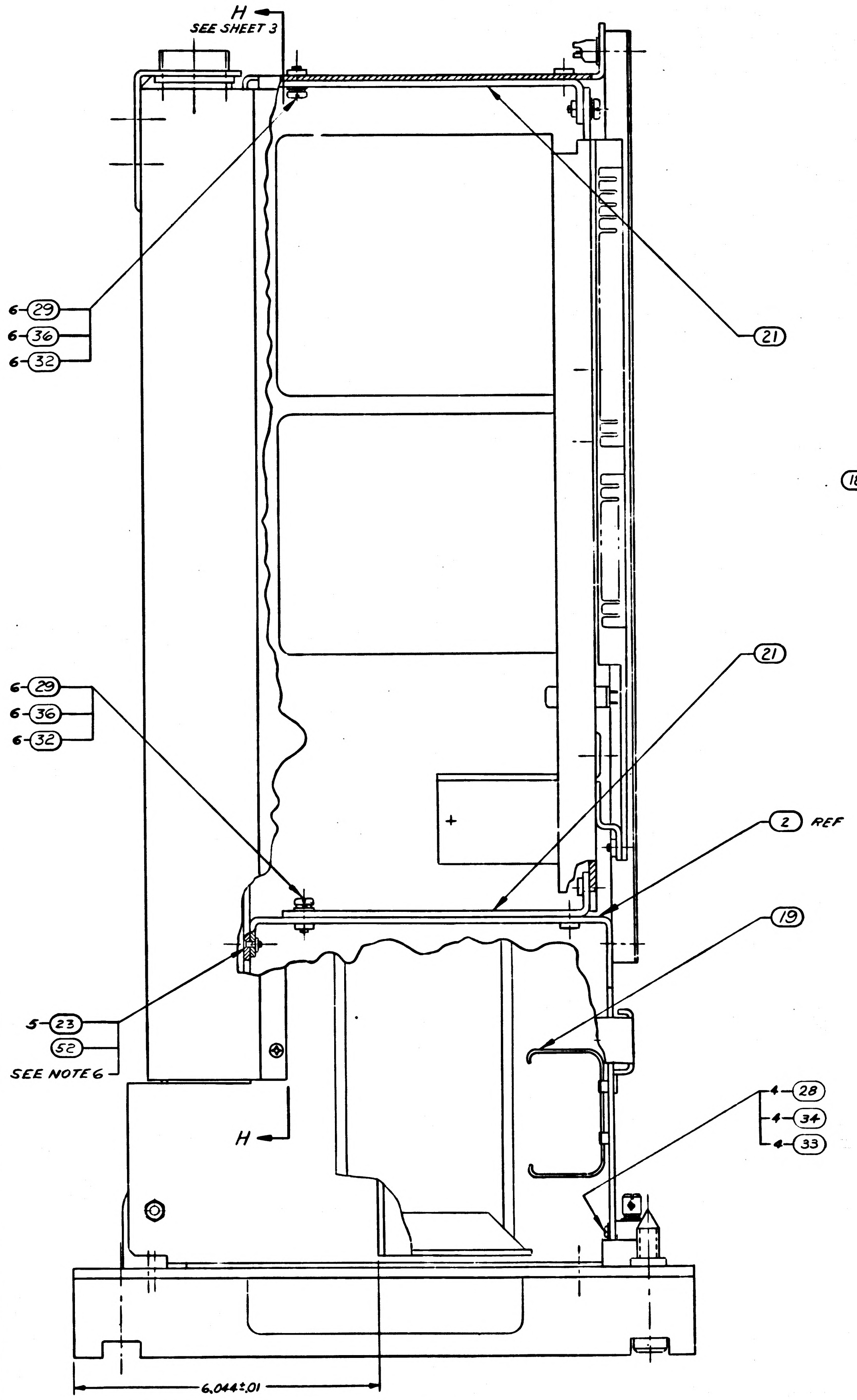
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SEE SHEET 3
6-(29)
6-(36)
6-(32)
(21)
6-(29)
6-(36)
6-(32)
(21)
(2) REF
(19)
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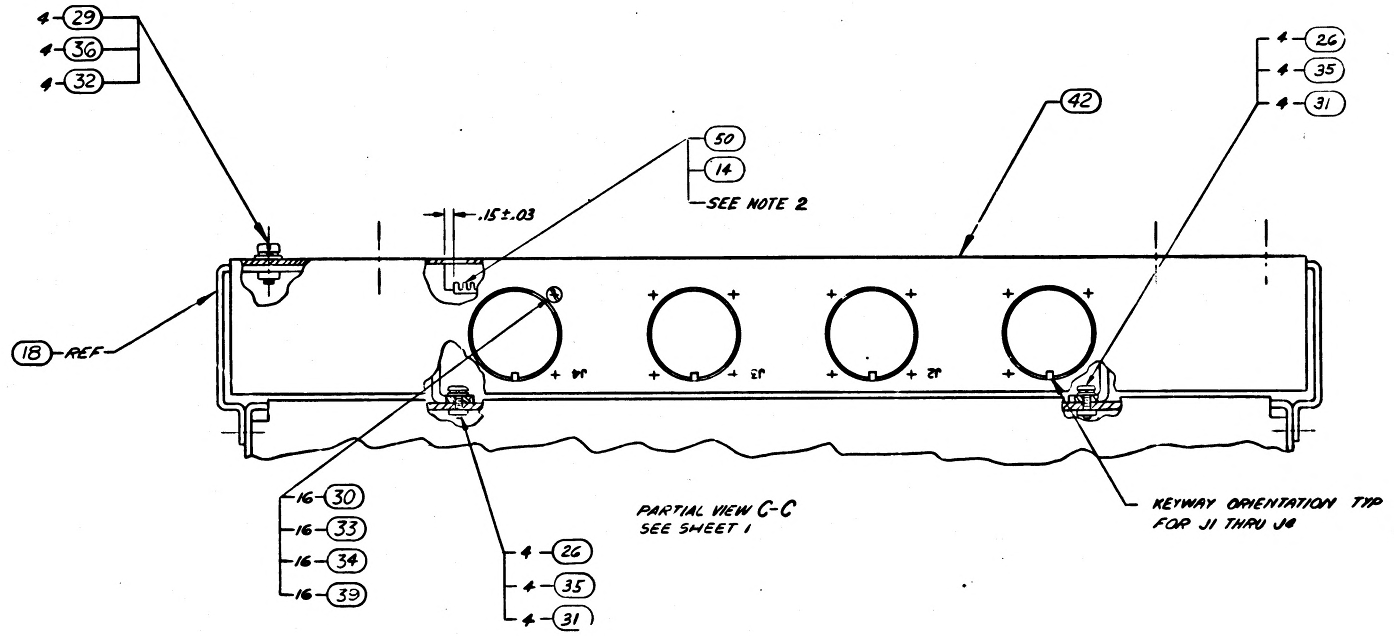
(52)
SEE NOTE 6
H
4-(28)
4-(34)
4-(33)
6.044±.01

VIEW A-A
SEE SHEET 1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SEE NOTE 2
(42)
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4-(35)
4-(31)
.15±.03
(18)-REF
J4
J3
J2
16-(30)
16-(33)
16-(34)
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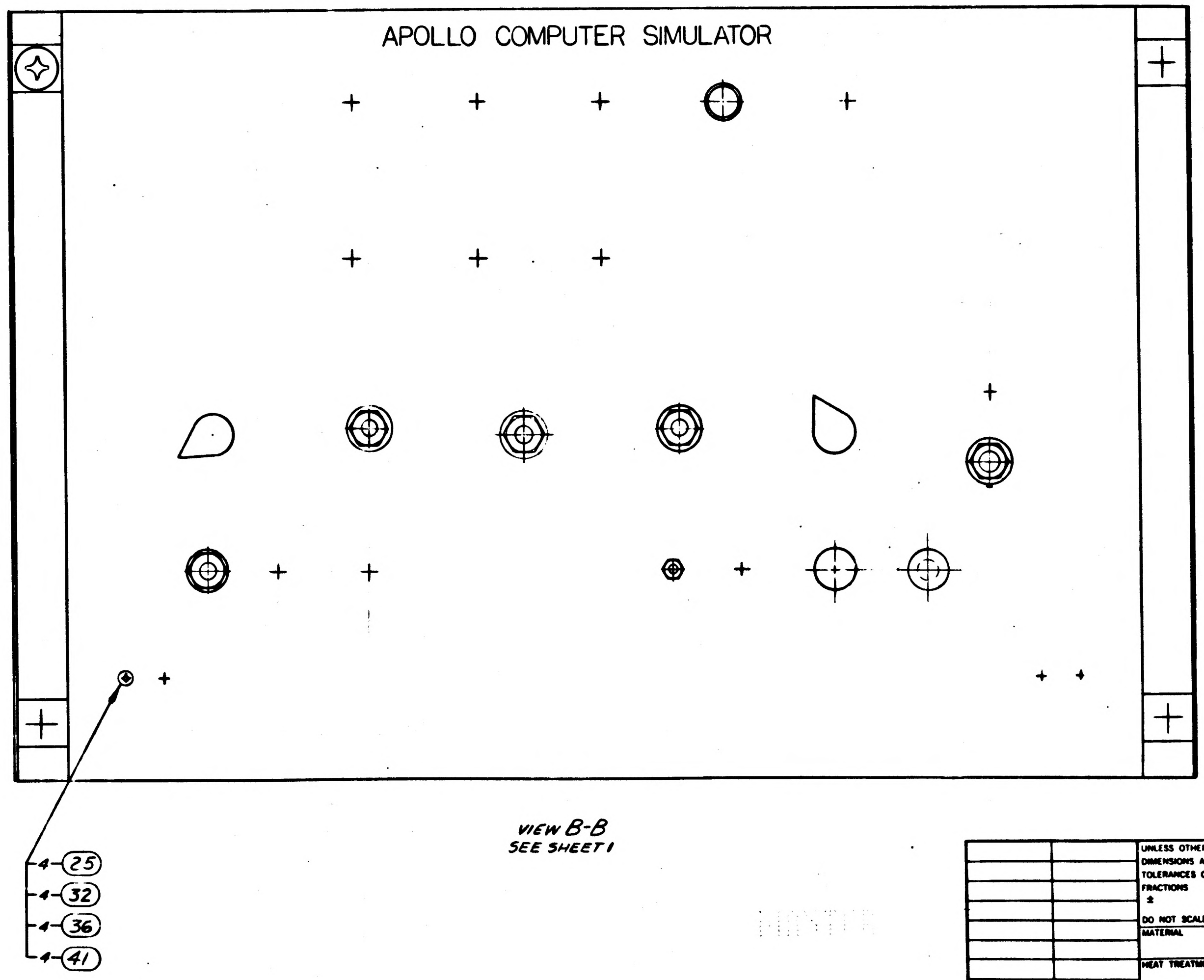
4-(26)
4-(35)
4-(31)
KEYWAY ORIENTATION TYP FOR J1 THRU J4

PARTIAL VIEW C-C
SEE SHEET 1


APOLLO COMPUTER SIMULATOR
4-(25)
4-(32)
4-(36)
4-(41)

VIEW B-B
SEE SHEET 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

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HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. [illegible]
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 3 JUN 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 65
MIT APPROVAL [illegible]

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APOLLO COMPUTER SIMUL

CODE IDENT NO	SIZE	NASA DRAWING NO
49956	J	2014
SCALE 1/1	WT	SHEET

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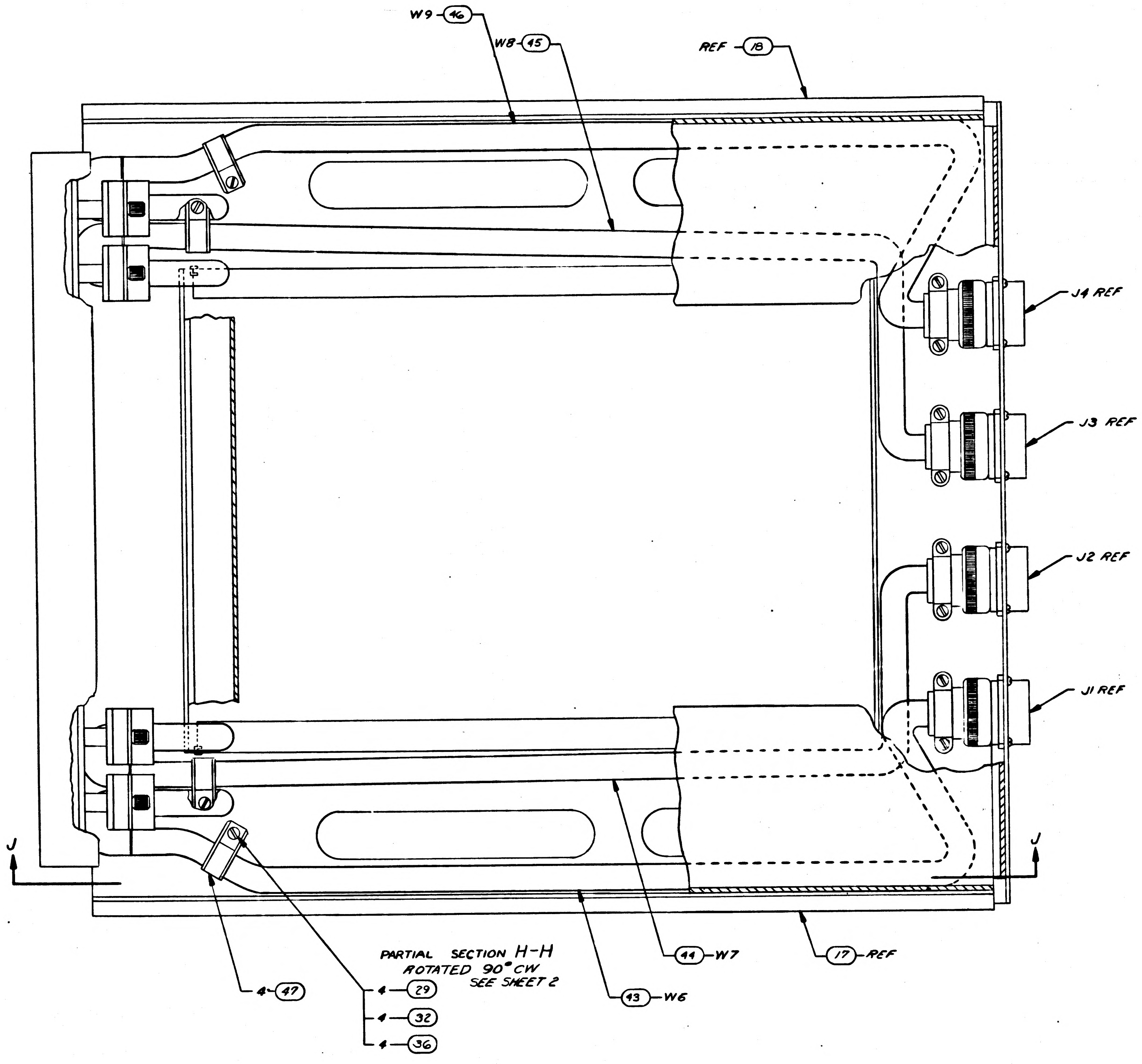
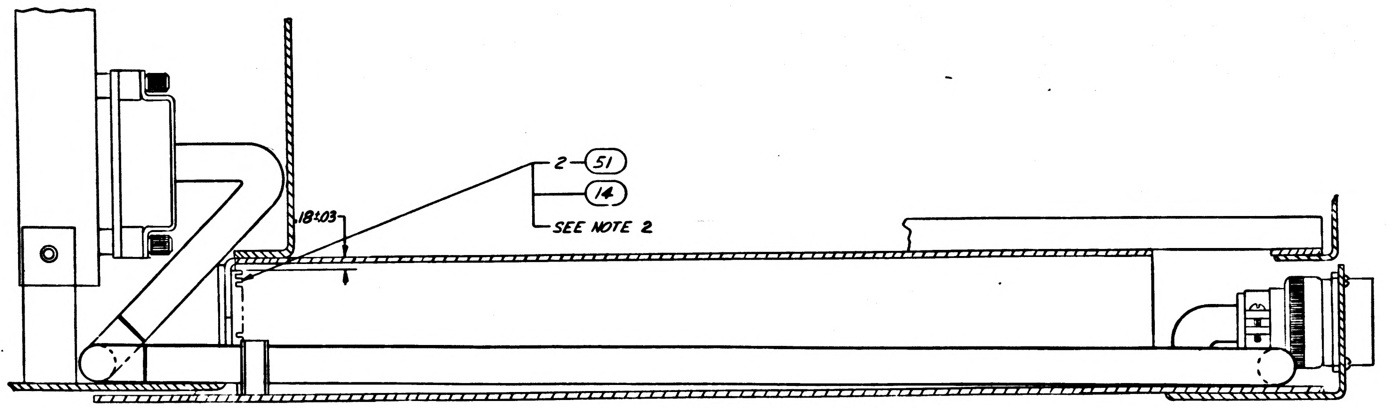
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25095	7/9/65	
—	CLASS A RELEASE PER TDRR 21380		



PARTIAL SECTION H-H
ROTATED 90° CW
SEE SHEET 2



PARTIAL SECTION J-J

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
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HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12775
DRAWN DATE 12 MAY 65
CHECKED 3 JUN 65
APPROVAL 9 JULY 65
APPROVAL 7/9/65
APPROVAL 7/8/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
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DRAWER ASSEMBLY
APOLLO COMPUTER SIMULATOR

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014048
SCALE 1/1
WT
SHEET 3 OF 3

2014048 -

2H

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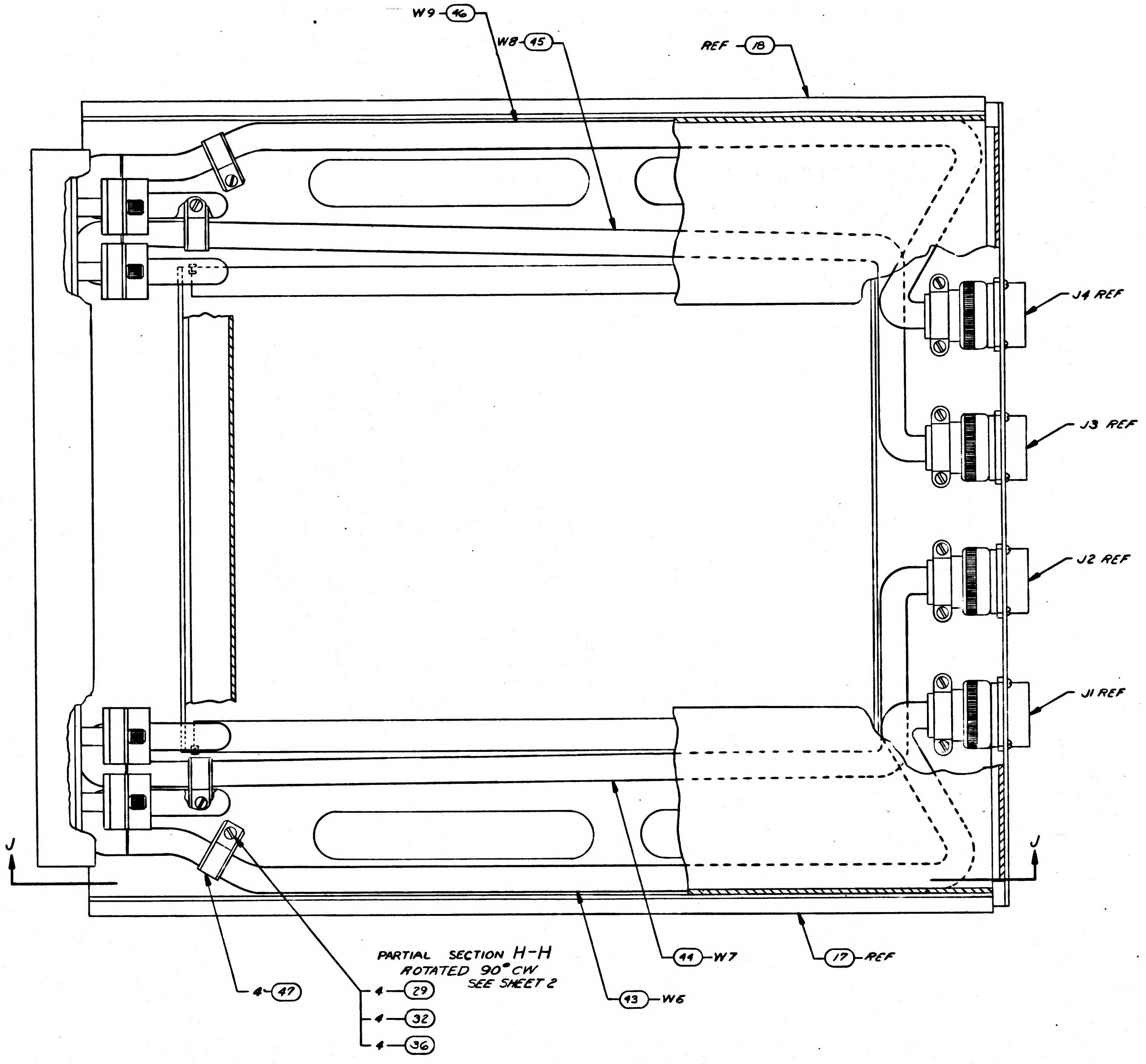
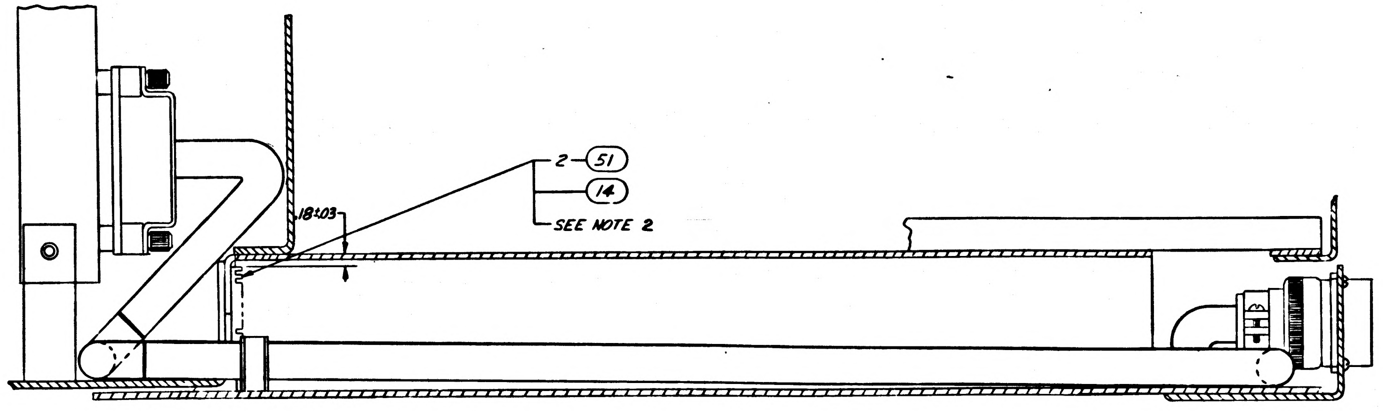


PARTIAL SECTION H-H
ROTATED 90° CW
SEE SHEET 2



PARTIAL SECTION J-J

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

RAYTHEON CO.
LEXINGTON, MASS
CONTRACT NO. [illegible]
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 3 JUN65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
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MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
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DRAWER ASSEMBLY
APOLLO COMPUTER SIMULAT

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 20140
SCALE 1/1
WT
SHEET 1

2014048 | —

SYM	DESCRIPTION	DATE	APPROVED
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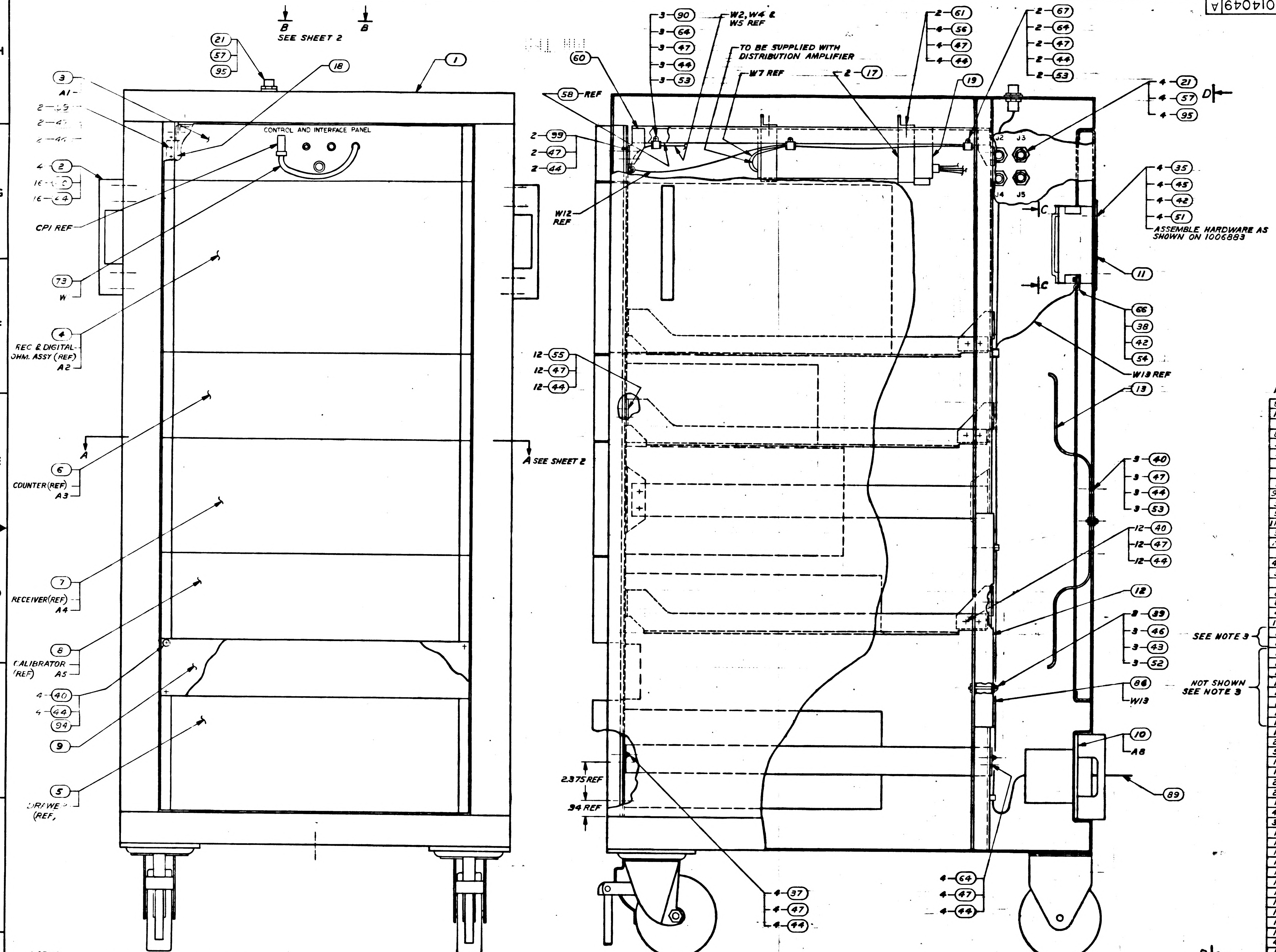
–	CLASS A RELEASE PER TDRR 23539		
A	CHANGED PER TDRR 24227 DR APPD	2 Dec 65	


B SEE SHEET 2 B
21 57 95
18
1
3 A1
2-39
2-47
4-44
CONTROL AND INTERFACE PANEL
4-2
16-40
16-44
CPI REF
73 W
4
REC & DIGITAL OHM. ASSY (REF) A2
A
6
COUNTER (REF) A3
7
RECEIVER (REF) A4
8
CALIBRATOR (REF) A5
4-40
4-44
94
9
5
DRAWER (REF)
A SEE SHEET 2
60
58 REF
2-39
2-47
2-44
W12 REF
3-90
3-64
3-47
3-44
3-53
W2, W4 & W5 REF
TO BE SUPPLIED WITH DISTRIBUTION AMPLIFIER
W7 REF
2-17
2-61
4-56
4-47
4-44
19
2-67
2-64
2-47
2-44
2-53
4-21
4-57
4-95
D
J2 J3 J4 J5
4-35
4-45
4-42
4-51
ASSEMBLE HARDWARE AS SHOWN ON 1006883
C
11
C
66
38
42
54
W13 REF
13
12-55
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86
W13
10
A8
89
2.375 REF
.34 REF
4-37
4-47
4-44
4-64
4-47
4-44
D SEE SHEET 2

PARTS LIST CONTINUED ON SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
8	MS51958-65	SCREW, PAN HD	56
12	MS16996-9	SCREW, SOCKET HD	55
1	MS21044C06	NUT, LOCK	54
8	MS35650-104	NUT, PLAIN, HEX.	53
3	MS35649-84	NUT, PLAIN, HEX.	52
9	MS35649-64	NUT, PLAIN, HEX.	51
1	MS35690-610	NUT, PLAIN, HEX.	50
1	MS35335-63	WASHER, LOCK, EXT TOOTH	49
1	MS35335-60	WASHER, LOCK, EXT TOOTH	48
93	MS35338-81	WASHER, LOCK	47
3	MS35338-80	WASHER, LOCK	46
5	MS35338-79	WASHER, LOCK	45
113	MS15795-808	WASHER, FLAT	44
3	MS15795-807	WASHER, FLAT	43
10	MS15795-805	WASHER, FLAT	42
1	MS21919DG9	CLAMP, CABLE	41
40	MS51958-63	SCREW, PAN HD	40
3	MS51957-52	SCREW, PAN HD	39
1	MS51957-31	SCREW, PAN HD	38
8	MS51958-61	SCREW, PAN HD	37
8	MS51959-44	SCREW, FLAT HD	36
4	MS51959-30	SCREW, FLAT HD	35
12	MS16996-11	SCREW, SOCKET HD	34
1	1014480-7	DECAL, IDENTIFICATION	33
1	1014480-6	DECAL, IDENTIFICATION	32
1	1014480-8	DECAL, IDENTIFICATION	31
1	1014480-10	DECAL, IDENTIFICATION	30
1	1014480-9	DECAL, IDENTIFICATION	29
1	1014480-5	DECAL, IDENTIFICATION	28
1	1014480-4	DECAL, IDENTIFICATION	27
1	1014480-3	DECAL, IDENTIFICATION	26
1	1014480-2	DECAL, IDENTIFICATION	25
1	1014480-1	DECAL, IDENTIFICATION	24
1	1004260-200	NAMEPLATE	23
2	MS35173-274B	ADAPTER, CONN	22
5	MS35177-492D	ADAPTER, CONN	21
1	2014209-011	ANTENNA TUNING CAP ASSY	20
1	1006460	AMPLIFIER, DISTRIBUTION	19
2	2014063	BRACKET, ANGLE, LH	18
2	2014060	BRACKET, MOUNTING	17
1	1006930-9	SLIDE, WITH CABLE CARRIER	16
4	1014157-3	BRACKET, SLIDE	15
3	2014057	BRACKET, SUPPORT ASSY	14
1	1014039	BRACKET, CABLE	13
1	1014216	BRACKET, ASSEMBLY	12
1	1006883-000	FAN	11
1	1014087	AC INPUT PANEL	10
1	1006437-001	FILTER, AIR	9
1	1014303-5	HANDLE-SLIDE ASSY	8
1	1014303-6	HANDLE-SLIDE ASSY	7
1	1014303-3	HANDLE-SLIDE ASSY	6
1	1014303-1	HANDLE-SLIDE ASSY	5
1	1020211-011	REC & DIGITAL OHM. ASSY	4
1	2014204-011	CONT & INTERFACE SUBASSY	3
4	1006979-4	HANDLE	2
1	1006875-002	CABINET	1
-011	LIST OF MATERIALS		

SEE NOTE 3 (find nos. 33, 32)

NOT SHOWN SEE NOTE 3 (find nos. 31–24)

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. ASSEMBLE APPROPRIATE IDENT DECAL (FIND NO. 24, 25, 26, 27, 28, 29, 30, 31, 32 & 33) ON SURFACE A AND WHERE SHOWN IN RELATION TO CORRESPONDING ASSY
4. SERIALIZE PER 1D100023
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014049
6. FIND NO. 14 & 65 TO BE MOUNTED FLUSH WITH FIND NO. 4, 6 & 8

FINAL	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 7 JUNE 65
CHECKED K A 16 JUL 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

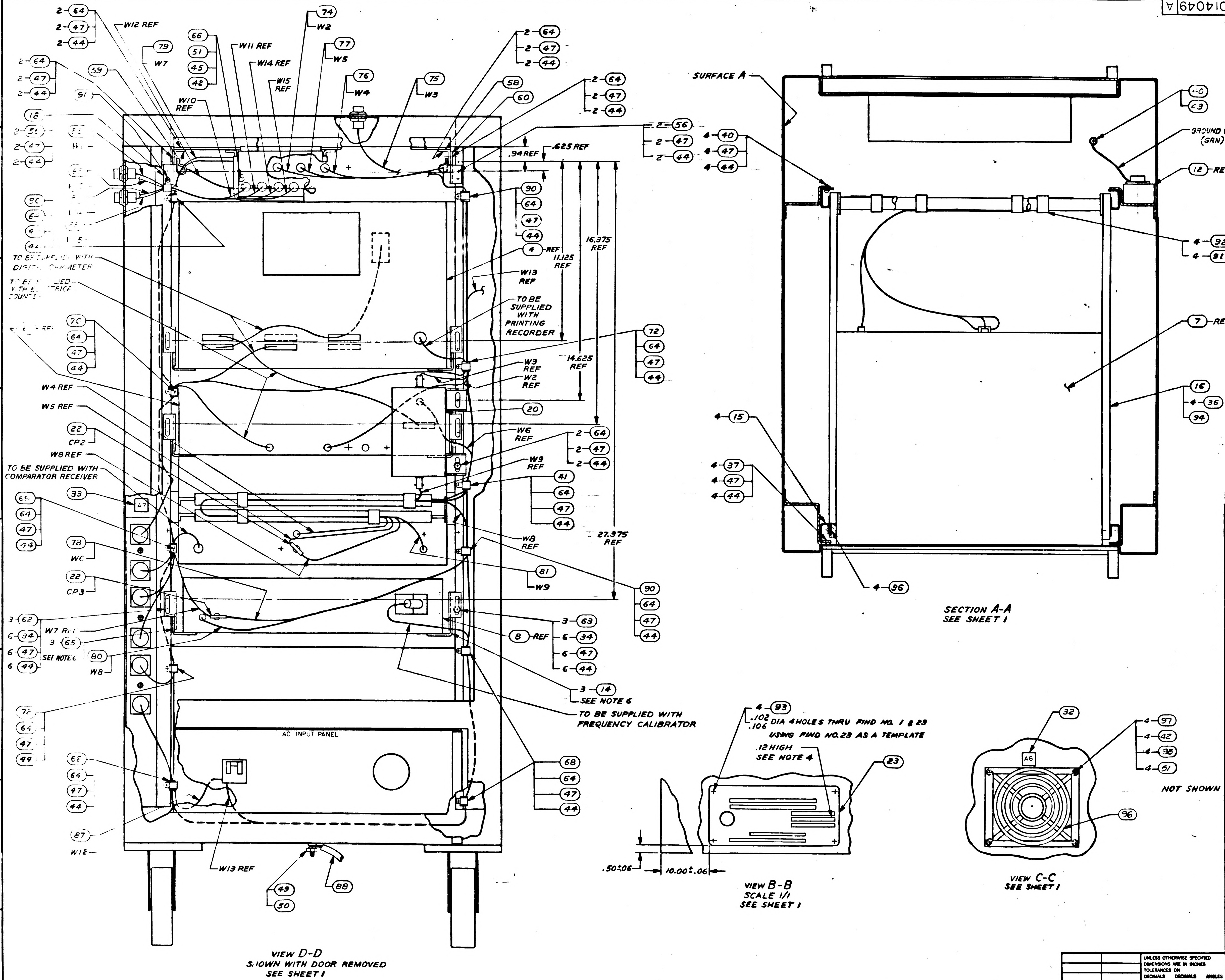
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014049
SCALE NONE WT SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER [illegible]		
—	CLASS A RELEASE PER TDRR 3538		
A	CHANGED PER TDRF [illegible] DR CHK APPD		



2-(64) 2-(47) 2-(44)
W12 REF
(79) W7
(66) (51) (45) (42)
W11 REF
W14 REF
W15 REF
(74) W2
(77) W5
(76) W4
(75) W3
(58) (60)
(59)
W10 REF
(18)
2-(56) 2-(47) 2-(44)
.94 REF
.625 REF
4-(40) 4-(47) 4-(44)
(90) (64) (47) (44)
(4) REF
11.125 REF
16.375 REF
W13 REF
TO BE SUPPLIED WITH DIGITAL VOLTMETER
TO BE SUPPLIED WITH ELECTRICAL COUNTER
TO BE SUPPLIED WITH PRINTING RECORDER
(70) (64) (47) (44)
(72) (64) (47) (44)
14.625 REF
W3 REF
W2 REF
W4 REF
W5 REF
(20)
(22) CP2
W8 REF
W6 REF
2-(64) 2-(47) 2-(44)
W9 REF
TO BE SUPPLIED WITH COMPARATOR RECEIVER
(33)
A7
(41) (64) (47) (44)
(69) (64) (47) (44)
(78) WC
27.375 REF
W8 REF
(81) W9
(22) CP3
(90) (64) (47) (44)
3-(62) 6-(34) 3-(65) 6-(47) 6-(44)
W7 REF
SEE NOTE 6
(80) W8
3-(63) 6-(34) 6-(47) 6-(44)
(8) REF
3-(14) SEE NOTE 6
TO BE SUPPLIED WITH FREQUENCY CALIBRATOR
(76) (64) (47) (44)
AC INPUT PANEL
(68) (64) (47) (44)
(68) (64) (47) (44)
(87) W12
W13 REF
(49) (50)
(88)
SURFACE A
(40) (49)
GROUND WIRE (GRN)
(12) REF
4-(98) 4-(91)
(7) REF
(16) 4-(36) (94)
4-(15)
4-(37) 4-(47) 4-(44)
4-(36)
4-(93)
.102/.106 DIA 4 HOLES THRU FIND NO. 1 & 23 USING FIND NO. 23 AS A TEMPLATE
.12 HIGH SEE NOTE 4
(23)
.50±.06
10.00±.06
(32)
A6
4-(97) 4-(42) 4-(98) 4-(51)
NOT SHOWN
(96)

VIEW D-D
SHOWN WITH DOOR REMOVED
SEE SHEET 1

SECTION A-A
SEE SHEET 1

VIEW B-B
SCALE 1/1
SEE SHEET 1

VIEW C-C
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	MS51958-62	SCREW, PAN HD	99
☒	2014108	INTERCONNECTION DIAGRAM	REF
4	MS35337-79	WASHER, LOCK	98
4	MS51957-30	SCREW, PAN HD, CROSS-RECESSED	97
1	1006429	GRILL, METAL	96
5	1006982-11	WASHER, NYLON	95
AR	MIL-S-22473, GR HV	COMPOUND, SEALING & RETAINING	94
4	AN535-4-3	SCREW, DRIVE	93
4	1006872-6	CLIP, CLAMP, LOOP	92
4	1006872-2	BINDER, CLAMP, LOOP	91
7	MS21919DG8	CLAMP, CABLE	90
1	1014150-1	CABLE ASSY, AC LINE	89
1	2014115-011	STRAP, GROUND W254	88
1	1014076	CABLE ASSY W12	87
1	1020081	W13	86
1	2014080-141	W15	85
1	-131	W14	84
1	-121	W11	83
1	-111	W10	82
1	-091	W9	81
1	-081	W8	80
1	-071	W7	79
1	-061	W6	78
1	-051	W5	77
1	-041	W4	76
1	-031	W3	75
1	-021	W2	74
1	2014080-011	CABLE ASSY W1	73
2	MS21919DG11	CLAMP, CABLE	72
1	2014263-011	ANTENNA INSTL KIT ASSY	71
1	MS21919DG12	CLAMP, CABLE	70
1	MS21919DG13	CLAMP, CABLE	69
3	MS21919DG10	CLAMP, CABLE	68
2	MS21919DG6	CLAMP, CABLE	67
2	MS21919DG5	CLAMP, CABLE	66
3	2014073	BRACKET, SUPPORT ASSY	65
30	MS51958-64	SCREW, PAN HD	64
3	2014026	BRACKET	63
3	2014074	BRACKET	62
2	2014205	ANGLE BRACKET, MTG ASSY	61
2	2014214	BRACKET, ANGLE RH	60
1	2014213	BRACKET ANGLE MTG, RH	59
1	2014212	BRACKET, ANGLE SUPPORT, LH	58
5	2014011-002	INS WASHER, ANTI-ROTATE	57
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. Fuller DATE 1 JUNE 65
CHECKED K. L. Chapman 16 JUL 65
APPROVAL P. C. Dunk 16 JUL 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

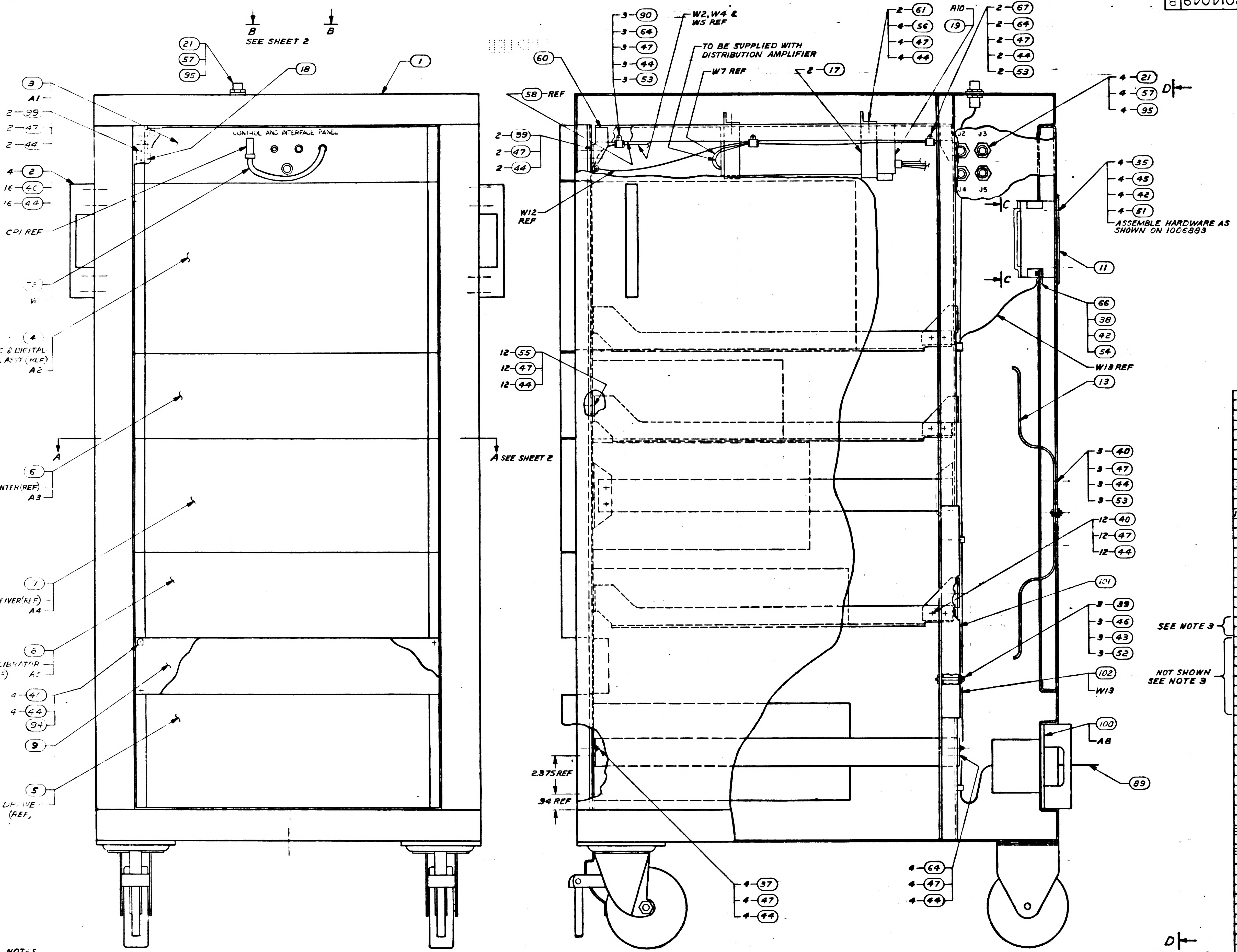
AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014049
SCALE NONE	WT	SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER LCA 25051		
–	CLASS A RELEASE PER TDRR 23539		
A	CHANGED PER TDRR 24227 DR CHK APPD	2 Dec 65	
B	CHANGED PER TDRR 24489 DR B J Papia CHK R Edwards APPD PED	12/10/65	



1
3
A1
2-39
2-47
2-44
4-2
16-40
16-44
CPI REF
21
57
95
18
CONTROL AND INTERFACE PANEL
B
B
SEE SHEET 2
4
REC & DIGITAL OHM. ASSY (REF)
A2
6
COUNTER (REF)
A3
7
RECEIVER (REF)
A4
8
CALIBRATOR (REF)
A5
4-40
4-44
94
9
5
DRIVE (REF)
A
A SEE SHEET 2
60
58-REF
3-90
3-64
3-47
3-44
3-53
W2, W4 & W5 REF
TO BE SUPPLIED WITH DISTRIBUTION AMPLIFIER
W7 REF
2-17
2-61
4-56
4-47
2-44
A10
19
2-67
2-64
2-47
2-44
2-53
2-39
2-47
2-44
W12 REF
J2
J3
J4
J5
4-21
4-57
4-95
D
4-35
4-45
4-42
4-51
ASSEMBLE HARDWARE AS SHOWN ON 1006883
C
C
11
66
38
42
54
W13 REF
13
12-55
12-47
12-44
3-40
3-47
3-44
3-53
12-40
12-47
12-44
101
3-39
3-46
3-43
3-52
102
W13
100
A8
89
2.375 REF
.94 REF
4-64
4-47
4-44
4-37
4-47
4-44
D
SEE SHEET 2
SEE NOTE 3
NOT SHOWN SEE NOTE 3

PARTS LIST CONTINUED ON SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
8	MS51958-65	SCREW, PAN HD	56
12	MS16996-9	SCREW, SOCKET HD	55
1	MS21044C06	NUT, LOCK	54
8	MS35650-104	NUT, PLAIN, HEX.	53
3	MS35649-84	NUT, PLAIN, HEX.	52
9	MS35649-64	NUT, PLAIN, HEX.	51
1	MS35690-610	NUT, PLAIN, HEX.	50
1	MS35335-63	WASHER, LOCK, EXT TOOTH	49
1	MS35335-60	WASHER, LOCK, EXT TOOTH	48
93	MS35338-81	WASHER, LOCK	47
3	MS35338-80	WASHER, LOCK	46
5	MS35338-79	WASHER, LOCK	45
113	MS15795-808	WASHER, FLAT	44
3	MS15795-807	WASHER, FLAT	43
10	MS15795-805	WASHER, FLAT	42
1	MS21919DG9	CLAMP, CABLE	41
40	MS51958-63	SCREW, PAN HD	40
3	MS51957-52	SCREW, PAN HD	39
1	MS51957-31	SCREW, PAN HD	38
8	MS51958-61	SCREW, PAN HD	37
8	MS51959-44	SCREW, FLAT HD	36
4	MS51959-30	SCREW, FLAT HD	35
12	MS16996-11	SCREW, SOCKET HD	34
1	1014480-7	DECAL, IDENTIFICATION	33
1	1014480-6	DECAL, IDENTIFICATION	32
1	1014480-8	DECAL, IDENTIFICATION	31
1	1014480-10	DECAL, IDENTIFICATION	30
1	1014480-9	DECAL, IDENTIFICATION	29
1	1014480-5	DECAL, IDENTIFICATION	28
1	1014480-4	DECAL, IDENTIFICATION	27
1	1014480-3	DECAL, IDENTIFICATION	26
1	1014480-2	DECAL, IDENTIFICATION	25
1	1014480-1	DECAL, IDENTIFICATION	24
1	1004260-200	NAMEPLATE	23
2	MS35173-274B	ADAPTER, CONN	22
5	MS35177-492D	ADAPTER, CONN	21
1	2014209-011	ANTENNA TUNING CAP ASSY	20
1	1006460	AMPLIFIER, DISTRIBUTION	19
2	2014063	BRACKET, ANGLE, LH	18
2	2014060	BRACKET, MOUNTING	17
1	1006930-9	SLIDE, WITH CABLE CARRIER	16
4	1014157-3	BRACKET, SLIDE	15
3	2014057	BRACKET, SUPPORT ASSY	14
1	1014039	BRACKET, CABLE	13
~~1~~	~~1014216~~	~~BRACKET, ASSEMBLY~~	~~12~~
1	1006883-000	FAN	11
~~1~~	~~1014087~~	~~AC INPUT PANEL~~	~~10~~
1	1006437-001	FILTER, AIR	9
1	1014303-5	HANDLE-SLIDE ASSY	8
1	1014303-6	HANDLE-SLIDE ASSY	7
1	1014303-3	HANDLE-SLIDE ASSY	6
1	1014303-1	HANDLE-SLIDE ASSY	5
1	1020211-011	REC & DIGITAL OHM. ASSY	4
1	2014204-011	CONT & INTERFACE SUBASSY	3
4	1006979-4	HANDLE	2
1	1006875-002	CABINET	1
-011	LIST OF MATERIALS		

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. ASSEMBLE APPROPRIATE IDENT DECAL (FIND NO.24,25,26,27,28,29,30,31,32 & 33) ON SURFACE A AND WHERE SHOWN IN RELATION TO CORRESPONDING ASSY
4. SERIALIZE PER ND1002023
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014049
6. FIND NO. 14 & 65 TO BE MOUNTED FLUSH WITH FIND NO. 4,6 & 8

1900030	
FINAL	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Fuller DATE 7 JUNE 65
CHECKED K A Tuscany 16 JUNE 65
APPROVAL R E Duke
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

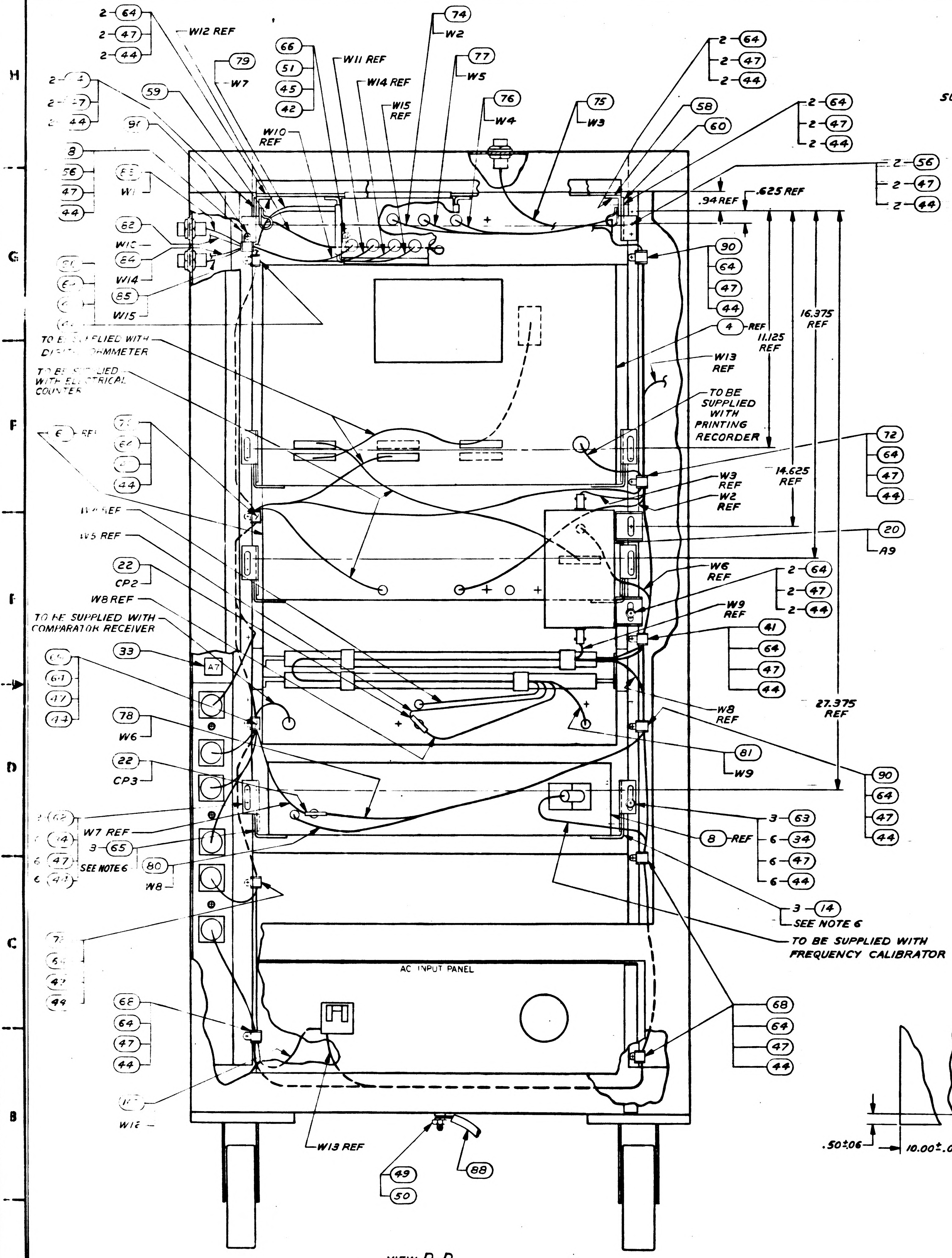
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014049
SCALE NONE
WT
SHEET 1 OF 2

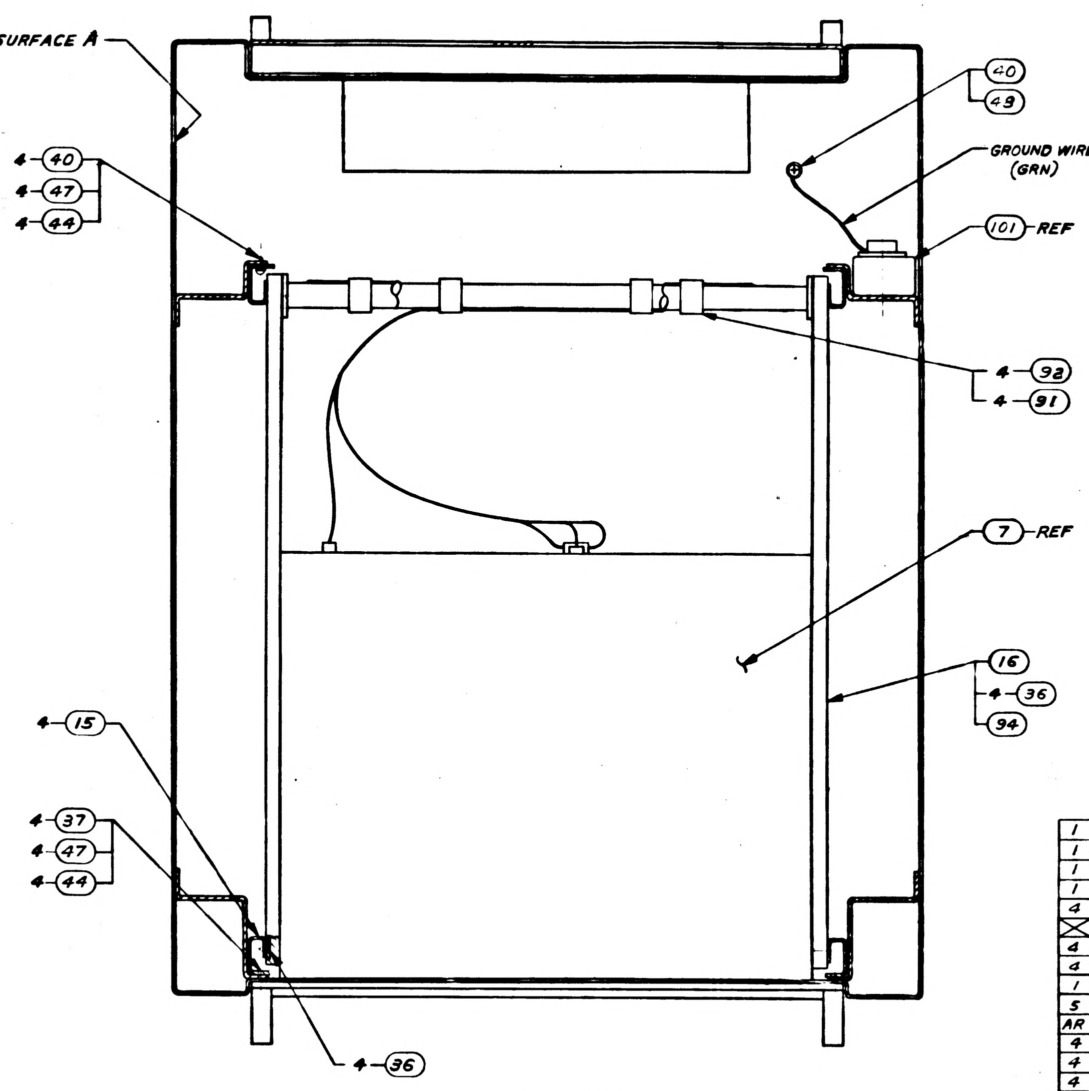
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
C	RELEASED PER [illegible]		
—	CLASS A RELEASE PER TDRR 23538		
A	CHANGED PER TDRF 24227 DR [illegible] CHK [illegible] APPD [illegible]		
B	CHANGED PER TDRR 24469 DR [illegible] CHK [illegible] APPD PED		R.A.B.



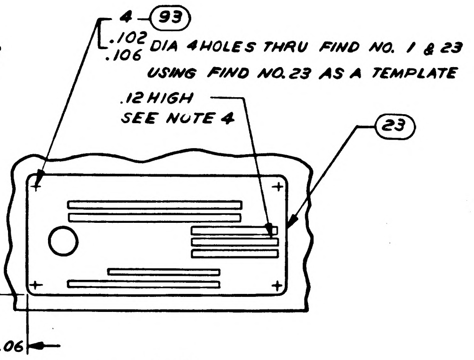
2-(64) 2-(47) 2-(44)
W12 REF
(79) W7
(66) (51) (45) (42)
W11 REF
W14 REF
W15 REF
W10 REF
(74) W2
(77) W5
(76) W4
(75) W3
(58)
(60)
2-(64) 2-(47) 2-(44)
2-(64) 2-(47) 2-(44)
2-(56) 2-(47) 2-(44)
.94 REF
.625 REF
2-(64) 2-(47) 2-(44)
(59)
(90)
(8) (56) (47) (44)
(85) W1
(82) W10
(84) W14
(85) W15
(90) (64) (47) (44)
(4) REF
11.125 REF
16.375 REF
W13 REF
TO BE SUPPLIED WITH DIGITAL OHMMETER
TO BE SUPPLIED WITH ELECTRICAL COUNTER
TO BE SUPPLIED WITH PRINTING RECORDER
(6) REF
(72) (64) (47) (44)
W3 REF
W2 REF
14.625 REF
(20) A9
W4 REF
W5 REF
(22) CP2
W6 REF
2-(64) 2-(47) 2-(44)
W8 REF
TO BE SUPPLIED WITH COMPARATOR RECEIVER
W9 REF
(41) (64) (47) (44)
(33)
A7
(64) (64) (47) (44)
(78) W6
W8 REF
27.375 REF
(81) W9
(22) CP3
(90) (64) (47) (44)
3-(62) 6-(34) 6-(47) 6-(44)
W7 REF
3-(65) SEE NOTE 6
(80) W8
3-(63) 6-(34) 6-(47) 6-(44)
(8) REF
3-(14) SEE NOTE 6
TO BE SUPPLIED WITH FREQUENCY CALIBRATOR
(73) (64) (47) (49)
AC INPUT PANEL
(68) (64) (47) (44)
(68) (64) (47) (44)
(103) W12
W13 REF
(49) (50)
(88)

VIEW D-D
SHOWN WITH DOOR REMOVED
SEE SHEET 1



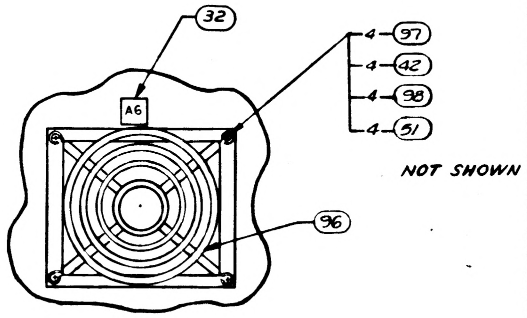
SURFACE A
4-(40) 4-(47) 4-(44)
(40) (49)
GROUND WIRE (GRN)
(101) REF
4-(92) 4-(91)
(7) REF
(16) 4-(36) (94)
4-(15)
4-(37) 4-(47) 4-(44)
4-(36)

SECTION A-A
SEE SHEET 1



4-(93)
.102 .106 DIA 4 HOLES THRU FIND NO. 1 & 23 USING FIND NO. 23 AS A TEMPLATE
.12 HIGH SEE NOTE 4
(23)
.50±.06
10.00±.06

VIEW B-B
SCALE 1/1
SEE SHEET 1



(32)
A6
4-(97) 4-(42) 4-(98) 4-(51)
NOT SHOWN
(96)

VIEW C-C
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2016330-011	CABLE ASSY W12	103
1	2016331-011	CABLE ASSY W13	102
1	2016332	BRACKET ASSY	101
1	2016333	AC INPUT ASSY	100
4	MS51958-62	SCREW, PAN HD	99
☒	2014108	INTERCONNECTION DIAGRAM	REF
4	MS35337-79	WASHER, LOCK	98
4	MS51957-30	SCREW, PAN HD, CROSS-RECESSED	97
1	1006429	GRILL, METAL	96
5	1006982-11	WASHER, NYLON	95
AR	MIL-S-22473, GR HV	COMPOUND, SEALING & RETAINING	94
4	AN535-4-3	SCREW, DRIVE	93
4	1006872-6	CLIP, CLAMP, LOOP	92
4	1006872-2	BINDER, CLAMP, LOOP	91
7	MS21919DG8	CLAMP, CABLE	90
1	1014150-1	CABLE ASSY, AC LINE	89
1	2014115-011	STRAP, GROUND W254	88
~~1~~	~~1014076~~	~~CABLE ASSY W12~~	~~87~~
~~1~~	~~1020081~~	~~W13~~	~~86~~
1	2014080-141	CABLE ASSY W15	85
1	-131	W14	84
1	-121	W11	83
1	-111	W10	82
1	-091	W9	81
1	-081	W8	80
1	-071	W7	79
1	-061	W6	78
1	-051	W5	77
1	-041	W4	76
1	-031	W3	75
1	-021	W2	74
1	2014080-011	CABLE ASSY W1	73
2	MS21919DG11	CLAMP, CABLE	72
1	2014263-011	ANTENNA INSTL KIT ASSY	71
1	MS21919DG12	CLAMP, CABLE	70
1	MS21919DG13	CLAMP, CABLE	69
3	MS21919DG10	CLAMP, CABLE	68
2	MS21919DG6	CLAMP, CABLE	67
2	MS21919DG5	CLAMP, CABLE	66
3	2014073	BRACKET, SUPPORT ASSY	65
30	MS51958-64	SCREW, PAN HD	64
3	2014026	BRACKET	63
3	2014074	BRACKET	62
2	2014205	ANGLE BRACKET, MTG ASSY	61
2	2014214	BRACKET, ANGLE RH	60
1	2014213	BRACKET, ANGLE, MTG RH	59
1	2014212	BRACKET, ANGLE SUPPORT, LH	58
5	2014011-002	INS WASHER, ANTI-ROTATE	57

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN E. Fuller DATE 1 JUNE 65
CHECKED [illegible] 16 JUL 65
APPROVAL P C Duke 16 JUL 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

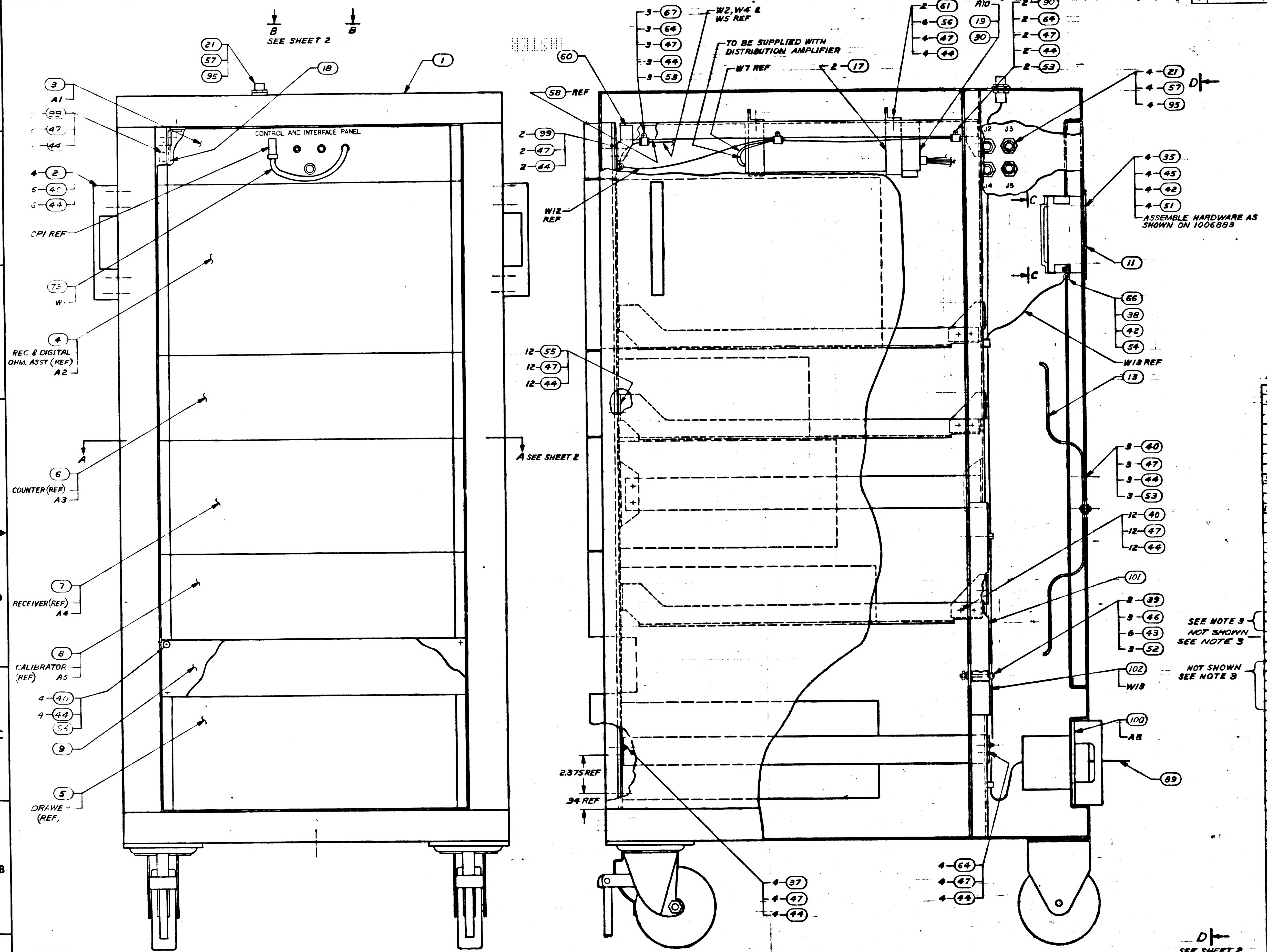
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014049
SCALE NONE WT SHEET 2 OF 2

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER ECA 25051		
–	CLASS A RELEASE PER TDRR 23538		
A	CHANGED PER TDRR 24027 DR CHK APPD		
B	CHANGED PER TDRR 24489 DR CHK APPD		
C	CHANGED PER TDRR 24987 DR CHK APPD	1/6/66	

2014049 C


B
SEE SHEET 2
B
21
57
95
18
1
3
A1
99
47
44
CONTROL AND INTERFACE PANEL
4-2
6-40
6-44
CPI REF
73
W
4
REC & DIGITAL OHM. ASSY (REF)
A2
A
6
COUNTER (REF)
A3
7
RECEIVER (REF)
A4
8
CALIBRATOR (REF)
A5
4-40
4-44
9
5
DRAWER (REF)
60
58 REF
3-67
3-64
3-47
3-44
3-53
W2, W4 & W5 REF
TO BE SUPPLIED WITH DISTRIBUTION AMPLIFIER
W7 REF
2-17
2-61
4-56
4-47
4-44
R10
19
30
2-90
2-64
2-47
2-44
2-53
2-99
2-47
2-44
W12 REF
4-21
4-57
4-95
D
J2
J3
J4
J5
4-35
4-45
4-42
4-51
ASSEMBLE HARDWARE AS SHOWN ON 1006883
C
C
11
66
38
42
54
W13 REF
13
12-55
12-47
12-44
A SEE SHEET 2
3-40
3-47
3-44
3-53
12-40
12-47
12-44
101
8-89
3-46
6-43
3-52
102
W13
100
A6
89
2.375 REF
.94 REF
4-37
4-47
4-44
4-64
4-47
4-44
D
SEE SHEET 2
SEE NOTE 3
NOT SHOWN SEE NOTE 3
NOT SHOWN SEE NOTE 3

PARTS LIST CONTINUED ON SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
8	MS51958-65	SCREW, PAN HD	56
12	MS16996-9	SCREW, SOCKET HD	55
1	MS21044C06	NUT, LOCK	54
8	MS35650-104	NUT, PLAIN, HEX.	53
3	MS35649-84	NUT, PLAIN, HEX.	52
9	MS35649-64	NUT, PLAIN, HEX.	51
1	MS35690-610	NUT, PLAIN, HEX.	50
1	MS35335-63	WASHER, LOCK, EXT TOOTH	49
1	MS35335-60	WASHER, LOCK, EXT TOOTH	48
93	MS35338-81	WASHER, LOCK	47
3	MS35338-80	WASHER, LOCK	46
5	MS35338-79	WASHER, LOCK	45
113	MS15795-808	WASHER FLAT	44
6	MS15795-807	WASHER, FLAT	43
10	MS15795-805	WASHER, FLAT	42
1	MS21919DG9	CLAMP, CABLE	41
40	MS51958-63	SCREW, PAN HD	40
3	MS51957-52	SCREW, PAN HD	39
1	MS51957-31	SCREW, PAN HD	38
8	MS51958-61	SCREW, PAN HD	37
8	MS51959-44	SCREW, FLAT HD	36
4	MS51959-30	SCREW, FLAT HD	35
12	MS16996-11	SCREW, SOCKET HD	34
1	1014480-7	DECAL, IDENTIFICATION	33
1	1014480-6	DECAL, IDENTIFICATION	32
1	1014480-8	DECAL, IDENTIFICATION	31
1	1014480-10	DECAL, IDENTIFICATION	30
1	1014480-9	DECAL, IDENTIFICATION	29
1	1014480-5	DECAL, IDENTIFICATION	28
1	1014480-4	DECAL, IDENTIFICATION	27
1	1014480-3	DECAL, IDENTIFICATION	26
1	1014480-2	DECAL, IDENTIFICATION	25
1	1014480-1	DECAL, IDENTIFICATION	24
1	1004260-200	NAMEPLATE	23
3	MS35173-274B	ADAPTER, CONN	22
5	MS35177-492D	ADAPTER, CONN	21
1	2014209-011	ANTENNA TUNING CAP ASSY	20
1	1006450	AMPLIFIER, DISTRIBUTION	19
2	2014063	BRACKET, ANGLE, LH	18
2	2014060	BRACKET, MOUNTING	17
1	1006930-9	SLIDE, WITH CABLE CARRIER	16
4	1014157-3	BRACKET, SLIDE	15
3	2014057	BRACKET, SUPPORT ASSY	14
1	1014039	BRACKET, CABLE	13
~~1~~	~~1014216~~	~~BRACKET ASSEMBLY~~	~~12~~
1	1006883-000	FAN	11
~~1~~	~~1014087~~	~~AC INPUT PANEL~~	~~10~~
1	1006437-001	FILTER, AIR	9
1	1014303-5	HANDLE-SLIDE ASSY	8
1	1014303-6	HANDLE-SLIDE ASSY	7
1	1014303-3	HANDLE-SLIDE ASSY	6
1	1014303-1	HANDLE-SLIDE ASSY	5
1	1020211-011	REC & DIGITAL OHM. ASSY	4
1	2014204-011	CONT & INTERFACE SUBASSY	3
4	1006979-4	HANDLE	2
1	1006875-002	CABINET	1
-011	LIST OF MATERIALS		

NOTES:
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. ASSEMBLE APPROPRIATE IDENT DECAL (FIND NO.24,25,26,27,28,31,32 & 33) ON SURFACE A AND WHERE SHOWN IN RELATION TO CORRESPONDING ASSY
4. SERIALIZE PER ND1002023
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014049
6. FIND NO. 14 & 65 TO BE MOUNTED FLUSH WITH FIND NO. 4,6 & 8
7. FIND NO. 104 TIE CHAIN TO UNIT BY USING EXISTING SCREW LOCATED APPROX AS SHOWN

NEXT ASSY	USED ON
1900030	
FINAL	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Fuller DATE 7 JUNE 65
CHECKED K A 16 JUL 65
APPROVAL R E
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

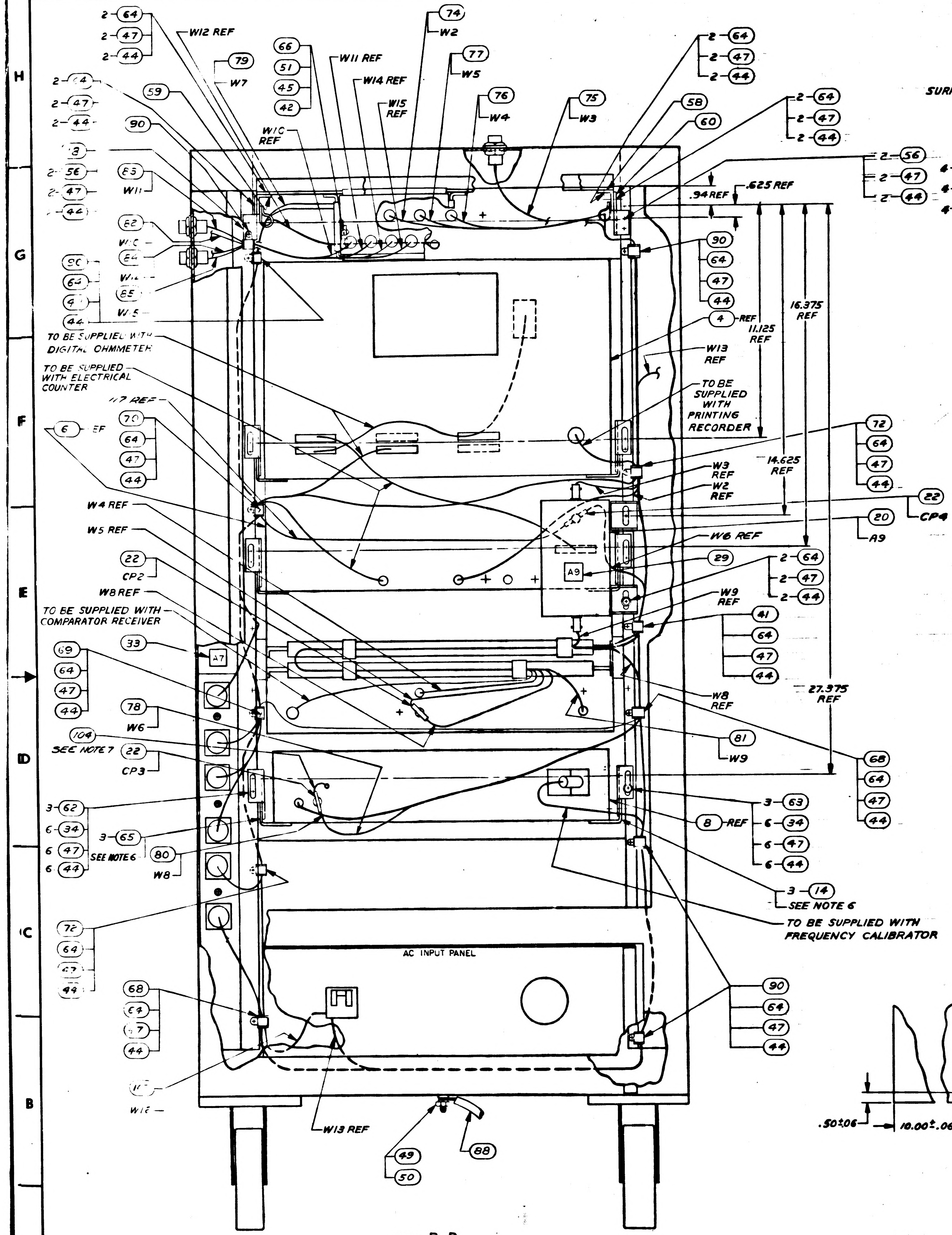
AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014049
SCALE NONE WT SHEET 1 OF 2

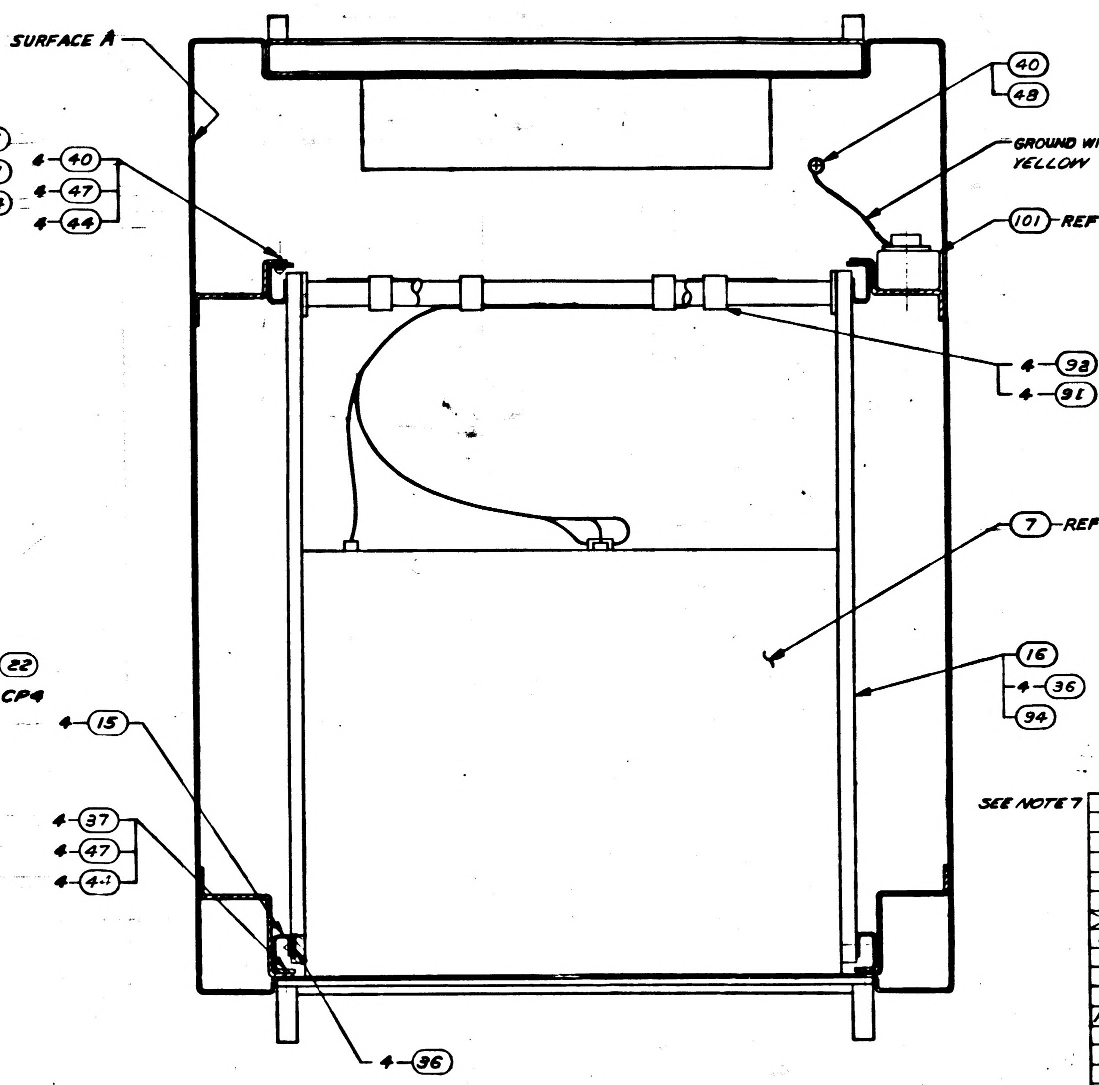
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014049 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER [illegible]		
—	CLASS A RELEASE PER TDRR 3538		
A	CHANGED PER TDRR 4227 DR [illegible] CHK [illegible] APPD [illegible]	[illegible] 65	[illegible]
B	CHANGED PER TDRR E44[illegible] DR [illegible] CHK [illegible] APPD PED.	12/[illegible]/65	E.H.R.
C	CHANGED PER TDRR E[illegible]987 DR D. [illegible] CHK [illegible] APPD [illegible] -5-66	1/5/66	[illegible]


W12 REF
W2
W11 REF
W14 REF
W15 REF
W5
W4
W3
W7
W10 REF
W11
W10
W15
TO BE SUPPLIED WITH DIGITAL OHMMETER
TO BE SUPPLIED WITH ELECTRICAL COUNTER
W7 REF
TO BE SUPPLIED WITH PRINTING RECORDER
W13 REF
.94 REF
.625 REF
11.125 REF
16.375 REF
14.625 REF
27.375 REF
W3 REF
W2 REF
CP4
A9
W6 REF
W9 REF
W4 REF
W5 REF
CP2
W8 REF
TO BE SUPPLIED WITH COMPARATOR RECEIVER
W6
SEE NOTE 7
CP3
SEE NOTE 6
W8
W8 REF
W9
8 REF
SEE NOTE 6
TO BE SUPPLIED WITH FREQUENCY CALIBRATOR
AC INPUT PANEL
W13 REF
W12
A7
A9

VIEW D-D
SHOWN WITH DOOR REMOVED
SEE SHEET I

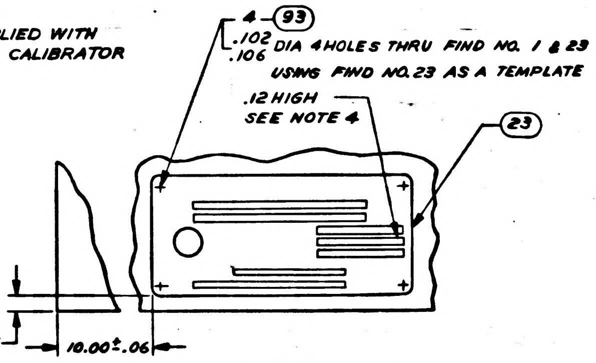

SURFACE A
GROUND WIRE YELLOW
101 REF
7 REF

SECTION A-A
SEE SHEET I

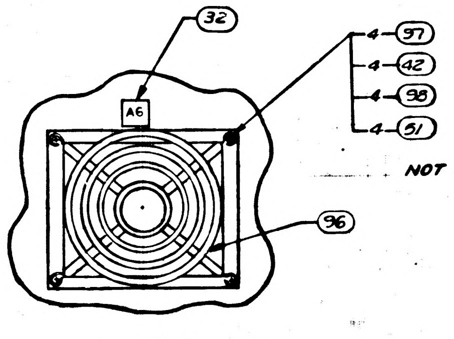
SEE NOTE 7

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
L	MX-534A/U	RESISTOR CAP SERIES BNC	104
1	2016330-011	CABLE ASSY W12	103
1	2016331-011	CABLE ASSY W13	102
1	2016332-011	BRACKET ASSY	101
1	2016333-011	AC INPUT ASSY	100
4	MS51958-62	SCREW, PAN HD	99
╳	2014108	INTERCONNECTION DIAGRAM	REF
4	MS35337-79	WASHER, LOCK	98
4	MS51957-30	SCREW, PAN HD, CROSS-RECESSED	97
1	1006429	GRILL, METAL	96
5	1006982-11	WASHER, NYLON	95
AR	MIL-S-22473, GR HV	COMPOUND, SEALING & RETAINING	94
4	AN535-4-3	SCREW, DRIVE	93
4	1006872-6	CLIP, CLAMP, LOOP	92
4	1006872-2	BINDER, CLAMP, LOOP	91
7	MS21919DG8	CLAMP, CABLE	90
1	1014150-1	CABLE ASSY, AC LINE	89
1	2014115-011	STRAP, GROUND W254	88
~~1~~	~~1014076~~	~~CABLE ASSY W12~~	~~87~~
~~1~~	~~1020081~~	~~W13~~	~~86~~
1	2014080-141	CABLE ASSY W15	85
1	-131	W14	84
1	-121	W11	83
1	-111	W10	82
1	-091	W9	81
1	-081	W8	80
1	-071	W7	79
1	-061	W6	78
1	-051	W5	77
1	-041	W4	76
1	-031	W3	75
1	-021	W2	74
1	2014080-011	CABLE ASSY W1	73
2	MS21919DG11	CLAMP, CABLE	72
1	2014269-011	ANTENNA INSTL KIT ASSY	71
1	MS21919DG12	CLAMP, CABLE	70
1	MS21919DG13	CLAMP, CABLE	69
2	MS21919DG10	CLAMP, CABLE	68
3	MS21919DG6	CLAMP, CABLE	67
2	MS21919DG5	CLAMP, CABLE	66
3	2014073	BRACKET, SUPPORT ASSY	65
30	MS51958-64	SCREW, PAN HD	64
3	2014026	BRACKET	63
3	2014074	BRACKET	62
2	2014205	ANGLE BRACKET, MTG ASSY	61
2	2014214	BRACKET, ANGLE RH	60
1	2014213	BRACKET ANGLE, MTG, RH	59
1	2014212	BRACKET, ANGLE SUPPORT, LH	58
5	2014011-002	INS WASHER, ANTI-ROTATE	57
-011	LIST OF MATERIALS		

NOT SHOWN


4-93
.102/.106 DIA 4 HOLES THRU FIND NO. 1 & 23 USING FIND NO. 23 AS A TEMPLATE
.12 HIGH SEE NOTE 4
23
.50±.06
10.00±.06

VIEW B-B
SCALE 1/1
SEE SHEET I


32
A6
4-97
4-42
4-98
4-51
96

VIEW C-C
SEE SHEET I

NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. Fuller DATE 1 JUNE 65
CHECKED K. L. [illegible] 16 JUL 65
APPROVAL R. C. [illegible] 16 JUL 65
APPROVAL [illegible]
APPROVAL [illegible] 7-16-65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1965

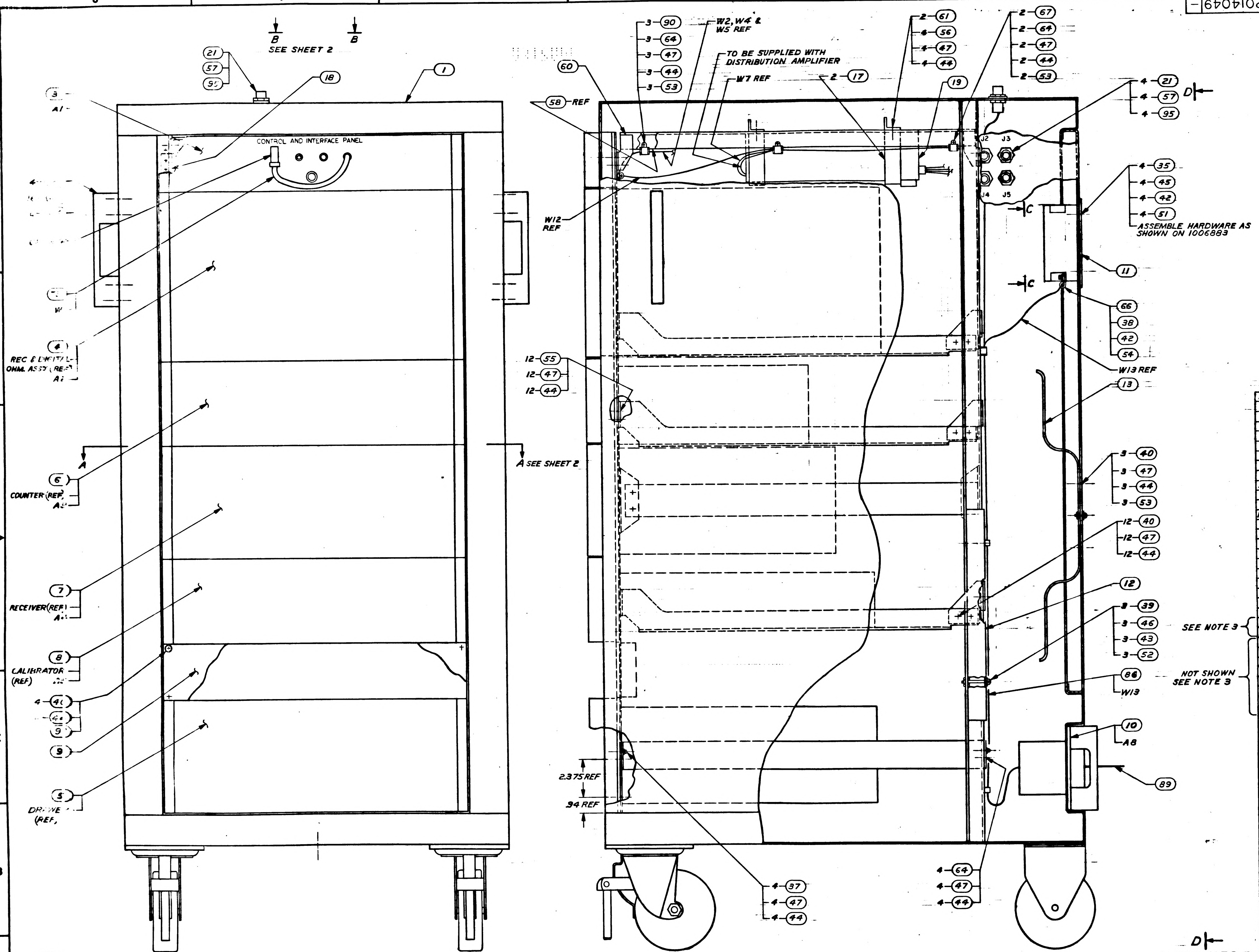
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014049
SCALE NONE WT SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25051	7-9-65	
-	CLASS A RELEASE PER TDRR 23539		


B
B
SEE SHEET 2
CONTROL AND INTERFACE PANEL
REC & DIGITAL OHM. ASSY (REF) A1
COUNTER (REF) A2
RECEIVER (REF) A4
CALIBRATOR (REF)
DRIVE (REF)
A
A SEE SHEET 2
W2, W4 & W5 REF
TO BE SUPPLIED WITH DISTRIBUTION AMPLIFIER
W7 REF
58 REF
W12 REF
J2 J3
J4 J5
C
C
ASSEMBLE HARDWARE AS SHOWN ON 1006883
W13 REF
W13
A8
2.375 REF
.94 REF
SEE NOTE 3
NOT SHOWN SEE NOTE 3
D
D
SEE SHEET 2

PARTS LIST CONTINUED ON SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
12	MS51958-65	SCREW, PAN HD	56
12	MS16996-9	SCREW, SOCKET HD	55
1	MS21044C06	NUT, LOCK	54
8	MS35650-104	NUT, PLAIN, HEX.	53
3	MS35649-84	NUT, PLAIN, HEX.	52
5	MS35649-64	NUT, PLAIN, HEX.	51
1	MS35690-610	NUT, PLAIN, HEX.	50
1	MS35335-63	WASHER, LOCK, EXT TOOTH	49
1	MS35335-60	WASHER, LOCK, EXT TOOTH	48
93	MS35338-81	WASHER, LOCK	47
3	MS35338-80	WASHER, LOCK	46
5	MS35338-79	WASHER, LOCK	45
113	MS15795-808	WASHER, FLAT	44
3	MS15795-807	WASHER, FLAT	43
6	MS15795-805	WASHER, FLAT	42
1	MS21919DG9	CLAMP, CABLE	41
40	MS51958-63	SCREW, PAN HD	40
3	MS51957-52	SCREW, PAN HD	39
1	MS51957-31	SCREW, PAN HD	38
8	MS51958-61	SCREW, PAN HD	37
8	MS51959-44	SCREW, FLAT HD	36
4	MS51959-30	SCREW, FLAT HD	35
12	MS16996-11	SCREW, SOCKET HD	34
1	1014480-7	DECAL, IDENTIFICATION	33
1	1014480-6	DECAL, IDENTIFICATION	32
1	1014480-8	DECAL, IDENTIFICATION	31
1	1014480-10	DECAL, IDENTIFICATION	30
1	1014480-9	DECAL, IDENTIFICATION	29
1	1014480-5	DECAL, IDENTIFICATION	28
1	1014480-4	DECAL, IDENTIFICATION	27
1	1014480-3	DECAL, IDENTIFICATION	26
1	1014480-2	DECAL, IDENTIFICATION	25
1	1014480-1	DECAL, IDENTIFICATION	24
1	1004260-200	NAMEPLATE	23
2	MS35173-274B	ADAPTER, CONN	22
5	MS35177-492D	ADAPTER, CONN	21
1	2014209-011	ANTENNA TUNING CAP. ASSY	20
1	1006460	AMPLIFIER, DISTRIBUTION	19
2	2014063	BRACKET, ANGLE, LH	18
2	2014060	BRACKET, MOUNTING	17
1	1006930-9	SLIDE, WITH CABLE CARRIER	16
4	1014157-3	BRACKET, SLIDE	15
3	2014057	BRACKET, SUPPORT ASSY	14
1	1014039	BRACKET, CABLE	13
1	1014216	BRACKET, ASSEMBLY	12
1	1006883-002	FAN	11
1	1014087	AC INPUT PANEL	10
1	1006437-001	FILTER, AIR	9
1	1014303-5	HANDLE-SLIDE ASSY	8
1	1014303-6	HANDLE-SLIDE ASSY	7
1	1014303-3	HANDLE-SLIDE ASSY	6
1	1014303-1	HANDLE-SLIDE ASSY	5
1	1020211-011	REC & DIGITAL OHM. ASSY	4
1	2014204-011	CONT & INTERFACE SUBASSY	3
4	1006979-4	HANDLE	2
1	1006875-002	CABINET	1
-011		LIST OF MATERIALS	

2014049

NOTES:
1. [illegible] RS PRECEDING BALLOONS DENOTE QUANTITY
2. [illegible] CTES AS REQUIRED
3. [illegible] APPROPRIATE IDENT DECAL (FIND NO. 24,25,26,27,28,29,30,31,32 & 33) ON SURFACE A
[illegible] RE SHOWN IN RELATION TO CORRESPONDING ASSY
4. [illegible] PER 1D10C2023
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014049
6. [illegible] & 65 TO BE MOUNTED FLUSH WITH FIND NO. 4,6 & 8

FINAL	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Fuller DATE 7 JUNE 65
CHECKED K A Thomson 16 JUL 65
APPROVAL R E Duke 16 JUL 65
APPROVAL
APPROVAL 7-15-65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 10/8/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

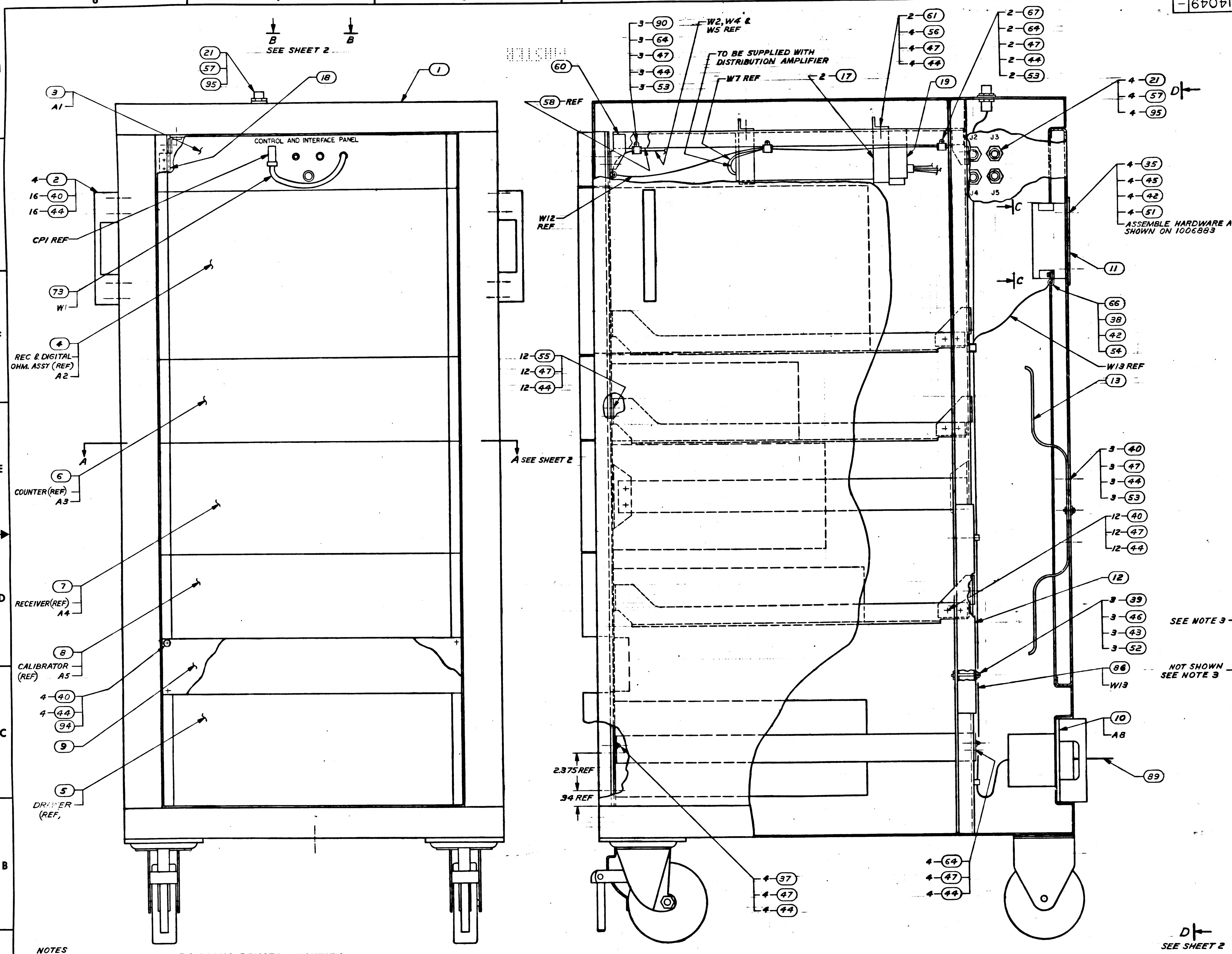
CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014049
SCALE NONE | WT | SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

F-2

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER ECA 25051		
—	CLASS A RELEASE PER TDRR 23538		

2014049 —


B SEE SHEET 2 B
21
57
95
18
1
3
A1
4-2
16-40
16-44
CPI REF
CONTROL AND INTERFACE PANEL
73
W1
4
REC & DIGITAL OHM. ASSY (REF)
A2
A
6
COUNTER (REF)
A3
7
RECEIVER (REF)
A4
8
CALIBRATOR (REF)
A5
4-40
4-44
94
9
5
DRAWER (REF)
A SEE SHEET 2
60
58 REF
3-90
3-64
3-47
3-44
3-53
W2, W4 & W5 REF
TO BE SUPPLIED WITH DISTRIBUTION AMPLIFIER
W7 REF
2-17
2-61
4-56
4-47
4-44
19
2-67
2-64
2-47
2-44
2-53
4-21
4-57
4-95
D
J2
J3
J4
J5
4-35
4-45
4-42
4-51
ASSEMBLE HARDWARE AS SHOWN ON 1006883
C
C
11
66
38
42
54
W12 REF
W13 REF
13
12-55
12-47
12-44
3-40
3-47
3-44
3-53
12-40
12-47
12-44
12
3-39
3-46
3-43
3-52
86
W13
10
A8
89
2.375 REF
.94 REF
4-37
4-47
4-44
4-64
4-47
4-44
D
SEE SHEET 2

PARTS LIST CONTINUED ON SHEET 2

SEE NOTE 3 (FIND NO. 33, 32)

NOT SHOWN SEE NOTE 3 (FIND NO. 31 TO 24)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
12	MS51958-65	SCREW, PAN HD	56
12	MS16996-9	SCREW, SOCKET HD	55
1	MS21044C06	NUT, LOCK	54
8	MS35650-104	NUT, PLAIN, HEX.	53
3	MS35649-84	NUT, PLAIN, HEX.	52
5	MS35649-64	NUT, PLAIN, HEX.	51
1	MS35690-610	NUT, PLAIN, HEX.	50
1	MS35335-63	WASHER, LOCK, EXT TOOTH	49
1	MS35335-60	WASHER, LOCK, EXT TOOTH	48
93	MS35338-81	WASHER, LOCK	47
3	MS35338-80	WASHER, LOCK	46
5	MS35338-79	WASHER, LOCK	45
113	MS15795-808	WASHER, FLAT	44
3	MS15795-807	WASHER, FLAT	43
6	MS15795-805	WASHER, FLAT	42
1	MS21919DG9	CLAMP, CABLE	41
40	MS51958-63	SCREW, PAN HD	40
3	MS51957-52	SCREW, PAN HD	39
1	MS51957-31	SCREW, PAN HD	38
8	MS51958-61	SCREW, PAN HD	37
8	MS51959-44	SCREW, FLAT HD	36
4	MS51959-30	SCREW, FLAT HD	35
12	MS16996-11	SCREW, SOCKET HD	34
1	1014480-7	DECAL, IDENTIFICATION	33
1	1014480-6	DECAL, IDENTIFICATION	32
1	1014480-8	DECAL, IDENTIFICATION	31
1	1014480-10	DECAL, IDENTIFICATION	30
1	1014480-9	DECAL, IDENTIFICATION	29
1	1014480-5	DECAL, IDENTIFICATION	28
1	1014480-4	DECAL, IDENTIFICATION	27
1	1014480-3	DECAL, IDENTIFICATION	26
1	1014480-2	DECAL, IDENTIFICATION	25
1	1014480-1	DECAL, IDENTIFICATION	24
1	1004260-200	NAMEPLATE	23
2	MS35173-274B	ADAPTER, CONN	22
5	MS35177-492D	ADAPTER, CONN	21
1	2014209-011	ANTENNA TUNING CAP ASSY	20
1	1006460	AMPLIFIER, DISTRIBUTION	19
2	2014063	BRACKET, ANGLE, LH	18
2	2014060	BRACKET, MOUNTING	17
1	1006930-9	SLIDE, WITH CABLE CARRIER	16
4	1014157-3	BRACKET, SLIDE	15
3	2014057	BRACKET, SUPPORT ASSY	14
1	1014039	BRACKET, CABLE	13
1	1014216	BRACKET, ASSEMBLY	12
1	1006883-[illegible]	FAN	11
1	1014087	AC INPUT PANEL	10
1	1006437-001	FILTER, AIR	9
1	1014303-5	HANDLE-SLIDE ASSY	8
1	1014303-5	HANDLE-SLIDE ASSY	7
1	1014303-3	HANDLE-SLIDE ASSY	6
1	1014303-1	HANDLE-SLIDE ASSY	5
1	1020211-011	REC & DIGITAL OHM. ASSY	4
1	2014204-011	CONT & INTERFACE SUBASSY	3
4	1006979-4	HANDLE	2
1	1006875-002	CABINET	1
-011	LIST OF MATERIALS		

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. ASSEMBLE APPROPRIATE IDENT DECAL (FIND NO. 24,25,26,27,28,29,30,31,32 & 33) ON SURFACE A AND WHERE SHOWN IN RELATION TO CORRESPONDING ASSY
4. SERIALIZE PER ND1002023
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014049
6. FIND NO. 14 & 65 TO BE MOUNTED FLUSH WITH FIND NO. 4,6 & 8

NEXT ASSY	USED ON
FINAL	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B. Fuller DATE 7 JUNE 65
CHECKED [illegible] 6 JUL 65
APPROVAL R E Dubi[illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 10/8/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

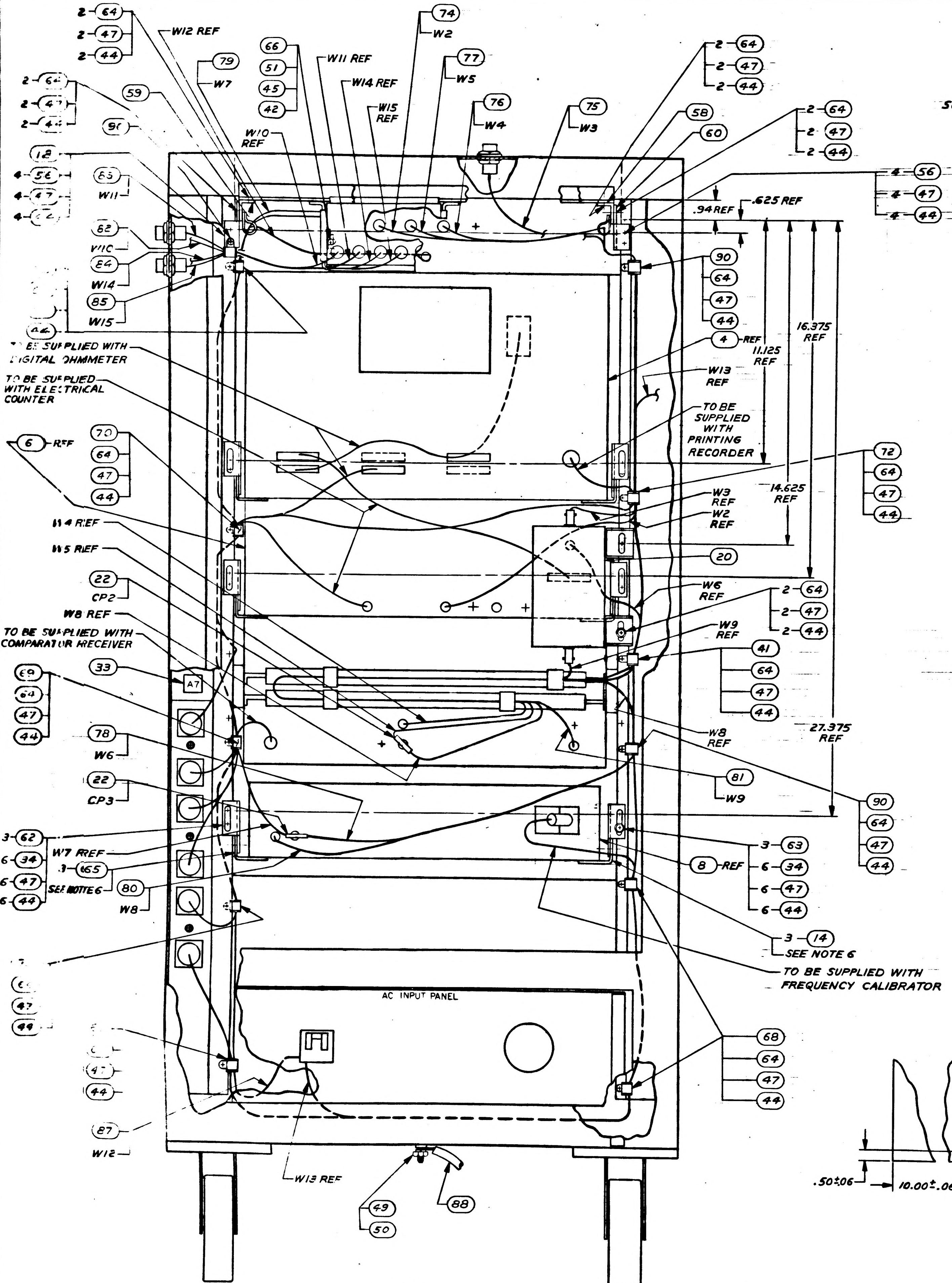
AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014049
SCALE NONE	WT	SHEET 1 OF 2

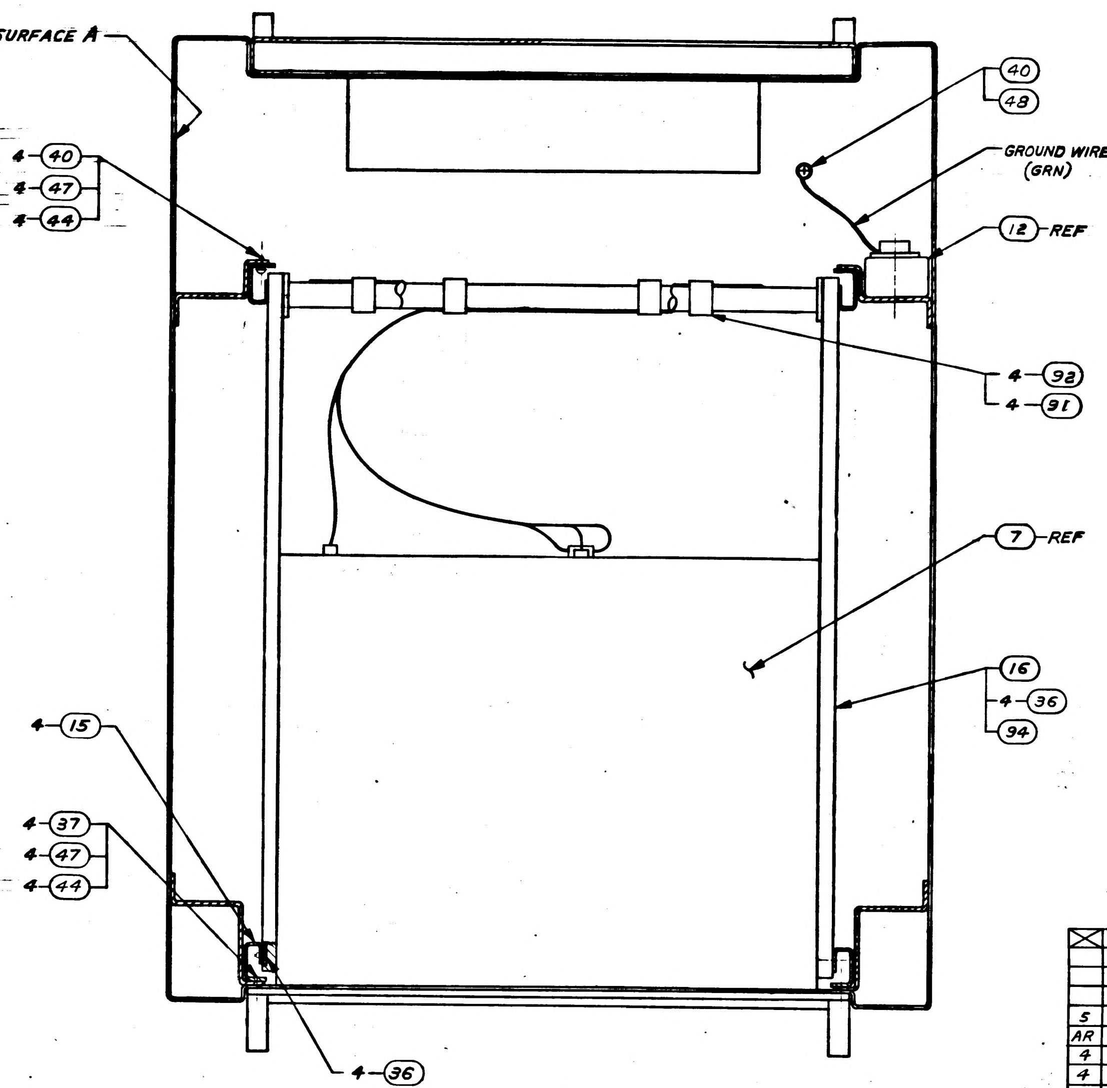
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014049 —

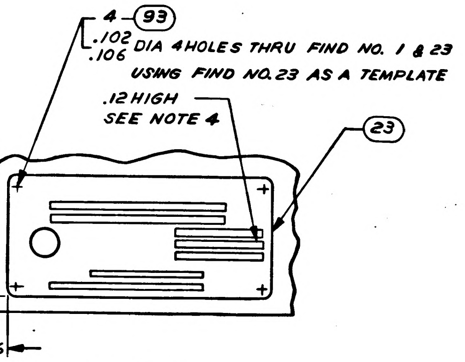
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER C-R E5051	7/16/65	
—	CLASS A RELEASE PER DRR 3538		


2-(64)
2-(47)
2-(44)
W12 REF
(79)
W7
(66)
(51)
(45)
(42)
W11 REF
W14 REF
W15 REF
W10 REF
(74)
W2
(77)
W5
(76)
W4
(75)
W3
(58)
(60)
(59)
(90)
(12)
4-(56)
4-(47)
4-(44)
(83)
W11
(82)
W10
(84)
W14
(85)
W15
.94 REF
.625 REF
(90)
(64)
(47)
(44)
4 REF
11.125 REF
16.375 REF
TO BE SUPPLIED WITH DIGITAL OHMMETER
TO BE SUPPLIED WITH ELECTRICAL COUNTER
W13 REF
TO BE SUPPLIED WITH PRINTING RECORDER
(6) REF
(70)
(64)
(47)
(44)
(72)
(64)
(47)
(44)
W3 REF
W2 REF
14.625 REF
W4 REF
W5 REF
(20)
(22)
CP2
W8 REF
TO BE SUPPLIED WITH COMPARATOR RECEIVER
W6 REF
W9 REF
2-(64)
2-(47)
2-(44)
(41)
(64)
(47)
(44)
(33)
A7
(69)
(64)
(47)
(44)
(78)
W6
(22)
CP3
W8 REF
27.375 REF
(81)
W9
(90)
(64)
(47)
(44)
3-(62)
6-(34)
6-(47)
6-(44)
W7 REF
3-(65)
SEE NOTE 6
(80)
W8
(8) REF
3-(63)
6-(34)
6-(47)
6-(44)
3-(14)
SEE NOTE 6
TO BE SUPPLIED WITH FREQUENCY CALIBRATOR
AC INPUT PANEL
(68)
(64)
(47)
(44)
(87)
W12
W13 REF
(49)
(50)
(88)

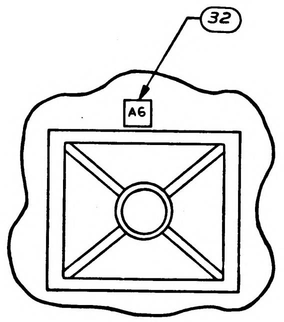
VIEW D-D
SHOWN WITH DOOR REMOVED
SEE SHEET 1


SURFACE A
4-(40)
4-(47)
4-(44)
(40)
(48)
GROUND WIRE (GRN)
(12) REF
4-(92)
4-(91)
(7) REF
(16)
4-(36)
(94)
4-(15)
4-(37)
4-(47)
4-(44)
4-(36)

SECTION A-A
SEE SHEET 1


4-(93)
.102/.106 DIA 4 HOLES THRU FIND NO. 1 & 23 USING FIND NO. 23 AS A TEMPLATE
.12 HIGH SEE NOTE 4
(23)
.50±.06
10.00±.06

VIEW B-B
SCALE 1/1
SEE SHEET 1



VIEW C-C
SEE SHEET 1

NOT SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014108	INTERCONNECTION DIAGRAM	REF
			98
			97
			96
5	1006982-11	WASHER, NYLON	95
AR	MIL-S-22473, GR HV	COMPOUND, SEALING & RETAINING	94
4	AN535-4-3	SCREW, DRIVE	93
4	1006872-6	CLIP, CLAMP, LOOP	92
4	1006872-2	BINDER, CLAMP, LOOP	91
7	MS21919DG8	CLAMP, CABLE	90
1	1014150-1	CABLE ASSY, AC LINE	89
1	2014115-011	STRAP, GROUND W254	88
1	1014076	CABLE ASSY W12	87
1	1020081	W13	86
1	2014080-141	W15	85
1	-131	W14	84
1	-121	W11	83
1	-111	W10	82
1	-091	W9	81
1	-081	W8	80
1	-071	W7	79
1	-061	W6	78
1	-051	W5	77
1	-041	W4	76
1	-031	W3	75
1	-021	W2	74
1	2014080-011	CABLE ASSY W1	73
2	MS21919DG11	CLAMP, CABLE	72
1	2014269-011	ANTENNA INSTL KIT ASSY	71
1	MS21919DG12	CLAMP, CABLE	70
1	MS21919DG13	CLAMP, CABLE	69
3	MS21919DG10	CLAMP, CABLE	68
2	MS21919DG6	CLAMP, CABLE	67
2	MS21919DG5	CLAMP, CABLE	66
3	2014073	BRACKET, SUPPORT ASSY	65
30	MS51958-64	SCREW, PAN HD	64
3	2014026	BRACKET	63
3	2014074	BRACKET	62
2	2014205	ANGLE BRACKET, MTG ASSY	61
2	2014214	BRACKET, ANGLE RH	60
1	2014213	BRACKET, ANGLE, MTG, RH	59
1	2014212	BRACKET, ANGLE SUPPORT, LH	58
5	2014011-002	INS WASHER, ANTI-ROTATE	57
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B. Fuller DATE 1 JUNE 65
CHECKED K. L. Chiocca 16 JUL 65
APPROVAL P. C. Dash 16 JUL 65
APPROVAL
APPROVAL 7-16-65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL A. Lazarus 10/18/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

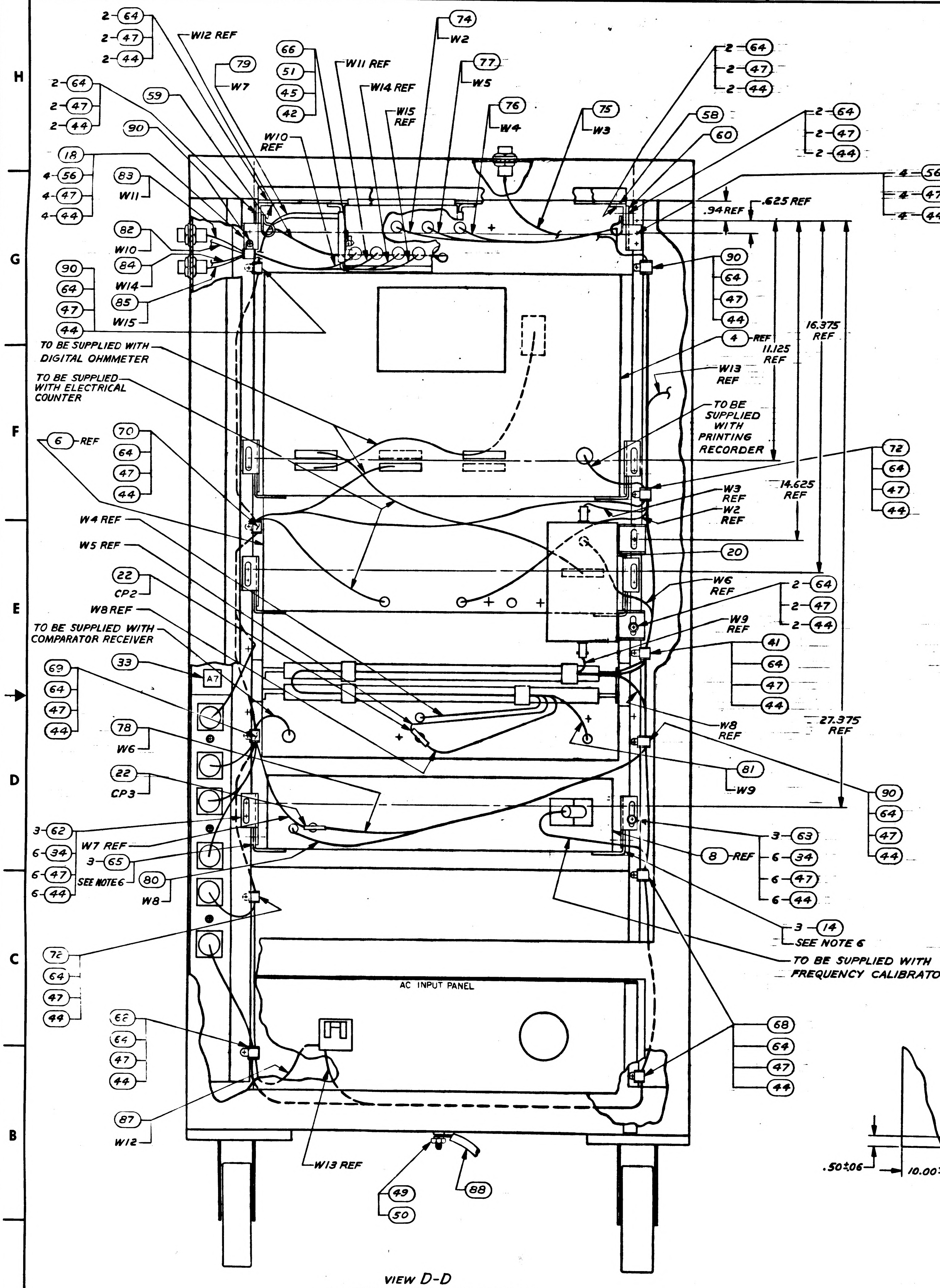
AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014049
SCALE NONE
WT
SHEET 2 OF 2

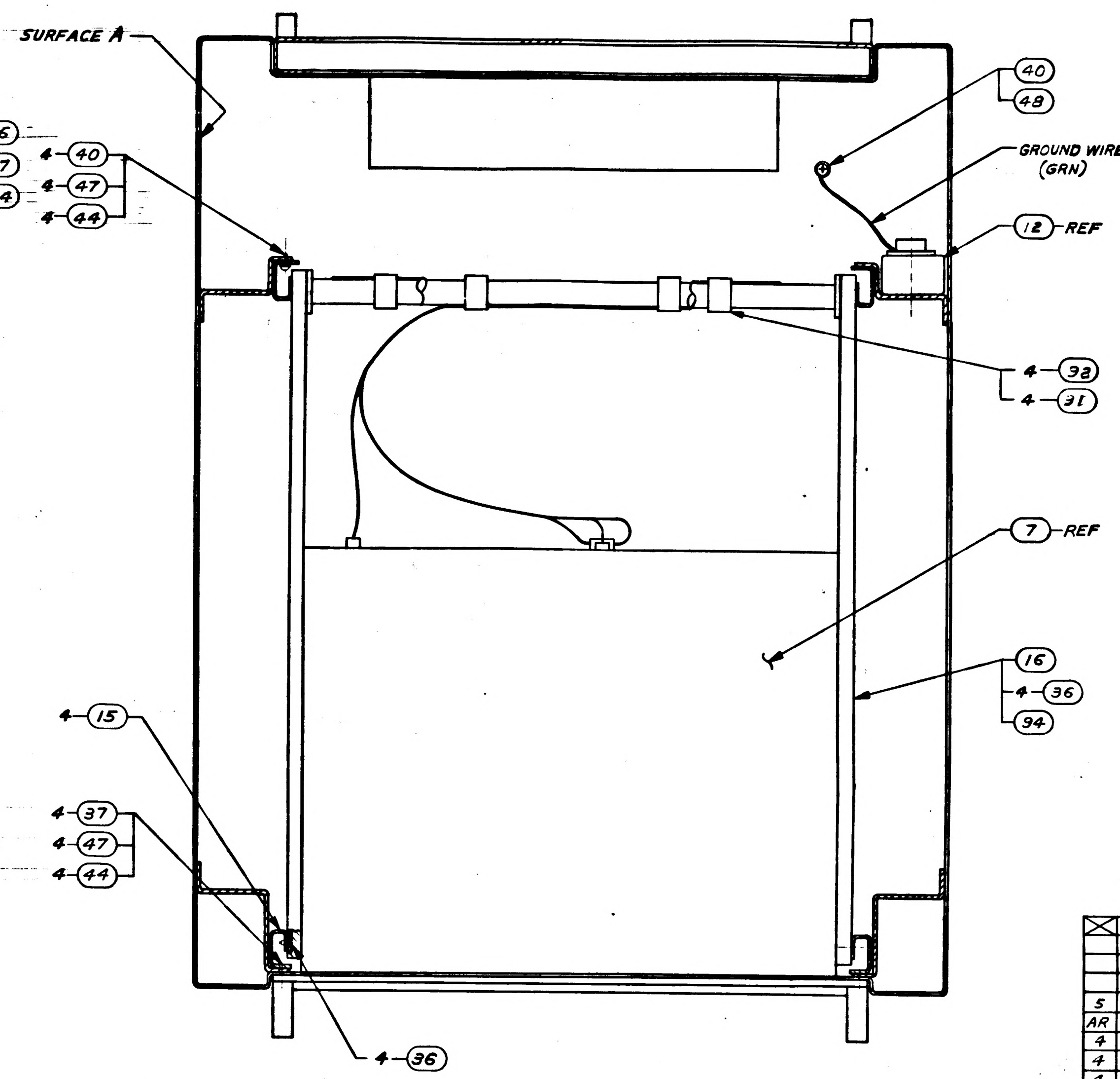
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

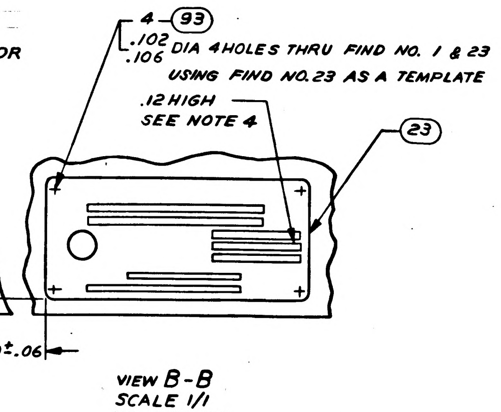
SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
J	RELEASED PER [illegible]	[illegible]	[illegible]
—	CLASS A RELEASE PER [illegible] 538		


2-64
2-47
2-44
W12 REF
79
W7
66
51
45
42
W11 REF
W14 REF
W15 REF
74
W2
77
W5
76
W4
75
W3
W10 REF
59
90
18
4-56
4-47
4-44
83
W11
82
W10
84
W14
85
W15
90
64
47
44
58
60
2-64
2-47
2-44
4-56
4-47
4-44
.94 REF
.625 REF
11.125 REF
16.375 REF
14.625 REF
27.375 REF
4-REF
W13 REF
TO BE SUPPLIED WITH DIGITAL OHMMETER
TO BE SUPPLIED WITH ELECTRICAL COUNTER
TO BE SUPPLIED WITH PRINTING RECORDER
6-REF
70
64
47
44
72
64
47
44
W3 REF
W2 REF
W4 REF
W5 REF
20
22
CP2
W8 REF
W6 REF
W9 REF
2-64
2-47
2-44
41
64
47
44
TO BE SUPPLIED WITH COMPARATOR RECEIVER
33
A7
69
64
47
44
78
W6
W8 REF
81
W9
22
CP3
90
64
47
44
3-62
6-34
6-47
6-44
W7 REF
3-65
SEE NOTE 6
80
W8
8-REF
3-63
6-34
6-47
6-44
3-14
SEE NOTE 6
TO BE SUPPLIED WITH FREQUENCY CALIBRATOR
72
64
47
44
AC INPUT PANEL
68
64
47
44
68
64
47
44
87
W12
W13 REF
49
50
88

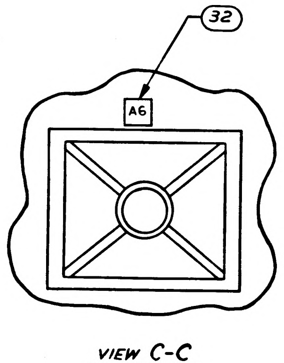
VIEW D-D
SHOWN WITH DOOR REMOVED
SEE SHEET 1


SURFACE A
4-40
4-47
4-44
40
48
GROUND WIRE (GRN)
12-REF
4-93
4-91
7-REF
16
4-36
94
4-15
4-37
4-47
4-44
4-36

SECTION A-A
SEE SHEET 1


4-93
.102/.106 DIA 4 HOLES THRU FIND NO. 1 & 23
USING FIND NO. 23 AS A TEMPLATE
.12 HIGH
SEE NOTE 4
23
.50±.06
10.00±.06

VIEW B-B
SCALE 1/1
SEE SHEET 1



VIEW C-C
SEE SHEET 1

NOT SHOWN (71)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2014108	INTERCONNECTION DIAGRAM	REF
			98
			97
			96
5	1006982-11	WASHER, NYLON	95
AR	MIL-S-22473, GR HV	COMPOUND, SEALING & RETAINING	94
4	AN535-4-3	SCREW, DRIVE	93
4	1006872-6	CLIP, CLAMP, LOOP	92
4	1006872-2	BINDER, CLAMP, LOOP	91
7	MS21919DG8	CLAMP, CABLE	90
1	1014150-1	CABLE ASSY, AC LINE	89
1	2014115-011	STRAP, GROUND W254	88
1	1014076	CABLE ASSY W12	87
1	1020081	W13	86
1	2014080-141	W15	85
1	-131	W14	84
1	-121	W11	83
1	-111	W10	82
1	-091	W9	81
1	-081	W8	80
1	-071	W7	79
1	-061	W6	78
1	-051	W5	77
1	-041	W4	76
1	-031	W3	75
1	-021	W2	74
1	2014080-011	CABLE ASSY W1	73
2	MS21919DG11	CLAMP, CABLE	72
1	2014269-011	ANTENNA INSTL KIT ASSY	71
1	MS21919DG12	CLAMP, CABLE	70
1	MS21919DG13	CLAMP, CABLE	69
3	MS21919DG10	CLAMP, CABLE	68
2	MS21919DG6	CLAMP, CABLE	67
2	MS21919DG5	CLAMP, CABLE	66
3	2014073	BRACKET, SUPPORT ASSY	65
30	MS51958-64	SCREW, PAN HD	64
3	2014026	BRACKET	63
3	2014074	BRACKET	62
2	2014205	ANGLE BRACKET, MTG ASSY	61
2	2014214	BRACKET, ANGLE RH	60
1	2014213	BRACKET, ANGLE, MTG, RH	59
1	2014212	BRACKET, ANGLE SUPPORT, LH	58
5	2014011-002	WASHER, ANTI-ROTATE	57
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. Fuller DATE 1 JUNE 65
CHECKED [illegible] 16 JUL 65
APPROVAL P C Duke 16 JUL 65
APPROVAL [illegible]
APPROVAL [illegible] 7-16-65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

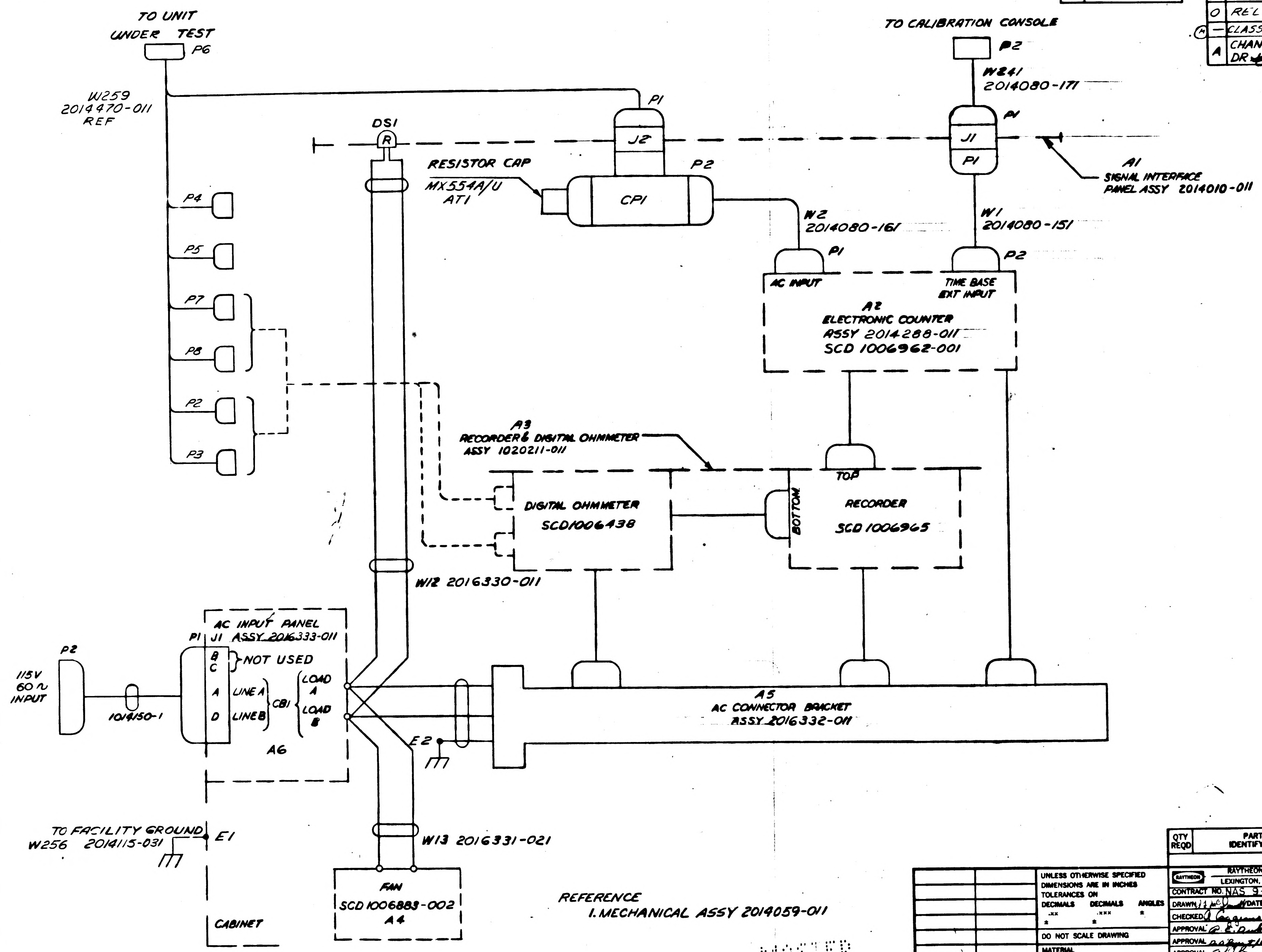
AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014049
SCALE NONE
WT
SHEET 2 OF 2

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25038	9/9/65	C. Haran
—	CLASS A RELEASE PER TDRR 23114		
A	CHANGED PER TDRR 24984 DR [illegible] CHK C. DeGreen APPD P E D.	4/4/66	



TO UNIT UNDER TEST
P6
W259
2014470-011
REF
P1
J2
P2
CP1
RESISTOR CAP
MX554A/U
AT1
DS1
R
TO CALIBRATION CONSOLE
P2
W241
2014080-171
P1
J1
P1
A1
SIGNAL INTERFACE PANEL ASSY 2014010-011
W2
2014080-161
W1
2014080-151
P1
P2
AC INPUT
TIME BASE EXT INPUT
A2
ELECTRONIC COUNTER
ASSY 2014288-011
SCD 1006962-001
P4
P5
P7
P8
P2
P3
A3
RECORDER & DIGITAL OHMMETER
ASSY 1020211-011
DIGITAL OHMMETER
SCD1006438
TOP
BOTTOM
RECORDER
SCD 1006965
W12 2016330-011
AC INPUT PANEL
ASSY 2016333-011
P1
J1
B
C
NOT USED
A
D
LINE A
LINE B
CB1
LOAD A
LOAD B
A6
P2
115V
60 ~
INPUT
1014150-1
A5
AC CONNECTOR BRACKET
ASSY 2016332-011
E2
TO FACILITY GROUND
W256 2014115-031
E1
CABINET
W13 2016331-021
FAN
SCD 1006883-002
A4

REFERENCE
1. MECHANICAL ASSY 2014059-011

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 6 AUG 65
CHECKED [illegible] 29 Aug 65
APPROVAL R. E. Duh 8 JULY 65
APPROVAL [illegible]
APPROVAL [illegible] 7/8/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL A. Haran 10/7/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

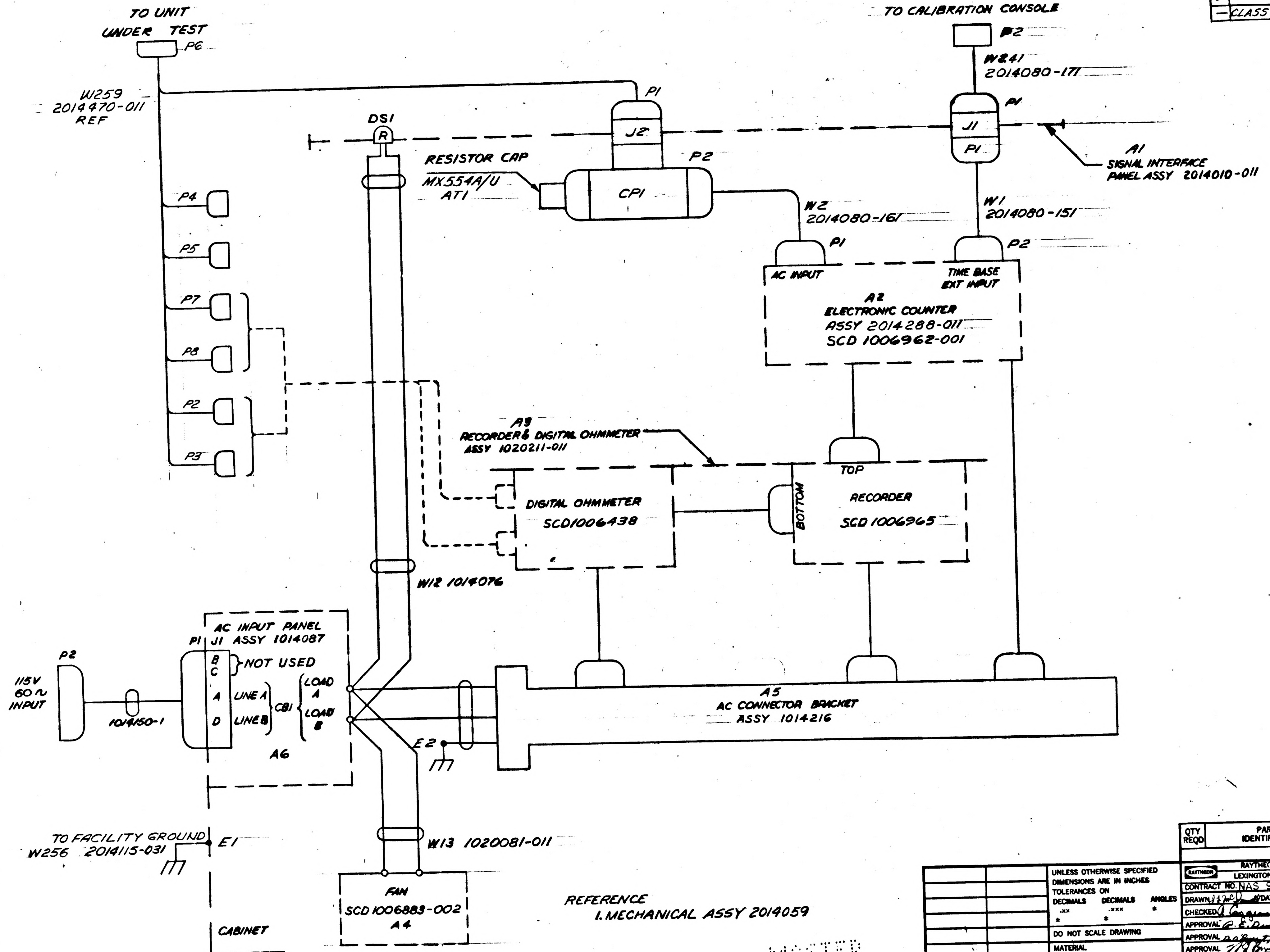
INTERCONNECTION DIAGRAM
AUXILIARY AGC CALIBRATION CONSOLE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	D	2014 054

SCALE NONE WT SHEET 1 OF 1

2014054 —

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25038	9/3/65	G. Harano
—	CLASS A RELEASE PER TDRR 23114		



TO UNIT UNDER TEST
P6
W259
2014470-011
REF
DS1
R
P1
J2
P2
CP1
RESISTOR CAP
MX554A/U
AT1
TO CALIBRATION CONSOLE
P2
W241
2014080-171
P1
J1
P1
A1
SIGNAL INTERFACE
PANEL ASSY 2014010-011
W2
2014080-161
W1
2014080-151
P1
P2
AC INPUT
TIME BASE EXT INPUT
A2
ELECTRONIC COUNTER
ASSY 2014288-011
SCD 1006962-001
P4
P5
P7
P8
P2
P3
A3
RECORDER & DIGITAL OHMMETER
ASSY 1020211-011
TOP
DIGITAL OHMMETER
SCD1006438
BOTTOM
RECORDER
SCD 1006965
W12 1014076
AC INPUT PANEL
ASSY 1014087
P1
J1
B
C
NOT USED
A
D
LINE A
LINE B
CB1
LOAD A
LOAD B
A6
P2
115V
60 ~
INPUT
1014150-1
A5
AC CONNECTOR BRACKET
ASSY 1014216
E2
TO FACILITY GROUND
W256 2014115-031
E1
W13 1020081-011
FAN
SCD 1006883-002
A4
CABINET

REFERENCE
1. MECHANICAL ASSY 2014059

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 8 Apr 65
CHECKED [illegible] 29 Apr 65
APPROVAL R. E. Duck 8 JULY 65
APPROVAL [illegible]
APPROVAL [illegible] 7/8/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL A. Harano 10/7/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

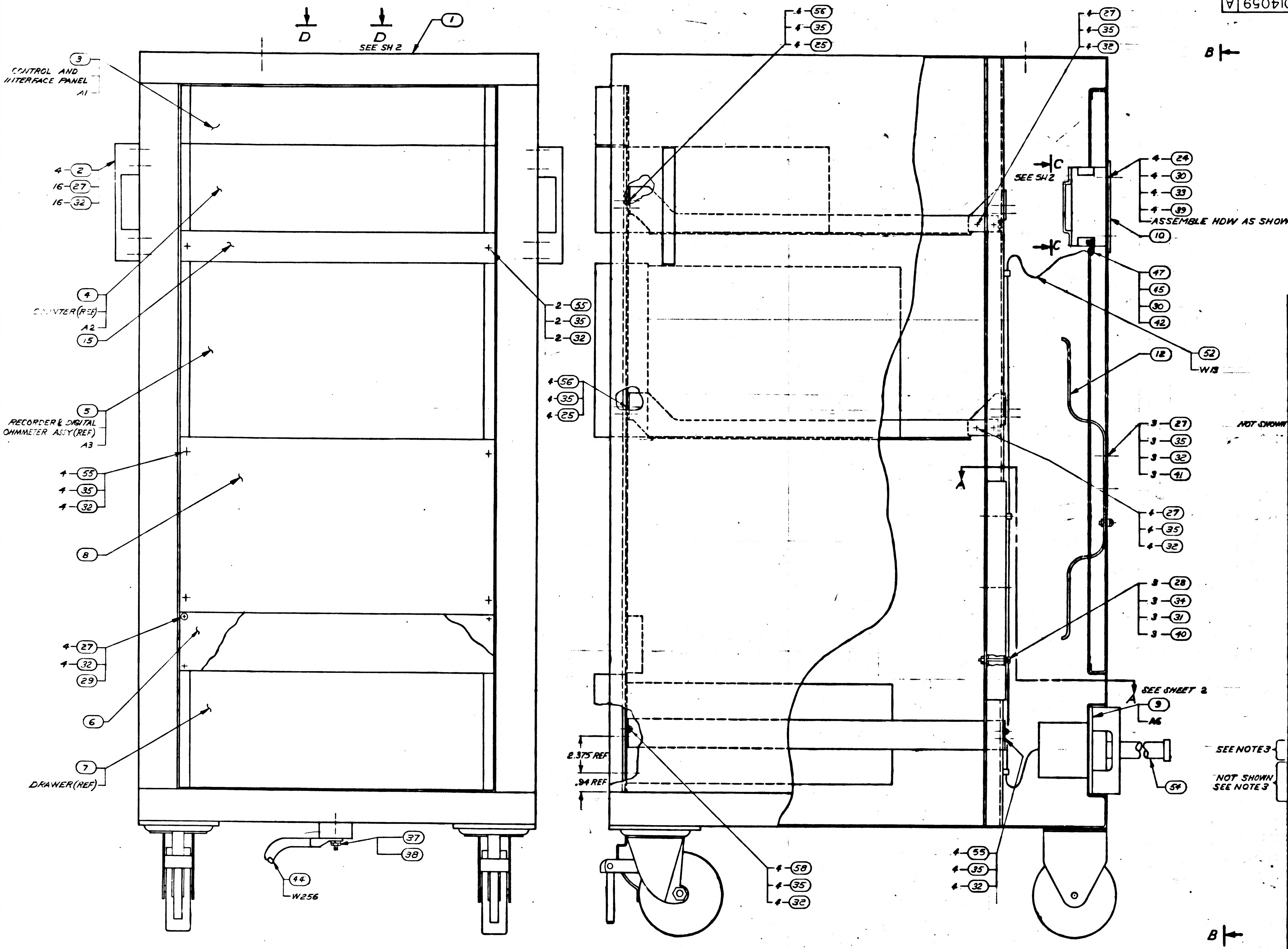
INTERCONNECTION DIAGRAM
AUXILIARY AGC CALIBRATION CONSOLE

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014 054
SCALE NONE
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014054 —

SYM	DESCRIPTION	DATE	APPROVED
	REVISIONS		
0	RELEASED PER CCA 25097	1/65	
—	CLASS A RELEASE PER TDRR 23115		
A	CHANGED PER TDRR 24226 DR CK APPD		



D
D
SEE SH 2
1
3
CONTROL AND INTERFACE PANEL A1
4-2
16-27
16-32
4
COUNTER (REF) A2
15
2-55
2-35
2-32
5
RECORDER & DIGITAL OHMMETER ASSY (REF) A3
4-55
4-35
4-32
8
4-27
4-32
29
6
7
DRAWER (REF)
37
38
44
W256
4-56
4-35
4-25
4-27
4-35
4-32
C
SEE SH 2
C
4-24
4-30
4-33
4-39
ASSEMBLE HDW AS SHOWN ON 1006883
10
B
47
45
30
42
52
W13
12
NOT SHOWN
3-27
3-35
3-32
3-41
A
4-27
4-35
4-32
3-28
3-34
3-31
3-40
SEE SHEET 2
9
A6
54
2.375 REF
.94 REF
4-58
4-35
4-32
4-55
4-35
4-32
B
SEE SH 2
SEE NOTE 3
NOT SHOWN SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014054	INTERCONNECTION DIAGRAM	REF
4	MS35337-79	WASHER, LOCK	62
4	MS51957-30	SCREW, PAN HD, CROSS-RECESSED	61
1	1006429	GRILL, METAL	60
2	2014074	BRACKET	59
4	MS51958-61	SCREW, PAN HEAD	58
8	MS16996-10	SCREW, SOCKET HEAD	57
8	MS16996-9	SCREW, SOCKET HEAD	56
20	MS51958-64	SCREW, PAN HD	55
1	1014150-1	CABLE ASSY, AC LINE	54
1	2014080-171	CABLE ASSY W 241	53
1	1020081 011	CABLE ASSY W13	52
1	1014076	CABLE ASSY W12	51
1	2014080-151	CABLE ASSY W1	50
1	2014080-161	CABLE ASSY W2	49
1	MS21919DG14	CLAMP, CABLE	48
11	MS21919DG5	CLAMP, CABLE	47
1	MS21919DG3	CLAMP, CABLE	46
1	MS51957-31	SCREW, PAN HEAD	45
1	2014115-031	STRAP, GROUND W256	44
4	AN535-4-3	SCREW, DRIVE	43
1	MS21044C06	NUT, LOCK	42
3	MS35650-104	NUT, PLAIN, HEXAGON	41
3	MS35649-84	NUT, PLAIN, HEXAGON	40
11	MS35649-64	NUT, PLAIN, HEXAGON	39
1	MS35650-610	NUT, PLAIN, HEXAGON	38
1	MS35335-63	WASHER, LOCK, EXT TOOTH	37
1	MS35335-60	WASHER, LOCK, EXT TOOTH	36
51	MS35338-81	WASHER, LOCK	35
3	MS35338-80	WASHER, LOCK	34
7	MS35338-79	WASHER, LOCK	33
63	MS15795-808	WASHER, FLAT	32
3	MS15795-807	WASHER, FLAT	31
12	MS15795-805	WASHER, FLAT	30
AR	MIL-S-22473, GRADE HV	COMPOUND, SEALING & RETAINING	29
3	MS51957-52	SCREW, PAN HD	28
32	MS51958-63	SCREW, PAN HD	27
2	2014026	BRACKET	26
8	NAS620C10	WASHER, FLAT	25
4	MS51959-30	SCREW, FLAT HD	24
1	MS21919DG6	CLAMP, CABLE	23
1	1014480-4	DECAL, IDENTIFICATION	22
1	1014480-5	DECAL, IDENTIFICATION	21
1	1014480-6	DECAL, IDENTIFICATION	20
1	1014480-3	DECAL, IDENTIFICATION	19
1	1014480-2	DECAL, IDENTIFICATION	18
1	1014480-1	DECAL, IDENTIFICATION	17
1	1004260-201	NAMEPLATE	16
1	2014055	PANEL, BLANK	15
2	2014073-011	BRACKET, SUPPORT ASSY	14
2	2014057-011	BRACKET, SUPPORT ASSY	13
1	1014039	BRACKET, CABLE	12
1	1014216	BRACKET, ASSEMBLY	11
1	1006883-000	FAN	10
1	1014087	AC INPUT PANEL	9
1	2014056	PANEL, BLANK	8
1	1014303-1	HANDLE-SLIDE ASSY	7
1	1006437-001	FILTER, AIR	6
1	1020211-011	RECORDER AND DIGITAL OHMMETER ASSY	5
1	2014298-011	COUNTER ELEC ASSY	4
1	2014010-011	PANEL ASSY, SIG INTERFACE	3
4	1006979-4	HANDLE	2
1	1006875-001	CABINET	1
-011	LIST OF MATERIALS		

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. ASSEMBLE APPROPRIATE IDENT DECAL (FIND NO. 17, 18, 19, 20, 21 & 22) ON SURFACE A AND WHERE SHOWN IN RELATION TO CORRESPONDING ASSY
4. SERIALIZE PER ND1002023.
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014059
6. FIND NO. 13 & 14 TO BE MOUNTED FLUSH WITH FIND NO. 4 & 5

MASTER

FINAL	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B. Fuller DATE 14 APR 65
CHECKED K.C.
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

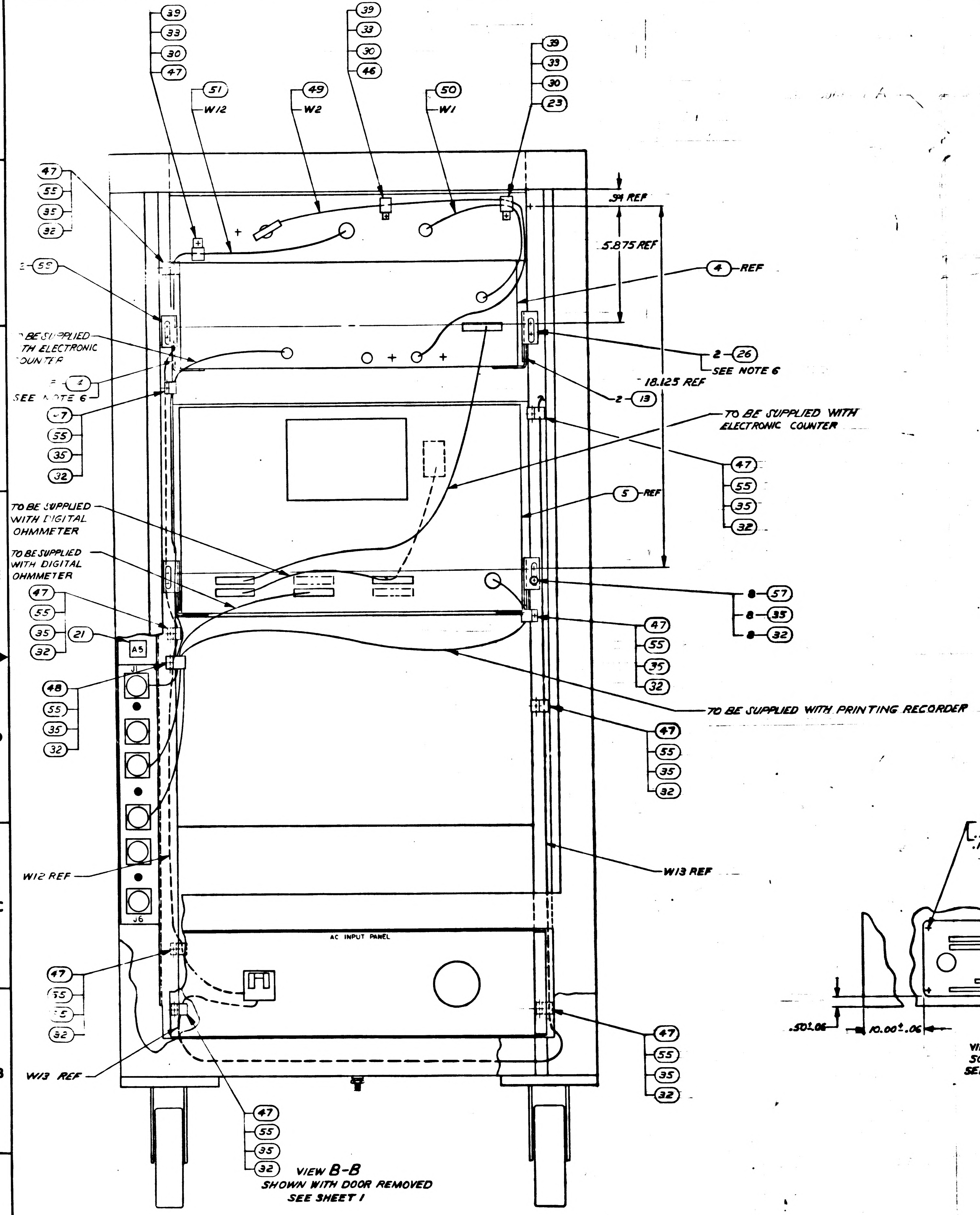
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AUXILIARY
AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

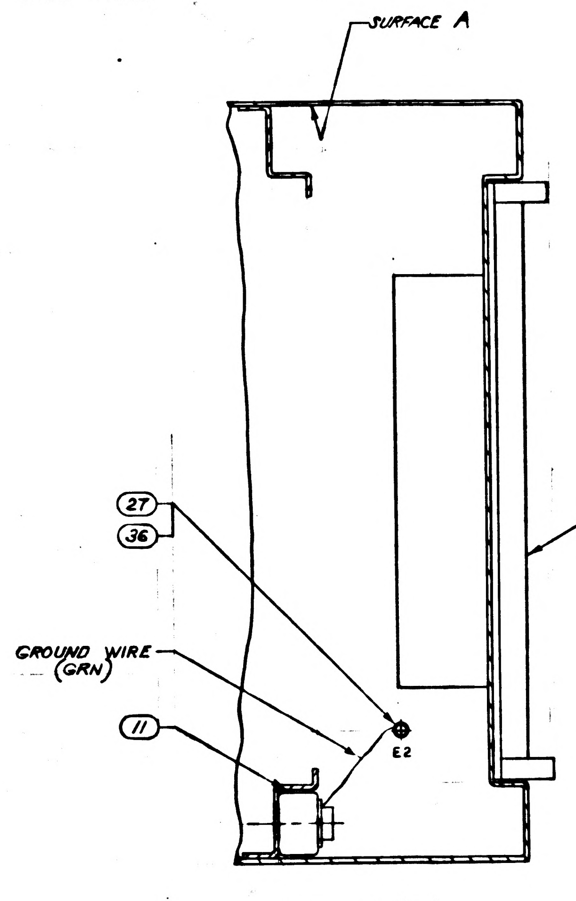
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014059
SCALE 1/2
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

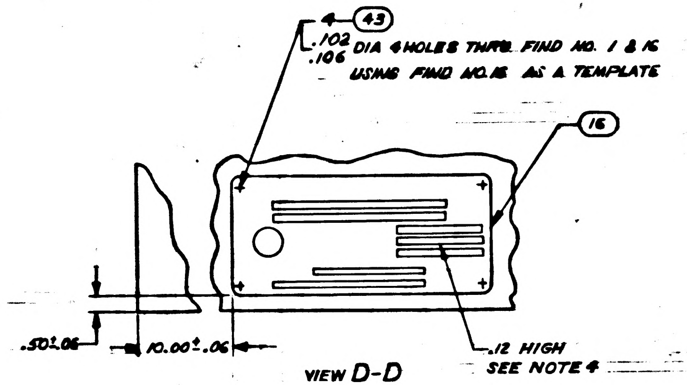
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 35097	7/9/65	
—	CLASS A RELEASE PER TDRR 23115		
A	CHANGED PER TDRR 24226 DR CHK APPD		


39
33
30
47
51
W12
49
W2
39
33
30
46
50
W1
39
33
30
23
47
55
35
32
.94 REF
5.875 REF
4 REF
55
TO BE SUPPLIED WITH ELECTRONIC COUNTER
4
SEE NOTE 6
2 26
SEE NOTE 6
18.125 REF
2 13
47
55
35
32
TO BE SUPPLIED WITH ELECTRONIC COUNTER
47
55
35
32
5 REF
TO BE SUPPLIED WITH DIGITAL OHMMETER
TO BE SUPPLIED WITH DIGITAL OHMMETER
8 57
8 35
8 32
47
55
35
32
21
A5
J1
48
55
35
32
47
55
35
32
TO BE SUPPLIED WITH PRINTING RECORDER
47
55
35
32
W12 REF
J6
W13 REF
AC INPUT PANEL
47
55
35
32
47
55
35
32
W13 REF
47
55
35
32

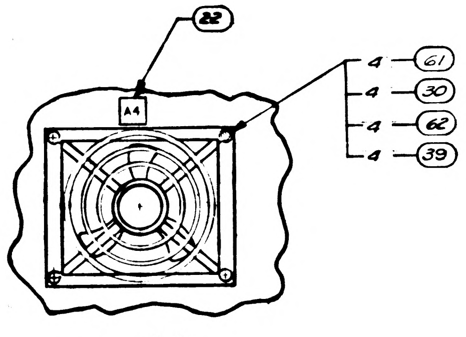
VIEW B-B
SHOWN WITH DOOR REMOVED
SEE SHEET 1


SURFACE A
9 REF
27
36
GROUND WIRE (GRN)
11
E2

SECTION A-A
SEE SHEET 1


4 43
.102/.106 DIA 4 HOLES THRU FIND NO. 1 & 16 USING FIND NO. 16 AS A TEMPLATE
16
.50±.06
10.00±.06
.12 HIGH
SEE NOTE 4

VIEW D-D
SCALE 1/1
SEE SHEET 1


82
A4
4 61
4 30
4 62
4 39

VIEW C-C
SEE SHEET 1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B. Fuller DATE 14 APR 65
CHECKED CC 9 JULY 65
APPROVAL P.E. 8 JULY 65
APPROVAL 7/9/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 10/7/65

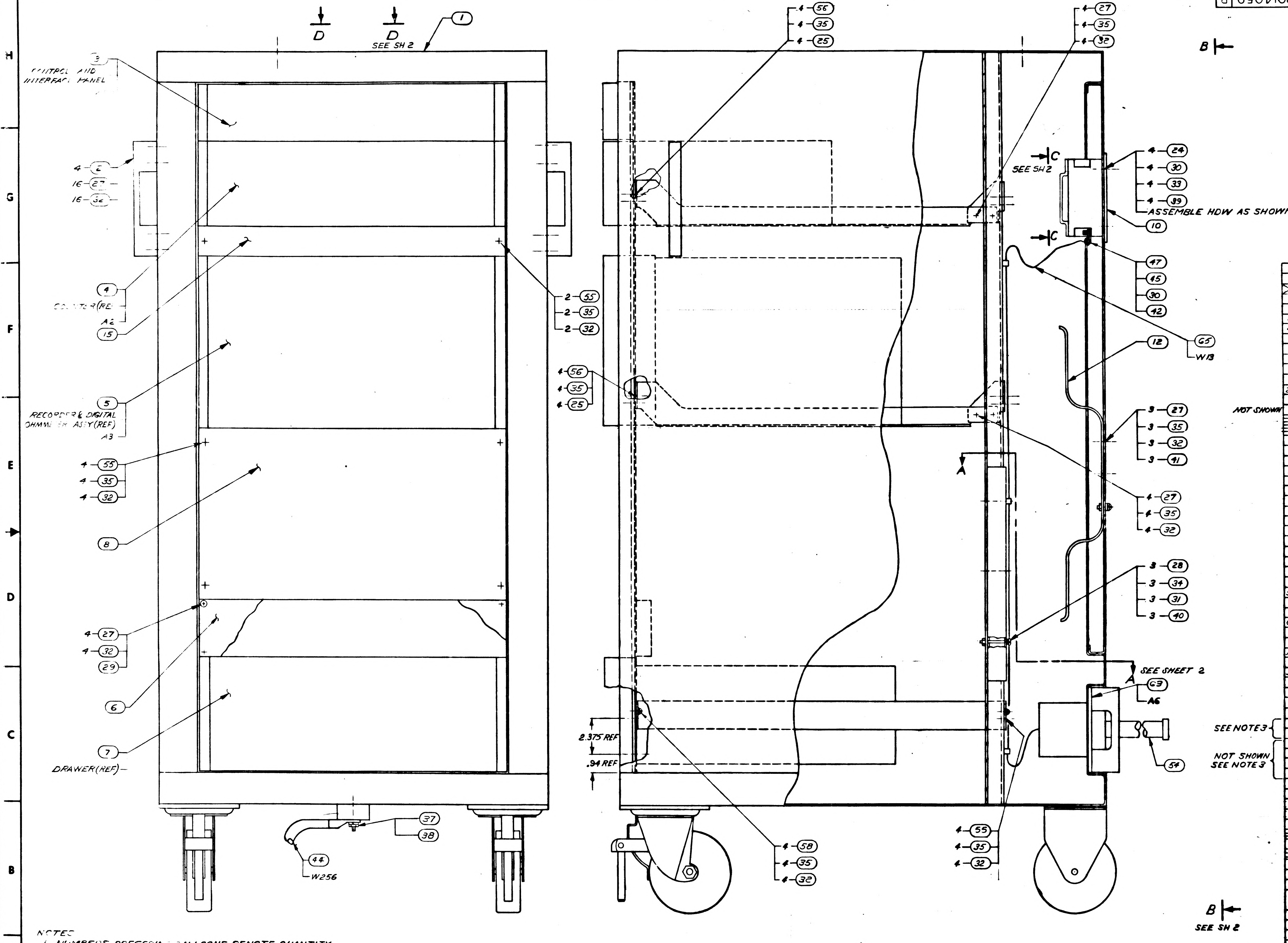
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AUXILIARY AGC CALIBRATION SYSTEM CONSOLE ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014059
SCALE 1/2
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25047		
—	CLASS A RELEASE PER TORR 23115		
A	CHANGED PER TORR 24[illegible] DR CHK APPD		
B	CHANGED PER TORR 24490 DR CHK APPD		


D
D
SEE SH 2
1
3
CONTROL AND INTERFACE PANEL
4-2
16-27
16-32
4
COUNTER (REF)
A2
15
5
RECORDER & DIGITAL OHMMETER ASSY (REF)
A3
4-55
4-35
4-32
8
4-27
4-32
29
6
7
DRAWER (REF)
37
38
44
W256
2-55
2-35
2-32
4-56
4-35
4-25
4-56
4-35
4-25
2.375 REF
.94 REF
4-58
4-35
4-32
4-27
4-35
4-32
SEE SH 2
C
C
A
A
4-24
4-30
4-33
4-39
ASSEMBLE HDW AS SHOWN ON 1006883
10
47
45
30
42
65
W13
12
3-27
3-35
3-32
3-41
4-27
4-35
4-32
3-28
3-34
3-31
3-40
SEE SHEET 2
63
A6
54
4-55
4-35
4-32
B
B
SEE SH 2
NOT SHOWN
SEE NOTE 3
NOT SHOWN SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2016330-011	CABLE ASSY W12	66
1	2016331-021	CABLE ASSY W13	65
☒	2014054	INTERCONNECTION DIAGRAM	RE
1	2016332	BRACKET ASSY	64
1	2016333	AC INPUT ASSY	63
4	MS35337-79	WASHER, LOCK	62
4	MS51957-30	SCREW, PAN HD, CROSS-RECESSED	61
	1006429	[illegible] ETAL	60
2	2014074	BRACKET	59
4	MS51958-61	SCREW, PAN HEAD	58
8	MS16996-10	SCREW, SOCKET HEAD	57
8	MS16996-9	SCREW, SOCKET HEAD	56
20	MS51958-64	SCREW, PAN HD	55
1	1014150-1	CABLE ASSY, AC LINE	54
1	2014080-171	CABLE ASSY W241	53
~~1~~	~~1020081-011~~	~~CABLE ASSY W13~~	~~52~~
~~1~~	~~1014076~~	~~CABLE ASSY W12~~	~~51~~
1	2014080-151	CABLE ASSY W1	50
1	2014080-161	CABLE ASSY W2	49
1	MS21919DG14	CLAMP, CABLE	48
11	MS21919DG5	CLAMP, CABLE	47
1	MS21919DG3	CLAMP, CABLE	46
1	MS51957-31	SCREW, PAN HEAD	45
1	2014115-031	STRAP, GROUND W256	44
4	AN535-4-3	SCREW, DRIVE	43
1	MS21044C06	NUT, LOCK	42
3	MS35650-104	NUT, PLAIN, HEXAGON	41
3	MS35649-84	NUT, PLAIN, HEXAGON	40
11	MS35649-64	NUT, PLAIN, HEXAGON	39
1	MS35690-610	NUT, PLAIN, HEXAGON	38
1	MS35335-63	WASHER, LOCK, EXT TOOTH	37
1	MS35335-60	WASHER, LOCK, EXT TOOTH	36
51	MS35338-81	WASHER, LOCK	35
3	MS35338-80	WASHER, LOCK	34
7	MS35338-79	WASHER, LOCK	33
63	MS15795-808	WASHER, FLAT	32
3	MS15795-807	WASHER, FLAT	31
12	MS15795-805	WASHER, FLAT	30
AR	MIL-S-22473, GRADE HV	COMPOUND, SEALING & RETAINING	29
3	MS51957-52	SCREW, PAN HD	28
32	MS51958-63	SCREW, PAN HD	27
2	2014026	BRACKET	26
8	NAS620C10	WASHER, FLAT	25
4	MS51959-30	SCREW, FLAT HD	24
1	MS21919DG6	CLAMP, CABLE	23
1	1014480-4	DECAL, IDENTIFICATION	22
1	1014480-5	DECAL, IDENTIFICATION	21
1	1014480-6	DECAL, IDENTIFICATION	20
1	1014480-3	DECAL, IDENTIFICATION	19
1	1014480-2	DECAL, IDENTIFICATION	18
1	1014480-1	DECAL, IDENTIFICATION	17
1	1004260-201	NAMEPLATE	16
1	2014055	PANEL, BLANK	15
2	2014073-011	BRACKET, SUPPORT ASSY	14
2	2014057-011	BRACKET, SUPPORT ASSY	13
1	1014039	BRACKET, CABLE	12
~~1~~	~~1014218~~	~~BRACKET, ASSEMBLY~~	~~11~~
1	1006883-000	FAN	10
~~1~~	~~1014087~~	~~AC INPUT PANEL~~	~~9~~
1	2014056	PANEL, BLANK	8
1	1014303-1	HANDLE-SLIDE ASSY	7
1	1006437-001	FILTER, AIR	6
1	1020211-011	RECORDER AND DIGITAL OHMMETER ASSY	5
1	2014288-011	SUPPORT ELEC ASSY	4
1	2014010-011	PANEL ASSY, SIG INTERFACE	3
4	1006979-4	HANDLE	2
1	1006875-001	CABINET	1

-011 LIST OF MATERIALS

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY.
2. AR DENOTES AS REQUIRED
3. ASSEMBLE APPROPRIATE IDENT DECAL (FIND NO. 17, 18, 19, 20, 21 & 22) ON SURFACE A AND WHERE SHOWN IN RELATION TO CORRESPONDING ASSY
4. SERIALIZE PER ND 1002023.
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014059
6. FIND NO. 13 & 14 TO BE MOUNTED FLUSH WITH FIND NO. 4 & 5

NEXT ASSY	USED ON
1900050	
FINAL	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4[illegible]7
DRAWN DATE 14 APR 65
CHECKED K.C.
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

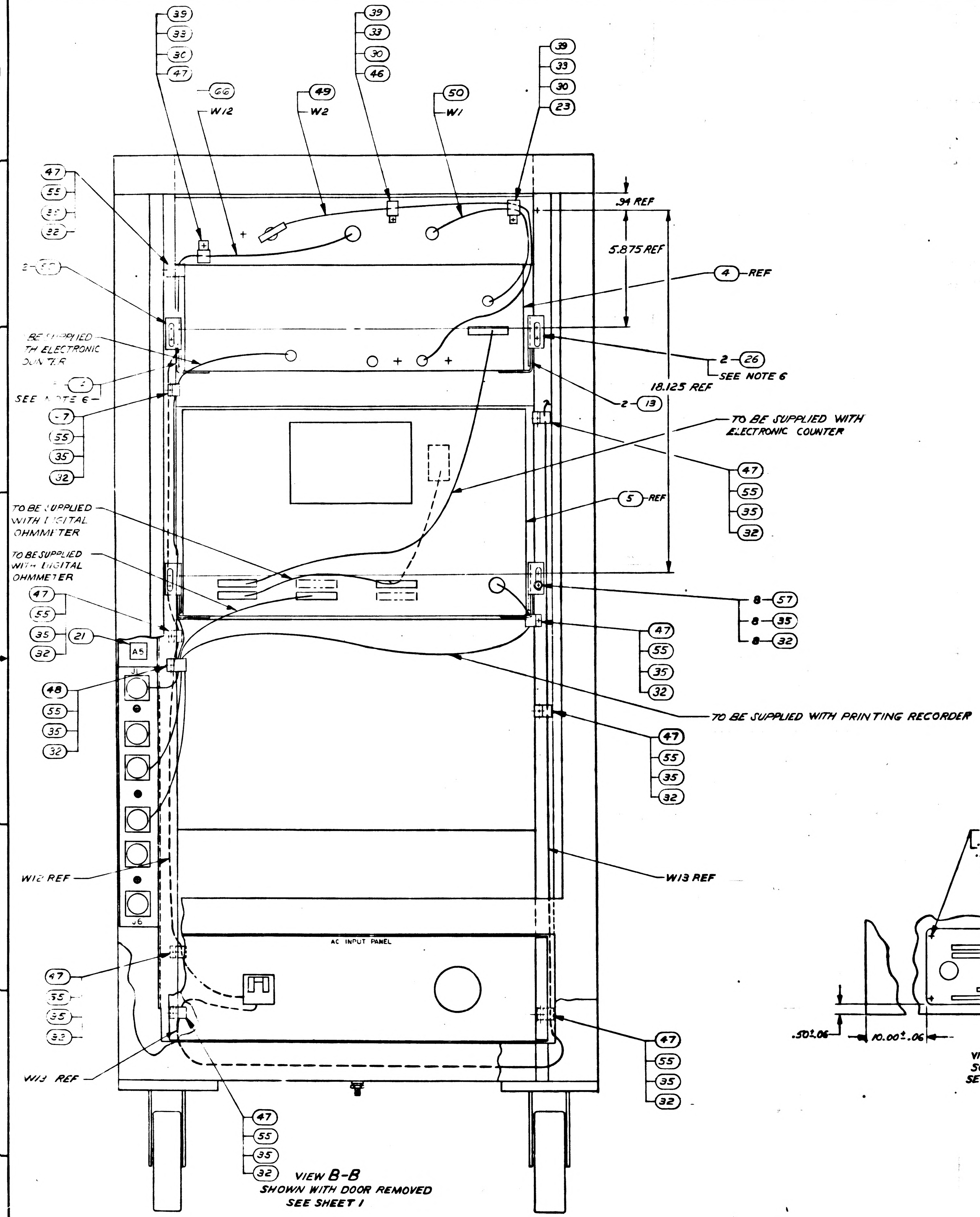
AUXILIARY
AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014059
SCALE 1/2
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

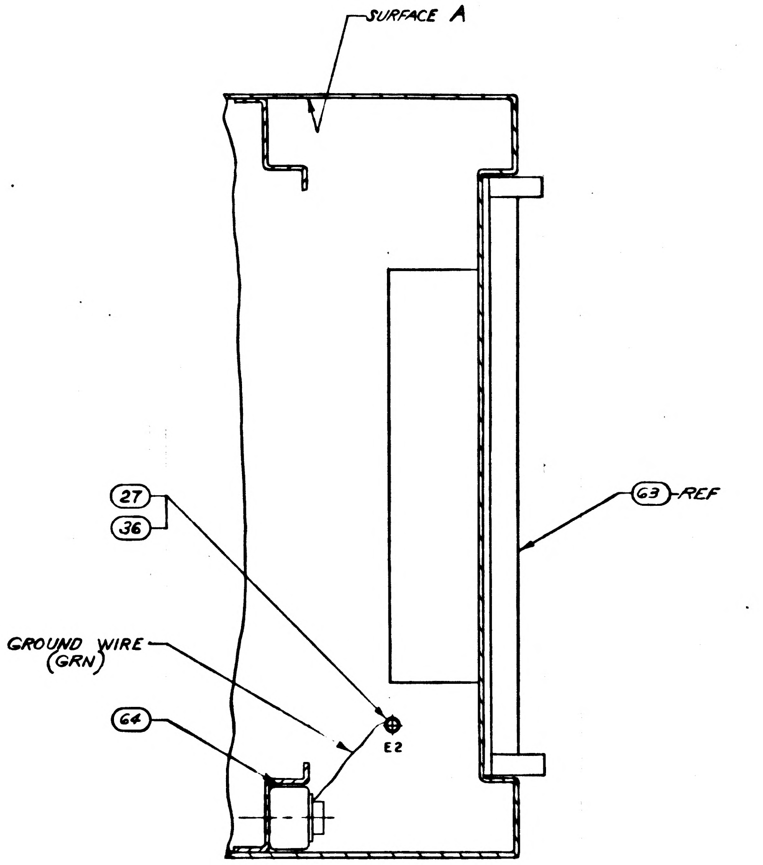
2014059 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
—	RELEASED PER A 35047		
—	CLASS A RELEASE PER TDRR 23115		
A	CHANGED PER TDRR 24223 DR CHK APPD		
B	CHANGED PER TDRR 24490 DR CHK APPD		



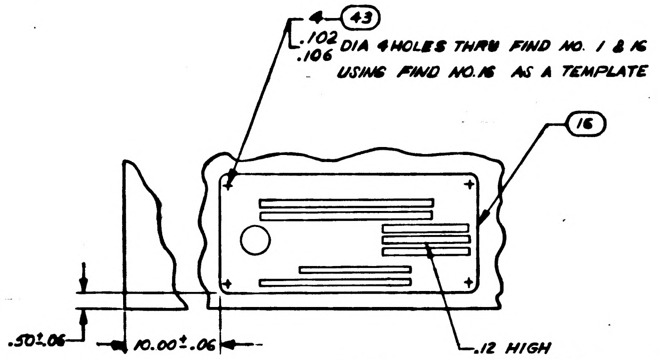
39
33
30
47
66
W12
49
W2
39
33
30
46
50
W1
39
33
30
23
47
55
35
32
2-50
4-REF
.34 REF
5.875 REF
18.125 REF
TO BE SUPPLIED WITH ELECTRONIC COUNTER
2-2
SEE NOTE 6
2-26
SEE NOTE 6
2-13
47
55
35
32
TO BE SUPPLIED WITH ELECTRONIC COUNTER
47
55
35
32
5-REF
TO BE SUPPLIED WITH DIGITAL OHMMETER
TO BE SUPPLIED WITH DIGITAL OHMMETER
47
55
35
32
21
A5
J1
8-57
8-35
8-32
47
55
35
32
48
55
35
32
TO BE SUPPLIED WITH PRINTING RECORDER
47
55
35
32
W12 REF
W13 REF
J6
AC INPUT PANEL
47
55
35
32
W13 REF
47
55
35
32
47
55
35
32

VIEW B-B
SHOWN WITH DOOR REMOVED
SEE SHEET 1



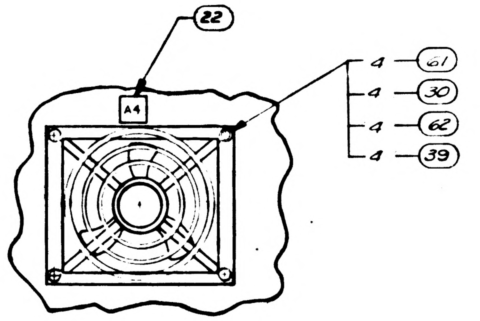
SURFACE A
27
36
GROUND WIRE (GRN)
64
E2
63-REF

SECTION A-A
SEE SHEET 1



4-43
.102
.106 DIA 4 HOLES THRU FIND NO. 1 & 16 USING FIND NO. 16 AS A TEMPLATE
16
.50±.06
10.00±.06
.12 HIGH
SEE NOTE 4

VIEW D-D
SCALE 1/1
SEE SHEET 1



22
A4
4-61
4-30
4-62
4-39

VIEW C-C
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B. Fuller DATE 14 APR 65
CHECKED
APPROVAL P.E. Duke 8 JULY 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 10/7/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AUXILIARY
AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

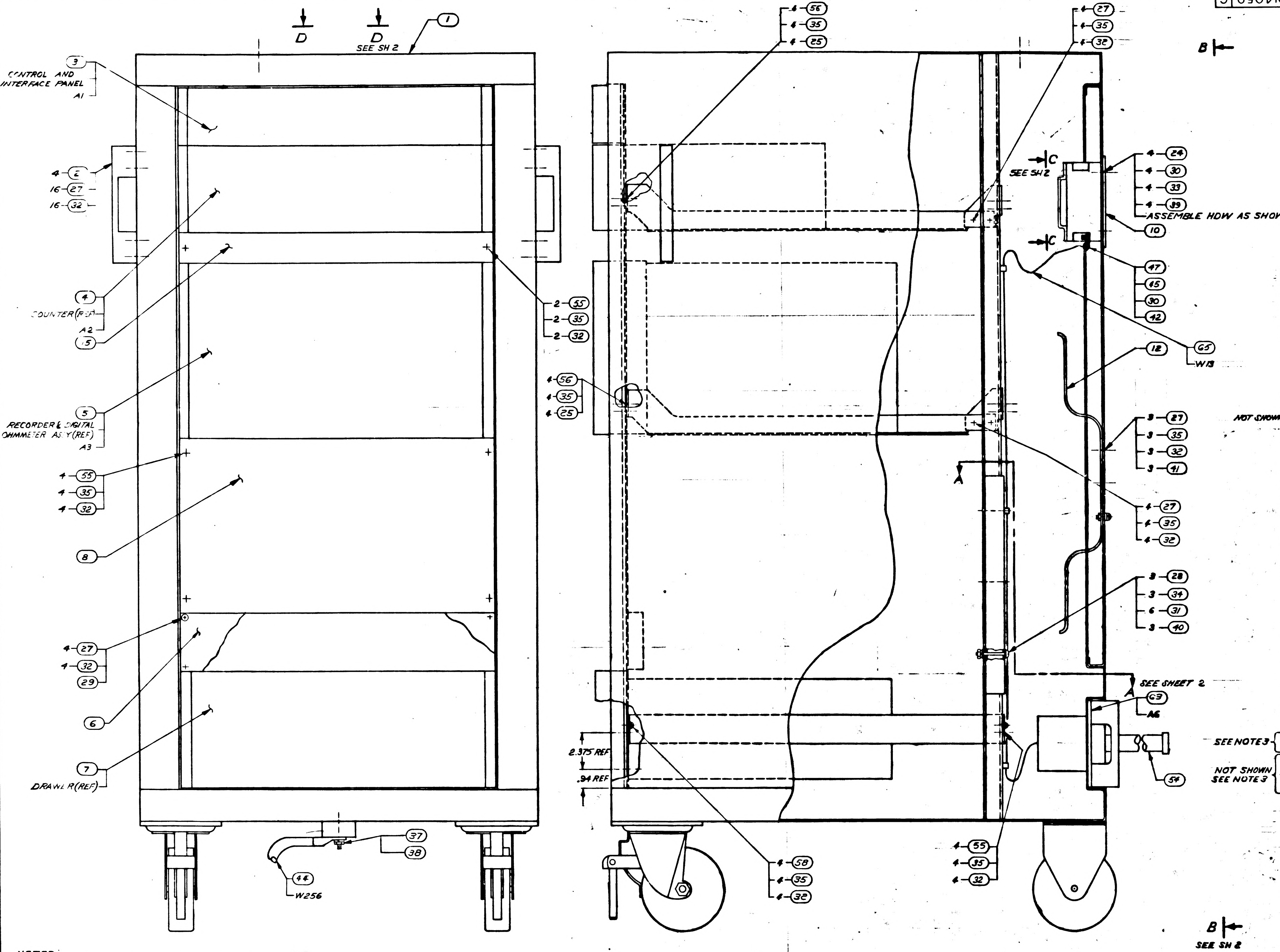
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014059
SCALE 1/2
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014059 B

2014059 D

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA 25047	7/1/65	
—	CLASS A RELEASE PER TDRR 23115		
A	CHANGED PER TDRR 24226 DR CHK APPD		
B	CHANGED PER TDRR 24490 DR CHK APPD		
C	CHANGED PER TDRR 24985 DR CHK APPD		



D
D
SEE SH 2
1
3
CONTROL AND INTERFACE PANEL A1
4-2
16-27
16-32
4
COUNTER (REF) A2
5
RECORDER & DIGITAL OHMMETER ASSY (REF) A3
4-55
4-35
4-32
8
4-27
4-32
29
6
7
DRAWER (REF)
2-55
2-35
2-32
37
38
44
W256
4-56
4-35
4-25
4-27
4-35
4-32
SEE SH 2
C
C
4-24
4-30
4-33
4-39
ASSEMBLE HDW AS SHOWN ON 1006883
10
47
45
30
42
65
W13
12
B
4-56
4-35
4-25
3-27
3-35
3-32
3-41
A
4-27
4-35
4-32
3-28
3-34
6-31
3-40
SEE SHEET 2
63
A6
2.375 REF
.94 REF
54
4-58
4-35
4-32
4-55
4-35
4-32
B
SEE SH 2
NOT SHOWN
SEE NOTE 3
NOT SHOWN SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2016330-011	CABLE ASSY W12	66
1	2016331-021	CABLE ASSY W13	65
X	2014054	INTERCONNECTION DIAGRAM	REF
1	2016332-011	BRACKET ASSY	64
1	2016333-011	AC INPUT ASSY	63
4	MS35337-79	WASHER, LOCK	62
4	MS51957-30	SCREW, PAN HD, CROSS-RECESSED	61
1	1006429	GRILL, METAL	60
2	2014074	BRACKET	59
4	MS51958-61	SCREW, PAN HEAD	58
8	MS16996-10	SCREW, SOCKET HEAD	57
8	MS16996-9	SCREW, SOCKET HEAD	56
20	MS51958-64	SCREW, PAN HD	55
1	1014150-1	CABLE ASSY, AC LINE	54
1	2014080-171	CABLE ASSY W 241	53
~~1~~	~~1020081-011~~	~~CABLE ASSY W13~~	~~52~~
~~1~~	~~1014076~~	~~CABLE ASSY W12~~	~~51~~
1	2014080-151	CABLE ASSY W1	50
1	2014080-161	CABLE ASSY W2	49
1	MS21919DG8	CLAMP, CABLE	48
11	MS21919DG5	CLAMP, CABLE	47
1	MS21919DG3	CLAMP, CABLE	46
1	MS51957-31	SCREW, PAN HEAD	45
1	2014115-031	STRAP, GROUND W256	44
4	AN535-4-3	SCREW, DRIVE	43
1	MS21044C06	NUT, LOCK	42
3	MS35650-104	NUT, PLAIN, HEXAGON	41
3	MS35649-84	NUT, PLAIN, HEXAGON	40
11	MS35649-64	NUT, PLAIN, HEXAGON	39
1	MS35690-610	NUT, PLAIN, HEXAGON	38
1	MS35335-63	WASHER, LOCK, EXT TOOTH	37
1	MS35335-60	WASHER, LOCK, EXT TOOTH	36
51	MS35338-81	WASHER, LOCK	35
3	MS35338-80	WASHER, LOCK	34
7	MS35338-79	WASHER, LOCK	33
63	MS15795-808	WASHER, FLAT	32
6	MS15795-807	WASHER, FLAT	31
12	MS15795-805	WASHER, FLAT	30
AR	MIL-S-22473, GRADE HV	COMPOUND, SEALING & RETAINING	29
3	MS51957-52	SCREW, PAN HD	28
32	MS51958-63	SCREW, PAN HD	27
2	2014026	BRACKET	26
8	NAS620C10	WASHER, FLAT	25
4	MS51959-30	SCREW, FLAT HD	24
1	MS21919DG6	CLAMP, CABLE	23
1	1014480-4	DECAL, IDENTIFICATION	22
1	1014480-5	DECAL, IDENTIFICATION	21
1	1014480-6	DECAL, IDENTIFICATION	20
1	1014480-3	DECAL, IDENTIFICATION	19
1	1014480-2	DECAL, IDENTIFICATION	18
1	1014480-1	DECAL, IDENTIFICATION	17
1	1004260-201	NAMEPLATE	16
1	2014055	PANEL, BLANK	15
2	2014073-011	BRACKET, SUPPORT ASSY	14
2	2014057-011	BRACKET, SUPPORT ASSY	13
1	1014039	BRACKET, CABLE	12
~~1~~	~~[illegible]~~	~~BRACKET, ASSEMBLY~~	~~11~~
1	1006883-000	FAN	10
~~1~~	~~1014087~~	~~AC INPUT PANEL~~	~~9~~
1	2014056	PANEL, BLANK	8
1	1014303-1	HANDLE-SLIDE ASSY	7
1	1006437-001	FILTER, AIR	6
1	1020211-011	RECORDER AND DIGITAL OHMMETER ASSY	5
1	2014238-011	COUNTER, ELEC ASSY	4
1	2014010-011	PANEL ASSY, SIG INTERFACE	3
4	1006979-4	HANDLE	2
1	1006875-001	CABINET	1
-011	LIST OF MATERIALS		

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. ASSEMBLE APPROPRIATE IDENT DECAL (FIND NO. 17, 18, 19, 20, 21 & 22) ON SURFACE A AND WHERE SHOWN IN RELATION TO CORRESPONDING ASSY
4. SERIALIZE PER ND1002023.
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014059
6. FIND NO. 13 & 14 TO BE MOUNTED FLUSH WITH FIND NO. 4 & 5

MASTER

NEXT ASSY	USED ON
1300030	
FINAL	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B. Fuller DATE 14 APR 65
CHECKED K.C.
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

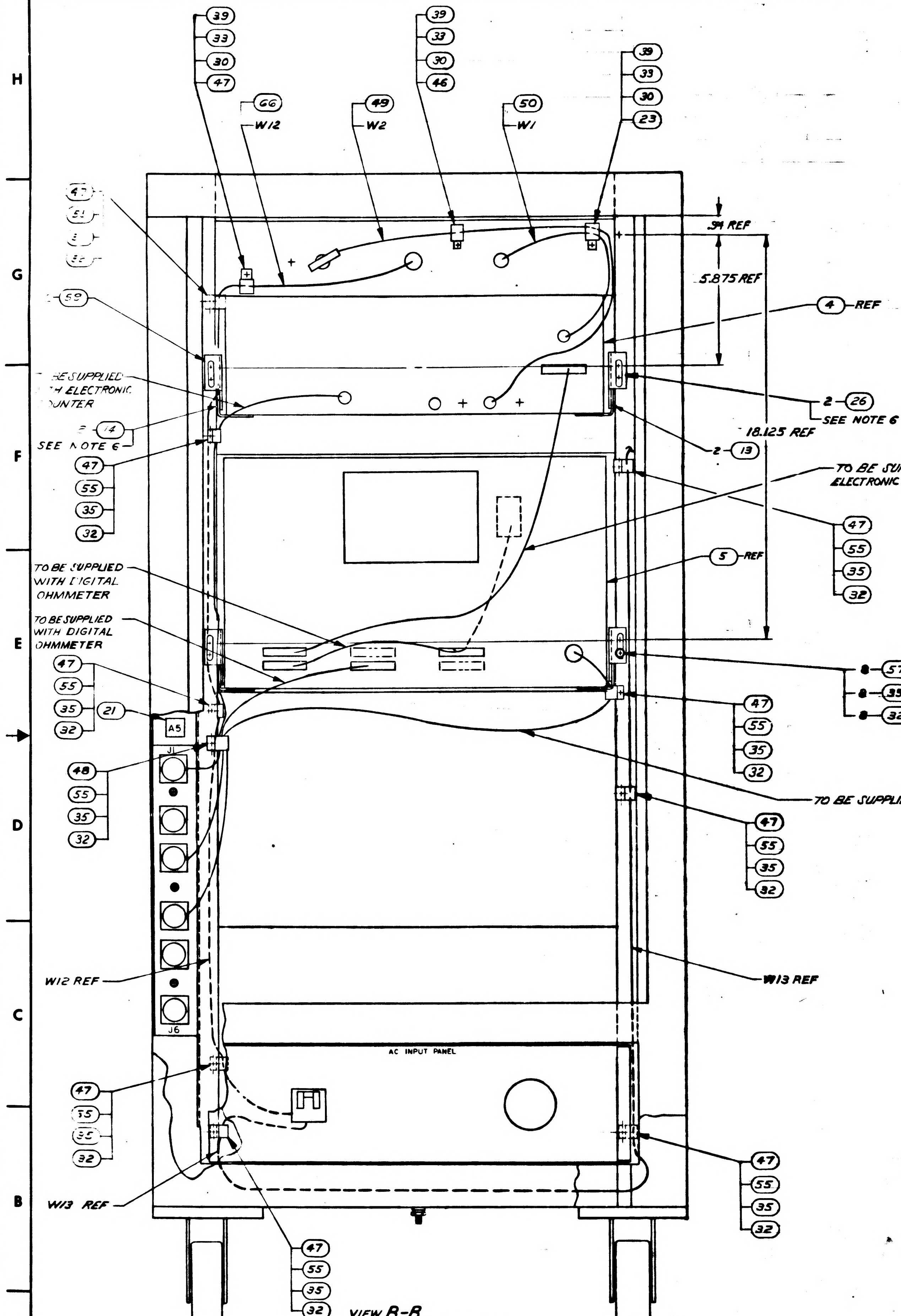
AUXILIARY
AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014059
SCALE 1/2
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014059 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER 4 35047		
—	CLASS A RELEASE PER TDRR 23115		
A	CHANGED PER TDRR 24226 DR CHK APPD		
B	CHANGED PER TDRR 24490 DR CHK APPD RED	12/14/65	
C	CHANGED PER TDRR 24985 DR CHK APPD RCD	1/7/66	



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33
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W12
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W2
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46
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W1
39
33
30
23
.34 REF
5.875 REF
4 REF
18.125 REF
2 26
SEE NOTE 6
2 13
58
TO BE SUPPLIED WITH ELECTRONIC COUNTER
14
SEE NOTE 6
47
55
35
32
TO BE SUPPLIED WITH ELECTRONIC COUNTER
5 REF
47
55
35
32
TO BE SUPPLIED WITH DIGITAL OHMMETER
TO BE SUPPLIED WITH DIGITAL OHMMETER
8 57
8 35
8 32
47
55
35
32
21
A5
J1
48
55
35
32
TO BE SUPPLIED WITH PRINTING RECORDER
47
55
35
32
W12 REF
W13 REF
J6
AC INPUT PANEL
47
55
35
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47
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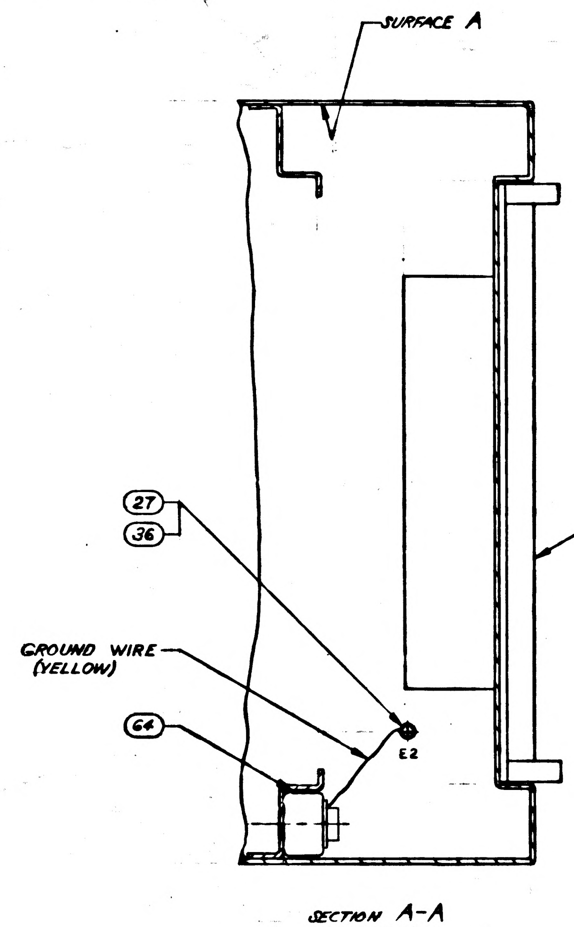
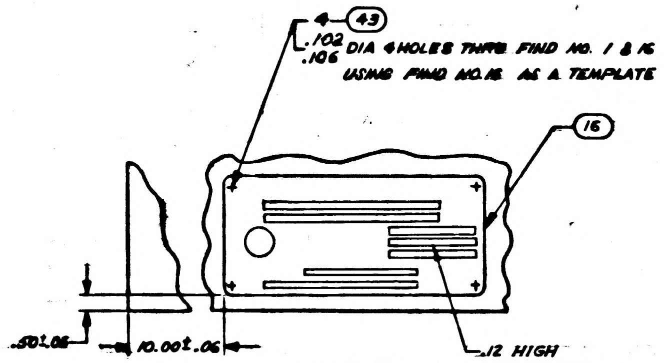
35
32
W13 REF
47
55
35
32

VIEW B-B
SHOWN WITH DOOR REMOVED
SEE SHEET 1



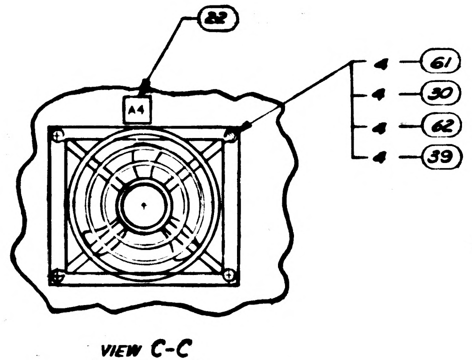
SURFACE A
63 REF
27
36
GROUND WIRE (YELLOW)
64
E2

SECTION A-A
SEE SHEET 1



4 43
.102/.106 DIA 4 HOLES THRU FIND NO. 1 & 16 USING FIND NO. 16 AS A TEMPLATE
16
.50±.05
10.00±.06
.12 HIGH
SEE NOTE 4

VIEW D-D
SCALE 1/1
SEE SHEET 1



22
A4
4 61
4 30
4 62
4 39

VIEW C-C
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 14 APR 65
CHECKED 1 JULY 65
APPROVAL 8 JULY 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AUXILIARY AGC CALIBRATION SYSTEM CONSOLE ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014059
SCALE 1/2
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

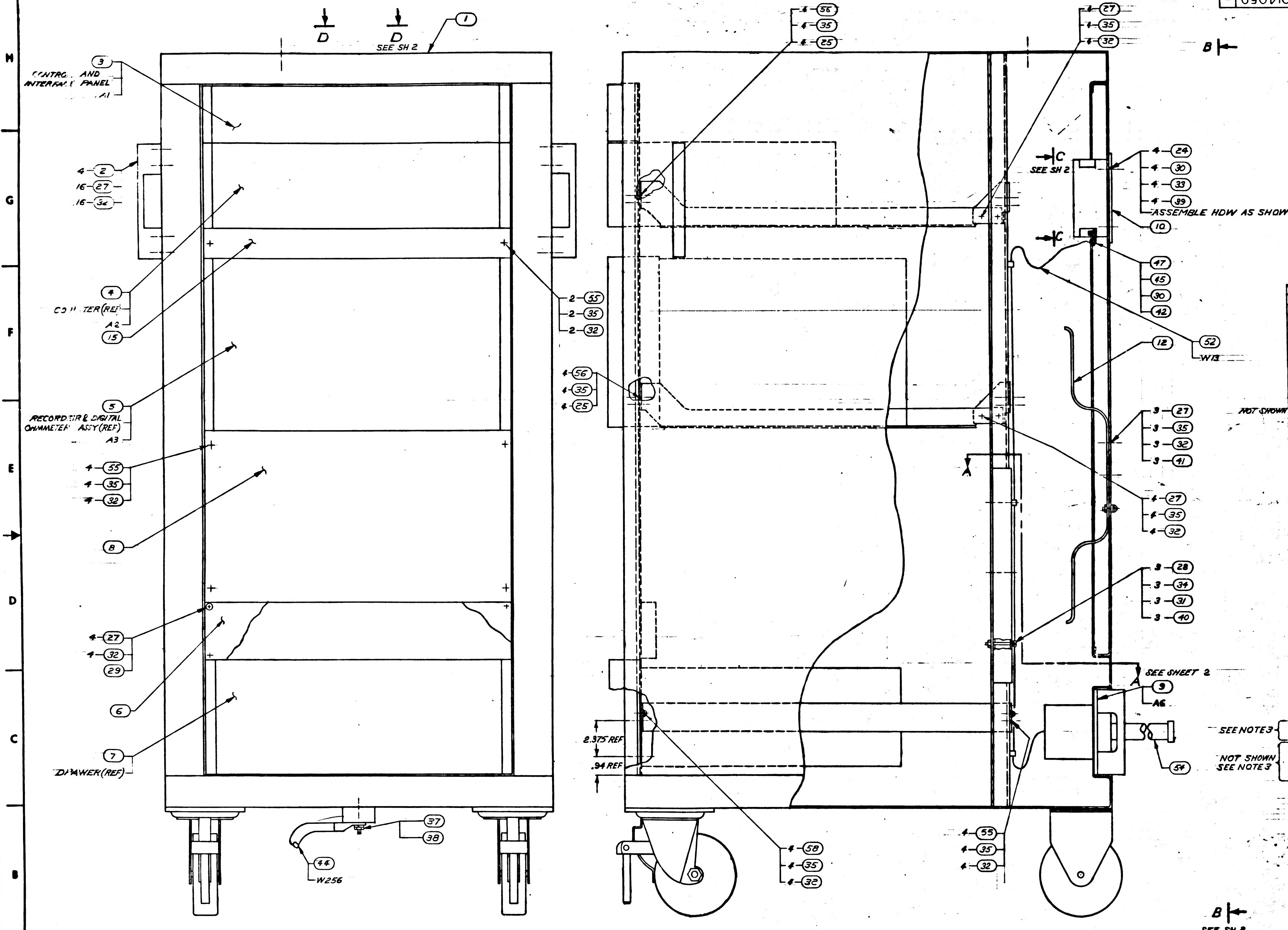
MASTER

2014059 C

2014059

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25097	7/9/65	
—	CLASS A RELEASE PER TDRR 23115		

2014059 | —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D
SEE SH 2
1
3
CONTROL AND INTERFACE PANEL A1
4-2
16-27
16-32
4
COUNTER (REF) A2
15
5
RECORDER & DIGITAL OHMMETER ASSY (REF) A3
4-55
4-35
4-32
8
4-27
4-32
29
6
7
DRAWER (REF)
37
38
44
W256
4-56
4-35
4-25
2-55
2-35
2-32
4-56
4-35
4-25
2.375 REF
.94 REF
4-58
4-35
4-32
4-27
4-35
4-32
B
C
SEE SH 2
4-24
4-30
4-33
4-39
ASSEMBLE HDW AS SHOWN ON 1006883
10
C
47
45
30
42
52
W13
12
3-27
3-35
3-32
3-41
A
4-27
4-35
4-32
3-28
3-34
3-31
3-40
SEE SHEET 2
9
A6
54
4-55
4-35
4-32
B
SEE SH 2

NOT SHOWN (find no. 53)

SEE NOTE 3 (find no. 21, 22)

NOT SHOWN SEE NOTE 3 (find no. 17–20)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014054	INTERCONNECTION DIAGRAM	REF
2	2014074	BRACKET	59
4	MS51958-61	SCREW, PAN HEAD	58
8	MS16996-10	SCREW, SOCKET HEAD	57
8	MS16996-9	SCREW, SOCKET HEAD	56
20	MS51958-64	SCREW, PAN HD	55
1	1014150-1	CABLE ASSY, AC LINE	54
1	2014080-171	CABLE ASSY W 241	53
1	1020081-011	CABLE ASSY W13	52
1	1014076	CABLE ASSY W12	51
1	2014080-151	CABLE ASSY W1	50
1	2014080-161	CABLE ASSY W2	49
1	MS21919DG14	CLAMP, CABLE	48
11	MS21919DG5	CLAMP, CABLE	47
1	MS21919DG3	CLAMP, CABLE	46
1	MS51957-31	SCREW, PAN HEAD	45
1	2014115-031	STRAP, GROUND W256	44
4	AN535-4-3	SCREW, DRIVE	43
1	MS21044C06	NUT, LOCK	42
3	MS35650-104	NUT, PLAIN, HEXAGON	41
3	MS35649-84	NUT, PLAIN, HEXAGON	40
7	MS35649-64	NUT, PLAIN, HEXAGON	39
1	MS35690-610	NUT, PLAIN, HEXAGON	38
1	MS35335-63	WASHER, LOCK, EXT TOOTH	37
1	MS35335-60	WASHER, LOCK, EXT TOOTH	36
51	MS35338-81	WASHER, LOCK	35
3	MS35338-80	WASHER, LOCK	34
7	MS35338-79	WASHER, LOCK	33
63	MS15795-808	WASHER, FLAT	32
3	MS15795-807	WASHER, FLAT	31
8	MS15795-805	WASHER, FLAT	30
AR	MIL-S-22473, GRADE HV	COMPOUND, SEALING & RETAINING	29
3	MS51957-52	SCREW, PAN HD	28
32	MS51958-63	SCREW, PAN HD	27
2	2014026	BRACKET	26
8	NAS620C10	WASHER, FLAT	25
4	MS51959-30	SCREW, FLAT HD	24
1	MS21919DG6	CLAMP, CABLE	23
1	1014480-4	DECAL, IDENTIFICATION	22
1	1014480-5	DECAL, IDENTIFICATION	21
1	1014480-6	DECAL, IDENTIFICATION	20
1	1014480-3	DECAL, IDENTIFICATION	19
1	1014480-2	DECAL, IDENTIFICATION	18
1	1014480-1	DECAL, IDENTIFICATION	17
1	1004260-201	NAMEPLATE	16
1	2014055	PANEL, BLANK	15
2	2014073-011	BRACKET, SUPPORT ASSY	14
2	2014057-011	BRACKET, SUPPORT ASSY	13
1	1014039	BRACKET, CABLE	12
1	1014216	BRACKET, ASSEMBLY	11
1	1006863-002	FAN	10
1	1014087	AC INPUT PANEL	9
1	2014056	PANEL, BLANK	8
1	1014303-1	HANDLE-SLIDE ASSY	7
1	1006437-001	FILTER, AIR	6
1	1020211-011	RECORDER AND DIGITAL OHMMETER ASSY	5
1	2014288-011	COUNTER. ELEC. ASSY	4
1	2014010-011	PANEL ASSY, SIG INTERFACE	3
4	1006979-4	HANDLE	2
1	1006875-001	CABINET	1
-011	LIST OF MATERIALS		

2014059 | —

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. ASSEMBLE APPROPRIATE IDENT DECAL (FIND NO. 17, 18, 19, 20, 21 & 22) ON SURFACE A AND WHERE SHOWN IN RELATION TO CORRESPONDING ASSY
4. SERIALIZE PER NDK02023.
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014059
FIND NO. 13 & 14 TO BE MOUNTED FLUSH WITH FIND NO. 4 & 5

MASTER

FINAL	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B. Fuller DATE 14 APR 65
CHECKED K.C. 9/10/65
APPROVAL 9/10/65
APPROVAL 7/9/65
APPROVAL 7/9/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 10/7/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AUXILIARY
AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

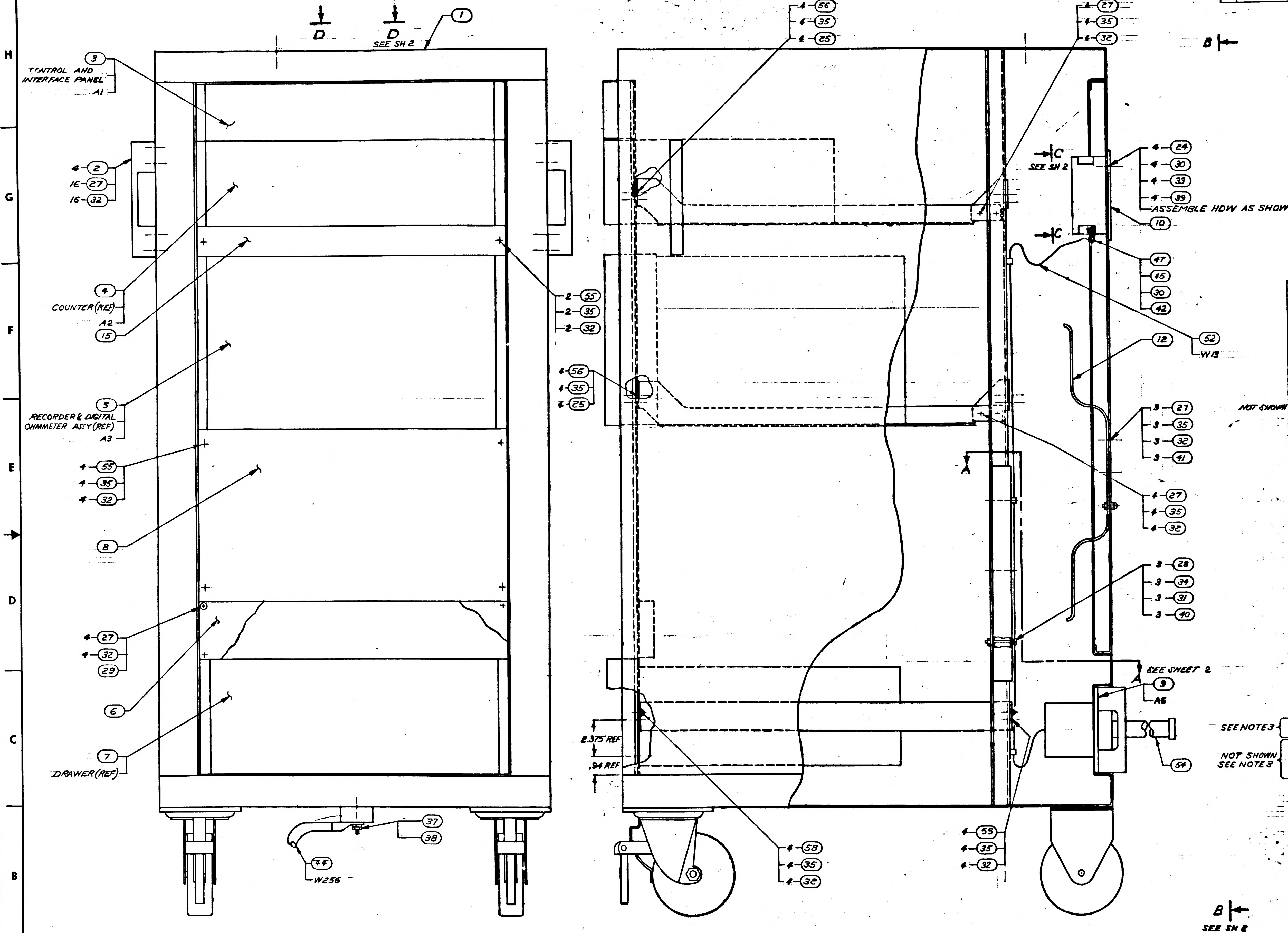
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014059
SCALE 1/2 WT SHEET 1 OF 2

7 2014059 —

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

E2

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25047	7/65	[illegible]
—	CLASS A RELEASE PER TDRR 23 5		



D
D
SEE SH 2
1
3
CONTROL AND INTERFACE PANEL
A1
4-2
16-27
16-32
4
COUNTER (REF)
A2
15
2-55
2-35
2-32
5
RECORDER & DIGITAL OHMMETER ASSY (REF)
A3
4-55
4-35
4-32
8
4-27
4-32
29
6
7
DRAWER (REF)
37
38
44
W256
4-56
4-35
4-25
4-27
4-35
4-32
B
C
SEE SH 2
4-24
4-30
4-33
4-39
ASSEMBLE HDW AS SHOWN ON 1006883
10
C
47
45
30
42
52
W13
12
4-56
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3-32
3-41
A
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4-32
3-28
3-34
3-31
3-40
SEE SHEET 2
A
9
A6
2.375 REF
.94 REF
54
4-58
4-35
4-32
4-55
4-35
4-32
B
SEE SH 2
NOT SHOWN
SEE NOTE 3
NOT SHOWN SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014054	INTERCONNECTION DIAGRAM	REF
2	2014074	BRACKET	59
4	MS51958-61	SCREW, PAN HEAD	58
8	MS16996-10	SCREW, SOCKET HEAD	57
8	MS16996-9	SCREW, SOCKET HEAD	56
20	MS51958-64	SCREW, PAN HD	55
1	1014150-1	CABLE ASSY, AC LINE	54
1	2014080-171	CABLE ASSY W 241	53
1	1020081-011	CABLE ASSY W13	52
1	1014076	CABLE ASSY W12	51
1	2014080-151	CABLE ASSY W1	50
1	2014080-161	CABLE ASSY W2	49
1	MS21919DG14	CLAMP, CABLE	48
11	MS21919DG5	CLAMP, CABLE	47
1	MS21919DG3	CLAMP, CABLE	46
1	MS51957-31	SCREW, PAN HEAD	45
1	2014115-031	STRAP, GROUND W256	44
4	AN535-4-3	SCREW, DRIVE	43
1	MS21044C06	NUT, LOCK	42
3	MS35650-104	NUT, PLAIN, HEXAGON	41
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7	MS35649-64	NUT, PLAIN, HEXAGON	39
1	MS35690-610	NUT, PLAIN, HEXAGON	38
1	MS35335-63	WASHER, LOCK, EXT TOOTH	37
1	MS35335-60	WASHER, LOCK, EXT TOOTH	36
51	MS35338-81	WASHER, LOCK	35
3	MS35338-80	WASHER, LOCK	34
7	MS35338-79	WASHER, LOCK	33
63	MS15795-808	WASHER, FLAT	32
3	MS15795-807	WASHER, FLAT	31
8	MS15795-805	WASHER, FLAT	30
AR	MIL-S-22473, GRADE HV	COMPOUND, SEALING & RETAINING	29
3	MS51957-52	SCREW, PAN HD	28
32	MS51958-63	SCREW, PAN HD	27
2	2014026	BRACKET	26
8	NAS620C10	WASHER, FLAT	25
4	MS51959-30	SCREW, FLAT HD	24
1	MS21919DG6	CLAMP, CABLE	23
1	1014480-4	DECAL, IDENTIFICATION	22
1	1014480-5	DECAL, IDENTIFICATION	21
1	1014480-6	DECAL, IDENTIFICATION	20
1	1014480-3	DECAL, IDENTIFICATION	19
1	1014480-2	DECAL, IDENTIFICATION	18
1	1014480-1	DECAL, IDENTIFICATION	17
1	1004260-201	NAMEPLATE	16
1	2014055	PANEL, BLANK	15
2	2014073-011	BRACKET, SUPPORT ASSY	14
2	2014057-011	BRACKET, SUPPORT ASSY	13
1	1014039	BRACKET, CABLE	12
1	1014216	BRACKET, ASSEMBLY	11
1	1006883-002	FAN	10
1	1014087	AC INPUT PANEL	9
1	2014056	PANEL, BLANK	8
1	1014303-1	HANDLE-SLIDE ASSY	7
1	1006437-001	FILTER, AIR	6
1	1020211-011	RECORDER AND DIGITAL OHMMETER ASSY	5
1	2014288-311	COUNTER ELEC. ASSY	4
1	2014010-011	PANEL ASSY, SIG INTERFACE	3
4	1006979-4	HANDLE	2
1	1006875-001	CABINET	1
-011	LIST OF MATERIALS		

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. ASSEMBLE APPROPRIATE IDENT DECAL (FIND NO. 17, 18, 19, 20, 21 & 22) ON SURFACE A AND WHERE SHOWN IN RELATION TO CORRESPONDING ASSY
4. SERIALIZE PER ND1002023.
5. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014059
6. FIND NO. 13 & 14 TO BE MOUNTED FLUSH WITH FIND NO. 4 & 5

MASTER

NEXT ASSY	USED ON
FINAL	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B. Fuller DATE 14 APR 65
CHECKED K.C. [illegible] 9/10/65
APPROVAL P.E. [illegible] 2/10/65
APPROVAL [illegible] 7/8/65
APPROVAL [illegible] 7/19/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 10/2/65

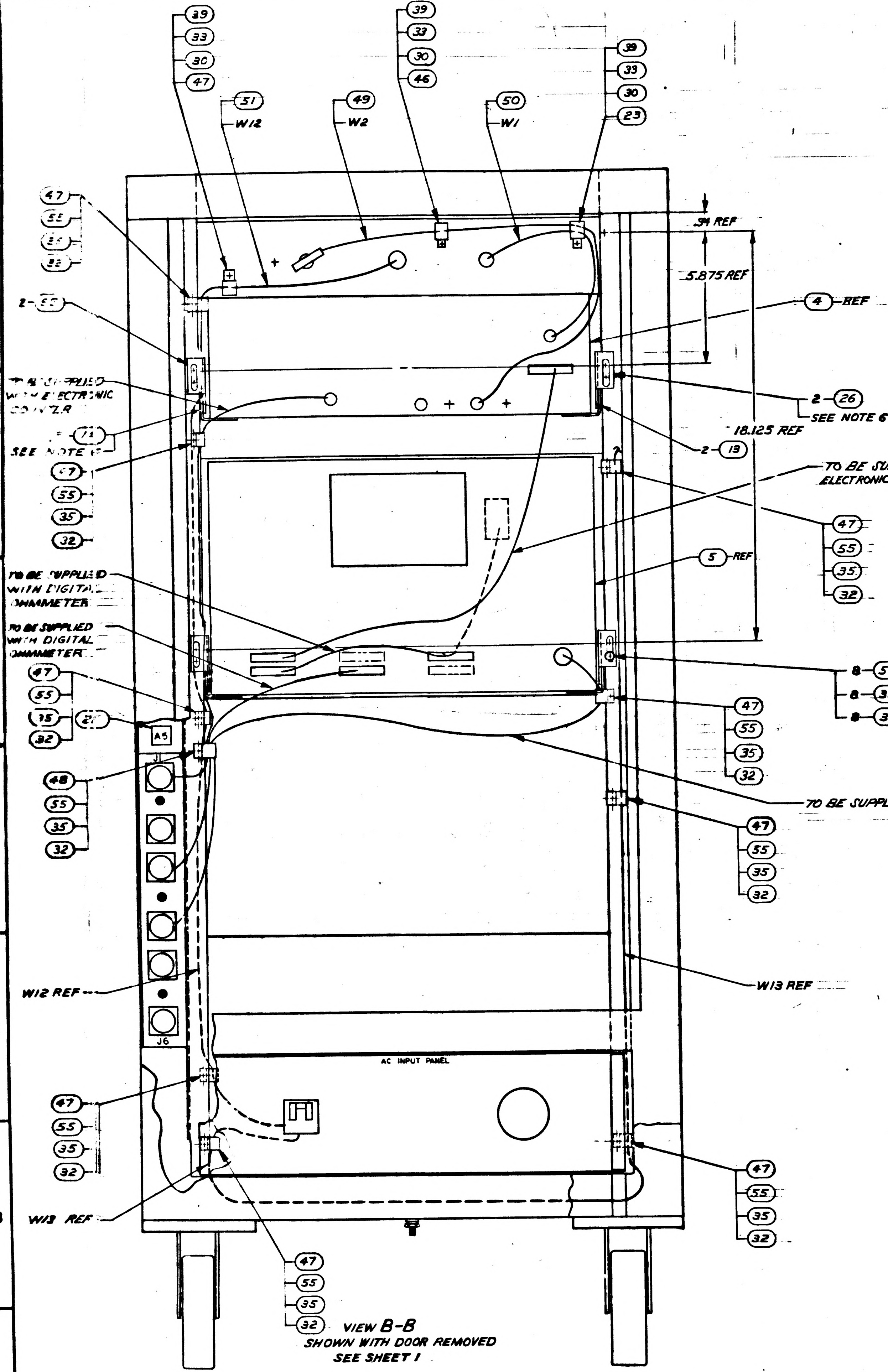
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AUXILIARY
AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014059
SCALE 1/2
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25097	7/9/65	G Haugh
—	CLASS A RELEASE PER TDRR 23115		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W2
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W1
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30
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35
32
2-55
TO BE SUPPLIED WITH ELECTRONIC COUNTER
2-13
SEE NOTE 6
47
55
35
32
TO BE SUPPLIED WITH DIGITAL OHMMETER
TO BE SUPPLIED WITH DIGITAL OHMMETER
47
55
35
32
21
A5
J1
48
55
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32
J6
W12 REF
AC INPUT PANEL
47
55
35
32
W13 REF
47
55
35
32
.94 REF
5.875 REF
4 REF
2-26
SEE NOTE 6
18.125 REF
2-13
TO BE SUPPLIED WITH ELECTRONIC COUNTER
47
55
35
32
5 REF
8-57
8-35
8-32
47
55
35
32
TO BE SUPPLIED WITH PRINTING RECORDER
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55
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W13 REF
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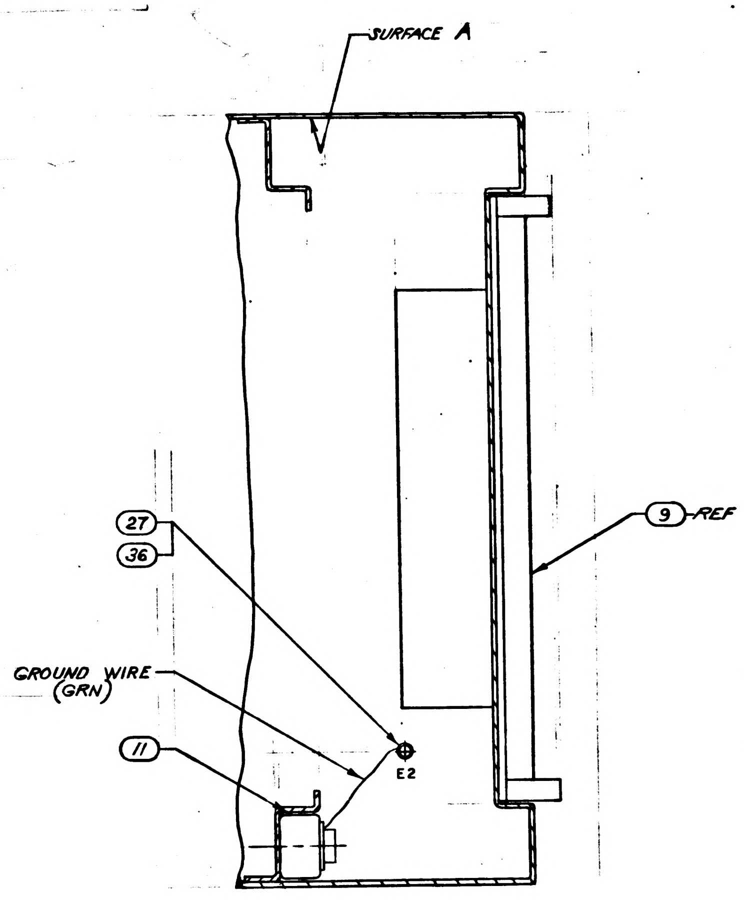
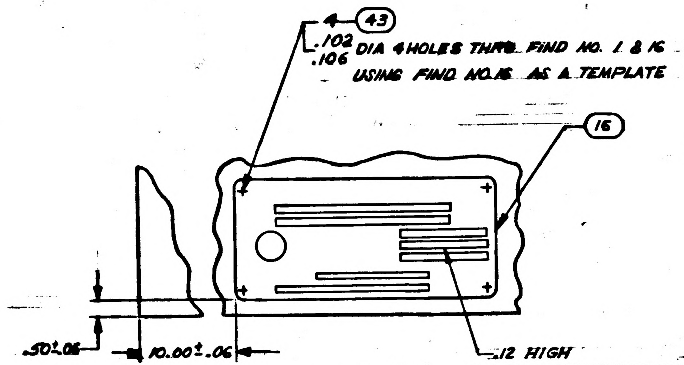
35
32

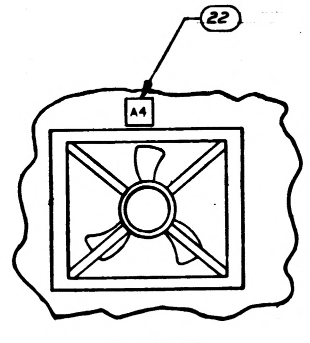
VIEW B-B
SHOWN WITH DOOR REMOVED
SEE SHEET 1


SURFACE A
9 REF
27
36
GROUND WIRE (GRN)
11
E2

SECTION A-A
SEE SHEET 1


4-43
.102/.106 DIA 4 HOLES THRU FIND NO. 1 & 16 USING FIND NO. 16 AS A TEMPLATE
16
.50±.06
10.00±.06
.12 HIGH
SEE NOTE 4

VIEW D-D
SCALE 1/1
SEE SHEET 1



VIEW C-C
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATFRIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN S Fuller DATE 14 APR 65
CHECKED K.C. for W Moley 9 JULY 65
APPROVAL P.E. Duke 8 JULY 65
APPROVAL D. O'Bryant 7/9/65
APPROVAL 7/9/65
NASA APPROVAL
MIT APPROVAL W Ruffa 10/6/65
MIT APPROVAL G. Haugh 10/7/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AUXILIARY
AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014059
SCALE 1/2
WT
SHEET 2 OF 2

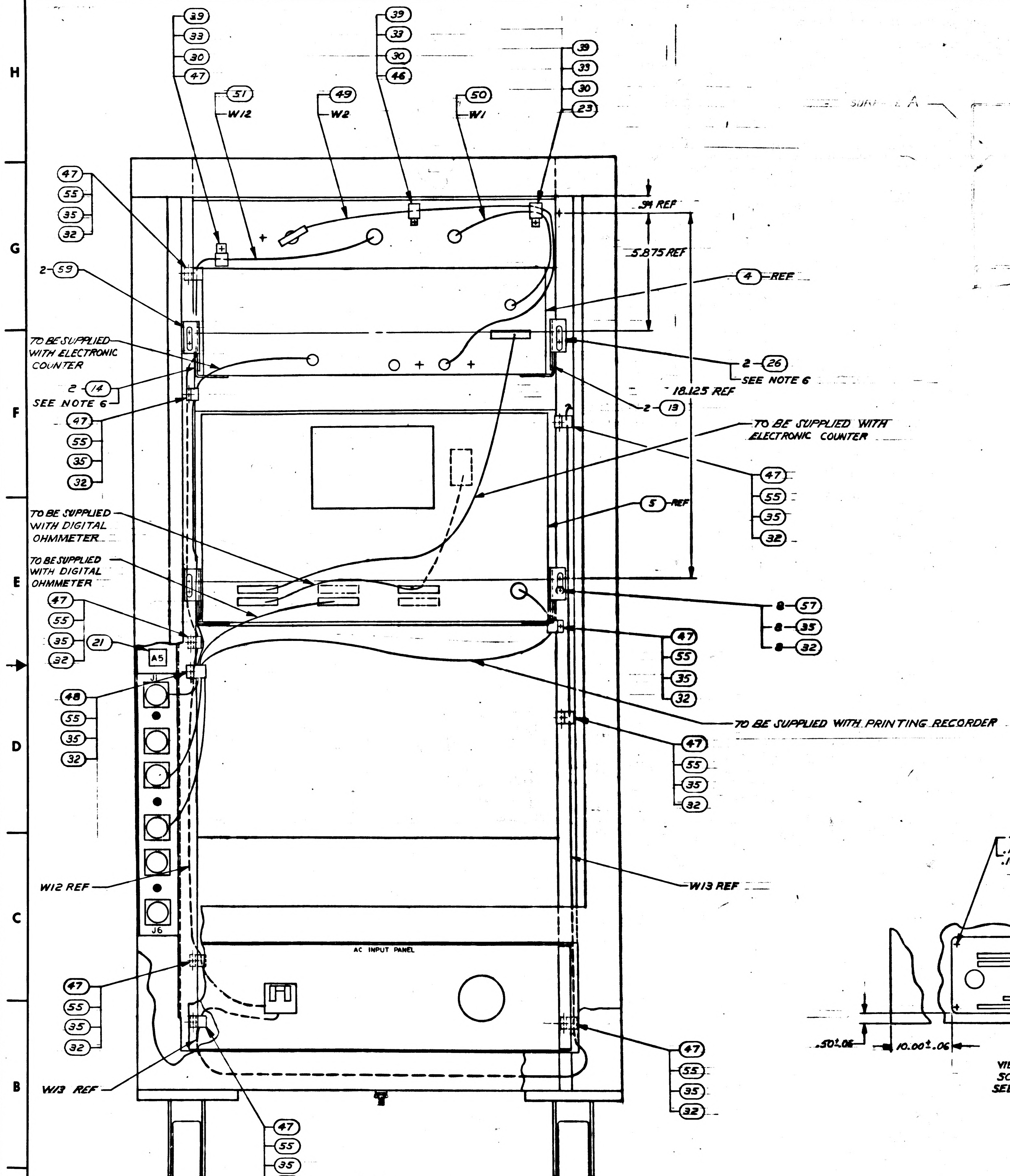
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

E2

2014059	–

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25047	7/9/65	
–	CLASS A RELEASE PER TDRR 23115		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W1
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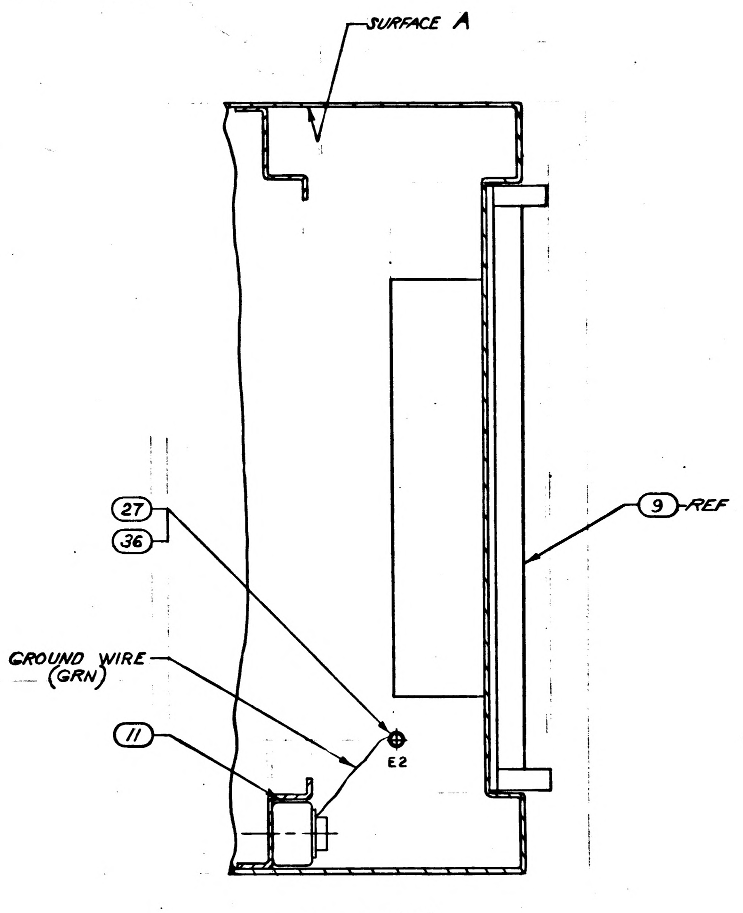
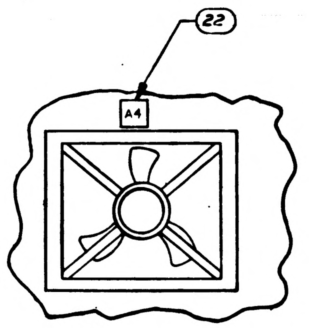
35
32
.94 REF
5.875 REF
2-59
4 REF
TO BE SUPPLIED WITH ELECTRONIC COUNTER
2-26
SEE NOTE 6
2-14
SEE NOTE 6
18.125 REF
2-19
47
55
35
32
TO BE SUPPLIED WITH ELECTRONIC COUNTER
47
55
35
32
5 REF
TO BE SUPPLIED WITH DIGITAL OHMMETER
TO BE SUPPLIED WITH DIGITAL OHMMETER
47
55
35
32
21
A5
J1
8-57
8-35
8-32
47
55
35
32
TO BE SUPPLIED WITH PRINTING RECORDER
48
55
35
32
47
55
35
32
W12 REF
W13 REF
J6
AC INPUT PANEL
47
55
35
32
W13 REF
47
55
35
32
47
55
35
32

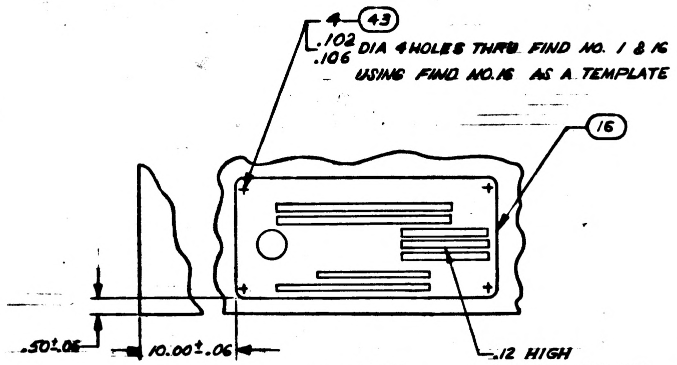
VIEW B-B
SHOWN WITH DOOR REMOVED
SEE SHEET 1


SURFACE A
9 REF
27
36
GROUND WIRE (GRN)
11
E2

SECTION A-A
SEE SHEET 1



VIEW C-C
SEE SHEET 1


4-43
.102/.106 DIA 4 HOLES THRU FIND NO. 1 & 16 USING FIND NO. 16 AS A TEMPLATE
16
.50±.06
10.00±.06
.12 HIGH
SEE NOTE 4

VIEW D-D
SCALE 1/1
SEE SHEET 1

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Fuller DATE 14 APR 65
CHECKED C.C. for W Mely 4 JULY 65
APPROVAL P.E. Cafe 8 JULY 65
APPROVAL 7/9/65
APPROVAL 7/9/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 10/7/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AUXILIARY
AGC CALIBRATION SYSTEM
CONSOLE ASSEMBLY

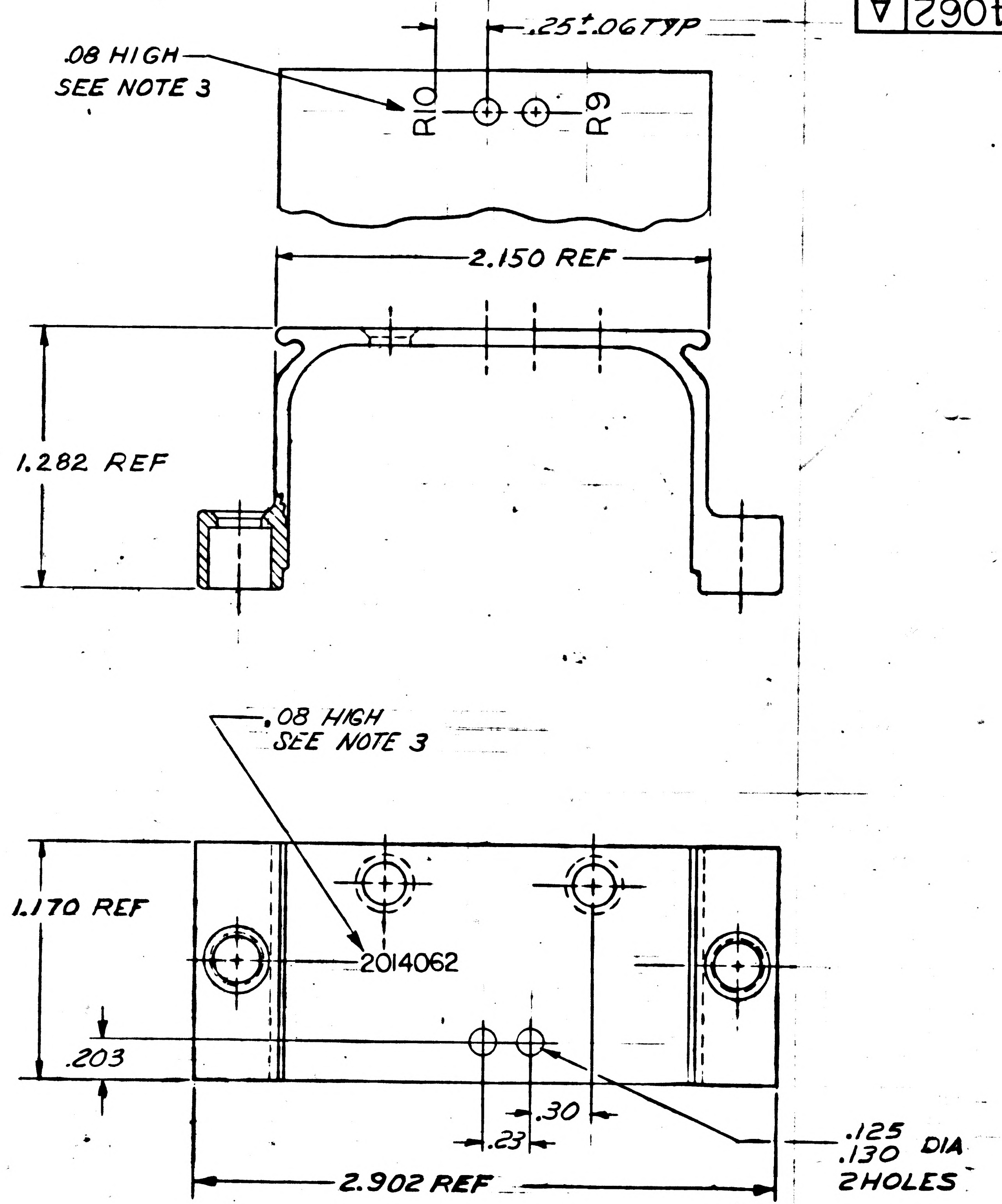
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014059
SCALE 1/2
WT
SHEET 2 OF 2

7	2014059	–

2014059

2014062 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER RD 23031	7/1/65	E Seeley
-	CLASS B CHANGED PER CCA R25502	1/4/66	
A	CHANGED PER CCA R25740 AND CLASS A RELEASED PER TDRR 25472	1/17/66	



NOTES
1. REMOVE EXISTING PART NUMBER
2. TOUCH UP REWORKED AREAS PER ND1002040
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
4. REMOVE BURRS & SHARP EDGES .005/.020

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014004	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL
MAKE FROM
1014000-2

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Hollenberg DATE 13 APR65
CHECKED 6 MAY 65
APPROVAL 10 MAY 65
APPROVAL D. Bryant
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1/20/66

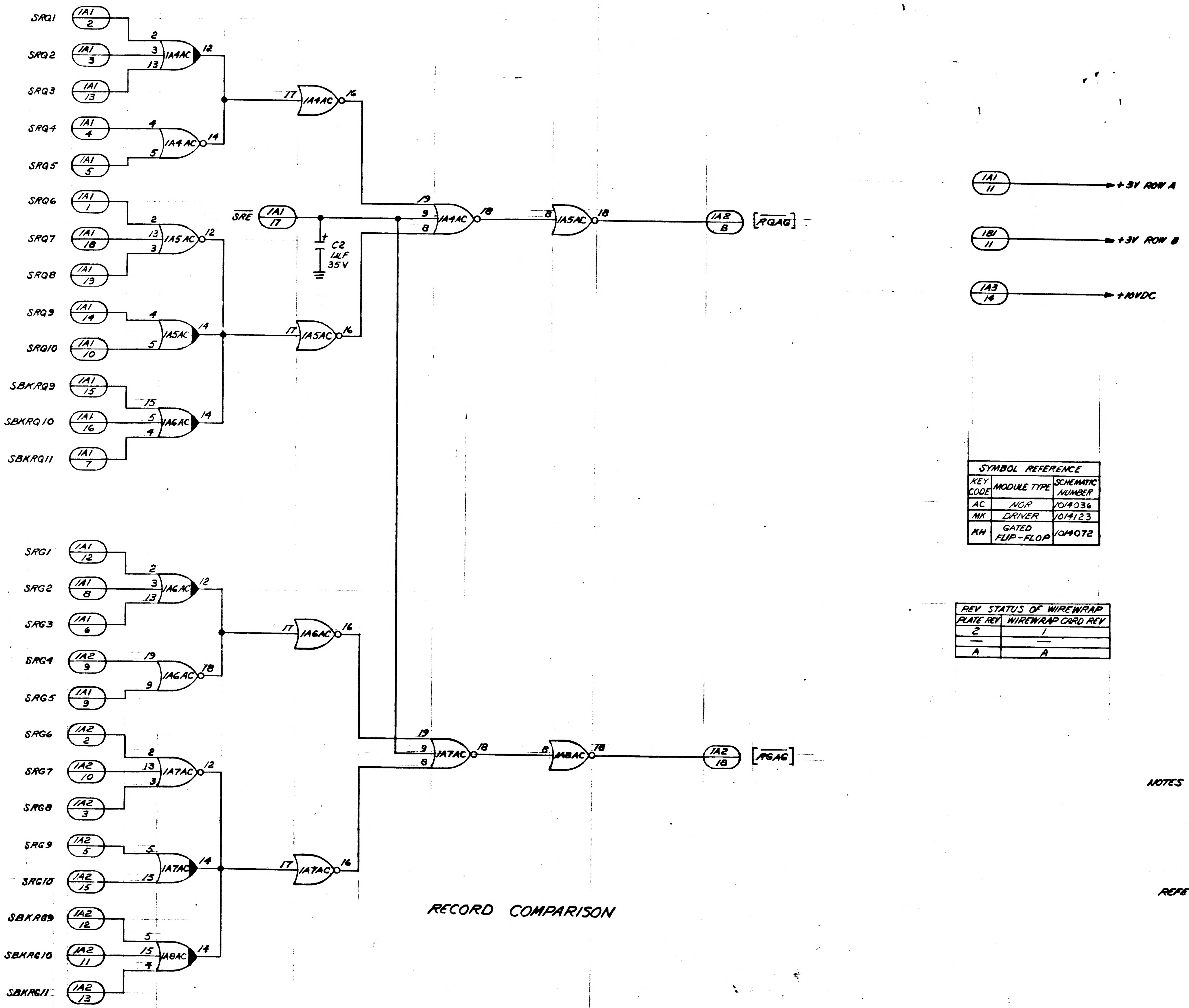
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME
CLOCK MODULE

CODE IDENT NO. 49956
SIZE C
NASA DRAWING NO. 2014062
SCALE 2/1
WT
SHEET 1 OF 1

2014062 A

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
—	CLASS B NO CHANGE PER CCA R25502		
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472		


SRQ1
1A1 2
SRQ2
1A1 3
SRQ3
1A1 13
SRQ4
1A1 4
SRQ5
1A1 5
SRQ6
1A1 1
SRQ7
1A1 18
SRQ8
1A1 19
SRQ9
1A1 14
SRQ10
1A1 10
SBKRQ9
1A1 15
SBKRQ10
1A1 16
SBKRQ11
1A1 7
1A4AC
1A5AC
1A6AC
$\overline{SRE}$
1A1 17
C2 1μF 35V
1A2 8
[$\overline{RQAG}$]
SRG1
1A1 12
SRG2
1A1 8
SRG3
1A1 6
SRG4
1A2 9
SRG5
1A1 9
SRG6
1A2 2
SRG7
1A2 10
SRG8
1A2 3
SRG9
1A2 5
SRG10
1A2 15
SBKRG9
1A2 12
SBKRG10
1A2 11
SBKRG11
1A2 13
1A7AC
1A8AC
1A2 18
[$\overline{RGAG}$]
1A1 11
+3V ROW A
1B1 11
+3V ROW B
1A3 14
+10VDC

RECORD COMPARISON

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
AC	NOR	1014036
MK	DRIVER	1014123
KH	GATED FLIP-FLOP	1014072

REV STATUS OF WIREWRAP	
PLATE REV	WIREWRAP CARD REV
2	1
—	—
A	A

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REFERENCES
1. ASSEMBLY DWG 2014224

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL
NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

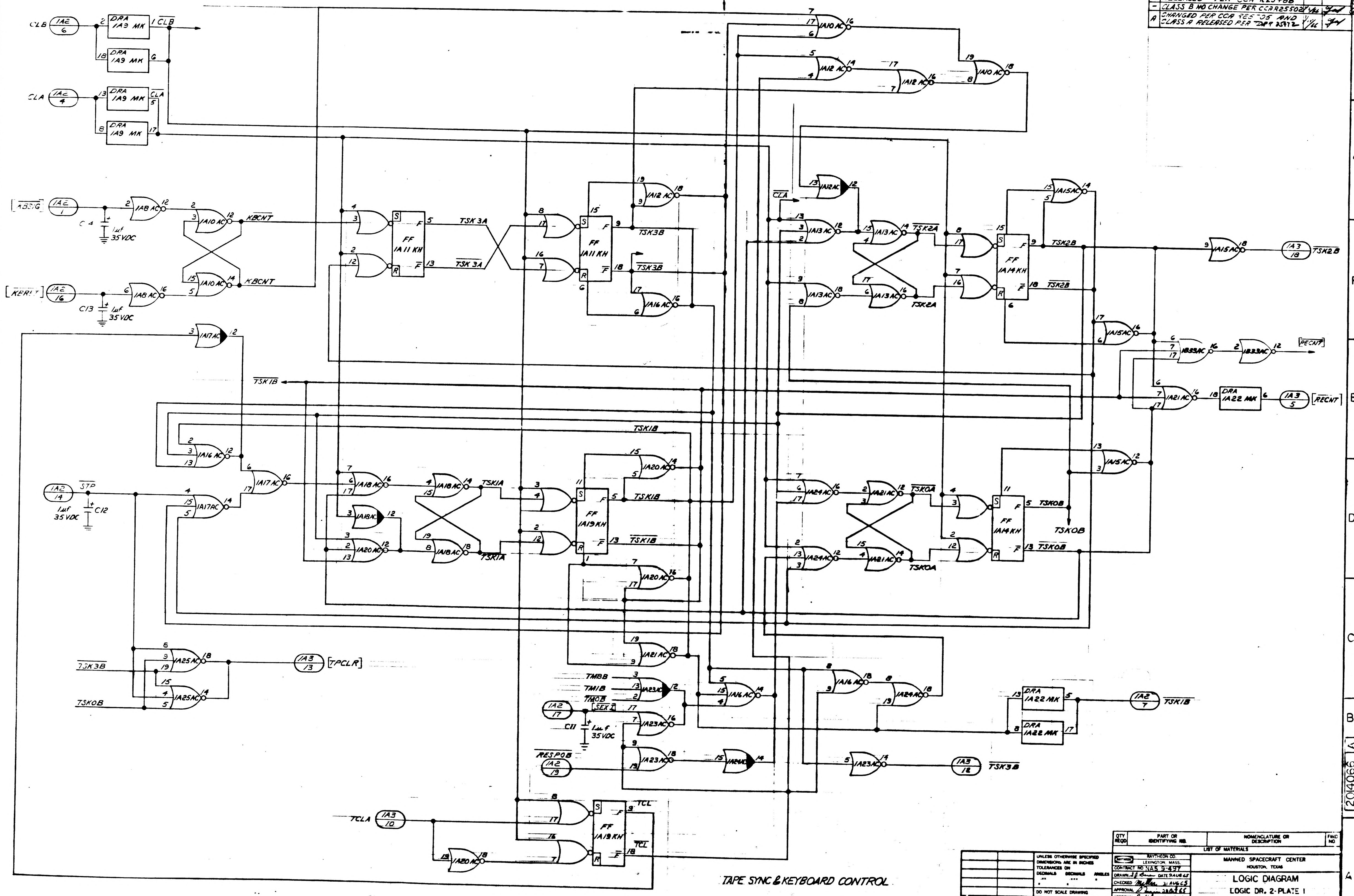
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DR. 2-PLATE 1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014066
SCALE NONE
WT
SHEET 1 OF 4

2014066 A

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B NO CHANGE PER CCAR25502	4/66	
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER DPR 25972	11/66	


CLB
1A2 6
DRA 1A9 MK
CLB
CLA
1A2 4
KSSIG
1A2 1
C4 1µf 35VDC
1A8 AC
1A10 AC
KBCNT
KBRST
1A2 16
C13 1µf 35VDC
FF 1A11 KH
TSK3A
TSK3B
FF 1A14 KH
TSK2A
TSK2B
1A3 18
RECNT
DRA 1A22 MK
1A3 5
TSK1B
1A17 AC
1A16 AC
STP
1A2 14
1µf 35VDC C12
1A18 AC
1A20 AC
TSK1A
FF 1A19 KH
1A24 AC
1A21 AC
TSK0A
TSK0B
1A15 AC
1A13 AC
1A12 AC
1B33 AC
1A25 AC
1A3 13
TPCLR
TMBB
TM1B
TM0B
SEX I
1A23 AC
1A2 17
C11 1µf 35VDC
RESP0B
1A2 19
1A3 12
1A2 7
TCLA
1A3 10
TCL
8 7 6 5 4 3 2 1
H G F E D C B A

TAPE SYNC & KEYBOARD CONTROL

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN S.J. Baca DATE 9AUG65
CHECKED Miller 21AUG65
APPROVAL 20AUG65
APPROVAL D. O'Bryant 10/22/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DR. 2-PLATE I
COMPUTER TEST SET

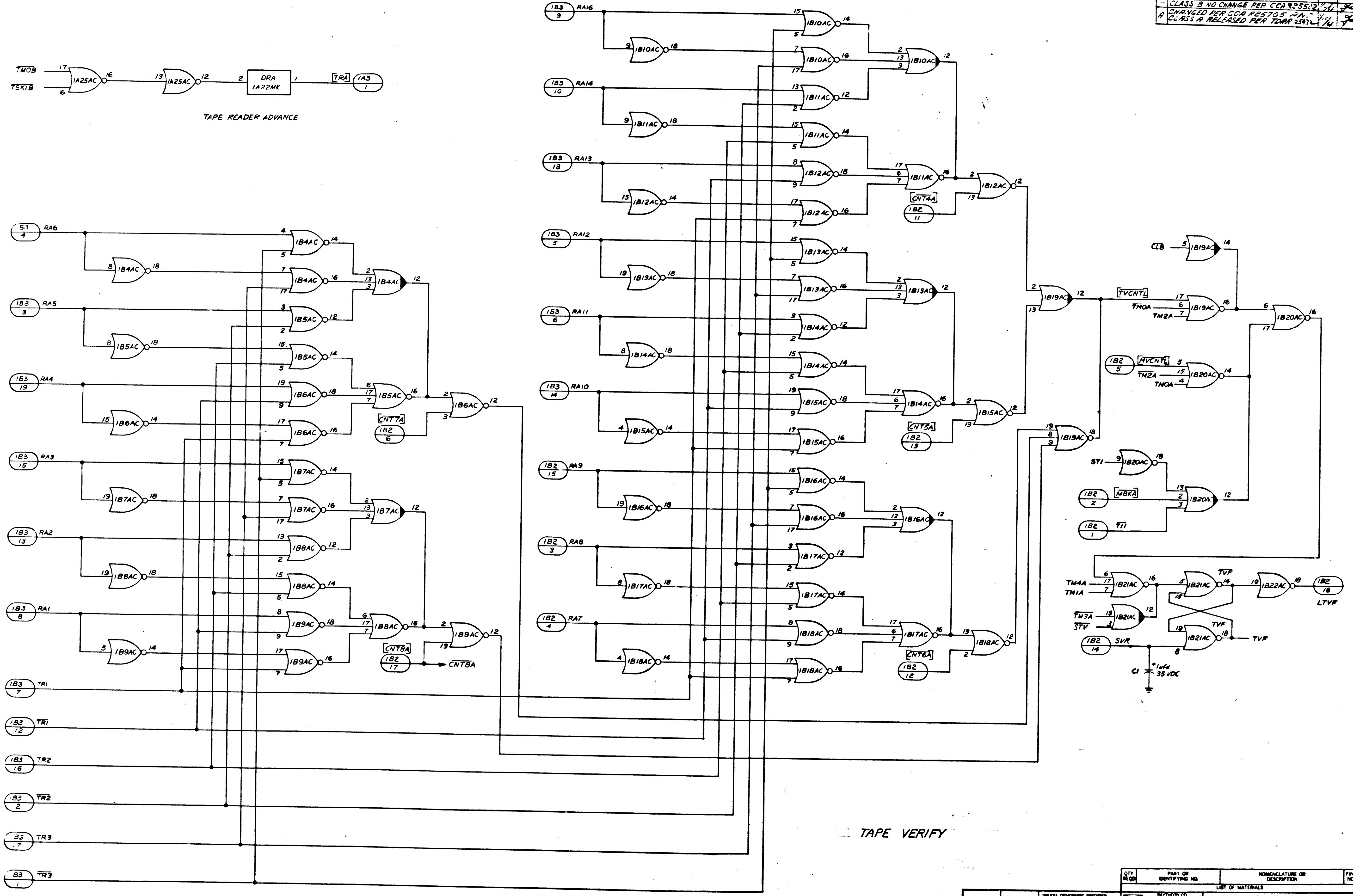
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014066
SCALE NONE
WT
SHEET 2 OF 4

2014066 A

MASTER

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25488		
–	CLASS B NO CHANGE PER CCA R25582	1/-/66	
A	CHANGED PER CCA R25705 AN CLASS A RELEASED PER TDRR 25472	1/15/66	

2014066 A



TAPE READER ADVANCE
TMOB
TSKIB
1A25AC
1A25AC
DRA
1A22MK
TRA
1A3 / 1
RA6
RA5
RA4
RA3
RA2
RA1
RA16
RA14
RA13
RA12
RA11
RA10
RA9
RA8
RA7
1B3 / 9
1B3 / 10
1B3 / 18
1B3 / 5
1B3 / 6
1B3 / 14
1B2 / 15
1B2 / 3
1B2 / 4
53 / 4
1B3 / 3
1B3 / 19
1B3 / 15
1B3 / 13
1B3 / 8
1B4AC
1B5AC
1B6AC
1B7AC
1B8AC
1B9AC
1B10AC
1B11AC
1B12AC
1B13AC
1B14AC
1B15AC
1B16AC
1B17AC
1B18AC
1B19AC
1B20AC
1B21AC
1B22AC
CNT7A
1B2 / 6
CNT8A
1B2 / 17
CNT8A
CNT4A
1B2 / 11
CNT5A
1B2 / 13
CNT6A
1B2 / 12
TR1
1B3 / 7
TR1
1B3 / 12
TR2
1B3 / 16
TR2
1B3 / 2
TR3
B3 / 17
TR3
B3 / 1
CLB
TVCNTL
TMOA
TM2A
1B2 / 5
MVCNTL
TM2A
TMOA
ST1
1B2 / 2
MBKA
1B2 / 1
T11
TM4A
TM1A
TM3A
STV
TVF
TVF
1B2 / 18
LTVF
1B2 / 14
SVR
C1
+1μfd 35 VDC
TAPE VERIFY

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON

APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 4AUG65
CHECKED [illegible] 31AUG65
APPROVAL [illegible] 28 Oct 65
APPROVAL [illegible]
APPROVAL [illegible] 1.1.15
NASA APPROVAL C. METCALF
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DR 2, PLATE I
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014066

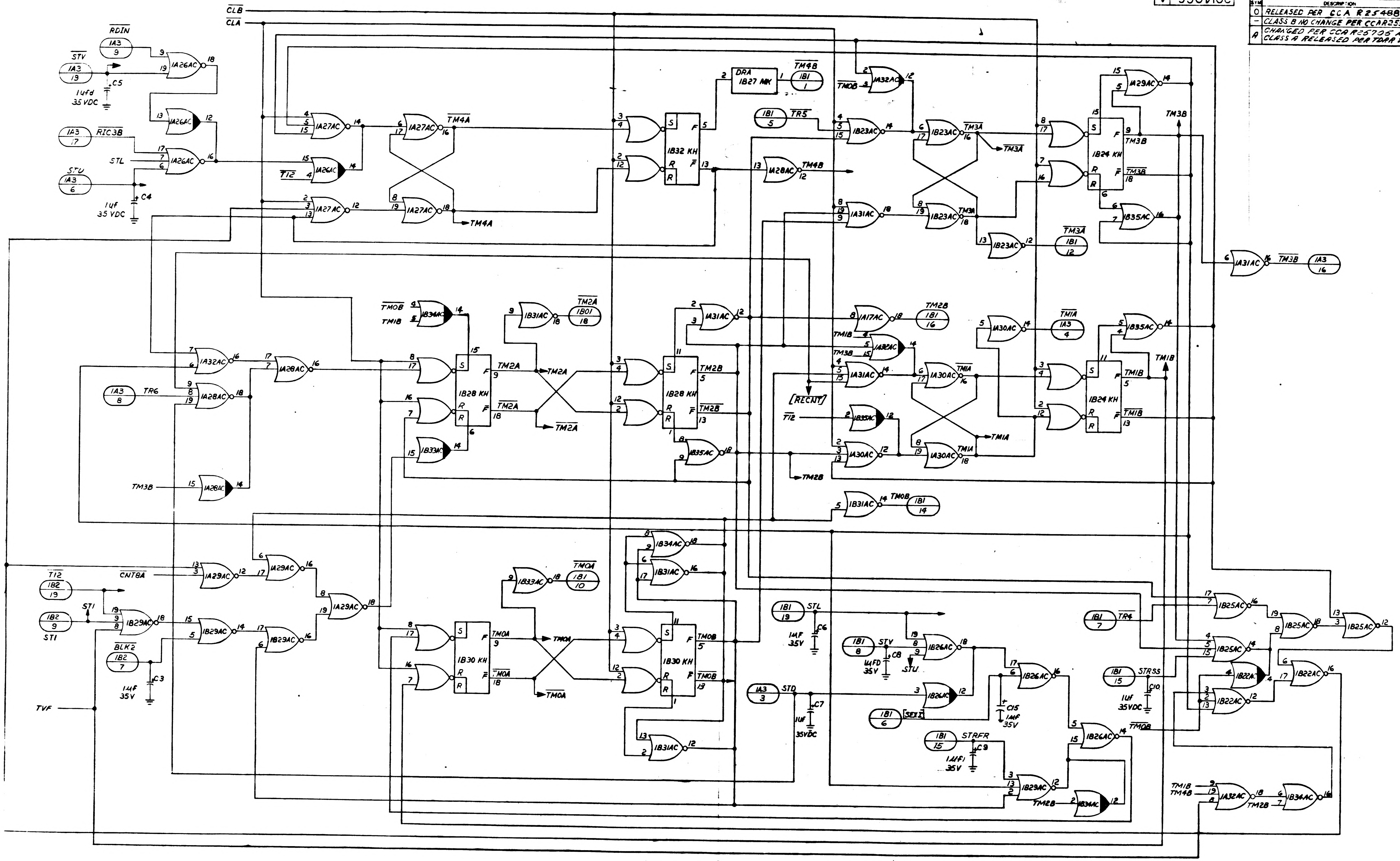
SCALE NONE | WT | SHEET 3 OF 4

MASTER

2014066 A

2014066 A

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25488		
–	CLASS B NO CHANGE PER CCAR25502	[illegible]	
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	[illegible]/66	



CLB
CLA
RDIN
STV
IA3 9
IA3 19
C5
1 uf'd 35 VDC
IA26AC
IA3 17
RIC3B
STL
STU
IA3 6
C4
1 uf 35 VDC
IA27AC
TM4A
T12
IB32 KH
DRA
IB27 MX
TM4B
IB1 1
IB1 5
TR5
IA28AC
IA32AC
TM0B
IB23AC
TM3A
IA31AC
IB24 KH
IA29AC
IB35AC
TM3B
IB1 12
IA3 16
TM0B
TM1B
IB34AC
IB31AC
TM2A
IB01 18
IB28 KH
TM2B
IB1 16
IA17AC
IA30AC
TM1A
IA3 4
TM3B
TR6
IA3 8
RECNT
T12
IB33AC
TM1B
TM2B
IB31AC
TM0B
IB1 14
T12
IB2 19
CNT8A
IA29AC
STI
IB2 9
IB29AC
BLK2
IB2 7
C3
1 uf 35 V
TVF
IB33AC
TM0A
IB1 10
IB30 KH
IB34AC
IB1 19
STL
C6
1 uf 35 V
IB1 8
STV
C8
1 uf'd 35 V
STU
IB26AC
IA3 3
STD
C7
1 uf 35 VDC
IB1 6
SEXT
C15
1 uf 35 V
IB1 15
STRFR
C9
1 uf 35 V
IB29AC
TM2B
IB34AC
IB1 7
TR4
IB25AC
IB1 15
STRSS
C10
1 uf 35 VDC
IB22AC
TM0B
TM1B
TM4B
IA32AC
IB34AC

TAPE MODE CONTROL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 5 AUG 65
CHECKED [illegible] 31 AUG 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. O. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

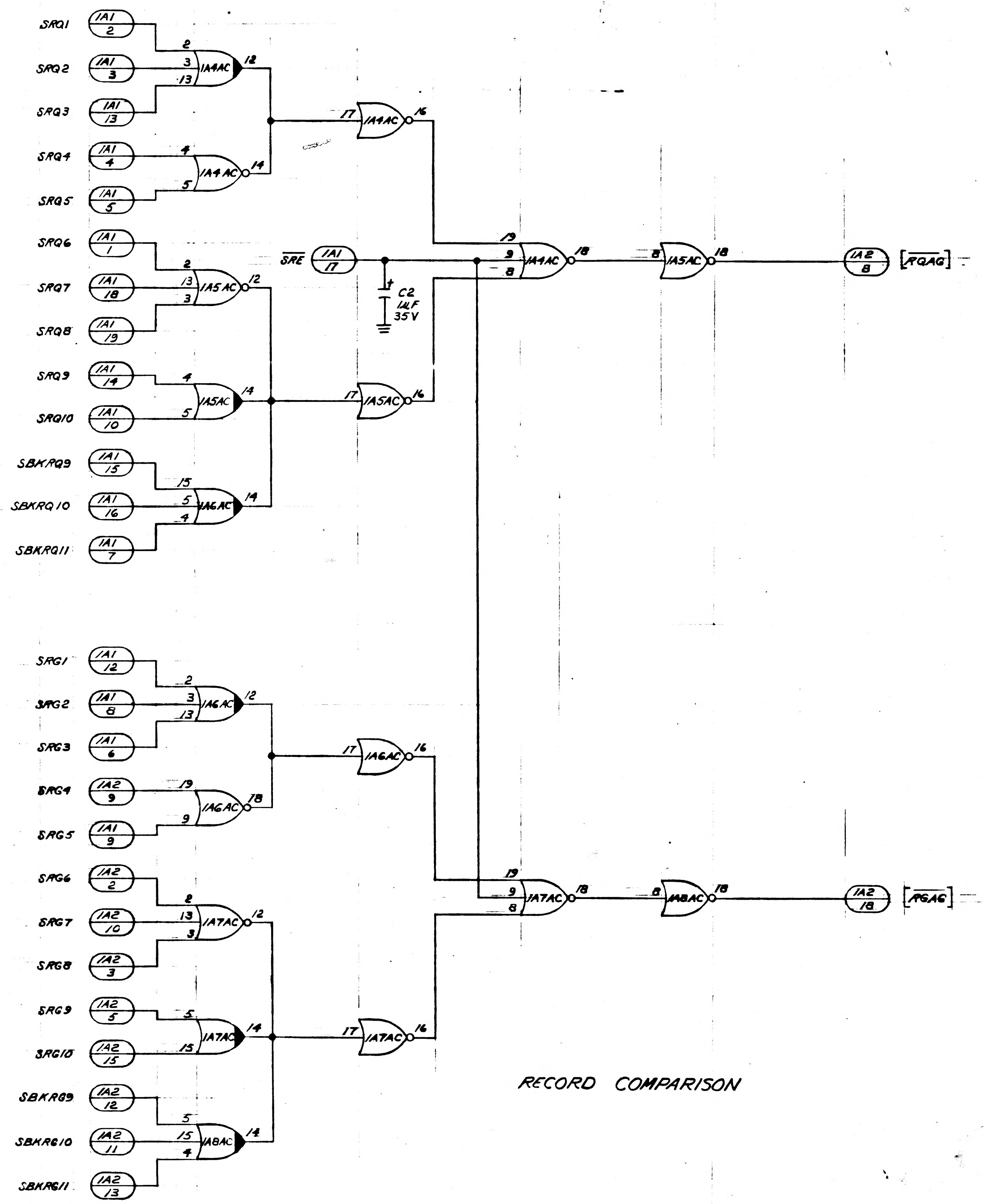
LOGIC DIAGRAM
LOGIC DR. 2 PLATE 1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014066
SCALE NONE
WT
SHEET 6 OF 6

MASTER

2014066 A

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25488		
–	CLASS B NO CHANGE PER CCA R25502	1/4/66	
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	4/15/66	
B	CHANGED PER TDRR 26443 DR Q.J. CHK APPD		



SRQ1 1A1 2
SRQ2 1A1 3
SRQ3 1A1 13
SRQ4 1A1 4
SRQ5 1A1 5
SRQ6 1A1 1
SRQ7 1A1 18
SRQ8 1A1 19
SRQ9 1A1 14
SRQ10 1A1 10
SBKRQ9 1A1 15
SBKRQ10 1A1 16
SBKRQ11 1A1 7
1A4AC
1A4AC
1A5AC
1A5AC
1A6AC
1A4AC
1A5AC
SRE 1A1 17
C2 1µF 35V
1A4AC
1A5AC
1A2 8 [RQAG]
SRG1 1A1 12
SRG2 1A1 8
SRG3 1A1 6
SRG4 1A2 9
SRG5 1A1 9
SRG6 1A2 2
SRG7 1A2 10
SRG8 1A2 3
SRG9 1A2 5
SRG10 1A2 15
SBKRG9 1A2 12
SBKRG10 1A2 11
SBKRG11 1A2 13
1A6AC
1A6AC
1A7AC
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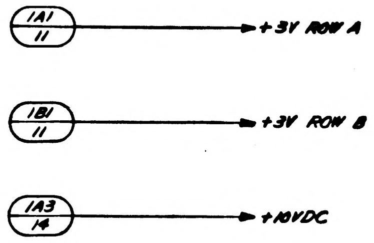
1A8AC
1A6AC
1A7AC
1A7AC
1A8AC
1A2 18 [RGAG]

RECORD COMPARISON



1A1 11 +3V ROW A
1B1 11 +3V ROW B
1A3 14 +10VDC

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
AC	NOR	1014036
MK	DRIVER	1014123
KH	GATED FLIP-FLOP	1014072

REV STATUS OF WIREWRAP
WIREWRAP CARD
1
–
A
C

NOTES

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REFERENCES

1. ASSEMBLY DWG 2014224

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN J.J. B DATE 10 AUG 65
CHECKED 31 AUG 65
APPROVAL 28 OCT 65
APPROVAL D. J.
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

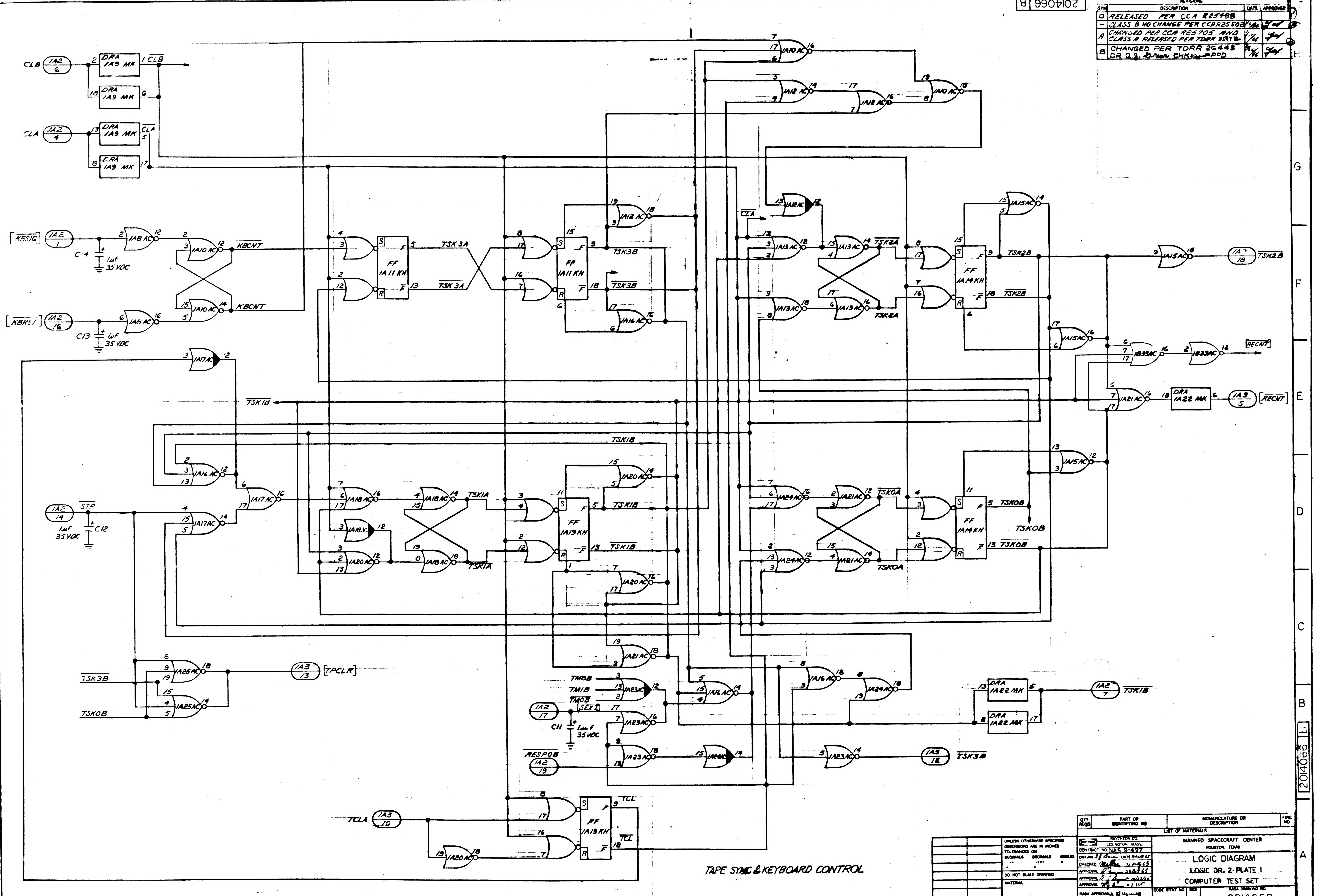
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DR. 2-PLATE 1
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014066
SCALE NONE	WT	SHEET 1 OF 4

2014066 B

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
-	CLASS B NO CHANGE PER CCAR25502		
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25972	11/15/66	
B	CHANGED PER TDRR 26443 DR Q.J. Green CHK APPD		


CLB
1A2 6
DRA 1A9 MK
CLB
CLA
1A2 4
DRA 1A9 MK
CLA
[KBSIG] 1A2 1
C4 1µf 35VDC
1A8 AC
1A10 AC
KBCNT
[KBRET] 1A2 16
C13 1µf 35VDC
KBCNT
FF 1A11 KH
TSK3A
TSK3B
1A12 AC
1A16 AC
1A10 AC
1A12 AC
1A13 AC
FF 1A14 KH
TSK2A
TSK2B
1A15 AC
1A3 18 TSK2B
1B33 AC
[RECNT]
1A21 AC
DRA 1A22 MK
1A3 5 [RECNT]
TSK1B
1A17 AC
1A2 14 STP
1µf 35VDC C12
1A16 AC
1A18 AC
1A20 AC
TSK1A
FF 1A19 KH
TSK1B
1A24 AC
TSK0A
TSK0B
1A21 AC
1A25 AC
1A3 13 [TPCLR]
TSK3B
TSK0B
TMBB
TM1B
TM0B
SEX B
1A2 17
C11 1µf 35VDC
1A23 AC
RESPOB 1A2 19
1A24 AC
1A16 AC
1A24 AC
DRA 1A22 MK
1A2 7 TSK1B
1A3 12 TSK3B
TCLA 1A3 10
1A20 AC
FF 1A19 KH
TCL
TAPE SYNC & KEYBOARD CONTROL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9 AUG 65
CHECKED Miller 31 AUG 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

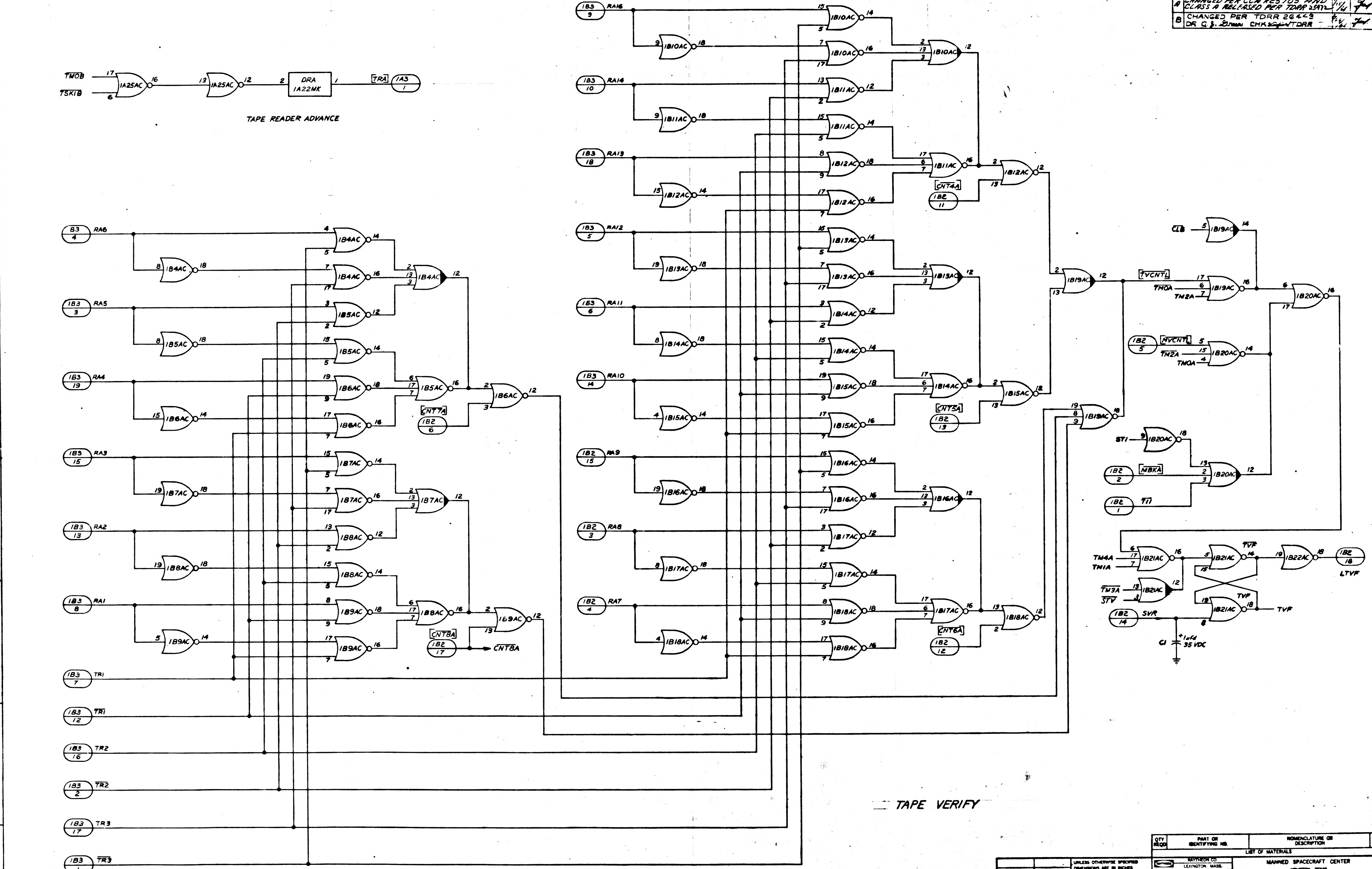
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DR. 2-PLATE 1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014066
SCALE NONE
WT
SHEET 2 OF 4

2014066 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
–	CLASS B NO CHANGE PER CCAR25502	1/4/66	
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	1/15/66	
B	CHANGED PER TDRR 26443 DR C. J. Green CHK TDRR		



TMOB
TSKIB
1A25AC
DRA
1A22MK
TRA
1A3
TAPE READER ADVANCE
RA6
RA5
RA4
RA3
RA2
RA1
RA16
RA14
RA13
RA12
RA11
RA10
RA9
RA8
RA7
TR1
TR2
TR3
1B4AC
1B5AC
1B6AC
1B7AC
1B8AC
1B9AC
1B10AC
1B11AC
1B12AC
1B13AC
1B14AC
1B15AC
1B16AC
1B17AC
1B18AC
1B19AC
1B20AC
1B21AC
1B22AC
CNT7A
CNT8A
CNT4A
CNT5A
CNT6A
TVCNTL
MVCNTL
TM0A
TM2A
TM4A
TM1A
TM3A
STV
STI
MBKA
TI1
SVR
CLB
TVF
LTVF
C1 1μfd 35 VDC
TAPE VERIFY

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON

APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 4AUG65
CHECKED 31AUG65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL C. MEYER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

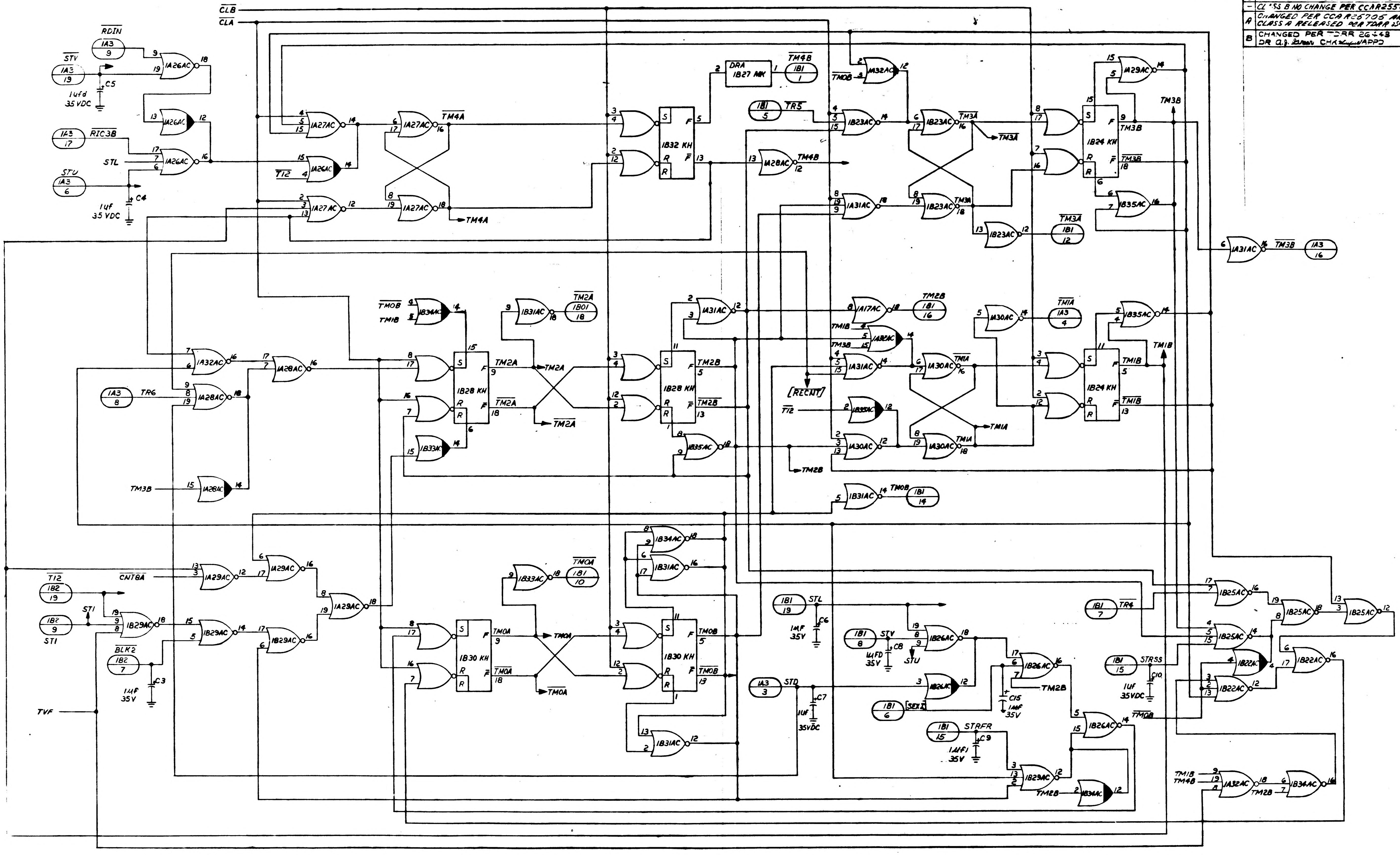
LOGIC DIAGRAM
LOGIC DR 2, PLATE 1
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014066
SCALE NONE WT SHEET 3 OF 4

2014066 B

2014066 B

SYM	DESCRIPTION	DATE	APPROVAL
0	RELEASED PER CCA R25488		
–	CLASS B NO CHANGE PER CCAR25502		
A	CHANGED PER CCAR26705 AND CLASS A RELEASED PER TDRR 25412	1/14/66	
B	CHANGED PER TDRR 26448 DR A.J. Green CHK APPD		



CLB
CLA
RDIN
1A3 9
STV
1A3 19
C5
1ufd 35VDC
1A26AC
1A3 17
RIC3B
STL
1A3 6
STU
C4
1uf 35 VDC
1A27AC
T12
1A26AC
TM4A
1B32 KH
DRA 1B27 MK
TM4B 1B1 1
1B1 5
TR5
TM0B
1A32AC
1A28AC
TM4B
1B23AC
TM3A
1A31AC
1B24 KH
TM3B
1A29AC
1B35AC
TM3A 1B1 12
1A31AC
TM3B 1A3 16
TM0B
TM1B
1B34AC
TM2A 1B01 18
1B31AC
1A32AC
1A28AC
1A3 8
TR6
1B28 KH
TM2A
1B33AC
TM3B
1A28AC
1A31AC
1A17AC
TM2B 1B1 16
1B28 KH
TM2B
1B35AC
[RECNT]
T12
1B35AC
1A30AC
TM1A 1A3 4
1A30AC
TM1A
1B35AC
1B24 KH
TM1B
1B31AC
TM0B 1B1 14
T12
1B2 19
CNT8A
1A29AC
ST1
1B2 9
1B29AC
BLK2 1B2 7
C3
1uF 35V
TVF
TM0A 1B1 10
1B33AC
1B30 KH
TM0A
1B34AC
1B31AC
1B30 KH
TM0B
1B31AC
1B1 19
STL
C6
1uF 35V
1B1 8
STV
C8
1uFD 35V
STU
1A3 3
STD
C7
1uf 35VDC
1B26AC
1B24AC
1B1 6
SEXT
C15
1uF 35V
TM2B
1B1 15
STRFR
C9
1uF 35V
1B26AC
1B29AC
1B34AC
TM2B
1B1 7
TR4
1B25AC
1B1 15
STRSS
C10
1uf 35VDC
1B22AC
TM0B
TM1B
TM4B
1A32AC
1B34AC

TAPE MODE CONTROL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 5 AUG 65
CHECKED 31 AUG 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. O. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DR. 2 PLATE 1
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014066

SCALE NONE WT SHEET 6 OF 6

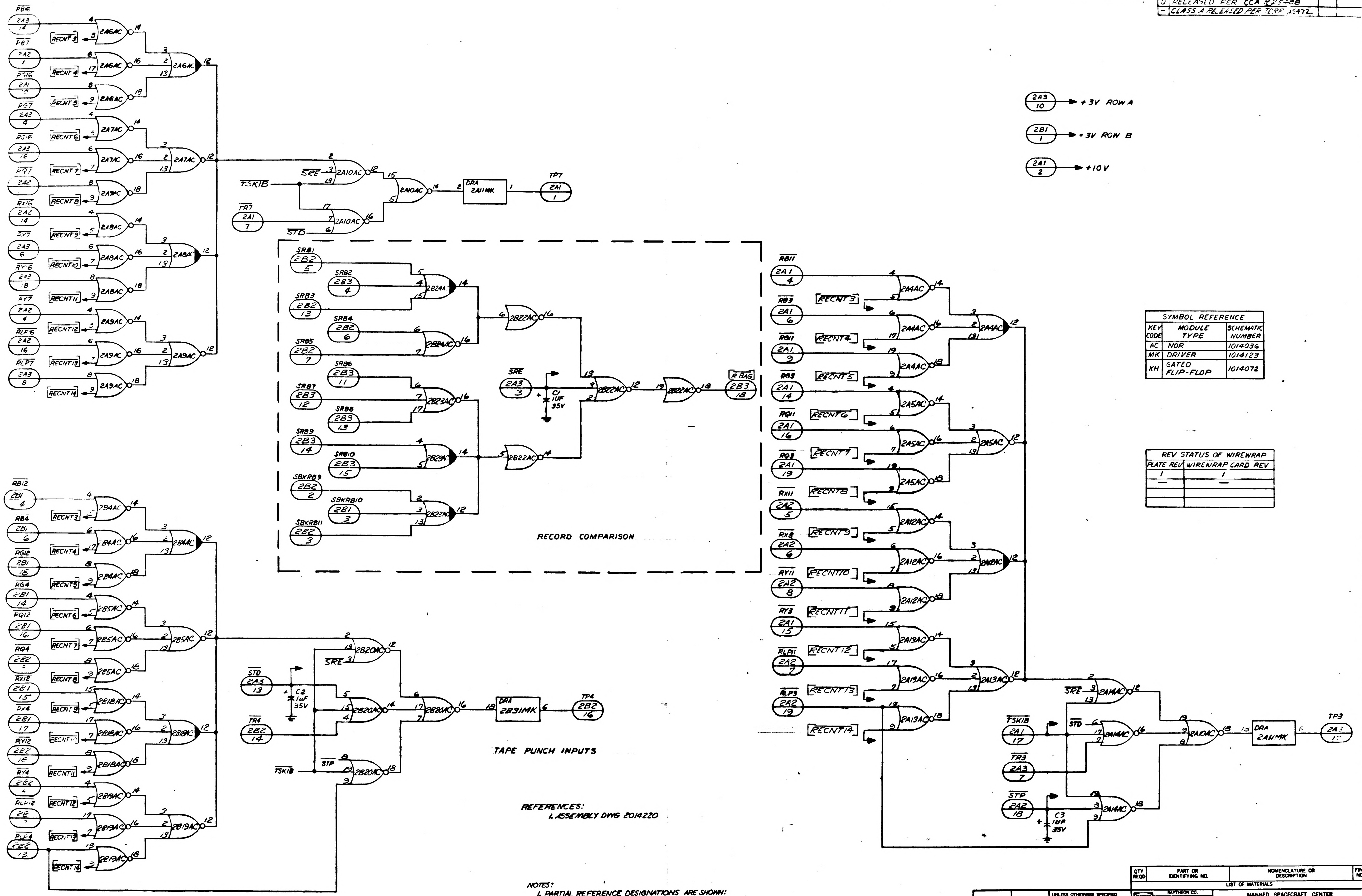
MASTER

2014066 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25408		
–	CLASS A RELEASED PER TCRR 35472		

REVISIONS

2014067 | –



RB16 2A3 14
RB7 2A2 1
RX16 2A1 6
RG7 2A3 4
RG16 2A3 16
RQ7 2A2
RX16 2A2 14
RX7 2A3 6
RY16 2A3 18
RY7 2A2 4
RLP16 2A2 16
RLP7 2A3 8
RECNT 3
RECNT 4
RECNT 5
RECNT 6
RECNT 7
RECNT 8
RECNT 9
RECNT 10
RECNT 11
RECNT 12
RECNT 13
RECNT 14
2A6AC
2A7AC
2A8AC
2A9AC
SRE
TSK1B
2A10AC
TR7 2A1 7
STD
DRA 2A11MK
TP7 2A1 1
SRB1 2B2 5
SRB2 2B3 4
SRB3 2B2 13
SRB4 2B2 6
SRB5 2B2 7
SRB6 2B3 11
SRB7 2B3 12
SRB8 2B3 13
SRB9 2B3 14
SRB10 2B3 15
SBKRB9 2B2 2
SBKRB10 2B1 3
SBKRB11 2B2 3
2B24AC
2B23AC
2B22AC
SRE 2A3 3
C1 1UF 35V
R BAG 2B3 18
RECORD COMPARISON
RB12 2B1 4
RB4 2B1 6
RG12 2B1 15
RG4 2B1 14
RQ12 2B1 16
RQ4 2B2
RX12 2B1 15
RX4 2B1 17
RY12 2B2 1E
RY4 2B2 4
RLP12 2B
RLP4 2B2 13
2B4AC
2B5AC
2B18AC
2B19AC
2B20AC
STD 2A3 13
C2 1uF 35V
TR4 2B2 14
TSK1B
BTP
DRA 2B31MK
TP4 2B2 16
TAPE PUNCH INPUTS
RB11 2A1 4
RB3 2A1 6
RG11 2A1 9
RG3 2A1 14
RQ11 2A1 16
RQ3 2A1 19
RX11 2A2 5
RX3 2A2 6
RY11 2A2 8
RY3 2A1 15
RLP11 2A2 7
RLP3 2A2 19
2A4AC
2A5AC
2A12AC
2A13AC
2A14AC
TSK1B 2A1 17
TR3 2A3 7
STP 2A2 18
C3 1UF 35V
DRA 2A11MK
TP3 2A3 17
2A3 10 → +3V ROW A
2B1 1 → +3V ROW B
2A1 2 → +10V

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
AC	NOR	1014036
MK	DRIVER	1014123
KH	GATED FLIP-FLOP	1014072

REV STATUS OF WIREWRAP	
PLATE REV	WIREWRAP CARD REV
–	–

REFERENCES:
1. ASSEMBLY DWG 2014220

NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 7SEP65
CHECKED 11SEP65
APPROVAL 28 Oct 65
APPROVAL 10/27/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DRAWER 2 PLATE 2
COMPUTER TEST SET

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014067
SCALE NONE | WT | SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014067 | –

2014067

- 2014067

SYM	DESCRIPTION	DATE	APPROVED
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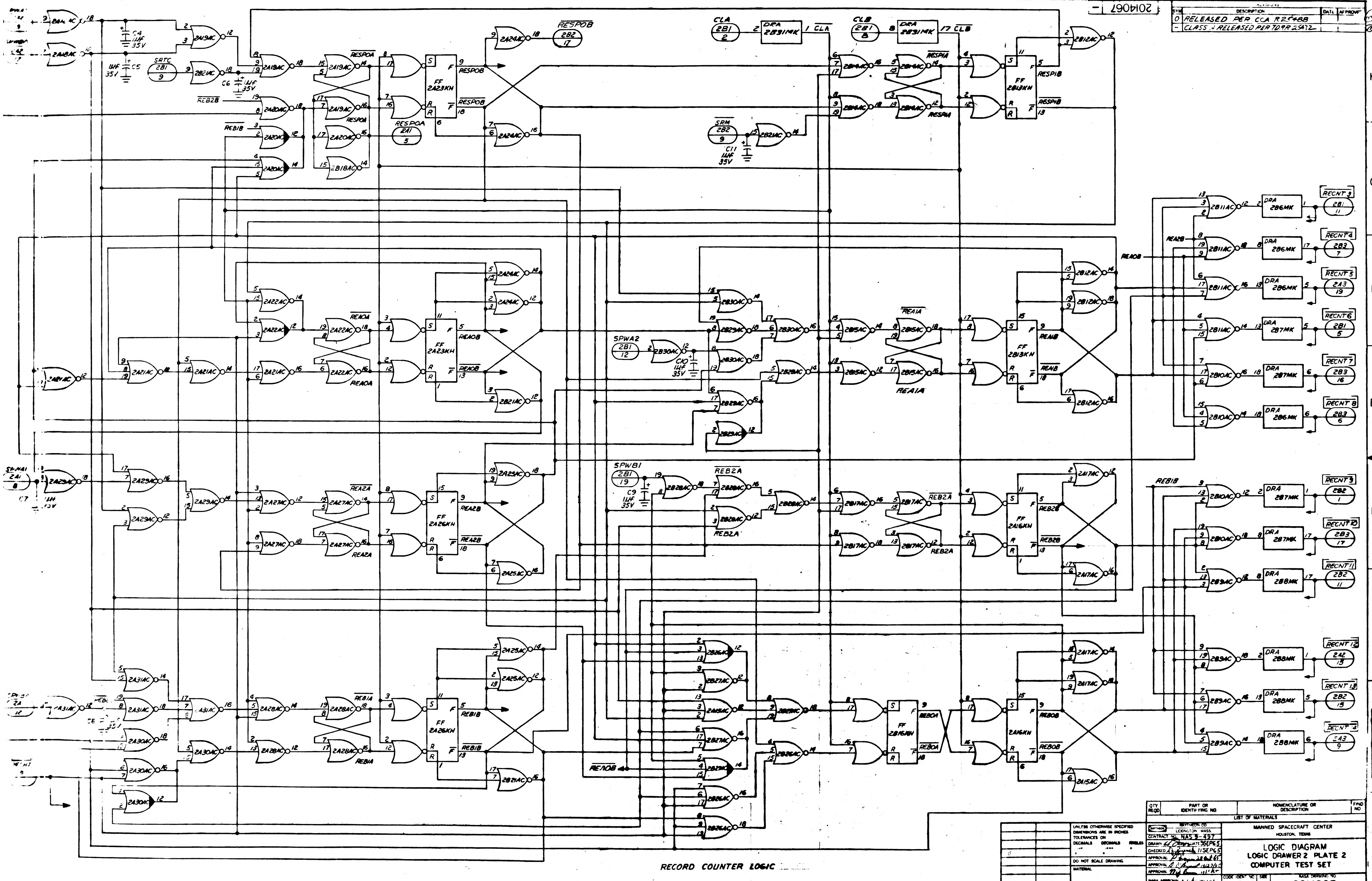
-	CLASS A RELEASED PER TDRR 25472		



2A19AC
2B21AC
SRTC 2B1 9
C4 1μF 35V
C5 1μF 35V
C6 1μF 35V
REB2B
REB1B
2A20AC
2B18AC
RESPOA
RESPOA
FF 2A23KH
RESPOB
RESPOB
RESPOB 2B2 17
RESPOA 2A1 5
2A24AC
CLA 2B1 2
DRA 2B31MK
CLA
CLB 2B1 8
DRA 2B31MK
CLB
SRM 2B2 9
C11 1μF 35V
2B21AC
2B14AC
RESP1A
RESP1A
FF 2B13KH
RESP1B
RESP1B
2B12AC
2A18AC
2A22AC
REA0A
REA0A
FF 2A23KH
REA0B
REA0B
2A21AC
2A24AC
2B21AC
SPWA2 2B1 12
2B30AC
C10 1μF 35V
2B29AC
2B28AC
2B15AC
REA1A
REA1A
FF 2B13KH
REA1B
REA1B
2B12AC
2B11AC
2B10AC
DRA 2B6MK
DRA 2B7MK
RECNT 3 2B1 11
RECNT 4 2B3 7
RECNT 5 2A3 19
RECNT 6 2B1 5
RECNT 7 2B3 16
RECNT 8 2B3 6
REA2B
REA0B
SPWA1 2A1 8
C7 1μF 35V
2A29AC
2A27AC
REA2A
REA2A
FF 2A26KH
REA2B
REA2B
2A25AC
SPWB1 2B1 19
C9 1μF 35V
2B28AC
REB2A
REB2A
2B17AC
REB2A
FF 2A16KH
REB2B
REB2B
2A17AC
REB1B
2B9AC
DRA 2B8MK
RECNT 9 2B2 1
RECNT 10 2B3 17
RECNT 11 2B2 11
2A31AC
2A30AC
C8 1μF 35V
2A28AC
REB1A
REB1A
FF 2A26KH
REB1B
REB1B
2A25AC
2B21AC
2B26AC
2B27AC
2A26AC
2B24AC
REA0B
2B25AC
REB0A
REB0A
FF 2B16KH
2A16KH
REB0B
REB0B
2A17AC
2A15AC
RECNT 12 2A2 13
RECNT 13 2B2 15
RECNT 14 2A3 9
RECORD COUNTER LOGIC
8 7 6 5 4 3 2 1
H G F E D C B A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9SEP65
CHECKED 11SEP65
APPROVAL 28 Oct 65
APPROVAL 10/27/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

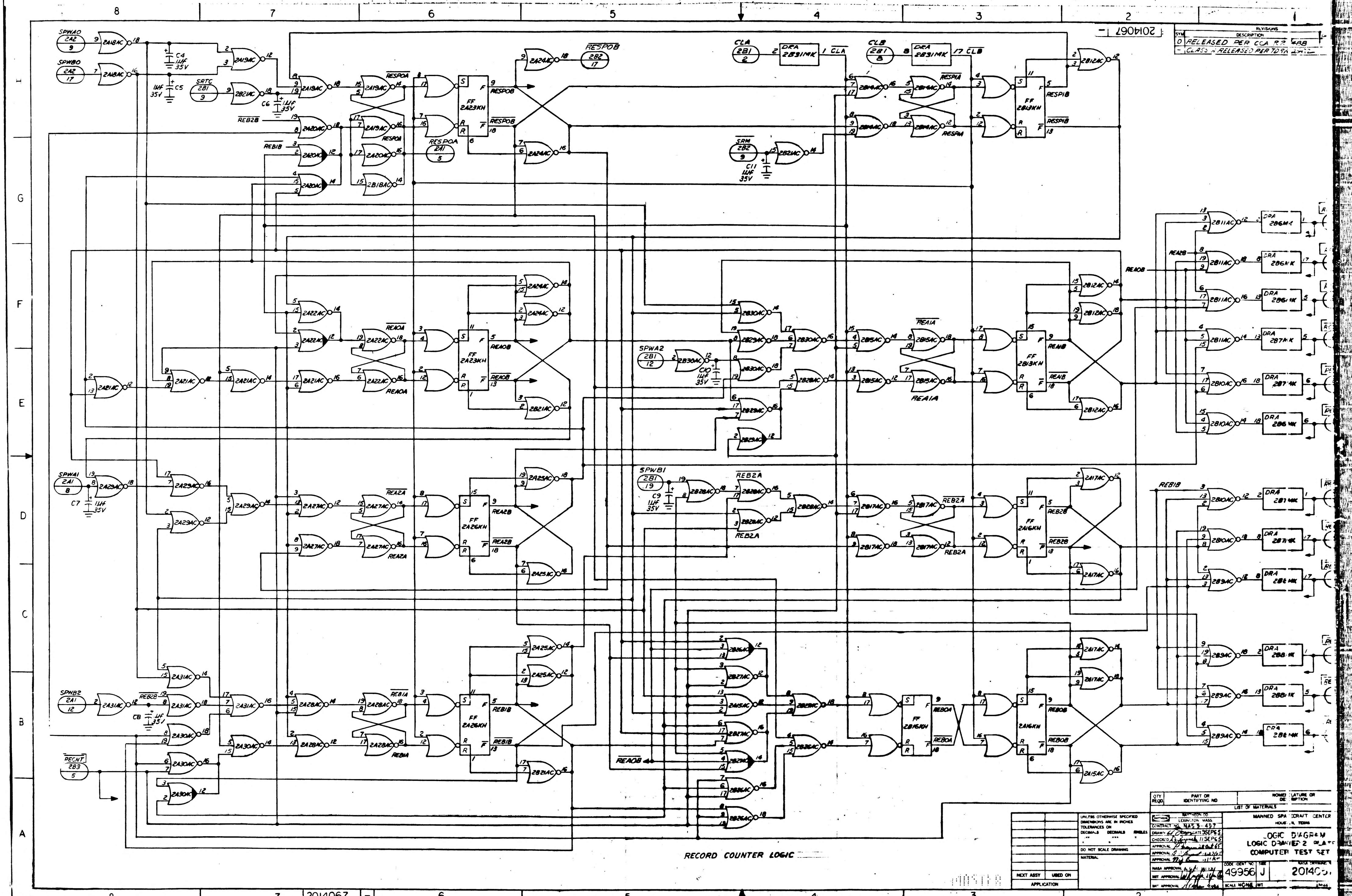
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DRAWER 2 PLATE 2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014067
SCALE NONE
WT
SHEET 2 OF 2

2014067 -

F 2/2



8
7
6
5
4
3
2
H
G
F
E
D
C
B
A
SPWA0
2A2
9
SPWB0
2A2
17
2A18AC
C4
1µF
35V
C5
SRTC
2B1
9
2A19AC
2B21AC
2A18AC
C6
1µF
35V
REB2B
REB1B
2A20AC
RESPOA
2A19AC
2B18AC
FF
2A23KH
RESPOB
RESPOA
2A1
5
2A24AC
RESPOB
2B2
17
CLA
2B1
2
DRA
2B31MK
CLA
CLB
2B1
8
DRA
2B31MK
CLB
SRM
2B2
9
2B21AC
C11
1µF
35V
2B14AC
RESP1A
FF
2B13KH
RESP1B
2B12AC
2B11AC
DRA
2B6MK
REA2B
REA0B
2B7MK
2B10AC
2A22AC
REA0A
FF
2A23KH
REA0B
2A24AC
2A21AC
2B21AC
2B30AC
SPWA2
2B1
12
C10
1µF
35V
2B29AC
2B15AC
REA1A
FF
2B13KH
REA1B
2B12AC
SPWA1
2A1
8
C7
1µF
35V
2A29AC
2A27AC
REA2A
FF
2A26KH
REA2B
2A25AC
SPWB1
2B1
19
C9
1µF
35V
2B28AC
REB2A
2B17AC
REB2A
FF
2A16KH
REB2B
2A17AC
REB1B
2B9AC
DRA
2B8MK
2A31AC
SPWB2
2A1
12
REB2B
C8
1µF
35V
2A30AC
RECNT
2B3
5
2A28AC
REB1A
FF
2A26KH
REB1B
2B21AC
2B26AC
2B27AC
2A25AC
REA0B
2B36AC
FF
2B16KH
REB0A
FF
2A16KH
REB0B
2A15AC
RECORD COUNTER LOGIC

2014067 -

SYM	REVISIONS DESCRIPTION	
0	RELEASED PER CCA R?	488
-	CLASS A RELEASED PER TD9A	2512

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9SEP65
CHECKED 11SEP65
APPROVAL 28 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DRAWER 2 PLATE
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014067

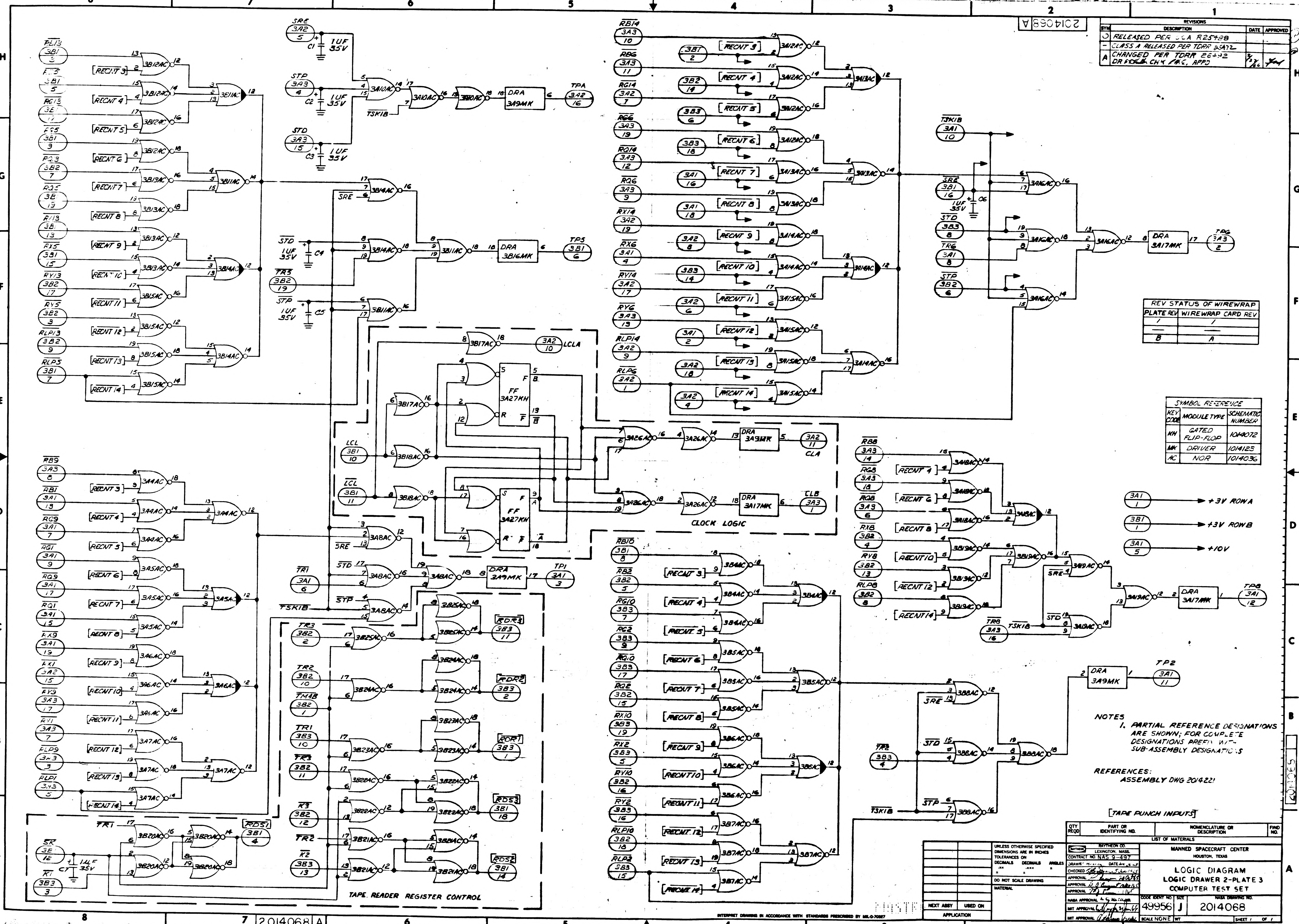
SCALE NONE WT

2014067 -

F1/2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER ECA R25488		
–	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26492 DR [illegible] CHK [illegible], APPD	3/27/66	

2014068 A


CLOCK LOGIC
TAPE READER REGISTER CONTROL
[TAPE PUNCH INPUTS]
LCLA
CLA
CLB
TPA
TP5
TP6
TP1
TP8
TP2
+3V ROW A
+3V ROW B
+10V
RDS1
RDS2
RDS3
RDR1
RDR2
RDR3
FF 3A27KH
DRA 3A9MK
DRA 3B16MK
DRA 3A17MK
TSKIB
SRE
STD
STP
1 UF 35V

REV STATUS OF WIREWRAP	
PLATE REV	WIREWRAP CARD REV
1	1
—	—
B	A

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
KH	GATED FLIP-FLOP	1014072
MK	DRIVER	1014123
AC	NOR	1014036

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCES:
ASSEMBLY DWG 2014221

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 5 Jun 1965
APPROVAL [illegible]
APPROVAL D. A. [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. Metzger
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

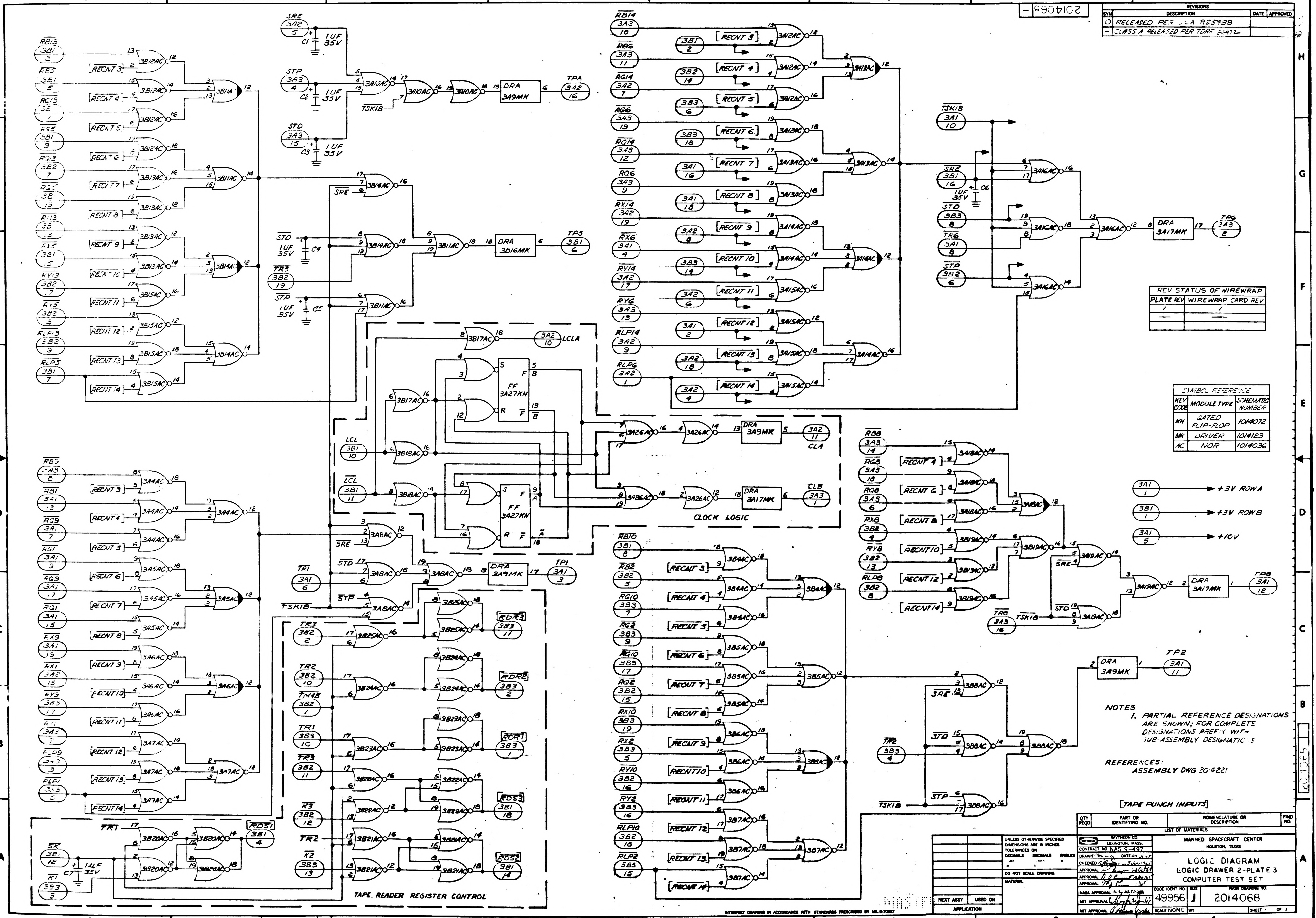
LOGIC DIAGRAM
LOGIC DRAWER 2-PLATE 3
COMPUTER TEST SET

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014068
SCALE NONE | WT | SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

7 2014068 A

SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER ECA R25488		
-	CLASS A RELEASED PER TDRR 25472		



3B1 3 RB13
RE5 3B1 5
RG13
RG5 3B1 9
RQ13 3B2 7
RQ5
RX13
RX5 3B1 5
RY13 3B2 17
RY5 3B2 3
RLP13 3B2 9
RLP5 3B1 7
RECNT 3
RECNT 4
RECNT 5
RECNT 6
RECNT 7
RECNT 8
RECNT 9
RECNT 10
RECNT 11
RECNT 12
RECNT 13
RECNT 14
3B12AC
3B11A
3B11AC
3B13AC
3B14AC
3B15AC
SRE 3A2 5
STP 3A3 4
STD 3A3 15
C1 1UF 35V
C2 1UF 35V
C3 1UF 35V
3A10AC
TSKIB
DRA 3A9MK
TPA 3A2 16
3B14AC
SRE
STD
C4 1UF 35V
TR5 3B2 19
STP
C5 1UF 35V
DRA 3B16MK
TP5 3B1 6
3B17AC
3A2 10 LCLA
FF 3A27KH
LCL 3B1 10
LCL 3B1 11
3B18AC
3A26AC
DRA 3A9MK
3A2 11 CLA
DRA 3A17MK
CLB 3A3 1
CLOCK LOGIC
RB6 3A3 8
RB1 3A1 13
RG9 3A1 7
RG1 3A1 9
RQ9 3A1 17
RQ1 3A1 15
RX9 3A1 13
RX1 3A2 15
RY9 3A3 17
RY1 3A3 7
RLP9 3A3 3
RLP1 3A3 5
3A4AC
3A5AC
3A6AC
3A7AC
3A8AC
SRE
STD
TR1 3A1 6
STP
TSKIB
DRA 3A9MK
TP1 3A1 3
SR 3B1 12
R1 3B3 3
C7 1UF 35V
TR1
TR2
3B20AC
RDS1 3B1 4
TR3 3B2 2
TR2 3B2 10
TN4B 3B2 1
TR1 3B3 10
TR3 3B2 11
R3 3B2 12
R2 3B3 13
3B25AC
3B24AC
3B23AC
3B22AC
3B21AC
RDR3 3B3 11
RDR2 3B3 2
RDR1 3B3 1
RDS3 3B1 18
RDS2 3B1 14
TAPE READER REGISTER CONTROL
RB14 3A3 10
RB6 3A3 11
RG14 3A2 7
RG6 3A3 19
RQ14 3A3 12
RQ6 3A3 9
RX14 3A2 19
RX6 3A1 4
RY14 3A2 17
RY6 3A3 13
RLP14 3A2 9
RLP6 3A2 1
3B1 2
3B2 14
3B3 6
3B3 18
3A1 16
3A1 18
3A2 8
3B3 14
3A2 6
3A1 2
3A2 18
3A2 4
3A12AC
3A13AC
3A14AC
3A15AC
TSKIB 3A1 10
SRE 3B1 16
C6 1UF 35V
STD 3B3 8
TR6 3A1 8
STP 3B2 6
3A16AC
DRA 3A17MK
TP6 3A3 2
RB10 3B1 8
RB2 3B2 5
RG10 3B3 7
RG2 3B3 9
RQ10 3B3 17
RQ2 3B2 15
RX10 3B3 19
RX2 3B3 15
RY10 3B2 11
RY2 3B3 16
RLP10 3B2 18
RLP2 3B3 15
3B4AC
3B5AC
3B6AC
3B7AC
3B8AC
SRE
STD
TR2 3B3 4
TSKIB
STP
DRA 3A9MK
TP2 3A1 11
RB8 3A3 14
RG8 3A3 18
RQ8 3A3 6
RX8 3B2 4
RY8 3B2 13
RLP8 3B2 8
3A18AC
3B19AC
3A19AC
TR8 3A3 16
DRA 3A17MK
TP8 3A1 12
3A1 1 +3V ROW A
3B1 1 +3V ROW B
3A1 5 +10V

REV STATUS OF WIREWRAP	
PLATE REV	WIREWRAP CARD REV
1	1
—	—

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
KH	GATED FLIP-FLOP	1014072
MK	DRIVER	1014123
AC	NOR	1014036

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCES:
ASSEMBLY DWG 2014221

[TAPE PUNCH INPUTS]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 5 Jan 1965
APPROVAL [illegible]
APPROVAL D. O'Bryant [illegible]
APPROVAL [illegible]
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

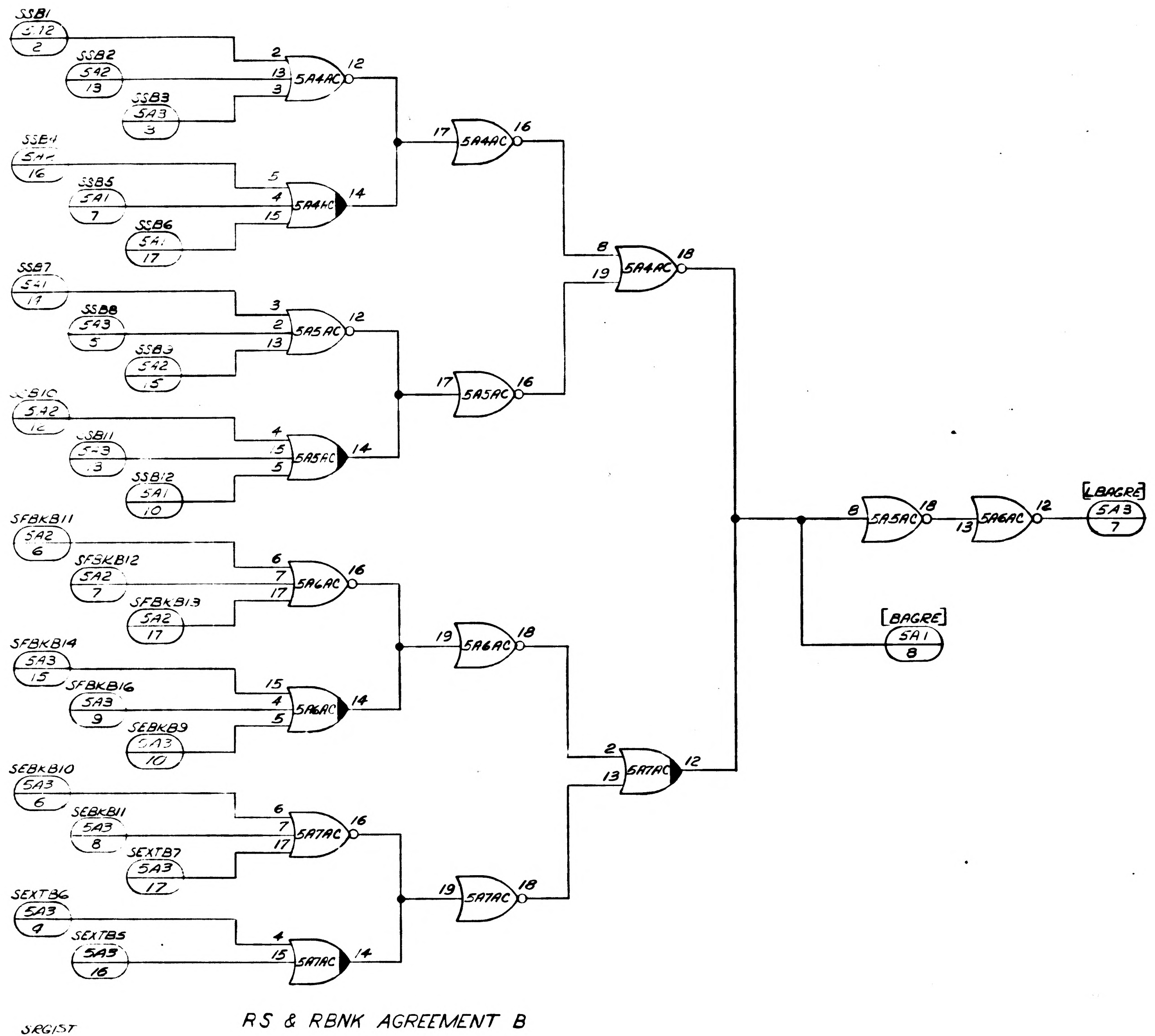
LOGIC DIAGRAM
LOGIC DRAWER 2-PLATE 3
COMPUTER TEST SET

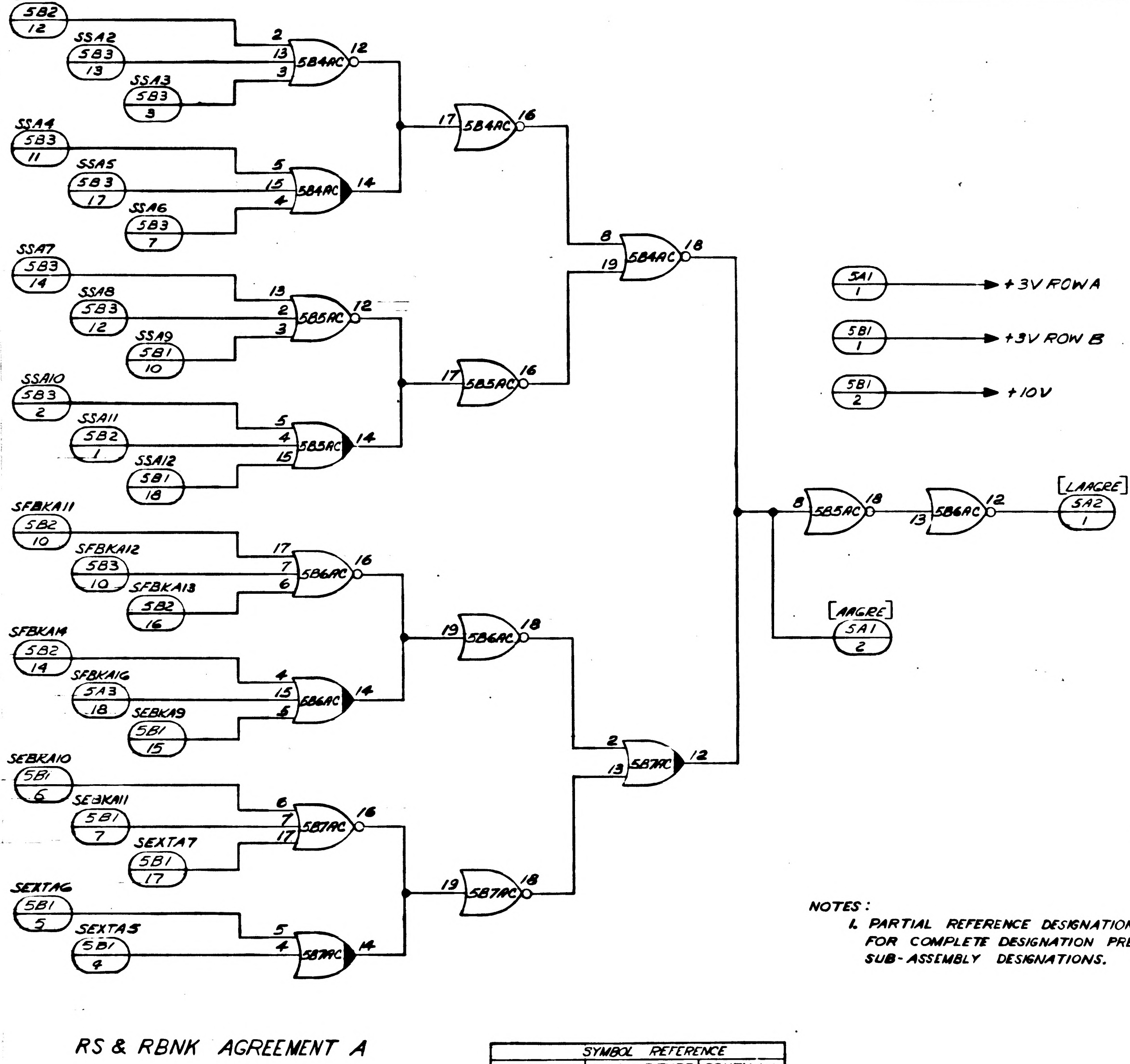
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014068
SCALE NONE
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014070 -

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25468		
-	CLASS A RELEASED PER TDRR 25472		

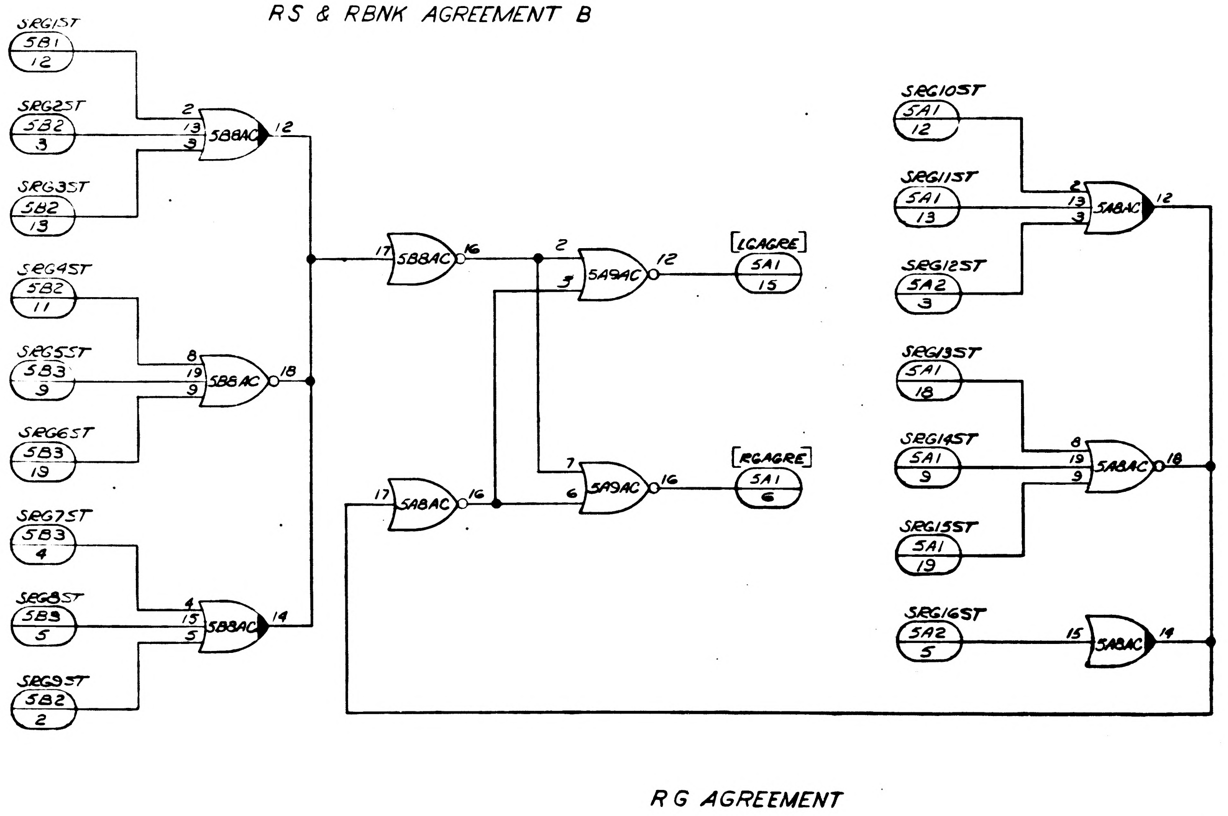

SSB1
SSB2
SSB3
SSB4
SSB5
SSB6
SSB7
SSB8
SSB9
SSB10
SSB11
SSB12
SFBKB11
SFBKB12
SFBKB13
SFBKB14
SFBKB16
SEBKB9
SEBKB10
SEBKB11
SEXTB7
SEXTB6
SEXTB5
5A4AC
5A5AC
5A6AC
5A7AC
LBAGRE
BAGRE
RS & RBNK AGREEMENT B

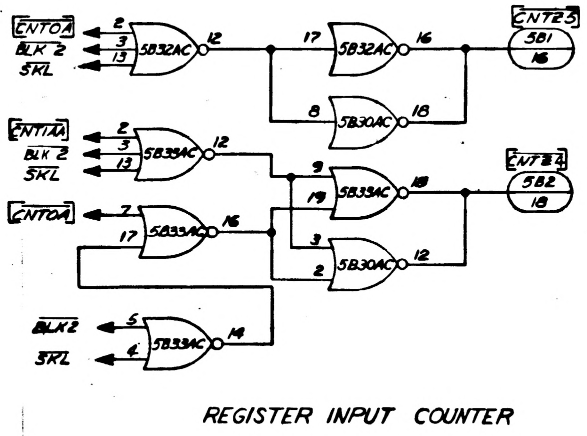

SSA1
SSA2
SSA3
SSA4
SSA5
SSA6
SSA7
SSA8
SSA9
SSA10
SSA11
SSA12
SFBKA11
SFBKA12
SFBKA13
SFBKA14
SFBKA16
SEBKA9
SEBKA10
SEBKA11
SEXTA7
SEXTA6
SEXTA5
5B4AC
5B5AC
5B6AC
5B7AC
LAAGRE
AAGRE
+3V ROW A
+3V ROW B
+10V
RS & RBNK AGREEMENT A

NOTES:

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATIONS.

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEM NO.
MK	DRIVER	1014123
KH	GATED FLIP FLOP	1014072
AC	NOR	1C14036


SRG1ST
SRG2ST
SRG3ST
SRG4ST
SRG5ST
SRG6ST
SRG7ST
SRG8ST
SRG9ST
SRG10ST
SRG11ST
SRG12ST
SRG13ST
SRG14ST
SRG15ST
SRG16ST
5B8AC
5A8AC
5A9AC
LGAGRE
RGAGRE
RG AGREEMENT


CNT0A
BLK 2
SKL
CNT1A
CNT0A
5B32AC
5B30AC
5B33AC
CNT25
CNT24
REGISTER INPUT COUNTER

REV STATUS OF WIRE WRAP	
PLATE REV	WIRE WRAP CARD REV
1	0
—	—

REFERENCES:

1. ASSEMBLY DWG 2014223

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4?7
DRAWN Moen DATE 1-2-26
CHECKED 6-11-65
APPROVAL 20 Oct 65
APPROVAL 12/20/65
APPROVAL
NASA APPROVAL C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DRAWER 2 - PLATE 5
COMPUTER TEST SET

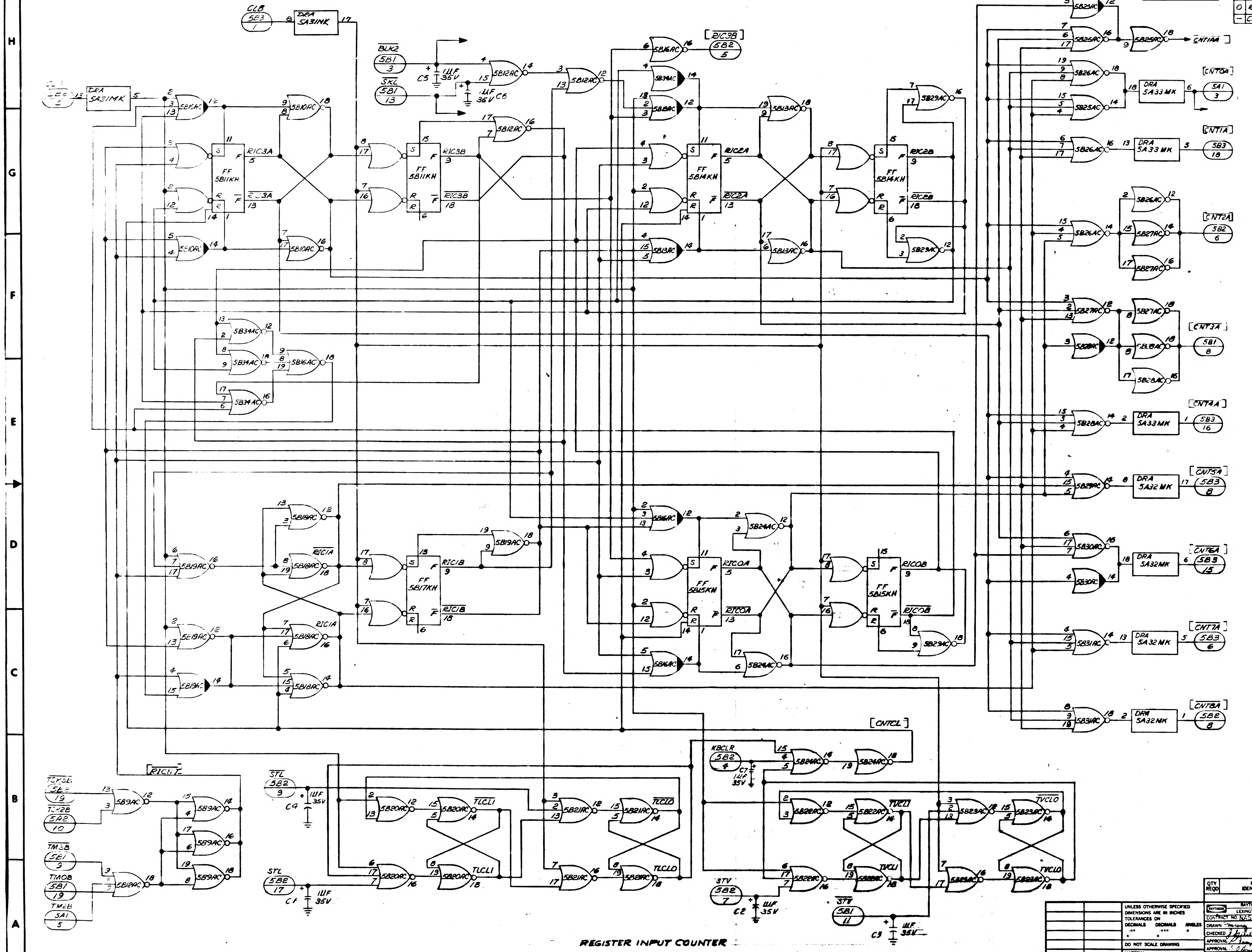
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014070
SCALE NONE WT SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014070 -

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS A RELEASED PER TDRR 25472		

2014070 | –


CLB 5B3 1
DRA 5A31NK
BLK2 5B1 3
SKL 5B1 13
C5 1µF 35V
C6 1µF 35V
5B12AC
RIC3B 5B2 5
DRA 5A31MK
FF 5B11KH
RIC3A
FF 5B11KH
RIC3B
5B10AC
FF 5B14KH
RIC2A
RIC2B
5B13AC
5B29AC
5B16AC
5B34AC
5B8AC
5B25AC
CNT1AA
5B26AC
DRA 5A33MK
CNT0A 5A1 3
CNT1A 5B3 18
5B27AC
CNT2A 5B2 6
5B28AC
CNT3A 5B1 8
DRA 5A33MK
CNT4A 5B3 16
DRA 5A32MK
CNT5A 5B3 8
5B30AC
CNT6A 5B3 15
5B31AC
CNT7A 5B3 6
CNT8A 5B2 8
5B19AC
5B18AC
RIC1A
FF 5B17KH
RIC1B
FF 5B15KH
RIC0A
RIC0B
5B24AC
5B9AC
RICNT
TCP3B 5B2 19
TCP2B 5A2 10
TM3B 5B1 9
TIA0B 5B1 19
TM2B 5A1 5
STL 5B2 9
C4 1µF 35V
STL 5B2 17
C1 1µF 35V
5B20AC
TLCL1
5B21AC
TLCL0
CNTCL
KBCLR 5B2 4
C7 1µF 35V
5B22AC
TVCL1
5B23AC
TVCL0
STV 5B2 7
C2 1µF 35V
STV 5B1 11
C3 1µF 35V

REGISTER INPUT COUNTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 28 Aug 65
CHECKED J Gilbreath 11-65
APPROVAL [illegible] 28 Oct 65
APPROVAL [illegible] 10/27/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 21 Jan 66
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DRAWER 2 - PLATE 5
COMPUTER TEST SET

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014070
SCALE NONE | WT | SHEET 2 OF

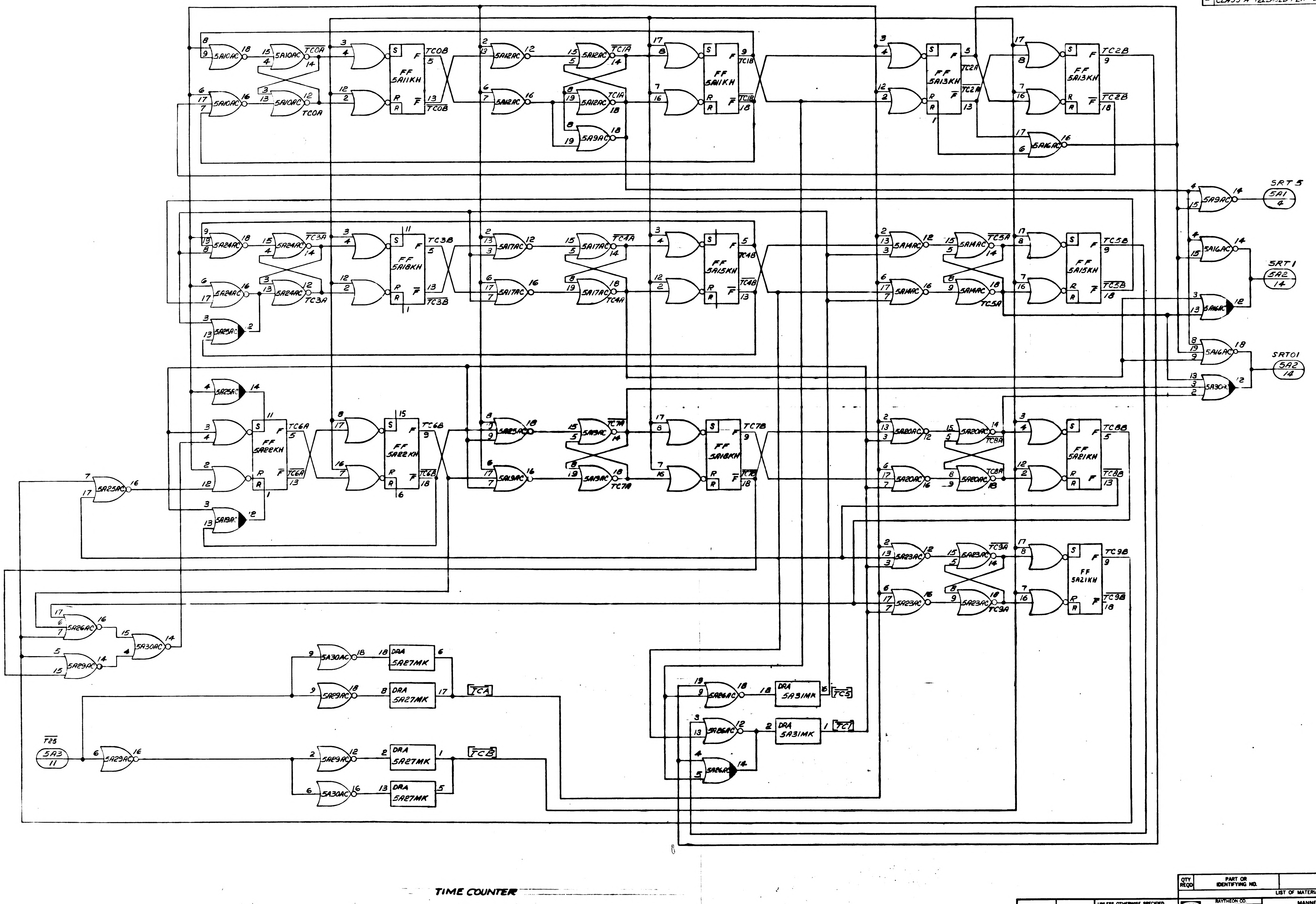
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014070 | –

2014070	-

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
-	CLASS A RELEASED PER TDRR 25472		



5A10AC
TC0A
FF 5A11KH
TC0B
5A12AC
TC1A
5A9AC
FF 5A14KH
TC1B
FF 5A13KH
TC2A
TC2B
FF 5A13KH
5A16AC
5A9AC
SRT 5
5A1 4
5A16AC
SRT 1
5A2 14
SRT01
5A2 14
5A30AC
5A24AC
TC3A
FF 5A18KH
TC3B
5A25AC
5A17AC
TC4A
FF 5A15KH
TC4B
5A14AC
TC5A
FF 5A15KH
TC5B
5A25AC
FF 5A22KH
TC6A
FF 5A22KH
TC6B
5A19AC
5A25AC
TC7A
FF 5A16KH
TC7B
5A20AC
TC8A
FF 5A21KH
TC8B
5A23AC
TC9A
FF 5A21KH
TC9B
5A26AC
5A30AC
5A29AC
DRA 5A27MK
TCA
TCB
T25
5A3 11
DRA 5A31MK
TC5
TC1
TIME COUNTER

MASTER

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS
DRAWN DATE 23 APRIL 65
CHECKED 6-11-65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DRAWER 2-PLATE 5
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014070
SCALE NONE
WT
SHEET 3 OF 3

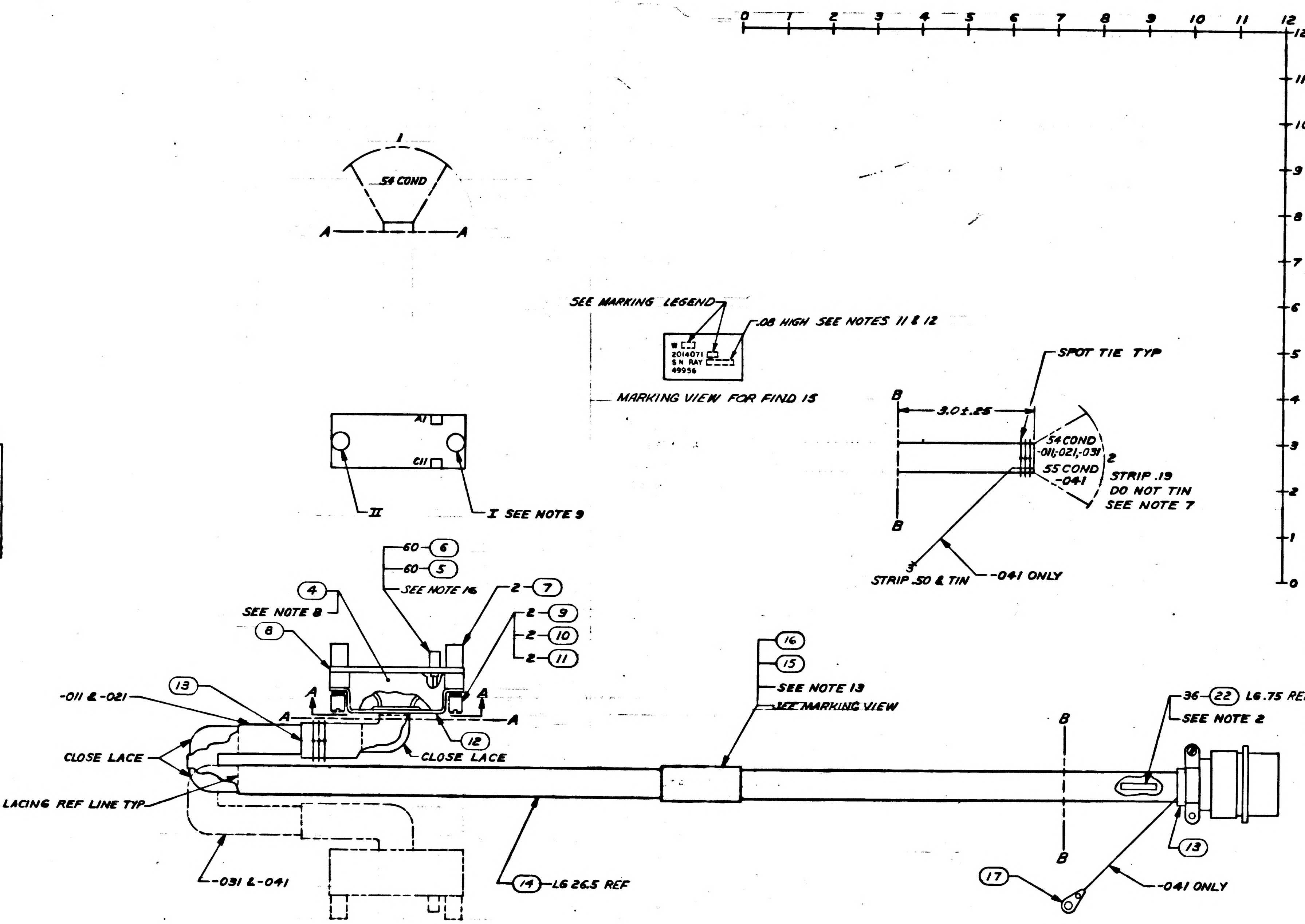
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

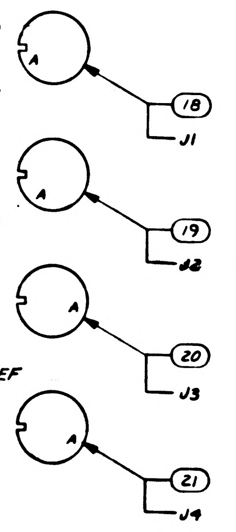
2014070	-

2014070

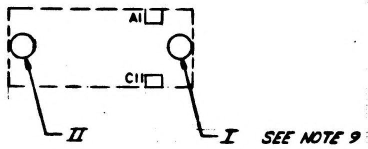
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25091		
-	CLASS A RELEASE PER TDRR 2.380		
A	CHANGED PER TDRR 21906 DR J.D.G. CHK APPD	9 Sept 65	

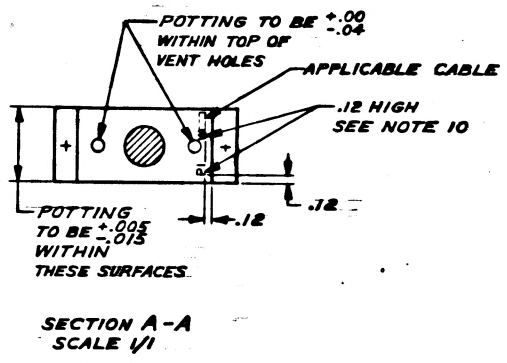
REVISIONS


0 1 2 3 4 5 6 7 8 9 10 11 12
1
.54 COND
A
A
SEE MARKING LEGEND
.08 HIGH SEE NOTES 11 & 12
W [ ]
2014071 [ ]
S N RAY [ ]
49956
MARKING VIEW FOR FIND 15
A1
C11
II
I SEE NOTE 9
SPOT TIE TYP
B
3.0±.25
.54 COND -011,-021,-031
.55 COND -041
2
STRIP .19 DO NOT TIN SEE NOTE 7
B
3
STRIP .50 & TIN
-041 ONLY
60 (6)
60 (5)
SEE NOTE 16
(4)
SEE NOTE 8
(8)
2 (7)
2 (9)
2 (10)
2 (11)
-011 & -021
(13)
A
(12)
CLOSE LACE
CLOSE LACE
LACING REF LINE TYP
-031 & -041
(14) LG 26.5 REF
(16)
(15)
SEE NOTE 13
SEE MARKING VIEW
B
B
36 (22) LG .75 REF
SEE NOTE 2
(13)
(17)
-041 ONLY


A
(18) J1
A
(19) J2
A
(20) J3
A
(21) J4

PART NO.	KEY CODING POSITION I	KEY CODING POSITION II	MARKING LEGEND
2014071-011	B	K	W6
2014071-021	B	L	W7
2014071-031	B	M	W8
2014071-041	B	N	W9


A1
C11
II
I SEE NOTE 9


POTTING TO BE +.00 -.04 WITHIN TOP OF VENT HOLES
APPLICABLE CABLE IDENT NO. W[ ]
.12 HIGH SEE NOTE 10
.12
.12
POTTING TO BE +.005 -.015 WITHIN THESE SURFACES

SECTION A-A
SCALE 1/1

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 23
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. AR DENOTES AS REQUIRED
4. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
5. STRIP ALL LEADS .25 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. LACE CABLE CONFIGURATION AT INDICATED AREAS ONLY
7. CRIMP PER ND1002206
8. FILL WITH FIND NO. 4 PER ND1002009, METHOD E PRIME WITH 1010718
9. LOCATE KEY IN POSITION PER KEY CODING CHART USING DRAWING NUMBER 1014047
10. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1
11. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
12. SERIALIZE PER ND1002023
13. BOND USING FIND NO. 16
14. MIL-I-23053 CLASS I, COLOR WHITE, ID .125
15. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
16. SEAL INSULATORS & TERMINALS PER ND1002004 TYPE VI

	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	AR	AR	AR	AR	1006458-004	TAPE, LACING	23
●●	2.2	2.2	2.2	2.2	SEE NOTE 14	SLEEVING	22
	1	–	–	–	MS3120F-22-55PY	CONN, RECP	21
	–	1	–	–	MS3120F-22-55SX	CONN, RECP	20
	–	–	1	–	MS3120F-22-55SW	CONN, RECP	19
	–	–	–	1	MS3120F-22-55S	CONN, RECP	18
	1	–	–	–	MS35431-3	LUG, TERM	17
	AR	AR	AR	AR	1006253	ADHESIVE	16
	1	1	1	1	1006415-135	BAND MARKER, CABLE	15
●●	2.3	2.3	2.3	2.3	1006696-5	INSULATION SLEEVING	14
	2	2	2	2	MS39056-6	BUSHING	13
	1	1	1	1	1014024-4	BRKT, ANGLE	12
	2	2	2	2	1006997	WASHER, PLAIN, FLAT	11
	2	2	2	2	MS35337-79	WASHER, LOCK	10
	2	2	2	2	1006998-1	SCREW, CAPTIVE	9
	1	1	1	1	1014021	PLATE, CONN	8
	2	2	2	2	1014032	RECP, INDEXING	7
	60	60	60	60	1010380	INSULATOR, BUSHING, FEMALE	6
	60	60	60	60	1010379-1	CONTACT, ELEC, FEMALE	5
	AR	AR	AR	AR	1006688	COMPOUND, SILICONE RUBBER	4
●●	0.5	–	–	–	MIL-W-16878/4 E20 BLK	WIRE, ELEC	3
●●	55.0	50.0	50.0	50.0	MIL-W-16878/4 E20 WHT	WIRE, ELEC	2
●●	55.0	50.0	50.0	50.0	1014341-2	WIRE, ELEC	1

LIST OF MATERIALS

●● DENOTES LENGTH IN FEET

2014048	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12275
DRAWN DATE 4/23/65
CHECKED 12 May 65
APPROVAL 8 May 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSY
W6, W7, W8, W9
COMPUTER SIMULATOR

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014071
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

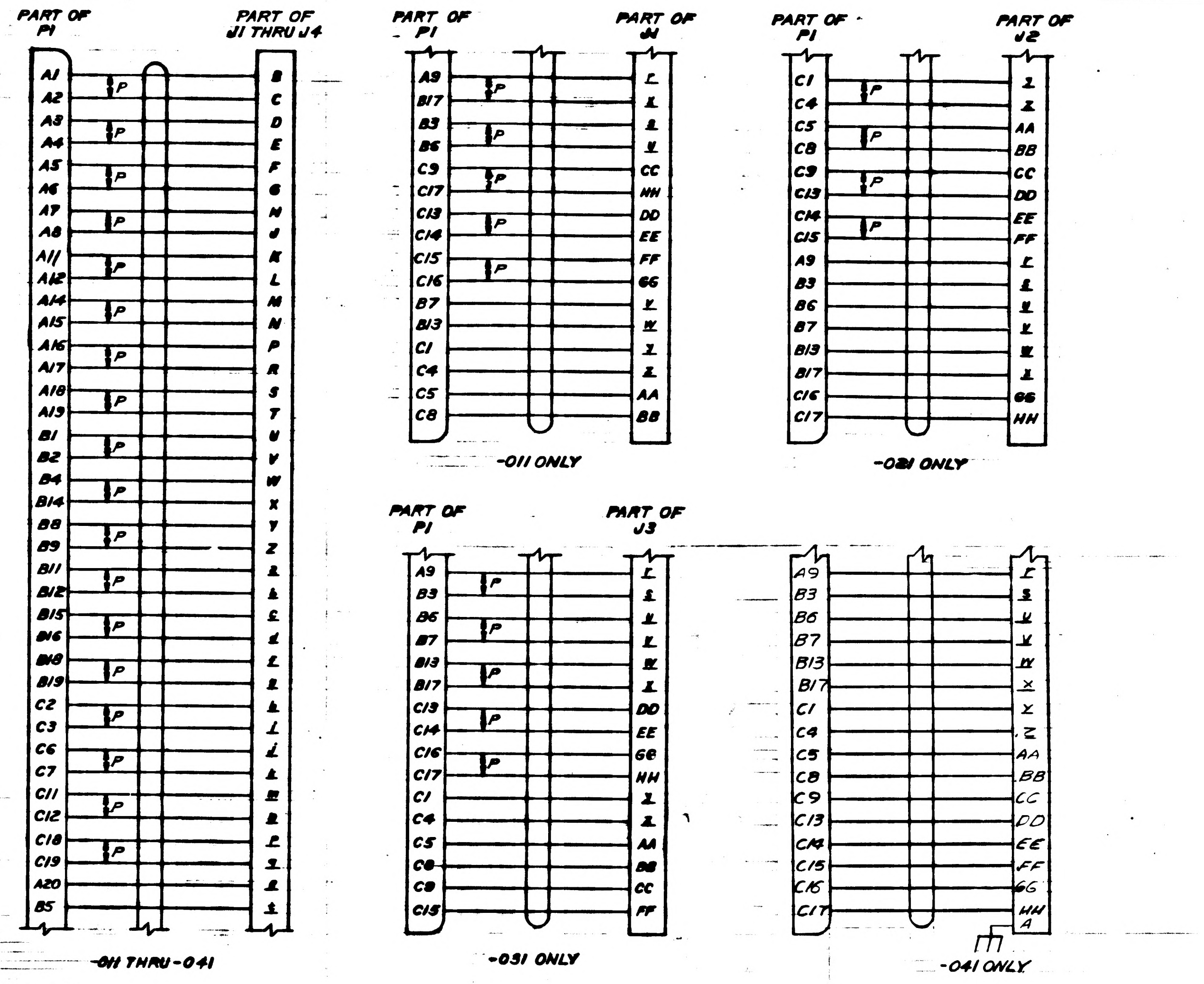
ASSEMBLY INFORMATION CHART													
	FROM			DESCRIPTION			TO						
PEMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES-011	DES-021	DES-031	DES-041	
	A1	1	P1-A1	WHT	20	1	2	J1-B	J2-B	J3-B	J4-B	
			P1-A2	BLU				J1-C	J2-C	J3-C	J4-C	
	A2	1	P1-A3	WHT	20	1	2	J1-D	J2-D	J3-D	J4-D	
			P1-A4	BLU				J1-E	J2-E	J3-E	J4-E	
	A3	1	P1-A5	WHT	20	1	2	J1-F	J2-F	J3-F	J4-F	
			P1-A6	BLU				J1-G	J2-G	J3-G	J4-G	
	A4	1	P1-A7	WHT	20	1	2	J1-H	J2-H	J3-H	J4-H	
			P1-A8	BLU				J1-J	J2-J	J3-J	J4-J	
	A5	1	P1-A11	WHT	20	1	2	J1-K	J2-K	J3-K	J4-K	
			P1-A12	BLU				J1-L	J2-L	J3-L	J4-L	
	A6	1	P1-A14	WHT	20	1	2	J1-M	J2-M	J3-M	J4-M	
			P1-A15	BLU				J1-N	J2-N	J3-N	J4-N	
	A7	1	P1-A16	WHT	20	1	2	J1-P	J2-P	J3-P	J4-P	
			P1-A17	BLU				J1-R	J2-R	J3-R	J4-R	
	A8	1	P1-A18	WHT	20	1	2	J1-S	J2-S	J3-S	J4-S	
			P1-A19	BLU				J1-T	J2-T	J3-T	J4-T	
	A9	1	P1-B1	WHT	20	1	2	J1-U	J2-U	J3-U	J4-U	
			P1-B2	BLU				J1-V	J2-V	J3-V	J4-V	
	A10	1	P1-B4	WHT	20	1	2	J1-W	J2-W	J3-W	J4-W	
			P1-B14	BLU				J1-X	J2-X	J3-X	J4-X	
	A11	1	P1-B8	WHT	20	1	2	J1-Y	J2-Y	J3-Y	J4-Y	
			P1-B9	BLU				J1-Z	J2-Z	J3-Z	J4-Z	
	A12	1	P1-B11	WHT	20	1	2	J1-a	J2-a	J3-a	J4-a	
			P1-B12	BLU				J1-b	J2-b	J3-b	J4-b	
	A13	1	P1-B15	WHT	20	1	2	J1-c	J2-c	J3-c	J4-c	
			P1-B16	BLU				J1-d	J2-d	J3-d	J4-d	
	A14	1	P1-B18	WHT	20	1	2	J1-f	J2-f	J3-f	J4-f	
			P1-B19	BLU				J1-g	J2-g	J3-g	J4-g	
	A15	1	P1-C2	WHT	20	1	2	J1-h	J2-h	J3-h	J4-h	
			P1-C3	BLU				J1-i	J2-i	J3-i	J4-i	
	A16	1	P1-C6	WHT	20	1	2	J1-j	J2-j	J3-j	J4-j	
			P1-C7	BLU				J1-k	J2-k	J3-k	J4-k	
	A17	1	P1-C11	WHT	20	1	2	J1-m	J2-m	J3-m	J4-m	
			P1-C12	BLU				J1-n	J2-n	J3-n	J4-n	
	A18	1	P1-C18	WHT	20	1	2	J1-p	J2-p	J3-p	J4-p	
			P1-C19	BLU				J1-q	J2-q	J3-q	J4-q	
	A19	1	P1-A9	WHT	20	2	2	J1-r	J2-r	J3-r	J4-r	*
	A20	1	P1-B3	↑	↑	↑	↑	J1-s	J2-s	J3-s	J4-s	*
	A21	1	P1-B5					J1-t	J2-t	J3-t	J4-t	
	A22	1	P1-B6					J1-u	J2-u	J3-u	J4-u	*
	A23	1	P1-B7					J1-v	J2-v	J3-v	J4-v	*
	A24	1	P1-B13					J1-w	J2-w	J3-w	J4-w	*
	A25	1	P1-B17					J1-x	J2-x	J3-x	J4-x	*
	A26	1	P1-C1					J1-y	J2-y	J3-y	J4-y	*
	A27	1	P1-C4					J1-z	J2-z	J3-z	J4-z	*
	A28	1	P1-C5					J1-AA	J2-AA	J3-AA	J4-AA	*
	A29	1	P1-C8					J1-BB	J2-BB	J3-BB	J4-BB	*
	A30	1	P1-C9					J1-CC	J2-CC	J3-CC	J4-CC	*
	A31	1	P1-C13					J1-DD	J2-DD	J3-DD	J4-DD	*
	A32	1	P1-C14					J1-EE	J2-EE	J3-EE	J4-EE	*
	A33	1	P1-C15					J1-FF	J2-FF	J3-FF	J4-FF	*
	A34	1	P1-C16					J1-GG	J2-GG	J3-GG	J4-GG	*
	A35	1	P1-C17	↓	↓	↓	↓	J1-HH	J2-HH	J3-HH	J4-HH	
	A36	1	P1-A20	WHT	20	2	2	J1-e	J2-e	J3-e	J4-e	
	A37	3	GRD	BLK	20	3	2	—	—	—	J4-A	

* SEE APPLICABLE TWIST CHART

TWIST CHART-011		
COND IDENT	WITH	COND IDENT
A19	↑	A25
A20		A22
A30		A35
A31	↓	A32
A33	WITH	A34

TWIST CHART-021		
COND IDENT	WITH	COND IDENT
A26	↑	A27
A28		A29
A30	↓	A31
A32	WITH	A33

TWIST CHART-031		
COND IDENT	WITH	COND IDENT
A19	↑	A20
A22		A23
A24		A25
A31	↓	A32
A34	WITH	A35



ELECTRICAL SCHEMATIC
W6 THRU W9

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 8504	7/26/65	
–	CLASS A RELEASE PER TDRR 21388		
A	CHANGED PER TDRR 21906 DR J. Gitz CHK APPD		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP 12775
DRAWN B Fuller DATE 3 MAY 65
CHECKED 12 May 65
APPROVAL 8 JULY 65
APPROVAL
APPROVAL 7/12/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

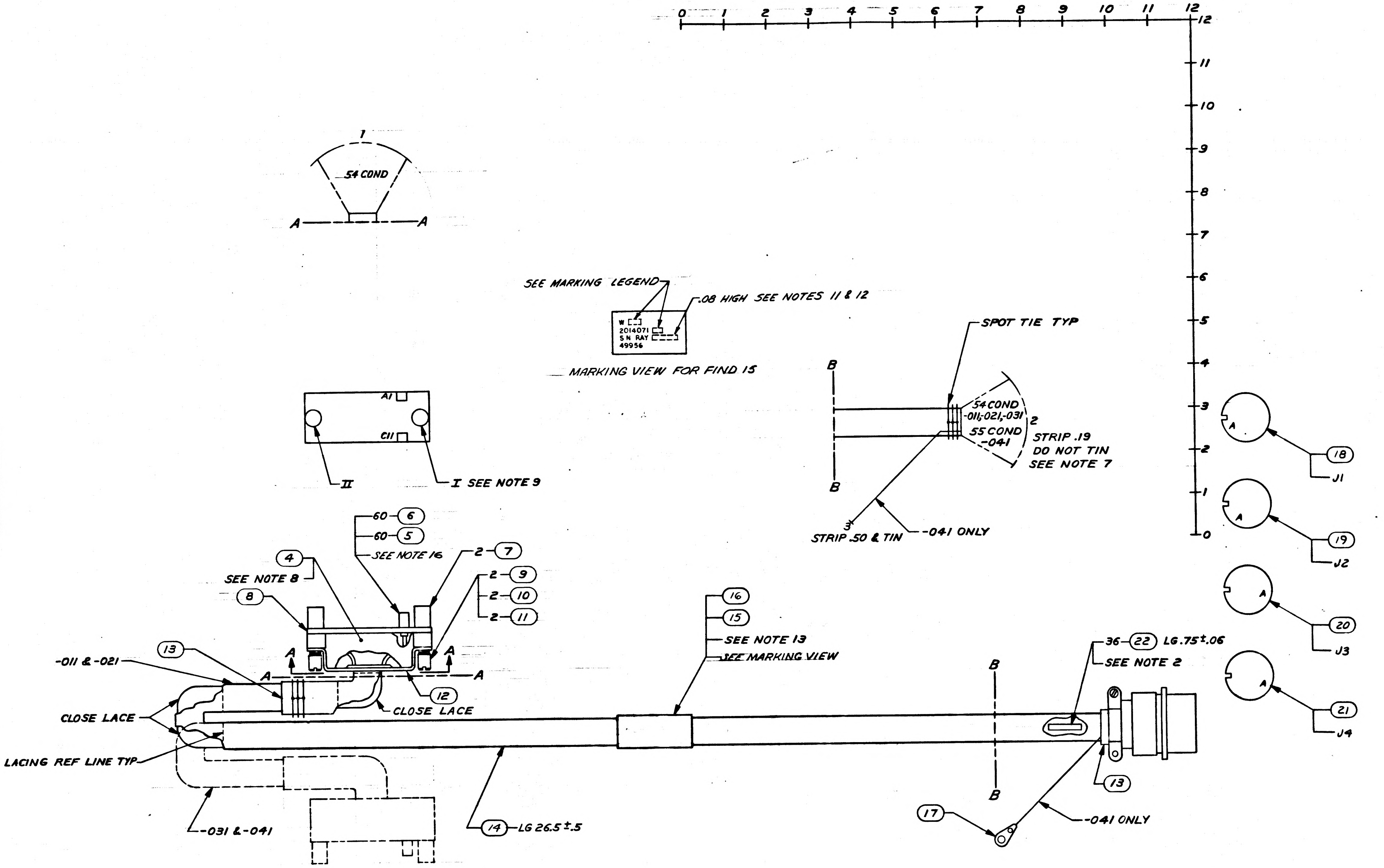
CABLE ASSY
W6, W7, W8, W9
COMPUTER SIMULATOR

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014071
SCALE NONE
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

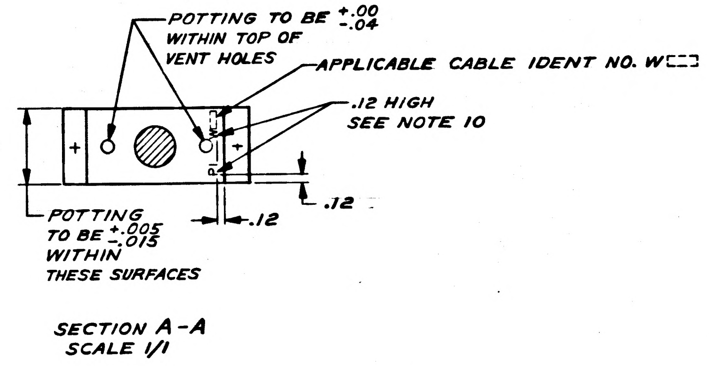
2014071 -

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 35091	11/4/6	A. Henry
-	CLASS A RELEASE PER TDRR 1380		



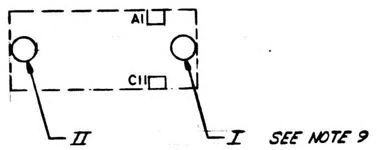
0 1 2 3 4 5 6 7 8 9 10 11 12
12 11 10 9 8 7 6 5 4 3 2 1 0
1
54 COND
A A
SEE MARKING LEGEND
.08 HIGH SEE NOTES 11 & 12
W
2014071
S N RAY
49956
MARKING VIEW FOR FIND 15
SPOT TIE TYP
B B
54 COND -011,-021,-031
2
55 COND -041
STRIP .19 DO NOT TIN SEE NOTE 7
3
STRIP .50 & TIN
-041 ONLY
A1
C11
II
I SEE NOTE 9
A 18 J1
A 19 J2
A 20 J3
A 21 J4
60 6
60 5
SEE NOTE 16
2 7
2 9
2 10
2 11
4
SEE NOTE 8
8
A A
16
15
SEE NOTE 13
SEE MARKING VIEW
13
-011 & -021
12
CLOSE LACE
CLOSE LACE
LACING REF LINE TYP
-031 & -041
14 LG 26.5±.5
B B
36 22 LG.75±.06
SEE NOTE 2
13
17
-041 ONLY

PART NO.	KEY CODING POSITION		MARKING LEGEND
	I	II	
2014071-011	B	K	W6
2014071-021	B	L	W7
2014071-031	B	M	W8
2014071-041	B	N	W9



POTTING TO BE +.00 -.04 WITHIN TOP OF VENT HOLES
APPLICABLE CABLE IDENT NO. W
.12 HIGH SEE NOTE 10
.12
.12
POTTING TO BE +.005 -.015 WITHIN THESE SURFACES

SECTION A-A
SCALE 1/1



A1
C11
II
I SEE NOTE 9

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 23
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. AR DENOTES AS REQUIRED
4. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
5. STRIP ALL LEADS .25 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. LACE CABLE CONFIGURATION AT INDICATED AREAS ONLY
7. CRIMP PER ND1002206
8. FILL WITH FIND NO.4 PER ND1002009, METHOD E PRIME WITH 1010718
9. LOCATE KEY IN POSITION PER KEY CODING CHART USING DRAWING NUMBER 1014047
10. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1
11. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
12. SERIALIZE PER ND1002023
13. BOND USING FIND NO. 16
14. MIL-I-23053 CLASS I, COLOR WHITE, ID .125
15. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
16. SEAL INSULATORS & TERMINALS PER ND1002004 TYPE VI

	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	AR	AR	AR	AR	1006458-004	TAPE, LACING	23
**	2.2	2.2	2.2	2.2	SEE NOTE 14	SLEEVING	22
	1	–	–	–	MS3120F-22-55PY	CONN, RECP	21
	–	1	–	–	MS3120F-22-55SX	CONN, RECP	20
	–	–	1	–	MS3120F-22-55SW	CONN, RECP	19
	–	–	–	1	MS3120F-22-55S	CONN, RECP	18
	1	–	–	–	MS35431-3	LUG, TERM	17
	AR	AR	AR	AR	1006253	ADHESIVE	16
	1	1	1	1	1006415 135	BAND MARKER, CABLE	15
**	2.3	2.3	2.3	2.3	1006696-4	INSULATION SLEEVING	14
	2	2	2	2	MS39056-6	BUSHING	13
	1	1	1	1	1014024-4	BRKT, ANGLE	12
	2	2	2	2	1006997	WASHER, PLAIN, FLAT	11
	2	2	2	2	MS35337-79	WASHER, LOCK	10
	2	2	2	2	1006998-1	SCREW, CAPTIVE	9
	1	1	1	1	1014021	PLATE, CONN	8
	2	2	2	2	1014032	RECP, INDEXING	7
	60	60	60	60	1010380	INSULATOR, BUSHING, FEMALE	6
	60	60	60	60	1010379-1	CONTACT, ELEC, FEMALE	5
	AR	AR	AR	AR	1006683	COMPOUND, SILICONE RUBBER	4
**	0.5	–	–	–	MIL-W-16878/4 E20 BLK	WIRE, ELEC	3
**	55.0	50.0	50.0	50.0	MIL-W-16878/4 E20 WHT	WIRE, ELEC	2
**	55.0	50.0	50.0	50.0	1014341-2	WIRE, ELEC	1

LIST OF MATERIALS

** DENOTES LENGTH IN FEET

2014048	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12275
DRAWN DATE 4/27/65
CHECKED 12 May 65
APPROVAL 8 July 65
APPROVAL 8 July 65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSY
W6, W7, W8, W9
COMPUTER SIMULATOR

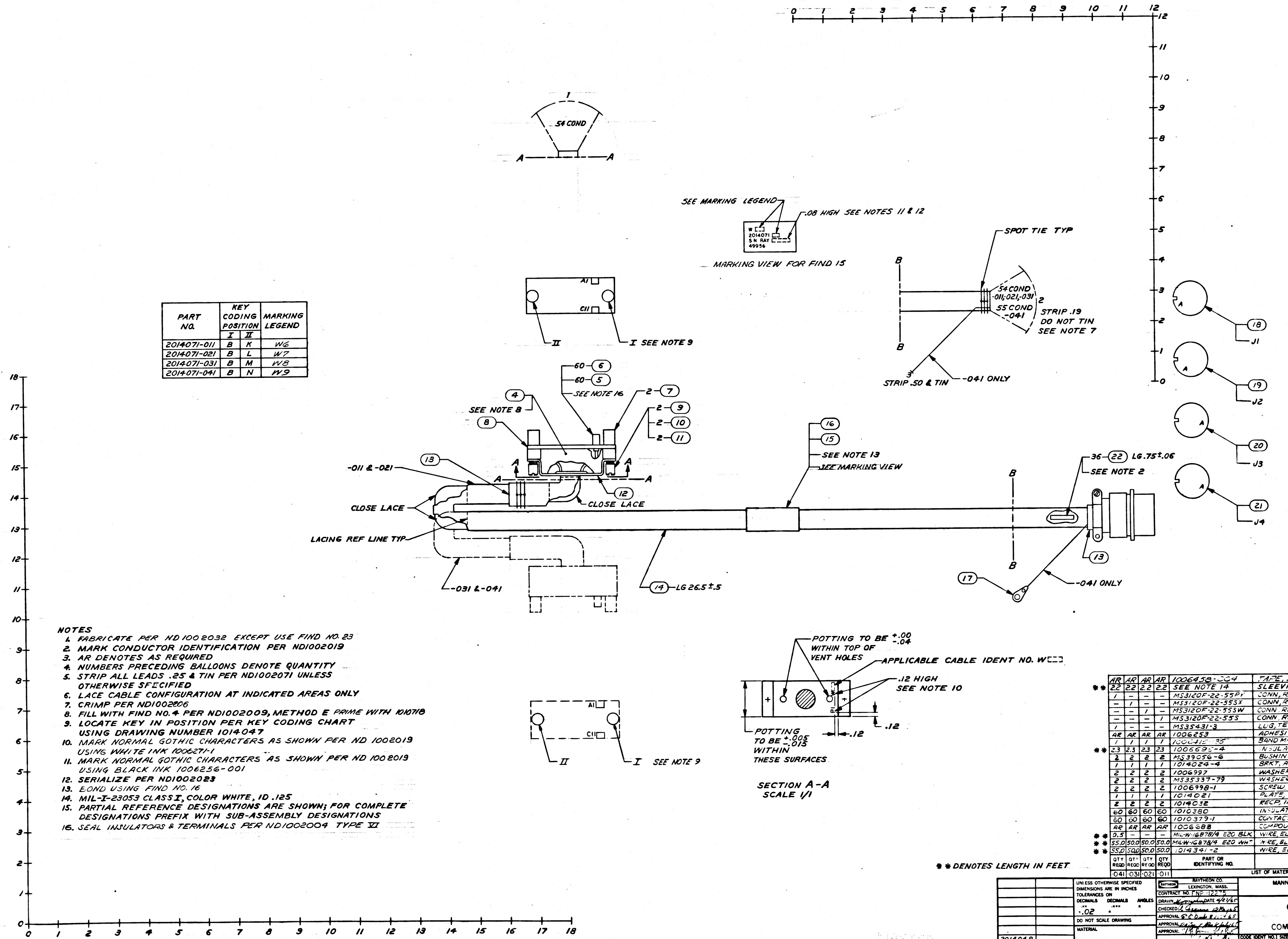
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014071
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014071

F2

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER [illegible] 35091	[illegible]	[illegible]
—	CLASS A RELEASE PER TDRR [illegible]390		



54 COND
A — A
SEE MARKING LEGEND
.08 HIGH SEE NOTES 11 & 12
W [ ]
2014071
SN RAY
49956
MARKING VIEW FOR FIND 15
SPOT TIE TYP
54 COND -011,-021,-031
55 COND -041
2
STRIP .19 DO NOT TIN SEE NOTE 7
B
3
STRIP .50 & TIN
-041 ONLY
A1
C11
II
I SEE NOTE 9
60-6
60-5
SEE NOTE 16
4
SEE NOTE 8
8
2-7
2-9
2-10
2-11
16
15
SEE NOTE 13
SEE MARKING VIEW
-011 & -021
13
CLOSE LACE
12
CLOSE LACE
LACING REF LINE TYP
-031 & -041
14 -LG 26.5 ±.5
36-22 LG.75±.06
SEE NOTE 2
13
17
-041 ONLY
18 J1
19 J2
20 J3
21 J4
A
I SEE NOTE 9
POTTING TO BE +.00 -.04 WITHIN TOP OF VENT HOLES
APPLICABLE CABLE IDENT NO. W[ ]
.12 HIGH SEE NOTE 10
POTTING TO BE +.005 -.015 WITHIN THESE SURFACES
.12
.12
SECTION A-A
SCALE 1/1

PART NO.	KEY CODING POSITION I	KEY CODING POSITION II	MARKING LEGEND
2014071-011	B	K	W6
2014071-021	B	L	W7
2014071-031	B	M	W8
2014071-041	B	N	W9

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 23
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. AR DENOTES AS REQUIRED
4. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
5. STRIP ALL LEADS .25 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. LACE CABLE CONFIGURATION AT INDICATED AREAS ONLY
7. CRIMP PER ND1002206
8. FILL WITH FIND NO. 4 PER ND1002009, METHOD E PRIME WITH 1010718
9. LOCATE KEY IN POSITION PER KEY CODING CHART USING DRAWING NUMBER 1014047
10. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1
11. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
12. SERIALIZE PER ND1002023
13. BOND USING FIND NO. 16
14. MIL-I-23053 CLASS I, COLOR WHITE, ID .125
15. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
16. SEAL INSULATORS & TERMINALS PER ND1002004 TYPE VI

	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	AR	AR	AR	AR	1006458-004	TAPE, LACING	23
**	2.2	2.2	2.2	2.2	SEE NOTE 14	SLEEVING	22
	1	—	—	—	MS3120F-22-55PY	CONN, RECP	21
	—	1	—	—	MS3120F-22-55SX	CONN, RECP	20
	—	—	1	—	MS3120F-22-55SW	CONN, RECP	19
	—	—	—	1	MS3120F-22-55S	CONN, RECP	18
	1	—	—	—	MS35431-3	LUG, TERM	17
	AR	AR	AR	AR	1006253	ADHESIVE	16
	1	1	1	1	1006415-135	BAND MARKER, CABLE	15
**	2.3	2.3	2.3	2.3	1006695-4	INSULATION SLEEVING	14
	2	2	2	2	MS39056-6	BUSHING	13
	1	1	1	1	1014024-4	BRKT, ANGLE	12
	2	2	2	2	1006997	WASHER, PLAIN, FLAT	11
	2	2	2	2	MS35337-79	WASHER, LOCK	10
	2	2	2	2	1006998-1	SCREW, CAPTIVE	9
	1	1	1	1	1014021	PLATE, CONN	8
	2	2	2	2	1014032	RECP, INDEXING	7
	60	60	60	60	1010380	INSULATOR, BUSHING, FEMALE	6
	60	60	60	60	1010379-1	CONTACT, ELEC, FEMALE	5
	AR	AR	AR	AR	1006688	COMPOUND, SILICONE RUBBER	4
**	0.5	—	—	—	MIL-W-16878/4 E20 BLK	WIRE, ELEC	3
**	55.0	50.0	50.0	50.0	MIL-W-16878/4 E20 WHT	WIRE, ELEC	2
**	55.0	50.0	50.0	50.0	1014341-2	WIRE, ELEC	1

LIST OF MATERIALS

** DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014048	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12275
DRAWN [illegible] DATE 4/27/65
CHECKED [illegible] 12 May 65
APPROVAL [illegible] 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSY
W6, W7, W8, W9
COMPUTER SIMULATOR

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014071
SCALE 1/1
WT
SHEET OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014071 —

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25041	7/9/65	G Naraniz
—	CLASS A RELEASE PER TDRR 2.380		

ASSEMBLY INFORMATION CHART

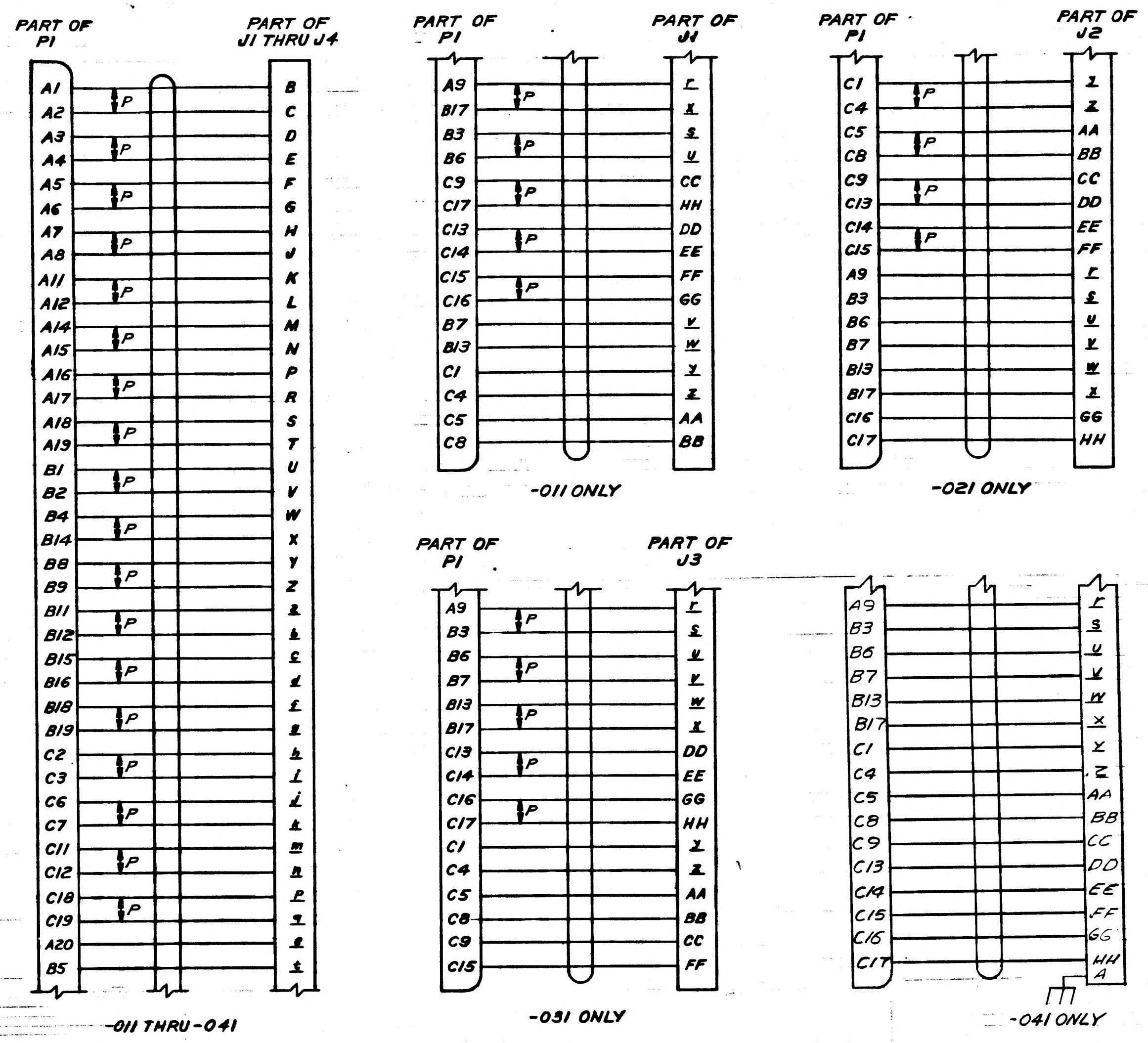
	FROM			DESCRIPTION			TO					
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES-011	DES-021	DES-031	DES-041	
	A1	1	P1-A1	WHT	20	1	2	J1-B	J2-B	J3-B	J4-B	
			P1-A2	BLU				J1-C	J2-C	J3-C	J4-C	
	A2	1	P1-A3	WHT	20	1	2	J1-D	J2-D	J3-D	J4-D	
			P1-A4	BLU				J1-E	J2-E	J3-E	J4-E	
	A3	1	P1-A5	WHT	20	1	2	J1-F	J2-F	J3-F	J4-F	
			P1-A6	BLU				J1-G	J2-G	J3-G	J4-G	
	A4	1	P1-A7	WHT	20	1	2	J1-H	J2-H	J3-H	J4-H	
			P1-A8	BLU				J1-J	J2-J	J3-J	J4-J	
	A5	1	P1-A11	WHT	20	1	2	J1-K	J2-K	J3-K	J4-K	
			P1-A12	BLU				J1-L	J2-L	J3-L	J4-L	
	A6	1	P1-A14	WHT	20	1	2	J1-M	J2-M	J3-M	J4-M	
			P1-A15	BLU				J1-N	J2-N	J3-N	J4-N	
	A7	1	P1-A16	WHT	20	1	2	J1-P	J2-P	J3-P	J4-P	
			P1-A17	BLU				J1-R	J2-R	J3-R	J4-R	
	A8	1	P1-A18	WHT	20	1	2	J1-S	J2-S	J3-S	J4-S	
			P1-A19	BLU				J1-T	J2-T	J3-T	J4-T	
	A9	1	P1-B1	WHT	20	1	2	J1-U	J2-U	J3-U	J4-U	
			P1-B2	BLU				J1-V	J2-V	J3-V	J4-V	
	A10	1	P1-B4	WHT	20	1	2	J1-W	J2-W	J3-W	J4-W	
			P1-B14	BLU				J1-X	J2-X	J3-X	J4-X	
	A11	1	P1-B8	WHT	20	1	2	J1-Y	J2-Y	J3-Y	J4-Y	
			P1-B9	BLU				J1-Z	J2-Z	J3-Z	J4-Z	
	A12	1	P1-B11	WHT	20	1	2	J1-a	J2-a	J3-a	J4-a	
			P1-B12	BLU				J1-b	J2-b	J3-b	J4-b	
	A13	1	P1-B15	WHT	20	1	2	J1-c	J2-c	J3-c	J4-c	
			P1-B16	BLU				J1-d	J2-d	J3-d	J4-d	
	A14	1	P1-B18	WHT	20	1	2	J1-f	J2-f	J3-f	J4-f	
			P1-B19	BLU				J1-g	J2-g	J3-g	J4-g	
	A15	1	P1-C2	WHT	20	1	2	J1-h	J2-h	J3-h	J4-h	
			P1-C3	BLU				J1-i	J2-i	J3-i	J4-i	
	A16	1	P1-C6	WHT	20	1	2	J1-j	J2-j	J3-j	J4-j	
			P1-C7	BLU				J1-k	J2-k	J3-k	J4-k	
	A17	1	P1-C11	WHT	20	1	2	J1-m	J2-m	J3-m	J4-m	
			P1-C12	BLU				J1-n	J2-n	J3-n	J4-n	
	A18	1	P1-C18	WHT	20	1	2	J1-p	J2-p	J3-p	J4-p	
			P1-C19	BLU				J1-q	J2-q	J3-q	J4-q	
	A19	1	P1-A9	WHT	20	2	2	J1-r	J2-r	J3-r	J4-r	*
	A20	1	P1-B3					J1-s	J2-s	J3-s	J4-s	*
	A21	1	P1-B5					J1-t	J2-t	J3-t	J4-t	
	A22	1	P1-B6					J1-u	J2-u	J3-u	J4-u	*
	A23	1	P1-B7					J1-v	J2-v	J3-v	J4-v	*
	A24	1	P1-B13					J1-w	J2-w	J3-w	J4-w	*
	A25	1	P1-B17					J1-x	J2-x	J3-x	J4-x	*
	A26	1	P1-C1					J1-y	J2-y	J3-y	J4-y	*
	A27	1	P1-C4					J1-z	J2-z	J3-z	J4-z	*
	A28	1	P1-C5					J1-AA	J2-AA	J3-AA	J4-AA	*
	A29	1	P1-C8					J1-BB	J2-BB	J3-BB	J4-BB	*
	A30	1	P1-C9					J1-CC	J2-CC	J3-CC	J4-CC	*
	A31	1	P1-C13					J1-DD	J2-DD	J3-DD	J4-DD	*
	A32	1	P1-C14					J1-EE	J2-EE	J3-EE	J4-EE	*
	A33	1	P1-C15					J1-FF	J2-FF	J3-FF	J4-FF	*
	A34	1	P1-C16					J1-GG	J2-GG	J3-GG	J4-GG	*
	A35	1	P1-C17					J1-HH	J2-HH	J3-HH	J4-HH	
	A36	1	P1-A20	WHT	20	2	2	J1-e	J2-e	J3-e	J4-e	
	A37	3	GRD	BLK	20	3	2	—	—	—	J4-A	

*SEE APPLICABLE TWIST CHART

TWIST CHART-011		
COND IDENT	WITH	COND IDENT
A19		A25
A20		A22
A30		A35
A31		A32
A33	WITH	A34

TWIST CHART-021		
COND IDENT	WITH	COND IDENT
A26		A27
A28		A29
A30		A31
A32	WITH	A33

TWIST CHART-031		
COND IDENT	WITH	COND IDENT
A19		A20
A22		A23
A24		A25
A31		A32
A34	WITH	A35


PART OF P1
PART OF J1 THRU J4
A1 A2 A3 A4 A5 A6 A7 A8 A11 A12 A14 A15 A16 A17 A18 A19 B1 B2 B4 B14 B8 B9 B11 B12 B15 B16 B18 B19 C2 C3 C6 C7 C11 C12 C18 C19 A20 B5
B C D E F G H J K L M N P R S T U V W X Y Z a b c d f g h i j k m n p q e t
P
-011 THRU -041
PART OF P1
PART OF J1
-011 ONLY
PART OF P1
PART OF J2
-021 ONLY
PART OF P1
PART OF J3
-031 ONLY
-041 ONLY

ELECTRICAL SCHEMATIC
W6 THRU W9

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP 12775
DRAWN B Jutler DATE 3MAY65
CHECKED B Caggiano 12May65
APPROVAL Q.C. Ouk 8 Jul 65
APPROVAL D. Ungent 8 Jul 65
APPROVAL 7/8/65
NASA APPROVAL
MIT APPROVAL 3 Jun 65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSY
W6, W7, W8, W9
COMPUTER SIMULATOR

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014071
SCALE NONE
WT
SHEET 2 OF 2

2014071 —

F-2

Sym	Description	Date	Approved
O	RELEASED PER CCA 85C31	[illegible]	[illegible]
–	CLASS A RELEASE PER TDRR 21358		

ASSEMBLY INFORMATION CHART

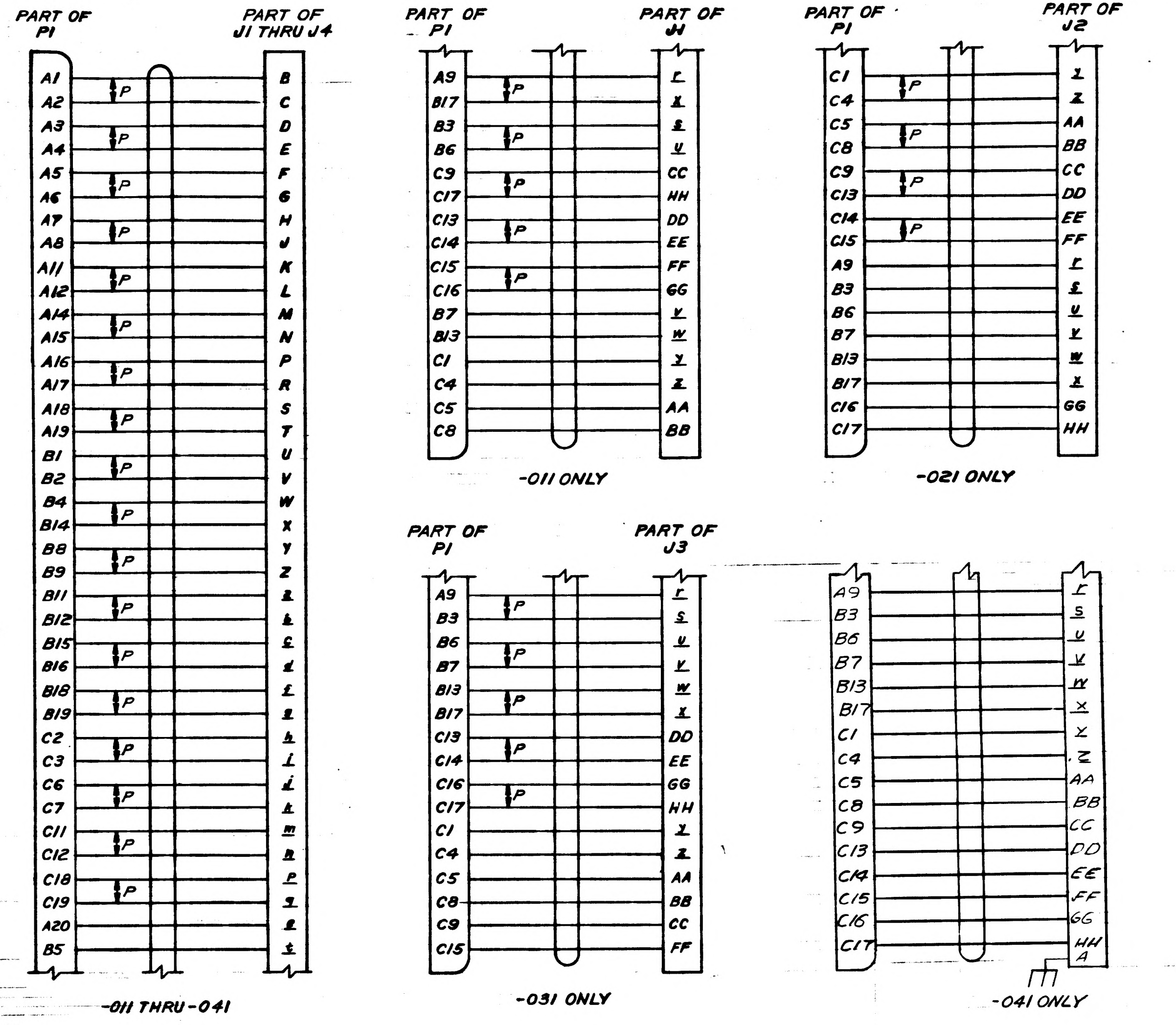
	FROM			DESCRIPTION			TO					
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES-011	DES-021	DES-031	DES-041	
	A1	1	P1-A1	WHT	20	1	2	J1-B	J2-B	J3-B	J4-B	
			P1-A2	BLU				J1-C	J2-C	J3-C	J4-C	
	A2	1	P1-A3	WHT	20	1	2	J1-D	J2-D	J3-D	J4-D	
			P1-A4	BLU				J1-E	J2-E	J3-E	J4-E	
	A3	1	P1-A5	WHT	20	1	2	J1-F	J2-F	J3-F	J4-F	
			P1-A6	BLU				J1-G	J2-G	J3-G	J4-G	
	A4	1	P1-A7	WHT	20	1	2	J1-H	J2-H	J3-H	J4-H	
			P1-A8	BLU				J1-J	J2-J	J3-J	J4-J	
	A5	1	P1-A11	WHT	20	1	2	J1-K	J2-K	J3-K	J4-K	
			P1-A12	BLU				J1-L	J2-L	J3-L	J4-L	
	A6	1	P1-A14	WHT	20	1	2	J1-M	J2-M	J3-M	J4-M	
			P1-A15	BLU				J1-N	J2-N	J3-N	J4-N	
	A7	1	P1-A16	WHT	20	1	2	J1-P	J2-P	J3-P	J4-P	
			P1-A17	BLU				J1-R	J2-R	J3-R	J4-R	
	A8	1	P1-A18	WHT	20	1	2	J1-S	J2-S	J3-S	J4-S	
			P1-A19	BLU				J1-T	J2-T	J3-T	J4-T	
	A9	1	P1-B1	WHT	20	1	2	J1-U	J2-U	J3-U	J4-U	
			P1-B2	BLU				J1-V	J2-V	J3-V	J4-V	
	A10	1	P1-B4	WHT	20	1	2	J1-W	J2-W	J3-W	J4-W	
			P1-B14	BLU				J1-X	J2-X	J3-X	J4-X	
	A11	1	P1-B8	WHT	20	1	2	J1-Y	J2-Y	J3-Y	J4-Y	
			P1-B9	BLU				J1-Z	J2-Z	J3-Z	J4-Z	
	A12	1	P1-B11	WHT	20	1	2	J1-a	J2-a	J3-a	J4-a	
			P1-B12	BLU				J1-b	J2-b	J3-b	J4-b	
	A13	1	P1-B15	WHT	20	1	2	J1-c	J2-c	J3-c	J4-c	
			P1-B16	BLU				J1-d	J2-d	J3-d	J4-d	
	A14	1	P1-B18	WHT	20	1	2	J1-f	J2-f	J3-f	J4-f	
			P1-B19	BLU				J1-g	J2-g	J3-g	J4-g	
	A15	1	P1-C2	WHT	20	1	2	J1-h	J2-h	J3-h	J4-h	
			P1-C3	BLU				J1-i	J2-i	J3-i	J4-i	
	A16	1	P1-C6	WHT	20	1	2	J1-j	J2-j	J3-j	J4-j	
			P1-C7	BLU				J1-k	J2-k	J3-k	J4-k	
	A17	1	P1-C11	WHT	20	1	2	J1-m	J2-m	J3-m	J4-m	
			P1-C12	BLU				J1-n	J2-n	J3-n	J4-n	
	A18	1	P1-C18	WHT	20	1	2	J1-p	J2-p	J3-p	J4-p	
			P1-C19	BLU				J1-q	J2-q	J3-q	J4-q	
	A19	1	P1-A9	WHT	20	2	2	J1-r	J2-r	J3-r	J4-r	*
	A20	1	P1-B3					J1-s	J2-s	J3-s	J4-s	*
	A21	1	P1-B5					J1-t	J2-t	J3-t	J4-t	
	A22	1	P1-B6					J1-u	J2-u	J3-u	J4-u	*
	A23	1	P1-B7					J1-v	J2-v	J3-v	J4-v	*
	A24	1	P1-B13					J1-w	J2-w	J3-w	J4-w	*
	A25	1	P1-B17					J1-x	J2-x	J3-x	J4-x	*
	A26	1	P1-C1					J1-y	J2-y	J3-y	J4-y	*
	A27	1	P1-C4					J1-z	J2-z	J3-z	J4-z	*
	A28	1	P1-C5					J1-AA	J2-AA	J3-AA	J4-AA	*
	A29	1	P1-C8					J1-BB	J2-BB	J3-BB	J4-BB	*
	A30	1	P1-C9					J1-CC	J2-CC	J3-CC	J4-CC	*
	A31	1	P1-C13					J1-DD	J2-DD	J3-DD	J4-DD	*
	A32	1	P1-C14					J1-EE	J2-EE	J3-EE	J4-EE	*
	A33	1	P1-C15					J1-FF	J2-FF	J3-FF	J4-FF	*
	A34	1	P1-C16					J1-GG	J2-GG	J3-GG	J4-GG	*
	A35	1	P1-C17					J1-HH	J2-HH	J3-HH	J4-HH	
	A36	1	P1-A20	WHT	20	2	2	J1-e	J2-e	J3-e	J4-e	
	A37	3	GRD	BLK	20	3	2	——	——	——	J4-A	

* SEE APPLICABLE TWIST CHART

TWIST CHART-011		
COND IDENT	WITH	COND IDENT
A19	↕	A25
A20		A22
A30		A35
A31		A32
A33	WITH	A34

TWIST CHART-021		
COND IDENT	WITH	COND IDENT
A26	↕	A27
A28		A29
A30		A31
A32	WITH	A33

TWIST CHART-031		
COND IDENT	WITH	COND IDENT
A19	↕	A20
A22		A23
A24		A25
A31		A32
A34	WITH	A35



ELECTRICAL SCHEMATIC
W6 THRU W9

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP 12775
DRAWN [illegible] DATE 3 MAY 65
CHECKED [illegible] 12 May 65
APPROVAL [illegible] 8 JULY 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1965

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

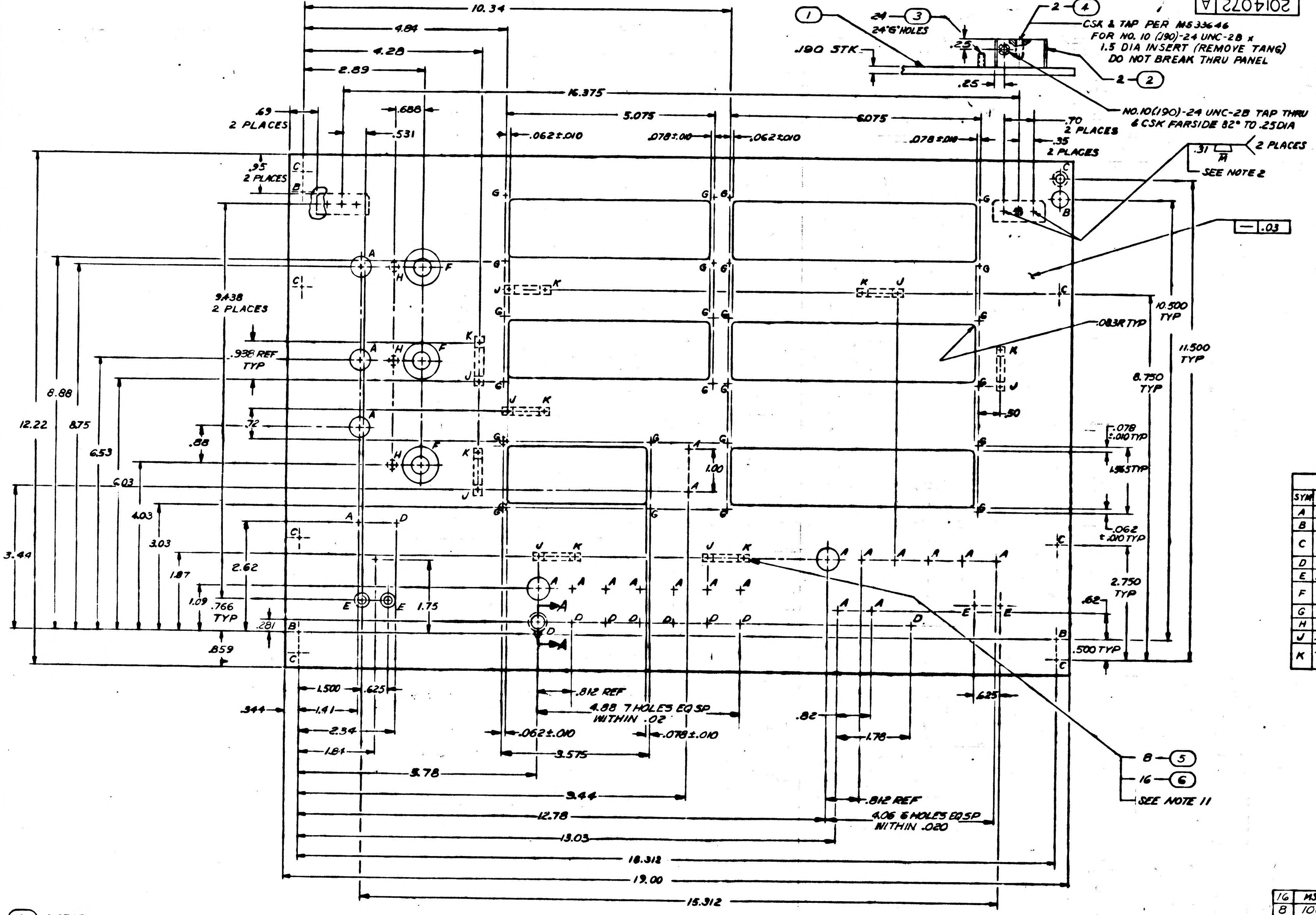
CABLE ASSY
W6, W7, W8, W9
COMPUTER SIMULATOR

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014071
SCALE NONE
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

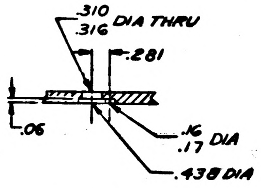
SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER 55058		
1	CHANGED PER CCA R25127 DR CHK APPD	9 Oct 65	13 Oct
2	CHANGED PER CCA R25269 DR A.J. Bim CHK APPD		
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26467 DR E. Uftring CHK APPD	3/24/66	

2014072 A



1
24 — 3
24 "G" HOLES
2 — 4
CSK & TAP PER MS33646
FOR NO. 10 (.190)-24 UNC-2B x
1.5 DIA INSERT (REMOVE TANG)
DO NOT BREAK THRU PANEL
.190 STK
.25
.25
2 — 2
NO.10(.190)-24 UNC-2B TAP THRU
& CSK FARSIDE 82° TO .25DIA
.31 M 2 PLACES
SEE NOTE 2
— .03
10.34
4.84
4.28
2.89
16.375
5.075
6.075
.69 2 PLACES
.688
.531
.062±.010
.078±.010
.70 2 PLACES
.35 2 PLACES
.95 2 PLACES
9.438 2 PLACES
.938 REF TYP
.083R TYP
10.500 TYP
11.500 TYP
8.750 TYP
.50
.078 ±.010 TYP
1.00
1.565 TYP
.062 ±.010 TYP
2.750 TYP
.62
.500 TYP
12.22
8.88
8.75
6.53
6.03
4.03
3.44
3.03
2.62
1.87
1.09
.766 TYP
.281
.859
.88
.72
1.75
.344
1.500
.625
1.41
2.34
1.84
.812 REF
4.88 7 HOLES EQ SP WITHIN .02
.062±.010
.078±.010
3.575
5.78
9.44
12.78
13.03
18.312
19.00
15.312
.82
1.78
.625
.812 REF
4.06 6 HOLES EQ SP WITHIN .020
8 — 5
16 — 6
SEE NOTE 11
A
B
C
D
E
F
G
H
J
K

SYM	DESCRIPTION	QTY
HOLE LEGEND		
A	.480 DIA	21
B	.375 DIA	4
C	.184/.191 DIA THRU & CSK FARSIDE 82° x .34/.35	8
D	SEE SECTION A-A	10
E	.184/.191 DIA THRU & CSK 82° x .34/.35 DIA	4
F	.39/.42 DIA THRU & C BORE .88/.90 DIA x .115/.135 DEEP	3
G	C BORE FARSIDE .172/.175 DIA x .080 DP	24
H	C BORE FARSIDE .165 DIA x .13/.14 DP	3
J	.067/.070 DIA THRU & CSK 100° x .100/.110 DIA	8
K	.067/.070 DIA THRU & CSK 100° x .100/.110 DIA SEE NOTE 10	8



.310
.316 DIA THRU
.281
.06
.16
.17 DIA
.438 DIA

SECTION A-A
ROTATED 90° CCW
10 PLACES MARKED 'D'

1 NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. WELD PER MIL-W-8604
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELEC CONDUCTIVE
4. EXCEPT SURFACE A PAINT FRONT, EDGES & AREAS INDICATED 2 COATS TT-E-529 CL E FED-STD-595 COLOR NO. 26440 PER MIL-F-14072, P513, TYPE I
5. PAINT SURFACE A 2 COATS TT-E-529 CL B, FED-STD-595 COLOR NO. 26251 PER MIL-F-14072, P513, TYPE I
6. SILKSCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. SILKSCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
9. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
10. LOCATE USING FIND NO. 5 AS TEMPLATE
11. HEAD OF FIND NO. 6 SHALL BE GROUND FLUSH TO SURFACE OF FIND NO. 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
16	MS20426A2-6	RIVET, CSK HD	6
8	1004844-3	STRAP, RETAINING	5
2	MS122120	INSERT, SCREW THREAD	4
24	1006951-001	STUD	3
2	2014072-002	BLOCK	2
1	2014072-001	PANEL	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014226	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ± 1°
DO NOT SCALE DRAWING

MATERIAL
6061-T6 AL PER QQ-A-250/11

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE MAY 3, 65
CHECKED
APPROVAL G.E. Dub 21 JULY 65
APPROVAL 7/21/65
APPROVAL 7/21/65
NASA APPROVAL A. CIMPITCHER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

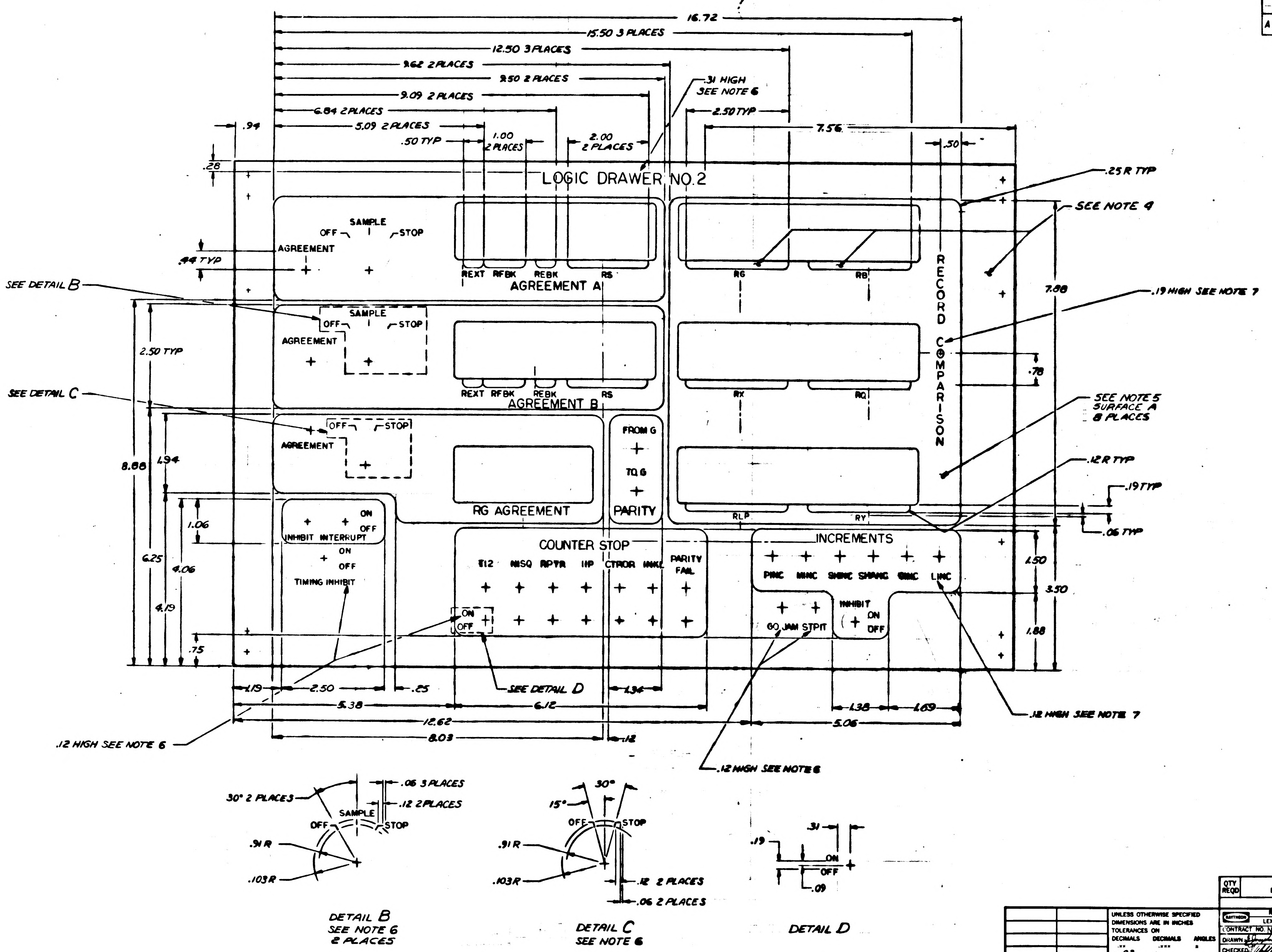
FRONT PANEL
LOGIC DRAWER NO.2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014072
SCALE 1/1
WT —
SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014072 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER 25059	7/23/65	
1	CHANGED PER CCA R25127A DR D. Bolinger CHK E. Urban APPD	19 Oct 65	
2	CHANGED PER CCA R25269 DR O. J. Bianco CHK E. Urban APPD	11/17/65	
–	CLASS A RELEASED PER TDRR 25472	–	
A	CHANGED PER TDRR 26467 DR E. Uffring CHK /APPD	2/24/66	


LOGIC DRAWER NO.2
SAMPLE
OFF
STOP
AGREEMENT
REXT
RFBK
REBK
RS
AGREEMENT A
AGREEMENT B
RG AGREEMENT
FROM G
TO G
PARITY
RG
RB
RX
RQ
RLP
RY
RECORD COMPARISON
ON
OFF
INHIBIT INTERRUPT
TIMING INHIBIT
COUNTER STOP
T12
NISQ
RPTR
IIP
CTROR
INKL
PARITY FAIL
INCREMENTS
PINC
MINC
SHINC
SHANC
DINC
LINC
GO JAM STPIT
INHIBIT
16.72
15.50 3 PLACES
12.50 3 PLACES
9.62 2 PLACES
9.50 2 PLACES
9.09 2 PLACES
6.84 2 PLACES
5.09 2 PLACES
.50 TYP
1.00 2 PLACES
2.00 2 PLACES
.31 HIGH SEE NOTE 6
2.50 TYP
7.56
.50
.94
.28
.44 TYP
.25 R TYP
SEE NOTE 4
7.88
.19 HIGH SEE NOTE 7
.78
SEE NOTE 5 SURFACE A 8 PLACES
.12 R TYP
.19 TYP
.06 TYP
SEE DETAIL B
SEE DETAIL C
SEE DETAIL D
2.50 TYP
8.88
1.94
1.06
6.25
4.06
4.19
.75
1.50
3.50
1.88
.19
2.50
.25
5.38
6.12
1.34
1.38
1.69
12.62
5.06
8.03
.12
.12 HIGH SEE NOTE 6
.12 HIGH SEE NOTE 6
.12 HIGH SEE NOTE 7
30° 2 PLACES
.06 3 PLACES
.12 2 PLACES
.91 R
.103 R
DETAIL B
SEE NOTE 6
2 PLACES
30°
15°
.12 2 PLACES
.06 2 PLACES
DETAIL C
SEE NOTE 6
.31
.19
.09
DETAIL D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE MAY 4, 65
CHECKED
APPROVAL 21 MAY 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL
LOGIC DRAWER NO.2
COMPUTER TEST SET

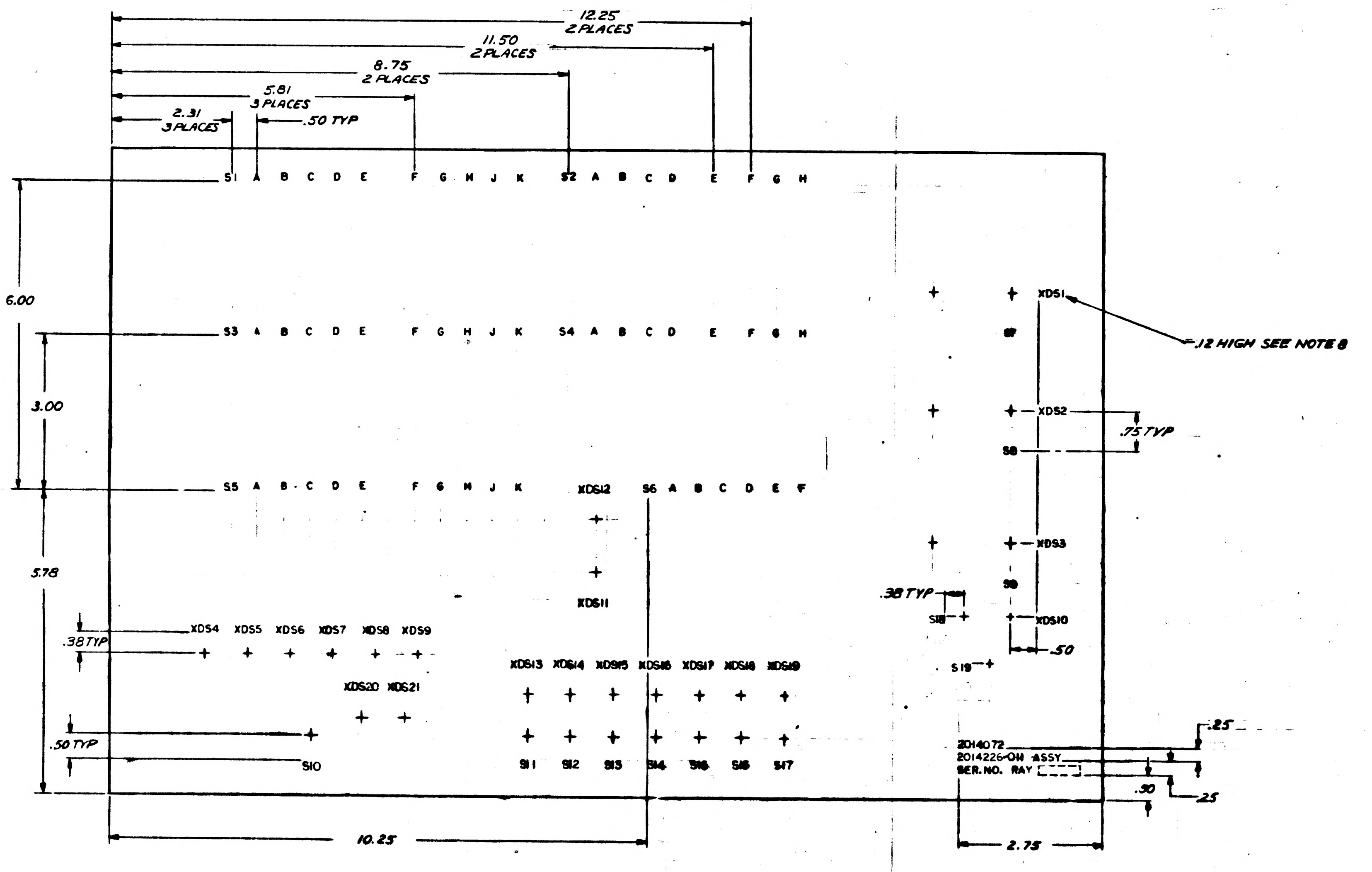
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014072
SCALE 1/1
WT –
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014072

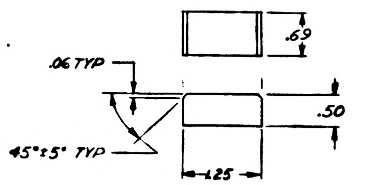
2014072 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER 25059	7/23/65	
1	CHANGED PER CCA R25127 A DR P. Winfield CHK E. Urban APPD	11 Oct 65	
2	CHANGED PER CCA R25269 DR A. J. Brian CHK E. Urban APPD	4/1/65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26467 DR E. Whiting CHK ~~Winfield~~ APPD	2/24/66	



12.25 2 PLACES
11.50 2 PLACES
8.75 2 PLACES
5.81 3 PLACES
2.31 3 PLACES
.50 TYP
S1 A B C D E F G H J K S2 A B C D E F G H
S3 A B C D E F G H J K S4 A B C D E F G H
S5 A B C D E F G H J K XDS12 S6 A B C D E F
6.00
3.00
5.78
XDS1
.12 HIGH SEE NOTE 8
XDS2
.75 TYP
S8
XDS3
S9
.38 TYP
S18
XDS10
.50
S19
XDS11
XDS4 XDS5 XDS6 XDS7 XDS8 XDS9
.38 TYP
XDS20 XDS21
XDS13 XDS14 XDS15 XDS16 XDS17 XDS18 XDS19
.50 TYP
S10
S11 S12 S13 S14 S15 S16 S17
2014072
2014226-011 ASSY
SER. NO. RAY
.25
.30
.25
10.25
2.75

REAR OF PANEL



.69
.06 TYP
.50
45°±5° TYP
.125

② NOTES

1. MATL AL6061-T6 PER QQ-A-250/11
2. REMOVE BURRS & SHARP EDGES .005/.020
3. TOL XX ±.02

2014072-002
BLOCK

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE MAY 3 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. O. METZGER
MIT APPROVAL
MIT APPROVAL

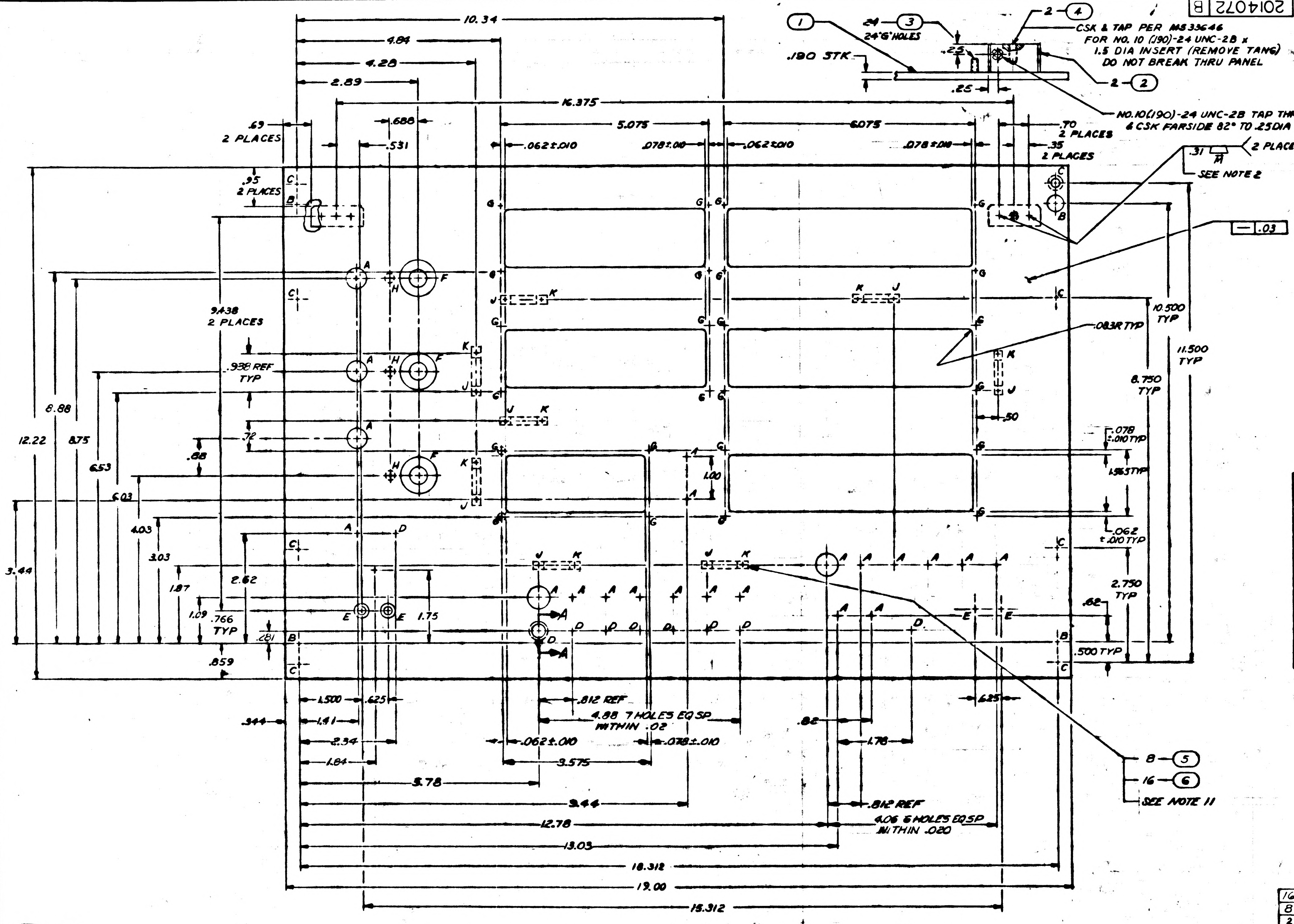
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

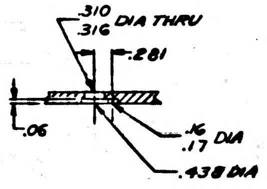
FRONT PANEL
LOGIC DRAWER NO.2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014072
SCALE 1/1
WT —
SHEET 3 OF 3

2014072 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER 25059		
1	CHANGED PER CCA R25127 DR CHK APPD		
2	CHANGED PER CCA R25269 DR A.J. CHK APPD		
—	CLASS A RELEASED PER TDRR 25072		
A	CHANGED PER TDRR 26467 DR E. Uftring CHK APPD	3/24/66	
B	CHANGED PER TDRR 26700 DR CHK APPD	3/1/66	


2014072 B
10.34
4.84
4.28
2.89
16.375
.688
.531
5.075
6.075
.69
2 PLACES
.062±.010
.078±.010
.062±.010
.078±.010
.70
2 PLACES
.35
2 PLACES
1
24 — 3
24 "G" HOLES
.190 STK
.25
.25
2 — 4
CSK & TAP PER MS33646
FOR NO. 10 (.190)-24 UNC-2B x
1.5 DIA INSERT (REMOVE TANG)
DO NOT BREAK THRU PANEL
2 — 2
NO.10(.190)-24 UNC-2B TAP THRU
& CSK FARSIDE 82° TO .25DIA
.31
M
2 PLACES
SEE NOTE 2
.03
.95
2 PLACES
9.438
2 PLACES
.938 REF
TYP
.72
8.88
12.22
8.75
6.53
6.03
4.03
3.03
3.44
1.87
2.62
1.09
.766
TYP
.88
.281
.859
1.75
1.00
.083R TYP
10.500
TYP
11.500
TYP
8.750
TYP
.50
.078
±.010 TYP
1.565 TYP
.062
±.010 TYP
2.750
TYP
.62
.500 TYP
A
B
C
D
E
F
G
H
J
K
1.500
.625
1.41
2.34
1.84
.812 REF
4.88 7 HOLES EQ SP
WITHIN .02
.062±.010
.078±.010
3.575
5.78
.344
.82
1.78
.625
9.44
.812 REF
4.06 6 HOLES EQ SP
WITHIN .020
12.78
13.03
18.312
19.00
15.312
8 — 5
16 — 6
SEE NOTE 11


.310
.316 DIA THRU
.281
.06
.16
.17 DIA
.438 DIA

SECTION A-A
ROTATED 90° CCW
10 PLACES MARKED 'D'

HOLE LEGEND		
SYM	DESCRIPTION	QTY
A	.480 DIA	21
B	.375 DIA	4
C	.184/.191 DIA THRU & CSK FARSIDE 82° x .34/.35	8
D	SEE SECTION A-A	10
E	.184/.191 DIA THRU & CSK 82° x .34/.35 DIA	4
F	.39/.42 DIA THRU & C BORE .88/.90 DIA x .115/.135 DEEP	3
G	C BORE FARSIDE .172/.175 DIA x .080 DP	24
H	C BORE FARSIDE .165 DIA x .13/.14 DP	3
J	.067/.070 DIA THRU & CSK 100° x .100/.110 DIA	3
K	.067/.070 DIA THRU & CSK 100° x .100/.110 DIA SEE NOTE 10	8

(1) NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. WELD PER MIL-W-8604
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELEC CONDUCTIVE
4. EXCEPT SURFACE A PAINT FRONT, EDGES & AREAS INDICATED 2 COATS TT-E-529 CL B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072, P513, TYPE I
5. PAINT SURFACE A 2 COATS TT-E-529 CL B, FED-STD-595 COLOR NO. 26251 PER MIL-F-14072, P513, TYPE I
6. SILKSCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. SILKSCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
9. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
10. LOCATE USING FIND NO.5 AS TEMPLATE
11. HEAD OF FIND NO.6 SHALL BE GROUND FLUSH TO SURFACE OF FIND NO. 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
16	MS20426A2-6	RIVET, CSK HD	6
8	1004844-3	STRAP, RETAINING	5
2	MS122120	INSERT, SCREW THREAD	4
24	1006951-001	STUD	3
2	2014072-002	BLOCK	2
1	2014072-001	PANEL	1

LIST OF MATERIALS

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

NEXT ASSY	USED ON
2014226	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ± 1°
DO NOT SCALE DRAWING
MATERIAL
6061-T6 AL PER QQ-A-250/11

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE MAY 3, 65
CHECKED
APPROVAL C E D 21 JULY 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

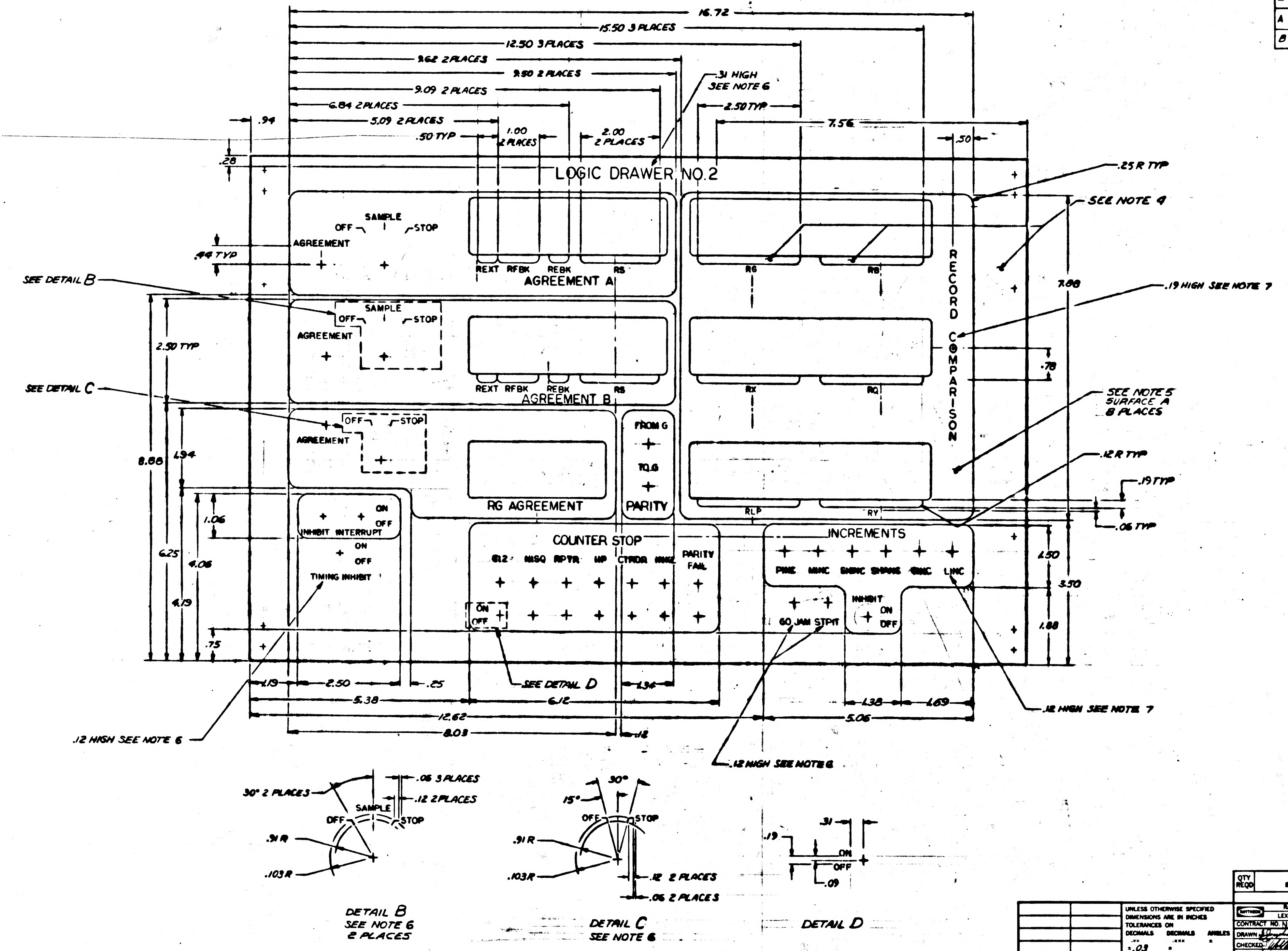
FRONT PANEL
LOGIC DRAWER NO.2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014072
SCALE 1/1
WT —
SHEET 1 OF 2

2014072 B

2014072 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER 25059	7/23/65	
1	CHANGED PER CCA R25127A DR D. Belanger CHK E Urban APPD	19 Oct 65	
2	CHANGED PER CCA R25269 DR CHK E Urban APPD	11/17/65	
–	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26467 DR E. Uffring CHK APPD	2/24/66	
B	CHANGED PER TDRR 26700 DR CHK C. APPD	3/14/66	



LOGIC DRAWER NO.2
AGREEMENT A
AGREEMENT B
RG AGREEMENT
RECORD COMPARISON
COUNTER STOP
INCREMENTS
PARITY
FROM G
TO G
SAMPLE
OFF
STOP
AGREEMENT
REXT
RFBK
REBK
RS
RG
RB
RX
RQ
RLP
RY
INHIBIT INTERRUPT
ON
TIMING INHIBIT
612
MISQ
RPTR
MP
CTRDR
PARITY FAIL
PINC
MINC
GO JAM
STPIT
INHIBIT
LINC
16.72
15.50 3 PLACES
12.50 3 PLACES
9.62 2 PLACES
9.50 2 PLACES
9.09 2 PLACES
6.84 2 PLACES
5.09 2 PLACES
.50 TYP
1.00 2 PLACES
2.00 2 PLACES
.31 HIGH SEE NOTE 6
2.50 TYP
7.56
.50
.94
.28
.25 R TYP
SEE NOTE 4
.44 TYP
SEE DETAIL B
7.88
.19 HIGH SEE NOTE 7
2.50 TYP
.78
SEE DETAIL C
SEE NOTE 5 SURFACE A 8 PLACES
8.88
1.94
.12 R TYP
.19 TYP
.06 TYP
1.06
6.25
4.06
4.19
.75
4.50
3.50
1.88
1.19
2.50
.25
SEE DETAIL D
1.34
1.38
1.69
5.38
6.12
12.62
5.06
8.03
.12
.12 HIGH SEE NOTE 6
.12 HIGH SEE NOTE 7
.12 HIGH SEE NOTE 6
30° 2 PLACES
.06 3 PLACES
.12 2 PLACES
.91 R
.103 R
DETAIL B SEE NOTE 6 2 PLACES
15°
30°
.12 2 PLACES
.06 2 PLACES
DETAIL C SEE NOTE 6
.31
.19
.09
DETAIL D

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE MAY 4, 65
CHECKED MAY 12, 65
APPROVAL 21 JULY 65
APPROVAL 7/22/65
APPROVAL 7/22/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C Sperling 7/12/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

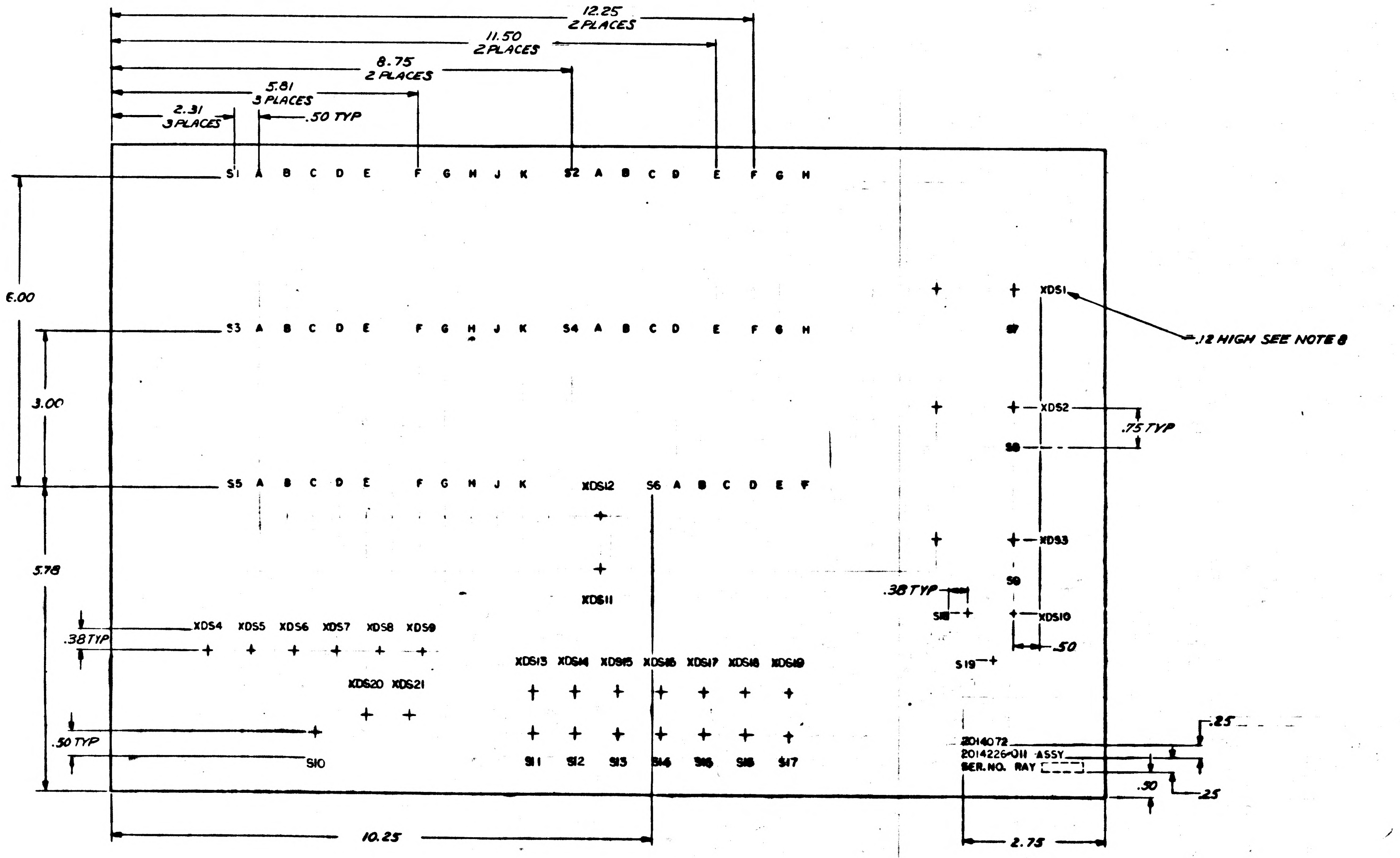
FRONT PANEL
LOGIC DRAWER NO.2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014072
SCALE 1/1
WT –
SHEET 2 OF 3

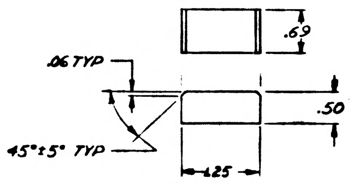
2014072 B

2014072 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER 25059	7/23/65	
1	CHANGED PER CCA R25127 A DR P. Winfield CHK E Urban APPD	19 Oct 65	
2	CHANGED PER CCA R25269 DR A. J. Brian CHK E Urban APPD	9/1/65	
—	CLASS A RELEASED PER TORR 25472		
A	CHANGED PER TDRR 26467 DR E. Uhring CHK Winfield APPD	2/24/66	
B	CHANGED PER TDRR 26700 DR APPD	3/ /66	


12.25
2 PLACES
11.50
2 PLACES
8.75
2 PLACES
5.81
3 PLACES
2.31
3 PLACES
.50 TYP
S1 A B C D E F G H J K S2 A B C D E F G H
S3 A B C D E F G H J K S4 A B C D E F G H
S5 A B C D E F G H J K XDS12 S6 A B C D E F
6.00
3.00
5.78
XDS1
.12 HIGH SEE NOTE 8
XDS2
.75 TYP
S8
XDS3
S9
XDS10
.50
.38 TYP
S18
S19
XDS11
XDS4 XDS5 XDS6 XDS7 XDS8 XDS9
.38 TYP
XDS20 XDS21
XDS13 XDS14 XDS15 XDS16 XDS17 XDS18 XDS19
.50 TYP
S10
S11 S12 S13 S14 S15 S16 S17
2014072
2014226-011 ASSY
SER. NO. RAY
.25
.50
.25
10.25
2.75

REAR OF PANEL


.69
.06 TYP
.50
45°±5° TYP
.125

(2) NOTES

1. MATL AL6061-T6 PER QQ-A-250/11
2. REMOVE BURRS & SHARP EDGES .005/.020
3. TOL XX ±.02

2014072-002
BLOCK

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE MAY 3 65
CHECKED MAY 21 65
APPROVAL 21 MAY 65
APPROVAL 7/6/65
APPROVAL 7/6/65
NASA APPROVAL A. O. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL
LOGIC DRAWER NO. 2
COMPUTER TEST SET

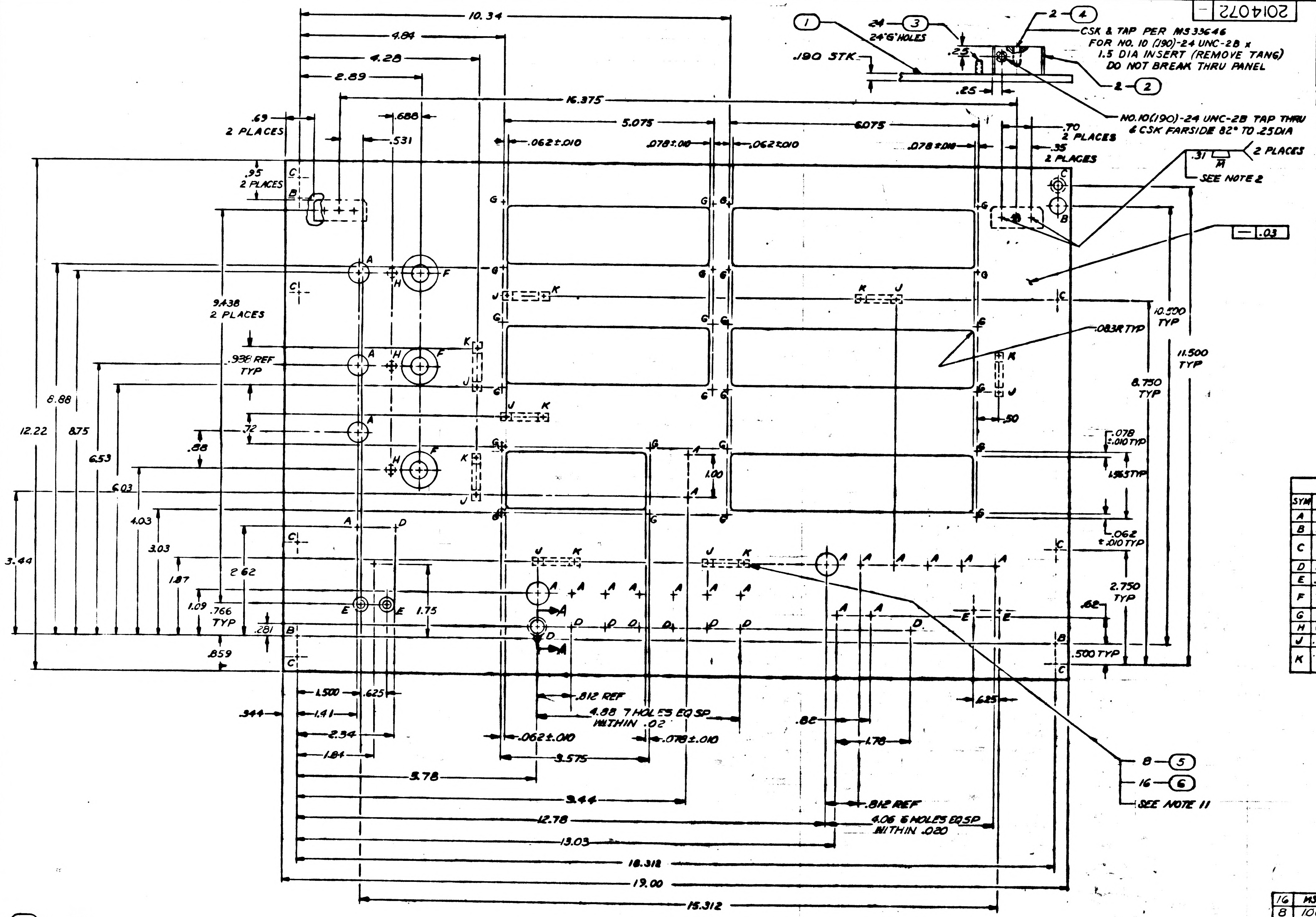
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014072
SCALE 1/1
WT —
SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014072 B

2014072 | –

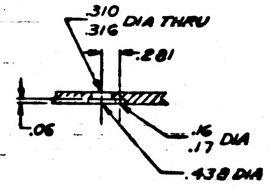
SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER 25059	7/23/65	
1	CHANGED PER CCA R25127 DR CHK APPD	19 Oct 65	
2	CHANGED PER CCA R25269 DR A.J. CHK APPD		
–	CLASS A RELEASED PER TDRR 25472		



1
24 — 3
24 "G" HOLES
2 — 4
CSK & TAP PER MS33646
FOR NO. 10 (.190)-24 UNC-2B x
1.5 DIA INSERT (REMOVE TANG)
DO NOT BREAK THRU PANEL
.190 STK
.25
.25
2 — 2
NO.10(.190)-24 UNC-2B TAP THRU
& CSK FARSIDE 82° TO .25DIA
10.34
4.84
4.28
2.89
16.375
5.075
6.075
.688
.531
.69
2 PLACES
.062±.010
.078±.010
.70
2 PLACES
.35
2 PLACES
.31
M
2 PLACES
SEE NOTE 2
.95
2 PLACES
— .03
9.438
2 PLACES
.083R TYP
10.500 TYP
11.500 TYP
8.750 TYP
.938 REF TYP
6.88
12.22
8.75
6.53
6.03
4.03
3.03
3.44
1.87
1.09
.88
.72
2.62
.766 TYP
.281
.859
1.00
1.75
.50
.078 ±.010 TYP
1.563 TYP
.062 ±.010 TYP
2.750 TYP
.62
.500 TYP
1.500
.625
.344
1.41
2.34
1.84
.812 REF
4.88 7 HOLES EQ SP WITHIN .02
.062±.010
.078±.010
3.575
3.78
.82
1.78
.625
8 — 5
16 — 6
SEE NOTE 11
8.44
.812 REF
4.06 6 HOLES EQ SP WITHIN .020
12.78
13.03
18.318
19.00
15.312

① NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. WELD PER MIL-W-8604
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELEC CONDUCTIVE
4. EXCEPT SURFACE A PAINT FRONT, EDGES & AREAS INDICATED 2 COATS TT-E-529 CL B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072, P513, TYPE I
5. PAINT SURFACE A 2 COATS TT-E-529 CL B, FED-STD-595 COLOR NO. 26251 PER MIL-F-14072, P513, TYPE I
6. SILKSCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. SILKSCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
9. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
10. LOCATE USING FIND NO.5 AS TEMPLATE
11. HEAD OF FIND NO.6 SHALL BE GROUND FLUSH TO SURFACE OF FIND NO. 1



.310
.316 DIA THRU
.281
.06
.16
.17 DIA
.438 DIA

SECTION A-A
ROTATED 90° CCW
10 PLACES MARKED 'D'

HOLE LEGEND		
SYM	DESCRIPTION	QTY
A	.480 DIA	21
B	.375 DIA	4
C	.184/.191 DIA THRU & CSK FARSIDE 82° x .34/.35	8
D	SEE SECTION A-A	10
E	.184/.191 DIA THRU & CSK 82° x .34/.35 DIA	4
F	.39/.42 DIA THRU & C BORE .88/.90 DIA x .115/.135 DEEP	3
G	C BORE FARSIDE .172/.175 DIA x .080 DP	24
H	C BORE FARSIDE .165 DIA x .13/.14 DP	3
J	.067/.070 DIA THRU & CSK 100° x .100/.110 DIA	8
K	.067/.070 DIA THRU & CSK 100° x .100/.110 DIA SEE NOTE 10	8

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
16	MS20426A2-6	RIVET, CSK HD	6
8	1004844-3	STRAP, RETAINING	5
2	MS122120	INSERT, SCREW THREAD	4
24	1006951-001	STUD	3
2	2014072-002	BLOCK	2
1	2014072-001	PANEL	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014226	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL
6061-T6 AL PER QQ-A-250/11

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE MAY 3, 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL
LOGIC DRAWER NO.2
COMPUTER TEST SET

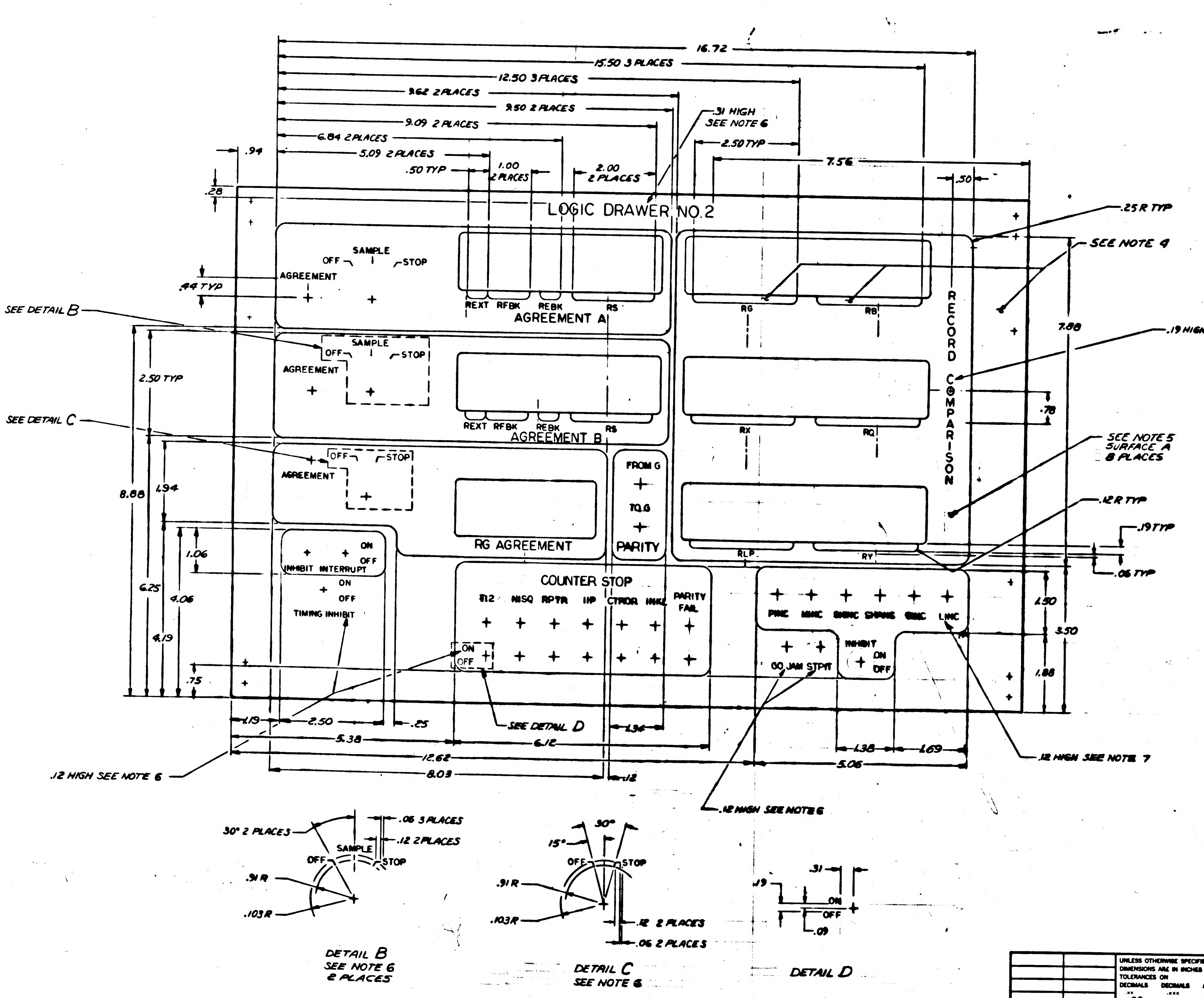
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014072
SCALE 1/1
WT —
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014072 | –

2014072 | -

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER 25059	7/23/65	
1	CHANGED PER CCA R25127A DR D. Belanger CHK E Urban APPD	19 Oct 65	
2	CHANGED PER CCA R25269 DR CHK E Urban APPD	11/17/65	
-	CLASS A RELEASED PER TDRR 25472		



16.72
15.50 3 PLACES
12.50 3 PLACES
9.62 2 PLACES
9.50 2 PLACES
9.09 2 PLACES
6.84 2 PLACES
5.09 2 PLACES
.50 TYP
1.00 2 PLACES
2.00 2 PLACES
.31 HIGH SEE NOTE 6
2.50 TYP
7.56
.50
.94
.28
LOGIC DRAWER NO.2
.25 R TYP
SEE NOTE 4
SAMPLE
OFF
STOP
AGREEMENT
.44 TYP
REXT RFBK REBK RS
AGREEMENT A
RG RB
SEE DETAIL B
RECORD COMPARISON
7.88
.19 HIGH SEE NOTE 7
2.50 TYP
AGREEMENT B
RX RQ
.78
SEE DETAIL C
SEE NOTE 5 SURFACE A 8 PLACES
8.88
1.94
FROM G
TO G
PARITY
RG AGREEMENT
.12 R TYP
.19 TYP
RLP RY
.06 TYP
1.06
ON
OFF
INHIBIT INTERRUPT
TIMING INHIBIT
6.25
4.06
4.19
COUNTER STOP
T12 NISQ RPTR IIP CTROR INKL PARITY FAIL
PINC MINC SHINC SHANC SINC LINC
GO JAM STPIT
INHIBIT
1.50
3.50
1.88
.75
.19
2.50
.25
SEE DETAIL D
1.34
5.38
6.12
1.38
1.69
12.62
5.06
8.03
.12
.12 HIGH SEE NOTE 6
.12 HIGH SEE NOTE 7
.12 HIGH SEE NOTE 6
30° 2 PLACES
.06 3 PLACES
.12 2 PLACES
.91 R
.103 R
DETAIL B
SEE NOTE 6
2 PLACES
30°
15°
.12 2 PLACES
.06 2 PLACES
DETAIL C
SEE NOTE 6
.19
.31
.09
DETAIL D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE MAY 4, 65
CHECKED
APPROVAL 21 MAY 65
APPROVAL
APPROVAL
NASA APPROVAL A. L. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL
LOGIC DRAWER NO.2
COMPUTER TEST SET

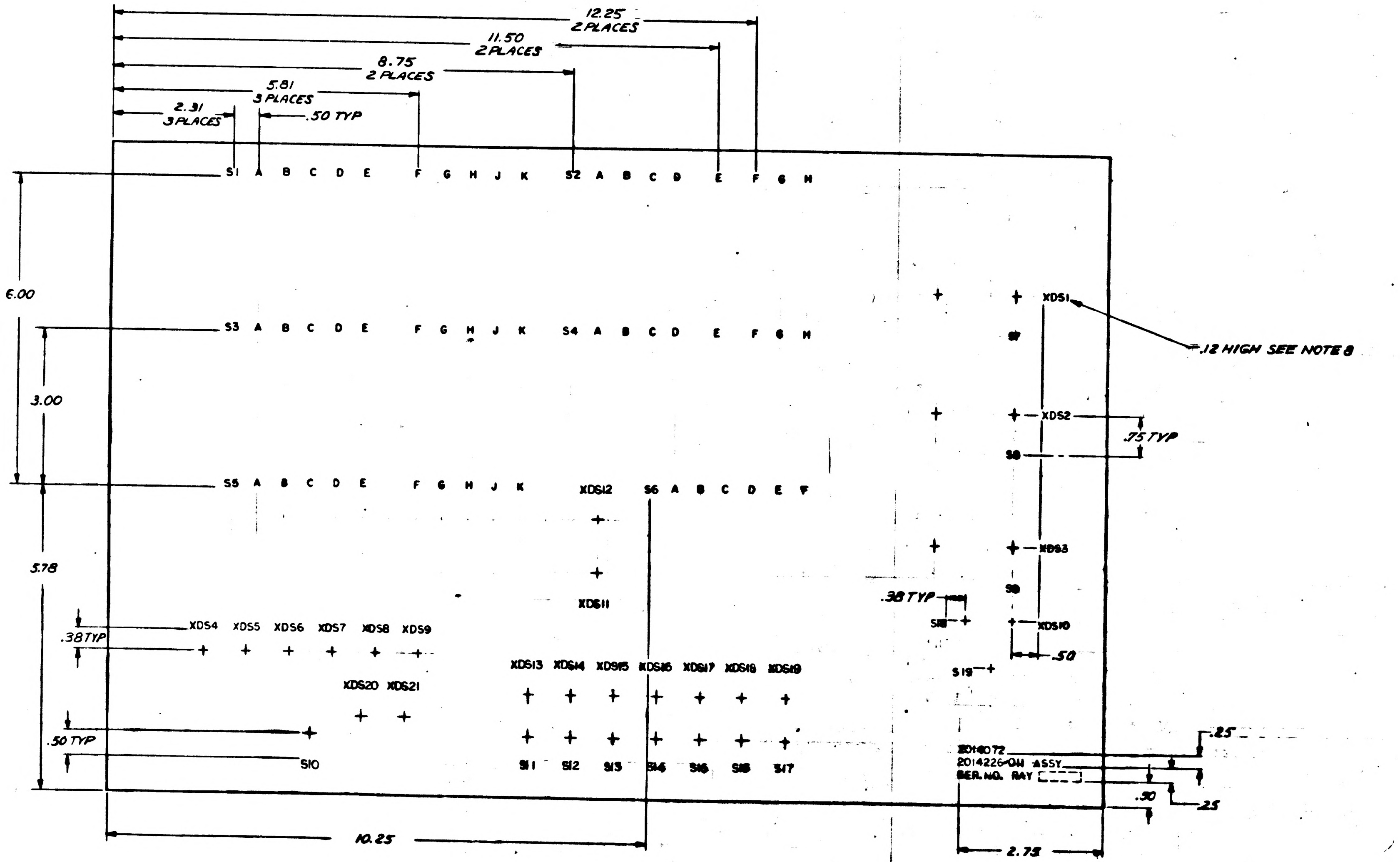
CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014072
SCALE 1/1 WT — SHEET 2 OF 3

2014072

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

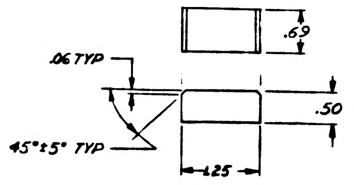
2014072 —

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER 25059	7/ [illegible]	[illegible]
1	CHANGED PER CCA R25127A DR P. Winfield CHK E Urban APPD	19 Oct 65	[illegible]
2	CHANGED PER CCA R25269 DR A. J. Bisson CHK E Urban APPD	4/ /65	[illegible]
—	CLASS A RELEASED PER TORR 25472		



12.25 2 PLACES
11.50 2 PLACES
8.75 2 PLACES
5.81 3 PLACES
2.31 3 PLACES
.50 TYP
S1 A B C D E F G H J K S2 A B C D E F G H
S3 A B C D E F G H J K S4 A B C D E F G H
S5 A B C D E F G H J K
XDS12
S6 A B C D E F
XDS11
6.00
3.00
5.78
XDS1
.12 HIGH SEE NOTE 8
S7
XDS2
.75 TYP
S8
XDS3
S9
.38 TYP
S18
XDS10
.50
S19
XDS4 XDS5 XDS6 XDS7 XDS8 XDS9
.38 TYP
XDS20 XDS21
XDS13 XDS14 XDS15 XDS16 XDS17 XDS18 XDS19
.50 TYP
S10
S11 S12 S13 S14 S15 S16 S17
2014072
2014226-011 ASSY
SER. NO. RAY
.25
.50
.25
10.25
2.75

REAR OF PANEL



.69
.06 TYP
.50
45°±5° TYP
.125

② NOTES

1. MATL AL6061-T6 PER QQ-A-250/11
2. REMOVE BURRS & SHARP EDGES .005/.020
3. TOL XX ±.02

2014072-002
BLOCK

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE MAY 3 65
CHECKED
APPROVAL G. E. [illegible] 21 MAY 65
APPROVAL 24/65
APPROVAL 24/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

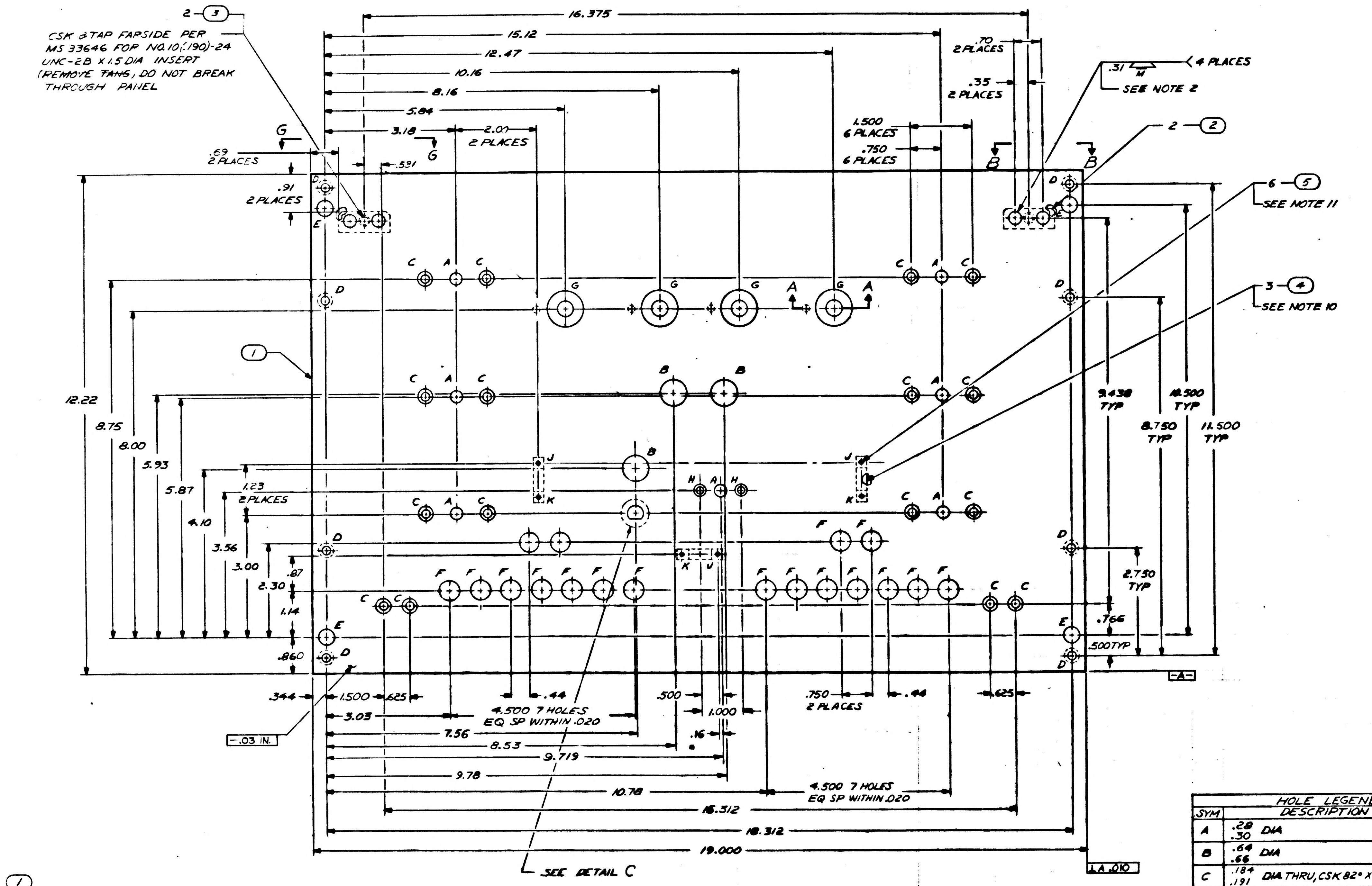
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL
LOGIC DRAWER NO.2
COMPUTER TEST SET

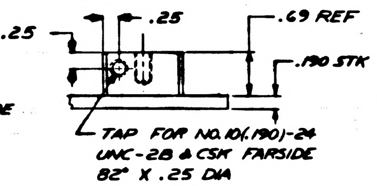
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014072
SCALE 1/1
WT —
SHEET 3 OF 3

2014075 | -

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER RD 25031		
1	CHANGED PER CCA R25122 DR JJ Baran CHK. APPD		
-	CLASS A RELEASED PER TDRR 25472		

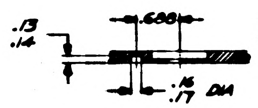


2 - ③
CSK & TAP FARSIDE PER MS 33646 FOR NO.10(.190)-24 UNC-2B X 1.5 DIA INSERT (REMOVE TANG, DO NOT BREAK THROUGH PANEL
16.375
15.12
12.47
10.16
8.16
5.84
3.18
2.07 2 PLACES
.531
.69 2 PLACES
.91 2 PLACES
G
.70 2 PLACES
.35 2 PLACES
1.500 6 PLACES
.750 6 PLACES
.31 4 PLACES
SEE NOTE 2
B
2 - ②
6 - ⑤ SEE NOTE 11
3 - ④ SEE NOTE 10
①
A
B
C
D
E
F
G
H
J
K
12.22
8.75
8.00
5.93
5.87
4.10
3.56
3.00
2.30
.87
1.14
.860
1.23 2 PLACES
9.438 TYP
8.750 TYP
10.500 TYP
11.500 TYP
2.750 TYP
.766
.500 TYP
-A-
.344
1.500
.625
3.03
4.500 7 HOLES EQ SP WITHIN .020
.44
7.56
8.53
9.719
9.78
.500
1.000
.16
.750 2 PLACES
10.78
4.500 7 HOLES EQ SP WITHIN .020
16.312
18.312
19.000
.03 IN.
⊥ A .010
SEE DETAIL C



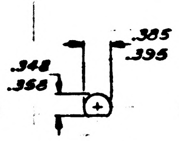
.25
.25
.69 REF
.190 STK
TAP FOR NO.10(.190)-24 UNC-2B & CSK FARSIDE 82° X .25 DIA

VIEW B-B



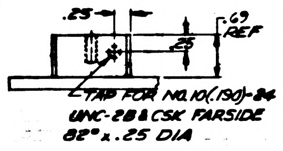
.13
.14
.688
.16
.17 DIA

SECTION A-A
4 PLACES



.348
.358
.385
.395

DETAIL C



.25
.69 REF
.25
TAP FOR NO.10(.190)-24 UNC-2B & CSK FARSIDE 82° x .25 DIA

VIEW G-G

①
NOTES

1. REMOVE BURRS AND SHARP EDGES .005/.020
2. WELD PER MIL-W-8604
3. CHROMATE FILM PER MIL-C-5541 EXCEPT TO BE ELEC COND
4. PAINT FRONT & EDGES 2 COATS TT-E-529, CLASS B, FED-STD-595, COLOR NO. 26440 PER MIL-F-14027 PS13 TYPE II
5. SILK SCREEN (FRONT OF PANEL) NORMAL GOTHIC CHARACTERS & .03 WIDE LINES AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
6. MARK (REAR OF PANEL) NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. PAINT 2 COATS TT-E-529, CLASS B, FED-STD-595, COLOR NO. 26251 PER MIL-F-14027 PS13 TYPE II
8. SILK SCREEN (FRONT OF PANEL) NORMAL GOTHIC CHARACTERS & .03 WIDE LINES AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
9. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
10. LOCATE USING FIND NO.4 AS TEMPLATE
11. HEAD OF FIND NO.5 SHALL BE GROUND FLUSH TO SURFACE OF FIND NO.1

HOLE LEGEND

SYM	DESCRIPTION	QTY
A	$\frac{.28}{.30}$ DIA	7
B	$\frac{.64}{.66}$ DIA	3
C	$\frac{.184}{.191}$ DIA THRU, CSK 82° X $\frac{.34}{.35}$ DIA	16
D	$\frac{.184}{.191}$ DIA THRU, CSK 82° X $\frac{.34}{.35}$ DIA FS	8
E	.375 DIA	4
F	$\frac{.475}{.485}$ DIA	18
G	$\frac{.39}{.41}$ DIA THRU, CBORE $\frac{.88}{.90}$ DIA X $\frac{.115}{.135}$ DEEP	4
H	$\frac{.164}{.171}$ DIA THRU, CSK 82° x $\frac{.29}{.30}$ DIA	2
J	$\frac{.067}{.070}$ DIA THRU, CSK 100° x $\frac{.110}{.118}$ DIA	3
K	$\frac{.067}{.070}$ DIA THRU, CSK 100° x $\frac{.110}{.118}$ DIA SEE NOTE 10	3

LIST OF MATERIALS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
6	MS20426A2-6	RIVET, CSK, FLAT HD	5
3	1006906-3	BRACKET, CABLE SUPPORT	4
2	MS122120	INSERT, HELICAL COIL	3
2	2014075-002	BLOCK	2
1	2014075-001	PANEL	1

NEXT ASSY	USED ON
2014225	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ±2°
DO NOT SCALE DRAWING

MATERIAL
AL 6061-T6 PER QQ-A-250/11, TEMP T6

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Joe Roper DATE 10/ /65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL
LOGIC DRAWER NO.1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014075
SCALE 1/1
WT
SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

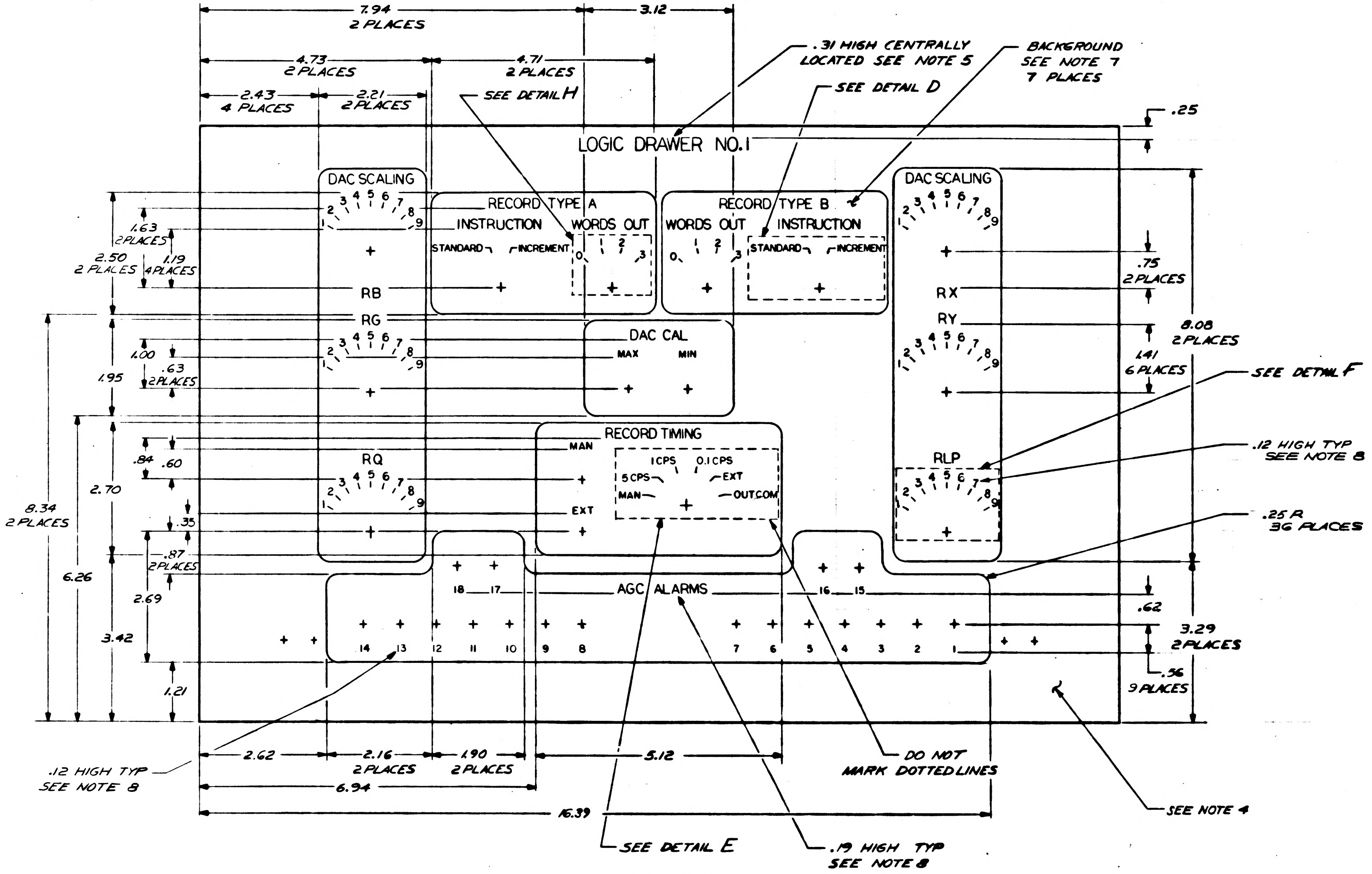
MASTER

2014075 | -

2014075 | -

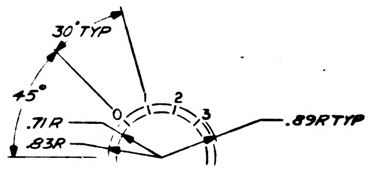
2014075 -

SYM	DESCRIPTION	DATE	APPROVED
	REVISIONS		
O	RELEASED PER RD 25031	21-KS	C Sorenson
/	CHANGED PER CCA R25122 DR J.J Baran CHK J. Kuhn APPD	Sept 65	
-	CLASS A RELEASED PER TORR 25472		



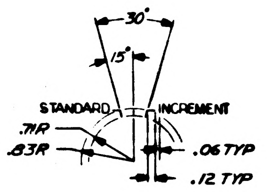
7.94 2 PLACES
3.12
4.73 2 PLACES
4.71 2 PLACES
2.43 4 PLACES
2.21 2 PLACES
SEE DETAIL H
.31 HIGH CENTRALLY LOCATED SEE NOTE 5
SEE DETAIL D
BACKGROUND SEE NOTE 7 7 PLACES
.25
LOGIC DRAWER NO. I
DAC SCALING
RECORD TYPE A
INSTRUCTION
WORDS OUT
STANDARD
INCREMENT
RECORD TYPE B
RB
RG
RX
RY
DAC CAL
MAX
MIN
RECORD TIMING
MAN
EXT
1 CPS
0.1 CPS
5 CPS
OUTCOM
RQ
RLP
AGC ALARMS
1.63 2 PLACES
2.50 2 PLACES
1.19 4 PLACES
1.00
.63 2 PLACES
1.95
.84
.60
2.70
8.34 2 PLACES
.35
.87 2 PLACES
6.26
2.69
3.42
1.21
.75 2 PLACES
8.08 2 PLACES
1.41 6 PLACES
SEE DETAIL F
.12 HIGH TYP SEE NOTE 8
.25 R 36 PLACES
.62
3.29 2 PLACES
.56 9 PLACES
2.62
2.16 2 PLACES
1.90 2 PLACES
5.12
6.94
16.39
DO NOT MARK DOTTED LINES
.12 HIGH TYP SEE NOTE 8
SEE NOTE 4
SEE DETAIL E
.19 HIGH TYP SEE NOTE 8

MARKING VIEW
FRONT OF PANEL



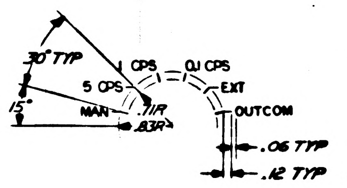
30° TYP
45°
.71R
.83R
0
2
3
.89R TYP

DETAIL H
2 PLACES



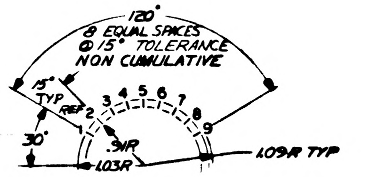
30°
15°
STANDARD
INCREMENT
.71R
.83R
.06 TYP
.12 TYP

DETAIL D
2 PLACES



30° TYP
15°
1 CPS
0.1 CPS
5 CPS
EXT
MAN
.71R
.83R
OUTCOM
.06 TYP
.12 TYP

DETAIL E



120°
8 EQUAL SPACES @ 15° TOLERANCE NON CUMULATIVE
15° TYP
30°
.91R
1.03R
1.09R TYP
2 3 4 5 6 7 8 9

DETAIL F
6 PLACES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±2°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Jos Rogers DATE 3 May 65
CHECKED 4 June 65
APPROVAL 22 June 65
APPROVAL
APPROVAL
NASA APPROVAL A. O. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

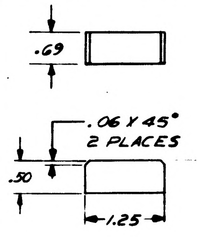
FRONT PANEL
LOGIC DRAWER NO. I
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014075
SCALE 1/1
WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014075 -

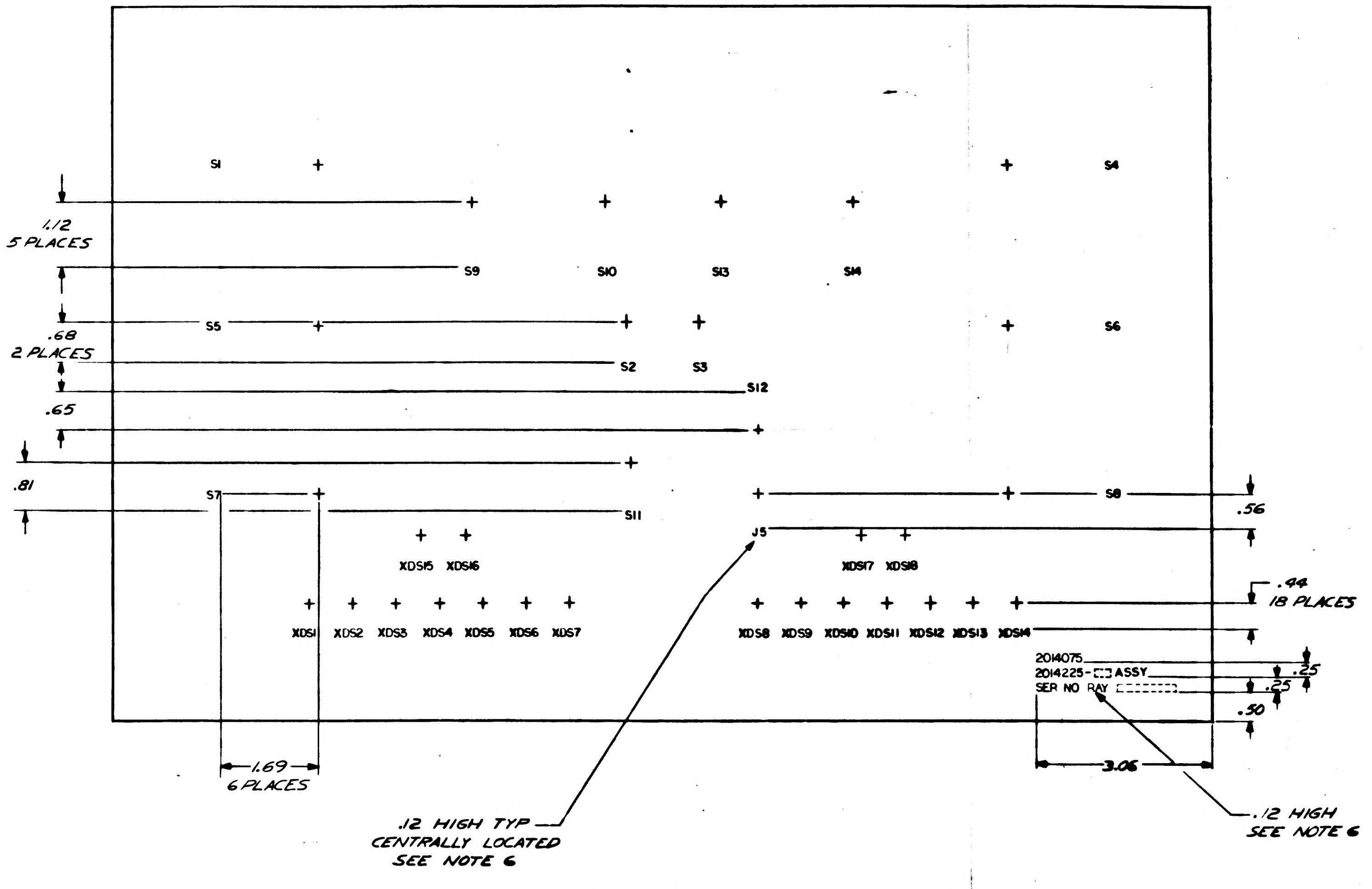
SYM	DESCRIPTION		
2	RELEASED PER RD		
1	CHANGED PER CCA R25122 DR J.J. Baran CHK APPD		
–	CLASS A RELEASED PER TORR 25472		



.69
.06 X 45°
2 PLACES
.50
1.25

NOTES
1. MAT'L: 6063-T5 AL PER QQ-A-250
2. REMOVE BURRS & SHARP EDGES .005/.015
3. TOL: DEC. ±.02 ANGLES ± 5°

② BLOCK



S1
S4
1.12
5 PLACES
S9
S10
S13
S14
S5
S6
.68
2 PLACES
S2
S3
S12
.65
.81
S7
S11
S8
.56
J5
XDS15 XDS16
XDS17 XDS18
.44
18 PLACES
XDS1 XDS2 XDS3 XDS4 XDS5 XDS6 XDS7
XDS8 XDS9 XDS10 XDS11 XDS12 XDS13 XDS14
2014075
2014225-[ ] ASSY
SER NO RAY [ ]
.25
.25
.50
3.06
1.69
6 PLACES
.12 HIGH TYP
CENTRALLY LOCATED
SEE NOTE 6
.12 HIGH
SEE NOTE 6

MARKING VIEW
REAR OF PANEL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Joe Rogers DATE 15 MAY 65
CHECKED R. Roberts 4 June 65
APPROVAL 23 June 65
APPROVAL D O'
APPROVAL
NASA APPROVAL C METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL
LOGIC DRAWER NO. 1
COMPUTER TEST SET

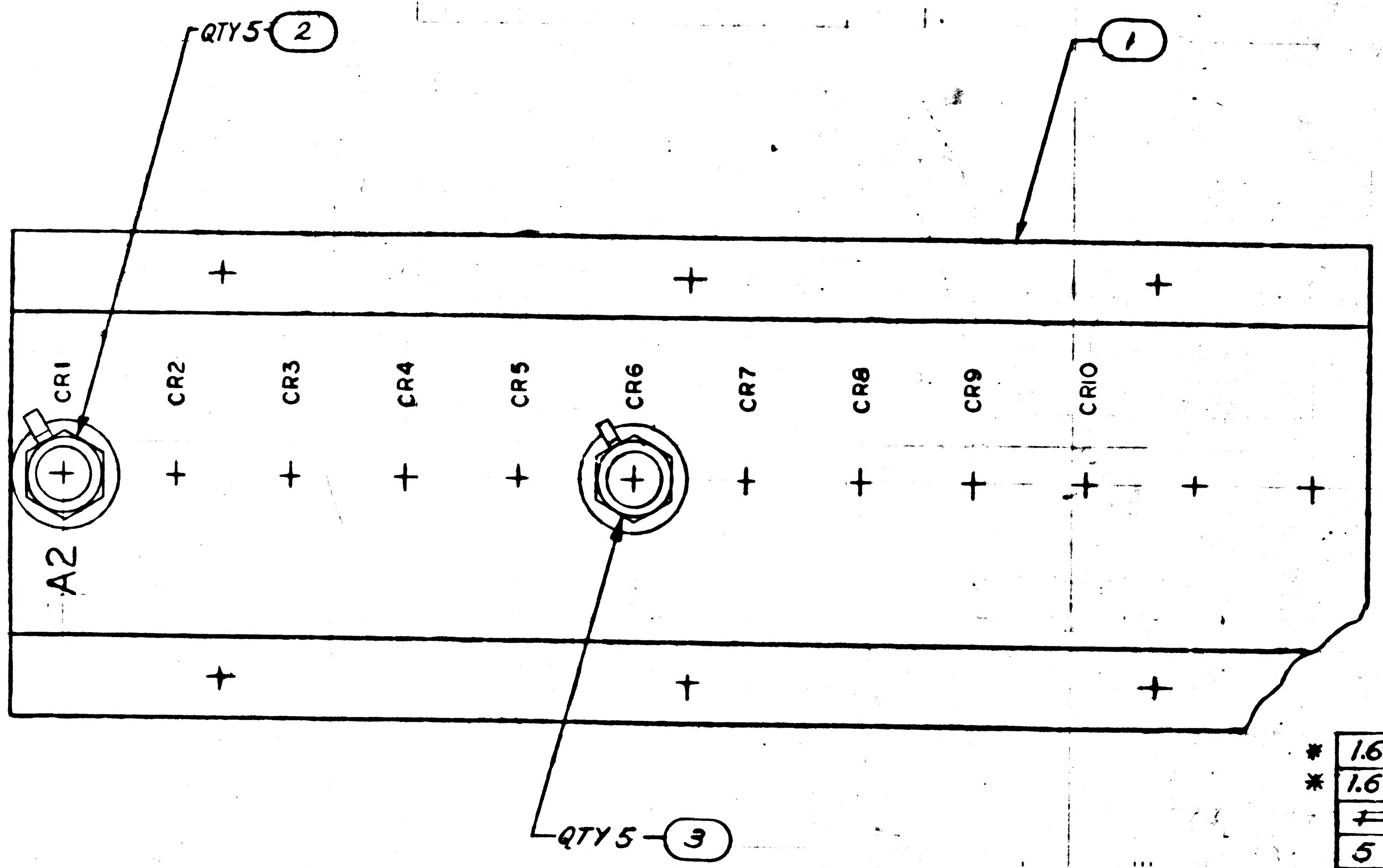
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014075
SCALE 1/1
WT
SHEET 3 OF 3

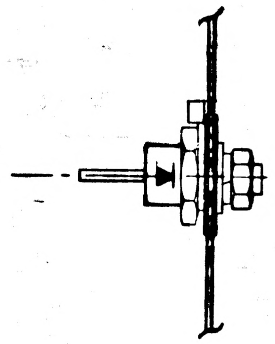
2014077 A

JUMPER CHART					
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
C1	CR1-A	CR2-K	5	16	SEE NOTE 3
C2	CR2-A	CR3-K	↑	↑	↑
C3	CR3-A	CR4-K			
C4	CR4-A	CR5-K			
C5	CR6-A	CR7-K			
C6	CR7-A	CR8-K	↓	↓	↓
C7	CR8-A	CR9-K	5	16	SEE NOTE 3
C8	CR9-A	CR10-K	5	16	SEE NOTE 3

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
CR1-CR5	2
CR6-CR10	3

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25138	9/3/65	G. Haram
1	CHANGED PER CCA R25333 DR CHK APPD 11-13-65	11/12/65	
—	CLASS B CHANGED PER CCA R25509	11/15/65	
A	CHANGED PER CCA R25587 AND CLASS A RELEASED PER TDRR25476	1/14/66	





NOTES

1. FABRICATE PER ND1002032
2. SOLDER PER ND100271
3. SLEEVE USING FIND NO. 6
4. QQ-W-343, TYPE S, SOFT COATED a, AWG 16
5. MIL-I-631, TYPE F, FORM U a, GRADE a CLASS 1, CATEGORY 1, COLOR WHT, AWG 16

ASSY NOTE

1. ASSEMBLE FIND NO. 2 & 3 WITH MICA WASHER ON EACH SIDE (DISCARD ANY SPARE HARDWARE) WITH THE NYLON BUSHING IN MTG HOLE

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

*DENOTES LENGTH IN FEET

*	1.6	SEE NOTE 5	SLEEVING	6
*	1.6	SEE NOTE 4	WIRE, ELECTRICAL	5
	~~1~~	~~1006411~~	~~SEMICONDUCTOR, DIODE~~	~~4~~
	5	1006412-002	SEMICONDUCTOR, DIODE	3
	5	1006412-001	SEMICONDUCTOR, DIODE	2
	1	2014035	BRACKET, DIODE	1
	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	-011	LIST OF MATERIALS		

2014207	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 17 MAY 65
CHECKED 20 JUL 65
APPROVAL 28 JUL 65
APPROVAL P. O'Bryan 7/27/65
APPROVAL 24 Aug 65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BRACKET, DIODE ASSY, A2
115 VAC 400 CYCLE POWER SUPPLY
OPERATION CONSOLE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	C	2014077

SCALE 1/1 WT SHEET 1 OF 1

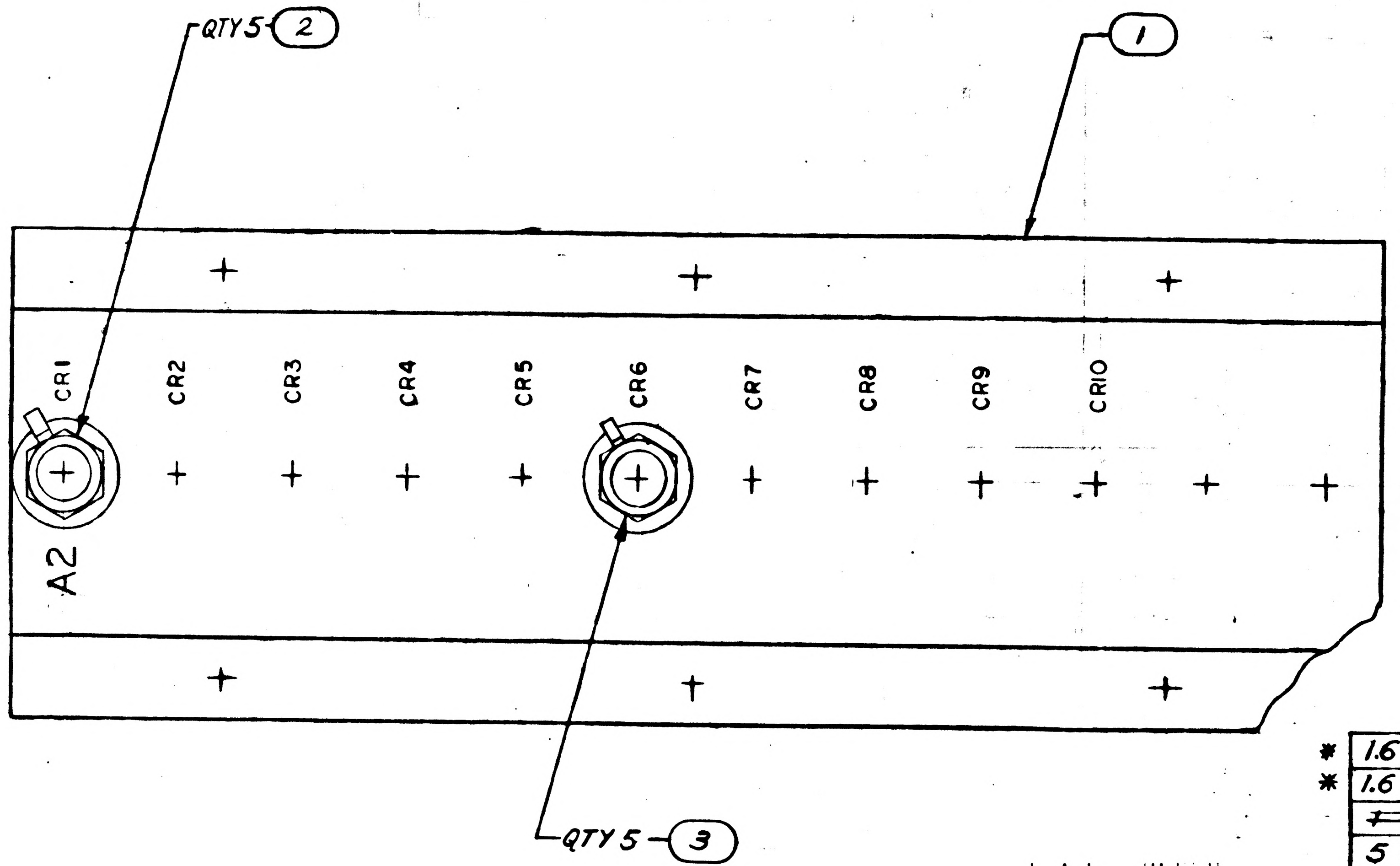
2014077 A

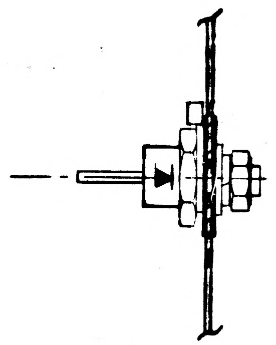
2014077 B

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
CR1-CR5	2
CR6-CR10	3

JUMPER CHART					
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
C1	CR1-A	CR2-K	5	16	SEE NOTE 3
C2	CR2-A	CR3-K	↕	↕	↕
C3	CR3-A	CR4-K			
C4	CR4-A	CR5-K			
C5	CR6-A	CR7-K			
C6	CR7-A	CR8-K			
C7	CR8-A	CR9-K	5	16	SEE NOTE 3
C8	CR9-A	CR10-K	5	16	SEE NOTE 3

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25138	9/3/65	G. Harano
1	CHANGED PER CCA R25333 DR J. Spree CHK E. Urban APPD G. C. Dube 11-13-65	11/12/65	
—	CLASS B CHANGED PER CCA R25509	12/15/65	
A	CHANGED PER CCA R25587 AND CLASS A RELEASED PER TDRR 25476	1/14/66	
B	CHANGED PER TDRR 26474 DR E. Uftring CHK R.H.E., APPD	2/27/66	





2014077 B

MF TEK

* 1.6	1006776-16	SLEEVING	6
* 1.6	SEE NOTE 4	WIRE, ELECTRICAL	5
~~1~~	~~1006411~~	~~SEMICONDUCTOR, DIODE~~	~~4~~
5	1006412-002	SEMICONDUCTOR, DIODE	3
5	1006412-001	SEMICONDUCTOR, DIODE	2
1	2014035	BRACKET, DIODE	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

*DENOTES LENGTH IN FEET

NOTES

1. FABRICATE PER ND1002032
2. SOLDER PER ND100271
3. SLEEVE USING FIND NO. 6
4. QQ-W-343, TYPE S, SOFT COATED a, AWG 16
5. ~~MIL-I-631, TYPE F, FORM Ua, GRADE A CLASS 1, CATEGORY 1, COLOR WHT, AWG 16~~

ASSY NOTE

1. ASSEMBLE FIND NO. 2 & 3 WITH MICA WASHER ON EACH SIDE (DISCARD ANY SPARE HARDWARE) WITH THE NYLON BUSHING IN MTG HOLE

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014207	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN E. Burt DATE 17 MAY 65
CHECKED E. Kapul 20 JUL 65
APPROVAL H. Moore 28 Jul 65
APPROVAL D. O'Bryan 7/27/65
APPROVAL E. Soave 24 Aug 65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C. Sprely 1/20/66

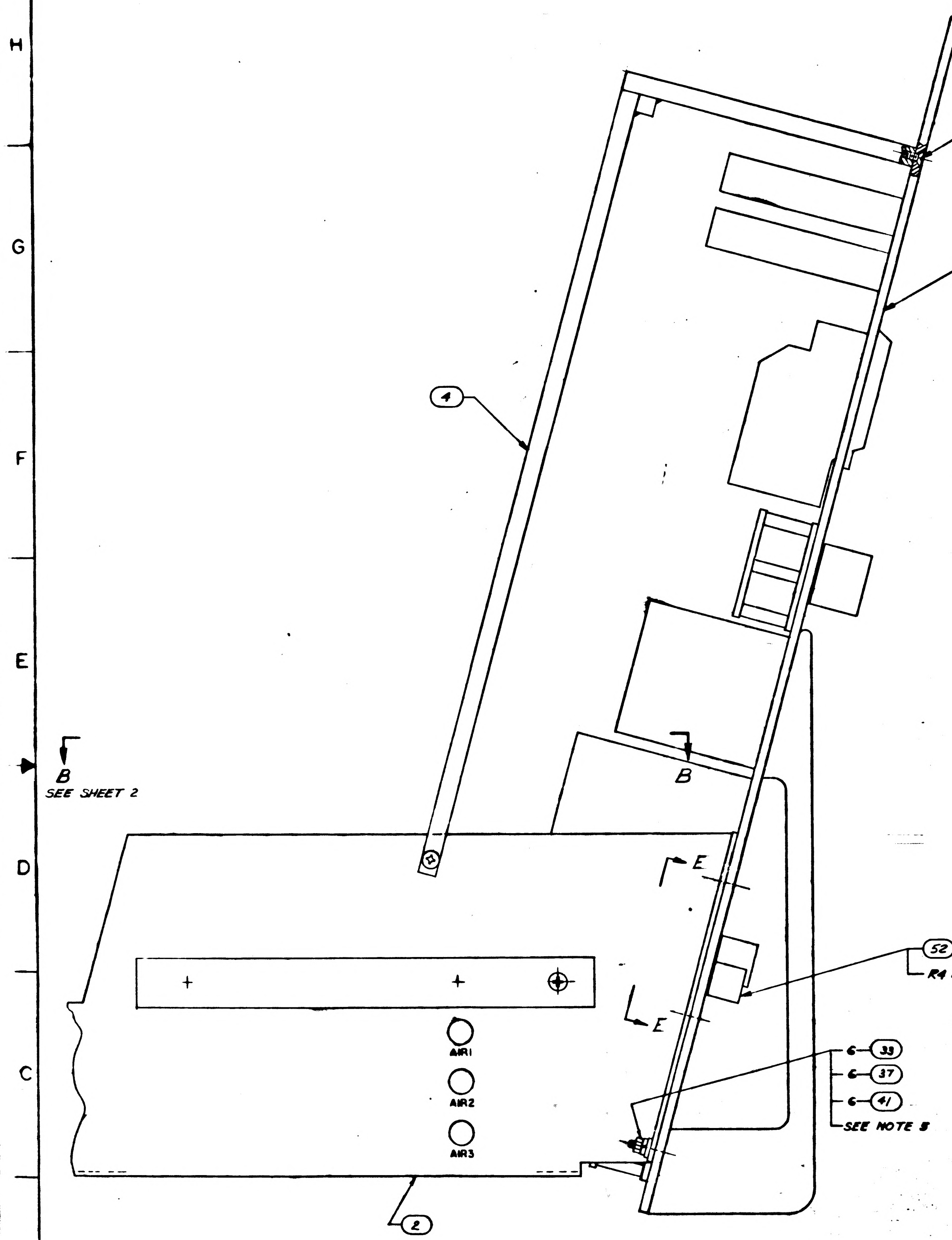
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

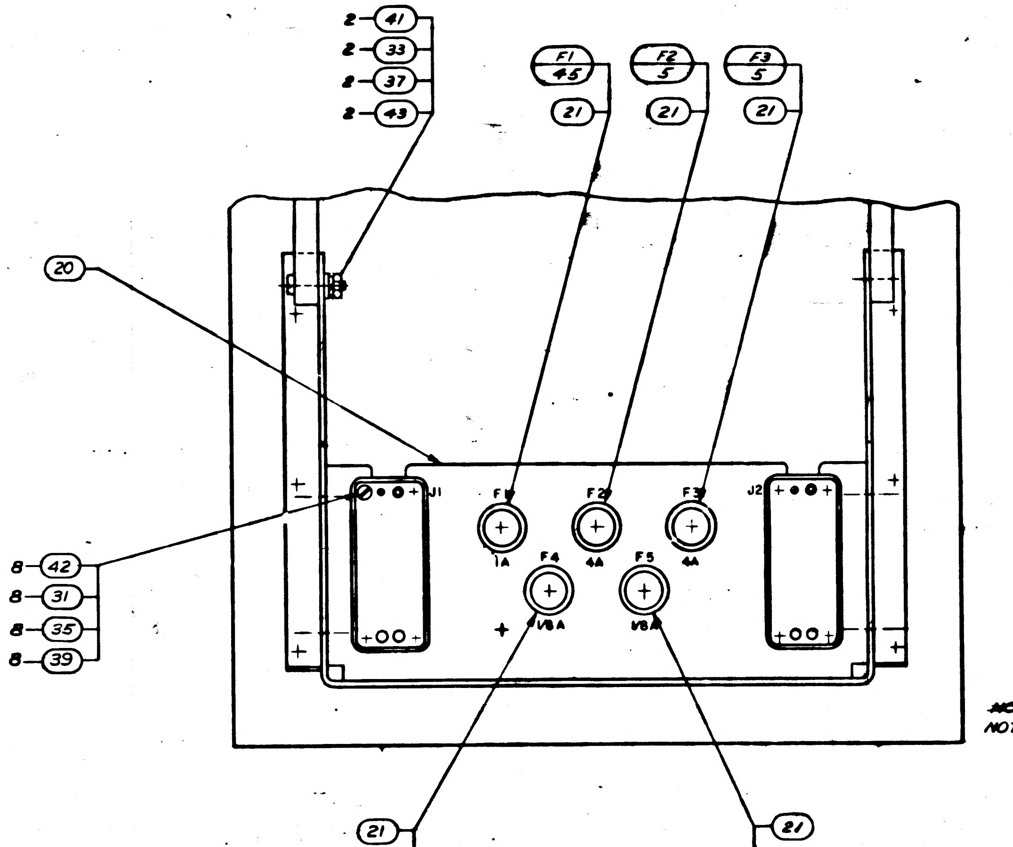
BRACKET, DIODE ASSY, A2
115 VAC 400 CYCLE POWER SUPPLY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE C
NASA DRAWING NO. 2014077
SCALE 1/1
WT
SHEET 1 OF 1

2014079 D

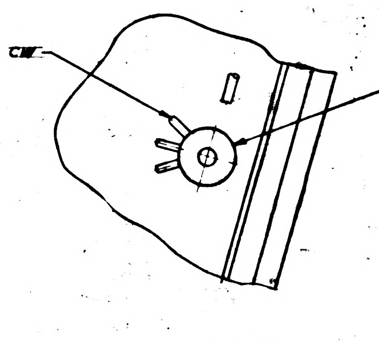
SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA 25206	9/23/65	C. Hannig
1	CHANGED PER CCA R25232 DR Roy Coombs CHK MS. APPD RED	11/4/65	RB
—	CLASS B CHANGED PER CCA R25509	11/30/65	R.H.S.
A	CHANGED PER CCA R25645 DR R.K. Fuller CHK Wm Hanny APPD	12/27/65	
B	CHANGED PER CCA R25666 DR R. Smith CHK APPD	1/6/66	
C	CHANGED PER CCA R25708 DR G. J. Brien CHK APPD RED	1/14/66	
D	CHANGED PER CCA R25739 AND CLASS A RELEASED PER TDRR 25476	4/15/66	





VIEW A-A
SEE SHEET 2
VIEW SHOWN WITH FIND NO. 7 & 8 REMOVED

JUMPER CHART						
COND IDENT	FROM	TO	COLOR	AWG	FIND NO.	REMARKS
C1	TB1-A12	TB1-A11	WHT	22	47	SEE NOTE 10
C2	TB1-A11	TB1-A10				
C3	TB1-A10	TB1-A9				
C4	TB1-A9	TB1-A8				
C5	TB2-B12	TB2-B11				
C6	TB2-B11	TB2-B10				
C7	TB2-B10	TB2-B9				
C8	TB2-B7	TB2-B6				
C9	TB2-A6	TB2-A5	WHT	22	47	SEE NOTE 10



SECTION E-E

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		2014188-011	WIRING HARNESS	REF
		2014156	SCHEMATIC	REF
	1	MS91528-1E2B	KNOB, CONTROL, ROUND	52
	0.3	1006776-8	INSULATION, SLEEVING	51
		~~2014189~~	~~LEAD ELECTRICAL~~	~~REF~~
	AR	1006458-004	TAPE, LACING	50
	18	MS17143-19	TERMINAL, LUG	49
~~NOT SHOWN#~~	~~4.3~~	~~SEE NOTE 4~~	~~WIRE, ELECTRICAL~~	~~48~~
NOT SHOWN#	2.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL (WHT)	47
	1	MS35431-4	TERMINAL, LUG	46
	1	F02A250V1A	FUSE (MIL-F-15160/02)	45
	2	MS51959-45	SCREW, FLAT HD	44
	2	MS51957-47	SCREW, PAN HD	43
	8	MS35275-18	SCREW, FIL HD	42
	14	MS35649-84	NUT, HEX	41
	18	MS35649-64	NUT, HEX	40
	8	MS35649-44	NUT, HEX	39
	4	MS51957-29	SCREW, PAN HD	38
	18	MS15795-807	WASHER, FLAT	37
	28	MS15795-805	WASHER, FLAT	36
	28	MS15795-803	WASHER, FLAT	35
	2	MS51957-36	SCREW, PAN HD	34
	18	MS35338-80	WASHER, LOCK	33
	28	MS35338-79	WASHER, LOCK	32
	28	MS35338-78	WASHER, LOCK	31
	6	MS51959-46	SCREW, FH	30
	6	MS24693-28	SCREW, FH	29
	AR	MIL-A-5092 TYPE II	CEMENT	28
	4	MS51957-45	SCREW, PAN HD	27
	10	MS51957-30	SCREW, PAN HD	26
	10	MS51957-18	SCREW, PAN HD	25
	5	1006948	SOCKET, RELAY	24
	1	1006652	FLASHER, ELECTRONIC	23
	1	1004260-237	NAMEPLATE	22
	5	MS26572-1	FUSEHOLDER	21
	1	2014245	CHASSIS, REAR	20
	1	1006489-001	AMPLIFIER UNIT, DIGITAL	19
	5	1006947-000	RELAY, ARMATURE	18
	1	1015982-001	RELAY, ARMATURE	17
	1	2014270	BRACKET, RELAY MTG	16
	2	MIL-T-16784/26TB12	BOARD, TERM.	15
	4	MS51957-31	SCREW, PAN HD	14
	10	1014085	STUD, SPACER	13
	2	2014276	BRACKET, TERM. BOARD	12
	1	2014298-011	BOARD, TERM. ASSY A1	11
	~~1~~	~~1006665-8~~	~~SLIDE, CHASSIS~~	~~10~~
	~~1~~	~~1006665-4~~	~~SLIDE, CHASSIS~~	~~9~~
	1	1006665-1	SLIDE, CHASSIS	8
	1	1006665-2	SLIDE, CHASSIS	7
	1	2014015	COVER, DIGITAL AMPLIFIER	6
	2	F02A250V4A	FUSE (MIL-F-15160/02)	5
	1	2014246	SUPPORT BRKT	4
	2	F02A250V 1/8A	FUSE (MIL-F-15160/02)	3
	1	2014283	CHASSIS	2
	1	2014297-011	FRONT PANEL ASSY	1
	-011	LIST OF MATERIALS		

#DENOTES LENGTH IN FEET

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. FABRICATE PER ND1002032
3. SOLDER PER ND1002071
~~4. QQ-W-343, TYPE S SOFT COATED (a) AWG SIZE 22~~
5. MAXIMUM TORQUE TO BE 18 INCH POUNDS
6. BOND FIND NO. 22 TO FIND NO. 2 USING FIND NO. 28
7. AR DENOTES AS REQUIRED
8. SERIALIZE PER ND1002023
9. CRIMP PER ND 1002206
10. STRIP EACH END OF CONDUCTOR .16 ± .03 & ASSEMBLE FIND 49
11. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
12. CUT FIND 51 TO .50 LENGTH, 6 PCS, INSTALL OVER TERMINALS. AFTER WIRING
13. R4 (1006427) IS SUPPLIED AS PART OF FIND 19

NEXT ASSY	USED ON
2014024	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 5 JUN 65
CHECKED 3 JUL 65
APPROVAL H. Morse 30 Jul 65
APPROVAL D.
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER CONTROL ASSY
OPERATION CONSOLE

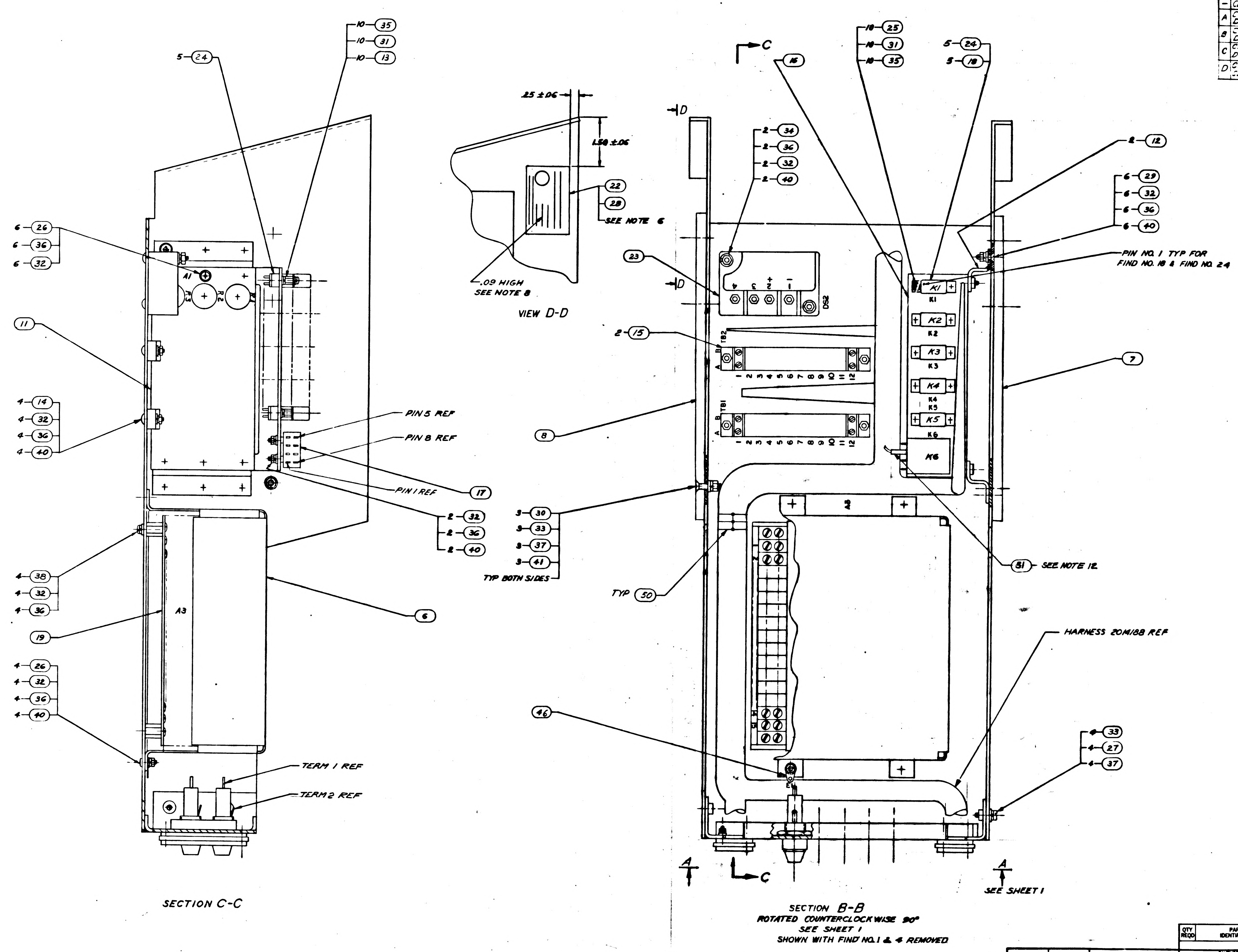
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014079
SCALE 1/1
WT
SHEET OF 2

2014079 D

2014079 D

D 2014079

SYM	DESCRIPTION	DATE	APPROVED
⊃	RELEASED PER RD CCA 25235	9/23/65	
1	CHANGED PER CCA R25232 DR Ray CHK APPD PED	11/17/65	G.M.B
–	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25645 DR CHK APPD		
B	CHANGED PER CCA R25666 DR CHK APPD		
C	CHANGED PER CCA R25709 DR CHK APPD PED		
D	CHANGED PER CCA R25739 AND CLASS A RELEASED PER TDRR 25476		



5-24
10-35
10-31
10-13
6-26
6-36
6-32
A1
R3
R2
11
4-14
4-32
4-36
4-40
PIN 5 REF
PIN 8 REF
PIN 1 REF
17
2-32
2-36
2-40
4-38
4-32
4-36
A3
19
6
4-26
4-32
4-36
4-40
TERM 1 REF
TERM 2 REF
.25 ±.06
1.50 ±.06
22
28
SEE NOTE 6
.09 HIGH
SEE NOTE 8
VIEW D-D
C
D
D
2-34
2-36
2-32
2-40
23
DS2
2-15
TB2
TB1
A
B
1 2 3 4 5 6 7 8 9 10 11 12
8
3-30
3-33
3-37
3-41
TYP BOTH SIDES
TYP 50
46
16
10-25
10-31
10-35
5-24
5-18
2-12
6-29
6-32
6-36
6-40
PIN NO. 1 TYP FOR FIND NO. 18 & FIND NO. 24
K1
K2
K3
K4
K5
K6
7
51 SEE NOTE 12
HARNESS 20M188 REF
2
4-33
4-27
4-37
A
A
SEE SHEET 1
C

SECTION C-C

SECTION B-B
ROTATED COUNTERCLOCKWISE 90°
SEE SHEET 1
SHOWN WITH FIND NO. 1 & 4 REMOVED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 5 JAN 65
CHECKED 9 JUL 65
APPROVAL 30 JUL 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

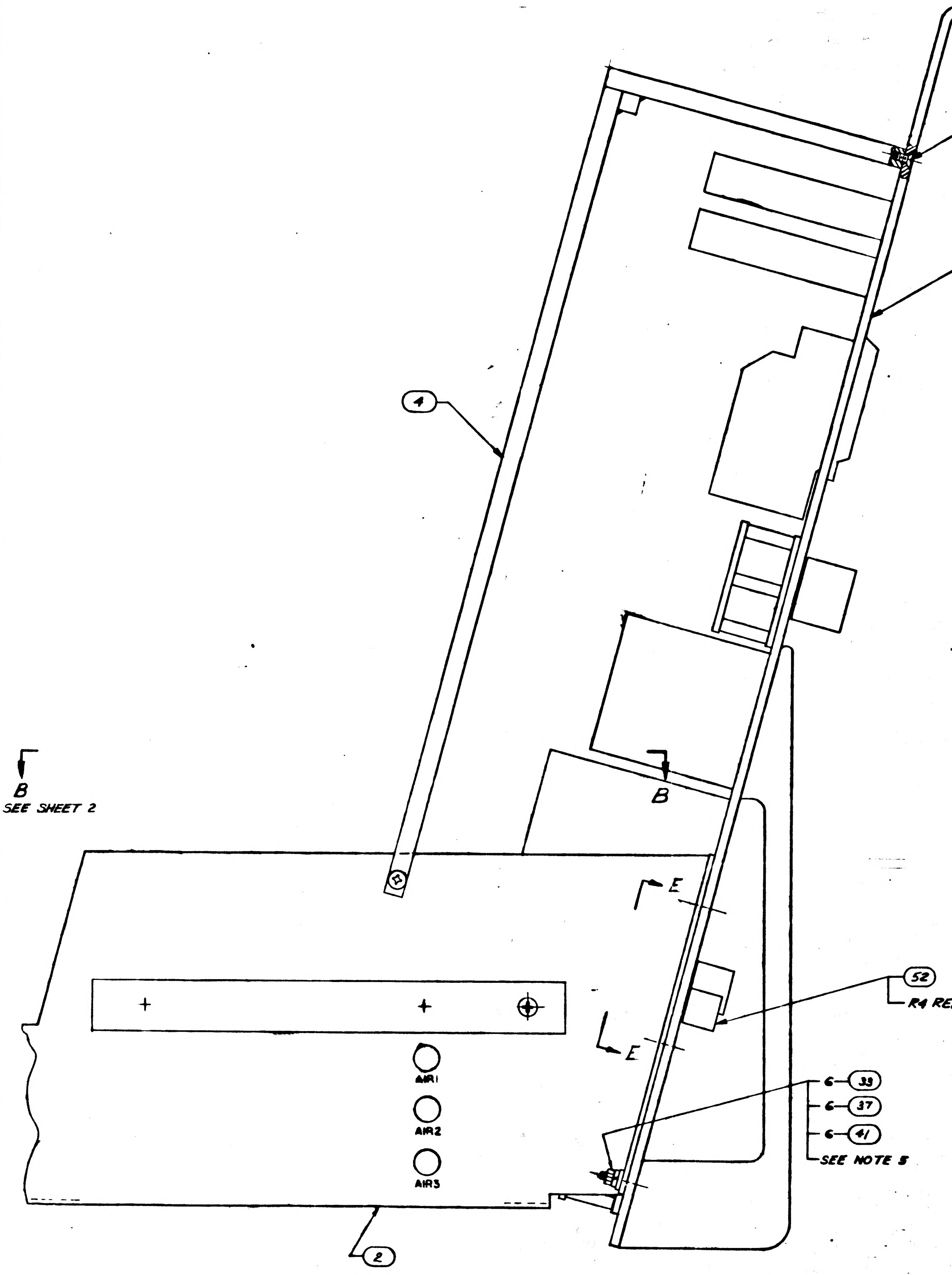
POWER CONTROL ASSY
OPERATION CONSOLE

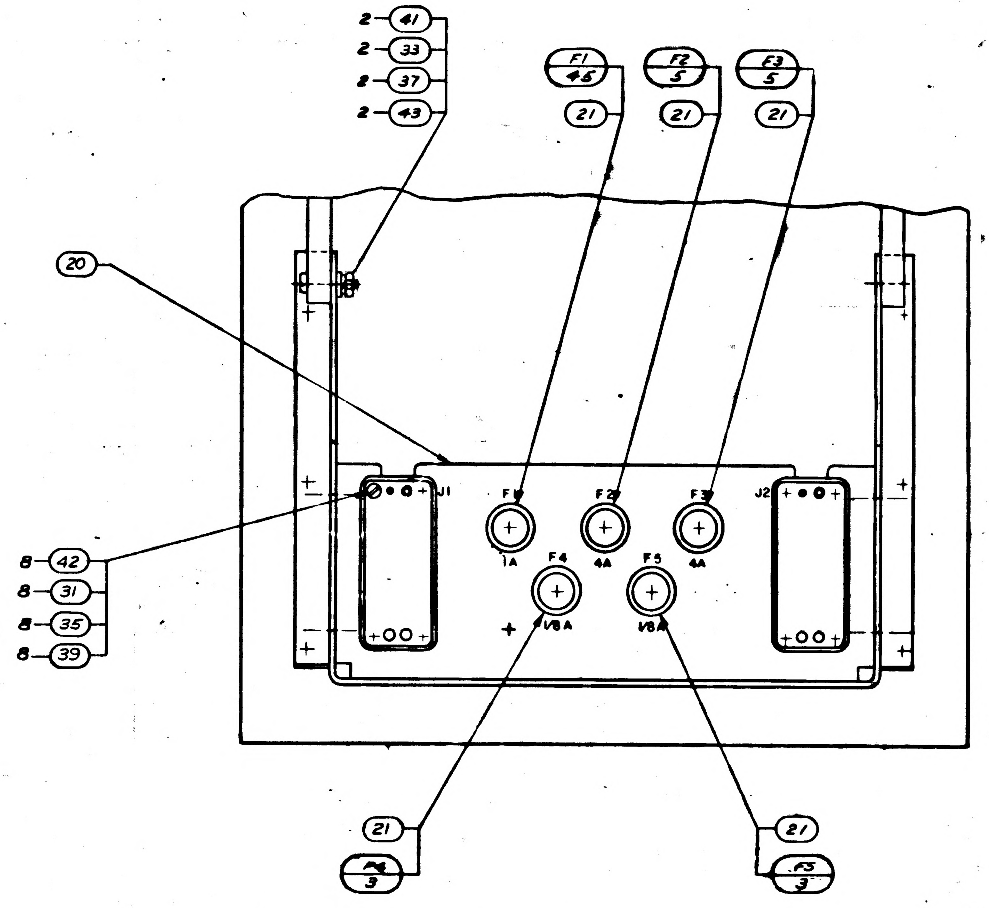
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014079
SCALE
WT
SHEET 2 OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014079 D

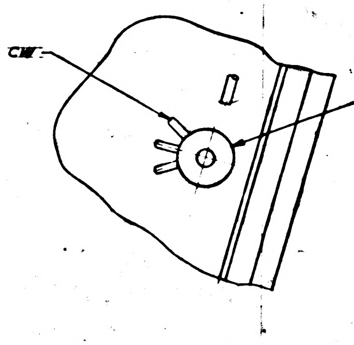
SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA 25206		
1	CHANGED PER CCA R25232 DR Roy Coombs CHK APPD		
—	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25645 DR CHK APPD		
B	CHANGED PER CCA R25668 DR R. Smith CHK APPD	1/6/66	
C	CHANGED PER CCA R25708 DR G. J. Brown CHK APPD RED		
D	CHANGED PER CCA R25739 AND CLASS A RELEASED PER TDRR 25476		
E	CHANGED PER TDRR 25436 DR G. J. Brown CHK	3/24/66	





VIEW A-A
SEE SHEET 2
VIEW SHOWN WITH FIND NO. 7 & 8 REMOVED

JUMPER CHART						
COND IDENT	FROM	TO	COLOR	AWG	FIND NO.	REMARKS
C1	TB1-A12	TB1-A11	WHT	22	47	SEE NOTE 10
C2	TB1-A11	TB1-A10				
C3	TB1-A10	TB1-A9				
C4	TB1-A9	TB1-A8				
C5	TB2-B12	TB2-B11				
C6	TB2-B11	TB2-B10				
C7	TB2-B10	TB2-B9				
C8	TB2-B7	TB2-B6				
C9	TB2-A6	TB2-A5	WHT	22	47	SEE NOTE 10



SECTION E-E

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. FABRICATE PER ND1002032
3. SOLDER PER ND1002071
~~4. QQ-W-343, TYPE S SOFT COATED (a) AWG SIZE 22~~
5. MAXIMUM TORQUE TO BE 18 INCH POUNDS
6. BOND FIND NO.22 TO FIND NO.2 USING FIND NO.28
7. AR DENOTES AS REQUIRED
8. SERIALIZE PER ND1002023
9. CRIMP PER ND 1002206
10. STRIP EACH END OF CONDUCTOR .16 ±.03 & ASSEMBLE FIND 49
11. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
12. CUT FIND 51 TO .50 LENGTH, 6 PCS, INSTALL OVER TERMINALS. AFTER WIRING
13. R4 (1006427) IS SUPPLIED AS PART OF FIND 19

*DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	MS21322-38	CLAMP, LOOP	54
☒	2014188-011	WIRING HARNESS	REF
☒	2014156	SCHEMATIC	REF
1	MS21919DG6	CLAMP, LOOP	53
1	MS91528-1E2B	KNOB, CONTROL, ROUND	52
0.3	1006776-8	INSULATION, SLEEVING	51
☒	~~2014189~~	~~LEAD ELECTRICAL~~	~~REF~~
AR	1006458-004	TAPE, LACING	50
18	MS17143-19	TERMINAL LUG	49
~~4.3~~	~~SEE NOTE 4~~	~~WIRE, ELECTRICAL~~	~~48~~
2.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL (WHT)	47
2	MS35431-4	TERMINAL LUG	46
1	F02A250V1A	FUSE (MIL-F-15160/02)	45
2	MS51959-45	SCREW, FLAT HD	44
2	MS51957-47	SCREW, PAN HD	43
8	MS35275-18	SCREW, FIL HD	42
16	MS35649-84	NUT, HEX	41
18	MS35649-64	NUT, HEX	40
8	MS35649-44	NUT, HEX	39
4	MS51957-29	SCREW, PAN HD	38
20	MS15795-807	WASHER, FLAT	37
28	MS15795-805	WASHER, FLAT	36
28	MS15795-803	WASHER, FLAT	35
2	MS51957-36	SCREW, PAN HD	34
20	MS35338-80	WASHER, LOCK	33
28	MS35338-79	WASHER, LOCK	32
28	MS35338-78	WASHER, LOCK	31
6	MS51959-46	SCREW, FH	30
6	MS24693-28	SCREW, FH	29
AR	MIL-A-5092 TYPE II	CEMENT	28
6	MS51957-45	SCREW, PAN HD	27
10	MS51957-30	SCREW, PAN HD	26
10	MS51957-12	SCREW, PAN HD	25
5	1006948	SOCKET, RELAY	24
1	1006652	FLASHER, ELECTRONIC	23
1	1004260-237	NAMEPLATE	22
5	MS26572-1	FUSEHOLDER	21
1	2014245	CHASSIS, REAR	20
1	1006489-001	AMPLIFIER UNIT, DIGITAL	19
5	1006947-000	RELAY, ARMATURE	18
1	1015982-001	RELAY, ARMATURE	17
1	2014270	BRACKET, RELAY MTG	16
2	MIL-T-16784/26TB12	BOARD, TERM.	15
4	MS51957-31	SCREW, PAN HD	14
10	1014085	STUD, SPACER	13
2	2014276	BRACKET, TERM. BOARD	12
1	2014298-011	BOARD, TERM. ASSY A1	11
~~1~~	~~1006665-3~~	~~SLIDE, CHASSIS~~	~~10~~
~~1~~	~~1006665-4~~	~~SLIDE, CHASSIS~~	~~9~~
1	1006665-1	SLIDE, CHASSIS	8
1	1006665-2	SLIDE, CHASSIS	7
1	2014015	COVER, DIGITAL AMPLIFIER	6
2	F02A250V4A	FUSE (MIL-F-15160/02)	5
1	2014246	SUPPORT BRKT	4
2	F02A250V 1/8A	FUSE (MIL-F-15160/02)	3
1	2014283	CHASSIS	2
1	2014297-011	FRONT PANEL ASSY	1
-011	LIST OF MATERIALS		

NOT SHOWN*

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 5 JUN 65
CHECKED 3 JUL 65
APPROVAL H Mona 30 Jul 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

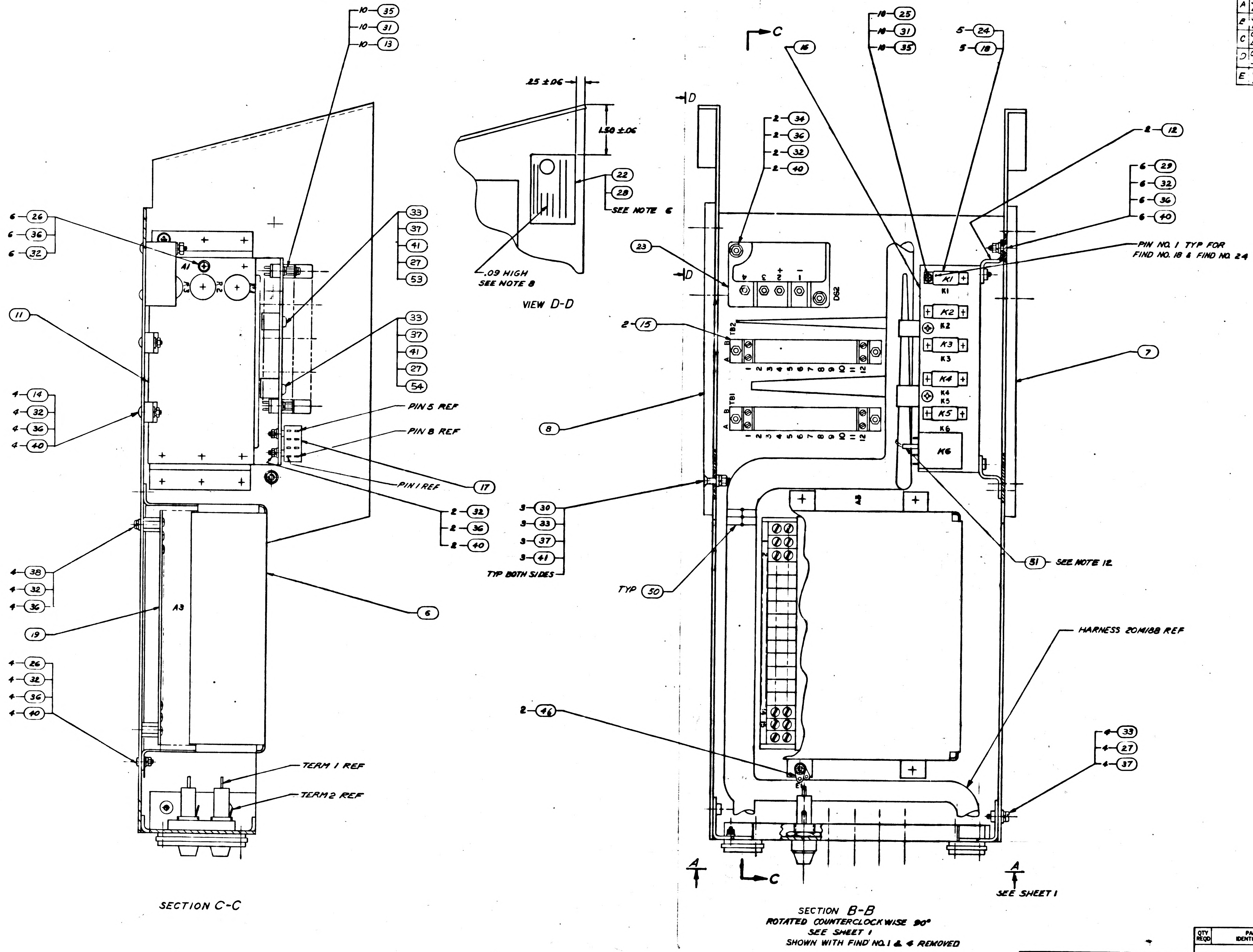
POWER CONTROL ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014079
SCALE 1/1
WT
SHEET OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014079 L

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER RD-CCA 25298	[illegible]	[illegible]
1	CHANGED PER CCA R25232 DR [illegible] CHK [illegible] APPD PED	4/13/65	GMB
–	CLASS B CHANGED PER CCA R25509	[illegible]	[illegible]
A	CHANGED PER CCA R25645 DR [illegible] CHK [illegible] APPD	[illegible]	[illegible]
B	CHANGED PER CCA R25666 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
C	CHANGED PER CCA R25708 DR A.J. Brown C [illegible] APPD PED	[illegible]	[illegible]
D	CHANGED PER CCA R25739 AND CLASS A RELEASED PER TDRR 25476	[illegible]	[illegible]
E	CHANGED PER TDRR 26463 DR A.J. Brown CHK [illegible] APPD	[illegible]	[illegible]


10 35
10 31
10 13
6 26
6 36
6 32
A1
R3
R2
11
33
37
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27
53
33
37
41
27
54
4 14
4 32
4 36
4 40
PIN 5 REF
PIN 8 REF
PIN 1 REF
17
2 32
2 36
2 40
4 38
4 32
4 36
A3
6
19
4 26
4 32
4 36
4 40
TERM 1 REF
TERM 2 REF
.25 ±.06
1.50 ±.06
22
28
SEE NOTE 6
.09 HIGH
SEE NOTE 8
C
D
16
10 25
10 31
10 35
5 24
5 18
2 34
2 36
2 32
2 40
2 12
6 29
6 32
6 36
6 40
PIN NO. 1 TYP FOR
FIND NO. 18 & FIND NO. 24
23
DS2
2 15
TB2
TB1
A B
1 2 3 4 5 6 7 8 9 10 11 12
K1 K2 K3 K4 K5 K6
7
8
3 30
3 33
3 37
3 41
TYP BOTH SIDES
TYP 50
51 SEE NOTE 12
HARNESS 201188 REF
2 46
4 33
4 27
4 37
A
SEE SHEET 1

SECTION C-C

VIEW D-D

SECTION B-B
ROTATED COUNTERCLOCKWISE 90°
SEE SHEET 1
SHOWN WITH FIND NO. 1 & 4 REMOVED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4[illegible]
DRAWN [illegible] DATE 5 JUN 65
CHECKED [illegible] 9 JUL [illegible]
APPROVAL [illegible] 30 JUL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

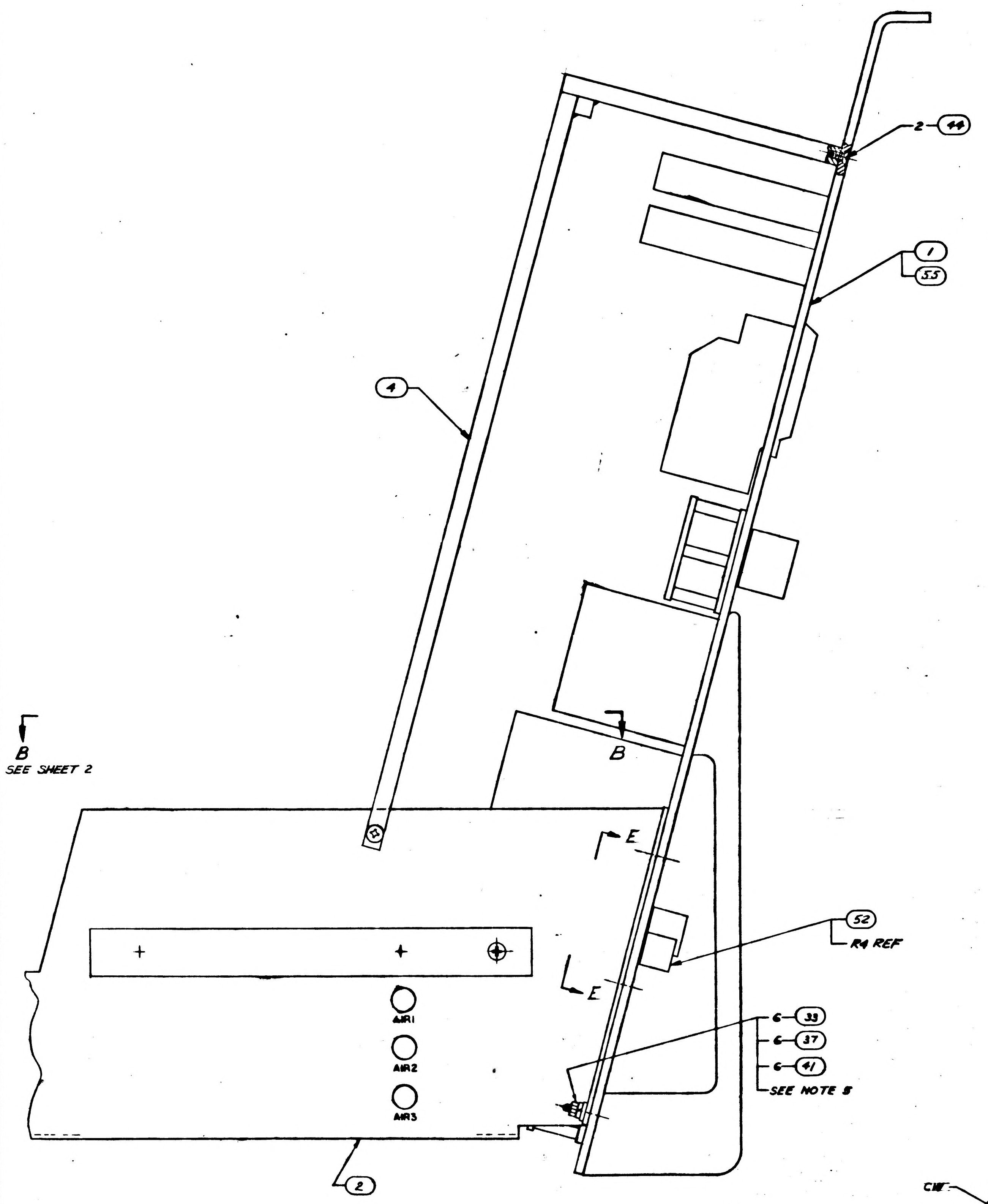
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

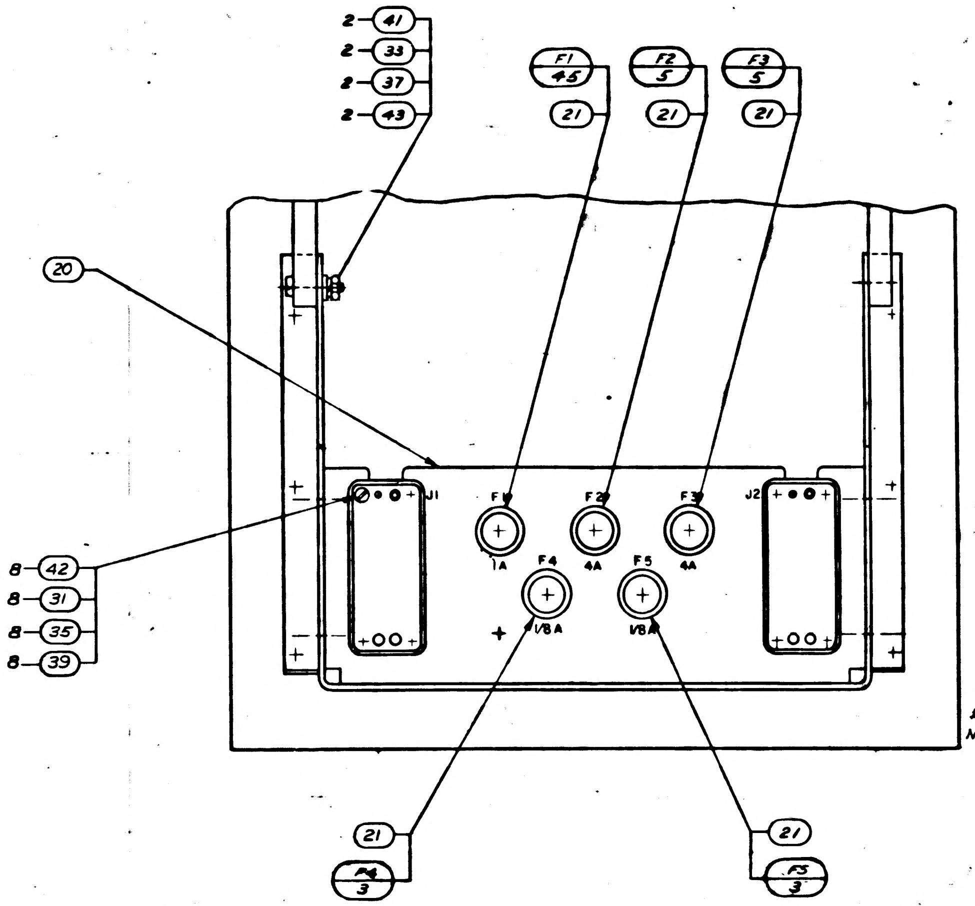
POWER CONTROL ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014079
SCALE 1/1
WT
SHEET OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

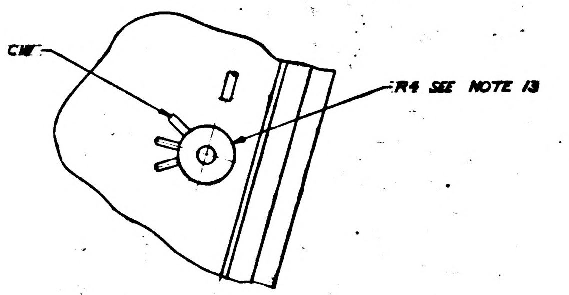
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25206	[illegible]	[illegible]
1	CHANGED PER CCA R25232 DR CHK APPD	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25509	[illegible]	[illegible]
A	CHANGED PER CCA R25645 DR CHK APPD	[illegible]	[illegible]
B	CHANGED PER CCA R25666 DR CHK APPD	[illegible]	[illegible]
C	CHANGED PER CCA R25708 DR G. J. Brun CHK APPD RCO	[illegible]	[illegible]
D	CHANGED PER CCA R25739 AND CLASS A RELEASED PER TDRR 25476	[illegible]	[illegible]
E	CHANGED PER TDRR 26466 DR Q. J. Breen CHK APPD	[illegible]	[illegible]
F	CHANGED PER TDRR 28 4 DR CHK APPD RCO	5/9/66	[illegible]





VIEW A-A
SEE SHEET 2
VIEW SHOWN WITH FIND NO. 7 & 8 REMOVED

JUMPER CHART						
COND IDENT	FROM	TO	COLOR	AWG	FIND NO.	REMARKS
C1	TB1-A12	TB1-A11	WHT	22	47	SEE NOTE 10
C2	TB1-A11	TB1-A10				
C3	TB1-A10	TB1-A9				
C4	TB1-A9	TB1-A8				
C5	TB2-B12	TB2-B11				
C6	TB2-B11	TB2-B10				
C7	TB2-B10	TB2-B9				
C8	TB2-B7	TB2-B6				
C9	TB2-A6	TB2-A5	WHT	22	47	SEE NOTE 10



SECTION E-E

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. FABRICATE PER ND1002032
3. SOLDER PER ND1002071
~~4. QQ-W-343, TYPE S SOFT COATED (L) AWG SIZE 22~~
5. MAXIMUM TORQUE TO BE 18 INCH POUNDS
6. BOND FIND NO. 22 OR FIND NO. 56 TO FIND NO. 2 USING FIND NO. 28
7. AR DENOTES AS REQUIRED
8. SERIALIZE PER ND1002023
9. CRIMP PER ND 1002206
10. STRIP EACH END OF CONDUCTOR .16 ±.03 & ASSEMBLE FIND 49
11. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
12. CUT FIND 51 TO .50 LENGTH, 6 PCS, INSTALL OVER TERMINALS. AFTER WIRING
13. R4 (1006427) IS SUPPLIED AS PART OF FIND 19

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	–	2016394	SCHEMATIC	RE
☒	–	2016413-011	WIRING HARNESS	RE
1	–	1004260-266	NAMEPLATE	56
1	–	2014297-021	FRONT PANEL ASSY	55
1	1	MS21322-38	CLAMP, LOOP	54
–	☒	2014188-011	WIRING HARNESS	RE
–	☒	2014156	SCHEMATIC	RE
1	1	MS21919DG6	CLAMP, LOOP	53
1	1	MS91528-1E2B	KNOB, CONTROL, ROUND	52
0.3	0.3	1006776-8	INSULATION, SLEEVING	51
–	☒	~~2014183~~	~~LEAD ELECTRICAL~~	~~RE~~
AR	AR	1006458-004	TAPE, LACING	50
18	18	MS17143-19	TERMINAL, LUG	49
~~NOT SHOWN~~ ~~–~~	~~43~~	~~SEE NOTE 4~~	~~WIRE, ELECTRICAL~~	~~48~~
NOT SHOWN * 2.0	2.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL (WHT)	47
2	2	MS35431-4	TERMINAL, LUG	46
1	1	F02A250V1A	FUSE (MIL-F-15160/02)	45
2	2	MS51959-45	SCREW, FLAT HD	44
2	2	MS51957-47	SCREW, PAN HD	43
8	8	MS35275-18	SCREW, FIL HD	42
16	16	MS35649-84	NUT, HEX	41
18	18	MS35649-64	NUT, HEX	40
8	8	MS35649-44	NUT, HEX	39
4	4	MS51957-29	SCREW, PAN HD	38
20	20	MS15795-807	WASHER, FLAT	37
28	28	MS15795-805	WASHER, FLAT	36
28	28	MS15795-803	WASHER, FLAT	35
2	2	MS51957-36	SCREW, PAN HD	34
20	20	MS35338-80	WASHER, LOCK	33
28	28	MS35338-79	WASHER, LOCK	32
28	28	MS35338-78	WASHER, LOCK	31
6	6	MS51959-46	SCREW, FH	30
6	6	MS24693-28	SCREW, FH	29
AR	AR	MIL-A-5092 TYPE II	CEMENT	28
6	6	MS51957-45	SCREW, PAN HD	27
10	10	MS51957-30	SCREW, PAN HD	26
10	10	MS51957-12	SCREW, PAN HD	25
5	5	1006948	SOCKET, RELAY	24
1	1	1006652	FLASHER, ELECTRONIC	23
–	1	1004260-237	NAMEPLATE	22
5	5	MS26572-1	FUSEHOLDER	21
1	1	2014245	CHASSIS, REAR	20
1	1	1006489-001	AMPLIFIER UNIT, DIGITAL	19
5	5	1006947-000	RELAY, ARMATURE	18
1	1	1015982-001	RELAY, ARMATURE	17
1	1	2014270	BRACKET, RELAY MTG	16
2	2	MIL-T-16784/26TB12	BOARD, TERM.	15
4	4	MS51957-31	SCREW, PAN HD	14
10	10	1014085	STUD, SPACER	13
2	2	2014276	BRACKET, TERM. BOARD	12
1	1	2014298-011	BOARD, TERM. ASSY A1	11
–	~~1~~	~~1006665-3~~	~~SLIDE, CHASSIS~~	~~10~~
–	~~1~~	~~1006665-4~~	~~SLIDE, CHASSIS~~	~~9~~
1	1	1006665-1	SLIDE, CHASSIS	8
1	1	1006665-2	SLIDE, CHASSIS	7
1	1	2014015	COVER, DIGITAL AMPLIFIER	6
2	2	F02A250V4A	FUSE (MIL-F-15160/02)	5
1	1	2014246	SUPPORT BRKT	4
2	2	F02A250V 1/8A	FUSE (MIL-F-15160/02)	3
1	1	2014283	CHASSIS	2
–	1	2014297-011	FRONT PANEL ASSY	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 5 JUN 65
CHECKED 3 JUL 65
APPROVAL 30 Jul 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

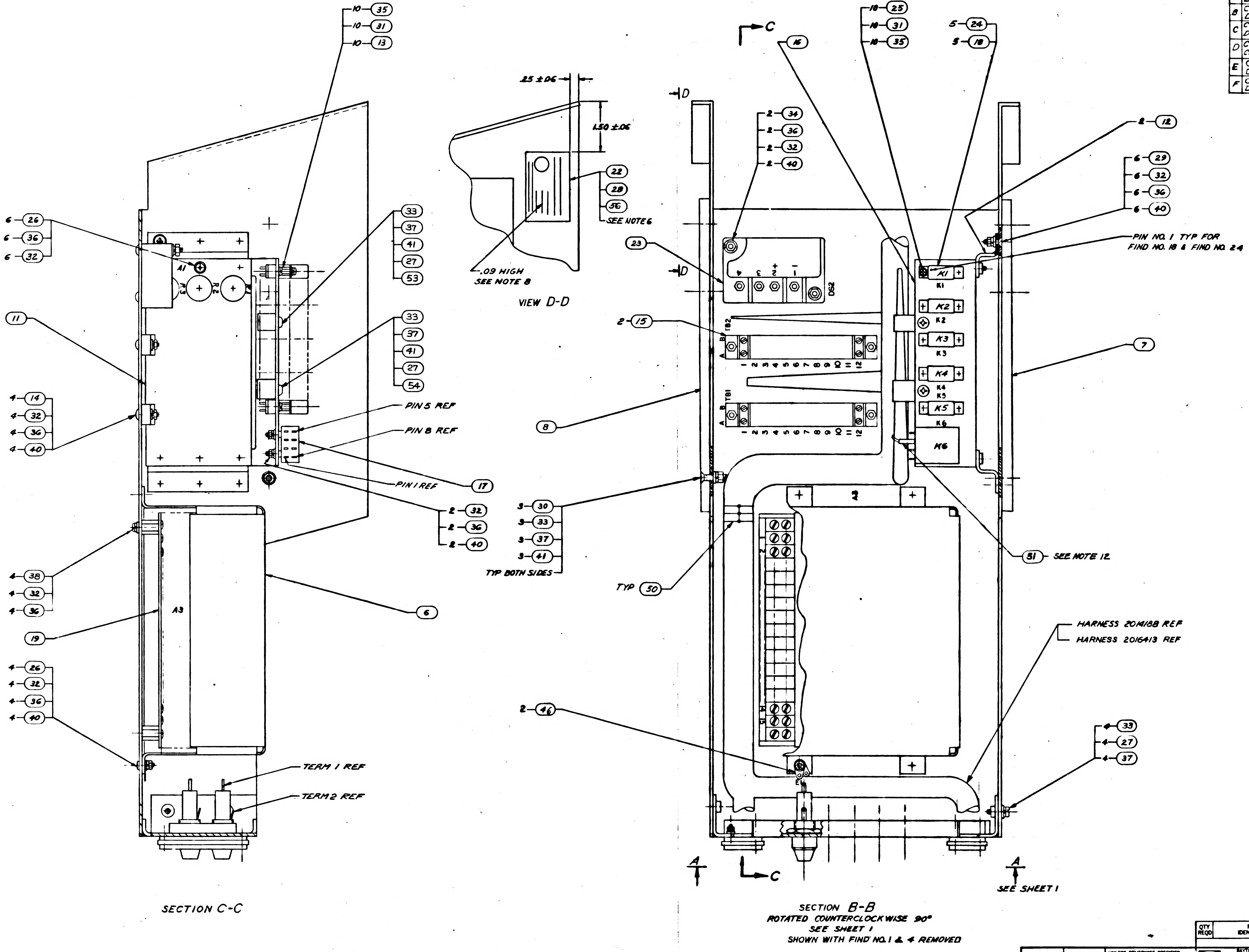
POWER CONTROL ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014079
SCALE 1/1
WT
SHEET OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

F 2014079

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER RD CCA 25205		
I	CHANGED PER CCA R25232 DR CHK APPD PED	4/12/61	
–	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25645 DR CHK APPD		
B	CHANGED PER CCA R25666 DR CHK APPD		
C	CHANGED PER CCA R25708 DR A.J. B CHK APPD PED		
D	CHANGED PER CCA R25739 AND CLASS A RELEASED PER TDRR 2547		
E	CHANGED PER TDRR 26466 DR A.J. CHK APPD		
F	CHANGED PER TDRR 2814 DR CHK APPD PED		



10 — 35
10 — 31
10 — 13
6 — 26
6 — 36
6 — 32
A1
R1
R2
33
37
41
27
53
33
37
41
27
54
11
4 — 14
4 — 32
4 — 36
4 — 40
PIN 5 REF
PIN 8 REF
PIN 1 REF
17
2 — 32
2 — 36
2 — 40
4 — 38
4 — 32
4 — 36
A3
6
19
4 — 26
4 — 32
4 — 36
4 — 40
TERM 1 REF
TERM 2 REF
SECTION C-C
.25 ±.06
1.50 ±.06
22
28
56
SEE NOTE 6
.09 HIGH
SEE NOTE 8
VIEW D-D
C
16
D
D
2 — 34
2 — 36
2 — 32
2 — 40
23
DS2
2 — 15
TB2
TB1
8
10 — 25
10 — 31
10 — 35
5 — 24
5 — 18
2 — 12
6 — 29
6 — 32
6 — 36
6 — 40
PIN NO. 1 TYP FOR
FIND NO. 18 & FIND NO. 24
K1
K2
K3
K4
K5
K6
7
3 — 30
3 — 33
3 — 37
3 — 41
TYP BOTH SIDES
TYP 50
A2
51 SEE NOTE 12
HARNESS 2014188 REF
HARNESS 2016413 REF
2 — 46
4 — 33
4 — 27
4 — 37
A
A
SEE SHEET 1
C
SECTION B-B
ROTATED COUNTERCLOCKWISE 90°
SEE SHEET 1
SHOWN WITH FIND NO. 1 & 4 REMOVED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-437
DRAWN DATE 5 Jan 65
CHECKED JUL 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER CONTROL ASSY
OPERATION CONSOLE

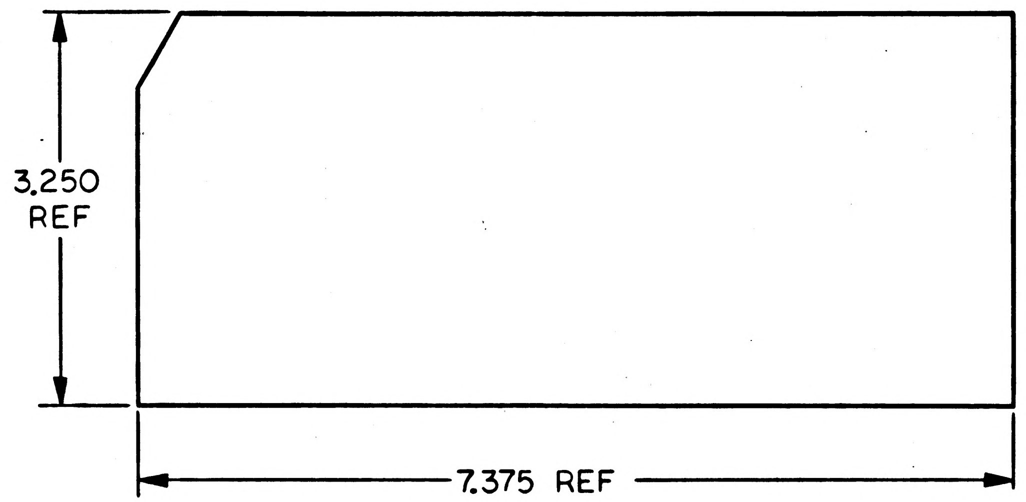
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 201407
SCALE 1/1
WT
SHEET OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014079 F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25091	7/9/65	G Harano
-	CLASS A RELEASE PER TDRR 21380		

NO. OF CARDS 412



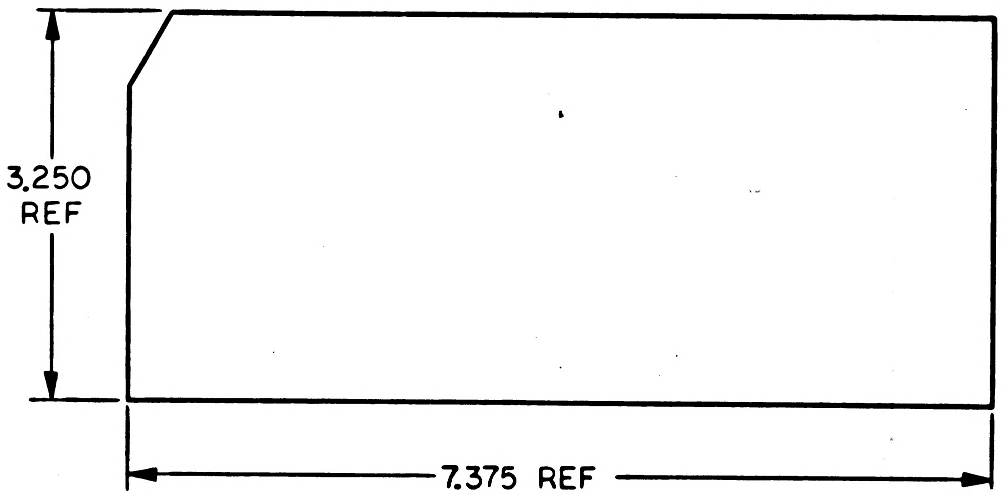
REFERENCE DRAWINGS
SCHEMATICS 2014159

NOTE
USE CARD FORM IBM U11897
OR EQUIVALENT

MASTER

RAYTHEON RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
CONTRACT NO. FNP-12275	
DRAWN DATE 22 MAY 65	WIRE WRAP MACHINE CARDS LOGIC PLATE 3 COMPUTER SIMULATOR
CHECKED 9 JUN 65	
APPROVAL D.O'Bryant 7/8/65	
APPROVAL P.E. Bube 7/8/65	
APPROVAL 7/8/65	
NASA APPROVAL	CODE IDENT NO. 49956 / SIZE B / NASA DRAWING NO. 2014083
MIT APPROVAL 3 Aug 65	
MIT APPROVAL G.G. Harano 8/4/65	SCALE 1/1 / WT / SHEET 1 OF 1

NO. OF CARDS 614



REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25085	8/13/65	C [illegible]
1	CHANGED PER CCA R25485 DR J. Ahern CHK E. Urban APPD P E Duke 11-12-65	11/12/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25565 DR [illegible] CHK [illegible] APPD P E D 1-6-66	1/6/66	[illegible]
B	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	1/15/66	[illegible]

REFERENCE DRAWINGS

LOGIC DIAGRAM 2014107

MECH ASSY 2014219

NOTE

1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9-497
DRAWN [illegible] DATE 22 MAY 65
CHECKED [illegible]
APPROVAL P E Duke 22 JULY 65
APPROVAL D. O'Bryant 7/24/65
APPROVAL [illegible] 8/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C Sharkey 1/20/66

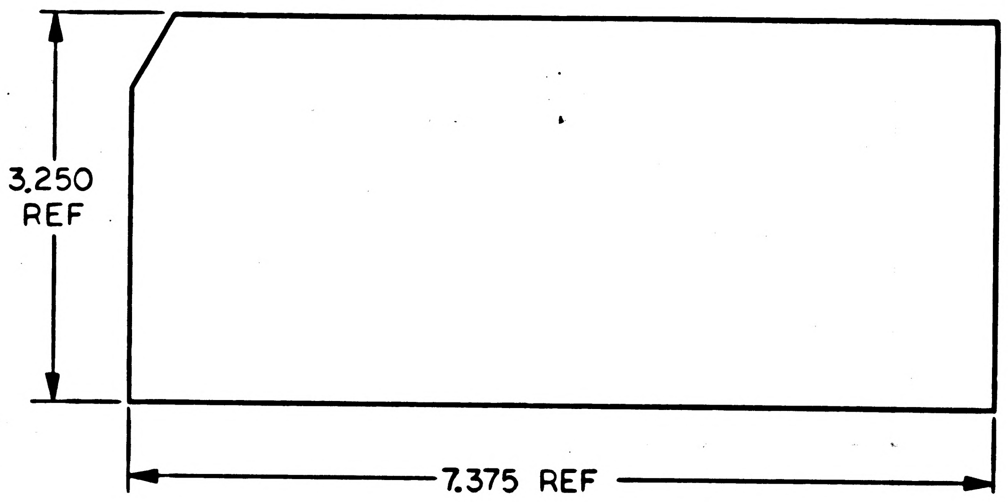
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRE WRAP MACHINE CARDS
LOGIC PLATE 5
LOGIC DRAWER 1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE B
NASA DRAWING NO. 2014089
SCALE 1/1
WT
SHEET 1 OF 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25085	8/13/65	G. Hara
1	CHANGED PER CCA R25485 DR J Dit CHK E Urban APP P.E. Dube 11-17-65	11/17/65	
—	CLASS E CHANGED PER CCA R25502	11/15/65	
A	CHANGED PER CCA R25565 DR CHK APPD P.E.D. 1-6-66	1/6/66	
B	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	1/13/66	

NO. OF CARDS 745



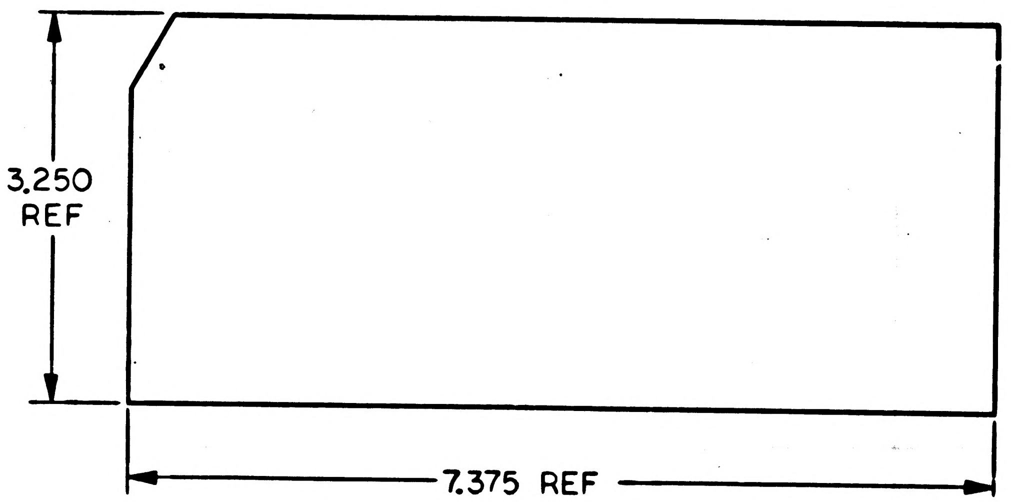
REFERENCE DRAWINGS

LOGIC DIAGRAM 2014066
MECH ASSY 2014224

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

RAYTHEON RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
CONTRACT NO. NAS9-497			
DRAWN DATE 22MAY65	WIRE WRAP MACHINE CARDS LOGIC PLATE 1 LOGIC DRAWER 2 COMPUTER TEST SET		
CHECKED 19 JUL 65			
APPROVAL 7/20/65			
APPROVAL P. E. Dube 7/20/65			
APPROVAL 8/11/65			
NASA APPROVAL A. C. METZGER	CODE IDENT NO. 49956	SIZE B	NASA DRAWING NO. 2014091
MIT APPROVAL 21 Jan 66			
MIT APPROVAL 1/20/66	SCALE 1/1	WT	SHEET 1 OF 1

NO. OF CARDS 746



REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25085	8/13/65	G. Horan
1	CHANGED PER CCA R25485 DR J. Dietz CHK E. Urban APP P.E. Duke 11-13-65	11/13/65	
—	CLASS B CHANGED PER CCA R25502	11/15/65	
A	CHANGED PER CCA R25565 DR CHK APPD P.E.D. 1-6-66	1/6/66	
B	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	1/13/66	
C	CHANGED PER TDRR 26443 DR A.J. Green CHK Winfield APPD	2/24/66	

REFERENCE DRAWINGS
LOGIC DIAGRAM 2014066
MECH ASSY 2014224

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9-497
DRAWN DATE 22MAY65
CHECKED 19 JUL 65
APPROVAL D. O'Bryant 7/20/65
APPROVAL P.E. Duke 7/20/65
APPROVAL K.E. Brown 8/11/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 21 Jan 66
MIT APPROVAL C Sperling 1/20/66

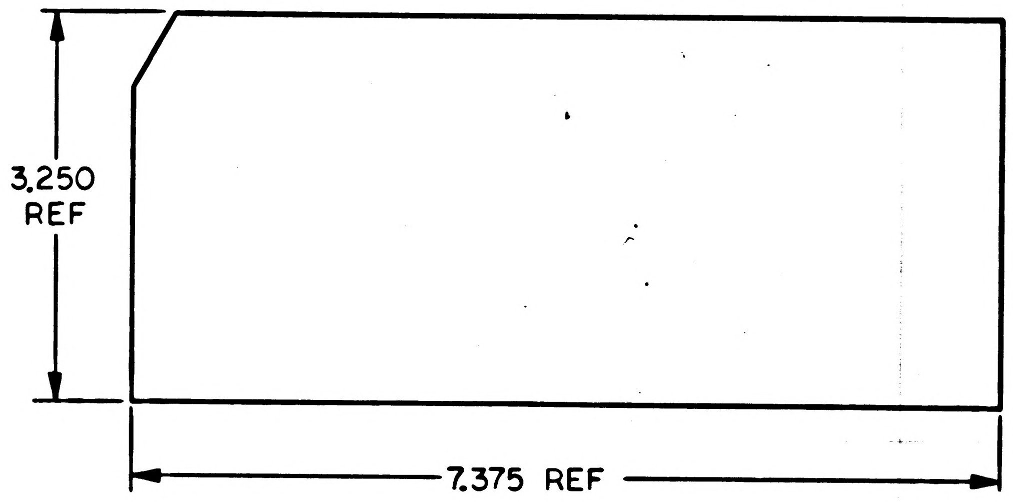
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRE WRAP MACHINE CARDS
LOGIC PLATE 1
LOGIC DRAWER 2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE B
NASA DRAWING NO. 2014091
SCALE 1/1
WT
SHEET 1 OF 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25085	8/13/65	G. Haram
1	CHANGED PER CCA R25485 DR J. Otz CHK APP G. E. Anbe 11-12-65	11/11/65	
—	CLASS A RELEASED PER TDRR 25472		

NO. OF CARDS 707



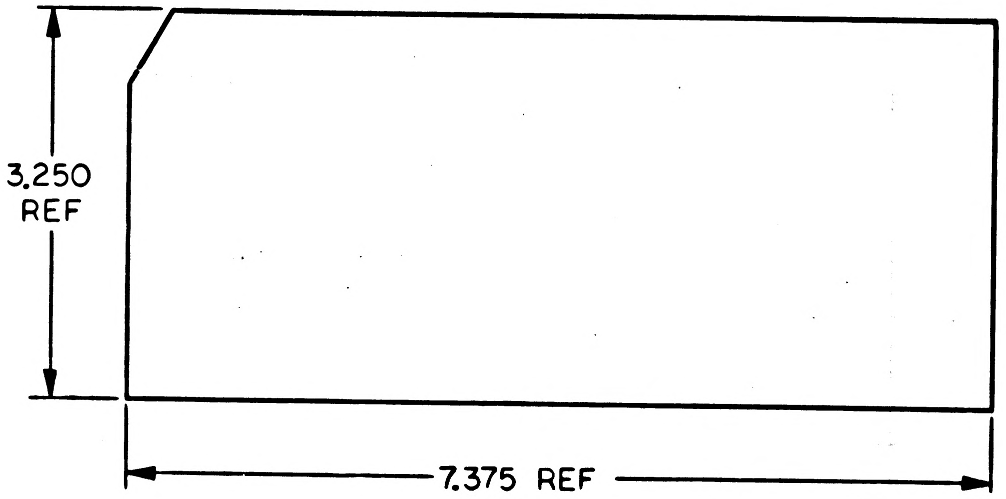
REFERENCE DRAWINGS
LOGIC DIAGRAM 2014067
MECH ASSY 2014220

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
CONTRACT NO. NAS 9-497			
DRAWN DATE 22 MAY 65	WIRE WRAP MACHINE CARDS LOGIC PLATE 2 LOGIC DRAWER 2 COMPUTER TEST SET		
CHECKED 19 JUL 65			
APPROVAL 7/20/65			
APPROVAL P E Dube 7/20/65			
APPROVAL 8/1/65			
NASA APPROVAL A. C. METZGER	CODE IDENT NO.	SIZE	NASA DRAWING NO.
MIT APPROVAL	49956	B	2014092
MIT APPROVAL C Snerling 1/20/66	SCALE 1/1	WT	SHEET 1 OF 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25085	8/13/65	
1	CHANGED PER CCA R25485 DR J. Doty CHK E Urban APP R. C. Duke 11-17-65	11/12/65	
–	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26492 DR CHK R.H.E. APPD	2/27/66	

NO. OF CARDS 487



REFERENCE DRAWINGS

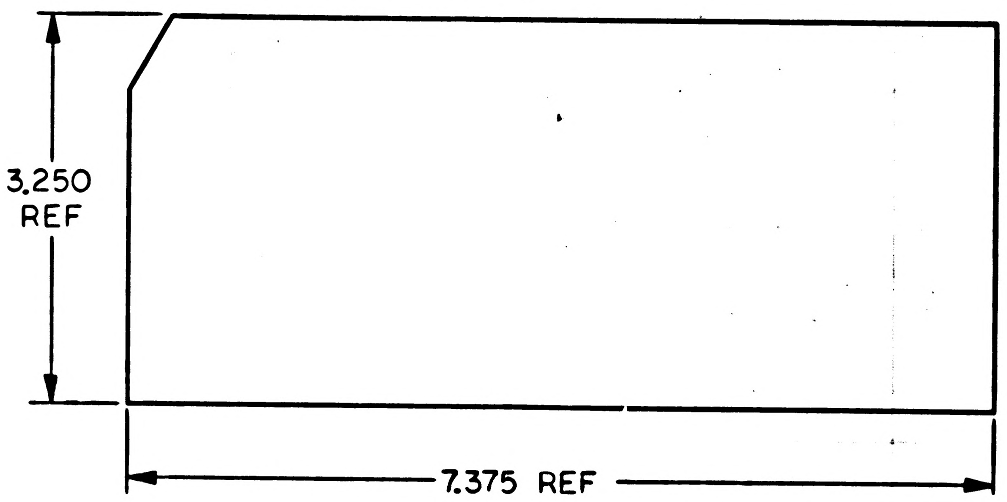
LOGIC DIAGRAM 2014068
MECH ASSY 2014221

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED MIL-D-70327

RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
CONTRACT NO. NAS 9-497			
DRAWN DATE 22 MAY 65	WIRE WRAP MACHINE CARDS LOGIC PLATE 3 LOGIC DRAWER 2 COMPUTER TEST SET		
CHECKED			
APPROVAL 23 JUL 65			
APPROVAL D. O'Bryant 7/24/65			
APPROVAL			
NASA APPROVAL A. C. METZGER	CODE IDENT NO.	SIZE	NASA DRAWING NO.
MIT APPROVAL	49956	B	2014093
MIT APPROVAL C Sneely 1/10/66	SCALE 1/1	WT	SHEET 1 OF 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25085	8/13/65	G. Harano
1	CHANGED PER CCA R25485 DR J. Doty CHKE Urban APP B. E. Duke 11-13-65	14/12/61	
–	CLASS A RELEASED PER TDRR 25472		

NO. OF CARDS 487



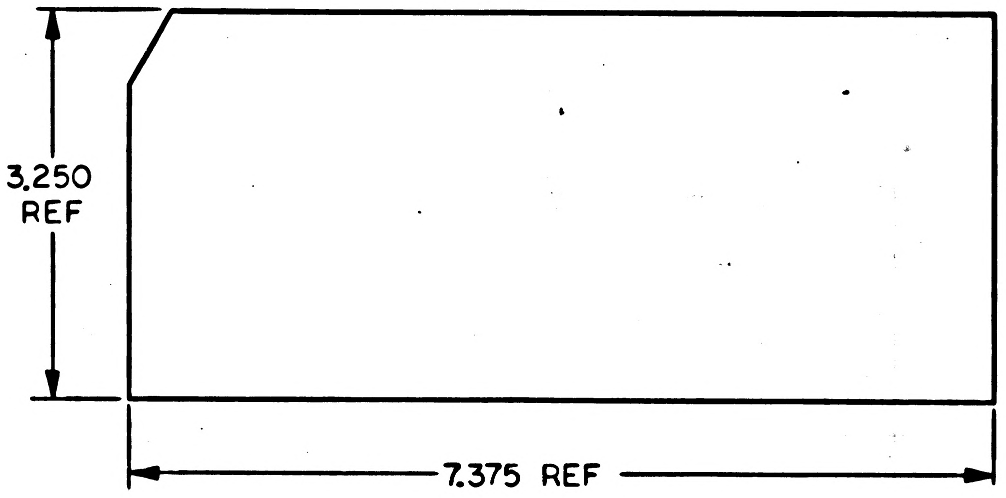
REFERENCE DRAWINGS
LOGIC DIAGRAM 2014068
MECH ASSY 2014221

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED MIL-D-70327

RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
CONTRACT NO. NAS 9-497			
DRAWN DATE 22 MAY 65	WIRE WRAP MACHINE CARDS LOGIC PLATE 3 LOGIC DRAWER 2 COMPUTER TEST SET		
CHECKED			
APPROVAL B E Duke 23 JUL 65			
APPROVAL D O'Bryant 7/24/65			
APPROVAL K E Brown			
NASA APPROVAL A. C. METZGER	CODE IDENT NO.	SIZE	NASA DRAWING NO.
MIT APPROVAL	49956	B	2014093
MIT APPROVAL C Searle 1/10/66	SCALE 1/1	WT	SHEET 1 OF 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B CHANGED PER CCA R25502	12/15/65	
A	CHANGED PER CCA R25565 DR CHK APPD P.F.D	1/6/66	
B	CHANGED PER CCA R25721 AND CLASS A RELEASED PER TDRR 25472	1/14/66	

NO. OF CARDS 761



* REFERENCE DRAWINGS
LOGIC DIAG 2014070

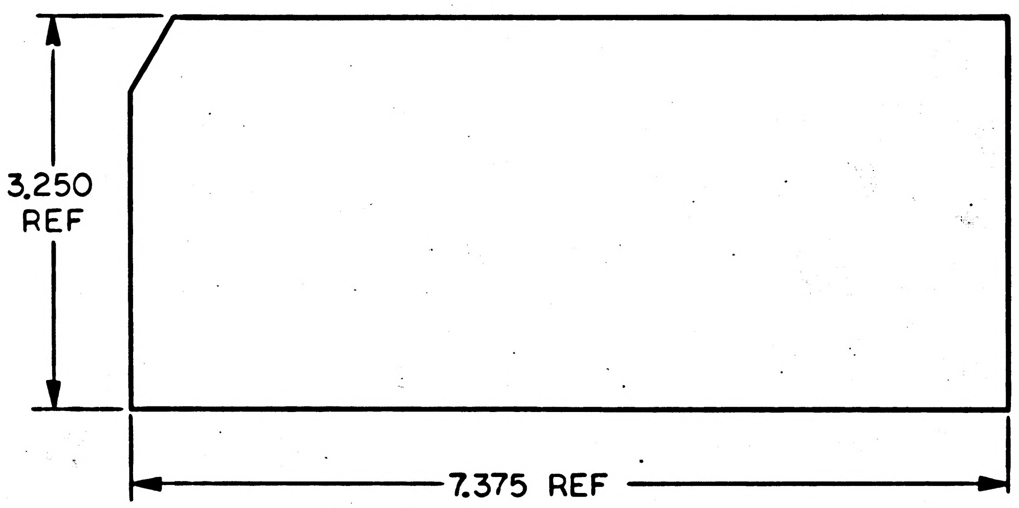
MECH ASSY 2014223

NOTE
1. USE CARD FORM IBM U11897
OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE
WITH STANDARDS PRESCRIBED
BY MIL-D-70327

RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
CONTRACT NO. NAS 9-497			
DRAWN DATE 22 MAY 65	WIRE WRAP MACHINE CARDS LOGIC PLATE 5 LOGIC DRAWER 2 COMPUTER TEST SET		
CHECKED 19 JUL 65			
APPROVAL D. O'Brien 10/29/65			
APPROVAL 29 Oct 65			
APPROVAL 11/1/65			
NASA APPROVAL A. C. METZGER	CODE IDENT NO. 49956	SIZE B	NASA DRAWING NO. 2014095
MIT APPROVAL			
MIT APPROVAL C Sperling 1/20/66	SCALE 1/1	WT	SHEET 1 OF 1

REVISIONS 26218			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
-	CLASS B CHANGED PER CCA R25502	1/6/66	
A	CHANGED PER CCA R25705 DR CHK BBQ APPD RPC	1/13/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER T.DRR 26218	2/11/66	

NO. OF CARDS 563



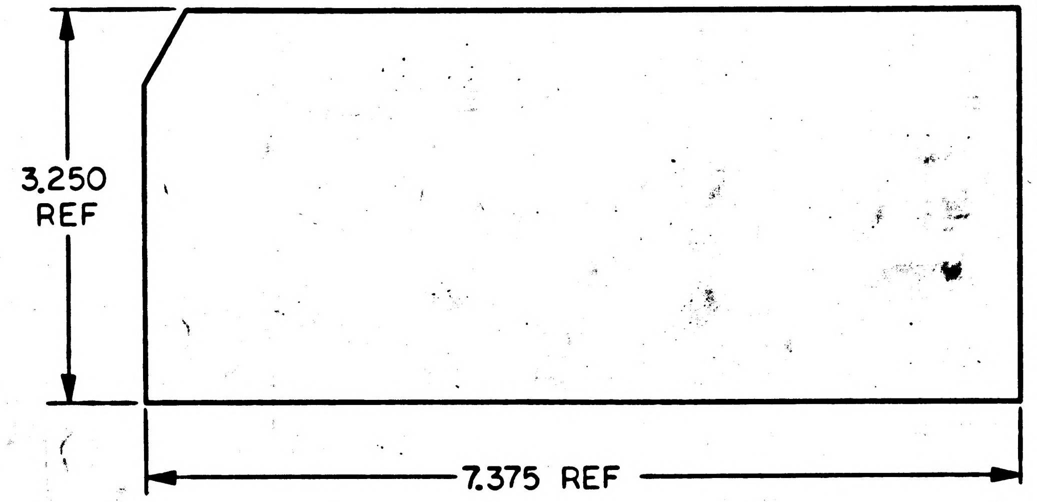
REFERENCE DRAWINGS
LOGIC DIAG 2014196
MECH ASSY 2014229

NOTE
1. USE CARD FORM IBM U11897
OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE
WITH STANDARDS PRESCRIBED
BY MIL-D-70327

MASTER

RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
CONTRACT NO. NAS 9-497	
DRAWN D. Honey DATE 22MAY65	WIRE WRAP MACHINE CARDS INTERCONNECTION PLATE 6 LOGIC DRAWER 2 COMPUTER TEST SET
CHECKED	
APPROVAL 23 JUL 65	
APPROVAL D. O. Bryant 10/30/65	
APPROVAL 11/1/65	
NASA APPROVAL A. C. METZGER	CODE IDENT NO. 49956 · SIZE B · NASA DRAWING NO. 2014096
MIT APPROVAL 15 Feb 66	
MIT APPROVAL A. Karani 2/14/66	SCALE 1/1 · WT · SHEET 1 OF 1

NO. OF CARDS 654



REVISIONS 26218			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B CHANGED PER CCA R25502	12/15/65	
A	CHANGED PER CCA R25565 DR CHK APPD R.E.D. 1-6-66	1/6/66	
B	CHANGED PER CCA R25705 DR P. Mooney CHK BGQ APPD RPC	1/15/66	
C	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	

REFERENCE DRAWINGS
LOGIC DIAG 2014143
MECH ASSY 2014352

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 24MAY65
CHECKED
APPROVAL R E Doyle 29 JULY 65
APPROVAL D. O'Bryant 10/30/65
APPROVAL 11/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 2/1/66

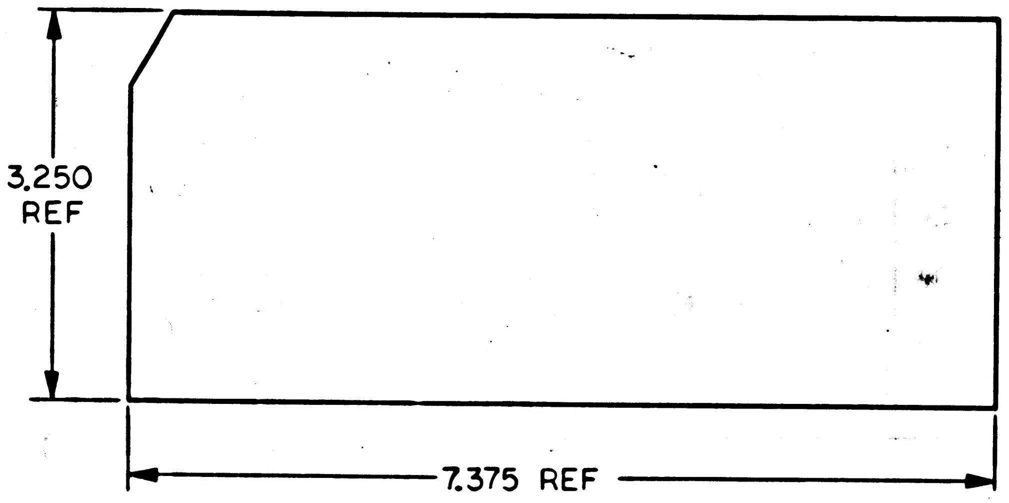
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRE WRAP MACHINE CARDS
LOGIC PLATE 1
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE B
NASA DRAWING NO. 2014097
SCALE 1/1
WT
SHEET 1 OF 1

REVISIONS 26218			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B CHANGED PER CCA R25502	12/15/65	
A	CHANGED PER CCA R25565 DR CHK APPD 1-6-66	1/6/66	
B	CHANGED PER CCA R25705 DR P. CHK BGQ APPD RPC	1/15/66	
C	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	
D	CHANGED PER TDRR 27070 DR D.Q. Clermont CHK APPD	3/21/66	

NO. OF CARDS 657



REFERENCE DRAWINGS
LOGIC DIAG 2014143
MECH ASSY 2014352

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 24MAY65
CHECKED
APPROVAL 20 JULY 65
APPROVAL 12/30/65
APPROVAL 1/1/66
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL 2/1/66

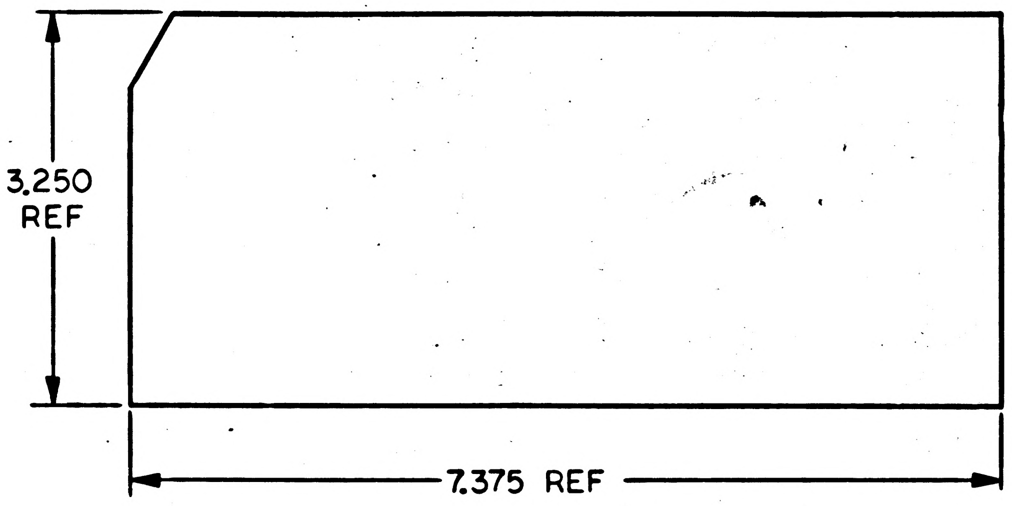
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRE WRAP MACHINE CARDS
LOGIC PLATE 1
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE B
NASA DRAWING NO. 2014097
SCALE 1/1
WT
SHEET 1 OF 1

REVISIONS 2628			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
-	CLASS B CHANGED PER CCA R25502	1/6/66	
A	CHANGED PER CCA 25705 DR CHK BBA APPD RPC	1/13/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 2628	2/10/66	

NO. OF CARDS 697



REFERENCE DRAWINGS
LOGIC DIAG 2014145
MECH ASSY 2014336

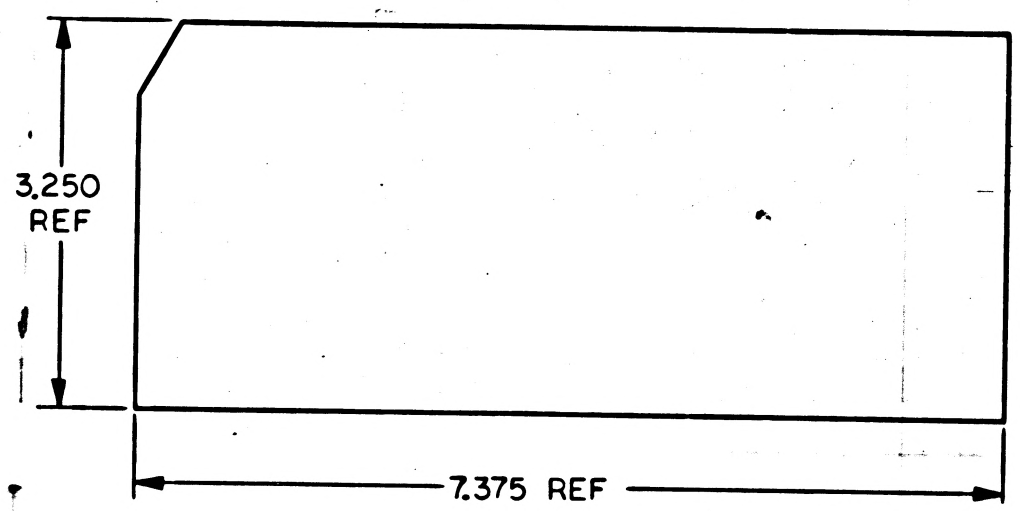
NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

RAYTHEON RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
CONTRACT NO. NAS 9-497	WIRE WRAP MACHINE CARDS LOGIC PLATE 3 PROGRAMMER & MONITOR COMPUTER TEST SET		
DRAWN DATE 22 MAY 65			
CHECKED			
APPROVAL 23 JULY 65			
APPROVAL 10/20/65			
APPROVAL 11/1/65			
NASA APPROVAL A. C. METZGER	CODE IDENT NO. 49956	SIZE B	NASA DRAWING NO. 2014099
MIT APPROVAL			
MIT APPROVAL 2/11/66	SCALE 1/1	WT	SHEET 1 OF 1

MASTER

SYM	DESCRIPTION	DATE	APPROVED
	REVISIONS 2628		
O	RELEASED PER CCA R25488		
-	CLASS B CHANGED PER CCA R25502	1/6/66	
A	CHANGED PER CCA 25705, DR CHK BCA APPD RPC	1/13/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 2628	2/10/66	
C	CHANGED PER TDRR 26664 DR A.J. Green CHK G.D. APPD RED	3/24/66	

NO. OF CARDS 697



REFERENCE DRAWINGS

LOGIC DIAG 2014145

MECH ASSY 2014336

NOTE

1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

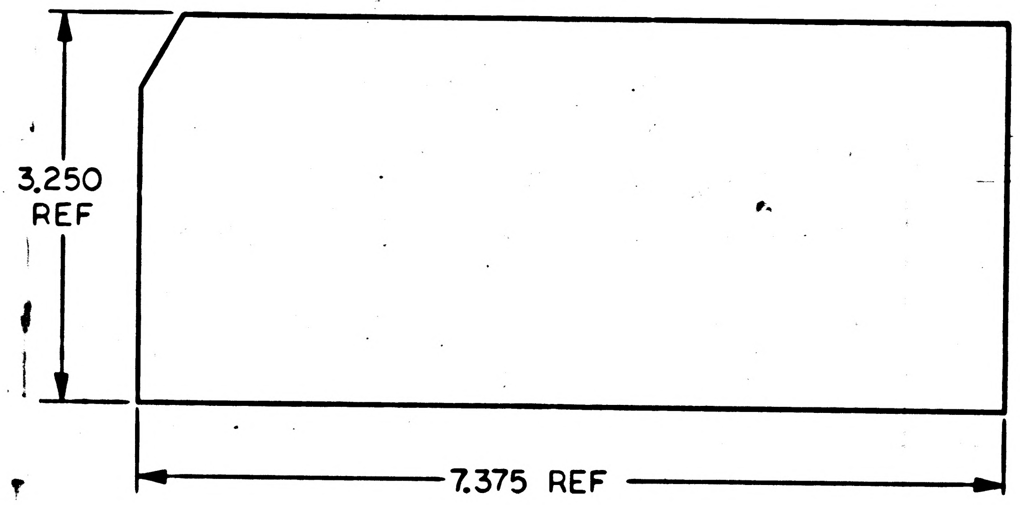
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 22 MAY 65
CHECKED
APPROVAL 23 JULY 65
APPROVAL 10/20/65
APPROVAL 11/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 2/11/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRE WRAP MACHINE CARDS
LOGIC PLATE 3
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE B
NASA DRAWING NO. 2014099
SCALE 1/1
WT
SHEET 1 OF 1

NO. OF CARDS 697



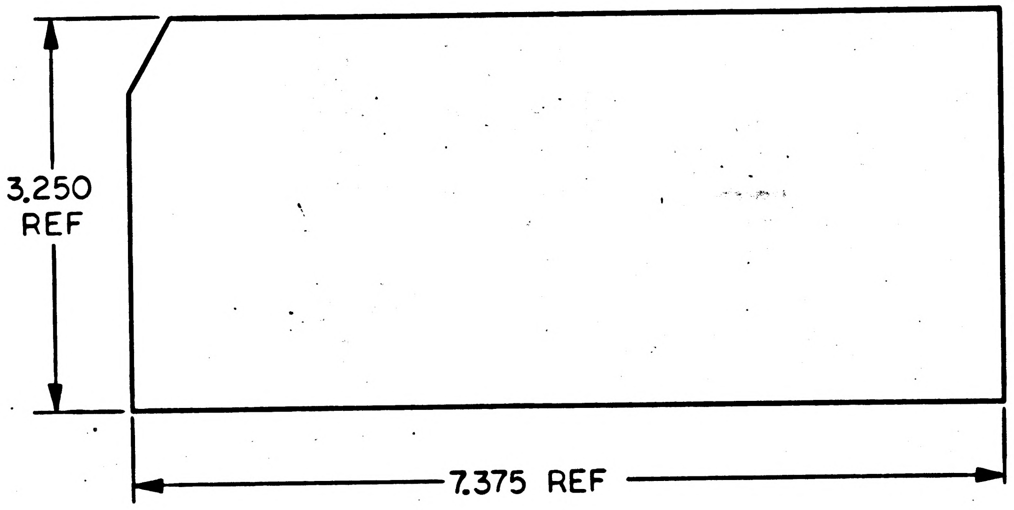
REVISIONS 26268			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B CHANGED PER CCA R25502	1/4/66	
A	CHANGED PER CCA 25705. DR CHK BBA APPD RPC	1/13/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26244	2/10/66	
C	CHANGED PER TDRR 26664 DR A.J. Green CHK G.D. APPD RED	3/24/66	
D	CHANGED PER TDRR 27907 DR CHK APPD P.B.D		

REFERENCE DRAWINGS
LOGIC DIAG 2014145
MECH ASSY 2014336

NOTE
1. USE CARD FORM IBM U11897
OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE
WITH STANDARDS PRESCRIBED
BY MIL-D-70327

RAYTHEON RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
CONTRACT NO. NAS 9-497	WIRE WRAP MACHINE CARDS LOGIC PLATE 3 PROGRAMMER & MONITOR COMPUTER TEST SET		
DRAWN DATE 22 MAY 65			
CHECKED			
APPROVAL C E Duke 23 JULY 65			
APPROVAL 10/20/65			
APPROVAL 11/1/65			
NASA APPROVAL A. C. METZGER	CODE IDENT NO. 49956	SIZE B	NASA DRAWING NO. 2014099
MIT APPROVAL			
MIT APPROVAL 2/11/66	SCALE 1/1	WT	SHEET 1 OF 1

NO. OF CARDS 642



REVISIONS 26218			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25085	8/13/65	
1	CHANGED PER CCA R25485 DR P. Milan CHK E. Urban APPD P. E. Duh 11-13-65	11/12/65	
–	CLASS B CHANGED PER CCA R25502	1/6/66	
A	CHANGED PER CCA R25705	1/5/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDPR 26218	2/14/66	

REFERENCE DRAWINGS

LOGIC DIAGRAM 2014147
MECH ASSY 2014378

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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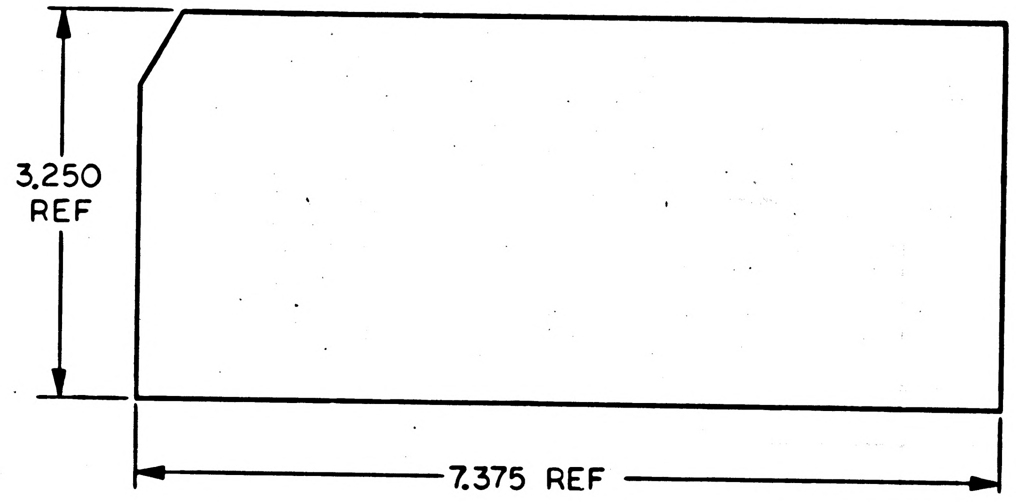
RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
CONTRACT NO. NAS 9-497	WIRE WRAP MACHINE CARDS LOGIC PLATE 2 XY SYSTEM INTERFACE COMPUTER TEST SET		
DRAWN DATE 22 MAY 65			
CHECKED			
APPROVAL P. E. Duh 22 JULY 65			
APPROVAL D. O'Bryant 7/24/65			
APPROVAL			
NASA APPROVAL A. C. METZGER	CODE IDENT NO. 49956	SIZE B	NASA DRAWING NO. 2014101
MIT APPROVAL 15 Feb 66			
MIT APPROVAL	SCALE 1/1	WT	SHEET 1 OF 1

NO. OF CARDS 644



SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25085	4/13/65	
1	CHANGED PER CCA R25485 DR P. Milan CHK E Urban APPD P.E. Dub 11-13-65	11/12/65	
–	CLASS B CHANGED PER CCA R25502	1/6/66	
A	CHANGED PER CCA R25705	1/15/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/17/66	
C	CHANGED PER TDRR 26664 DR A.J. Green CHK C.D. APPD PED	3/24/66	

REVISIONS 26218

REFERENCE DRAWINGS

LOGIC DIAGRAM 2014147
MECH ASSY 2014378

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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CONTRACT NO. NAS 9-497
DRAWN DATE 22 MAY 65
CHECKED
APPROVAL P.E. Dub 22 JULY 65
APPROVAL D. O'Bryant 7/24/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kuchs 15 Feb 66
MIT APPROVAL A. Laranno 3/1/66

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HOUSTON, TEXAS

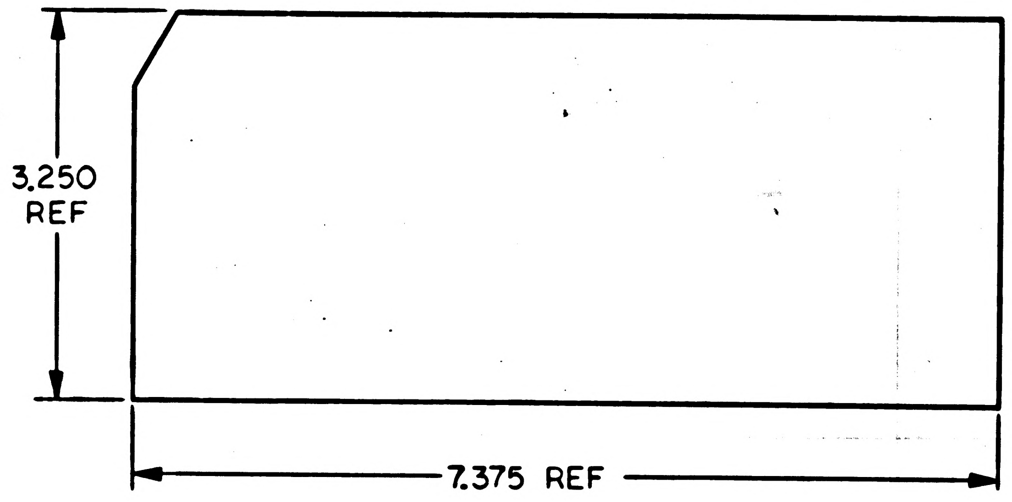
WIRE WRAP MACHINE CARDS
LOGIC PLATE 2
XY SYSTEM INTERFACE
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	B	2014101

SCALE 1/1 | WT | SHEET 1 OF 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25085	8/13/65	G. Lasano
1	CHANGED PER CCA R25485 DR P. Milne CHK E Urban APPD P. E. Dube 11-12-65	11/12/65	
-	CLASS A RELEASED PER TDRR 26472		

NO. OF CARDS 3/3



REFERENCE DRAWINGS
LOGIC DIAGRAM 2014148
MECH ASSY 2014376

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 22 MAY 65
CHECKED
APPROVAL P. E. Dube 23 JUL 65
APPROVAL D. O'Bryant 7/24/65
APPROVAL N. E. Brown 8/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C. Brierly 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

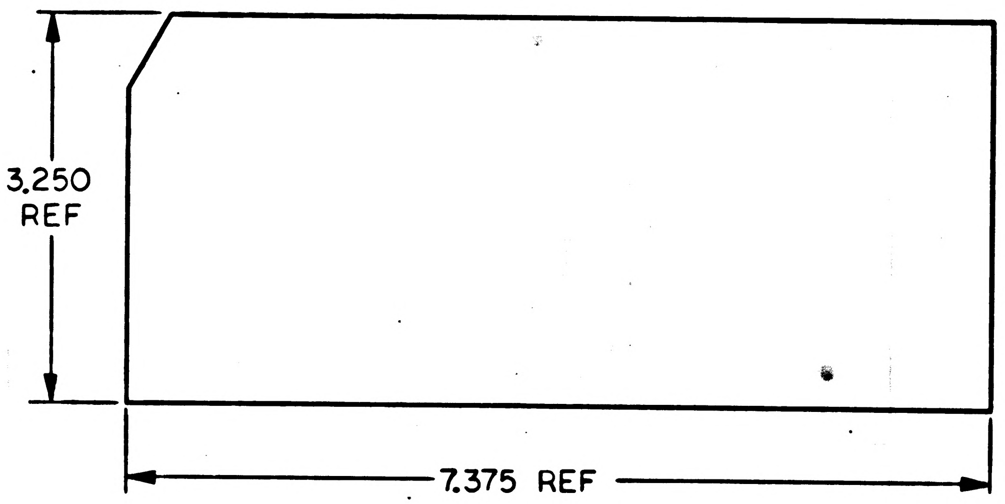
WIRE WRAP MACHINE CARDS
LOGIC PLATE 1
RDC SYSTEM INTERFACE
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	B	2014102
SCALE 1/1	WT	SHEET 1 OF 1

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R 25498		
–	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26279 DR B J Papia CHK W Walkowicz APPD R.C.D.	2/19/66	

NO. OF CARDS 252



REFERENCE DRAWINGS

LOGIC DIAGRAM 2014150
MECH ASSY 2014046
2014275

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 22 MAY 65
CHECKED
APPROVAL 11/1/65
APPROVAL 11/1/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C Sheridan

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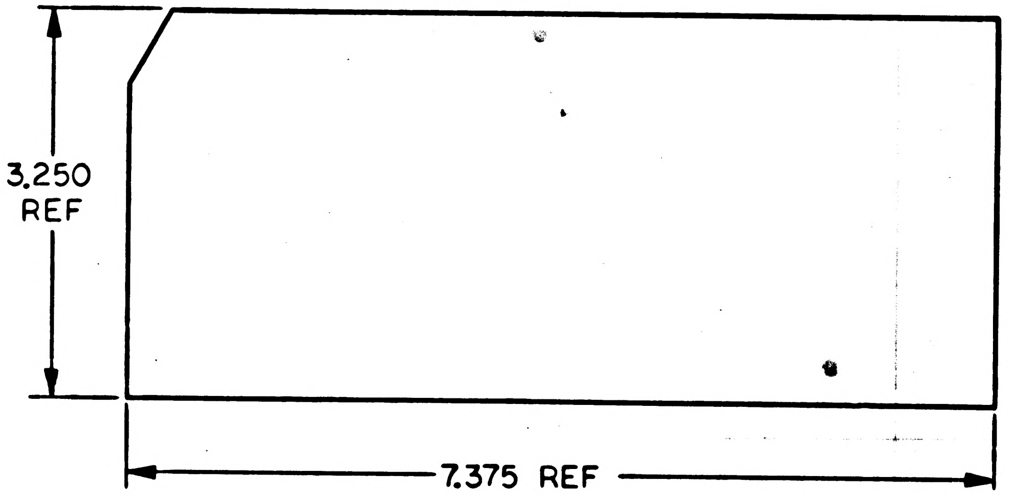
WIRE WRAP MACHINE CARDS
LOGIC PLATE A3
A18 INTERCONNECTION PLATE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE B
NASA DRAWING NO. 2014105
SCALE 1/1
WT
SHEET 1 OF 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	*RELEASED PER CCA R 25498*		
–	*CLASS A RELEASED PER TDRR 25472*		

NO. OF CARDS *251*

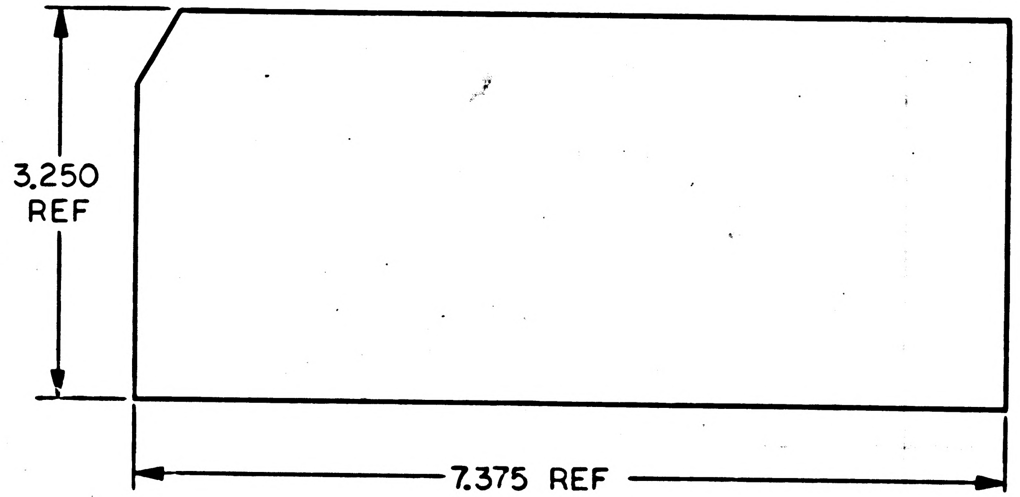


REFERENCE DRAWINGS
LOGIC DIAGRAM *2014150*
MECH ASSY *2014046*
2014275

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
CONTRACT NO. NAS 9-497	
DRAWN DATE 22 MAY 65	WIRE WRAP MACHINE CARDS LOGIC PLATE A3 A18 INTERCONNECTION PLATE COMPUTER TEST SET
CHECKED	
APPROVAL 11/1/65	
APPROVAL 11/1/65	
APPROVAL	
NASA APPROVAL A. C. METZGER	CODE IDENT NO. 49956
MIT APPROVAL	SIZE B
MIT APPROVAL C Sheri	NASA DRAWING NO. 2014105
	SCALE 1/1
	WT
	SHEET 1 OF 1

NO. OF CARDS 510



REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25085	11/3/65	
1	CHANGE PER CCA R 25485 DR P. Milan CHK E. Urban APPD R. E. Dale NOV 13, 65	11/12/65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26467 DR E. Uftring CHK APPD	4/26/66	

REFERENCE DRAWINGS

LOGIC DIAG 2014150
MECH ASSY 2014046

NOTE
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CONTRACT NO. NAS 9-497
DRAWN DATE 22 MAY 65
CHECKED
APPROVAL 23 JULY 65
APPROVAL D. O'Bryant 7/24/65
APPROVAL 8/11/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

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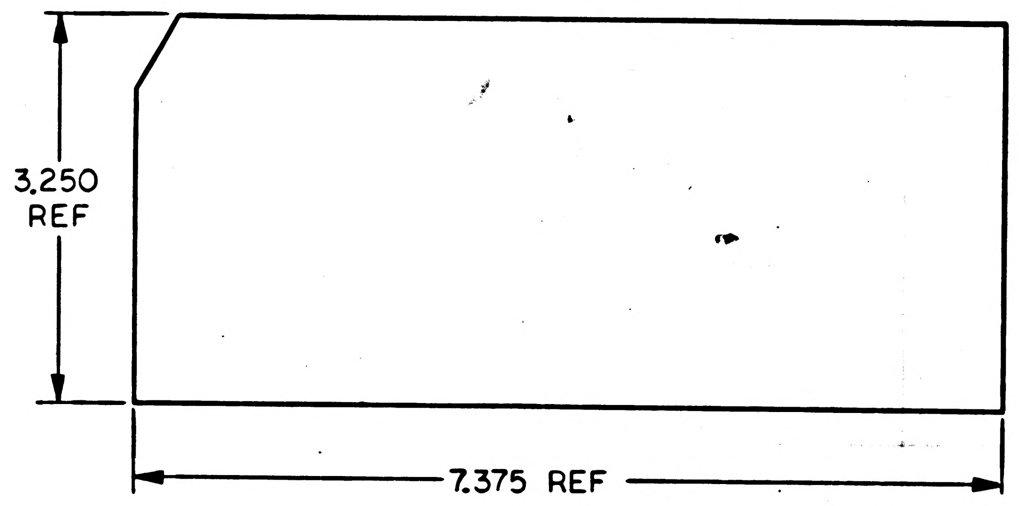
HAND WRAP MACHINE CARDS
A18 INTERCONNECTION PLATE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE B
NASA DRAWING NO. 2014106
SCALE 1/1
WT
SHEET 1 OF 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25085	11/3/65	
1	CHANGE PER CCA R 25485 DR P. Miles CHK E. Urban APPD P. E. Dub NOV 13, 65	11/22/65	
—	CLASS A RELEASED PER TDRR 25472		

NO. OF CARDS 502



REFERENCE DRAWINGS
LOGIC DIAG 2014150
MECH ASSY 2014046

NOTE
1. USE CARD FORM IBM U11897 OR EQUIVALENT
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

RAYTHEON
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LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE MAY65
CHECKED
APPROVAL E. Dub 23 JUL 65
APPROVAL D. O'Bryant 7/24/65
APPROVAL H C B 8/11/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W. Kupfer 21 Jan 66
MIT APPROVAL C. Skoly 6/20/66

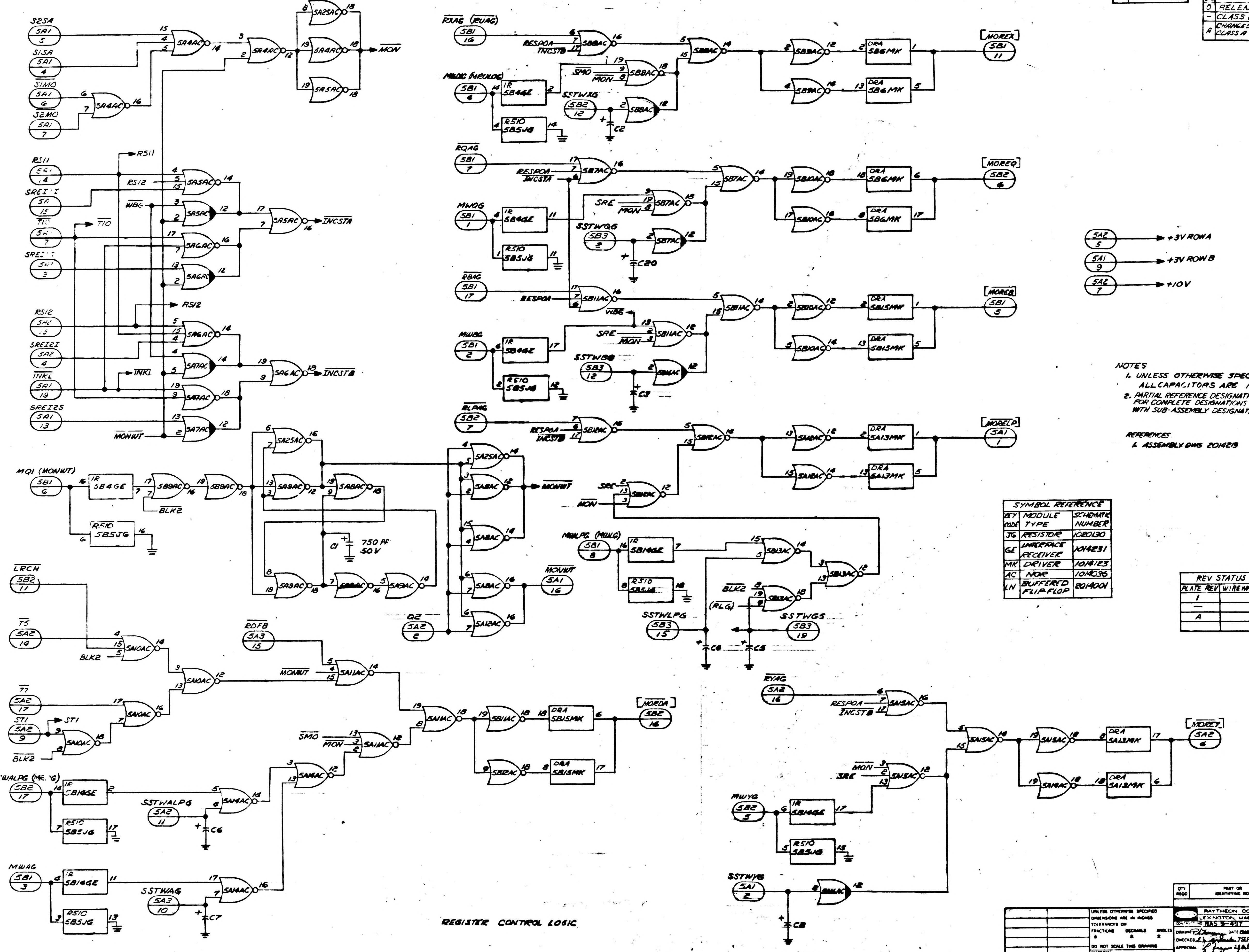
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HAND WRAP MACHINE CARDS
A18 INTERCONNECTION PLATE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE B
NASA DRAWING NO. 2014106
SCALE 1/1
WT
SHEET 1 OF 1

2014107 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER ECA R25488		
-	CLASS B CHANGED PER ECA R255C2	[illegible]	[illegible]
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	[illegible]	[illegible]


S2SA 5A1 5
S1SA 5A1 4
S1MO 5A1 6
S2MO 5A1 7
5A4AC
5A2SAC
5A5AC
MON
RS11
RS12
SREI1I
T10
SREI1I
WBG
INCSTA
RS12
SREI2I 5A2 4
INKL 5A1 19
TNKL
SREI2S 5A1 13
MONWT
INCSTB
5A6AC
5A7AC
MQI (MONWT) 5B1 6
IR 5B4GE
R510 5B5JG
5B9AC
BLK2
5A2SAC
5A8AC
C1 750 PF 50V
5A3AC
Q2 5A2 2
MONWT
MONWT 5A1 16
LRCH 5B2 11
T5 5A2 14
BLK2
T7 5A2 17
ST1 5A2 9
ST1
BLK2
RDFB 5A3 15
MONWT
5A1AC
SMO
MON
DRA 5B15MK
MORDA 5B2 16
5B12AC
MWALPG (MWLG) 5B2 17
IR 5B14GE
R51C 5B5JG
SSTWALPG 5A2 11
C6
MWAG 5B1 3
SSTWAG 5A3 10
C7
RXAG (RUAG) 5B1 16
RESPOA
INCSTB
5B8AC
SMO
MON
MWLG (MRULG) 5B1 4
SSTWLG 5B2 12
C2
DRA 5B6MK
MOREX 5B1 11
RQAG 5B1 7
RESPOA
INCSTA
5B7AC
MWQG 5B1 1
SRE
MON
SSTWQG 5B3 2
C20
MOREQ 5B2 6
RBAG 5B1 17
RESPOA
5B11AC
WBG
SRE
MON
MWBG 5B1 2
SSTWBG 5B3 12
C3
5B10AC
DRA 5B15MK
MOREB 5B1 5
RLPAG 5B2 7
RESPOA
INCSTB
5B12AC
SRE
MON
5A3AC
DRA 5A13MK
MORELP 5A1 1
MWLPG (MWLG) 5B1 8
5B13AC
BLK2
(RLG)
SSTWLPG 5B3 15
SSTWGS 5B3 19
C8
C5
RYAG 5A2 16
RESPOA
INCSTB
5A5AC
MON
SRE
5A4AC
DRA 5A13MK
MOREY 5A2 6
MWYG 5B2 5
SSTWYG 5A1 2
C8
5A2 5 +3V ROWA
5A1 9 +3V ROWB
5A2 7 +10V

REGISTER CONTROL LOGIC

NOTES
1. UNLESS OTHERWISE SPECIFIED ALL CAPACITORS ARE 1 µF, 35V
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCES
1. ASSEMBLY DWG 2014219

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
JG	RESISTOR	1020130
GE	INTERFACE RECEIVER	1014231
MK	DRIVER	1014123
AC	NOR	1014036
LN	BUFFERED FLIP FLOP	2014001

REV STATUS OF WIRE WRAP	
PLATE REV	WIREWRAP CARD REV
1	1
—	—
A	A

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE
CHECKED [illegible] 7SEP65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

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HOUSTON TEXAS

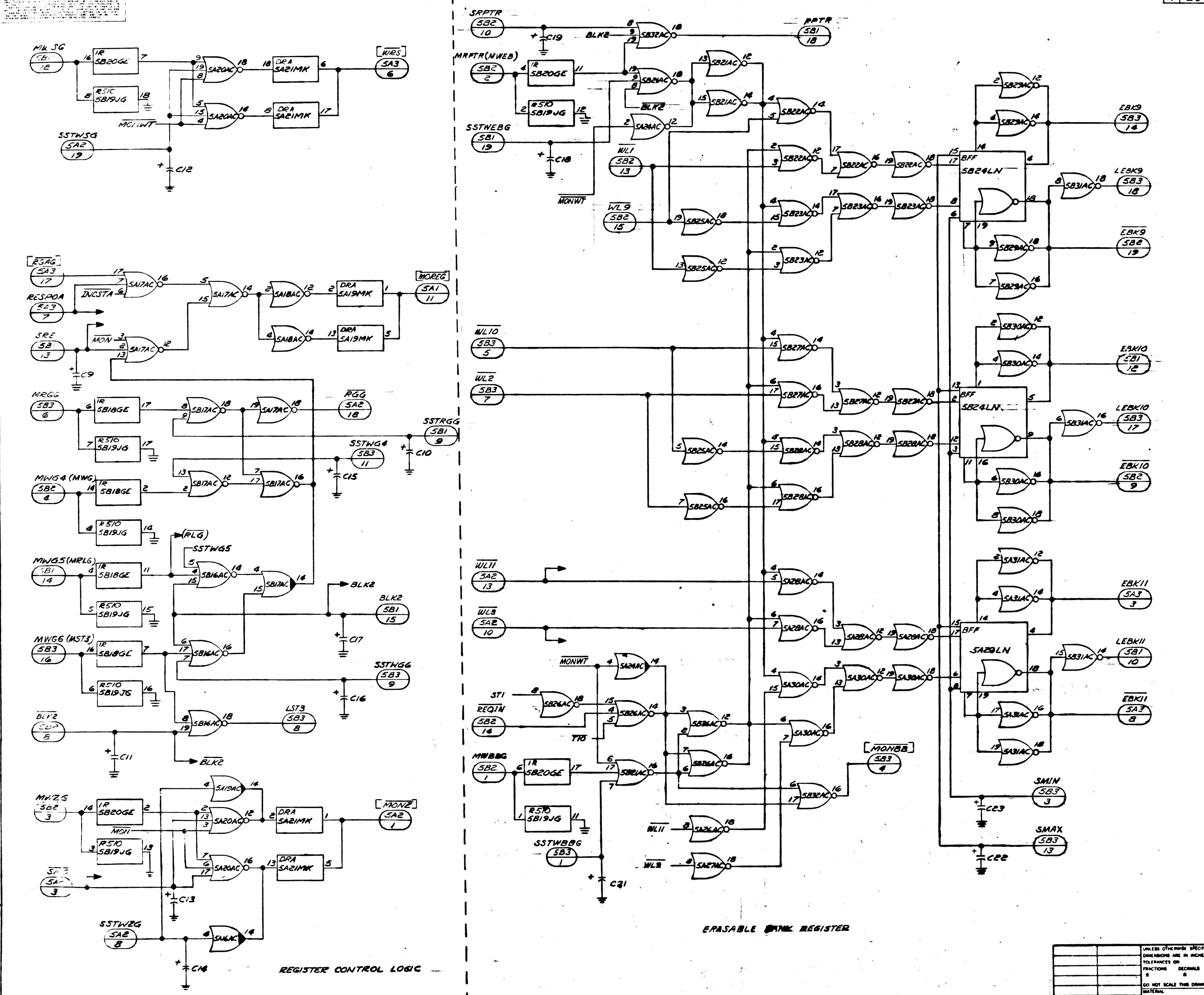
LOGIC DIAGRAM
LOGIC DRAWER I-PLATE 5
COMPUTER TEST SET

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014107
SCALE NONE
SHEET 1 OF 2

2014107 A

MASTER

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
–	CLASS B CHANGED PER CCA R25502	11/16	
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	11/15/66	



MK SG
SB2OGE
R510 SB19JG
SA20AC
DRA SA21MK
WRS SA3 6
MCIIWT
SSTWSG SA2 19
C12
EGAG SA3 17
RESPOA SA3 7
INCSTA
SA17AC
SA18AC
DRA SA19MK
MOREG SA1 11
SRE SB 13
MON
C9
MRGG SB3 6
SB18GE
SB17AC
SN17AC
RGG SA2 18
SSTRGG SB1 9
SSTWG4 SB3 11
C10
C15
MWG4 (MWG) SB2 4
(RLG)
SSTWG5
MWG5 (MRLG) SB1 14
SB16AC
BLK2
BLK2 SB1 15
C17
MWG6 (MST3) SB3 16
SSTWG6 SB3 9
C16
BLK2 SB2 8
LST3 SB3 8
C11
MWZG SB2 3
MON
SA19AC
MONZ SA2 1
STR SA3 3
C13
SSTWZG SA2 8
SA16AC
C14
REGISTER CONTROL LOGIC
SRPTR SB2 10
C19
SB32AC
RPTR SB1 18
MRPTR (MWEB) SB2 2
SB20GE
R510 SB19JG
SSTWEBG SB1 19
C18
MONWT
SB21AC
SA21AC
WL1 SB2 13
WL9 SB2 15
SB22AC
SB23AC
SB25AC
BFF SB24LN
SB29AC
SB31AC
EBK9 SB3 14
LEBK9 SB3 18
EBK9 SB2 19
WL10 SB3 5
WL2 SB3 7
SB27AC
SB28AC
SB30AC
EBK10 SB1 12
LEBK10 SB3 17
EBK10 SB2 9
WL11 SA2 13
WL3 SA2 10
SA28AC
SA30AC
BFF SA29LN
SA31AC
EBK11 SA3 3
LEBK11 SB1 10
EBK11 SA3 8
MONWT
SA24AC
ST1
REQIN SB2 14
SB26AC
T10
SA26AC
MONBB SB3 4
SB32AC
MWBBG SB2 1
SB20GE
R510 SB19JG
SSTWBBG SB3 1
C21
WL11
WL3
SA27AC
SMIN SB3 3
C23
SMAX SB3 13
C22
ERASABLE BANK REGISTER

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE
CHECKED 7SEP65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

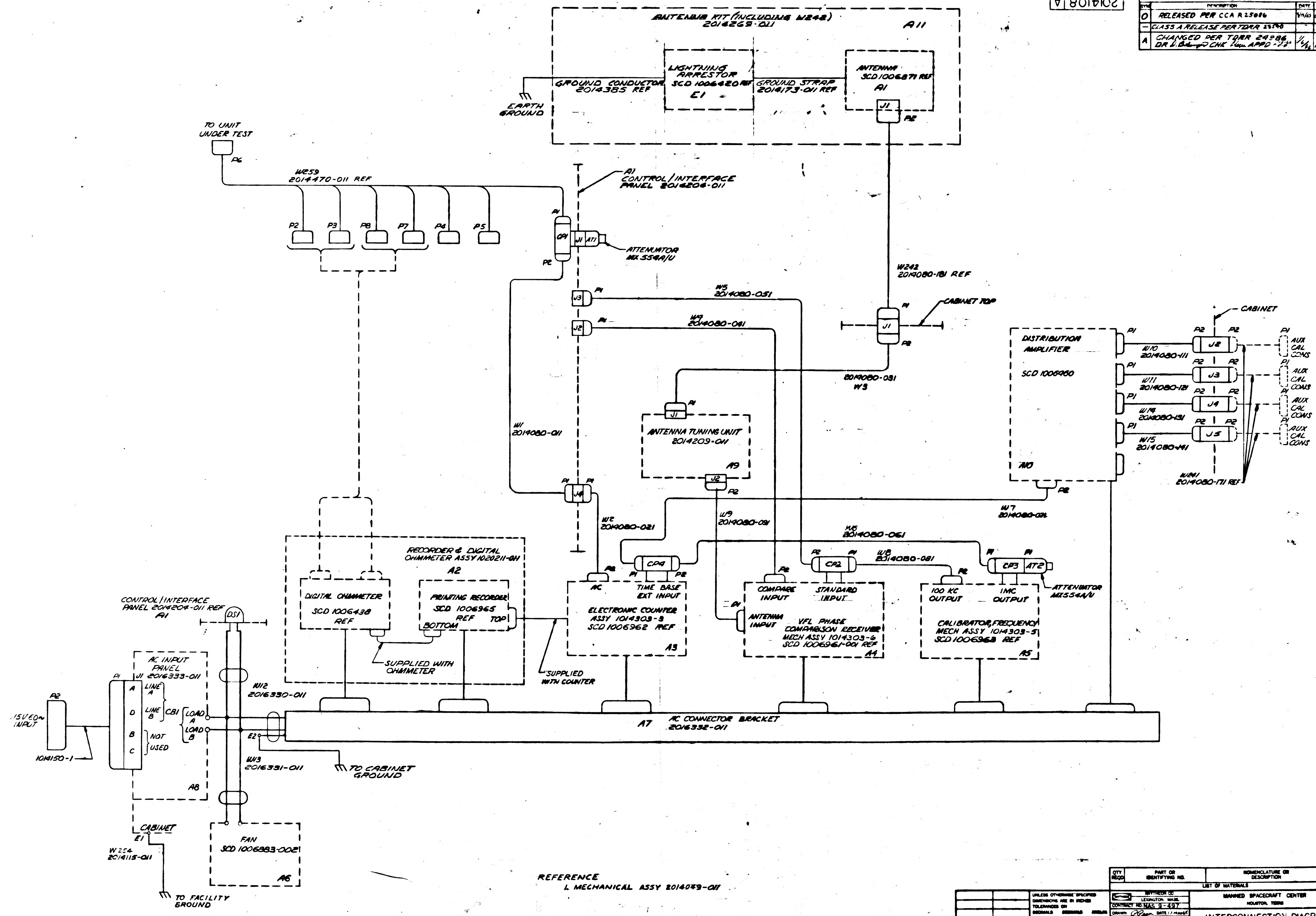
LOGIC DIAGRAM
LOGIC DRAWER 1-PLATE 5
COMPUTER TEST SET

CODE IDENT NO 49956 | SIZE J | NASA DRAWING NO 2014107
SCALE NONE | WT | SHEET 2 OF 2

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R 25086	5/13/65	
—	CLASS A RELEASE PER TDRR 25540		
A	CHANGED PER TDRR 24986 DR D. Belanger CHK Hogan APPD	1/6/66	


ANTENNA KIT (INCLUDING W242)
2014269-011
A11
GROUND CONDUCTOR
2014385 REF
EARTH GROUND
LIGHTNING ARRESTOR
SCD 1006420 REF
E1
GROUND STRAP
2014173-011 REF
ANTENNA
SCD 1006871 REF
A1
J1
P2
TO UNIT UNDER TEST
P6
W259
2014470-011 REF
P2
P3
P8
P7
P4
P5
A1
CONTROL/INTERFACE PANEL 2014206-011
P1
CP1
J1
AT1
P2
ATTENUATOR MX 554A/U
J3
P1
W5
2014080-051
J2
P1
W4
2014080-041
W242
2014080-181 REF
P1
J1
P2
CABINET TOP
2014080-031
W3
P1
J1
ANTENNA TUNING UNIT
2014209-011
A9
J2
P2
W1
2014080-011
P1
P1
J4
W2
2014080-021
W9
2014080-091
W7
2014080-071
W6
2014080-061
DISTRIBUTION AMPLIFIER
SCD 1006960
A10
P1
P2
W10
2014080-111
W11
2014080-121
W14
2014080-131
W15
2014080-141
J2
J3
J4
J5
P2
P2
CABINET
P1
AUX CAL CONS
W241
2014080-171 REF
RECORDER & DIGITAL OHMMETER ASSY 1020211-011
A2
DIGITAL OHMMETER
SCD 1006438
REF
PRINTING RECORDER
SCD 1006965
REF
TOP
BOTTOM
SUPPLIED WITH OHMMETER
SUPPLIED WITH COUNTER
P8
AC
CP4
P1
P2
TIME BASE EXT INPUT
ELECTRONIC COUNTER ASSY 1014303-3
SCD 1006962 REF
A3
P2
P1
CP2
COMPARE INPUT
STANDARD INPUT
P1
ANTENNA INPUT
VFL PHASE COMPARISON RECEIVER
MECH ASSY 1014303-6
SCD 1006961-001 REF
A4
W8
2014080-081
P2
100 KC OUTPUT
1MC OUTPUT
CALIBRATOR, FREQUENCY
MECH ASSY 1014303-5
SCD 1006963 REF
A5
P1
P1
CP3
AT2
ATTENUATOR MX554A/U
CONTROL/INTERFACE PANEL 2014204-011 REF
A1
DS1
AC INPUT PANEL
J1 2016333-011
P1
A
D
B
C
LINE A
LINE B
CB1
LOAD A
LOAD B
NOT USED
A8
P2
115VEO~ INPUT
1014150-1
W12
2016330-011
E2
W13
2016331-011
TO CABINET GROUND
A7
AC CONNECTOR BRACKET
2016332-011
CABINET
E1
W254
2014115-011
TO FACILITY GROUND
FAN
SCD 1006883-002
A6

REFERENCE
1. MECHANICAL ASSY 2014079-011

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX .XXX ±
± ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 17 MAY 65
CHECKED 14 JUL 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL C. METZGER
MIT APPROVAL
MIT APPROVAL 19/8/65

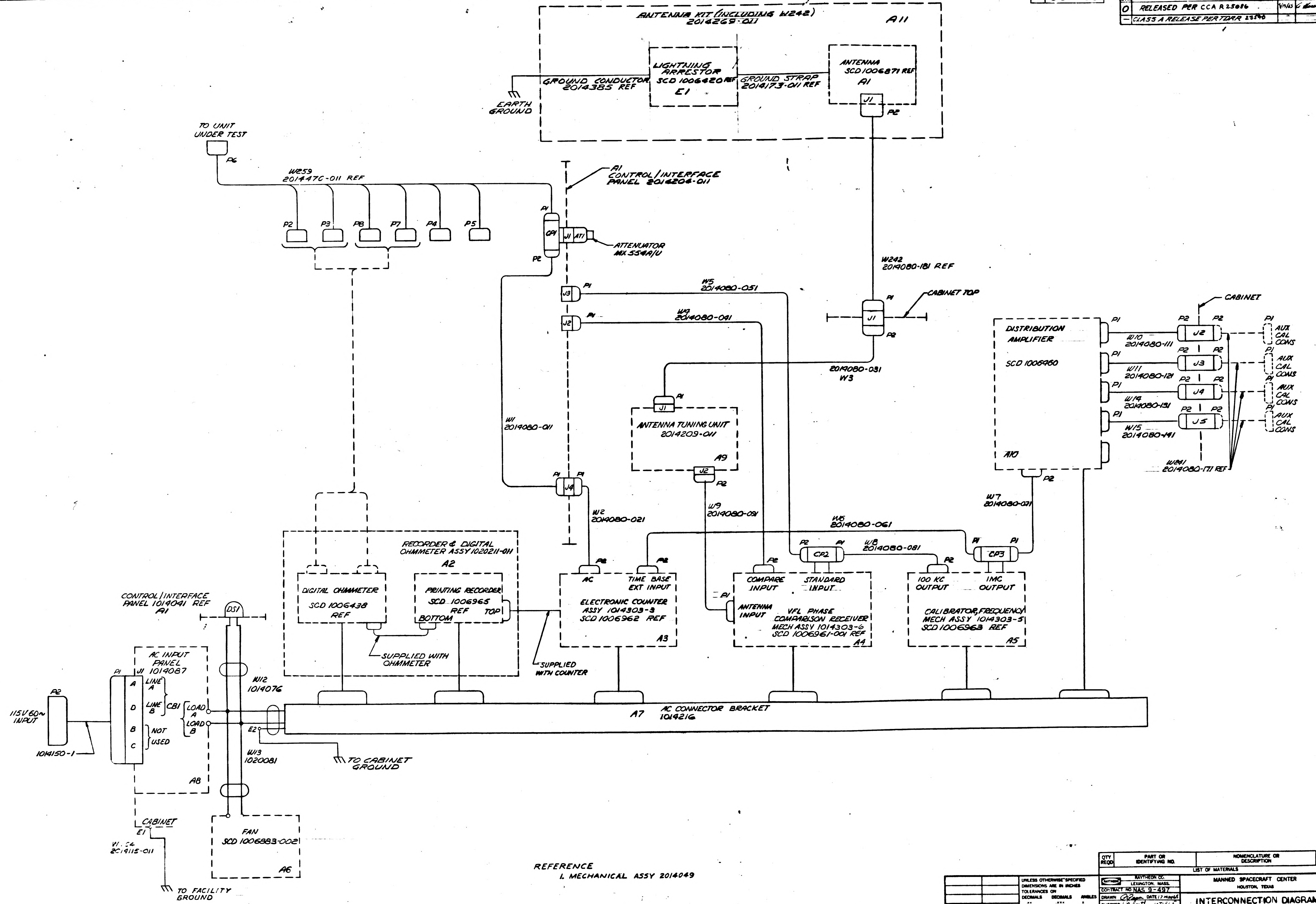
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION DIAGRAM
AGC CALIBRATION SYSTEM

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 2014108
SCALE NONE | WT | SHEET 1 OF 1

–	2014108

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25086	8/13/65	[illegible]
–	CLASS A RELEASE PER TDRR 23540		



ANTENNA KIT (INCLUDING W242)
2014269-011
A11
LIGHTNING ARRESTOR
SCD 1006420 REF
E1
GROUND CONDUCTOR
2014385 REF
GROUND STRAP
2014173-011 REF
ANTENNA
SCD 1006871 REF
A1
J1
P2
EARTH GROUND
TO UNIT UNDER TEST
P6
W259
2014470-011 REF
P2
P3
P8
P7
P4
P5
A1
CONTROL/INTERFACE PANEL 2014204-011
P1
CP1
J1
AT1
P2
ATTENUATOR MX 554A/U
W242
2019080-181 REF
J3
P1
W5
2014080-051
J2
P1
W9
2014080-041
J1
P1
P2
CABINET TOP
2019080-031
W3
CABINET
DISTRIBUTION AMPLIFIER
SCD 1006960
A10
P1
W10
2014080-111
W11
2014080-121
W14
2014080-131
W15
2014080-141
P2
J2
J3
J4
J5
AUX CAL CONS
W241
2014080-171 REF
P2
W1
2019080-011
J1
ANTENNA TUNING UNIT
2014209-011
A9
J2
P2
J4
W2
2014080-021
W9
2014080-091
W6
2014080-061
W7
2014080-071
W8
2014080-081
CP2
CP3
RECORDER & DIGITAL OHMMETER ASSY 1020211-011
A2
DIGITAL OHMMETER
SCD 1006438
REF
PRINTING RECORDER
SCD 1006965
REF
TOP
BOTTOM
SUPPLIED WITH OHMMETER
SUPPLIED WITH COUNTER
AC
TIME BASE EXT INPUT
ELECTRONIC COUNTER ASSY 1014303-3
SCD 1006962 REF
A3
COMPARE INPUT
STANDARD INPUT
ANTENNA INPUT
VFL PHASE COMPARISON RECEIVER
MECH ASSY 1014303-6
SCD 1006961-001 REF
A4
100 KC OUTPUT
1MC OUTPUT
CALIBRATOR, FREQUENCY
MECH ASSY 1014303-5
SCD 1006963 REF
A5
CONTROL/INTERFACE PANEL 1014041 REF
A1
DS1
AC INPUT PANEL
J1 1014087
P1
A LINE A
D LINE B
B NOT USED
C
CB1
LOAD A
LOAD B
A8
P2
115V 60~ INPUT
1014150-1
W12
1014076
E2
W13
1020081
TO CABINET GROUND
A7
AC CONNECTOR BRACKET
1014216
FAN
SCD 1006883-002
A6
CABINET
E1
W1..24
2019115-011
TO FACILITY GROUND

REFERENCE
1. MECHANICAL ASSY 2014049

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 17 MAY 65
CHECKED [illegible] 14 JUL 65
APPROVAL P. C. Dude 16 MAY 65
APPROVAL D. O'Bryant 18 Jul 65
APPROVAL K. E. [illegible] 8 Aug 65
NASA APPROVAL C. METZGER
MIT APPROVAL [illegible] 27 Oct 65
MIT APPROVAL [illegible] 10/8/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

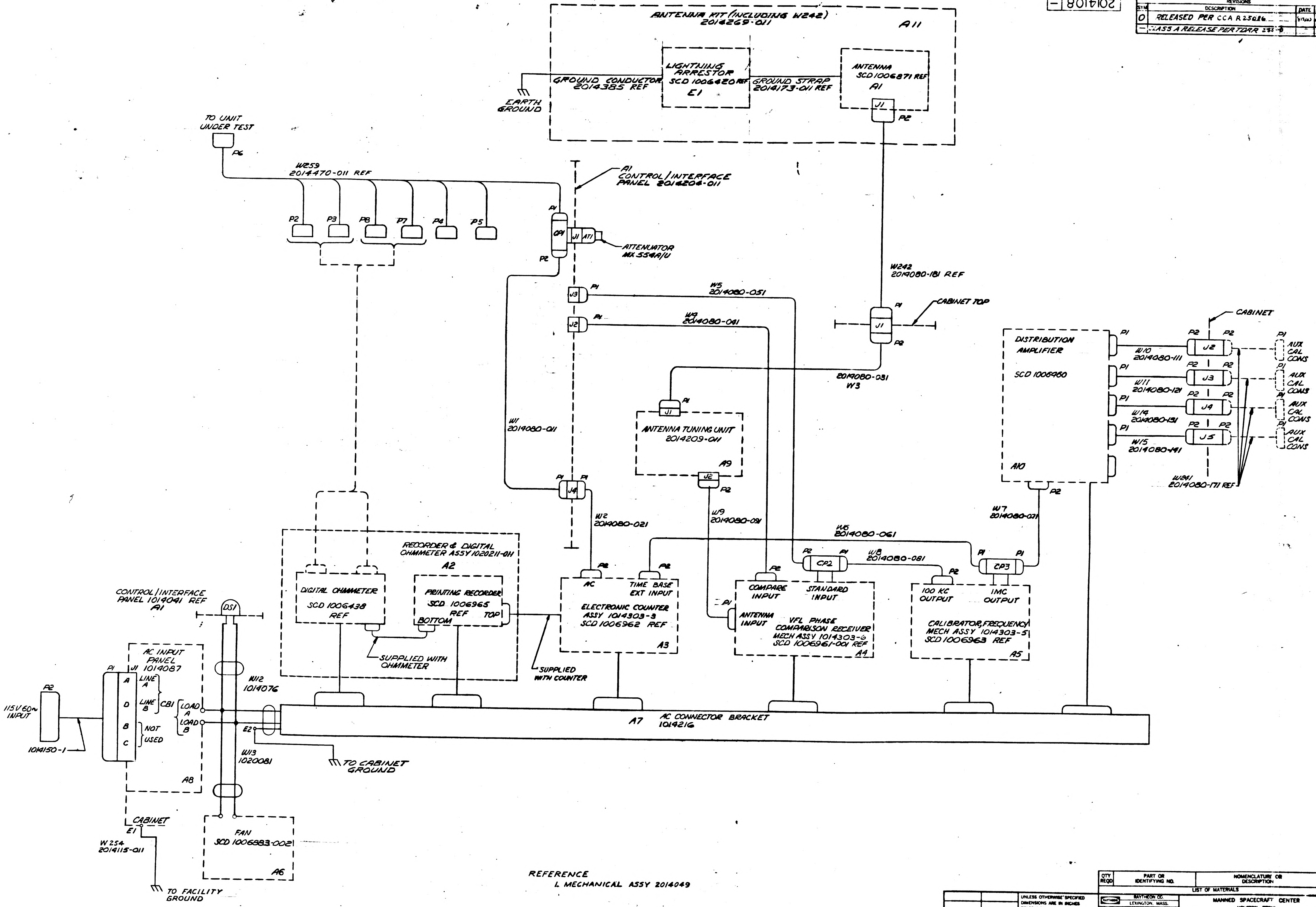
INTERCONNECTION DIAGRAM
AGC CALIBRATION SYSTEM

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 2014108
SCALE NONE
WT
SHEET 1 OF 1

MASTER

7 2014108 –

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25086	8/13/65	
–	CLASS A RELEASE PER TDRR 253		


ANTENNA KIT (INCLUDING W242) 2014269-011
A11
LIGHTNING ARRESTOR SCD 1006420 REF E1
ANTENNA SCD 1006871 REF A1
GROUND CONDUCTOR 2014385 REF
GROUND STRAP 2014173-011 REF
EARTH GROUND
J1
P2
TO UNIT UNDER TEST
P6
W259 2014470-011 REF
P2
P3
P8
P7
P4
P5
A1 CONTROL/INTERFACE PANEL 2014204-011
P1
CP1
J1
AT1
ATTENUATOR MX 554A/U
W242 2019080-181 REF
CABINET TOP
J3
J2
W5 2014080-051
W9 2014080-041
2019080-031 W3
ANTENNA TUNING UNIT 2014209-011
A9
W1 2019080-011
J4
W2 2014080-021
W9 2014080-091
W6 2014080-061
W8 2014080-081
W7 2014080-071
CP2
CP3
DISTRIBUTION AMPLIFIER SCD 1006960
A10
CABINET
W10 2019080-111
W11 2014080-121
W14 2014080-131
W15 2014080-141
W241 2014080-171 REF
J2
J3
J4
J5
AUX CAL CONS
RECORDER & DIGITAL OHMMETER ASSY 1020211-011
A2
DIGITAL OHMMETER SCD 1006438 REF
PRINTING RECORDER SCD 1006965 REF
BOTTOM
TOP
SUPPLIED WITH OHMMETER
SUPPLIED WITH COUNTER
AC
TIME BASE EXT INPUT
ELECTRONIC COUNTER ASSY 1014303-3 SCD 1006962 REF
A3
COMPARE INPUT
STANDARD INPUT
ANTENNA INPUT
VFL PHASE COMPARISON RECEIVER MECH ASSY 1014303-6 SCD 1006961-001 REF
A4
100 KC OUTPUT
IMC OUTPUT
CALIBRATOR, FREQUENCY MECH ASSY 1014303-5 SCD 1006963 REF
A5
CONTROL/INTERFACE PANEL 1014041 REF A1
DS1
AC INPUT PANEL 1014087
A8
P2
115V 60~ INPUT
1014150-1
P1
J1
A
D
B
C
LINE A
LINE B
CB1
NOT USED
LOAD A
LOAD B
W12 1014076
E2
W13 1020081
TO CABINET GROUND
A7
AC CONNECTOR BRACKET 1014216
CABINET
E1
W254 2014115-011
TO FACILITY GROUND
FAN SCD 1006883-002
A6

REFERENCE
1. MECHANICAL ASSY 2014049

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 17 MAY 65
CHECKED 15 JUL 65
APPROVAL 16 JULY 65
APPROVAL 11 July 65
APPROVAL 8 Aug 65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 27 Oct 65
MIT APPROVAL 10/8/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

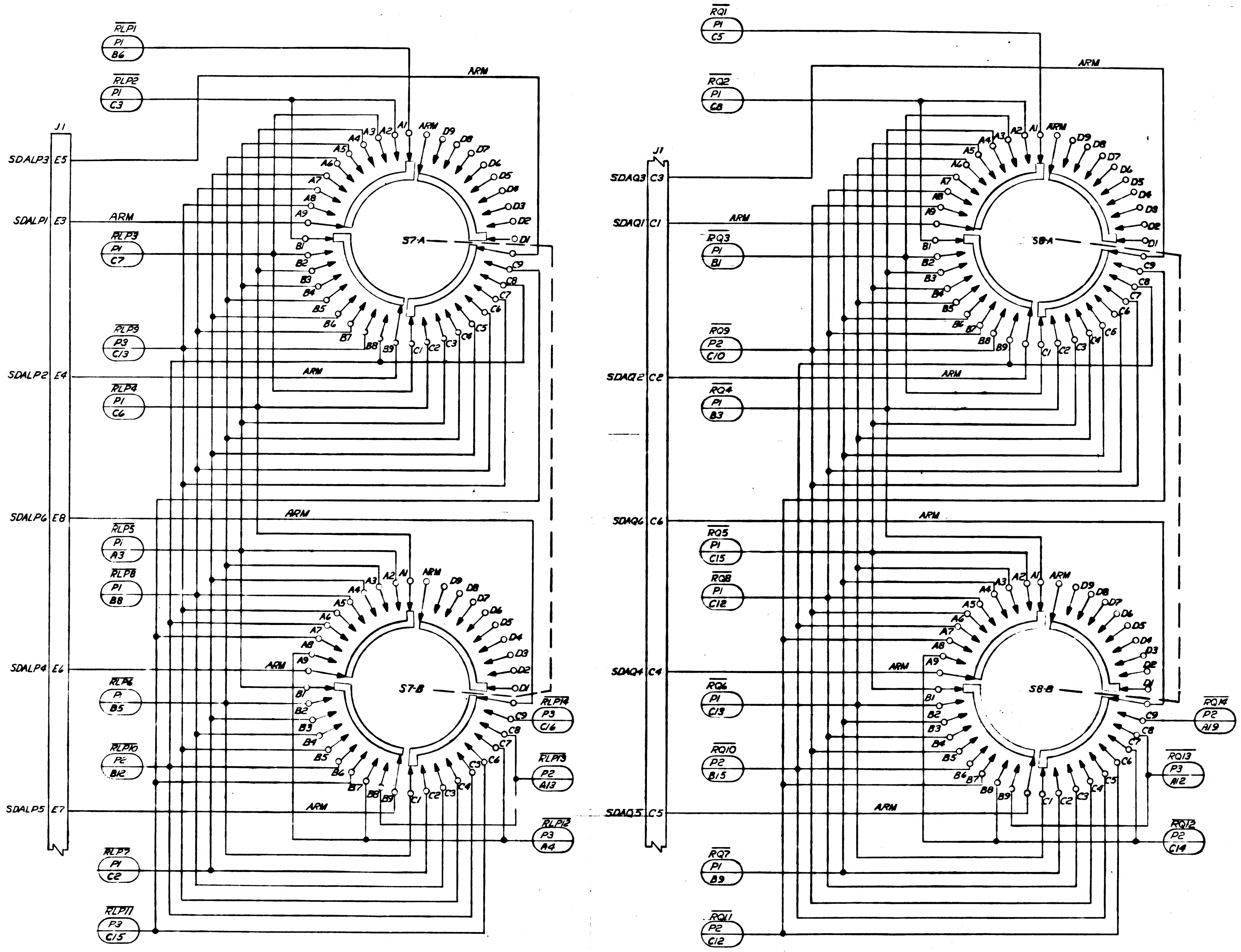
INTERCONNECTION DIAGRAM
AGC CALIBRATION SYSTEM

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 2014108
SCALE NONE
WT
SHEET 1 OF 1

MASTER

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25092	7/9/65	G Hanna
1	REVISED PER CCA R25132 DR J. [illegible] CHK Urban APPD J Cul[illegible]	3 Sept 65	[illegible]
–	CLASS A RELEASED PER TORR 25472		

FOR REFERENCE ONLY					
REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
S4, S5, S6, S7 & S8	1006894-2	SWITCH, ROT			
S9 & S14	1006953-3	SWITCH, ROT			
S10 & S13	1006953-4	SWITCH, ROT			
S11	1006891-2	SWITCH, ROT			
S2, S3 & S12	MS25089-3C	SWITCH, PB			
J5	MS3579-1C74A	CONN, BNC			
J1	1006671	CONN, RECEP			
DS1 THRU DS16	1006481	LAMP, INCANDESCENT			



RLP1 P1 B6
RLP2 P1 C3
J1
SDALP3 E5
SDALP1 E3
ARM
RLP3 P1 C7
S7-A
RLP9 P3 C13
SDALP2 E4
RLP4 P1 C6
SDALP6 E8
RLP5 P1 A3
RLP8 P1 B8
S7-B
SDALP4 E6
RLP6 P1 B5
RLP10 P2 B12
SDALP5 E7
RLP7 P1 C2
RLP11 P3 C15
RLP14 P3 C16
RLP13 P2 A13
RLP12 P3 A4
A1 A2 A3 A4 A5 A6 A7 A8 A9
B1 B2 B3 B4 B5 B6 B7 B8 B9
C1 C2 C3 C4 C5 C6 C7 C8 C9
D1 D2 D3 D4 D5 D6 D7 D8 D9
RQ1 P1 C5
RQ2 P1 C8
J1
SDAQ3 C3
SDAQ1 C1
RQ3 P1 B1
S8-A
RQ9 P2 C10
SDAQ2 C2
RQ4 P1 B3
SDAQ6 C6
RQ5 P1 C15
RQ8 P1 C12
S8-B
SDAQ4 C4
RQ6 P1 C13
RQ10 P2 B15
SDAQ5 C5
RQ7 P1 B9
RQ11 P2 C12
RQ14 P2 A19
RQ13 P3 A12
RQ12 P2 C14

NOTE
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN:
FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REFERENCES
1. ASSEMBLY DWG 2014225

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014225	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 5 June 65
CHECKED S J Bogoroski 8 JUN 65
APPROVAL [illegible]
APPROVAL G E Dunk [illegible]
APPROVAL [illegible] 6/16/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

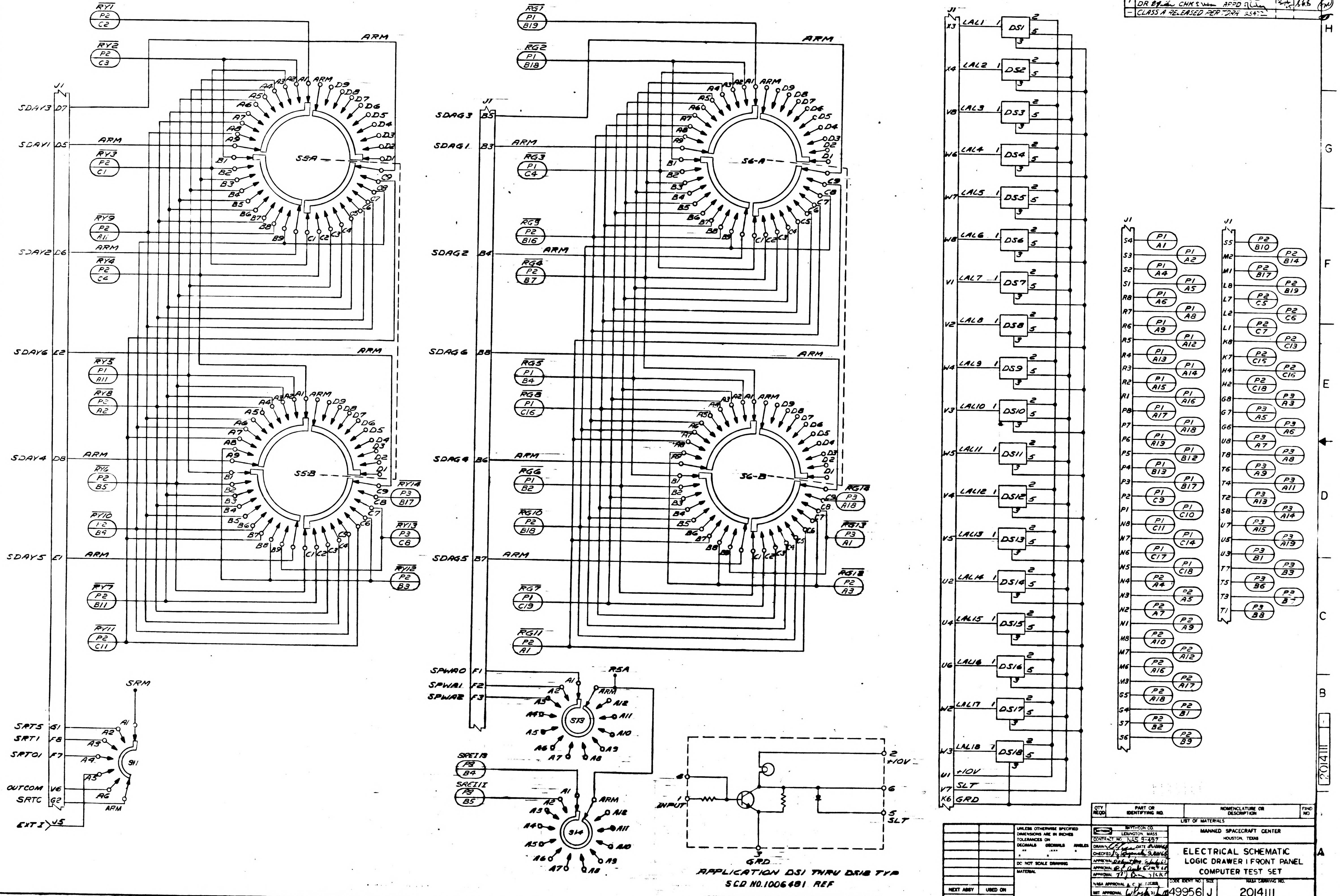
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
LOGIC DRAWER I FRONT PANEL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014111
SCALE NONE
WT
SHEET 1 OF 3

2014111 -

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25092	7/9/65	
1	REVISED PER CCA R25132 DR CHK APPD	21 Sept 65	S.H.B
–	CLASS A RELEASED PER TDRR 25472		


RY1 P2 C2
RY2 P2 C3
ARM
J1
SDAY3 D7
SDAY1 D5
ARM
RY3 P2 C1
RY9 P2 A11
ARM
SDAY2 D6
RY4 P2 C4
SDAY6 E2
ARM
RY5 P1 A11
RY8 P2 A2
SDAY4 D8
ARM
RY6 P2 B5
RY10 P2 B9
SDAY5 E1
ARM
RY7 P2 B11
RY11 P2 C11
S5A
S5B
A1 A2 A3 A4 A5 A6 A7 A8 A9
B1 B2 B3 B4 B5 B6 B7 B8 B9
C1 C2 C3 C4 C5 C6 C7 C8 C9
D1 D2 D3 D4 D5 D6 D7 D8 D9
RY14 P3 B17
RY13 P3 C8
RY12 P2 B3
RG1 P1 B19
RG2 P1 B18
ARM
J1
SDAG3 B5
SDAG1 B3
ARM
RG3 P1 C4
RG9 P2 B16
SDAG2 B4
ARM
RG4 P2 B7
SDAG6 B8
ARM
RG5 P1 B4
RG8 P1 C16
SDAG4 B6
ARM
RG6 P1 B2
RG10 P2 B18
SDAG5 B7
ARM
RG7 P1 C19
RG11 P2 A1
S6-A
S6-B
RG14 P3 A18
RG13 P3 A1
RG12 P2 A3
SPWA0 F1
SPWA1 F2
SPWA2 F3
RSA
S13
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 ARM
SPEI1B P3 B4
SREI1I P3 B5
S14
SRM
SRTS G1
SRT1 F8
SRTO1 F7
OUTCOM V6
SRTC G2
EXT I J5
S11
A1 A2 A3 A4 A5 A6
ARM
J1
X3 LAL1 DS1
X4 LAL2 DS2
V8 LAL3 DS3
W6 LAL4 DS4
W7 LAL5 DS5
W8 LAL6 DS6
V1 LAL7 DS7
V2 LAL8 DS8
W4 LAL9 DS9
V3 LAL10 DS10
W5 LAL11 DS11
V4 LAL12 DS12
V5 LAL13 DS13
U2 LAL14 DS14
U4 LAL15 DS15
U6 LAL16 DS16
W2 LAL17 DS17
W3 LAL18 DS18
1 2 3 5
U1 +10V
V7 SLT
K6 GRD
J1
S4 P1 A1
S3 P1 A2
S2 P1 A4
S1 P1 A5
R8 P1 A6
R7 P1 A8
R6 P1 A9
R5 P1 A12
R4 P1 A13
R3 P1 A14
R2 P1 A15
R1 P1 A16
P8 P1 A17
P7 P1 A18
P6 P1 A19
P5 P1 B12
P4 P1 B13
P3 P1 B17
P2 P1 C9
P1 P1 C10
N8 P1 C11
N7 P1 C14
N6 P1 C17
N5 P1 C18
N4 P2 A4
N3 P2 A5
N2 P2 A7
N1 P2 A9
M8 P2 A10
M7 P2 A12
M6 P2 A16
M3 P2 A17
G5 P2 A18
G4 P2 B1
S7 P2 B2
S6 P2 B9
J1
S5 P2 B10
M2 P2 B14
M1 P2 B17
L8 P2 B19
L7 P2 C5
L2 P2 C6
L1 P2 C7
K8 P2 C13
K7 P2 C15
H4 P2 C16
H2 P2 C18
G8 P3 A3
G7 P3 A5
G6 P3 A6
U8 P3 A7
T8 P3 A8
T6 P3 A9
T4 P3 A11
T2 P3 A13
S8 P3 A14
U7 P3 A15
U5 P3 A19
U3 P3 B1
T7 P3 B3
T5 P3 B6
T3 P2 B
T1 P3 B8
2 +10V
6
5 SLT
4
1 INPUT
3 GRD
8 7 6 5 4 3 2 1
H G F E D C B A

APPLICATION DS1 THRU DS18 TYP

SCD NO.1006481 REF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9 JUN 65
CHECKED 9 JUN 65
APPROVAL
APPROVAL 6 JUN 65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

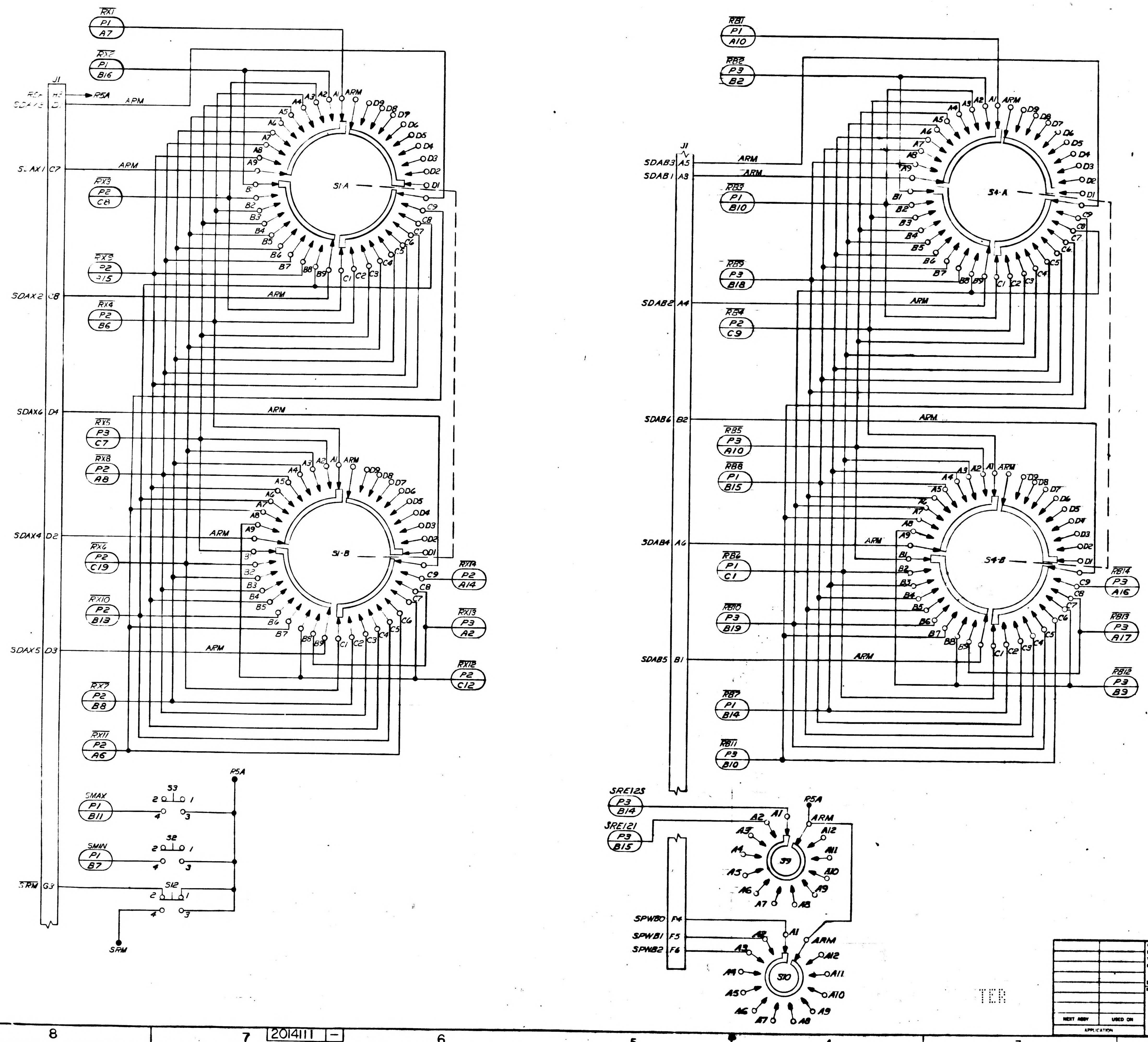
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
LOGIC DRAWER 1 FRONT PANEL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014111
SCALE NONE
WT
SHEET 2 OF 3

2014111 -

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25042	7/9/65	G. Havens
1	REVISED PER CCA R25132 DR CHK APPD	21 Sept 65	
–	CLASS A RELEASED PER DRR 25472		



RX1 P1 A7
RX2 P1 B16
RX3 P2 C8
RX9 P2 A15
RX4 P2 B6
RX5 P3 C7
RX8 P2 A8
RX6 P2 C19
RX10 P2 B13
RX7 P2 B8
RX11 P2 A6
RX14 P2 A14
RX13 P3 A2
RX12 P2 C12
J1
P5A
SDAX3 C1
SDAX1 C7
SDAX2 C8
SDAX6 D4
SDAX4 D2
SDAX5 D3
ARM
S1·A
S1·B
RB1 P1 A10
RB2 P3 B2
RB3 P1 B10
RB9 P3 B18
RB4 P2 C9
RB5 P3 A10
RB8 P1 B15
RB6 P1 C1
RB10 P3 B19
RB7 P1 B14
RB11 P3 B10
RB14 P3 A16
RB13 P3 A17
RB12 P3 B9
SDAB3 A5
SDAB1 A3
SDAB2 A4
SDAB6 B2
SDAB4 A6
SDAB5 B1
S4·A
S4·B
SMAX P1 B11
S3
SMIN P1 B7
S2
SRM G3
S12
SRM
SRE12S P3 B14
SRE121 P3 B15
S9
SPWB0 F4
SPWB1 F5
SPWB2 F6
S10
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12
B1 B2 B3 B4 B5 B6 B7 B8 B9
C1 C2 C3 C4 C5 C6 C7 C8 C9
D1 D2 D3 D4 D5 D6 D7 D8 D9

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

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MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 5 Jun 65
CHECKED
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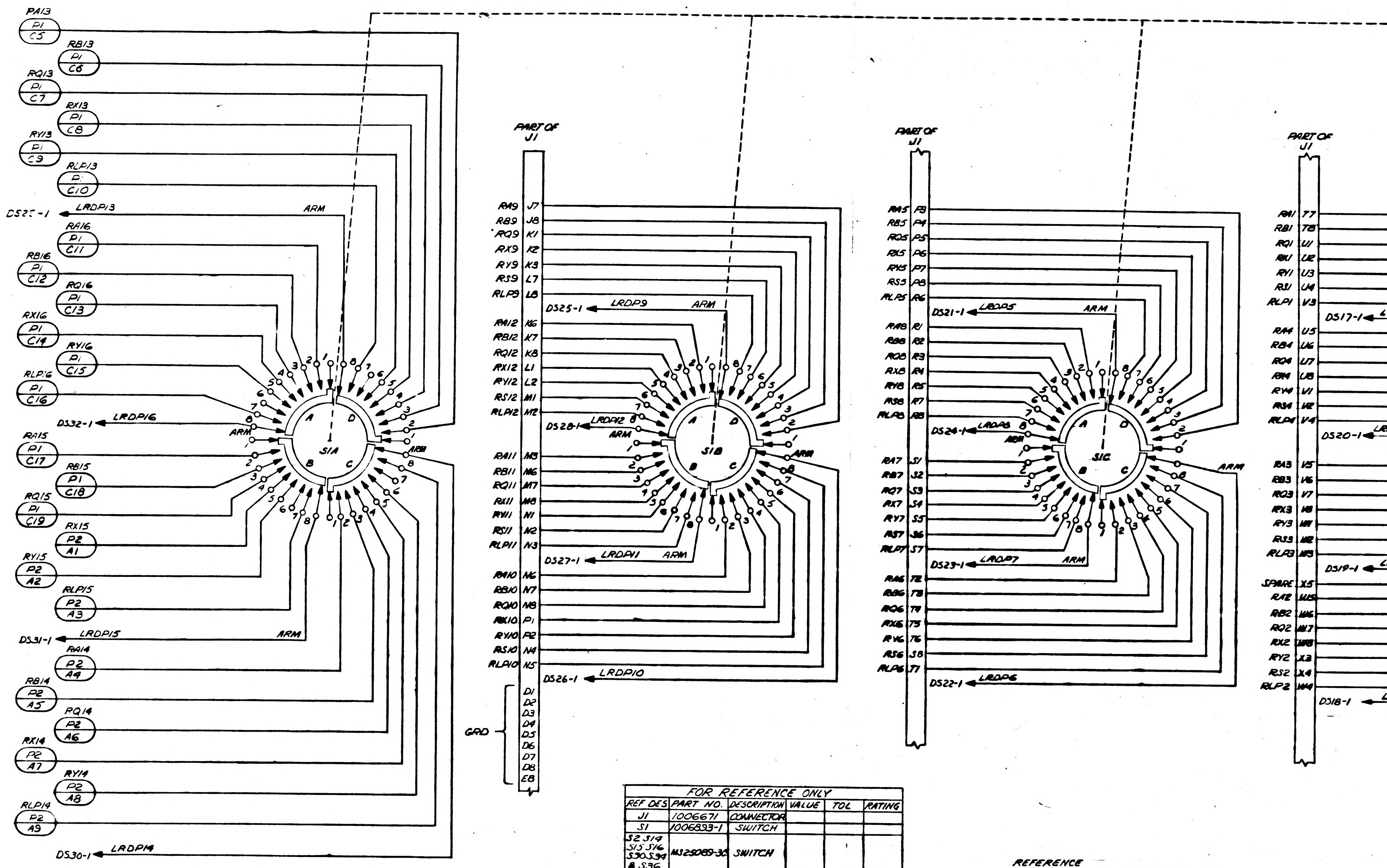
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

ELECTRICAL SCHEMATIC
LOGIC DRAWER 1 FRONT PANEL
COMPUTER TEST SET

CODE IDENT NO 49956 SIZE J NASA DRAWING NO 2014111 –
SCALE NONE WT SHEET 9 OF 9

	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25C85	3/13/65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26467 DR E. Afting CHK Winfield APPD	2/24/66	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P1
C5
RB13
P1
C6
RQ13
P1
C7
RX13
P1
C8
RY13
P1
C9
RLP13
P1
C10
DS2?-1
LRDP13
ARM
RA16
P1
C11
RB16
P1
C12
RQ16
P1
C13
RX16
P1
C14
RY16
P1
C15
RLP16
P1
C16
DS32-1
LRDP16
ARM
RA15
P1
C17
RB15
P1
C18
RQ15
P1
C19
RX15
P2
A1
RY15
P2
A2
RLP15
P2
A3
DS31-1
LRDP15
ARM
RA14
P2
A4
RB14
P2
A5
RQ14
P2
A6
RX14
P2
A7
RY14
P2
A8
RLP14
P2
A9
DS30-1
LRDP14
S1A
A
B
C
D
PART OF
J1
RA9 J7
RB9 J8
RQ9 K1
RX9 K2
RY9 K3
RS9 L7
RLP9 L8
DS25-1
LRDP9
ARM
RA12 K6
RB12 K7
RQ12 K8
RX12 L1
RY12 L2
RS12 M1
RLP12 M2
DS28-1
LRDP12
ARM
RA11 M3
RB11 M6
RQ11 M7
RX11 M8
RY11 N1
RS11 N2
RLP11 N3
DS27-1
LRDP11
ARM
RA10 N6
RB10 N7
RQ10 N8
RX10 P1
RY10 P2
RS10 N4
RLP10 N5
DS26-1
LRDP10
GRD
D1
D2
D3
D4
D5
D6
D7
D8
E8
S1B
PART OF
J1
RA5 P3
RB5 P4
RQ5 P5
RX5 P6
RY5 P7
RS5 P8
RLP5 R6
DS21-1
LRDP5
ARM
RA8 R1
RB8 R2
RQ8 R3
RX8 R4
RY8 R5
RS8 R7
RLP8 R8
DS24-1
LRDP8
ARM
RA7 S1
RB7 S2
RQ7 S3
RX7 S4
RY7 S5
RS7 S6
RLP7 S7
DS23-1
LRDP7
ARM
RA6 T2
RB6 T3
RQ6 T4
RX6 T5
RY6 T6
RS6 S8
RLP6 T1
DS22-1
LRDP6
S1C
PART OF
J1
RA1 T7
RB1 T8
RQ1 U1
RX1 U2
RY1 U3
RS1 U4
RLP1 V3
DS17-1
LRDP1
ARM
RA4 U5
RB4 U6
RQ4 U7
RX4 U8
RY4 V1
RS4 V2
RLP4 V4
DS20-1
LRDP4
ARM
RA3 V5
RB3 V6
RQ3 V7
RX3 V8
RY3 W1
RS3 W2
RLP3 W3
DS19-1
LRDP3
ARM
SPARE X5
RA2 W5
RB2 W6
RQ2 W7
RX2 W8
RY2 X3
RS2 X4
RLP2 W4
DS18-1
LRDP2
S1D

FOR REFERENCE ONLY					
REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
J1	1006671	CONNECTOR			
S1	1006893-1	SWITCH			
S2 S14 S15 S16 S30 S34 & S36	MS25089-3C	SWITCH			
S3 THRU S12	1006471-001	SWITCH			
S13, S31 S32 & S33	1006405-001	SWITCH			
S17 THRU S29	1006677	SWITCH			
S35	MS25068-23	SWITCH			
DS1 THRU DS79	1006481	LIGHT INDICATOR			
P1, P2	1006671	CONNECTOR			
CR1-CR10	1006751-000	DIODE			
C1	CS13BF685K	CAPACITOR	6.8μf	±10%	35V

REFERENCE
1. ASSEMBLY DRAWING 2014231
2. HARNESS A - 2014120
3. HARNESS B - 2014121
4. LEAD ELECTRICAL - 2014122

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

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RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 29 JUN 65
CHECKED 29 JUN 65
APPROVAL 30 JUN 65
APPROVAL 7/1/65
APPROVAL
NASA APPROVAL A.C. M
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
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ELECTRICAL SCHEMATIC
PROGRAMMER AND MONITOR FRONT PANEL
COMPUTER TEST SET

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014112
SCALE NONE
WT
SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014112 A

SYM	DESCRIPTION	DATE	APPROVED
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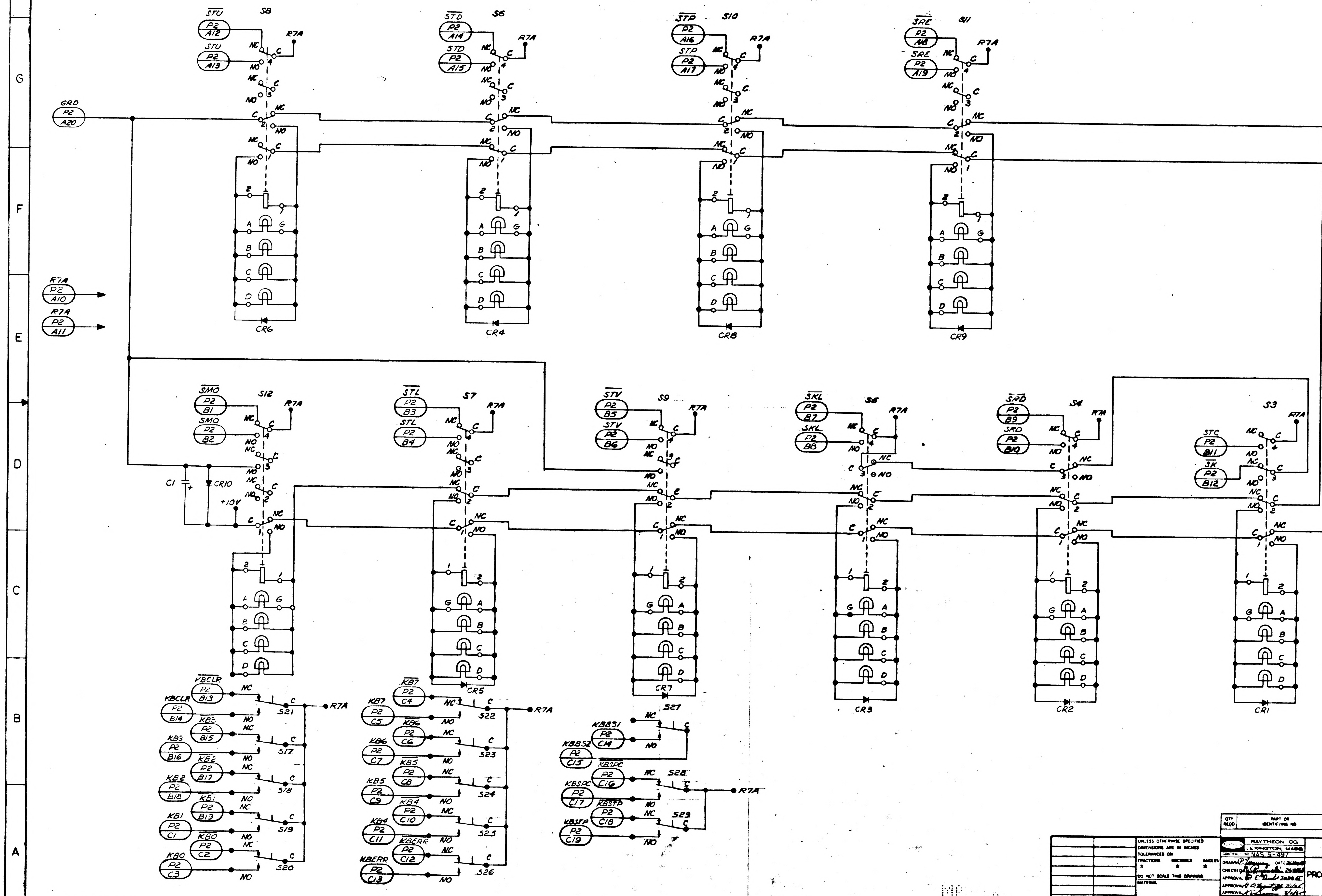
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26465 DR E. CHK APPD	7/24/66	



S8
STU
P2 A12
STU
P2 A13
R7A
S6
STD
P2 A14
STD
P2 A15
S10
STP
P2 A16
STP
P2 A17
S11
SRE
P2 A18
SRE
P2 A19
GRD
P2 A20
R7A
P2 A10
R7A
P2 A11
NC
NO
C
CR6
CR4
CR8
CR9
S12
SMO
P2 B1
SMO
P2 B2
S7
STL
P2 B3
STL
P2 B4
S9
STV
P2 B5
STV
P2 B6
S5
SKL
P2 B7
SKL
P2 B8
S4
SRD
P2 B9
SRD
P2 B10
S3
STC
P2 B11
SK
P2 B12
C1
CR10
+10V
CR5
CR7
CR3
CR2
CR1
KBCLR
P2 B13
KBCLR
P2 B14
S21
KB3
P2 B15
KB3
P2 B16
S17
KB2
P2 B17
KB2
P2 B18
S18
KB1
P2 B19
KB1
P2 C1
S19
KB0
P2 C2
KB0
P2 C3
S20
KB7
P2 C4
KB7
P2 C5
S22
KB6
P2 C6
KB6
P2 C7
S23
KB5
P2 C8
KB5
P2 C9
S24
KB4
P2 C10
KB4
P2 C11
S25
KBERR
P2 C12
KBERR
P2 C13
S26
KBBS1
P2 C14
KBBS2
P2 C15
S27
KBSPC
P2 C16
KBSPC
P2 C17
S28
KBSTP
P2 C18
KBSTP
P2 C19
S29
A B C D G

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

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APPLICATION

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PROGRAMMER AND MONITOR FRONT PANEL
COMPUTER TEST SET

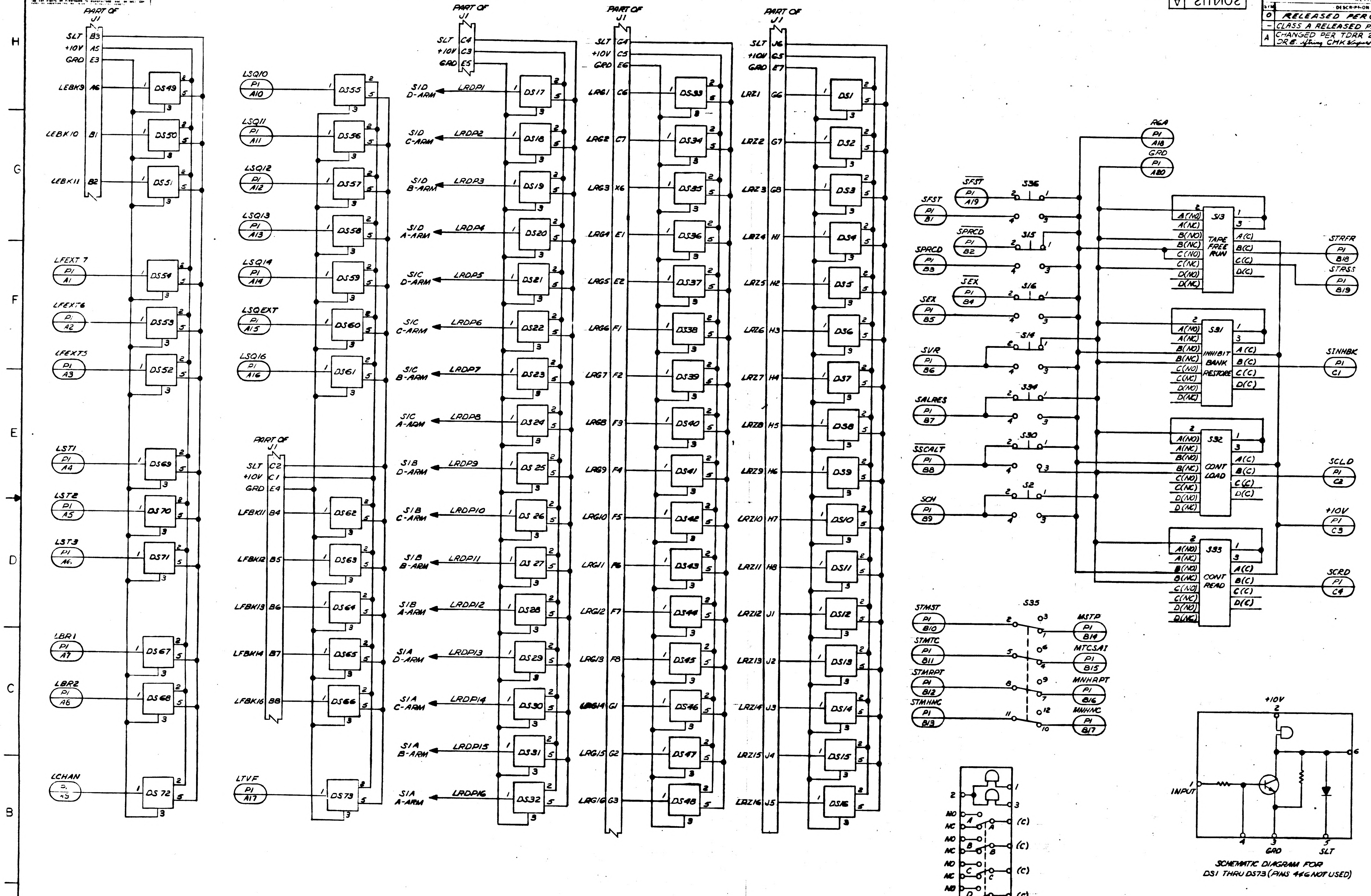
CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014112
SCALE NONE
WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014112 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R 25085	6/13/65	
-	CLASS A RELEASED PER TDRR 254		
A	CHANGED PER TDRR 26467 DRE. Affring CHK Vazquez APPD	2/24/66	

2014112 A



PART OF J1
SLT B3
+10V A5
GRD E3
LEBK9 A6
LEBK10 B1
LEBK11 B2
DS49
DS50
DS51
LFEXT7 P1 A1
LFEXT6 P1 A2
LFEXT5 P1 A3
DS54
DS53
DS52
LST1 P1 A4
LST2 P1 A5
LST3 P1 A6
DS69
DS70
DS71
LBR1 P1 A7
LBR2 P1 A8
DS67
DS68
LCHAN P1 A9
DS72
LSQ10 P1 A10
LSQ11 P1 A11
LSQ12 P1 A12
LSQ13 P1 A13
LSQ14 P1 A14
LSQEXT P1 A15
LSQ16 P1 A16
DS55
DS56
DS57
DS58
DS59
DS60
DS61
PART OF J1
SLT C2
+10V C1
GRD E4
LFBK11 B4
LFBK12 B5
LFBK13 B6
LFBK14 B7
LFBK16 B8
DS62
DS63
DS64
DS65
DS66
LTVF P1 A17
DS73
PART OF J1
SLT C4
+10V C3
GRD E5
S1D D-ARM LRDP1
S1D C-ARM LRDP2
S1D B-ARM LRDP3
S1D A-ARM LRDP4
S1C D-ARM LRDP5
S1C C-ARM LRDP6
S1C B-ARM LRDP7
S1C A-ARM LRDP8
S1B D-ARM LRDP9
S1B C-ARM LRDP10
S1B B-ARM LRDP11
S1B A-ARM LRDP12
S1A D-ARM LRDP13
S1A C-ARM LRDP14
S1A B-ARM LRDP15
S1A A-ARM LRDP16
DS17
DS18
DS19
DS20
DS21
DS22
DS23
DS24
DS25
DS26
DS27
DS28
DS29
DS30
DS31
DS32
PART OF J1
SLT C6
+10V C5
GRD E6
LRG1 C6
LRG2 C7
LRG3 X6
LRG4 E1
LRG5 E2
LRG6 F1
LRG7 F2
LRG8 F3
LRG9 F4
LRG10 F5
LRG11 F6
LRG12 F7
LRG13 F8
LRG14 G1
LRG15 G2
LRG16 G3
DS33
DS34
DS35
DS36
DS37
DS38
DS39
DS40
DS41
DS42
DS43
DS44
DS45
DS46
DS47
DS48
PART OF J1
SLT J6
+10V G5
GRD E7
LRZ1 G6
LRZ2 G7
LRZ3 G8
LRZ4 H1
LRZ5 H2
LRZ6 H3
LRZ7 H4
LRZ8 H5
LRZ9 H6
LRZ10 H7
LRZ11 H8
LRZ12 J1
LRZ13 J2
LRZ14 J3
LRZ15 J4
LRZ16 J5
DS1
DS2
DS3
DS4
DS5
DS6
DS7
DS8
DS9
DS10
DS11
DS12
DS13
DS14
DS15
DS16
RGA P1 A18
GRD P1 A20
SFST P1 A19
SFST P1 B1
S36
SPRCD P1 B2
SPRCD P1 B3
S15
SEX P1 B4
SEX P1 B5
S16
S14
SVR P1 B6
SALRES P1 B7
S34
SSCALT P1 B8
S30
SCH P1 B9
S2
S13 TAPE FREE RUN
S31 INHIBIT BANK RESTORE
S32 CONT LOAD
S33 CONT READ
A(NO) A(NC) B(NO) B(NC) C(NO) C(NC) D(NO) D(NC)
A(C) B(C) C(C) D(C)
STRFR P1 B18
STRSS P1 B19
SINHBK P1 C1
SCLD P1 C2
+10V P1 C3
SCRD P1 C4
S35
STMST P1 B10
STMTC P1 B11
STMRPT P1 B12
STMHNC P1 B13
MSTP P1 B14
MTCSAI P1 B15
MNHRPT P1 B16
MNHNC P1 B17
NO NC A B C D (C)
SCHEMATIC DIAGRAM FOR S31, S32, S33 & S13
+10V 2
INPUT 1
6
4
3 GRD
5 SLT
SCHEMATIC DIAGRAM FOR DS1 THRU DS73 (PINS 4&6 NOT USED)

MASTER

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CONTRACT NO NAS 9-497
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APPROVAL E. C. Duke 20 JAN 65
APPROVAL 2/1/65
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HOUSTON TEXAS

ELECTRICAL SCHEMATIC
PROGRAMMER AND MONITOR FRONT PANEL
COMPUTER TEST SET

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014112
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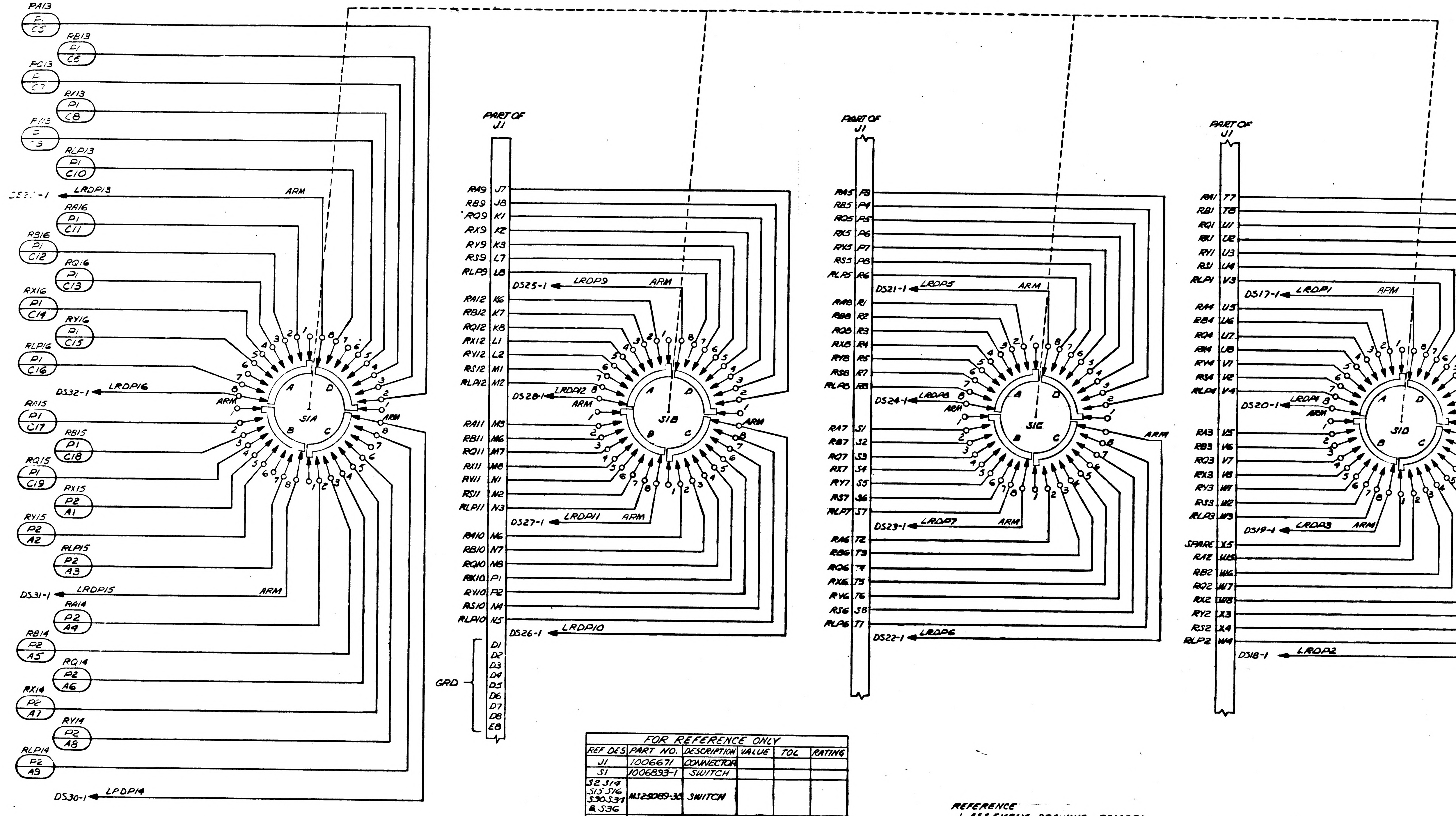
WT
SHEET 3 OF 3

2014112 A

2014112 A

S	DESCRIPTION	DATE	APPROVE
0	RELEASED PER CCA R25085	2/13/65	
—	CLASS A RELEASED PER TDRR 25472		



PA13 P1 C5
RB13 P1 C6
PC13 P1 C7
RI13 P1 C8
FI13 P1 C9
RLP13 P1 C10
DS33-1 LRDP13 ARM
RA16 P1 C11
RB16 P1 C12
RQ16 P1 C13
RX16 P1 C14
RY16 P1 C15
RLP16 P1 C16
DS32-1 LRDP16
ARM
S1A
A B C D
RA15 P1 C17
RB15 P1 C18
RQ15 P1 C19
RX15 P2 A1
RY15 P2 A2
RLP15 P2 A3
DS31-1 LRDP15 ARM
RA14 P2 A4
RB14 P2 A5
RQ14 P2 A6
RX14 P2 A7
RY14 P2 A8
RLP14 P2 A9
DS30-1 LRDP14
PART OF J1
RA9 J7
RB9 J8
RQ9 K1
RX9 K2
RY9 K3
RS9 L7
RLP9 L8
DS25-1 LRDP9 ARM
RA12 K6
RB12 K7
RQ12 K8
RX12 L1
RY12 L2
RS12 M1
RLP12 M2
DS28-1 LRDP12
ARM
S1B
RA11 M3
RB11 M6
RQ11 M7
RX11 M8
RY11 N1
RS11 N2
RLP11 N3
DS27-1 LRDP11 ARM
RA10 M6
RB10 N7
RQ10 N8
RX10 P1
RY10 P2
RS10 N4
RLP10 N5
DS26-1 LRDP10
GRD
D1 D2 D3 D4 D5 D6 D7 D8 E8
PART OF J1
RA5 P3
RB5 P4
RQ5 P5
RX5 P6
RY5 P7
RS5 P8
RLP5 R6
DS21-1 LRDP5 ARM
RA8 R1
RB8 R2
RQ8 R3
RX8 R4
RY8 R5
RS8 R7
RLP8 R8
DS24-1 LRDP8
ARM
S1C
ARM
RA7 S1
RB7 S2
RQ7 S3
RX7 S4
RY7 S5
RS7 S6
RLP7 S7
DS23-1 LRDP7 ARM
RA6 T2
RB6 T3
RQ6 T4
RX6 T5
RY6 T6
RS6 S8
RLP6 T7
DS22-1 LRDP6
PART OF J1
RA1 T7
RB1 T8
RQ1 U1
RX1 U2
RY1 U3
RS1 U4
RLP1 V3
DS17-1 LRDP1 ARM
RA4 U5
RB4 U6
RQ4 U7
RX4 U8
RY4 V1
RS4 V2
RLP4 V4
DS20-1 LRDP4
ARM
S1D
ARM
RA3 V5
RB3 V6
RQ3 V7
RX3 V8
RY3 W1
RS3 W2
RLP3 W3
DS19-1 LRDP3 ARM
SPARE X5
RA2 W5
RB2 W6
RQ2 W7
RX2 W8
RY2 X3
RS2 X4
RLP2 W4
DS18-1 LRDP2

FOR REFERENCE ONLY					
REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
J1	1006671	CONNECTOR			
S1	1006893-1	SWITCH			
S2 S14 S15 S16 S30 S31 & S36	MS25089-3C	SWITCH			
S3 THRU S12	1006477-001	SWITCH			
S13, S31 S32 & S33	1006405-001	SWITCH			
S17 THRU S29	1006677	SWITCH			
S35	MS25068-23	SWITCH			
DS1 THRU DS73	1006481	LIGHT INDICATOR			
P1, P2	1006671	CONNECTOR			

REFERENCE
1. ASSEMBLY DRAWING 2014231
2. HARNESS A - 2014120
3. HARNESS B - 2014121
4. LEAD ELECTRICAL - 2014122

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

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CODE IDENT NO 49956
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NASA DRAWING NO 2014112
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SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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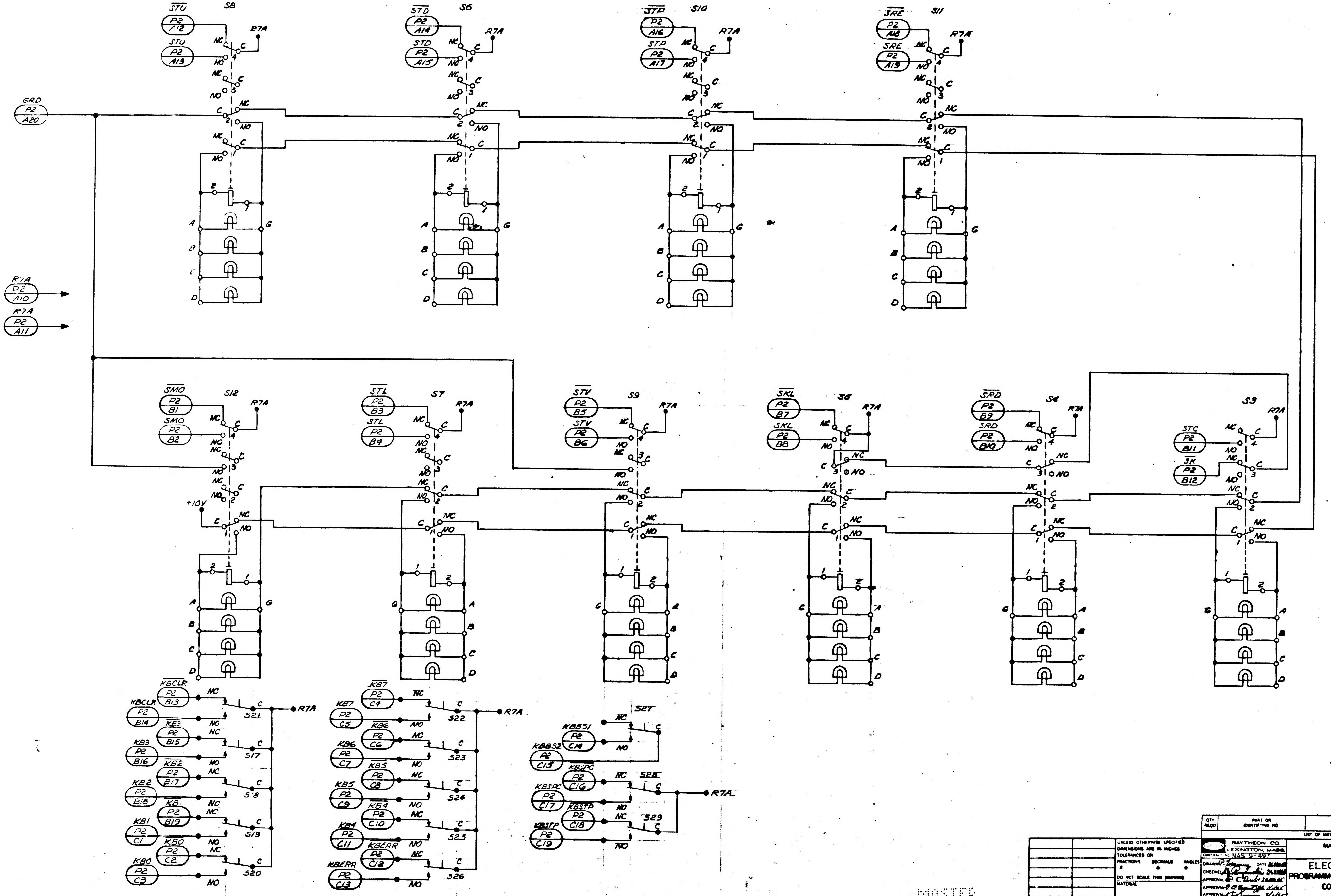
2014112 –

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25015	2/13/65	
–	CLASS A RELEASED PER TDRR 25472		



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STU P2 A13
S8
STD P2 A14
STD P2 A15
S6
STP P2 A16
STP P2 A17
S10
SRE P2 A18
SRE P2 A19
S11
R7A
GRD P2 A20
R7A P2 A10
R7A P2 A11
NC
NO
C
A
B
C
D
G
SMO P2 B1
SMO P2 B2
S12
STL P2 B3
STL P2 B4
S7
STV P2 B5
STV P2 B6
S9
SKL P2 B7
SKL P2 B8
S5
SRD P2 B9
SRD P2 B10
S4
STC P2 B11
3K P2 B12
S3
+10V
KBCLR P2 B13
KBCLR P2 B14
S21
KB3 P2 B15
KB3 P2 B16
S17
KB2 P2 B17
KB2 P2 B18
S18
KB1 P2 B19
KB1 P2 C1
S19
KB0 P2 C2
KB0 P2 C3
S20
KB7 P2 C4
KB7 P2 C5
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KB6 P2 C6
KB6 P2 C7
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KB5 P2 C8
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S25
KBERR P2 C12
KBERR P2 C13
S26
KBBS1 P2 C14
KBBS2 P2 C15
S27
KBSPC P2 C16
KBSPC P2 C17
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KBSTP P2 C18
KBSTP P2 C19
S29

MASTER

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RAYTHEON CO
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CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. L. METZGER
MIT APPROVAL [illegible] 65
MIT APPROVAL [illegible]

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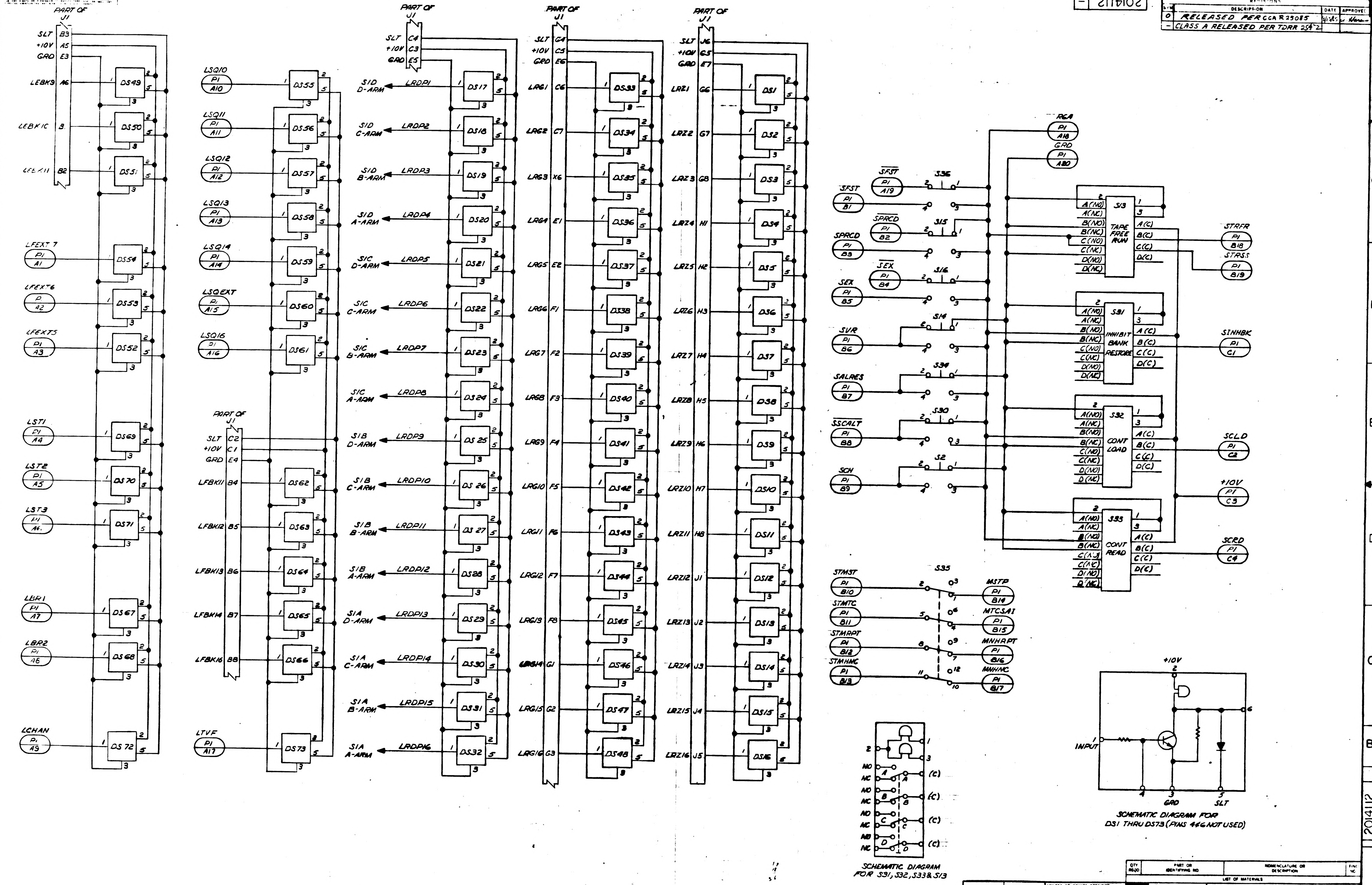
SHEET 2 OF 3

2014112 –

2014112

2014112

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25085	8/13/65	
–	CLASS A RELEASED PER TDRR 2542		



PART OF J1
SLT B3
+10V A5
GRD E3
LEBK9 A6
LEBK10 B
LFEX11 B2
DS49
DS50
DS51
LFEXT7 P1 A1
DS54
LFEXT6 P1 A2
DS53
LFEXT5 P1 A3
DS52
LST1 P1 A4
DS69
LST2 P1 A5
DS70
LST3 P1 A6
DS71
LBR1 P1 A7
DS67
LBR2 P1 A8
DS68
LCHAN P1 A9
DS72
LSQ10 P1 A10
DS55
LSQ11 P1 A11
DS56
LSQ12 P1 A12
DS57
LSQ13 P1 A13
DS58
LSQ14 P1 A14
DS59
LSQEXT P1 A15
DS60
LSQ16 P1 A16
DS61
PART OF J1
SLT C2
+10V C1
GRD E4
LFBK11 B4
DS62
LFBK12 B5
DS63
LFBK13 B6
DS64
LFBK14 B7
DS65
LFBK16 B8
DS66
LTVF P1 A17
DS73
PART OF J1
SLT C4
+10V C3
GRD E5
S1D D-ARM LRDP1 DS17
S1D C-ARM LRDP2 DS18
S1D B-ARM LRDP3 DS19
S1D A-ARM LRDP4 DS20
S1C D-ARM LRDP5 DS21
S1C C-ARM LRDP6 DS22
S1C B-ARM LRDP7 DS23
S1C A-ARM LRDP8 DS24
S1B D-ARM LRDP9 DS25
S1B C-ARM LRDP10 DS26
S1B B-ARM LRDP11 DS27
S1B A-ARM LRDP12 DS28
S1A D-ARM LRDP13 DS29
S1A C-ARM LRDP14 DS30
S1A B-ARM LRDP15 DS31
S1A A-ARM LRDP16 DS32
PART OF J1
SLT C4
+10V C5
GRD E6
LRG1 C6 DS33
LRG2 C7 DS34
LRG3 X6 DS35
LRG4 E1 DS36
LRG5 E2 DS37
LRG6 F1 DS38
LRG7 F2 DS39
LRG8 F3 DS40
LRG9 F4 DS41
LRG10 F5 DS42
LRG11 F6 DS43
LRG12 F7 DS44
LRG13 F8 DS45
LRG14 G1 DS46
LRG15 G2 DS47
LRG16 G3 DS48
PART OF J1
SLT J6
+10V G5
GRD E7
LRZ1 G6 DS1
LRZ2 G7 DS2
LRZ3 G8 DS3
LRZ4 H1 DS4
LRZ5 H2 DS5
LRZ6 H3 DS6
LRZ7 H4 DS7
LRZ8 H5 DS8
LRZ9 H6 DS9
LRZ10 H7 DS10
LRZ11 H8 DS11
LRZ12 J1 DS12
LRZ13 J2 DS13
LRZ14 J3 DS14
LRZ15 J4 DS15
LRZ16 J5 DS16
RGA P1 A18
GRD P1 A80
SFST P1 A19
S36
SFST P1 B1
SPRCD P1 B2
S15
SPRCD P1 B3
SEX P1 B4
S16
SEX P1 B5
S14
SVR P1 B6
S34
SALRES P1 B7
S30
SSCALT P1 B8
S2
SCH P1 B9
S13 TAPE FREE RUN
S31 INHIBIT BANK RESTORE
S32 CONT LOAD
S33 CONT READ
A(NO) A(NC) B(NO) B(NC) C(NO) C(NC) D(NO) D(NC)
A(C) B(C) C(C) D(C)
STRFR P1 B18
STRSS P1 B19
SINHBK P1 C1
SCLD P1 C2
+10V P1 C3
SCRD P1 C4
S35
STMST P1 B10
STMTC P1 B11
STMRPT P1 B12
STMHNC P1 B13
MSTP P1 B14
MTCSAI P1 B15
MNHRPT P1 B16
MNHNC P1 B17
NO NC NO NC NO NC NO NC
(C)
SCHEMATIC DIAGRAM FOR S31, S32, S33 & S13
+10V
INPUT
GRD
SLT
SCHEMATIC DIAGRAM FOR DS1 THRU DS73 (PINS 4&6 NOT USED)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 4 June 65
CHECKED
APPROVAL E. Duke 20 ... 65
APPROVAL 2/1/65
APPROVAL
NASA APPROVAL A. C. ...
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
PROGRAMMER AND MONITOR FRONT PANEL
COMPUTER TEST SET

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014112
SCALE NONE
WT
SHEET 3 OF 3

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014112 –

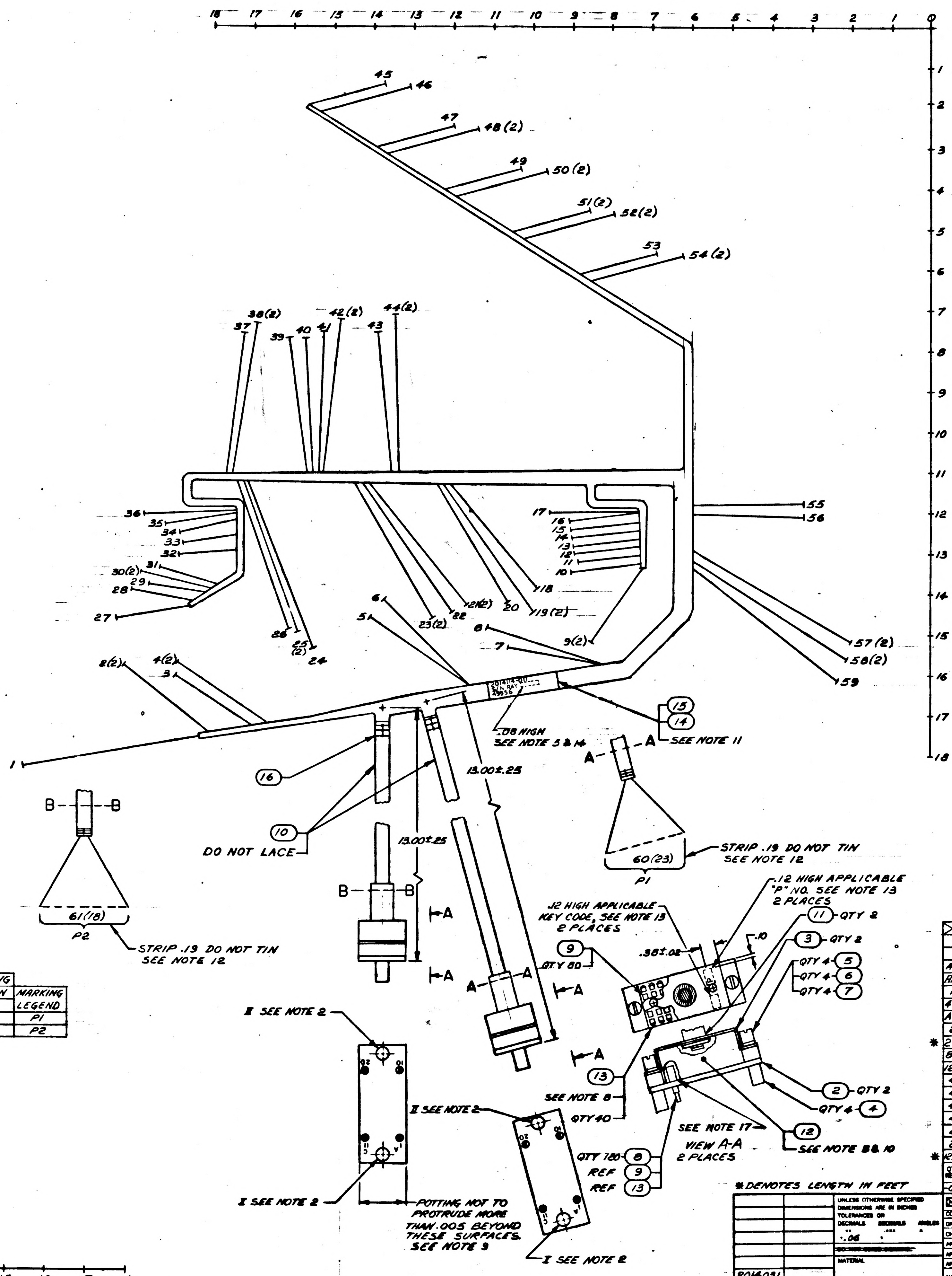
SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
	RELEASE PER CCA 2504	7/3/65	
–	CLASS A RELEASE PER TDRR 21380		
A	CHANGED PER TDRR 22109 DR CHK APPD	65	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	60	P1-B18	WHT	20	1	5	J4	TWIST
	A2	60	P1-B17				6	J5	
	A3	61	P2-A2				7	F1-LOAD	TWIST
	A4	61	P2-A1				8	F1-LINE	
	A5	60	P1-B15				24	S8-3	
	A6		-C17				15	S11-3A	
	A7		-B3				34	S7-3A	
	A8		-A19				35	S7-2A	
	A9		-C9				43	S4-3	
	A10		-C13				39	S3-4	
	A11		-A17				41	S3-3	
	A12		-A7				17	S11-1A	
	A13		-C6				27	S7-9A	
	A14		-A6				13	S11-5A	
	A15		-B16				22	S9 OUT "+"	
	A16		-B9				36	S7-1A	
	A17		-B5				59	S18 OUT "+"	
	A18		-C4				37	S2-3	
	A19		-C5				33	S7-4A	
	A20		-A3				12	S11-6A	
	A21		-C2				56	DS8-A	
	A22		-C1				1	S13-2	
	A23		-B11				47	DS3-B	
	A24	60	P1-B1				10	S11-8A	
	A25	61	P2-C1				14	S11-4A	
	A26		-B1				53	DS6-B	
	A27		-B9				28	S7-8A	
	A28		-C2				16	S11-2A	
	A29		-C5				32	S7-5A	
	A30		-C11				29	S7-7A	
	A31		-A3				18	S10-3	
	A32		-C4				11	S11-7A	
	A33		-B5				20	S10-1	
	A34		-C3				31	S7-6A	
	A35		-A7				3	DS10-A	
	A36		-B7				40	S3-2	
	A37		-B18				45	DS2-B	
	A38		-B8				26	S8-1	
	A39		-C9				49	DS4-B	
	A40	61	P2-C19				2	DS9-B	
	A41	4	DS10-B				2	DS9-B	
	A42	4	DS10-B				57	S12-IN "+"	
	A43	51	DS5-B				57	S12-IN "+"	
	A44	51	DS5-B				9	S11-13A	
	A45	19	S10-2				9	S11-13A	
	A46	19	S10-2				44	S4-2	
	A47	23	S9-IN "+"				44	S4-2	
	A48	23	S9-IN "+"				42	S3-5	
	A49	25	S8-2				42	S3-5	
	A50	25	S8-2				38	S2-2	
	A51	30	S7-13A				38	S2-2	
	A52	30	S7-13A				55	DS8-B	
	A53	60	P1-C20				58	S12 OUT "–"	
	A54	21	S9 OUT "–"				58		
	A55	21					54	DS6-A	
	A56	52	DS5-A				54	DS6-A	
	A57	52	DS5-A				50	DS4-A	
	A58	48	DS3-A				50	DS4-A	
	A59	48	DS3-A	WHT	20	1	46	DS2-A	

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 16.
2. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG NO. 1014047
3. FILL WITH FIND NO. 12 PER ND1002009 METHOD E. PRIME WITH 1010718
4. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
6. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
7. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
8. INSTALL FIND NO. 13 OUTSIDE ROWS ON P1 & P2
9. NO WIRES TO SHOW THRU POTTING
10. POTTING TO BE FLUSH OR .040 BELOW TOP OF VENT HOLES OF FIND NO. 3
11. BOND FIND NO. 14 USING FIND NO. 15 APPROX AS SHOWN
12. CRIMP PER ND 1002206
13. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1
14. SERIALIZE PER ND 1002023
15. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50±.12 & TIN PER 1002071
16. NUMBERS ENCLOSED WITHIN PARENTHESES INDICATE NUMBER OF CONDUCTORS
17. SEAL INSULATORS AND TERMINALS PER ND1002004 TYPE II

KEY CODING		
POSITION		MARKING LEGEND
I	II	
B	P	P1
B	R	P2



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48(2)
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51(2)
52(2)
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54(2)
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38(2)
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42(2)
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44(2)
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19(2)
9(2)
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5
8
7
55
56
57(2)
58(2)
59
2(2)
4(2)
3
1
2014114-001 S/N
.06 HIGH SEE NOTE 5 & 14
15
14
SEE NOTE 11
16
10
DO NOT LACE
13.00±.25
13.00±.25
B–B
61(18)
P2
STRIP .19 DO NOT TIN SEE NOTE 12
A–A
60(23)
P1
STRIP .19 DO NOT TIN SEE NOTE 12
A
A
A
A
B
B
.12 HIGH APPLICABLE "P" NO. SEE NOTE 13 2 PLACES
J2 HIGH APPLICABLE KEY CODE, SEE NOTE 13 2 PLACES
9
QTY 80
.38±.02
.10
11 QTY 2
3 QTY 2
QTY 4 5
QTY 4 6
QTY 4 7
II SEE NOTE 2
II SEE NOTE 2
I SEE NOTE 2
I SEE NOTE 2
POTTING NOT TO PROTRUDE MORE THAN .005 BEYOND THESE SURFACES. SEE NOTE 9
13
SEE NOTE 8
QTY 40
QTY 120 8
REF 9
REF 13
2 QTY 2
QTY 4 4
SEE NOTE 17
12
SEE NOTE 8 & 10
VIEW A-A 2 PLACES

*DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014113	SCHEMATIC	REF
AR	1006458-004	TAPE, LACING	16
AR	1006253	ADHESIVE	15
1	1006415-132	BAND, MARKER CABLE	14
40	1014310	INSULATOR, CONTACT, MALE	13
AR	1006683	COMPOUND, SILICONE RUBBER	12
2	7020370-16	BUSHING	11
*2.5	1006696-3	INSULATION, ELECTRICAL	10
80	1006987	INSULATOR, CONTACT, MALE	9
120	1006995-001	CONTACT, ELECTRICAL, MALE	8
4	1006997	WASHER, PLAIN, FLAT	7
4	MS35337-79	WASHER, LOCK	6
4	1006998-1	SCREW, CAPTIVE	5
4	1014032	RECEPTACLE, INDEXING	4
2	1014024-3	BRACKET, ANGLE	3
2	1014021	PLATE, CONNECTOR	2
*1250	MIL-W-16878/4 TYPE E20 WHT	WIRE, ELECTRICAL	1
-011	LIST OF MATERIALS		

2014031	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX .XXX ±
±.06 ±
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-2775
DRAWN DATE 5-20-65
CHECKED 5-10-65
APPROVAL 7/8/65
APPROVAL 8 JUL 65
APPROVAL 7/8/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 4/9/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS
FRONT PANEL
COMPUTER SIMULATOR

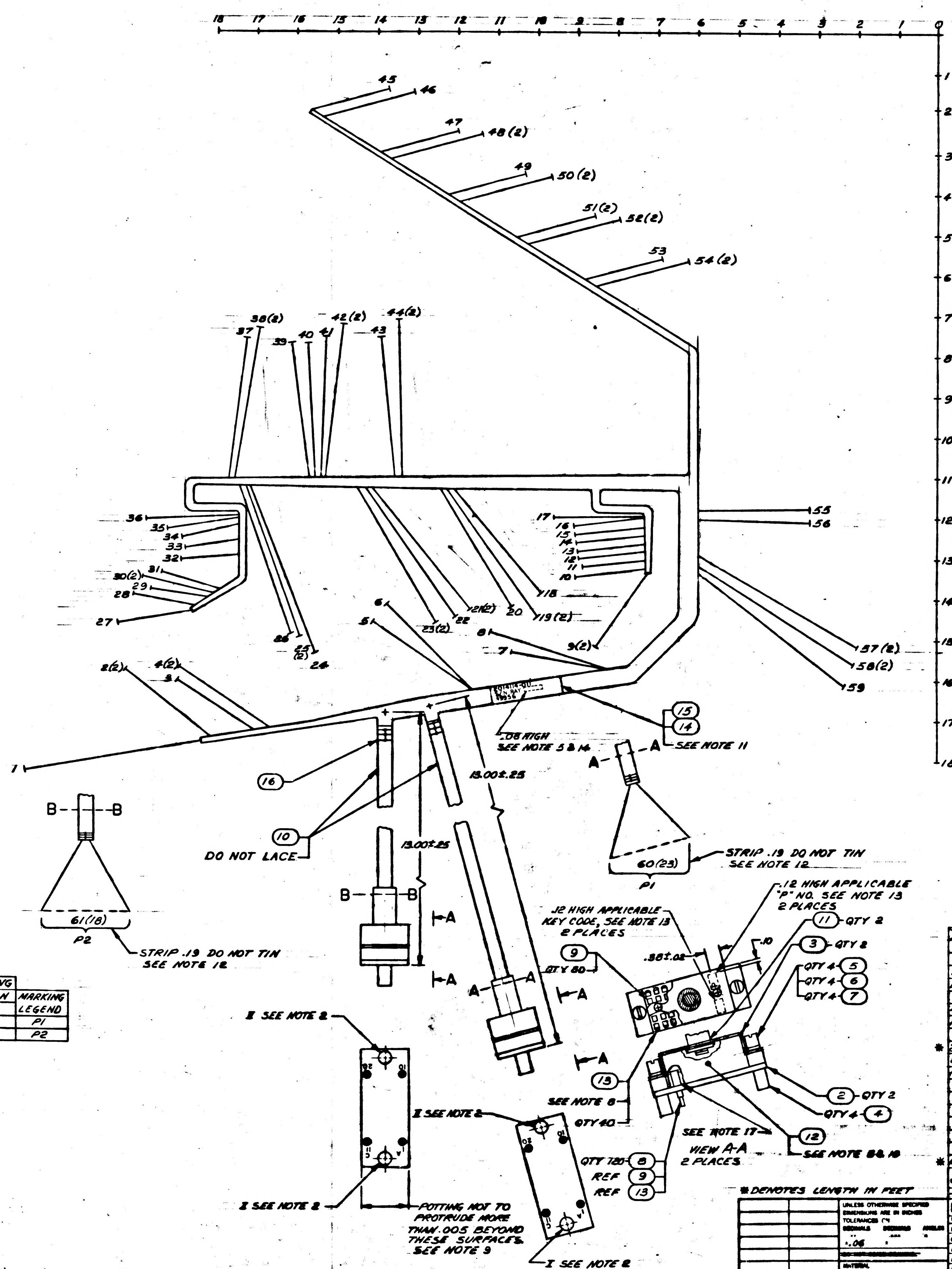
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014114
SCALE 1/1
WT
SHEET 1 OF 1

2014114 B

SYM	DESCRIPTION	DATE	APPROVED
	RELEASE PER CCA 2506		
-	CLASS A RELEASE PER TDRR 21380		
A	CHANGED PER TDRR 22103 DR S.J. Bonner CHK APPD	65	
B	CHANGED PER TDRR 22-20 DR S.J. Bonner CHK W. Lyons APPD	65	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	60	P1-B18	WHT	20	1	5	J4	TWIST
	A2	60	P1-B17				6	J5	
	A3	61	P2-A2				7	F1-LOAD	TWIST
	A4	61	P2-A1				8	F1-LINE	
	A5	60	P1-B15				24	S8-3	
	A6		-C17				15	S11-3A	
	A7		-B3				34	S7-3A	
	A8		-A19				35	S7-2A	
	A9		-C9				43	S4-3	
	A10		-C13				39	S3-4	
	A11		-A17				41	S3-3	
	A12		-A7				17	S11-1A	
	A13		-C6				27	S7-9A	
	A14		-A6				13	S11-5A	
	A15		-B16				22	S9 OUT "+"	
	A16		-B9				36	S7-1A	
	A17		-B5				59	S18 OUT "+"	
	A18		-C4				37	S2-3	
	A19		-C5				33	S7-4A	
	A20		-A3				12	S11-6A	
	A21		-C2				56	DS8-A	
	A22		-C1				1	S13-2	
	A23		-B11				47	DS3-B	
	A24	60	P1-B1				10	S11-8A	
	A25	61	P2-C1				14	S11-4A	
	A26		-B1				53	DS6-B	
	A27		-B9				28	S7-8A	
	A28		-C2				16	S11-2A	
	A29		-C5				32	S7-5A	
	A30		-C11				29	S7-7A	
	A31		-A3				18	S10-3	
	A32		-C4				11	S11-7A	
	A33		-B5				20	S10-1	
	A34		-C3				31	S7-6A	
	A35		-A7				3	DS10-A	
	A36		-B7				40	S3-2	
	A37		-B18				45	DS2-B	
	A38		-B8				26	S8-1	
	A39		-C9				49	DS4-B	
	A40	61	P2-C19				2	DS9-B	
	A41	4	DS10-B				2	DS9-B	
	A42	4	DS10-B				57	S12-IN "+"	
	A43	51	DS5-B				57	S12-IN "+"	
	A44	51	DS5-B				9	S11-13A	
	A45	19	S10-2				9	S11-13A	
	A46	19	S10-2				44	S4-2	
	A47	23	S9 IN "+"				44	S4-2	
	A48	23	S9-IN "+"				42	S3-5	
	A49	25	S8-2				42	S3-5	
	A50	25	S8-2				38	S2-2	
	A51	30	S7-13A				38	S2-2	
	A52	30	S7-13A				55	DS8-B	
	A53	60	P1-C20				58	S12	
	A54	21	S9				58	OUT "-"	
	A55	21	OUT "-"				54	DS6-A	
	A56	52	DS5-A				54	DS6-A	
	A57	52	DS5-A				50	DS4-A	
	A58	48	DS3-A				50	DS4-A	
	A59	48	DS3-A	WHT	20	1	46	DS2-A	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57(2)
58(2)
59
.08 HIGH SEE NOTE 5 & 14
15
14
SEE NOTE 11
A-A
13.00±.25
16
10
DO NOT LACE
B-B
61(18)
P2
STRIP .19 DO NOT TIN SEE NOTE 12
60(23)
P1
STRIP .19 DO NOT TIN SEE NOTE 12
.12 HIGH APPLICABLE "P" NO. SEE NOTE 13 2 PLACES
J2 HIGH APPLICABLE KEY CODE, SEE NOTE 13 2 PLACES
.38±.02
.10
11 QTY 2
3 QTY 2
QTY 4 5
QTY 4 6
QTY 4 7
9
QTY 80
13
SEE NOTE 8
QTY 40
2 QTY 2
QTY 4 4
12
SEE NOTE 17
VIEW A-A 2 PLACES
SEE NOTE 8 & 10
QTY 120 8
REF 9
REF 13
I SEE NOTE 2
POTTING NOT TO PROTRUDE MORE THAN .005 BEYOND THESE SURFACES. SEE NOTE 9
I SEE NOTE 2

KEY CODING		
POSITION		MARKING LEGEND
I	II	
B	P	P1
B	R	P2

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 16.
2. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG NO. 1014047
3. FILL WITH FIND NO. 12 PER ND1002009 METHOD E. PRIME WITH 1010718
4. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
6. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
7. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
8. INSTALL FIND NO. 13 OUTSIDE ROWS ON P1 & P2
9. NO WIRES TO SHOW THRU POTTING
10. POTTING TO BE FLUSH OR .040 BELOW TOP OF VENT HOLES OF FIND NO. 3
11. BOND FIND NO. 14 USING FIND NO. 15 APPROX AS SHOWN
12. CRIMP PER ND 1002206
13. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1
14. SERIALIZE PER ND 1002023
15. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50±.12 & TIN PER 1002071
16. NUMBERS ENCLOSED WITHIN PARENTHESES INDICATE NUMBER OF CONDUCTORS
17. SEAL INSULATORS AND TERMINALS PER ND1002004 TYPE II

☒	2014113	SCHEMATIC	REF
AR	1006458-004	TAPE, LACING	16
AR	1006253	ADHESIVE	15
1	1006415-132	BAND, MARKER CABLE	14
40	1014310	INSULATOR, CONTACT, MALE	13
AR	1006683	COMPOUND, SILICONE RUBBER	12
2	7020370-20	BUSHING	11
* 2.5	1006696-3	INSULATION, ELECTRICAL	10
80	1006987	INSULATOR, CONTACT, MALE	9
180	1006995-001	CONTACT, ELECTRICAL, MALE	8
4	1006997	WASHER, PLAIN, FLAT	7
4	MS35337-79	WASHER, LOCK	6
4	1006998-1	SCREW, CAPTIVE	5
4	1014032	RECEPTACLE, INDEXING	4
2	1014024-3	BRACKET, ANGLE	3
2	1014021	PLATE, CONNECTOR	2
* 1250	MIL-W-16878/4 TYPE E 20 WHT	WIRE, ELECTRICAL	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014031	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
±.06
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NP-12775
DRAWN DATE 5-20-65
CHECKED 5-10-65
APPROVAL 7/9/65
APPROVAL
APPROVAL 7/8/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS
FRONT PANEL
COMPUTER SIMULATOR

CODE IDENT NO. 49956
SIZE J
DRAWING NO. 2014114
SCALE 1/1
WT
SHEET OF

-	2014114

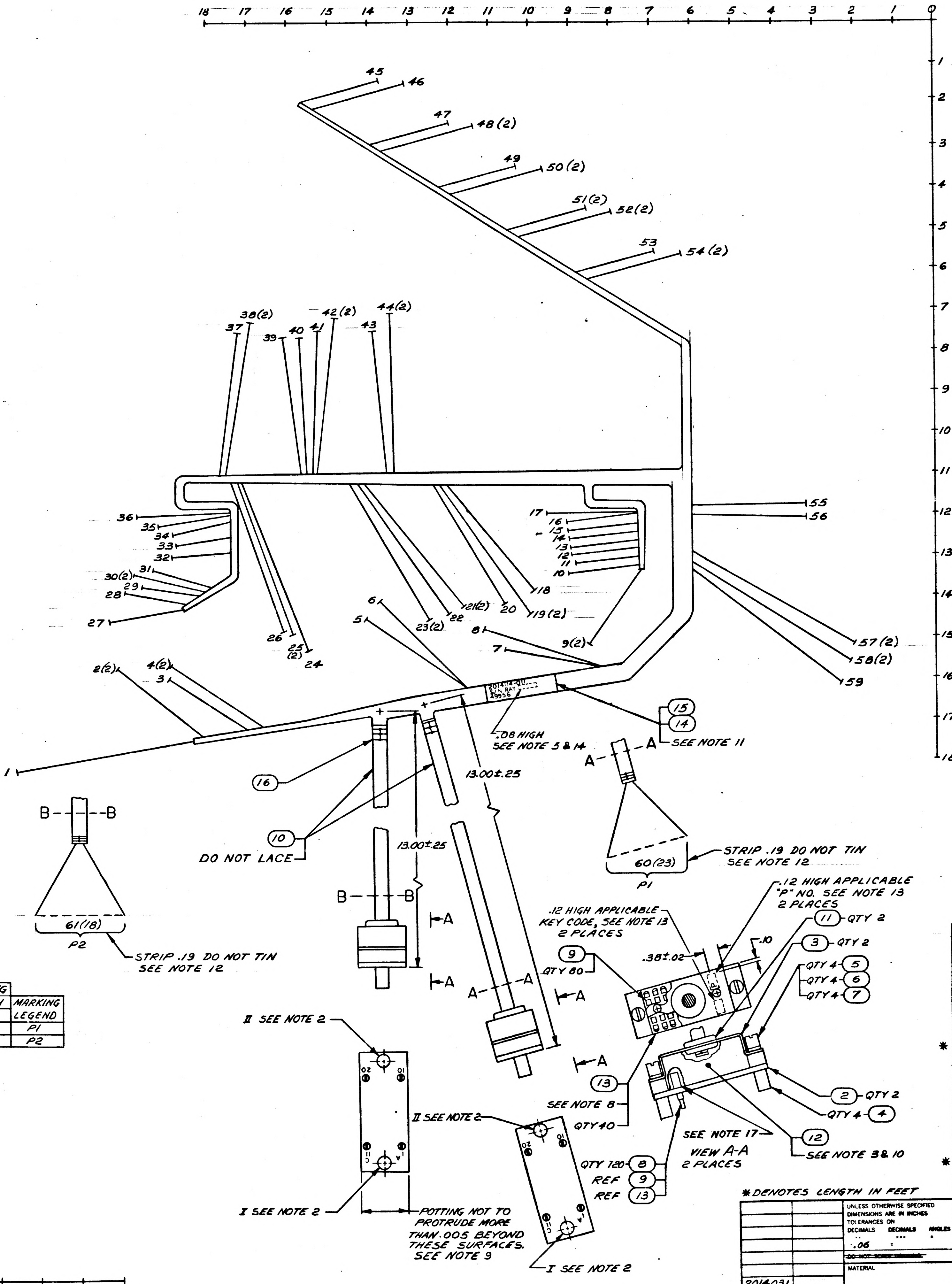
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
	RELEASE PER CCA 25041	7/9/65	G Harvey
-	CLASS A RELEASE PER TDRR 2:380		

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	60	P1-B18	WHT	20	1	5	J4	TWIST
	A2	60	P1-B17	↑	↑	↑	6	J5	
	A3	61	P2-A2				7	F1-LOAD	TWIST
	A4	61	P2-A1				8	F1-LINE	
	A5	60	P1-B15				24	S8-3	
	A6	↑	↑ -C17				15	S11-3A	
	A7		-B3				34	S7-3A	
	A8		-A19				35	S7-2A	
	A9		-C9				43	S4-3	
	A10		-C13				39	S3-4	
	A11		-A17				41	S3-3	
	A12		-A7				17	S11-1A	
	A13		-C6				27	S7-9A	
	A14		-A6				13	S11-5A	
	A15		-B16				22	S9 OUT "+"	
	A16		-B9				36	S7-1A	
	A17		-B5				59	S18 OUT "+"	
	A18		-C4				37	S2-3	
	A19		-C5				33	S7-4A	
	A20		-A3				12	S11-6A	
	A21		-C2				56	DS8-A	
	A22		-C1				1	S13-2	
	A23	↓	↓ -B11				47	DS3-B	
	A24	60	P1-B1				10	S11-8A	
	A25	61	P2-C1				14	S11-4A	
	A26	↑	↑ -B1				53	DS6-B	
	A27		-B9				28	S7-8A	
	A28		-C2				16	S11-2A	
	A29		-C5				32	S7-5A	
	A30		-C11				29	S7-7A	
	A31		-A3				18	S10-3	
	A32		-C4				11	S11-7A	
	A33		-B5				20	S10-1	
	A34		-C3				31	S7-6A	
	A35		-A7				3	DS10-A	
	A36		-B7				40	S3-2	
	A37		-B18				45	I S2-B	
	A38		-B8				26	S8-1	
	A39	↓	↓ -C9				49	DS4-B	
	A40	61	P2-C19				2	DS9-B	
	A41	4	DS10-B				2	DS9-B	
	A42	4	DS10-B				57	S12-IN "+"	
	A43	51	DS5-B				57	S12-IN "+"	
	A44	51	DS5-B				9	S11-13A	
	A45	19	S10-2				9	S11-13A	
	A46	19	S10-2				44	S4-2	
	A47	23	S9-IN "+"				44	S4-2	
	A48	23	S9-IN "+"				42	S3-5	
	A49	25	S8-2				42	S3-5	
	A50	25	S8-2				38	S2-2	
	A51	30	S7-13A				38	S2-2	
	A52	30	S7-13A				55	DS8-B	
	A53	60	P1-C20				58	S12 OUT "–"	
	A54	21	S9 OUT "–"				58		
	A55	21					54	DS6-A	
	A56	52	DS5-A				54	DS6-A	
	A57	52	DS5-A				50	DS4-A	
	A58	48	DS3-A	↓	↓	↓	50	DS4-A	
	A59	48	DS3-A	WHT	20	1	46	DS2-A	

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 16.
2. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG NO. 1014047
3. FILL WITH FIND NO. 12 PER ND1002009 METHOD E. PRIME WITH 1010718
4. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
6. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS.
7. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
8. INSTALL FIND NO. 13 OUTSIDE ROWS ON P1 & P2
9. NO WIRES TO SHOW THRU POTTING
10. POTTING TO BE FLUSH OR .040 BELOW TOP OF VENT HOLES OF FIND NO. 3
11. BOND FIND NO. 14 USING FIND NO. 15 APPROX AS SHOWN
12. CRIMP PER ND 1002206
13. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1
14. SERIALIZE PER ND 1002023
15. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50±.12 & TIN PER 1002071
16. NUMBERS ENCLOSED WITHIN PARENTHESES INDICATE NUMBER OF CONDUCTORS
17. SEAL INSULATORS AND TERMINALS PER ND1002004 TYPE II

KEY CODING		
POSITION		MARKING LEGEND
I	II	
B	P	P1
B	R	P2



18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
45
46
47
48(2)
49
50(2)
51(2)
52(2)
53
54(2)
37
38(2)
39
40
41
42(2)
43
44(2)
36
35
34
33
32
31
30(2)
29
28
27
26
25 (2)
24
17
16
15
14
13
12
11
10
55
56
6
5
23(2)
22
21(2)
20
19(2)
18
8
7
9(2)
57(2)
58(2)
59
2(2)
4(2)
3
1
2014114-011 S/N RAY 49956
.08 HIGH SEE NOTE 5 & 14
15
14
SEE NOTE 11
16
10
DO NOT LACE
13.00±.25
13.00±.25
B——B
B——B
A——A
A——A
A
A
A
A
61(18)
P2
STRIP .19 DO NOT TIN SEE NOTE 12
60(23)
P1
STRIP .19 DO NOT TIN SEE NOTE 12
.12 HIGH APPLICABLE "P" NO. SEE NOTE 13 2 PLACES
.12 HIGH APPLICABLE KEY CODE, SEE NOTE 13 2 PLACES
11 QTY 2
3 QTY 2
.10
.38±.02
9 QTY 80
QTY 4 5
QTY 4 6
QTY 4 7
13 SEE NOTE 8 QTY 40
2 QTY 2
QTY 4 4
SEE NOTE 17
12 SEE NOTE 3 & 10
VIEW A-A 2 PLACES
QTY 120 8
REF 9
REF 13
II SEE NOTE 2
I SEE NOTE 2
II SEE NOTE 2
I SEE NOTE 2
POTTING NOT TO PROTRUDE MORE THAN .005 BEYOND THESE SURFACES. SEE NOTE 9

REF	2014113	SCHEMATIC	
AR	1006458-004	TAPE, LACING	16
AR	1006253	ADHESIVE	15
1	1006415-132	BAND, MARKER CABLE	14
40	1014310	INSULATOR, CONTACT, MALE	13
AR	1006683	COMPOUND, SILICONE RUBBER	12
2	MS35490-13	GROMMET	11
* 2.5	1006696-3	INSULATION, ELECTRICAL	10
80	1006987	INSULATOR, CONTACT, MALE	9
120	1006995-001	CONTACT, ELECTRICAL, MALE	8
4	1006997	WASHER, PLAIN, FLAT	7
4	MS35337-79	WASHER, LOCK	6
4	1006998-1	SCREW, CAPTIVE	5
4	1014032	RECEPTACLE, INDEXING	4
2	1014024-3	BRACKET, ANGLE	3
2	1014021	PLATE, CONNECTOR	2
* 1250	MIL-W16878/4 TYPE E20 WHT	WIRE, ELECTRICAL	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

*DENOTES LENGTH IN FEET

2014031	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO FNP-12775
DRAWN R. Burke DATE 5-20-65
CHECKED Gilreath 5-10-65
APPROVAL 7/8/65
APPROVAL G. E. Dyke 8 JULY 65
APPROVAL Brown 7/8/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 7/9/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS
FRONT PANEL
COMPUTER SIMULATOR

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014114
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014114	-

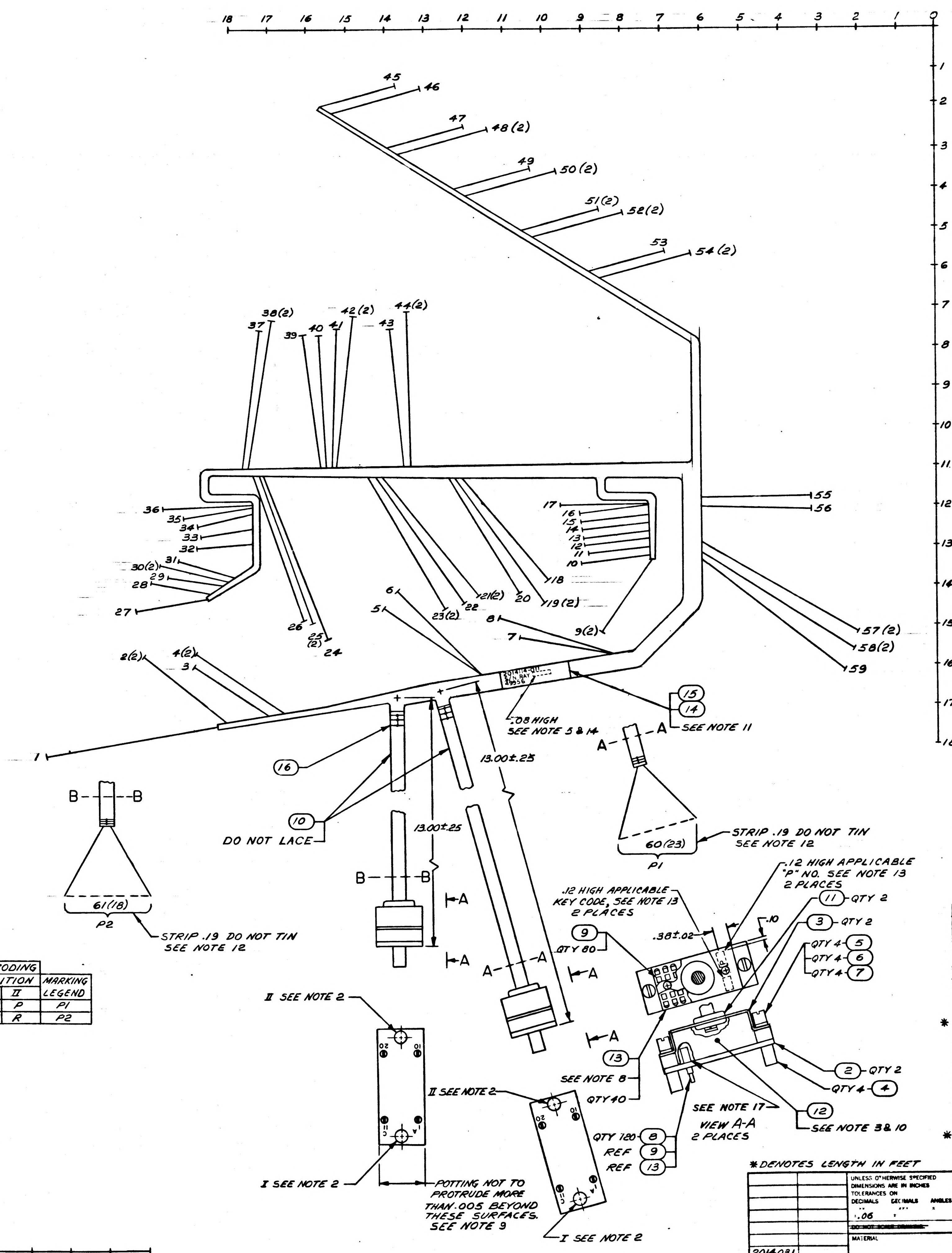
F-2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
	RELEASE PER CCA 25041	7/9/65	
—	CLASS A RELEASE PER TDRR 21380		

ASSEMBLY INFORMATION CHART									
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	60	P1-B18	WHT	20	1	5	J4	TWIST
	A2	60	P1-B17	↑	↑	↑	6	J5	
	A3	61	P2-A2				7	F1-LOAD	TWIST
	A4	61	P2-A1				8	F1-LINE	
	A5	60	P1-B15				24	S8-3	
	A6	↑	↑ -C17				15	S11-3A	
	A7		-B3				34	S7-3A	
	A8		-A19				35	S7-2A	
	A9		-C9				43	S4-3	
	A10		-C13				39	S3-4	
	A11		-A17				41	S3-3	
	A12		-A7				17	S11-1A	
	A13		-C6				27	S7-9A	
	A14		-A6				13	S11-5A	
	A15		-B16				22	S9 OUT "+"	
	A16		-B9				36	S7-1A	
	A17		-B5				59	S18 OUT "+"	
	A18		-C4				37	S2-3	
	A19		-C5				33	S7-4A	
	A20		-A3				12	S11-6A	
	A21		-C2				56	DS8-A	
	A22		-C1				1	S13-2	
	A23	↓	↓ -B11				47	DS3-B	
	A24	60	P1-B1				10	S11-8A	
	A25	61	P2-C1				14	S11-4A	
	A26	↑	↑ -B1				53	DS6-B	
	A27		-B9				28	S7-8A	
	A28		-C2				16	S11-2A	
	A29		-C5				32	S7-5A	
	A30		-C11				29	S7-7A	
	A31		-A3				18	S10-3	
	A32		-C4				11	S11-7A	
	A33		-B5				20	S10-1	
	A34		-C3				31	S7-6A	
	A35		-A7				3	DS10-A	
	A36		-B7				40	S3-2	
	A37		-B18				45	DS2-B	
	A38		-B8				26	S8-1	
	A39	↓	↓ -C9				49	DS4-B	
	A40	61	P2-C19				2	DS9-B	
	A41	4	DS10-B				2	DS9-B	
	A42	4	DS10-B				57	S12-IN "+"	
	A43	51	DS5-B				57	S12-IN "+"	
	A44	51	DS5-B				9	S11-13A	
	A45	19	S10-2				9	S11-13A	
	A46	19	S10-2				44	S4-2	
	A47	23	S9-IN "+"				44	S4-2	
	A48	23	S9-IN "+"				42	S3-5	
	A49	25	S8-2				42	S3-5	
	A50	25	S8-2				38	S2-2	
	A51	30	S7-13A				38	S2-2	
	A52	30	S7-13A				55	DS8-B	
	A53	60	P1-C20				58	S12	
	A54	21	S9				58	OUT "—"	
	A55	21	OUT "—"				54	DS6-A	
	A56	52	DS5-A				54	DS6-A	
	A57	52	DS5-A				50	DS4-A	
	A58	48	DS3-A	↓	↓	↓	50	DS4-A	
	A59	48	DS3-A	WHT	20	1	46	DS2-A	

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 16.
2. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG NO. 1014047
3. FILL WITH FIND NO.12 PER ND1002009 METHOD E. PRIME WITH 1010718
4. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
6. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
7. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
8. INSTALL FIND NO. 13 OUTSIDE ROWS ON P1 & P2
9. NO WIRES TO SHOW THRU POTTING
10. POTTING TO BE FLUSH OR .040 BELOW TOP OF VENT HOLES OF FIND NO. 3
11. BOND FIND NO. 14 USING FIND NO. 15 APPROX AS SHOWN
12. CRIMP PER ND 1002206
13. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1
14. SERIALIZE PER ND 1002023
15. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .50±.12 & TIN PER 1002071
16. NUMBERS ENCLOSED WITHIN PARENTHESES INDICATE NUMBER OF CONDUCTORS
17. SEAL INSULATORS AND TERMINALS PER ND1002004 TYPE II

KEY CODING		
POSITION		MARKING LEGEND
I	II	
B	P	P1
B	R	P2



18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
45
46
47
48 (2)
49
50 (2)
51 (2)
52 (2)
53
54 (2)
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38 (2)
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42 (2)
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44 (2)
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30 (2)
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25 (2)
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23 (2)
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21 (2)
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19 (2)
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14
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12
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10
8
7
9 (2)
57 (2)
58 (2)
59
2 (2)
4 (2)
3
1
2014114-011
S/N RAY
49956
.08 HIGH SEE NOTE 5 & 14
15
14
SEE NOTE 11
16
10
DO NOT LACE
13.00±.25
13.00±.25
B—B
A—A
A—A
61 (18)
P2
STRIP .19 DO NOT TIN SEE NOTE 12
60 (23)
P1
STRIP .19 DO NOT TIN SEE NOTE 12
.12 HIGH APPLICABLE KEY CODE, SEE NOTE 13 2 PLACES
.12 HIGH APPLICABLE "P" NO. SEE NOTE 13 2 PLACES
9
QTY 80
.38±.02
.10
11 QTY 2
3 QTY 2
QTY 4 5
QTY 4 6
QTY 4 7
13
SEE NOTE 8
QTY 40
2 QTY 2
QTY 4 4
SEE NOTE 17
12
SEE NOTE 3 & 10
VIEW A-A 2 PLACES
QTY 120 8
REF 9
REF 13
II SEE NOTE 2
I SEE NOTE 2
II SEE NOTE 2
I SEE NOTE 2
POTTING NOT TO PROTRUDE MORE THAN .005 BEYOND THESE SURFACES. SEE NOTE 9

*DENOTES LENGTH IN FEET

REF	2014113	SCHEMATIC	
AR	1006458-004	TAPE, LACING	16
AR	1006253	ADHESIVE	15
1	1006415-132	BAND, MARKER CABLE	14
40	1014310	INSULATOR, CONTACT, MALE	13
AR	1006683	COMPOUND, SILICONE RUBBER	12
2	MS35490-13	GROMMET	11
* 2.5	1006696-3	INSULATION, ELECTRICAL	10
80	1006987	INSULATOR, CONTACT, MALE	9
120	1006995-001	CONTACT, ELECTRICAL, MALE	8
4	1006997	WASHER, PLAIN, FLAT	7
4	MS35337-79	WASHER, LOCK	6
4	1006998-1	SCREW, CAPTIVE	5
4	1014032	RECEPTACLE, INDEXING	4
2	1014024-3	BRACKET, ANGLE	3
2	1014021	PLATE, CONNECTOR	2
* 1250	MIL-W-16878/4 TYPE E20 WHT	WIRE, ELECTRICAL	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

2014031	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS
CONTRACT NO. ENP-2775
DRAWN R. Burke DATE 5-20-65
CHECKED J. Gilbreath 5-10-65
APPROVAL 7/8/65
APPROVAL G. E. Dyke 7/6/65
APPROVAL 7/8/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 4/9/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

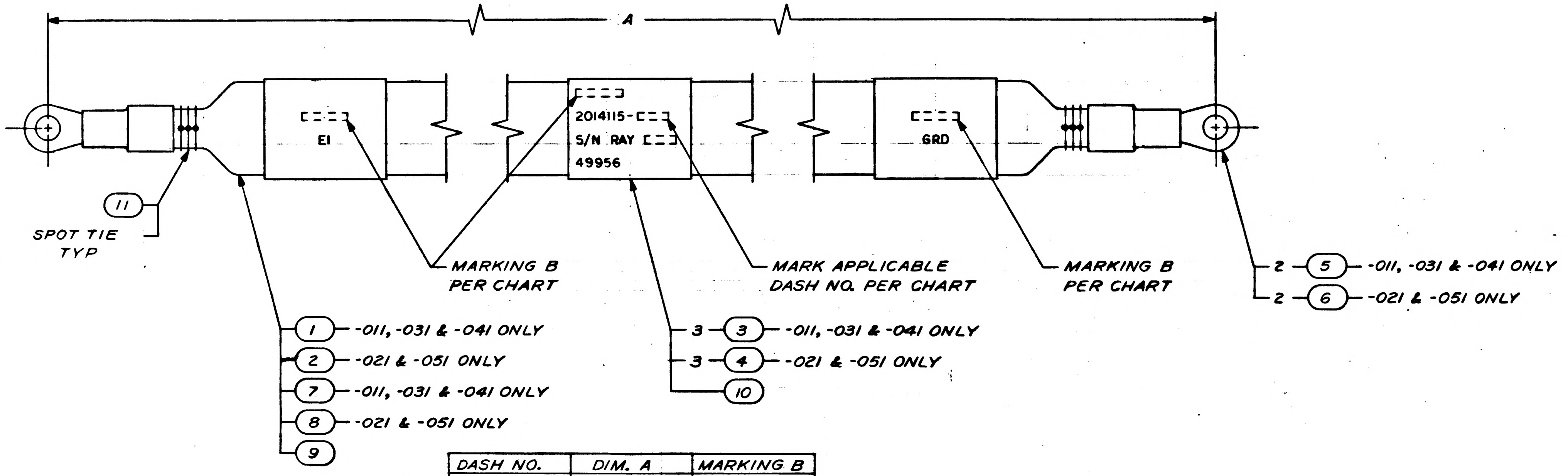
WIRING HARNESS
FRONT PANEL
COMPUTER SIMULATOR

CODE IDENT NO. 49956 | SIZE J | NASA DWG NO. 2014114
SCALE 1/1 | WT | SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

—	2014115

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
—	CLASS A RELEASE PER TDRR 23539		


A
EI
2014115-[ ]
S/N RAY [ ]
49956
GRD
11
SPOT TIE TYP
MARKING B PER CHART
MARK APPLICABLE DASH NO. PER CHART
MARKING B PER CHART
2 — 5 — -011, -031 & -041 ONLY
2 — 6 — -021 & -051 ONLY
1 — -011, -031 & -041 ONLY
2 — -021 & -051 ONLY
7 — -011, -031 & -041 ONLY
8 — -021 & -051 ONLY
9
3 — 3 — -011, -031 & -041 ONLY
3 — 4 — -021 & -051 ONLY
10

DASH NO.	DIM. A	MARKING B
2014115 -011	20'-0" ± 0'-2"	W254
-021	30'-0" ± 0'-2"	W255
-031	20'-0" ± 0'-2"	W256
-041	20'-0" ± 0'-2"	W257
2014115 -051	20'-0" ± 0'-2"	W260

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 11
2. CRIMP PER ND1002206
3. MARK NORMAL GOTHIC CHARACTERS .12 HIGH AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
4. SERIALIZE PER ND1002023
5. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
6. AR DENOTES AS REQUIRED
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSY DESIGNATIONS

	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	AR	AR	AR	AR	AR	1006458-004	TAPE, LACING	11
	AR	AR	AR	AR	AR	1006253	ADHESIVE	10
	AR	AR	AR	AR	AR	1006699	SOLVENT	9
*	20.0	—	—	30.0	—	1006696-9	INSULATION SLEEVING	8
*	—	20.0	20.0	—	20.0	1006696-7	INSULATION SLEEVING	7
	2	—	—	2	—	MS25036-38	TERMINAL, LUG	6
	—	2	2	—	2	MS25036-27	TERMINAL, LUG	5
	3	—	—	3	—	1006415-141	BAND MARKER, CABLE	4
	—	3	3	—	3	1006415-137	BAND MARKER, CABLE	3
*	20.0	—	—	30.0	—	1016228-002	WIRE, BRAID	2
*	—	20.0	20.0	—	20.0	1016228-001	WIRE, BRAID	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014024	
2014042	
2014059	
2014049	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± .03
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R.P. Clouther DATE 7 OCT 65
CHECKED A. Mitchell 7 OCT 65
APPROVAL P. Jurgens 8 Oct 65
APPROVAL D. O'Bryant 10/8/65
APPROVAL W. J. Brown 10/8/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W. Kupfer 27 Oct 65
MIT APPROVAL A. Marano 10/8/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

STRAP, GROUND

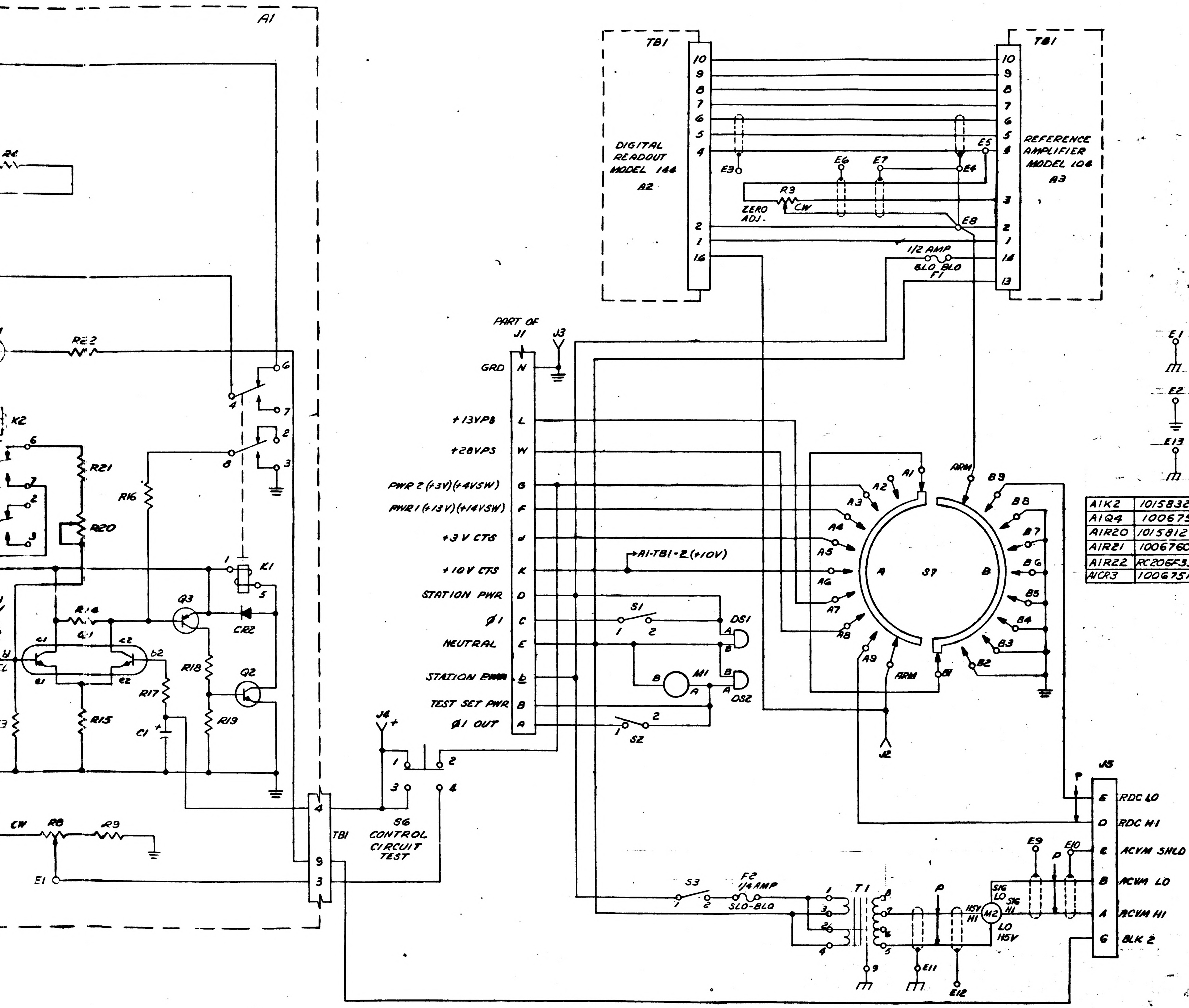
CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014115
SCALE NONE
WT
SHEET 1 OF 1

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014116 E

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25196	9/23/65	C. Hassan
1	CHANGED PER CCA R25459 DR CHK APPD		
2	CHANGED PER CCA R25477 DR CHK APPD		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25569 DR CHK APPD		
B	CHANGED PER CCA 25705 DR CHK APPD		
C	CHANGED PER CCA R25906 DR CHK APPD	2/3/66	
D	CHANGED PER CCA R25883 DR B Brown CHK APPD RPC	2/7/66	
E	CHANGED PER CCA R 25922 & CLASS A RELEASED PER TDRR 26218		



A1
R4
R22
K2
6
7
2
3
R21
R16
R20
4
8
1
K1
5
Q3
CR2
R14
Q1
c1
c2
b1
b2
e1
e2
R18
Q2
R17
R15
R19
C1
R13
CW
R8
R9
E1
TB1
9
3
J4
S6
CONTROL
CIRCUIT
TEST
PART OF
J1
J3
GRD
N
+13VPS
L
+28VPS
W
PWR 2 (+3V)(+4VSW)
G
PWR1 (+13V)(+14VSW)
F
+3 V CTS
J
+10V CTS
K
STATION PWR
D
Ø1
C
NEUTRAL
E
STATION PWR
b
TEST SET PWR
B
Ø1 OUT
A
A1-TB1-2 (+10V)
S1
DS1
M1
DS2
S2
TB1
10
9
8
7
6
5
4
2
1
16
DIGITAL
READOUT
MODEL 144
A2
E3
E6
E7
R3
ZERO
ADJ.
CW
E4
E5
E8
1/2 AMP
SLO BLO
F1
14
13
REFERENCE
AMPLIFIER
MODEL 104
A3
A1
A2
A3
A4
A5
A6
A7
A8
A9
ARM
B1
B2
B3
B4
B5
B6
B7
B8
B9
S7
J2
E1
E2
E13
J5
P
E
RDC LO
D
RDC HI
C
ACVM SHLD
B
ACVM LO
A
ACVM HI
G
BLK 2
E9
E10
S3
F2
1/4 AMP
SLO-BLO
T1
115V
HI
SIG
LO
M2
LO
115V
E11
E12

REFERENCE:
1 ASSY DWG NO. 2014044

A1K2	1015832-12	RELAY			
A1Q4	1006759	TRANSISTOR			
A1R20	1015812-007	RESISTOR	2000	±5%	2W
A1R21	1006760-25	RESISTOR	510	±2%	1/2W
A1R22	RC20GF331J	RESISTOR	330	±5%	1/2W
A1CR3	1006751-000	DIODE			

FOR REFERENCE ONLY

REF DES.	PART NUMBER	DESCRIPTION	VALUE	TOL.	RATING
J1	MS3120F22-55P	CONNECTOR			
A1J1	MS16108-2A	JACK TIP			
J2	MS16108-2A	JACK TIP			
J3	MS16108-3A	JACK TIP			
J4	MS16108-2A	JACK TIP			
DS1	1006869	LAMP			115V
DS2	1006868	LAMP			115V
M1	1006927	METER			
M2	1006973	METER			
A1R1	RC20GF152J	RESISTOR	1500	±5%	1/2W
A1R2	RC20GF512J	RESISTOR	5100	±5%	1/2W
A1R3	RC20GF331J	RESISTOR	330	±5%	1/2W
A1R4	RC20GF202J	RESISTOR	2000	±5%	1/2W
A1R5	RC20GF102J	RESISTOR	1000	±5%	1/2W
A1R6	RC20GF511J	RESISTOR	510	±5%	1/2W
A1R7	RC20GF152J	RESISTOR	1500	±5%	1/2W
A1R8	1015951-003	RES. VAR	1K	±5%	1/2W
A1R9	1006760-32	RESISTOR	1000	±2%	1/2W
A1R10	1006760-25	RESISTOR	510	±2%	1/2W
A1R11	1006760-32	RESISTOR	1000	±2%	1/2W
A1R12	1015812-007	RES VAR	2000	±5%	2W
A1R13	1006760-43	RESISTOR	3000	±2%	1/2W
A1R14	1006760-30	RESISTOR	820	±2%	1/2W
A1R15	1006760-32	RESISTOR	1000	±2%	1/2W
A1R16	1006760-32	RESISTOR	1000	±2%	1/2W
A1R17	1006760-32	RESISTOR	1000	±2%	1/2W
A1R18	1006760-32	RESISTOR	1000	±2%	1/2W
A1R19	1006760-32	RESISTOR	1000	±2%	1/2W
R1	1006468-007	RES. VAR	2500	±1%	2.5W
R2	RV4NBYSB252A	RES. VAR	2500	±5%	2.5W
A1Q1	1010376	TRANSISTOR			
A1Q2	1006759	TRANSISTOR			
A1Q3	1006753	TRANSISTOR			
K1	1006234	RELAY	DPDT		
A1K1	1015832-12	RELAY			
S1	MS35058-22	SW. TOGGLE			
S2	MS35058-22	SW. TOGGLE			
S7	1006965-001	SW. WAFER			
S4	MS35058-22	SW. TOGGLE			
S5	MS35058-22	SW. TOGGLE			
S6	MS25089-3C	SWITCH PB			
S3	MS35058-22	SW. TOGGLE			
A1C1	CS13BF685K	CAPACITOR	6.8UF	±10%	35VDC
A1C2	CS13BF685K	CAPACITOR	6.8UF	±10%	35VDC
A1CR1	1010372-13	DIODE			
A1CR2	1006751-000	DIODE			
1A2	1006400	DIGITAL READOUT			
J5	MS3120F16-8P	CONNECTOR			
1A3	1006489	REF AMP			
F1	MIL-F-15160/02B	FUSE			1/2A
F2	MIL-F-15160/02B	FUSE			1/4A
R3	1006427	RES. VAR			
T1	1006440	TRANSFORMER, ISOLATION	1:1		115VAC

2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED 7-27-65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, ELECTRICAL
POWER CONTROL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014116
SCALE NONE
WT
SHEET 1 OF 1

2014116 E

MASTER

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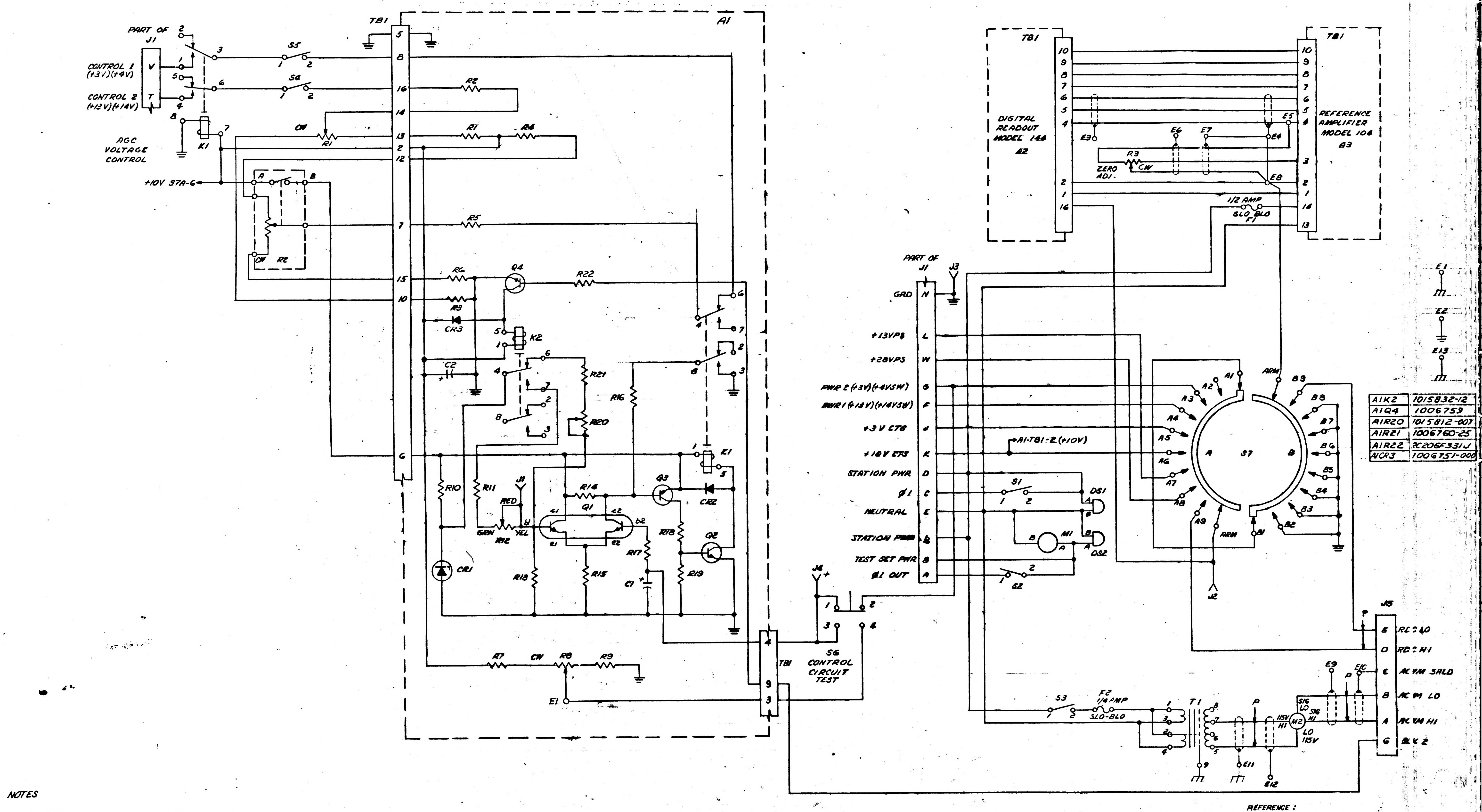

PART OF J1
CONTROL 1 (+3V)(+4V)
CONTROL 2 (+13V)(+14V)
AGC VOLTAGE CONTROL
+10V S7A-6
S5
S4
K1
R1
R2
R4
R5
CW
TB1
A1
R6
R8
R22
Q4
CR3
K2
C2
R21
R16
R20
R10
R11
J1
RED
GRN
R12
YEL
R14
Q1
Q3
CR2
R13
R15
R17
C1
R18
R19
Q2
CR1
R7
R8
R9
E1
S6
CONTROL CIRCUIT TEST
J4
DIGITAL READOUT MODEL 144
A2
REFERENCE AMPLIFIER MODEL 104
A3
ZERO ADJ.
R3
E3
E4
E5
E6
E7
E8
1/2 AMP SLO BLO
F1
PART OF J1
J3
GRD
+13VPS
+28VPS
PWR 2 (+3V)(+4VSW)
PWR 1 (+13V)(+14VSW)
+3 V CTS
+10V CTS
STATION PWR
Ø1
NEUTRAL
STATION PWR
TEST SET PWR
Ø1 OUT
A1-TB1-2 (+10V)
S1
DS1
M1
DS2
S2
S7
ARM
J2
E1
E2
E13
J5
RD LO
RD HI
AC VM SHLD
AC VM LO
AC VM HI
BLK 2
E9
E10
S3
F2
1/4 AMP SLO-BLO
T1
E11
E12
M2
SIG LO
SIG HI
115V HI
LO 115V

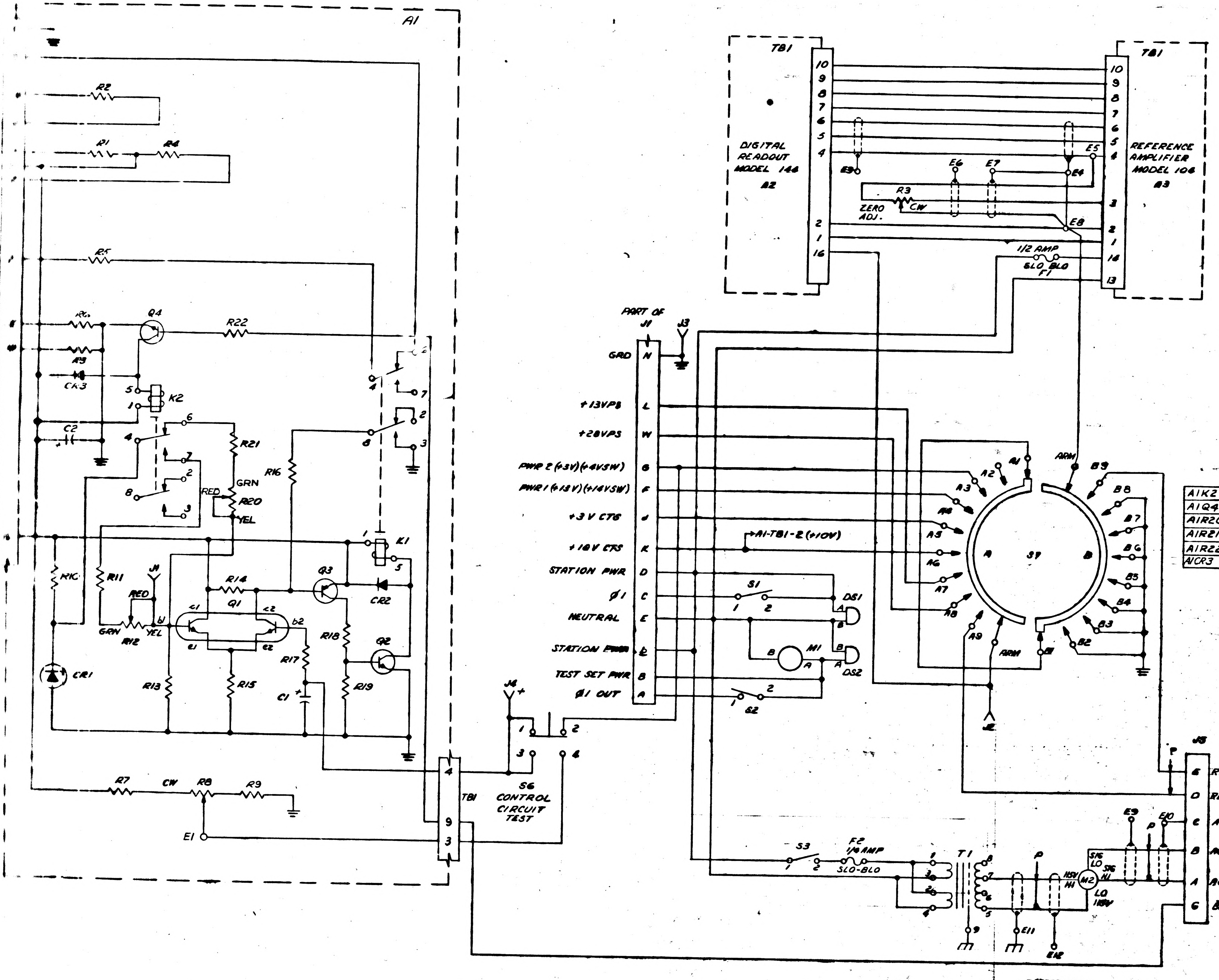
A1K2	1015832-12
A1Q4	1006759
A1R20	1015812-007
A1R21	1006760-25
A1R22	RC20GF331J
A1CR3	1006751-000

NOTES

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATIONS PREFIX WITH SUB ASSY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REFERENCE:
L ASSY DWG NO. 2014044

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
C	RELEASED PER CCA 25196		
1	CHANGED PER CCA R25459 DR CHK APPD		
2	CHANGED PER CCA R25477 DR CHK APPD		
-	CLASS II CHANGED PER CCA R25502		
A	CHANGED PER CCA R25569 DR CHK APPD		
B	CHANGED PER CCA 25705 DR CHK BCR APPD		
C	CHANGED PER CCA R25 06 DR CHK APPD		
D	CHANGED PER CCA R25883 DR B Brown CHK APPD		
E	CHANGED PER CCA R 25922 & CLASS A RELEASED PER TDRR 26218		
F	CHANGED PER TDPR 26664 DR A.J. Brown CHK C.B. APPD JSI		



A1
R2
R1
R4
R5
R6
R3
CR3
Q4
R22
K2
C2
R21
GRN
RED
R20
YEL
R16
K1
CR2
R11
J1
RED
GRN
R12
YEL
R14
Q1
c1
c2
b1
b2
e1
e2
Q3
R18
Q2
R17
C1
R13
R15
R19
R1C
CR1
R7
CW
R8
R9
E1
TB1
S6
CONTROL CIRCUIT TEST
TB1
DIGITAL READOUT MODEL 144
A2
TB1
REFERENCE AMPLIFIER MODEL 106
A3
E9
E6
E7
R3
CW
ZERO ADJ.
E8
E4
E5
1/2 AMP
SLO BLO
F1
PART OF J1
J3
GRD
+13VPS
+28VPS
PWR 2 (+3V)(+4VSW)
PWR 1 (+13V)(+14VSW)
+3 V CTS
+18 V CTS
STATION PWR
Ø1
NEUTRAL
STATION PWR
TEST SET PWR
Ø1 OUT
J4
A1-TB1-2 (+10V)
S1
DS1
M1
DS2
S2
S7
A
B
ARM
E1
E2
E13
J5
RDC LO
RDC HI
ACVM SHLD.
ACVM LO
ACVM HI
BLK 2
S3
F2
1/4 AMP
SLO-BLO
T1
M2
E9
E10
E11
E12

REFERENCE:
L ASSY DWG NO. 2014044

A1K2	1015832-12	RELAY			
A1Q4	1006759	TRANSISTOR			
A1R20	1015812-007	RESISTOR	2000	±5%	2W
A1R21	1006760-25	RESISTOR	510	±2%	1/2W
A1R22	RC20GF331J	RESISTOR	330	±5%	1/2W
A1CR3	1006751-000	DIODE			

FOR REFERENCE ONLY

REF DES.	PART NUMBER	DESCRIPTION	VALUE	TOL.	RATING
J1	MS3120F22-55P	CONNECTOR			
A1J1	MS16108-2A	JACK TIP			
J2	MS16108-2A	JACK TIP			
J3	MS16108-3A	JACK TIP			
J4	MS16108-2A	JACK TIP			
DS1	1006868	LAMP			115V
DS2	1006868	LAMP			115V
M1	1006927	METER			
M2	1006973	METER			
A1R1	RC20GF152J	RESISTOR	1500	±5%	1/2W
A1R2	RC20GF512J	RESISTOR	5100	±5%	1/2W
A1R3	RC20GF331J	RESISTOR	330	±5%	1/2W
A1R4	RC20GF202J	RESISTOR	2000	±5%	1/2W
A1R5	RC20GF102J	RESISTOR	1000	±5%	1/2W
A1R6	RC20GF511J	RESISTOR	510	±5%	1/2W
A1R7	RC20GF152J	RESISTOR	1500	±5%	1/2W
A1R8	1015951-003	RES. VAR	1K	±5%	1/2W
A1R9	1006760-32	RESISTOR	1000	±2%	1/2W
A1R10	1006760-25	RESISTOR	510	±2%	1/2W
A1R11	1006760-32	RESISTOR	1000	±2%	1/2W
A1R12	1015812-007	RES VAR	2000	±5%	2W
A1R13	1006760-43	RESISTOR	3000	±2%	1/2W
A1R14	1006760-30	RESISTOR	820	±2%	1/2W
A1R15	1006760-32	RESISTOR	1000	±2%	1/2W
A1R16	1006760-32	RESISTOR	1000	±2%	1/2W
A1R17	1006760-32	RESISTOR	1000	±2%	1/2W
A1R18	1006760-32	RESISTOR	1000	±2%	1/2W
A1R19	1006760-32	RESISTOR	1000	±2%	1/2W
R1	1006468-007	RES. VAR	2500	±1%	2.5W
R2	RV4NBYSB252A	RES. VAR	2500	±5%	2.5W
A1Q1	1010376	TRANSISTOR			
A1Q2	1006759	TRANSISTOR			
A1Q3	1006753	TRANSISTOR			
K1	1006234	RELAY	DPDT		
A1K1	1015832-12	RELAY			
S1	MS35058-22	SW. TOGGLE			
S2	MS35058-22	SW. TOGGLE			
S7	1006465-001	SW. WAFER			
S4	MS35058-22	SW. TOGGLE			
S5	MS35058-22	SW. TOGGLE			
S6	MS25089-3C	SWITCH PB			
S3	MS35058-22	SW. TOGGLE			
A1C1	CS13BF685K	CAPACITOR	6.8UF	±10%	35VDC
A1C2	CS13BF685K	CAPACITOR	6.8UF	±10%	35VDC
A1CR1	1010372-13	DIODE			
A1CR2	1006751-000	DIODE			
1A2	1006400	DIGITAL READOUT			
J5	MS3120F16-8P	CONNECTOR			
1A3	1006489	REF AMP			
F1	MIL-F-15160/02B	FUSE			1/2A
F2	MIL-F-15160/02B	FUSE			1/4A
R3	1006427	RES. VAR			
T1	1006440	TRANSFORMER ISOLATION	1:1		115VAC

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE
CHECK 7-27-65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

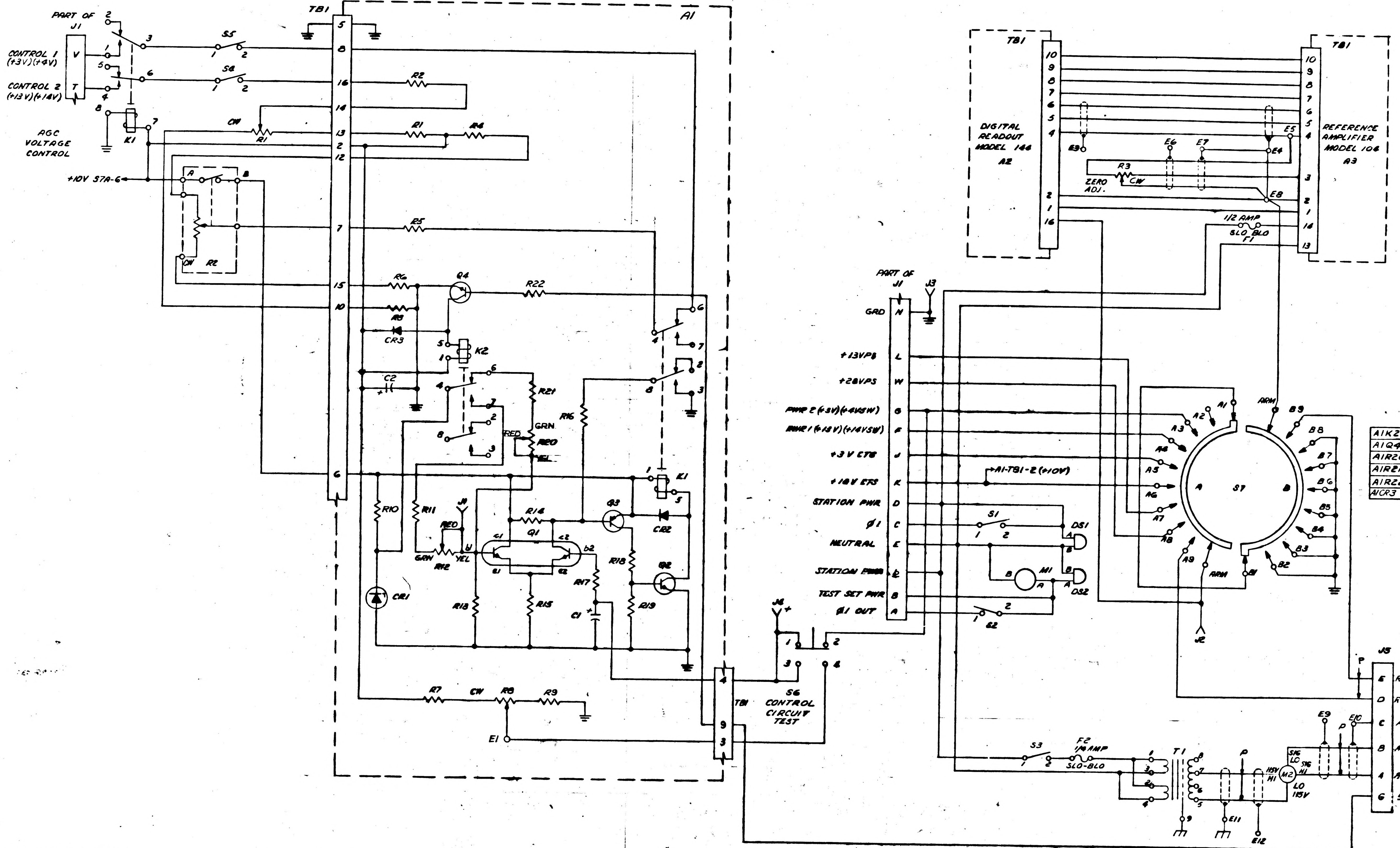
SCHEMATIC ELECTRICAL
POWER CONTROL
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014116

SCALE NONE WT SHEET 1 OF 1

MASTER

F2I2



PART OF J1
CONTROL 1 (+3V)(+4V)
CONTROL 2 (+13V)(+14V)
V
T
AGC VOLTAGE CONTROL
K1
CW
R1
R2
+10V 57A-6
S5
S6
TB1
A1
R2
R1
R4
R5
R6
R8
R22
Q4
CR3
K2
C2
R21
GRN
RED
YEL
R16
K1
CR2
Q3
Q2
R10
R11
J4
R12
Q1
R14
R13
R15
R17
R18
R19
C1
CR1
R7
CW
R8
R9
E1
TB1
S6 CONTROL CIRCUIT TEST
J6
DIGITAL READOUT MODEL 144 A2
REFERENCE AMPLIFIER MODEL 106 A3
E3
E4
E5
E6
E7
E8
R3
ZERO ADJ.
1/2 AMP SLO BLO F1
PART OF J1
J3
GRD
+13VPS
+28VPS
PWR 2 (+3V)(+4VSW)
PWR 1 (+13V)(+14VSW)
+3 V CTS
+18V EFS
STATION PWR
Ø1
NEUTRAL
STATION PWR
TEST SET PWR
Ø1 OUT
→A1-TB1-2 (+10V)
S1
DS1
M1
DS2
S2
S7
ARM
A1
A2
A3
A4
A5
A6
A7
A8
A9
B1
B2
B3
B4
B5
B6
B7
B8
B9
J2
J5
RDC LO
RDC HI
ACVM SHLD
ACVM LO
ACVM HI
SLK2
E9
E10
P
S3
F2 1/4 AMP SLO-BLO
T1
E11
E12
M2
115V HI
LO 115V
SIG LO
SIG HI

A1K2	1015832-12	REL
A1Q4	1006759	TRA
A1R20	101582-007	RES
A1R21	100676O-25	RES
A1R22	RC206331J	RES
A1CR3	100651-000	DI

NOTES

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATIONS PREFIX WITH SUB ASSY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

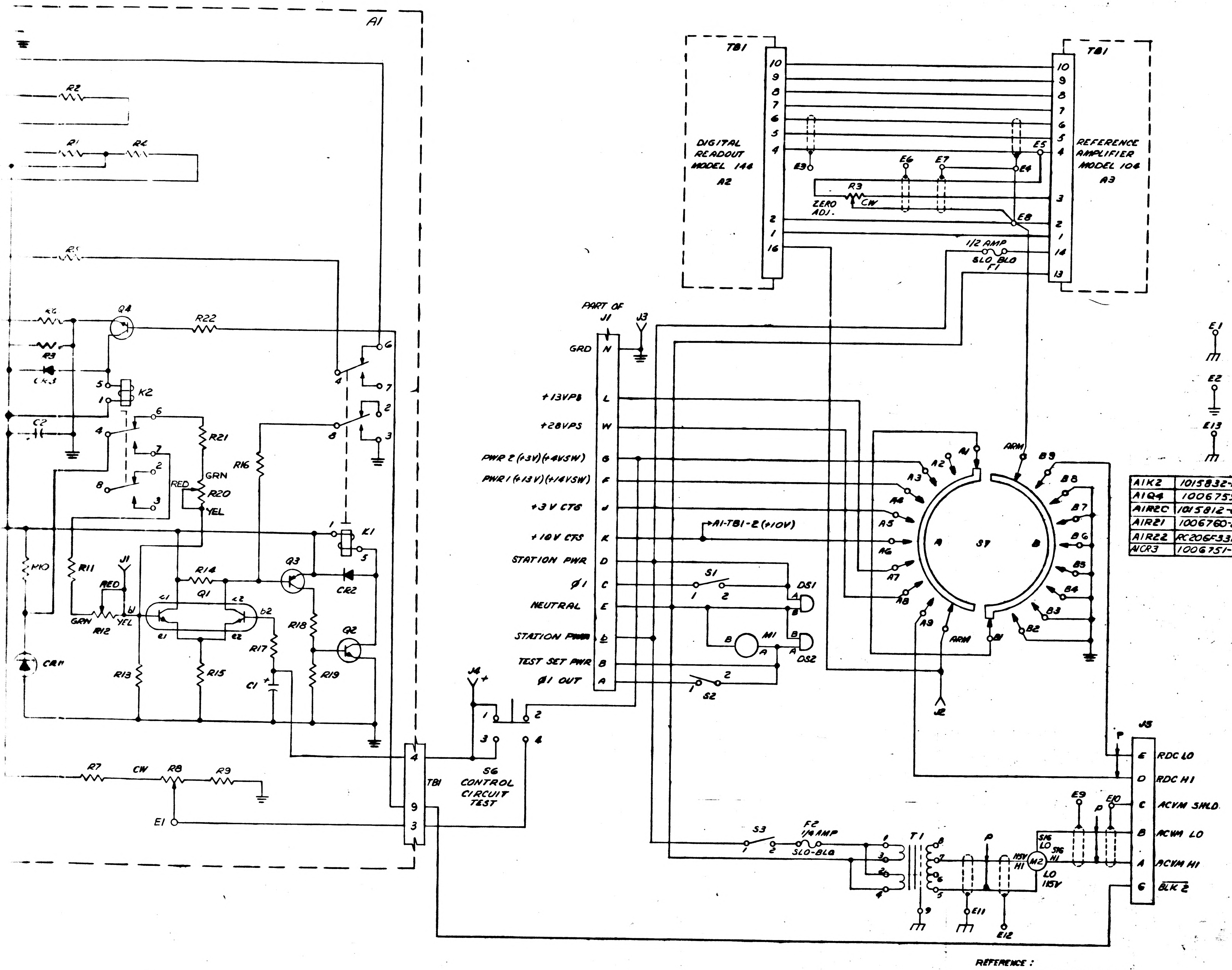
REFERENCE :
L ASSY DWG NO. 2014044

2014116 F

F1/12

2014116 G

SYM	REVISIONS DESCRIPTION	DATE	APPROVALS
0	RELEASED PER CCA 25176	[illegible]	[illegible]
1	CHANGED PER CCA R25459 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
2	CHANGED PER CCA R25477 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25569 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA 25705 DR [illegible] CHK BCR APPD [illegible]	[illegible] 66	[illegible]
C	CHANGED PER CCA R25706 DR [illegible] CHK [illegible] APPD [illegible]	[illegible] 66	[illegible]
D	CHANGED PER CCA R25683 DR B. Brown CHK [illegible] APPD RPC	[illegible] 66	[illegible]
E	CHANGED PER CCA R 25922 & CLASS A RELEASED PER TDRR 26218	[illegible]	[illegible]
F	CHANGED PER TDRR 26664 DR A. J. Green CHK C. B. APPD JSD	[illegible] 66	[illegible]
G	CHANGED PER TDRR 26735 DR. [illegible] CHK [illegible] APPD PED	[illegible] 66	[illegible]



A1
R2
R1
R4
R5
R6
R3
CR3
Q4
R22
K2
C2
R21
GRN
RED
R20
YEL
R16
K1
CR2
Q3
R11
J1
R14
Q1
R12
R13
R15
R17
C1
R18
Q2
R19
CR11
R7
CW
R8
R9
E1
TB1
DIGITAL READOUT MODEL 146
A2
REFERENCE AMPLIFIER MODEL 106
A3
E3
E4
E5
E6
E7
E8
R3
ZERO ADJ.
1/2 AMP SLO BLO F1
PART OF J1
J3
GRD
+13VPS
+28VPS
PWR 2 (+3V)(+4VSW)
PWR 1 (+13V)(+14VSW)
+3 V CTS
+10 V CTS
STATION PWR
Ø1
NEUTRAL
STATION PWR
TEST SET PWR
Ø1 OUT
→A1-TB1-2 (+10V)
S1
DS1
M1
DS2
S2
J4
S6 CONTROL CIRCUIT TEST
S7
ARM
J2
E1
E2
E13
J5
RDC LO
RDC HI
ACVM SHLD
ACVM LO
ACVM HI
BLK Z
S3
F2 1/4 AMP SLO-BLO
T1
M2
115V HI
LO 115V
E9
E10
E11
E12

REFERENCE :
L ASSY DWG NO. 2014044

FOR REFERENCE ONLY					
REF DES.	PART NUMBER	DESCRIPTION	VALUE	TOL.	RATING
J1	MS3120F22-55P	CONNECTOR			
A1J1	MS16108-2A	JACK TIP			
J2	MS16108-2A	JACK TIP			
J3	MS16108-3A	JACK TIP			
J4	MS16108-2A	JACK TIP			
DS1	1006868	LAMP			115V
DS2	1006868	LAMP			115 V
M1	1006927	METER			
M2	1006973	METER			
A1R1	RC20GF152J	RESISTOR	1500	±5 %	1/2W
A1R2	RC20GF512J	RESISTOR	5100	±5 %	1/2W
A1R3	RC20GF331J	RESISTOR	330	±5 %	1/2W
A1R4	RC20GF202J	RESISTOR	2000	±5 %	1/2W
A1R5	RC20GF102J	RESISTOR	1000	±5 %	1/2W
A1R6	RC20GF511J	RESISTOR	510	±5 %	1/2W
A1R7	RC20GF152J	RESISTOR	1500	±5 %	1/2W
A1R8	1015951-063	RES. VAR	1K	±5 %	1/2W
A1R9	1006760-32	RESISTOR	1000	±2 %	1/2W
A1R10	1006760-25	RESISTOR	510	±2 %	1/2W
A1R11	1006760-32	RESISTOR	1000	±2 %	1/2W
A1R12	1015812-007	RES VAR	2000	±5 %	2W
A1R13	1006760-43	RESISTOR	3000	±2 %	1/2W
A1R14	1006760-30	RESISTOR	820	±2 %	1/2W
A1R15	1006760-32	RESISTOR	1000	±2 %	1/2W
A1R16	1006760-32	RESISTOR	1000	±2 %	1/2W
A1R17	1006760-32	RESISTOR	1000	±2 %	1/2W
A1R18	1006760-32	RESISTOR	1000	±2 %	1/2W
A1R19	1006760-32	RESISTOR	1000	±2 %	1/2W
R1	1006468-008	RES. VAR	2500	±1%	2.25W
R2	RV4NBYSB252A	RES. VAR	2500	±5 %	2.5W
A1Q1	1010376	TRANSISTOR			
A1Q2	1006759	TRANSISTOR			
A1Q3	1006753	TRANSISTOR			
K1	1006234	RELAY	DPDT		
A1K1	1015832-12	RELAY			
S1	MS35058-22	SW. TOGGLE			
S2	MS35058-22	SW. TOGGLE			
S7	1006465-001	SW. WAFER			
S4	MS35058-22	SW. TOGGLE			
S5	MS35058-22	SW. TOGGLE			
S6	MS25089-3C	SWITCH PB			
S3	MS35058-22	SW. TOGGLE			
A1C1	CS13BF685K	CAPACITOR	6.8UF	±10 %	35VDC
A1C2	CS13BF685K	CAPACITOR	6.8UF	±10 %	35VDC
A1CR1	1010372-18	DIODE			
A1CR2	1006751-000	DIODE			
1A2	1006400	DIGITAL READOUT			
J5	MS3120F16-8P	CONNECTOR			
1A3	1006489	REF AMP			
F1	MIL-F-15160/02B	FUSE			1/2A
F2	MIL-F-15160/02B	FUSE			1/4A
R3	1006427	RES. VAR			
T1	1006440	TRANSFORMER, ISOLATION	1:1		115VAC

A1K2	1015832-12	RELAY			
A1Q4	1006759	TRANSISTOR			
A1R20	1015812-007	RESISTOR	2000	±5%	2W
A1R21	1006760-25	RESISTOR	510	±2%	1/2W
A1R22	RC20GF331J	RESISTOR	330	±5%	1/2W
A1CR3	1006751-000	DIODE			

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS DECIMALS ANGLES
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 2-27-65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

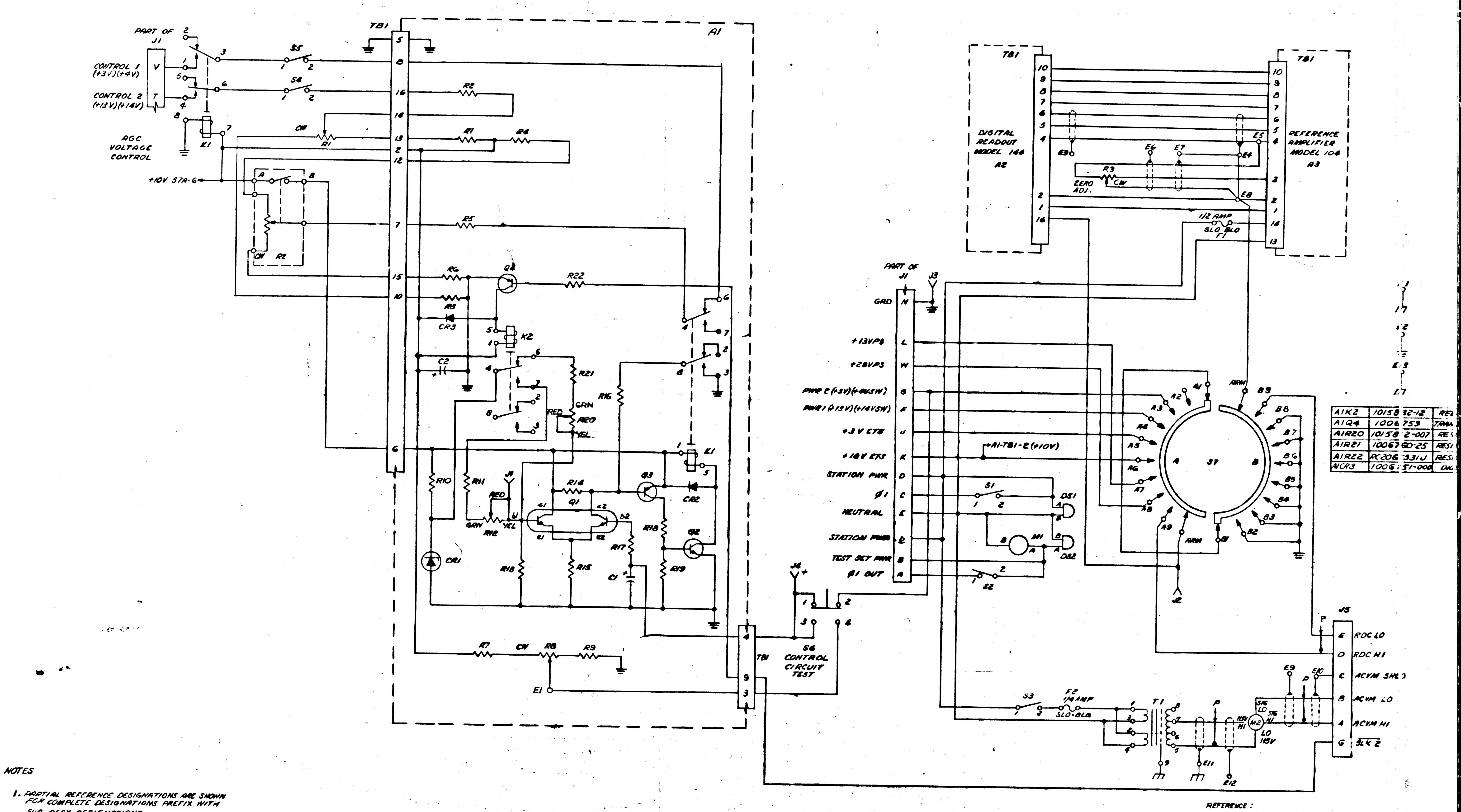
SCHEMATIC, ELECTRICAL
POWER CONTROL
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014116
SCALE NONE WT SHEET 1 OF 1

2014116 G

2C 4116 F

E 2/2


PART OF J1
CONTROL 1 (+3V)(+4V)
CONTROL 2 (+13V)(+14V)
V
T
AGC VOLTAGE CONTROL
K1
+10V S7A-6
S5
S4
R1
CW
R2
R3
R4
R5
R6
R22
Q4
CR3
K2
C2
R21
GRN
RED
R20
YEL
R16
R10
R11
J4
R12
R14
Q1
Q3
CR2
Q2
R13
R15
R17
R18
R19
C1
CR1
R7
R8
R9
E1
TB1
A1
S6 CONTROL CIRCUIT TEST
DIGITAL READOUT MODEL 144 A2
REFERENCE AMPLIFIER MODEL 104 A3
E3
E4
E5
E6
E7
E8
ZERO ADJ.
1/2 AMP SLO BLO F1
PART OF J1
J3
GRD
+13VPS
+28VPS
PWR 2 (+3V)(+4VSW)
PWR 1 (+13V)(+14VSW)
+3 V CTS
+18V CTS
STATION PWR
Ø1
NEUTRAL
STATION PWR
TEST SET PWR
Ø1 OUT
→A1-TB1-2 (+10V)
S1
DS1
M1
DS2
S2
S7
ARM
A1
A2
A3
A4
A5
A6
A7
A8
A9
B1
B2
B3
B4
B5
B6
B7
B8
B9
J2
J5
RDC LO
RDC HI
ACVM SHLD
ACVM LO
ACVM HI
SLK 2
S3
F2 1/4 AMP SLO-BLO
T1
M2
115V HI
LO 115V
S16 LO
S16 HI
E9
E10
E11
E12
P

A1K2	10158	32-12	REL
A1Q4	1006	759	TRAN
A1R20	10158	2-007	RES
A1R21	10067	60-25	RESI
A1R22	RC206	331J	RESI
A1CR3	1006	51-000	DIO

NOTES

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATIONS PREFIX WITH SUB ASSY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REFERENCE:
L ASSY DWG NO. 2014044

2014116 F

F1/2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25192	[illegible]	[illegible]
1	CHANGED PER CCA R25306 DR [illegible] CHK [illegible] APPD [illegible]	11/4/65	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25569 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/65	[illegible]
B	CHANGED PER CCA R25623 DR [illegible] CHK [illegible] APPD [illegible]	12/27/65	[illegible]
C	CHANGED PER CCA R25639 DR [illegible] CHK [illegible] APPD RCD	1/4/66	[illegible]
D	CHANGED PER CCA R25667 DR [illegible] CHK [illegible] APPD RCD	1/10/66	[illegible]
E	CHANGED PER CCA R25713 AND CLASS A RELEASED PER CCR 2972	1/13/66	[illegible]

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	31	J1-N	BLACK	20	5	29	E2	
	A2	↑	↑ L	WHITE	↑	9	5	S7-A7	
	A3		W	↑		↑	4	S7-A8	
	A4		G				10	S7-A3	
	A5		F				9	S7-A4	
	A6		J				7	S7-A5	
	A7		K				34A	K1-7	
	A8		D				27	F1-LINE	
	A9		C				58	S1-1	
	A10		E				45	A3 TB1-13	
	A11		B				52	M1-A	
	A12		A				[illegible]	S2-1	
	A13	↓	↓ T	↓	↓	↓	34	K1-4	
	A14	31	J1-V	WHITE	20	9	34B	K1-1	
~~△3~~	~~A15~~	~~26~~	~~J5-E~~	~~WHITE~~	~~20~~	~~#~~	~~53~~	~~S7-B9~~	
			~~D~~	~~BLUE~~			~~9~~	~~S7-A9~~	
~~△3~~	~~A16~~		~~A~~	~~WHITE~~		~~#~~	~~47~~	~~M2 HI~~	~~△1~~
		~~26~~	~~J5-B~~	~~BLUE~~	~~20~~		~~47~~	~~M2 LO~~	~~△1~~
	A17	8	S7-A-A	WHITE	22	10	74	J2	
	A18	2	↑ B2	BLACK	↑	18	75	J3	
	A19	6	A6	WHITE		10	11	A1 TB1-2	
	A20	8	AA	↑		↑	48	A2 TB1-16	
	A21	10	↓ A3				72	S6-2	
	A22	6	S7-A6				63	R2-A	
	A23	11	A1 TB1-2				34A	K1-7	
	A24	13	↑ 4				73	S6-3	
	A25	12	3				71	S6-4	
	A26	23	16				66	S4-2	
	A27	17	8				64	S5-2	
	A28	18	10				68	R1-CW	
	A29	21	14				69	R1-ARM	
	A30	20	↓ 13	↓	↓	↓	70	R1-CCW	
	A31	22	A1 TB1-15	WHITE	22	10	59	R2-CW	

△1 SIGNAL INPUT

△2 115VAC

~~△3 ATTACH .75±.06 OF FIND NO. 16 TO EACH END OF CONDUCTOR & SEE NOTE 6~~

△4 ATTACH .75±.06 OF FIND NO. 21 TO EACH END OF CONDUCTOR & SEE NOTE 6

△5 DENOTES INTERNAL CONNECTION

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A32	16	A1 TB1-7	WHITE	22	10	60	R2-ARM	
	A33	19	↑ 12	WHITE	↑	10	61	R2-CCW	
	A34	15	↓ 6	WHITE		10	62	R2-B	
	A35	14	A1 TB1-5	BLACK		18	29	E2	
	A36	34C	K1-8	BLACK		18	29	E2	
	A37	34D	K1-3	WHITE		10	65	S5-1	
	A38	33	K1-6	↑		↑	67	S4-1	
	A39	27	F1-LINE				57	S1-2	
	A40	28	F1-LOAD				46	A3 TB1-14	
	A41	24	F2-LINE				76	S3-2	
	~~A42~~	~~38~~	~~F2-LOAD~~				~~47~~	~~M2-HI~~	~~△1~~
~~△1~~	~~A43~~	~~47~~	~~M2-LO~~				~~51~~	~~M1-B~~	
	A44	1	S3-1				51	XDS1-A	
	A45	51	M1-B				49	XDS2-B	
	A46	51	M1-B				45	A3 TB1-B	
	A47	52	M1-A				50	XDS2-A	
	A48	48	A2 TB1-1				35	A3 TB1-1	
	A49	↑	↑ 7				41	↑ 7	
	A50		8				42	8	
	A51	↓	↓ 9	↓		↓	43	↓ 9	
	A52	48	A2 TB1-10	WHITE		10	44	A3 TB1-10	
	A53	14	A1 TB1-5	BLACK		18	2	S7-B2	
△4	A54	48	A2 TB1-6	WHITE		12	40	A3 TB1-6	
		48	A2 TB1-5	RED	↓		39	A3 TB1-5	
		48	A2 TB1-4	BLACK	22		△5	E5	
		△5	E3	SHLD			△5	E4	
	A55	△5	E5	WHITE	22	10	38	A3 TB1-4	
	A56	△5	E4	BLACK	↑	18	△5	E7	
△4	A57	55	R3-CCW	BLACK		12	△5	E5	
		55	R3-A	RED	↓		△5	E8	
		55	R3-CW	WHITE	22		37	A3 TB1-3	
		△5	E6	SHLD			△5	E7	
	A58	△5	E7	BLACK	22	18	△5	E8	
	A59	△5	E8	↑	↑	↑	36	A3 TB1-2	
	A60	48	A2 TB1-2	↓	↓	↓	△5	E8	
	A61	54	S7-B-A	BLACK	22	18	△5	E8	
	A62	1	S3-1	WHITE	20	9	31	J1-b	
△4	A63	30	J5-A	WHITE	20	22	47	M2-SIG HI	△1
		30	J5-B	BLACK	20		47	M2-SIG LO	△1
		△5	E10	SHLD			△5	E9	
	A64	30	J5-C	BLACK	22	18	△5	E10	
△2 △4 △4	A65	47	M2-115V HI	WHITE	20	22	32	T1-7	
		47	M2-115V LO	BLACK	20		32	T1-5	
		△5	E12	SHLD			△5	E11	
	A66	△5	E11	BLACK	22	18	26	E13	
	A67	32	T1-1	WHITE	20	9	25	F2-LOAD	
	A68	32	T1-4	WHITE	20	9	51	M1-B	
	A69	32	T1-9	BLACK	22	18	26	E13	
	A70	30	J5-E	WHITE	20	9	53	S7-B9	TWIST
	A71	30	J5-D	BLACK	20	5	3	S7-A9	
	A72	17A	A1 TB1-9	WHITE	22	10	30	J5-G	

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 8
2. CRIMP PER ND 1002206
3. BOND FIND NO. 6 USING FIND NO. 7
4. SERIALIZE PER ND 1002023
5. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
6. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
7. LACE ENTIRE HARNESS CONFIGURATION ~~USING FIND NO. 8 UNLESS OTHERWISE SPECIFIED~~
8. STRIP ALL LEADS .50 ± .06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
9. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
10. AR DENOTES AS REQUIRED
11. NUMBERS ENCLOSED IN PARENTHESIS INDICATE NUMBER OF CONDUCTORS
12. MARK SLEEVING WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK PER ND 1002019
13. MIL-I-23053 CLASS 1, COLOR WHITE, ID .125 FOR FIND NO. 16 & ID .187 FOR FIND NO. 21
14. MIL-W-16878/4 E22, WHT, BLK & RED, SHIELDED, JACKET TFE WHT
15. NUMBERS PRECEDING BALLOONS INDICATE QUANTITY
16. MIL-W-16878/4 E20, WHT, BLK, SHIELDED JACKET TFE WHT

	☒	2014116	SCHEMATIC	REF
*	7.0	SEE NOTE 16	WIRE, ELECTRICAL	22
*	0.5	SEE NOTE 13	SLEEVING, INSULATION	21
	4	1010402-3	SLEEVE, SOLDER	20
	5	1010402-2	SLEEVE, SOLDER	19
*	15.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, BLACK	18
	2	MS25036-1	LUG, TERMINAL	17
*	3.4	SEE NOTE 13	SLEEVING, INSULATION	16
	~~2~~	~~1000848-10~~	~~FERRULE, ELEC COND~~	~~15~~
	~~2~~	~~1000843-10~~	~~FERRULE, ELEC COND~~	~~14~~
	1	1010402-1	SLEEVE, SOLDER	13
*	5.0	SEE NOTE 14	WIRE, ELECTRICAL WHT, BLK & RED	12
*	~~6.75~~	~~1014341-2~~	~~WIRE, ELECTRICAL, WHT E360~~	~~11~~
*	80.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, WHITE	10
*	50.0	MIL-W-16878/4 E20	WIRE, ELECTRICAL, WHITE	9
	AR	1006458-004	TAPE, LACING	8
	AR	1006253	ADHESIVE	7
	1	1006415-130	BAND MARKER, CABLE	6
*	5.0	MIL-W-16878/4 E20	WIRE, ELECTRICAL, BLACK	5
	13	MS25036-48	TERMINAL, LUG	4
	16	1006431-001	LUG, CRIMP	3
	1	MS3120E-16-8P	CONNECTOR	2
	1	MS3120E-22-55P	CONNECTOR	1
	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	C/1	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014044	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 6 JUN 6[illegible]
CHECKED [illegible] 27 JUL 65
APPROVAL [illegible] 9-14-[illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

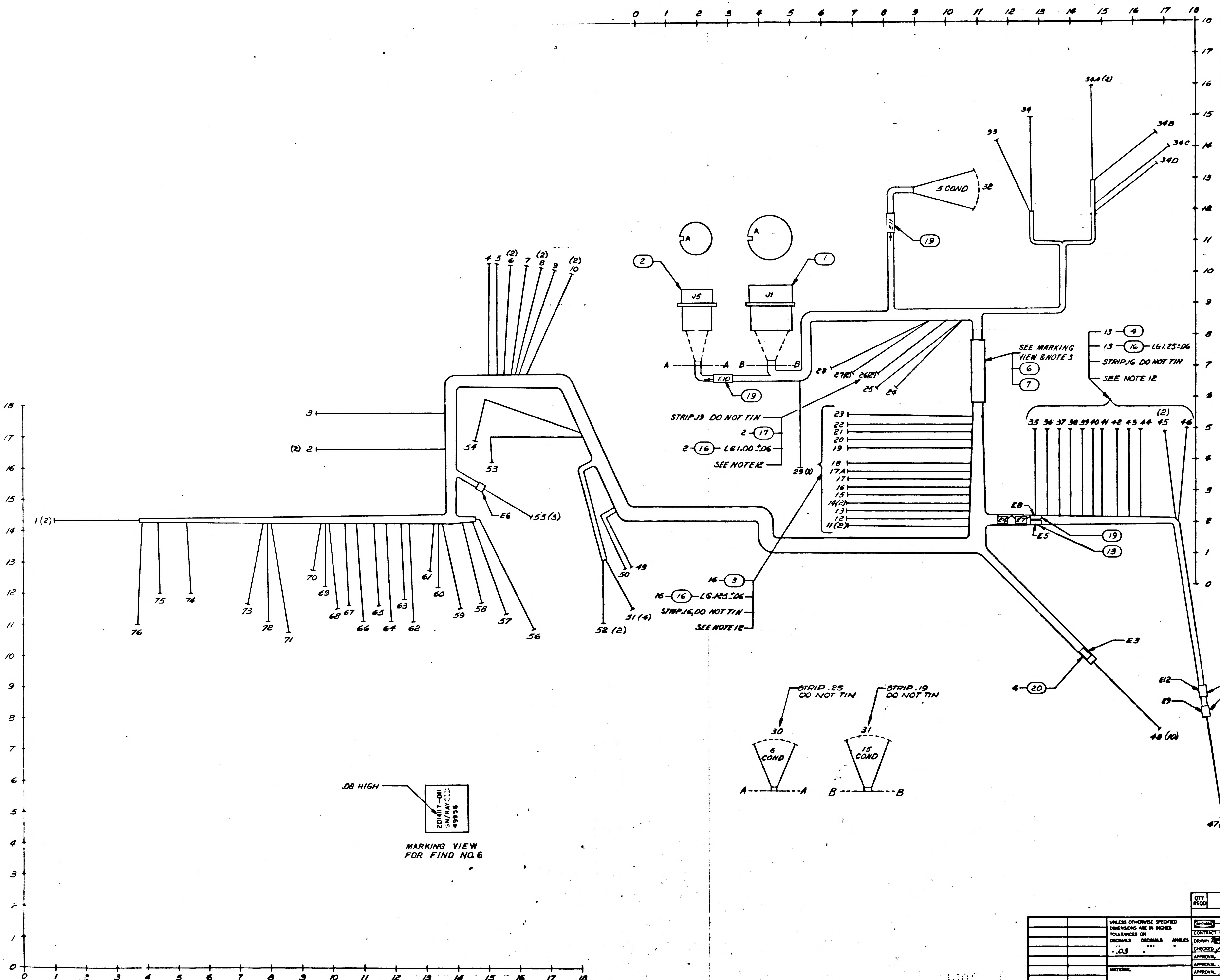
WIRING HARNESS, BRANCHED
POWER CONTROL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014117
SCALE NONE
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014117 E

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
C	RELEASED PER CCA R25.92	7/1/..	
1	CHANGED PER CCA R25306 DR CHK APPD	1/4/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25569 DR G.J. Bian CHK G. Kofer APPD RRC	11/3/65	
B	CHANGED PER CCA R25623 DR R. Umbrona CHK G. Kofer APPD RRC	11/27/65	
C	CHANGED PER CCA R25659 DR CHKD G. Kofer APPD PED	1/4/66	
D	CHANGED PER CCA R25667 DR D. Calonga CHK G. Kofer APPD P.E.D.	1/14/66	
E	CHANGED PER CCA R25743 AND CLASS A RELEASED PER TORR 2972	1/15/66	



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
5 COND
32
33
34
34A (2)
34B
34C
34D
19
E11
J5
J1
A
B
A — — A
B — — B
E10
19
2
1
4 5 (2) 6 7 (2) 8 9 (2) 10
3
(2) 2
54
53
E6
55 (3)
1 (2)
76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56
52 (2)
51 (4)
50
49
28 27(2) 26(2) 25 24
STRIP .19 DO NOT TIN
2 — 17
2 — 16 — LG 1.00 ±.06
SEE NOTE 12
29 (2)
23 22 21 20 19 18 17A 17 16 15 14(2) 13 12 11(2)
16 — 3
16 — 16 — LG 1.25 ±.06
STRIP .16 DO NOT TIN
SEE NOTE 12
SEE MARKING VIEW & NOTE 3
6
7
13 — 4
13 — 16 — LG 1.25 ±.06
STRIP .16 DO NOT TIN
SEE NOTE 12
35 36 37 38 39 40 41 42 43 44 (2) 45 46
E8
E4 E7
E5
19
13
E3
4 — 20
48 (10)
E12
E9
19
47 (4)
STRIP .25 DO NOT TIN
30
6 COND
STRIP .19 DO NOT TIN
31
15 COND
.08 HIGH
2014117-011
SN/RAY
49956
MARKING VIEW FOR FIND NO. 6

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ABBY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 6 JUN 65
CHECKED 27 JUL 65
APPROVAL
APPROVAL 9/14/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

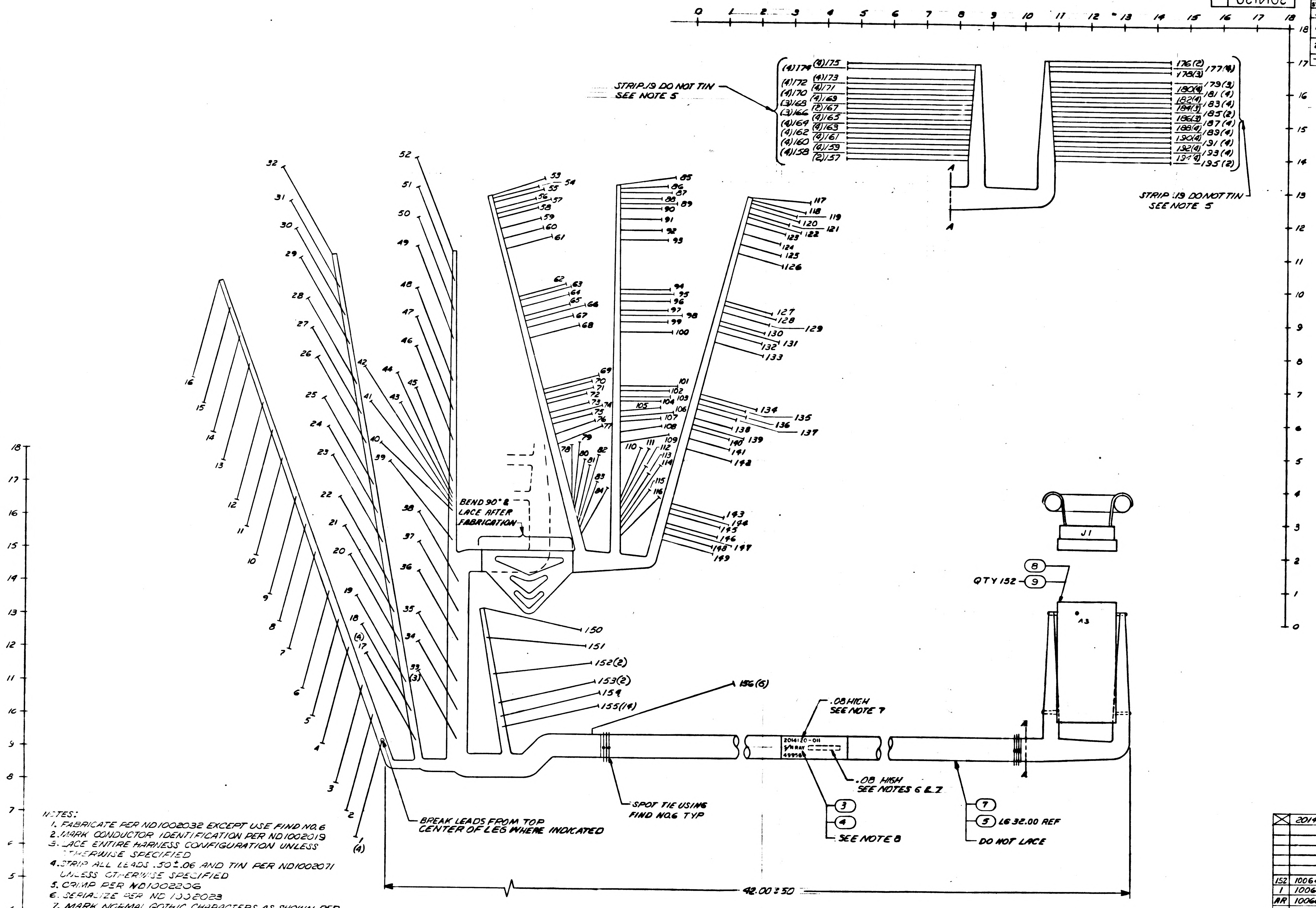
WIRING HARNESS, BRANCHED
POWER CONTROL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014117
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014117 E

SYM	DESCRIPTION	DATE	APPROVED
	RELEASED PER CCA R25167	9-3-65	
1	CHANGED PER CCA R25247 DR P. Gvoni CHK A. Cooley APPD	22 Oct	
2	CHANGED PER CCA R25371 DR H Wong CHK APPD	4 Nov 65	
–	CLASS A RELEASED PER TCRR 25472		



STRIP .19 DO NOT TIN SEE NOTE 5
STRIP .19 DO NOT TIN SEE NOTE 5
(4)174 (4)175 (4)172 (4)173 (4)170 (4)171 (3)168 (4)169 (3)166 (2)167 (4)164 (4)165 (4)162 (4)163 (4)160 (4)161 (4)158 (4)159 (2)157
176(2) 177(4) 178(3) 179(3) 180(4) 181(4) 182(4) 183(4) 184(3) 185(2) 186(3) 187(4) 188(4) 189(4) 190(4) 191(4) 192(4) 193(4) 194(4) 195(2)
A
A
BEND 90° & LACE AFTER FABRICATION
150 151 152(2) 153(2) 154 155(14)
156(6)
.08 HIGH SEE NOTE 7
2014120-011 S/N RAY 49956
.08 HIGH SEE NOTES 6 & 7
SPOT TIE USING FIND NO.6 TYP
BREAK LEADS FROM TOP CENTER OF LEGS WHERE INDICATED
3
4
SEE NOTE 8
7
5
LG 32.00 REF
DO NOT LACE
42.00 ±.50
QTY 152
8
9
J1
A3
1 (4) 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 (4) 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 (3) 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84
85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116
117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149

# DENOTES LENGTH IN FEET

NOTES:

1. FABRICATE PER ND1002032 EXCEPT USE FIND NO.6
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
4. STRIP ALL LEADS .50±.06 AND TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
5. CRIMP PER ND1002206
6. SERIALIZE PER ND 1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
8. BOND USING FIND NO.4
9. AR DENOTES AS REQUIRED
10. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATION
11. CUT SLEEVING LENGTH AS SHOWN
12. NUMBERS ENCLOSED IN PARENTHESES DENOTE NUMBER OF CONDUCTORS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2014112	SCHEMATIC, ELECTRICAL	REF
152	1006491-011	CONTACT, ELECTRICAL	9
1	1006671-001	CONNECTOR RECEPTACLE	8
AR	1006699	SOLVENT	7
AR	1006458-004	TAPE, LACING	6
* 2.5	1006696-6	INSULATION SLEEVING	5
AR	1006253	ADHESIVE	4
1	1006415-135	BAND MARKER, CABLE	3
* 220	MIL-W-16878/4 E22	WIRE ELEC, BLK	2
* 475.	MIL-W-16878/4 E22	WIRE ELEC, WHT	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014231	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE JULY 5
CHECKED
APPROVAL
APPROVAL G E Dyk 8/25/65
APPROVAL 9-10-65
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS A, BRANCHED PROGRAMMER AND MONITOR COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014120
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014120 | 2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER CCA R25167	9/13/65	
1	CHANGED PER CCA R25347 DR P. CHK A. APPD	22 Oct 65	
2	CHANGED PER CCA R2537 DR W. Wong CHK APPD	4 Nov 65	
-	CLASS A RELEASED PER TDRR 25472		

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	175	J1-B1	WHT	22	1	153	XDS90-1	
	A2	175	J1-B2				152	XDS51-1	
	A3	175	J1-B3				155	XDS49-5	
	A4	175	J1-B4				155	XDS62-1	
	A5	174	J1-C1				155	XDS62-2	
	A6	174	J1-C2				155	XDS62-5	
	A7	174	J1-C3				17	XDS17-2	
	A8	174	J1-C4				17	XDS17-5	
	A9	173	J1-E1				36	XDS36-1	
	A10	173	J1-E2				37	XDS37-1	
	A11	172	J1-F1				38	XDS38-1	
	A12	172	J1-F2				39	XDS39-1	
	A13	172	J1-F3				40	XDS40-1	
	A14	172	J1-F4				45	XDS41-1	
	A15	171	J1-G1				50	XDS46-1	
	A16	171	J1-G2				51	XDS47-1	
	A17	171	J1-G3				52	XDS48-1	
	A18	171	J1-G4				33	XDS33-5	
	A19	170	J1-H1				4	XDS4-1	
	A20	170	J1-H2				5	XDS5-1	
	A21	170	J1-H3				6	XDS6-1	
	A22	170	J1-H4				7	XDS7-1	
	A23	169	J1-J1				12	XDS12-1	
	A24	169	J1-J2				13	XDS13-1	
	A25	169	J1-J3				14	XDS14-1	
	A26	169	J1-J4				15	XDS15-1	
	A27	168	J1-K1				65	S1B-D4	
	A28	168	J1-K2				67	S1B-D5	
	A29	168	J1-K3				68	S1B-D6	
	A30	167	J1-L1				75	S1B-A5	
	A31	167	J1-L2				76	S1B-A6	
	A32	166	J1-M1				77	S1B-A7	
	A33	166	J1-M2				78	S1B-A8	
	A34	166	J1-M3				79	S1B-B2	
	A35	165	J1-N1				84	S1B-B6	
	A36	165	J1-N2				53	S1B-B7	
	A37	165	J1-N3				55	S1B-B8	
	A38	165	J1-N4				61	S1B-C7	
	A39	164	J1-P1				59	S1B-C5	
	A40	164	J1-P2				60	S1B-C6	
	A41	164	J1-P3				95	S1C-D2	
	A42	164	J1-P4				96	S1C-D3	
	A43	163	J1-R1				102	S1C-A2	
	A44	163	J1-R2				104	S1C-A3	
	A45	163	J1-R3				105	S1C-A4	
	A46	163	J1-R4				107	S1C-A5	
	A47	162	J1-S1				111	S1C-B2	
	A48	162	J1-S2				112	S1C-B3	
	A49	162	J1-S3				113	S1C-B4	
	A50	162	J1-S4				115	S1C-B5	
	A51	161	J1-T1				94	S1C-C8	
	A52	161	J1-T2				86	S1C-C2	
	A53	161	J1-T3				88	S1C-C3	
	A54	161	J1-T4				90	S1C-C4	
	A55	160	J1-U1				130	S1D-D4	
	A56	160	J1-U2				132	S1D-D5	
	A57	160	J1-U3				133	S1D-D6	
	A58	160	J1-U4				134	S1D-D7	
	A59	159	J1-V1				141	S1D-A6	
	A60	159	J1-V2				142	S1D-A7	
	A61	159	J1-V3				136	S1D-D8	
	A62	159	J1-V4				143	S1D-A8	
	A63	158	J1-W1				149	S1D-B6	
	A64	158	J1-W2				118	S1D-B7	
	A65	158	J1-W3				120	S1D-B8	
	A66	158	J1-W4				127	S1D-C8	
	A67	157	J1-X3				125	S1D-C6	
	A68	157	J1-X4				126	S1D-C7	
	A69	176	J1-A5				155	XDS49-2	
	A70	176	J1-A6				155	XDS49-1	
	A71	177	J1-B5				154	XDS63-1	
	A72	177	J1-B6				153	XDS64-1	
	A73	177	J1-B7				152	XDS65-1	
	A74	177	J1-B8				151	XDS66-1	
	A75	178	J1-C5				150	XDS33-2	
	A76	178	J1-C6				33	XDS33-1	
	A77	178	J1-C7				34	XDS34-1	
	A78	195	J1-X6				35	XDS35-1	
	A79	180	J1-F5				46	XDS42-1	
	A80	180	J1-F6				47	XDS43-1	
	A81	180	J1-F7				48	XDS44-1	
	A82	180	J1-F8				49	XDS45-1	
	A83	181	J1-G5				1	XDS1-2	
	A84	181	J1-G6				1	XDS1-1	
	A85	181	J1-G7				2	XDS2-1	
	A86	181	J1-G8				3	XDS3-1	
	A87	182	J1-H5				8	XDS8-1	
	A88	182	J1-H6				9	XDS9-1	
	A89	182	J1-H7				10	XDS10-1	
	A90	182	J1-H8	WHT	22	1	11	XDS11-1	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A91	183	J1-J5	WHT	22	1	16	XDS16-1	
	A92	183	J1-J6				1	XDS1-5	
	A93	183	J1-J7				63	S1B-D2	
	A94	183	J1-J8				64	S1B-D3	
	A95	184	J1-K6				70	S1B-A2	
	A96	184	J1-K7				72	S1B-A3	
	A97	184	J1-K8				73	S1B-A4	
	A98	185	J1-L7				69	S1B-D7	
	A99	185	J1-L8				71	S1B-D8	
	A100	186	J1-M6				80	S1B-B3	
	A101	186	J1-M7				81	S1B-B4	
	A102	186	J1-M8				83	S1B-B5	
	A103	187	J1-N5				62	S1B-C8	
	A104	187	J1-N6				54	S1B-C2	
	A105	187	J1-N7				56	S1B-C3	
	A106	187	J1-N8				58	S1B-C4	
	A107	188	J1-P5				97	S1C-D4	
	A108	188	J1-P6				99	S1C-D5	
	A109	188	J1-P7				100	S1C-D6	
	A110	188	J1-P8				101	S1C-D7	
	A111	189	J1-R5				108	S1C-A6	
	A112	189	J1-R6				103	S1C-D8	
	A113	189	J1-R7				109	S1C-A7	
	A114	189	J1-R8				110	S1C-A8	
	A115	190	J1-S5				116	S1C-B6	
	A116	190	J1-S6				85	S1C-B7	
	A117	190	J1-S7				87	S1C-B8	
	A118	190	J1-S8				93	S1C-C7	
	A119	191	J1-T5				91	S1C-C5	
	A120	191	J1-T6				92	S1C-C6	
	A121	191	J1-T7				128	S1D-D2	
	A122	191	J1-T8				129	S1D-D3	
	A123	192	J1-U5				135	S1D-A2	
	A124	192	J1-U6				137	S1D-A3	
	A125	192	J1-U7				138	S1D-A4	
	A126	192	J1-U8				140	S1D-A5	
	A127	193	J1-V5				144	S1D-B2	
	A128	193	J1-V6				145	S1D-B3	
	A129	193	J1-V7				146	S1D-B4	
	A130	193	J1-V8				148	S1D-B5	
	A131	194	J1-W5				119	S1D-C2	
	A132	194	J1-W6				121	S1D-C3	
	A133	194	J1-W7				123	S1D-C4	
	A134	194	J1-W8				124	S1D-C5	
	A135	195	J1-X5				117	S1D-C1	
	A136	32	XDS32-1				43	S1A-A-ARM	
	A137	31	XDS31-1				41	S1A-B-ARM	
	A138	30	XDS30-1				42	S1A-C-ARM	
	A139	29	XDS29-1				44	S1A-D-ARM	
	A140	28	XDS28-1				74	S1B-A-ARM	
	A141	27	XDS27-1				82	S1B-B-ARM	
	A142	26	XDS26-1				57	S1B-C-ARM	
	A143	25	XDS25-1				66	S1B-D-ARM	
	A144	24	XDS24-1				106	S1C-A-ARM	
	A145	23	XDS23-1				114	S1C-B-ARM	
	A146	22	XDS22-1				89	S1C-C-ARM	
	A147	21	XDS21-1				98	S1C-D-ARM	
	A148	20	XDS20-1				139	S1D-A-ARM	
	A149	19	XDS19-1				147	S1D-B-ARM	
	A150	18	XDS18-1				122	S1D-C-ARM	
	A151	17	XDS17-1				131	S1D-D-ARM	
	A152	155	XDS49-2				156	XDS72-2	
	A153	155	XDS49-5				156	XDS72-5	
	A154	155	XDS62-2				156	XDS73-2	
	A155	155	XDS62-5	WHT	22	1	156	XDS73-5	
	A156	173	J1-E3	BLK	22	2	155	XDS49-3	
	A157	155	XDS49-3				156	XDS72-3	
	A158	173	J1-E4				155	XDS62-3	
	A159	155	XDS62-3				156	XDS73-3	
	A160	179	J1-E5				17	XDS17-3	
	A161	179	J1-E6				33	XDS33-3	
	A162	179	J1-E7	BLK	22	2	1	XDS1-3	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 2 JULY 65
CHECKED
APPROVAL
APPROVAL 8/25/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS A, BRANCHED
PROGRAMMER AND MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014120
SCALE NONE | WT | SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014120 | -

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER C.A R25192	9/1/65	G Moran
1	CHANGED PER CCA R25378 DR Harmony CHK'D J Schlarth APPRD	11/11/65	
-	CLASS A RELEASED PER TDRR 25872		

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	LENGTH
C1	XDS1-2	XDS2-2	WHT	22	2.50
C2	XDS2-2	XDS3-2			2.50
C3	XDS3-2	XDS4-2			3.00
C4	XDS4-2	XDS5-2			250
C5	XDS5-2	XDS6-2			2.50
C6	XDS6-2	XDS7-2			3.00
C7	XDS7-2	XDS8-2			2.50
C8	XDS8-2	XDS9-2			2.50
C9	XDS9-2	XDS10-2			3.00
C10	XDS10-2	XDS11-2			250
C11	XDS11-2	XDS12-2			250
C12	XDS12-2	XDS13-2			3.00
C13	XDS13-2	XDS14-2			2.50
C14	XDS14-2	XDS15-2			
C15	XDS15-2	XDS16-2			
C16	XDS1-5	XDS2-5			
C17	XDS2-5	XDS3-5			2.50
C18	XDS3-5	XDS4-5			3.00
C19	XDS4-5	XDS5-5			2.50
C20	XDS5-5	XDS6-5			2.50
C21	XDS6-5	XDS7-5			3.00
C22	XDS7-5	XDS8-5			2.50
C23	XDS8-5	XDS9-5			2.50
C24	XDS9-5	XDS10-5			3.00
C25	XDS10-5	XDS11-5			2.50
C26	XDS11-5	XDS12-5			2.50
C27	XDS12-5	XDS13-5			3.00
C28	XDS13-5	XDS14-5			2.50
C29	XDS14-5	XDS15-5			
C30	XDS15-5	XDS16-5			
C31	XDS17-2	XDS18-2			
C32	XDS18-2	XDS19-2			2.50
C33	XDS19-2	XDS20-2			3.00
C34	XDS20-2	XDS21-2			2.50
C35	XDS21-2	XDS22-2			2.50
C36	XDS22-2	XDS23-2			3.00
C37	XDS23-2	XDS24-2			2.50
C38	XDS24-2	XDS25-2			2.50
C39	XDS25-2	XDS26-2			3.00
C40	XDS26-2	XDS27-2			2.50
C41	XDS27-2	XDS28-2			2.50
C42	XDS28-2	XDS29-2			3.00
C43	XDS29-2	XDS30-2			2.50
C44	XDS30-2	XDS31-2			
C45	XDS31-2	XDS32-2			
C46	XDS17-5	XDS18-5			
C47	XDS18-5	XDS19-5			2.50
C48	XDS19-5	XDS20-5			3.00
C49	XDS20-5	XDS21-5			2.50
C50	XDS21-5	XDS22-5			2.50
C51	XDS22-5	XDS23-5			3.00
C52	XDS23-5	XDS24-5			2.50
C53	XDS24-5	XDS25-5			2.50
C54	XDS25-5	XDS26-5			3.00
C55	XDS26-5	XDS27-5			2.50
C56	XDS27-5	XDS28-5			2.50
C57	XDS28-5	XDS29-5			3.00
C58	XDS29-5	XDS30-5			2.50
C59	XDS30-5	XDS31-5			
C60	XDS31-5	XDS32-5			
C61	XDS33-2	XDS34-2			
C62	XDS34-2	XDS35-2			2.50
C63	XDS35-2	XDS36-2			3.00
C64	XDS36-2	XDS37-2			2.50
C65	XDS37-2	XDS38-2	WHT	22	2.50
C66	XDS38-2	XDS39-2	WHT	22	3.00
C67	XDS39-2	XDS40-2			2.50
C68	XDS40-2	XDS41-2			2.50
C69	XDS41-2	XDS42-2			3.00
C70	XDS42-2	XDS43-2			2.50
C71	XDS43-2	XDS44-2			2.50
C72	XDS44-2	XDS45-2			3.00
C73	XDS45-2	XDS46-2			2.50
C74	XDS46-2	XDS47-2			
C75	XDS47-2	XDS48-2			
C76	XDS33-5	XDS34-5			
C77	XDS34-5	XDS35-5			2.50
C78	XDS35-5	XDS36-5			3.00
C79	XDS36-5	XDS37-5			2.50
C80	XDS37-5	XDS38-5			2.50
C81	XDS38-5	XDS39-5			3.00
C82	XDS39-5	XDS40-5			2.50
C83	XDS40-5	XDS41-5			2.50
C84	XDS41-5	XDS42-5			3.00
C85	XDS42-5	XDS43-5			2.50
C86	XDS43-5	XDS44-5			2.50
C87	XDS44-5	XDS45-5			3.00
C88	XDS45-5	XDS46-5			2.50
C89	XDS46-5	XDS47-5			
C90	XDS47-5	XDS48-5			
C91	XDS49-2	XDS50-2			
C92	XDS50-2	XDS51-2			2.50
C93	XDS51-2	XDS52-2			3.00
C94	XDS52-2	XDS53-2			2.50
C95	XDS53-2	XDS54-2			
C96	XDS49-5	XDS50-5			
C97	XDS50-5	XDS51-5			2.50
C98	XDS51-5	XDS52-5			3.00
C99	XDS52-5	XDS53-5			2.50
C100	XDS53-5	XDS54-5			
C101	XDS62-2	XDS63-2			
C102	XDS63-2	XDS64-2			
C103	XDS64-2	XDS65-2			
C104	XDS65-2	XDS66-2			
C105	XDS62-5	XDS63-5			
C106	XDS63-5	XDS64-5			
C107	XDS64-5	XDS65-5			
C108	XDS65-5	XDS66-5	WHT	22	2.50
C109	XDS49-3	XDS50-3	BLK	22	2.50
C110	XDS50-3	XDS51-3			2.50
C111	XDS51-3	XDS52-3			3.00
C112	XDS52-3	XDS53-3			2.50
C113	XDS53-3	XDS54-3			
C114	XDS62-3	XDS63-3			
C115	XDS63-3	XDS64-3			
C116	XDS64-3	XDS65-3			
C117	XDS65-3	XDS66-3			
C118	XDS17-3	XDS18-3			
C119	XDS18-3	XDS19-3			2.50
C120	XDS19-3	XDS20-3			3.00
C121	XDS20-3	XDS21-3			2.50
C122	XDS21-3	XDS22-3			2.50
C123	XDS22-3	XDS23-3			3.00
C124	XDS23-3	XDS24-3			2.50
C125	XDS24-3	XDS25-3			2.50
C126	XDS25-3	XDS26-3			3.00
C127	XDS26-3	XDS27-3			2.50
C128	XDS27-3	XDS28-3			2.50
C129	XDS28-3	XDS29-3			3.00
C130	XDS29-3	XDS30-3	BLK	22	2.50
C131	XDS31-3	XDS32-3	BLK	22	2.50
C132	XDS33-3	XDS34-3			2.50
C133	XDS34-3	XDS35-3			2.50
C134	XDS35-3	XDS36-3			3.00
C135	XDS36-3	XDS37-3			2.50
C136	XDS37-3	XDS38-3			2.50
C137	XDS38-3	XDS39-3			3.00
C138	XDS39-3	XDS40-3			2.50
C139	XDS40-3	XDS41-3			2.50
C140	XDS41-3	XDS42-3			3.00
C141	XDS42-3	XDS43-3			2.50
C142	XDS43-3	XDS44-3			2.50
C143	XDS44-3	XDS45-3			3.00
C144	XDS45-3	XDS46-3			2.50
C145	XDS46-3	XDS47-3			
C146	XDS47-3	XDS48-3			
C147	XDS1-3	XDS2-3			
C148	XDS2-3	XDS3-3			2.50
C149	XDS3-3	XDS4-3			3.00
C150	XDS4-3	XDS5-3			2.50
C151	XDS5-3	XDS6-3			2.50
C152	XDS6-3	XDS7-3			3.00
C153	XDS7-3	XDS8-3			2.50
C154	XDS8-3	XDS9-3			2.50
C155	XDS9-3	XDS10-3			3.00
C156	XDS10-3	XDS11-3			2.50
C157	XDS11-3	XDS12-3			2.50
C158	XDS12-3	XDS13-3			3.00
C159	XDS13-3	XDS14-3			2.50
C160	XDS14-3	XDS15-3			2.50
C161	XDS15-3	XDS16-3	BLK	22	2.50
C162	XDS55-2	XDS56-2	WHT	22	2.50
C163	XDS55-3	XDS56-3	BLK	22	2.50
C164	XDS55-5	XDS56-5	WHT	22	2.50
C165	XDS56-2	XDS57-2	WHT	22	
C166	XDS56-3	XDS57-3	BLK	22	2.50
C167	XDS56-5	XDS57-5	WHT	22	2.50
C168	XDS57-2	XDS58-2	WHT	22	
C169	XDS57-3	XDS58-3	BLK	22	2.50
C170	XDS57-5	XDS58-5	WHT	22	2.50
C171	XDS58-2	XDS59-2	WHT	22	
C172	XDS58-3	XDS59-3	BLK	22	2.50
C173	XDS58-5	XDS59-5	WHT	22	2.50
C174	XDS59-2	XDS60-2	WHT	22	
C175	XDS59-3	XDS60-3	BLK	22	2.50
C176	XDS59-5	XDS60-5	WHT	22	2.50
C177	XDS60-2	XDS61-2	WHT	22	
C178	XDS60-3	XDS61-3	BLK	22	2.50
C179	XDS60-5	XDS61-5	WHT	22	2.50
C180	XDS67-2	XDS68-2	WHT	22	
C181	XDS67-3	XDS68-3	BLK	22	2.50
C182	XDS67-5	XDS68-5	WHT	22	2.50
C183	XDS68-2	XDS69-2	WHT	22	
C184	XDS68-3	XDS69-3	BLK	22	2.50
C185	XDS68-5	XDS69-5	WHT	22	2.50
C186	XDS69-2	XDS70-2	WHT	22	
C187	XDS69-3	XDS70-3	BLK	22	2.50
C188	XDS69-5	XDS70-5	WHT	22	2.50
C189	XDS70-2	XDS71-2	WHT	22	
C190	XDS70-3	XDS71-3	BLK	22	2.50
C191	XDS70-5	XDS71-5	WHT	22	2.50
C192	S36-1	S36-3			2.00
C193	S16-1	S16-3			
C194	S15-3	S15-1			
C195	S13B-NC	S13C-NO	WHT	22	2.00
C196	S14-2	S14-4	WHT	22	2.00
C197	S34-2	S34-4			
C198	S30-2	S30-4			
C199	S2-2	S2-4	WHT	22	2.00
C200	S13-2	S13B-NO	BLK	22	1.75
C201	S13B-NO	S13C-NC			
C202	S33-2	S33B-NC			
C203	S31-2	S31B-NC			
C204	S32-2	S32B-NC	BLK	22	1.75
C205	S13-1	S13-3	WHT	22	2.25
C206	S13-3	S13-A-NO			
C207	S31-1	S31-3			
C208	S31-3	S31-A-NO			
C209	S32-1	S32-3			
C210	S32-3	S32-A-NO			
C211	S33-1	S33-3			
C212	S33-3	S33-A-NO			2.25
C213	S8-A	S8-B			2.50
C214	B	C			3.00
C215	C	D			2.50
C216	G	1			2.25
C217	1	2-NO			3.00
C218	A	2			2.50
C219	2	S8-1-NO			3.00
C220	2-NC	S6-2-C			4.00
C221	S8-1-C	1-NC			4.00
C222	S6-A	B			2.50
C223	-B	C			3.00
C224	-C	D			2.50
C225	-G	1			2.25
C226	1	2-NO			3.00
C227	A	2			2.50
C228	2	S6-1-NO			3.00
C229	2-NC	S10-2-C			7.50
C230	S6-1-C	S10-1-NC			7.50
C231	S10-A	B			2.50
C232	B	C			3.00
C233	C	D			2.50
C234	G	1			2.25
C235	1	2-NO			3.00
C236	A	2			2.50
C237	2	S10-1-NO			3.00
C238	2-NC	S11-2-C			2.75
C239	S10-1-C	1-NC			2.75
C240	S11-A	B			2.50
C241	B	C			3.00
C242	C	D			2.50
C243	G	S11-1			2.25
C244	1	S11-2-NO			3.00
C245	A	S11-2			2.50
C246	2	S11-1-NO			3.00
C247	2-NC	S3-2-C			11.00
C248	S11-1-C	S3-1-NC	WHT	22	11.00
C249	S8-2-C	S12-3-NO	BLK	22	7.00
C250	S12-3-NC	S9-3-NO	BLK	22	5.00
C251	A	S12-B	WHT	22	2.50
C252	B	C			3.00
C253	C	D			2.50
C254	G	S12-1			2.25
C255	1	S72-NC			9.00
C256	A	S12-2			2.50
C257	2	S12-1-NO			3.00
C258	S12-1-NC	S7-1-C			9.00
C259	S7-A	S7-B			2.50
C260	S7-B	S7-C	WHT	22	3.00
C261	S7-C	S7-D	WHT	22	2.50
C262	G	1			2.25
C263	1	2-NO			3.00
C264	A	2			2.50
C265	2	S7-1-NO			3.00
C266	1-NC	S9-1-C			4.00
C267	S7-2-C	2-NC			4.00
C268	S9-A	B			2.50
C269	B	C			3.00
C270	C	D			2.50
C271	G	1			2.25
C272	1	2-NO			3.00
C273	A	2			2.50
C274	2	S9-1-NO			3.00
C275	2-C	S5-2-NC			5.75
C276	1-NC	1-C			6.00
C277	S5-A	B			2.50
C278	B	C			3.00
C279	C	D			2.50
C280	G	1			2.25
C281	1	2-NO			3.00
C282	A	2			2.50
C283	2	1-NO			3.00
C284	4C	S5-3-C			2.00
C285	3-NC	S4-3-C			2.50
C286	2-C	2-NC			2.50
C287	S5-1-NC	1-C			2.50
C288	S4-A	B			2.50
C289	B	C			3.00
C290	C	D			2.50
C291	G	1			2.25
C292	1	2-NO			3.00
C293	A	2			2.50
C294	2	S4-1-NO			3.00
C295	3-NC	S3-3-C			2.50
C296	2-C	2-NC			2.50
C297	S4-1-NC	1-C			2.50
C298	S3-A	B			2.50
C299	B	C			3.00
C300	C	D			2.50
C301	G	1			2.25
C302	1	2-NO			3.00
C303	A	2			2.50
C304	2	S3-1-NO			3.00
C305	S3-4C	S4-4C			2.25
C306	S4-4C	S5-4C			
C307	S5-4C	S6-4C			
C308	S6-4C	S7-4C			
C309	S7-4C	S8-4C			
C310	S8-4C	S9-4C			
C311	S9-4C	S10-4C			
C312	S10-4C	S11-4C			
C313	S11-4C	S12-4C	WHT	22	2.25
C314	XDS30-3	XDS31-3	BLK	22	2.50
C315	S21-C	S26-C	WHT	22	3.00
C316	S26-C	S22-C			
C317	S22-C	S17-C			
C318	S17-C	S18-C			
C319	S18-C	S23-C			
C320	S23-C	S28-C			
C321	S28-C	S24-C			
C322	S24-C	S19-C			
C323	S19-C	S20-C			
C324	S20-C	S25-C			
C325	S25-C	S29-C	WHT	22	3.00

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. WIRE LENGTH FOR REFERENCE ONLY

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014231	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Roy Comba DATE 7 July 65
CHECKED 9 Sep 65
APPROVAL 9/1/65
APPROVAL G O'Bryant 9/1/65
APPROVAL 9/1/65
NASA APPROVAL C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

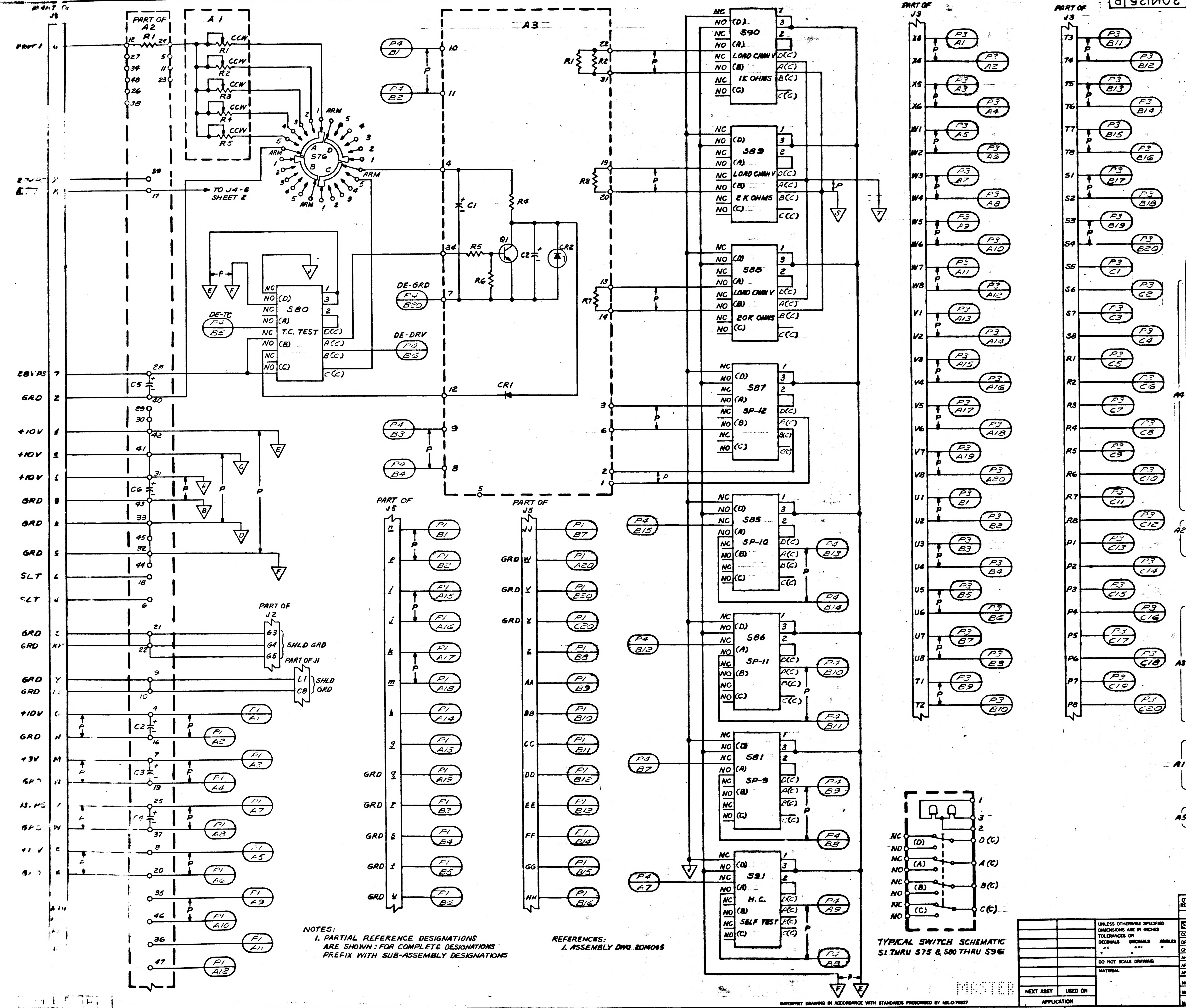
LEAD ELECTRICAL
FRONT PANEL
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014122
SCALE NONE
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014125 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25167	9/1/65	
1	CHANGED PER CCA R25442 DR CHK APPD	11/17/65	
–	CLASS B CHANGED PER CCA R25502	1/4/66	
A	CHANGED PER CCA R25705 DR CHK BBQ APPD	1/15/66	
B	CHANGED PER CCA R25887 AND CLASS.A RELEASED PER TORR 22218	2/10/66	


PART OF J6
PART OF A2
A1
A3
R1
R2
R3
R4
R5
CCW
ARM
S76
TO J4-6 SHEET 2
C1
R4
R5
R6
Q1
C2
CR2
CR1
DE-GRD
DE-TC
DE-DRV
S80
T.C. TEST
S90
LOAD CHAN V
1K OHMS
S89
LOAD CHAN V
2K OHMS
S88
LOAD CHAN V
20K OHMS
S87
SP-12
S85
SP-10
S86
SP-11
S81
SP-9
S91
H.C.
SELF TEST
PART OF J3
PART OF J5
PART OF J2
SHLD GRD
PART OF J1
28VPS
GRD
+10V
SLT
+3V
C5
C6
C2
C3
C4
TYPICAL SWITCH SCHEMATIC S1 THRU S75 & S80 THRU S96

NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCES:
1. ASSEMBLY DWG 2014045

	FOR REFERENCE ONLY					
	REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
A4	R1	1006760-16	RESISTOR	220	2%	1/2W
	R2	1006760-25	RESISTOR	510	2%	1/2W
	R3	1006760-32	RESISTOR	1000	2%	1/2W
	R4	1006760-56	RESISTOR	10K	2%	1/2W
	R5	1006760-5	RESISTOR	75	2%	1/2W
	R6	1006760-1	RESISTOR	51	2%	1/2W
	R7	1006760-1	RESISTOR	51	2%	1/2W
	R8	1006760-1	RESISTOR	51	2%	1/2W
	C1	1010316-13	CAPACITOR	.01UF		100VDC
	C2	1006755-89	CAPACITOR	47UF		35VDC
	C3	1010316-21	CAPACITOR	.047UF		100VDC
	L1	1006493-007	INDUCTOR	4.0HYS	3%	
	L2	1006493-005	INDUCTOR	1.4HYS	3%	
	L3	1006493-003	INDUCTOR	0.4HYS	3%	
	L4	1006493-003	INDUCTOR	0.4HYS	3%	
	L5	1006493-003	INDUCTOR	0.4HYS	3%	
	CR1	1006751-000	DIODE			
	Q1	1006752	TRANSISTOR			
	C4	1010316-14	CAPACITOR	.012uf		100VDC
A2	R1	1010389-49	RESISTOR	510	1%	3W
	C1,C2,C3, C4,C6	1006755-89	CAPACITOR	47UF		35VDC
	C5	1006755-133	CAPACITOR	18UF		50VDC
	J1,J2,J3	1006671	CONN.			
	J4	MS3120F-16-8P	CONN.			
	J5	MS3120F-22-41P	CONN.			
	J6	MS3120F-10-6P	CONN.			
A3	R1	1010452-184	RESISTOR	2000	1%	1W
	R2	1010452-184	RESISTOR	2000	1%	1W
	R3	1010452-184	RESISTOR	2000	1%	1W
	R4	1010452-184	RESISTOR	2000	1%	1W
	R5	1006760-1	RESISTOR	51	2%	1/2W
	R6	1006760-32	RESISTOR	1K	2%	1/2W
	R7	1010452-251	RESISTOR	10K	1%	1W
	C1	1006755-89	CAPACITOR	47UF		35VDC
	C2	1010316-21	CAPACITOR	.047UF		100VDC
	CR1	1006751-000	DIODE			
	CR2	1010830-15	DIODE			
	Q1	1006759	TRANSISTOR			
A1	R1	1006468-008	RESISTOR	5000	1%	2W
	R2	1006468-009	RESISTOR	7500	1%	2W
	R3	1006468-010	RESISTOR	7500	1%	2W
	R4	1006468-010	RESISTOR	5000	1%	2W
	R5	1006468-009	RESISTOR	2500	1%	2W
A5	K1	1006947	RELAY			
	CR1	1006751-000	DIODE			
	A6	2014314-011	AMP			
	R1	MIL-R-94 RV4NAYSD 502A TYPE 2	RESISTOR	5000		2W
	T1	MIL-T-27B TYPE TF4RX11YY	TRANSFORMER			

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 23 JUN 65
CHECKED 12 AUG 65
APPROVAL D. O Bryant 9/1/65
APPROVAL 9/2/65
APPROVAL 9/14/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014125
SCALE NONE
WT
SHEET 1 OF 5

2014125 L

2H

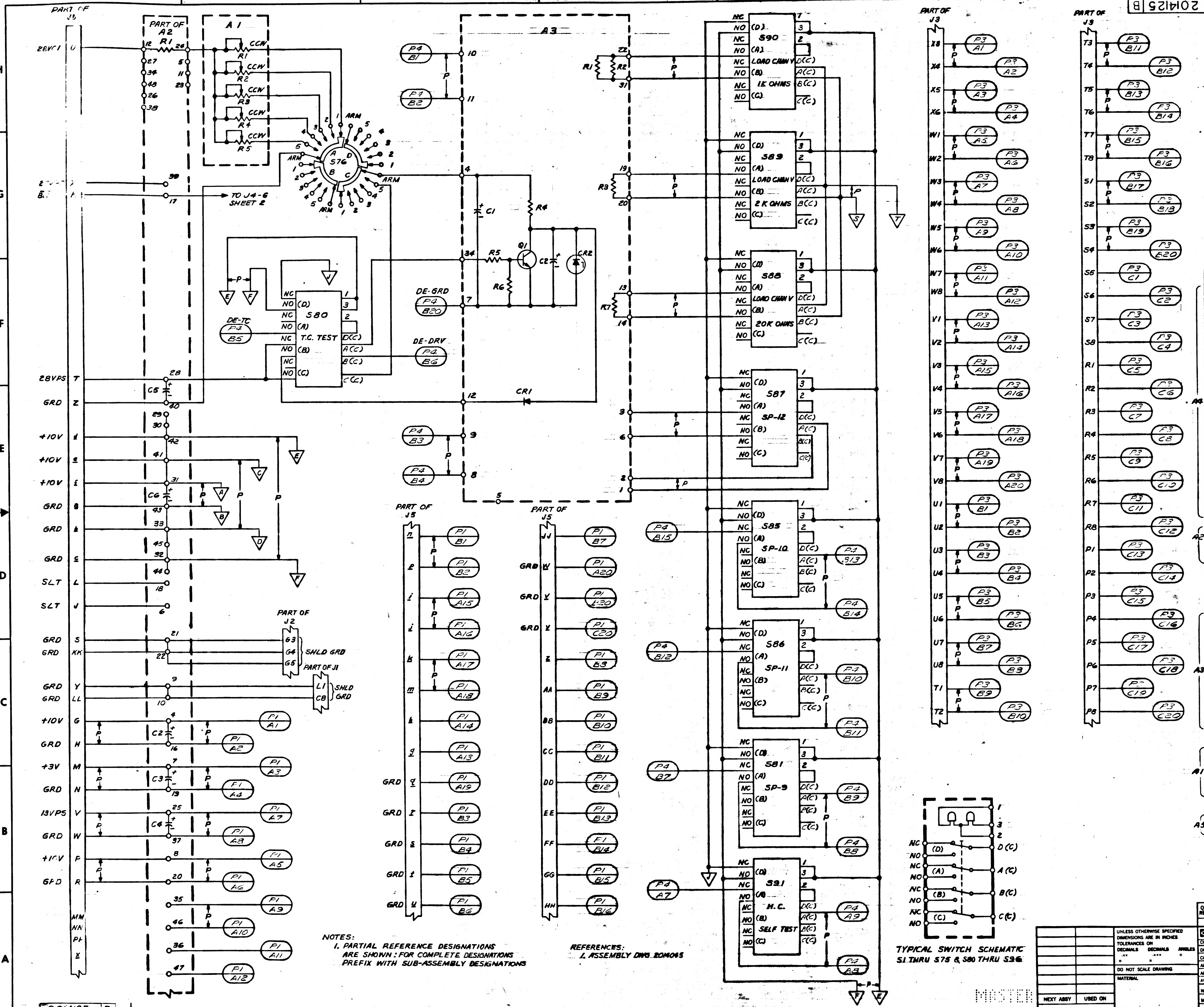
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

E-2

2014125 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25167	3/1/65	
1	CHANGED PER CCA R25442 DR R. [illegible] CHK [illegible] APPD [illegible]	4/7/65	
–	CLASS B CHANGED PER CCA R25562	1/4/66	
A	CHANGED PER CCA R25705 DR [illegible] CHK BBQ APPD [illegible]	1/31/66	
B	CHANGED PER CCA R25687 AND CLASS A RELEASED PER [illegible]	[illegible]	



PART OF J5
28VCI U
28VPS T
GRD Z
+10V
GRD
SLT L
SLT
+3V M
13VPS V
MM NN PF X
PART OF A2
R1
A1
R1 R2 R3 R4 R5
CCW
S76
ARM
TO J4-6 SHEET 2
S80 T.C. TEST
DE-TC
DE-GRD
DE-DRV
C5 C6 C2 C3 C4
PART OF J2
SHLD GRD
PART OF J1
L1
A3
R1 R2 R3 R4 R5 R6 R7
C1 C2 CR1 CR2 Q1
P4 B1 B2 B3 B4 B5 B6 B20
P1 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12
PART OF J5
PART OF J3
P3
S90 1K OHMS
S89 2K OHMS
S88 20K OHMS
LOAD CHAN V
S87 SP-12
S85 SP-10
S86 SP-11
S81 SP-9
S91 H.C. SELF TEST
NC NO
(D) (A) (B) (C)
D(C) A(C) B(C) C(C)

NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCES:
1. ASSEMBLY DWG 2014065

TYPICAL SWITCH SCHEMATIC
S1 THRU S75 & S80 THRU S96

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

FOR REFERENCE ONLY						
	REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
A4	R1	1006760-16	RESISTOR	220	2%	1/2W
	R2	1006760-25	RESISTOR	510	2%	1/2W
	R3	1006760-32	RESISTOR	1000	2%	1/2W
	R4	1006760-56	RESISTOR	10K	2%	1/2W
	R5	1006760-5	RESISTOR	75	2%	1/2W
	R6	1006760-1	RESISTOR	51	2%	1/2W
	R7	1006760-1	RESISTOR	51	2%	1/2W
	R8	1006760-1	RESISTOR	51	2%	1/2W
	C1	1010316-13	CAPACITOR	.01UF		100VDC
	C2	1006755-89	CAPACITOR	47UF		35VDC
	C3	1010316-21	CAPACITOR	.047UF		100VDC
	L1	1006493-007	INDUCTOR	4.0HYS	3%	
	L2	1006493-005	INDUCTOR	1.4HYS	3%	
	L3	1006493-003	INDUCTOR	0.4HYS	3%	
	L6	1006493-003	INDUCTOR	0.4HYS	3%	
	C5	1006493-003	INDUCTOR	0.4HYS	2%	
	CR1	1006751-000	DIODE			
	Q1	1006752	TRANSISTOR			
	C4	1010316-1?	CAPACITOR	.012uf		100 DC
A2	R1	1010389-49	RESISTOR	510	1%	3W
	C1,C2,C3, C4,C6	1006755-89	CAPACITOR	47UF		35VDC
	C5	1006755-133	CAPACITOR	18UF		50VDC
	J1,J2,J3	1006671	CONN.			
	J4	MS3120F-16-8P	CONN.			
	J5	MS3120F-22-61P	CONN.			
	J6	MS3120F-10-6P	CONN.			
A3	R1	1010452-184	RESISTOR	2000	1%	1W
	R2	1010452-184	RESISTOR	2000	1%	1W
	R3	1010452-184	RESISTOR	2000	1%	1W
	R4	1010452-184	RESISTOR	2000	1%	1W
	R5	1006760-	RESISTOR	51	2%	1/2W
	R6	1006760-33	RESISTOR	1K	2%	1/2W
	R7	1010452-251	RESISTOR	10K	1%	1W
	C1	1006755-89	CAPACITOR	47UF		35VDC
	C2	1010316-21	CAPACITOR	.047UF		100VDC
	CR1	1006751-000	DIODE			
	CR2	1010830-15	DIODE			
	Q1	1006759	TRANSISTOR			
A1	R1	1006468-008	RESISTOR	5000	1%	2W
	R2	1006468-009	RESISTOR	7500	1%	2W
	R3	1006468-010	RESISTOR	7500	1%	2W
	R4	1006468-010	RESISTOR	5000	1%	2W
	R5	1006468-009	RESISTOR	2500	1%	2W
A5	K1	1006947	RELAY			
	CR1	1006751-000	DIODE			
	A6	2014314-011	AMP			
	RT	MIL-R-94 RV4NAYSD 502A TYPE 2	RESISTOR	5000		3W
	T1	MIL-T-27B TYPE TF4RX11YY	TRANSFORMER			

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. Moy DATE 23 JUN 65
CHECKED [illegible] 12 AUG 65
APPROVAL D. Bryant 9/1/65
APPROVAL P. E. Burke 9/2/65
APPROVAL [illegible] 9/14/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 3/1/66

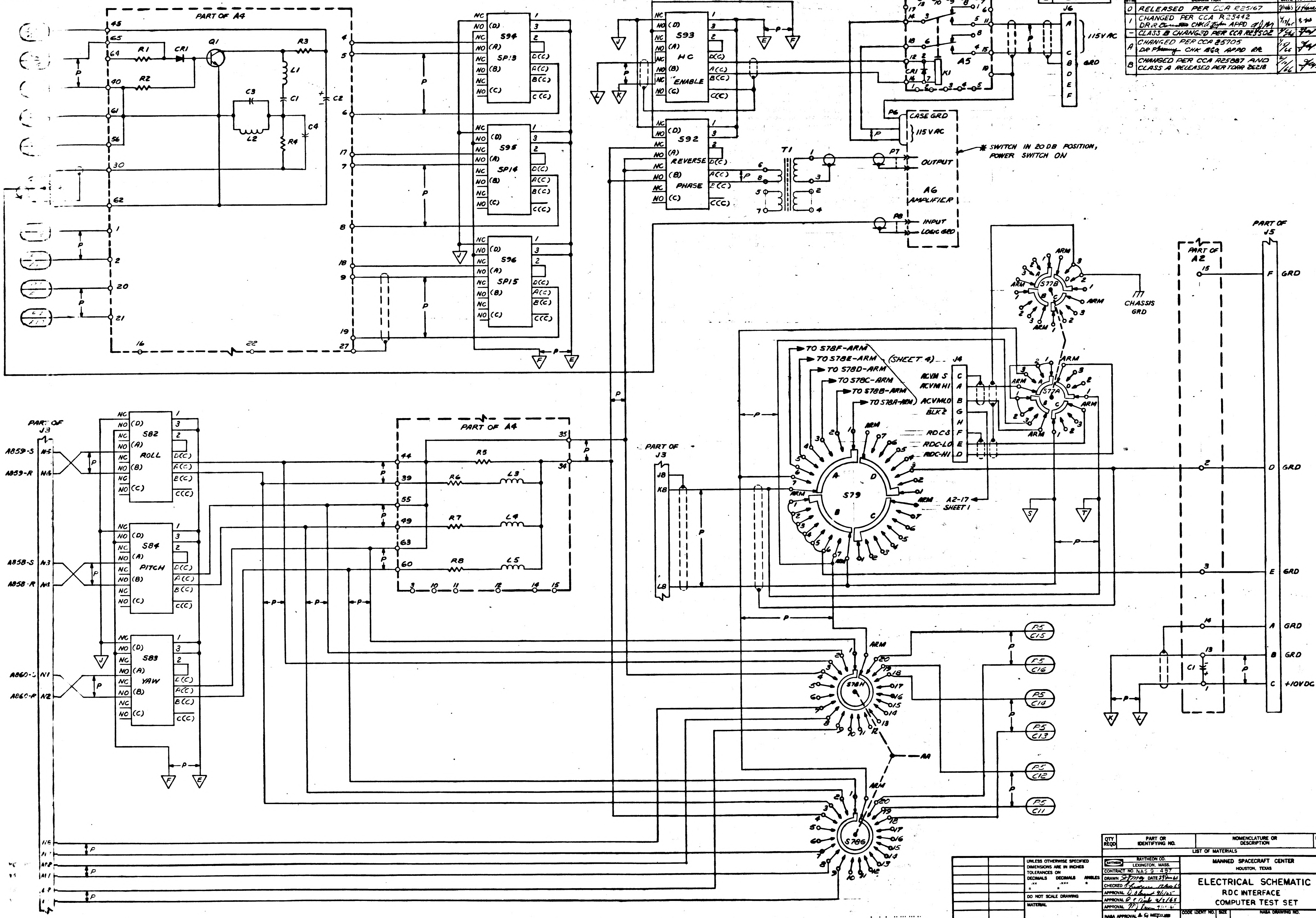
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014125
SCALE NONE
WT
SHEET 1 OF 2

2014125 L

2014125 B


PART OF A4
45
65
64
R1
CR1
Q1
R3
L1
C1
C2
C3
L2
R4
C4
40
R2
61
56
30
62
1
2
20
21
16
22
27
19
9
18
8
7
17
6
5
4
P
S94
SP13
S95
SP14
S96
SP15
NC
NO
(D)
(A)
(B)
(C)
D(C)
A(C)
B(C)
C(C)
S93
HC
ENABLE
S92
REVERSE
PHASE
T1
P7
P8
OUTPUT
INPUT
LOGIC GRD
A6
AMPLIFIER
P6
CASE GRD
115 VAC
* SWITCH IN 20 DB POSITION, POWER SWITCH ON
A5
K1
CR1
J6
115VAC
GRD
2014125 B
ARM
S77B
S77A
CHASSIS GRD
PART OF A2
PART OF J5
F GRD
D GRD
E GRD
A GRD
B GRD
C +10VDC
15
14
13
C1
TO S78F-ARM
TO S78E-ARM
(SHEET 4)
TO S78D-ARM
TO S78C-ARM
TO S78B-ARM
TO S78A-ARM
J4
ACVM S
ACVM HI
ACVM LO
BLK 2
RDC S
RDC-LO
RDC-HI
A2-17 SHEET 1
S79
PART OF J3
J8
K8
L8
PART OF J3
A859-S
A859-R
A858-S
A858-R
A860-S
A860-R
N5
N6
N3
N4
N1
N2
S82
ROLL
S84
PITCH
S83
YAW
PART OF A4
35
34
44
39
55
49
63
60
R5
R6
L3
R7
L4
R8
L5
3
10
11
12
14
15
S78H
S78G
AA
P5 C15
P5 C16
P5 C14
P5 C13
P5 C12
P5 C11
J
K
E
F
S
T
MASTER
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/14/65	
1	CHANGED PER CCA R25442 DR R CHK APPD	4/17/65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA 25705 DR CHK BGQ APPD RR	4/15/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

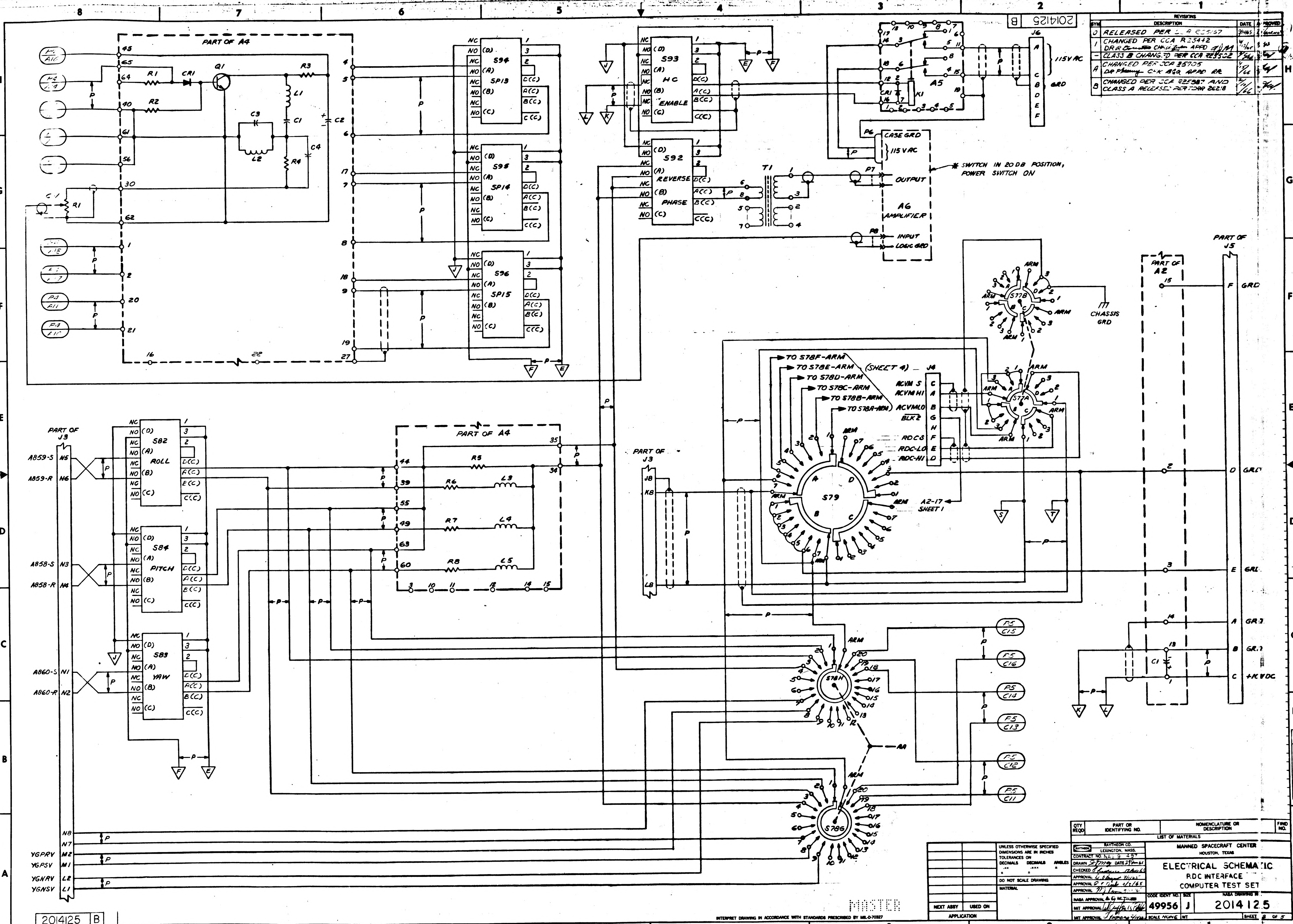
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 29 Jun 65
CHECKED 12 Aug 65
APPROVAL D. A. Bryant 9/1/65
APPROVAL 9/2/65
APPROVAL 9/1/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL 2/1/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014125
SCALE NONE
WT
SHEET 2 OF 5



PART OF A4
Q1
CR1
R1
R2
R3
R4
L1
L2
C1
C2
C3
C4
45
65
64
40
61
56
30
62
1
2
20
21
16
22
4
5
6
17
7
8
18
9
19
27
S94
SP13
S95
SP14
S96
SP15
NC
NO
(D)
(A)
(B)
(C)
D(C)
A(C)
B(C)
C(C)
S93
HC
ENABLE
S92
REVERSE
PHASE
T1
A5
K1
CR1
J6
115V AC
GRD
P6
CASE GRD
115 VAC
P7
OUTPUT
A6
AMPLIFIER
P8
INPUT
LOGIC GRD
* SWITCH IN 20 DB POSITION, POWER SWITCH ON
PART OF J5
PART OF A2
CHASSIS GRD
S77B
S77A
ARM
TO S78F-ARM
TO S78E-ARM
TO S78D-ARM
TO S78C-ARM
TO S78B-ARM
TO S78A-ARM
(SHEET 4)
J4
ACVM S
ACVM HI
ACVM LO
BLK 2
RDCS
RDC-LO
RDC-HI
S79
A2-17
SHEET 1
PART OF J3
J8
K8
L8
PART OF A4
R5
R6
R7
R8
L3
L4
L5
35
34
44
39
55
49
63
60
3
10
11
12
14
15
PART OF J3
A859-S
A859-R
A858-S
A858-R
A860-S
A860-R
N5
N6
N3
N4
N1
N2
S82
ROLL
S84
PITCH
S83
YAW
N8
N7
M2
M1
L2
L1
YGPRV
YGPSV
YGNRV
YGNSV
S78H
S78G
AA
P5 C15
P5 C16
P5 C14
P5 C13
P5 C12
P5 C11
F GRD
D GRD
E GRD
A GRD
B GRD
C +28VDC
C1
13
14
P
J
K
L
E
F
S
T

2014125 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/14/65	
1	CHANGED PER CCA R25442 DR R. CHK APPD	4/13/66	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA 35705 DR CHK BGQ APPD RR	4/15/66	
B	CHANGED PER CCA R25587 AND CLASS A RELEASED PER TDRR 26218	2/10/66	

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.

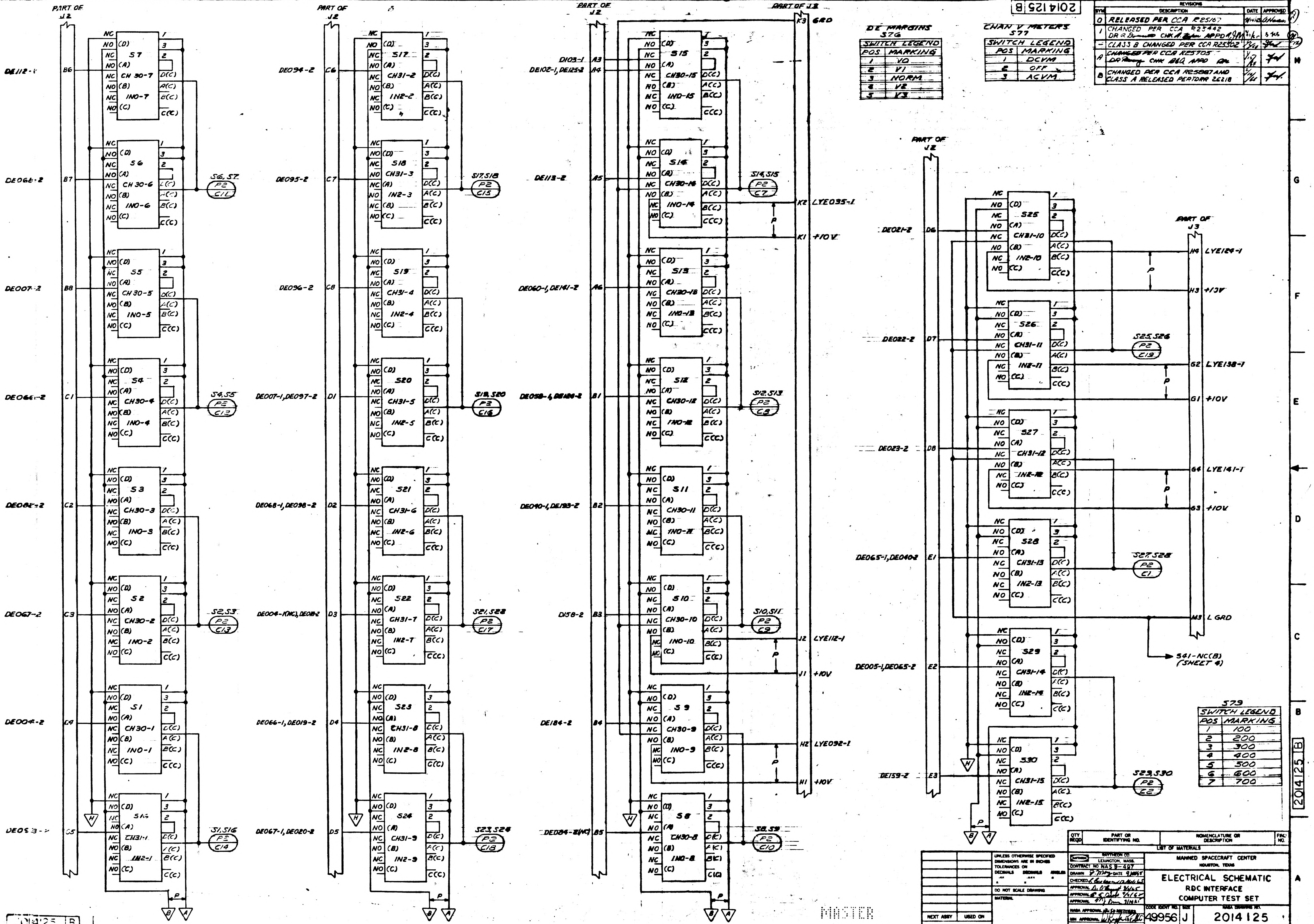
CONTRACT NO. NAS 9 497
DRAWN DATE 29 Jun 65
CHECKED 12 Aug 65
APPROVAL 9/1/65
APPROVAL 9/2/65
APPROVAL 9/1/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014125
SCALE NONE
WT
SHEET 2 OF 5

2014125 B


PART OF J2
DE112-1 B6
S7 CH30-7 IN0-7
DE066-2 B7
S6 CH30-6 IN0-6
S6,S7 P2 C11
DE007-2 B8
S5 CH30-5 IN0-5
DE064-2 C1
S4 CH30-4 IN0-4
S4,S5 P2 C12
DE082-2 C2
S3 CH30-3 IN0-3
DE067-2 C3
S2 CH30-2 IN0-2
S2,S3 P2 C13
DE004-2 C4
S1 CH30-1 IN0-1
DE053-2 C5
S16 CH31-1 IN2-1
S1,S16 P2 C14
PART OF J2
DE094-2 C6
S17 CH31-2 IN2-2
DE095-2 C7
S18 CH31-3 IN2-3
S17,S18 P2 C15
DE096-2 C8
S19 CH31-4 IN2-4
DE007-1,DE097-2 D1
S20 CH31-5 IN2-5
S19,S20 P2 C16
DE068-1,DE098-2 D2
S21 CH31-6 IN2-6
DE004-1(NC),DE018-2 D3
S22 CH31-7 IN2-7
S21,S22 P2 C17
DE066-1,DE019-2 D4
S23 CH31-8 IN2-8
DE067-1,DE020-2 D5
S24 CH31-9 IN2-9
S23,S24 P2 C18
PART OF J2
D103-1 A3
DE102-1,DE125-2 A4
S15 CH30-15 IN0-15
DE113-2 A5
S14 CH30-14 IN0-14
S14,S15 P2 C7
DE060-1,DE141-2 A6
S13 CH30-13 IN0-13
DE058-1,DE126-2 B1
S12 CH30-12 IN0-12
S12,S13 P2 C8
DE040-1,DE183-2 B2
S11 CH30-11 IN0-11
D158-2 B3
S10 CH30-10 IN0-10
S10,S11 P2 C9
DE184-2 B4
S9 CH30-9 IN0-9
DE084-2(NC) B5
S8 CH30-8 IN0-8
S8,S9 P2 C10
PART OF J3
K3 GRD
K2 LYE035-1
K1 +10V
J2 LYE112-1
J1 +10V
H2 LYE092-1
H1 +10V
PART OF J2
DE021-2 D6
S25 CH31-10 IN2-10
DE022-2 D7
S26 CH31-11 IN2-11
S25,S26 P2 C19
DE023-2 D8
S27 CH31-12 IN2-12
DE065-1,DE040-2 E1
S28 CH31-13 IN2-13
S27,S28 P2 C1
DE005-1,DE065-2 E2
S29 CH31-14 IN2-14
DE159-2 E3
S30 CH31-15 IN2-15
S29,S30 P2 C2
PART OF J3
H4 LYE124-1
H3 +10V
G2 LYE138-1
G1 +10V
G4 LYE141-1
G3 +10V
M3 L GRD
S41-NC(B) (SHEET 4)
NC
NO
(D)
(A)
(B)
(C)
1
2
3
D(C)
A(C)
B(C)
C(C)
P
A
B

2014125 B

DE MARGINS
S76

SWITCH LEGEND	
POS	MARKING
1	V0
2	V1
3	NORM
4	V2
5	V3

CHAN V METERS
S77

SWITCH LEGEND	
POS	MARKING
1	DCVM
2	OFF
3	ACVM

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/14/65	
1	CHANGED PER CCA R25442 DR CHK APPD		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 DR CHK BLQ APPD		
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TORR 26218	2/16/66	

S79

SWITCH LEGEND	
POS	MARKING
1	100
2	200
3	300
4	400
5	500
6	600
7	700

2014125 B

2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 9/14/65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIN APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

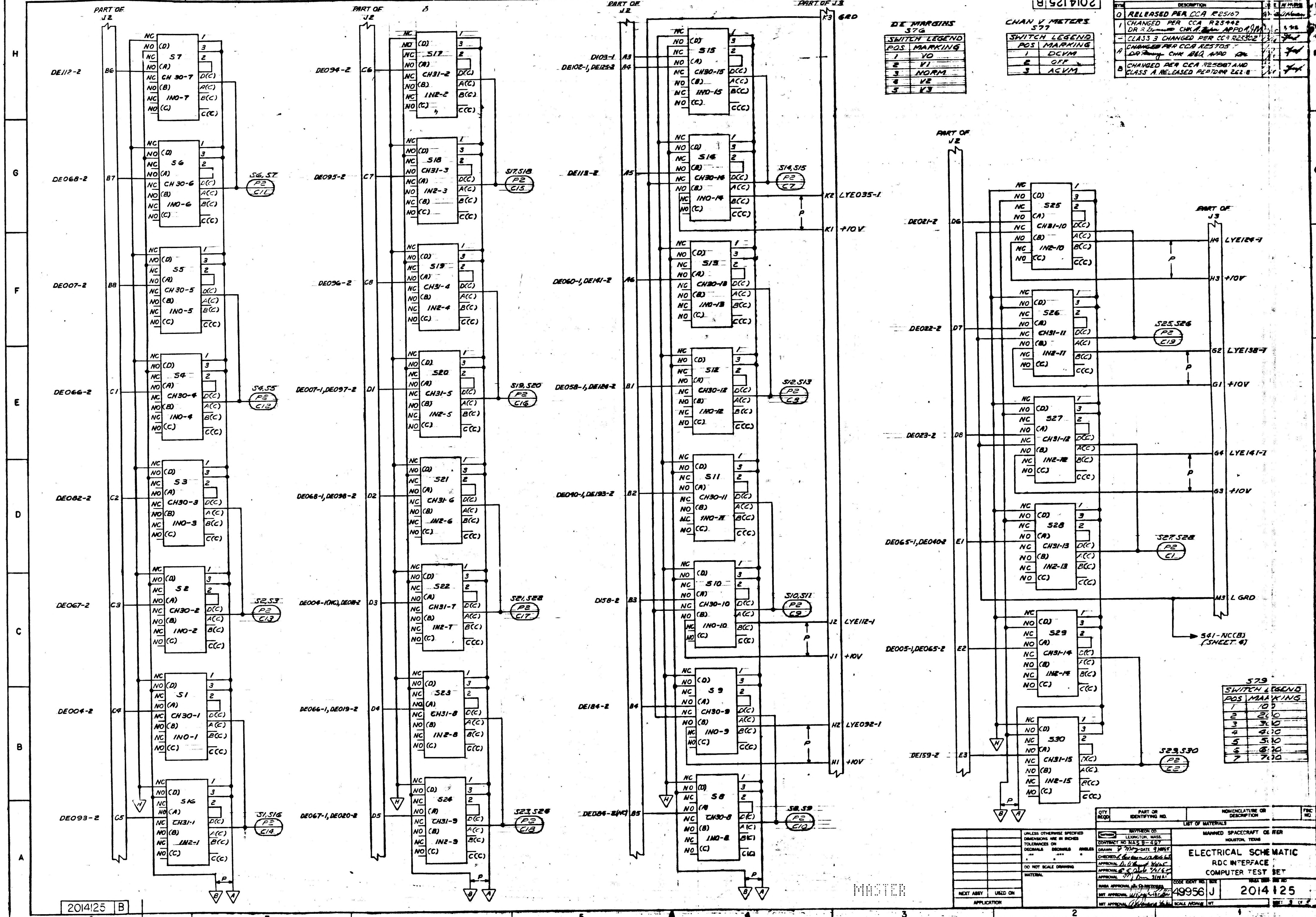
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014125
SCALE NONE
WT
SHEET 3 OF 5

MASTER

2014125 B

2014152

E2


PART OF J2
DE112-2 B6
S7 CH30-7 IN0-7
DE068-2 B7
S6 CH30-6 IN0-6
S6,S7 P2 C11
DE007-2 B8
S5 CH30-5 IN0-5
DE066-2 C1
S4 CH30-4 IN0-4
S4,S5 P2 C12
DE082-2 C2
S3 CH30-3 IN0-3
DE067-2 C3
S2 CH30-2 IN0-2
S2,S3 P2 C13
DE004-2 C4
S1 CH30-1 IN0-1
DE093-2 C5
S16 CH31-1 IN2-1
S1,S16 P2 C14
NC NO (D) (A) (B) (C)
1 3 2 D(C) A(C) B(C) C(C)
P
B A H
PART OF J2
DE094-2 C6
S17 CH31-2 IN2-2
DE095-2 C7
S18 CH31-3 IN2-3
S17,S18 P2 C15
DE096-2 C8
S19 CH31-4 IN2-4
DE007-1,DE097-2 D1
S20 CH31-5 IN2-5
S19,S20 P2 C16
DE068-1,DE098-2 D2
S21 CH31-6 IN2-6
DE004-1(NC),DE018-2 D3
S22 CH31-7 IN2-7
S21,S22 P2 C17
DE066-1,DE019-2 D4
S23 CH31-8 IN2-8
DE067-1,DE020-2 D5
S24 CH31-9 IN2-9
S23,S24 P2 C18
PART OF J2
PART OF J3
K3 GRD
D103-1 A3
DE102-1,DE125-2 A4
S15 CH30-15 IN0-15
DE113-2 A5
S14 CH30-14 IN0-14
S14,S15 P2 C7
K2 LYE035-1
K1 +10V
DE060-1,DE141-2 A6
S13 CH30-13 IN0-13
DE058-1,DE124-2 B1
S12 CH30-12 IN0-12
S12,S13 P2 C8
DE040-1,DE193-2 B2
S11 CH30-11 IN0-11
D158-2 B3
S10 CH30-10 IN0-10
S10,S11 P2 C9
J2 LYE112-1
J1 +10V
DE184-2 B4
S9 CH30-9 IN0-9
H2 LYE092-1
H1 +10V
DE084-2(NC) B5
S8 CH30-8 IN0-8
S8,S9 P2 C10
PART OF J2
DE021-2 D6
S25 CH31-10 IN2-10
PART OF J3
H4 LYE124-1
H3 +10V
DE022-2 D7
S26 CH31-11 IN2-11
S25,S26 P2 C19
G2 LYE138-1
G1 +10V
DE023-2 D8
S27 CH31-12 IN2-12
G4 LYE141-1
G3 +10V
DE065-1,DE040-2 E1
S28 CH31-13 IN2-13
S27,S28 P2 C1
M3 L GRD
S41-NC(B) (SHEET 4)
DE005-1,DE065-2 E2
S29 CH31-14 IN2-14
DE159-2 E3
S30 CH31-15 IN2-15
S29,S30 P2 C2
MASTER
8 7 6 5 4 3 2 1
H G F E D C B A

DE MARGINS
S76

SWITCH LEGEND	
POS	MARKING
1	V0
2	V1
3	NORM
4	V2
5	V3

CHAN V METERS
S77

SWITCH LEGEND	
POS	MARKING
1	DCVM
2	OFF
3	ACVM

S79

SWITCH LEGEND	
POS	MARKING
1	100
2	200
3	300
4	400
5	500
6	600
7	700

REVISIONS

SYM	DESCRIPTION			APPROVED
0	RELEASED PER CCA R25167			
1	CHANGED PER CCA R25442 DR R Bennett CHK A. Tuten APPD A.J.M.			
–	CLASS 3 CHANGED PER CCA R25302			
A	CHANGED PER CCA R25705 DR Massey CHK BEQ APPD			
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 2628			

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION		FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

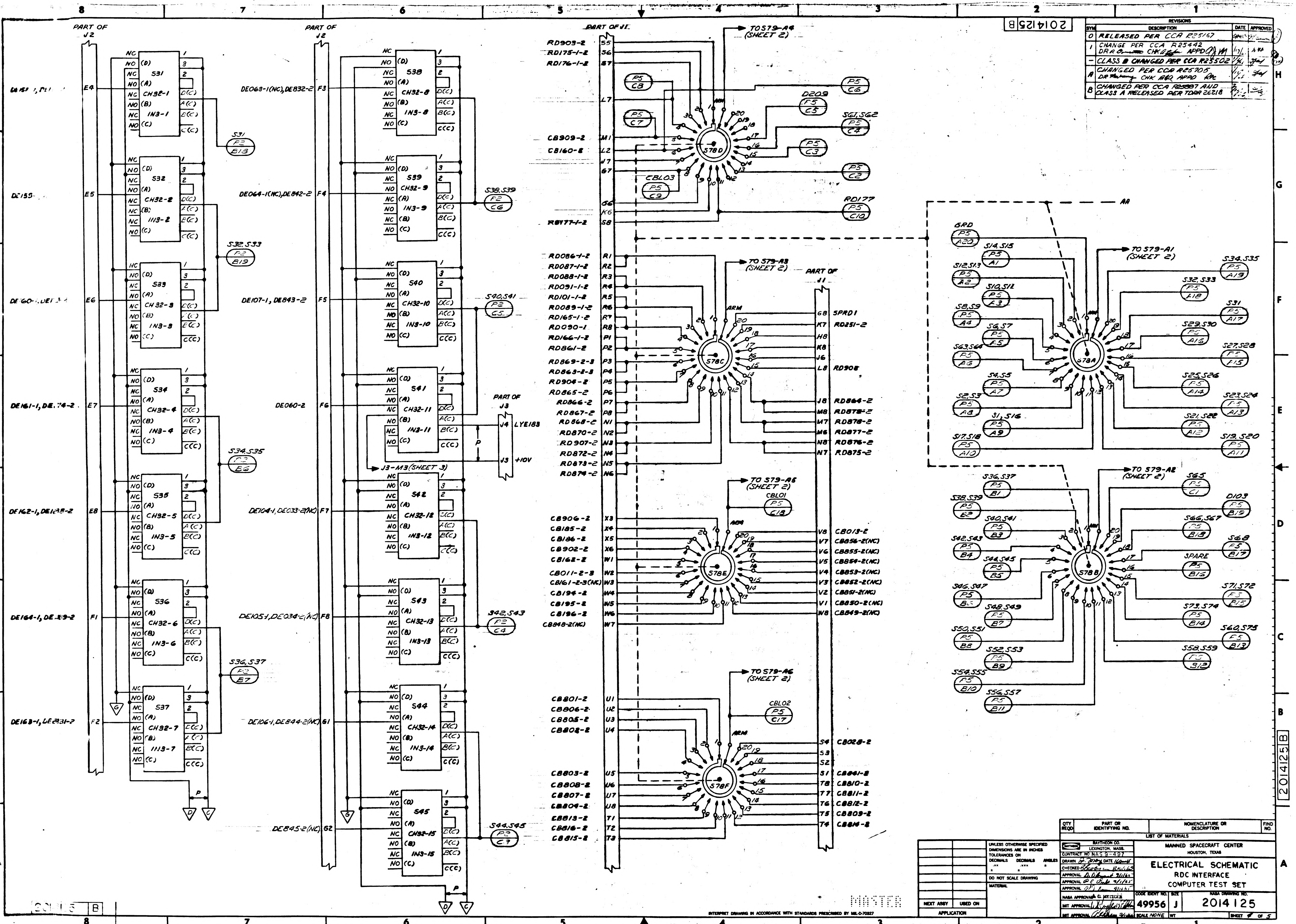
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN J. May DATE 9/10/65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DWG NO 2014125
SCALE NONE
WT
SHEET 3 OF 6


PART OF J2
S31
CH32-1
IN3-1
S32
CH32-2
S33
CH32-3
S34
CH32-4
S35
CH32-5
S36
CH32-6
S37
CH32-7
S38
CH32-8
IN3-8
S39
CH32-9
IN3-9
S40
CH32-10
IN3-10
S41
CH32-11
IN3-11
S42
CH32-12
IN3-12
S43
CH32-13
IN3-13
S44
CH32-14
IN3-14
S45
CH32-15
IN3-15
NC
NO
(D)
(A)
(B)
(C)
D(C)
A(C)
B(C)
C(C)
E4
E5
E6
E7
E8
F1
F2
F3
F4
F5
F6
F7
F8
G1
G2
DE068-1(NC),DE832-2
DE064-1(NC),DE842-2
DE107-1,DE843-2
DE060-2
DE104-1,DE033-2(NC)
DE105-1,DE034-2(NC)
DE106-1,DE844-2(NC)
DE845-2(NC)
DE161-1,DE174-2
DE162-1
DE164-1
DE163-1
S31 P2 B13
S32,S33 P2 B19
S34,S35 P2 B6
S36,S37 P2 B7
S38,S39 P2 C6
S40,S41 P2 C5
S42,S43 P2 C4
S44,S45 P2 C7
PART OF J3
J4 LYE183
J3 +10V
J3-M3 (SHEET 3)
P
PART OF J1
TO S79-A4 (SHEET 2)
TO S79-A3 (SHEET 2)
TO S79-A6 (SHEET 2)
TO S79-A1 (SHEET 2)
TO S79-A2 (SHEET 2)
S78D
S78C
S78E
S78F
S78A
S78B
ARM
RD903-2
RD175-1-2
RD176-1-2
CB909-2
CB160-2
RB177-1-2
CBL03 P5 C9
P5 C8
P5 C7
P5 C6
D209 P5 C5
S61,S62 P5 C4
P5 C3
P5 C2
RD177 P5 C10
RD086-1-2
RD087-1-2
RD088-1-2
RD091-1-2
RD101-1-2
RD089-1-2
RD165-1-2
RD090-1
RD166-1-2
RD861-2
RD869-2-3
RD863-2-3
RD904-2
RD865-2
RD866-2
RD867-2
RD868-2
RD870-2
RD907-2
RD872-2
RD873-2
RD874-2
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RD251-2
RD908
RD864-2
RD878-2
RD876-2
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CB661-2
CB810-2
CB811-2
CB812-2
CB809-2
CB814-2
AA
GRD P5 A20
S14,S15 P5 A1
S12,S13 P5 A2
S10,S12 P5 A3
S8,S9 P5 A4
S6,S7 P5 A5
S63,S64 P5 A6
S4,S5 P5 A7
S2,S3 P5 A8
S1,S16 P5 A9
S17,S18 P5 A10
S34,S35 P5 A19
S32,S33 P5 A18
S31 P5 A17
S29,S30 P5 A16
S27,S28 P5 A15
S25,S26 P5 A14
S23,S24 P5 A13
S21,S22 P5 A12
S19,S20 P5 A11
S36,S37 P5 B1
S38,S39 P5 B2
S40,S41 P5 B3
S42,S43 P5 B4
S44,S45 P5 B5
S46,S47 P5 B6
S48,S49 P5 B7
S50,S51 P5 B8
S52,S53 P5 B9
S54,S55 P5 B10
S56,S57 P5 B11
S65 P5 C1
D103 P5 B19
S66,S67 P5 B18
S68 P5 B17
SPARE P5 B16
S71,S72 P5 B15
S73,S74 P5 B14
S60,S75 P5 B13
S58,S59 P5 B12
2014125 B
2H

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167		
1	CHANGE PER CCA R25442 DR CHK APPD	1/17/6	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 DR CHK APPD		
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE
CHECKED
APPROVAL 9/1/65
APPROVAL 9/1/65
APPROVAL
NASA APPROVAL O. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

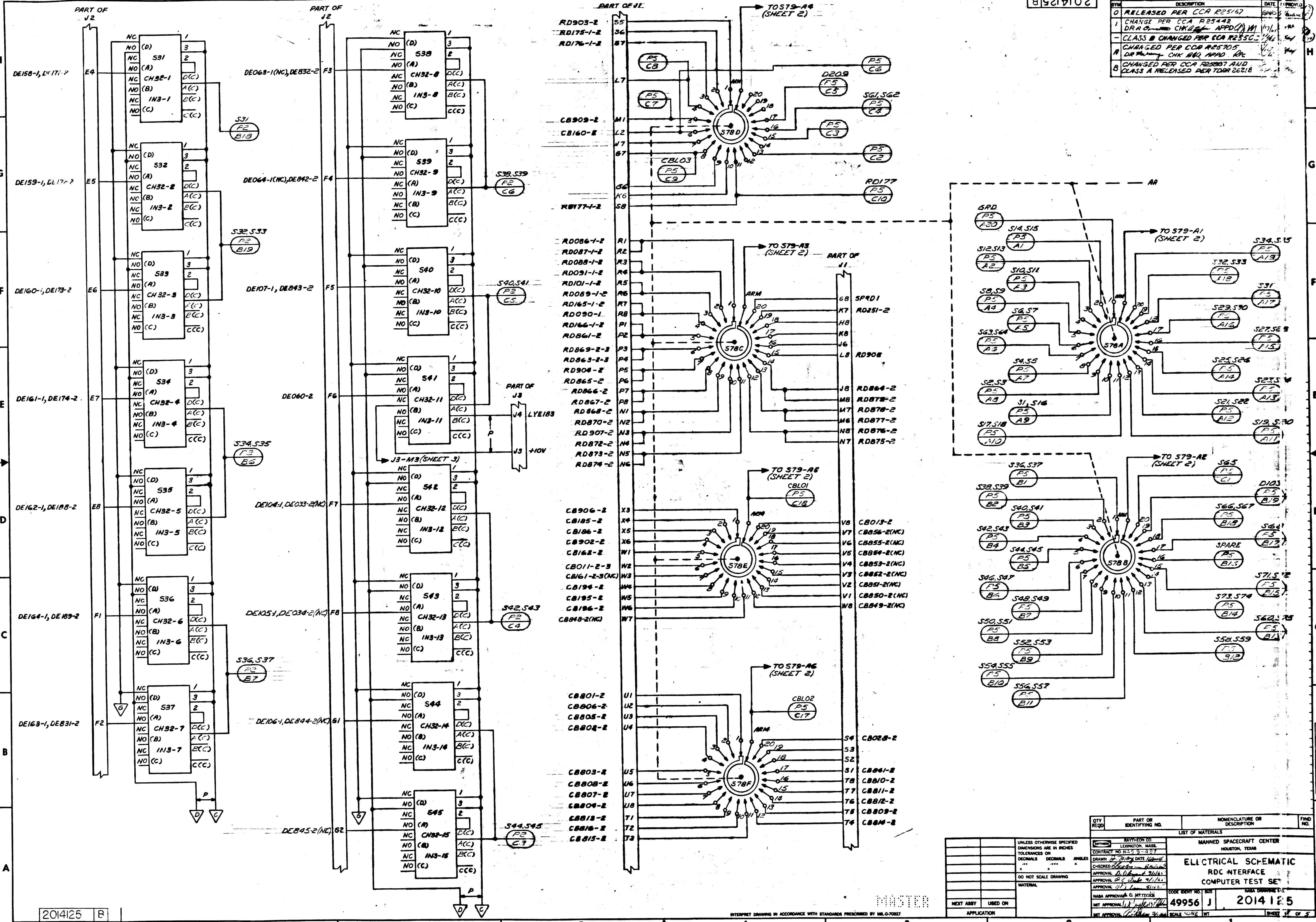
ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014125
SCALE NONE
WT
SHEET 4 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	[illegible]	[illegible]
1	CHANGE PER CCA R25442 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R255C	[illegible]	[illegible]
A	CHANGED PER CCA R25705 DR [illegible] CHK BCQ APPD RPC	[illegible]	[illegible]
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	[illegible]	[illegible]



PART OF J2
PART OF J1
PART OF J3
S31 CH32-1 IN3-1
S32 CH32-2 IN3-2
S33 CH32-3 IN3-3
S34 CH32-4 IN3-4
S35 CH32-5 IN3-5
S36 CH32-6 IN3-6
S37 CH32-7 IN3-7
S38 CH32-8 IN3-8
S39 CH32-9 IN3-9
S40 CH32-10 IN3-10
S41 CH32-11 IN3-11
S42 CH32-12 IN3-12
S43 CH32-13 IN3-13
S44 CH32-14 IN3-14
S45 CH32-15 IN3-15
DE158-1, DE171-2
DE159-1, DE172-2
DE160-1, DE173-2
DE161-1, DE174-2
DE162-1, DE188-2
DE164-1, DE189-2
DE163-1, DE831-2
DE063-1(NC), DE832-2
DE064-1(NC), DE842-2
DE107-1, DE843-2
DE060-2
DE104-1, DE033-2(NC)
DE105-1, DE034-2(NC)
DE106-1, DE844-2(NC)
DE845-2(NC)
J4 LYE183
J3 +10V
J3-M3 (SHEET 3)
S78D
S78C
S78E
S78F
S78A
S78B
ARM
TO S79-A4 (SHEET 2)
TO S79-A3 (SHEET 2)
TO S79-A5 (SHEET 2)
TO S79-A6 (SHEET 2)
TO S79-A1 (SHEET 2)
TO S79-A2 (SHEET 2)
RD903-2
RD175-1-2
RD176-1-2
CB909-2
CB160-2
RB177-1-2
RD177
D209
S61, S62
CBL03
CBL01
CBL02
RD086-1-2
RD087-1-2
RD088-1-2
RD091-1-2
RD101-1-2
RD089-1-2
RD165-1-2
RD090-1
RD166-1-2
RD861-2
RD869-2-3
RD863-2-3
RD904-2
RD865-2
RD866-2
RD867-2
RD868-2
RD870-2
RD907-2
RD872-2
RD873-2
RD874-2
SPRD1
RD251-2
RD908
RD864-2
RD878-2
RD876-2
RD877-2
RD875-2
CB906-2
CB185-2
CB186-2
CB902-2
CB162-2
CB011-2-3
CB161-2-3(NC)
CB194-2
CB195-2
CB196-2
CB848-2(NC)
CB013-2
CB856-2(NC)
CB855-2(NC)
CB854-2(NC)
CB853-2(NC)
CB852-2(NC)
CB851-2(NC)
CB850-2(NC)
CB849-2(NC)
CB801-2
CB806-2
CB805-2
CB802-2
CB803-2
CB808-2
CB807-2
CB804-2
CB813-2
CB816-2
CB815-2
CB028-2
CB841-2
CB810-2
CB811-2
CB812-2
CB809-2
CB814-2
GRD
SPARE
AA
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

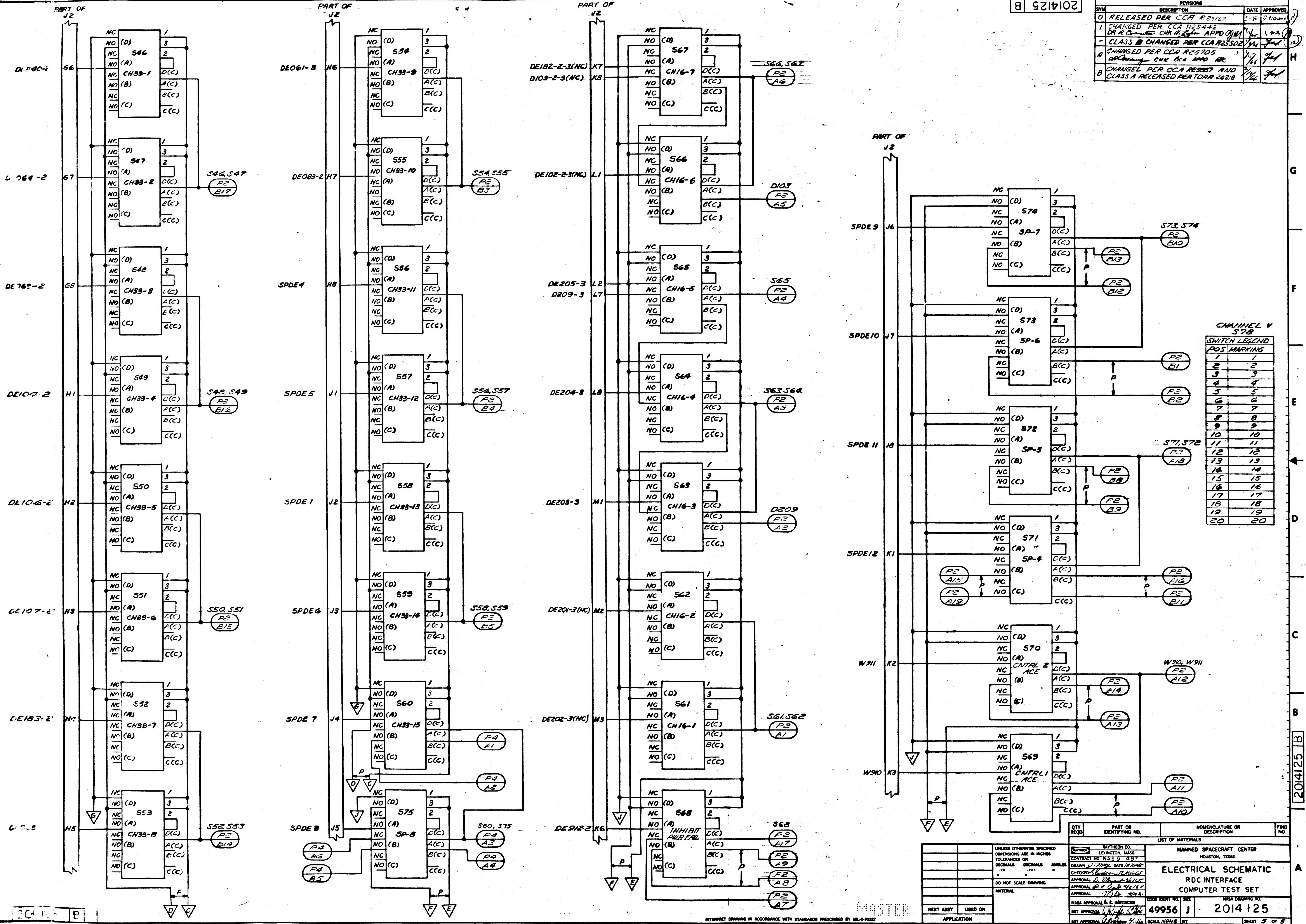
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL D. O'Bryant 9/1/65
APPROVAL [illegible] 9/1/65
APPROVAL [illegible]
NASA APPROVAL A. O. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014125
SCALE NONE
WT
SHEET 2 OF 5


PART OF J2
DI P40-2
G6
S46
CH33-1
L 064-2
G7
S47
CH33-2
S46, S47
P2 B17
DE 062-2
G8
S48
CH33-3
DE107-2
H1
S49
CH33-4
S48, S49
P2 B16
DL106-2
H2
S50
CH33-5
DE107-2
H3
S51
CH33-6
S50, S51
P2 B15
DE183-2
H4
S52
CH33-7
H5
S53
CH33-8
S52, S53
P2 B14
NC
NO
(A)
(B)
(C)
(D)
D(C)
A(C)
B(C)
C(C)
P
D
E
F
G
PART OF J2
DE061-3
H6
S54
CH33-9
DE083-2
H7
S55
CH33-10
S54, S55
P2 B3
SPDE4
H8
S56
CH33-11
SPDE5
J1
S57
CH33-12
S56, S57
P2 B4
SPDE1
J2
S58
CH33-13
SPDE6
J3
S59
CH33-14
S58, S59
P2 B5
SPDE 7
J4
S60
CH33-15
P4 A1
P4 A2
SPDE 8
J5
S75
SP-8
S60, S75
P4 A3
P4 A4
P4 A6
P4 A5
PART OF J2
DE182-2-3(NC)
K7
D103-2-3(NC)
K8
S67
CH16-7
S66, S67
P2 A6
DE102-2-3(NC)
L1
S66
CH16-6
D103
P2 A5
DE205-3
L2
D209-3
L7
S65
CH16-5
S65
P2 A4
DE204-3
L8
S64
CH16-4
S63, S64
P2 A3
DE203-3
M1
S63
CH16-3
D209
P2 A2
DE201-3(NC)
M2
S62
CH16-2
DE202-3(NC)
M3
S61
CH16-1
S61, S62
P2 A1
DE912-2
K6
S68
INHIBIT PWR FAIL
S68
P2 A17
P2 A9
P2 A8
P2 A7
PART OF J2
SPDE 9
J6
S74
SP-7
S73, S74
P2 B10
P2 B13
P2 B12
SPDE10
J7
S73
SP-6
P2 B1
P2 B2
SPDE 11
J8
S72
SP-5
S71, S72
P2 A18
P2 B8
P2 B9
SPDE12
K1
S71
SP-4
P2 A15
P2 A19
P2 A16
P2 B11
W911
K2
S70
CNTRL 2 ACE
W910, W911
P2 A12
P2 A14
P2 A13
W910
K3
S69
CNTRL1 ACE
P2 A11
P2 A10
8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
2014125 B
2H

CHANNEL V S78

SWITCH LEGEND	
POS	MARKING
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	8/11/65	G. Clarano
1	CHANGED PER CCA R25442 DR R. Ormando CHK A. Zipher APPD	9/17/65	
-	CLASS B CHANGED PER CCA R25502	1/4/66	
A	CHANGED PER CCA R25705 DR CHK BCA APPD	1/15/66	
B	CHANGEL PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 JUNE 65
CHECKED 12 AUG 65
APPROVAL D. D'Bryant 9/1/65
APPROVAL 9/2/65
APPROVAL 9/14/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 2/11/66

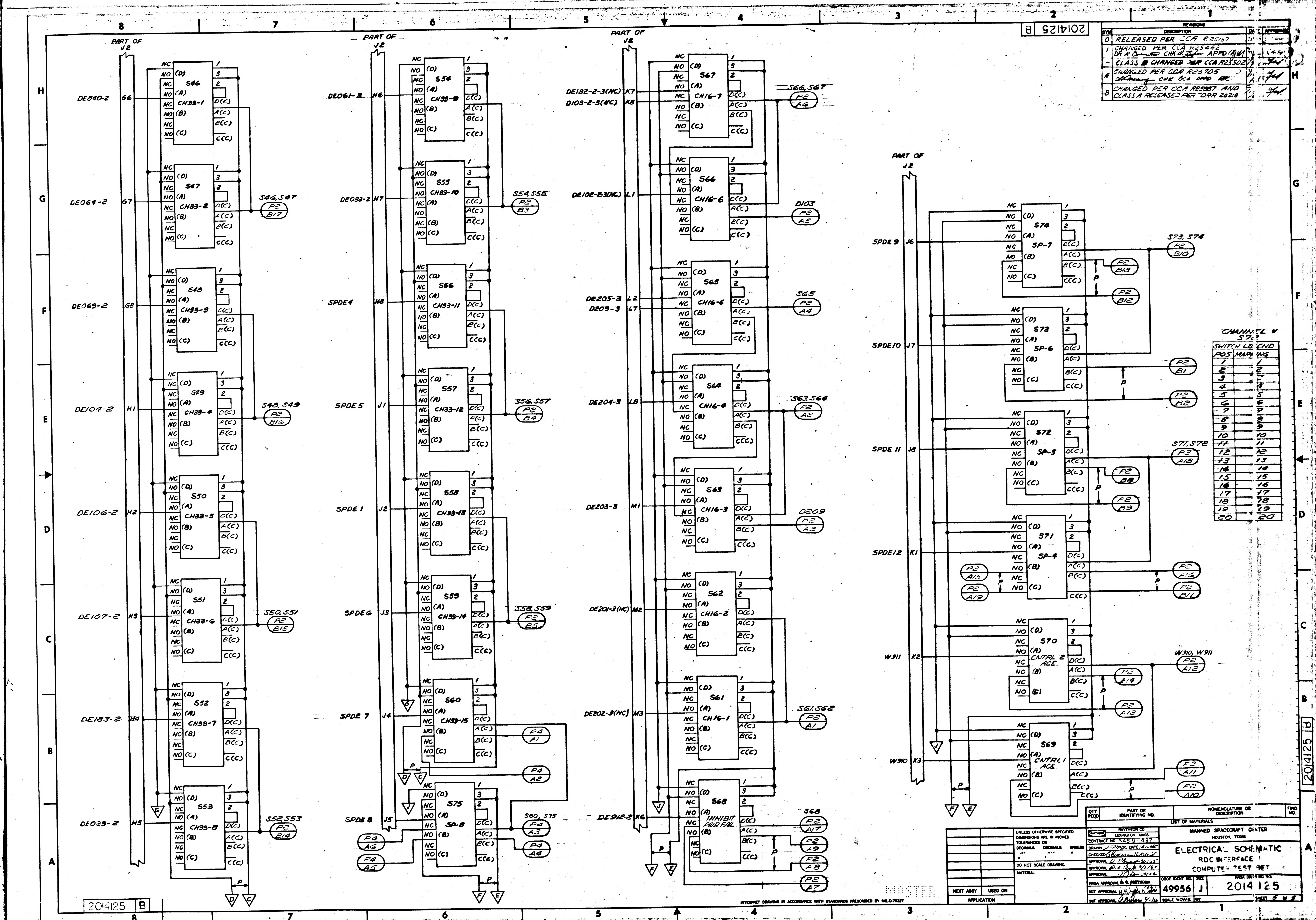
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014125
SCALE NONE
WT
SHEET 5 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER


PART OF J2
DE840-2 G6
DE064-2 G7
DE069-2 G8
DE104-2 H1
DE106-2 H2
DE107-2 H3
DE183-2 H4
DE039-2 H5
S46 CH33-1
S47 CH33-2
S48 CH33-3
S49 CH33-4
S50 CH33-5
S51 CH33-6
S52 CH33-7
S53 CH33-8
S46, S47 P2 B17
S48, S49 P2 B16
S50, S51 P2 B15
S52, S53 P2 B14
DE061-2 H6
DE083-2 H7
SPDE4 H8
SPDE 5 J1
SPDE 1 J2
SPDE 6 J3
SPDE 7 J4
SPDE 8 J5
S54 CH33-9
S55 CH33-10
S56 CH33-11
S57 CH33-12
S58 CH33-13
S59 CH33-14
S60 CH33-15
S75 SP-8
S54, S55 P2 B3
S56, S57 P2 B4
S58, S59 P2 B5
P4 A1
P4 A2
S60, S75 P4 A3
P4 A4
P4 A6
P4 A5
DE182-2-3(NC) K7
D103-2-3(NC) K8
DE102-2-3(NC) L1
DE205-3 L2
D209-3 L7
DE204-3 L8
DE203-3 M1
DE201-3(NC) M2
DE202-3(NC) M3
DE912-2 K6
S67 CH16-7
S66 CH16-6
S65 CH16-5
S64 CH16-4
S63 CH16-3
S62 CH16-2
S61 CH16-1
S68 INHIBIT PWR FAIL
S66, S67 P2 A6
D103 P2 A5
S65 P2 A4
S63, S64 P2 A3
D209 P2 A2
S61, S62 P2 A1
S68 P2 A17
P2 A9
P2 A8
P2 A7
SPDE 9 J6
SPDE10 J7
SPDE 11 J8
SPDE12 K1
W911 K2
W910 K3
S74 SP-7
S73 SP-6
S72 SP-5
S71 SP-4
S70 CNTRL 2 ACE
S69 CNTRL 1 ACE
S73, S74 P2 B10
P2 B13
P2 B12
P2 B1
P2 B2
S71, S72 P3 A18
P2 B8
P2 B9
P2 A15
P2 A19
P2 A16
P2 B11
W910, W911 P2 A12
P2 A14
P2 A13
F3 A11
F2 A10
NC
NO
(A)
(B)
(C)
(D)
D(C)
A(C)
B(C)
C(C)
P
D
C
E
F
G
J
8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
MASTER
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014125 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167		
1	CHANGED PER CCA R25442 DR R. [illegible] CHK A. [illegible] APPD [illegible]		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 DR [illegible] CHK BCA APPD [illegible]		
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218		

CHANNEL V S76

SWITCH LEGEND	
POS	MARKING
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 12 AUG 65
CHECKED [illegible] 12 AUG 65
APPROVAL D. D'Argent 9/1/65
APPROVAL P. E. Bush 9/2/65
APPROVAL [illegible] 9/14/65
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 9/1/66

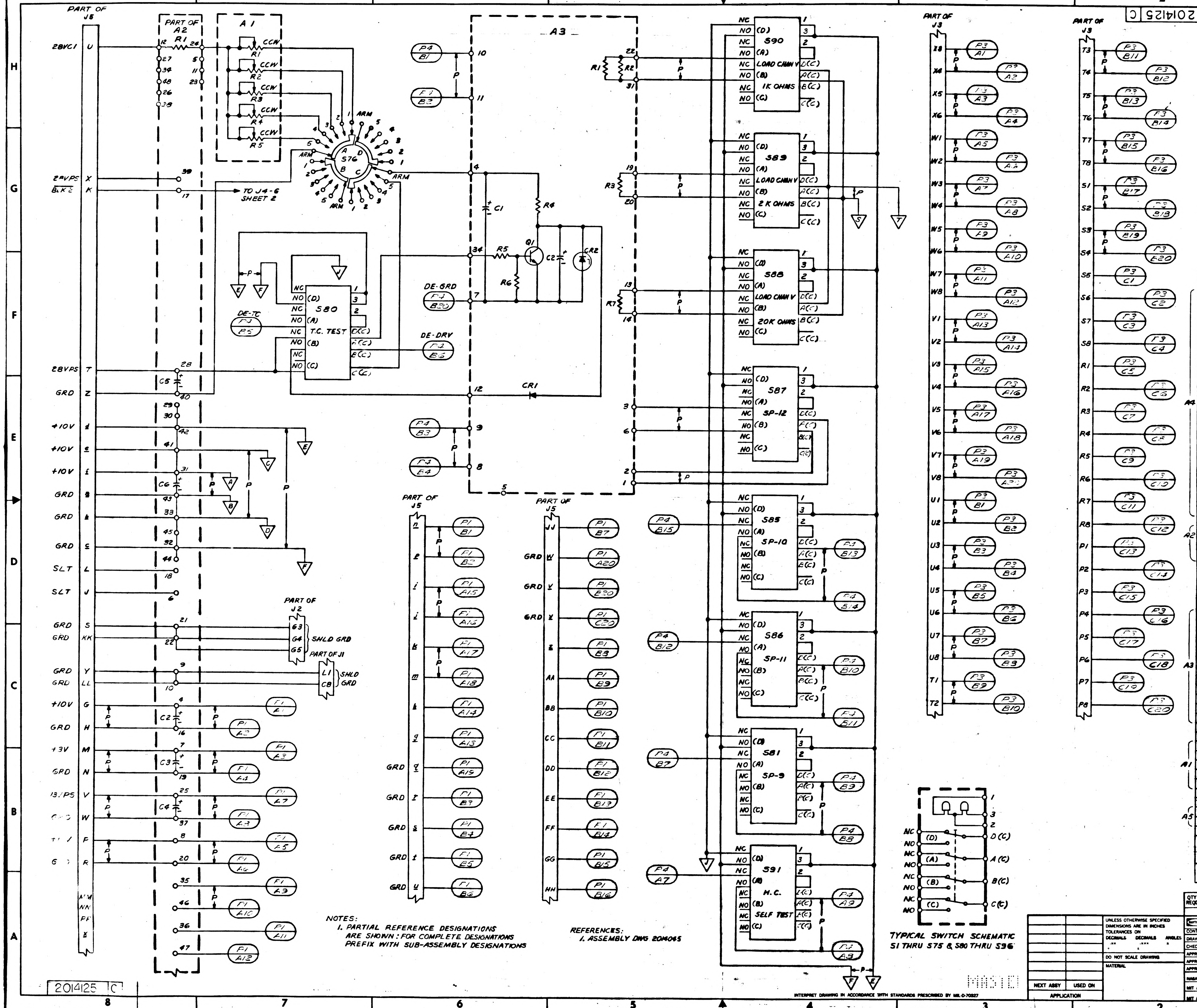
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE I
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014125
SCALE NONE
WT
SHEET 5 OF 5

2014125 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25/67		
1	CHANGED PER CCA R 25442 DR R. CHK APPD	4/ /65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 DR CHK BBQ APPD RC	1/15/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TCRR 26218	2/10/66	
C	CHANGED PER TDRR 23453 DR. A.J. Green CHK APPD RCD		



NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCES:
1. ASSEMBLY DWG 2014045

TYPICAL SWITCH SCHEMATIC
S1 THRU S75 & S80 THRU S96

FOR REFERENCE ONLY						
	REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
A4	R1	1006760-16	RESISTOR	220	2%	1/2W
	R2	1006760-25	RESISTOR	510	2%	1/2W
	R3	1006760-32	RESISTOR	1000	2%	1/2W
	R4	1006760-56	RESISTOR	10K	2%	1/2W
	R5	1006760-5	RESISTOR	75	2%	1/2W
	R6	1006760-1	RESISTOR	51	2%	1/2W
	R7	1006760-1	RESISTOR	51	2%	1/2W
	R8	1006760-1	RESISTOR	51	2%	1/2W
	C1	1010316-13	CAPACITOR	.01UF		100VDC
	C2	1006755-89	CAPACITOR	47UF		35VDC
	C3	1010316-21	CAPACITOR	.047UF		100VDC
	L1	1006493-007	INDUCTOR	4.0HYS	3%	
	L2	1006493-005	INDUCTOR	1.4HYS	3%	
	L3	1006493-003	INDUCTOR	0.4HYS	3%	
	L4	1006493-003	INDUCTOR	0.4HYS	3%	
	L5	1006493-003	INDUCTOR	0.4HYS	3%	
	CR1	1006751-000	DIODE			
	Q1	1006752	TRANSISTOR			
	C4	1010316-14	CAPACITOR	.012uf		100VDC
A2	R1	1010389-49	RESISTOR	510	1%	3W
	C1,C2,C3, C4,C6	1006755-89	CAPACITOR	47UF		35VDC
	C5	1006755-133	CAPACITOR	18UF		50VDC
	J1,J2,J3	1006671	CONN.			
	J4	MS3120F-16-8P	CONN.			
	J5	MS3120F-22-61P	CONN.			
	J6	MS3120F-10-6P	CONN.			
A3	R1	1010452-184	RESISTOR	2000	1%	1W
	R2	1010452-184	RESISTOR	2000	1%	1W
	R3	1010452-184	RESISTOR	2000	1%	1W
	R4	1010452-184	RESISTOR	2000	1%	1W
	R5	1006760-	RESISTOR	51	2%	1/2W
	R6	1006760-32	RESISTOR	1K	2%	1/2W
	R7	1010452-251	RESISTOR	10K	1%	1W
	C1	1006755-89	CAPACITOR	47UF		35VDC
	C2	1010316-21	CAPACITOR	.047UF		100VDC
	CR1	1006751-000	DIODE			
	CR2	1010830-15	DIODE			
	Q1	1006759	TRANSISTOR			
A1	R1	1006468-008	RESISTOR	5000	1%	2W
	R2	1006468-009	RESISTOR	7500	1%	2W
	R3	1006468-010	RESISTOR	7500	1%	2W
	R4	1006468-010	RESISTOR	5000	1%	2W
	R5	1006468-009	RESISTOR	2500	1%	2W
A5	K1	1006947	RELAY			
	CR1	1006751-000	DIODE			
	A6	2014314-011	AMP			
	R1	MIL-R-94 RV4NAYSD 502A TYPE 2	RESISTOR	5000		2W
	T1	MIL-T-27B TYPE TF4RX17YY	TRANSFORMER			

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-
DRAWN J. Moy DATE 23 JUN 65
CHECKED 12 AUG 65
APPROVAL
APPROVAL P. E. Burke 9/2/65
APPROVAL 9/14/65
NASA APPROVAL & C. METZGER
MIT APPROVAL
MIT APPROVAL

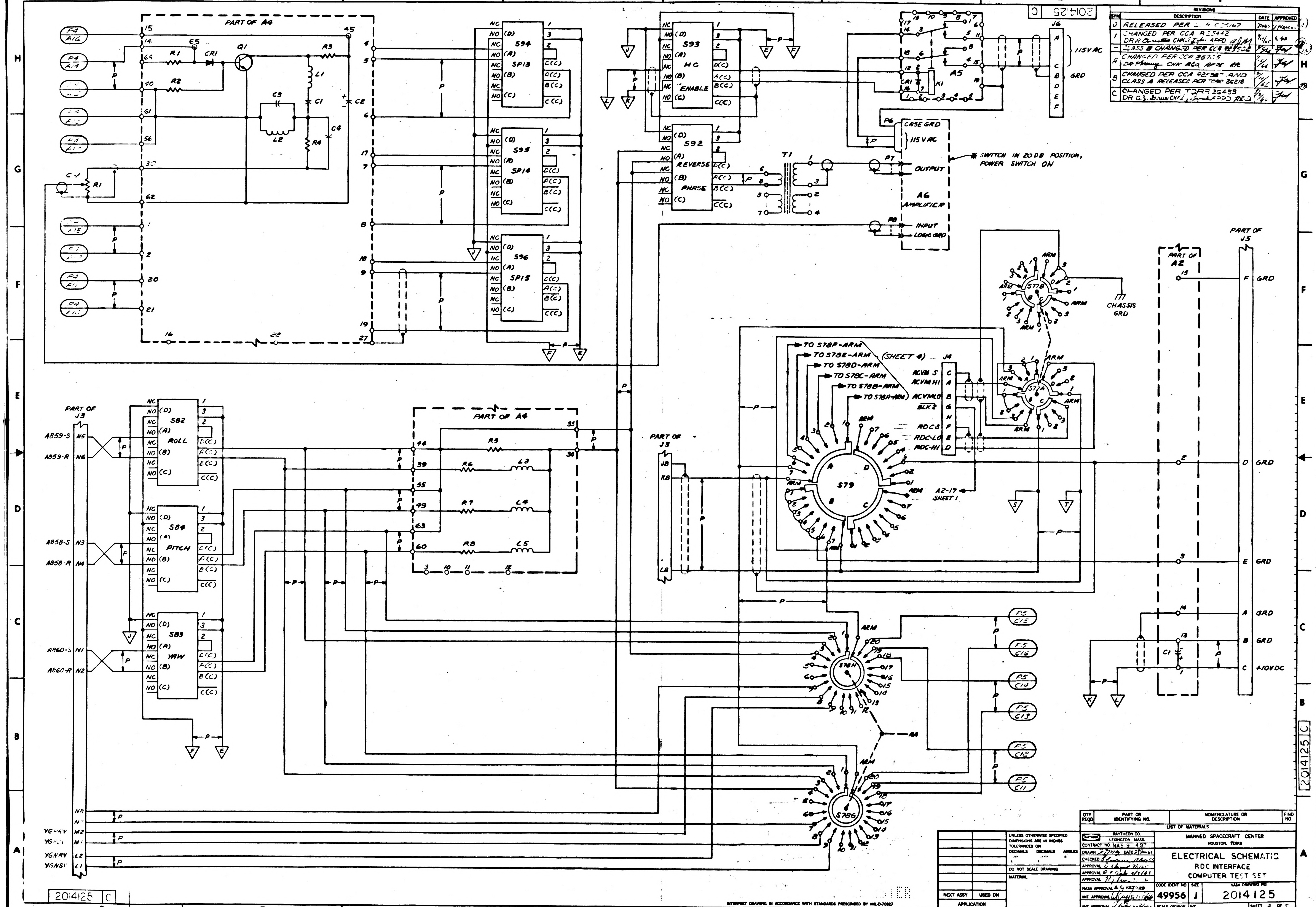
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014125
SCALE NONE	WT	SHEET 1 OF 5

2014125 C

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327



PART OF A4
Q1
CR1
R1
R2
R3
L1
L2
C1
C2
C3
C4
R4
C-1
S94
SP13
S95
SP14
S96
SP15
S93
HC
ENABLE
S92
REVERSE
PHASE
T1
A5
K1
J6
115 VAC
GRD
P6
CASE GRD
P7
OUTPUT
A6
AMPLIFIER
P8
INPUT
LOGIC GRD
SWITCH IN 20 DB POSITION, POWER SWITCH ON
S77B
S77A
ARM
CHASSIS GRD
PART OF A2
PART OF J5
TO S78F-ARM
TO S78E-ARM
TO S78D-ARM
TO S78C-ARM
TO S78B-ARM
TO S78A-ARM
(SHEET 4)
J4
ACVM S
ACVM HI
ACVM LO
BLK 2
RDC S
RDC-LO
RDC-HI
S79
A2-17 SHEET 1
PART OF J3
S82
ROLL
S84
PITCH
S83
YAW
A859-S
A859-R
A858-S
A858-R
A860-S
A860-R
R5
R6
R7
R8
L3
L4
L5
S78H
S78G
AA
P5 C15
P5 C16
P5 C14
P5 C13
P5 C12
P5 C11
YGPRV
YGPSV
YGNRV
YGNSV
+10VDC

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	7/14/65	J Naumann
1	CHANGED PER CCA R25442 DR R. Cornutt CHK J. Zeifer APPD AJM	4/17/65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA 25705 DR Pheeney CHK BGQ APPD RR	4/15/66	
B	CHANGED PER CCA R25587 AND CLASS A RELEASED PER TDRR 26218	2/10/66	
C	CHANGED PER TDRR 26453 DR G.J. Brown CHK APPD RED	8/3/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

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DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN DATE 29 Jun 65
CHECKED
APPROVAL 9/1/65
APPROVAL 9/2/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014125
SCALE NONE
WT
SHEET 2 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014125 C

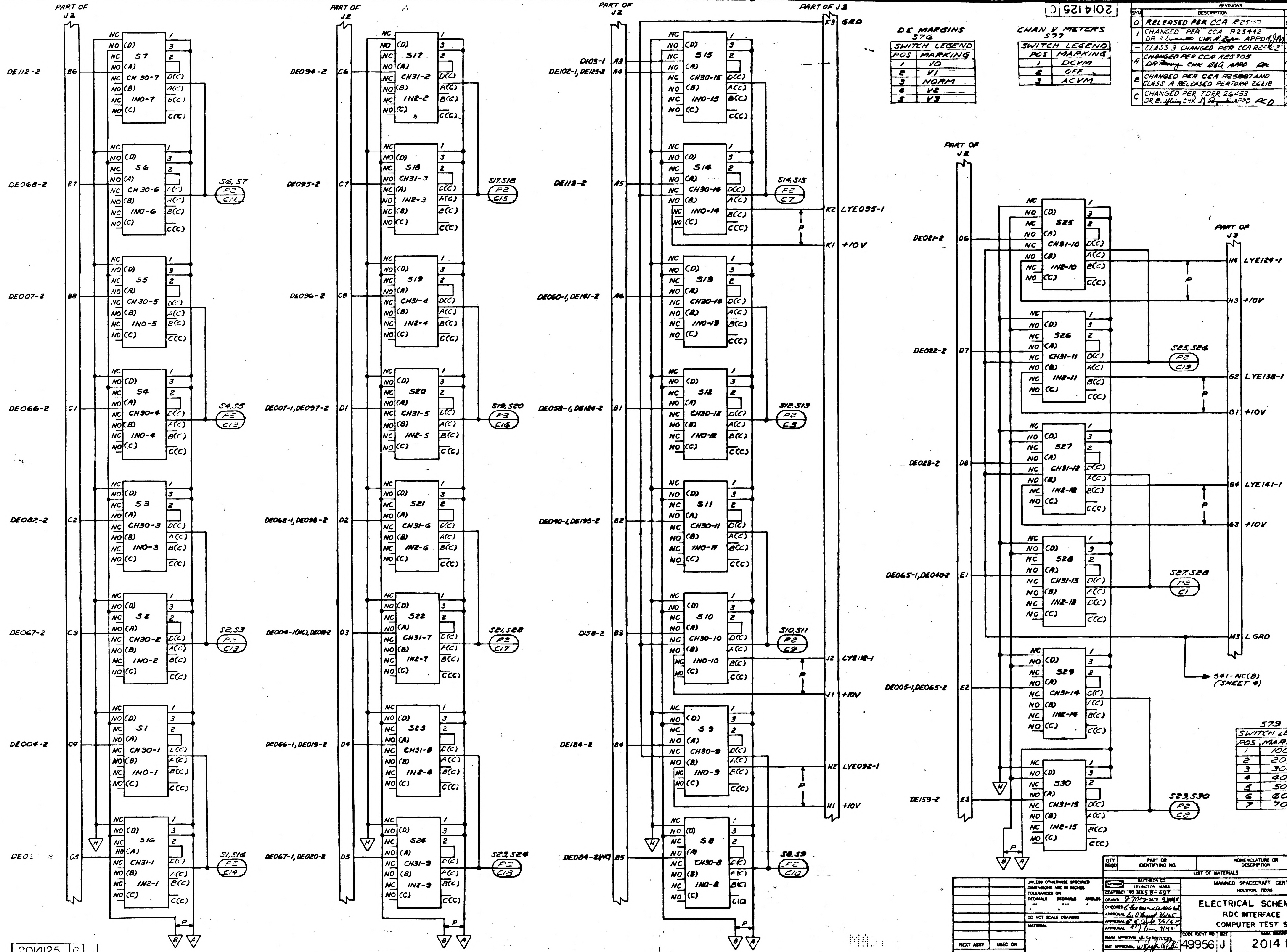
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25157	9/14/65	A. Nasano
1	CHANGED PER CCA R25442 DR R. Bonnetto CHK A. Zapha APPD A.J.M	4/1/65	
–	CLASS 3 CHANGED PER CCA R25502	7/3/64	
A	CHANGED PER CCA R25705 DR Fleming CHK BLQ APPD	7/15/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	7/14/66	
C	CHANGED PER TDRR 26453 DR E. Fleming CHK Bogenski APPD RCD	7/1/66	

DE MARGINS
S76

SWITCH LEGEND	
POS	MARKING
1	V0
2	V1
3	NORM
4	V2
5	V3

CHAN V METERS
S77

SWITCH LEGEND	
POS	MARKING
1	DCVM
2	OFF
3	ACVM



PART OF J2
DE112-2 B6 S7 CH 30-7 IN0-7
DE068-2 B7 S6 CH 30-6 IN0-6
S6,S7 P2 C11
DE007-2 B8 S5 CH 30-5 IN0-5
DE066-2 C1 S4 CH30-4 IN0-4
S4,S5 P2 C12
DE082-2 C2 S3 CH30-3 IN0-3
DE067-2 C3 S2 CH30-2 IN0-2
S2,S3 P2 C13
DE004-2 C4 S1 CH30-1 IN0-1
C5 S16 CH31-1 IN2-1
S1,S16 P2 C14
DE094-2 C6 S17 CH31-2 IN2-2
DE095-2 C7 S18 CH31-3 IN2-3
S17,S18 P2 C15
DE096-2 C8 S19 CH31-4 IN2-4
DE007-1,DE097-2 D1 S20 CH31-5 IN2-5
S19,S20 P2 C16
DE068-1,DE098-2 D2 S21 CH31-6 IN2-6
DE004-1(NC),DE108-2 D3 S22 CH31-7 IN2-7
S21,S22 P2 C17
DE066-1,DE019-2 D4 S23 CH31-8 IN2-8
DE067-1,DE020-2 D5 S24 CH31-9 IN2-9
S23,S24 P2 C18
D103-1 A3
DE102-1,DE125-2 A4 S15 CH30-15 IN0-15
DE113-2 A5 S14 CH30-14 IN0-14
S14,S15 P2 C7
DE060-1,DE141-2 A6 S13 CH30-13 IN0-13
DE058-1,DE184-2 B1 S12 CH30-12 IN0-12
S12,S13 P2 C8
DE090-1,DE193-2 B2 S11 CH30-11 IN0-11
D158-2 B3 S10 CH30-10 IN0-10
S10,S11 P2 C9
DE184-2 B4 S9 CH30-9 IN0-9
DE084-2(NC) B5 S8 CH30-8 IN0-8
S8,S9 P2 C10
PART OF J3
K3 GRD
K2 LYE035-1
K1 +10V
J2 LYE112-1
J1 +10V
H2 LYE092-1
H1 +10V
DE021-2 D6 S25 CH31-10 IN2-10
DE022-2 D7 S26 CH31-11 IN2-11
S25,S26 P2 C19
DE023-2 D8 S27 CH31-12 IN2-12
DE065-1,DE040-2 E1 S28 CH31-13 IN2-13
S27,S28 P2 C1
DE005-1,DE065-2 E2 S29 CH31-14 IN2-14
DE159-2 E3 S30 CH31-15 IN2-15
S29,S30 P2 C2
H4 LYE124-1
H3 +10V
G2 LYE138-1
G1 +10V
G4 LYE141-1
G3 +10V
M3 L GRD
S41-NC(B) (SHEET 4)
NC
NO
(A)
(B)
(C)
(D)
A(C)
B(C)
C(C)
D(C)
P
A
B
H

S79

SWITCH LEGEND	
POS	MARKINGS
1	100
2	200
3	300
4	400
5	500
6	600
7	700

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

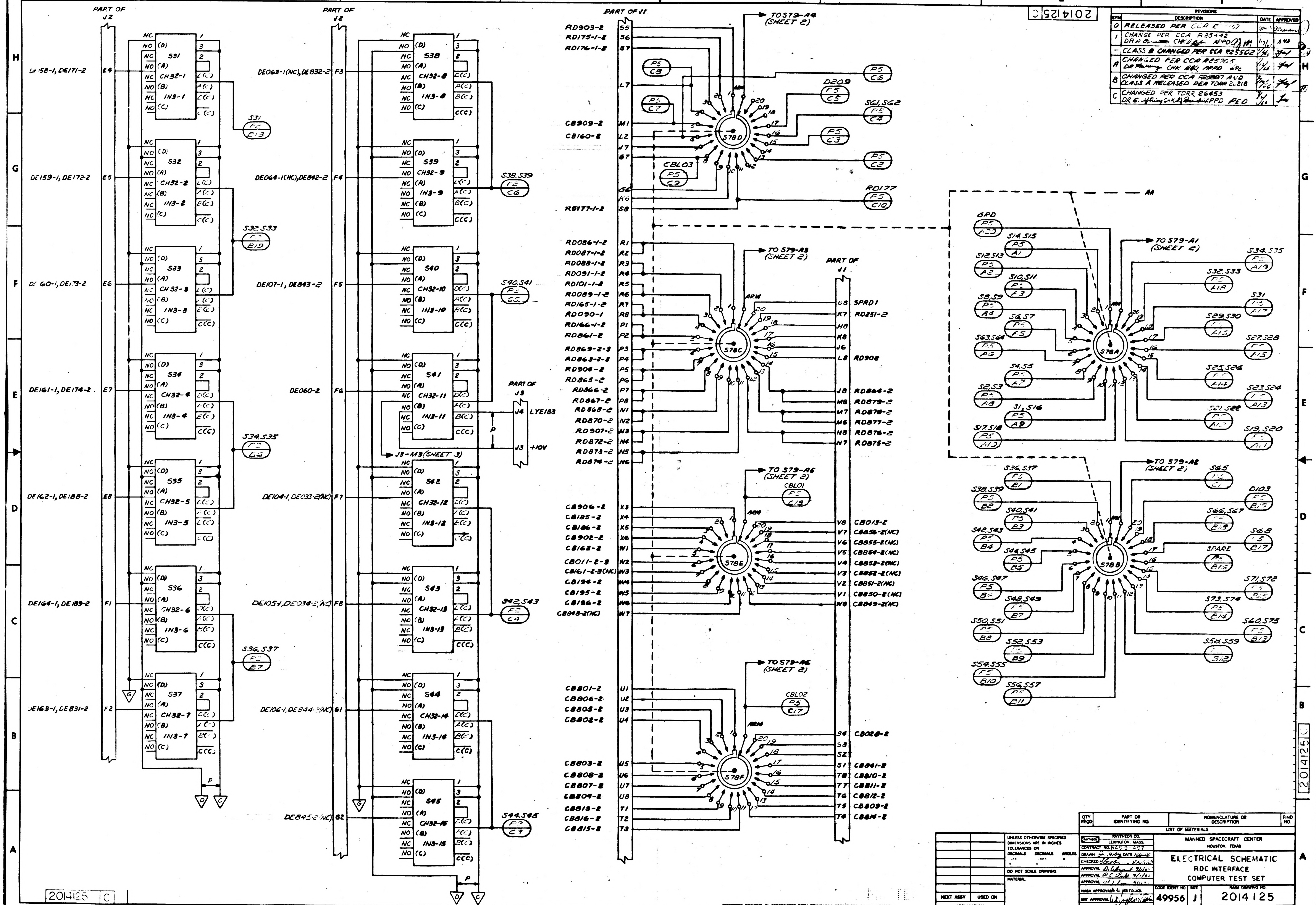
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN E. Moy DATE 9/1/65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014125
SCALE NONE
WT
SHEET 3 OF 5

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167		
1	CHANGE PER CCA R25442 DR CHK APPD	1/17/61	
–	CLASS B CHANGED PER CCA R25502	1/4/66	
A	CHANGED PER CCA R25705 DR CHK APPD	1/13/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	3/10/66	
C	CHANGED PER TDRR 26453 DR E. Afting CHK APPD PEO	9/7/66	



PART OF J2
S31 CH32-1 IN3-1
S32 CH32-2 IN3-2
S33 CH32-3 IN3-3
S34 CH32-4 IN3-4
S35 CH32-5 IN3-5
S36 CH32-6 IN3-6
S37 CH32-7 IN3-7
S38 CH32-8 IN3-8
S39 CH32-9 IN3-9
S40 CH32-10 IN3-10
S41 CH32-11 IN3-11
S42 CH32-12 IN3-12
S43 CH32-13 IN3-13
S44 CH32-14 IN3-14
S45 CH32-15 IN3-15
NC
NO
(D)
(A)
(B)
(C)
DE158-1, DE171-2
DE159-1, DE172-2
DE160-1, DE173-2
DE161-1, DE174-2
DE162-1, DE188-2
DE164-1, DE189-2
DE163-1, DE831-2
DE063-1(NC), DE832-2
DE064-1(NC), DE842-2
DE107-1, DE843-2
DE060-2
DE104-1, DE033-2(NC)
DE105-1, DE034-2(NC)
DE106-1, DE844-2(NC)
DE845-2(NC)
E4
E5
E6
E7
E8
F1
F2
F3
F4
F5
F6
F7
F8
G1
G2
PART OF J3
J4 LYE183
J3 +10V
J3-M3 (SHEET 3)
P
PART OF J1
S78A
S78B
S78C
S78D
S78E
S78F
TO S79-A4 (SHEET 2)
TO S79-A3 (SHEET 2)
TO S79-A1 (SHEET 2)
TO S79-A2 (SHEET 2)
TO S79-A6 (SHEET 2)
ARM
AA
GRD
D209
S61, S62
RD177
CBL03
CBL01
CBL02
SPARE
D103
SPRD1
RD251-2
RD908

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY	USED ON
APPLICATION	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED
APPROVAL 9/1/65
APPROVAL 9/1/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

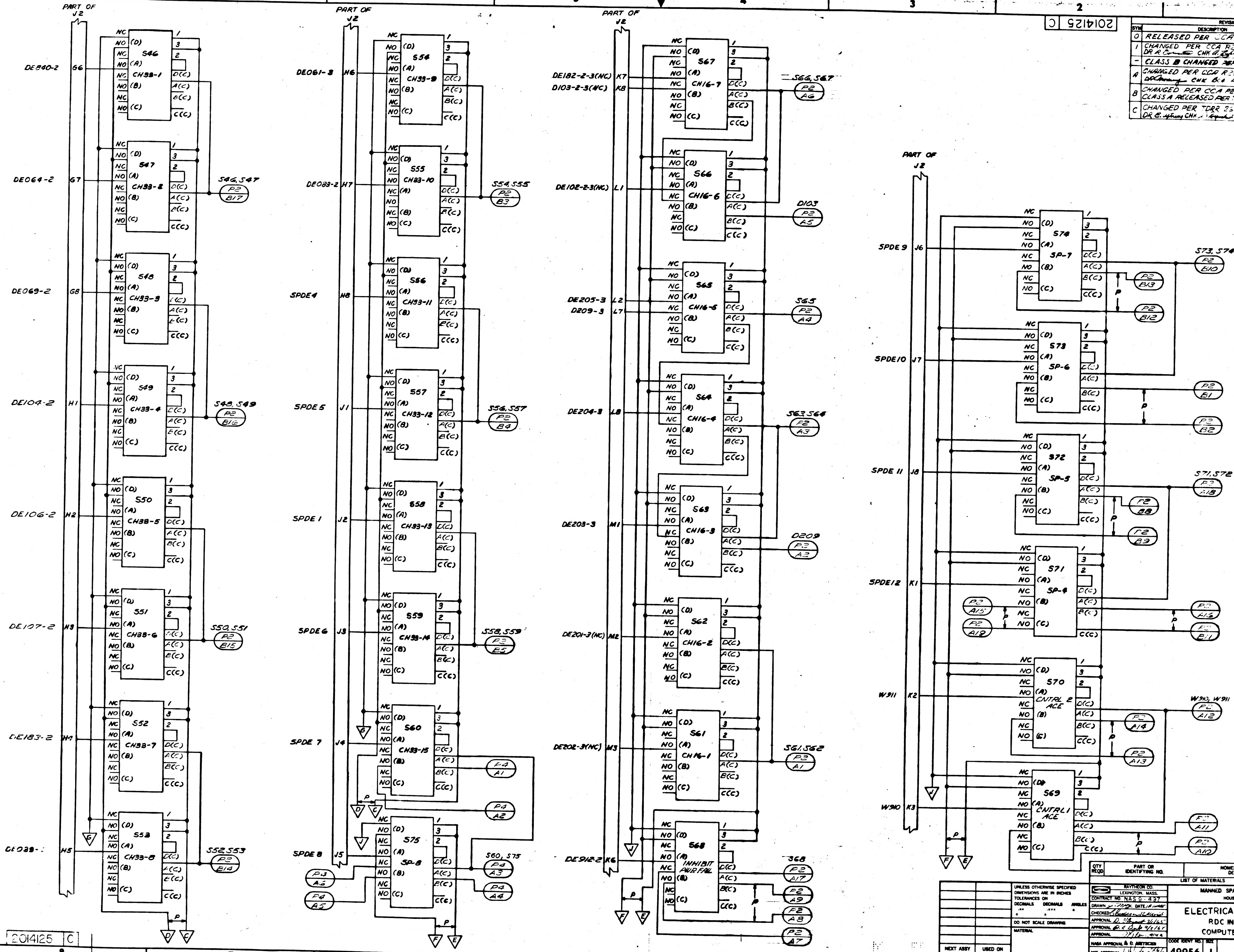
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014125
SCALE NONE
WT
SHEET 4 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014125 C

2014125 C

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25157		
1	CHANGED PER CCA R25442 DR R. CHK APPD		
-	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 DR CHK APPD	1/5/66	
B	CHANGED PER CCA P25987 AND CLASS A RELEASED PER TDRR 26218		
C	CHANGED PER TDRR 25453 DR E. CHK PE.O		



PART OF J2
DE840-2 G6
S46 CH33-1
DE064-2 G7
S47 CH33-2
S46,S47 P2 B17
DE069-2 G8
S48 CH33-3
DE104-2 H1
S49 CH33-4
S48,S49 P2 B16
DE106-2 H2
S50 CH33-5
DE107-2 H3
S51 CH33-6
S50,S51 P2 B15
DE183-2 H4
S52 CH33-7
DE039- H5
S53 CH33-8
S52,S53 P2 B14
NC
NO
(D)
(A)
(B)
(C)
1
3
2
D(C)
A(C)
B(C)
C(C)
P
D
C
PART OF J2
DE061-3 H6
S54 CH33-9
DE033-2 H7
S55 CH33-10
S54,S55 P2 B3
SPDE4 H8
S56 CH33-11
SPDE5 J1
S57 CH33-12
S56,S57 P2 B4
SPDE1 J2
S58 CH33-13
SPDE6 J3
S59 CH33-14
S58,S59 P2 B5
SPDE7 J4
S60 CH33-15
P4 A1
P4 A2
SPDE8 J5
S75 SP-8
P3 A6
P4 A5
S60, S75 P4 A3
P4 A4
B
F
E
PART OF J2
DE182-2-3(NC) K7
D103-2-3(NC) K8
S67 CH16-7
S66,S67 P2 A6
DE102-2-3(NC) L1
S66 CH16-6
D103 P2 A5
DE205-3 L2
D209-3 L7
S65 CH16-5
S65 P2 A4
DE204-3 L8
S64 CH16-4
S63,S64 P2 A3
DE203-3 M1
S63 CH16-3
D209 P2 A2
DE201-3(NC) M2
S62 CH16-2
DE202-3(NC) M3
S61 CH16-1
S61,S62 P2 A1
DE912-2 K6
S68 INHIBIT PWR FAIL
S68 P2 A17
P2 A9
P2 A8
P2 A7
A
PART OF J2
SPDE 9 J6
S74 SP-7
S73,S74 P2 B10
P2 B13
P2 B12
SPDE10 J7
S73 SP-6
P2 B1
P2 B2
SPDE 11 J8
S72 SP-5
S71,S72 P2 A18
P2 B8
P2 B9
SPDE12 K1
S71 SP-4
P2 A15
P2 A19
P2 A16
P2 B11
W911 K2
S70 CNTRL 2 ACE
W910, W911 P2 A12
P2 A14
P2 A13
W910 K3
S69 CNTRL1 ACE
P2 A11
P2 A10

CHANNEL V
S78

SWITCH LEGEND	
POS	MARKING
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 JUNE 65
CHECKED 12 AUG 65
APPROVAL D. 9/1/65
APPROVAL 9/2/65
APPROVAL
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014125
SCALE NONE
WT
SHEET 5 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

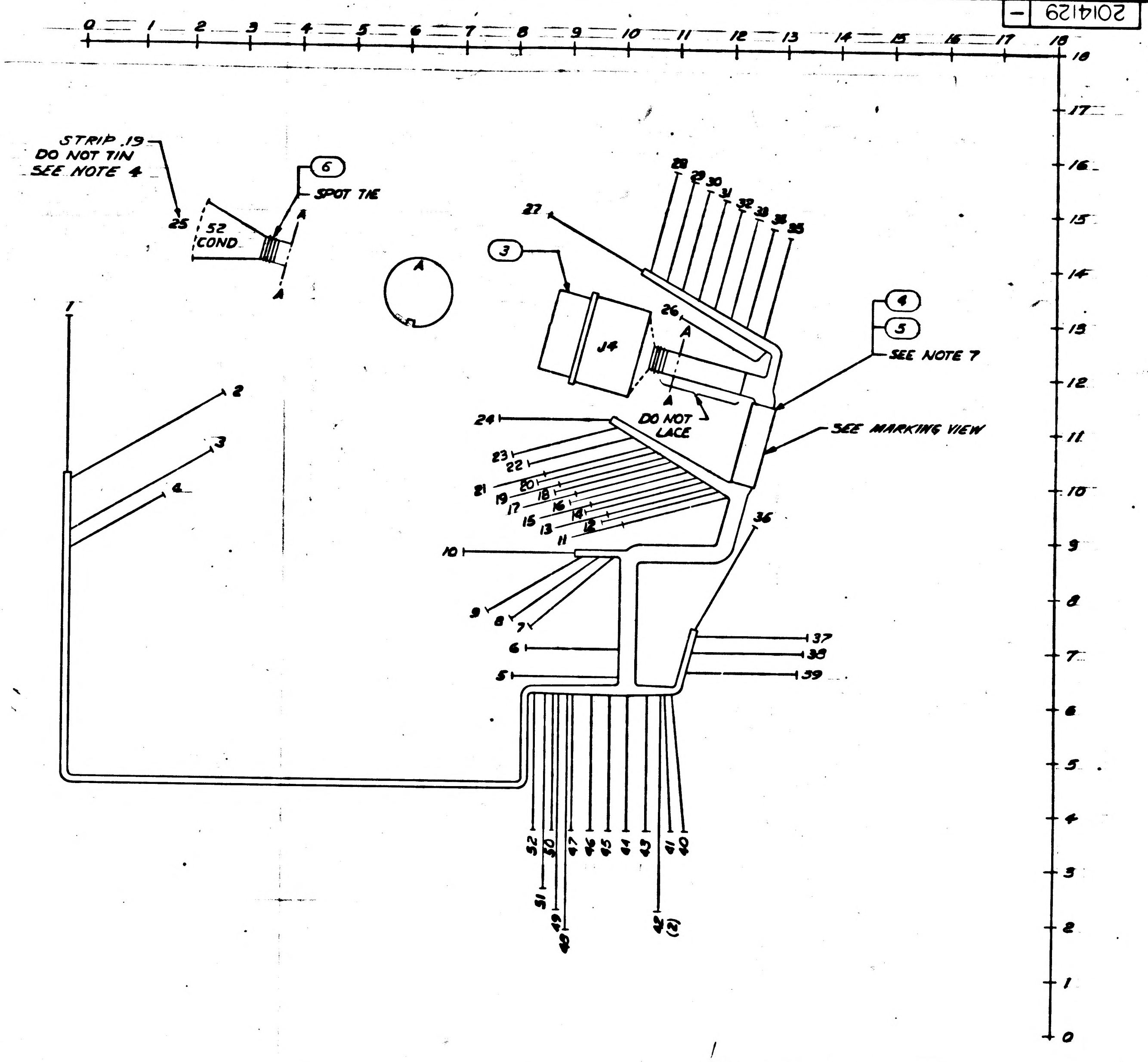
2014125 C

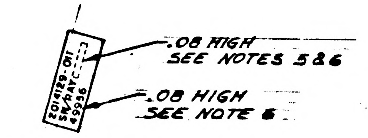
2014125 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25133	9/3/65	
1	CHANGED PER CCA R25436 DR CHK APPD		
—	CLASS A RELEASED PER TDRR 25378		

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D1	25	J4-E	WHT	24	2	43	E85	
	D2		-G				4	J8	
	D3		-H				3	J7	
	D4		-L				45	E83	
	D5		-P				44	E84	
	D6		-T				51	E104	
	D7		-U				49	E110	
	D8		-V				27	E1	
	D9		-W				10	E48	
	D10		-X				46	E82	
	D11		-c				52	E79	
	D12		-d				7	E51	
	D13		-e				33	E7	
	D14		-f				19	E34	
	D15		-g				18	E41	
	D16		-i				41	E86	
	D17		-j				40	E87	
	D18		-k				36	E125	
	D19		-m				37	E126	
	D20		-n				48	E115	
	D21		-p				20	E40	
	D22		-q				17	E35	
	D23		-r				34	E8	
	D24		-s				28	E2	
	D25		-t				8	E50	
	D26		-u				47	E81	
	D27		-v				50	E80	
	D28		-w				39	E128	
	D29		-x				32	E6	
	D30		-y				21	E33	
	D31		-z				11	E38	
	D32		-AA				12	E44	
	D33		-BB				14	E43	
	D34		-CC				16	E42	
	D35		-DD				15	E36	
	D36		-EE				35	E9	
	D37		-FF				29	E3	
	D38		-GG				9	E49	
	D39		-HH				38	E127	
	D40		-JJ				31	E5	
	D41		-KK				22	E32	
	D42		-LL				13	E37	
	D43		-MM				24	E30	
	D44		-NN				30	E4	
	D45		-PP	WHT	24	2	23	E31	
	D46		-A	BLK	22	1	1	S1-1	
	D47		-B				26	E11	
	D48		-J				2	S1-2	
	D49		-Y				42	E108	
	D50		-Z				42	E108	
	D51		-a				6	E61	
	D52	25	J4-b	BLK	22	1	5	E68	





.08 HIGH SEE NOTES 5 & 6

.08 HIGH SEE NOTE 6

MARKING VIEW FOR FIND NO. 4 SCALE: NONE

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 6
2. STRIP ALL LEADS .50 ±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
3. MARK CONDUCTOR IDENTIFICATION PER ND1002019
4. CRIMP PER ND1002206
5. SERIALIZE PER ND1002023
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
7. BOND USING FIND NO. 5
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. AR DENOTES AS REQUIRED
10. NUMBERS ENCLOSED WITHIN PARENTHESIS INDICATE NUMBER OF CONDUCTORS
~~11. TIN PER ND 1002071~~
12. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED

✱ DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2014123	SCHEMATIC, ELECTRICAL	REF
AR	1006458-004	TAPE LACING	6
AR	1006253	ADHESIVE	5
1	1006415-130	BAND MARKER, CABLE	4
1	MS3120E-24-61SX	CONNECTOR	3
✱ 50.	MIL-W-16878/4 E24	WIRE, ELECTRICAL WHT	2
✱ 10.	MIL-W-16878/4 E22	WIRE, ELECTRICAL BLK	1
011	LIST OF MATERIALS		

2014262	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9-497
DRAWN DATE 6/24/65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

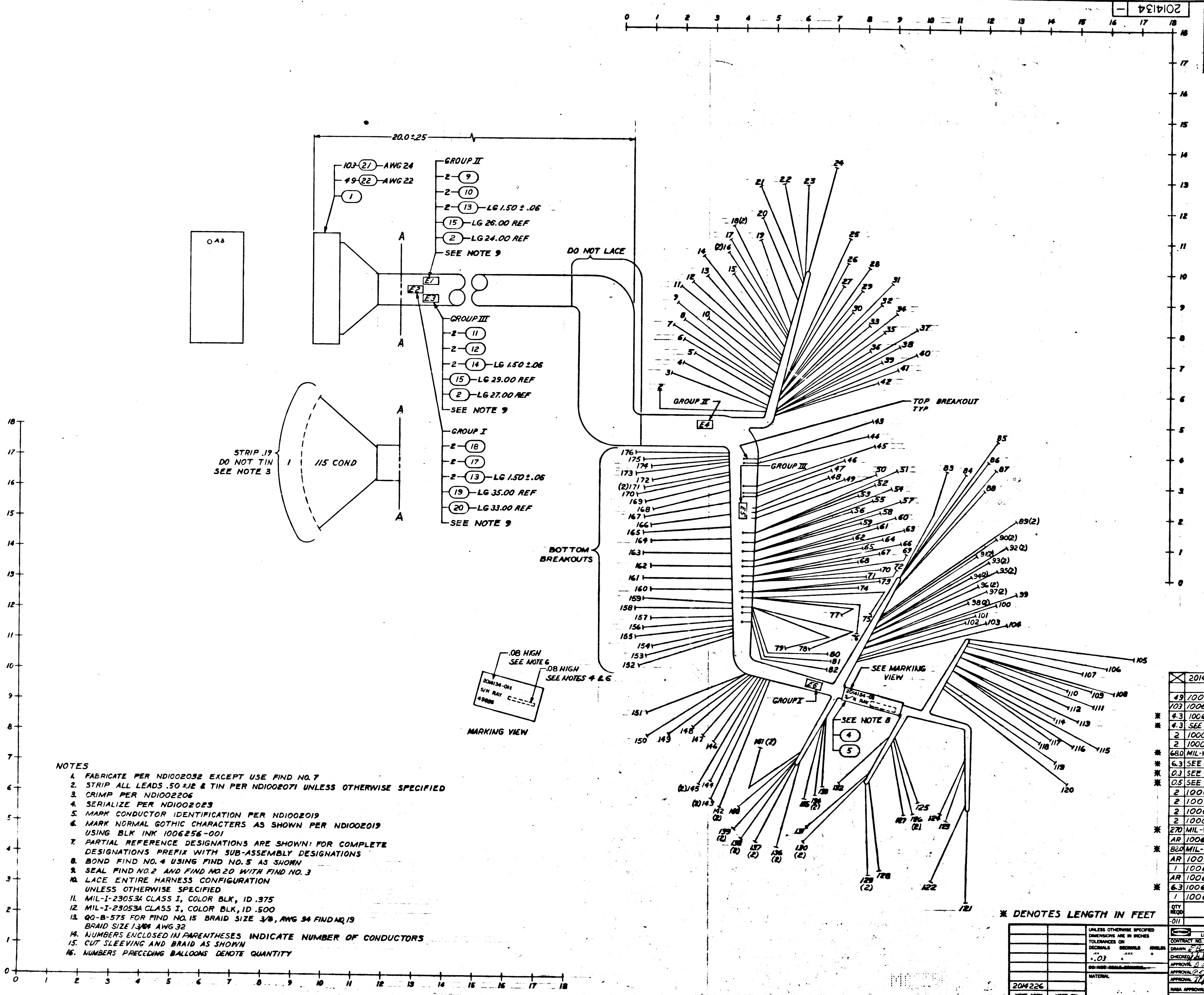
WIRING HARNESS, BRANCHED
D
BUFFER CIRCUIT

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014129
SCALE 1/1
WT
SHEET 1 OF 1

2014129 —

2014134 | –

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/13/65	J. [illegible]
1	CHANGED PER CCA R25265 DR D. [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
2	CHANGED PER CCA R25390 DR [illegible] CHK J. [illegible] APPD [illegible]	11/9/65	[illegible]
–	CLASS A RELEASED PER TDRR 29972		


20.0±.25
A3
103 (21) AWG 24
49 (22) AWG 22
(1)
GROUP II
2 (9)
2 (10)
2 (13) LG 1.50±.06
(15) LG 26.00 REF
(2) LG 24.00 REF
SEE NOTE 9
E1
E2
E3
GROUP III
2 (11)
2 (12)
2 (14) LG 1.50±.06
(15) LG 29.00 REF
(2) LG 27.00 REF
SEE NOTE 9
GROUP I
2 (18)
2 (17)
2 (13) LG 1.50±.06
(19) LG 35.00 REF
(20) LG 33.00 REF
SEE NOTE 9
A
STRIP .19
DO NOT TIN
SEE NOTE 3
1
115 COND
DO NOT LACE
GROUP II
E4
TOP BREAKOUT TYP
GROUP III
E5
BOTTOM BREAKOUTS
GROUP I
E6
SEE MARKING VIEW
SEE NOTE 8
(4)
(5)
.08 HIGH SEE NOTE 6
.08 HIGH SEE NOTES 4 & 6
2014134-011 S/N RAY 49956
MARKING VIEW

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 7
2. STRIP ALL LEADS .50 ±.12 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
3. CRIMP PER ND1002206
4. SERIALIZE PER ND1002023
5. MARK CONDUCTOR IDENTIFICATION PER ND1002019
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLK INK 1006256-001
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
8. BOND FIND NO. 4 USING FIND NO. 5 AS SHOWN
9. SEAL FIND NO. 2 AND FIND NO. 20 WITH FIND NO. 3
10. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
11. MIL-I-23053A CLASS I, COLOR BLK, ID .375
12. MIL-I-23053A CLASS I, COLOR BLK, ID .500
13. QQ-B-575 FOR FIND NO. 15 BRAID SIZE 3/8, AWG 34 FIND NO. 19 BRAID SIZE 13/64 AWG 32
14. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
15. CUT SLEEVING AND BRAID AS SHOWN
16. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014076	SCHEMATIC	REF
	49	1006491-011	CONTACT ELECTRICAL	22
	103	1006491-009	CONTACT ELECTRICAL	21
*	4.3	1006696-2	INSULATION, SLEEVING	20
*	4.3	SEE NOTE 13	BRAID	19
	2	1000242-24	FERRULE, ELEC CONDUCTOR	18
	2	1000243-20	FERRULE, ELEC CONDUCTOR	17
*	68.0	MIL-W-16878/4E22	WIRE, ELECTRICAL BLK	16
*	6.3	SEE NOTE 13	BRAID	15
*	0.3	SEE NOTE 12	SLEEVING	14
*	0.5	SEE NOTE 11	SLEEVING	13
	2	1000242-30	FERRULE, ELEC CONDUCTOR	12
	2	1000243-34	FERRULE, ELEC CONDUCTOR	11
	2	1000242-29	FERRULE, ELEC CONDUCTOR	10
	2	1000243-22	FERRULE, ELEC CONDUCTOR	9
*	270	MIL-W-16878/4E24	WIRE, ELECTRICAL WHT	8
	AR	1006458-004	TAPE, LACING	7
*	820	MIL-W-16878/4E22	WIRE, ELECTRICAL WHT	6
	AR	1006253	ADHESIVE	5
	1	1006415-130	MARKER, BAND	4
	AR	1006699	SOLVENT	3
*	6.3	1006696-3	INSULATION SLEEVING	2
	1	1006671-001	CONNECTOR, ELECTRICAL	1

-011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014134 | –

NEXT ASSY	USED ON
2014226	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE JULY 65
CHECKED [illegible] 29 JULY 65
APPROVAL D. [illegible] 7/[illegible]/65
APPROVAL P. E. [illegible] 3 SEPT 65
APPROVAL [illegible] 9/13/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS C
LOGIC DRAWER 2
CTS

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014134

SCALE 1/1 WT SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9 3/65	
1	CHANGED PER CAA R25263 DR D. B. CHK APPD	22 oct 65	
2	CHANGED PER CCA R25390 DR CHK APPD	11/9/65	
–	CLASS A RELEASED PER TDRR 25972		

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	C1	11	XDS20-3	BLK	22	16	18	S10-3	
	C2	21	XDS4-3				18	S10-3	
	C3	3	XDS9-3				176	S11-3	
	C4	50	XDS12-3				152	S17-6	
	C5	48	XDS11-3				170	XDS13-3	
	C6	157	XDS19-3				129	XDS1-3	
	C7	137	XDS2-3				129	XDS1-3	
	C8	137	XDS2-3				138	XDS3-3	
	C9	142	XDS10-3				138	XDS3-3	
	C10	142	XDS10-3	BLK	22	16	148	S18-3	
	C11	22	XDS4-2	WHT	22	6	171	XDS13-2	
	C12	139	XDS3-2				171	XDS13-2	
	C13	139	XDS3-2				130	XDS2-2	
	C14	121	XDS1-2				130	XDS2-2	
	C15	156	XDS19-2				143	XDS10-2	
	C16	83	XDS12-2				143	XDS10-2	
	C17	49	XDS11-2				12	XDS20-2	
	C18	128	XDS1-5				136	XDS2-5	
	C19	141	XDS3-5				136	XDS2-5	
	C20	141	XDS3-5				145	XDS10-5	
	C21	158	XDS19-5				145	XDS10-5	
	C22	173	XDS13-5				47	XDS11-5	
	C23	45	XDS12-5				6	XDS9-5	
	C24	24	XDS4-5				14	XDS20-5	
	C25	146	S18-1				126	S7B-ARM	
	C26	134	S8B-ARM				126	S7B-ARM	
	C27	134	S8B-ARM				154	S17-4	
	C28	174	S11-1				16	S10-1	
	C29	1	J1-M1				16	S10-1	
	C30	1	-M2	WHT	22	6	4	XDS9-2	
	C31	1	-M3	BLK	22	16	2	XDS21-3	
	C32	1	-M6	WHT	22	6	9	XDS21-5	
	C33	1	-P6				7	XDS21-2	
	C34	1	-F1				122	XDS1-1	
	C35	1	-F2				131	XDS2-1	
	C36	1	-F3				140	XDS3-1	
	C37	1	-E2				23	XDS4-1	
	C38	1	-E3				20	XDS5-1	
	C39	1	-E4				19	XDS6-1	
	C40	1	-E5				15	XDS7-1	
	C41	1	-E6				10	XDS8-1	
	C42	1	-E7				5	XDS9-1	
	C43	1	-C8				172	XDS13-1	
	C44	1	-D1				168	XDS14-1	
	C45	1	-D2				166	XDS15-1	
	C46	1	-D3				164	XDS16-1	
	C47	1	-D4				162	XDS17-1	
	C48	1	-D5				160	XDS18-1	
	C49	1	-D6				165	XDS19-1	
	C50	1	-C5				144	XDS10-1	
	C51	1	-F4				46	XDS11-1	
	C52	1	-G1				84	XDS12-1	
	C53	1	-D7				13	XDS20-1	
	C54	1	-E1				8	XDS21-1	
	C55	1	-F6				17	S10-2	
	C56	1	-B6				175	S11-2	
	C57	1	-B5				169	S12-2	
	C58	1	-B4				167	S13-2	
	C59	1	-B3				165	S14-2	
	C60	1	-B2				163	S15-2	
	C61	1	-B1				161	S16-2	
	C62	1	-A5				159	S17-2	
	C63	1	-A6				153	S17-5	
	C64	1	-A3				151	S19-5	
	C65	1	-F7				150	S19-3	
	C66	1	-F8				149	S19-2	
	C67	1	J1-F5	WHT	22	6	147	S18-2	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	C68	1	J1-B8	WHT	22	6	132	S8-A3	
	C69	1	-A4				135	S9-A2	
	C70	1	-B7				127	S8-A2	
	C71	1	-C4				125	S7-B2	
	C72	1	-C3				124	S7-A3	
	C73	1	-C1				133	S8-B2	
	C74	1	J1-C2	WHT	22	6	123	S7-A2	
	C75	89	S4F-4	WHT	24	8	105	S2F-4	
	C76	90	S4F-$\bar{2}$				106	S2F-$\bar{2}$	
	C77	91	S4F-1				107	S2F-1	
	C78	92	S4F-$\bar{4}$				108	S2F-$\bar{4}$	
	C79	93	S4F-2				109	S2F-2	
	C80	94	S4F-T				110	S2F-T	
	C81	95	S4G-$\bar{2}$				111	S2G-$\bar{2}$	
	C82	96	S4G-1				112	S2G-1	
	C83	97	S4G-2				113	S2G-2	
	C84	98	S4G-T				114	S2G-T	
	C85	99	S4H-4				115	S2H-4	
	C86	100	S4H-$\bar{2}$				116	S2H-$\bar{2}$	
	C87	101	S4H-1				117	S2H-1	
	C88	102	S4H-$\bar{4}$				118	S2H-$\bar{4}$	
	C89	103	S4H-2				119	S2H-2	
	C90	104	S4H-T	WHT	24	8	120	S2H-T	
	C91	1	J1-S6	WHT	24	8	51	S6A-4	
	C92	1	-S3				52	S6A-$\bar{2}$	
	C93	1	-S2				53	S6A-1	
	C94	1	-S5				54	S6A-$\bar{4}$	
	C95	1	-S4				55	S6A-2	
	C96	1	-S1				56	S6A-T	
	C97	1	-T4				57	S6B-4	
	C98	1	-T1				58	S6B-$\bar{2}$	
	C99	1	-S8				59	S6B-1	
	C100	1	-T3				60	S6B-$\bar{4}$	
	C101	1	-T2				61	S6B-2	
	C102	1	-S7				62	S6B-T	
	C103	1	-U2				63	S6C-4	
	C104	1	-T7				64	S6C-$\bar{2}$	
	C105	1	-T6				65	S6C-1	
	C106	1	-U1				66	S6C-$\bar{4}$	
	C107	1	-T8				67	S6C-2	GROUP III
	C108	1	-T5				68	S6C-T	
	C109	1	-U8				69	S6D-4	
	C110	1	-U5				70	S6D-$\bar{2}$	
	C111	1	-U4				71	S6D-1	
	C112	1	-U7				72	S6D-$\bar{4}$	
	C113	1	-U6				73	S6D-2	
	C114	1	-U3				74	S6D-T	
	C115	1	-V6				75	S6E-4	
	C116	1	-V3				76	S6E-$\bar{2}$	
	C117	1	-V2				77	S6E-1	
	C118	1	-V5				78	S6E-$\bar{4}$	
	C119	1	-V4				79	S6E-2	
	C120	1	-V1				80	S6E-T	
	C121	1	-V8				81	S6F-1	
	C122	1	J1-V7	WHT	24	8	82	S6F-T	
	C123	1	J1-R8	BLK	22	16	⚠	E3	
		⚠	E3	SHLD			⚠	E5	
	C124	1	J1-M8	BLK	22	16	⚠	E2	
		⚠	E2	SHLD			⚠	E6	
	C125	1	J1-D8	WHT	24	8	97	S4G-2	
	C126	1	-L2				98	S4G-T	
	C127	1	-L1				89	S4F-4	
	C128	1	-K6				90	S4F-$\bar{2}$	
	C129	1	-K3				91	S4F-1	GROUP I
	C130	1	-K8				92	S4F-$\bar{4}$	
	C131	1	-K7				93	S4F-2	
	C132	1	-K2				94	S4F-T	
	C133	1	-X3				95	S4G-$\bar{2}$	
	C134	1	J1-L7	WHT	24	8	96	S4G-1	

⚠ DENOTES INTERNAL CONNECTION

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	C135	1	J1-J4	WHT	24	8	44	S5J-T	
	C136	1	-J5				43	S5J-1	
	C137	1	-H6				42	S5H-T	
	C138	1	-J1				41	S5H-2	
	C139	1	-J2				40	S5H-$\bar{4}$	
	C140	1	-H7				39	S5H-1	
	C141	1	-H8				38	S5H-$\bar{2}$	
	C142	1	-J3				37	S5H-4	
	C143	1	-G8				36	S5G-T	
	C144	1	-H3				35	S5G-2	
	C145	1	-H4				34	S5G-$\bar{4}$	
	C146	1	-H1				33	S5G-1	
	C147	1	-H2				32	S5G-$\bar{2}$	GROUP II
	C148	1	-H5				31	S5G-4	
	C149	1	-G2				30	S5F-T	
	C150	1	-G5				29	S5F-2	
	C151	1	-G6				28	S5F-$\bar{4}$	
	C152	1	-G3				27	S5F-1	
	C153	1	-G4				26	S5F-$\bar{2}$	
	C154	1	-G7				25	S5F-4	
	C155	1	-K1				85	S4D-4	
	C156	1	-J6				86	S4D-$\bar{2}$	
	C157	1	-J8				87	S4D-$\bar{4}$	
	C158	1	J1-J7	WHT	24	8	88	S4D-2	
	C159	1	J1-L8	BLK	22	16	⚠	E1	
		⚠	E1	SHLD			⚠	E4	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN E. Bu DATE 11/65
CHECKED 23 Jul 65
APPROVAL D. D. Bryant 8/2/65
APPROVAL P E 23 Sep 65
APPROVAL 9/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS C
LOGIC DRAWER 2
CTS

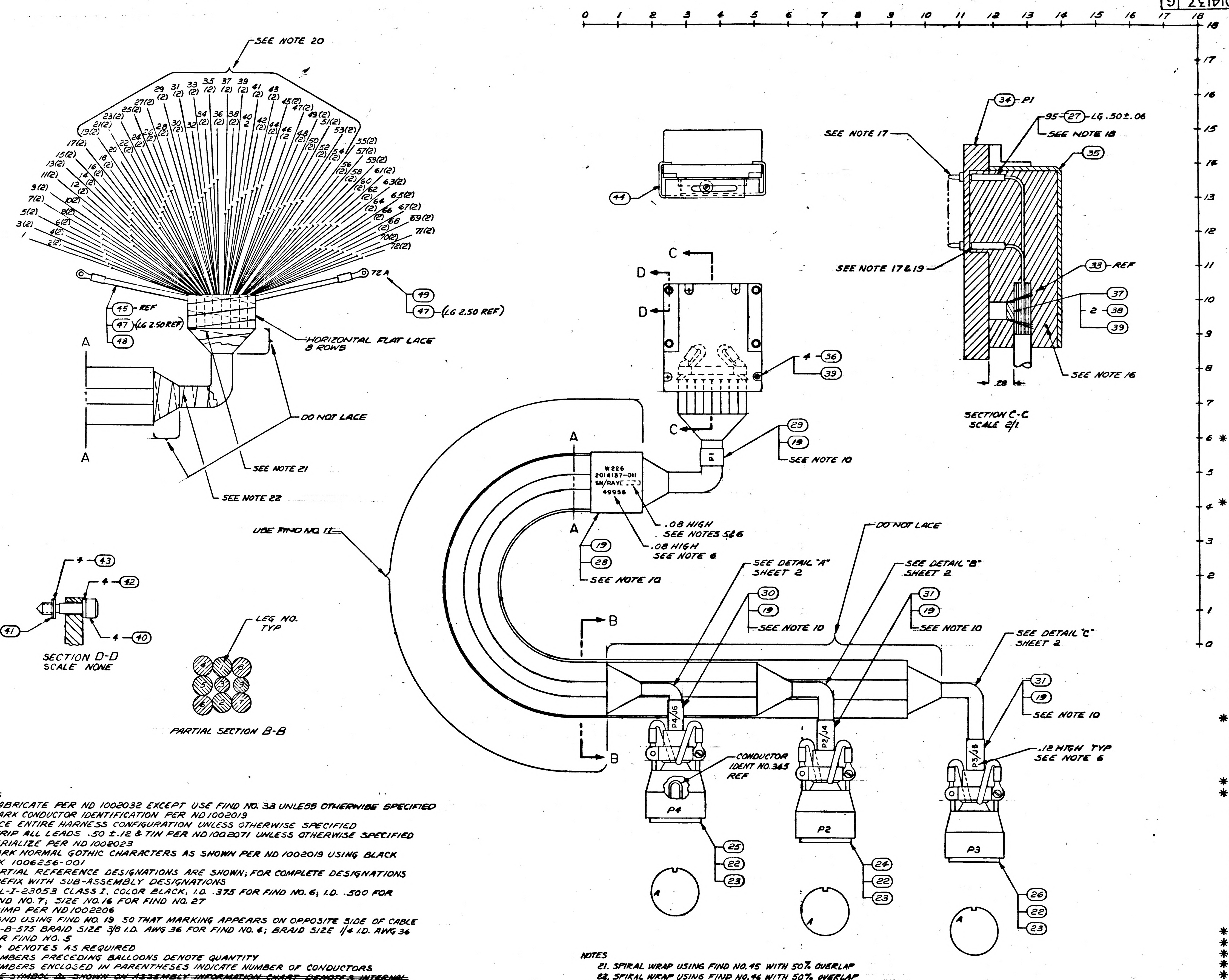
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014134

SCALE NONE WT SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014137 G

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27698		



NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 33 UNLESS OTHERWISE SPECIFIED
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
3. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
4. STRIP ALL LEADS .50 ±.12 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
5. SERIALIZE PER ND 1002023
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
8. MIL-I-23053 CLASS I, COLOR BLACK, I.D. .375 FOR FIND NO. 6; I.D. .500 FOR FIND NO. 7; SIZE NO. 16 FOR FIND NO. 27
9. CRIMP PER ND 1002206
10. BOND USING FIND NO. 19 SO THAT MARKING APPEARS ON OPPOSITE SIDE OF CABLE
11. QQ-B-575 BRAID SIZE 3/8 I.D. AWG 36 FOR FIND NO. 4; BRAID SIZE 1/4 I.D. AWG 36 FOR FIND NO. 5
12. AR DENOTES AS REQUIRED
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
~~15. THE SYMBOL △ SHOWN ON ASSEMBLY INFORMATION CHART DENOTES INTERNAL CONNECTION~~
16. POT PER ND 1002009 METHOD E & PRIME
17. SEAL INSULATORS & CONTACTS PER ND 1002004 TYPE II
18. SLEEVE EVEN NUMBERED PINS ON EVEN NUMBERED ROWS AND ODD NUMBERED PINS ON ODD NUMBERED ROWS EXCEPT SLEEVE ALL PINS IN EXTREME HORIZONTAL & VERTICAL ROWS
19. FIND NO. 27 MUST BE IMBEDDED IN EPOXY ADHESIVE APPLIED PER NOTE 17 SO AS TO INSURE INSULATION OF CONTACTS
20. SPOT TIE ALL LEADS FROM STA NO. 19 THRU STA NO. 54 TO FIND NO. 37 USING FIND NO. 33

NOTES
21. SPIRAL WRAP USING FIND NO. 45 WITH 50% OVERLAP
22. SPIRAL WRAP USING FIND NO. 46 WITH 50% OVERLAP IN OPPOSITE DIRECTION OF FIND NO. 45
23. MIL-I-15126, THERMO SETTING, ADHESIVE BACKED, TYPE ACT, .75 WIDE
24. MIL-I-631, TYPE F, FORM U2, GRADE 2, CLASS 1, CATAGORY 1, COLOR BLK, AWG SIZE NO. 4
25. MIL-I-23053, CLASS I, WHT, I.D. .125
26. MARK SLEEVING WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH BLK PER ND 1002019
27. CUT SLEEVING AND BRAID LENGTHS AS SHOWN

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	0.3	SEE NOTE 25	SLEEVING	53
	1	1010402-2	SLEEVE, SOLDER	52
	3	MS25036-49	TERMINAL, LUG	51
	3	MS25036-53	TERMINAL, LUG	50
	1	MS25036-11	TERMINAL, LUG	49
	1	MS25036-6	TERMINAL, LUG	48
*	1.0	SEE NOTE 24	INSULATION, ELEC	47
	AR	SEE NOTE 23	INSULATION TAPE, ELEC	46
	AR	1010989	WIRE MESH	45
	1	2016311-011	PROTECTIVE COVER ASSY	44
	4	1004546-3	WASHER, FLAT	43
	4	1004546-1	WASHER, FLAT	42
	4	MS16633-4015	RING, RETAINING EXTERNAL "E"	41
	4	1004579-1	SCREW, JACKING	40
	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	39
	2	MS51957-31	SCREW, PAN HD	38
	1	2014427-001	BRACKET, STRAIN RELIEF	37
	4	MS51957-16	SCREW, PAN HD	36
	1	2014308	COVER, CONNECTOR	35
	1	1006417	HEADER, CONNECTOR	34
	AR	1006458-004	TAPE, LACING	33
	AR	1006699	SOLVENT	32
	2	1006415-054	BAND MARKER, CABLE	31
	1	1006415-053	BAND MARKER, CABLE	30
	1	1006415-019	BAND MARKER, CABLE	29
	1	1006415-105	BAND MARKER, CABLE	28
*	7.0	SEE NOTE 8	SLEEVING	27
	1	MS3126F-24-61PZ	CONNECTOR	26
	1	MS3126F-24-61PY	CONNECTOR	25
	1	MS3126F-24-61PX	CONNECTOR	24
	3	1020371-13	BUSHING, SLEEVE	23
	3	1020370-23	BUSHING, SLEEVE	22
*	10.3	1006696-3	SLEEVING	21
*	2.5	1006696-2	SLEEVING	20
	AR	1006253	ADHESIVE	19
	6	1000242-30	FERRULE, ELECTRICAL COND	18
	10	1000242-29	FERRULE, ELECTRICAL COND	17
	2	1000242-27	FERRULE, ELECTRICAL COND	16
	~~4~~	~~1000242-18~~	~~FERRULE, ELECTRICAL COND~~	~~15~~
	6	1000243-34	FERRULE, ELECTRICAL COND	14
	4	1000243-31	FERRULE, ELECTRICAL COND	13
	6	1000243-22	FERRULE, ELECTRICAL COND	12
	AR	1006458-006	TAPE, LACING	11
	2	1000243-21	FERRULE, ELECTRICAL COND	10
	~~4~~	~~1000243-19~~	~~FERRULE, ELECTRICAL COND~~	~~9~~
	92	1010402-1	SLEEVE, SOLDER	8
*	1.6	SEE NOTE 8	SLEEVING	7
*	0.1	SEE NOTE 8	SLEEVING	6
*	5.5	SEE NOTE 11	BRAID, WIRE	5
*	10.3	SEE NOTE 11	BRAID, WIRE	4
*	40.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, BLK	3
*	160	MIL-W-16878/4 E24	WIRE, ELECTRICAL, BLK	2
*	160	MIL-W-16878/4 E24	WIRE, ELECTRICAL, WHT	1

011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014255	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON:
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 12MAR66
CHECKED [illegible] 12MAR66
APPROVAL [illegible] 12MAR66
APPROVAL [illegible] 12MAR66
APPROVAL [illegible] 12MAR66
NASA APPROVAL A. L. MEDINA
MIT APPROVAL [illegible] 4-4-66
MIT APPROVAL [illegible] 3/29/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

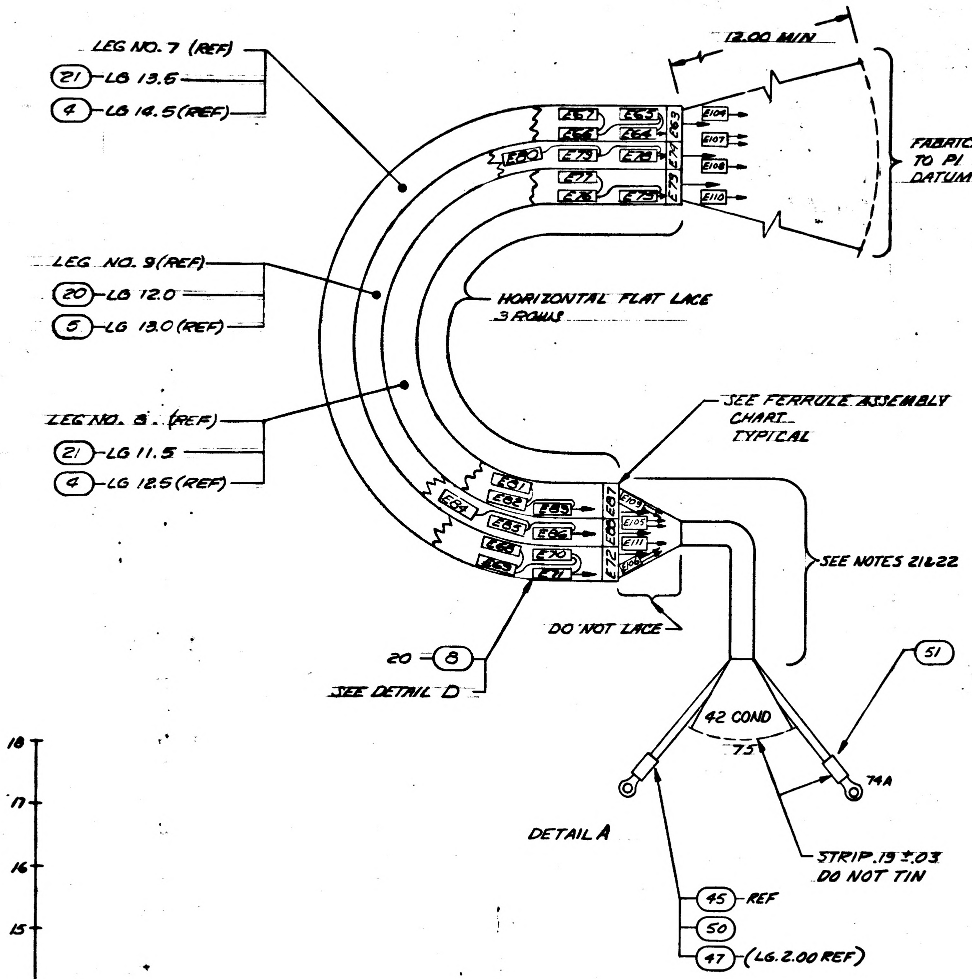
CABLE ASSEMBLY
W226

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014137
SCALE 1/1 WT SHEET 1 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

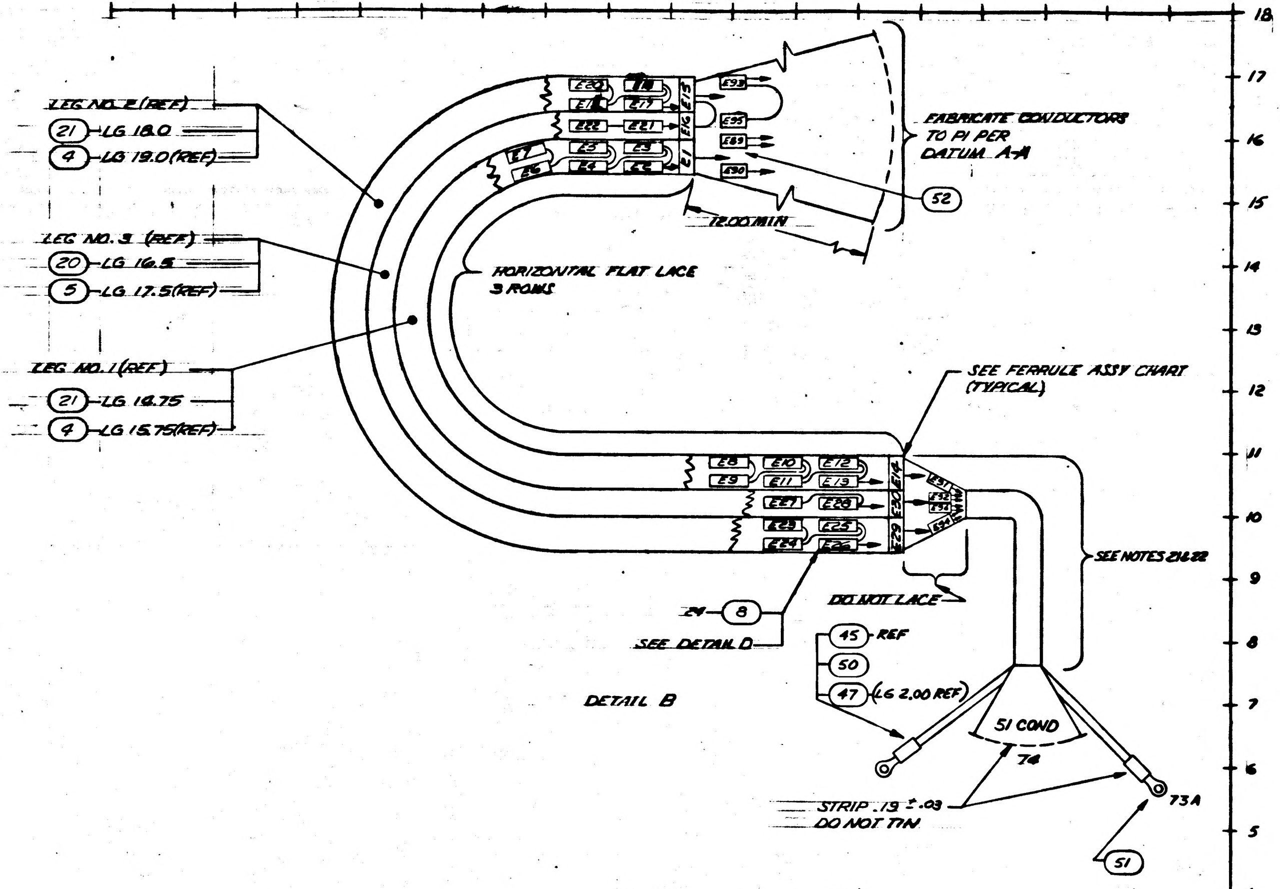
2014137 G

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27698	4-1-66	



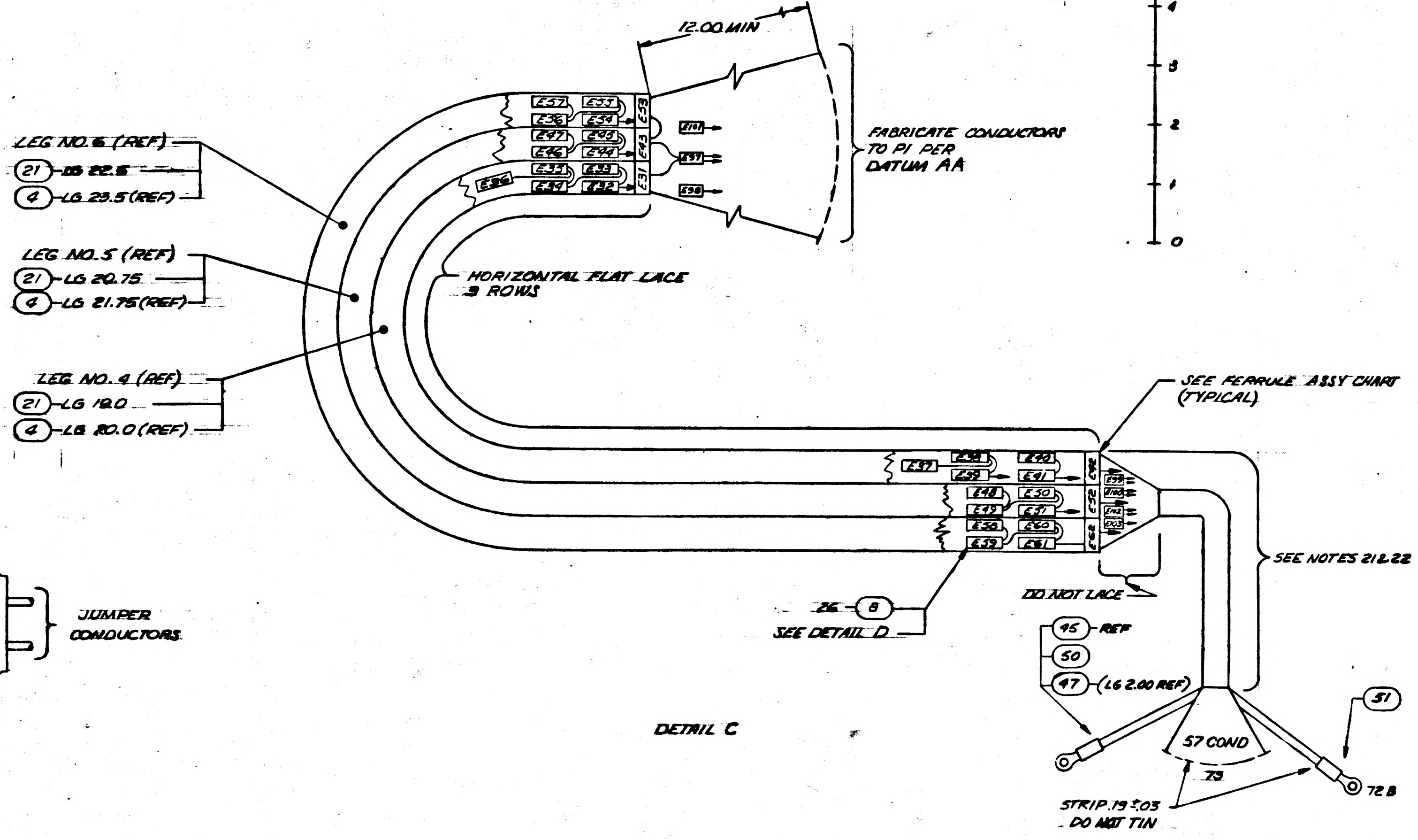
LEG NO. 7 (REF)
(21)-LG 13.6
(4)-LG 14.5 (REF)
12.00 MIN
E67 E65 E66 E64 E63
E80 E79 E78 E74
E77 E76 E75 E73
E104 E107 E108 E110
FABRICATE CONDUCTORS TO PI PER DATUM A-A
LEG NO. 9 (REF)
(20)-LG 12.0
(5)-LG 13.0 (REF)
HORIZONTAL FLAT LACE 3 ROWS
LEG NO. 8 (REF)
(21)-LG 11.5
(4)-LG 12.5 (REF)
SEE FERRULE ASSEMBLY CHART TYPICAL
E81 E82 E84 E83 E85 E86 E68 E69 E70 E71 E87 E88 E72
E109 E105 E111 E106
SEE NOTES 21&22
DO NOT LACE
20-(8)
SEE DETAIL D
(51)
42 COND
75
74A
STRIP .19 ±.03 DO NOT TIN
(45)-REF
(50)
(47)-(LG. 2.00 REF)

DETAIL A



LEG NO. 2 (REF)
(21)-LG 18.0
(4)-LG 19.0 (REF)
E20 E18 E19 E17 E15
E22 E21 E16
E7 E6 E5 E4 E3 E2 E1
E93 E95 E89 E90
FABRICATE CONDUCTORS TO PI PER DATUM A-A
(52)
12.00 MIN
LEG NO. 3 (REF)
(20)-LG 16.5
(5)-LG 17.5 (REF)
HORIZONTAL FLAT LACE 3 ROWS
LEG NO. 1 (REF)
(21)-LG 14.75
(4)-LG 15.75 (REF)
SEE FERRULE ASSY CHART (TYPICAL)
E8 E10 E12 E9 E11 E13 E14
E27 E28 E30
E23 E25 E24 E26 E29
E91 E92 E94
SEE NOTES 21&22
DO NOT LACE
24-(8)
SEE DETAIL D
(45)-REF
(50)
(47)-(LG 2.00 REF)
51 COND
74
STRIP .19 ±.03 DO NOT TIN
73A
(51)

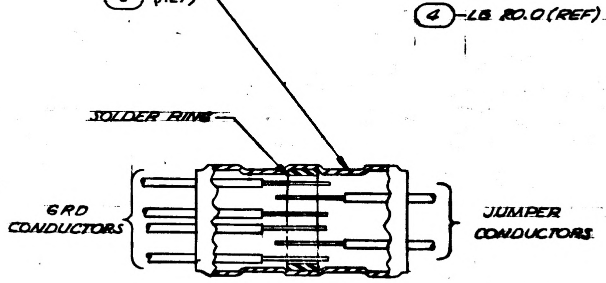
DETAIL B



12.00 MIN
E57 E55 E56 E54 E53
E47 E45 E46 E44 E43
E36 E35 E33 E34 E32 E31
E101 E97 E98
FABRICATE CONDUCTORS TO PI PER DATUM AA
LEG NO. 6 (REF)
(21)-LG 22.5
(4)-LG 23.5 (REF)
LEG NO. 5 (REF)
(21)-LG 20.75
(4)-LG 21.75 (REF)
HORIZONTAL FLAT LACE 3 ROWS
LEG NO. 4 (REF)
(21)-LG 19.0
(4)-LG 20.0 (REF)
SEE FERRULE ASSY CHART (TYPICAL)
E37 E38 E40 E39 E41 E42
E48 E50 E49 E51 E52
E58 E60 E59 E61 E62
E99 E100 E102 E103
SEE NOTES 21&22
DO NOT LACE
26-(8)
SEE DETAIL D
(45)-REF
(50)
(47)-(LG 2.00 REF)
57 COND
73
STRIP .19 ±.03 DO NOT TIN
(51)
72B

DETAIL C

FERRULE ASSEMBLY CHART				
REF DES	FERRULE		SLEEVING	
	FIND NO. (INNER)	FIND NO. (OUTER)	FIND NO.	LENGTH
E1	14	18	7	1.12 ±.12
E14	14	18	7	
E15	12	17	7	
E16	10	16	6	
E29	12	17	7	
E30	10	16		
E31	14	18		
E42				
E43				
E52	14	18		
E53	12	17		
E62				
E63				
E72	12			
E73	13			
E74				
E87				
E88	13	17	7	1.12 ±.12



(8)-(REF)
SOLDER RING
GRD CONDUCTORS
JUMPER CONDUCTORS

DETAIL D
70 PLACES
SCALE: NONE

2H

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 12 MAR 66
CHECKED [illegible] 12 MAR 66
APPROV [illegible] 12 MAR 66
APPROVAL D. D'Angelo 12 MAR 66
APPROVAL [illegible] 12 MAR 66
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 4-1-66
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

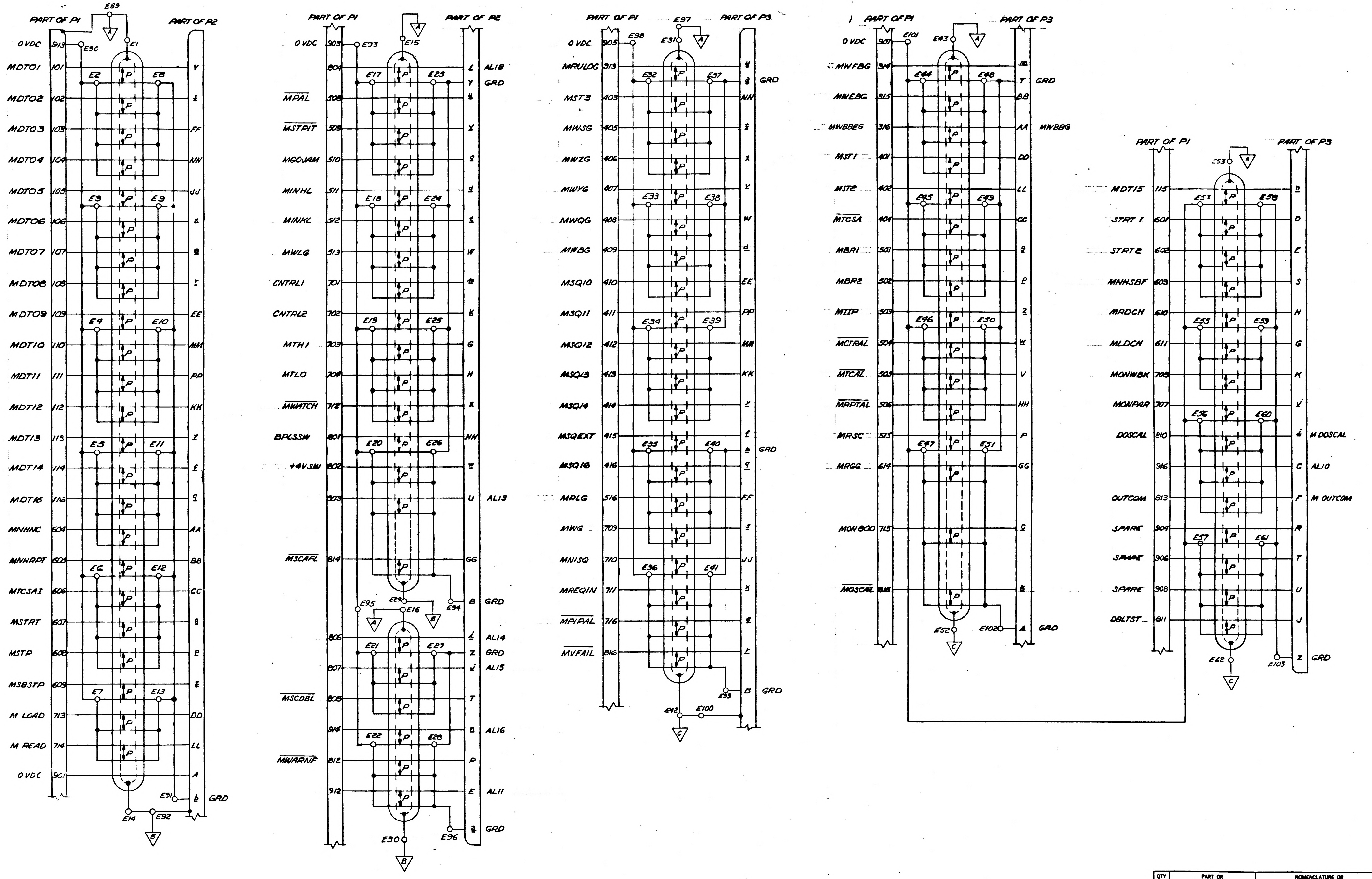
CABLE ASSEMBLY
W226

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014137
SCALE 1/1
WT
SHEET 2 OF 5

2014137 G

2014137 G

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASEL PER TDRR 27698		


PART OF P1
PART OF P2
PART OF P3
E89
E1
E90
0 VDC 913
MDTO1 101 V
MDTO2 102 s
MDTO3 103 FF
MDTO4 104 NN
MDTO5 105 JJ
MDTO6 106 x
MDTO7 107 e
MDTO8 108 r
MDTO9 109 EE
MDT10 110 MM
MDT11 111 PP
MDT12 112 KK
MDT13 113 y
MDT14 114 f
MDT16 116 q
MNHNC 604 AA
MNHRPT 605 BB
MTCSAI 606 CC
MSTRT 607 g
MSTP 608 p
MSBSTP 609 z
M LOAD 713 DD
M READ 714 LL
0 VDC 901 A
b GRD
E2 E8 E3 E9 E4 E10 E5 E11 E6 E12 E7 E13
E14 E91 E92
P
A
B
0 VDC 903 E93 E15
804 L AL18
Y GRD
MPAL 508 u
MSTPIT 509 v
MGOJAM 510 c
MINHL 511 d
MINKL 512 t
MWLG 513 W
CNTRL1 701 m
CNTRL2 702 k
MTHI 703 G
MTLO 704 H
MWATCH 712 X
BPLSSW 801 HH
+4VSW 802 w
803 U AL13
MSCAFL 814 GG
B GRD
E17 E23 E18 E24 E19 E25 E20 E26
E29 E16 E95 E94
806 j AL14
Z GRD
807 i AL15
MSCDBL 808 T
914 n AL16
MWARNF 812 P
912 E AL11
a GRD
E21 E27 E22 E28
E30 E96
0 VDC 905 E98 E31 E97
MRULOG 313 y
a GRD
MST3 403 NN
MWSG 405 z
MWZG 406 X
MWYG 407 Y
MWQG 408 W
MWBG 409 d
MSQ10 410 EE
MSQ11 411 PP
MSQ12 412 MM
MSQ13 413 KK
MSQ14 414 r
MSQEXT 415 f
b GRD
MSQ16 416 q
MRLG 516 FF
MWG 709 s
MNISQ 710 JJ
MREQIN 711 x
MPIPAL 716 e
MVFAIL 816 t
B GRD
E32 E37 E33 E38 E34 E39 E35 E40 E36 E41
E99 E42 E100
C
0 VDC 907 E101 E43
MWFBG 314 m
Y GRD
MWEBG 315 BB
MWBBEG 316 AA MWBBG
MST1 401 DD
MST2 402 LL
MTCSA 404 CC
MBR1 501 g
MBR2 502 p
MIIP 503 z
MCTRAL 504 w
MTCAL 505 V
MRPTAL 506 HH
MRSC 515 P
MRGG 614 GG
MON800 715 c
MOSCAL 815 k
A GRD
E44 E48 E45 E49 E46 E50 E47 E51
E102 E52
E53
MDT15 115 n
STRT1 601 D
STRT2 602 E
MNHSBF 603 S
MRDCH 610 H
MLDCH 611 G
MONWBK 706 K
MONPAR 707 v
DOSCAL 810 d MDOSCAL
916 C AL10
OUTCOM 813 F M OUTCOM
SPARE 904 R
SPARE 906 T
SPARE 908 U
DBLTST 811 J
Z GRD
E54 E58 E55 E59 E56 E60 E57 E61
E62 E103

2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 MAR 66
CHECKED 12 MAR 66
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL 4-1-66
MIT APPROVAL 3/29/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CAELE ASSEMBLY
W 226

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014137
SCALE NONE WT SHEET 3 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

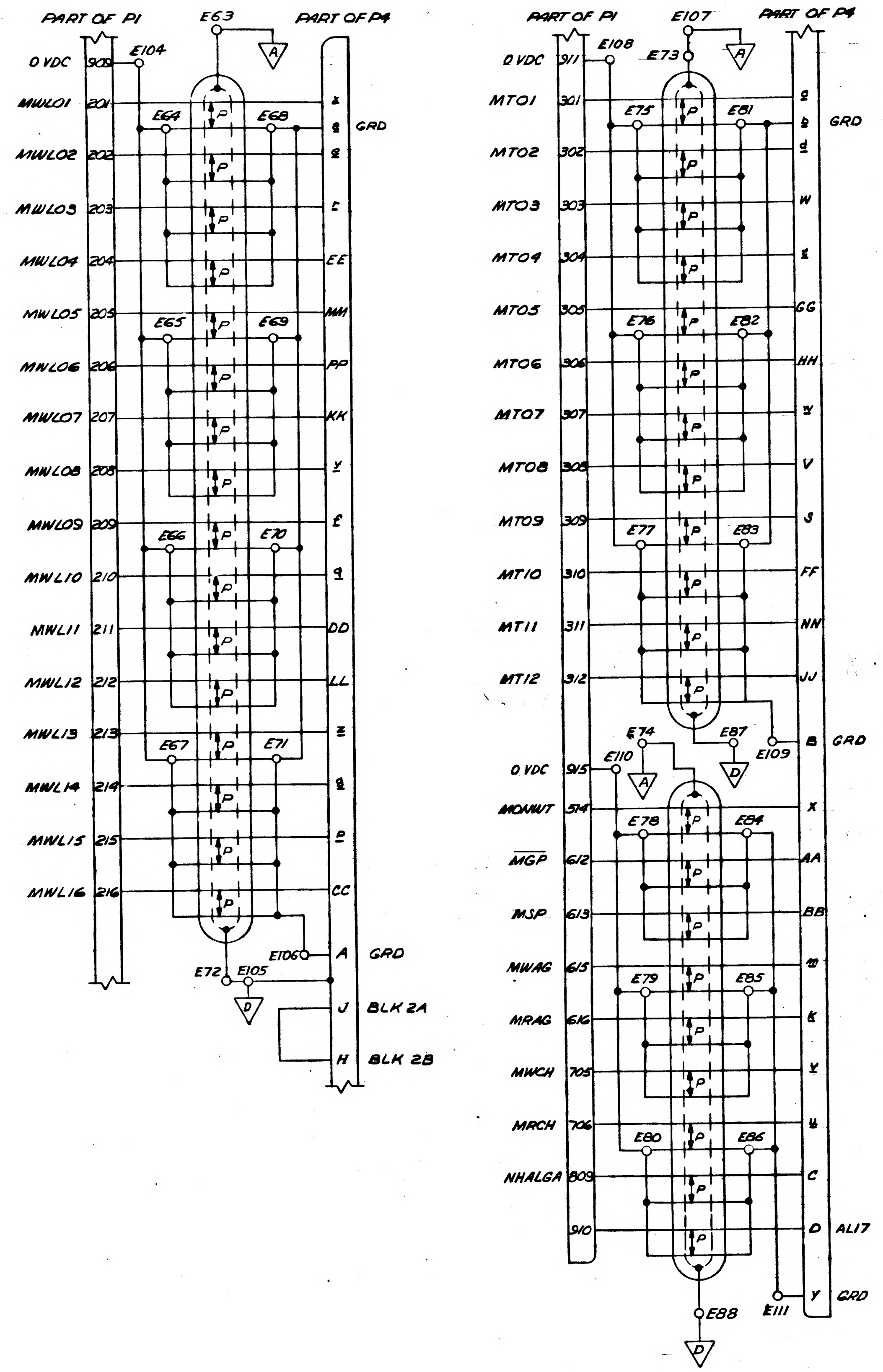
MASTER

2014137 G

2014137 G

2014137 G

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27698		


PART OF P1
E63
PART OF P4
E104
0 VDC
909
MWL01 201
MWL02 202
MWL03 203
MWL04 204
MWL05 205
MWL06 206
MWL07 207
MWL08 208
MWL09 209
MWL10 210
MWL11 211
MWL12 212
MWL13 213
MWL14 214
MWL15 215
MWL16 216
E64
E68
E65
E69
E66
E70
E67
E71
P
GRD
EE
MM
PP
KK
DD
LL
CC
E106
A GRD
J BLK 2A
H BLK 2B
E72
E105
PART OF P1
E107
PART OF P4
E108
0 VDC 911
E73
MT01 301
MT02 302
MT03 303
MT04 304
MT05 305
MT06 306
MT07 307
MT08 308
MT09 309
MT10 310
MT11 311
MT12 312
E75
E81
E76
E82
E77
E83
GG
HH
FF
NN
JJ
E74
E87
B GRD
E110
E109
0 VDC 915
MONUT 514
MGP 612
MSP 613
MWAG 615
MRAG 616
MWCH 705
MRCH 706
NHALGA 809
910
E78
E84
E79
E85
E80
E86
X
AA
BB
D AL17
Y GRD
E88
E111

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO.1 REF	A1	9	P1-101	WHT	24	1	74	P2-V	TWIST
	A2	△1	E2	BLK		2	△1	E8	
	A3	9	P1-102	WHT		1	74	P2-s	
	A4	△1	E2	BLK		2	△1	E8	
	A5	18	P1-103	WHT		1	74	P2-FF	
	A6	△1	E2	BLK		2	△1	E8	
	A7	18	P1-104	WHT		1	74	P2-NN	
	A8	△1	E2	BLK		2	△1	E8	
	A9	27	P1-105	WHT		1	74	P2-JJ	
	A10	△1	E3	BLK		2	△1	E9	
	A11	27	P1-106	WHT		1	74	P2-x	
	A12	△1	E3	BLK		2	△1	E9	
	A13	36	P1-107	WHT		1	74	P2-e	
	A14	△1	E3	BLK		2	△1	E9	
	A15	36	P1-108	WHT		1	74	P2-t	
	A16	△1	E3	BLK		2	△1	E9	
	A17	45	P1-109	WHT		1	74	P2-EE	
	A18	△1	E4	BLK		2	△1	E10	
	A19	45	P1-110	WHT		1	74	P2-MM	
	A20	△1	E4	BLK		2	△1	E10	
	A21	54	P1-111	WHT		1	74	P2-PP	
	A22	△1	E4	BLK		2	△1	E10	
	A23	54	P1-112	WHT		1	74	P2-KK	
	A24	△1	E4	BLK		2	△1	E10	
	A25	63	P1-113	WHT		1	74	P2-y	
	A26	△1	E5	BLK		2	△1	E11	
	A27	63	P1-114	WHT		1	74	P2-f	
	A28	△1	E5	BLK		2	△1	E11	
	A29	72	P1-116	WHT		1	74	P2-q	
	A30	△1	E5	BLK		2	△1	E11	
	A31	13	P1-604	WHT		1	74	P2-AA	
	A32	△1	E5	BLK		2	△1	E11	
	A33	22	P1-605	WHT		1	74	P2-BB	
	A34	△1	E6	BLK		2	△1	E12	
	A35	22	P1-606	WHT		1	74	P2-CC	
	A36	△1	E6	BLK		2	△1	E12	
	A37	31	P1-607	WHT		1	74	P2-g	
	A38	△1	E6	BLK		2	△1	E12	
	A39	31	P1-608	WHT		1	74	P2-p	
	A40	△1	E6	BLK		2	△1	E12	
	A41	40	P1-609	WHT		1	74	P2-z	
	A42	△1	E7	BLK		2	△1	E13	
	A43	57	P1-713	WHT		1	74	P2-DD	
	A44	△1	E7	BLK		2	△1	E13	
	A45	57	P1-714	WHT		1	74	P2-LL	TWIST
	A46	△1	E7	BLK	24	2	△1	E13	
	A47	55	P1-913	BLK	22	3		E90	
	A48	△1	E1					E89	
	A49		E2					E3	
	A50		E3					E4	
	A51		E4					E5	
	A52		E5					E6	
	A53		E6					E7	
	A54		E8					E9	
	A55		E9					E10	
	A56		E10					E11	
	A57		E11					E12	
	A58		E12					E13	
	A59		E13					E91	
	A60	△1	E14	BLK	22	3	△1	E92	
	A61	1	P1-901	BLK	22	3	74	P2-A	
LEG NO.1 REF		△1	E1	BRAID	36	4	△1	E14	
LEG NO.2 REF	A63	11	P1-804	WHT	24	1	74	P2-L	TWIST
	A64	△1	E17	BLK		2	△1	E23	
	A65	32	P1-508	WHT		1	74	P2-u	
	A66	△1	E17	BLK		2	△1	E23	
	A67	41	P1-509	WHT		1	74	P2-v	
	A68	△1	E17	BLK		2	△1	E23	
	A69	41	P1-510	WHT		1	74	P2-s	
	A70	△1	E17	BLK		2	△1	E23	
	A71	50	P1-511	WHT		1	74	P2-d	
	A72	△1	E18	BLK		2	△1	E24	
	A73	50	P1-512	WHT		1	74	P2-c	
	A74	△1	E18	BLK		2	△1	E24	
	A75	59	P1-513	WHT		1	74	P2-W	
	A76	△1	E18	BLK		2	△1	E24	
	A77	3	P1-701	WHT		1	74	P2-m	
	A78	△1	E-18	BLK		2	△1	E24	
	A79	3	P1-702	WHT		1	74	P2-k	
	A80	△1	E19	BLK		2	△1	E25	
	A81	12	P1-703	WHT		1	74	P2-G	
	A82	△1	E19	BLK		2	△1	E25	
	A83	12	P1-704	WHT		1	74	P2-H	
	A84	△1	E19	BLK		2	△1	E25	
	A85	48	P1-712	WHT		1	74	P2-X	TWIST
LEG NO.2 REF	A86	△1	E19	BLK	24	2	△1	E25	

△1 DENOTES INTERNAL CONNECTION
△2 ATTACH 1.00 OF FIND 53, SEE NOTE 26

ASSEMBLY INFORMATING CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO.2 REF	A87	2	P1-801	WHT	24	1	74	P2-HH	TWIST
	A88	△1	E20	BLK		2	△1	E26	
	A89	2	P1-802	WHT		1	74	P2-w	
	A90	△1	E20	BLK		2	△1	E26	
	A91	11	P1-803	WHT		1	74	P2-U	
	A92	△1	E20	BLK		2	△1	E26	
	A93	56	P1-814	WHT		1	74	P2-GG	TWIST
	A94	△1	E20	BLK	24	2	△1	E26	
	A95	10	P1-903	BLK	22	3		E93	
	A96	△1	E15					E89	
	A97		E17					E18	
	A98		E18					E19	
	A99		E19					E20	
	A100		E23					E24	
	A101		E24					E25	
	A102		E25					E26	
	A103		E26					E94	
	A104		E29	BLK	22	3		E92	
LEG NO.2 REF		△1	E15	BRAID	36	4	△1	E29	
LEG NO.2 REF	A106	△1	E15	BLK	22	3	△1	E16	LEG NO.3 REF
LEG NO.3 REF	A107	20	P1-806	WHT	24	1	74	P2-a	TWIST
	A108	△1	E21	BLK		2	△1	E27	
	A109	29	P1-807	WHT		1	74	P2-j	
	A110	△1	E21	BLK		2	△1	E27	
	A111	29	P1-808	WHT		1	74	P2-T	
	A112	△1	E21	BLK		2	△1	E27	
	A113	55	P1-914	WHT		1	74	P2-h	
	A114	△1	E22	BLK		2	△1	E28	
	A115	47	P1-812	WHT		1	74	P2-P	
	A116	△1	E22	BLK		2	△1	E28	
	A117	46	P1-912	WHT		1	74	P2-E	TWIST
	A118	△1	E22	BLK	24	2	△1	E28	
	A119		E95	BLK	22	3		E21	
	A120		E21					E22	
	A121		E27					E28	
	A122		E28					E96	
	A123		E30	BLK	22	3		E92	
LEG NO.3 REF		△1	E16	BRAID	36	5	△1	E30	

SEE SHEET 5 FOR A125 THRU A373

LEG NO.3 REF	A374	△1	E96	BLK	22	3	74	P2-Z	
LEG NO.3 REF	A375		E96				74	P2-r	
LEG NO.4 REF	A376		E32				△1	E98	
	A377		E97				△1	E89	LEG NO.1 REF
	A378		E99				73	P3-B	
	A379		E99				73	P3-b	
LEG NO.4 REF	A380		E100				72B	P3-GRD	△2
LEG NO.5 REF	A381		E44				△1	E101	
	A382		E102				73	P3-A	
LEG NO.5 REF	A383		E102				73	P3-Y	
LEG NO.6 REF	A384		E103				73	P3-Z	
LEG NO.7 REF	A385		E107				△1	E97	LEG NO.4 REF
	A386		E64				△1	E104	
	A387		E106				75	P4-A	
	A388		E106				75	P4-a	
LEG NO.7 REF	A389		E105				74A	P4-GRD	△2
LEG NO.8 REF	A390		E75				△1	E108	
	A391		E109				75	P4-B	
LEG NO.8 REF	A392		E109				75	P4-b	
LEG NO.9 REF	A393		E78				△1	E110	
LEG NO.9 REF	A394		E111				75	P4-Y	
LEG NO.6 REF	A395	△1	E54	BLK	22	3	△1	E101	LEG [illegible] REF

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

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NEXT ASSY	USED ON
APPLICATION	

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TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
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RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 MAR 66
CHECKED 12 MAR 66
APPROVAL 12 MAR 66
APPROVAL D. 12 MAR 66
APPROVAL 12 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL M G Mealy 4-1-66
MIT APPROVAL C Harano 4-9-66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W?26

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014137
SCALE NONE
WT
SHEET 4 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014137 G

2014137 C

2H

2H

2014137 G

REVISIONS			
SYM	DESCRIPTION	DATE	
G	CLASS A RELEASED PER TDRR 27698	4-66	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO. 4 REF	A125	61	P1-313	WHT	24	1	73	P3-u	TWIST
	A126	△1	E32	BLK		2	△1	E37	
	A127	15	P1-403	WHT		1	73	P3-NN	
	A128	△1	E32	BLK		2	△1	E37	
	A129	24	P1-405	WHT		1	73	P3-s	
	A130	△1	E32	BLK		2	△1	E37	
	A131	24	P1-406	WHT		1	73	P3-X	
	A132	△1	E32	BLK		2	△1	E37	
	A133	33	P1-407	WHT		1	73	P3-v	
	A134	△1	E33	BLK		2	△1	E38	
	A135	33	P1-408	WHT		1	73	P3-W	
	A136	△1	E33	BLK		2	△1	E38	
	A137	42	P1-409	WHT		1	73	P3-d	
	A138	△1	E33	BLK		2	△1	E38	
	A139	42	P1-410	WHT		1	73	P3-EE	
	A140	△1	E33	BLK		2	△1	E38	
	A141	51	P1-411	WHT		1	73	P3-PP	
	A142	△1	E34	BLK		2	△1	E39	
	A143	51	P1-412	WHT		1	73	P3-MM	
	A144	△1	E34	BLK		2	△1	E-39	
	A145	60	P1-413	WHT		1	73	P3-KK	
	A146	△1	E34	BLK		2	△1	E39	
	A147	60	P1-414	WHT		1	73	P3-y	
	A148	△1	E34	BLK		2	△1	E39	
	A149	69	P1-415	WHT		1	73	P3-f	
	A150	△1	E35	BLK		2	△1	E40	
	A151	69	P1-416	WHT		1	73	P3-q	
	A152	△1	E35	BLK		2	△1	E40	
	A153	68	P1-516	WHT		1	73	P3-FF	
	A154	△1	E35	BLK		2	△1	E40	
	A155	39	P1-709	WHT		1	73	P3-s	
	A156	△1	E35	BLK		2	△1	E40	
	A157	39	P1-710	WHT		1	73	P3-JJ	
	A158	△1	E36	BLK		2	△1	E41	
	A159	48	P1-711	WHT		1	73	P3-x	
	A160	△1	E36	BLK		2	△1	E41	
	A161	66	P1-716	WHT		1	73	P3-e	
	A162	△1	E36	BLK		2	△1	E41	
	A163	65	P1-816	WHT		1	73	P3-r	TWIST
	A164	△1	E36	BLK	24	2	△1	E41	
	A165	19	P1-905	BLK	22	3		E96	
	A166	△1	E31					E97	
	A167		E32					E33	
	A168		E33					E34	
	A169		E34					E35	
	A170		E35					E36	
	A171		E37					E38	
	A172		E38				△1	E39	
	A173		E39				73	P3-a	
	A174		E40				△1	E91	
	A175		E41					E99	
	A176		E42	BLK	22	3		E100	
LEG NO. 4 REF		△1	E31	BRAID	36	4	△1	E42	
LEG NO. 5 REF	A178	61	P1-314	WHT	24	1	73	P3-m	TWIST
	A179	△1	E44	BLK		2	△1	E48	
	A180	70	P1-315	WHT		1	73	P3-BB	
	A181	△1	E44	BLK		2	△1	E48	
	A182	70	P1-316	WHT		1	73	P3-AA	
	A183	△1	E44	BLK		2	△1	E48	
	A184	6	P1-401	WHT		1	73	P3-DD	
	A185	△1	E44	BLK		2	△1	E48	
	A186	6	P1-402	WHT		1	73	P3-LL	
	A187	△1	E45	BLK		2	△1	E49	
	A188	15	P1-404	WHT		1	73	P3-CC	
	A189	△1	E45	BLK		2	△1	E49	
	A190	5	P1-501	WHT		1	73	P3-g	
	A191	△1	E45	BLK		2	△1	E49	
	A192	5	P1-502	WHT		1	73	P3-p	
	A193	△1	E45	BLK		2	△1	E49	
	A194	14	P1-503	WHT		1	73	P3-z	
	A195	△1	E46	BLK		2	△1	E50	
	A196	23	P1-504	WHT		1	73	P3-w	
	A197	△1	E46	BLK		2	△1	E50	
	A198	23	P1-505	WHT		1	73	P3-V	
	A199	△1	E46	BLK		2	△1	E50	
	A200	23	P1-506	WHT		1	73	P3-HH	
	A201	△1	E46	BLK		2	△1	E50	
	A202	68	P1-515	WHT		1	73	P3-P	
	A203	△1	E47	BLK		2	△1	E51	
	A204	58	P1-614	WHT		1	73	P3-GG	
	A205	△1	E47	BLK		2	△1	E51	
	A206	66	P1-715	WHT		1	73	P3-c	
	A207	△1	E47	BLK		2	△1	E51	
	A208	65	P1-815	WHT		1	73	P3-k	TWIST
LEG NO. 5 REF	A209	△1	E47	BLK	24	2	△1	E51	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO. 5 REF	A210	28	P1-907	BLK	22	3	△1	E101	
	A211	△1	E43					E97	
	A212		E44					E45	
	A213		E45					E46	
	A214		E46					E47	
	A215		E48					E49	
	A216		E49					E50	
	A217		E50					E51	
	A218		E51					E102	
	A219		E52	BLK	22	3		E100	
LEG NO. 5 REF		△1	E43	BRAID	36	4	△1	E52	
LEG NO. 5 REF	A221	△1	E43	BLK	22	3	△1	E53	LEG NO. 6 REF
LEG NO. 6 REF	A222	72	P1-115	WHT	24	1	73	P3-h	TWIST
	A223	△1	E54	BLK		2	△1	E58	
	A224	4	P1-601	WHT		1	73	P3-D	
	A225	△1	E54	BLK		2	△1	E58	
	A226	4	P1-602	WHT		1	73	P3-E	
	A227	△1	E54	BLK		2	△1	E58	
	A228	13	P1-603	WHT		1	73	P3-S	
	A229	△1	E54	BLK		2	△1	E58	
	A230	40	P1-610	WHT		1	73	P3-H	
	A231	△1	E55	BLK		2	△1	E59	
	A232	49	P1-611	WHT		1	73	P3-G	
	A233	△1	E55	BLK		2	△1	E59	
	A234	30	P1-708	WHT		1	73	P3-K	
	A235	△1	E55	BLK		2	△1	E59	
	A236	30	P1-707	WHT		1	73	P3-j	
	A237	△1	E56	BLK		2	△1	E60	
	A238	38	P1-810	WHT		1	73	P3-b	
	A239	△1	E56	BLK		2	△1	E60	
	A240	64	P1-916	WHT		1	73	P3-C	
	A241	△1	E56	BLK		2	△1	E60	
	A242	56	P1-813	WHT		1	73	P3-F	
	A243	△1	E56	BLK		2	△1	E60	
	A244	10	P1-904	WHT		1	73	P3-R	
	A245	△1	E57	BLK		2	△1	E61	
	A246	19	P1-906	WHT		1	73	P3-T	
	A247	△1	E57	BLK		2	△1	E61	
	A248	47	P1-811	WHT		1	73	P3-J	
	A249	△1	E57	BLK		2	△1	E61	
	A250	28	P1-908	WHT		1	73	P3-U	TWIST
	A251	△1	E57	BLK	24	2	△1	E61	
	A252		E53	BLK	22	3		E97	
	A253		E54					E55	
	A254		E55					E56	
	A255		E56					E57	
	A256		E58					E59	
	A257		E59					E60	
	A258		E60					E61	
	A259		E61					E103	
	A260		E62	BLK	22	3		E100	
LEG NO. 6 REF		△1	E53	BRAID	36	4	△1	E62	
LEG NO. 7 REF	A262	8	P1-201	WHT	24	1	75	P4-x	TWIST
	A263	△1	E64	BLK		2	△1	E68	
	A264	8	P1-202	WHT		1	75	P4-e	
	A265	△1	E64	BLK		2	△1	E68	
	A266	17	P1-203	WHT		1	75	P4-r	
	A267	△1	E64	BLK		2	△1	E68	
	A268	17	P1-204	WHT		1	75	P4-EE	
	A269	△1	E64	BLK		2	△1	E68	
	A270	26	P1-205	WHT		1	75	P4-MM	
	A271	△1	E65	BLK		2	△1	E69	
	A272	26	P1-206	WHT		1	75	P4-PP	
	A273	△1	E65	BLK		2	△1	E69	
	A274	35	P1-207	WHT		1	75	P4-KK	
	A275	△1	E65	BLK		2	△1	E69	
	A276	35	P1-208	WHT		1	75	P4-y	
	A277	△1	E65	BLK		2	△1	E69	
	A278	44	P1-209	WHT		1	75	P4-f	
	A279	△1	E66	BLK		2	△1	E70	
	A280	44	P1-210	WHT		1	75	P4-g	
	A281	△1	E66	BLK		2	△1	E70	
	A282	53	P1-211	WHT		1	75	P4-DD	
	A283	△1	E66	BLK		2	△1	E70	
	A284	53	P1-212	WHT		1	75	P4-LL	
	A285	△1	E66	BLK		2	△1	E70	
	A286	62	P1-213	WHT		1	75	P4-z	
	A287	△1	E67	BLK		2	△1	E71	
	A288	62	P1-214	WHT		1	75	P4-a	TWIST
LEG NO. 7 REF	A289	△1	E67	BLK	24	2	△1	E71	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO. 7 REF	A290	71	P1-215	WHT	24	1	75	P4-p	TWIST
	A291	△1	E67	BLK		2	△1	E71	
	A292	71	P1-216	WHT		1	75	P4-CC	TWIST
	A293	△1	E67	BLK	24	2	△1	E71	
	A294	37	P1-909	BLK	22	3		E104	
	A295	△1	E63					E107	
	A296		E64					E65	
	A297		E65					E66	
	A298		E66					E67	
	A299		E68					E69	
	A300		E69					E70	
	A301		E70					E71	
	A302		E71					E106	
	A303		E72	BLK	22	3	△1	E105	
LEG NO. 7 REF		△1	E63	BRAID	36	4		E72	
LEG NO. 8 REF	A305	7	P1-301	WHT	24	1	75	P4-s	TWIST
	A306	△1	E75	BLK		2	△1	E81	
	A307	7	P1-302	WHT		1	75	P4-d	
	A308	△1	E75	BLK		2	△1	E81	
	A309	16	P1-303	WHT		1	75	P4-W	
	A310	△1	E75	BLK		2	△1	E81	
	A311	16	P1-304	WHT		1	75	P4-t	
	A312	△1	E75	BLK		2	△1	E81	
	A313	25	P1-305	WHT		1	75	P4-GG	
	A314	△1	E76	BLK		2	△1	E82	
	A315	25	P1-306	WHT		1	75	P4-HH	
	A316	△1	E76	BLK		2	△1	E82	
	A317	34	P1-307	WHT		1	75	P4-w	
	A318	△1	E76	BLK		2	△1	E82	
	A319	34	P1-308	WHT		1	75	P4-V	
	A320	△1	E76	BLK		2	△1	E82	
	A321	43	P1-309	WHT		1	75	P4-S	
	A322	△1	E77	BLK		2	△1	E83	
	A323	43	P1-310	WHT		1	75	P4-FF	
	A324	△1	E77	BLK		2	△1	E83	
	A325	52	P1-311	WHT		1	75	P4-NN	
	A326	△1	E77	BLK		2	△1	E83	
	A327	52	P1-312	WHT		1	75	P4-JJ	TWIST
	A328	△1	E77	BLK	24	2	△1	E83	
	A329	46	P1-911	BLK	22	3		E108	
	A330	△1	E73					E107	
	A331		E75					E76	
	A332		E76					E77	
	A333		E81					E82	
	A334		E82					E83	
	A335		E83					E109	
	A336		E87	BLK	22	3		E105	
LEG NO. 8 REF		△1	E73	BRAID	36	4	△1	E87	
LEG NO. 9 REF	A338	59	P1-514	WHT	24	1	75	P4-X	TWIST
	A339	△1	E78	BLK		2	△1	E84	
	A340	49	P1-612	WHT		1	75	P4-AA	
	A341	△1	E78	BLK		2	△1	E84	
	A342	58	P1-613	WHT		1	75	P4-BB	
	A343	△1	E78	BLK		2	△1	E84	
	A344	67	P1-615	WHT		1	75	P4-m	
	A345	△1	E79	BLK		2	△1	E85	
	A346	67	P1-616	WHT		1	75	P4-k	
	A347	△1	E79	BLK		2	△1	E85	
	A348	21	P1-705	WHT		1	75	P4-v	
	A349	△1	E79	BLK		2	△1	E85	
	A350	21	P1-706	WHT		1	75	P4-u	
	A351	△1	E80	BLK		2	△1	E86	
	A352	38	P1-309	WHT		1	75	P4-C	
	A353	△1	E80	BLK		2	△1	E86	
	A354	37	P1-910	WHT		1	75	P4-D	TWIST
	A355	△1	E80	BLK	24	2	△1	E86	
	A356	64	P1-915	BLK	22	3		E110	
	A357	△1	E74					E107	
	A358		E78					E79	
	A359		E79					E80	
	A360		E84					E85	
	A361		E85					E86	
	A362		E86					E111	
	A363		E88	BLK	22	3		E105	
LEG NO. 9 REF			E74	BRAID	36	4		E88	
	A365		P4-H	BLK	22	3	△1	P4-J	
LEG NO. 1 REF	A366		E89	BRAID	36	4	72A	P1-GRD	
	A367		E2	BLK	22	3	△1	E90	
	A368		E91				74	P2-b	
LEG NO. 1 REF	A369		E92				73A	P2-GRD	△2
LEG NO. 2 REF	A370		E17				△1	E93	
	A371		E94				74	P2-Y	
	A372		E94				74	P2-B	
LEG NO. 2 REF	A373	△1	E93	BLK	22	3	△1	E95	LEG NO. 3 REF

SEE SHEET 4 FOR A374 THRU A395

2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12MAR66
CHECKED 12MAR66
APPROVAL 12MAR66
APPROVAL 12MAR66
APPROVAL 12MAR66
NASA APPROVAL METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W226

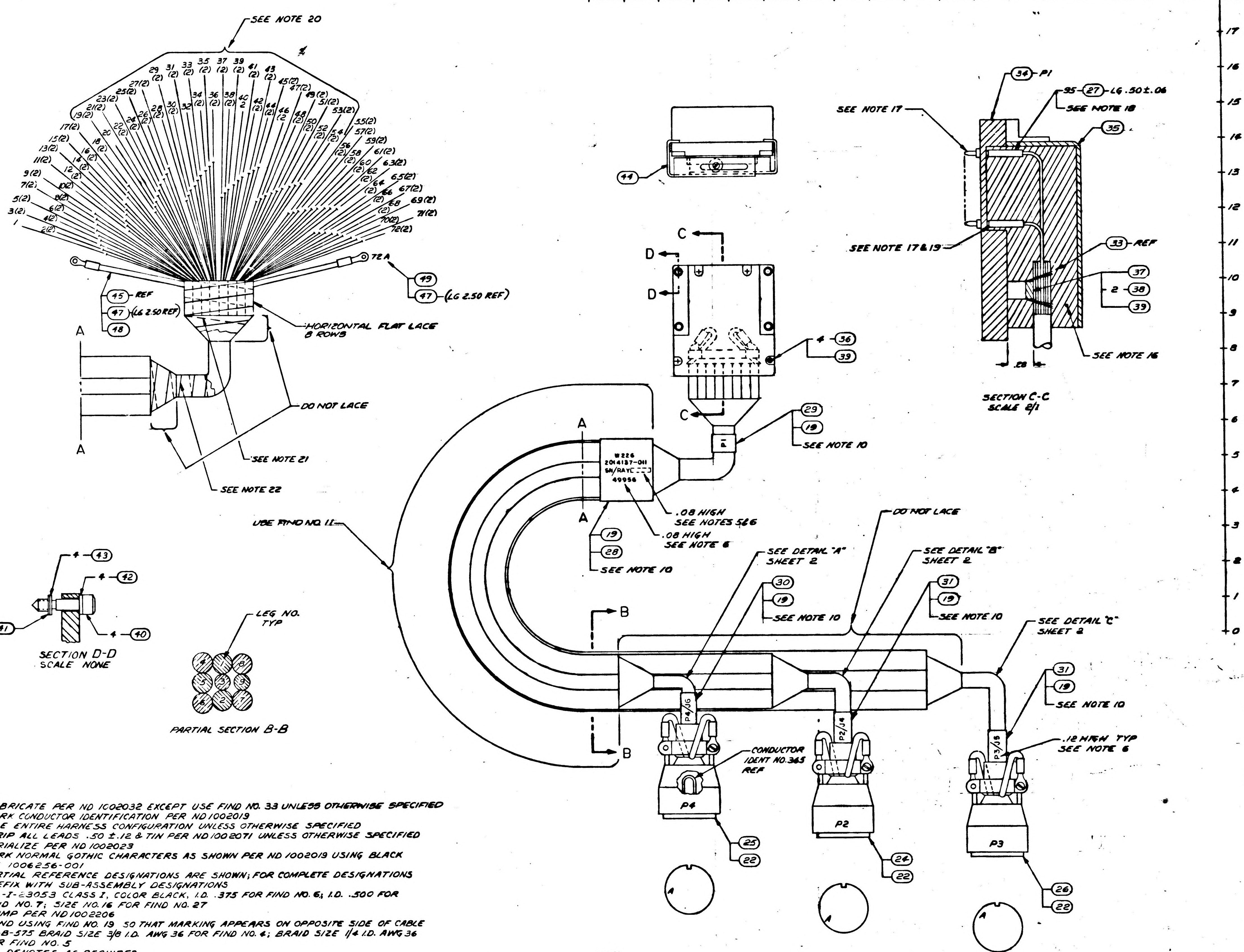
CODE IDENT NO	SIZE	NASA DRAWING NO
49956	J	2014137
SCALE NONE	WT	SHEET 3 OF 5

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014137 G

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27678	[illegible]	[illegible]
H	CHANGED PER TDRR 28826 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]


SEE NOTE 20
1
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47 (LG 2.50 REF)
45 REF
47 (LG 2.50 REF)
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HORIZONTAL FLAT LACE 8 ROWS
A
A
DO NOT LACE
SEE NOTE 21
SEE NOTE 22
4 43
4 42
4 41
4 40
SECTION D-D
SCALE NONE
LEG NO. TYP
PARTIAL SECTION B-B
USE FIND NO. 11
44
C
D
D
C
4 36
39
29
19
SEE NOTE 10
W226
2014137-011
SN/RAYC
49956
.08 HIGH
SEE NOTES 5&6
.08 HIGH
SEE NOTE 6
A
A
19
28
SEE NOTE 10
DO NOT LACE
SEE DETAIL "A" SHEET 2
30
19
SEE NOTE 10
SEE DETAIL "B" SHEET 2
31
19
SEE NOTE 10
SEE DETAIL "C" SHEET 2
31
19
SEE NOTE 10
.12 HIGH TYP
SEE NOTE 6
B
B
P4/J6
P2/J4
P3/J5
CONDUCTOR IDENT NO. 365 REF
P4
25
22
P2
24
22
P3
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22
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A
34 P1
35 27 LG .50±.06
SEE NOTE 18
SEE NOTE 17
35
SEE NOTE 17 & 19
33 REF
37
2 38
39
SEE NOTE 16
.28
SECTION C-C
SCALE 2/1

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 33 UNLESS OTHERWISE SPECIFIED
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
3. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
4. STRIP ALL LEADS .50 ±.12 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
5. SERIALIZE PER ND 1002023
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
8. MIL-I-23053 CLASS I, COLOR BLACK, I.D. .375 FOR FIND NO. 6; I.D. .500 FOR FIND NO. 7; SIZE NO. 16 FOR FIND NO. 27
9. CRIMP PER ND 1002206
10. BOND USING FIND NO. 19 SO THAT MARKING APPEARS ON OPPOSITE SIDE OF CABLE
11. QQ-B-575 BRAID SIZE 3/8 I.D. AWG 36 FOR FIND NO. 4; BRAID SIZE 1/4 I.D. AWG 36 FOR FIND NO. 5
12. AR DENOTES AS REQUIRED
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
~~15. THE SYMBOL △ SHOWN ON ASSEMBLY INFORMATION CHART DENOTES INTERNAL CONNECTION~~
16. POT PER ND 1002009 METHOD E & PRIME
17. SEAL INSULATORS & CONTACTS PER ND 1002004 TYPE II
18. SLEEVE EVEN NUMBERED PINS ON EVEN NUMBERED ROWS AND ODD NUMBERED PINS ON ODD NUMBERED ROWS EXCEPT SLEEVE ALL PINS IN EXTREME HORIZONTAL & VERTICAL ROWS
19. FIND NO. 27 MUST BE IMBEDDED IN EPOXY ADHESIVE APPLIED PER NOTE 17 SO AS TO INSURE INSULATION OF CONTACTS
20. SPOT TIE ALL LEADS FROM STA NO. 19 THRU STA NO. 54 TO FIND NO. 37 USING FIND NO. 33

NOTES
21. SPIRAL WRAP USING FIND NO. 45 WITH 50% OVERLAP
22. SPIRAL WRAP USING FIND NO. 46 WITH 50% OVERLAP IN OPPOSITE DIRECTION OF FIND NO. 45
23. MIL-I-15126, THERMO SETTING, ADHESIVE BACKED, TYPE ACT, .75 WIDE
24. MIL-I-631, TYPE F, FORM U2, GRADE 2, CLASS 1, CATAGORY 1, COLOR BLK, AWG SIZE NO. 4
25. MIL-I-23053, CLASS I, WHT, I.D. .125
26. MARK SLEEVING WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH BLK PER ND 1002019
27. CUT SLEEVING AND BRAID LENGTHS AS SHOWN

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	0.6	SEE NOTE 25	SLEEVING	53
	1	1010402-2	SLEEVE, SOLDER	52
	3	MS25036-49	TERMINAL, LUG	51
	3	MS25036-53	TERMINAL, LUG	50
	1	MS25036-11	TERMINAL, LUG	49
	1	MS25036-6	TERMINAL, LUG	48
*	1.2	SEE NOTE 24	INSULATION, ELEC	47
	AR	SEE NOTE 23	INSULATION TAPE, ELEC	46
	AR	1010989	WIRE MESH	45
	1	2016311-011	PROTECTIVE COVER ASSY	44
	4	1004546-3	WASHER, FLAT	43
	4	1004546-1	WASHER, FLAT	42
	4	MS16633-4015	RING, RETAINING EXTERNAL "E"	41
	4	1004579-1	SCREW, JACKING	40
	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	39
	2	MS51957-31	SCREW, PAN HD	38
	1	2014427-001	BRACKET, STRAIN RELIEF	37
	4	MS51957-16	SCREW, PAN HD	36
	1	2014308	COVER, CONNECTOR	35
	1	1006417	HEADER, CONNECTOR	34
	AR	1006458-004	TAPE, LACING	33
	AR	1006699	SOLVENT	32
	2	1006415-054	BAND MARKER, CABLE	31
	1	1006415-053	BAND MARKER, CABLE	30
	1	1006415-019	BAND MARKER, CABLE	29
	1	1006415-105	BAND MARKER, CABLE	28
*	7.0	SEE NOTE 8	SLEEVING	27
	1	MS3126F-24-61PZ	CONNECTOR	26
	1	MS3126F-24-61PY	CONNECTOR	25
	1	MS3126F-24-61PX	CONNECTOR	24
	~~3~~	~~1020371-13~~	~~BUSHING, SLEEVE~~	~~23~~
	3	1020370-23	BUSHING, SLEEVE	22
*	10.5	1006696-3	SLEEVING	21
*	2.5	1006696-2	SLEEVING	20
	AR	1006253	ADHESIVE	19
	6	1000242-30	FERRULE, ELECTRICAL COND	18
	10	1000242-29	FERRULE, ELECTRICAL COND	17
	2	1000242-27	FERRULE, ELECTRICAL COND	16
	~~4~~	~~1000242-18~~	~~FERRULE, ELECTRICAL COND~~	~~15~~
	6	1000243-34	FERRULE, ELECTRICAL COND	14
	4	1000243-31	FERRULE, ELECTRICAL COND	13
	6	1000243-22	FERRULE, ELECTRICAL COND	12
	AR	1006458-006	TAPE, LACING	11
	2	1000243-21	FERRULE, ELECTRICAL COND	10
	~~[illegible]~~	~~[illegible]~~	~~FERRULE, ELECTRICAL COND~~	~~9~~
	32	1010402-1	SLEEVE, SOLDER	8
*	1.6	SEE NOTE 8	SLEEVING	7
*	0.1	SEE NOTE 8	SLEEVING	6
*	5.5	SEE NOTE 11	BRAID, WIRE	5
*	10.3	SEE NOTE 11	BRAID, WIRE	4
*	40.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, BLK	3
*	16.0	MIL-W-16878/4 E24	WIRE, ELECTRICAL, BLK	2
*	16.0	MIL-W-16878/4 E24	WIRE, ELECTRICAL, WHT	1
	011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±
MATERIAL

2014255 NEXT ASSY
USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 12 [illegible]
APPROVAL [illegible] 12 [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

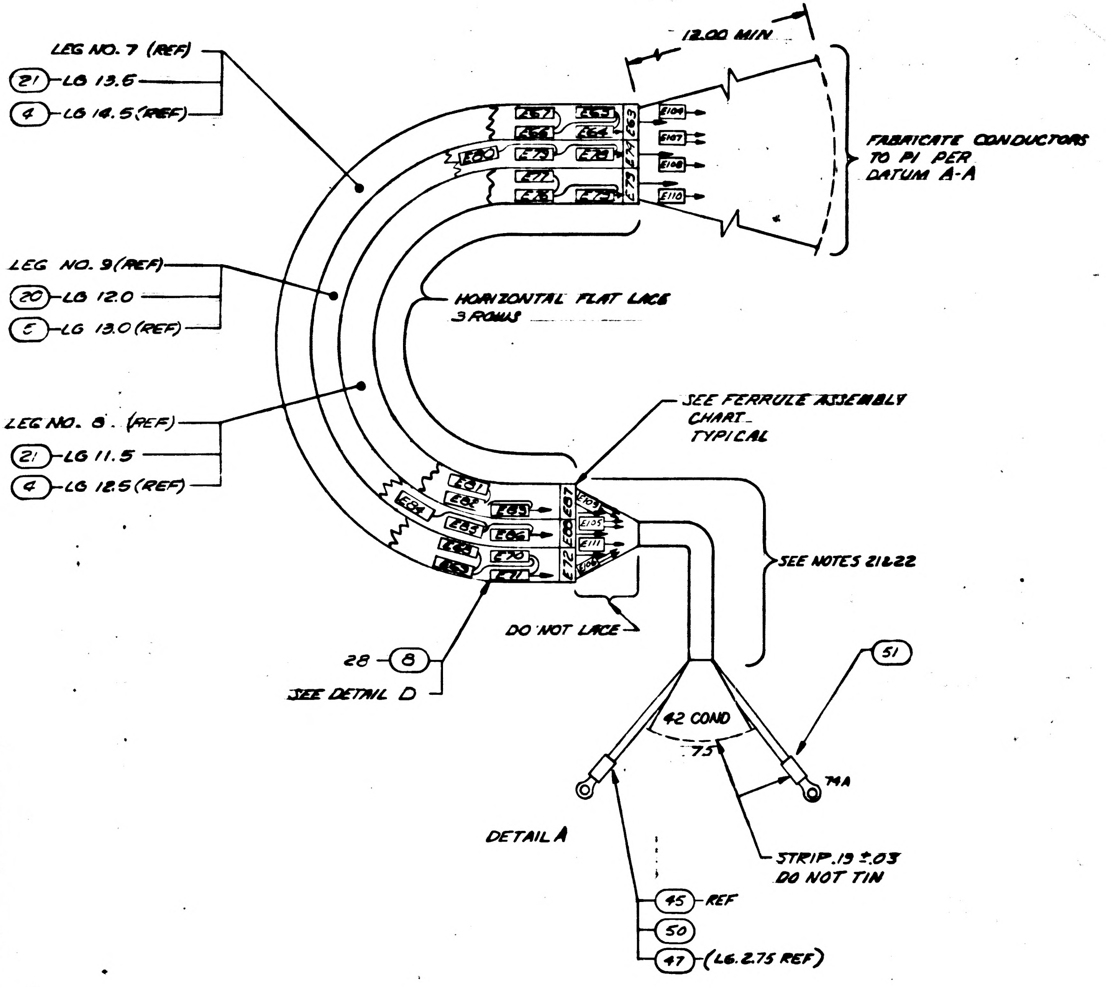
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W226

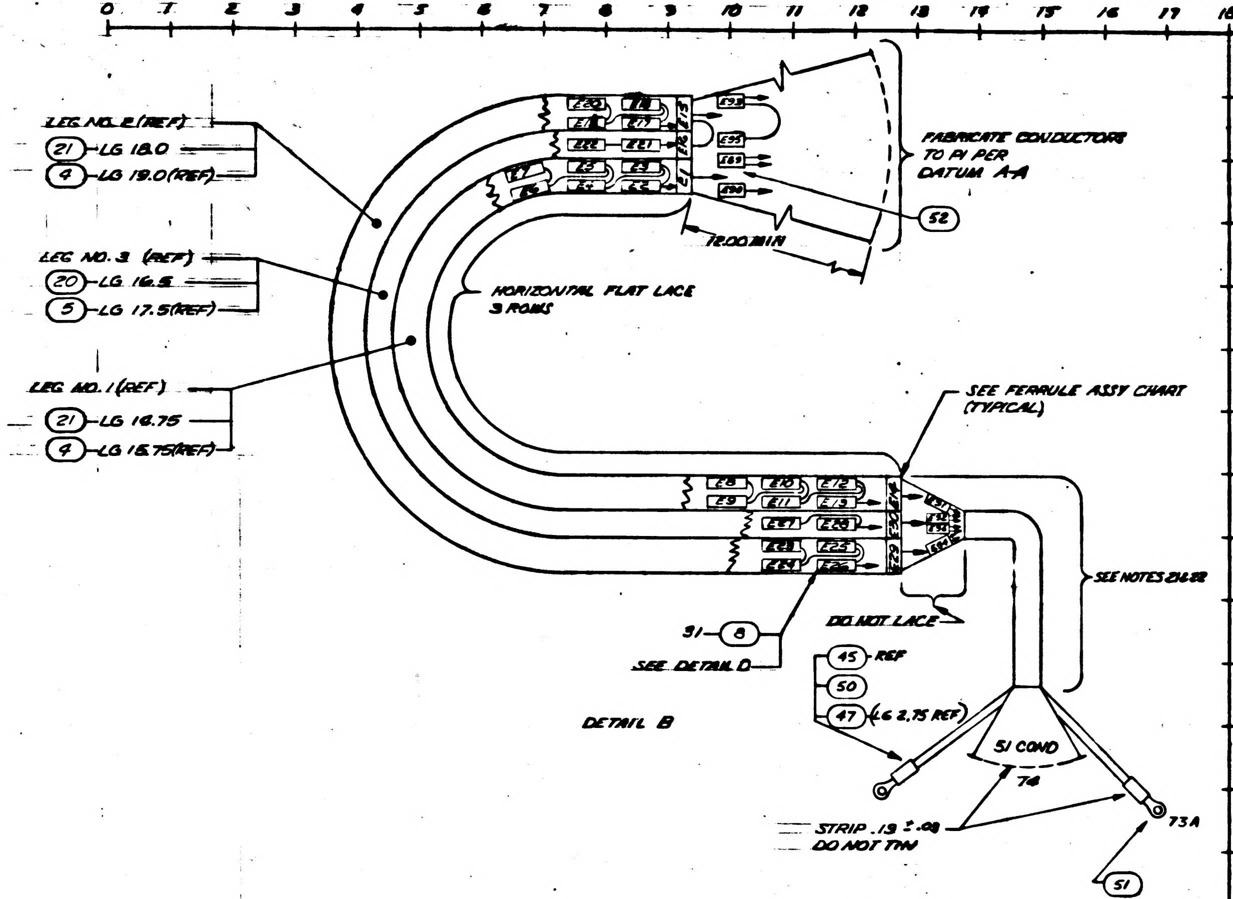
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014137
SCALE 1/1
WT
SHEET 1 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

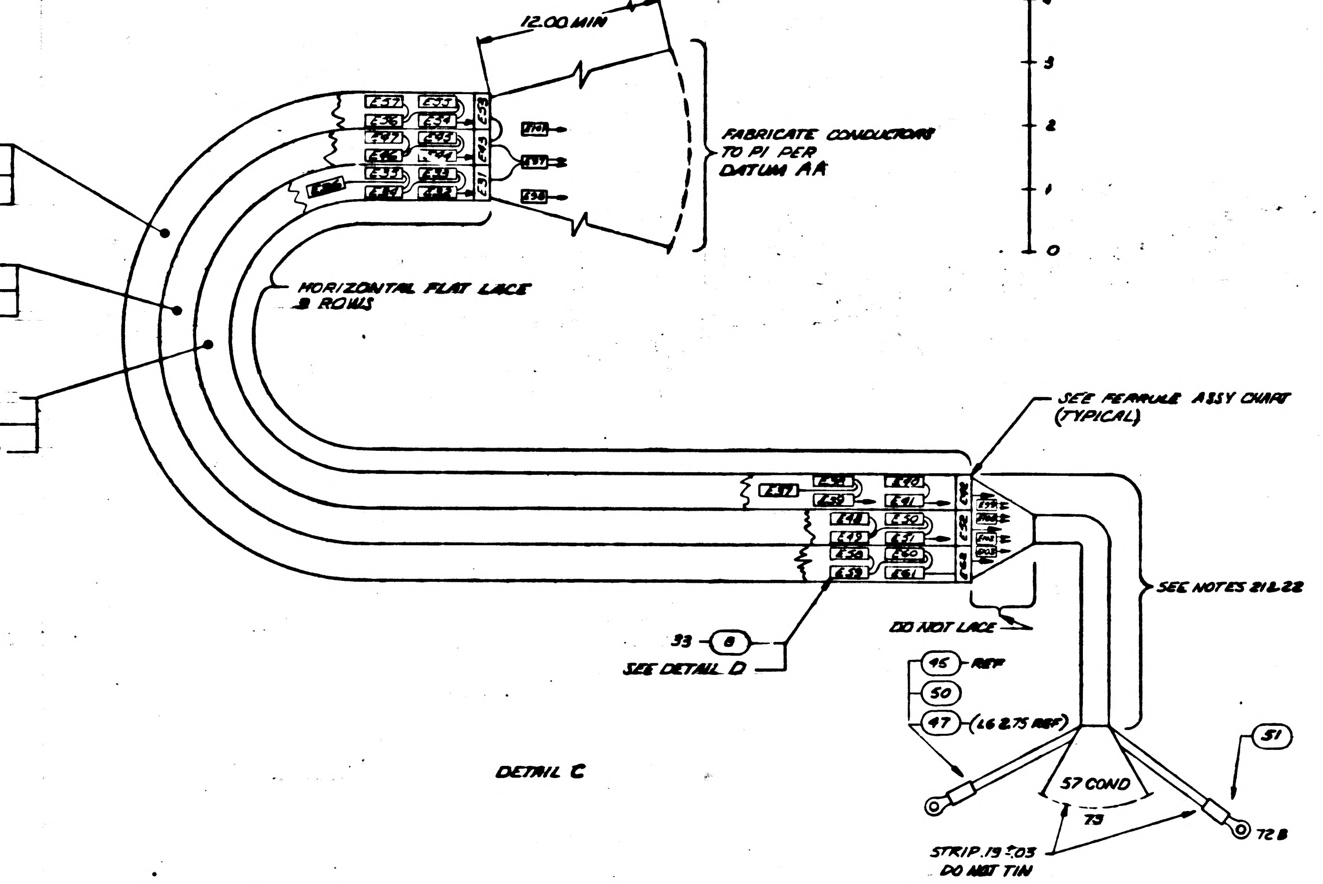
SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27698	4-1-66	
H	CHANGED PER TDRR 28826 DR CHK C. DiPerna APPD P.G.D	25 Aug 66	


LEG NO. 7 (REF)
21 -LG 13.6
4 -LG 14.5 (REF)
12.00 MIN
FABRICATE CONDUCTORS TO P1 PER DATUM A-A
LEG NO. 9 (REF)
20 -LG 12.0
5 -LG 13.0 (REF)
HORIZONTAL FLAT LACE 3 ROWS
LEG NO. 8 (REF)
21 -LG 11.5
4 -LG 12.5 (REF)
SEE FERRULE ASSEMBLY CHART TYPICAL
SEE NOTES 21&22
DO NOT LACE
28 - 8
SEE DETAIL D
42 COND
75
51
74A
STRIP .19 ±.03 DO NOT TIN
45 -REF
50
47 -(LG 2.75 REF)

DETAIL A

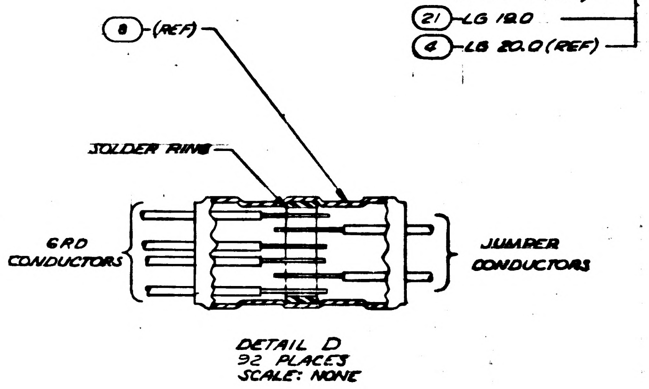

LEG NO. 2 (REF)
21 -LG 18.0
4 -LG 19.0 (REF)
LEG NO. 3 (REF)
20 -LG 16.5
5 -LG 17.5 (REF)
LEG NO. 1 (REF)
21 -LG 16.75
4 -LG 16.75 (REF)
FABRICATE CONDUCTORS TO P1 PER DATUM A-A
12.00 MIN
52
HORIZONTAL FLAT LACE 3 ROWS
SEE FERRULE ASSY CHART (TYPICAL)
SEE NOTES 21&22
DO NOT LACE
31 - 8
SEE DETAIL D
45 REF
50
47 (LG 2.75 REF)
51 COND
74
STRIP .19 ±.03 DO NOT TIN
73A
51

DETAIL B


LEG NO. 6 (REF)
21 -LG 22.5
4 -LG 23.5 (REF)
LEG NO. 5 (REF)
21 -LG 20.75
4 -LG 21.75 (REF)
LEG NO. 4 (REF)
21 -LG 19.0
4 -LG 20.0 (REF)
12.00 MIN
FABRICATE CONDUCTORS TO P1 PER DATUM AA
HORIZONTAL FLAT LACE 3 ROWS
SEE FERRULE ASSY CHART (TYPICAL)
SEE NOTES 21&22
DO NOT LACE
33 - 8
SEE DETAIL D
45 REF
50
47 (LG 2.75 REF)
57 COND
73
51
72B
STRIP .19 ±.03 DO NOT TIN

DETAIL C

FERRULE ASSEMBLY CHART				
REF DES	FERRULE		SLEEVING	
	FIND NO. (INNER)	FIND NO. (OUTER)	FIND NO.	LENGTH
E1	14	18	7	1.12 ±.12
E14	14	18	7	↕
E15	12	17	7	↕
E16	10	16	6	↕
E29	12	17	7	↕
E30	10	16	↕	↕
E31	14	18	↕	↕
E42	↕	↕	↕	↕
E43	↕	↕	↕	↕
E52	14	18	↕	↕
E53	12	17	↕	↕
E62	↕	↕	↕	↕
E63	↕	↕	↕	↕
E72	12	↕	↕	↕
E73	13	↕	↕	↕
E74	↕	↕	↕	↕
E87	↕	↕	↕	↕
E88	13	17	7	1.12 ±.12


8 -(REF)
SOLDER RING
GRD CONDUCTORS
JUMPER CONDUCTORS

DETAIL D
92 PLACES
SCALE: NONE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX DECIMALS .XXX ANGLES

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 MAR 66
CHECKED 12 MAR 66
APPROVAL 12 MAR 66
APPROVAL D. D'Angelo 12 MAR 66
APPROVAL 12 MAR 66
NASA APPROVAL M. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

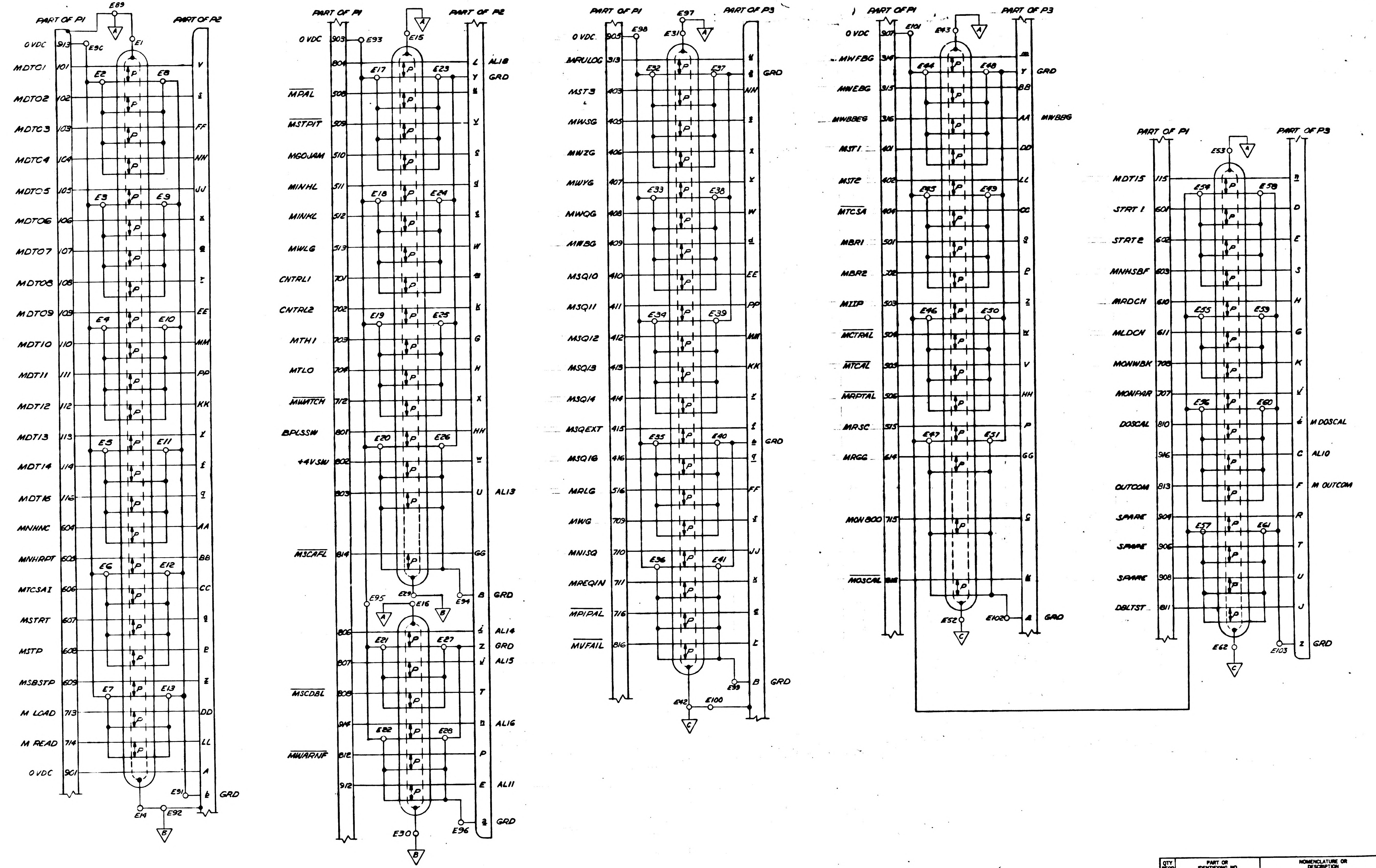
CABLE ASSEMBLY
W226

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014137
SCALE 1/1
WT
SHEET 2 OF 5

2014137 H

2014137 H

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASEC PER TDRR 27698	4	
H	CHANGED PER TDRR 28826 DR Jmory CHK C.Delumia APPD PED	25 ... 66	



PART OF P1
PART OF P2
E89
E1
E90
0 VDC 913
MDTC1 101 V
MDTC2 102
MDTC3 103 FF
MDTC4 104 NN
MDTC5 105 JJ
MDTC6 106
MDTC7 107
MDTC8 108
MDTC9 109 EE
MDT10 110 MM
MDT11 111 PP
MDT12 112 KK
MDT13 113
MDT14 114
MDT16 116
MNHNC 604 AA
MNHRPT 605 BB
MTCSAI 606 CC
MSTRT 607
MSTP 608
MSBSTP 609
M LOAD 713 DD
M READ 714 LL
0 VDC 901 A
GRD
E2 E8 E3 E9 E4 E10 E5 E11 E6 E12 E7 E13
E14 E91 E92
P
A
B
PART OF P1
PART OF P2
0 VDC 903 E93
E15
804 L AL18
Y GRD
MPAL 508
MSTPIT 509
MGOJAM 510
MINHL 511
MINKL 512
MWLG 513 W
CNTRL1 701
CNTRL2 702 K
MTHI 703 G
MTLO 704 H
MWATCH 712 X
BPLSSW 801 HH
+4VSW 802
803 U AL13
MSCAFL 814 GG
B GRD
E17 E23 E18 E24 E19 E25 E20 E26 E29
E95 E16 E94
806 AL14
Z GRD
807 AL15
MSCDBL 808 T
914 AL16
MWARNF 812 P
912 E AL11
GRD
E21 E27 E82 E28
E30 E96
PART OF P1
PART OF P3
0 VDC 905 E98
E97
E31
MRULOG 313
GRD
MST3 403 NN
MWSG 405
MWZG 406 X
MWYG 407 Y
MWQG 408 W
MWBG 409
MSQ10 410 EE
MSQ11 411 PP
MSQ12 412 MM
MSQ13 413 KK
MSQ14 414
MSQEXT 415 GRD
MSQ16 416
MRLG 516 FF
MWG 709
MNISQ 710 JJ
MREQIN 711
MPIPAL 716
MVFAIL 816
B GRD
E32 E37 E33 E38 E34 E39 E35 E40 E36 E41
E99 E42 E100
C
PART OF P1
PART OF P3
0 VDC 907 E101
E43
MWFBG 314
Y GRD
MWEBG 315 BB
MWBBEG 316 AA MWBBG
MST1 401 DD
MST2 402 LL
MTCSA 404 CC
MBR1 501
MBR2 502
MIIP 503 Z
MCTRAL 504
MTCAL 505 V
MRPTAL 506 HH
MRSC 515 P
MRGG 614 GG
MON 800 715
MOSCAL
A GRD
E44 E48 E45 E49 E46 E50 E47 E51
E52 E102
PART OF P1
PART OF P3
E53
MDT15 115
STRT 1 601 D
STRT2 602 E
MNHSBF 603 S
MRDCH 610 H
MLDCH 611 G
MONWBK 705 K
MONPAR 707
DOSCAL 810 M DOSCAL
916 C AL10
OUTCOM 813 F M OUTCOM
SPARE 904 R
SPARE 906 T
SPARE 908 U
DBLTST 811 J
Z GRD
E54 E58 E55 E59 E56 E60 E57 E61
E62 E103

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN ... DATE 12 MAR 66
CHECKED ... 12 MAR66
APPROVAL ... 12 MAR 66
APPROVAL ... 12 MAR66
APPROVAL ... 12 MAR66
NASA APPROVAL A.C.
MIT APPROVAL M.S. Mauly 4-1-66
MIT APPROVAL C. Haran 3/29/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

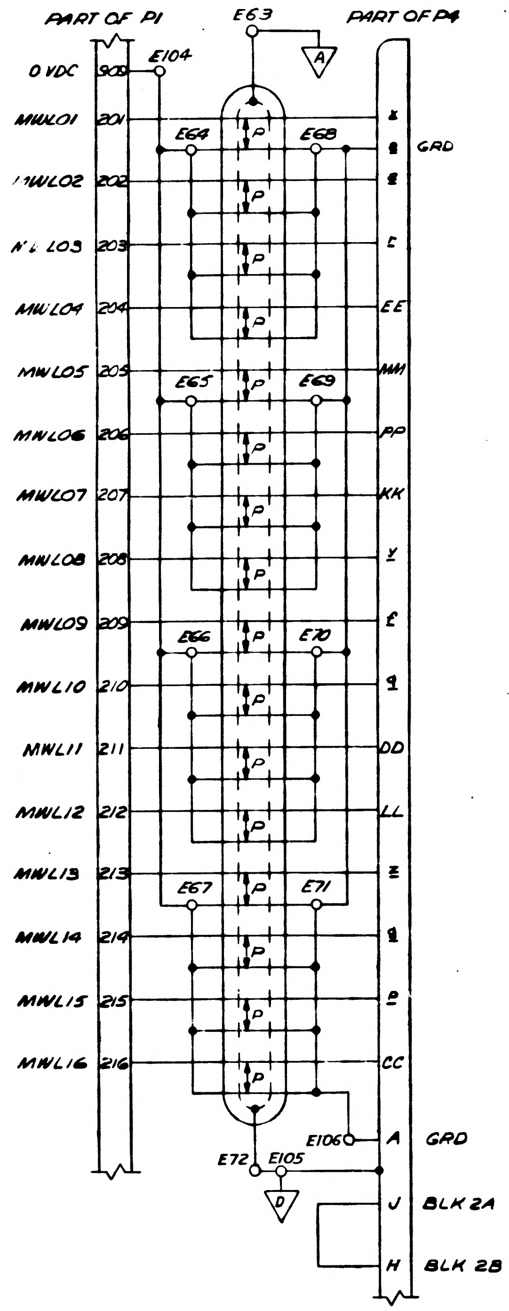
CABLE ASSEMBLY
W 226

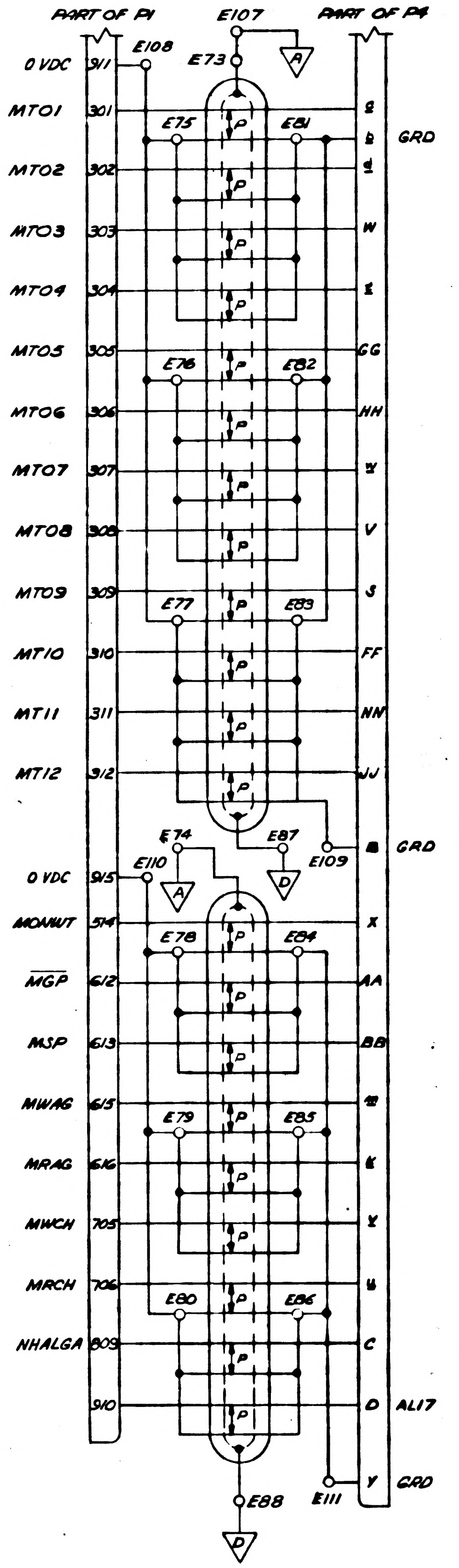
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014137
SCALE NONE
WT
SHEET 3 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014137 H

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27698		
H	CHANGED PER TDRR 28826 DR CHK APPD		


PART OF P1
E63
PART OF P4
0 VDC
909
E104
MWL01
201
MWL02
202
MWL03
203
MWL04
204
MWL05
205
MWL06
206
MWL07
207
MWL08
208
MWL09
209
MWL10
210
MWL11
211
MWL12
212
MWL13
213
MWL14
214
MWL15
215
MWL16
216
E64
E68
E65
E69
E66
E70
E67
E71
P
x
g GRD
s
t
EE
MM
PP
KK
Y
f
q
DD
LL
z
j
p
CC
E106
A GRD
E72
E105
J BLK 2A
H BLK 2B


PART OF P1
E107
PART OF P4
0 VDC
911
E108
E73
MT01
301
MT02
302
MT03
303
MT04
304
MT05
305
MT06
306
MT07
307
MT08
308
MT09
309
MT10
310
MT11
311
MT12
312
E75
E81
E76
E82
E77
E83
P
a
b GRD
u
W
z
GG
HH
Y
V
S
FF
NN
JJ
E74
E87
E109
B GRD
E110
0 VDC
915
MONMUT
514
MGP
612
MSP
613
MWAG
615
MRAG
616
MWCH
705
MRCH
706
NHALGA
809
910
E78
E84
E79
E85
E80
E86
X
AA
BB
m
k
y
u
c
D AL17
Y GRD
E88
E111

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO.1 REF	A1	9	P1-101	WHT	24	1	74	P2-V	TWIST
	A2	△1	E2	BLK		2	△1	E8	
	A3	9	P1-102	WHT		1	74	P2-s	
	A4	△1	E2	BLK		2	△1	E8	
	A5	18	P1-103	WHT		1	74	P2-FF	
	A6	△1	E2	BLK		2	△1	E8	
	A7	18	P1-104	WHT		1	74	P2-NN	
	A8	△1	E2	BLK		2	△1	E8	
	A9	27	P1-105	WHT		1	74	P2-JJ	
	A10	△1	E3	BLK		2	△1	E9	
	A11	27	P1-106	WHT		1	74	P2-x	
	A12	△1	E3	BLK		2	△1	E9	
	A13	36	P1-107	WHT		1	74	P2-g	
	A14	△1	E3	BLK		2	△1	E9	
	A15	36	P1-108	WHT		1	74	P2-r	
	A16	△1	E3	BLK		2	△1	E9	
	A17	45	P1-109	WHT		1	74	P2-EE	
	A18	△1	E4	BLK		2	△1	E10	
	A19	45	P1-110	WHT		1	74	P2-MM	
	A20	△1	E4	BLK		2	△1	E10	
	A21	54	P1-111	WHT		1	74	P2-PP	
	A22	△1	E4	BLK		2	△1	E10	
	A23	54	P1-112	WHT		1	74	P2-KK	
	A24	△1	E4	BLK		2	△1	E10	
	A25	63	P1-113	WHT		1	74	P2-Y	
	A26	△1	E5	BLK		2	△1	E11	
	A27	63	P1-114	WHT		1	74	P2-f	
	A28	△1	E5	BLK		2	△1	E11	
	A29	72	P1-116	WHT		1	74	P2-j	
	A30	△1	E5	BLK		2	△1	E11	
	A31	13	P1-604	WHT		1	74	P2-AA	
	A32	△1	E5	BLK		2	△1	E11	
	A33	22	P1-605	WHT		1	74	P2-BB	
	A34	△1	E6	BLK		2	△1	E12	
	A35	22	P1-606	WHT		1	74	P2-CC	
	A36	△1	E6	BLK		2	△1	E12	
	A37	31	P1-607	WHT		1	74	P2-q	
	A38	△1	E6	BLK		2	△1	E12	
	A39	31	P1-608	WHT		1	74	P2-p	
	A40	△1	E6	BLK		2	△1	E12	
	A41	40	P1-609	WHT		1	74	P2-z	
	A42	△1	E7	BLK		2	△1	E13	
	A43	57	P1-713	WHT		1	74	P2-DD	
	A44	△1	E7	BLK		2	△1	E13	
	A45	57	P1-714	WHT		1	74	P2-LL	TWIST
	A46	△1	E7	BLK	24	2	△1	E13	
	A47	55	P1-913	BLK	22	3		E90	
	A48	△1	E1					E89	
	A49		E2					E3	
	A50		E3					E4	
	A51		E4					E5	
	A52		E5					E6	
	A53		E6					E7	
	A54		E8					E9	
	A55		E9					E10	
	A56		E10					E11	
	A57		E11					E12	
	A58		E12					E13	
	A59		E13					E91	
	A60	△1	E14				△1	E92	
	A61	1	P1-901	BLK	22	3	74	P2-A	
LEG NO.1 REF		△1	E1	BRAID	36	4	△1	E14	
LEG NO.2 REF	A63	11	P1-804	WHT	24	1	74	P2-L	TWIST
	A64	△1	E17	BLK		2	△1	E23	
	A65	32	P1-508	WHT		1	74	P2-u	
	A66	△1	E17	BLK		2	△1	E23	
	A67	41	P1-509	WHT		1	74	P2-x	
	A68	△1	E17	BLK		2	△1	E23	
	A69	41	P1-510	WHT		1	74	P2-S	
	A70	△1	E17	BLK		2	△1	E23	
	A71	50	P1-511	WHT		1	74	P2-d	
	A72	△1	E18	BLK		2	△1	E24	
	A73	50	P1-512	WHT		1	74	P2-c	
	A74	△1	E18	BLK		2	△1	E24	
	A75	59	P1-513	WHT		1	74	P2-W	
	A76	△1	E18	BLK		2	△1	E24	
	A77	3	P1-701	WHT		1	74	P2-m	
	A78	△1	E-18	BLK		2	△1	E24	
	A79	3	P1-702	WHT		1	74	P2-e	
	A80	△1	E19	BLK		2	△1	E25	
	A81	12	P1-703	WHT		1	74	P2-G	
	A82	△1	E19	BLK		2	△1	E25	
	A83	12	P1-704	WHT		1	74	P2-H	
	A84	△1	E19	BLK		2	△1	E25	
	A85	48	P1-712	WHT		1	74	P2-X	TWIST
LEG NO.2 REF	A86	△1	E19	BLK	24	2	△1	E25	

△1 DENOTES INTERNAL CONNECTION
△2 ATTACH 2.00 OF FIND 53, SEE NOTE 26

ASSEMBLY INFORMATING CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO.2 REF	A87	2	P1-801	WHT	24	1	74	P2-HH	TWIST
	A88	△1	E20	BLK		2	△1	E26	
	A89	2	P1-802	WHT		1	74	P2-W	
	A90	△1	E20	BLK		2	△1	E26	
	A91	11	P1-803	WHT		1	74	P2-U	
	A92	△1	E20	BLK		2	△1	E26	
	A93	56	P1-814	WHT		1	74	P2-GG	TWIST
	A94	△1	E20	BLK	24	2	△1	E26	
	A95	10	P1-903	BLK	22	3		E93	
	A96	△1	E15					E89	
	A97		E17					E18	
	A98		E18					E19	
	A99		E19					E20	
	A100		E23					E24	
	A101		E24					E25	
	A102		E25					E26	
	A103		E26					E94	
	A104		E29	BLK	22	3		E92	
LEG NO.2 REF		△1	E15	BRAID	36	4	△1	E29	
LEG NO.2 REF	A106	△1	E15	BLK	22	3	△1	E16	LEG NO 3 REF
LEG NO.3 REF	A107	20	P1-806	WHT	24	1	74	P2-s	TWIST
	A108	△1	E21	BLK		2	△1	E27	
	A109	29	P1-807	WHT		1	74	P2-v	
	A110	△1	E21	BLK		2	△1	E27	
	A111	29	P1-808	WHT		1	74	P2-T	
	A112	△1	E21	BLK		2	△1	E27	
	A113	55	P1-914	WHT		1	74	P2-n	
	A114	△1	E22	BLK		2	△1	E28	
	A115	47	P1-812	WHT		1	74	P2-P	
	A116	△1	E22	BLK		2	△1	E28	
	A117	46	P1-912	WHT		1	74	P2-E	TWIST
	A118	△1	E22	BLK	24	2	△1	E28	
	A119		E95	BLK	22	3		E21	
	A120		E21					E22	
	A121		E27					E28	
	A122		E28					E96	
	A123		E30	BLK	22	3		E92	
LEG NO.3 REF		△1	E16	BRAID	36	5	△1	E30	

SEE SHEET 5 FOR A125 THRU A373

LEG NO.3 REF	A374	△1	E96	BLK	22	3	74	P2-Z	
LEG NO.3 REF	A375		E96				74	P2-a	
LEG NO.4 REF	A376		E32				△1	E98	
	A377		E97				△1	E89	LEG NO.1 REF
	A378		E99				73	P3-B	
	A379		E99				73	P3-b	
LEG NO.4 REF	A380		E100				72B	P3-GRD △2	
LEG NO.5 REF	A381		E44				△1	E101	
	A382		E102				73	P3-A	
LEG NO.5 REF	A383		E102				73	P3-Y	
LEG NO.6 REF	A384		E103				73	P3-Z	
LEG NO.7 REF	A385		E107				△1	E97	LEG NO.4 REF
	A386		E64				△1	E104	
	A387		E106				75	P4-A	
	A388		E106				75	P4-a	
LEG NO.7 REF	A389		E105				74A	P4-GRD △2	
LEG NO.8 REF	A390		E75				△1	E108	
	A391		E109				75	P4-B	
LEG NO.8 REF	A392		E109				75	P4-b	
LEG NO.9 REF	A393		E78				△1	E110	
LEG NO.9 REF	A394		E111				75	P4-Y	
LEG NO.6 REF	A395	△1	E54	BLK	22	3	△1	E101	LES NO.5 REF

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 MAR 66
CHECKED 12 MAR 66
APPROVAL 12 MAR 66
APPROVAL 12 MAR 66
APPROVAL 12 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W226

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014137
SCALE NONE
WT
SHEET 4 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014137 H

REVISIONS						
SYM	DESCRIPTION	DATE				
G	CLASS A RELEASED PER TDRR 27698					
H	CHANGED PER TDRR 28826 DR CHK APPD PED					

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO. 4 REF	A125	61	P1-313	WHT	24	1	73	P3-u	TWIST
	A126	⚠	E32	BLK		2	⚠	E37	
	A127	15	P1-403	WHT		1	73	P3-NN	
	A128	⚠	E32	BLK		2	⚠	E37	
	A129	24	P1-405	WHT		1	73	P3-s	
	A130	⚠	E32	BLK		2	⚠	E37	
	A131	24	P1-406	WHT		1	73	P3-X	
	A132	⚠	E32	BLK		2	⚠	E37	
	A133	33	P1-407	WHT		1	73	P3-v	
	A134	⚠	E33	BLK		2	⚠	E38	
	A135	33	P1-408	WHT		1	73	P3-W	
	A136	⚠	E33	BLK		2	⚠	E38	
	A137	42	P1-409	WHT		1	73	P3-d	
	A138	⚠	E33	BLK		2	⚠	E38	
	A139	42	P1-410	WHT		1	73	P3-EE	
	A140	⚠	E33	BLK		2	⚠	E38	
	A141	51	P1-411	WHT		1	73	P3-PP	
	A142	⚠	E34	BLK		2	⚠	E39	
	A143	51	P1-412	WHT		1	73	P3-MM	
	A144	⚠	E34	BLK		2	⚠	E-39	
	A145	60	P1-413	WHT		1	73	P3-KK	
	A146	⚠	E34	BLK		2	⚠	E39	
	A147	60	P1-414	WHT		1	73	P3-y	
	A148	⚠	E34	BLK		2	⚠	E39	
	A149	69	P1-415	WHT		1	73	P3-f	
	A150	⚠	E35	BLK		2	⚠	E40	
	A151	69	P1-416	WHT		1	73	P3-g	
	A152	⚠	E35	BLK		2	⚠	E40	
	A153	68	P1-516	WHT		1	73	P3-FF	
	A154	⚠	E35	BLK		2	⚠	E40	
	A155	39	P1-709	WHT		1	73	P3-e	
	A156	⚠	E35	BLK		2	⚠	E40	
	A157	39	P1-710	WHT		1	73	P3-JJ	
	A158	⚠	E36	BLK		2	⚠	E41	
	A159	48	P1-711	WHT		1	73	P3-x	
	A160	⚠	E36	BLK		2	⚠	E41	
	A161	66	P1-716	WHT		1	73	P3-r	
	A162	⚠	E36	BLK		2	⚠	E41	
	A163	65	P1-816	WHT		1	73	P3-t	TWIST
	A164	⚠	E36	BLK	24	2	⚠	E41	
	A165	19	P1-905	BLK	22	3		E98	
	A166	⚠	E31					E97	
	A167		E32					E33	
	A168		E33					E34	
	A169		E34					E35	
	A170		E35					E36	
	A171		E37					E38	
	A172		E38				⚠	E39	
	A173		E39				73	P3-a	
	A174		E40				⚠	E41	
	A175		E41					E99	
	A176		E42	BLK	22	3		E100	
LEG NO. 4 REF		⚠	E31	BRAID	36	4	⚠	E42	
LEG NO. 5 REF	A178	61	P1-314	WHT	24	1	73	P3-m	TWIST
	A179	⚠	E44	BLK		2	⚠	E48	
	A180	70	P1-315	WHT		1	73	P3-BB	
	A181	⚠	E44	BLK		2	⚠	E48	
	A182	70	P1-316	WHT		1	73	P3-AA	
	A183	⚠	E44	BLK		2	⚠	E48	
	A184	6	P1-401	WHT		1	73	P3-DD	
	A185	⚠	E44	BLK		2	⚠	E48	
	A186	6	P1-402	WHT		1	73	P3-LL	
	A187	⚠	E45	BLK		2	⚠	E49	
	A188	15	P1-404	WHT		1	73	P3-CC	
	A189	⚠	E45	BLK		2	⚠	E49	
	A190	5	P1-501	WHT		1	73	P3-q	
	A191	⚠	E45	BLK		2	⚠	E49	
	A192	5	P1-502	WHT		1	73	P3-p	
	A193	⚠	E45	BLK		2	⚠	E49	
	A194	14	P1-503	WHT		1	73	P3-z	
	A195	⚠	E46	BLK		2	⚠	E50	
	A196	23	P1-504	WHT		1	73	P3-w	
	A197	⚠	E46	BLK		2	⚠	E50	
	A198	23	P1-505	WHT		1	73	P3-V	
	A199	⚠	E46	BLK		2	⚠	E50	
	A200	23	P1-506	WHT		1	73	P3-HH	
	A201	⚠	E46	BLK		2	⚠	E50	
	A202	68	P1-515	WHT		1	73	P3-P	
	A203	⚠	E47	BLK		2	⚠	E51	
	A204	58	P1-614	WHT		1	73	P3-GG	
	A205	⚠	E47	BLK		2	⚠	E51	
	A206	66	P1-715	WHT		1	73	P3-c	
	A207	⚠	E47	BLK		2	⚠	E51	
	A208	65	P1-815	WHT		1	73	P3-k	TWIST
LEG NO. 5 REF	A209	⚠	E47	BLK	24	2	⚠	E51	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO. 5 REF	A210	28	P1-907	BLK	22	3	⚠	E101	
	A211	⚠	E43					E97	
	A212		E44					E45	
	A213		E45					E46	
	A214		E46					E47	
	A215		E48					E49	
	A216		E49					E50	
	A217		E50					E51	
	A218		E51					E102	
	A219		E52	BLK	22	3		E100	
LEG NO. 5 REF		⚠	E43	BRAID	36	4	⚠	E52	
LEG NO. 5 REF	A221	⚠	E43	BLK	22	3	⚠	E53	LEG NO. 6 REF
LEG NO. 6 REF	A222	72	P1-115	WHT	24	1	73	P3-b	TWIST
	A223	⚠	E54	BLK		2	⚠	E58	
	A224	4	P1-601	WHT		1	73	P3-D	
	A225	⚠	E54	BLK		2	⚠	E58	
	A226	4	P1-602	WHT		1	73	P3-E	
	A227	⚠	E54	BLK		2	⚠	E58	
	A228	13	P1-603	WHT		1	73	P3-S	
	A229	⚠	E54	BLK		2	⚠	E58	
	A230	40	P1-610	WHT		1	73	P3-H	
	A231	⚠	E55	BLK		2	⚠	E59	
	A232	49	P1-611	WHT		1	73	P3-G	
	A233	⚠	E55	BLK		2	⚠	E59	
	A234	30	P1-708	WHT		1	73	P3-K	
	A235	⚠	E55	BLK		2	⚠	E59	
	A236	30	P1-707	WHT		1	73	P3-j	
	A237	⚠	E56	BLK		2	⚠	E60	
	A238	38	P1-810	WHT		1	73	P3-L	
	A239	⚠	E56	BLK		2	⚠	E60	
	A240	64	P1-916	WHT		1	73	P3-C	
	A241	⚠	E56	BLK		2	⚠	E60	
	A242	56	P1-813	WHT		1	73	P3-F	
	A243	⚠	E56	BLK		2	⚠	E60	
	A244	10	P1-904	WHT		1	73	P3-R	
	A245	⚠	E57	BLK		2	⚠	E61	
	A246	19	P1-906	WHT		1	73	P3-T	
	A247	⚠	E57	BLK		2	⚠	E61	
	A248	47	P1-811	WHT		1	73	P3-J	
	A249	⚠	E57	BLK		2	⚠	E61	
	A250	28	P1-908	WHT		1	73	P3-U	TWIST
	A251	⚠	E57	BLK	24	2	⚠	E61	
	A252		E53	BLK	22	3		E97	
	A253		E54					E55	
	A254		E55					E56	
	A255		E56					E57	
	A256		E58					E59	
	A257		E59					E60	
	A258		E60					E61	
	A259		E61					E103	
	A260		E62	BLK	22	3		E100	
LEG NO. 6 REF		⚠	E53	BRAID	36	4	⚠	E62	
LEG NO. 7 REF	A262	8	P1-201	WHT	24	1	75	P4-z	TWIST
	A263	⚠	E64	BLK		2	⚠	E68	
	A264	8	P1-202	WHT		1	75	P4-g	
	A265	⚠	E64	BLK		2	⚠	E68	
	A266	17	P1-203	WHT		1	75	P4-t	
	A267	⚠	E64	BLK		2	⚠	E68	
	A268	17	P1-204	WHT		1	75	P4-EE	
	A269	⚠	E64	BLK		2	⚠	E68	
	A270	26	P1-205	WHT		1	75	P4-MM	
	A271	⚠	E65	BLK		2	⚠	E69	
	A272	26	P1-206	WHT		1	75	P4-PP	
	A273	⚠	E65	BLK		2	⚠	E69	
	A274	35	P1-207	WHT		1	75	P4-KK	
	A275	⚠	E65	BLK		2	⚠	E69	
	A276	35	P1-208	WHT		1	75	P4-y	
	A277	⚠	E65	BLK		2	⚠	E69	
	A278	44	P1-209	WHT		1	75	P4-f	
	A279	⚠	E66	BLK		2	⚠	E70	
	A280	44	P1-210	WHT		1	75	P4-q	
	A281	⚠	E66	BLK		2	⚠	E70	
	A282	53	P1-211	WHT		1	75	P4-DD	
	A283	⚠	E66	BLK		2	⚠	E70	
	A284	53	P1-212	WHT		1	75	P4-LL	
	A285	⚠	E66	BLK		2	⚠	E70	
	A286	62	P1-213	WHT		1	75	P4-s	
	A287	⚠	E67	BLK		2	⚠	E71	
	A288	62	P1-214	WHT		1	75	P4-d	TWIST
LEG NO. 7 REF	A289	⚠	E67	BLK	24	2	⚠	E71	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO. 7 REF	A290	71	P1-215	WHT	24	1	75	P4-e	TWIST
	A291	⚠	E67	BLK		2	⚠	E71	
	A292	71	P1-216	WHT		1	75	P4-CC	TWIST
	A293	⚠	E67	BLK	24	2	⚠	E71	
	A294	37	P1-909	BLK	22	3		E104	
	A295	⚠	E63					E107	
	A296		E64					E65	
	A297		E65					E66	
	A298		E66					E67	
	A299		E68					E69	
	A300		E69					E70	
	A301		E70					E71	
	A302		E71					E106	
	A303		E72	BLK	22	3	⚠	E105	
LEG NO. 7 REF		⚠	E63	BRAID	36	4		E72	
LEG NO. 8 REF	A305	7	P1-301	WHT	24	1	75	P4-a	TWIST
	A306	⚠	E75	BLK		2	⚠	E81	
	A307	7	P1-302	WHT		1	75	P4-g	
	A308	⚠	E75	BLK		2	⚠	E81	
	A309	16	P1-303	WHT		1	75	P4-W	
	A310	⚠	E75	BLK		2	⚠	E81	
	A311	16	P1-304	WHT		1	75	P4-b	
	A312	⚠	E75	BLK		2	⚠	E81	
	A313	25	P1-305	WHT		1	75	P4-GG	
	A314	⚠	E76	BLK		2	⚠	E82	
	A315	25	P1-306	WHT		1	75	P4-HH	
	A316	⚠	E76	BLK		2	⚠	E82	
	A317	34	P1-307	WHT		1	75	P4-w	
	A318	⚠	E76	BLK		2	⚠	E82	
	A319	34	P1-308	WHT		1	75	P4-V	
	A320	⚠	E76	BLK		2	⚠	E82	
	A321	43	P1-309	WHT		1	75	P4-S	
	A322	⚠	E77	BLK		2	⚠	E83	
	A323	43	P1-310	WHT		1	75	P4-FF	
	A324	⚠	E77	BLK		2	⚠	E83	
	A325	52	P1-311	WHT		1	75	P4-NN	
	A326	⚠	E77	BLK		2	⚠	E83	
	A327	52	P1-312	WHT		1	75	P4-JJ	TWIST
	A328	⚠	E77	BLK	24	2	⚠	E83	
	A329	46	P1-911	BLK	22	3		E108	
	A330	⚠	E73					E107	
	A331		E75					E76	
	A332		E76					E77	
	A333		E81					E82	
	A334		E82					E83	
	A335		E83					E109	
	A336		E87	BLK	22	3		E105	
LEG NO. 8 REF		⚠	E73	BRAID	36	4	⚠	E87	
LEG NO. 9 REF	A338	59	P1-514	WHT	24	1	75	P4-X	TWIST
	A339	⚠	E78	BLK		2	⚠	E84	
	A340	49	P1-612	WHT		1	75	P4-AA	
	A341	⚠	E78	BLK		2	⚠	E84	
	A342	58	P1-613	WHT		1	75	P4-BB	
	A343	⚠	E78	BLK		2	⚠	E84	
	A344	67	P1-615	WHT		1	75	P4-m	
	A345	⚠	E79	BLK		2	⚠	E85	
	A346	67	P1-616	WHT		1	75	P4-k	
	A347	⚠	E79	BLK		2	⚠	E85	
	A348	21	P1-705	WHT		1	75	P4-v	
	A349	⚠	E79	BLK		2	⚠	E85	
	A350	21	P1-706	WHT		1	75	P4-u	
	A351	⚠	E80	BLK		2	⚠	E86	
	A352	38	P1-809	WHT		1	75	P4-C	
	A353	⚠	E80	BLK		2	⚠	E86	
	A354	37	P1-910	WHT		1	75	P4-D	TWIST
	A355	⚠	E80	BLK	24	2	⚠	E86	
	A356	64	P1-915	BLK	22	3		E110	
	A357	⚠	E74					E107	
	A358		E78					E79	
	A359		E79					E80	
	A360		E84					E85	
	A361		E85					E86	
	A362		E86					E111	
	A363		E88	BLK	22	3		E105	
LEG NO. 9 REF			E74	BRAID	36	4		E88	
	A365		P4-H	BLK	22	3	⚠	P4-J	
LEG NO. 1 REF	A366		E89	BRAID	36	4	72A	P1-GRD	
	A367		E2	BLK	22	3	⚠	E90	
	A368		E91				74	P2-b	
LEG NO. 1 REF	A369		E92				73A	P2-GRD	⚠
LEG NO. 2 REF	A370		E17				⚠	E93	
	A371		E94				74	P2-Y	
	A372		E94				74	P2-B	
LEG NO. 2 REF	A373	⚠	E93	BLK	22	3	⚠	E95	LEG NO. 3 REF

SEE SHEET 4 FOR A374 THRU A395

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 12 MAR 65
CHECKED 12 MAR 65
APPROVAL 12 MAR 65
APPROVAL 12 MAR 65
APPROVAL 12 MAR 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W226

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014137
SCALE NONE	WT	SHEET 5 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

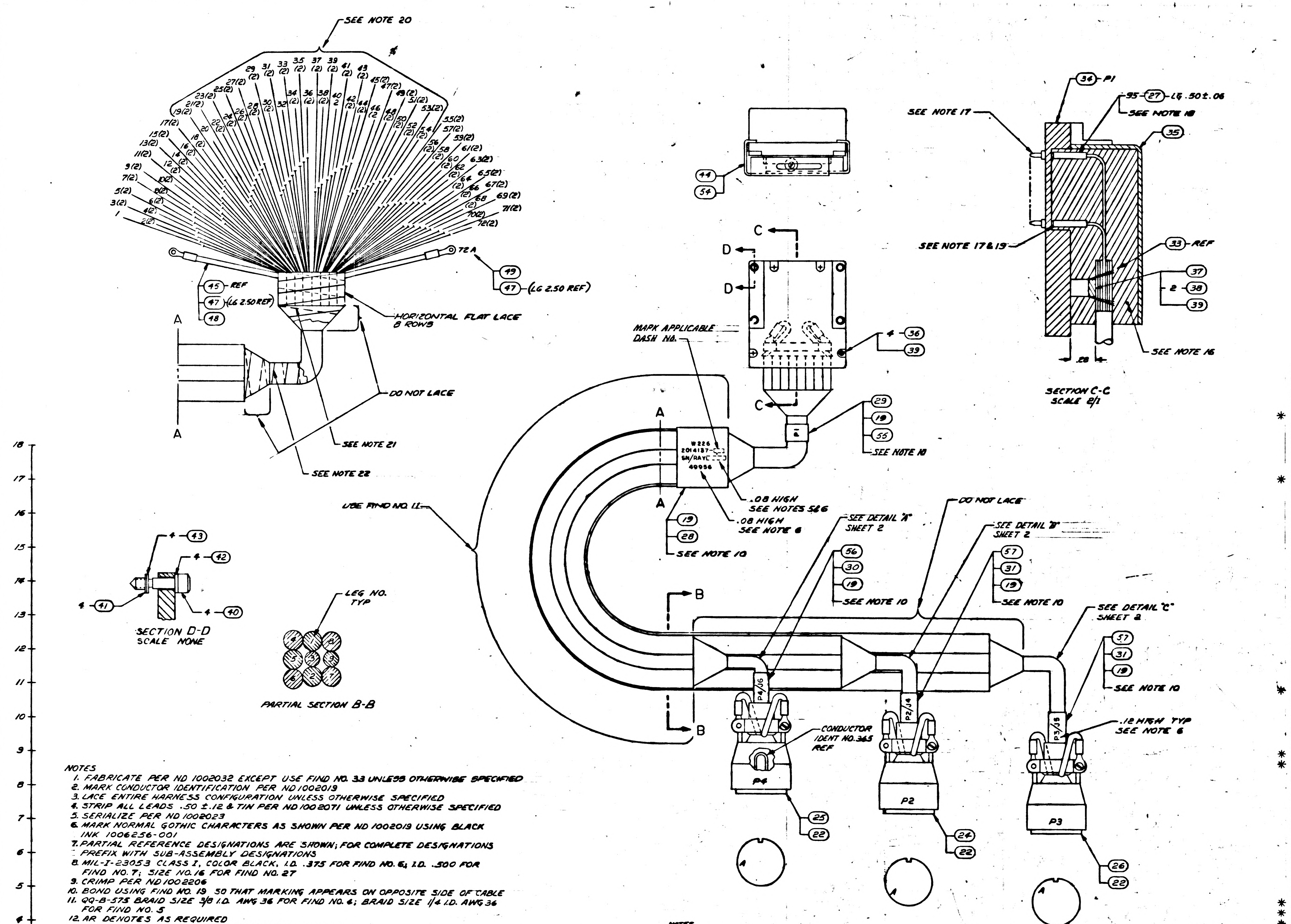
MASTER

2014137 H

2014137 H

2014137 J

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27698		
H	CHANGED PER TDRR 28826 DR CHK APPD	66	
J	CHANGED PER TDRR 30573 DR J.P. Leonard CHK APPD	66	


SEE NOTE 20
29 (2) 31 (2) 33 (2) 35 (2) 37 (2) 39 (2) 41 (2) 43 (2) 45(2) 47(2) 49(2) 51(2) 53(2) 55(2) 57(2) 59(2) 61(2) 63(2) 65(2) 67(2) 69(2) 71(2) 72(2) 70(2)
27(2) 25(2) 23(2) 21(2) 19(2) 17(2) 15(2) 13(2) 11(2) 9(2) 7(2) 5(2) 3(2) 1 2(2) 4(2) 6(2) 8(2) 10(2) 12 (2) 14 (2) 16 (2) 18 (2) 20 22 (2) 24 (2) 26 (2) 28 (2) 30 (2) 32 (2) 34 (2) 36 (2) 38 (2) 40 (2) 42 (2) 44 (2) 46 (2) 48 (2) 50 (2) 52 (2) 54 (2) 56 (2) 58 (2) 60 (2) 62 (2) 64 (2) 66 (2) 68 (2)
72A
49
47 (LG 2.50 REF)
45 REF
47 (LG 2.50 REF)
48
HORIZONTAL FLAT LACE 8 ROWS
A
A
DO NOT LACE
SEE NOTE 21
SEE NOTE 22
44
54
C
D
D
C
MARK APPLICABLE DASH NO.
4 - 36
39
29
19
55
SEE NOTE 10
A
A
W226
2014137-
SN/RAYC
49956
.08 HIGH SEE NOTES 5&6
.08 HIGH SEE NOTE 6
19
28
SEE NOTE 10
USE FIND NO. 11
SEE DETAIL "A" SHEET 2
DO NOT LACE
SEE DETAIL "B" SHEET 2
56
30
19
SEE NOTE 10
57
31
19
SEE NOTE 10
B
B
SEE DETAIL "C" SHEET 2
57
31
19
SEE NOTE 10
P4/J6
P2/J4
P3/J5
CONDUCTOR IDENT NO. 365 REF
.12 HIGH TYP SEE NOTE 6
P4
P2
P3
25
22
24
22
26
22
A
A
A
SEE NOTE 17
34 - P1
95 - 27 - LG .50±.06
SEE NOTE 18
35
SEE NOTE 17&19
33 REF
37
2 - 38
39
SEE NOTE 16
.28
SECTION C-C SCALE 2/1
4 - 43
4 - 42
4 - 41
4 - 40
SECTION D-D SCALE NONE
LEG NO. TYP
PARTIAL SECTION B-B
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 33 UNLESS OTHERWISE SPECIFIED
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
3. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
4. STRIP ALL LEADS .50 ±.12 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
5. SERIALIZE PER ND 1002023
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
8. MIL-I-23053 CLASS I, COLOR BLACK, I.D. .375 FOR FIND NO. 6; I.D. .500 FOR FIND NO. 7; SIZE NO. 16 FOR FIND NO. 27
9. CRIMP PER ND 1002206
10. BOND USING FIND NO. 19 SO THAT MARKING APPEARS ON OPPOSITE SIDE OF CABLE
11. QQ-B-575 BRAID SIZE 3/8 I.D. AWG 36 FOR FIND NO. 4; BRAID SIZE 1/4 I.D. AWG 36 FOR FIND NO. 5
12. AR DENOTES AS REQUIRED
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
~~15. THE SYMBOL Δ SHOWN ON ASSEMBLY INFORMATION CHART DENOTES INTERNAL CONNECTION~~
16. POT PER ND 1002009 METHOD E & PRIME
17. SEAL INSULATORS & CONTACTS PER ND 1002004 TYPE II
18. SLEEVE EVEN NUMBERED PINS ON EVEN NUMBERED ROWS AND ODD NUMBERED PINS ON ODD NUMBERED ROWS EXCEPT SLEEVE ALL PINS IN EXTREME HORIZONTAL & VERTICAL ROWS
19. FIND NO. 27 MUST BE IMBEDDED IN EPOXY ADHESIVE APPLIED PER NOTE 17 SO AS TO INSURE INSULATION OF CONTACTS
20. SPOT TIE ALL LEADS FROM STA NO. 19 THRU STA NO. 54 TO FIND NO. 37 USING FIND NO. 33

NOTES
21. SPIRAL WRAP USING FIND NO. 45 WITH 50% OVERLAP
22. SPIRAL WRAP USING FIND NO. 46 WITH 50% OVERLAP IN OPPOSITE DIRECTION OF FIND NO. 45
23. MIL-I-15126, THERMO SETTING, ADHESIVE BACKED, TYPE ACT, .75 WIDE
24. MIL-I-631, TYPE F, FORM U2, GRADE 2, CLASS 1, CATAGORY 1, COLOR BLK, AWG SIZE NO. 4
25. MIL-I-23053, CLASS I, WHT, I.D. .125
26. MARK SLEEVING WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH BLK PER ND 1002019
27. CUT SLEEVING AND BRAID LENGTHS AS SHOWN

	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	2	-	1006415-056	BAND MARKER, CABLE	57
	1	-	1006415-055	BAND MARKER, CABLE	56
	1	-	1006415-022	BAND MARKER, CABLE	55
	1	-	2016311-021	COVER, PROTECTIVE ASSY	54
✱	0.6	0.6	SEE NOTE 25	SLEEVING	53
	1	1	1010402-2	SLEEVE, SOLDER	52
	3	3	MS25036-49	TERMINAL, LUG	51
	3	3	MS25036-53	TERMINAL, LUG	50
	1	1	MS25036-11	TERMINAL, LUG	49
	1	1	MS25036-6	TERMINAL, LUG	48
✱	1.2	1.2	SEE NOTE 24	INSULATION, ELEC	47
	AR	AR	SEE NOTE 23	INSULATION TAPE, ELEC	46
	AR	AR	1010989	WIRE MESH	45
	-	1	2016311-011	PROTECTIVE COVER ASSY	44
	4	4	1004546-3	WASHER, FLAT	43
	4	4	1004546-1	WASHER, FLAT	42
	4	4	MS16633-4015	RING, RETAINING EXTERNAL "E"	41
	4	4	1004579-1	SCREW, JACKING	40
	AR	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	39
	2	2	MS51957-31	SCREW, PAN HD	38
	1	1	2014427-001	BRACKET STRAIN RELIEF	37
	4	4	MS51957-16	SCREW, PAN HD	36
	1	1	2014308	COVER, CONNECTOR	35
	1	1	1006417	HEADER, CONNECTOR	34
	AR	AR	1006458-004	TAPE, LACING	33
	AR	AR	1006699	SOLVENT	32
	-	2	1006415-054	BAND MARKER, CABLE	31
	-	1	1006415-053	BAND MARKER, CABLE	30
	-	1	1006415-019	BAND MARKER, CABLE	29
	1	1	1006415-105	BAND MARKER, CABLE	28
✱	7.0	7.0	SEE NOTE 8	SLEEVING	27
	1	1	MS3126F-24-61PZ	CONNECTOR	26
	1	1	MS3126F-24-61PY	CONNECTOR	25
	1	1	MS3126F-24-61PX	CONNECTOR	24
	~~-~~	~~3~~	~~1020371-13~~	~~BUSHING, SLEEVE~~	~~23~~
	3	3	1020370-23	BUSHING, SLEEVE	22
✱	10.3	10.3	1006696-3	SLEEVING	21
✱	2.5	2.5	1006696-2	SLEEVING	20
	AR	AR	1006253	ADHESIVE	19
	6	6	1000242-30	FERRULE, ELECTRICAL COND	18
	10	10	1000242-29	FERRULE, ELECTRICAL COND	17
	2	2	1000242-27	FERRULE, ELECTRICAL COND	16
	~~-~~	~~4~~	~~1000242-18~~	~~FERRULE, ELECTRICAL COND~~	~~15~~
	6	6	1000243-34	FERRULE, ELECTRICAL COND	14
	4	4	1000243-31	FERRULE, ELECTRICAL COND	13
	6	6	1000243-22	FERRULE, ELECTRICAL COND	12
	AR	AR	1006458-006	TAPE, LACING	11
	2	2	1000243-21	FERRULE, ELECTRICAL COND	10
	~~-~~	~~4~~	~~1000243-19~~	~~FERRULE, ELECTRICAL COND~~	~~9~~
	92	92	1010402-1	SLEEVE, SOLDER	8
✱	1.6	1.6	SEE NOTE 8	SLEEVING	7
✱	0.1	0.1	SEE NOTE 8	SLEEVING	6
✱	5.5	5.5	SEE NOTE 11	BRAID, WIRE	5
✱	10.3	10.3	SEE NOTE 11	BRAID, WIRE	4
✱	40.0	40.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, BLK	3
✱	160	160	MIL-W-16878/4 E24	WIRE, ELECTRICAL, BLK	2
✱	160	160	MIL-W-16878/4 E24	WIRE, ELECTRICAL, WHT	1

LIST OF MATERIALS

✱ DENOTES LENGTH IN FEET

2014255	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 MAR 66
CHECKED 12 MAR 66
APPROVAL 12 MAR 66
APPROVAL 12 MAR 66
APPROVAL 12 MAR 66
NASA APPROVAL
MIT APPROVAL 66
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

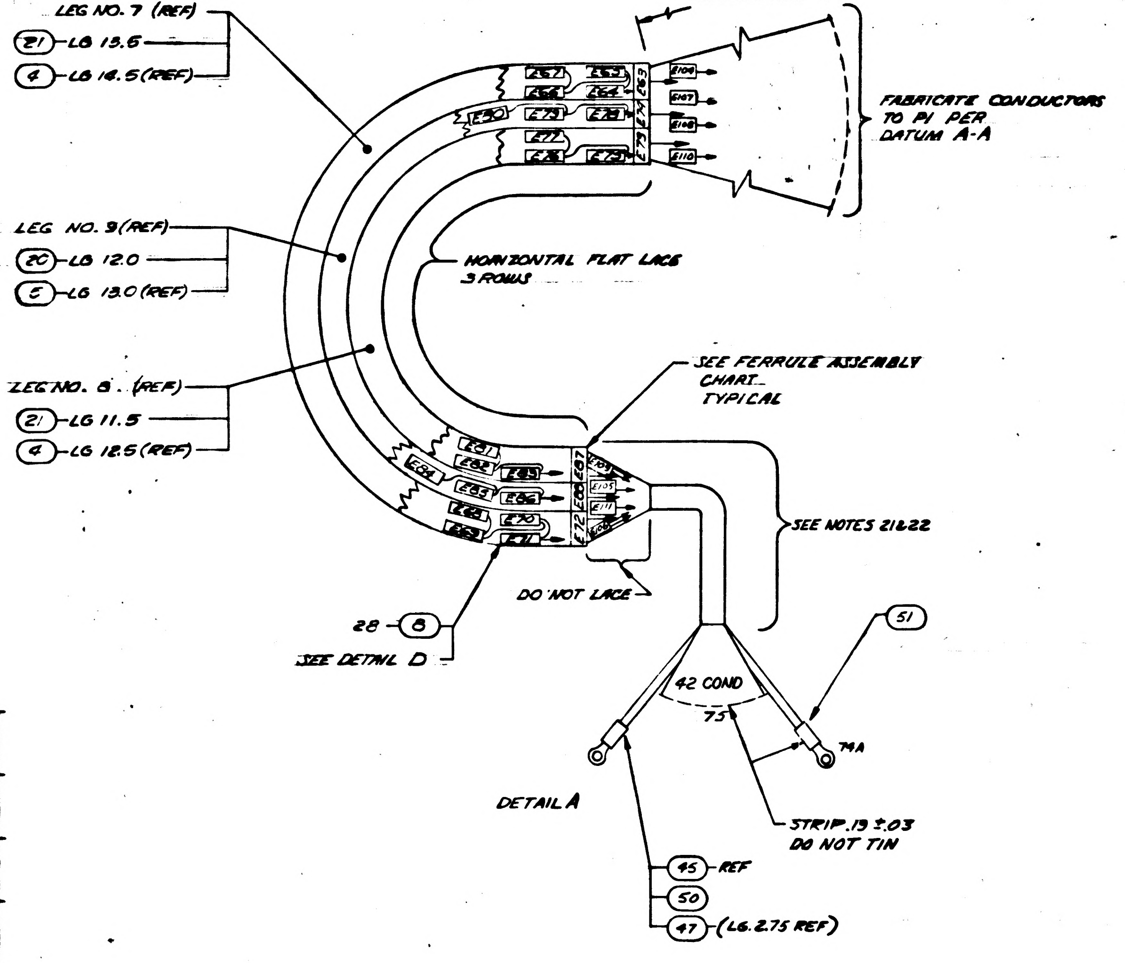
CABLE ASSEMBLY
W226

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014137
SCALE 1/1
WT
SHEET 1 OF 5

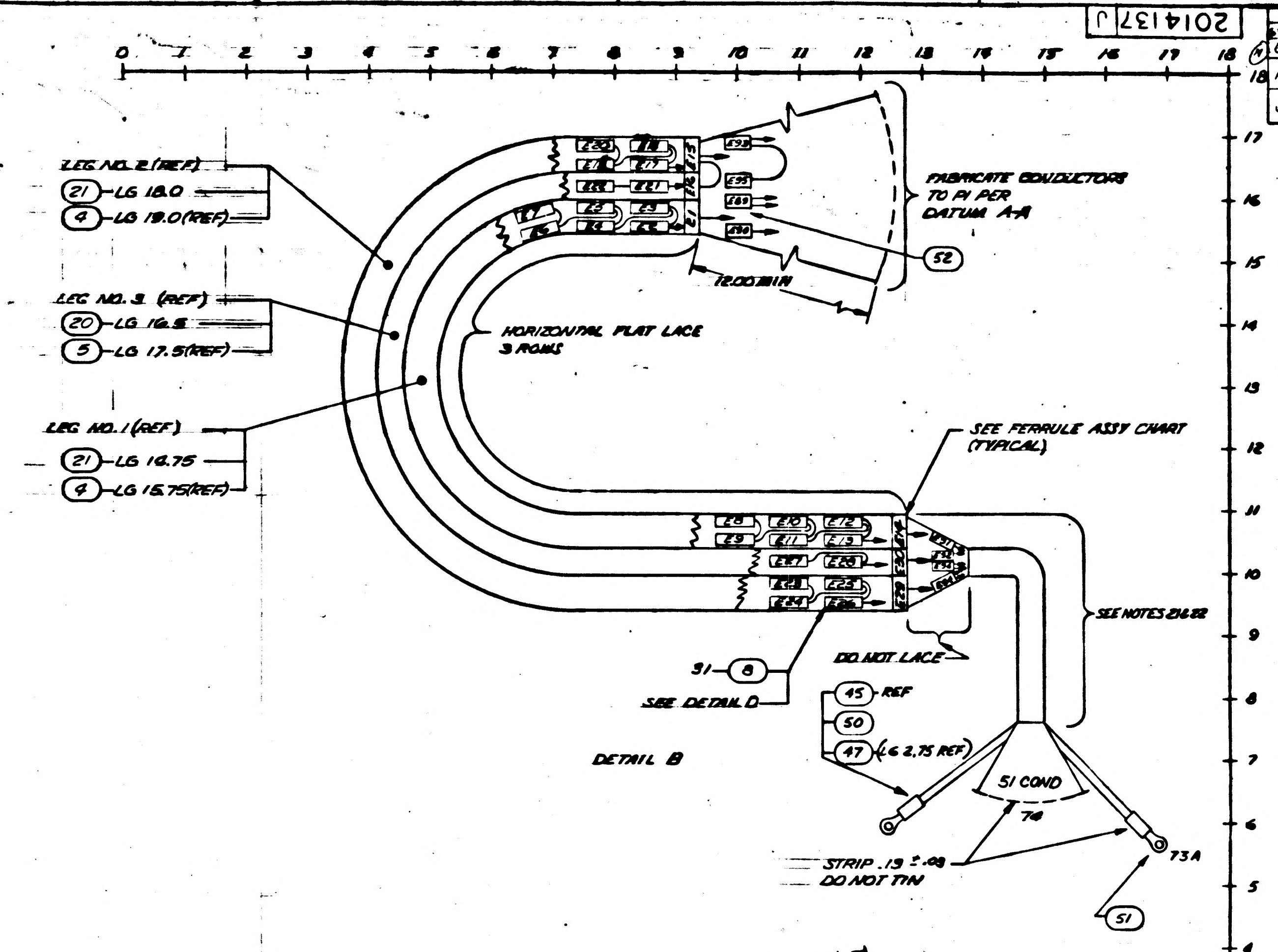
INTERPRET DRAWINGS IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014137 J

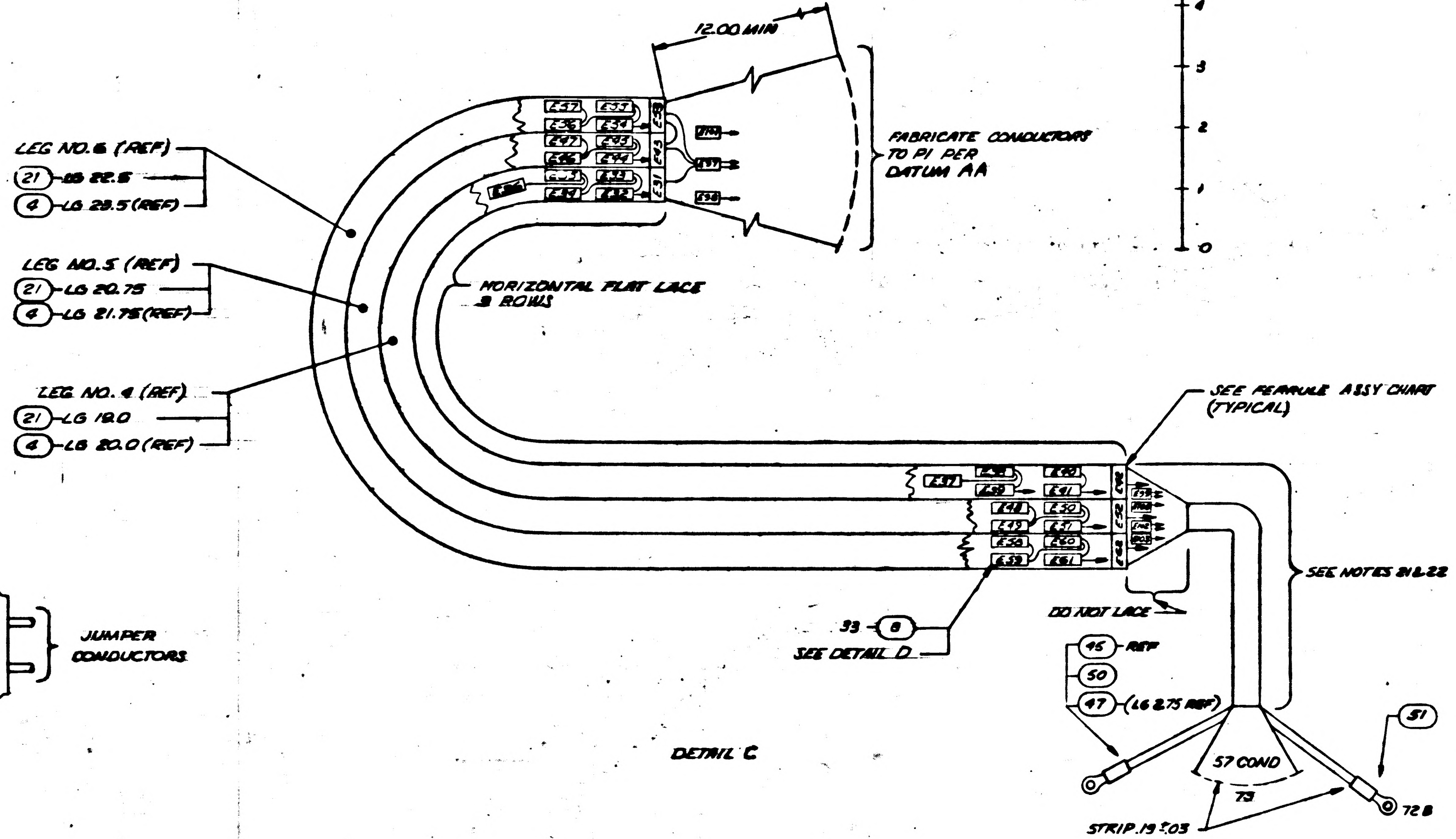
SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27678	4-1-66	
H	CHANGED PER TDRR 28826 DR Young CHK: Dittman APPD P.C.D	25 May 66	
J	CHANGED PER TDRR 30573 DR J.P. Leonard CHK A. Kaplan APPD 2.07	9/30/66	


LEG NO. 7 (REF)
21 — LG 13.6
4 — LG 14.5 (REF)
LEG NO. 9 (REF)
20 — LG 12.0
5 — LG 13.0 (REF)
LEG NO. 8 (REF)
21 — LG 11.5
4 — LG 12.5 (REF)
12.00 MIN
E67
E65
E66
E64
E63
E30
E73
E74
E72
E78
E75
E79
E109
E107
E108
E110
FABRICATE CONDUCTORS TO P1 PER DATUM A-A
HORIZONTAL FLAT LACE 3 ROWS
SEE FERRULE ASSEMBLY CHART TYPICAL
E81
E82
E84
E83
E85
E86
E90
E91
E87
E88
E72
E109
E105
E111
E106
SEE NOTES 21 & 22
DO NOT LACE
28 — 8
SEE DETAIL D
42 COND
75
51
74A
STRIP .19 ± .03 DO NOT TIN
45 — REF
50
47 — (LG 2.75 REF)

DETAIL A

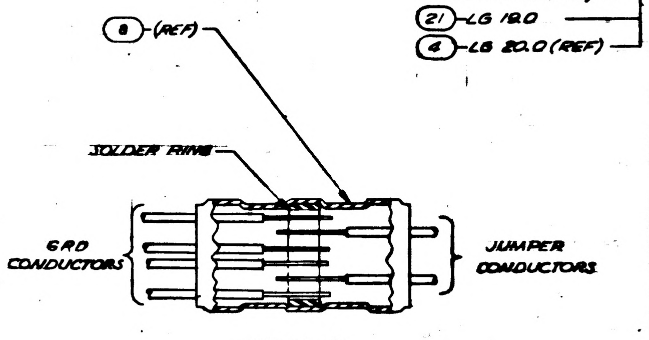

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
LEG NO. 2 (REF)
21 — LG 18.0
4 — LG 19.0 (REF)
LEG NO. 3 (REF)
20 — LG 16.5
5 — LG 17.5 (REF)
LEG NO. 1 (REF)
21 — LG 16.75
4 — LG 15.75 (REF)
E20
E18
E19
E17
E22
E21
E7
E3
E6
E4
E5
E15
E16
E1
E93
E95
E89
E90
52
12.00 MIN
FABRICATE CONDUCTORS TO P1 PER DATUM A-A
HORIZONTAL FLAT LACE 3 ROWS
SEE FERRULE ASSY CHART (TYPICAL)
E8
E9
E10
E11
E12
E13
E27
E28
E24
E25
E26
E14
E29
E92
E94
SEE NOTES 21 & 22
DO NOT LACE
31 — 8
SEE DETAIL D
45 — REF
50
47 — (LG 2.75 REF)
51 COND
74
73A
STRIP .19 ± .03 DO NOT TIN
51

DETAIL B


12.00 MIN
LEG NO. 6 (REF)
21 — LG 22.5
4 — LG 23.5 (REF)
LEG NO. 5 (REF)
21 — LG 20.75
4 — LG 21.75 (REF)
LEG NO. 4 (REF)
21 — LG 19.0
4 — LG 20.0 (REF)
E37
E35
E36
E34
E47
E45
E46
E44
E39
E38
E43
E42
E33
E43
E31
E97
E98
FABRICATE CONDUCTORS TO P1 PER DATUM AA
HORIZONTAL FLAT LACE 3 ROWS
SEE FERRULE ASSY CHART (TYPICAL)
E57
E59
E90
E91
E48
E49
E50
E51
E58
E53
E60
E61
E62
E52
E53
SEE NOTES 21 & 22
DO NOT LACE
33 — 8
SEE DETAIL D
45 — REF
50
47 — (LG 2.75 REF)
57 COND
73
72B
51
STRIP .19 ± .03 DO NOT TIN

DETAIL C

FERRULE ASSEMBLY CHART				
REF DES	FERRULE		SLEEVING	
	FIND NO. (INNER)	FIND NO. (OUTER)	FIND NO.	LENGTH
E1	14	18	7	1.12 ± .12
E14	14	18	7	
E15	12	17	7	
E16	10	16	6	
E29	12	17	7	
E30	10	16		
E31	14	18		
E42				
E43				
E52	14	18		
E53	12	17		
E62				
E63				
E72	12			
E73	13			
E74				
E87				
E88	13	17	7	1.12 ± .12


8 — (REF)
SOLDER RING
GRD CONDUCTORS
JUMPER CONDUCTORS

DETAIL D
92 PLACES
SCALE: NONE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS | DECIMALS | ANGLES
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Young DATE 12 MAR 66
CHECKED 12 MAR 66
APPROVAL 12 MAR 66
APPROVAL D. A'Angelo 12 MAR 66
APPROVAL 12 MAR 66
NASA APPROVAL
MIT APPROVAL 4-1-66
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

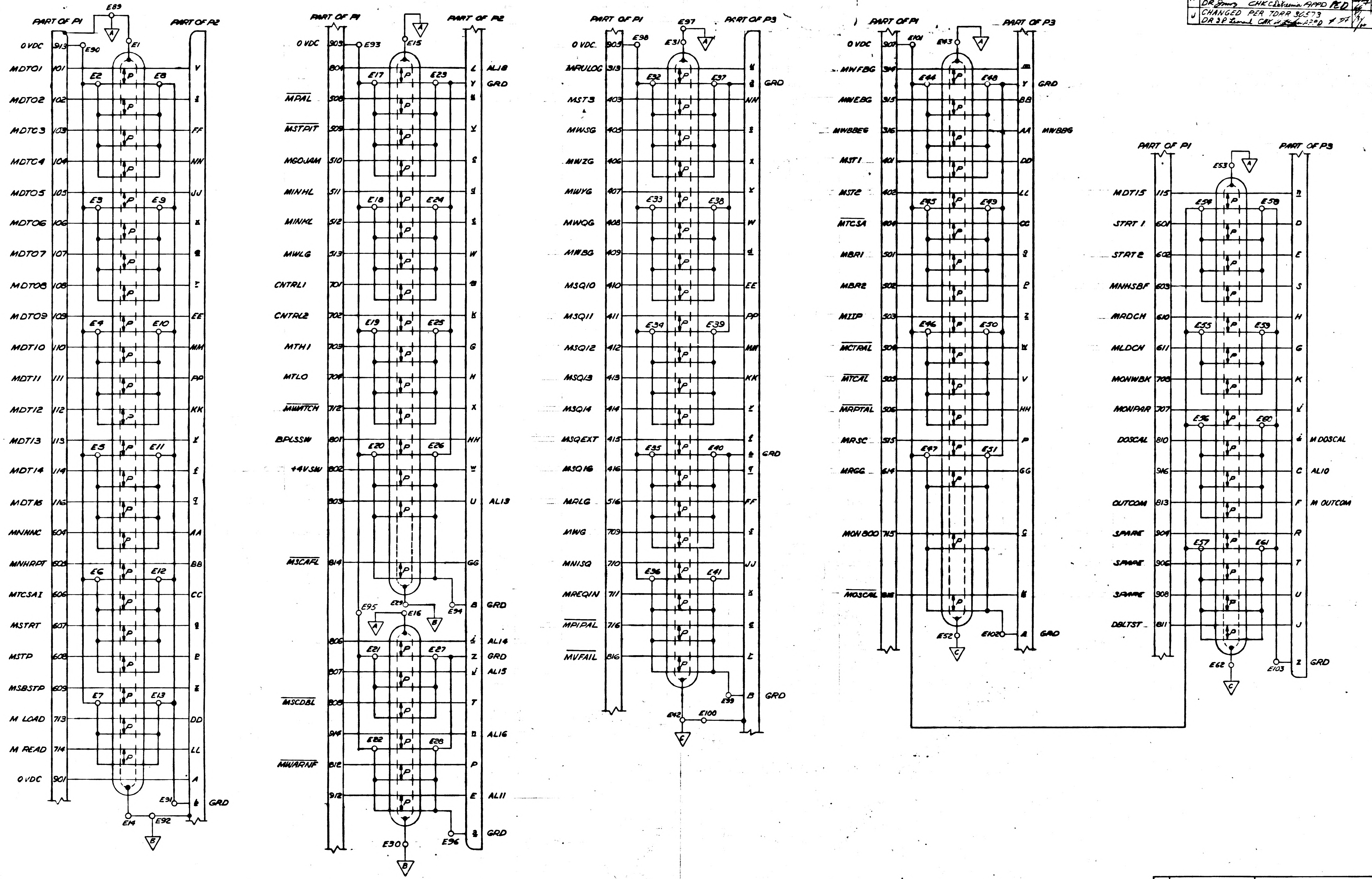
CABLE ASSEMBLY
#226

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014137
SCALE 1/1
WT
SHEET 2 OF 5

MASTER

2014137 J

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27698	4-1-66	
H	CHANGED PER TDRR 28826 DR CHK C Dekreemia APPD PED	25 ... 66	
J	CHANGED PER TDRR 30573 DR J.P. Leonard CHK APPD	8/3/66	



PART OF P1
PART OF P2
E89
E1
E90
0 VDC 913
MDT01 101 V
MDT02 102 s
MDTC3 103 FF
MDTC4 104 NN
MDT05 105 JJ
MDT06 106 x
MDT07 107 e
MDT08 108 r
MDT09 109 EE
MDT10 110 MM
MDT11 111 PP
MDT12 112 KK
MDT13 113 y
MDT14 114 f
MDT16 116 q
MNHNC 604 AA
MNHRPT 605 BB
MTCSAI 606 CC
MSTRT 607 g
MSTP 608 p
MSBSTP 609 z
M LOAD 713 DD
M READ 714 LL
0 VDC 901 A
E2
E8
E3
E9
E4
E10
E5
E11
E6
E12
E7
E13
P
E91
b GRD
E14
E92
A
B
PART OF P1
PART OF P2
0 VDC 903
E93
E15
804 L AL18
E17
E23
Y GRD
$\overline{MPAL}$ 508 u
$\overline{MSTPIT}$ 509 v
MGOJAM 510 s
MINHL 511 d
MINKL 512 t
MWLG 513 W
CNTRL1 701 m
CNTRL2 702 k
MTH1 703 G
MTLO 704 H
$\overline{MWATCH}$ 712 X
BPLSSW 801 HH
+4VSW 802 w
803 U AL13
$\overline{MSCAFL}$ 814 GG
E18
E24
E19
E25
E20
E26
E29
E94
B GRD
E95
E16
806 i AL14
E21
E27
Z GRD
807 j AL15
$\overline{MSCDBL}$ 808 T
914 n AL16
E22
E28
$\overline{MWARNF}$ 812 P
912 E AL11
E30
E96
a GRD
PART OF P1
E97
PART OF P3
0 VDC 905
E98
E31
MRULOG 313 u
E32
E37
a GRD
MST3 403 NN
MWSG 405 s
MWZG 406 x
MWYG 407 y
E33
E38
MWQG 408 W
MWBG 409 d
MSQ10 410 EE
MSQ11 411 PP
E34
E39
MSQ12 412 MM
MSQ13 413 KK
MSQ14 414 r
MSQEXT 415 f
E35
E40
b GRD
MSQ16 416 q
MRLG 516 FF
MWG 709 s
MNISQ 710 JJ
E36
E41
MREQIN 711 x
$\overline{MPIPAL}$ 716 e
$\overline{MVFAIL}$ 816 t
E99
B GRD
E42
E100
C
PART OF P1
PART OF P3
0 VDC 907
E101
E43
MWFBG 314 m
E44
E48
Y GRD
MWEBG 315 BB
MWBBEG 316 AA MWBBG
MST1 401 DD
MST2 402 LL
E45
E49
$\overline{MTCSA}$ 404 CC
MBR1 501 g
MBR2 502 p
MIIP 503 z
E46
E50
$\overline{MCTRAL}$ 504 w
$\overline{MTCAL}$ 505 V
$\overline{MRPTAL}$ 506 HH
MRSC 515 P
E47
E51
MRGG 614 GG
MON800 715 c
$\overline{MOSCAL}$ 815 k
E52
E102
A GRD
PART OF P1
PART OF P3
E53
MDT15 115 n
E54
E58
STRT 1 601 D
STRT 2 602 E
MNHSBF 603 S
MRDCH 610 H
E55
E59
MLDCH 611 G
MONWBK 708 K
MONPAR 707 j
E56
E60
DOSCAL 810 i M DOSCAL
916 C AL10
OUTCOM 813 F M OUTCOM
SPARE 904 R
E57
E61
SPARE 906 T
SPARE 908 U
DBLTST 811 J
E62
E103
Z GRD

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY	USED ON

APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 MAR 66
CHECKED 12 MAR 66
APPROVAL 12 MAR 66
APPROVAL 12 MAR 66
APPROVAL 12 MAR 66
NASA APPROVAL
MIT APPROVAL 4-1-66
MIT APPROVAL 3/29/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W 226

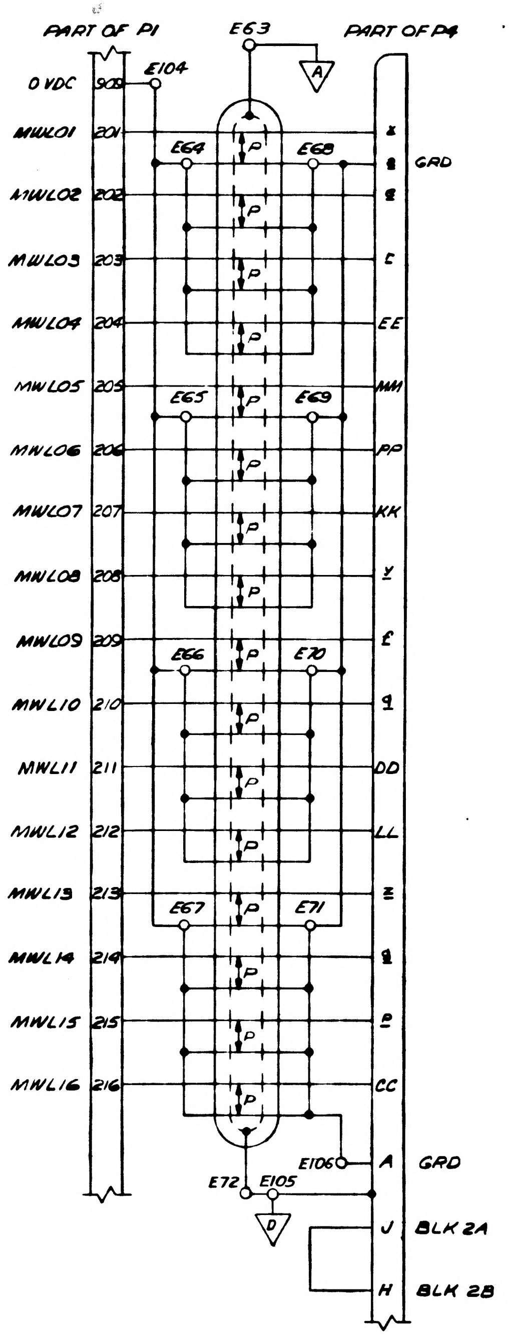
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014137
SCALE NONE
WT
SHEET 3 OF 5

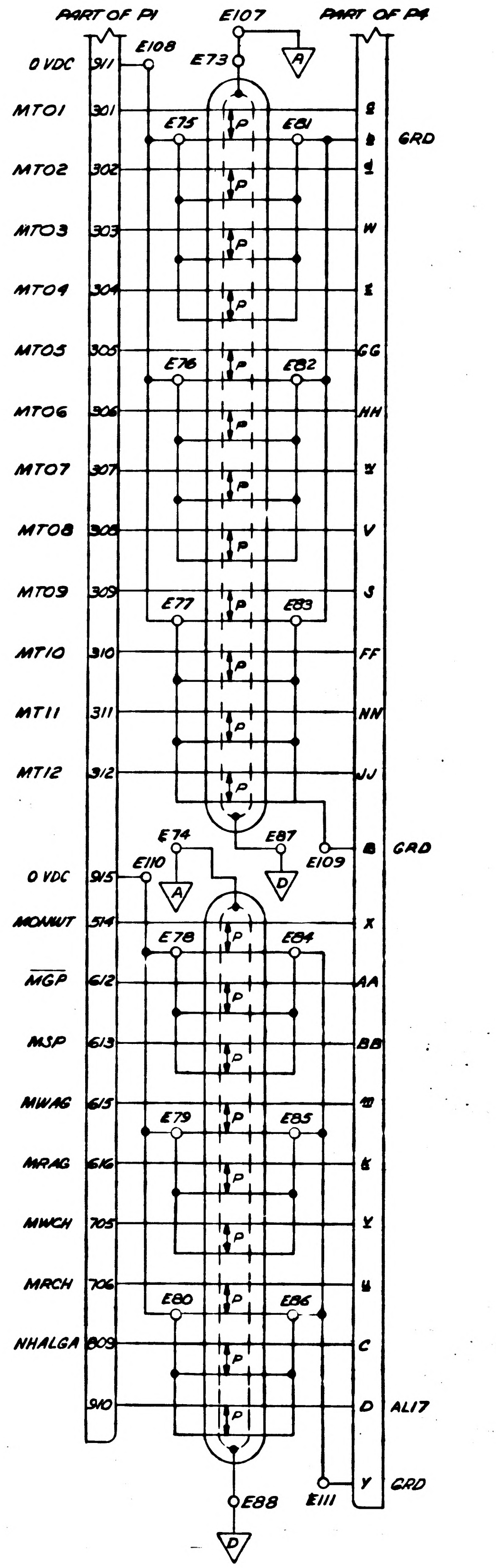
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014137 J

2014137 J

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27698		
H	CHANGED PER TDRR 28826 DR CHK C. APPD	66	
J	CHANGED PER TDRR 30573 DR J.P. Leonard CHK APPD 7-7-?	?/66	


PART OF P1
E63
PART OF P4
A
0 VDC 909
E104
MWL01 201
MWL02 202
MWL03 203
MWL04 204
MWL05 205
MWL06 206
MWL07 207
MWL08 208
MWL09 209
MWL10 210
MWL11 211
MWL12 212
MWL13 213
MWL14 214
MWL15 215
MWL16 216
E64
E68
E65
E69
E66
E70
E67
E71
P
GRD
C
EE
MM
PP
KK
DD
LL
CC
E106
A GRD
E72
E105
D
J BLK 2A
H BLK 2B


PART OF P1
E107
PART OF P4
A
0 VDC 911
E108
E73
MT01 301
MT02 302
MT03 303
MT04 304
MT05 305
MT06 306
MT07 307
MT08 308
MT09 309
MT10 310
MT11 311
MT12 312
E75
E81
E76
E82
E77
E83
P
GRD
W
GG
HH
V
J
FF
NN
JJ
B GRD
E74
E87
E109
D
0 VDC 915
E110
A
MONUT 514
MGP 612
MSP 613
MWAG 615
MRAG 616
MWCH 705
MRCH 706
NHALGA 809
910
E78
E84
E79
E85
E80
E86
X
AA
BB
K
C
D ALI7
Y GRD
E88
E111
D

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO. 1 REF	A1	9	P1-101	WHT	24	1	74	P2-V	TWIST
	A2	△1	E2	BLK		2	△1	E8	
	A3	9	P1-102	WHT		1	74	P2-s	
	A4	△1	E2	BLK		2	△1	E8	
	A5	18	P1-103	WHT		1	74	P2-FF	
	A6	△1	E2	BLK		2	△1	E8	
	A7	18	P1-104	WHT		1	74	P2-NN	
	A8	△1	E2	BLK		2	△1	E8	
	A9	27	P1-105	WHT		1	74	P2-JJ	
	A10	△1	E3	BLK		2	△1	E9	
	A11	27	P1-106	WHT		1	74	P2-x	
	A12	△1	E3	BLK		2	△1	E9	
	A13	36	P1-107	WHT		1	74	P2-g	
	A14	△1	E3	BLK		2	△1	E9	
	A15	36	P1-108	WHT		1	74	P2-t	
	A16	△1	E3	BLK		2	△1	E9	
	A17	45	P1-109	WHT		1	74	P2-EE	
	A18	△1	E4	BLK		2	△1	E10	
	A19	45	P1-110	WHT		1	74	P2-MM	
	A20	△1	E4	BLK		2	△1	E10	
	A21	54	P1-111	WHT		1	74	P2-PP	
	A22	△1	E4	BLK		2	△1	E10	
	A23	54	P1-112	WHT		1	74	P2-KK	
	A24	△1	E4	BLK		2	△1	E10	
	A25	63	P1-113	WHT		1	74	P2-y	
	A26	△1	E5	BLK		2	△1	E11	
	A27	63	P1-114	WHT		1	74	P2-f	
	A28	△1	E5	BLK		2	△1	E11	
	A29	72	P1-116	WHT		1	74	P2-j	
	A30	△1	E5	BLK		2	△1	E11	
	A31	13	P1-604	WHT		1	74	P2-AA	
	A32	△1	E5	BLK		2	△1	E11	
	A33	22	P1-605	WHT		1	74	P2-BB	
	A34	△1	E6	BLK		2	△1	E12	
	A35	22	P1-606	WHT		1	74	P2-CC	
	A36	△1	E6	BLK		2	△1	E12	
	A37	31	P1-607	WHT		1	74	P2-q	
	A38	△1	E6	BLK		2	△1	E12	
	A39	31	P1-608	WHT		1	74	P2-b	
	A40	△1	E6	BLK		2	△1	E12	
	A41	40	P1-609	WHT		1	74	P2-z	
	A42	△1	E7	BLK		2	△1	E13	
	A43	57	P1-713	WHT		1	74	P2-DD	
	A44	△1	E7	BLK		2	△1	E13	
	A45	57	P1-714	WHT		1	74	P2-LL	TWIST
	A46	△1	E7	BLK	24	2	△1	E13	
	A47	55	P1-913	BLK	22	3		E90	
	A48	△1	E1					E89	
	A49		E2					E3	
	A50		E3					E4	
	A51		E4					E5	
	A52		E5					E6	
	A53		E6					E7	
	A54		E8					E9	
	A55		E9					E10	
	A56		E10					E11	
	A57		E11					E12	
	A58		E12					E13	
	A59		E13					E91	
	A60	△1	E14				△1	E92	
	A61	1	P1-901	BLK	22	3	74	P2-A	
LEG NO.1 REF		△1	E1	BRAID	36	4	△1	E14	
LEG NO.2 REF	A63	11	P1-804	WHT	24	1	74	P2-L	TWIST
	A64	△1	E17	BLK		2	△1	E23	
	A65	32	P1-508	WHT		1	74	P2-u	
	A66	△1	E17	BLK		2	△1	E23	
	A67	41	P1-509	WHT		1	74	P2-v	
	A68	△1	E17	BLK		2	△1	E23	
	A69	41	P1-510	WHT		1	74	P2-s	
	A70	△1	E17	BLK		2	△1	E23	
	A71	50	P1-511	WHT		1	74	P2-d	
	A72	△1	E18	BLK		2	△1	E24	
	A73	50	P1-512	WHT		1	74	P2-c	
	A74	△1	E18	BLK		2	△1	E24	
	A75	59	P1-513	WHT		1	74	P2-W	
	A76	△1	E18	BLK		2	△1	E24	
	A77	3	P1-701	WHT		1	74	P2-m	
	A78	△1	E-18	BLK		2	△1	E24	
	A79	3	P1-702	WHT		1	74	P2-k	
	A80	△1	E19	BLK		2	△1	E25	
	A81	12	P1-703	WHT		1	74	P2-G	
	A82	△1	E19	BLK		2	△1	E25	
	A83	12	P1-704	WHT		1	74	P2-H	
	A84	△1	E19	BLK		2	△1	E25	
	A85	48	P1-712	WHT		1	74	P2-X	TWIST
LEG NO.2 REF	A86	△1	E19	BLK	24	2	△1	E25	

△1 DENOTES INTERNAL CONNECTION
△2 ATTACH 2.00 OF FIND 53, SEE NOTE 26

ASSEMELY INFORMATING CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO.2 REF	A87	2	P1-801	WHT	24	1	74	P2-HH	TWIST
	A88	△1	E20	BLK		2	△1	E26	
	A89	2	P1-802	WHT		1	74	P2-w	
	A90	△1	E20	BLK		2	△1	E26	
	A91	11	P1-803	WHT		1	74	P2-U	
	A92	△1	E20	BLK		2	△1	E26	
	A93	56	P1-814	WHT		1	74	P2-GG	TWIST
	A94	△1	E20	BLK	24	2	△1	E26	
	A95	10	P1-903	BLK	22	3		E93	
	A96	△1	E15					E89	
	A97		E17					E18	
	A98		E18					E19	
	A99		E19					E20	
	A100		E23					E24	
	A101		E24					E25	
	A102		E25					E26	
	A103		E26					E94	
	A104		E29	BLK	22	3		E92	
LEG NO.2 REF		△1	E15	BRAID	36	4	△1	E29	
LEG NO.2 REF	A106	△1	E15	BLK	22	3	△1	E16	LEG NO.3 REF
LEG NO.3 REF	A107	20	P1-806	WHT	24	1	74	P2-t	TWIST
	A108	△1	E21	BLK		2	△1	E27	
	A109	29	P1-807	WHT		1	74	P2-y	
	A110	△1	E21	BLK		2	△1	E27	
	A111	29	P1-808	WHT		1	74	P2-T	
	A112	△1	E21	BLK		2	△1	E27	
	A113	55	P1-914	WHT		1	74	P2-n	
	A114	△1	E22	BLK		2	△1	E28	
	A115	47	P1-812	WHT		1	74	P2-P	
	A116	△1	E22	BLK		2	△1	E28	
	A117	46	P1-912	WHT		1	74	P2-E	TWIST
	A118	△1	E22	BLK	24	2	△1	E28	
	A119		E95	BLK	22	3		E21	
	A120		E21					E22	
	A121		E27					E28	
	A122		E28					E96	
	A123		E30	BLK	22	3		E92	
LEG NO. 3 REF		△1	E16	BRAID	36	5	△1	E30	

SEE SHEET 5 FOR A125 THRU A373

LEG NO.3 REF	A374	△1	E96	BLK	22	3	74	P2-Z	
LEG NO.3 REF	A375		E96				74	P2-z	
LEG NO.4 REF	A376		E32				△1	E98	
	A377		E97				△1	E89	LEG NO. 1 REF
	A378		E99				73	P3-B	
	A379		E99				73	P3-b	
LEG NO. 4 REF	A380		E100				72B	P3-GRD △2	
LEG NO.5 REF	A381		E44				△1	E101	
	A382		E102				73	P3-A	
LEG NO.5 REF	A383		E102				73	P3-Y	
LEG NO.6 REF	A384		E103				73	P3-Z	
LEG NO.7 REF	A385		E107				△1	E97	LEG NO.4 REF
	A386		E64				△1	E104	
	A387		E106				75	P4-A	
	A388		E106				75	P4-a	
LEG NO.7 REF	A389		E105				74A	P4-GRD △2	
LEG NO.8 REF	A390		E75				△1	E108	
	A391		E109				75	P4-B	
LEG NO.8 REF	A392		E109				75	P4-b	
LEG NO.9 REF	A393		E78				△1	E110	
LEG NO.9 REF	A394		E111				75	P4-Y	
LEG NO.6 REF	A395	△1	E54	BLK	22	3	△1	E101	LES NO. 5 REF

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 MAR 66
CHECKED 12 MAR 66
APPROVAL 12 MAR 66
APPROVAL 12 MAR 66
APPROVAL 12 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL M G Manley 4-1-66
MIT APPROVAL A. Harano

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W226

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014137
SCALE NONE
WT
SHEET 4 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014137 J

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO. 4 REF	A125	61	P1-313	WHT	24	1	73	P3-u	TWIST
	A126	△	E32	BLK		2	△	E37	
	A127	15	P1-403	WHT		1	73	P3-NN	
	A128	△	E32	BLK		2	△	E37	
	A129	24	P1-405	WHT		1	73	P3-s	
	A130	△	E32	BLK		2	△	E37	
	A131	24	P1-406	WHT		1	73	P3-X	
	A132	△	E32	BLK		2	△	E37	
	A133	33	P1-407	WHT		1	73	P3-y	
	A134	△	E33	BLK		2	△	E38	
	A135	33	P1-408	WHT		1	73	P3-W	
	A136	△	E33	BLK		2	△	E38	
	A137	42	P1-409	WHT		1	73	P3-d	
	A138	△	E33	BLK		2	△	E38	
	A139	42	P1-410	WHT		1	73	P3-EE	
	A140	△	E33	BLK		2	△	E38	
	A141	51	P1-411	WHT		1	73	P3-PP	
	A142	△	E34	BLK		2	△	E39	
	A143	51	P1-412	WHT		1	73	P3-MM	
	A144	△	E34	BLK		2	△	E-39	
	A145	60	P1-413	WHT		1	73	P3-KK	
	A146	△	E34	BLK		2	△	E39	
	A147	60	P1-414	WHT		1	73	P3-v	
	A148	△	E34	BLK		2	△	E39	
	A149	69	P1-415	WHT		1	73	P3-f	
	A150	△	E35	BLK		2	△	E40	
	A151	69	P1-416	WHT		1	73	P3-g	
	A152	△	E35	BLK		2	△	E40	
	A153	68	P1-516	WHT		1	73	P3-FF	
	A154	△	E35	BLK		2	△	E40	
	A155	39	P1-709	WHT		1	73	P3-e	
	A156	△	E35	BLK		2	△	E40	
	A157	39	P1-710	WHT		1	73	P3-JJ	
	A158	△	E36	BLK		2	△	E41	
	A159	48	P1-711	WHT		1	73	P3-x	
	A160	△	E36	BLK		2	△	E41	
	A161	66	P1-716	WHT		1	73	P3-z	
	A162	△	E36	BLK		2	△	E41	
	A163	65	P1-816	WHT		1	73	P3-r	TWIST
	A164	△	E36	BLK	24	2	△	E41	
	A165	19	P1-205	BLK	22	3		E98	
	A166	△	E31					E97	
	A167		E32					E33	
	A168		E33					E34	
	A169		E34					E35	
	A170		E35					E36	
	A171		E37					E38	
	A172		E38				△	E39	
	A173		E39				73	P3-a	
	A174		E40				△	E41	
	A175		E41					E99	
	A176		E42	BLK	22	3		E100	
LEG NO. 4 REF		△	E31	BRAID	36	4	△	E42	
LEG NO. 5 REF	A178	61	P1-314	WHT	24	1	73	P3-m	TWIST
	A179	△	E44	BLK		2	△	E48	
	A180	70	P1-315	WHT		1	73	P3-BB	
	A181	△	E44	BLK		2	△	E48	
	A182	70	P1-316	WHT		1	73	P3-AA	
	A183	△	E44	BLK		2	△	E48	
	A184	6	P1-401	WHT		1	73	P3-DD	
	A185	△	E44	BLK		2	△	E48	
	A186	6	P1-402	WHT		1	73	P3-LL	
	A187	△	E45	BLK		2	△	E49	
	A188	15	P1-404	WHT		1	73	P3-CC	
	A189	△	E45	BLK		2	△	E49	
	A190	5	P1-501	WHT		1	73	P3-g	
	A191	△	E45	BLK		2	△	E49	
	A192	5	P1-502	WHT		1	73	P3-p	
	A193	△	E45	BLK		2	△	E49	
	A194	14	P1-503	WHT		1	73	P3-z	
	A195	△	E46	BLK		2	△	E50	
	A196	23	P1-504	WHT		1	73	P3-w	
	A197	△	E46	BLK		2	△	E50	
	A198	23	P1-505	WHT		1	73	P3-V	
	A199	△	E46	BLK		2	△	E50	
	A200	23	P1-506	WHT		1	73	P3-HH	
	A201	△	E46	BLK		2	△	E50	
	A202	68	P1-515	WHT		1	73	P3-P	
	A203	△	E47	BLK		2	△	E51	
	A204	58	P1-614	WHT		1	73	P3-GG	
	A205	△	E47	BLK		2	△	E51	
	A206	66	P1-715	WHT		1	73	P3-c	
	A207	△	E47	BLK		2	△	E51	
	A208	65	P1-815	WHT		1	73	P3-k	TWIST
LEG NO. 5 REF	A209	△	E47	BLK	24	2	△	E51	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO. 5 REF	A210	28	P1-907	BLK	22	3	△	E101	
	A211	△	E43					E97	
	A212		E44					E45	
	A213		E45					E46	
	A214		E46					E47	
	A215		E48					E49	
	A216		E49					E50	
	A217		E50					E51	
	A218		E51					E102	
	A219		E52	BLK	22	3		E100	
LEG NO. 5 REF		△	E43	BRAID	36	4	△	E52	
LEG NO. 5 REF	A221	△	E43	BLK	22	3	△	E53	LEG NO. 6 REF
LEG NO. 6 REF	A222	72	P1-115	WHT	24	1	73	P3-n	TWIST
	A223	△	E54	BLK		2	△	E58	
	A224	4	P1-601	WHT		1	73	P3-D	
	A225	△	E54	BLK		2	△	E58	
	A226	4	P1-602	WHT		1	73	P3-E	
	A227	△	E54	BLK		2	△	E58	
	A228	13	P1-603	WHT		1	73	P3-S	
	A229	△	E54	BLK		2	△	E58	
	A230	40	P1-610	WHT		1	73	P3-H	
	A231	△	E55	BLK		2	△	E59	
	A232	49	P1-611	WHT		1	73	P3-G	
	A233	△	E55	BLK		2	△	E59	
	A234	30	P1-708	WHT		1	73	P3-K	
	A235	△	E55	BLK		2	△	E59	
	A236	30	P1-707	WHT		1	73	P3-j	
	A237	△	E56	BLK		2	△	E60	
	A238	38	P1-810	WHT		1	73	P3-t	
	A239	△	E56	BLK		2	△	E60	
	A240	64	P1-916	WHT		1	73	P3-C	
	A241	△	E56	BLK		2	△	E60	
	A242	56	P1-813	WHT		1	73	P3-F	
	A243	△	E56	BLK		2	△	E60	
	A244	10	P1-904	WHT		1	73	P3-R	
	A245	△	E57	BLK		2	△	E61	
	A246	13	P1-906	WHT		1	73	P3-T	
	A247	△	E57	BLK		2	△	E61	
	A248	47	P1-811	WHT		1	73	P3-J	
	A249	△	E57	BLK		2	△	E61	
	A250	28	P1-908	WHT		1	73	P3-U	TWIST
	A251	△	E57	BLK	24	2	△	E61	
	A252		E53	BLK	22	3		E97	
	A253		E54					E55	
	A254		E55					E56	
	A255		E56					E57	
	A256		E58					E59	
	A257		E59					E60	
	A258		E60					E61	
	A259		E61					E103	
	A260		E62	BLK	22	3		E100	
LEG NO. 6 REF		△	E53	BRAID	36	4	△	E62	
LEG NO. 7 REF	A262	8	P1-201	WHT	24	1	75	P4-x	TWIST
	A263	△	E64	BLK		2	△	E68	
	A264	8	P1-202	WHT		1	75	P4-g	
	A265	△	E64	BLK		2	△	E68	
	A266	17	P1-203	WHT		1	75	P4-t	
	A267	△	E64	BLK		2	△	E68	
	A268	17	P1-204	WHT		1	75	P4-EE	
	A269	△	E64	BLK		2	△	E68	
	A270	26	P1-205	WHT		1	75	P4-MM	
	A271	△	E65	BLK		2	△	E69	
	A272	26	P1-206	WHT		1	75	P4-PP	
	A273	△	E65	BLK		2	△	E69	
	A274	36	P1-207	WHT		1	75	P4-KK	
	A275	△	E65	BLK		2	△	E69	
	A276	35	P1-208	WHT		1	75	P4-y	
	A277	△	E65	BLK		2	△	E69	
	A278	44	P1-209	WHT		1	75	P4-f	
	A279	△	E66	BLK		2	△	E70	
	A280	44	P1-210	WHT		1	75	P4-q	
	A281	△	E66	BLK		2	△	E70	
	A282	53	P1-211	WHT		1	75	P4-DD	
	A283	△	E66	BLK		2	△	E70	
	A284	53	P1-212	WHT		1	75	P4-LL	
	A285	△	E66	BLK		2	△	E70	
	A286	62	P1-213	WHT		1	75	P4-z	
	A287	△	E67	BLK		2	△	E71	
	A288	62	P1-214	WHT		1	75	P4-[illegible]	TWIST
LEG NO. 7 REF	A289	△	E67	BLK	24	2	△	E71	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
LEG NO. 7 REF	A290	71	P1-215	WHT	24	1	75	P4-e	TWIST
	A291	△	E67	BLK		2	△	E71	
	A292	71	P1-216	WHT		1	75	P4-CC	TWIST
	A293	△	E67	BLK	24	2	△	E71	
	A294	37	P1-909	BLK	22	3		E104	
	A295	△	E63					E107	
	A296		E64					E65	
	A297		E65					E66	
	A298		E66					E67	
	A299		E68					E69	
	A300		E69					E70	
	A301		E70					E71	
	A302		E71					E106	
	A303		E72	BLK	22	3	△	E105	
LEG NO. 7 REF		△	E63	BRAID	36	4		E72	
LEG NO. 8 REF	A305	7	P1-301	WHT	24	1	75	P4-s	TWIST
	A306	△	E75	BLK		2	△	E81	
	A307	7	P1-302	WHT		1	75	P4-d	
	A308	△	E75	BLK		2	△	E81	
	A309	16	P1-303	WHT		1	75	P4-W	
	A310	△	E75	BLK		2	△	E81	
	A311	16	P1-304	WHT		1	75	P4-b	
	A312	△	E75	BLK		2	△	E81	
	A313	25	P1-305	WHT		1	75	P4-GG	
	A314	△	E76	BLK		2	△	E82	
	A315	25	P1-306	WHT		1	75	P4-HH	
	A316	△	E76	BLK		2	△	E82	
	A317	34	P1-307	WHT		1	75	P4-w	
	A318	△	E76	BLK		2	△	E82	
	A319	34	P1-308	WHT		1	75	P4-V	
	A320	△	E76	BLK		2	△	E82	
	A321	43	P1-309	WHT		1	75	P4-S	
	A322	△	E77	BLK		2	△	E83	
	A323	43	P1-310	WHT		1	75	P4-FF	
	A324	△	E77	BLK		2	△	E83	
	A325	52	P1-311	WHT		1	75	P4-NN	
	A326	△	E77	BLK		2	△	E83	
	A327	52	P1-312	WHT		1	75	P4-JJ	TWIST
	A328	△	E77	BLK	24	2	△	E83	
	A329	46	P1-911	BLK	22	3		E108	
	A330	△	E73					E107	
	A331		E75					E76	
	A332		E76					E77	
	A333		E81					E82	
	A334		E82					E83	
	A335		E83					E109	
	A336		E87	BLK	22	3		E105	
LEG NO. 8 REF		△	E73	BRAID	36	4	△	E87	
LEG NO. 9 REF	A338	59	P1-514	WHT	24	1	75	P4-X	TWIST
	A339	△	E78	BLK		2	△	E84	
	A340	49	P1-612	WHT		1	75	P4-AA	
	A341	△	E78	BLK		2	△	E84	
	A342	58	P1-613	WHT		1	75	P4-BB	
	A343	△	E78	BLK		2	△	E84	
	A344	67	P1-615	WHT		1	75	P4-m	
	A345	△	E79	BLK		2	△	E85	
	A346	67	P1-616	WHT		1	75	P4-k	
	A347	△	E79	BLK		2	△	E85	
	A348	21	P1-705	WHT		1	75	P4-v	
	A349	△	E79	BLK		2	△	E85	
	A350	21	P1-706	WHT		1	75	P4-u	
	A351	△	E80	BLK		2	△	E86	
	A352	38	P1-809	WHT		1	75	P4-c	
	A353	△	E80	BLK		2	△	E86	
	A354	37	P1-910	WHT		1	75	P4-D	TWIST
	A355	△	E80	BLK	24	2	△	E86	
	A356	64	P1-915	BLK	22	3		E110	
	A357	△	E74					E107	
	A358		E78					E79	
	A359		E79					E80	
	A360		E84					E85	
	A361		E85					E86	
	A362		E86					E111	
	A363		E88	BLK	22	3		E105	
LEG NO. 9 REF			E74	BRAID	36	4		E88	
	A365		P4-N	BLK	22	3	△	P4-J	
LEG NO. 1 REF	A366		E89	BRAID	36	4	72A	P1-GRD	
	A367		E2	BLK	22	3	△	E90	
	A368		E91				74	P2-b	
LEG NO. 1 REF	A369		E92				73A	P2-GRD	△
LEG NO. 2 REF	A370		E17				△	E93	
	A371		E94				74	P2-Y	
	A372		E94				74	P2-B	
LEG NO. 2 REF	A373	△	E93	BLK	22	3	△	E95	LEG NO. 3 REF

SEE SHEET 4 FOR A374 THRU A395

REVISIONS			
SYM	DESCRIPTION	DATE	
G	CLASS A RELEASED PER TDRR 27698	4-4-[illegible]	[illegible]
H	CHANGED PER TDRR 28826 DR [illegible] CHK C [illegible] APPD PED	[illegible]	[illegible]
J	CHANGED PER TDRR 30573 DR J.P. Leonard CHK [illegible] APPD [illegible]	[illegible]	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 12 MAR 65
CHECKED J. G. Smith 12 MAR 65
APPROVAL [illegible] 12 MAR 65
APPROVAL [illegible] 12 MAR 65
APPROVAL [illegible] 12 MAR 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

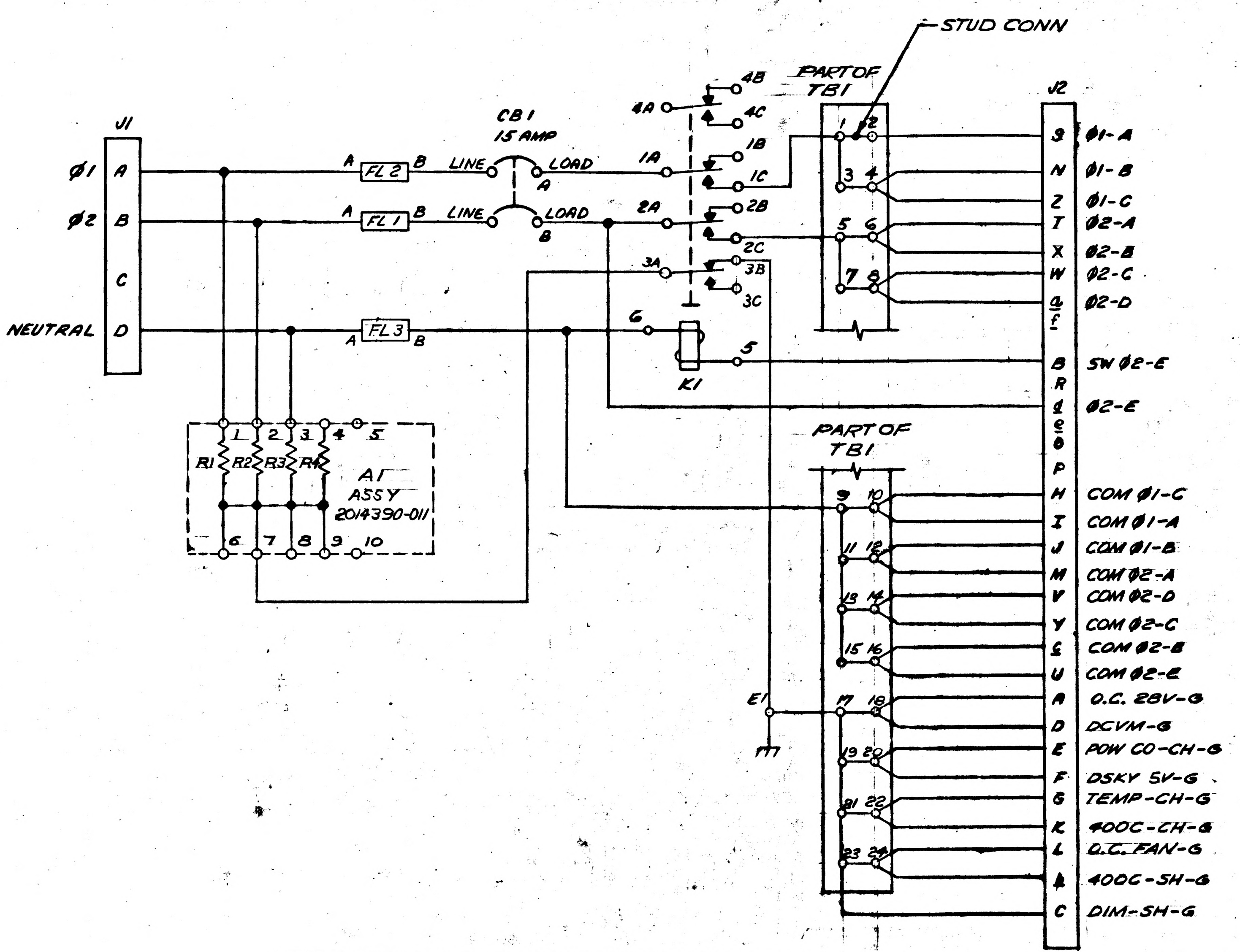
CABLE ASSEMBLY
W226

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014137
SCALE NONE | WT | SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014142 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
C	CLASS A RELEASED PER TDRR 27693		


STUD CONN
J1
Ø1 A
Ø2 B
C
NEUTRAL D
A FL2 B
A FL1 B
A FL3 B
CB1
15 AMP
LINE
LOAD
A
B
4A
4B
4C
1A
1B
1C
2A
2B
2C
3A
3B
3C
6
5
K1
PART OF TB1
1 2
3 4
5 6
7 8
9 10
11 12
13 14
15 16
17 18
19 20
21 22
23 24
E1
1 2 3 4 5
R1 R2 R3 R4
A1 ASSY 2014390-011
6 7 8 9 10
J2
S Ø1-A
N Ø1-B
Z Ø1-C
T Ø2-A
X Ø2-B
W Ø2-C
a f Ø2-D
B SW Ø2-E
R
d Ø2-E
e
θ
P
H COM Ø1-C
I COM Ø1-A
J COM Ø1-B
M COM Ø2-A
V COM Ø2-D
Y COM Ø2-C
c COM Ø2-B
U COM Ø2-E
A D.C. 28V-G
D DCVM-G
E POW CO-CH-G
F DSKY 5V-G
G TEMP-CH-G
K 400C-CH-G
L D.C. FAN-G
b 400C-SH-G
C DIM-SH-G

FOR REFERENCE ONLY					
REF DES	PART NUMBER	DESCRIPTION	VALUE	TOL	RATING
J1	MS3102A-22-22P	CONNECTOR			
J2	MS3102A-36-8S	CONNECTOR			
K1	1006926	RELAY			
CB1	1006957-18	CKT BKR			15AMP
TB1	MIL-T-16784/26TB12	TERM. BD			
FL1	1006654	FILTER			
FL2	1006654	FILTER			
AIR1-AIR4	RC42GF473K	RESISTOR	47K	±10%	2W
~~AIR2~~	~~1010888-87~~	~~RESISTOR~~	~~20K~~	~~±1%~~	~~3W~~

NOTES

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

~~2. PINS 14 THRU 24 ON TB1 ARE SPARES~~

MASTER

REFERENCE

1. ASSEMBLY DWG. 2014302-011

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 5 MAR 66
CHECKED A. Caggiano 5 MAR 66
APPROVAL 5 MAR 66
APPROVAL R. C. Park 5 MAR 66
APPROVAL 5 MAR 66
NASA APPROVAL E. C. METZGER
MIT APPROVAL 4-1-66
MIT APPROVAL 3/29/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
AC INPUT PANEL A5
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014142
SCALE NONE
WT
SHEET 1 OF 1

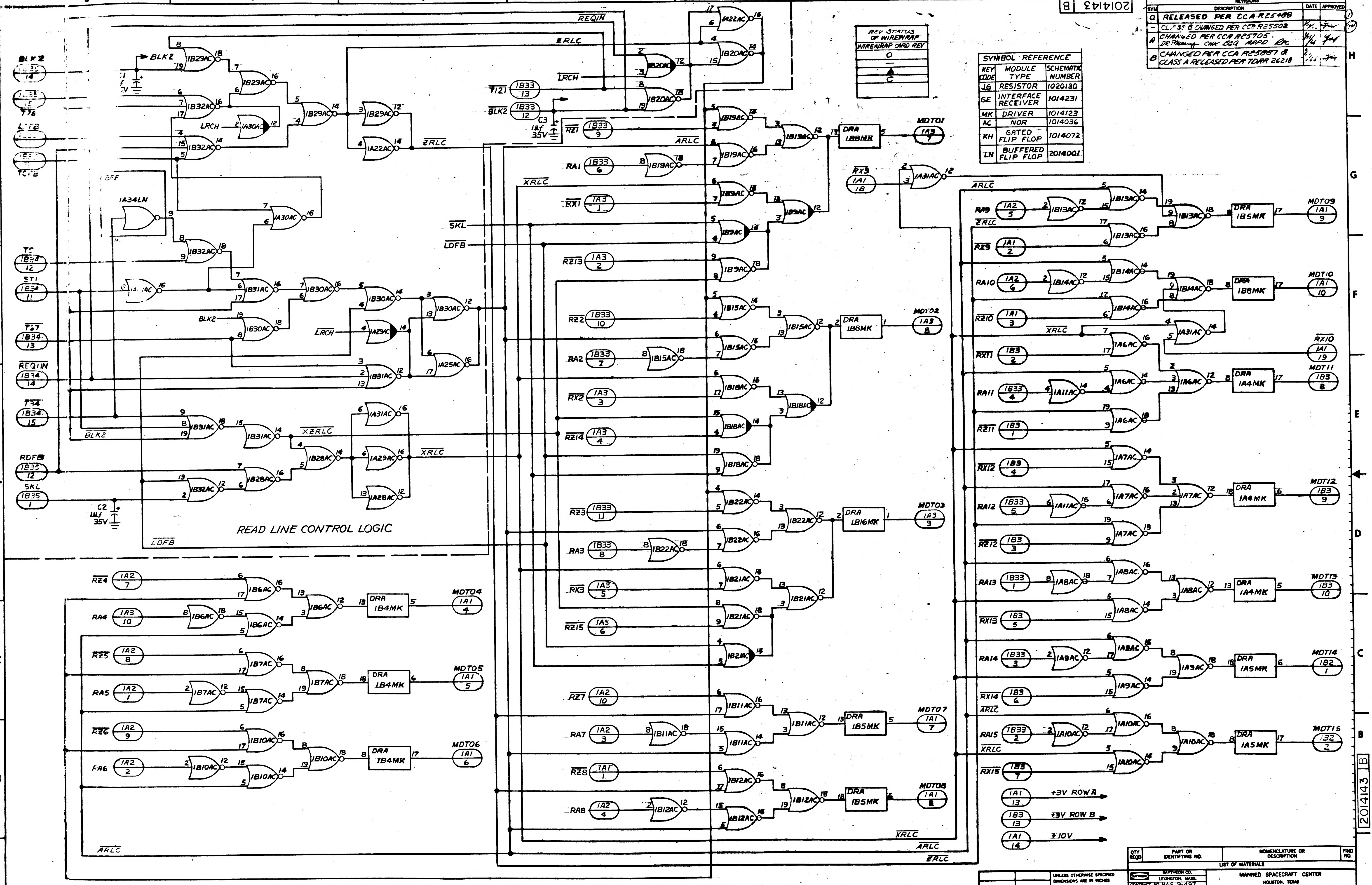
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014143 B

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25705. DR [illegible] CHK BGQ APPD RC	[illegible]	[illegible]
B	CHANGED PER CCA R25887 & CLASS A RELEASED PER TDRR 26218	[illegible]	[illegible]

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
JG	RESISTOR	1020130
GE	INTERFACE RECEIVER	1014231
MK	DRIVER	1014123
AC	NOR	1014036
KH	GATED FLIP FLOP	1014072
LN	BUFFERED FLIP FLOP	2014001

REV STATUS OF WIREWRAP
WIREWRAP CARD REV
O
—
▲
C



BLK2
REQIN
ZRLC
LRCH
ARLC
XRLC
SKL
LDFB
XZRLC
1A34LN
BSF
TS 1B34 12
STI 1B34 11
T67 1B34 13
REQIIN 1B34 14
T34 1B34 15
RDFBI 1B35 12
SKL 1B35 1
C2 1µf 35V
C3 1µf 35V
T121 1B33 13
BLK2 1B33 12
RZ1 1B33 9
RA1 1B33 6
XRLC
RX1 1A3 1
RZ13 1A3 2
RZ2 1B33 10
RA2 1B33 7
RX2 1A3 3
RZ14 1A3 4
RZ3 1B33 11
RA3 1B33 8
RX3 1A3 5
RZ15 1A3 6
RZ7 1A2 10
RA7 1A2 3
RZ8 1A1 1
RA8 1A2 4
RZ4 1A2 7
RA4 1A3 10
RZ5 1A2 8
RA5 1A2 1
RZ6 1A2 9
RA6 1A2 2
RX9 1A1 18
RA9 1A2 5
RZ9 1A1 2
RA10 1A2 6
RZ10 1A1 3
RX10 1A1 19
RX11 1B3 2
RA11 1B33 4
RZ11 1B3 1
RX12 1B3 4
RA12 1B33 5
RZ12 1B3 3
RA13 1B33 1
RX13 1B3 5
RA14 1B33 3
RX14 1B3 6
RA15 1B33 2
RX15 1B3 7
DRA 1B8MK
DRA 1B6MK
DRA 1B16MK
DRA 1B4MK
DRA 1B5MK
DRA 1A4MK
DRA 1A5MK
MDT01 1A3 7
MDT02 1A3 8
MDT03 1A3 9
MDT04 1A1 4
MDT05 1A1 5
MDT06 1A1 6
MDT07 1A1 7
MDT08 1A1 8
MDT09 1A1 9
MDT10 1A1 10
MDT11 1B3 8
MDT12 1B3 9
MDT13 1B3 10
MDT14 1B2 1
MDT15 1B2 2
1A1 13 +3V ROW A
1B3 13 +3V ROW B
1A1 14 ∓10V

READ LINE CONTROL LOGIC

READ LINE LOGIC

NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATIONS.

REFERENCE:
1. ASSY DWG 2014352

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Milato DATE 3/8/65
CHECKED G. [illegible] 7 OCT 65
APPROVAL [illegible]
APPROVAL D. [illegible] 10/29/65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 3/1/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
PLATE 1
PROGRAM & MONITOR

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014143
SCALE NONE
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014143 B

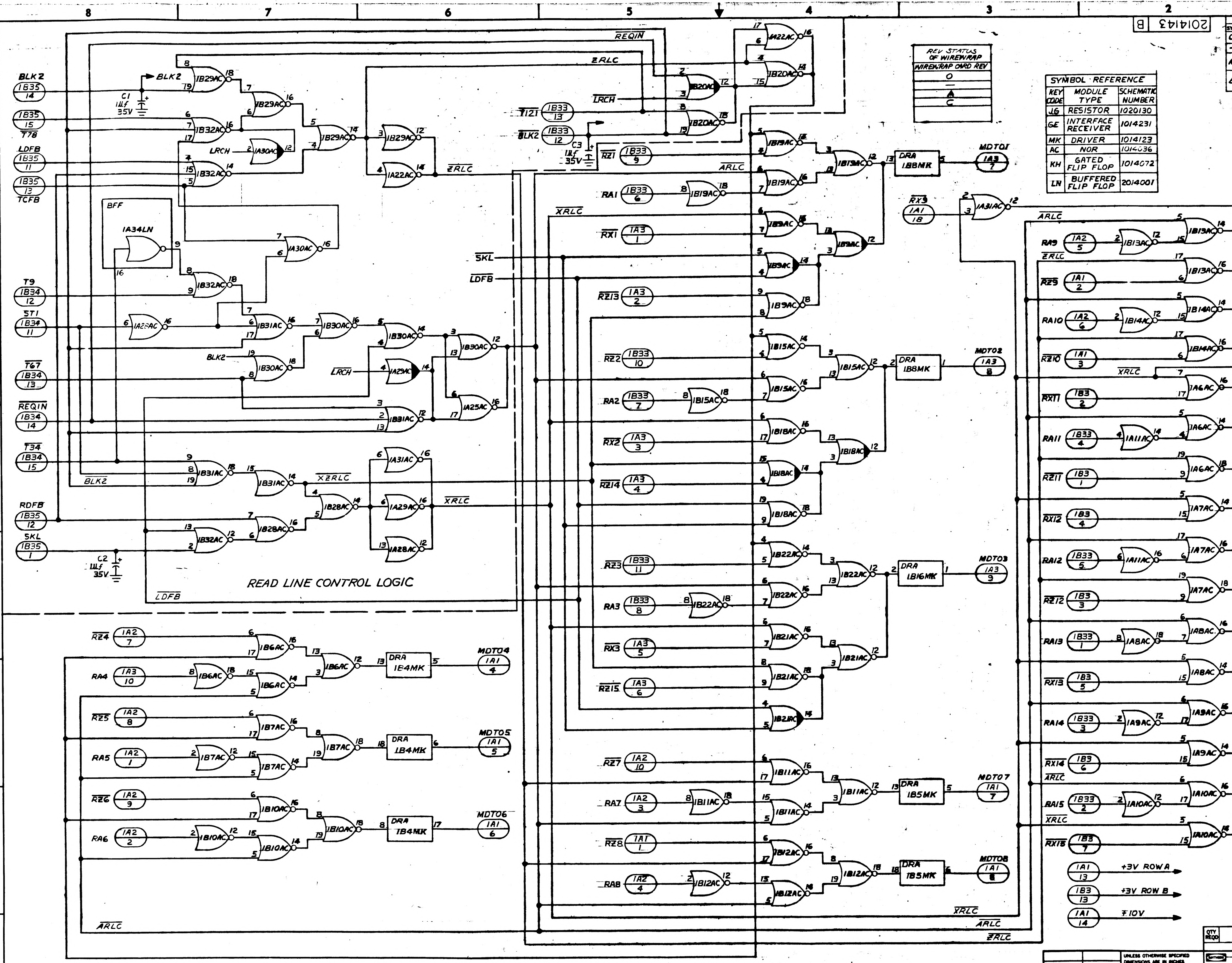
2H

F2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705. DR Pflaum CHK BGQ APPD RC		
B	CHANGED PER CCA R25887 & CLASS A RELEASED PER TDRR 26218		

REV STATUS OF WIREWRAP
WIREWRAP CARD REV
O
—
A
C

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
JG	RESISTOR	1020130
GE	INTERFACE RECEIVER	1014231
MK	DRIVER	1014123
AC	NOR	1014036
KH	GATED FLIP FLOP	1014072
LN	BUFFERED FLIP FLOP	2014001


READ LINE CONTROL LOGIC
READ LINE LOGIC
BLK2
T78
LDFB
TCFB
BFF
1A34LN
T9
ST1
T67
REQIN
T34
RDFB
SKL
C1 1μf 35V
C2 1μf 35V
C3 1μf 35V
LRCH
ZRLC
XZRLC
XRLC
ARLC
T121
RZ1
RA1
RX1
RZ13
RZ2
RA2
RX2
RZ14
RZ3
RA3
RX3
RZ15
RZ4
RA4
RZ5
RA5
RZ6
RA6
RZ7
RA7
RZ8
RA8
RX9
RA9
RZ9
RA10
RZ10
RX10
RX11
RA11
RZ11
RX12
RA12
RZ12
RA13
RX13
RA14
RX14
RA15
RX15
DRA 1B8MK
DRA 1B16MK
DRA 1B4MK
DRA 1B5MK
DRA 1A4MK
DRA 1A5MK
MDT01
MDT02
MDT03
MDT04
MDT05
MDT06
MDT07
MDT08
MDT09
MDT10
MDT11
MDT12
MDT13
MDT14
MDT16
+3V ROW A
+3V ROW B
∓10V

NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATIONS.

REFERENCE:
1. ASSY DWG 2014352

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

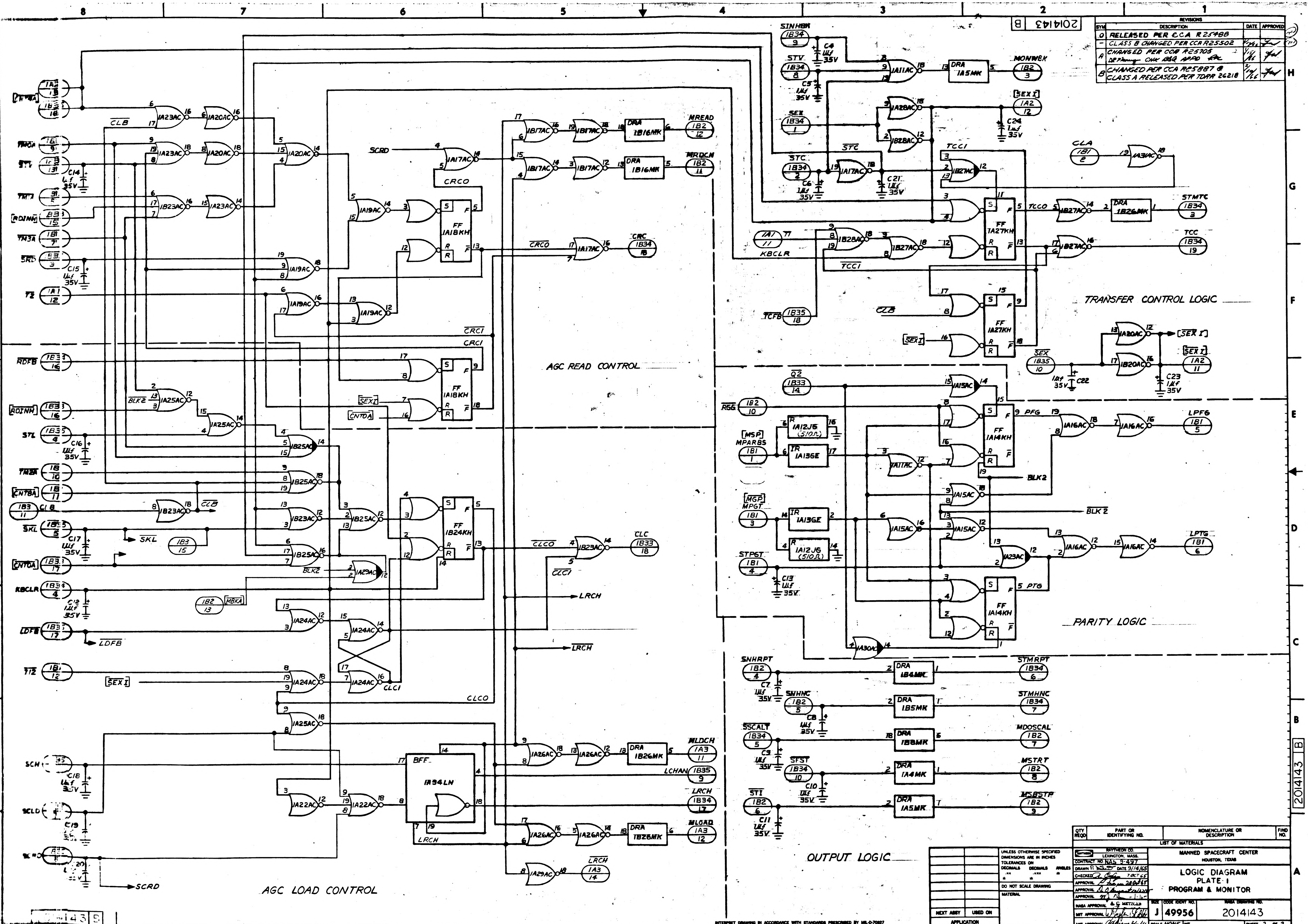
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Milton DATE 9/8/65
CHECKED G. Qualey 7 OCT. 65
APPROVAL
APPROVAL 10/29/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 2/11/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
PLATE 1
PROGRAM & MONITOR

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014143
SCALE NONE | WT | SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327


AGC READ CONTROL
AGC LOAD CONTROL
TRANSFER CONTROL LOGIC
PARITY LOGIC
OUTPUT LOGIC
MREAD
MRDCH
MONWBK
STMTC
TCC
LPFG
LPTG
CRC
CLC
LRCH
LCHAN
MLDCH
MLOAD
STMRPT
STMHNC
MDOSCAL
MSTRT
MSBSTP
SNHRPT
SNHNC
SSCALT
SFST
STI
SINHBK
STV
SEX
STC
CLA
TCFB
RGG
MPARBS
MPGT
STPGT
RDFB
RDINH
STL
TM3A
SRD
T2
T12
SKL
CNTOA
KBCLR
LDFB
SCH
SCLD
SCRD
FF
BFF
DRA
2H

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 DR CHK APPD	4/15/66	
B	CHANGED PER CCA R25887 & CLASS A RELEASED PER TDRR 26218	2/10/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

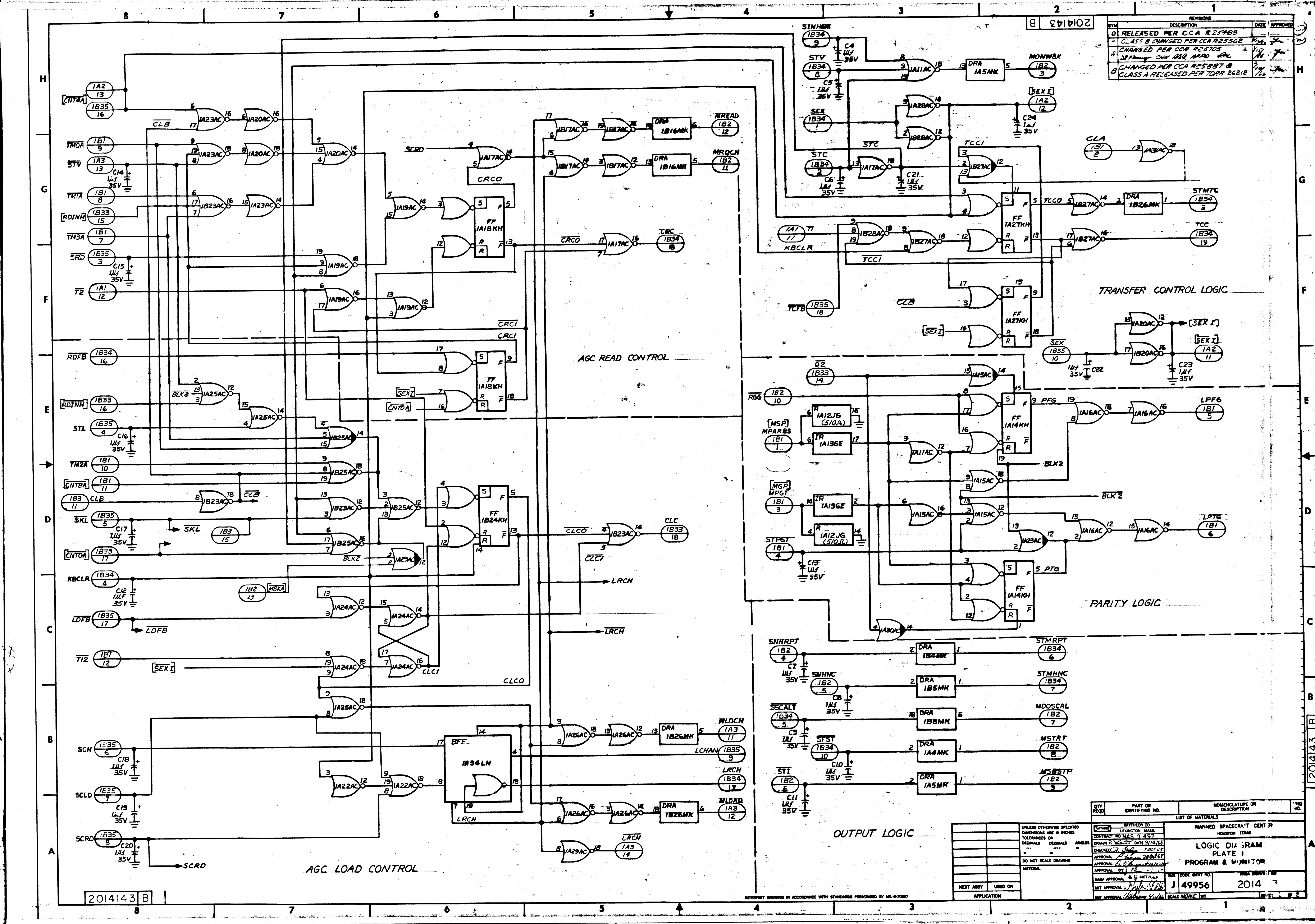
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. DATE 9/14/65
CHECKED 7 OCT 65
APPROVAL 28 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
PLATE I
PROGRAM & MONITOR

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014143
SCALE NONE | WT | SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327


2014143 B
AGC LOAD CONTROL
AGC READ CONTROL
TRANSFER CONTROL LOGIC
PARITY LOGIC
OUTPUT LOGIC
CNT4A
TMOA
STV
TM1A
RDINH
TM3A
SRD
T2
RDFB
STL
TM2A
CNTBA
SKL
CNTOA
KBCLR
LDFB
T12
SCH
SCLD
SCRD
CLB
BLK2
SEX I
CNTDA
CRCO
CRCI
CLCO
CLCI
CRC
CLC
LRCH
LCHAN
MREAD
MRDCH
MLDCH
MLOAD
MBKA
BFE 1B34LN
FF 1A18KH
FF 1B24KH
FF 1A27KH
FF 1A14KH
SINHBR
STC
TCCI
TCCO
STMTC
TCC
TCFB
CLA
SEX
MONWBK
RGG
MSP MPARBS
MGP MPGT
STPGT
PFG
PTG
LPFG
LPTG
Q2
SNHRPT
STMRPT
SMHNC
STMHNC
SSCALT
MDOSCAL
SFST
MSTRT
STI
MSBSTP

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 2 CHK APPD	4/15/66	
B	CHANGED PER CCA R25887 & CLASS A RELEASED PER TDRR 26218	2/ /66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. DATE 9/14/65
CHECKED 7 OCT 65
APPROVAL 28 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
PLATE 1
PROGRAM & MONITOR

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014
SCALE NONE
WT
SHEET OF 2

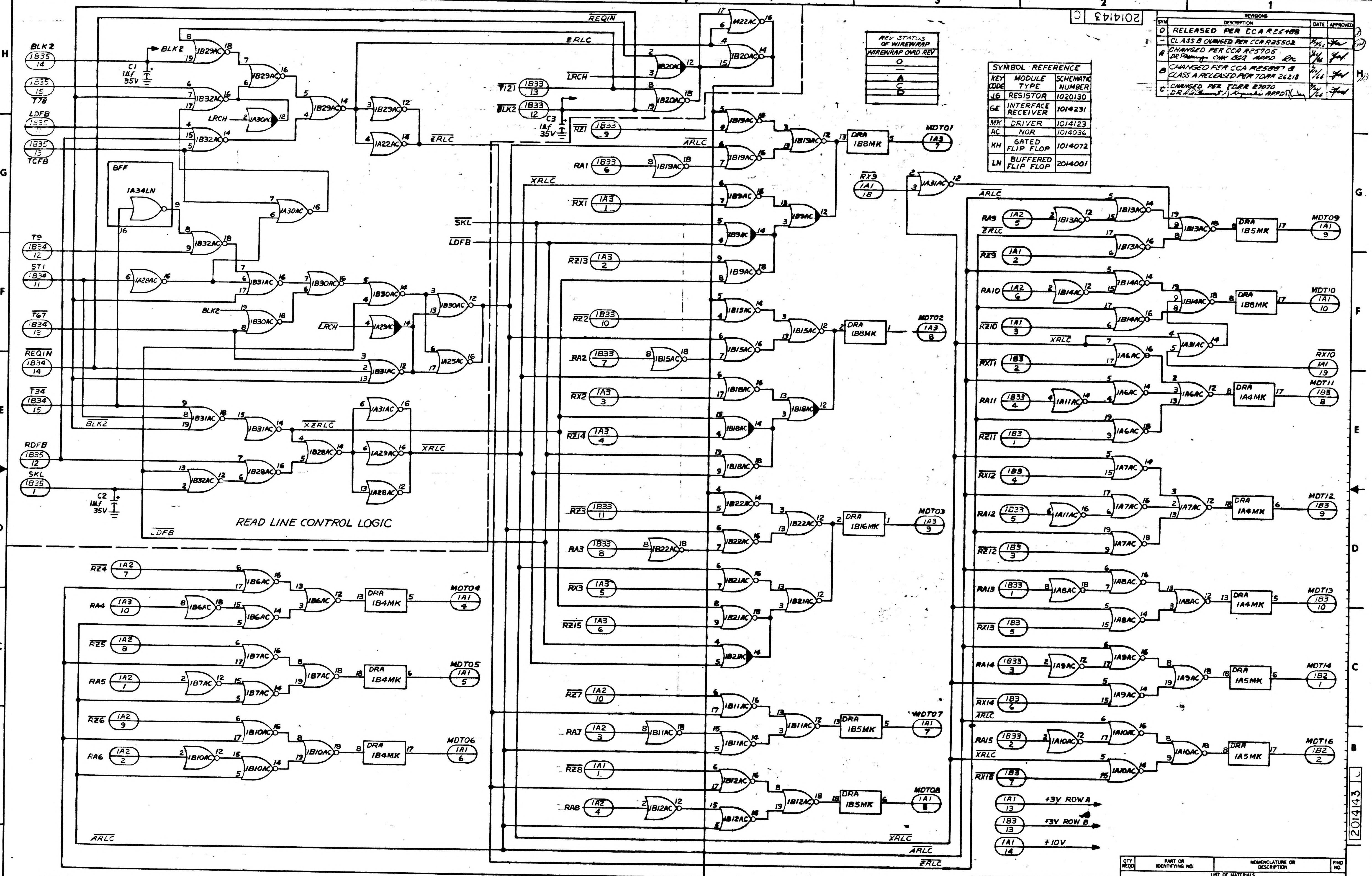
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014143 C

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25488		
–	CLASS B CHANGED PER CCA R25502	1/14/66	
A	CHANGED PER CCA R25705 DR [illegible] CHK BGQ APPD RPC	1/25/66	
B	CHANGED PER CCA R25887 & CLASS A RELEASED PER TDRR 26218	2/10/66	
C	CHANGED PER TDRR 27070 DR [illegible] APPD [illegible]	3/24/66	

REV STATUS OF WIREWRAP
WIREWRAP CARD REV
O
–
A
C
D

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
JG	RESISTOR	1020130
GE	INTERFACE RECEIVER	1014231
MK	DRIVER	1014123
AC	NOR	1014036
KH	GATED FLIP FLOP	1014072
LN	BUFFERED FLIP FLOP	2014001



READ LINE CONTROL LOGIC
BLK2 1B35 14
1B35 15 T78
LDFB 1B35 11
1B35 13 TCFB
T8 1B34 12
ST1 1B34 11
T67 1B34 13
REQIN 1B34 14
T34 1B34 15
RDFB 1B35 12
SKL 1B35 1
C1 1µf 35V
C2 1µf 35V
C3 1µf 35V
BFF 1A34LN
REQIN
ZRLC
LRCH
XZRLC
XRLC
ARLC
SKL
LDFB
BLK2
T121 1B33 13
BLK2 1B33 12
RZ1 1B33 9
RA1 1B33 6
RX1 1A3 1
RZ13 1A3 2
RZ2 1B33 10
RA2 1B33 7
RX2 1A3 3
RZ14 1A3 4
RZ3 1B33 11
RA3 1B33 8
RX3 1A3 5
RZ15 1A3 6
RZ4 1A2 7
RA4 1A3 10
RZ5 1A2 8
RA5 1A2 1
RZ6 1A2 9
RA6 1A2 2
RZ7 1A2 10
RA7 1A2 3
RZ8 1A1 1
RA8 1A2 4
RX9 1A1 18
RA9 1A2 5
RZ9 1A1 2
RA10 1A2 6
RZ10 1A1 3
RX10 1A1 19
RX11 1B3 2
RA11 1B33 4
RZ11 1B3 1
RX12 1B3 4
RA12 1C33 5
RZ12 1B3 3
RA13 1B33 1
RX13 1B3 5
RA14 1B33 3
RX14 1B3 6
RA15 1B33 2
RX15 1B3 7
DRA 1B8MR
DRA 1B8MK
DRA 1B16MK
DRA 1B4MK
DRA 1B5MK
DRA 1A4MK
DRA 1A5MK
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MDT02 1A3 8
MDT03 1A3 9
MDT04 1A1 4
MDT05 1A1 5
MDT06 1A1 6
MDT07 1A1 7
MDT08 1A1 8
MDT09 1A1 9
MDT10 1A1 10
MDT11 1B3 8
MDT12 1B3 9
MDT13 1B3 10
MDT14 1B2 1
MDT16 1B2 2
1A1 13 +3V ROW A
1B3 13 +3V ROW B
1A1 14 +10V
READ LINE LOGIC

NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATIONS.

REFERENCE:
1. ASSY DWG 2014352

READ LINE LOGIC

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Milton DATE 9/8/65
CHECKED [illegible] 7 OCT 65
APPROVAL [illegible]
APPROVAL [illegible] 10/29/65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 1/15/66
MIT APPROVAL [illegible] 2/11/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

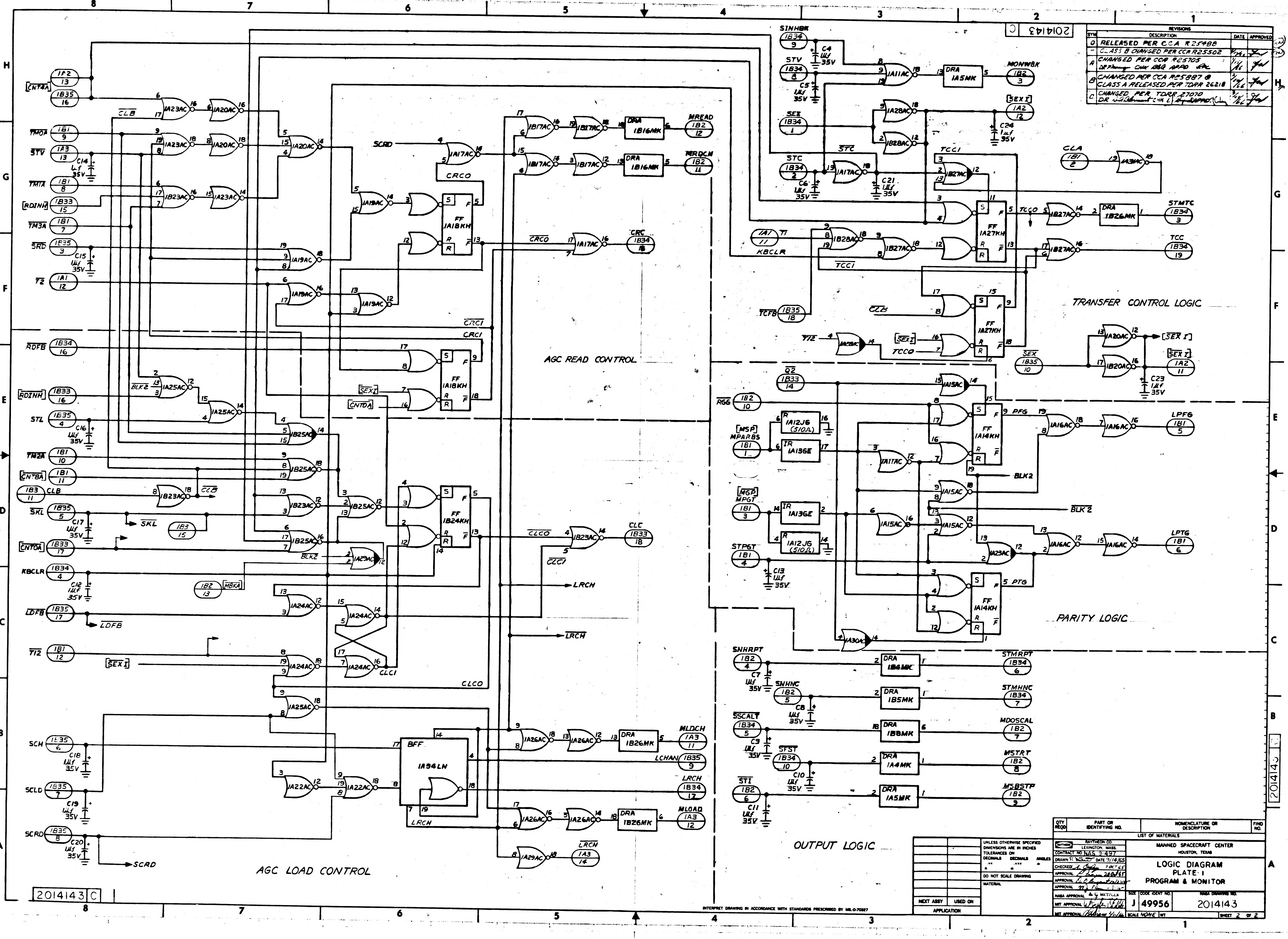
LOGIC DIAGRAM
PLATE 1
PROGRAM & MONITOR

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014143
SCALE NONE
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014143 C

2H


AGC READ CONTROL
AGC LOAD CONTROL
TRANSFER CONTROL LOGIC
PARITY LOGIC
OUTPUT LOGIC
CNTAA
TMOA
STV
TM1A
RDINH
TM3A
SRD
T2
RDFB
RDINH
STL
TM2A
CNTBA
CLB
SKL
CNTOA
KBCLR
LDFB
T12
SEX I
SCH
SCLD
SCRD
SCRD
CRCO
CRCI
CLCO
CLCI
BLK2
MBKA
LRCH
MREAD
MRDCH
CRC
CLC
MLDCH
LCHAN
MLOAD
BFF 1A34LN
FF 1A18KH
FF 1B24KH
FF 1A27KH
FF 1A14KH
SINHBR
STC
SEX
CLA
TCCI
TCCO
TCC
STMTC
MONWBK
TCFB
Q2
RGG
MSP MPARBS
MGP MPGT
STPGT
PFG
PTG
LPFG
LPTG
SNHRPT
SNHNC
SSCALT
SFST
STI
STMRPT
STMHNC
MDOSCAL
MSTRT
MSBSTP
2014143 C

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
-	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 DR [illegible] CHK BBQ APPD [illegible]	4/15/66	
B	CHANGED PER CCA R25887 & CLASS A RELEASED PER TDRR 26218	2/10/66	
C	CHANGED PER TDRR 27070 DR [illegible] CHK [illegible] APPD [illegible]	3/4/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN P. [illegible] DATE 9/14/65
CHECKED [illegible] 7 OCT 65
APPROVAL [illegible] 28 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 4/1/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

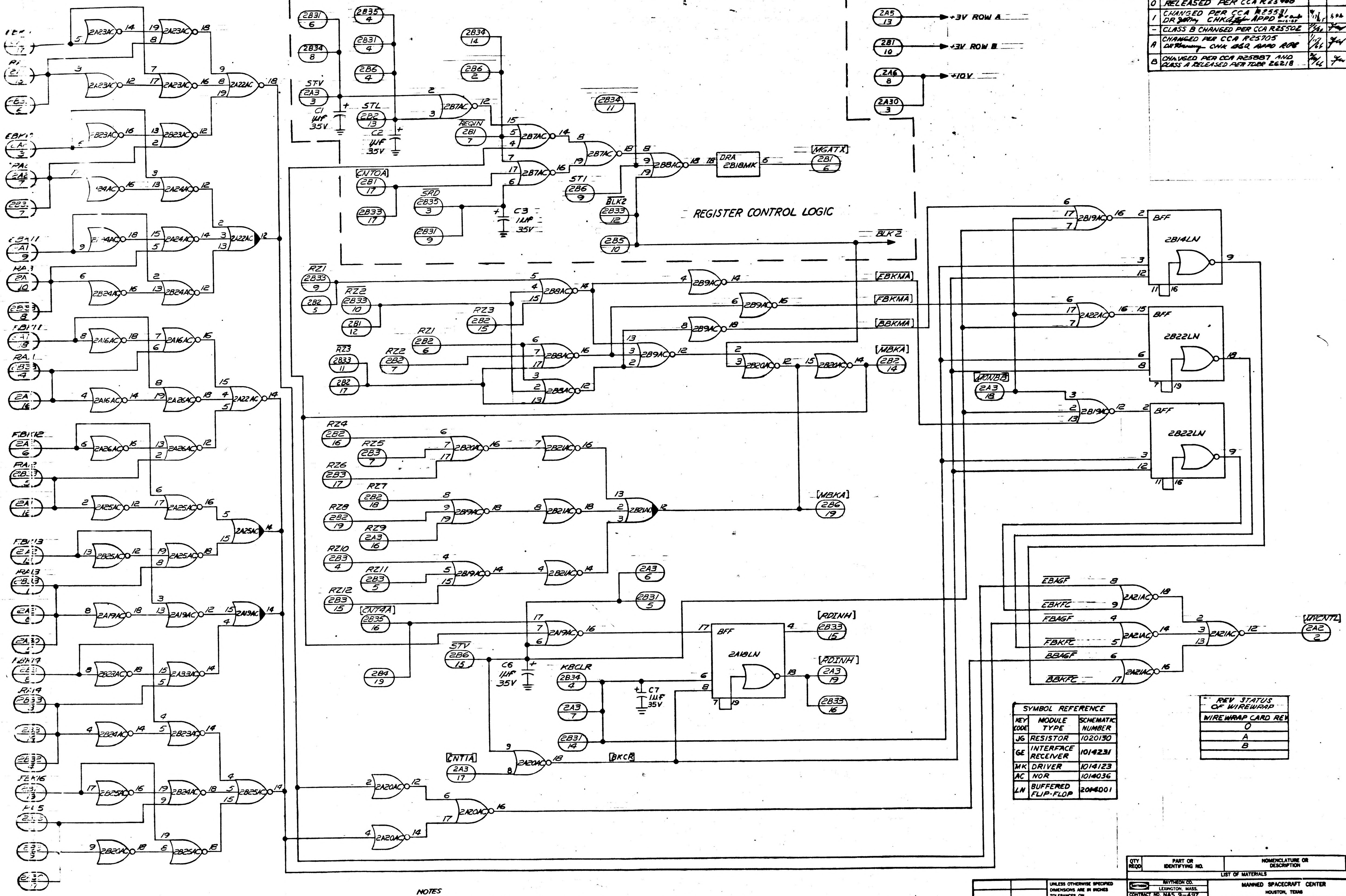
LOGIC DIAGRAM
PLATE 1
PROGRAM & MONITOR

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014143
SCALE NONE
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
1	CHANGED PER CCA R25531 DR CHK APPD 11-16-65	11/17/65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 DR CHK BGQ APPD RPB	1/17/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	3/16/66	


MEMORY VERIFY CONTROL
REGISTER CONTROL LOGIC
+3V ROW A
+3V ROW B
+10V
STV
STL
C1 1μF 35V
C2 1μF 35V
C3 1μF 35V
C6 1μF 35V
C7 1μF 35V
REQIN
CNTOA
SRD
ST1
BLK2
DRA 2B18MK
MGATX
RZ1
RZ2
RZ3
RZ4
RZ5
RZ6
RZ7
RZ8
RZ9
RZ10
RZ11
RZ12
EBKMA
FBKMA
BBKMA
MBKA
CNT4A
RDINH
KBCLR
CNT1A
BKCR
FONBR
BFF 2B14LN
BFF 2B22LN
BFF 2A18LN
EBAGF
EBKFC
FBAGF
FBKFC
BBAGF
BBKFC
MVCNTL

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
JG	RESISTOR	1020130
GE	INTERFACE RECEIVER	1014231
MK	DRIVER	1014123
AC	NOR	1014036
LN	BUFFERED FLIP-FLOP	2014001

REV STATUS OF WIREWRAP
WIREWRAP CARD REV
0
A
B

2H

NOTES

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCE

1. ASSEMBLY DWG 2014315

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Joe Rogar DATE 21 Sept 65
CHECKED A. Kaplan 5 OCT 65
APPROVAL 28 Oct 65
APPROVAL D. O'Rourke 10/29/65
APPROVAL 11/1/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 2/11/66

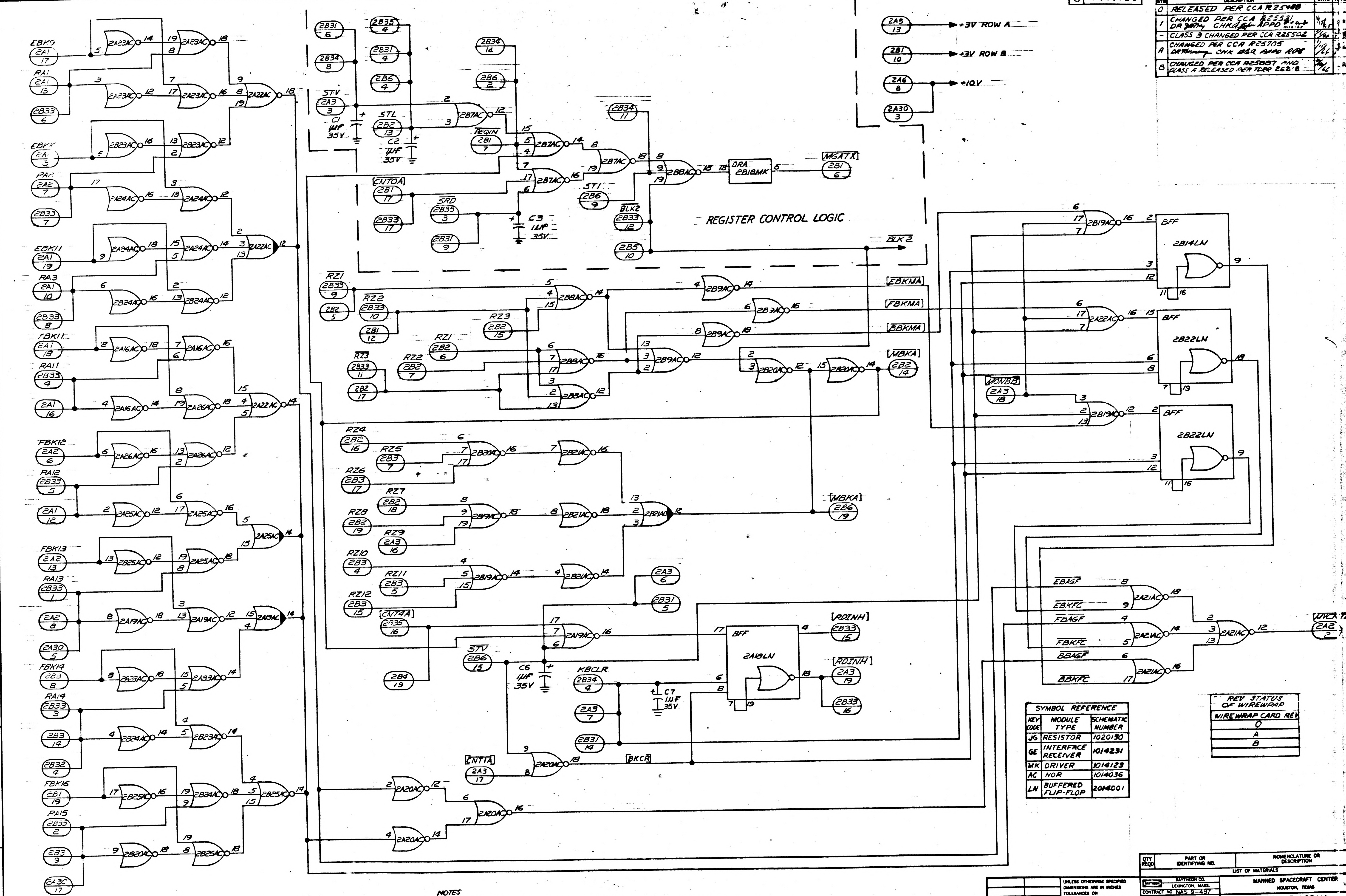
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC PLATE NO.2
PROGRAM AND MONITOR
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014144
SCALE NONE
WT
SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
1	CHANGED PER CCA R25531 DR CHK APPD 11-16-65	11/17/65	
-	CLASS 3 CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 DR CHK APPD	1/13/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TCRR 26218	3/11/66	



2014144 B
REGISTER CONTROL LOGIC
+3V ROW A
+3V ROW B
+10V
EBK9
RA1
EBK10
RA2
EBK11
RA3
FBK11
RA11
FBK12
RA12
FBK13
RA13
FBK14
RA14
FBK16
RA15
STV
STL
REQIN
CNTOA
SRO
ST1
BLK2
DRA 2B18MK
MGATX
C1 1μf 35V
C2 1μf 35V
C3 1μf 35V
C6 1μf 35V
C7 1μf 35V
RZ1
RZ2
RZ3
RZ4
RZ5
RZ6
RZ7
RZ8
RZ9
RZ10
RZ11
RZ12
EBKMA
FBKMA
BBKMA
MBKA
MONBB
BFF 2B14LN
BFF 2B22LN
BFF 2A18LN
RDINH
KBCLR
CNT1A
BKCR
EBAGF
EBKFC
FBAGF
FBKFC
BBAGF
BBKFC
MVCAT

MEMORY VERIFY CONTROL

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
JG	RESISTOR	1020130
GE	INTERFACE RECEIVER	1014231
MK	DRIVER	1014123
AC	NOR	1014036
LN	BUFFERED FLIP-FLOP	2014001

REV STATUS OF WIREWRAP
WIREWRAP CARD REV
0
A
B

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCE
1. ASSEMBLY DWG 2014315

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Joe Roper DATE 21 Sept 65
CHECKED 5 OCT 65
APPROVAL 28 Oct 65
APPROVAL D. O'August 10/29/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 2/11/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

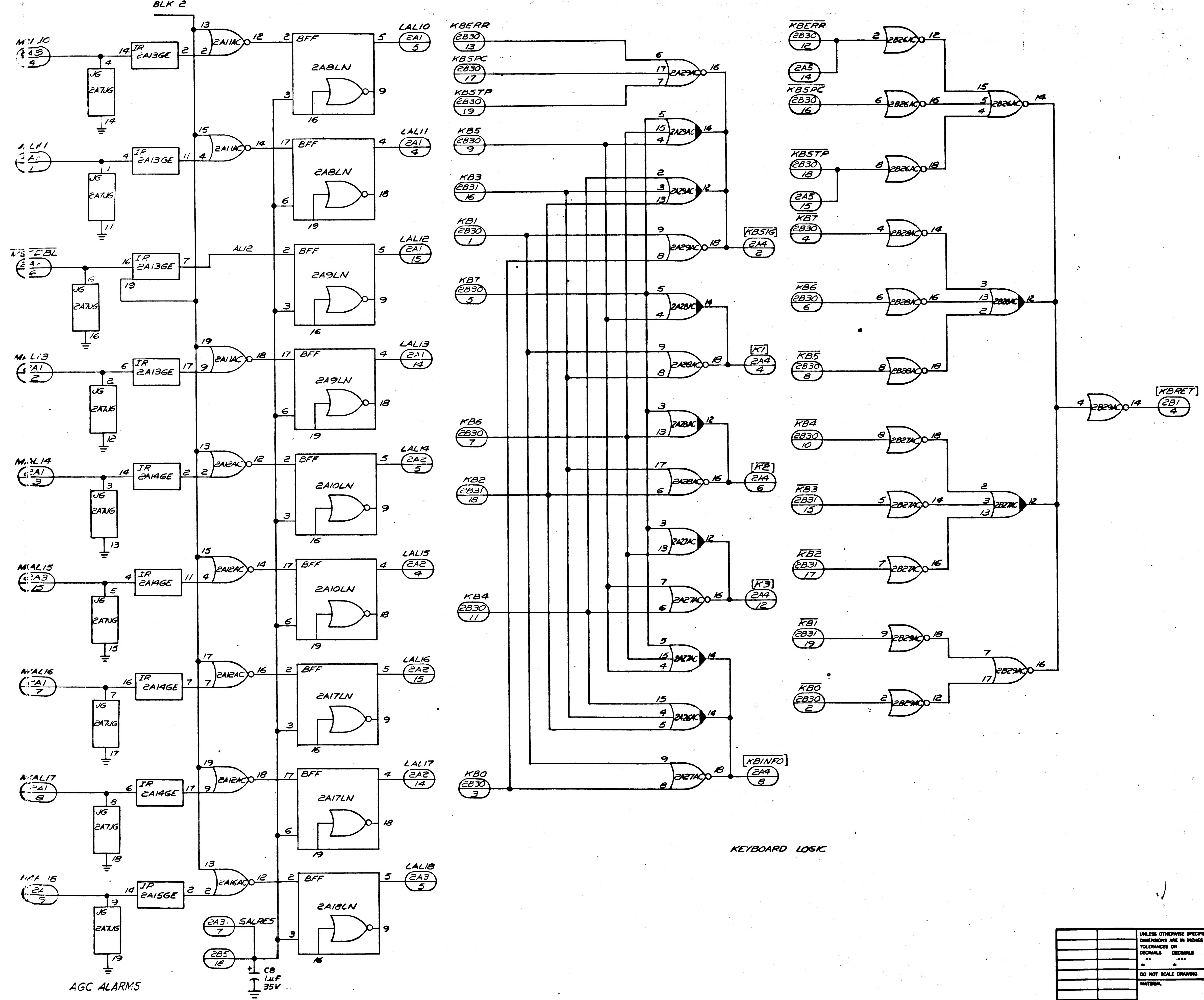
LOGIC DIAGRAM
LOGIC PLATE NO.2
PROGRAM AND MONITOR
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014144
SCALE NONE WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014144 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
1	CHANGED PER CCA R25531 DR [illegible] CHK A. [illegible] APPD [illegible]	11/1/65	[illegible]
–	CLASS B CHANGED PER CCA R25502	1/6/66	[illegible]
A	CHANGED PER CCA R25705 DR [illegible] CHK BGQ APPD RPG	1/13/66	[illegible]
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/14/66	[illegible]



BLK 2
MAL10
2A3 4
IR 2A13GE
JG 2A7JG
2A11AC
BFF 2A8LN
LAL10 2A1 5
MAL11
2A1 1
LAL11 2A1 4
MSTDBL
2A1 6
AL12
BFF 2A9LN
LAL12 2A1 15
MAL13
2A1 2
LAL13 2A1 14
MAL14
2A1 3
IR 2A14GE
2A12AC
BFF 2A10LN
LAL14 2A2 5
MAL15
2A3 15
LAL15 2A2 4
MAL16
2A1 7
BFF 2A17LN
LAL16 2A2 15
MAL17
2A1 8
LAL17 2A2 14
MAL18
2A1 9
IR 2A15GE
2A16AC
BFF 2A18LN
LAL18 2A3 5
2A31 7
SALRES
2B5 16
C8 1μF 35V
AGC ALARMS
KBERR 2B30 13
KBSPC 2B30 17
KBSTP 2B30 19
KB5 2B30 9
KB3 2B31 16
KB1 2B30 1
KB7 2B30 5
KB6 2B30 7
KB2 2B31 18
KB4 2B30 11
KB0 2B30 3
2A29AC
2A28AC
2A27AC
2A26AC
KBSIG 2A4 2
K1 2A4 4
K2 2A4 6
K3 2A4 12
KBINFO 2A4 8
KBERR 2B30 12
2A5 14
KBSPC 2B30 16
KBSTP 2B30 18
2A5 15
KB7 2B30 4
KB6 2B30 6
KB5 2B30 8
KB4 2B30 10
KB3 2B31 15
KB2 2B31 17
KB1 2B31 19
KB0 2B30 2
2B26AC
2B28AC
2B27AC
2B29AC
KBRET 2B1 4
KEYBOARD LOGIC

2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Joe Roper DATE 21 Sept 65
CHECKED A. [illegible] 5 OCT 65
APPROVAL [illegible] 28 Oct 65
APPROVAL [illegible] 10/27/65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC PLATE NO. 2
PROGRAM AND MONITOR
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014144
SCALE NONE
WT
SHEET 2 OF 3

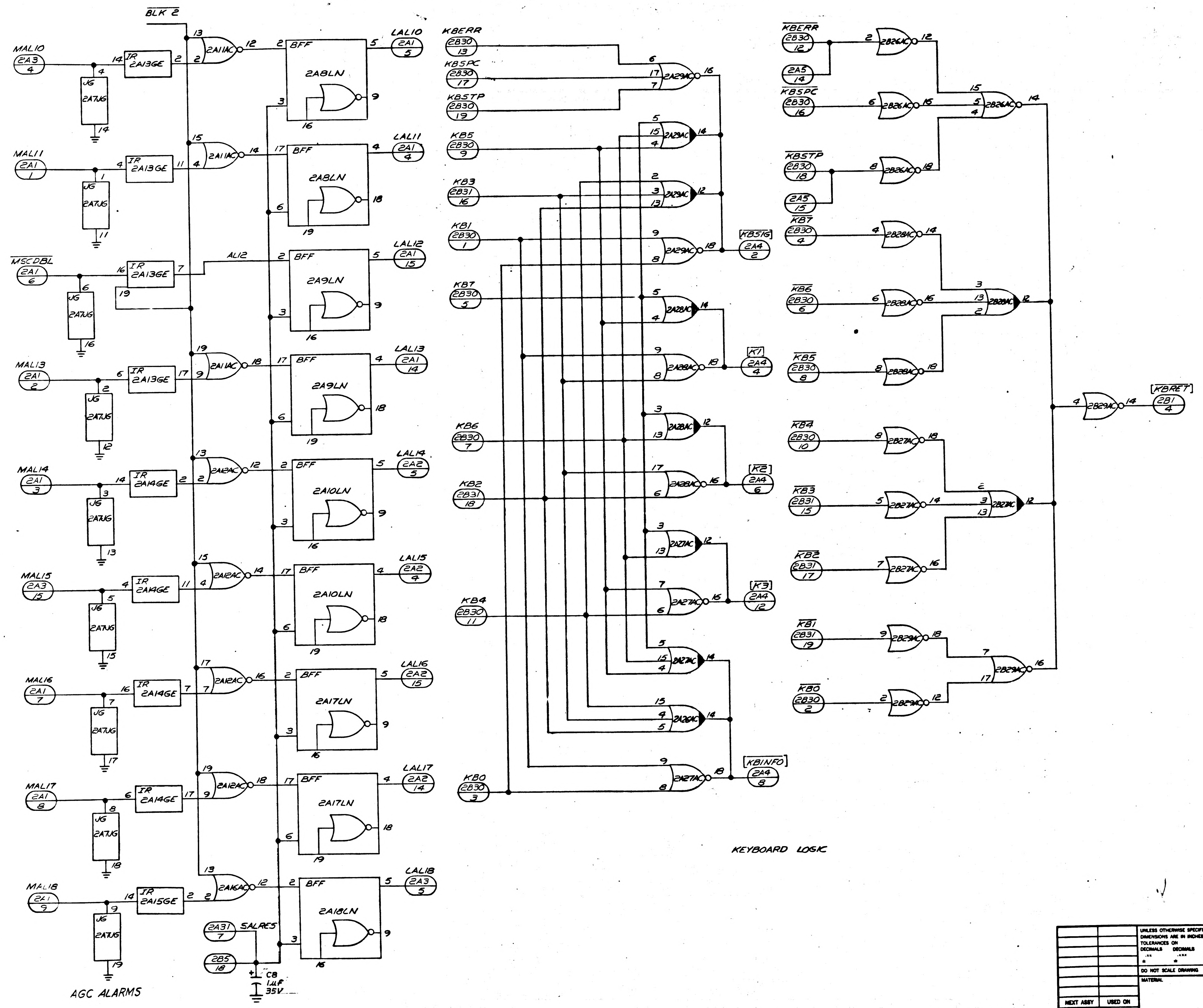
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014144 B

2014144 B

E-2

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
C	RELEASED PER CCA R25488		
1	CHANGED PER CCA R25531 DR [illegible] CHK A. [illegible] APPD [illegible]	[illegible]	
–	CLASS B CHANGED PER CCA R25502	[illegible]/66	✓
A	CHANGED PER CCA R25705 DR [illegible] CHK [illegible] APPD RPB	[illegible]/66	✓
3	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 262'8	[illegible]/66	✓


BLK 2
MAL10
MAL11
MSCDBL
MAL13
MAL14
MAL15
MAL16
MAL17
MAL18
IR 2A13GE
IR 2A14GE
IR 2A15GE
JG 2A7JG
2A11AC
2A12AC
2A16AC
BFF
2A8LN
2A9LN
2A10LN
2A17LN
2A18LN
AL12
LAL10
LAL11
LAL12
LAL13
LAL14
LAL15
LAL16
LAL17
LAL18
SALRES
C8 1µf 35V
KBERR
KBSPC
KBSTP
KB5
KB3
KB1
KB7
KB6
KB2
KB4
KB0
2A26AC
2A27AC
2A28AC
2A29AC
KBSIG
K1
K2
K3
KBINFO
2B26AC
2B27AC
2B28AC
2B29AC
KBRET
KEYBOARD LOGIC
AGC ALARMS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Joe Roper DATE 2 Sept 65
CHECKED A. [illegible] 5 OCT 65
APPROVAL [illegible] 28 Oct 65
APPROVAL [illegible] 10/27/65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

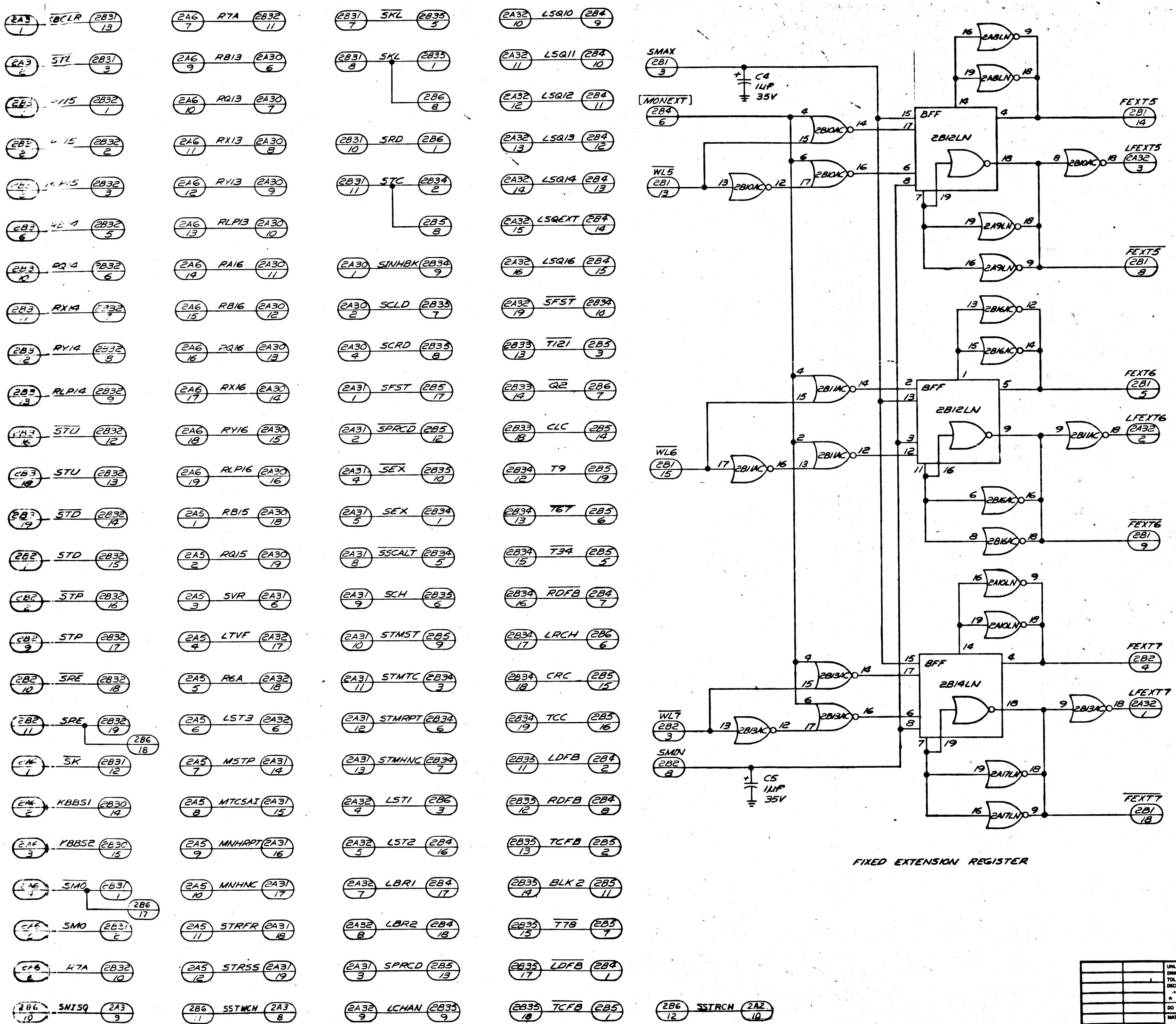
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC PLATE NO 2
PROGRAM AND MONITOR
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO 2014144
SCALE NONE WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25498		
1	CHANGED PER CCA R25531 DR J Moy CHK A APPD	4/7/65	
–	CLASS B CHANGED PER CCA R25502	1/6/66	
A	CHANGED PER CCA R25705 DR CHK BBQ APPD RPC	1/25/66	
B	CHANGED PER CCA R25897 AND CLASS A RELEASED PER TDRR 26218	2/14/66	



2A3 1 BCLR 2B31 13
2A3 2 STL 2B31 3
2B3 1 RY15 2B32 1
2B3 2 15 2B32 2
2B3 3 RLP15 2B32 3
2B3 6 RB14 2B32 5
2B3 10 RQ14 2B32 6
2B3 11 RX14 2B32 7
2B3 12 RY14 2B32 8
2B3 13 RLP14 2B32 9
2B3 16 STU 2B32 12
2B3 18 STU 2B32 13
2B3 19 STD 2B32 14
2B2 1 STD 2B32 15
2B2 2 STP 2B32 16
2B2 9 STP 2B32 17
2B2 10 SRE 2B32 18
2B2 11 SRE 2B32 19 2B6 18
2A6 1 SK 2B31 12
2A6 2 KBBS1 2B30 14
2A6 3 KBBS2 2B30 15
2A6 4 SMO 2B31 1 2B6 17
2A6 5 SMO 2B31 2
2A6 6 R7A 2B32 10
2B6 10 SNISQ 2A3 9
2A6 7 R7A 2B32 11
2A6 9 RB13 2A30 6
2A6 10 RQ13 2A30 7
2A6 11 RX13 2A30 8
2A6 12 RY13 2A30 9
2A6 13 RLP13 2A30 10
2A6 14 RA16 2A30 11
2A6 15 RB16 2A30 12
2A6 16 RQ16 2A30 13
2A6 17 RX16 2A30 14
2A6 18 RY16 2A30 15
2A6 19 RLP16 2A30 16
2A5 1 RB15 2A30 18
2A5 2 RQ15 2A30 19
2A5 3 SVR 2A31 6
2A5 4 LTVF 2A32 17
2A5 5 R6A 2A32 18
2A5 6 LST3 2A32 6
2A5 7 MSTP 2A31 14
2A5 8 MTCSAI 2A31 15
2A5 9 MNHRPT 2A31 16
2A5 10 MNHNC 2A31 17
2A5 11 STRFR 2A31 18
2A5 12 STRSS 2A31 19
2B6 11 SSTWCH 2A3 8
2B31 7 SKL 2B35 5
2B31 8 SKL 2B35 1 2B6 8
2B31 10 SRD 2B6 1
2B31 11 STC 2B34 2 2B5 8
2A30 1 SINHBK 2B34 9
2A30 2 SCLD 2B35 7
2A30 4 SCRD 2B35 8
2A31 1 SFST 2B5 17
2A31 2 SPRCD 2B5 12
2A31 4 SEX 2B35 10
2A31 5 SEX 2B34 1
2A31 8 SSCALT 2B34 5
2A31 9 SCH 2B35 6
2A31 10 STMST 2B5 9
2A31 11 STMTC 2B34 3
2A31 12 STMRPT 2B34 6
2A31 13 STMHNC 2B34 7
2A32 4 LST1 2B6 3
2A32 5 LST2 2B4 16
2A32 7 LBR1 2B4 17
2A32 8 LBR2 2B4 18
2A31 3 SPRCD 2B5 13
2A32 9 LCHAN 2B35 9
2A32 10 LSQ10 2B4 9
2A32 11 LSQ11 2B4 10
2A32 12 LSQ12 2B4 11
2A32 13 LSQ13 2B4 12
2A32 14 LSQ14 2B4 13
2A32 15 LSQEXT 2B4 14
2A32 16 LSQ16 2B4 15
2A32 19 SFST 2B34 10
2B33 13 T121 2B5 3
2B33 14 Q2 2B6 7
2B33 18 CLC 2B5 14
2B34 12 T9 2B5 19
2B34 13 T67 2B5 6
2B34 15 T34 2B5 5
2B34 16 RDFB 2B4 7
2B34 17 LRCH 2B6 6
2B34 18 CRC 2B5 15
2B34 19 TCC 2B5 16
2B35 11 LDFB 2B4 2
2B35 12 RDFB 2B4 8
2B35 13 TCFB 2B5 2
2B35 14 BLK 2 2B5 11
2B35 15 T78 2B5 7
2B35 17 LDFB 2B4 1
2B35 18 TCFB 2B5 1
2B6 12 SSTRCH 2A2 10
SMAX 2B1 3
C4 1μF 35V
[MONEXT] 2B4 6
WL5 2B1 13
2B10AC
BFF 2B12LN
2A8LN
FEXT5 2B1 14
LFEXT5 2A32 3
2A9LN
FEXT5 2B1 8
2B16AC
2B11AC
WL6 2B1 15
BFF 2B12LN
FEXT6 2B1 5
LFEXT6 2A32 2
FEXT6 2B1 9
2A10LN
2B13AC
WL7 2B2 3
SMIN 2B2 8
C5 1μF 35V
BFF 2B14LN
FEXT7 2B2 4
LFEXT7 2A32 1
2A17LN
FEXT7 2B1 18

FIXED EXTENSION REGISTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Joe Roper DATE 21 Sept 65
CHECKED 5 OCT 65
APPROVAL 28 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

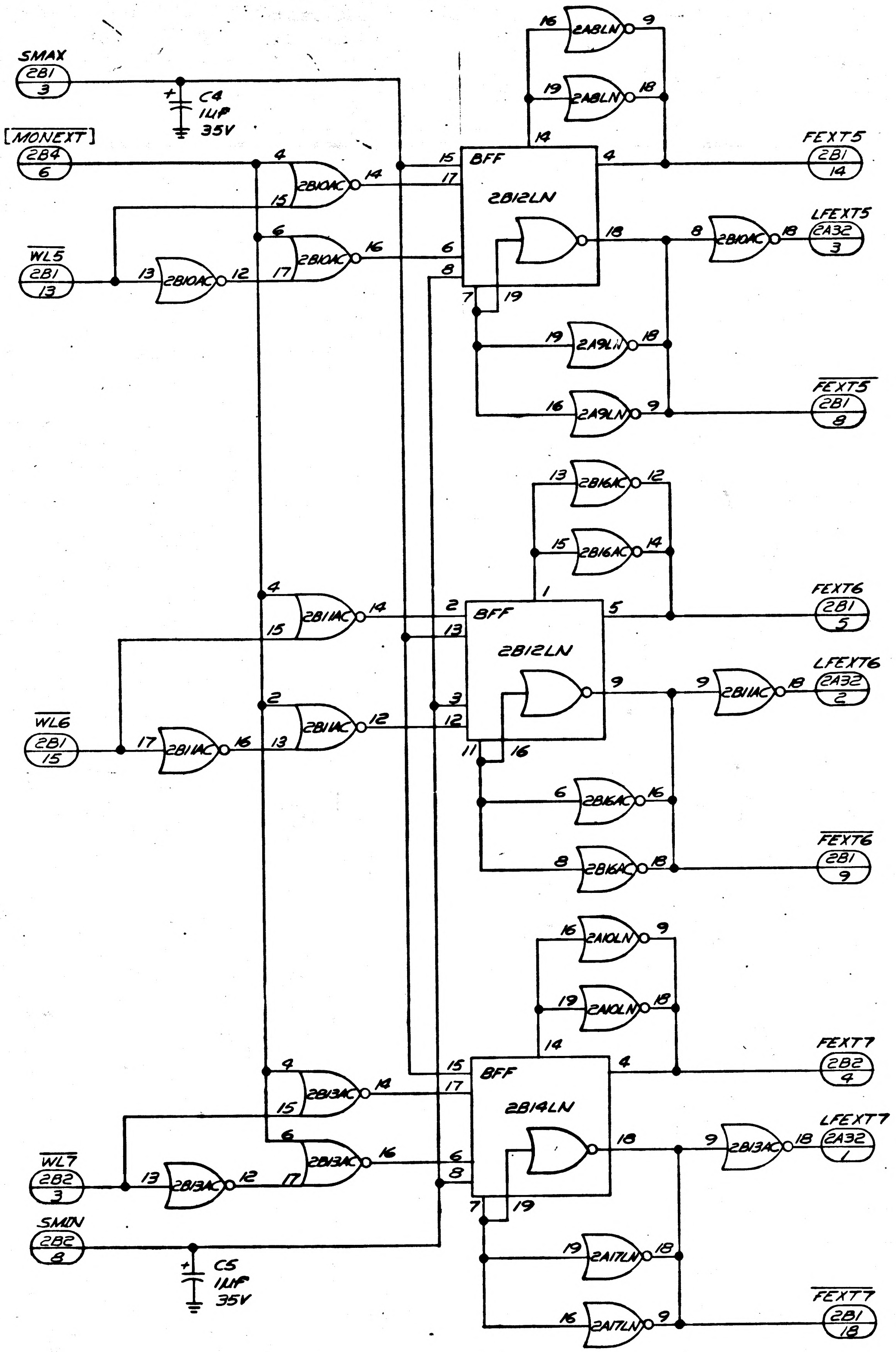
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC PLATE NO. 2
PROGRAM AND MONITOR
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014144
SCALE NONE | WT | SHEET 3 OF 3

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25498		
1	CHANGED PER CCA R25531 DR J.Mory CHK A. APPD		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 DR CHK BBQ APPD. RPE		
B	CHANGED PER CCA R25587 AND CLASS A RELEASED PER CCR 26218		

2A3	1	$\overline{KBCLR}$	2B31	13
2A3	2	$\overline{STL}$	2B31	3
2B3	1	RY15	2B32	1
2B3	2	RX15	2B32	2
2B3	3	RLP15	2B32	3
2B3	6	RB14	2B32	5
2B3	10	RQ14	2B32	6
2B3	11	RX14	2B32	7
2B3	12	RY14	2B32	8
2B3	13	RLP14	2B32	9
2B3	16	$\overline{STU}$	2B32	12
2B3	18	STU	2B32	13
2B3	19	$\overline{STD}$	2B32	14
2B2	1	STD	2B32	15
2B2	2	$\overline{STP}$	2B32	16
2B2	9	STP	2B32	17
2B2	10	$\overline{SRE}$	2B32	18
2B2	11	SRE	2B32 2B6	19 18
2A6	1	$\overline{SK}$	2B31	12
2A6	2	KBBS1	2B30	14
2A6	3	KBBS2	2B30	15
2A6	4	$\overline{SMO}$	2B31 2B6	1 17
2A6	5	SMO	2B31	2
2A6	6	R7A	2B32	10
2B6	10	SNISQ	2A3	9
2A6	7	R7A	2B32	11
2A6	9	RB13	2A30	6
2A6	10	RQ13	2A30	7
2A6	11	RX13	2A30	8
2A6	12	RY13	2A30	9
2A6	13	RLP13	2A30	10
2A6	14	RA16	2A30	11
2A6	15	RB16	2A30	12
2A6	16	RQ16	2A30	13
2A6	17	RX16	2A30	14
2A6	18	RY16	2A30	15
2A6	19	RLP16	2A30	16
2A5	1	RB15	2A30	18
2A5	2	RQ15	2A30	19
2A5	3	SVR	2A31	6
2A5	4	LTVF	2A32	17
2A5	5	R6A	2A32	18
2A5	6	LST3	2A32	6
2A5	7	MSTP	2A31	14
2A5	8	MTCSAI	2A31	15
2A5	9	MNHRPT	2A31	16
2A5	10	MNHNC	2A31	17
2A5	11	STRFR	2A31	18
2A5	12	STRSS	2A31	19
2B6	11	SSTWCH	2A3	8
2B31	7	$\overline{SKL}$	2B35	5
2B31	8	SKL	2B35 2B6	1 8
2B31	10	SRD	2B6	1
2B31	11	STC	2B34 2B5	2 8
2A30	1	SINHBK	2B34	9
2A30	2	SCLD	2B35	7
2A30	4	SCRD	2B35	8
2A31	1	SFST	2B5	17
2A31	2	$\overline{SPRCD}$	2B5	12
2A31	4	$\overline{SEX}$	2B35	10
2A31	5	SEX	2B34	1
2A31	8	$\overline{SSCALT}$	2B34	5
2A31	9	SCH	2B35	6
2A31	10	STMST	2B5	9
2A31	11	STMTC	2B34	3
2A31	12	STMRPT	2B34	6
2A31	13	STMHNC	2B34	7
2A32	4	LST1	2B6	3
2A32	5	LST2	2B4	16
2A32	7	LBR1	2B4	17
2A32	8	LBR2	2B4	18
2A31	3	SPRCD	2B5	13
2A32	9	LCHAN	2B35	9
2A32	10	LSQ10	2B4	9
2A32	11	LSQ11	2B4	10
2A32	12	LSQ12	2B4	11
2A32	13	LSQ13	2B4	12
2A32	14	LSQ14	2B4	13
2A32	15	LSQEXT	2B4	14
2A32	16	LSQ16	2B4	15
2A32	19	$\overline{SFST}$	2B34	10
2B33	13	$\overline{T121}$	2B5	3
2B33	14	$\overline{Q2}$	2B6	7
2B33	18	CLC	2B5	14
2B34	12	T9	2B5	19
2B34	13	$\overline{T67}$	2B5	6
2B34	15	$\overline{T34}$	2B5	5
2B34	16	$\overline{RDFB}$	2B4	7
2B34	17	LRCH	2B6	6
2B34	18	CRC	2B5	15
2B34	19	TCC	2B5	16
2B35	11	LDFB	2B4	2
2B35	12	RDFB	2B4	8
2B35	13	TCFB	2B5	2
2B35	14	BLK 2	2B5	11
2B35	15	$\overline{T78}$	2B5	7
2B35	17	$\overline{LDFB}$	2B4	1
2B35	18	$\overline{TCFB}$	2B5	1
2B6	12	SSTRCH	2A2	10


SMAX
2B1 3
C4
1μF
35V
[$\overline{MONEXT}$]
2B4 6
$\overline{WL5}$
2B1 13
2B10AC
BFF
2B12LN
2A8LN
2A9LN
FEXT5
2B1 14
LFEXT5
2A32 3
$\overline{FEXT5}$
2B1 8
$\overline{WL6}$
2B1 15
2B11AC
2B16AC
FEXT6
2B1 5
LFEXT6
2A32 2
$\overline{FEXT6}$
2B1 9
$\overline{WL7}$
2B2 3
SMIN
2B2 8
C5
1μF
35V
2B13AC
2B14LN
2A10LN
2A17LN
FEXT7
2B2 4
LFEXT7
2A32 1
$\overline{FEXT7}$
2B1 18

FIXED EXTENSION REGISTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4
DRAWN J. Roper DATE
CHECKED
APPROVAL
APPROVAL D. O'
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

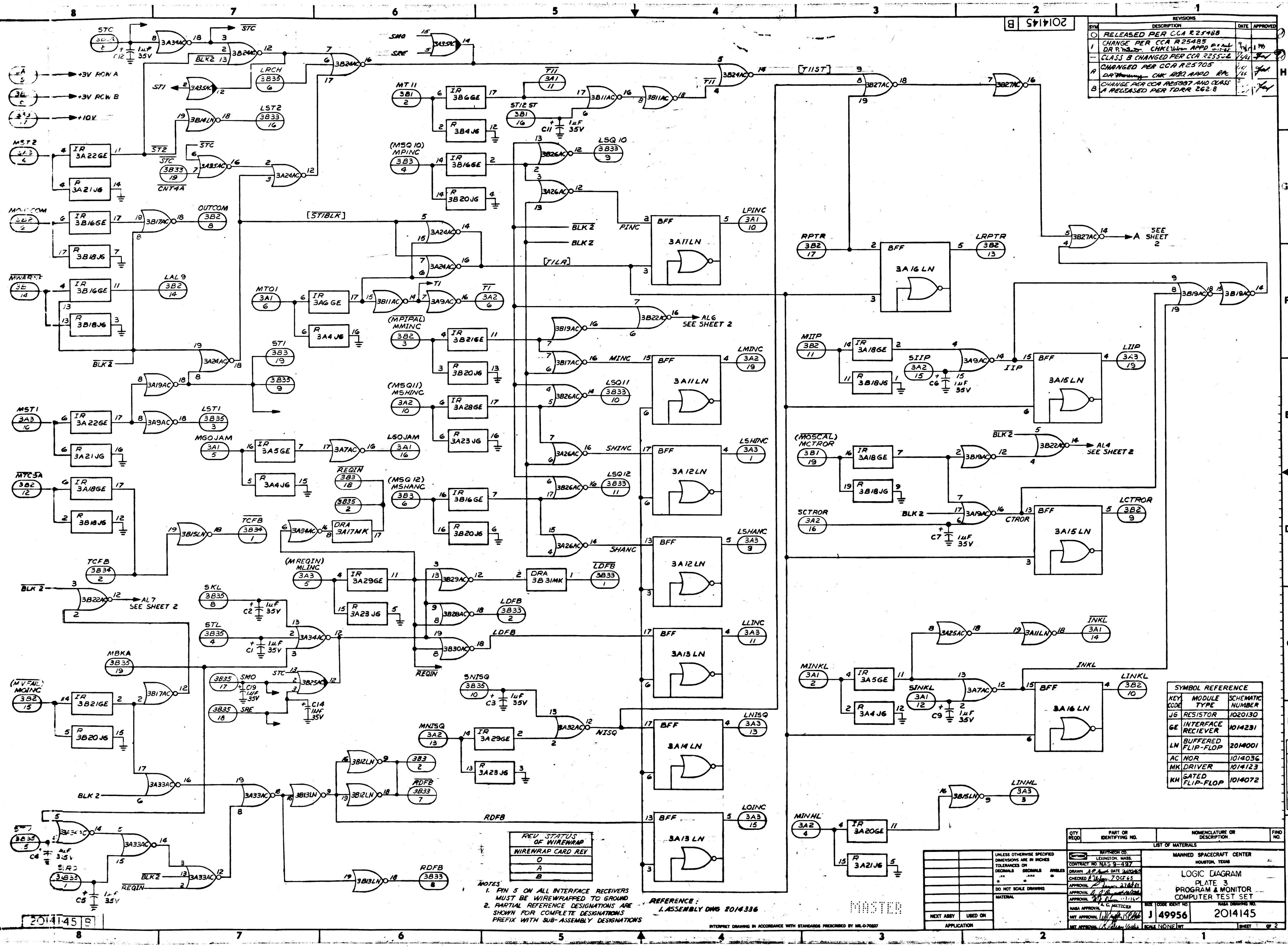
LOGIC DIAGRAM
LOGIC PLATE NO. 2
PROGRAM AND MONITOR
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DWG NO. 2014144
SCALE NONE WT
SHEET 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014145 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
1	CHANGE PER CCA R25485 DR P. Milan CHK E Uhran APPD 11-13-65	11/13/65	
—	CLASS B CHANGED PER CCA R25502	1/4/66	
A	CHANGED PER CCA R25705 DR CHK BBQ APPD RPC	1/15/66	
B	CHANGE PER CCA R25887 AND CLASS A RELEASED PER TDRR 262.8		


STC
+3V RCW A
+3V RCW B
+10V
MST2
MOUTCOM
MWARN
MST1
MTC5A
(MVFAIL) MQINC
BLK 2
STC
STI
LRCH
LST2
CNT4A
OUTCOM
LAL9
ST1
LST1
MGOJAM
L60JAM
REQIN
(MSQ 12) MSHANC
TCFB
SKL
STL
MBKA
SMO
SRE
(MREQIN) MLINC
DRA 3A17MK
DRA 3B31MK
LDFB
REQIN
SNISQ
MNISQ
NISQ
RDFB
MT11
T11
ST12 ST
(MSQ10) MPINC
LSQ 10
[ST/BLK]
[T/LR]
PINC
LPINC
MTO1
T1
AL6 SEE SHEET 2
(MPIPAL) MMINC
MINC
LMINC
LSQ11
(MSQ11) MSHINC
SHINC
LSHINC
LSQ12
SHANC
LSHANC
LLINC
LNISQ
LOINC
AL7 SEE SHEET 2
[T11ST]
RPTR
LRPTR
A SEE SHEET 2
MIIP
SIIP
IIP
LIIP
(MOSCAL) MCTROR
AL4 SEE SHEET 2
SCTROR
CTROR
LCTROR
INKL
MINKL
SINKL
LINKL
MINHL
LINHL
BFF
3A11LN
3A12LN
3A13LN
3A14LN
3A15LN
3A16LN
1μF 35V

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
J6	RESISTOR	1020130
GE	INTERFACE RECIEVER	1014231
LN	BUFFERED FLIP-FLOP	2014001
AC	NOR	1014036
MK	DRIVER	1014123
KH	GATED FLIP-FLOP	1014072

REV STATUS OF WIREWRAP
WIREWRAP CARD REV
O
A
B

NOTES
1. PIN 5 ON ALL INTERFACE RECEIVERS MUST BE WIREWRAPPED TO GROUND
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCE:
1. ASSEMBLY DWG 2014336

MASTER

2A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN S.P. DATE 9/20/65
CHECKED 7 OCT 65
APPROVAL 27 OCT 65
APPROVAL
APPROVAL 1-1-66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 15 FEB 66
MIT APPROVAL 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
PLATE 3
PROGRAM & MONITOR
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014145
SCALE NONE | WT | SHEET 1 OF 2

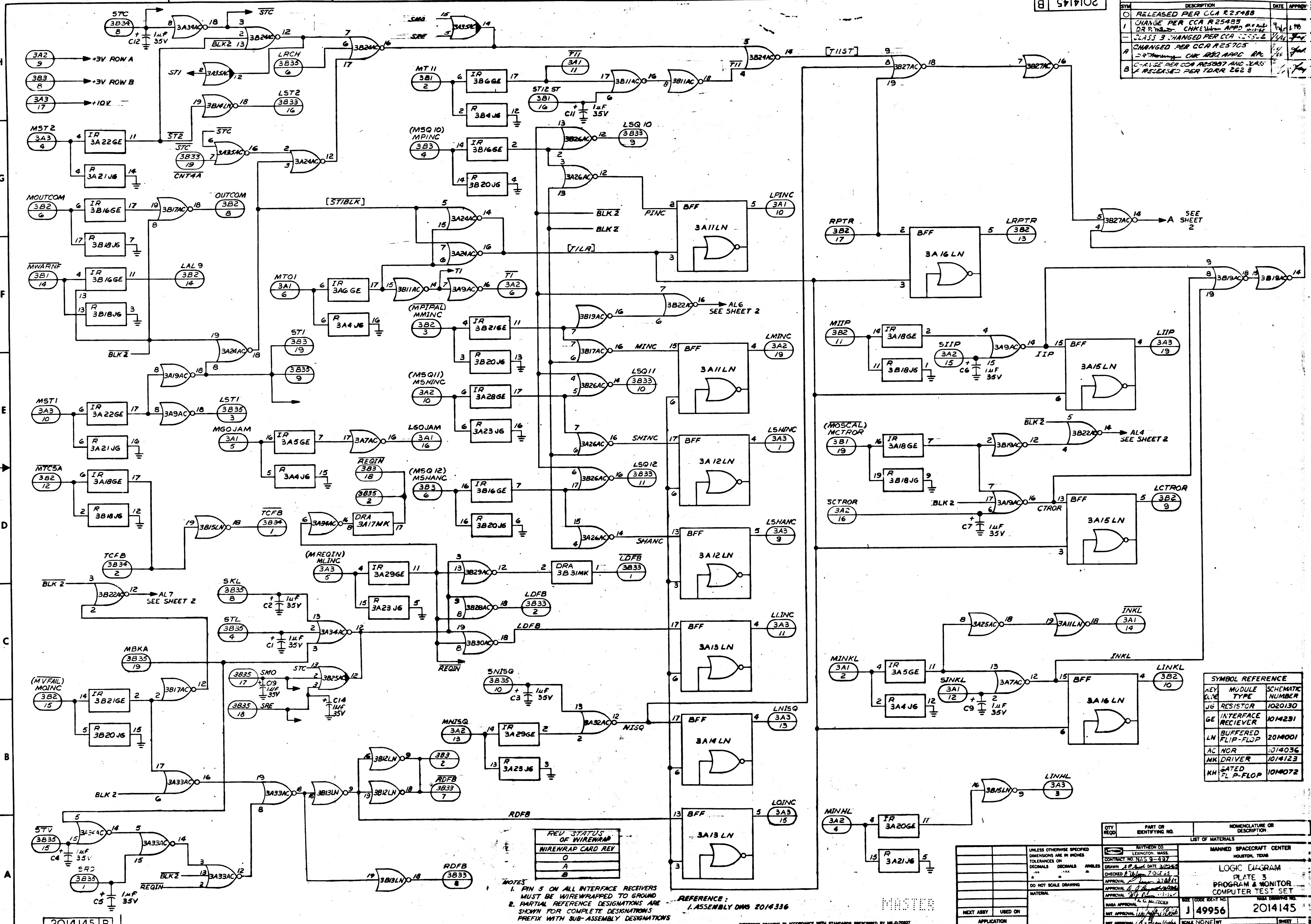
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014145 B

2014145 B

2014145 B

SYM	REVISIONS DESCRIPTION	DATE	APPROV
O	RELEASED PER CCA R25488		
1	CHANGE PER CCA R25485 DR P. Miller CHK E Urban APPD 10-13-65	11/12/65	
—	CLASS 3 CHANGED PER CCA		
A	CHANGED PER CCA R25705 DR Thoreny CHK APPC RPC		
B	CHANGE PER CCA R25887 AND CLASS I RELEASED PER TDRR 2623		



STC
3B34 8
3A39AC
3B24AC
BLK2
STC
C12 1µf 35V
3A2 9 +3V ROW A
3B3 8 +3V ROW B
3A3 17 +10V
ST1
3A35AC
LRCH 3B35 6
3B14LN
LST2 3B33 16
MST2 3A3 4
IR 3A22GE
ST2
R 3A21J6
STC 3B33 19
CNT4A
3A35AC
3A24AC
MOUTCOM 3B2 6
IR 3B16GE
R 3B18J6
3B17AC
OUTCOM 3B2 8
MWARNF 3B1 14
IR 3B16GE
R 3B18J6
LAL9 3B2 14
3A24AC
BLK 2
3A19AC
3B35 9
MST1 3A3 10
IR 3A22GE
R 3A21J6
3A9AC
LST1 3B35 3
ST1 3B33 19
MTC5A 3B2 12
IR 3A18GE
R 3B18J6
3B15LN
TCFB 3B34 1
TCFB 3B34 2
BLK 2
3B22AC
AL7 SEE SHEET 2
MBKA 3B35 19
(MVFAIL) MOINC 3B2 15
IR 3B21GE
R 3B20J6
3B17AC
3A33AC
BLK 2
STV 3B35 15
3A34AC
C4 1µf 35V
SRD 3B35 1
C5 1µf 35V
3A33AC
BLK2
REQIN
SMO
SRE
3A35AC
MT11 3B1 2
IR 3B6GE
R 3B4J6
T11 3A1 11
3B11AC
ST12 ST 3B1 16
C11 1µf 35V
(MSQ10) MPINC 3B3 4
IR 3B16GE
R 3B20J6
[ST/BLK]
3A24AC
[T/LR]
MTO1 3A1 6
IR 3AG GE
R 3A4J6
3B11AC
T1
3A9AC
T1 3A2 6
MGOJAM 3A1 5
IR 3A5GE
R 3A4J6
3A7AC
LGOJAM 3A1 16
REQIN 3B3 18
3B35 2
DRA 3A17MK
3A34AC
(MREQIN) MLINC 3A3 5
IR 3A29GE
R 3A23J6
SKL 3B35 8
C2 1µf 35V
STL 3B35 4
C1 1µf 35V
3A34AC
3B35 17
SMO
C19 1µf 35V
3B35 18
SRE
STC
3B25AC
C14 1µf 35V
3B12LN
3B3 2
RDFB 3B33 7
3A33AC
3B13LN
3B12LN
3B13LN
RDFB 3B33 8
RDFB
(MPIPAL) MMINC 3B2 3
IR 3B21GE
R 3B20J6
(MSQ11) MSHINC 3A2 10
IR 3A28GE
R 3A23J6
(MSQ12) MSHANC 3B3 6
IR 3B16GE
R 3B20J6
3B29AC
DRA 3B31MK
LDFB 3B33 1
3B28AC
LDFB 3B33 2
3B30AC
LDFB
REQIN
SNISQ 3B35 10
C3 1µf 35V
MNISQ 3A2 13
IR 3A29GE
R 3A23J6
3A32AC
NISQ
3B26AC
LSQ10 3B33 9
3A26AC
BLK 2
BLK 2
PINC
BFF 3A11LN
LPINC 3A1 10
3B19AC
3B22AC
AL6 SEE SHEET 2
3B17AC
MINC
BFF 3A11LN
LMINC 3A2 19
3B26AC
LSQ11 3B33 10
3A26AC
SHINC
BFF 3A12LN
LSHINC 3A3 1
3B26AC
LSQ12 3B33 11
3A26AC
SHANC
BFF 3A12LN
LSHANC 3A3 9
BFF 3A13LN
LLINC 3A3 11
BFF 3A14LN
LNISQ 3A3 13
BFF 3A13LN
LOINC 3A3 15
3B24AC
[T11ST]
3B27AC
3B27AC
3B27AC
A SEE SHEET 2
RPTR 3B2 17
BFF 3A16LN
LRPTR 3B2 13
3B19AC
3B18AC
MIIP 3B2 11
IR 3A18GE
R 3B18J6
SIIP 3A2 15
C6 1µf 35V
3A9AC
IIP
BFF 3A15LN
LIIP 3A3 19
(MOSCAL) MCTROR 3B1 19
IR 3A18GE
R 3B18J6
BLK 2
3B19AC
3B22AC
AL4 SEE SHEET 2
BLK 2
3A19AC
C7 1µf 35V
SCTROR 3A2 16
CTROR
BFF 3A15LN
LCTROR 3B2 9
3A25AC
3A11LN
INKL 3A1 14
MINKL 3A1 2
IR 3A5GE
R 3A4J6
SINKL 3A1 12
C9 1µf 35V
3A7AC
INKL
BFF 3A16LN
LINKL 3B2 10
3B15LN
LINHL 3A3 3
MINHL 3A2 4
IR 3A20GE
R 3A21J6
MASTER

REV STATUS OF WIREWRAP
WIREWRAP CARD REV
O
A
B

NOTES
1. PIN 5 ON ALL INTERFACE RECEIVERS MUST BE WIREWRAPPED TO GROUND
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCE:
1. ASSEMBLY DWG 2014336

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
JG	RESISTOR	1020130
GE	INTERFACE RECIEVER	1014231
LN	BUFFERED FLIP-FLOP	2014001
AC	NOR	1014036
MK	DRIVER	1014123
KH	GATED FLIP-FLOP	1014072

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN S.P. Seal DATE 3/22/65
CHECKED E Urban 7 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
PLATE 3
PROGRAM & MONITOR
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014145
SCALE NONE
WT
SHEET 1 OF 2

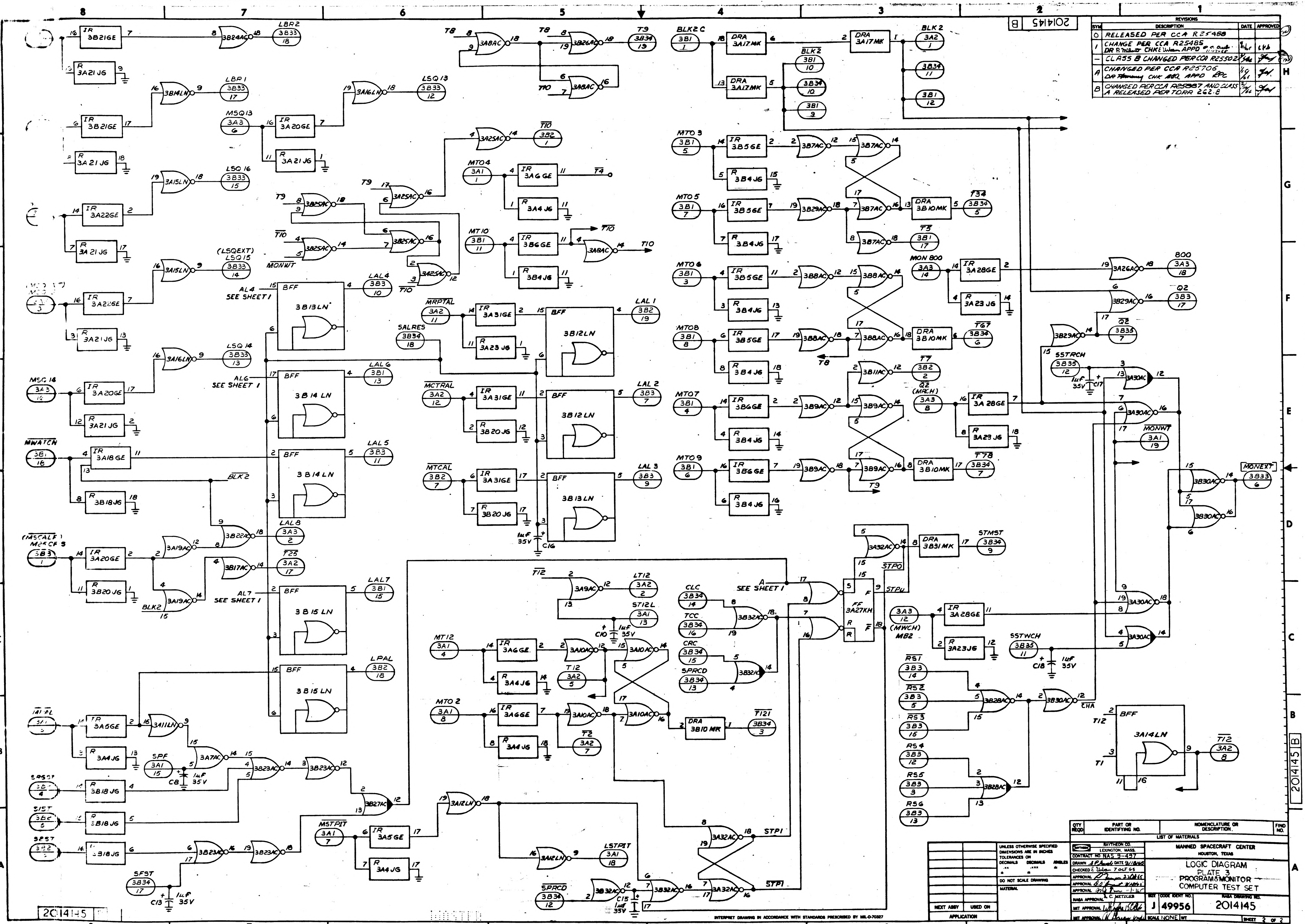
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014145 B

2014145 B

2014145 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
1	CHANGE PER CCA R25485 DR P. Milan CHK E Urban APPD		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25706 DR Flannery CHK APPD	1/5/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TORR 262.8	2/10/66	



8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
IR 3B21GE
3B24AC
LBR2 3B3 18
R 3A21JG
IR 3B21GE
3B14LN
LBP1 3B3 17
MSQ13 3A3 6
IR 3A20GE
3A16LN
LSQ13 3B3 12
R 3A21JG
R 3A21JG
IR 3A22GE
3A15LN
LSQ16 3B3 15
R 3A21JG
(LSQEXT) LSQ15 3B3 14
3A15LN
IR 3A22GE
R 3A21JG
AL4 SEE SHEET 1
BFF 3B13LN
LAL4 3B3 10
3A16LN
LSQ14 3B3 13
MSQ14 3A3 14
IR 3A20GE
R 3A21JG
AL6 SEE SHEET 1
BFF 3B14LN
LAL6 3B1 13
MWATCH 3B1 16
IR 3A18GE
R 3B18JG
BLK2
BFF 3B14LN
LAL5 3B3 11
(MASCALF) MASCF 3 3B3 1
IR 3A20GE
R 3B20JG
3A19AC
3B22AC
LAL8 3A3 2
3B17AC
T25 3A2 17
3A19AC
BLK2
AL7 SEE SHEET 1
BFF 3B15LN
LAL7 3B1 15
BFF 3B15LN
LPAL 3B2 18
IR 3A5GE
3A11LN
R 3A4JG
SPF 3A1 15
C8 1uF 35V
3A7AC
3B23AC
3B23AC
R 3B18JG
R 3B18JG
3B27AC
R 3B18JG
3B23AC
3B23AC
SFST 3B34 17
C13 1uF 35V
T8
3A8AC
T8
3B26AC
T9 3B34 19
T10
3A8AC
3A25AC
T10 3B2 1
T9
3A25AC
T9
3B25AC
3B25AC
T10
MONWT
3A25AC
3A25AC
T10
MTO4 3A1 1
IR 3A6GE
T4
R 3A4JG
MT10 3B1 11
IR 3B6GE
T10
3A8AC
T10
R 3B4JG
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IR 3A31GE
R 3A23JG
SALRES 3B34 18
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LAL1 3B2 19
MCTRAL 3A2 12
IR 3A31GE
R 3B20JG
BFF 3B12LN
LAL2 3B3 7
MTCAL 3B2 7
IR 3A31GE
R 3B20JG
BFF 3B13LN
LAL3 3B3 9
1uF 35V C16
T12
3A9AC
LT12 3A2 2
ST12L 3A1 13
C10 1uF 35V
MT12 3A1 4
IR 3A6GE
3A10AC
3A10AC
R 3A4JG
T12 3A2 5
MTO2 3A1 8
IR 3A6GE
3A10AC
3A10AC
DRA 3B10MK
T121 3B34 3
R 3A4JG
T2 3A2 7
3A12LN
MSTPIT 3A1 7
IR 3A5GE
R 3A4JG
3A12LN
LSTPIT 3A1 18
SPRCD 3B34 12
3B32AC
C15 1uF 35V
3B32AC
3A32AC
STP1
3A32AC
STP1
CLC 3B34 14
TCC 3B34 16
3B32AC
CRC 3B34 15
SPRCD 3B34 13
3B32AC
A SEE SHEET 1
FF 3A27KH
STPO
STPO
3A32AC
DRA 3B31MK
STMST 3B34 9
BLK2C 3B1 1
DRA 3A17MK
DRA 3A17MK
BLK2 3A2 1
BLK2 3B1 10
3B34 10
3B1 9
DRA 3A17MK
3B34 11
3B1 12
MTO3 3B1 5
IR 3B5GE
3B7AC
3B7AC
R 3B4JG
MTO5 3B1 7
IR 3B5GE
3B29AC
3B7AC
DRA 3B10MK
T34 3B34 5
R 3B4JG
3B7AC
T5 3B1 17
MTO6 3B1 3
IR 3B5GE
3B8AC
3B8AC
R 3B4JG
MON 800 3A3 14
IR 3A28GE
3A26AC
800 3A3 18
R 3A23JG
3B29AC
Q2 3B3 17
MTO8 3B1 8
IR 3B5GE
3B8AC
3B8AC
DRA 3B10MK
T67 3B34 6
T8
R 3B4JG
3B29AC
Q2 3B35 7
3B11AC
T7 3B2 2
Q2 (MRCH) 3A3 8
IR 3A28GE
R 3A23JG
SSTRCH 3B35 12
1uF 35V C17
3A30AC
3A30AC
MONWT 3A1 19
MTO7 3B1 4
IR 3B6GE
3B9AC
3B9AC
R 3B4JG
MTO9 3B1 6
IR 3B6GE
3B9AC
3B9AC
DRA 3B10MK
T78 3B34 7
T9
R 3B4JG
3B30AC
MONEXT 3B33 6
3B30AC
3A30AC
3A3 12 (MWCH) MB2
IR 3A28GE
R 3A23JG
SSTWCH 3B35 11
C18 1uF 35V
3A30AC
RS1 3B3 14
RS2 3B3 5
RS3 3B3 15
3B28AC
3B30AC
CHA
RS4 3B3 12
RS5 3B3 3
RS6 3B3 13
3B28AC
BFF 3A14LN
T12
T1
T12 3A2 8
2014145 B
2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION.	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN S P DATE 9/18/65
CHECKED E Urban 7 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
PLATE 3
PROGRAM&MONITOR
COMPUTER TEST SET

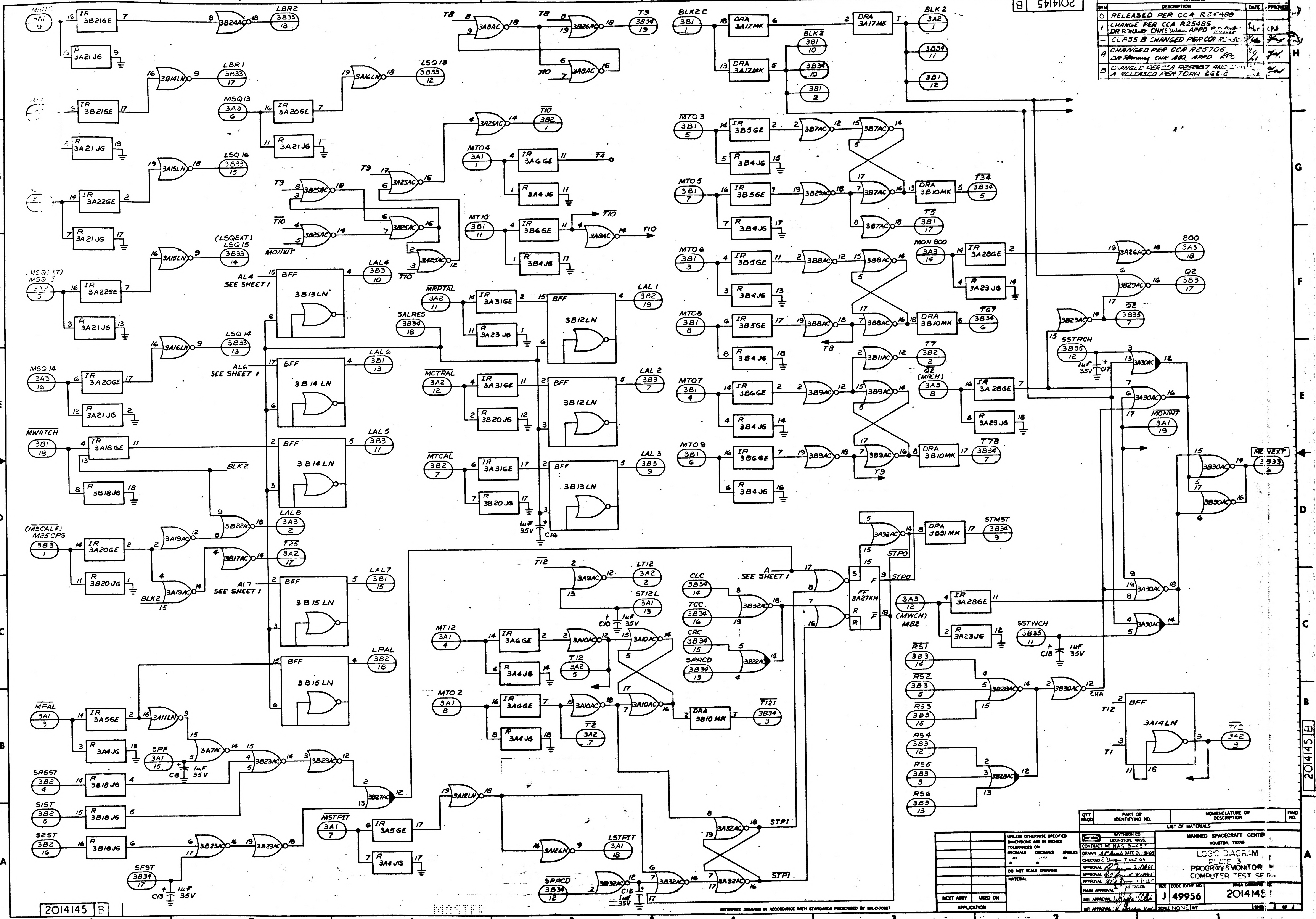
SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014145
SCALE NONE WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014145

2014145 B

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
1	CHANGE PER CCA R25485 DR P. Milant CHKE Urban APPD 11-13-65		LHB
—	CLASS B CHANGED PER CCA R-[illegible]		
A	CHANGED PER CCA R25706 DR Flemming CHK BGQ APPD RPC		
B	CHANGED PER CCA R25887 AND [illegible] A RELEASED PER TDRR 262 E		



MSRC 3A1 9
IR 3B21GE
R 3A21JG
3B24AC
LBR2 3B33 18
LBR1 3B33 17
3B14LN
3B21GE
3A21JG
3A15LN
LSQ16 3B33 15
3A22GE
(LSQEXT) LSQ15 3B33 14
(MSQEXT) MSQ 3A3 5
3A16LN
LSQ14 3B33 13
MSQ14 3A3 16
3A20GE
MWATCH 3B1 18
3A18GE
3B18JG
BLK2
(MSCALF) M25CPS 3B3 1
3B20JG
3A19AC
3B22AC
LAL8 3A3 2
3B17AC
F25 3A2 17
MPAL 3A1 3
3A5GE
3A4JG
3A11LN
3A7AC
3B23AC
3B27AC
SPF 3A1 15
C8 1uF 35V
SRGST 3B2 4
SIST 3B2 5
S2ST 3B2 16
SFST 3B34 17
C13 1uF 35V
MSQ13 3A3 6
3A20GE
3A16LN
LSQ13 3B33 12
T8
3A8AC
3B26AC
T9 3B34 13
T10
T9 3B25AC
MONWT
3A25AC
T10 3B2 1
MTO4 3A1 1
3A6GE
3A4JG
T4
MT10 3B1 11
3B6GE
3B4JG
AL4 SEE SHEET 1
BFF 3B13LN
LAL4 3B3 10
AL6 SEE SHEET 1
3B14LN
LAL6 3B1 13
LAL5 3B3 11
AL7 SEE SHEET 1
3B15LN
LAL7 3B1 15
LPAL 3B2 18
MRPTAL 3A2 11
3A31GE
3A23JG
SALRES 3B34 18
BFF 3B12LN
LAL1 3B2 19
MCTRAL 3A2 12
3B20JG
LAL2 3B3 7
MTCAL 3B2 7
3B13LN
LAL3 3B3 9
C16 1uF 35V
T12
3A9AC
LT12 3A2 2
ST12L 3A1 13
C10 1uF 35V
MT12 3A1 4
3A10AC
T12 3A2 5
MTO2 3A1 8
T2 3A2 7
DRA 3B10MR
T121 3B34 3
MSTPIT 3A1 7
3A12LN
LSTPIT 3A1 18
SPRCD 3B34 12
C15 1uF 35V
3B32AC
3A32AC
STP1
CLC 3B34 14
TCC 3B34 16
CRC 3B34 15
SPRCD 3B34 13
A SEE SHEET 1
FF 3A27KH
STPO
DRA 3B31MK
STMST 3B34 9
BLK2C 3B1 1
DRA 3A17MK
BLK2 3A2 1
BLK2 3B1 10
3B34 10
3B1 9
3B34 11
3B1 12
MTO3 3B1 5
3B5GE
3B7AC
MTO5 3B1 7
3B29AC
DRA 3B10MK
T34 3B34 5
T3 3B1 17
MTO6 3B1 3
3B8AC
MTO8 3B1 8
T67 3B34 6
T8
3B11AC
T7 3B2 2
MTO7 3B1 4
3B9AC
MTO9 3B1 6
T78 3B34 7
T9
MON800 3A3 14
3A28GE
3A26AC
800 3A3 18
Q2 3B3 17
Q2 3B35 7
SSTRCH 3B35 12
C17 1uF 35V
3A30AC
Q2 (MRCH) 3A3 8
MONWT 3A1 19
3B30AC
MRNEXT 3B33 6
3A3 12 (MWCH) MB2
SSTWCH 3B35 11
C18 1uF 35V
RS1 3B3 14
RS2 3B3 5
RS3 3B3 15
RS4 3B3 12
RS5 3B3 3
RS6 3B3 13
3B28AC
3B30AC
CHA
T12
BFF 3A14LN
T1
T12 3A2 3
H G F E D C B A
8 7 6 5 4 3 2 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

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TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN S P [illegible] DATE 3/1/8/65
CHECKED E Urban 7 OCT 65
APPROVAL [illegible] 22 Oct 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
PLATE 3
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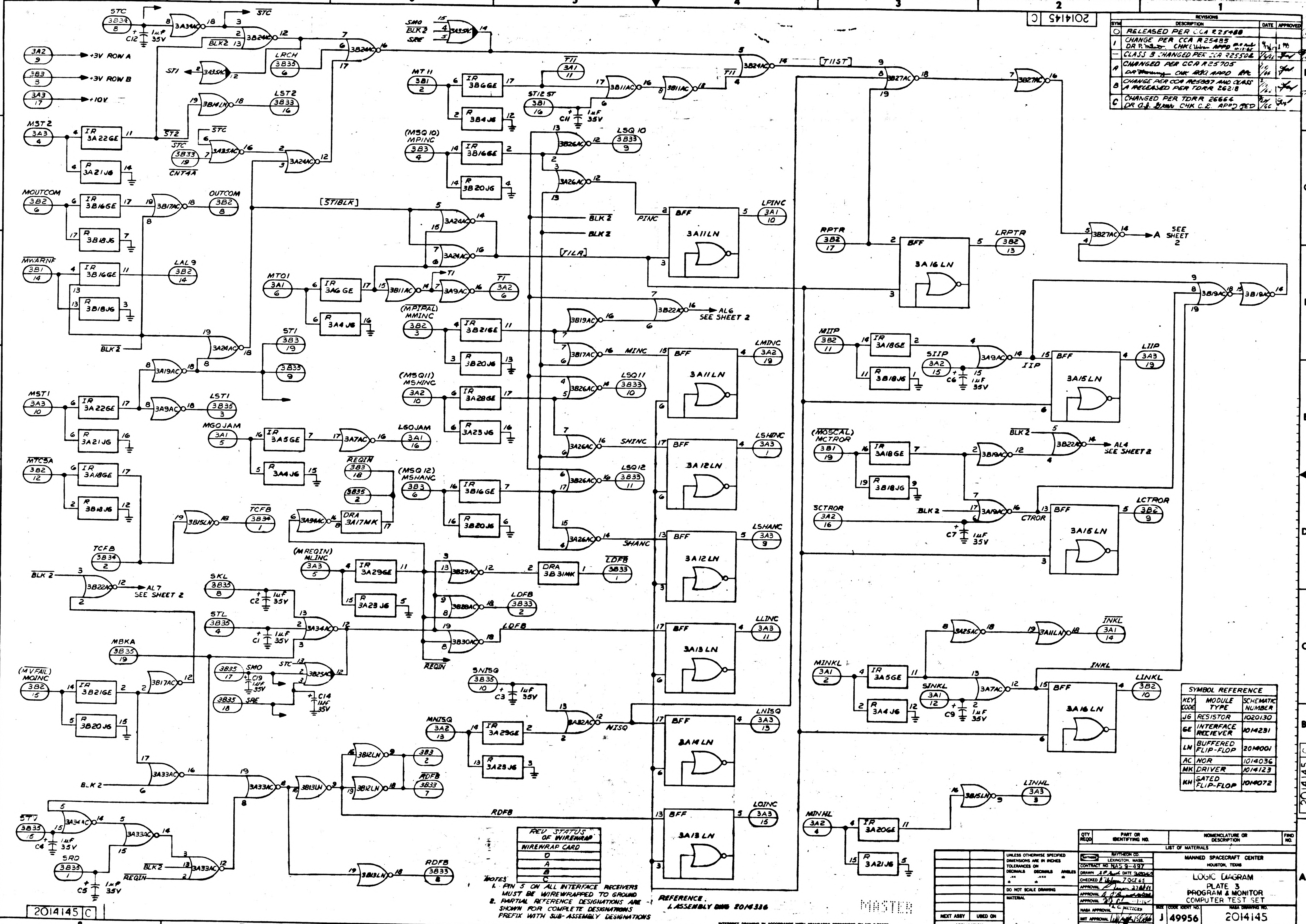
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014145
SCALE NONE
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014145 B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
○	RELEASED PER CCA R25488		
1	CHANGE PER CCA R25485 DR P. [illegible] CHK E Urban APPD [illegible] 4-13-65	4/13/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	1/4/66	[illegible]
A	CHANGED PER CCA R25705 DR [illegible] CHK RBQ APPD [illegible]	1/19/66	[illegible]
B	CHANGE PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	[illegible]
C	CHANGED PER TDRR 26664 DR A.J. Green CHK C.E. APPD RED	3/4/66	[illegible]


STC
3B34
8
C12
1µF
35V
3A34AC
STC
BLK2
3B24AC
3A2
9
+3V ROW A
3B3
3
+3V ROW B
3A3
17
+10V
ST1
3A35AC
LRCH
3B35
6
3B14LN
LST2
3B33
16
MST2
3A3
4
IR
3A22GE
ST2
R
3A21J6
STC
3B33
19
CNT4A
3A35AC
3A24AC
SMO
BLK2
SRE
3A35KC
MT11
3B1
2
IR
3B6GE
R
3B4J6
T11
3A1
11
ST12 ST
3B1
16
C11
1µF
35V
3B11AC
3B11AC
T11
3B24AC
[T11ST]
3B27AC
3B27AC
(MSQ10)
MPINC
3B3
4
IR
3B16GE
R
3B20J6
3B26AC
LSQ10
3B33
9
3A26AC
MOUTCOM
3B2
6
IR
3B16GE
R
3B18J6
3B17AC
OUTCOM
3B2
8
[STIBLK]
3A24AC
3A24AC
BLK2
BLK2
PINC
BFF
3A11LN
LPINC
3A1
10
RPTR
3B2
17
BFF
3A16LN
LRPTR
3B2
13
3B27AC
A SEE SHEET 2
MWARNF
3B1
14
IR
3B16GE
R
3B18J6
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3B2
14
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MT01
3A1
6
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3A6GE
R
3A4J6
3B11AC
T1
3A9AC
T1
3A2
6
3B19AC
3B22AC
AL6 SEE SHEET 2
3B19AC
3B19AC
(MPIPAL)
MMINC
3B2
3
IR
3B21GE
R
3B20J6
3B17AC
MINC
BFF
3A11LN
LMINC
3A2
19
BLK2
3A24AC
ST1
3B3
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3B35
9
MIIP
3B2
11
IR
3A18GE
R
3B18J6
SIIP
3A2
15
C6
1µF
35V
3A9AC
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BFF
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LIIP
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19
3A19AC
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R
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3B26AC
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3B33
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3A1
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3A5GE
R
3A4J6
3A7AC
LGOJAM
3A1
16
3A26AC
SHINC
BFF
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LSHINC
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(MOSCAL)
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R
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3B22AC
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18
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3A34AC
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3B16GE
R
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3B33
11
SCTROR
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C7
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35V
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BFF
3A15LN
LCTROR
3B2
9
3B15LN
TCFB
3B34
1
TCFB
3B34
2
3A26AC
SHANC
BFF
3A12LN
LSHANC
3A3
9
BLK2
3B22AC
AL7 SEE SHEET 2
SKL
3B35
8
C2
1µF
35V
(MREQIN)
MLINC
3A3
5
IR
3A29GE
R
3A23J6
3B29AC
DRA
3B31MK
LDFB
3B33
1
3B28AC
LDFB
3B33
2
STL
3B35
4
C1
1µF
35V
3A34AC
3B30AC
LDFB
BFF
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LLINC
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3A25AC
3A11LN
INKL
3A1
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MBKA
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19
3B35
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SMO
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1µF
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STC
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3B35
18
SRE
C14
1µF
35V
REQIN
MINKL
3A1
2
IR
3A5GE
R
3A4J6
SINKL
3A1
12
C9
1µF
35V
3A7AC
INKL
BFF
3A16LN
LINKL
3B2
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(MVFAIL)
MOINC
3B2
15
IR
3B21GE
R
3B20J6
3B17AC
SNISQ
3B35
10
C3
1µF
35V
3A32AC
NISQ
MNISQ
3A2
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IR
3A29GE
R
3A23J6
BFF
3A14LN
LNISQ
3A3
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3B12LN
3B3
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3B12LN
RDFB
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3A33AC
3B13LN
RDFB
BFF
3A13LN
LOINC
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LINHL
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3B15LN
MINHL
3A2
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IR
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R
3A21J6
ST1
3B35
15
C4
1µF
35V
3A34AC
3A33AC
SRD
3B35
1
C5
1µF
35V
BLK2
REQIN
3A33AC
3B13LN
RDFB
3B33
8
8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
J6	RESISTOR	1020130
GE	INTERFACE RECIEVER	1014231
LN	BUFFERED FLIP-FLOP	2014001
AC	NOR	1014036
MK	DRIVER	1014123
KH	GATED FLIP-FLOP	1014072

REV STATUS OF WIREWRAP
WIREWRAP CARD
O
A
B
C

NOTES
1. PIN 5 ON ALL INTERFACE RECEIVERS MUST BE WIREWRAPPED TO GROUND
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCE.
1. ASSEMBLY DWG 2014336

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
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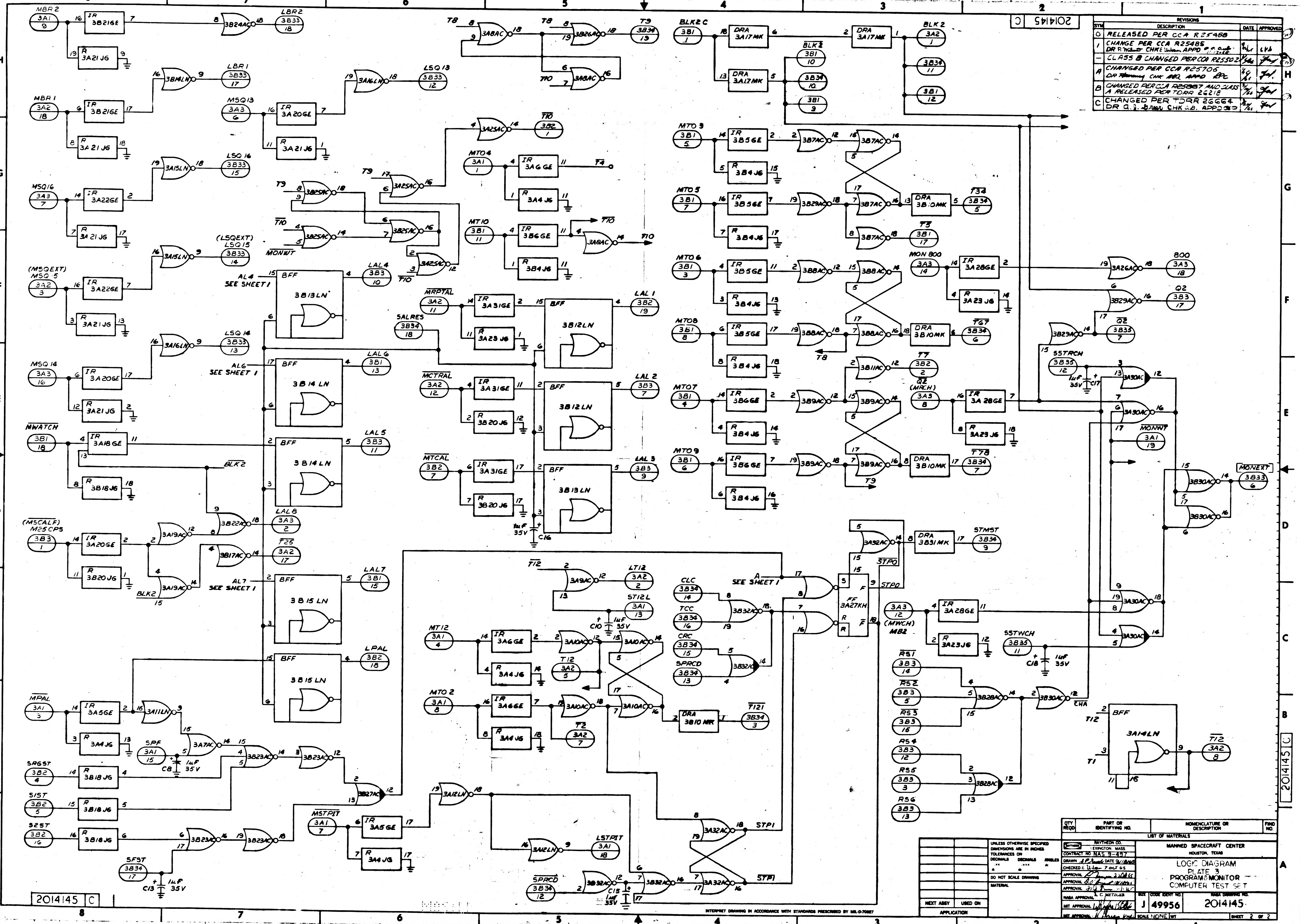
APPROVAL [illegible]
NASA APPROVAL L. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
PLATE 3
PROGRAM & MONITOR
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014145
SCALE NONE | WT | SHEET OF 2


MBR2 3A1 9
IR 3B21GE
R 3A21J6
3B24AC
LBR2 3B33 18
MBR1 3A2 18
IR 3B21GE
R 3A21J6
3B14LN
LBR1 3B33 17
MSQ13 3A3 6
IR 3A20GE
R 3A21J6
3A16LN
LSQ13 3B33 12
MSQ16 3A3 7
IR 3A22GE
R 3A21J6
3A15LN
LSQ16 3B33 15
(MSQEXT) MSQ5 3A2 3
IR 3A22GE
R 3A21J6
3A15LN
(LSQEXT) LSQ15 3B33 14
AL4 SEE SHEET 1
BFF 3B13LN
LAL4 3B3 10
MSQ14 3A3 16
IR 3A20GE
R 3A21J6
3A16LN
LSQ14 3B33 13
AL6 SEE SHEET 1
BFF 3B14LN
LAL6 3B1 13
MWATCH 3B1 18
IR 3A18GE
R 3B18J6
BLK2
BFF 3B14LN
LAL5 3B3 11
(MSCALF) M25CPS 3B3 1
IR 3A20GE
R 3B20J6
3A19AC
3B22AC
LAL8 3A3 2
3B17AC
T25 3A2 17
BLK2
3A19AC
AL7 SEE SHEET 1
BFF 3B15LN
LAL7 3B1 15
BFF 3B15LN
LPAL 3B2 18
MPAL 3A1 3
IR 3A5GE
R 3A4J6
3A11LN
SPF 3A1 15
C8 1μF 35V
3A7AC
3B23AC
3B23AC
SRGST 3B2 4
R 3B18J6
3B27AC
S1ST 3B2 5
R 3B18J6
S2ST 3B2 16
R 3B18J6
3B23AC
3B23AC
SFST 3B34 17
C13 1μF 35V
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T10
3A8AC
3A25AC
T10 3B2 1
T9
3B25AC
T9
3A25AC
T10
3B25AC
3B25AC
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R 3A4J6
T4
MT10 3B1 11
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R 3B4J6
3A8AC
T10
T10
MRPTAL 3A2 11
IR 3A31GE
R 3A23J6
SALRES 3B34 18
BFF 3B12LN
LAL1 3B2 19
MCTRAL 3A2 12
IR 3A31GE
R 3B20J6
BFF 3B12LN
LAL2 3B3 7
MTCAL 3B2 7
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R 3B20J6
BFF 3B13LN
LAL3 3B3 9
1μF 35V C16
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3A9AC
LT12 3A2 2
ST12L 3A1 13
C10 1μF 35V
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R 3A4J6
3A10AC
3A10AC
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MT02 3A1 8
IR 3A6GE
R 3A4J6
3A10AC
3A10AC
T2 3A2 7
DRA 3B10MK
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3A12LN
MSTPIT 3A1 7
IR 3A5GE
R 3A4J6
3A12LN
LSTPIT 3A1 18
SPRCD 3B34 12
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C15 1μF 35V
3B32AC
3A32AC
3A32AC
STP1
STP1
CLC 3B34 14
TCC 3B34 16
CRC 3B34 15
SPRCD 3B34 13
3B32AC
3B32AC
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S R F F
STP0
STP0
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DRA 3A17MK
DRA 3A17MK
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BLK2 3B1 10
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DRA 3A17MK
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3B1 12
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R 3B4J6
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3B8AC
MTO8 3B1 8
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3B8AC
3B8AC
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DRA 3B10MK
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MTO7 3B1 4
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MTO9 3B1 6
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R 3B4J6
3B9AC
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MON 800 3A3 14
IR 3A28GE
R 3A23J6
3A26AC
800 3A3 18
3B29AC
Q2 3B3 17
3B29AC
Q2 3B33 7
SSTRCH 3B35 12
1μF 35V C17
3A30AC
Q2 (MRCH) 3A3 8
IR 3A28GE
R 3A23J6
3A30AC
MONWT 3A1 19
MONEXT 3B33 6
3B30AC
3B30AC
3A32AC
DRA 3B31MK
STMST 3B34 9
3A3 12 (MWCH)
IR 3A28GE
R 3A23J6
3A30AC
SSTWCH 3B35 11
C18 1μF 35V
3A30AC
RS1 3B3 14
RS2 3B3 5
RS3 3B3 15
3B28AC
3B30AC
CHA
T12
BFF 3A14LN
T1
T12 3A2 8
RS4 3B3 12
RS5 3B3 3
RS6 3B3 13
3B28AC
2014145 C
2014145 C
2014145 C
8 7 6 5 4 3 2 1
H G F E D C B A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
1	CHANGE PER CCA R25485 DR P. Milan CHK E Urban APPD		LWB
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25706 DR CHK BBQ APPD EPC		
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	3/66	
C	CHANGED PER TDRR 26664 DR CHK C.B. APPD		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
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SHEET 2 OF 2

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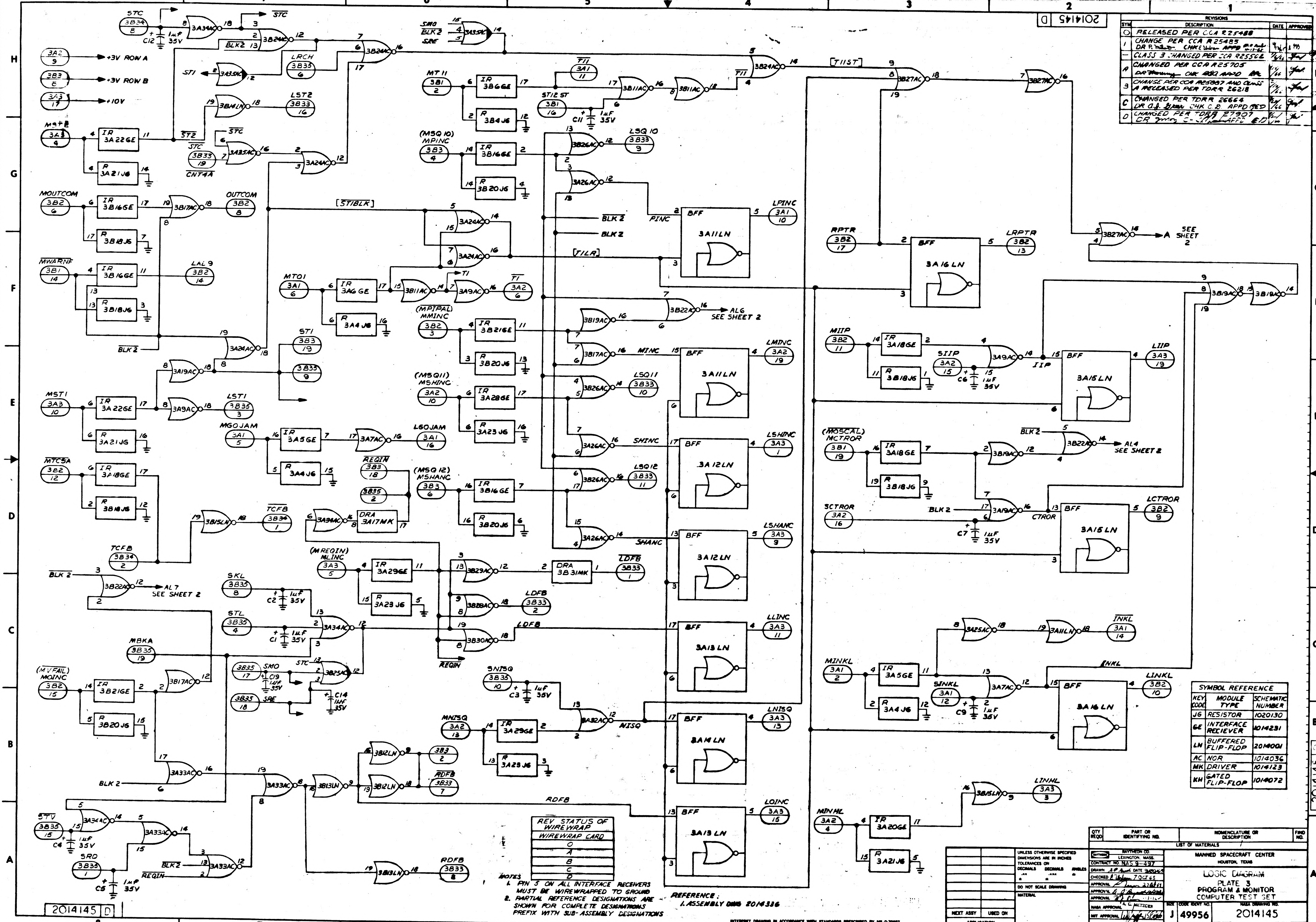
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
1	CHANGE PER CCA R25485 DR P. [illegible] CHK E Urban APPD [illegible] 11-17-65	11/17/65	[illegible]
—	CLASS 3 CHANGED PER CCA R25562	1/4/66	[illegible]
A	CHANGED PER CCA R25705 DR [illegible] CHK [illegible] APPD [illegible]	1/?/66	[illegible]
3	CHANGE PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	[illegible]
C	CHANGED PER TDRR 26664 DR O.J. [illegible] CHK C.D. APPD [illegible]	3/?/66	[illegible]
D	CHANGED PER TDRR 27907 DR [illegible] C- [illegible] APPD ED	[illegible]	[illegible]


STC
3B34 8
C12 1µF 35V
3A34AC
STC
3B24AC
BLK2
SMO
BLK2
SRE
3A35AC
3B24AC
3A2 9 +3V ROW A
3B3 6 +3V ROW B
3A3 17 +10V
ST1
3A35AC
LRCH 3B33 6
3B14LN
LST2 3B33 16
MST B 3A3 4
IR 3A22GE
ST2
R 3A21J6
STC 3B33 19
CNT4A
3A35AC
3A24AC
MOUTCOM 3B2 6
IR 3B16GE
R 3B18J6
3B17AC
OUTCOM 3B2 8
ST/BLK
MWARNF 3B1 14
IR 3B16GE
LAL9 3B2 14
R 3B18J6
BLK2
3A24AC
3A19AC
ST1 3B3 19
3B35 9
MST1 3A3 10
IR 3A22GE
3A9AC
LST1 3B35 3
R 3A21J6
MTC5A 3B2 12
IR 3A18GE
R 3B18J6
3B15LN
TCFB 3B34 1
TCFB 3B34 2
BLK 2
3B22AC
AL7 SEE SHEET 2
MBKA 3B35 19
(MVFAIL) MOINC 3B2 15
IR 3B21GE
R 3B20J6
3B17AC
3A33AC
BLK 2
STV 3B35 15
C4 1µF 35V
3A34AC
3A33AC
SRO 3B35 1
C5 1µF 35V
BLK2
REQIN
3A33AC
MT11 3B1 2
IR 3B6GE
R 3B4J6
T11 3A1 11
ST12ST 3B1 16
C11 1µF 35V
3B11AC
T11
3B24AC
(MSQ10) MPINC 3B3 4
IR 3B16GE
R 3B20J6
3B26AC
LSQ10 3B33 9
3A26AC
3A24AC
3A24AC
T/LR
BLK2
PINC
BFF 3A11LN
LPINC 3A1 10
MTO1 3A1 6
IR 3A6GE
R 3A4J6
3B11AC
T1
3A9AC
T1 3A2 6
(MPIPAL) MMINC 3B2 3
IR 3B21GE
R 3B20J6
3B19AC
3B22AC
AL6 SEE SHEET 2
3B17AC
MINC
BFF 3A11LN
LMINC 3A2 19
(MSQ11) MSHINC 3A2 10
IR 3A28GE
R 3A23J6
3B26AC
LSQ11 3B33 10
MGOJAM 3A1 5
IR 3A5GE
R 3A4J6
3A7AC
LGOJAM 3A1 16
REQIN 3B3 18
3B35 2
3A34AC
DRA 3A17MK
(MSQ12) MSHANC 3B3 6
IR 3B16GE
R 3B20J6
3A26AC
SHINC
BFF 3A12LN
LSHINC 3A3 1
3B26AC
LSQ12 3B33 11
3A26AC
SHANC
BFF 3A12LN
LSHANC 3A3 9
(MREQIN) MLINC 3A3 5
IR 3A29GE
R 3A23J6
3B29AC
DRA 3B31MK
LDFB 3B33 1
SKL 3B35 8
C2 1µF 35V
3B28AC
LDFB 3B33 2
STL 3B35 4
C1 1µF 35V
3A34AC
3B30AC
LDFB
REQIN
BFF 3A13LN
LLINC 3A3 11
3B35 17
SMO
C19 1µF 35V
STC
3B25AC
C14 1µF 35V
3B35 18
SRE
SNISQ 3B35 10
C3 1µF 35V
MNISQ 3A2 13
IR 3A29GE
R 3A23J6
3A32AC
NISQ
BFF 3A14LN
LNISQ 3A3 13
3B12LN
3B3 2
RDFB 3B33 7
3A33AC
3B13LN
RDFB
BFF 3A13LN
LOINC 3A3 15
3B13LN
RDFB 3B33 8
T11ST
3B27AC
3B27AC
3B27AC
SEE SHEET 2
RPTR 3B2 17
BFF 3A16LN
LRPTR 3B2 13
3B19AC
3B19AC
MIIP 3B2 11
IR 3A18GE
R 3B18J6
SIIP 3A2 15
C6 1µF 35V
3A9AC
IIP
BFF 3A15LN
LIIP 3A3 19
(MOSCAL) MCTROR 3B1 19
IR 3A18GE
R 3B18J6
3B19AC
BLK2
3B22AC
AL4 SEE SHEET 2
SCTROR 3A2 16
BLK 2
C7 1µF 35V
3A19AC
CTROR
BFF 3A15LN
LCTROR 3B2 9
3A25AC
3A11LN
INKL 3A1 14
MINKL 3A1 2
IR 3A5GE
R 3A4J6
SINKL 3A1 12
C9 1µF 35V
3A7AC
INKL
BFF 3A16LN
LINKL 3B2 10
3B15LN
LINHL 3A3 3
MINHL 3A2 4
IR 3A20GE
R 3A21J6

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
J6	RESISTOR	1020130
GE	INTERFACE RECIEVER	1014231
LN	BUFFERED FLIP-FLOP	2014001
AC	NOR	1014036
MK	DRIVER	1014123
KH	GATED FLIP-FLOP	1014072

REV STATUS OF WIREWRAP
WIREWRAP CARD
O
A
B
C
D

NOTES
1. PIN 5 ON ALL INTERFACE RECEIVERS MUST BE WIREWRAPPED TO GROUND
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCE:
1. ASSEMBLY DWG 2014336

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

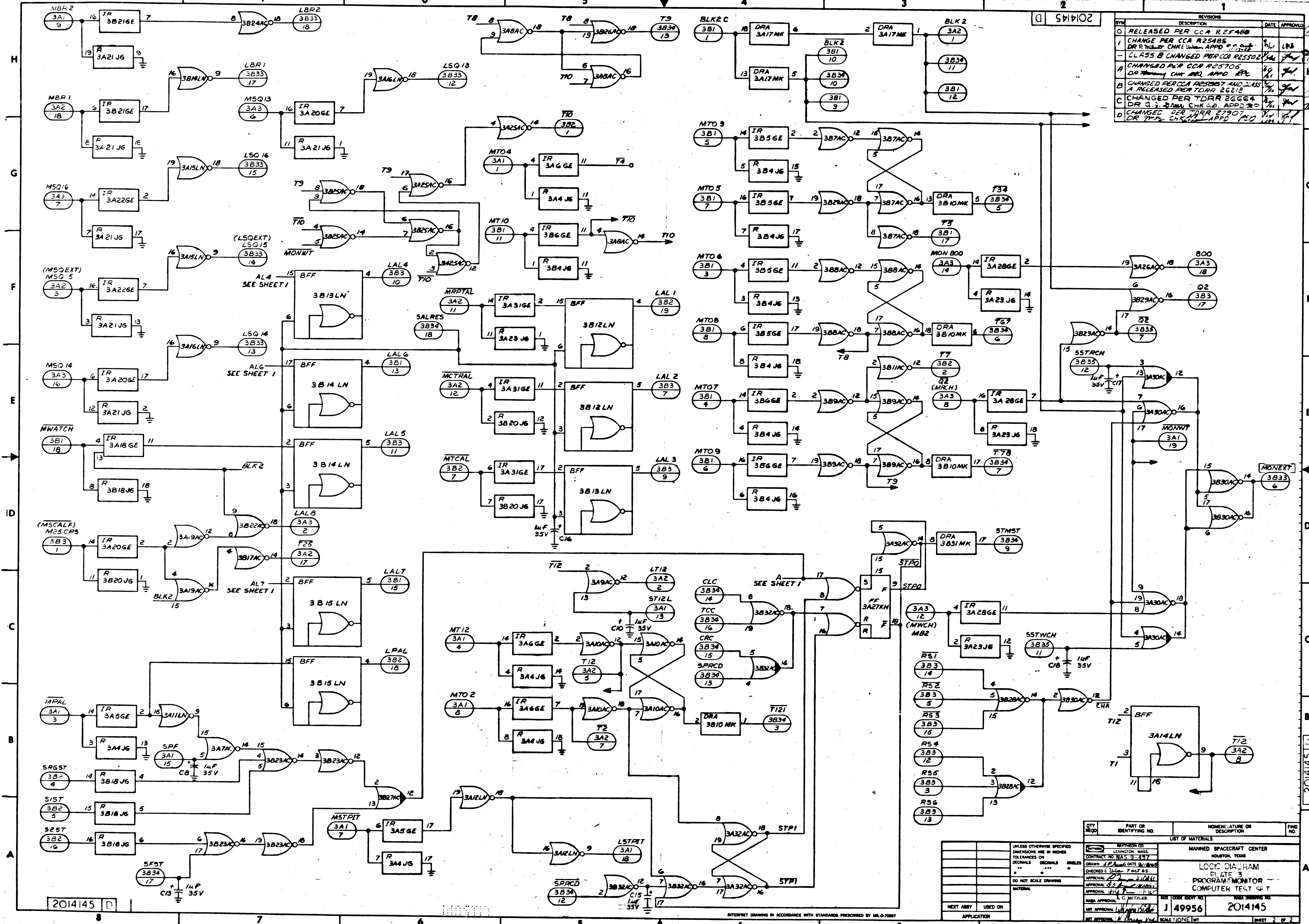
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 9/20/65
CHECKED [illegible] 7 OCT 65
APPROVAL [illegible] 27 Oct 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 15 [illegible] 66
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
PLATE 3
PROGRAM & MONITOR
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014145
SCALE NONE
WT
SHEET OF 2

2014145 D



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R 3A21JG
3B24AC
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MBR1 3A2 18
IR 3B21GE
F 3A21JG
3B14LN
LBR1 3B33 17
MSQ13 3A3 6
IR 3A20GE
R 3A21JG
3A16LN
LSQ13 3B33 12
MSQ16 3A3 7
IR 3A22GE
R 3A21JG
3A15LN
LSQ16 3B33 15
(MSQEXT) MSQ5 3A2 3
IR 3A22GE
R 3A21JG
3A15LN
(LSQEXT) LSQ15 3B33 14
MSQ14 3A3 16
IR 3A20GE
R 3A21JG
3A16LN
LSQ14 3B33 13
MWATCH 3B1 18
IR 3A18GE
R 3B18JG
BLK2
(MSCALF) M25CPS 3B3 1
IR 3A20GE
R 3B20JG
3A19AC
3B22AC
LAL8 3A3 2
3B17AC
T25 3A2 17
MPAL 3A1 3
IR 3A5GE
R 3A4JG
3A11LN
SPF 3A1 15
C8 1μF 35V
3A7AC
3B23AC
SRGST 3B2 4
R 3B18JG
S1ST 3B2 5
S2ST 3B2 16
3B27AC
SFST 3B34 17
C13 1μF 35V
T8
3A8AC
3B26AC
T9 3B34 13
T10
3A25AC
T10 3B2 1
T9
3B25AC
MONWT
3A25AC
AL4 SEE SHEET 1
BFF 3B13LN
LAL4 3B3 10
AL6 SEE SHEET 1
BFF 3B14LN
LAL6 3B1 13
BFF 3B14LN
LAL5 3B3 11
AL7 SEE SHEET 1
BFF 3B15LN
LAL7 3B1 15
BFF 3B15LN
LPAL 3B2 18
MTO4 3A1 1
IR 3A6GE
R 3A4JG
T4
MT10 3B1 11
IR 3B6GE
R 3B4JG
3A8AC
T10
MRPTAL 3A2 11
IR 3A31GE
R 3A23JG
SALRES 3B34 18
BFF 3B12LN
LAL1 3B2 19
MTCTAL 3A2 12
IR 3A31GE
R 3B20JG
BFF 3B12LN
LAL2 3B3 7
MTCAL 3B2 7
IR 3A31GE
R 3B20JG
BFF 3B13LN
LAL3 3B3 9
C16 1μF 35V
BLK2C 3B1 1
DRA 3A17MK
DRA 3A17MK
BLK2 3A2 1
BLK2 3B1 10
3B34 10
3B1 9
3B34 11
3B1 12
MTO3 3B1 5
IR 3B5GE
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3B7AC
MTO5 3B1 7
IR 3B5GE
R 3B4JG
3B29AC
DRA 3B10MK
T34 3B34 5
T3 3B1 17
MTO6 3B1 3
IR 3B5GE
R 3B4JG
3B8AC
MTO8 3B1 8
IR 3B5GE
R 3B4JG
DRA 3B10MK
T67 3B34 6
T8
3B11AC
T7 3B2 2
MTO7 3B1 4
IR 3B6GE
R 3B4JG
3B9AC
MTO9 3B1 6
IR 3B6GE
R 3B4JG
DRA 3B10MK
T78 3B34 7
T9
MON 800 3A3 14
IR 3A28GE
R 3A23JG
3A26AC
800 3A3 18
3B29AC
Q2 3B3 17
Q2 3B33 7
SSTRCH 3B35 12
C17 1μF 35V
3A30AC
Q2 (MRCH) 3A3 8
IR 3A28GE
R 3A23JG
MONWT 3A1 19
MONEXT 3B33 6
3B30AC
T12
3A9AC
LT12 3A2 2
ST12L 3A1 13
C10 1μF 35V
MT12 3A1 4
IR 3A6GE
R 3A4JG
3A10AC
T12 3A2 5
MTO2 3A1 8
IR 3A6GE
R 3A4JG
T2 3A2 7
DRA 3B10MK
T121 3B34 3
CLC 3B34 14
TCC 3B34 16
CRC 3B34 15
SPRCD 3B34 13
3B32AC
A SEE SHEET 1
FF 3A27KH
STPO
3A32AC
DRA 3B31MK
STMST 3B34 9
3A3 12 (MWCH) MB2
IR 3A28GE
R 3A23JG
SSTWCH 3B35 11
C18 1μF 35V
RS1 3B3 14
RS2 3B3 5
RS3 3B3 16
RS4 3B3 15
RS5 3B3 3
RS6 3B3 13
3B28AC
3B30AC
CHA
T12
T1
BFF 3A14LN
T12 3A2 8
3A12LN
MSTPIT 3A1 7
IR 3A5GE
R 3A4JG
LSTPIT 3A1 18
3A32AC
STP1
SPRCD 3B34 12
3B32AC
C15 1μF 35V
3B32AC
3A32AC
STP1
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8 7 6 5 4 3 2 1
H G F E D C B A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
1	CHANGE PER CCA R25485 DR P. Milner CHK E Urban APPD [illegible] 11-12-65	[illegible]	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25706 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	[illegible]	[illegible]
C	CHANGED PER TDRR 26664 DR Q. J. Green CHK C.D. APPD [illegible]	[illegible]	[illegible]
D	CHANGED PER TDRR 27907 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN S P [illegible] DATE 9/1/65
CHECKED E Urban 7 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL L. C. METZLER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
PLATE 3
PROGRAM & MONITOR
COMPUTER TEST SET

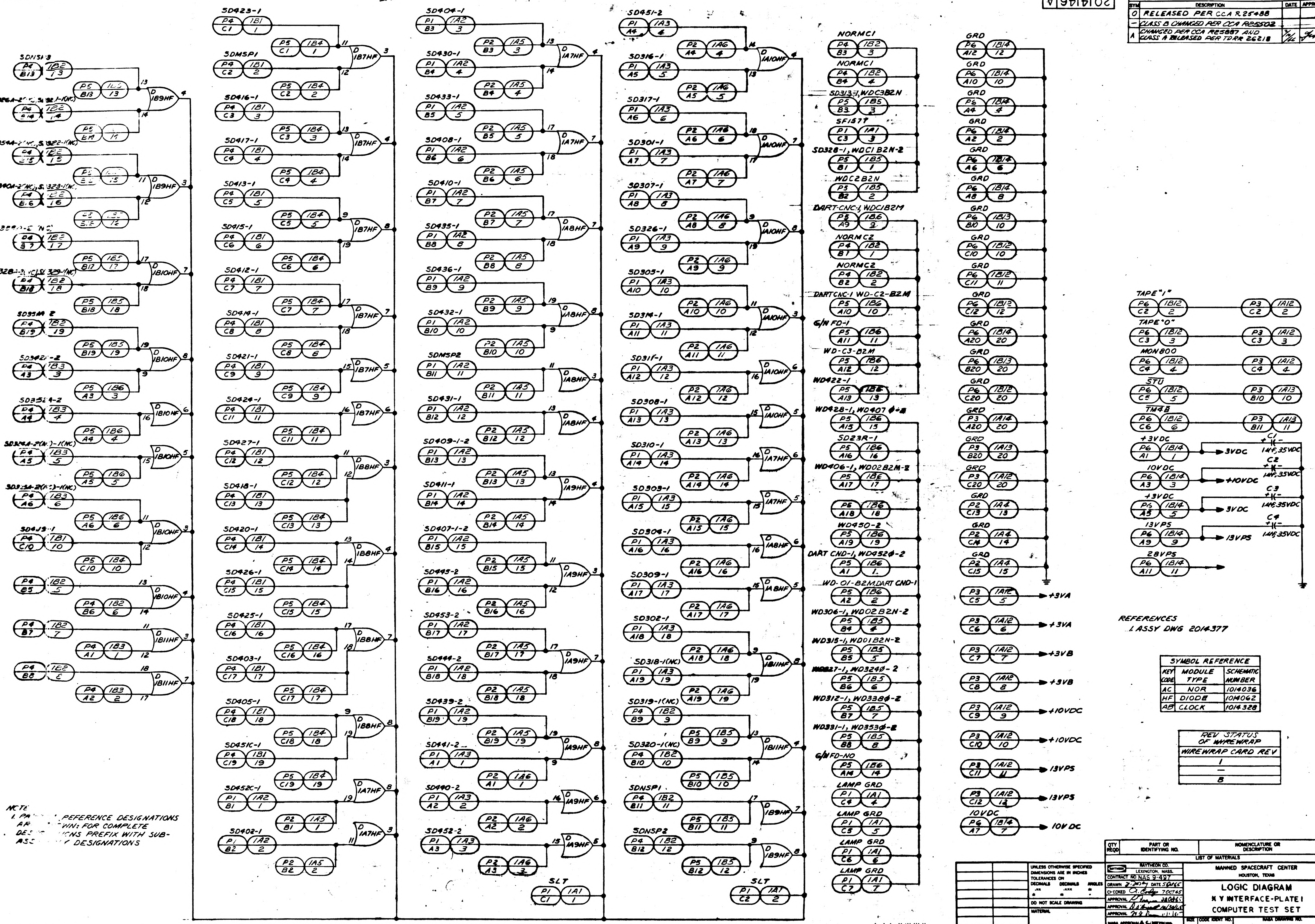
SIZE J CODE IDENT NO. 49956 NASA DRAWING NO. 2014145
SCALE NONE WT SHEET 2 OF 2

2014145 D

2014145 D

2014146 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	3/11/66	



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SD405-1
SD451C-1
SD452C-1
SD402-1
SD404-1
SD430-1
SD433-1
SD408-1
SD410-1
SD435-1
SD436-1
SD432-1
SDMSP2
SD431-1
SD409-1-2
SD411-1
SD407-1-2
SD445-2
SD453-2
SD444-2
SD439-2
SD441-2
SD440-2
SD452-2
SD451-2
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SD317-1
SD301-1
SD307-1
SD326-1
SD305-1
SD314-1
SD311-1
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SD310-1
SD309-1
SD306-1
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SD302-1
SD318-1(NC)
SD319-1(NC)
SD320-1(NC)
SDNSP1
SDNSP2
SLT
NORMC1
SD313-1, WDC3B2N
SF1577
SD328-1, WDC1 B2N-2
WDC2B2N
DART-CNC-1, WDC1B2M
NORM C2
NORMC2
DART CNC-1 WD-C2-B2M
G/N FD-1
WD-C3-B2M
WD422-1
WD428-1, WD407
SD23R-1
WD406-1, WD02 B2M-2
WD450-2
DART CND-1, WD452-2
WD-01-B2M, DART CND-1
WD306-1, WD02 B2N-2
WD315-1, WD01 B2N-2
WD327-1, WD324-2
WD312-1, WD338-2
WD331-1, WD333-2
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GRD
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TAPE "0"
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STU
TM48
+3VDC
10VDC
13VPS
28VPS
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C2 14F, 35VDC
C3 14F, 35VDC
C4 14F, 35VDC
3VDC
+10VDC
13VPS
+3VA
+3VB
+10VDC
13VPS
10V DC
1B9HF
1B10HF
1B11HF
1B7HF
1B8HF
1A7HF
1A8HF
1A9HF
1A10HF
1B11HF
1B9HF

NOTE
1. PA[illegible] REFERENCE DESIGNATIONS AR[illegible]WN: FOR COMPLETE DES[illegible]NS PREFIX WITH SUB-ASS[illegible] DESIGNATIONS

REFERENCES
1. ASSY DWG 2014377

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
AC	NOR	1014036
HF	DIODE	1014062
AB	CLOCK	1014328

REV STATUS OF WIREWRAP
WIREWRAP CARD REV
1
—
B

2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. Dossey DATE 5 Oct 65
CHECKED A. Cody 7 OCT 65
APPROVAL 28 Oct 65
APPROVAL 10/30/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 2/1/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
X Y INTERFACE-PLATE I
COMPUTER TEST SET

SIZE J CODE IDENT NO. 49956 NASA DRAWING NO. 2014146
SCALE NONE WT SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

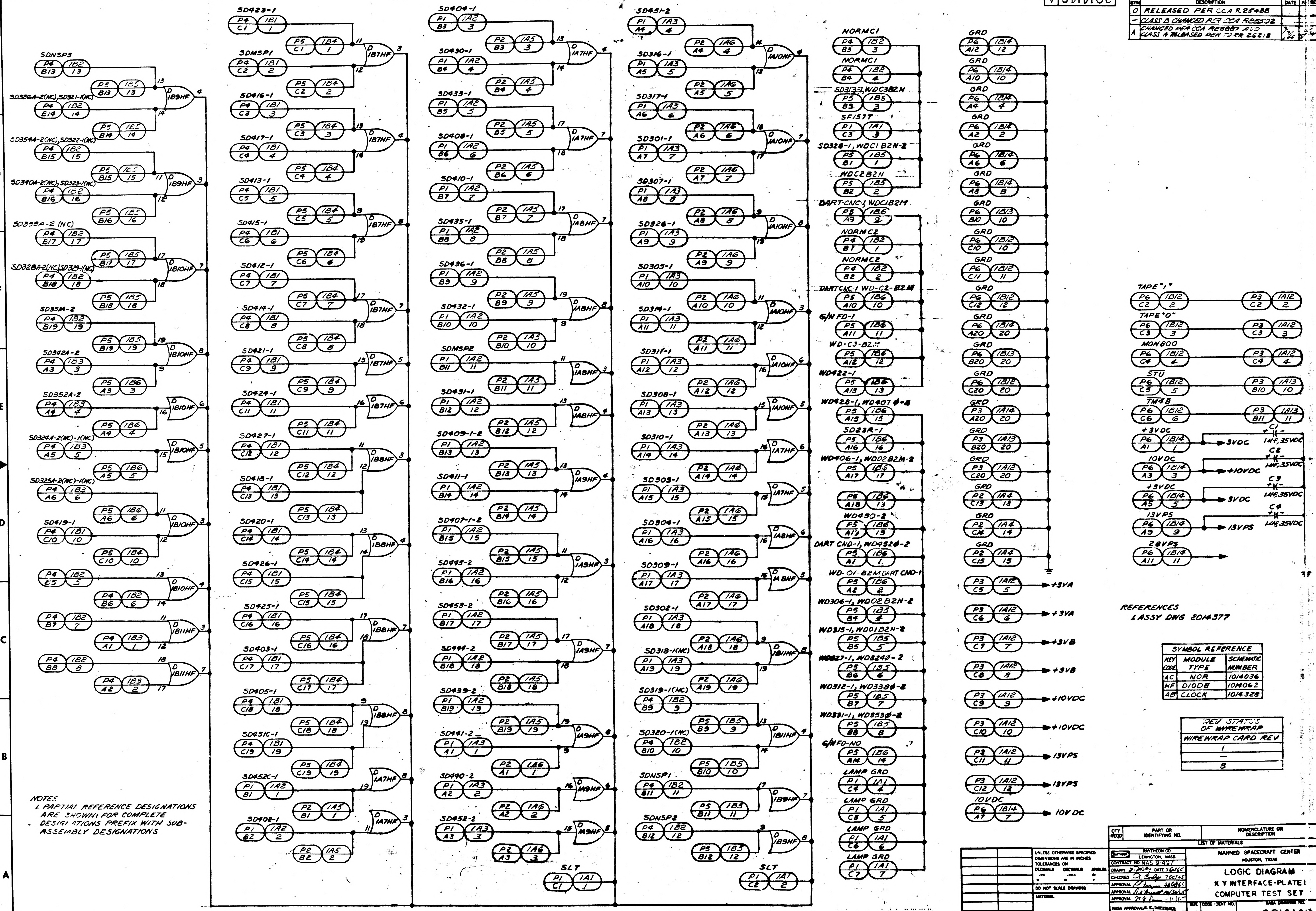
MASTER

2014146 A

2014146 A

F-2

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25488		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	3/1/66	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SD354A-2(NC),SD322-1(NC)
SD340A-2(NC),SD323-1(NC)
SD355A-2 (NC)
SD328A-2(NC),SD329-1(NC)
SD351A-2
SD342A-2
SD352A-2
SD324A-2(NC)-1(NC)
SD325A-2(NC)-1(NC)
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SD423-1
SDMSP1
SD416-1
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SD319-1(NC)
SD320-1(NC)
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SDNSP2
SLT
NORMC1
SD313-1,WDC3B2N
SF1577
SD328-1,WDC1B2N-2
WDC2B2N
DART-CNC-1,WDC1B2M
NORMC2
DART-CNC-1 WD-C2-B2M
G/N FD-1
WD-C3-B2M
WD422-1
WD428-1,WD407 0-2
SD23R-1
WD406-1,WD02B2M-2
WD450-2
DART CND-1,WD4520-2
WD-01-B2M,DART CND-1
WD306-1,WD02B2N-2
WD315-1,WD01B2N-2
WD327-1,WD3240-2
WD312-1,WD3380-2
WD331-1,WD3530-2
G/N FD-NO
LAMP GRD
GRD
+3VA
+3VB
+10VDC
13VPS
10VDC
10V DC
TAPE "1"
TAPE "0"
MON800
STU
TM48
+3VDC
10VDC
13VPS
28VPS
3VDC
+10VDC
C1 14F,35VDC
C2 14F,35VDC
C3 14F,35VDC
C4 14F,35VDC
IB9HF
IB10HF
IB11HF
IB7HF
IB8HF
IA7HF
IA8HF
IA9HF
IA10HF
IA11HF
P1 P2 P3 P4 P5 P6

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCES
1. ASSY DWG 2014377

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
AC	NOR	1014036
HF	DIODE	1014062
AB	CLOCK	1014328

REV STATUS OF WIREWRAP
WIREWRAP CARD REV
1
—
B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
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RAYTHEON CO.
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CONTRACT NO. NAS 9-497
DRAWN J. Dozey DATE 5 Oct 65
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APPROVAL
NASA APPROVAL A. C. Metzger
MIT APPROVAL
MIT APPROVAL Afarano 3/1/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
X Y INTERFACE-PLATE I
COMPUTER TEST SET

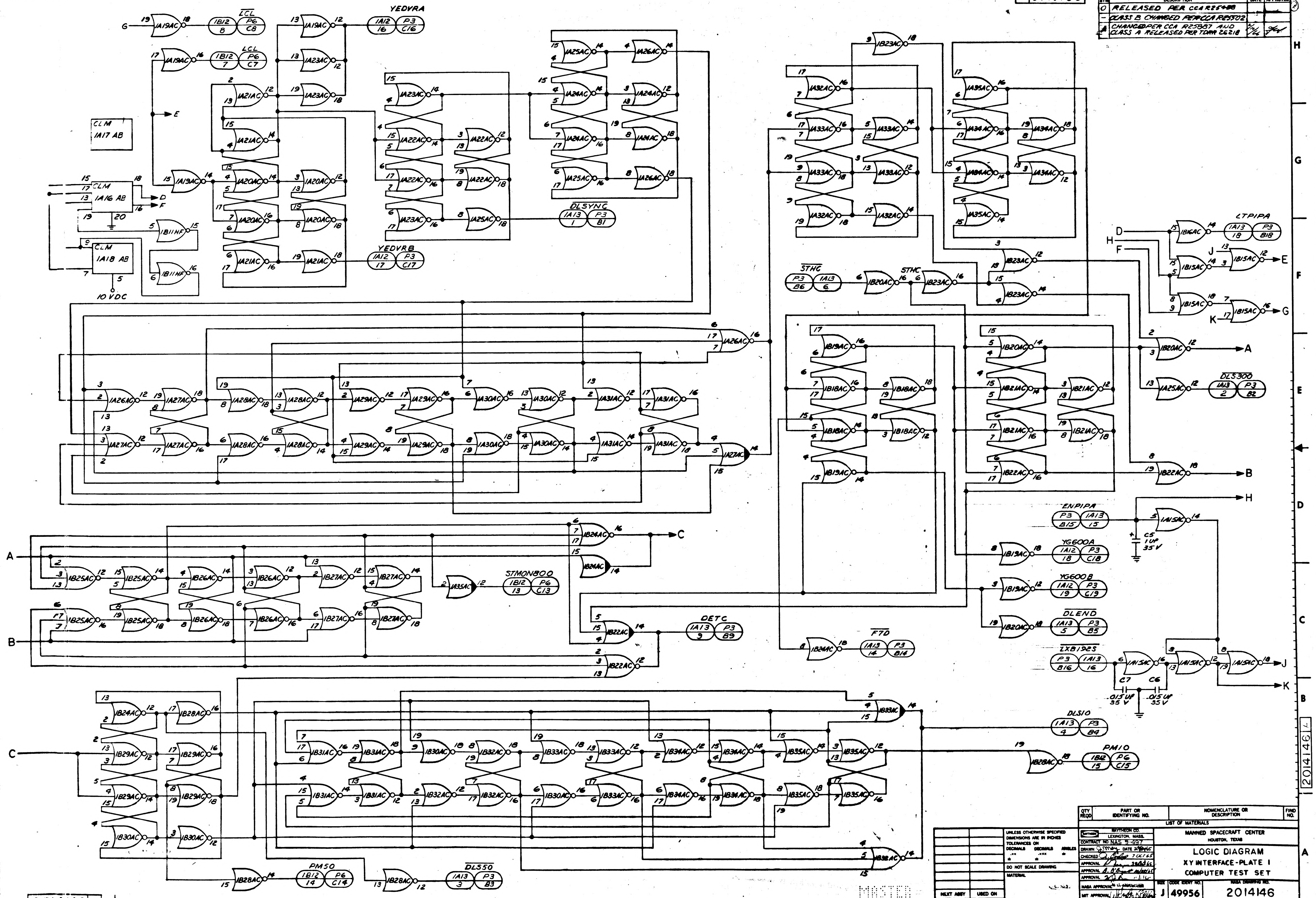
SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014146
SCALE NONE
WT
SHEET
OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014146 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
-	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/3/66	



8 7 6 5 4 3 2 1
H G F E D C B A
CLM 1A17 AB
CLM 1A16 AB
CLM 1A18 AB
10 VDC
LCL 1B12 8 P6 C8
LCL 1B12 7 P6 C7
YEDVRA 1A12 16 P3 C16
YEDVRB 1A12 17 P3 C17
DLSYNC 1A13 1 P3 B1
STHC P3 B6 1A13 6
STHC
LTPIPA 1A13 18 P3 B18
DLS300 1A13 2 P3 B2
ENPIPA P3 B15 1A13 15
C5 1 UF 35 V
YG600A 1A12 18 P3 C18
YG600B 1A12 19 P3 C19
DLEND 1A13 5 P3 B5
ZXB192S P3 B16 1A13 16
C7 .015 UF 35 V
C6 .015 UF 35 V
F7D 1A13 14 P3 B14
DETC 1A13 9 P3 B9
STMON800 1B12 13 P6 C13
DLS10 1A13 4 P3 B4
PM10 1B12 15 P6 C15
PM50 1B12 14 P6 C14
DL550 1A13 3 P3 B3
A B C D E F G H J K

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. May DATE 29 Sep 65
CHECKED 7 OCT 65
APPROVAL 20 Oct 65
APPROVAL A. O'Bryant 10/20/65
APPROVAL 1.1.66
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 2/3/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
XY INTERFACE-PLATE I
COMPUTER TEST SET

SIZE J CODE IDENT NO. 49956 NASA DRAWING NO. 2014146
SCALE NONE WT SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014146 A

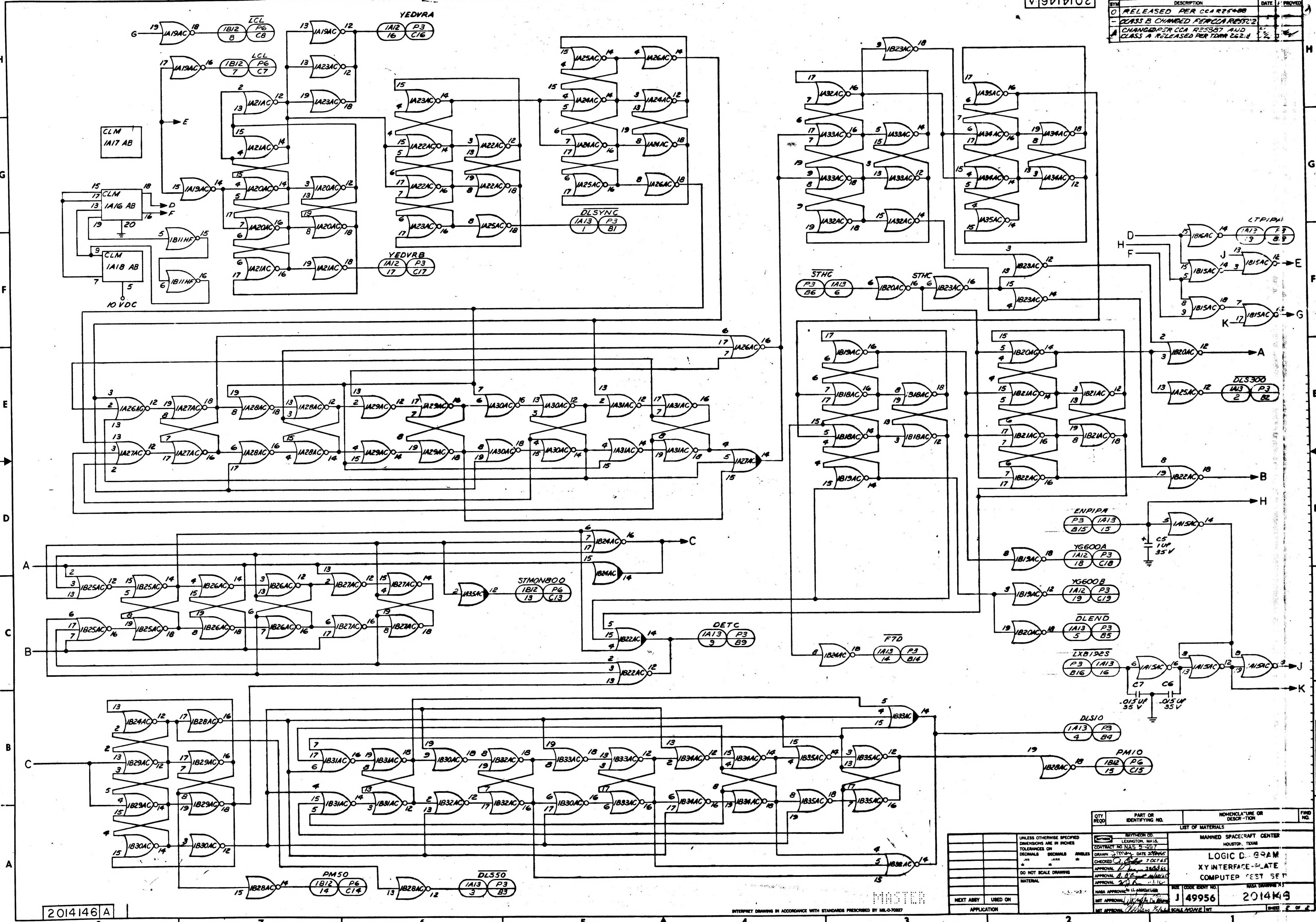
2014146 A

2H

E-2

2014146 A

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25488		
–	CLASS B CHANGED PER CCA R25322		
A	CHANGED PER CCA R25387 AND CLASS A RELEASED PER TDRR 2628	2/2/66	


G
1A19AC
1B12 8
P6 C8
LCL
1B12 7
P6 C7
YEDVRA
1A12 16
P3 C16
1A23AC
1A21AC
1A20AC
1A22AC
1A25AC
1A24AC
1A26AC
DLSYNC
1A13 1
P3 B1
YEDVRB
1A12 17
P3 C17
E
CLM 1A17 AB
CLM 1A16 AB
D
F
1B11HF
CLM 1A18 AB
10 VDC
1B23AC
1A32AC
1A33AC
1A35AC
1A34AC
STHC
P3 B6
1A13 6
1B20AC
1B16AC
LTPIPA
1A13 :9
P3 B8
1B15AC
H
J
K
1A27AC
1A28AC
1A29AC
1A30AC
1A31AC
1B19AC
1B18AC
1B21AC
1B22AC
A
1A25AC
DLS300
1A13 2
P3 B2
B
ENPIPA
P3 B15
1A13 15
1A15AC
C5 1 UF 35 V
YG600A
1A12 18
P3 C18
YG600B
1A12 19
P3 C19
DLEND
1A13 5
P3 B5
LXB192S
P3 B16
1A13 16
C7 .015 UF 35 V
C6 .015 UF 35 V
1A15AC
1A16AC
1B24AC
1B25AC
1B26AC
1B27AC
1A35AC
STMON800
1B12 13
P6 C13
DETC
1A13 9
P3 B9
F7D
1A13 14
P3 B14
1B22AC
1B28AC
1B29AC
1B30AC
1B31AC
1B32AC
1B33AC
1B34AC
1B35AC
DLS10
1A13 4
P3 B4
PM10
1B12 15
P6 C15
PM50
1B12 14
P6 C14
DLS50
1A13 3
P3 B3
MASTER
8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A

2014146 A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. May DATE 29 Sep 65
CHECKED A. Cobb 7 OCT 65
APPROVAL 29 Oct 65
APPROVAL A. O'Brien 10/28/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

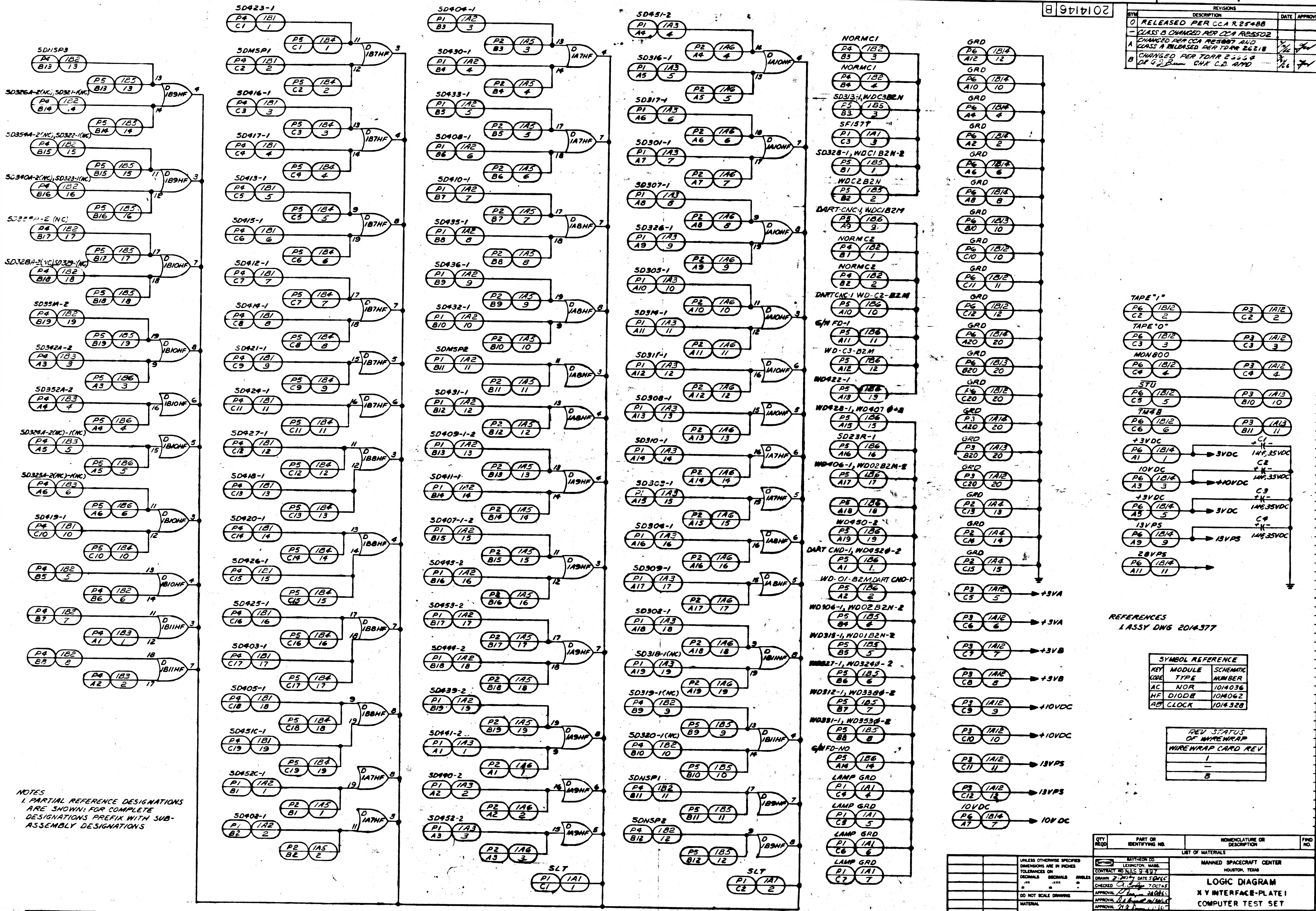
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
XY INTERFACE-PLATE
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014146
SCALE NONE
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	
B	CHANGED PER TDRR 26664 DR G.J. Bum CHK C.D. APPD	3/4/66	



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SD354A-2(NC), SD322-1(NC)
SD340A-2(NC), SD323-1(NC)
SD328A-2 (NC)
SD328A-2(NC) SD329-(NC)
SD351A-2
SD342A-2
SD352A-2
SD324A-2(NC)-1(NC)
SD325A-2(NC)-1(NC)
SD419-1
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1B9HF
1B10HF
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SD416-1
SD417-1
SD413-1
SD415-1
SD412-1
SD414-1
SD421-1
SD424-1
SD427-1
SD418-1
SD420-1
SD426-1
SD425-1
SD403-1
SD405-1
SD451C-1
SD452C-1
SD402-1
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1B8HF
1A7HF
SD404-1
SD430-1
SD433-1
SD408-1
SD410-1
SD435-1
SD436-1
SD432-1
SDMSP2
SD431-1
SD409-1-2
SD411-1
SD407-1-2
SD445-2
SD453-2
SD444-2
SD439-2
SD441-2
SD440-2
SD452-2
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1A8HF
1A9HF
SLT
SD451-2
SD316-1
SD317-1
SD301-1
SD307-1
SD326-1
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SD314-1
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SDNSP1
SDNSP2
1A10HF
1A7HF
1A8HF
1B11HF
1B9HF
SLT
NORMC1
NORMC1
SD313-1, WDC3B2N
SF1577
SD328-1, WDC1B2N-2
WDC2B2N
DART CNC-1, WDC1B2M
NORMC2
NORMC2
DART CNC-1 WD-C2-B2M
G/N FD-1
WD-C3-B2M
WD422-1
WD428-1, WD407
SD23R-1
WD406-1, WD02B2M-2
WD430-2
DART CND-1, WD452-2
WD-01-B2M DART CND-1
WD306-1, WD002B2N-2
WD315-1, WD001B2N-2
WD327-1, WD324-2
WD312-1, WD338-2
WD331-1, WD333-2
G/N FD-NO
LAMP GRD
LAMP GRD
LAMP GRD
LAMP GRD
GRD
+3VA
+3VA
+3VB
+3VB
+10VDC
+10VDC
13VPS
13VPS
10VDC
10V DC
TAPE "1"
TAPE "0"
MON 800
STU
TM48
+3VDC
10VDC
+3VDC
13VPS
28VPS
3VDC
+10VDC
3VDC
13VPS
C1 14¢,35VDC
C2 14¢,35VDC
C3 14¢,35VDC
C4 14¢,35VDC

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCES
1 ASSY DWG 2014377

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
AC	NOR	1014036
HF	DIODE	1014062
AB	CLOCK	1014328

REV STATUS OF WIREWRAP
WIREWRAP CARD REV
1
—
B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. D. Day DATE 5 Oct 65
CHECKED A. Codge 7 OCT 65
APPROVAL 21 Oct 65
APPROVAL 10/30/65
APPROVAL
NASA APPROVAL A. C.
MIT APPROVAL
MIT APPROVAL A. Guarano 3/1/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

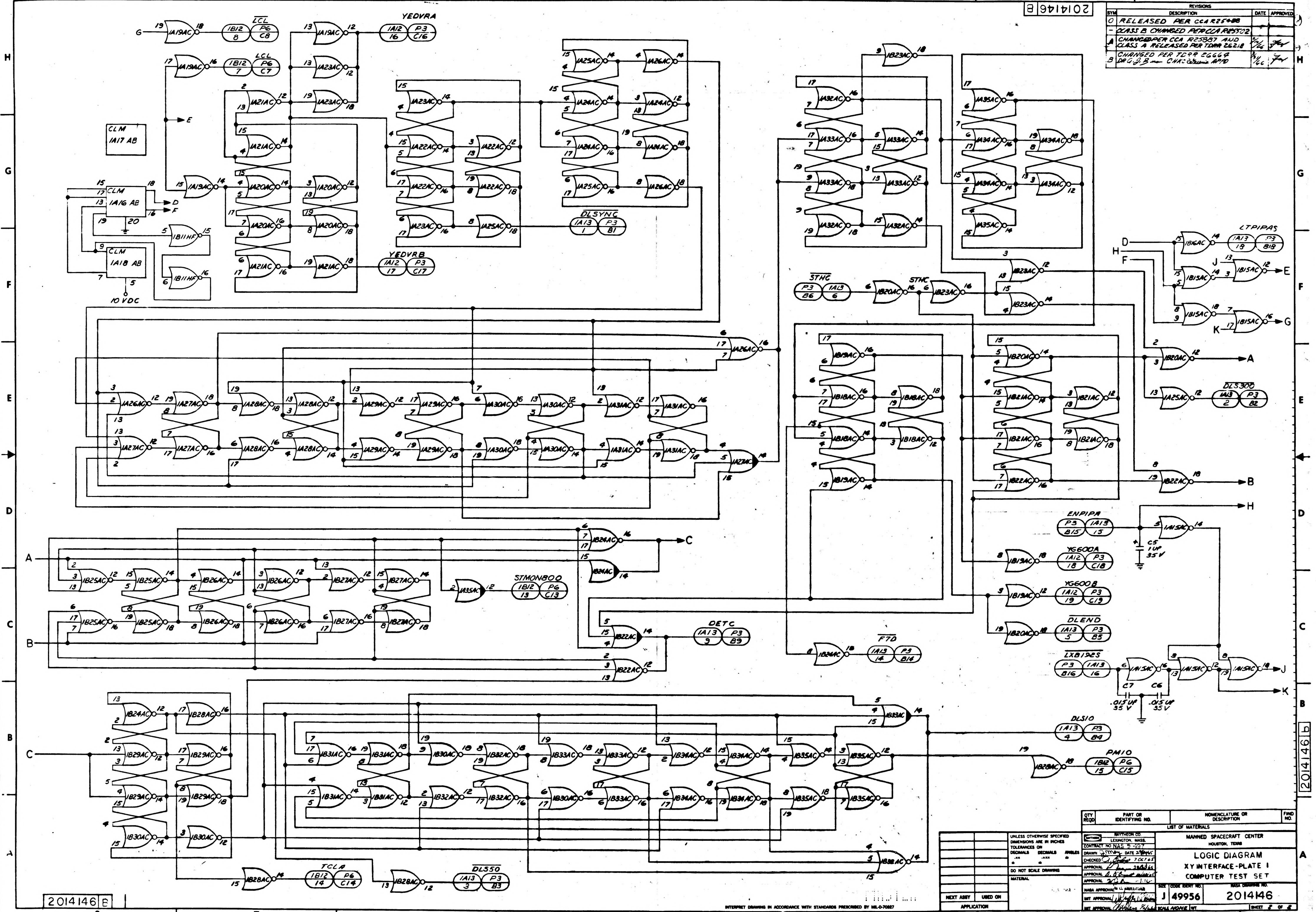
LOGIC DIAGRAM
X Y INTERFACE-PLATE I
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014146
SCALE NONE WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014146 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
-	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	
B	CHANGED PER TDRR 26664 DR G.J.B. CHK APPD	3/31/66	



YEDVRA
LCL
1B12 8 P6 C8
1B12 7 P6 C7
1A12 16 P3 C16
CLM 1A17 AB
CLM 1A16 AB
CLM 1A18 AB
10 VDC
D
E
F
G
DLSYNC
1A13 1 P3 B1
YEDVRB
1A12 17 P3 C17
STHC
P3 B6 1A13 6
LTPIPAS
1A13 19 P3 B18
DLS300
1A13 2 P3 B2
ENPIPA
P3 B15 1A13 15
C5 1 UF 35 V
YG600A
1A12 18 P3 C18
YG600B
1A12 19 P3 C19
DLEND
1A13 5 P3 B5
LXB192S
P3 B16 1A13 16
C7 .015 UF 35 V
C6 .015 UF 35 V
STMON800
1B12 13 P6 C13
DETC
1A13 9 P3 B9
F7D
1A13 14 P3 B14
DLS10
1A13 4 P3 B4
PM10
1B12 15 P6 C15
TCLA
1B12 14 P6 C14
DLS50
1A13 3 P3 B3
A
B
C
H
J
K

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN J. May DATE 29 Sep 65
CHECKED A. Cohen 7 OCT 65
APPROVAL 28 Oct 65
APPROVAL A. O'Connor
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
XY INTERFACE-PLATE I
COMPUTER TEST SET

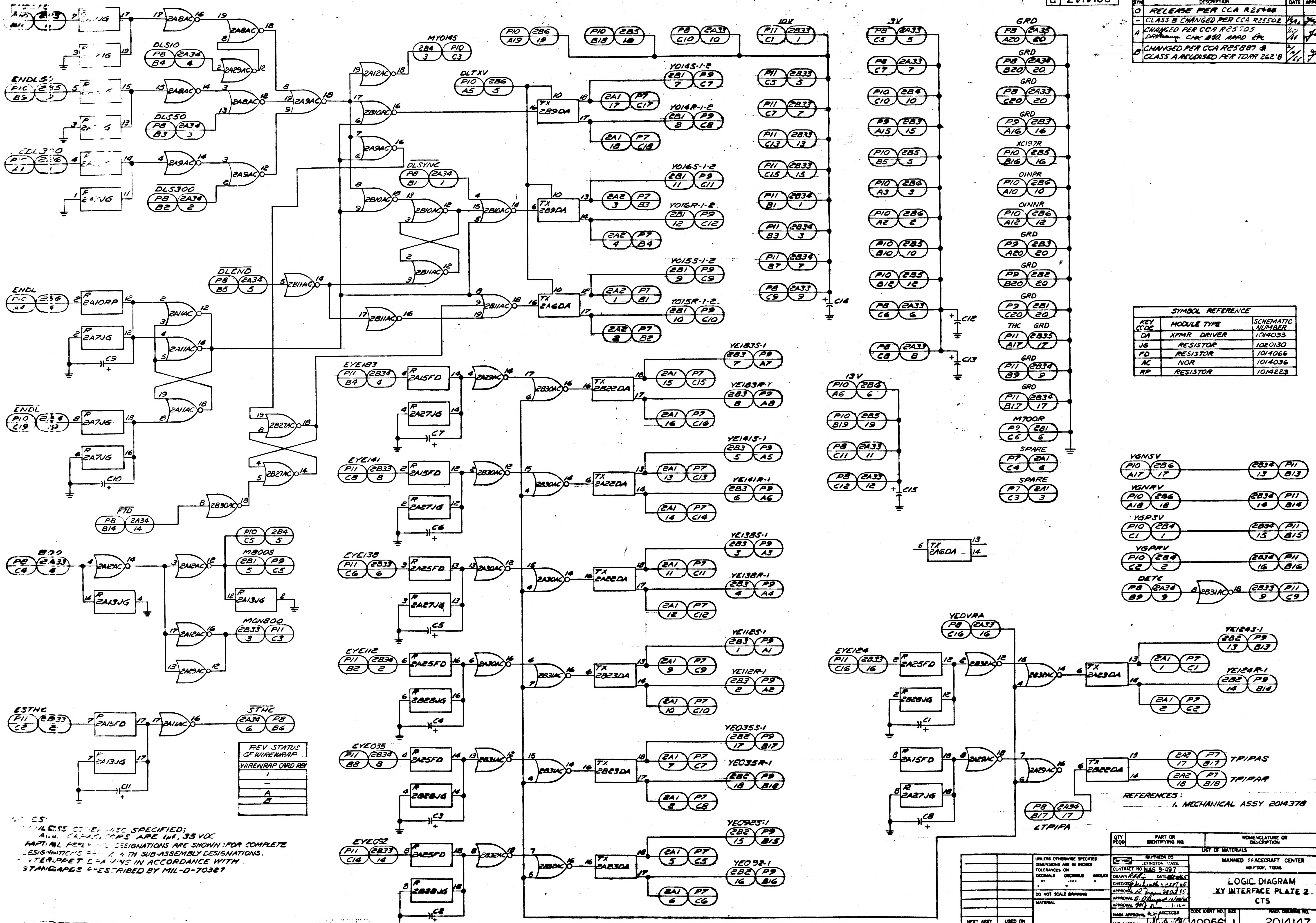
SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014146
SCALE NONE
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014146 B

2014146 B

SYM	DESCRIPTION	DATE	APPROVEL
O	RELEASE PER CCA R25488		
–	CLASS B CHANGED PER CCA R25502	1/4/66	
A	CHANGED PER CCA R25705 DR CHK BGQ APPD	1/15/66	
B	CHANGED PER CCA R25887 & CLASS A RELEASED PER TDRR 262'8	2/11/66	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P8 B4 2A34 4
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DLS50
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DLS300
P8 B2 2A34 2
MY014S
2B4 3 P10 C3
DLTXV
P10 A5 2B6 5
DLSYNC
P8 B1 2A34 1
DLEND
P8 B5 2A34 5
ENDL
ENDL
P10 C19
FTD
P8 B14 2A34 14
B800
P8 C4 2A33 8
M800S
2B1 5 P9 C5
P10 C5 2B4 5
MGN800
2B33 3 P11 C3
ESTHC
P11 C2
STHC
2A34 6 P8 B6
REV STATUS OF WIREWRAP
WIREWRAP CARD REV
1
–
A
B
Y014S-1-2
Y014R-1-2
Y016S-1-2
Y016R-1-2
Y015S-1-2
Y015R-1-2
EYE183
YE183S-1
YE183R-T
EYE141
YE141S-1
YE141R-1
EYE138
YE138S-1
YE138R-1
EYE112
YE112S-1
YE112R-1
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YE092S-1
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3V
13V
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XC197R
OINPR
OINNR
THC
M700R
SPARE
YGNSV
YGNRV
YGPSV
YGPRV
DETC
YEDVRA
EYE124
YE124S-1
YE124R-1
TPIPAS
TPIPAR
LTPIPA
P8 B17 2A34 17
2B9DA
2B9DA
2A6DA
2B22DA
2A22DA
2A22DA
2B23DA
2B23DA
2A23DA
2A23DA
2B22DA
2A6DA
C12
C13
C14
C15

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
DA	XFMR DRIVER	1014033
JG	RESISTOR	1020130
FD	RESISTOR	1014066
AC	NOR	1014036
RP	RESISTOR	1014223

REFERENCES:
1. MECHANICAL ASSY 2014378

NOTES:
UNLESS OTHERWISE SPECIFIED;
ALL CAPACITORS ARE 1μf, 35 VDC
PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS.
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .xx ± DECIMALS .xxx ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 65
CHECKED 21 SEPT 65
APPROVAL 28 Oct 65
APPROVAL A. O'Brien 11/29/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

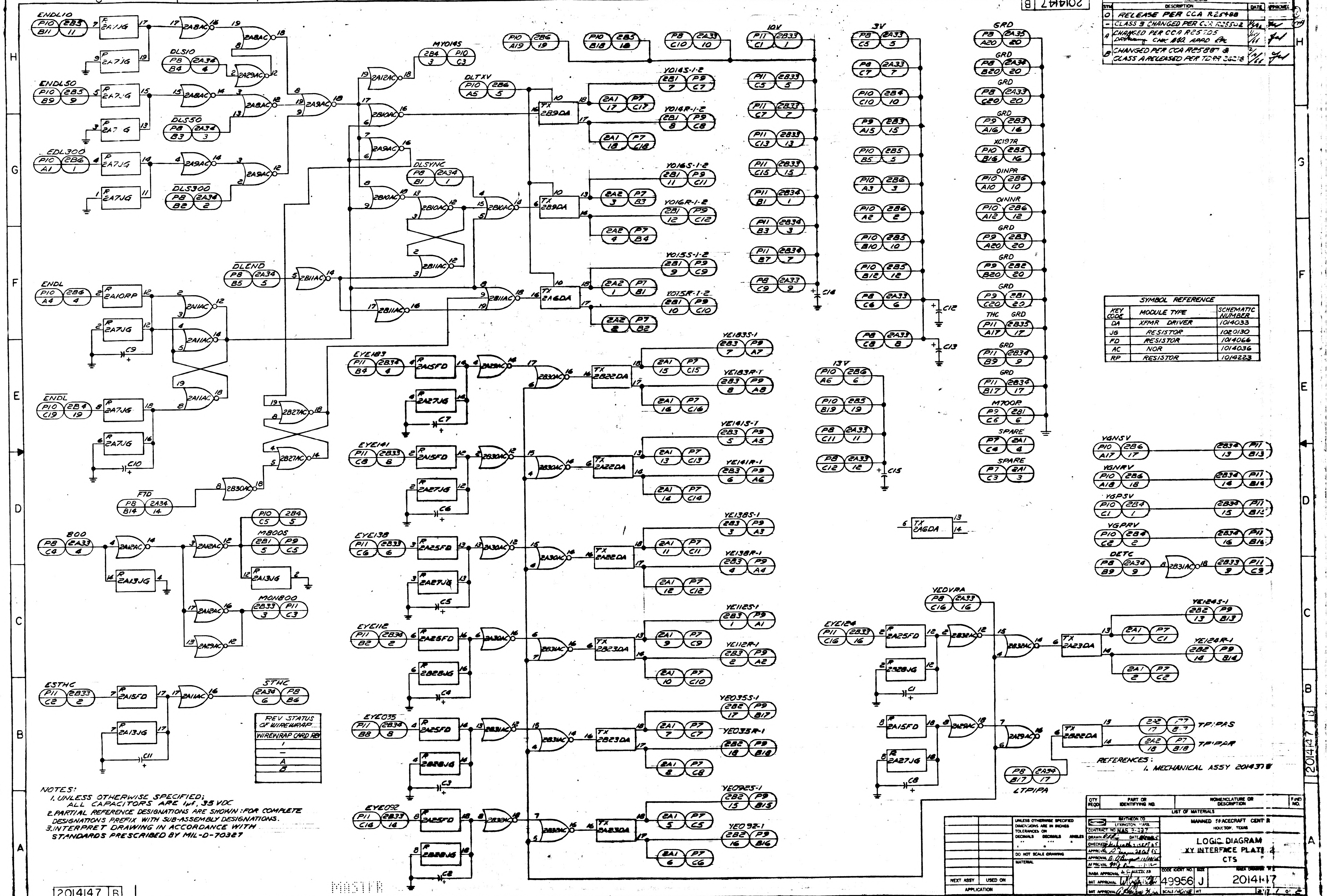
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
XY INTERFACE PLATE 2
CTS

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014147
SCALE NONE
WT
SHEET 1 OF 2

2H

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVEL
0	RELEASE PER CCA R25488		
-	CLASS 3 CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 DR CHK BGQ APPD	1/45/66	
B	CHANGED PER CCA R25887 & CLASS A RELEASED PER TDRR 26218	2/16/66	


ENDLIO
DLSIO
ENDLSO
DLSSO
EDL300
DLS300
MYO14S
DLTXV
DLSYNC
DLEND
ENDL
ENDL
F7D
800
M800S
MON800
ESTHC
STHC
10V
3V
GRD
XC197R
OINPR
OINNR
THC
M700R
SPARE
13V
YO14S-1-2
YO14R-1-2
YO16S-1-2
YO16R-1-2
YO15S-1-2
YO15R-1-2
EYE183
YE183S-1
YE183R-1
EYE141
YE141S-1
YE141R-1
EYE138
YE138S-1
YE138R-1
EYE112
YE112S-1
YE112R-1
EYE035
YE035S-1
YE035R-1
EYE092
YE092S-1
YE092R-1
YGNSV
YGNRV
YGPSV
YGPRV
DETC
YEDVRA
EYE124
YE124S-1
YE124R-1
TP:PAS
TP:PAR
LTPIPA
MASTER

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
DA	XFMR DRIVER	1014033
JG	RESISTOR	1020130
FD	RESISTOR	1014066
AC	NOR	1014036
RP	RESISTOR	1014223

REV STATUS OF WIREWRAP
WIREWRAP CARD REV
1
—
A
B

NOTES:

1. UNLESS OTHERWISE SPECIFIED; ALL CAPACITORS ARE 1µf, 35 VDC
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS.
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REFERENCES:
1. MECHANICAL ASSY 2014378

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

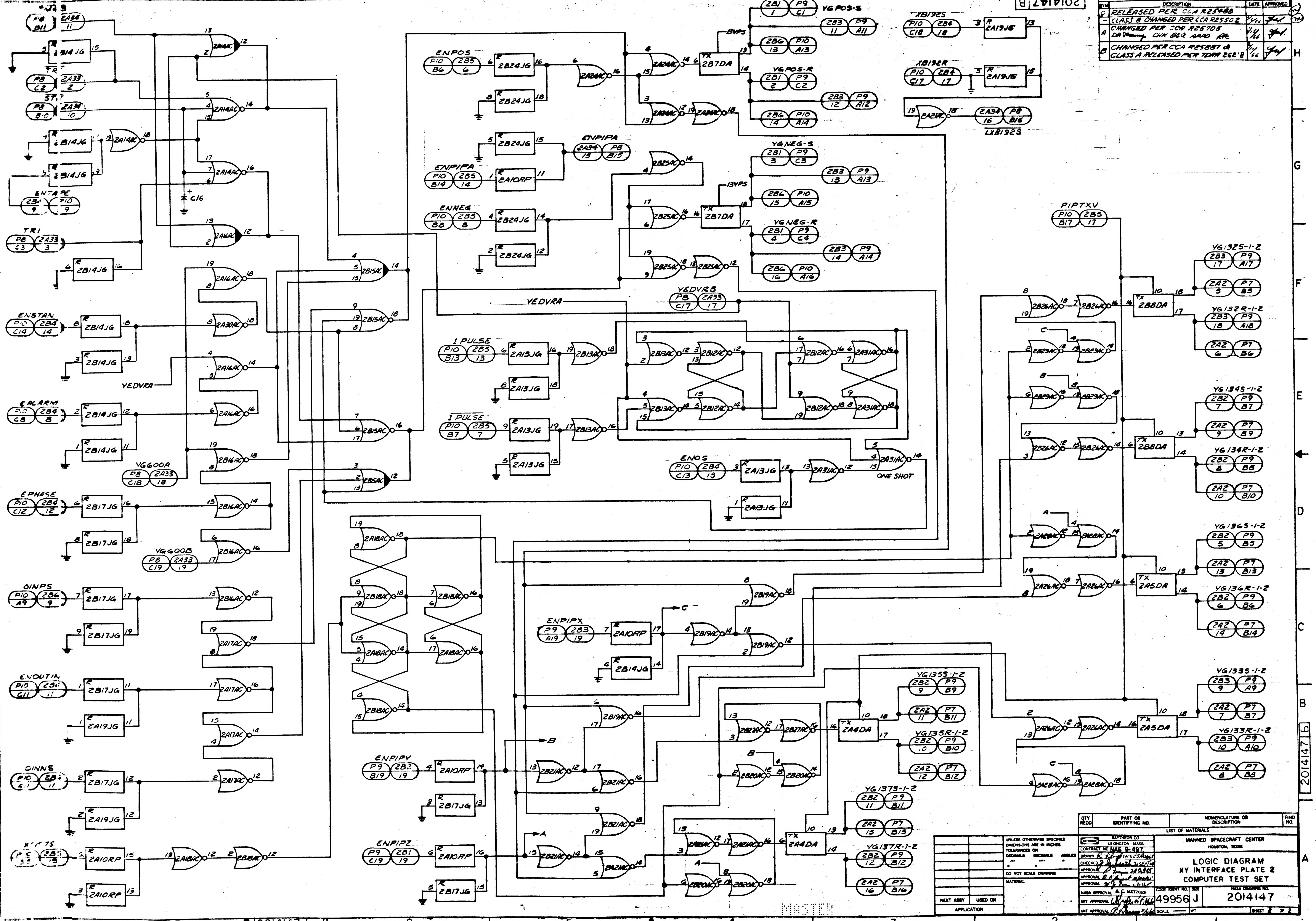
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-337
DRAWN R. F. DATE 1965
CHECKED 21 SEPT 65
APPROVAL 28 Oct 65
APPROVAL D. O'Bry 11/30/65
APPROVAL 11/16
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
XY INTERFACE PLATE 2
CTS

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014147
SCALE NONE
WT
SHEET 1 OF 2



2014147 B
ENPOS
ENPIPA
ENNEG
1 PULSE
YEDVRA
YEDVRB
ENOS
ONE SHOT
XB192S
XB192R
LXB192S
YGPOS-S
YGPOS-R
YGNEG-S
YGNEG-R
13VPS
TRI
ENTAPE
ENSTAN
EALARM
EPHASE
OINPS
EVOUTIN
OINNS
YG600A
YG600B
ENPIPX
ENPIPY
ENPIPZ
PIPTXV
YG132S-1-2
YG132R-1-2
YG134S-1-2
YG134R-1-2
YG136S-1-2
YG136R-1-2
YG133S-1-2
YG133R-1-2
YG135S-1-2
YG135R-1-2
YG137S-1-2
YG137R-1-2
C16
MASTER

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
-	CLASS B CHANGED PER CCA R25502	1/4/66	
A	CHANGED PER CCA R25705 DR CHK BGQ APPD	1/15/66	
B	CHANGED PER CCA R25887 & CLASS A RELEASED PER TDRR 262'8	2/10/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. Kloss DATE 25AUG65
CHECKED 21SEPT65
APPROVAL 20OCT65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
XY INTERFACE PLATE 2
COMPUTER TEST SET

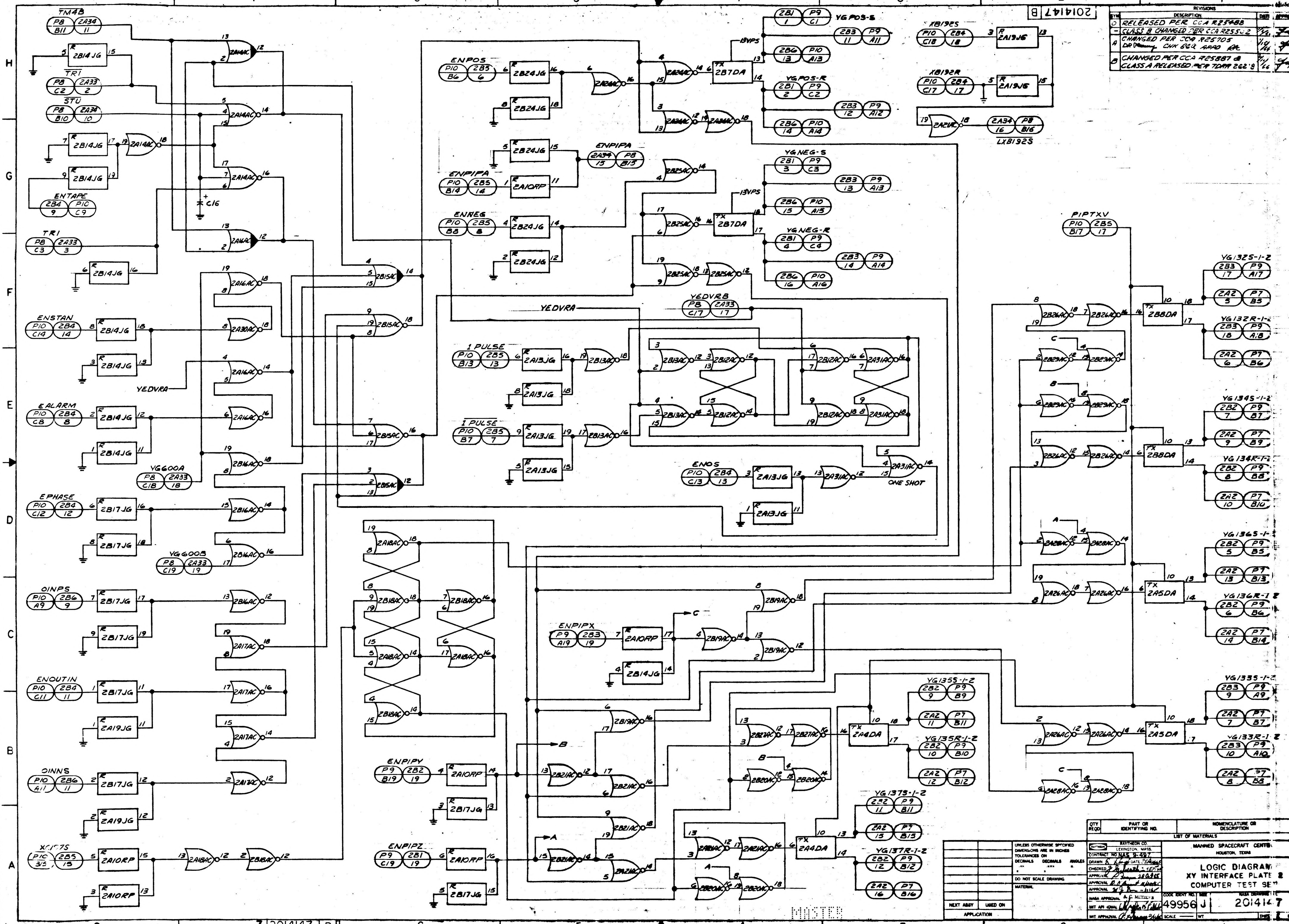
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014147
SCALE — WT SHEET 2 OF 2

2014147 B

24

2014147 B

SYM	DESCRIPTION	DATE	APPROVAL
O	RELEASED PER CCA R25488		
-	CLASS B CHANGED PER CCA R255?2	9/4/65	
A	CHANGED PER CCA R25705 DR CHK 8GQ APPD RAC	1/18/66	
B	CHANGED PER CCA R25887 & CLASS A RELEASED PER TDRR 262'8	2/11/66	



TM4B
P8 B11 2A34 11
2B14JG
TRI
P8 C2 2A33 2
STU
P8 B10 2A34 10
2A14AC
ENTAPE
2B4 9 P10 C9
C16
TRI
P8 C3 2A33 3
ENSTAN
P10 C14 2B4 14
2B14JG
YEDVRA
EALARM
P10 C8 2B4 8
YG600A
P8 C18 2A33 18
EPHASE
P10 C12 2B4 12
2B17JG
YG600B
P8 C19 2A33 19
OINPS
P10 A9 2B6 9
OINNS
P10 A11 2B6 11
ENOUTIN
P10 C11 2B4 11
XB192S
P10 C18 2B4 18
XB192R
P10 C17 2B4 17
2A19JG
2A34 16 P8 B16
LXB192S
X1192S
P10 3/5 2B5 15
2A10RP
2A18AC
2B18AC
2B15AC
2B16AC
2A16AC
2A17AC
2B17AC
ENPOS
P10 B6 2B5 6
2B24JG
ENPIPA
2A34 15 P8 B15
ENPIPA
P10 B14 2B5 14
ENNEG
P10 B8 2B5 8
YG POS-S
2B1 1 P9 C1
2B3 11 P9 A11
2B6 13 P10 A13
YG POS-R
2B1 2 P9 C2
2B3 12 P9 A12
2B6 14 P10 A14
YG NEG-S
2B1 3 P9 C3
2B3 13 P9 A13
2B6 15 P10 A15
YG NEG-R
2B1 4 P9 C4
2B3 14 P9 A14
2B6 16 P10 A16
13VPS
TX 2B7DA
2B25AC
YEDVRB
P8 C17 2A33 17
1 PULSE
P10 B13 2B5 13
2A13JG
2B13AC
2B12AC
2A31AC
2B12AC
1 PULSE
P10 B7 2B5 7
ENOS
P10 C13 2B4 13
ONE SHOT
PIPTXV
P10 B17 2B5 17
YG132S-1-2
2B3 17 P9 A17
2A2 5 P7 B5
YG132R-1-2
2B3 18 P9 A18
2A2 6 P7 B6
TX 2B8DA
2B26AC
2B23AC
YG134S-1-2
2B2 7 P9 B7
2A2 9 P7 B9
YG134R-1-2
2B2 8 P9 B8
2A2 10 P7 B10
YG136S-1-2
2B2 5 P9 B5
2A2 13 P7 B13
YG136R-1-2
2B2 6 P9 B6
2A2 14 P7 B14
TX 2A5DA
2A26AC
2A28AC
YG133S-1-2
2B3 9 P9 A9
2A2 7 P7 B7
YG133R-1-2
2B3 10 P9 A10
2A2 8 P7 B8
ENPIPX
P9 A19 2B3 19
2B19AC
ENPIPY
P9 B19 2B2 19
ENPIPZ
P9 C19 2B1 19
2B21AC
2A21AC
2B27AC
2B20AC
2A20AC
TX 2A4DA
YG135S-1-2
2B2 9 P9 B9
2A2 11 P7 B11
YG135R-1-2
2B2 10 P9 B10
2A2 12 P7 B12
YG137S-1-2
2B2 11 P9 B11
2A2 15 P7 B15
YG137R-1-2
2B2 12 P9 B12
2A2 16 P7 B16
A
B
C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON

APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 25 AUG 65
CHECKED SEPT 65
APPROVAL 28 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
XY INTERFACE PLATE 2
COMPUTER TEST SET

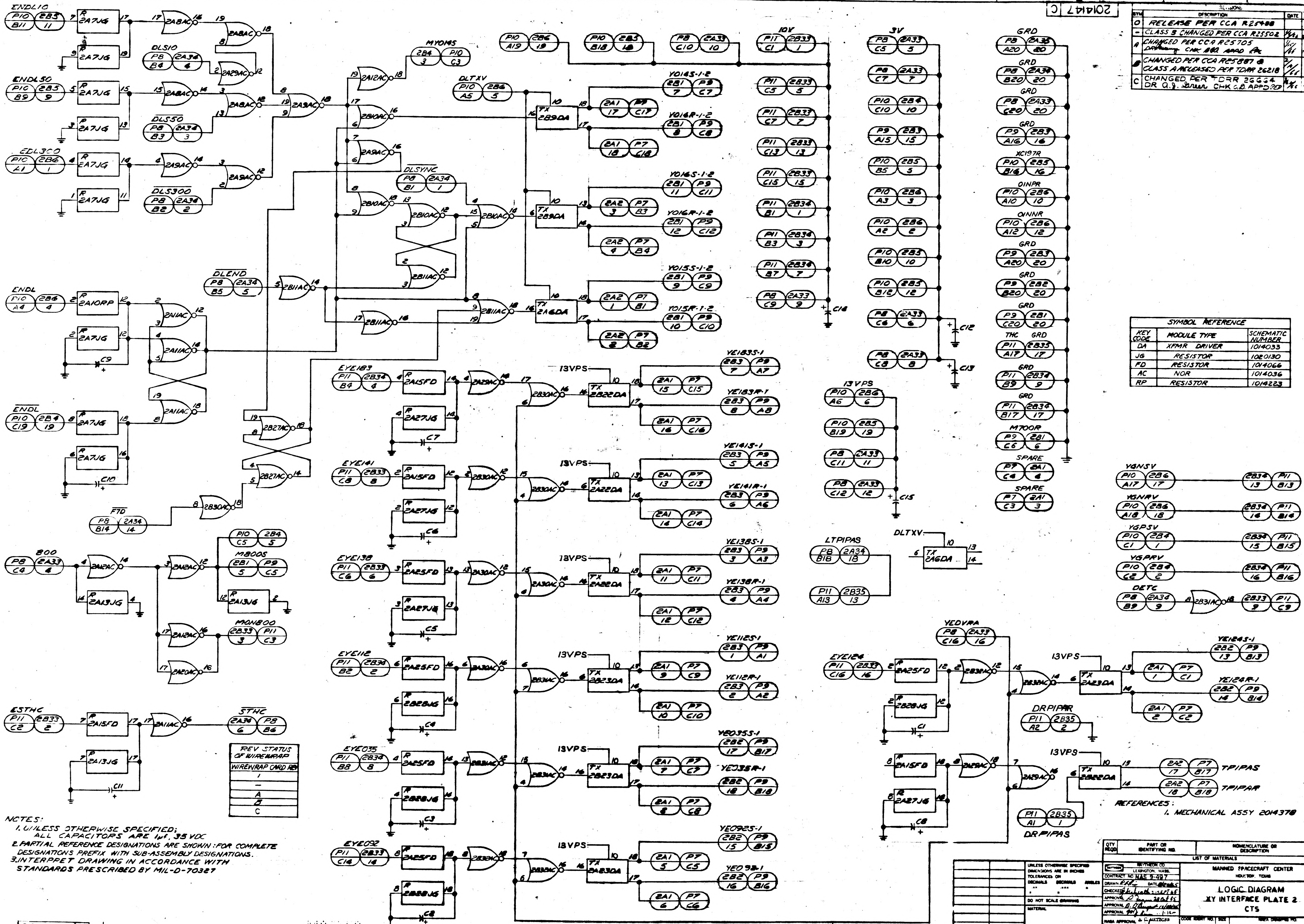
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014147
SCALE — WT SHEET

7 | 2014147 | B

MASTER

2014147 B

SYM	DESCRIPTION	DATE	APPROVEL
O	RELEASE PER CCA R25488		
-	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 DR CHK APPD	1/15/66	
B	CHANGED PER CCA R25887 & CLASS A RELEASED PER TDRR 26218	2/ /66	
C	CHANGED PER TDRR 26664 DR A.J. Greer CHK C.B. APPD		



ENDL10
ENDL50
EDL300
DLS10
DLS50
DLS300
MYOMS
DLTXV
DLSYNC
DLEND
ENDL
FTD
800
M800S
MON800
ESTHC
STHC
10V
3V
GRD
XC197R
OINPR
OINNR
THC
M700R
SPARE
Y014S-1-2
Y016R-1-2
Y016S-1-2
Y016R-1-2
Y015S-1-2
Y015R-1-2
EYE183
EYE141
EYE138
EYE112
EYE035
EYE092
13VPS
YE183S-1
YE183R-1
YE141S-1
YE141R-1
YE138S-1
YE138R-1
YE112S-1
YE112R-1
YE035S-1
YE035R-1
YE092S-1
YE092R-1
LTPIPAS
DLTXV
YGNSV
YGNRV
YGPSV
YGPRV
DETC
YEDVPA
EYE124
YE124S-1
YE124R-1
DRPIPAR
DRPIPAS
TPIPAS
TPIPAR
C12
C13
C14
C15

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
DA	XFMR DRIVER	1014033
JG	RESISTOR	1020130
FD	RESISTOR	1014066
AC	NOR	1014036
RP	RESISTOR	1014223

REV STATUS OF WIREWRAP
WIREWRAP CARD REV
1
—
A
B
C

REFERENCES:
1. MECHANICAL ASSY 2014378

NOTES:
1. UNLESS OTHERWISE SPECIFIED;
ALL CAPACITORS ARE 1µf, 35 VDC
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS.
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

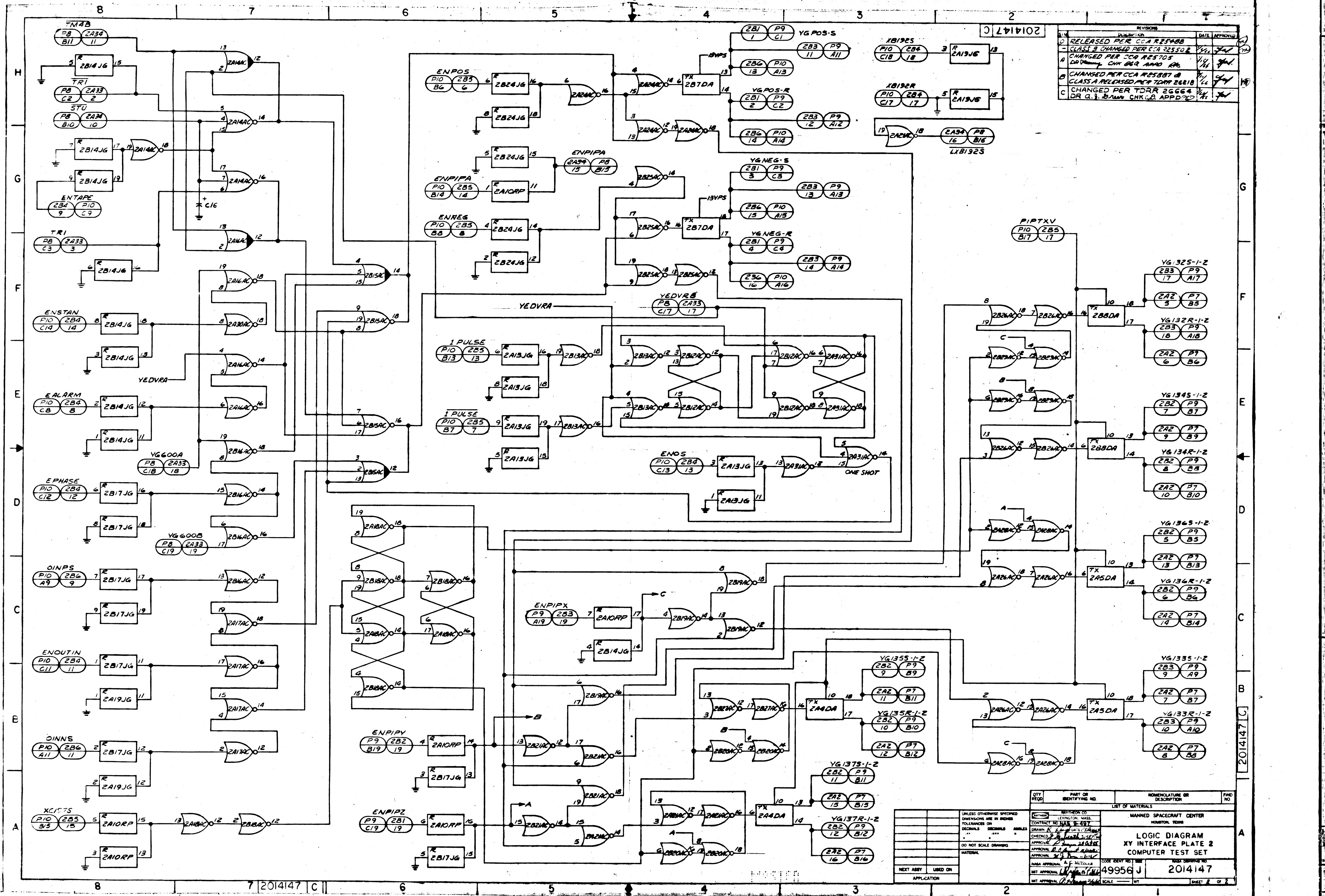
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R.A. DATE
CHECKED 21 SEPT 65
APPROVAL 28 Oct 65
APPROVAL D. O'B
APPROVAL 1-16-
NASA APPROVAL L. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
XY INTERFACE PLATE 2
CTS

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014147
SCALE NONE WT SHEET 1 OF 2

2014147 C



TM4B
TRI
STU
ENTAPE
C16
ENSTAN
EALARM
YEDVRA
YG600A
EPHASE
YG600B
OINPS
ENOUTIN
OINNS
XC1575
ENPOS
ENPIPA
ENNEG
YEDVRA
YEDVRB
I PULSE
I PULSE
ENOS
ONE SHOT
ENPIPX
ENPIPY
ENPIPZ
YGPOS-S
YGPOS-R
YGNEG-S
YGNEG-R
13VPS
XB192S
XB192R
LXB192S
PIPTXV
YG132S-1-2
YG132R-1-2
YG134S-1-2
YG134R-1-2
YG136S-1-2
YG136R-1-2
YG133S-1-2
YG133R-1-2
YG135S-1-2
YG135R-1-2
YG137S-1-2
YG137R-1-2
2B7DA
2B8DA
2A5DA
2A4DA
A
B
C
2014147 C

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
-	CLASS B CHANGED PER CCA R25502	1/4/66	
A	CHANGED PER CCA R25705 DR [illegible] CHK BGQ APPD [illegible]	1/15/66	
B	CHANGED PER CCA R25887 & CLASS A RELEASED PER TDRR 26218	3/11/66	
C	CHANGED PER TDRR 26664 DR A. J. Brown CHK C.D. APPD [illegible]	3/24/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. [illegible] DATE 25 AUG 65
CHECKED [illegible] 21 SEPT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

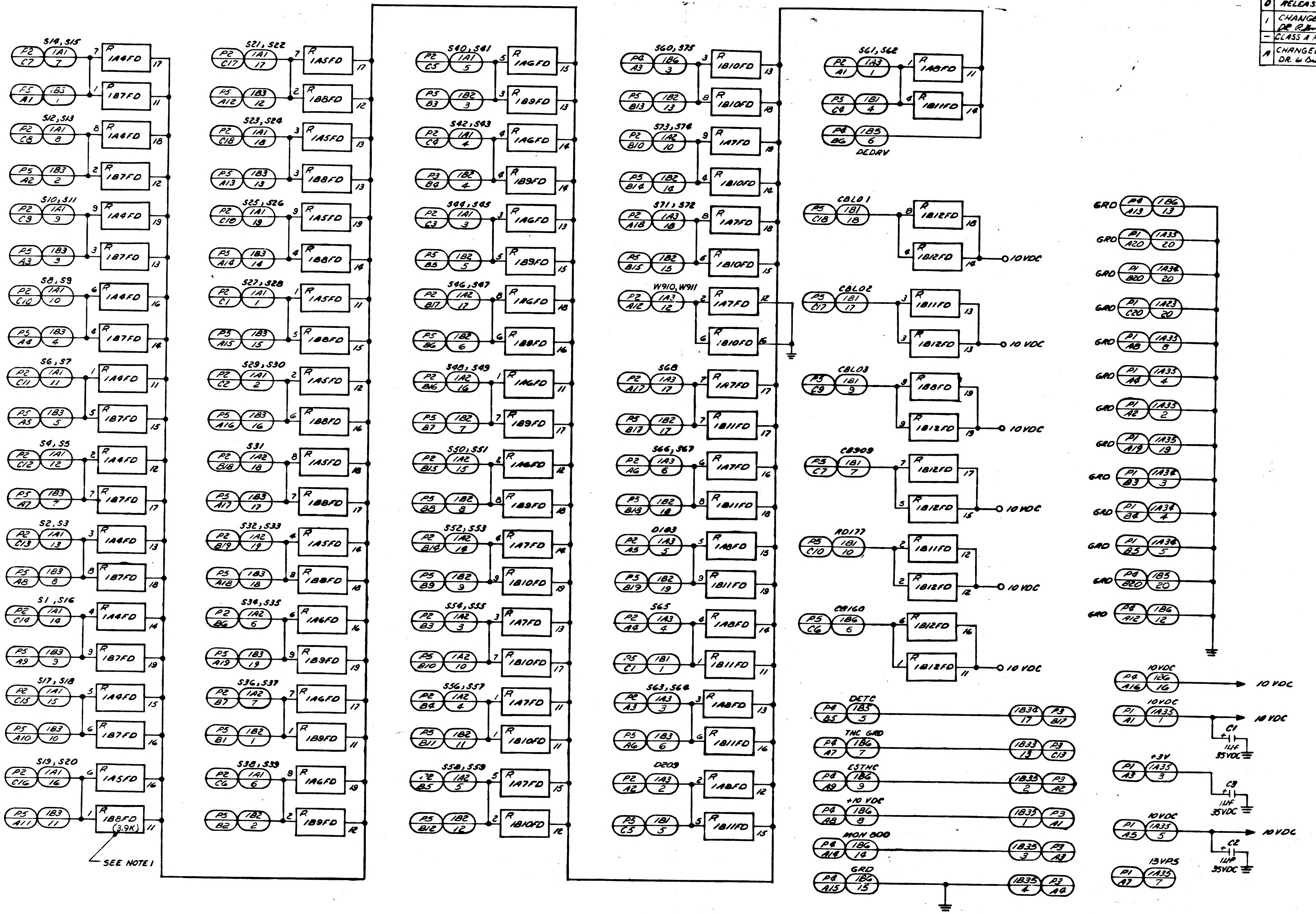
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
XY INTERFACE PLATE 2
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014147
SCALE —— WT SHEET 2 OF 2

2014148 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASE PER CCA R25488		
1	CHANGED PER CCA R25478 DR P. CHK APPD	11/16/65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26303 DR. CHK. APPD. RPC	3/23/66	



S14, S15 P2/C7 1A1/7 7 R 1A4FD 17
P5/A1 1B3/1 1 R 1B7FD 11
S12, S13 P2/C8 1A1/8 8 R 1A4FD 18
P5/A2 1B3/2 2 R 1B7FD 12
S10, S11 P2/C9 1A1/9 9 R 1A4FD 19
P5/A3 1B3/3 3 R 1B7FD 13
S8, S9 P2/C10 1A1/10 6 R 1A4FD 16
P5/A4 1B3/4 4 R 1B7FD 14
S6, S7 P2/C11 1A1/11 1 R 1A4FD 11
P5/A5 1B3/5 5 R 1B7FD 15
S4, S5 P2/C12 1A1/12 2 R 1A4FD 12
P5/A7 1B3/7 7 R 1B7FD 17
S2, S3 P2/C13 1A1/13 3 R 1A4FD 13
P5/A8 1B3/8 8 R 1B7FD 18
S1, S16 P2/C14 1A1/14 4 R 1A4FD 14
P5/A9 1B3/9 9 R 1B7FD 19
S17, S18 P2/C15 1A1/15 5 R 1A4FD 15
P5/A10 1B3/10 6 R 1B7FD 16
S19, S20 P2/C16 1A1/16 6 R 1A5FD 16
P5/A11 1B3/11 1 R 1B8FD (3.9K) 11
SEE NOTE 1
S21, S22 P2/C17 1A1/17 7 R 1A5FD 17
P5/A12 1B3/12 2 R 1B8FD 12
S23, S24 P2/C18 1A1/18 3 R 1A5FD 13
P5/A13 1B3/13 3 R 1B8FD 13
S25, S26 P2/C19 1A1/19 9 R 1A5FD 19
P5/A14 1B3/14 4 R 1B8FD 14
S27, S28 P2/C1 1A1/1 1 R 1A5FD 11
P3/A15 1B3/15 5 R 1B8FD 15
S29, S30 P2/C2 1A1/2 2 R 1A5FD 12
P5/A16 1B3/16 6 R 1B8FD 16
S31 P2/B18 1A2/18 8 R 1A5FD 18
P5/A17 1B3/17 7 R 1B8FD 17
S32, S33 P2/B19 1A2/19 4 R 1A5FD 14
P5/A18 1B3/18 8 R 1B8FD 18
S34, S35 P2/B6 1A2/6 6 R 1A6FD 16
P5/A19 1B3/19 9 R 1B9FD 19
S36, S37 P2/B7 1A2/7 7 R 1A6FD 17
P5/B1 1B2/1 1 R 1B9FD 11
S38, S39 P2/C6 1A1/6 9 R 1A6FD 19
P5/B2 1B2/2 2 R 1B9FD 12
S40, S41 P2/C5 1A1/5 5 R 1A6FD 15
P5/B3 1B2/3 3 R 1B9FD 13
S42, S43 P2/C4 1A1/4 4 R 1A6FD 14
P3/B4 1B2/4 4 R 1B9FD 14
S44, S45 P2/C3 1A1/3 3 R 1A6FD 13
P5/B5 1B2/5 5 R 1B9FD 15
S46, S47 P2/B17 1A2/17 8 R 1A6FD 18
P5/B6 1B2/6 6 R 1B8FD 16
S48, S49 P2/B16 1A2/16 1 R 1A6FD 11
P5/B7 1B2/7 7 R 1B9FD 17
S50, S51 P2/B15 1A2/15 2 R 1A6FD 12
P5/B8 1B2/8 8 R 1B9FD 18
S52, S53 P2/B14 1A2/14 4 R 1A7FD 14
P5/B9 1B2/9 9 R 1B10FD 19
S54, S55 P2/B3 1A2/3 3 R 1A7FD 13
P5/B10 1A2/10 7 R 1B10FD 17
S56, S57 P2/B4 1A2/4 1 R 1A7FD 11
P5/B11 1B2/11 1 R 1B10FD 11
S58, S59 P2/B5 1A2/5 5 R 1A7FD 15
P5/B12 1B2/12 2 R 1B10FD 12
S60, S75 P4/A3 1B6/3 3 R 1B10FD 13
P5/B13 1B2/13 8 R 1B10FD 18
S73, S74 P2/B10 1A2/10 9 R 1A7FD 19
P5/B14 1B2/14 4 R 1B10FD 14
S71, S72 P2/A18 1A3/18 8 R 1A7FD 18
P5/B15 1B2/15 6 R 1B10FD 15
W910, W911 P2/A12 1A3/12 2 R 1A7FD 12
6 R 1B10FD 16
S68 P2/A17 1A3/17 7 R 1A7FD 17
P5/B17 1B2/17 7 R 1B11FD 17
S66, S67 P2/A6 1A3/6 6 R 1A7FD 16
P5/B18 1B2/18 8 R 1B11FD 18
D183 P2/A5 1A3/5 5 R 1A8FD 15
P5/B19 1B2/19 9 R 1B11FD 19
S65 P2/A4 1A3/4 4 R 1A8FD 14
P5/C1 1B1/1 1 R 1B11FD 11
S63, S64 P2/A3 1A3/3 3 R 1A8FD 13
P5/A6 1B3/6 6 R 1B11FD 16
D209 P2/A2 1A3/2 2 R 1A8FD 12
P5/C5 1B1/5 5 R 1B11FD 15
S61, S62 P2/A1 1A3/1 1 R 1A8FD 11
P5/C4 1B1/4 4 R 1B11FD 14
P4/B6 1B5/6 DEDRV
CBL01 P5/C18 1B1/18 8 R 1B12FD 18
4 R 1B12FD 14 10VDC
CBL02 P5/C17 1B1/17 3 R 1B11FD 13
3 R 1B12FD 13 10 VDC
CBL03 P3/C9 1B1/9 9 R 1B8FD 19
9 R 1B12FD 19 10VDC
CB909 P5/C7 1B1/7 7 R 1B12FD 17
5 R 1B12FD 15 10VDC
RD177 P5/C10 1B1/10 2 R 1B11FD 12
2 R 1B12FD 12 10 VDC
CB160 P5/C6 1B6/6 6 R 1B12FD 16
1 R 1B12FD 11 10 VDC
DETC P4/B5 1B5/5 1B34/17 P3/B17
THC GRD P4/A7 1B6/7 1B33/13 P3/C13
ESTHC P4/A9 1B6/9 1B35/2 P3/A2
+10 VDC P4/A8 1B6/8 1B35/1 P3/A1
MON 800 P4/A14 1B6/14 1B35/3 P3/A3
GRD P4/A15 1B6/15 1B35/4 P3/A4
GRD P4/A13 1B6/13
GRD P1/A20 1A35/20
GRD P1/B20 1A34/20
GRD P1/C20 1A23/20
GRD P1/A8 1A35/8
GRD P1/A4 1A35/4
GRD P1/A2 1A35/2
GRD P1/A19 1A35/19
GRD P1/B3 1A34/3
GRD P1/B4 1A34/4
GRD P1/B5 1A34/5
GRD P4/B20 1B5/20
GRD P4/A12 1B6/12
10VDC P4/A16 1B6/16 10 VDC
10VDC P1/A1 1A35/1 10 VDC
C1 1μf 35VDC
+3V P1/A3 1A35/3
C3 1μf 35VDC
10VDC P1/A5 1A35/5 10VDC
C2 1μf 35VDC
13VPS P1/A7 1A35/7

NOTE:
1. ALL RESISTOR MODULES ARE (3.9K)
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCE
1. ASSEMBLY DWG. 2014376

REV STATUS OF WIREWRAP	
PLATE REV	WIREWRAP CARD REV
0	1
—	—

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
FD	RESISTOR	1014066

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED
APPROVAL 28 10 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

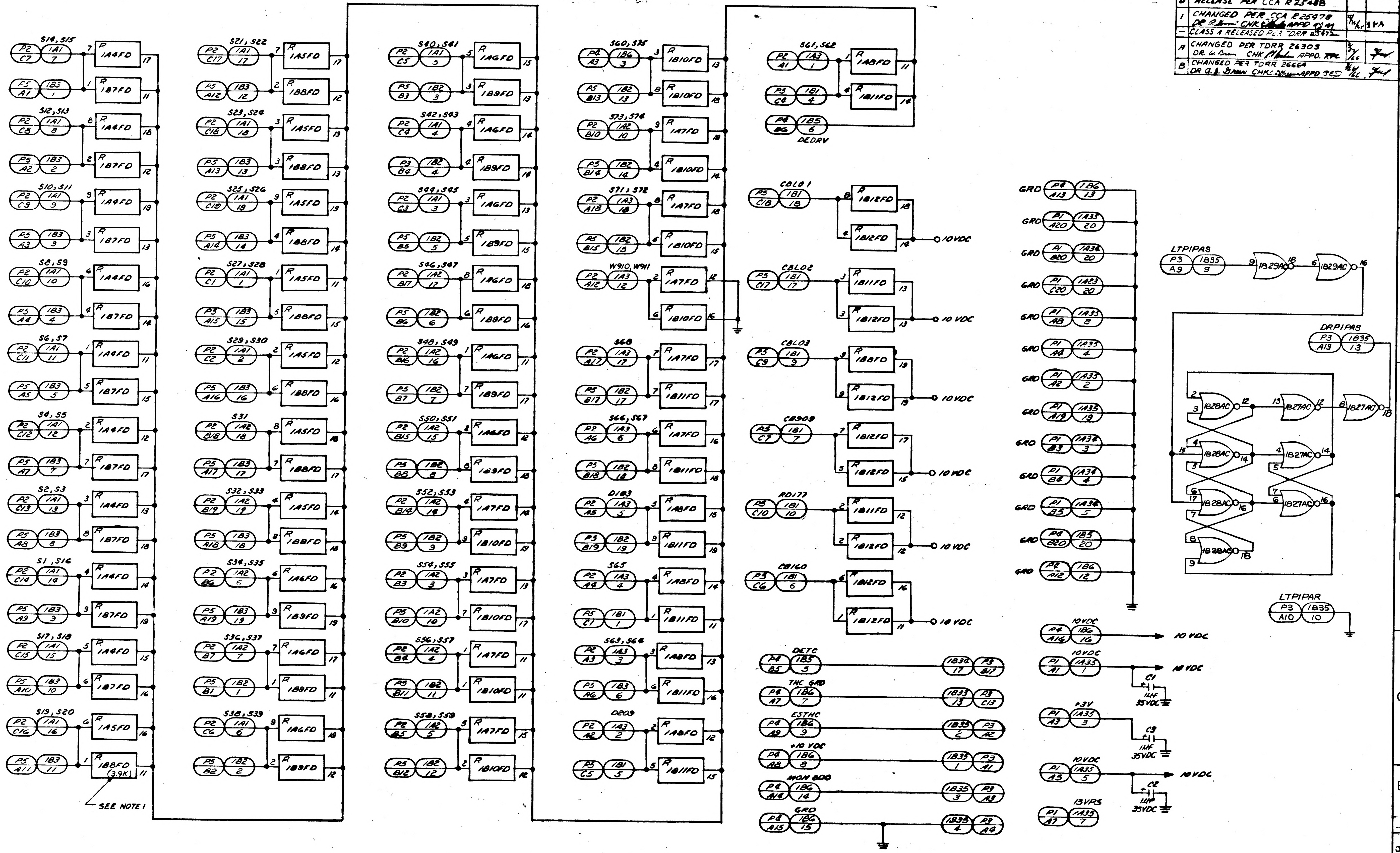
LOGIC DIAGRAM
RDC INTERFACE PLATE 1
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014148
SCALE NONE WT SHEET 1 OF 1

2014148 A

2014148 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASE PER CCA R25488		
1	CHANGED PER CCA R25478 DR P. CHK APPD	10/26/65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26303 DR. W. Brown CHK APPD.	3/3/66	
B	CHANGED PER TDRR 26664 DR G. J. Brown CHK APPD	4/6/66	


S14, S15
S12, S13
S10, S11
S8, S9
S6, S7
S4, S5
S2, S3
S1, S16
S17, S18
S19, S20
S21, S22
S23, S24
S25, S26
S27, S28
S29, S30
S31
S32, S33
S34, S35
S36, S37
S38, S39
S40, S41
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S46, S47
S48, S49
S50, S51
S52, S53
S54, S55
S56, S57
S58, S59
S60, S75
S73, S74
S71, S72
W910, W911
S68
S66, S67
D183
S65
S63, S64
D209
S61, S62
DEDRV
CBL01
CBL02
CBL03
CB909
RD177
CB160
10 VDC
DETC
TNC GRD
ESTHC
+10 VDC
MON 600
GRD
LTPIPAS
DRPIPAS
LTPIPAR
13VPS
+3V
C1
C2
C3
1µF 35VDC
SEE NOTE 1

NOTE:
1. ALL RESISTOR MODULES ARE (3.9K)
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCE
1. ASSEMBLY DWG. 2014376

REVISION STATUS OF WIREWRAP CARD
1
—
A

SYMBOL REFERENCE

KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
FD	RESISTOR	1014066

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED
APPROVAL 2/26/65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
RDC INTERFACE PLATE 1
COMPUTER TEST SET

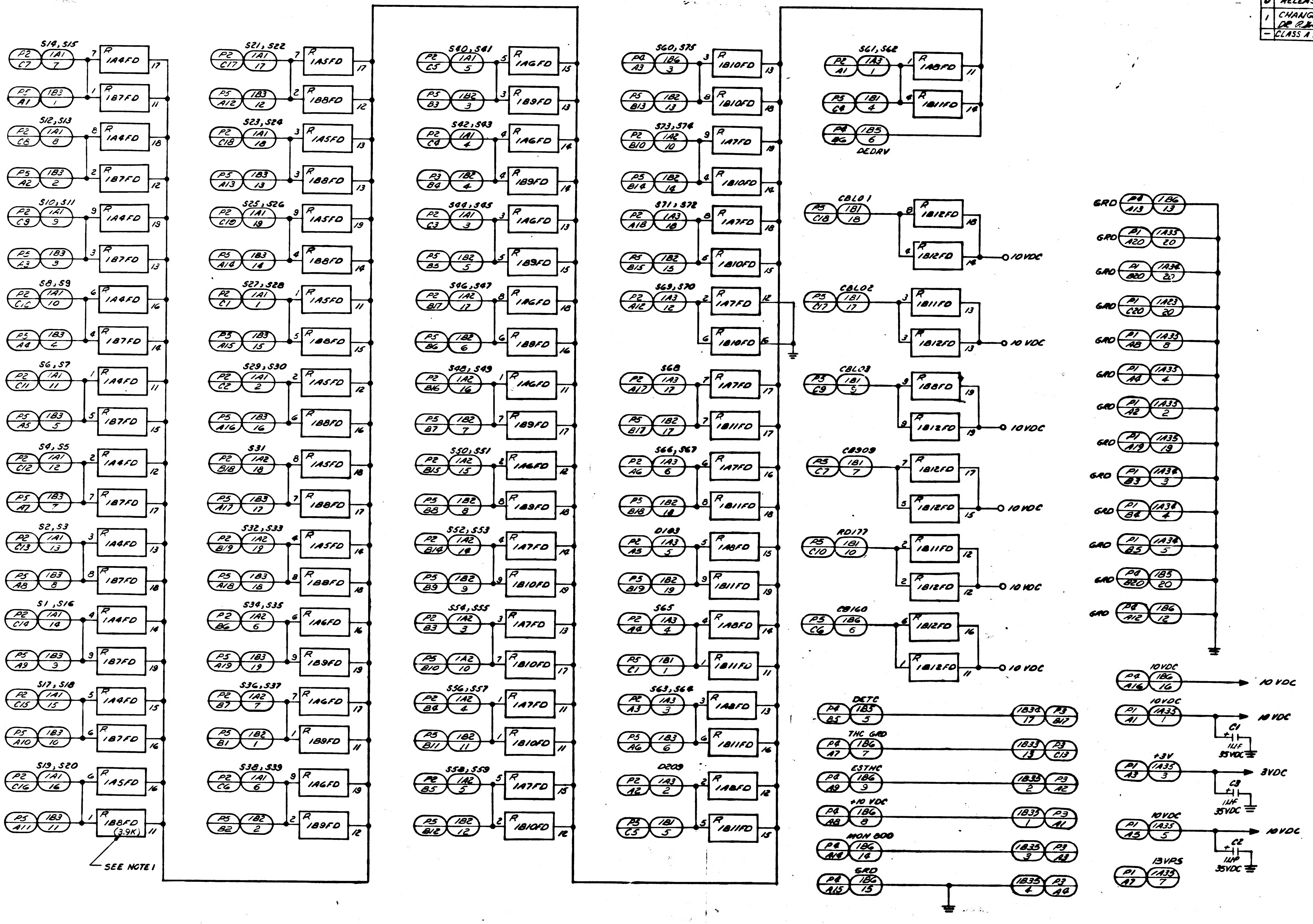
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014148
SCALE NONE
WT
SHEET 1 OF 1

2014148

2014148 B

2014148 | –

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASE PER CCA R25488		
1	CHANGED PER CCA R25478 DR P. [illegible] CHK [illegible] APPD [illegible]	11/16/65	[illegible]
–	CLASS A RELEASED PER TDRR 25472		



S14, S15
1A4FD
1B7FD
S12, S13
S10, S11
S8, S9
S6, S7
S4, S5
S2, S3
S1, S16
S17, S18
S19, S20
1B8FD (3.9K)
SEE NOTE 1
S21, S22
1A5FD
1B8FD
S23, S24
S25, S26
S27, S28
S29, S30
S31
S32, S33
S34, S35
S36, S37
S38, S39
1A6FD
1B9FD
S40, S41
S42, S43
S44, S45
S46, S47
S48, S49
S50, S51
S52, S53
S54, S55
S56, S57
S58, S59
1A7FD
1B10FD
S60, S75
S73, S74
S71, S72
S69, S70
S68
S66, S67
D103
S65
S63, S64
D209
1A8FD
1B11FD
S61, S62
DEDRV
CBL01
CBL02
CBL03
CB909
RD177
CB160
1B12FD
10VDC
GRD
DETC
THC GRD
ESTNC
+10 VDC
MON 600
C1 1µF 35VDC
C2 1µF 35VDC
C3 1µF 35VDC
+3V
3VDC
13VPS

NOTE:
1. ALL RESISTOR MODULES ARE (3.9K)
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCE
1. ASSEMBLY DWG. 2014376

REV STATUS OF WIREWRAP	
PLATE REV	WIREWRAP CARD REV
0	1
–	–

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
FD	RESISTOR	1014066

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible] 2/24/65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
RDC INTERFACE PLATE I
COMPUTER TEST SET

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014148
SCALE NONE | WT | SHEET 1 OF 1

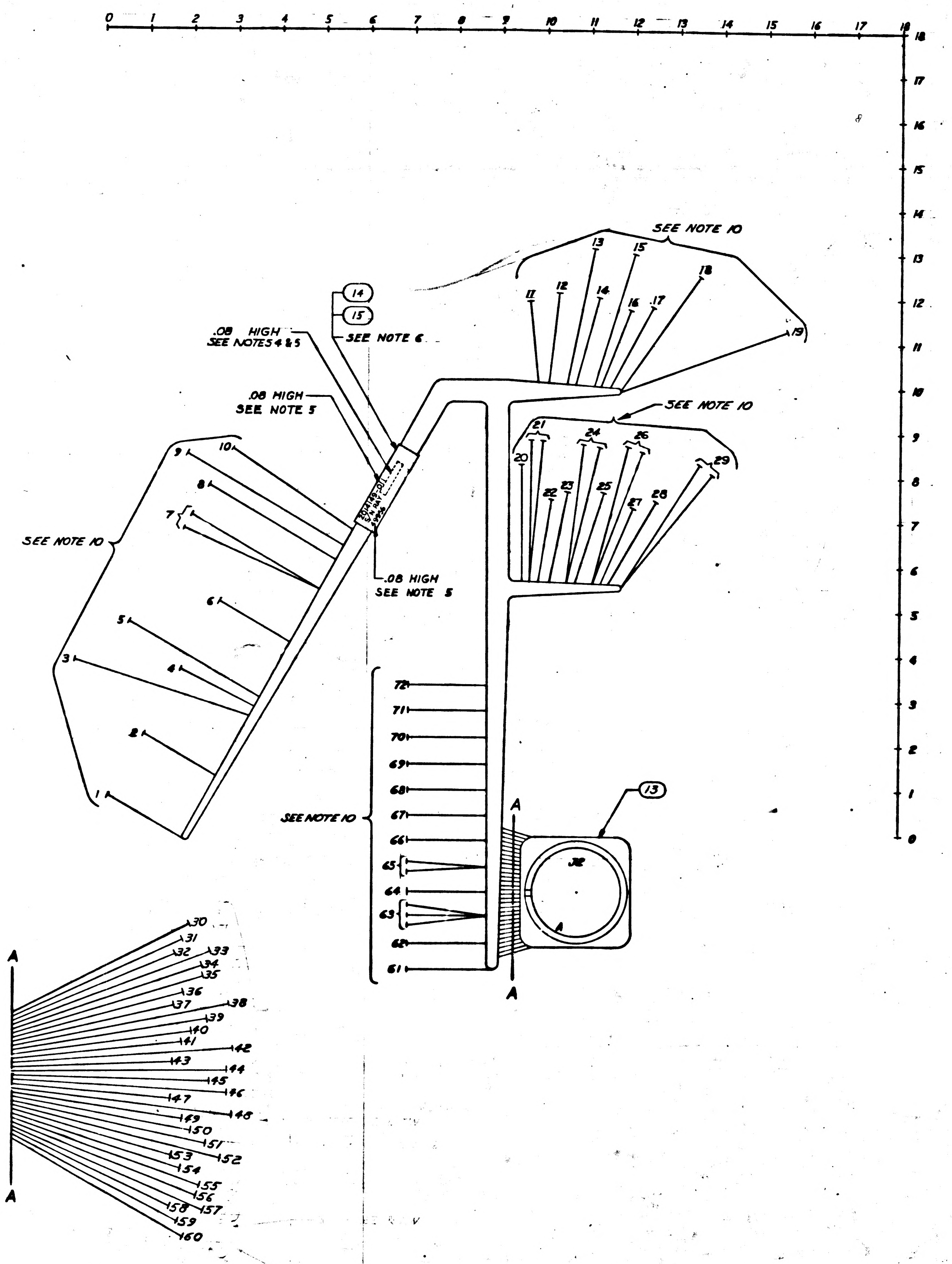
2014148 | –

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25215	9/29/65	
1	CHANGED PER CCA R25389 DR CHK APPD	11/11/	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25682 & CLASS A RELEASED PER TDRR 25472	4/15/66	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
△7	A1	27	K2-5	WHT	18	1	56	J2-F	△10
△10	A2	59	J2-B				16	K1-5	△7
△7	A3	11	K1-6				1	TB1-3	△8
△8	A4	7	CB1-LOAD A	WHT	16	2	58	J2-A	△10
	A5	24	K2-3A				30	J2-f	△10
△5	A6	31	J2-e				26	K2-2A	△6
△6	A7	29	K2-1A				32	J2-d	△10
△5	A8	54	J2-E				63	TB1-3	△5
△10	A9	53	J2-D				62	TB1-2	△5
△10	A10	37	J2-Z				21	K2-4A	△6
△2	A11	5	CB2-LOAD	WHT	12	4	43	J2-S	△11
△11	A12	52	J2-L	WHT	14	3	24	K2-3A	△6
△6	A13	26	K2-2A				49	J2-I	△11
△11	A14	51	J2-K				29	K2-1A	△6
△6	A15	28	K2-1C				35	J2-Y	△11
△11	A16	42	J2-T				25	K2-2C	△6
△6	A17	23	K2-3C				48	J2-N	△11
△11	A18	50	J2-J				21	K2-4A	△6
△6	A19	20	K2-4C				44	J2-R	△13
△11	A20	47	J2-M	WHT	12	4	61	TB1-1	△3
△11	A21	55	J2-H				63	TB1-3	△3
△8	A22	63	TB1-3	WHT	18	1	22	K2-6	△7
△2	A23	7	CB1-LOAD A	WHT	12	4	18	K1-1A	△1
△1	A24	17	K1-1C				2	TB1-6	△3
△5	A25	66	TB1-6	WHT	16	2	33	J2-c	△10
△10	A26	60	J2-C				65	TB1-5	△5
△10	A27	34	J2-b				69	TB1-9	△5
△2	A28	8	CB1-LOAD B	WHT	12	4	15	K1-2A	△1
△1	A29	14	K1-2C				4	TB1-9	△3
△3	A30	68	TB1-8				38	J2-X	△11
△11	A31	39	J2-W				67	TB1-7	△3
△2	A32	9	CB1-LINE B				3	CB2-LINE	△2
△10	A33	36	J2-a	WHT	16	2	72	TB1-12	△5
△2	A34	10	CB1-LOAD C	WHT	12	4	13	K1-3A	△1
△1	A35	12	K1-3C				6	TB1-12	△3
△3	A36	71	TB1-11				40	J2-V	△11
△3	A37	70	TB1-10				46	J2-0	△13
△5	A38	64	TB1-4	WHT	16	2	57	J2-6	△10
△11	A39	41	J2-U				65	TB1-5	△5
△12	A40	45	J2-P	BLK	10	5	19	K1-4B	△9

△1 ATTACH 1 OF FIND NO. 12 & .75 INCH OF FIND NO. 19
△2 ATTACH 1 OF FIND NO. 9 & 1.00 INCH OF FIND NO. 19
△3 ATTACH 1 OF FIND NO. 8 & .75 INCH OF FIND NO. 19
△4 ATTACH 1 OF FIND NO. 12 & .75 INCH OF FIND NO. 16
(△1–△4) STRIP .23 DO NOT TIN
△5 ATTACH 1 OF FIND NO. 7 & .75 INCH OF FIND NO. 19
△6 ATTACH 1 OF FIND NO. 11 & .75 INCH OF FIND NO. 19
△7 ATTACH 1 OF FIND NO. 10 & .75 INCH OF FIND NO. 19
△8 ATTACH 1 OF FIND NO. 6 & .75 INCH OF FIND NO. 19
(△5–△8) STRIP .16 DO NOT TIN
△9 ATTACH 1 OF FIND NO. 21 & 1.00 INCH OF FIND NO. 19 STRIP .23 DO NOT TIN
△10 STRIP .25 & TIN THEN ASSEMBLE 1 OF FIND 19 LG .75±.06
△11 STRIP .38 & TIN THEN ASSEMBLE 1 OF FIND 16 LG .75±.06
△12 STRIP .62 & TIN THEN ASSEMBLE 1 OF FIND 17 LG .75±.06
△13 ASSEMBLE 1 OF FIND 18 LG .75±.06



NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 20
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
3. SOLDER PER ND 1002071
4. SERIALIZE PER ND1002023
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLK 1006256-001
6. BOND USING FIND NO.
7. STRIP ALL LEADS .50±.06 AND TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. MIL-I-23053 CLASS I, COLOR WHT, ID .125 FOR FIND NO. 19, ID .187 FOR FIND NO. 16, ID .500 FOR FIND NO. 17, ID .375 FOR FIND NO. 18
10. MARK SLEEVING WITH REFERENCE DESIGNATIONS .12 HIGH BLK PER ND 1002019
11. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
12. CRIMP PER ND 1002206
13. AR DENOTES AS REQUIRED
14. NUMBERS PRECEDING BALLOONS DENOTE QUANTITIES

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014162	SCHEMATIC	REF
	1	MS25036-3	LUG, TERMINAL	21
	AR	1006458-004	TAPE, LACING	20
*	4.7	SEE NOTE 9	INSULATION SLEEVING	19
*	.2	SEE NOTE 9	INSULATION SLEEVING	18
*	.1	SEE NOTE 9	INSULATION SLEEVING	17
*	1.0	SEE NOTE 9	INSULATION SLEEVING	16
	1	1006415-129	MARKER, BAND	15
	AR	1006253	ADHESIVE	14
	1	MS3102A-36-9S	CONNECTOR	13
	7	MS25036-56	LUG, TERMINAL	12
	12	MS25036-53	LUG, TERMINAL	11
	4	MS25036-49	LUG, TERMINAL	10
	6	MS25036-12	LUG, TERMINAL	9
	9	MS25036-11	LUG, TERMINAL	8
	8	MS25036-6	LUG, TERMINAL	7
	2	MS25036-1	LUG, TERMINAL	6
*	2.0	MIL-W-16878/4E10	WIRE, ELEC BLK	5
*	16.3	MIL-W-16878/4E12	WIRE, ELEC WHT	4
*	11.4	MIL-W-16878/4E14	WIRE, ELEC WHT	3
*	13.5	MIL-W-16878/4E16	WIRE, ELEC WHT	2
*	5.8	MIL-W-16878/4E18	WIRE, ELEC WHT	1
	011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014043	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Bunker DATE 15 JULY 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS
AC INPUT PANEL
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014149
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014150 B

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
–	CLASS B CHANGED PER CCA R25502	3/31/66	
A	CHANGED PER CCA R25705 DR CHK BBQ APPD	4/13/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER DRR 26218	2/14/66	

SIGNAL	FROM	TO	FROM	TO	FROM	TO
[illegible]	A1-34-12	A3-26-12				
[illegible]	A1-34-02	A3-27-02				
[illegible]	~~A1-28-13~~	~~A1-32-12~~	~~A1-32-12~~	~~A2-01-13~~	~~A2-01-13~~	~~A2-08-17~~
[illegible]	~~A2-08-17~~	~~A2-16-07~~	~~A2-16-07~~	~~A2-17-17~~	~~A2-17-17~~	~~A3-03-09~~
[illegible]	A1-28-05	A2-18-03	A2-18-03	A2-18-17	A2-18-17	A3-02-07
[illegible]	A3-12-16	A3-25-12				
[illegible]	A2-18-09	A3-15-07				
[illegible]	A2-07-04	A2-20-04				
[illegible]	A2-06-06	A2-33-04				
[illegible]	A3-20-02	A3-29-17				
[illegible]	A3-21-12	A3-28-06				
[illegible]	A2-11-05	A2-27-12				
[illegible]	A2-07-15	A2-31-13				
[illegible]	A1-13-03	A2-05-03	A2-05-03	A2-29-12		
[illegible]	A1-27-17	A2-06-02				
[illegible]	A1-26-17	A2-07-06				
[illegible]	A1-32-03	A2-04-03	A2-04-03	A2-32-17		
[illegible]	A1-14-17	A2-06-15				
[illegible]	A1-14-13	A1-15-07	A1-15-07	A2-04-13		
[illegible]	A1-27-08	A2-05-05				
[illegible]	A1-25-17	A2-07-19	A2-07-19	A2-36-09		
DAE	A1-43-12	A3-07-19	A3-07-19	A3-27-11		
DAG	A1-44-12	A3-15-01	A3-15-01	A3-26-01		
DAL (DAL)	A1-43-02	A3-10-09	A3-10-09	A3-25-11		
DAQ	A1-42-14	A3-14-01	A3-14-01	A3-26-11		
DAX	A2-12-14	A3-10-19	A3-10-19	A3-25-01		
DAY	A2-03-16	A3-15-11	A3-15-11	A3-27-01		
DPTEST	A3-02-04	A3-16-11				
[illegible]	A1-28-09	A2-10-07				
EBK10	A1-30-16	A2-10-19	A2-10-19	A2-29-03		
[illegible]	A1-28-03	A2-12-19				
EBK11	A1-29-14	A2-10-09	A2-10-09	A2-29-17		
EBK9	A1-30-08	A2-11-19				
EBK9	A1-27-04	A2-09-01	A2-09-01	A2-30-17		
FBK11	A1-11-06	A1-38-16	A1-38-16	A2-29-07	A2-29-07	A2-39-14
FBK11	A1-12-16	A1-38-06				
FBK12	A1-07-03	A1-39-06				
FBK12	A1-07-13	A1-39-16	A1-39-16	A2-28-03	A2-28-03	A2-39-04
FBK13	A1-11-02	A1-37-05				
FBK13	A1-13-06	A1-37-15	A1-37-15	A2-30-14	A2-30-14	A2-37-13
FBK14	A1-10-12	A1-38-05				
FBK14	A1-10-13	A1-38-15	A1-38-15	A2-28-18	A2-28-18	A2-37-03
FBK16	A1-07-12	A1-41-14	A1-41-14	A2-26-12	A2-26-12	A2-38-13
FBK16	A1-11-08	A1-35-05				
FEXT5	A2-07-11	A2-23-01				
FEXT5	A2-08-13	A2-25-11				
FEXT6	A2-07-03	A2-23-11				
FEXT6	A2-11-17	A2-25-19				
FEXT7	A2-12-08	A2-26-02				
FEXT7	A2-10-17	A2-27-07				
GND	A1-01-10	A1-01-20	A1-01-20	A1-02-10	A1-02-10	A1-02-20
	A1-02-20	A1-03-10	A1-03-10	A1-03-20	A1-03-20	A1-04-10
	A1-04-10	A1-04-20	A1-04-20	A1-05-10	A1-05-10	A1-05-20
	A1-05-20	A1-06-10	A1-06-10	A1-06-20	A1-06-20	A1-07-10
	A1-07-10	A1-07-20	A1-07-20	A1-08-10	A1-08-10	A1-08-20
	A1-08-20	A1-09-10	A1-09-10	A1-09-20	A1-09-20	A1-10-10
	A1-10-10	A1-10-20	A1-10-20	A1-11-10	A1-11-10	A1-11-20
	A1-11-20	A1-12-10	A1-12-10	A1-12-20	A1-12-20	A1-13-20
	A1-13-20	A1-18-10	~~A1-18-10~~	A1-19-04	A1-19-04	A1-19-05
	A1-19-05	A1-19-06	A1-19-06	A1-19-09	A1-19-09	A1-19-10
	A1-19-10	A1-19-19	A1-19-19	A1-19-20	A1-19-20	A1-20-03
	A1-20-03	A1-20-05	A1-20-05	A1-20-09	A1-20-09	A1-20-10
	A1-20-10	A1-20-15	A1-20-15	A1-20-19	A1-20-19	A1-20-20
	A1-20-20	A1-21-04	A1-21-04	A1-21-05	A1-21-05	A1-21-06
	A1-21-06	A1-21-08	A1-21-08	A1-21-10	A1-21-10	A1-21-13
	A1-21-13	A1-21-15	A1-21-15	A1-21-16	A1-21-16	A1-21-20
	A1-21-20	A1-25-20	A1-25-20	A1-26-10	A1-26-10	A1-27-10
	A1-27-10	A1-27-20	A1-27-20	A1-28-10	A1-28-10	A1-28-20
	A1-28-20	A1-29-10	A1-29-10	A1-29-20	A1-29-20	A1-34-10
	A1-34-10	A1-34-20	A1-34-20	A1-35-10	A1-35-10	A1-35-20
	A1-35-20	A1-36-10	A1-36-10	A1-36-20	A1-36-20	A1-39-03
	A1-39-03	A1-39-15	A1-39-15	A1-43-10	A1-43-10	A1-43-20
	A1-43-20	A1-44-10	A1-44-10	A1-44-20	A1-44-20	A1-45-10
	A1-45-10	A1-45-20	A1-45-20	A2-01-20	A2-01-20	A2-05-10
	A2-05-10	A2-06-10	A2-06-10	A2-06-20	A2-06-20	A2-07-10
	A2-07-10	A2-07-20	A2-07-20	A2-08-10	A2-08-10	A2-08-20
	A2-08-20	A2-13-04	A2-13-04	A2-13-05	A2-13-05	A2-13-06
	A2-13-06	A2-13-07	A2-13-07	A2-13-10	A2-13-10	A2-13-19
	A2-13-19	A2-13-20	A2-13-20	A2-14-03	A2-14-03	A2-14-05
	A2-14-05	A2-14-09	A2-14-09	A2-14-10	A2-14-10	A2-14-20
	A2-14-20	A2-15-01	A2-15-01	A2-15-04	A2-15-04	A2-15-05
	A2-15-05	A2-15-06	A2-15-06	A2-15-08	A2-15-08	A2-15-10
	A2-15-10	A2-15-13	A2-15-13	A2-15-15	A2-15-15	A2-15-16
	A2-15-16	A2-15-20	A2-15-20	A2-16-10	A2-16-10	A2-16-20
	A2-16-20	A2-17-10	A2-17-10	A2-17-20	A2-17-20	A2-18-10
	A2-8-10	A2-18-20	A2-18-20	A2-19-10	A2-19-10	A2-19-20
	A2-19-20	A2-20-10	A2-20-10	A2-20-20	A2-20-20	A2-21-10
GND	A2-21-10	A2-21-20	A2-21-20	A2-22-10	A2-22-10	A2-22-20

SIGNAL	FROM	TO	FROM	TO	FROM	TO
GRD	A2-22-20	A2-23-10	A2-23-10	A2-23-20	A2-23-20	A2-24-10
	A2-24-10	A2-24-20	A2-24-20	A2-25-10	A2-25-10	A2-25-20
	A2-25-20	A2-26-10	A2-26-10	A2-26-20	A2-26-20	A2-27-10
	A2-27-10	A2-27-20	A2-27-20	A2-28-10	A2-28-10	A2-28-20
	A2-28-20	A2-29-10	A2-29-10	A2-29-20	A2-29-20	A2-30-10
	A2-30-10	A2-30-20	A2-30-20	A2-31-10	A2-31-10	A2-31-20
	A2-31-20	A2-32-10	A2-32-10	A2-32-20	A2-32-20	A2-33-10
	A2-33-10	A2-33-20	A2-33-20	A2-34-10	A2-34-10	A2-34-20
	A2-34-20	A2-35-10	A2-35-10	A2-35-20	A2-35-20	A2-36-10
	A2-36-10	A2-36-20	A2-36-20	A2-37-10	A2-37-10	A2-37-20
	A2-37-20	A2-38-20	A2-38-20	A2-39-10	A2-39-10	A2-39-20
	A2-39-20	A2-40-10	A2-40-10	A2-40-20	A2-40-20	A2-41-10
	A2-41-10	A2-41-20	A2-41-20	A2-42-10	A2-42-10	A2-42-20
	A2-42-20	A2-43-10	A2-43-10	A2-43-20	A2-43-20	A2-44-10
	A2-44-10	A2-44-20	A2-44-20	A2-45-10	A2-45-10	A2-45-20
	A2-45-20	A3-01-10	A3-01-10	A3-01-20	A3-01-20	A3-02-10
	A3-02-10	A3-02-20	A3-02-20	A3-03-10	A3-03-10	A3-03-20
	A3-03-20	A3-04-10	A3-04-10	A3-04-20	A3-04-20	A3-05-10
	A3-05-10	A3-05-20	A3-05-20	A3-06-10	A3-06-10	A3-06-20
	A3-06-20	A3-07-10	A3-07-10	A3-07-20	A3-07-20	A3-08-10
	A3-08-10	A3-08-20	A3-08-20	A3-09-10	A3-09-10	A3-09-20
	A3-09-20	A3-10-10	A3-10-10	A3-10-20	A3-10-20	A3-11-10
	A3-11-10	A3-11-20	A3-11-20	A3-12-10	A3-12-10	A3-12-20
	A3-12-20	A3-13-10	A3-13-10	A3-13-20	A3-13-20	A3-14-10
	A3-14-10	A3-14-20	A3-14-20	A3-15-10	A3-15-10	A3-15-20
	A3-15-20	A3-16-10	A3-16-10	A3-16-20	A3-16-20	A3-17-10
	A3-17-10	A3-17-20	A3-17-20	A3-18-10	A3-18-10	A3-18-20
	A3-18-20	A3-19-10	A3-19-10	A3-19-20	A3-19-20	A3-20-10
	A3-20-10	A3-20-20	A3-20-20	A3-21-10	A3-21-10	A3-21-20
	A3-21-20	A3-22-10	A3-22-10	A3-22-20	A3-22-20	A3-23-10
	A3-23-10	A3-23-20	A3-23-20	A3-24-10	A3-24-10	A3-24-20
	A3-24-20	A3-25-10	A3-25-10	A3-25-20	A3-25-20	A3-26-10
	A3-26-10	A3-26-16	A3-26-16	A3-26-20	A3-26-20	A3-27-10
	A3-27-10	A3-27-20	A3-27-20	A3-28-07	A3-28-07	A3-28-08
	A3-28-08	A3-28-10	A3-28-10	A3-28-17	A3-28-17	A3-28-18
	A3-28-18	A3-28-20	A3-28-20	A3-29-08	A3-29-08	A3-29-18
	A3-29-18	A3-30-09	A3-30-09	A3-30-10	A3-30-10	A3-30-18
	A3-30-18	A3-30-19	A3-30-19	A3-33-10	A3-33-10	A3-34-10
	A3-34-10	A3-34-20	A3-34-20	A3-35-10	A3-35-10	A3-35-20
GRD	A3-35-20	A3-36-10	A3-36-10	A3-36-20	A3-36-20	A1-13-10
INKL	A1-32-14	A2-20-17				
KBBS1	A1-16-14	A2-25-12				
KBBS2	A1-18-03	A2-27-03				
KBCLR	A1-13-16	A1-15-13	A1-15-13	A1-25-09	A1-25-09	A1-33-14
KBCLR	A1-33-14	A2-05-02	A2-05-02	A2-30-02		
KBCLR	A2-30-01					
KBERR	A1-13-12	A2-23-05				
[KBINFO]	A1-15-03	A2-24-14				
[KBRET]	A2-04-18	A2-25-09				
[KBSIG]	A2-04-08	A2-22-03				
KBSTP	A1-26-19	A2-24-15				
[K1]	A1-14-12	A2-10-15	A2-10-15	A2-22-13		
[K2]	A1-14-02	A2-10-05	A2-10-05	A2-24-04		
[K3]	A1-15-12	A2-11-15	A2-11-15	A2-23-04		
LAAGRE	A1-34-13	A2-08-11				
LAL1	A1-08-14	A2-18-19				
LAL10	A1-07-06	A2-29-15				
LAL11	A1-09-15	A2-29-05				
LAL12	A1-08-16	A2-28-16				
LAL13	A1-08-06	A2-28-06				
LAL14	A1-09-18	A2-30-03				
LAL15	A1-07-17	A2-29-13				
LAL16	A1-08-17	A2-29-1[illegible]				
LAL17	A1-07-05	A2-29-04				
LAL18	A1-08-15	A2-28-01				
LAL2	A1-08-04	A2-19-05				
LAL3	A1-07-15	A2-20-15				
LAL4	A1-09-05	A2-20-05				
LAL5	A1-07-14	A2-21-15				
LAL6	A1-07-04	A2-18-07				
LAL7	A1-09-07	A2-16-06				
LAL8	A1-07-16	A2-16-05				
LAL9	A1-08-05	A2-19-11				
LBAGRE	A1-34-03	A2-07-13				
LCL	A1-19-07	A2-02-17				
LCL	A1-19-08	A2-02-07	A2-02-07	A3-01-07		
LCTROR	A1-35-06	A2-19-02				
LEBK10	A1-26-13	A2-37-04				
LEBK11	A1-29-16	A2-38-14				
LEBK9	A1-26-03	A2-37-14				
LGAGRE	A1-35-13	A2-12-15				
LGOJAM	A1-36-15	A2-21-17				
LIIP	A1-36-16	A2-18-13				
LINHL	A1-36-17	A2-23-19				
LINKL	A1-35-16	A2-20-12				
LLDFB	A1-36-05	A2-17-04				
LMINC	A1-35-04	A2-19-09				
LNISQ	A1-34-15	A2-18-04				
LPAL	A1-34-06	A2-17-09				
LPFG	A1-35-12	A2-33-01				

SIGNAL	FROM	TO	FROM	TO	FROM	TO
LPINC	A1-36-14	A2-21-08				
LPTG	A1-35-03	A2-34-19				
LRCH	A1-04-11	A2-34-05	A2-34-05	A3-03-04		
LRDFB	A1-34-14	A2-16-03				
LRPTR	A1-36-06	A2-21-02				
LSHANC	A1-34-04	A2-16-04				
LSHINC	A1-35-14	A2-16-15				
LSTPIT	A1-35-15	A2-21-07				
LST3	A1-27-05	A2-23-02				
LTVF	A2-04-09	A2-24-02				
LT12	A1-34-05	A2-16-12				
MAL10	A2-29-11	A3-24-09				
MAL11	A2-28-14	A3-19-06				
MAL13	A2-30-05	A3-20-16				
MAL14	A2-30-15	A3-19-11				
MAL15	A2-30-12	A3-21-02				
MAL16	A2-28-05	A3-20-12				
MAL17	A2-28-15	A3-27-08				
MAL18	A2-30-06	A3-21-09				
[MBKA]	A2-05-07	A2-26-18	A2-26-18	A2-34-11		
MBR1	A2-19-19	A3-24-14				
MBR2	A2-21-18	A3-22-03				
MB2 (MWCH)	A2-18-14	A3-26-19				
MCTRAL	A2-24-19	A3-24-18				
MCTROR(MOSCAL)	A2-18-06	A3-24-12				
MDT01	A2-36-17	A3-09-06	A3-09-06	A3-19-17		
MDT02	A2-36-07	A3-13-19	A3-13-19	A3-19-07		
MDT03	A2-34-16	A3-13-09	A3-13-09	A3-20-17		
MDT04	A2-31-16	A3-14-19	A3-14-19	A3-20-07		
MDT05	A2-31-06	A3-14-09	A3-14-09	A3-21-17		
MDT06	A2-32-16	A3-15-19	A3-15-19	A3-21-07		
MDT07	A2-32-06	A3-15-09	A3-15-09	A3-19-16		
MDT08	A2-33-16	A3-13-18	A3-13-18	A3-20-06		
MDT09	A2-33-06	A3-13-08	A3-13-08	A3-21-16		
MDT10	A2-31-15	A3-14-18	A3-14-18	A3-21-06		
MDT11	A2-32-14	A3-14-08	A3-14-08	A3-19-15		
MDT12	A2-32-04	A3-15-18	A3-15-18	A3-19-05		
MDT13	A2-33-14	A3-15-08	A3-15-08	A3-20-15		
MDT14	A2-31-03	A3-13-17	A3-13-17	A3-20-05		
MDT15	A3-23-12					
MDT16	A2-32-13	A3-13-07	A3-13-07	A3-19-14		
[MGATX]	A1-09-14	A1-15-06	A1-15-06	A1-15-16	A1-15-16	A2-24-01
MGOJAM	A2-19-18	A3-20-09				
MIIP	A2-20-02	A3-23-04				
MINHL	A2-17-12	A3-21-19				
MINKL	A2-20-09	A3-19-08				
MLDCH	A2-35-16	A3-15-14	A3-15-14	A3-24-04		
MLINC (MREQIN)	A2-17-05	A3-24-07				
MLOAD	A2-35-06	A3-13-04	A3-13-04	A3-19-04		
MMINC(MPIPAL)	A2-19-03	A3-22-16				
MNHNC	A2-24-03	A3-15-17	A3-15-17	A3-21-13		
MNHRPT	A2-22-12	A3-14-07	A3-14-07	A3-20-03		
MNISQ	A2-17-11	A3-24-17				
MQINC(MVFAIL)	A2-19-01	A3-23-06				
MONBB	A1-10-18	A1-25-05	A1-25-05	A2-28-02		
MONWT	A1-09-13	A1-33-05	A1-33-05	A2-19-16		
MONWBK	A2-32-03	A3-15-04	A3-15-04	A3-24-01		
MON800	A2-16-13	A3-23-09				
MOUTCOM	A2-21-13	A3-24-15				
MPAL	A2-21-19	A3-19-09				
MPARBUS(MSP)	A2-31-01	A3-26-03				
MPGT(MGP)	A2-32-01	A3-27-13				
MPINC(MSQ10)	A2-21-16	A3-24-16				
MQ1(MONWT)	A1-30-07	A3-25-19				
MQ2(MRCH)	A2-16-14	A3-25-09				
MRDCH	A2-33-02	A3-14-04	A3-14-04	A3-22-12		
MREAD	A2-31-11	A3-14-14	A3-14-14	A3-20-14		
MRGG	A1-26-05	A3-23-18				
MRPTAL	A2-16-01	A3-23-08				
MRPTR(MWEBG)	A1-25-02	A3-23-03				
MRSC	A3-07-04	A3-23-11				
MSBSTP	A2-32-02	A3-13-13	A3-13-13	A3-20-04		
MSCDBL	A2-28-04	A3-21-05				
MSHANC(MSQ12)	A2-19-15	A3-24-06				
MSHINC(MSQ11)	A2-16-11	A3-22-15				
MSQ13	A2-18-15	A3-22-05				
MSQ14	A2-17-13	A3-23-15				
MSQ15(MSQEXT)	A2-16-02	A3-23-05				
MSQ16	A2-18-05	A3-22-14				
MSTP	A2-23-12	A3-14-17	A3-14-17	A3-19-03		
MSTPIT	A2-20-18	A3-20-19				
MSTRT	A2-32-12	A3-13-03	A3-13-03	A3-21-14		
MST1	A2-17-14	A3-22-04				
MST2	A2-17-15	A3-23-14				
MTCAL	A2-21-03	A3-22-17				
MTCSA	A2-21-12	A3-23-13				
MTCSAI	A2-22-02	A3-13-16	A3-13-16	A3-20-13		
MT01	A2-19-08	A3-13-06	A3-13-06	A3-26-09		
MT02	A2-20-08	A3-14-16	A3-14-16	A3-27-19		
MT03	A2-17-08	A3-14-06	A3-14-06	A3-25-18		

SIGNAL	FROM	TO	FROM	TO	FROM	TO
MT04	A2-20-19	A3-15-16	A3-15-16	A3-25-08		
MT05	A2-18-08	A3-15-06	A3-15-06	A3-26-18		
MT06	A2-16-08	A3-13-15	A3-13-15	A3-26-08		
MT07	A2-17-18	A3-13-05	A3-13-05	A3-27-18		
MT08	A2-16-17	A3-14-15	A3-14-15	A3-25-17		
MT09	A2-18-18	A3-14-05	A3-14-05	A3-25-13		
MT10	A2-17-07	A3-15-15	A3-15-15	A3-26-17		
MT11	A2-16-18	A3-15-05	A3-15-05	A3-26-07		
MT12	A2-21-09	A3-13-14	A3-13-14	A3-27-17		
[MVCNTL]	A2-02-03	A2-30-13				
MWAG	A1-29-17	A3-26-02				
MWALPG(MRAG)	A1-29-08	A3-27-12				
MWARNF	A2-16-16	A3-21-08				
MWATCH	A2-18-16	A3-19-19				
MWBBG	A1-25-12	A3-24-13				
MWBG	A1-28-07	A3-24-19				
MWFBG(MWBKG)	A1-33-02	A3-23-02				
MWG4(MWG)	A1-26-02	A3-22-07				
MWG5(MRLG)	A1-28-15	A3-23-17				
MWG6(MST3)	A1-25-03	A3-23-07				
MWLPG(MWLG)	A1-28-06	A3-19-18				
MWL01	A1-11-16	A3-27-07				
MWL02	A1-12-19	A3-25-16				
MWL03	A1-12-09	A3-26-06				
MWL04	A1-11-18	A3-27-16				
MWL05	A1-12-18	A3-27-06				
MWL06	A1-12-08	A3-25-15				
MWL07	A1-10-17	A3-25-05				
MWL08	A1-10-07	A3-26-15				
MWL09	A1-11-17	A3-26-05				
MWL10	A1-11-07	A3-25-14				
MWL11	A1-12-17	A3-25-04				
MWL12	A1-12-07	A3-26-14				
MWL13	A1-07-11	A3-26-04				
MWL14	A1-10-09	A3-27-14				
MWL15	A1-11-19	A3-25-03				
MWL16	A1-10-19	A3-26-13				
MWQG	A1-28-17	A3-22-18				
MWSG	A1-30-18	A3-22-08				
MWXG(MRULOG)	A1-29-07	A3-22-09				
MWYG	A1-27-12	A3-23-19				
MWZG	A1-26-12	A3-22-19				
M25CPS(MSCALF)	A2-19-06	A3-20-18				
OUTCOM	A1-09-16	A2-19-12				
PACT	A3-08-04	A3-22-13	A3-22-13	A3-24-02		
PM10	A1-19-11					
PWR1	A3-20-08	A3-29-16				
PWR2	A3-21-18	A3-28-16				
Q2	A1-04-09	A2-21-14				
RA1	A1-13-15	A1-45-12	A1-45-12	A2-29-16	A2-29-16	A2-44-15
RX9	A2-9-9	A2-36-13				
RX10	A2-9-19	A2-36-3				
BLK2	A1-28-19	A1-32-12	A1-32-12	A2-01-13	A2-01-13	A2-08-17
BLK2	A2-08-17	A2-15-19	A2-15-19	A2-16-07	A2-16-07	A2-17-17
BLK2	A2-17-17	A3-03-09				

2H

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REV STATUS OF WIREWRAP								
	PLATE				WIREWRAP CARD			
	A1	A2	A3	HW	A1	A2	A3	HW
REV	1	1	1	1	1	1	0	1
	—	—	—	—	—	—	—	—
	A	A	A	A	A	A	A	A
	—	—	—	—	—	B	A	A

REFERENCES:
ASSY DWG'S 2014046 & 2014275

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN A. J. Bien DATE 26 OCT 65
CHECKED E. DeGallais 28 OCT 65
APPROVAL 29 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION
PLATE A1-A2-A3-A4
WIRE WRAP LIST A18
CTS

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014150
SCALE NONE | WT | SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014150 B

2014150 B

E2

2014150 B

SIGNAL	FROM	TO	FROM	TO	FROM	TO
ACSP1	A1-34-12	A3-26-12				
ACSP2	A1-34-02	A3-27-02				
~~BLK2~~	~~A1-28-19~~	~~A1-32-12~~	~~A1-32-12~~	~~A2-01-13~~	~~A2-01-13~~	~~A2-08-17~~
~~BLK2~~	~~A2-08-17~~	~~A2-16-07~~	~~A2-16-07~~	~~A2-17-17~~	~~A2-17-17~~	~~A3-03-09~~
BLK2	A1-28-05	A2-18-03	A2-18-03	A2-18-17	A2-18-17	A3-02-07
BLK2B	A3-12-16	A3-25-12				
BLK2C	A2-18-09	A3-15-07				
B2	A2-07-04	A2-20-04				
CLB	A2-06-06	A2-33-04				
CNTRL1	A3-20-02	A3-29-17				
CNTRL2	A3-21-12	A3-28-06				
$\overline{CNT0A}$	A2-11-05	A2-27-12				
CNT0A	A2-07-15	A2-31-13				
$\overline{CNT1A}$	A1-13-03	A2-05-03	A2-05-03	A2-29-12		
$\overline{CNT2A}$	A1-27-17	A2-06-02				
$\overline{CNT3A}$	A1-26-17	A2-07-06				
$\overline{CNT4A}$	A1-32-03	A2-04-03	A2-04-03	A2-32-17		
$\overline{CNT5A}$	A1-14-17	A2-06-15				
$\overline{CNT6A}$	A1-14-13	A1-15-07	A1-15-07	A2-04-13		
$\overline{CNT7A}$	A1-27-08	A2-05-05				
$\overline{CNT8A}$	A1-25-17	A2-07-19	A2-C7-19	A2-36-09		
DAB	A1-43-12	A3-07-19	A3-07-19	A3-27-11		
DAG	A1-44-12	A3-15-01	A3-15-01	A3-26-01		
DALF(DAL)	A1-43-02	A3-10-09	A3-10-09	A3-25-11		
DAQ	A1-42-14	A3-14-01	A3-14-01	A3-26-11		
DAX	A2-12-14	A3-10-19	A3-10-19	A3-25-01		
DAY	A2-03-16	A3-15-11	A3-15-11	A3-27-01		
DRTEST	A3-02-04	A3-16-11				
$\overline{EBK10}$	A1-28-09	A2-10-07				
EBK10	A1-30-16	A2-10-19	A2-10-19	A2-29-03		
$\overline{EBK11}$	A1-28-03	A2-12-19				
EBK11	A1-29-14	A2-10-09	A2-10-09	A2-29-17		
$\overline{EBK9}$	A1-30-08	A2-11-19				
EBK9	A1-27-04	A2-09-01	A2-09-01	A2-30-17		
FBK11	A1-11-06	A1-38-16	A1-38-16	A2-29-07	A2-29-07	A2-39-14
$\overline{FBK11}$	A1-12-16	A1-38-06				
$\overline{FBK12}$	A1-07-03	A1-39-06				
FBK12	A1-07-13	A1-39-16	A1-39-16	A2-28-03	A2-28-03	A2-39-04
$\overline{FBK13}$	A1-11-02	A1-37-05				
FBK13	A1-13-06	A1-37-15	A1-37-15	A2-30-14	A2-30-14	A2-37-13
$\overline{FBK14}$	A1-10-12	A1-38-05				
FBK14	A1-10-13	A1-38-15	A1-38-15	A2-28-18	A2-28-18	A2-37-03
FBK16	A1-07-12	A1-41-14	A1-41-14	A2-26-12	A2-26-12	A2-38-13
$\overline{FBK16}$	A1-11-08	A1-35-05				
$\overline{FEXT5}$	A2-07-11	A2-23-01				
FEXT5	A2-08-13	A2-25-11				
$\overline{FEXT6}$	A2-07-03	A2-23-11				
FEXT6	A2-11-17	A2-25-19				
$\overline{FEXT7}$	A2-12-08	A2-26-02				
FEXT7	A2-10-17	A2-27-07				
GRD	A1-01-10	A1-01-20	A1-01-20	A1-02-10	A1-02-10	A1-02-20
	A1-02-20	A1-03-10	A1-03-10	A1-03-20	A1-03-20	A1-04-10
	A1-04-10	A1-04-20	A1-04-20	A1-05-10	A1-05-10	A1-05-20
	A1-05-20	A1-06-10	A1-06-10	A1-06-20	A1-06-20	A1-07-10
	A1-07-10	A1-07-20	A1-07-20	A1-08-10	A1-08-10	A1-08-20
	A1-08-20	A1-09-10	A1-09-10	A1-09-20	A1-09-20	A1-10-10
	A1-10-10	A1-10-20	A1-10-20	A1-11-10	A1-11-10	A1-11-20
	A1-11-20	A1-12-10	A1-12-10	A1-12-20	A1-12-20	A1-13-20
	A1-13-20	A1-18-10	~~A1-18~~-10	A1-19-04	A1-19-04	A1-19-05
	A1-19-05	A1-19-06	A1-19-06	[illegible]-19-09	A1-19-09	A1-19-10
	A1-19-10	A1-19-19	A1-19-19	A1-19-20	A1-19-20	A1-20-03
	A1-20-03	A1-20-05	A1-20-05	A1-20-09	A1-20-09	A1-20-10
	A1-20-10	A1-20-15	A1-20-15	A1-20-19	A1-20-19	A1-20-20
	A1-20-20	A1-21-04	A1-21-04	A1-21-05	A1-21-05	A1-21-06
	A1-21-06	A1-21-08	A1-21-08	A1-21-10	A1-21-10	A1-21-13
	A1-21-13	A1-21-15	A1-21-15	A1-21-16	A1-21-16	A1-21-20
	A1-21-20	A1-25-20	A1-25-20	A1-26-10	A1-26-10	A1-27-10
	A1-27-10	A1-27-20	A1-27-20	A1-28-10	A1-28-10	A1-28-20
	A1-28-20	A1-29-10	A1-29-10	A1-29-20	A1-29-20	A1-34-10
	A1-34-10	A1-34-20	A1-34-20	A1-35-10	A1-35-10	A1-35-20
	A1-35-20	A1-36-10	A1-36-10	A1-36-20	A1-36-20	A1-39-03
	A1-39-03	A1-39-15	A1-39-15	A1-43-10	A1-43-10	A1-43-20
	A1-43-20	A1-44-10	A1-44-10	A1-44-20	A1-44-20	A1-45-10
	A1-45-10	A1-45-20	A1-45-20	A2-01-20	A2-01-20	A2-05-10
	A2-05-10	A2-06-10	A2-06-10	A2-06-20	A2-06-20	A2-07-10
	A2-07-10	A2-07-20	A2-07-20	A2-08-10	A2-08-10	A2-08-20
	A2-08-20	A2-13-04	A2-13-04	A2-13-05	A2-13-05	A2-13-06
	A2-13-06	A2-13-07	A2-13-07	A2-13-10	A2-13-10	A2-13-19
	A2-13-19	A2-13-20	A2-13-20	A2-14-03	A2-14-03	A2-14-05
	A2-14-05	A2-14-09	A2-14-09	A2-14-10	A2-14-10	A2-14-20
	A2-14-20	A2-15-01	A2-15-01	A2-15-04	A2-15-04	A2-15-05
	A2-15-05	A2-15-06	A2-15-06	A2-15-08	A2-15-08	A2-15-10
	A2-15-10	A2-15-13	A2-15-13	A2-15-15	A2-15-15	A2-15-16
	A2-15-16	A2-15-20	A2-15-20	A2-16-10	A2-16-10	A2-16-20
	A2-16-20	A2-17-10	A2-17-10	A2-17-20	A2-17-20	A2-18-10
	A2-18-10	A2-18-20	A2-18-20	A2-19-10	A2-19-10	A2-19-20
	A2-19-20	A2-20-10	A2-20-10	A2-20-20	A2-20-20	A2-21-10
GRD	A2-21-10	A2-21-20	A2-21-20	A2-22-10	A2-22-10	A2-22-20

SIGNAL	FROM	TO	FROM	TO	FROM	TO
GRD	A2-22-20	A2-23-10	A2-23-10	A2-23-20	A2-23-20	A2-24-10
	A2-24-10	A2-24-20	A2-24-20	A2-25-10	A2-25-10	A2-25-20
	A2-25-20	A2-26-10	A2-26-10	A2-26-20	A2-26-20	A2-27-10
	A2-27-10	A2-27-20	A2-27-20	A2-28-10	A2-28-10	A2-28-20
	A2-28-20	A2-29-10	A2-29-10	A2-29-20	A2-29-20	A2-30-10
	A2-30-10	A2-30-20	A2-30-20	A2-31-10	A2-31-10	A2-31-20
	A2-31-20	A2-32-10	A2-32-10	A2-32-20	A2-32-20	A2-33-10
	A2-33-10	A2-33-20	A2-33-20	A2-34-10	A2-34-10	A2-34-20
	A2-34-20	A2-35-10	A2-35-10	A2-35-20	A2-35-20	A2-36-10
	A2-36-10	A2-36-20	A2-36-20	A2-37-10	A2-37-10	A2-37-20
	A2-37-20	A2-38-20	A2-38-20	A2-39-10	A2-39-10	A2-39-20
	A2-39-20	A2-40-10	A2-40-10	A2-40-20	A2-40-20	A2-41-10
	A2-41-10	A2-41-20	A2-41-20	A2-42-10	A2-42-10	A2-42-20
	A2-42-20	A2-43-10	A2-43-10	A2-43-20	A2-43-20	A2-44-10
	A2-44-10	A2-44-20	A2-44-20	A2-45-10	A2-45-10	A2-45-20
	A2-45-20	A3-01-10	A3-01-10	A3-01-20	A3-01-20	A3-02-10
	A3-02-10	A3-02-20	A3-02-20	A3-03-10	A3-03-10	A3-03-20
	A3-03-20	A3-04-10	A3-04-10	A3-04-20	A3-04-20	A3-05-10
	A3-05-10	A3-05-20	A3-05-20	A3-06-10	A3-06-10	A3-06-20
	A3-06-20	A3-07-10	A3-07-10	A3-07-20	A3-07-20	A3-08-10
	A3-08-10	A3-08-20	A3-08-20	A3-09-10	A3-09-10	A3-09-20
	A3-09-20	A3-10-10	A3-10-10	A3-10-20	A3-10-20	A3-11-10
	A3-11-10	A3-11-20	A3-11-20	A3-12-10	A3-12-10	A3-12-20
	A3-12-20	A3-13-10	A3-13-10	A3-13-20	A3-13-20	A3-14-10
	A3-14-10	A3-14-20	A3-14-20	A3-15-10	A3-15-10	A3-15-20
	A3-15-20	A3-16-10	A3-16-10	A3-16-20	A3-16-20	A3-17-10
	A3-17-10	A3-17-20	A3-17-20	A3-18-10	A3-18-10	A3-18-20
	A3-18-20	A3-19-10	A3-19-10	A3-19-20	A3-19-20	A3-20-10
	A3-20-10	A3-20-20	A3-20-20	A3-21-10	A3-21-10	A3-21-20
	A3-21-20	A3-22-10	A3-22-10	A3-22-20	A3-22-20	A3-23-10
	A3-23-10	A3-23-20	A3-23-20	A3-24-10	A3-24-10	A3-24-20
	A3-24-20	A3-25-10	A3-25-10	A3-25-20	A3-25-20	A3-26-10
	A3-26-10	A3-26-16	A3-26-16	A3-26-20	A3-26-20	A3-27-10
	A3-27-10	A3-27-20	A3-27-20	A3-28-07	A3-28-07	A3-28-08
	A3-28-08	A3-28-10	A3-28-10	A3-28-17	A3-28-17	A3-28-18
	A3-28-18	A3-28-20	A3-28-20	A3-29-08	A3-29-08	A3-29-18
	A3-29-18	A3-30-09	A3-30-09	A3-30-10	A3-30-10	A3-30-18
	A3-30-18	A3-30-19	A3-30-19	A3-33-10	A3-33-10	A3-34-10
	A3-34-10	A3-34-20	A3-34-20	A3-35-10	A3-35-10	A3-35-20
GRD	A3-35-20	A3-36-10	A3-36-10	A3-36-20	A3-36-20	A1-13-10
$\overline{INKL}$	A1-32-14	A2-20-17				
KBBS1	A1-16-14	A2-25-12				
KBBS2	A1-18-03	A2-27-03				
KBCLR	A1-13-16	A1-15-13	A1-15-13	A1-25-09	A1-25-09	A1-33-14
KBCLR	A1-33-14	A2-05-02	A2-06-02	A2-30-02		
$\overline{KBCLR}$	A2-30-01					
$\overline{KBERR}$	A1-13-12	A2-23-05				
[$\overline{KBINFO}$]	A1-15-03	A2-24-14				
[$\overline{KBRET}$]	A2-04-18	A2-25-09				
[$\overline{KBSIG}$]	A2-04-08	A2-22-03				
$\overline{KBSTP}$	A1-26-19	A2-24-15				
[$\overline{K1}$]	A1-14-12	A2-10-15	A2-10-15	A2-22-13		
[$\overline{K2}$]	A1-14-02	A2-10-05	A2-10-05	A2-24-04		
[$\overline{K3}$]	A1-15-12	A2-11-15	A2-11-15	A2-23-04		
LAAGRE	A1-34-13	A2-08-11				
LAL1	A1-08-14	A2-18-19				
LAL10	A1-07-06	A2-29-15				
LAL11	A1-09-15	A2-29-05				
LAL12	A1-08-16	A2-28-16				
LAL13	A1-08-06	A2-28-06				
LAL14	A1-09-18	A2-30-03				
LAL15	A1-07-17	A2-29-13				
LAL16	A1-08-17	A2-29-14				
LAL17	A1-07-05	A2-29-04				
LAL18	A1-08-15	A2-28-01				
LAL2	A1-08-04	A2-19-05				
LAL3	A1-07-15	A2-20-15				
LAL4	A1-09-05	A2-20-05				
LAL5	A1-07-14	A2-21-15				
LAL6	A1-07-04	A2-18-07				
LAL7	A1-09-07	A2-16-06				
LAL8	A1-07-16	A2-16-05				
LAL9	A1-08-05	A2-19-11				
LBAGRE	A1-34-03	A2-07-13				
LCL	A1-19-07	A2-02-17				
$\overline{LCL}$	A1-19-08	A2-02-07	A2-02-07	A3-01-07		
LCTROR	A1-35-06	A2-19-02				
LEBK10	A1-26-13	A2-37-04				
LEBK11	A1-29-16	A2-38-14				
LEBK9	A1-26-03	A2-37-14				
LGAGRE	A1-35-13	A2-12-15				
LGOJAM	A1-36-15	A2-21-17				
LIIP	A1-36-16	A2-18-13				
LINHL	A1-36-17	A2-23-19				
LINKL	A1-35-16	A2-20-12				
LLDFB	A1-36-05	A2-17-04				
LMINC	A1-35-04	A2-19-09				
LNISQ	A1-34-15	A2-18-04				
LPAL	A1-34-06	A2-17-09				
LPFG	A1-35-12	A2-33-01				

SIGNAL	FROM	TO	FROM	TO	FROM	TO
LPINC	A1-36-14	A2-21-08				
LPTG	A1-35-03	A2-34-19				
$\overline{LRCH}$	A1-04-11	A2-34-05	A2-34-05	A3-03-04		
LRDFB	A1-34-14	A2-16-03				
LRPTR	A1-36-06	A2-21-02				
LSHANC	A1-34-04	A2-16-04				
LSHINC	A1-35-14	A2-16-15				
LSTPIT	A1-35-15	A2-21-07				
LST3	A1-27-05	A2-23-02				
LTVF	A2-04-09	A2-24-02				
LT12	A1-34-05	A2-16-12				
MAL10	A2-29-11	A3-24-09				
MAL11	A2-28-14	A3-19-06				
MAL13	A2-30-05	A3-20-16				
MAL14	A2-30-15	A3-19-11				
MAL15	A2-30-12	A3-21-02				
MAL16	A2-28-05	A3-20-12				
MAL17	A2-28-15	A3-27-08				
MAL18	A2-30-06	A3-21-09				
[MBKA]	A2-05-07	A2-26-18	A2-26-18	A2-34-11		
MBR1	A2-19-19	A3-24-14				
MBR2	A2-21-18	A3-22-03				
MB2(MWCH)	A2-18-14	A3-26-19				
$\overline{MCTRAL}$	A2-24-19	A3-24-18				
MCTROR($\overline{MOSCAL}$)	A2-18-06	A3-24-12				
MDT01	A2-36-17	A3-09-06	A3-09-06	A3-19-17		
MDT02	A2-36-07	A3-13-19	A3-13-19	A3-19-07		
MDT03	A2-34-16	A3-13-09	A3-13-09	A3-20-17		
MDT04	A2-31-16	A3-14-19	A3-14-19	A3-20-07		
MDT05	A2-31-06	A3-14-09	A3-14-09	A3-21-17		
MDT06	A2-32-16	A3-15-19	A3-15-19	A3-21-07		
MDT07	A2-32-06	A3-15-09	A3-15-09	A3-19-16		
MDT08	A2-33-16	A3-13-18	A3-13-18	A3-20-06		
MDT09	A2-33-06	A3-13-08	A3-13-08	A3-21-16		
MDT10	A2-31-15	A3-14-18	A3-14-18	A3-21-06		
MDT11	A2-32-14	A3-14-08	A3-14-08	A3-19-15		
MDT12	A2-32-04	A3-15-18	A3-15-18	A3-19-05		
MDT13	A2-33-14	A3-15-08	A3-15-08	A3-20-15		
MDT14	A2-31-03	A3-13-17	A3-13-17	A3-20-05		
MDT15	A3-23-12					
MDT16	A2-32-13	A3-13-07	A3-13-07	A3-19-14		
[MGATX]	A1-09-14	A1-15-06	A1-15-06	A1-15-16	A1-15-16	A2-24-01
MGOJAM	A2-19-18	A3-20-09				
MIIP	A2-20-02	A3-23-04				
MINHL	A2-17-12	A3-21-19				
MINKL	A2-20-09	A3-19-08				
MLDCH	A2-35-16	A3-15-14	A3-15-14	A3-24-04		
MLINC(MREQIN)	A2-17-05	A3-24-07				
MLOAD	A2-35-06	A3-13-04	A3-13-04	A3-19-04		
MMINC($\overline{MPIPAL}$)	A2-19-03	A3-22-16				
MNHNC	A2-24-03	A3-15-17	A3-15-17	A3-21-13		
MNHRPT	A2-22-12	A3-14-07	A3-14-07	A3-20-03		
MNISQ	A2-17-11	A3-24-17				
MQINC($\overline{MVFAIL}$)	A2-19-01	A3-23-06				
$\overline{MONBB}$	A1-10-18	A1-25-05	A1-25-05	A2-28-02		
$\overline{MONWT}$	A1-09-13	A1-33-05	A1-33-05	A2-19-16		
MONWBK	A2-32-03	A3-15-04	A3-15-04	A3-24-01		
MON800	A2-16-13	A3-23-09				
$\overline{MOUTCOM}$	A2-21-13	A3-24-15				
$\overline{MPAL}$	A2-21-19	A3-19-09				
MPARBUS(MSP)	A2-31-01	A3-26-03				
MPGT($\overline{MGP}$)	A2-32-01	A3-27-13				
MPINC(MSQ10)	A2-21-16	A3-24-16				
$\overline{MQ1}$(MONWT)	A1-30-07	A3-25-19				
$\overline{MQ2}$(MRCH)	A2-16-14	A3-25-09				
MRDCH	A2-33-02	A3-14-04	A3-14-04	A3-22-12		
MREAD	A2-31-11	A3-14-14	A3-14-14	A3-20-14		
MRGG	A1-26-05	A3-23-18				
$\overline{MRPTAL}$	A2-16-01	A3-23-08				
MRPTR(MWEBG)	A1-25-02	A3-23-03				
MRSC	A3-07-04	A3-23-11				
MSBSTP	A2-32-02	A3-13-13	A3-13-13	A3-20-04		
$\overline{MSCDBL}$	A2-28-04	A3-21-05				
MSHANC(MSQ12)	A2-19-15	A3-24-06				
MSHINC(MSQ11)	A2-16-11	A3-22-15				
MSQ13	A2-18-15	A3-22-05				
MSQ14	A2-17-13	A3-23-15				
MSQ15(MSQEXT)	A2-16-02	A3-23-05				
MSQ16	A2-18-05	A3-22-14				
MSTP	A2-23-12	A3-14-17	A3-14-17	A3-19-03		
$\overline{MSTPIT}$	A2-20-18	A3-20-19				
MSTRT	A2-32-12	A3-13-03	A3-13-03	A3-21-14		
MST1	A2-17-14	A3-22-04				
MST2	A2-17-15	A3-23-14				
$\overline{MTCAL}$	A2-21-03	A3-22-17				
$\overline{MTCSA}$	A2-21-12	A3-23-13				
MTCSAI	A2-22-02	A3-13-16	A3-13-16	A3-20-13		
MT01	A2-19-08	A3-13-06	A3-13-06	A3-26-09		
MT02	A2-20-08	A3-14-16	A3-14-16	A3-27-19		
MT03	A2-17-08	A3-14-06	A3-14-06	A3-25-18		

SIGNAL	FROM	TO	FROM	TO	FROM	TO
MT04	A2-20-19	A3-15-16	A3-15-16	A3-25-08		
MT05	A2-18-08	A3-15-06	A3-15-06	A3-26-18		
MT06	A2-16-08	A3-13-15	A3-13-15	A3-26-08		
MT07	A2-17-18	A3-13-05	A3-13-05	A3-27-18		
MT08	A2-16-17	A3-14-15	A3-14-15	A3-25-17		
MT09	A2-18-18	A3-14-05	A3-14-05	A3-25-13		
MT10	A2-17-07	A3-15-15	A3-15-15	A3-26-17		
MT11	A2-16-18	A3-15-05	A3-15-05	A3-26-07		
MT12	A2-21-09	A3-13-14	A3-13-14	A3-27-17		
[MVCNTL]	A2-02-03	A2-30-13				
MWAG	A1-29-17	A3-26-02				
MWALPG(MRAG)	A1-29-08	A3-27-12				
$\overline{MWARNF}$	A2-16-16	A3-21-08				
$\overline{MWATCH}$	A2-18-16	A3-19-19				
MWBBG	A1-25-12	A3-24-13				
MWBG	A1-28-07	A3-24-19				
MWFBG(MWBKG)	A1-33-02	A3-23-02				
MWG4(MWG)	A1-26-02	A3-22-07				
MWG5(MRLG)	A1-28-15	A3-23-17				
MWG6(MST3)	A1-25-03	A3-23-07				
MWLPG(MWLG)	A1-28-06	A3-19-18				
MWL01	A1-11-16	A3-27-07				
MWL02	A1-12-19	A3-25-16				
MWL03	A1-12-09	A3-26-06				
MWL04	A1-11-18	A3-27-16				
MWL05	A1-12-18	A3-27-06				
MWL06	A1-12-08	A3-25-15				
MWL07	A1-10-17	A3-25-05				
MWL08	A1-10-07	A3-26-15				
MWL09	A1-11-17	A3-26-05				
MWL10	A1-11-07	A3-25-14				
MWL11	A1-12-17	A3-25-04				
MWL12	A1-12-07	A3-26-14				
MWL13	A1-07-11	A3-26-04				
MWL14	A1-10-09	A3-27-19				
MWL15	A1-11-19	A3-25-03				
MWL16	A1-10-19	A3-26-13				
MWQG	A1-28-17	A3-22-18				
MWSG	A1-30-18	A3-22-08				
MWXG(MRULOG)	A1-29-07	A3-22-09				
MWYG	A1-27-12	A3-23-19				
MWZG	A1-26-12	A3-22-19				
M25CPS(MSCALF)	A2-19-06	A3-20-18				
OUTCOM	A1-09-16	A2-19-12				
PACT	A3-08-04	A3-22-13	A3-22-13	A3-24-02		
PM10	A1-19-11					
PWR1	A3-20-08	A3-29-16				
PWR2	A3-21-18	A3-28-16				
Q2	A1-04-09	A2-21-14				
RA1	A1-13-15	A1-45-12	A1-45-12	A2-29-16	A2-29-16	A2-44-1
$\overline{RX9}$	A2-9-9	A2-36-13				
$\overline{RX10}$	A2-9-19	A2-36-3				
$\overline{BLK2}$	A1-28-19	A1-32-12	A1-32-12	A2-01-13	A2-01-13	A2-08-17
$\overline{BLK2}$	A2-08-17	A2-15-19	A2-15-19	A2-16-07	A2-16-07	A2-17-1
$\overline{BLK2}$	A2-17-17	A3-03-09				

REVISIONS				
SYM	DESCRIPTION	DATE	APPROVED	
O	RELEASED PER CCA [illegible]			
–	CLASS B CHANGED PER CCA R25532	[illegible]	[illegible]	✓
A	CHANGED PER CCA R25705 DR [illegible] CHK BGU APPD APS	[illegible]	[illegible]	✓
B	CHANGED PER CCA [illegible] AND CLASS A RELEASED [illegible]	[illegible]	[illegible]	✓

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

	REV STATUS OF WIREWRAP							
	PLATE				WIREWRAP CARD			
	A1	A2	A3	HW	A1	A2	A3	HW
REV	1	1	1	1	1	1	0	1
	—	—	—	—	—	—	—	—
	A	A	A	A	A	A	A	A
	—	—	—	—	—	B	A	A

REFERENCES:
1. ASSY DWG'S 2014046 & 2014275

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 26OCT65
CHECKED E. [illegible] 28 OCT 65
APPROVAL [illegible] 29 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION
PLATE A1-A2-A3-A4
WIRE WRAP LIST A18
CTS

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014150
SCALE NONE | WT | SHEET OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014150 B

2014150 B

2014150B

SIGNAL	FROM	TO	FROM	TO	FROM	TO
RA10	A1-12-12	A1-45-02	A1-45-02	A2-31-08	A2-31-08	A2-42-02
RA11	A1-14-18	A1-43-11	A1-43-11	A2-30-07	A2-30-07	A2-41-13
RA12	A1-15-18	A2-01-19	A2-01-19	A2-29-06	A2-29-06	A2-42-05
RA13	A1-32-01	A2-01-09	A2-01-09	A2-30-04		
RA14	A1-33-04	A2-03-19	A2-03-19	A2-28-19		
RA15	A1-10-16	A2-30-09				
RA16	A1-08-13	A2-01-08	A2-01-08	A2-25-14		
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[illegible]	A1-11-14	A2-04-19	A2-04-19	A2-33-09	A2-33-09	A2-45-19
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[illegible]	A1-09-02	A2-40-05				
[illegible]	A1-29-12	A2-20-16				
[illegible]	A2-05-18	A2-28-12				
[illegible]	A1-28-18	A2-21-11	A2-21-11	A2-24-11		
RETEST	A3-09-14	A3-18-02				
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[illegible]	A1-33-03	A1-40-17	A1-40-17	A1-44-03		
[illegible]	A1-31-12	A1-41-17	A1-41-17	A1-45-03		
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[illegible]	A1-32-02	A1-42-17	A1-42-17	A1-45-19		
[illegible]	A1-11-05	A1-40-16	A1-40-16	A1-45-09		
[illegible]	A1-15-15	A1-42-07	A1-42-07	A2-40-09		
[illegible]	A1-09-03	A1-40-06	A1-40-06	A2-41-19		
[illegible]	A1-15-05	A1-41-16	A1-41-16	A1-43-18		
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[illegible]	A1-13-14	A1-42-16				
[illegible]	A1-09-04	A1-42-06	A1-42-06	A2-01-15	A2-01-15	A2-42-19
[illegible]	A1-10-08	A1-40-15	A1-40-15	A1-43-08		
[illegible]	A1-33-12	A1-38-12	A1-38-12	A2-38-02		
[illegible]	A1-31-11	A1-38-02	A1-38-02	A1-44-18		
[illegible]	A1-31-01	A1-39-12	A1-39-12	A2-39-15		
[illegible]	A1-32-11	A1-39-02	A1-39-02	A1-44-08		
[illegible]	A1-32-07	A1-37-11	A1-37-11	A2-39-12		
[illegible]	A1-33-07	A1-40-19	A1-40-19	A1-45-18		
[illegible]	A1-15-14	A1-40-09	A1-40-09	A2-39-02		
[illegible]	A1-14-04	A1-41-19	A1-41-19	A1-45-08		
[illegible]	A1-14-14	A1-41-09	A1-41-09	A2-37-11		
[illegible]	A1-13-04	A1-42-19	A1-42-19	A1-43-17		
[illegible]	A1-33-16	A1-42-09	A1-42-09	A2-37-01		
[illegible]	A1-25-16	A1-40-18	A1-40-18	A2-03-14		
[illegible]	A1-33-06	A1-40-08	A1-40-08	A2-38-11		
[illegible]	A1-31-15	A1-41-18	A1-41-18	A1-44-17		
[illegible]	A1-31-05	A1-41-08	A1-41-08	A2-38-01		
[illegible]	A1-32-15	A1-42-18	A1-42-18	A1-45-17		
RLP1	A1-32-05	A2-44-13				
RLP10	A1-33-15	A2-42-12				
RLP11	A1-31-04	A2-41-12				
RLP12	A1-29-11	A2-40-03				
RLP13	A1-14-16	A2-25-04				
RLP14	A1-13-08	A2-28-09				
RLP15	A1-14-06	A2-30-08				
RLP16	A1-12-03	A1-45-13	A1-45-13	A2-25-05		
RLP2	A1-29-01	A2-45-02				
RLP3	A1-30-01	A2-45-12				
[illegible]	A1-31-09	A2-44-03				
[illegible]	A1-27-18	A2-44-08				
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[illegible]	A1-33-18	A2-42-04				
[illegible]	A1-30-15	A2-17-19				
[illegible]	A1-33-08	A2-45-15				
[illegible]	A1-28-14	A2-40-01				
[illegible]	A1-28-04	A2-42-13				
[illegible]	A1-29-04	A2-40-04				
[illegible]	A1-11-04	A2-27-14				

SIGNAL	FROM	TO	FROM	TO	FROM	TO
RQ14	A1-14-15	A2-30-19				
RQ15	A1-10-05	A2-27-06				
RQ16	A1-11-15	A2-12-12	A2-12-12	A2-27-15		
RQ2	A1-30-14	A2-44-11				
RQ3	A1-30-04	A2-43-12				
RQ4	A1-28-13	A2-45-14				
RQ5	A1-15-04	A2-43-19				
RQ6	A1-29-13	A2-45-06				
RQ7	A1-14-03	A2-44-17				
RQ8	A1-30-13	A2-43-18				
RQ9	A1-30-03	A2-41-15				
RS1	A1-28-12	A1-35-02	A1-35-02	A2-43-04		
$\overline{RS1}$	A1-28-02	A1-36-12	A1-36-12	A2-19-04		
RS10	A1-29-02	A1-38-17	A1-38-17	A2-41-02		
$\overline{RS10}$	A1-30-12	A1-38-07				
$\overline{RS11}$	A1-28-11	A1-39-07				
RS11	A1-30-02	A1-39-17	A1-39-17	A2-40-02		
$\overline{RS12}$	A1-28-16	A1-37-06				
RS12	A1-30-17	A1-37-16	A1-37-16	A2-40-13		
RS2	A1-29-15	A1-36-02	A1-36-02	A2-45-01		
$\overline{RS2}$	A1-29-05	A1-34-11	A1-34-11	A2-21-06		
RS3	A1-29-06	A1-37-19	A1-37-19	A2-44-02		
$\overline{RS3}$	A1-27-02	A1-37-09	A1-37-09	A2-20-14		
RS4	A1-28-08	A1-38-19	A1-38-19	A2-21-05	A2-21-05	A2-43-03
$\overline{RS4}$	A1-29-18	A1-38-09				
RS5	A1-25-11	A1-39-19	A1-39-19	A2-20-06	A2-20-06	A2-44-09
$\overline{RS5}$	A1-29-09	A1-39-09				
RS6	A1-30-09	A1-37-18	A1-37-18	A2-19-14	A2-19-14	A2-43-06
$\overline{RS6}$	A1-25-15	A1-37-08				
RS7	A1-26-15	A1-38-18	A1-38-18	A2-45-07		
$\overline{RS7}$	A1-27-15	A1-38-08				
RS8	A1-25-04	A1-39-18	A1-39-18	A2-45-18		
$\overline{RS8}$	A1-27-14	A1-39-08				
RS9	A1-05-02	A1-37-17	A1-37-17	A2-42-14		
$\overline{RS9}$	A1-05-12	A1-37-07				
RX1	A1-04-02	A2-45-05				
$\overline{RX1}$	A2-09-02	A2-36-18				
RX10	A1-04-12	A2-41-11				
RX11	A1-06-03	A2-42-03				
$\overline{RX11}$	A2-10-08	A2-32-15				
RX12	A1-06-13	A2-41-14				
$\overline{RX12}$	A2-12-18	A2-33-15				
RX13	A1-10-04	A2-26-04				
$\overline{RX13}$	A2-08-04	A2-33-05				
RX14	A1-15-08	A2-29-09				
$\overline{RX14}$	A2-06-03	A2-31-14				
RX15	A1-12-06	A2-28-07				
$\overline{RX15}$	A1-04-19	A2-31-04				
RX16	A1-13-17	A1-42-12	A1-42-12	A2-26-05		
RX2	A1-05-03	A2-44-01				
$\overline{RX2}$	A2-09-15	A2-34-17				
RX3	A1-05-13	A2-43-02				
$\overline{RX3}$	A2-09-18	A2-35-17				
RX4	A1-04-03	A2-45-04				
RX5	A1-27-07	A2-43-09				
RX6	A1-26-07	A2-43-15				
RX7	A1-13-13	A2-44-07				
RX8	A1-25-07	A2-43-08				
RX9	A1-04-13	A2-41-05				
RY1	A1-06-04	A2-43-14				
RY10	A1-06-14	A2-41-01				
RY11	A1-05-04	A2-40-12				
RY12	A1-05-14	A2-41-04				
RY13	A1-12-13	A2-26-14				
RY14	A1-14-08	A2-29-19				
RY15	A1-10-14	A2-28-17				
RY16	A1-04-04	A1-44-15	A1-44-15	A2-26-15		
RY2	A1-04-14	A2-45-11				
RY3	A1-06-05	A2-44-12				
RY4	A1-06-15	A2-43-13				
RY5	A1-05-05	A2-44-19				
RY6	A1-05-15	A2-43-05				
RY7	A1-25-19	A2-45-17				
RY8	A1-04-05	A2-44-18				
RY9	A1-04-15	A2-42-15				
RZ1	A1-06-06	A2-26-07	A2-26-07	A2-40-08		
$\overline{RZ1}$	A1-06-16	A2-27-17				
RZ10	A1-05-06	A2-30-18	A2-30-18	A2-42-17		
$\overline{RZ10}$	A1-05-16	A2-33-07				
RZ11	A1-04-06	A2-29-08	A2-29-08	A2-42-07		
$\overline{RZ11}$	A1-04-16	A2-31-05				
RZ12	A1-06-07	A2-27-01	A2-27-01	A2-40-16		
$\overline{RZ12}$	A1-06-17	A2-32-05				
RZ13	A1-13-19	A2-40-06				
$\overline{RZ13}$	A1-13-09	A2-36-08				
RZ14	A1-12-02	A2-41-16				
$\overline{RZ14}$	A1-10-11	A2-34-07				
RZ15	A1-15-19	A2-41-06				
$\overline{RZ15}$	A1-14-09	A2-35-07				
RZ16	A1-15-17	A2-42-16				

SIGNAL	FROM	TO	FROM	TO	FROM	TO
$\overline{RZ16}$	A1-15-09					
RZ2	A1-05-07	A2-26-17	A2-26-17	A2-41-18		
$\overline{RZ2}$	A1-05-17	A2-26-11				
RZ3	A1-07-18	A2-25-08	A2-25-08	A2-41-08		
$\overline{RZ3}$	A1-09-19	A2-27-09				
RZ4	A1-08-19	A2-25-18	A2-25-18	A2-42-18		
$\overline{RZ4}$	A1-07-19	A2-32-18				
RZ5	A1-08-07	A2-28-08	A2-28-08	A2-42-08		
$\overline{RZ5}$	A1-07-07	A2-32-08				
RZ6	A1-13-02	A2-26-01	A2-26-01	A2-40-17		
$\overline{RZ6}$	A1-27-19	A2-33-18				
RZ7	A1-09-08	A2-27-19	A2-27-19	A2-40-07		
$\overline{RZ7}$	A1-27-09	A2-33-08				
RZ8	A1-26-18	A2-26-09	A2-26-09	A2-41-17		
$\overline{RZ8}$	A1-25-08	A2-32-07				
RZ9	A1-07-08	A2-29-02	A2-29-02	A2-41-07		
$\overline{RZ9}$	A1-09-09	A2-33-17				
R5A	A1-06-19	A3-11-16	A3-11-16	A4R5A		
R5B	A3-28-11	A4R5B				
R6A	A1-39-05	A2-24-12	A2-24-12	A4R6A		
R6B	A3-28-12	A4R6B				
R7A	A2-25-03	A2-26-13	A2-26-13	A4R7A		
R7B	A3-29-13	A4R7B				
R8B	A3-28-03	A4R8B				
SCTROR	A1-34-08	A2-18-01				
SDAB1	A1-01-19	A1-45-15				
SDAB2	A1-01-09	A1-43-03				
SDAB3	A1-02-19	A1-44-13				
SDAB4	A1-02-09	A2-02-15				
SDAB5	A1-03-19	A2-02-09				
SDAB6	A1-03-09	A2-03-17				
SDAG1	A1-01-18	A2-01-18				
SDAG2	A1-01-08	A1-44-04				
SDAG3	A1-02-18	A2-02-19				
SDAG4	A1-02-08	A2-01-14				
SDAG5	A1-03-18	A2-01-07				
SDAG6	A1-03-08	A1-44-14				
SDALP1	A1-01-14	A1-41-02				
SDALP2	A1-01-04	A2-11-04				
SDALP3	A1-02-14	A2-11-11				
SDALP4	A1-02-04	A1-40-02				
SDALP5	A1-03-14	A1-40-13				
SDALP6	A1-03-04	A1-44-07				
SDAQ1	A1-01-17	A2-11-13				
SDAQ2	A1-01-07	A1-43-16				
SDAQ3	A1-02-17	A2-10-11				
SDAQ4	A1-02-07	A2-12-02				
SDAQ5	A1-03-17	A2-11-12				
SDAQ6	A1-03-07	A2-10-03				
SDAX1	A1-01-16	A2-11-02				
SDAX2	A1-01-06	A2-10-12				
SDAX3	A1-02-16	A2-10-02				
SDAX4	A1-02-06	A2-12-13				
SDAX5	A1-03-16	A2-10-13				
SDAX6	A1-03-06	A2-12-04				
SDAY1	A1-01-15	A1-45-14				
SDAY2	A1-01-05	A1-45-04				
SDAY3	A1-02-15	A1-43-13				
SDAY4	A1-02-05	A1-45-06				
SDAY5	A1-03-15	A1-43-15				
SDAY6	A1-03-05	A1-43-05				
$\overline{SDBLTST}$	A3-03-03	A3-12-17				
[SEXI]	A2-04-07	A2-31-07	A2-31-07	A3-01-15		
[$\overline{SEXI}$]	A2-05-17	A2-31-17	A2-31-17	A3-06-11		
SIIP	A1-34-18	A2-18-11				
SINKL	A1-35-18	A2-19-17				
$\overline{SKL}$	A2-09-06	A2-34-02				
SLT	A1-09-06	A1-21-09	A1-21-09	A1-21-11	A1-21-11	A1-21-19
SLT	A1-21-19	A1-36-04	A1-36-04	A2-15-09	A2-15-09	A2-15-11
SLT	A2-15-11	~~A2-15-19~~	~~A2-15-19~~	A2-37-12	A2-37-12	A2-38-04
SLT	A2-38-04	A2-39-13	A2-39-13	A2-42-06	A2-42-06	A2-42-09
SLT	A2-42-09	A3-12-01	A3-12-01	A3-13-01	A3-13-01	A3-13-11
SLT	A3-13-11	A3-14-11				
SMAX	A1-25-18	A2-26-19				
SMIN	A1-08-09	A2-25-07				
SMO	A2-26-03	A3-03-16				
$\overline{SMO}$	A1-30-11	A2-27-13				
SNHNC	A1-36-03	A2-33-03				
SNHRPT	A1-36-13	A2-33-13				
SNISQ	A1-36-19	A2-23-14				
SPF	A1-35-08	A2-20-07				
SPWA0	A1-01-13	A2-12-07				
SPWA1	A1-01-03	A2-10-06				
SPWA2	A1-02-13	A2-11-16				
SPWB0	A1-02-03	A2-11-06				
SPWB1	A1-03-13	A2-12-16				
SPWB2	A1-03-03	A2-07-01				
SRE	A1-30-06	A1-45-07	A1-45-07	A2-27-18	A2-27-18	A3-02-14
$\overline{SRE}$	A2-06-18	A2-27-08				

SIGNAL	FROM	TO	FROM	TO	FROM	TO
SRGST	A1-34-09	A2-20-13				
$\overline{SRM}$	A1-03-12	A1-43-06				
SRPTR	A1-29-19	A1-36-09				
SRTC	A1-02-02	A1-44-16				
SRT01	A1-01-12	A2-11-09				
SRT1	A1-01-02	A2-11-08				
SRT5	A1-02-12	A2-10-16				
SSTPGT	A2-33-11	A3-07-14				
SSTRCH	A2-22-14	A3-09-05				
SSTRGG	A1-27-03	A3-07-06				
SSTRPTR(SSTWEBK)	A1-30-05	A3-07-05				
SSTWYG	A1-33-17	A3-07-07				
SSTWXG	A1-30-19	A3-07-17				
SSTWSG	A1-32-17	A3-08-06				
SSTWZG	A1-32-09	A3-10-15				
SSTWAG	A1-29-03	A3-12-06				
SSTWALPG	A1-31-18	A3-08-16				
SSTWCH	A2-22-04	A3-09-15				
SSTWG4	A1-26-14	A3-09-07				
SSTWG5	A1-27-13	A3-09-17				
SSTWLPG	A1-25-13	A3-08-17				
SSTWQG	A1-27-06	A3-11-15				
STD	A2-06-08	A2-26-16				
$\overline{STD}$	A2-01-02	A2-26-06				
STINKL	A3-01-19	A3-16-02				
$\overline{STI}$	A1-34-19	A2-31-12				
STL	A1-44-02	A2-26-08				
STLDCH	A3-01-16	A3-18-01				
STLINC	A3-03-19	A3-18-14				
STLOAD	A3-03-06	A3-17-02				
$\overline{STL}$	A2-07-09	A2-30-11				
STMONWT	A3-04-12	A3-16-19				
STM800	A1-20-18	A3-18-06				
STOINC(STVFAIL)	A3-01-06	A3-18-04				
STP	A1-45-16	A2-25-17				
STPARBS	A3-02-16	A3-17-07				
$\overline{STP}$	A1-07-09	A2-04-16	A2-04-16	A2-25-06		
STRDCH	A3-03-07	A3-18-11				
STREAD	A3-03-14	A3-18-12				
STRFR	A2-03-05	A2-24-13				
STRLIGA	A3-02-08	A3-17-12				
STRSS	A2-06-17	A2-23-03				
STSTP	A3-01-14	A3-16-01				
$\overline{STSTPIT}$	A3-05-12	A3-17-03				
STSTI	A3-12-07	A3-16-03				
$\overline{STTCSA}$	A3-02-18	A3-16-13				
STTCSAI	A3-02-05	A3-17-11				
STT01	A3-01-08	A3-17-09				
STT02	A3-03-18	A3-18-19				
STT03	A3-06-12	A3-18-09				
STT04	A3-04-13	A3-16-18				
STT05	A3-05-13	A3-16-08				
STT06	A3-03-05	A3-17-18				
STT07	A3-05-02	A3-17-08				
STT08	A3-06-04	A3-18-18				
STT09	A3-03-08	A3-18-08				
STT10	A3-01-18	A3-16-17				
STT11	A3-03-15	A3-16-07				
STT12	A3-02-15	A3-17-17				
STT25(STSCAFAL)	A3-02-06	A3-16-12				

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25498		
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25705 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	[illegible]	[illegible]

2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. Moy DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible] 29 Oct 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION
PLATE A1-A2-A3-A4
WIRE WRAP LIST A18
CTS

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014150
SCALE NONE
WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014150B

2014150 B

2014150 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25498		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25705 DR CHK BBQ APPD		
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218		

SIGNAL	FROM	TO	FROM	TO	FROM	TO
RA10	A1-12-12	A1-45-02	A1-45-02	A2-31-08	A2-31-08	A2-42-02
RA11	A1-14-18	A1-43-11	A1-43-11	A2-30-07	A2-30-07	A2-41-13
RA12	A1-15-18	A2-01-19	A2-01-19	A2-29-06	A2-29-06	A2-42-05
RA13	A1-32-01	A2-01-09	A2-01-09	A2-30-04		
RA14	A1-33-04	A2-03-19	A2-03-19	A2-28-19		
RA15	A1-10-16	A2-30-09				
RA16	A1-08-13	A2-01-08	A2-01-08	A2-25-14		
RA2	A1-13-05	A2-02-18	A2-02-18	A2-28-13	A2-28-13	A2-43-11
RA3	A1-14-05	A2-02-08	A2-02-08	A2-30-16	A2-30-16	A2-45-13
RA4	A1-11-12	A2-03-18	A2-03-18	A2-34-06	A2-34-06	A2-44-14
RA5	A1-10-15	A2-03-08	A2-03-08	A2-32-19	A2-32-19	A2-42-11
RA6	A1-12-15	A1-44-05	A1-44-05	A2-32-09	A2-32-09	A2-44-06
RA7	A1-12-05	A2-02-12	A2-02-12	A2-33-19	A2-33-19	A2-43-17
RA8	A1-11-14	A2-04-19	A2-04-19	A2-33-09	A2-33-09	A2-45-19
RA9	A1-12-14	A1-45-05	A1-45-05	A2-31-18	A2-31-18	A2-40-15
RB1	A1-12-04	A2-44-05				
RB10	A1-10-03	A2-40-11				
RB11	A1-11-13	A2-41-03				
RB12	A1-11-03	A2-40-14				
RB13	A1-14-07	A2-27-04				
RB14	A1-13-07	A2-29-18				
RB15	A1-10-02	A2-25-15				
RB16	A1-13-18	A2-03-09	A2-03-09	A2-27-05		
RB2	A1-07-02	A2-43-01				
RB3	A1-08-12	A2-45-03				
RB4	A1-08-02	A2-44-04				
RB5	A1-26-08	A2-42-01				
RB6	A1-09-12	A2-45-16				
RB7	A1-15-02	A2-43-07				
RB8	A1-13-11	A2-45-09				
RB9	A1-09-02	A2-40-05				
$\overline{RDFB}$	A1-29-12	A2-20-16				
$\overline{RQINH}$	A2-05-18	A2-28-12				
$\overline{REQIN}$	A1-28-18	A2-21-11	A2-21-11	A2-24-11		
RETEST	A3-09-14	A3-18-02				
$\overline{RGG}$	A1-31-07	A2-33-12				
RG1	A1-32-04	A1-37-12	A1-37-12	A2-38-12		
$\overline{RG1}$	A1-33-13	A1-37-02	A1-37-02	A1-43-04		
RG10	A1-31-03	A1-42-08	A1-42-08	A2-39-11		
$\overline{RG10}$	A1-33-03	A1-40-17	A1-40-17	A1-44-03		
$\overline{RG11}$	A1-31-12	A1-41-17	A1-41-17	A1-45-03		
RG11	A1-32-13	A1-40-07	A1-40-07	A2-39-01		
RG12	A1-31-02	A1-41-07	A1-41-07	A2-40-19		
$\overline{RG12}$	A1-32-02	A1-42-17	A1-42-17	A1-45-19		
$\overline{RG13}$	A1-11-05	A1-40-16	A1-40-16	A1-45-09		
RG13	A1-15-15	A1-42-07	A1-42-07	A2-40-09		
RG14	A1-09-03	A1-40-06	A1-40-06	A2-41-19		
$\overline{RG14}$	A1-13-05	A1-41-16	A1-41-16	A1-43-18		
RG15	A1-08-03	A1-41-06	A1-41-06	A2-41-09		
$\overline{RG15}$	A1-13-14	A1-42-16				
RG16	A1-09-04	A1-42-06	A1-42-06	A2-01-15	A2-01-15	A2-42-19
$\overline{RG16}$	A1-10-08	A1-40-15	A1-40-15	A1-43-08		
RG2	A1-33-12	A1-38-12	A1-38-12	A2-38-02		
$\overline{RG2}$	A1-31-11	A1-38-02	A1-38-02	A1-44-18		
RG3	A1-31-01	A1-39-12	A1-39-12	A2-39-15		
$\overline{RG3}$	A1-32-11	A1-39-02	A1-39-02	A1-44-08		
RG4	A1-32-07	A1-37-11	A1-37-11	A2-39-12		
$\overline{RG4}$	A1-33-07	A1-40-19	A1-40-19	A1-45-18		
RG5	A1-15-14	A1-40-09	A1-40-09	A2-39-02		
$\overline{RG5}$	A1-14-04	A1-41-19	A1-41-19	A1-45-08		
RG6	A1-14-14	A1-41-09	A1-41-09	A2-37-11		
$\overline{RG6}$	A1-13-04	A1-42-19	A1-42-19	A1-43-17		
RG7	A1-33-16	A1-42-09	A1-42-09	A2-37-01		
$\overline{RG7}$	A1-25-16	A1-40-18	A1-40-18	A2-03-14		
RG8	A1-33-06	A1-40-08	A1-40-08	A2-38-11		
$\overline{RG8}$	A1-31-15	A1-41-18	A1-41-18	A1-44-17		
RG9	A1-31-05	A1-41-08	A1-41-08	A2-38-01		
$\overline{RG9}$	A1-32-15	A1-42-18	A1-42-18	A1-45-17		
RLP1	A1-32-05	A2-44-13				
RLP10	A1-33-15	A2-42-12				
RLP11	A1-31-04	A2-41-12				
RLP12	A1-29-11	A2-40-03				
RLP13	A1-14-16	A2-25-04				
RLP14	A1-13-08	A2-28-09				
RLP15	A1-14-06	A2-30-08				
RLP16	A1-12-03	A1-45-13	A1-45-13	A2-25-05		
RLP2	A1-29-01	A2-45-02				
RLP3	A1-30-01	A2-45-12				
RLP4	A1-31-09	A2-44-03				
RLP5	A1-27-18	A2-44-08				
RLP6	A1-33-09	A2-44-16				
RLP7	A1-31-08	A2-43-16				
RLP8	A1-32-18	A2-45-08				
RLP9	A1-33-18	A2-42-04				
RPTR	A1-30-15	A2-17-19				
RQ1	A1-33-08	A2-45-15				
RQ10	A1-28-14	A2-40-01				
RQ11	A1-28-04	A2-42-13				
RQ12	A1-29-04	A2-40-04				
RQ13	A1-11-04	A2-27-14				

SIGNAL	FROM	TO	FROM	TO	FROM	TO
RQ14	A1-14-15	A2-30-19				
RQ15	A1-10-05	A2-27-06				
RQ16	A1-11-15	A2-12-12	A2-12-12	A2-27-15		
RQ2	A1-30-14	A2-44-11				
RQ3	A1-30-04	A2-43-12				
RQ4	A1-28-13	A2-45-14				
RQ5	A1-15-04	A2-43-19				
RQ6	A1-29-13	A2-45-06				
RQ7	A1-14-03	A2-44-17				
RQ8	A1-30-13	A2-43-18				
RQ9	A1-30-03	A2-41-15				
RS1	A1-28-12	A1-35-02	A1-35-02	A2-43-04		
$\overline{RS1}$	A1-28-02	A1-36-12	A1-36-12	A2-19-04		
RS10	A1-29-02	A1-38-17	A1-38-17	A2-41-02		
$\overline{RS10}$	A1-30-12	A1-38-07				
$\overline{RS11}$	A1-28-11	A1-39-07				
RS11	A1-30-02	A1-39-17	A1-39-17	A2-40-02		
$\overline{RS12}$	A1-28-16	A1-37-06				
RS12	A1-30-17	A1-37-16	A1-37-16	A2-40-13		
RS2	A1-29-15	A1-36-02	A1-36-02	A2-45-01		
$\overline{RS2}$	A1-29-05	A1-34-11	A1-34-11	A2-21-06		
RS3	A1-29-06	A1-37-19	A1-37-19	A2-44-02		
$\overline{RS3}$	A1-27-02	A1-37-09	A1-37-09	A2-20-14		
RS4	A1-28-08	A1-38-19	A1-38-19	A2-21-05	A2-21-05	A2-43-03
$\overline{RS4}$	A1-29-18	A1-38-09				
RS5	A1-25-11	A1-39-19	A1-39-19	A2-20-06	A2-20-06	A2-44-09
$\overline{RS5}$	A1-29-09	A1-39-09				
RS6	A1-30-09	A1-37-18	A1-37-18	A2-19-14	A2-19-14	A2-43-06
$\overline{RS6}$	A1-25-15	A1-37-08				
RS7	A1-26-15	A1-38-18	A1-38-18	A2-45-07		
$\overline{RS7}$	A1-27-15	A1-38-08				
RS8	A1-25-04	A1-39-18	A1-39-18	A2-45-18		
$\overline{RS8}$	A1-27-14	A1-39-08				
RS9	A1-05-02	A1-37-17	A1-37-17	A2-42-14		
$\overline{RS9}$	A1-05-12	A1-37-07				
RX1	A1-04-02	A2-45-05				
$\overline{RX1}$	A2-09-02	A2-36-18				
RX10	A1-04-12	A2-41-11				
RX11	A1-06-03	A2-42-03				
$\overline{RX11}$	A2-10-08	A2-32-15				
RX12	A1-06-13	A2-41-14				
$\overline{RX12}$	A2-12-18	A2-33-15				
RX13	A1-10-04	A2-26-04				
$\overline{RX13}$	A2-08-04	A2-33-05				
RX14	A1-15-08	A2-29-09				
$\overline{RX14}$	A2-06-03	A2-31-14				
RX15	A1-12-06	A2-28-07				
$\overline{RX15}$	A1-04-19	A2-31-04				
RX16	A1-13-17	A1-42-12	A1-42-12	A2-26-05		
RX2	A1-05-03	A2-44-01				
$\overline{RX2}$	A2-09-15	A2-34-17				
RX3	A1-05-13	A2-43-02				
$\overline{RX3}$	A2-09-18	A2-35-17				
RX4	A1-04-03	A2-45-04				
RX5	A1-27-07	A2-43-09				
RX6	A1-26-07	A2-43-15				
RX7	A1-13-13	A2-44-07				
RX8	A1-25-07	A2-43-08				
RX9	A1-04-13	A2-41-05				
RY1	A1-06-04	A2-43-14				
RY10	A1-06-14	A2-41-01				
RY11	A1-05-04	A2-40-12				
RY12	A1-05-14	A2-41-04				
RY13	A1-12-13	A2-26-14				
RY14	A1-14-08	A2-29-19				
RY15	A1-10-14	A2-28-17				
RY16	A1-04-04	A1-44-15	A1-44-15	A2-26-15		
RY2	A1-04-14	A2-45-11				
RY3	A1-06-05	A2-44-12				
RY4	A1-06-15	A2-43-13				
RY5	A1-05-05	A2-44-19				
RY6	A1-05-15	A2-43-05				
RY7	A1-25-19	A2-45-17				
RY8	A1-04-05	A2-44-18				
RY9	A1-04-15	A2-42-15				
RZ1	A1-06-06	A2-26-07	A2-26-07	A2-40-08		
$\overline{RZ1}$	A1-06-16	A2-27-17				
RZ10	A1-05-06	A2-30-18	A2-30-18	A2-42-17		
$\overline{RZ10}$	A1-05-16	A2-33-07				
RZ11	A1-04-06	A2-29-08	A2-29-08	A2-42-07		
$\overline{RZ11}$	A1-04-16	A2-31-05				
RZ12	A1-06-07	A2-27-01	A2-27-01	A2-40-16		
$\overline{RZ12}$	A1-06-17	A2-32-05				
RZ13	A1-13-19	A2-40-06				
$\overline{RZ13}$	A1-13-09	A2-36-08				
RZ14	A1-12-02	A2-41-16				
$\overline{RZ14}$	A1-10-11	A2-34-07				
RZ15	A1-15-19	A2-41-06				
$\overline{RZ15}$	A1-14-09	A2-35-07				
RZ16	A1-15-17	A2-42-16				

SIGNAL	FROM	TO	FROM	TO	FROM	TO
$\overline{RZ16}$	A1-15-09					
RZ2	A1-05-07	A2-26-17	A2-26-17	A2-41-18		
$\overline{RZ2}$	A1-05-17	A2-26-11				
RZ3	A1-07-18	A2-25-08	A2-25-08	A2-41-08		
$\overline{RZ3}$	A1-09-19	A2-27-09				
RZ4	A1-08-19	A2-25-18	A2-25-18	A2-42-18		
$\overline{RZ4}$	A1-07-19	A2-32-18				
RZ5	A1-08-07	A2-28-08	A2-28-08	A2-42-08		
$\overline{RZ5}$	A1-07-07	A2-32-08				
RZ6	A1-13-02	A2-26-01	A2-26-01	A2-40-17		
$\overline{RZ6}$	A1-27-19	A2-33-18				
RZ7	A1-09-08	A2-27-19	A2-27-19	A2-40-07		
$\overline{RZ7}$	A1-27-09	A2-33-08				
RZ8	A1-26-18	A2-26-09	A2-26-09	A2-41-17		
$\overline{RZ8}$	A1-25-08	A2-32-07				
RZ9	A1-07-08	A2-29-02	A2-29-02	A2-41-07		
$\overline{RZ9}$	A1-09-09	A2-33-17				
R5A	A1-06-19	A3-11-16	A3-11-16	A4R5A		
R5B	A3-28-11	A4R5B				
R6A	A1-39-05	A2-24-12	A2-24-12	A4R6A		
R6B	A3-28-12	A4R6B				
R7A	A2-25-03	A2-26-13	A2-26-13	A4R7A		
R7B	A3-29-13	A4R7B				
R8B	A3-28-03	A4R8B				
SCTROR	A1-34-08	A2-18-01				
SDAB1	A1-01-19	A1-45-15				
SDAB2	A1-01-09	A1-43-03				
SDAB3	A1-02-19	A1-44-13				
SDAB4	A1-02-09	A2-02-15				
SDAB5	A1-03-19	A2-02-09				
SDAB6	A1-03-09	A2-03-17				
SDAG1	A1-01-18	A2-01-18				
SDAG2	A1-01-08	A1-44-04				
SDAG3	A1-02-18	A2-02-19				
SDAG4	A1-02-08	A2-01-14				
SDAG5	A1-03-18	A2-01-07				
SDAG6	A1-03-08	A1-44-14				
SDALP1	A1-01-14	A1-41-02				
SDALP2	A1-01-04	A2-11-04				
SDALP3	A1-02-14	A2-11-11				
SDALP4	A1-02-04	A1-40-02				
SDALP5	A1-03-14	A1-40-13				
SDALP6	A1-03-04	A1-44-07				
SDAQ1	A1-01-17	A2-11-13				
SDAQ2	A1-01-07	A1-43-16				
SDAQ3	A1-02-17	A2-10-11				
SDAQ4	A1-02-07	A2-12-02				
SDAQ5	A1-03-17	A2-11-12				
SDAQ6	A1-03-07	A2-10-03				
SDAX1	A1-01-16	A2-11-02				
SDAX2	A1-01-06	A2-10-12				
SDAX3	A1-02-16	A2-10-02				
SDAX4	A1-02-06	A2-12-13				
SDAX5	A1-03-16	A2-10-13				
SDAX6	A1-03-06	A2-12-04				
SDAY1	A1-01-15	A1-45-14				
SDAY2	A1-01-05	A1-45-04				
SDAY3	A1-02-15	A1-43-13				
SDAY4	A1-02-05	A1-45-06				
SDAY5	A1-03-15	A1-43-15				
SDAY6	A1-03-05	A1-43-05				
$\overline{SDBLTST}$	A3-03-03	A3-12-17				
[SEXI]	A2-04-07	A2-31-07	A2-31-07	A3-01-15		
[$\overline{SEXI}$]	A2-05-17	A2-31-17	A2-31-17	A3-06-11		
SIIP	A1-34-18	A2-18-11				
SINKL	A1-35-18	A2-19-17				
$\overline{SKL}$	A2-09-06	A2-34-02				
SLT	A1-09-06	A1-21-09	A1-21-09	A1-21-11	A1-21-11	A1-21-19
SLT	A1-21-19	A1-36-04	A1-36-04	A2-15-09	A2-15-09	A2-15-11
SLT	A2-15-11	~~A2-15-19~~	~~A2-15-19~~	A2-37-12	A2-37-12	A2-38-04
SLT	A2-38-04	A2-39-13	A2-39-13	A2-42-06	A2-42-06	A2-42-09
SLT	A2-42-09	A3-12-01	A3-12-01	A3-13-01	A3-13-01	A3-13-11
SLT	A3-13-11	A3-14-11				
SMAX	A1-25-18	A2-26-19				
SMIN	A1-08-09	A2-25-07				
SMO	A2-26-03	A3-03-16				
$\overline{SMO}$	A1-30-11	A2-27-13				
SNHNC	A1-36-03	A2-33-03				
SNHRPT	A1-36-13	A2-33-13				
SNISQ	A1-36-19	A2-23-14				
SPF	A1-35-08	A2-20-07				
SPWA0	A1-01-13	A2-12-07				
SPWA1	A1-01-03	A2-10-06				
SPWA2	A1-02-13	A2-11-16				
SPWB0	A1-02-03	A2-11-06				
SPWB1	A1-03-13	A2-12-16				
SPWB2	A1-03-03	A2-07-01				
SRE	A1-30-06	A1-45-07	A1-45-07	A2-27-18	A2-27-18	A3-02-14
$\overline{SRE}$	A2-06-18	A2-27-08				

SIGNAL	FROM	TO	FROM	TO	FROM	TO
SRGST	A1-34-09	A2-20-13				
$\overline{SRM}$	A1-03-12	A1-43-06				
SRPTR	A1-29-19	A1-36-09				
SRTC	A1-02-02	A1-44-16				
SRT01	A1-01-12	A2-11-09				
SRT1	A1-01-02	A2-11-08				
SRT5	A1-02-12	A2-10-16				
SSTPGT	A2-33-11	A3-07-14				
SSTRCH	A2-22-14	A3-09-05				
SSTRGG	A1-27-03	A3-07-06				
SSTRPTR(SSTWEBK)	A1-30-05	A3-07-05				
SSTWYG	A1-33-17	A3-07-07				
SSTWXG	A1-30-19	A3-07-17				
SSTWSG	A1-32-17	A3-08-06				
SSTWZG	A1-32-09	A3-10-15				
SSTWAG	A1-29-03	A3-12-06				
SSTWALPG	A1-31-18	A3-08-16				
SSTWCH	A2-22-04	A3-09-15				
SSTWG4	A1-26-14	A3-08-07				
SSTWG5	A1-27-13	A3-09-17				
SSTWLPG	A1-25-13	A3-08-17				
SSTWQG	A1-27-06	A3-11-15				
STD	A2-06-08	A2-26-16				
$\overline{STD}$	A2-01-02	A2-26-06				
STINKL	A3-01-19	A3-16-02				
$\overline{STI}$	A1-34-19	A2-31-12				
STL	A1-44-02	A2-26-08				
STLDCH	A3-01-16	A3-18-01				
STLINC	A3-03-19	A3-18-14				
STLOAD	A3-03-06	A3-17-02				
$\overline{STL}$	A2-07-09	A2-30-11				
STMONWT	A3-04-12	A3-16-19				
STM800	A1-20-18	A3-18-06				
STOINC(STVFAIL)	A3-01-06	A3-18-04				
STP	A1-45-16	A2-25-17				
STPARBS	A3-02-16	A3-17-07				
$\overline{STP}$	A1-07-09	A2-04-16	A2-04-16	A2-25-06		
STRDCH	A3-03-07	A3-18-11				
STREAD	A3-03-14	A3-18-12				
STRFR	A2-03-05	A2-24-13				
STRLIGA	A3-02-08	A3-17-12				
STRSS	A2-06-17	A2-23-03				
STSTP	A3-01-14	A3-16-01				
$\overline{STSTPIT}$	A3-05-12	A3-17-03				
STSTI	A3-12-07	A3-16-03				
$\overline{STTCSA}$	A3-02-18	A3-16-13				
STTCSAI	A3-02-05	A3-17-11				
STT01	A3-01-08	A3-17-09				
STT02	A3-03-18	A3-18-19				
STT03	A3-06-12	A3-18-09				
STT04	A3-04-13	A3-16-18				
STT05	A3-05-13	A3-16-08				
STT06	A3-03-05	A3-17-18				
STT07	A3-05-02	A3-17-08				
STT08	A3-06-04	A3-18-18				
STT09	A3-03-08	A3-18-08				
STT10	A3-01-18	A3-16-17				
STT11	A3-03-15	A3-16-07				
STT12	A3-02-15	A3-17-17				
STT25(STSCAFAL)	A3-02-06	A3-16-12				

2014150 B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION
PLATE A1-A2-A3-A4
WIRE WRAP LIST A-3
CTS

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014150

SCALE NONE | WT | SHEET

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014150 B

2014150 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25498		
–	CLASS B CHANGED PER CCA R25502	4/4/66	
A	CHANGED PER CCA R25705 DR CHK AAPD	4/15/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	5/ /66	

SIGNAL	FROM	TO	FROM	TO	FROM	TO
ST	A2-04-06	A2-27-16				
STC	A1-19-02	A2-27-11				
ST	A2-03-15	A2-29-01				
ST T	A2-01-03	A2-28-11	A2-28-11	A2-34-15		
SST BBG	A1-27-16	A3-08-15				
SST VBG	A1-26-04	A3-10-05				
ST EBG	A3-04-03	A3-18-03				
SST FBKG	A1-11-09	A3-07-15				
SST G6	A1-25-14	A3-09-07				
ST .15	A3-03-17	A3-18-17				
ST P1	A3-04-02	A3-16-06	A3-16-06	A3-17-04		
ST P2	A3-01-09	A3-17-06				
ST P3	A3-02-19	A3-17-16				
ST P4	A3-05-01	A3-16-04	A3-16-04	A3-17-14		
ST P5	A3-06-01	A3-17-19				
ST	A1-33-13	A2-01-06	A2-01-06	A2-20-01		
ST 2 ST	A1-35-19	A2-17-16				
ST L	A1-35-09	A2-19-07				
SW R	A1-43-14	A2-22-11				
S S	A1-32-16	A1-35-07				
S A	A1-31-16	A1-34-07				
S T	A1-35-17	A2-20-03				
S2 TO	A1-34-17	A1-32-06				
S2 A	A1-31-06	A1-36-18				
S2 T	A1-36-08	A2-20-11				
TC A	A1-20-06	A2-02-13	A2-02-13	A3-01-05		
TM A	A2-12-09	A2-35-09				
TM B	A2-06-07					
TM A	A2-03-03	A2-35-19				
TM A	A2-05-08	A2-36-19				
M 3A	A2-02-05	A2-34-09				
3B	A2-01-12					
TM B	A1-19-03	A2-01-05				
T A	A1-16-06	A1-42-04				
T 1	A1-18-15	A1-40-03				
2	A1-16-13	A1-41-13				
T 3	A1-17-03	A2-03-02				
T 4	A1-18-13	A1-41-03				
T 5	A1-16-02	A1-42-13				
T 6	A1-16-17	A1-42-03				
T 7	A1-17-06	A1-40-12				
T 8	A1-18-02	A1-41-12				
T A	A2-02-02	A3-31-06				
T 1	A1-20-17	A1-42-02	A1-42-02	A3-32-13		
T	A1-20-16	A1-40-11	A1-40-11	A3-32-02		
T 2	A1-43-19	A3-31-12				
T 2	A1-43-09	A3-32-16				
T 3	A1-44-19	A3-33-05				
T 3	A2-02-04	A3-32-12				
T 4	A3-33-14					
T 4	A2-03-06	A3-33-06				
T 5	A3-31-04					
5	A2-02-16	A3-32-14				
T 6	A2-06-16	A3-31-16				
T 6	A1-44-09	A3-31-05				
T 7	A3-32-05					
T 7	A2-11-03	A3-31-15				
T 8	A3-31-14					
T 8	A2-12-03	A3-33-04				
T IB	A2-03-12					
T	A2-18-12	A2-36-16				
5	A1-31-14	A2-21-04				
T	A2-01-04	A2-22-18	A2-22-18	A2-35-12		
T	A2-17-02					
3	A2-02-14	A2-23-09	A2-23-09	A2-34-18		
T	A2-18-02	A2-36-06				
T 5	A2-09-03	A2-17-01				
T 3	A2-09-13	A2-24-09				
T	A1-32-08	A2-17-06				
T	A1-31-17	A2-19-13				
W 5	A1-04-07	A2-25-01				
W 6	A1-04-17	A2-27-02				
W 7	A1-06-08	A2-25-16				
10V	A1-05-08	A1-05-18	A1-05-18	A1-06-18	A1-06-18	A1-08-08
	A1-08-08	A1-17-05	A1-17-05	A1-17-13	A1-17-13	A1-20-11
	A1-20-11	A1-20-12	A1-20-12	A1-21-07	A1-21-07	A1-21-14
	A1-21-14	A1-21-18	A1-21-18	A1-31-13	A1-31-13	A1-32-19
	A1-32-19	A1-37-04	A1-37-04	A1-37-14	A1-37-14	A2-01-17
	A2-01-17	A2-05-09	A2-05-09	A2-05-19	A2-05-19	A2-07-07
	A2-07-07	A2-10-01	A2-10-01	A2-14-11	A2-14-11	A2-14-12
	A2-14-12	A2-15-03	A2-15-03	A2-15-07	A2-15-07	A2-15-14
	A2-15-14	A2-15-18	A2-15-18	A2-22-09	A2-22-09	A2-25-13
	A2-25-13	A2-34-08	A2-34-08	A2-37-02	A2-37-02	A2-38-03
	A2-38-03	A2-39-03	A2-39-03	A2-39-05	A2-39-05	A2-40-18
	A2-40-18	A3-06-19	A3-06-19	A3-07-16	A3-07-16	A3-08-05
	A3-08-05	A3-09-04	A3-09-04	A3-10-16	A3-10-16	A3-11-05
	A3-11-05	A3-11-18	A3-11-18	A3-19-12	A3-19-12	A3-19-13
	A3-19-13	A3-21-15	A3-21-15	A3-28-04	A3-28-04	A3-28-05
	A3-28-05	A3-28-09	A3-28-09	A3-28-14	A3-28-14	A3-28-15
10V	A3-28-15	A3-28-19	A3-28-19	A3-29-04	A3-29-04	A3-29-05

SIGNAL	FROM	TO	FROM	TO	FROM	TO
10V	A3-29-05	A3-29-06	A3-29-06	A3-29-14	A3-29-14	A3-29-15
10V	A3-29-15	A3-30-05	A3-30-05	A3-30-06	A3-30-06	A3-30-15
10V	A3-30-15	A3-30-16				
10VWL	A3-10-06	A3-21-03				
13VCI	A1-20-01	A3-30-07				
13VPS	A1-20-02	A1-20-04	A1-20-04	A2-14-02	A2-14-02	A3-29-07
28VCI	A2-14-01	A3-29-19				
28VPS	A1-21-17	A2-14-04	A2-14-04	A2-15-17	A2-15-17	A3-30-08
3V	A1-04-08	A1-04-16	A1-04-18	A1-05-09	A1-05-09	A1-05-19
	A1-05-19	A1-06-09	A1-06-09	A1-10-06	A1-10-06	A1-14-19
	A1-14-19	A3-30-11	A3-30-11	A1-21-03	A1-21-03	A1-21-12
	A1-21-12	A1-26-09	A1-26-09	A1-28-01	A1-28-01	A1-31-19
	A1-31-19	A1-43-07	A1-43-07	A2-02-06	A2-02-06	A2-03-04
	A2-03-04	A2-03-13	A2-03-13	A2-06-09	A2-06-09	A2-06-19
	A2-06-19	A2-07-17	A2-07-17	A2-11-01	A2-11-01	A2-11-07
	A2-11-07	A2-12-17	A2-12-17	A2-15-12	A2-15-12	A2-21-01
	A2-21-01	A2-22-01	A2-22-01	A2-22-19	A2-22-19	A2-23-13
	A2-23-13	A2-35-08	A2-35-08	A2-35-18	A2-35-18	A3-06-14
	A3-06-14	A3-07-11	A3-07-11	A3-19-01	A3-19-01	A3-19-02
	A3-19-02	A3-20-01	A3-20-01	A3-20-11	A3-20-11	A3-21-11
	A3-21-11	A3-28-01	A3-28-01	A3-28-02	A3-28-02	A3-28-13
	A3-28-13	A3-29-01	A3-29-01	A3-29-02	A3-29-02	A3-29-03
	A3-29-03	A3-29-11	A3-29-11	A3-29-12	A3-29-12	A3-30-01
	A3-30-01	A3-30-02	A3-30-02	A3-30-03	A3-30-03	A3-30-04
3V	A3-30-04	A3-30-12	A3-30-12	A3-30-13	A3-30-13	A3-30-14
3V	A3-30-01	A1-31-19	A3-30-11	A1-28-01	A3-29-01	A1-26-09
3V	A3-29-11	A1-14-19	A3-30-02	A2-12-17	A3-30-12	A2-11-07
3V	A3-07-11	A2-03-04	A3-28-02	A2-23-13		
800	A1-19-01	A2-17-03				
CLA	A2-04-17	A2-32-11	A2-32-11	A3-02-17		
SK	A2-12-06	A2-25-02				
TSK2B	A2-01-11					
TSK3B	A2-01-16					
MDBLTST	A3-01-04	A3-22-01	A3-22-01	A3-14-03		
MDOSCAL	A2-31-02	A3-24-11	A3-24-11	A3-14-13		
GRD	A1-13-10	A1-14-10	A1-14-10	A1-14-20	A1-14-20	A1-15-10
	A1-15-10	A1-15-20	A1-15-20	A1-16-10	A1-16-10	A1-16-20
	A1-16-20	A1-17-10	A1-17-10	A1-17-20	A1-17-20	A1-18-20
	A1-18-20	A1-22-10	A1-22-10	A1-22-20	A1-22-20	A1-23-10
	A1-23-10	A1-23-20	A1-23-20	A1-24-10	A1-24-10	A1-24-20
	A1-24-20	A1-25-10	A1-25-10	A1-26-20	A1-26-20	A1-30-10
	A1-30-10	A1-30-20	A1-30-20	A1-31-10	A1-31-10	A1-31-20
	A1-31-20	A1-32-10	A1-32-10	A1-32-20	A1-32-20	A1-33-10
	A1-33-10	A1-33-20	A1-33-20	A1-37-10	A1-37-10	A1-37-20
	A1-37-20	A1-38-10	A1-38-10	A1-38-20	A1-38-20	A1-39-10
	A1-39-10	A1-39-20	A1-39-20	A1-40-10	A1-40-10	A1-40-20
	A1-40-20	A1-41-10	A1-41-10	A1-41-20	A1-41-20	A1-42-10
	A1-42-10	A1-42-20	A1-42-20	A2-01-10	A2-01-10	A2-02-10
	A2-02-10	A2-02-20	A2-02-20	A2-03-10	A2-03-10	A2-03-20
	A2-03-20	A2-04-10	A2-04-10	A2-04-20	A2-04-20	A2-05-20
	A2-05-20	A2-09-10	A2-09-10	A2-09-20	A2-09-20	A2-10-10
	A2-10-10	A2-10-20	A2-10-20	A2-11-10	A2-11-10	A2-11-20
	A2-11-20	A2-12-10	A2-12-10	A2-12-20	A2-12-20	A2-14-17
	A2-14-17	A2-14-19	A2-14-19	A2-15-02	A2-15-02	A2-38-10
	A2-38-10	A3-45-20	A3-45-20	A3-45-10	A3-45-10	A3-44-20
	A3-44-20	A3-44-10	A3-44-10	A3-43-20	A3-43-20	A3-43-10
	A3-43-10	A3-42-20	A3-42-20	A3-42-10	A3-42-10	A3-41-20
	A3-41-20	A3-41-10	A3-41-10	A3-40-20	A3-40-20	A3-40-10
	A3-40-10	A3-39-20	A3-39-20	A3-39-10	A3-39-10	A3-38-20
	A3-38-20	A3-38-10	A3-38-10	A3-37-20	A3-37-20	A3-37-10
	A3-37-10	A3-33-20	A3-33-20	A3-32-20	A3-32-20	A3-32-10
	A3-32-10	A3-29-09	A3-29-09	A3-29-10	A3-29-10	A3-29-20
GRD	A3-29-20	A3-30-20	A3-30-20	A3-31-10	A3-31-10	A3-31-20
R8A	A1-18-16	A3-31-02	A3-31-02	A3-31-13	A3-31-13	A3-31-17
R8A	A3-31-17	A3-32-03	A3-32-03	A3-32-06	A3-32-06	A3-33-02
R8A	A3-33-02	A3-33-13	A3-33-13	A3-33-15	A3-33-15	A4R8A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 26 OCT 65
CHECKED C 28 OCT 65
APPROVAL 29 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL A. O. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION
PLATE A1-A2-A3-A4
WIRE WRAP LIST A18
CTS

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014150
SCALE NONE
WT
SHEET 3 OF 3

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014150 B

F-2

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25498		
–	CLASS B CHANGED PER CCA R25502	4/2/66	✓
A	CHANGED PER CCA R25705 DR [illegible] CHK [illegible]	1/27/66	✓
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER [illegible] 26218		✓

SIGNAL	FROM	TO	FROM	TO	FROM	TO
STU	A2-04-06	A2-27-16				
$\overline{\text{STU}}$	A1-19-02	A2-27-11				
STV	A2-03-15	A2-29-01				
$\overline{\text{STV}}$	A2-01-03	A2-28-11	A2-28-11	A2-34-15		
SSTWBBG	A1-27-16	A3-08-15				
SSTWBG	A1-26-04	A3-10-05				
STWEBG	A3-04-03	A3-18-03				
SSTWFBKG	A1-11-09	A3-07-15				
SSTWG6	A1-25-14	A3-09-07				
STWL15	A3-03-17	A3-18-17				
STWP1	A3-04-02	A3-16-06	A3-16-06	A3-17-04		
STWP2	A3-01-09	A3-17-06				
STWP3	A3-02-19	A3-17-16				
STWP4	A3-05-01	A3-16-04	A3-16-04	A3-17-14		
STWP5	A3-06-01	A3-17-19				
ST1	A1-33-19	A2-01-06	A2-01-06	A2-20-01		
ST12ST	A1-35-19	A2-17-16				
ST12L	A1-35-09	A2-19-07				
SVR	A1-43-14	A2-22-11				
$\overline{\text{S1MO}}$	A1-32-16	A1-35-07				
S1SA	A1-31-16	A1-34-07				
S1ST	A1-35-17	A2-20-03				
$\overline{\text{S2MO}}$	A1-34-17	A1-32-06				
S2SA	A1-31-06	A1-36-18				
S2ST	A1-36-08	A2-20-11				
TCLA	A1-20-06	A2-02-13	A2-02-13	A3-01-05		
$\overline{\text{TM0A}}$	A2-12-09	A2-35-09				
TM0B	A2-06-07					
$\overline{\text{TM1A}}$	A2-03-03	A2-35-19				
$\overline{\text{TM2A}}$	A2-05-08	A2-36-19				
$\overline{\text{TM3A}}$	A2-02-05	A2-34-09				
$\overline{\text{TM3B}}$	A2-01-12					
$\overline{\text{TM4B}}$	A1-19-03	A2-01-05				
TPA	A1-16-06	A1-42-04				
TP1	A1-18-15	A1-40-03				
TP2	A1-16-13	A1-41-13				
TP3	A1-17-03	A2-03-02				
TP4	A1-18-13	A1-41-03				
TP5	A1-16-02	A1-42-13				
TP6	A1-16-17	A1-42-03				
TP7	A1-17-06	A1-40-12				
TP8	A1-18-02	A1-41-12				
TRA	A2-02-02	A3-31-06				
TR1	A1-20-17	A1-42-02	A1-42-02	A3-32-13		
$\overline{\text{TR1}}$	A1-20-16	A1-40-11	A1-40-11	A3-32-02		
TR2	A1-43-19	A3-31-12				
$\overline{\text{TR2}}$	A1-43-09	A3-32-16				
TR3	A1-44-19	A3-33-05				
$\overline{\text{TR3}}$	A2-02-04	A3-32-12				
TR4	A3-33-14					
$\overline{\text{TR4}}$	A2-03-06	A3-33-06				
TR5	A3-31-04					
$\overline{\text{TR5}}$	A2-02-16	A3-32-14				
TR6	A2-06-16	A3-31-16				
$\overline{\text{TR6}}$	A1-44-09	A3-31-05				
TR7	A3-32-05					
$\overline{\text{TR7}}$	A2-11-03	A3-31-15				
TR8	A3-31-14					
$\overline{\text{TR8}}$	A2-12-03	A3-33-04				
$\overline{\text{TSK1B}}$	A2-03-12					
$\overline{\text{T1}}$	A2-18-12	A2-36-16				
$\overline{\text{T10}}$	A1-31-14	A2-21-04				
$\overline{\text{T11}}$	A2-01-04	A2-22-18	A2-22-18	A2-35-12		
T12	A2-17-02					
$\overline{\text{T12}}$	A2-02-14	A2-23-09	A2-23-09	A2-34-18		
$\overline{\text{T2}}$	A2-18-02	A2-36-06				
T25	A2-09-03	A2-17-01				
$\overline{\text{T25}}$	A2-09-13	A2-24-09				
$\overline{\text{T3}}$	A1-32-08	A2-17-06				
$\overline{\text{T7}}$	A1-31-17	A2-19-13				
$\overline{\text{WL5}}$	A1-04-07	A2-25-01				
$\overline{\text{WL6}}$	A1-04-17	A2-27-02				
$\overline{\text{WL7}}$	A1-06-08	A2-25-16				
10V	A1-05-08	A1-05-18	A1-05-18	A1-06-18	A1-06-18	A1-08-08
	A1-08-08	A1-17-05	A1-17-05	A1-17-13	A1-17-13	A1-20-11
	A1-20-11	A1-20-12	A1-20-12	A1-21-07	A1-21-07	A1-21-14
	A1-21-14	A1-21-18	A1-21-18	A1-31-13	A1-31-13	A1-32-19
	A1-32-19	A1-37-04	A1-37-04	A1-37-14	A1-37-14	A2-01-17
	A2-01-17	A2-05-09	A2-05-09	A2-05-19	A2-05-19	A2-07-07
	A2-07-07	A2-10-01	A2-10-01	A2-14-11	A2-14-11	A2-14-12
	A2-14-12	A2-15-03	A2-15-03	A2-15-07	A2-15-07	A2-15-14
	A2-15-14	A2-15-18	A2-15-18	A2-22-09	A2-22-09	A2-25-13
	A2-25-13	A2-34-08	A2-34-08	A2-37-02	A2-37-02	A2-38-03
	A2-38-03	A2-39-03	A2-39-03	A2-39-05	A2-39-05	A2-40-18
	A2-40-18	A3-06-19	A3-06-19	A3-07-16	A3-07-16	A3-08-05
	A3-08-05	A3-09-04	A3-09-04	A3-10-16	A3-10-16	A3-11-05
	A3-11-05	A3-11-18	A3-11-18	A3-19-12	A3-19-12	A3-19-13
	A3-19-13	A3-21-15	A3-21-15	A3-28-04	A3-28-04	A3-28-05
	A3-28-05	A3-28-09	A3-28-09	A3-28-14	A3-28-14	A3-28-15
10V	A3-28-15	A3-28-19	A3-28-19	A3-29-04	A3-29-04	A3-29-05

SIGNAL	FROM	TO	FROM	TO	FROM	TO
10V	A3-29-05	A3-29-06	A3-29-06	A3-29-14	A3-29-14	A3-29-15
10V	A3-29-15	A3-30-05	A3-30-05	A3-30-06	A3-30-06	A3-30-15
10V	A3-30-15	A3-30-16				
10VWL	A3-10-06	A3-21-03				
13VC1	A1-20-01	A3-30-07				
13VPS	A1-20-02	A1-20-04	A1-20-04	A2-14-02	A2-14-02	A3-29-07
28VC1	A2-14-01	A3-29-19				
28VPS	A1-21-17	A2-14-04	A2-14-04	A2-15-17	A2-15-17	A3-30-08
3V	A1-04-08	A1-04-18	A1-04-18	A1-05-09	A1-05-09	A1-05-19
	A1-05-19	A1-06-09	A1-06-09	A1-10-06	A1-10-06	A1-14-19
	A1-14-19	A3-30-11	A3-30-11	A1-21-03	A1-21-03	A1-21-12
	A1-21-12	A1-26-09	A1-26-09	A1-28-01	A1-28-01	A1-31-19
	A1-31-19	A1-43-07	A1-43-07	A2-02-06	A2-02-06	A2-03-04
	A2-03-04	A2-03-13	A2-03-13	A2-06-09	A2-06-09	A2-06-19
	A2-06-19	A2-07-17	A2-07-17	A2-11-01	A2-11-01	A2-11-07
	A2-11-07	A2-12-17	A2-12-17	A2-15-12	A2-15-12	A2-21-01
	A2-21-01	A2-22-01	A2-22-01	A2-22-19	A2-22-19	A2-23-13
	A2-23-13	A2-35-08	A2-35-08	A2-35-18	A2-35-18	A3-06-14
	A3-06-14	A3-07-11	A3-07-11	A3-19-01	A3-19-01	A3-19-02
	A3-19-02	A3-20-01	A3-20-01	A3-20-11	A3-20-11	A3-21-11
	A3-21-11	A3-28-01	A3-28-01	A3-28-02	A3-28-02	A3-28-13
	A3-28-13	A3-29-01	A3-29-01	A3-29-02	A3-29-02	A3-29-03
	A3-29-03	A3-29-11	A3-29-11	A3-29-12	A3-29-12	A3-30-01
	A3-30-01	A3-30-02	A3-30-02	A3-30-03	A3-30-03	A3-30-04
3V	A3-30-04	A3-30-12	A3-30-12	A3-30-13	A3-30-13	A3-30-14
3V	A3-30-01	A1-31-19	A3-30-11	A1-28-01	A3-29-01	A1-26-09
3V	A3-29-11	A1-14-19	A3-30-02	A2-12-17	A3-30-12	A2-11-07
3V	A3-07-11	A2-03-04	A3-28-02	A2-23-13		
800	A1-19-01	A2-17-03				
CLA	A2-04-17	A2-32-11	A2-32-11	A3-02-17		
$\overline{\text{SK}}$	A2-12-06	A2-25-02				
$\overline{\text{TSK2B}}$	A2-01-11					
$\overline{\text{TSK3B}}$	A2-01-16					
MDBLTST	A3-01-04	A3-22-01	A3-22-01	A3-14-03		
MDOSCAL	A2-31-02	A3-24-11	A3-24-11	A3-14-13		
GRD	A1-13-10	A1-14-10	A1-14-10	A1-14-20	A1-14-20	A1-15-10
	A1-15-10	A1-15-20	A1-15-20	A1-16-10	A1-16-10	A1-16-20
	A1-16-20	A1-17-10	A1-17-10	A1-17-20	A1-17-20	A1-18-20
	A1-18-20	A1-22-10	A1-22-10	A1-22-20	A1-22-20	A1-23-10
	A1-23-10	A1-23-20	A1-23-20	A1-24-10	A1-24-10	A1-24-20
	A1-24-20	A1-25-10	A1-25-10	A1-26-20	A1-26-20	A1-30-10
	A1-30-10	A1-30-20	A1-30-20	A1-31-10	A1-31-10	A1-31-20
	A1-31-20	A1-32-10	A1-32-10	A1-32-20	A1-32-20	A1-33-10
	A1-33-10	A1-33-20	A1-33-20	A1-37-10	A1-37-10	A1-37-20
	A1-37-20	A1-38-10	A1-38-10	A1-38-20	A1-38-20	A1-39-10
	A1-39-10	A1-39-20	A1-39-20	A1-40-10	A1-40-10	A1-40-20
	A1-40-20	A1-41-10	A1-41-10	A1-41-20	A1-41-20	A1-42-10
	A1-42-10	A1-42-20	A1-42-20	A2-01-10	A2-01-10	A2-02-10
	A2-02-10	A2-02-20	A2-02-20	A2-03-10	A2-03-10	A2-03-20
	A2-03-20	A2-04-10	A2-04-10	A2-04-20	A2-04-20	A2-05-20
	A2-05-20	A2-09-10	A2-09-10	A2-09-20	A2-09-20	A2-10-10
	A2-10-10	A2-10-20	A2-10-20	A2-11-10	A2-11-10	A2-11-20
	A2-11-20	A2-12-10	A2-12-10	A2-12-20	A2-12-20	A2-14-17
	A2-14-17	A2-14-19	A2-14-19	A2-15-02	A2-15-02	A2-38-10
	A2-38-10	A3-45-20	A3-45-20	A3-45-10	A3-45-10	A3-44-20
	A3-44-20	A3-44-10	A3-44-10	A3-43-20	A3-43-20	A3-43-10
	A3-43-10	A3-42-20	A3-42-20	A3-42-10	A3-42-10	A3-41-20
	A3-41-20	A3-41-10	A3-41-10	A3-40-20	A3-40-20	A3-40-10
	A3-40-10	A3-39-20	A3-39-20	A3-39-10	A3-39-10	A3-38-20
	A3-38-20	A3-38-10	A3-38-10	A3-37-20	A3-37-20	A3-37-10
	A3-37-10	A3-33-20	A3-33-20	A3-32-20	A3-32-20	A3-32-10
	A3-32-10	A3-29-09	A3-29-09	A3-29-10	A3-29-10	A3-29-20
GRD	A3-29-20	A3-30-20	A3-30-20	A3-31-10	A3-31-10	A3-31-20
R8A	A1-18-16	A3-31-02	A3-31-02	A3-31-13	A3-31-13	A3-31-17
R8A	A3-31-17	A3-32-03	A3-32-03	A3-32-06	A3-32-06	A3-33-02
R8A	A3-33-02	A3-33-13	A3-33-13	A3-33-15	A3-33-15	A4R8A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 26 OCT 65
CHECKED C. [illegible] 28 OCT 65
APPROVAL [illegible] 29 Oct 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. O. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION
PLATE A[illegible]-A2-A3
WIRE WRAP LIST
CTS

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014150
SCALE NONE
WT
SHEET

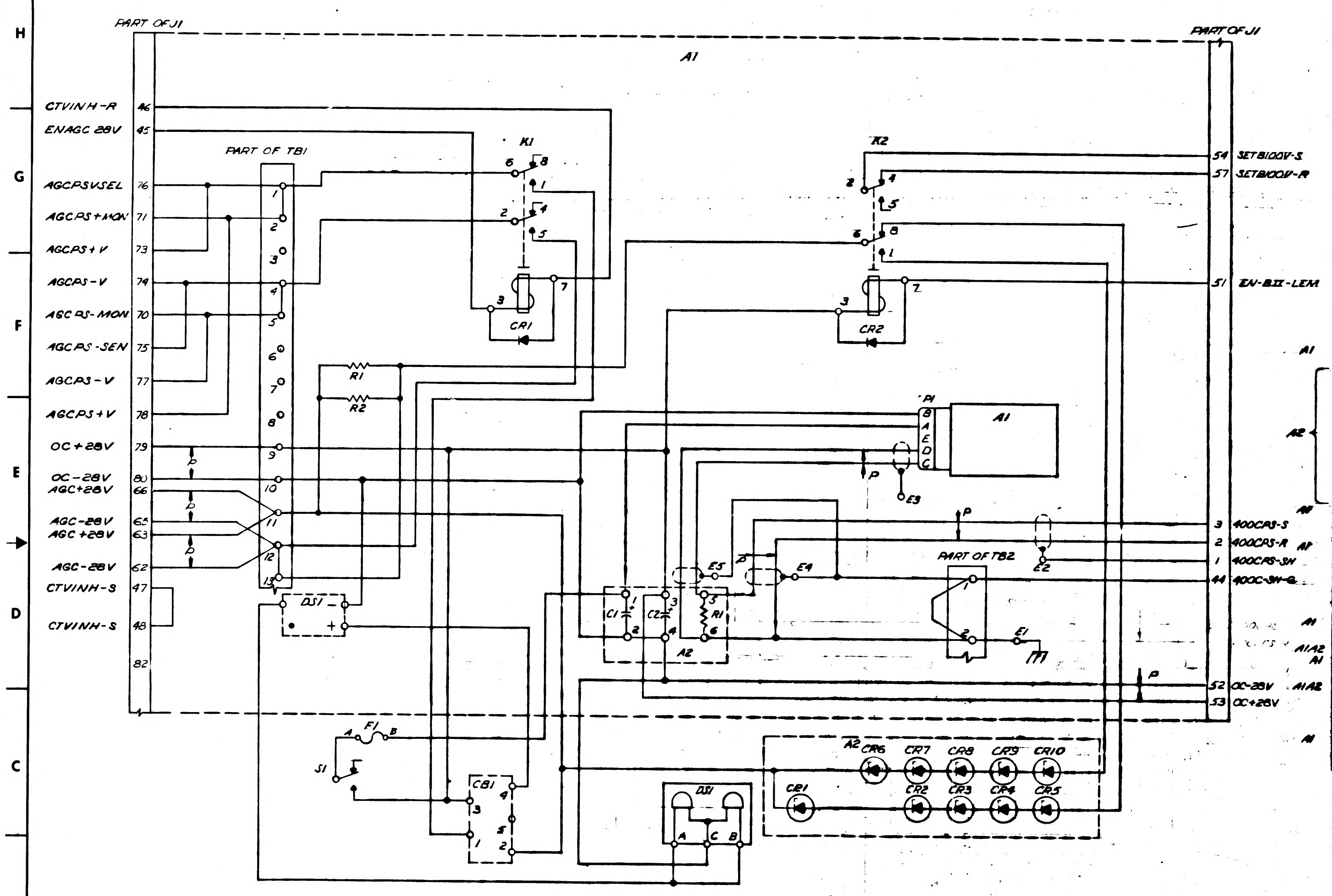
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014150 B

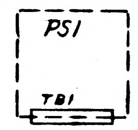
2014151 A

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25814	[illegible]	[illegible]
1	CHANGED PER CCA R25982 CHK APPD	[illegible]	[illegible]
—	CLASS B CHANGED PER CCA R25509	[illegible]	[illegible]
A	CHANGED PER CCA R25587 AND CLASS A RELEASED PER TDRR 25476	[illegible]	[illegible]


PART OF J1
A1
CTVINH-R 46
ENAGC 28V 45
PART OF TB1
AGCPSVSEL 76
AGCPS+MON 71
AGCPS+V 73
AGCPS-V 74
AGCPS-MON 70
AGCPS-SEN 75
AGCPS-V 77
AGCPS+V 78
OC+28V 79
OC-28V 80
AGC+28V 66
AGC-28V 65
AGC+28V 63
AGC-28V 62
CTVINH-S 47
CTVINH-S 48
82
1 2 3 4 5 6 7 8 9 10 11 12 13
P
K1
K2
CR1
CR2
R1
R2
DS1
P1
A1
B A E D C
E3
E5
E4
E2
C1 C2
R1
A2
PART OF TB2
E1
F1
A B
S1
CB1
1 2 3 4 5
DS1
A C B
A2
CR6 CR7 CR8 CR9 CR10
CR1 CR2 CR3 CR4 CR5
PART OF J1
54 SETB100V-S
57 SETB100V-R
51 EN-BII-LEM
3 400CPS-S
2 400CPS-R
1 400CPS-SH
44 400C-SH-G
52 OC-28V
53 OC+28V

	FOR REFERENCE ONLY					
	REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
A1	J1	1006494-002	CONNECTOR			
A2	CR1	1006412-001	DIODE	6.8V	1%	50W
	CR2					
	CR3					
	CR4					
	CR5	1006412-001		6.8V		
	CR6	1006412-002		7.5V		
	CR7					
	CR8					
	CR9	1006412-002	DIODE	7.5V	1%	50W
	CR10	1006412-002	DIODE	7.5V	1%	50W
A1	CR1, CR2	1006757-000	DIODE			
	A1	1006470	INVERTER			
A1	K1, K2	1006492-001	RELAY			
	P1	MS3106R-18-11P	CONNECTOR			
	CB1	1006479-001	CKT. BKR			6.5A
	DS1	1006404-001	LAMP			
A1	DS1	1006495	FLASHER			
A1A2	C1, C2	CL25BJ151UP3	CAPACITOR	150UF	-15%+75%	50V
A1	R1, R2	RE75N40R0N	RESISTOR	40 OHMS	3%	50W
A1A2	R1	RWP23F1501F	RESISTOR	1.5K	1%	10W
	S1	MS35058-22	SWITCH			
	F1	F02A250V1½A	FUSE			1.5A
A1	TB1, TB2	1006678-2	TERM. BRD			
	PS1	1006935-001	PWR SUPPLY			

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. ~~PINS 13 THRU 15 ON TB1 ARE SPARES~~
3. ~~PINS 2 THRU 15 ON TB2 ARE SPARES~~



REFERENCE
1. ASSEMBLY DWG 2014323
2. ASSEMBLY DWG 2014325
3. ASSEMBLY DWG 2014207
4. ASSEMBLY DWG 2014077
5. INTERCONN DIAGRAM 2014499

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 25 July 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
115V 400~ PS A2
OPERATION CONSOLE

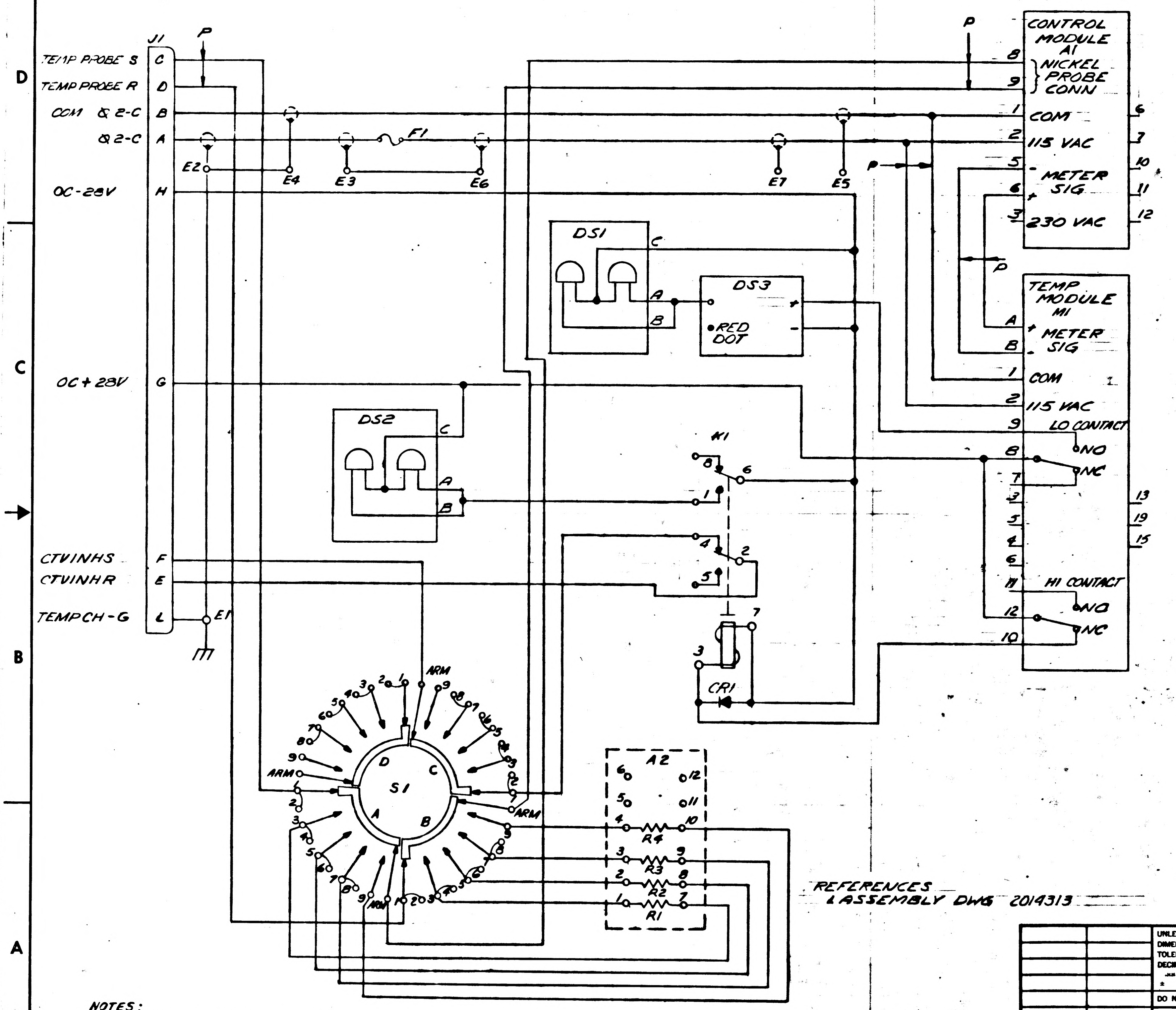
CODE IDENT NO. 49956 | SIZE F | NASA DRAWING NO. 2014151
SCALE NONE | WT | SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014151 A

2014152 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25214	10/29/65	[illegible]
1	CHANGED PER CCA R25419 DR [illegible] CHK [illegible] APPD [illegible]	5 NOV 65	[illegible]
–	CLASS B CHANGED PER CCA R25509	[illegible]	[illegible]
A	CHANGED PER CCA R25693 AND CLASS A RELEASED PER TCRR 25476	1/14/66	[illegible]


J1
P
TEMP PROBE S C
TEMP PROBE R D
COM & 2-C B
Q 2-C A
OC-28V H
OC+28V G
CTVINHS F
CTVINHR E
TEMPCH-G L
E1
E2
E3
E4
E5
E6
E7
F1
CONTROL MODULE A1
NICKEL PROBE CONN
COM
115 VAC
METER SIG
230 VAC
TEMP MODULE M1
METER SIG
COM
115 VAC
LO CONTACT
NO
NC
HI CONTACT
DS1
DS2
DS3
RED DOT
K1
CR1
S1
ARM
A2
R1
R2
R3
R4

REFERENCES
& ASSEMBLY DWG 2014313

NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

FOR REFERENCE ONLY					
REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
J1	MS3120E14-12P	CONN			
CR1	1006751-000	DIODE			
DS1, DS2	1006407-004	LAMP			
DS3	1006485	FLASHER			60CPM
K1	1006492-001	RELAY			
F1	F02A250V1/2A	FUSE			1/2 A
A1	1006469-003	MODULE			
M1	1006469-00[illegible]	METER			
S1	1006257-004	SWITCH			
A2 R1	1010253-41	RESISTOR	147.200	±0.01%	1/3 W
A2 R2	1010253-52	RESISTOR	160.880	±0.01%	1/3 W
A2 R3	1010253-57	RESISTOR	163.060	±0.01%	1/3 W
A2 R4	1010253-63	RESISTOR	170.000	±0.01%	1/3 W

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 19 JUN 65
CHECKED [illegible] 31 July 65
APPROVAL [illegible]
APPROVAL [illegible] 7/24/65
APPROVAL [illegible] 10/5/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C. Shirley 11/10/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

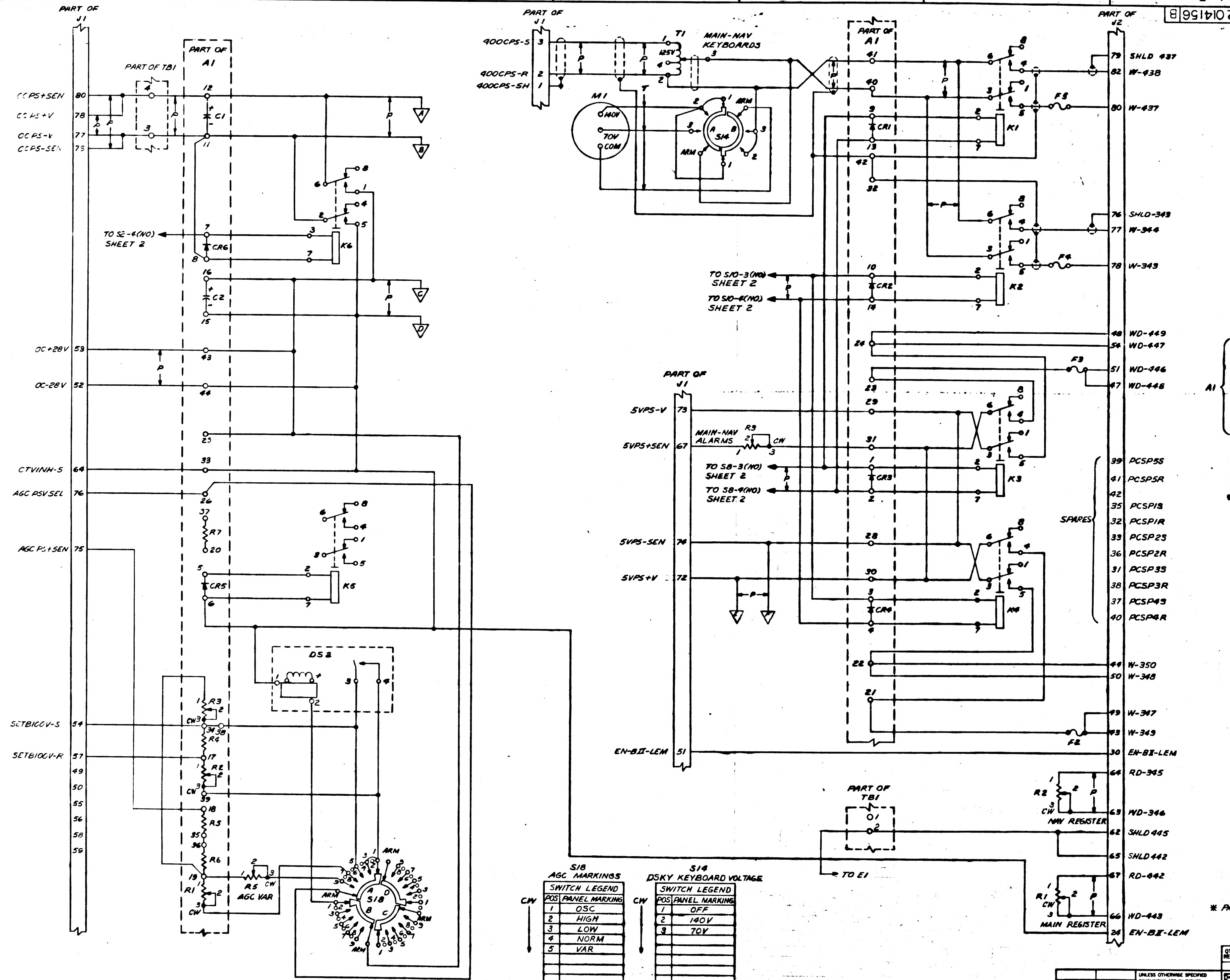
ELECTRICAL SCHEMATIC
TEMP MONITOR A3
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014152
SCALE NONE
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014152 A

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25214		
1	CHANGED PER CCA R25526 DR W. Kelley CHK APPD	11/14/65	
—	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25645 DR CHK APPD		
B	CHANGED PER CCA R25701 AND CLASS A RELEASED PER TCRR 25476	4/14/66	


PART OF J1
PART OF TB1
PART OF A1
CCPS+SEN 80
CCPS+V 78
CCPS-V 77
CCPS-SEN 79
C1
C2
CR6
CR5
K6
TO S2-4(NO) SHEET 2
DC+28V 53
DC-28V 52
CTVINH-S 64
AGC PSV SEL 76
AGC PS+SEN 75
R7
DS2
SETBIOOV-S 54
SETBIOOV-R 57
R3
R4
R2
R5
R6
R1
AGC VAR
S18
ARM
400CPS-S 3
400CPS-R 2
400CPS-SH 1
T1
125V
MAIN-NAV KEYBOARDS
M1
140V
70V
COM
S14
TO S10-3(NO) SHEET 2
TO S10-4(NO) SHEET 2
5VPS-V 73
5VPS+SEN 67
MAIN-NAV ALARMS
TO S8-3(NO) SHEET 2
TO S8-4(NO) SHEET 2
5VPS-SEN 74
5VPS+V 72
EN-BII-LEM 51
CR1
CR2
CR3
CR4
K1
K2
K3
K4
F1
F2
F3
F4
F5
PART OF J2
79 SHLD 437
82 W-438
80 W-437
76 SHLD-343
77 W-344
78 W-343
48 WD-449
54 WD-447
51 WD-446
47 WD-448
39 PCSP5S
41 PCSP5R
42
35 PCSP1S
32 PCSP1R
33 PCSP2S
36 PCSP2R
31 PCSP3S
38 PCSP3R
37 PCSP4S
40 PCSP4R
SPARES
44 W-350
50 W-348
49 W-347
43 W-349
30 EN-BII-LEM
64 RD-345
63 WD-346
62 SHLD 445
65 SHLD 442
67 RD-442
66 WD-443
24 EN-BII-LEM
NAV REGISTER
MAIN REGISTER
PART OF TB1
TO E1
P
CW

S18
AGC MARKINGS

SWITCH LEGEND	
POS	PANEL MARKING
1	OSC
2	HIGH
3	LOW
4	NORM
5	VAR

CW

S14
DSKY KEYBOARD VOLTAGE

SWITCH LEGEND	
POS	PANEL MARKING
1	OFF
2	140V
3	70V

CW

NOTES:

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCES:

1. ASSEMBLY DWG 2014079

FOR REFERENCE ONLY

	REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
A1	C1, C2	MIL-C-39LSB CL25BJ151UP3	CAPACITOR	150UF	-15% +75%	50V
	R1	1006468-006	POTENTIOMETER	1K	1%	2 1/4W
	R2	1006468-006	POTENTIOMETER	1K	1%	2 1/4W
	R3	1006468-005	POTENTIOMETER	750	1%	2 1/4W
	R4, R5	1010389-39	RESISTOR	200	1%	3W
	R6	1010389-47	RESISTOR	430	1%	3W
	R7	1010389-60	RESISTOR	1.5K	1%	3W
	CR1 THRU CR6	1006751-000	DIODE			
	A3	1006489	AMP			
	A2	1006400	DISPLAY			
	R1, R2	1006468-011	POTENTIOMETER	10K	1%	2 1/4W
	R3	1006468-009	POTENTIOMETER	250	1%	2 1/4W
*	R4					
	R5	1006468-006	POTENTIOMETER	1K	1%	2 1/4W
	CR1 THRU CR6	1006751-000	DIODE			
	K1 THRU K5	1006947	RELAY			
	K6	1015982-001	RELAY			
	M1	1006474	METER-VOLT			
	M3	1006927	METER			
	S1	MS35058-22	SWITCH			
	S2	1006471-002				
	S3	1006471-002				
	S4	1006471-002				
	S5	1006471-002				
	S6	1006471-002				
	S7	1006471-002				
	S8	1006471-002				
	S9	1006471-002				
	S10	1006471-002				
	S11	1006471-002				
	S12	1006465-002				
	S13	MS25089-3C				
	S14	1006465-003				
	S15	1006465-001				
	S16	1006471-027				
	S18	1006257-004	SWITCH			
	DS1	1006869	LIGHT			
	DS2	1006652	FLASHER			
	T1	1006414	TRANSFORMER			
	F1	F02A250V1A	FUSE	1AMP		
	F2, F3	F02A250V4A	FUSE	4AMP		
	F4, F5	F02A250V1/8A	FUSE	1/8AMP		
	J1, J2	1006494-002	CONNECTOR			
	S17	1006471-028	SWITCH			
	J3 (+)	MS16108-2A	JACK			
	J4 (-)	MS16108-3A	JACK			
	M2	1006475	METER-AMP			

* PART OF A2 DISPLAY UNIT DCVM

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9 JUL 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1/20/66

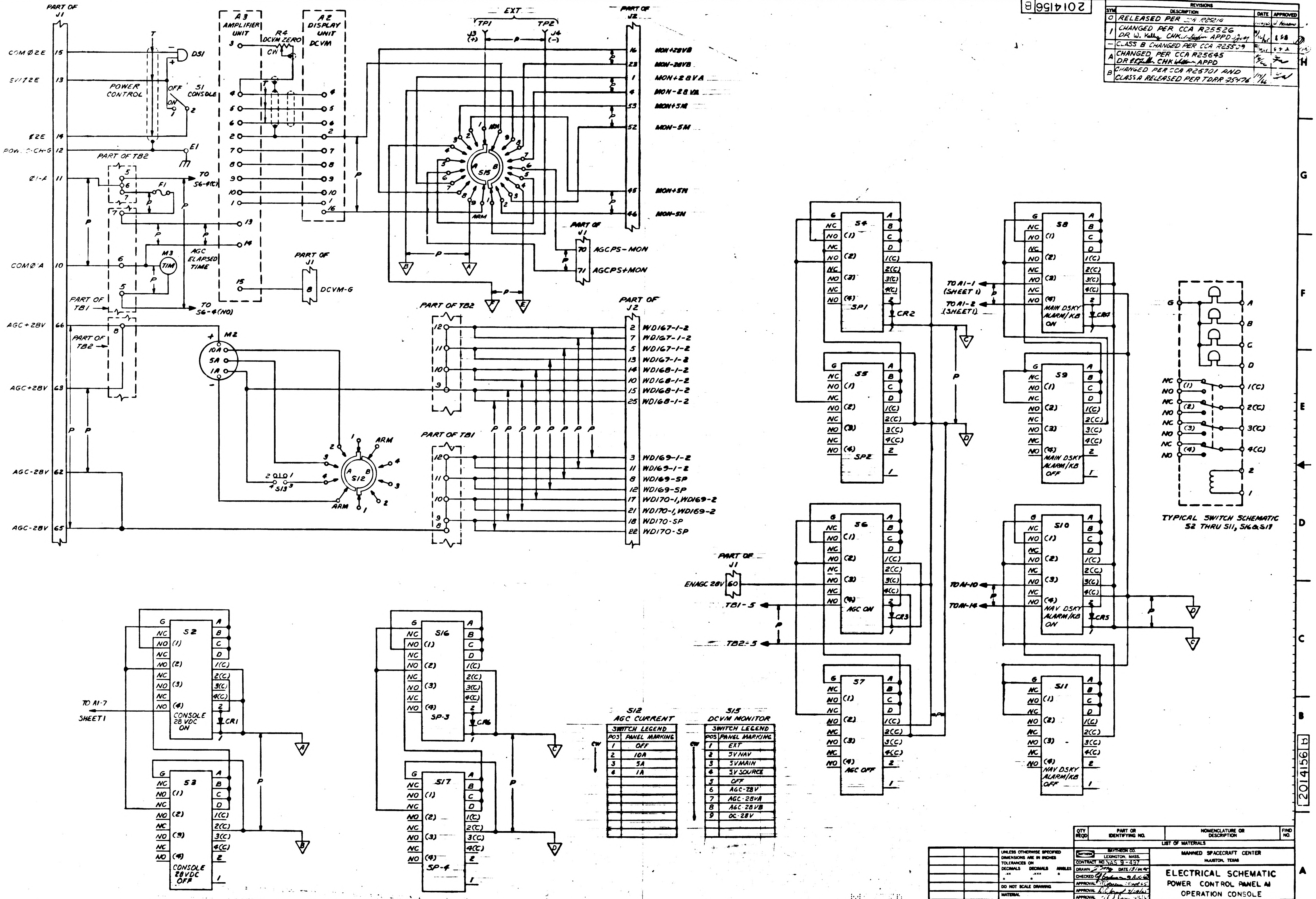
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
POWER CONTROL PANEL A1
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014156
SCALE NONE
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25214	10/6/65	J. Kasano
1	CHANGED PER CCA R25526 DR W. Kelly CHK APPD	11/16/65	
–	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25645 DR CHK APPD	1/4/66	
B	CHANGED PER CCA R25701 AND CLASS A RELEASED PER TDRR 25476	1/14/66	


PART OF J1
COM Ø2E 15
S1/12E 13
Ø2E 14
POW. C-CH-G 12
Ø1-A 11
COM Ø A 10
AGC+28V 66
AGC+28V 63
AGC-28V 62
AGC-28V 65
POWER CONTROL
DS1
S1 CONSOLE
OFF
ON
E1
PART OF TB2
F1
TO S6-4(C)
M3 TIM
AGC ELAPSED TIME
TO S6-4(NO)
PART OF TB1
A3 AMPLIFIER UNIT
A2 DISPLAY UNIT DCVM
R4 DCVM ZERO
CW
PART OF J1
DCVM-G
EXT
TP1
TP2
J3 (+)
J4 (-)
S15
ARM
PART OF J2
MON+28VB
MON-28VB
MON+28VA
MON-28VA
MON+5M
MON-5M
MON+5N
MON-5N
PART OF J1
AGCPS-MON
AGCPS+MON
M2
10A
5A
1A
S12
S13
PART OF TB2
PART OF TB1
PART OF J2
WD167-1-2
WD168-1-2
WD169-1-2
WD169-SP
WD170-1, WD169-2
WD170-SP
P
S4 SP1
S5 SP2
S8 MAIN DSKY ALARM/KB ON
S9 MAIN DSKY ALARM/KB OFF
TO A1-1 (SHEET 1)
TO A1-2 (SHEET 1)
CR2
CR4
S6 AGC ON
S7 AGC OFF
CR3
S10 NAV DSKY ALARM/KB ON
S11 NAV DSKY ALARM/KB OFF
CR5
TO A1-10
TO A1-14
PART OF J1
ENAGC 28V 60
TB1-5
TB2-5
TYPICAL SWITCH SCHEMATIC S2 THRU S11, S16 & S17
S2 CONSOLE 28 VDC ON
S3 CONSOLE 28 VDC OFF
TO A1-7 SHEET 1
CR1
S16 SP-3
S17 SP-4
CR6
G
NC
NO
A
B
C
D
1(C)
2(C)
3(C)
4(C)

S12
AGC CURRENT

SWITCH LEGEND	
POS	PANEL MARKING
1	OFF
2	10A
3	5A
4	1A

CW

S15
DCVM MONITOR

SWITCH LEGEND	
POS	PANEL MARKING
1	EXT
2	5V NAV
3	5V MAIN
4	5V SOURCE
5	OFF
6	AGC-28V
7	AGC-28VA
8	AGC-28VB
9	DC-28V

CW

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 1/9/65
CHECKED 9 Aug 65
APPROVAL 24 Sept 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

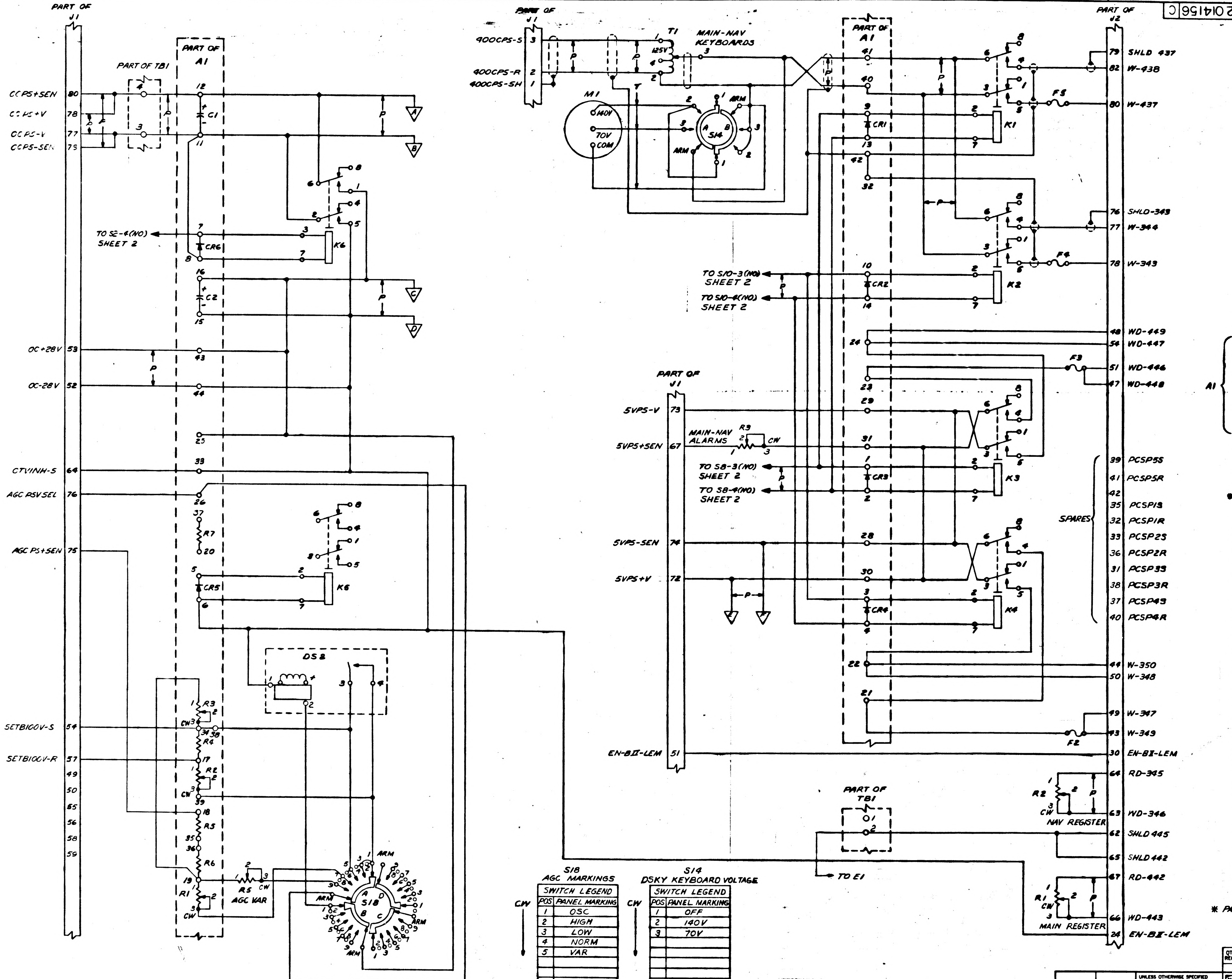
ELECTRICAL SCHEMATIC
POWER CONTROL PANEL A1
OPERATION CONSOLE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014156

SCALE NONE WT SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R2521A	10/65	
1	CHANGED PER CCA R25526 DR W. Kelley CHK A. Kaplan APPD	11/10/65	
—	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25645 DR CHK APPD		
B	CHANGED PER CCA R25701 AND CLASS A RELEASED PER TDRR 25476	1/14/66	
C	CHANGED PER TDRR 26308 DR CHK APPD	3/7/66	


PART OF J1
PART OF TB1
PART OF A1
CCPS+SEN 80
CCPS+V 78
CCPS-V 77
CCPS-SEN 79
C1
C2
CR6
K6
CR5
TO S2-4(NO) SHEET 2
DC+28V 53
DC-28V 52
CTVINH-S 64
AGC PSV SEL 76
AGC PS+SEN 75
SETBIOOV-S 54
SETBIOOV-R 57
R7
R3
R4
R2
R5
R6
R1
CW
DS2
R5 AGC VAR
S18
ARM
P
A
B
C
D
PART OF J1
400CPS-S 3
400CPS-R 2
400CPS-SH 1
T1
125V
MAIN-NAV KEYBOARDS
M1
140V
70V
COM
S14
PART OF A1
CR1
CR2
CR3
CR4
K1
K2
K3
K4
F1
F2
F3
F4
F5
TO S10-3(NO) SHEET 2
TO S10-4(NO) SHEET 2
TO S8-3(NO) SHEET 2
TO S8-4(NO) SHEET 2
PART OF J1
5VPS-V 73
MAIN-NAV ALARMS
R9
5VPS+SEN 67
5VPS-SEN 74
5VPS+V 72
EN-BII-LEM 51
PART OF TB1
TO E1
NAV REGISTER
MAIN REGISTER
PART OF J2
79 SHLD 437
82 W-438
80 W-437
76 SHLD-343
77 W-344
78 W-343
48 WD-449
54 WD-447
51 WD-446
47 WD-448
39 PCSP5S
41 PCSP5R
42
35 PCSP1S
32 PCSP1R
33 PCSP2S
36 PCSP2R
31 PCSP3S
38 PCSP3R
37 PCSP4S
40 PCSP4R
SPARES
44 W-350
50 W-348
49 W-347
43 W-349
30 EN-BII-LEM
64 RD-345
63 WD-346
62 SHLD 445
65 SHLD 442
67 RD-442
66 WD-443
24 EN-BII-LEM

S18
AGC MARKINGS

SWITCH LEGEND	
POS	PANEL MARKING
1	OSC
2	HIGH
3	LOW
4	NORM
5	VAR

CW

S14
DSKY KEYBOARD VOLTAGE

SWITCH LEGEND	
POS	PANEL MARKING
1	OFF
2	140V
3	70V

CW

FOR REFERENCE ONLY

	REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
A1	C1, C2	MIL-C-39LSB CL25BJ151UP3	CAPACITOR	150UF	-15% +75%	50V
	R1	1006468-006	POTENTIOMETER	1K	1%	2 1/4W
	R2	1006468-006	POTENTIOMETER	1K	1%	2 1/4W
	R3	1006468-005	POTENTIOMETER	750	1%	2 1/4W
	R4, R5	1010389-39	RESISTOR	200	1%	3W
	R6	1010389-47	RESISTOR	430	1%	3W
	R7	1010389-60	RESISTOR	1.5K	1%	3W
	CR1 THRU CR6	1006751-000	DIODE			
	A3	1006489	AMP			
	A2	1006400	DISPLAY			
	R1, R2	1006468-011	POTENTIOMETER	10K	1%	2 1/4W
	R3	1006468-003	POTENTIOMETER	250	1%	2 1/4W
*	R4					
	R5	1006468-006	POTENTIOMETER	1K	1%	2 1/4W
	CR1 THRU CR6	1006751-000	DIODE			
	K1 THRU K5	1006947	RELAY			
	K6	1015982-001	RELAY			
	M1	1006474	METER-VOLT			
	M3	1006927	METER			
	S1	MS35058-22	SWITCH			
	S2	1006471-002				
	S3	1006471-002				
	S4	1006471-002				
	S5	1006471-002				
	S6	1006471-002				
	S7	1006471-002				
	S8	1006471-002				
	S9	1006471-002				
	S10	1006471-002				
	S11	1006471-002				
	S12	1006465-002				
	S13	MS25089-3C				
	S14	1006465-003				
	S15	1006465-001				
	S16	1006471-027				
	S18	1006257-004	SWITCH			
	DS1	1006869	LIGHT			
	DS2	1006652	FLASHER			
	T1	1006414	TRANSFORMER			
	F1	F02A250V1A	FUSE	1AMP		
	F2, F3	F02A250V4A	FUSE	4AMP		
	F4, F5	F02A250V1/8A	FUSE	1/8AMP		
	J1, J2	1006497-002	CONNECTOR			
	S17	1006471-028	SWITCH			
	J3 (+)	MS16108-2A	JACK			
	J4 (-)	MS16108-3A	JACK			
	M2	1006475	METER-AMP			

* PART OF A2 DISPLAY UNIT DCVM

NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCES:
1. ASSEMBLY DWG 2014079

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

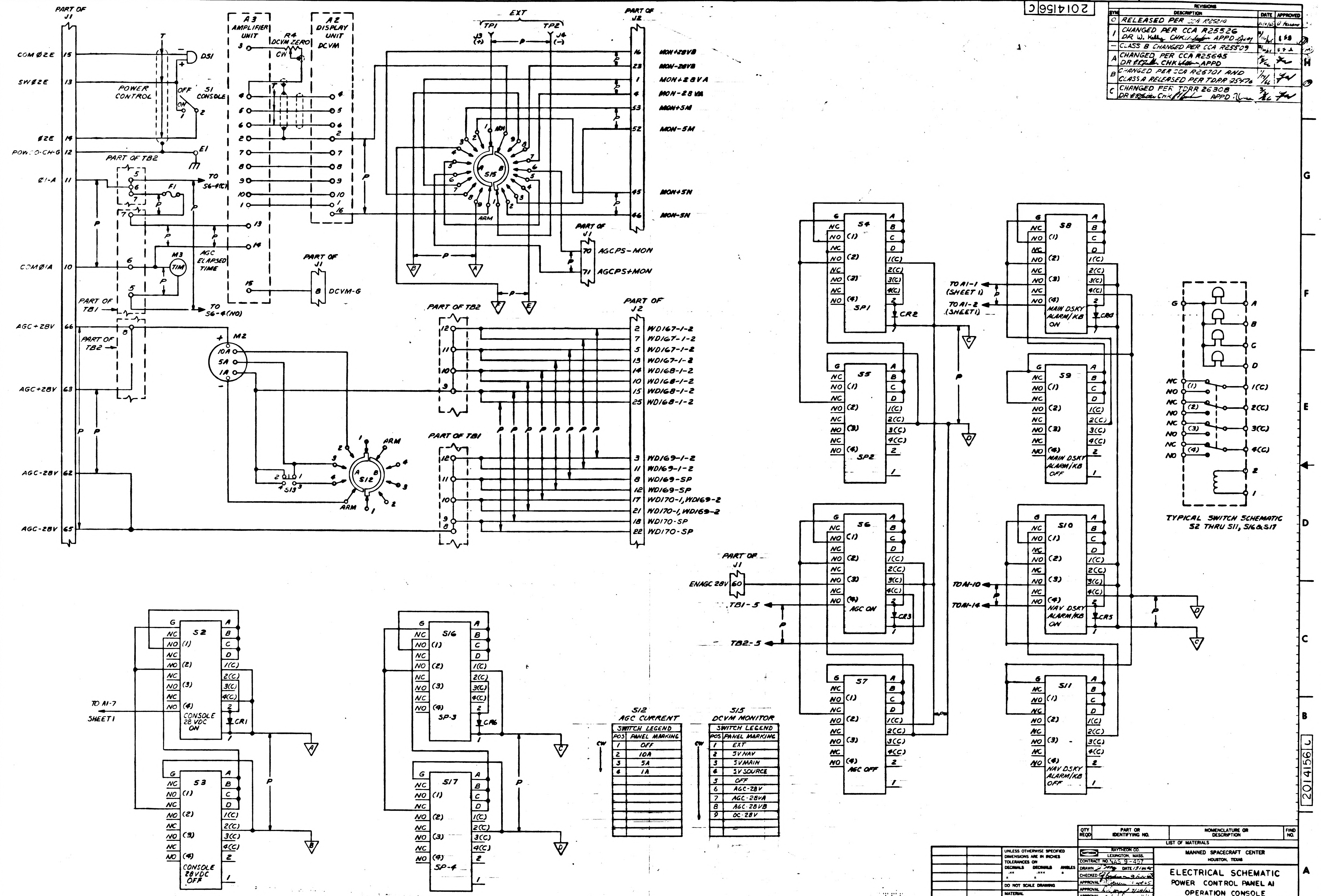
ELECTRICAL SCHEMATIC
POWER CONTROL PANEL A1
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014156
SCALE NONE
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014156 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25214	11/10/65	
1	CHANGED PER CCA R25526 DR W. Kelly CHK APPD	11/16/65	
—	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25645 DR CHK APPD		
B	CHANGED PER CCA R25701 AND CLASS A RELEASED PER TDRR 25476	1/14/66	
C	CHANGED PER TDRR 26308 DR CHK APPD	3/ /66	



PART OF J1
COM ØZE 15
SW ØZE 13
ØZE 14
POW-O-CH-G 12
Ø1-A 11
COM Ø1A 10
AGC+28V 66
AGC+28V 63
AGC-28V 62
AGC-28V 65
POWER CONTROL
S1 CONSOLE
OFF
ON
DS1
E1
PART OF TB2
F1
TO S6-4(C)
TO S6-4(NO)
M3 TIM
AGC ELAPSED TIME
PART OF TB1
PART OF TB2
A3 AMPLIFIER UNIT
A2 DISPLAY UNIT DCVM
R4 DCVM ZERO
CW
PART OF J1
8 DCVM-G
EXT
TP1
TP2
J3 (+)
J4 (-)
S15
ARM
PART OF J2
MON+28VB
MON-28VB
MON+28VA
MON-28VA
MON+5M
MON-5M
MON+5N
MON-5N
PART OF J1
70 AGCPS-MON
71 AGCPS+MON
M2
10A
5A
1A
S12
S13
PART OF TB2
PART OF J2
WD167-1-2
WD168-1-2
PART OF TB1
WD169-1-2
WD169-SP
WD170-1, WD169-2
WD170-SP
S4
SP1
CR2
S5
SP2
S8
MAIN DSKY ALARM/KB ON
CR4
S9
MAIN DSKY ALARM/KB OFF
TO A1-1 (SHEET 1)
TO A1-2 (SHEET 1)
S6
AGC ON
CR3
S7
AGC OFF
S10
NAV DSKY ALARM/KB ON
CR5
S11
NAV DSKY ALARM/KB OFF
TO A1-10
TO A1-14
PART OF J1
ENAGC 28V 60
TB1-5
TB2-5
S2
CONSOLE 28 VDC ON
CR1
TO A1-7 SHEET 1
S3
CONSOLE 28 VDC OFF
S16
SP-3
CR6
S17
SP-4
NC
NO
G
TYPICAL SWITCH SCHEMATIC S2 THRU S11, S16 & S17

S12
AGC CURRENT

SWITCH LEGEND	
POS	PANEL MARKING
1	OFF
2	10A
3	5A
4	1A

CW

S15
DCVM MONITOR

SWITCH LEGEND	
POS	PANEL MARKING
1	EXT
2	5V NAV
3	5V MAIN
4	5V SOURCE
5	OFF
6	AGC-28V
7	AGC-28VA
8	AGC-28VB
9	OC-28V

CW

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
POWER CONTROL PANEL A1
OPERATION CONSOLE

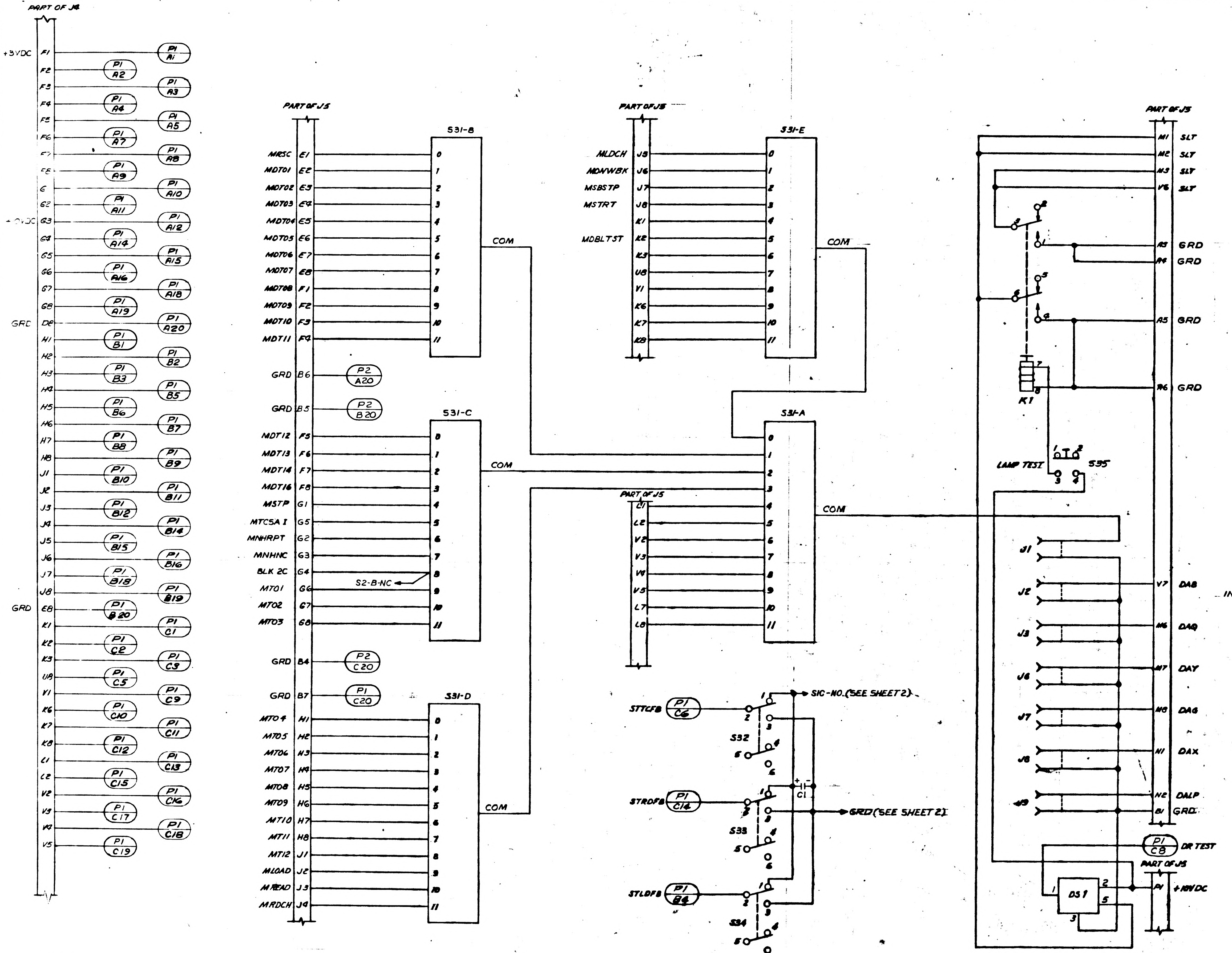
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO 2014156
SCALE NONE
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

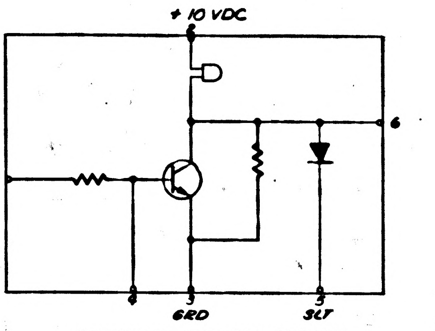
2014156 C

2014156 C

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25227	[illegible]	D. Karen
1	CHANGED PER CCA R25444 DR [illegible] CHK'D [illegible] APPD [illegible]	11/10/65	[illegible]
—	CLASS A RELEASED PER TDRR 25472		

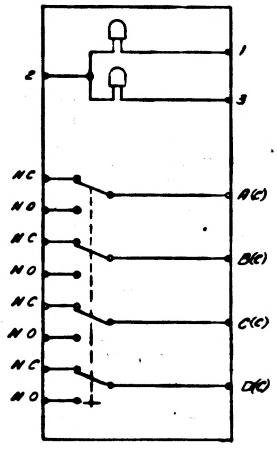


PART OF J4
+3VDC
F1
F2
F3
F4
F5
F6
F7
F8
G
G2
G3
G4
G5
G6
G7
G8
D8
H1
H2
H3
H4
H5
H6
H7
H8
J1
J2
J3
J4
J5
J6
J7
J8
E8
K1
K2
K3
U8
V1
K6
K7
K8
L1
L2
V2
V3
V4
V5
GRD
P1 A1
P1 A2
P1 A3
P1 A4
P1 A5
P1 A7
P1 A8
P1 A9
P1 A10
P1 A11
P1 A12
P1 A14
P1 A15
P1 A16
P1 A18
P1 A19
P1 A20
P1 B1
P1 B2
P1 B3
P1 B5
P1 B6
P1 B7
P1 B8
P1 B9
P1 B10
P1 B11
P1 B12
P1 B14
P1 B15
P1 B16
P1 B18
P1 B19
P1 B20
P1 C1
P1 C2
P1 C3
P1 C5
P1 C9
P1 C10
P1 C11
P1 C12
P1 C13
P1 C15
P1 C16
P1 C17
P1 C18
P1 C19
PART OF J5
MRSC E1
MDT01 E2
MDT02 E3
MDT03 E4
MDT04 E5
MDT05 E6
MDT06 E7
MDT07 E8
MDT08 F1
MDT09 F2
MDT10 F3
MDT11 F4
GRD B6
P2 A20
GRD B5
P2 B20
MDT12 F5
MDT13 F6
MDT14 F7
MDT16 F8
MSTP G1
MTCSA I G5
MNHRPT G2
MNHNC G3
BLK 2C G4
MT01 G6
MT02 G7
MT03 G8
S2-B-NC
GRD B4
P2 C20
GRD B7
P1 C20
MT04 H1
MT05 H2
MT06 H3
MT07 H4
MT08 H5
MT09 H6
MT10 H7
MT11 H8
MT12 J1
MLOAD J2
MREAD J3
MRDCH J4
S31-B
S31-C
S31-D
S31-E
S31-A
COM
MLDCH J5
MONWBK J6
MSBSTP J7
MSTRT J8
K1
MDBLTST K2
K3
U8
V1
K6
K7
K8
L1
L2
V2
V3
V4
V5
L7
L8
STTCFB P1 C6
S32
SIG-NO (SEE SHEET 2)
STRDFB P1 C14
C1
GRD (SEE SHEET 2)
S33
STLDFB P1 B4
S34
PART OF J5
M1 SLT
M2 SLT
M3 SLT
V6 SLT
R3 GRD
R4 GRD
R5 GRD
R6 GRD
K1
LAMP TEST
S35
J1
J2
J3
J6
J7
J8
J9
V7 DAB
M6 DAQ
M7 DAY
M8 DAG
N1 DAX
N2 DALP
B1 GRD
P1 C8 DR TEST
PART OF J5
P1 +10VDC
DS1



+10 VDC
INPUT 1
6
4
3
5
GRD
SLT

SCHEMATIC DIAGRAM FOR DS1 (PINS 4 & 6 NOT USED)



2
1
3
NC
NO
NC
NO
NC
NO
NC
NO
A(C)
B(C)
C(C)
D(C)

SCHEMATIC DIAGRAM FOR S1 THRU S30

FOR REFERENCE ONLY					
REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
DS1	1006481	IND LAMP			
J4, J5	1006671	CONNECTOR			
J1, J2, J3 J6, J7 J8, J9	MS35179	CONNECTOR			
K1	1006234	RELAY			
S1 THRU S30	1006405	SWITCH, PUSH			
S31	1006428-011	SW ROTARY			
S32 THRU S34	MS24656-23	SW TOGGLE			
C1	CS13AF010K	CAPACITOR	1µf		35VDC
S35	MS25089-3C	SWITCH			

NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUBASSEMBLY DESIGNATIONS

REFERENCE
L ASSY DWG NO. 2014366

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4[illegible]
DRAWN [illegible] DATE 23 JUL 65
CHECKED [illegible] 10 AUG 65
APPROVAL [illegible] 10 Oct 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL R. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

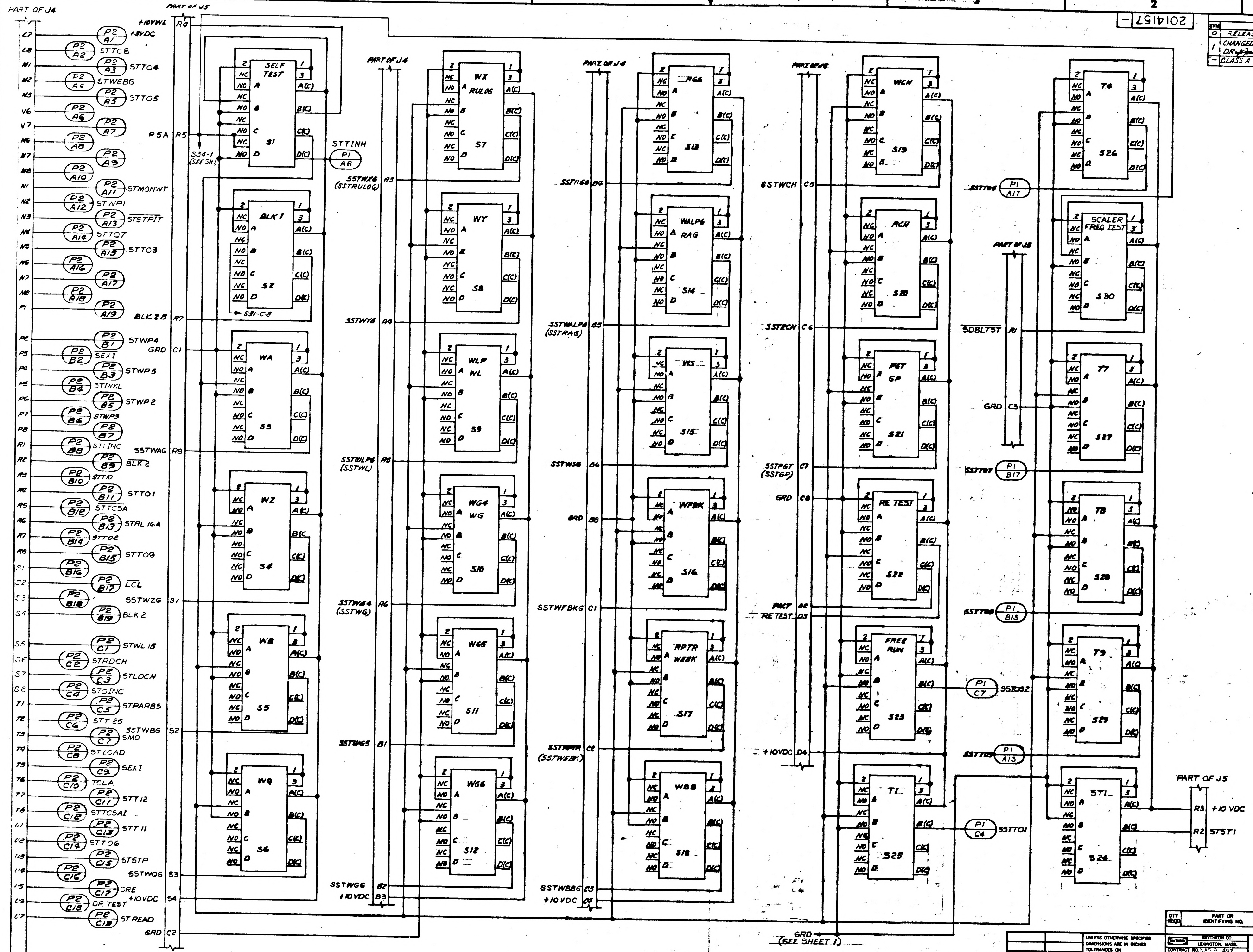
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
SELF TEST FRONT PANEL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014157
SCALE NONE
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25227	[illegible]	[illegible]
1	CHANGED PER CCA R25444 DR [illegible] CHKG [illegible] APPD [illegible]	9/20/65	8.4.6
—	CLASS A RELEASED PER TDRR 25472		



PART OF J4
PART OF J5
+10VWL R4
P2 A1 +3VDC
P2 A2 STTC8
P2 A3 STTO4
P2 A4 STWEBG
P2 A5 STTO5
P2 A6
P2 A7
P2 A8
P2 A9
P2 A10
P2 A11 STMONWT
P2 A12 STWPI
P2 A13 STSTPIT
P2 A14 STTO7
P2 A15 STTO3
P2 A16
P2 A17
P2 A18
P2 A19 BLK 2B R7
P2 B1 STWP4
GRD C1
P2 B2 SEXI
P2 B3 STWP5
P2 B4 STINKL
P2 B5 STWP2
P2 B6 STWP3
P2 B7
P2 B8 STLINC
SSTWAG R8
P2 B9 BLK 2
P2 B10 STT10
P2 B11 STTO1
P2 B12 STTCSA
P2 B13 STRL 16A
P2 B14 STTO2
P2 B15 STTO9
P2 B16
P2 B17 LCL
P2 B18 SSTWZG S1
P2 B19 BLK 2
P2 C1 STWL 15
P2 C2 STRDCH
P2 C3 STLDCH
P2 C4 STOINC
P2 C5 STPARBS
P2 C6 STT 25
P2 C7 SSTWBG S2 SMO
P2 C8 STLOAD
P2 C9 SEXI
P2 C10 TCLA
P2 C11 STT12
P2 C12 STTCSAI
P2 C13 STT11
P2 C14 STTO6
P2 C15 STSTP
P2 C16 SSTWQG S3
P2 C17 SRE +10VDC S4
P2 C18 DP TEST
P2 C19 STREAD
GRD C2
R5A R5
S34-1 (SEE SH1)
SELF TEST S1
STTINH P1 A6
BLK 1 S2
S31-C-8
WA S3
WZ S4
WB S5
WQ S6
SSTWXG (SSTRULOG) A3
WX RULOG S7
SSTWYG A4
WY S8
SSTWLPG (SSTWL) A5
WLP WL S9
SSTWG4 (SSTWG) A6
WG4 WG S10
SSTWG5 B1
WG5 S11
SSTWG6 B2
+10VDC B3
WG6 S12
SSTRGG B4
RGG S13
SSTWALPG (SSTRAG) B5
WALPG RAG S14
SSTWSG B6
WS S15
GRD B8
WFBK S16
SSTWFBKG C1
SSTRPTR (SSTWEBK) C2
RPTR WEBK S17
SSTWBBG C3
+10VDC C4
WBB S18
SSTWCH C5
WCH S19
SSTRCH C6
RCH S20
SSTPGT (SSTGP) C7
PGT GP S21
GRD C8
RE TEST S22
PACT D2
RE TEST D3
FREE RUN S23
P1 C7 SSTOSZ
+10VDC D4
T1 S25
P1 C4 SSTTO1
GRD
(SEE SHEET 1)
T4 S26
SSTTO6 P1 A17
SCALER FREQ TEST S30
PART OF J5
SDBLTST R1
GRD C3
T7 S27
SSTTO7 P1 B17
T8 S28
SSTTO8 P1 B13
T9 S29
SSTTO9 P1 A13
ST1 S24
PART OF J5
R3 +10 VDC
R2 STST1
NC NO A B C D 1 2 3 A(C) B(C) C(C) D(C)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Messenger DATE 6 JUL 65
CHECKED [illegible] 10 AUG 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible] METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
SELF TEST FRONT PANEL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014157
SCALE NONE
WT
SHEET 2 OF 2

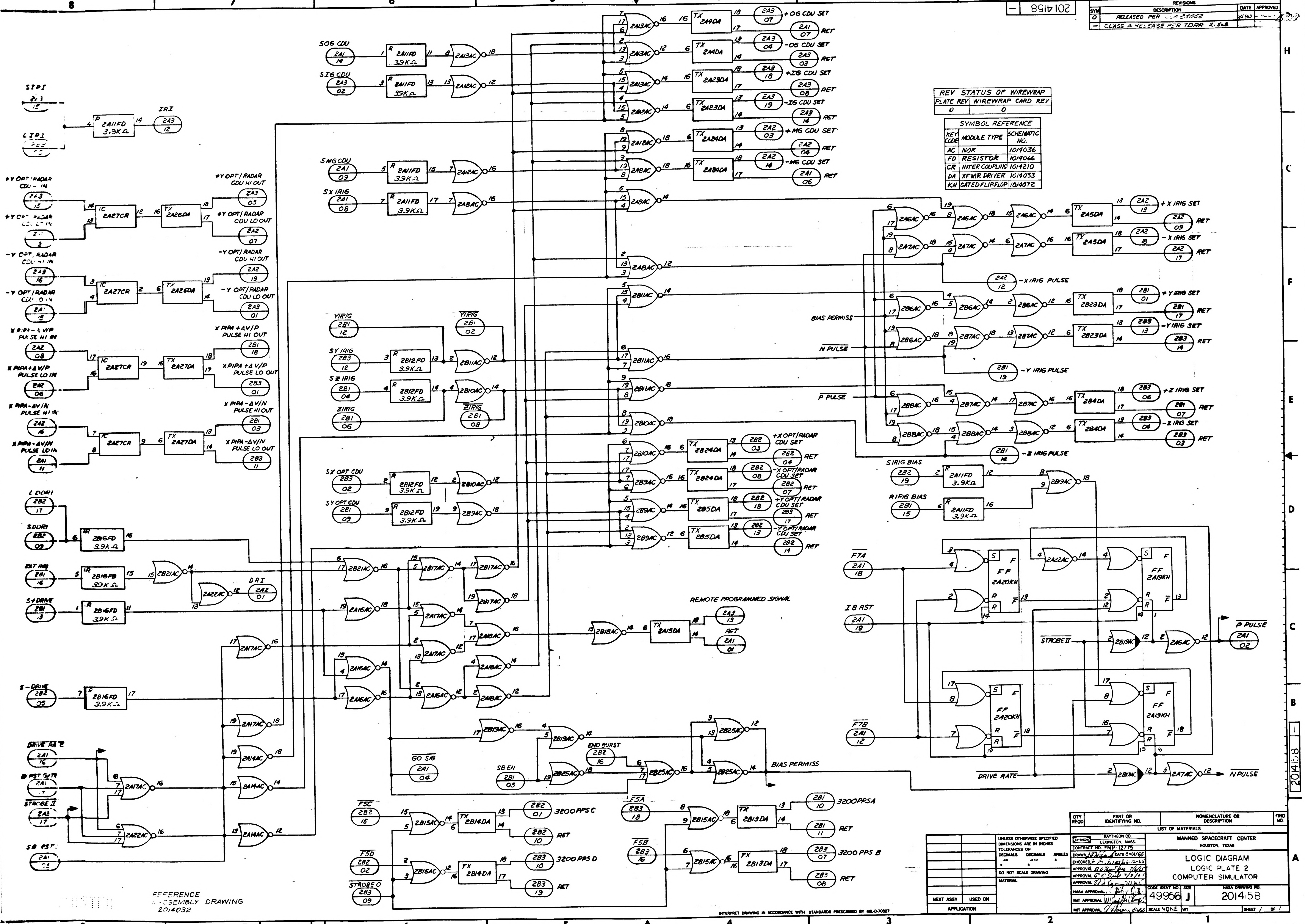
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25052	7/23/65	
—	CLASS A RELEASE PER TDRR 21568		

REV STATUS OF WIREWRAP	
PLATE REV	WIREWRAP CARD REV
0	0

SYMBOL REFERENCE

KEY CODE	MODULE TYPE	SCHEMATIC NO.
AC	NOR	1014036
FD	RESISTOR	1014066
CR	INTER COUPLING	1014210
DA	XFMR DRIVER	1014033
KH	GATED FLIPFLOP	1014072



SOG CDU
SIG CDU
+OG CDU SET
-OG CDU SET
+IG CDU SET
-IG CDU SET
+MG CDU SET
-MG CDU SET
RET
SMG CDU
SX IRIG
SIPI
LIPI
IRI
+Y OPT/RADAR CDU HI OUT
+Y OPT/RADAR CDU LO OUT
-Y OPT/RADAR CDU HI OUT
-Y OPT/RADAR CDU LO OUT
X PIPA +ΔV/P PULSE HI OUT
X PIPA +ΔV/P PULSE LO OUT
X PIPA -ΔV/N PULSE HI OUT
X PIPA -ΔV/N PULSE LO OUT
Y IRIG
SY IRIG
SZ IRIG
Z IRIG
+X IRIG SET
-X IRIG SET
-X IRIG PULSE
+Y IRIG SET
-Y IRIG SET
-Y IRIG PULSE
+Z IRIG SET
-Z IRIG SET
-Z IRIG PULSE
BIAS PERMISS
N PULSE
P PULSE
+X OPT/RADAR CDU SET
-X OPT/RADAR CDU SET
+Y OPT/RADAR CDU SET
-Y OPT/RADAR CDU SET
SX OPT CDU
SY OPT CDU
S IRIG BIAS
R IRIG BIAS
LDDRI
SDDRI
EXT INH
S+DRIVE
S-DRIVE
DRI
REMOTE PROGRAMMED SIGNAL
F7A
IB RST
F7B
STROBE II
DRIVE RATE
FF 2A20KH
FF 2A19KH
DRIVE RATE
BURST GATE
STROBE II
SB RST
GO SIG
SB EN
END BURST
F5C
F5D
STROBE O
F5A
F5B
3200 PPS C
3200 PPS D
3200 PPS A
3200 PPS B
2.9KΩ
3.9KΩ
REFERENCE ASSEMBLY DRAWING 2014032

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12775
DRAWN DATE 8MAY65
CHECKED 6-12-65
APPROVAL 7/6/65
APPROVAL 7/7/65
APPROVAL 7/7/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 7/6/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC PLATE 2
COMPUTER SIMULATOR

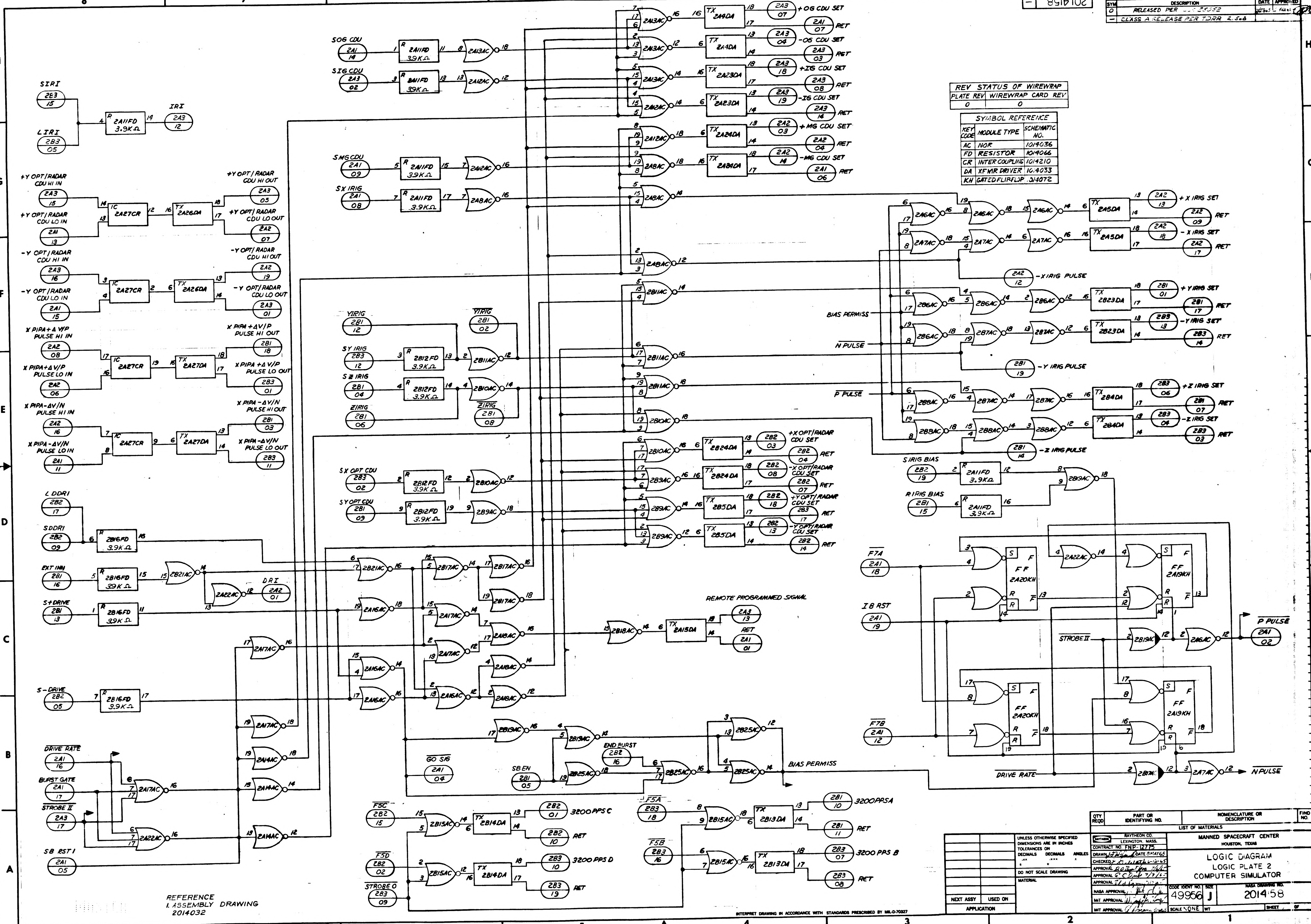
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014158
SCALE NONE
WT
SHEET 1 OF 1

2014158 —

SYM	DESCRIPTION	DATE	APPROVED
	REVISIONS		
0	RELEASED PER ... 25552	7/23/65	
—	CLASS A RELEASE PER TDRR 2.5.8		

REV STATUS OF WIREWRAP	
PLATE REV	WIREWRAP CARD REV
0	0

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NO.
AC	NOR	1014036
FD	RESISTOR	1014066
CR	INTER COUPLING	1014210
DA	XFMR DRIVER	1014033
KH	GATED FLIPFLOP	1014072



SOG CDU
SIG CDU
SIRI
LIRI
IRI
SMG CDU
SX IRIG
+Y OPT/RADAR CDU HI IN
+Y OPT/RADAR CDU LO IN
+Y OPT/RADAR CDU HI OUT
+Y OPT/RADAR CDU LO OUT
-Y OPT/RADAR CDU HI IN
-Y OPT/RADAR CDU LO IN
-Y OPT/RADAR CDU HI OUT
-Y OPT/RADAR CDU LO OUT
X PIPA+ΔV/P PULSE HI IN
X PIPA+ΔV/P PULSE LO IN
X PIPA+ΔV/P PULSE HI OUT
X PIPA+ΔV/P PULSE LO OUT
X PIPA-ΔV/N PULSE HI IN
X PIPA-ΔV/N PULSE LO IN
X PIPA-ΔV/N PULSE HI OUT
X PIPA-ΔV/N PULSE LO OUT
L DDRI
SDDRI
EXT INH
S+DRIVE
S-DRIVE
DRI
DRIVE RATE
BURST GATE
STROBE II
SB RST I
+OG CDU SET
-OG CDU SET
+IG CDU SET
-IG CDU SET
+MG CDU SET
-MG CDU SET
RET
+X IRIG SET
-X IRIG SET
-X IRIG PULSE
+Y IRIG SET
-Y IRIG SET
-Y IRIG PULSE
+Z IRIG SET
-Z IRIG SET
-Z IRIG PULSE
BIAS PERMISS
N PULSE
P PULSE
Y IRIG
SY IRIG
SZ IRIG
Z IRIG
SX OPT CDU
SY OPT CDU
+X OPT/RADAR CDU SET
-X OPT/RADAR CDU SET
+Y OPT/RADAR CDU SET
-Y OPT/RADAR CDU SET
S IRIG BIAS
R IRIG BIAS
F7A
F7B
I B RST
FF 2A20KH
FF 2A19KH
REMOTE PROGRAMMED SIGNAL
GO SIG
SB EN
END BURST
F5C
F5D
STROBE 0
F5A
F5B
3200 PPS C
3200 PPS D
3200 PPS A
3200 PPS B
R 2A11FD 3.9KΩ
TX 2A9DA

REFERENCE
1. ASSEMBLY DRAWING
2014032

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. FNP-12775
DRAWN DATE 8MAY65
CHECKED 6-12-65
APPROVAL 7/6/65
APPROVAL 7/7/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

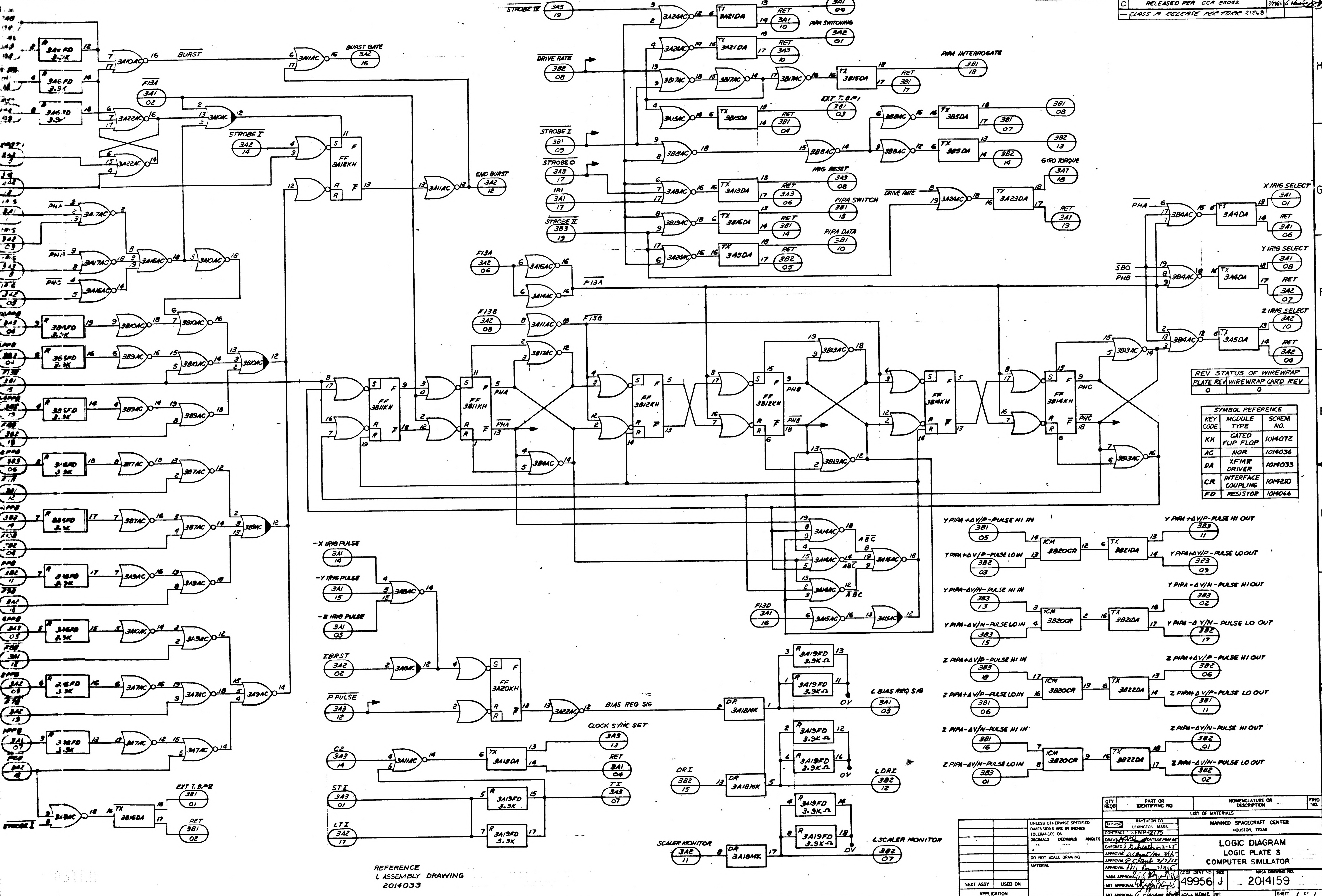
LOGIC DIAGRAM
LOGIC PLATE 2
COMPUTER SIMULATOR

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014158
SCALE NONE
WT
SHEET OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014158 —

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25052	7/23/65	G Neuner
—	CLASS A RELEASE PER TDRR 21568		



STROBE II
PIPA INTERROGATE
PIPA SWITCHING
DRIVE RATE
STROBE I
STROBE O
IRI
STROBE II
EXT T.B.#1
IRIG RESET
PIPA SWITCH
PIPA DATA
GYRO TORQUE
DRIVE RATE
BURST
BURST GATE
F13A
END BURST
PHA
PHB
PHC
F13A
F13B
F13D
SBO
X IRIG SELECT
Y IRIG SELECT
Z IRIG SELECT
RET
TX
FF
PHA
PHB
PHC
ABC
-X IRIG PULSE
-Y IRIG PULSE
-Z IRIG PULSE
IBRST
P PULSE
BIAS REQ SIG
CLOCK SYNC SET
L BIAS REQ SIG
C2
ST I
LT I
TI
DR I
LDR I
SCALER MONITOR
L SCALER MONITOR
EXT T.B.#2
STROBE I
Y PIPA +ΔV/P-PULSE HI IN
Y PIPA +ΔV/P-PULSE LO IN
Y PIPA -ΔV/N-PULSE HI IN
Y PIPA -ΔV/N-PULSE LO IN
Z PIPA +ΔV/P-PULSE HI IN
Z PIPA +ΔV/P-PULSE LO IN
Z PIPA -ΔV/N-PULSE HI IN
Z PIPA -ΔV/N-PULSE LO IN
Y PIPA +ΔV/P-PULSE HI OUT
Y PIPA +ΔV/P-PULSE LO OUT
Y PIPA -ΔV/N-PULSE HI OUT
Y PIPA -ΔV/N-PULSE LO OUT
Z PIPA +ΔV/P-PULSE HI OUT
Z PIPA +ΔV/P-PULSE LO OUT
Z PIPA -ΔV/N-PULSE HI OUT
Z PIPA -ΔV/N-PULSE LO OUT
ICM
3B20CR
3B21DA
3B22DA
3A19FD 3.9K Ω
3A18MK
OV

REV STATUS OF WIREWRAP	
PLATE REV	WIREWRAP CARD REV
0	0

SYMBOL PEFERENCE		
KEY CODE	MODULE TYPE	SCHEM NO.
KH	GATED FLIP FLOP	1014072
AC	NOR	1014036
DA	XFMR DRIVER	1014033
CR	INTERFACE COUPLING	1014210
FD	RESISTOR	1014066

REFERENCE
1. ASSEMBLY DRAWING
2014033

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

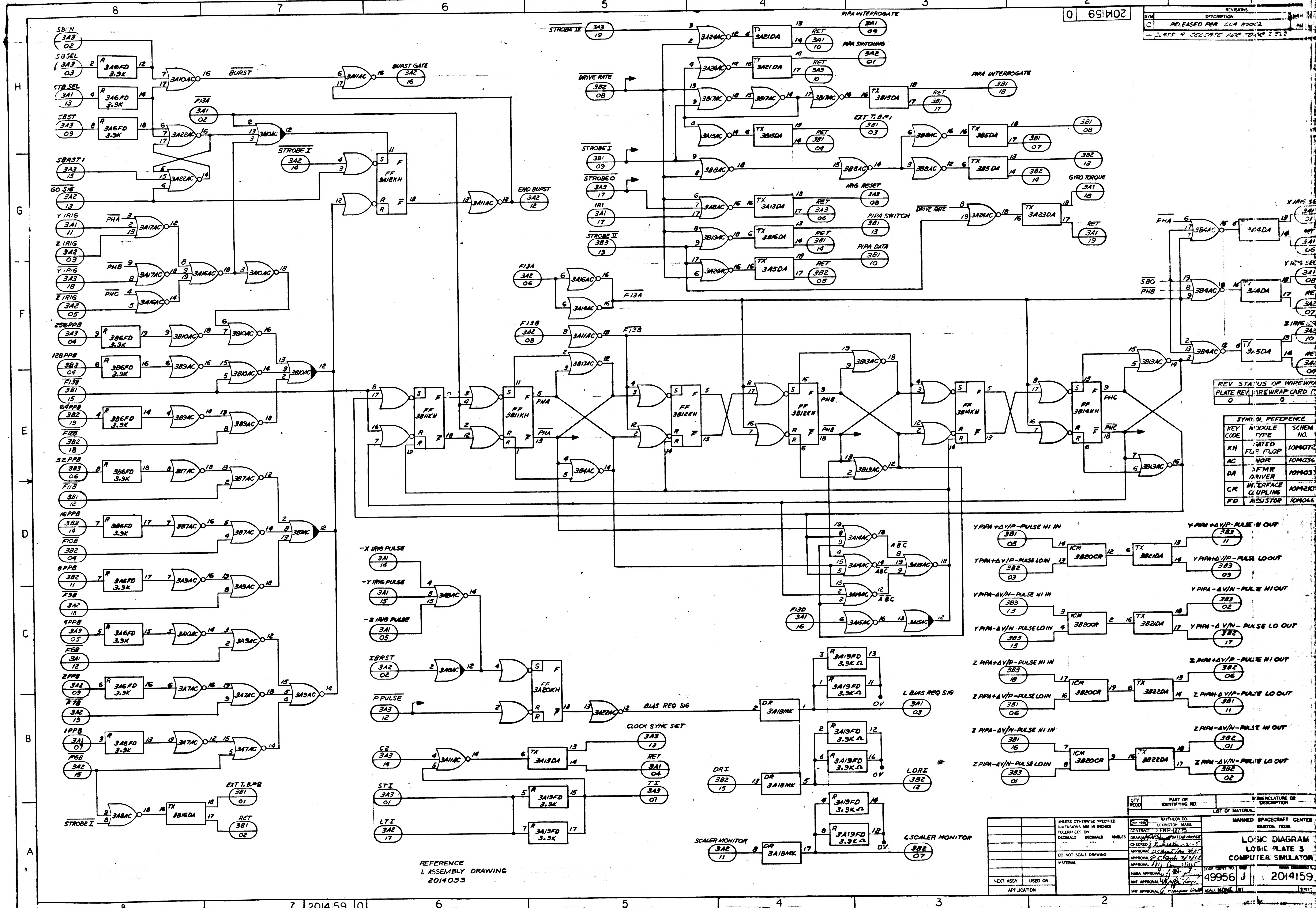
RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO. FNP-12775
DRAWN DATE 28 MAY 65
CHECKED J. Gilbreath 6-12-65
APPROVAL D.G. Bryant 7/1/65
APPROVAL P. E. Bucks 7/7/65
APPROVAL 7/13/65
NASA APPROVAL 7/7/65
MIT APPROVAL
MIT APPROVAL G. Harano

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC PLATE 3
COMPUTER SIMULATOR

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014159
SCALE NONE | WT | SHEET 1 OF 1

SYM	DESCRIPTION
C	RELEASED PER CCA 250:2
—	CLASS 9 RELEASE PER TDX 2532



SBEN 3A3 02
SBSEL 3A3 03
STB SEL 3A1 13
SBST 3A3 09
SBRST1 3A3 15
GO SIG 3A2 13
3A6FD 3.9K
3A10AC
BURST
3A11AC
BURST GATE 3A2 16
F13A 3A1 02
3A22AC
3A10AC
STROBE I 3A2 14
FF 3A12KH
3A11AC
END BURST 3A2 12
Y IRIG 3A1 11
Z IRIG 3A2 03
Y IRIG 3A3 18
Z IRIG 3A2 05
PHA
PHB
PHC
3A17AC
3A16AC
3A10AC
256PPB 3A3 04
128PPB 3B3 04
F13B 3B1 15
64PPB 3B2 19
F12B 3B2 18
32PPB 3B3 06
F11B 3B1 12
16PPB 3B3 14
F10B 3B2 04
8PPB 3B2 11
F9B 3A2 18
4PPB 3A3 05
F8B 3A1 12
2PPB 3A2 09
F7B 3A2 19
1PPB 3A1 07
F6B 3A2 15
3B6FD 3.9K
3B10AC
3B9AC
3B7AC
3A9AC
3A7AC
STROBE I
3B8AC
TX 3B16DA
EXT T.B.#2 3B1 01
RET 3B1 02
STROBE IV 3A3 19
3A24AC
TX 3A21DA
PIPA INTERROGATE 3A1 09
RET 3A1 10
PIPA SWITCHING 3A2 01
RET 3A3 10
DRIVE RATE 3B2 08
3B17AC
TX 3B15DA
PIPA INTERROGATE 3B1 18
RET 3B1 17
3A15AC
EXT T.B.#1 3B1 03
RET 3B1 04
3B8AC
TX 3B5DA
3B1 08
3B1 07
3B2 13
3B2 14
STROBE I 3B1 09
STROBE O 3A3 17
IRI 3A1 17
STROBE II 3B3 19
3A8AC
TX 3A13DA
IRIG RESET 3A3 08
RET 3A3 06
GYRO TORQUE 3A1 18
DRIVE RATE
3A24AC
TX 3A23DA
RET 3A1 19
3B13AC
TX 3B16DA
PIPA SWITCH 3B1 13
RET 3B1 14
PIPA DATA 3B1 10
RET 3B2 05
TX 3A5DA
X IPIG SE
SBO
PHB
3B4AC
Y IPIG SEL
Z IRIG
F13A 3A2 06
3A16AC
3A14AC
F13A
F13B 3A2 08
3A11AC
F13B
3B17AC
FF 3B11KH
FF 3B12KH
FF 3B14KH
PHA
PHB
PHC
3B4AC
3B13AC
3A14AC
3A16AC
3A15AC
A B̄ C̄
ABC
Ā B̄ C
F13D 3A1 16
Y PIPA +ΔV/P-PULSE HI IN 3B1 05
Y PIPA +ΔV/P-PULSE LO IN 3B2 03
Y PIPA -ΔV/N-PULSE HI IN 3B3 13
Y PIPA -ΔV/N-PULSE LO IN 3B3 15
Z PIPA +ΔV/P-PULSE HI IN 3B3 10
Z PIPA +ΔV/P-PULSE LO IN 3B1 06
Z PIPA -ΔV/N-PULSE HI IN 3B1 16
Z PIPA -ΔV/N-PULSE LO IN 3B3 01
ICM 3B20CR
TX 3B21DA
TX 3B22DA
Y PIPA +ΔV/P-PULSE HI OUT 3B3 11
Y PIPA +ΔV/P-PULSE LO OUT 3B3 09
Y PIPA -ΔV/N-PULSE HI OUT 3B3 02
Y PIPA -ΔV/N-PULSE LO OUT 3B2 17
Z PIPA +ΔV/P-PULSE HI OUT 3B2 06
Z PIPA +ΔV/P-PULSE LO OUT 3B1 11
Z PIPA -ΔV/N-PULSE HI OUT 3B2 01
Z PIPA -ΔV/N-PULSE LO OUT 3B2 02
-X IRIG PULSE 3A1 14
-Y IRIG PULSE 3A1 15
-Z IRIG PULSE 3A1 05
3A8AC
IBRST 3A2 02
P PULSE 3A3 12
FF 3A20KH
3A22AC
BIAS REQ SIG
DR 3A18MK
3A19FD 3.9KΩ
OV
L BIAS REQ SIG 3A1 03
CLOCK SYNC SET 3A3 13
C2 3A3 14
3A11AC
TX 3A13DA
RET 3A1 04
STI 3A3 01
TI 3A3 07
LTI 3A2 17
3A19FD 3.9K
ORI 3B2 15
LORI 3B2 12
SCALER MONITOR 3A2 11
L SCALER MONITOR 3B2 07

REFERENCE
1. ASSEMBLY DRAWING 2014033

REV STATUS OF WIREWRA	
PLATE REV	WIREWRAP CARD
0	0

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEM NO.
KH	GATED FLIP FLOP	1014072
AC	NOR	1014036
DA	XFMR DRIVER	1014033
CR	INTERFACE COUPLING	1014210
FD	RESISTOR	1014066

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIAL

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO FNP-12775
DRAWN DATE MAY 65
CHECKED 2-65
APPROVAL 7/1/65
APPROVAL 7/7/65
APPROVAL 7/13/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

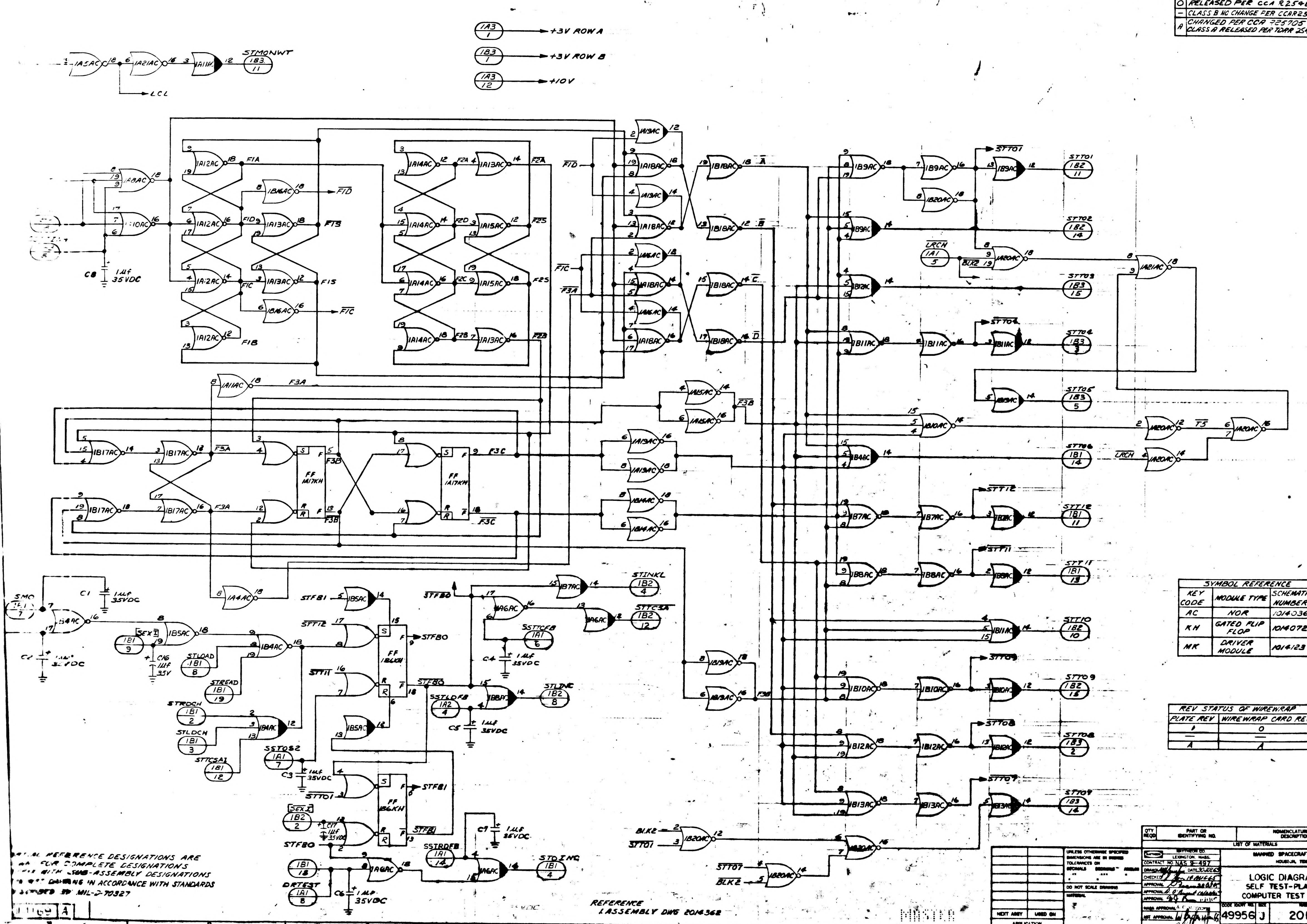
LOGIC DIAGRAM
LOGIC PLATE 3
COMPUTER SIMULATOR

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014159
SCALE NONE
WT
SHEET

2014159 0

F-1

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B NC CHANGE PER CCAR25502	1/5/64	Jw
A	CHANGED PER CCA ?25705 AND CLASS A RELEASED PER TDRR 25472	1/66	Jw


1A5AC
1A21AC
1A11K
STMONWT
1B3 11
LCL
1A3 1 → +3V ROW A
1B3 1 → +3V ROW B
1A3 12 → +10V
1A8AC
1A10AC
C8 1μf 35VDC
1A12AC
F1A
F1D
F1B
F1C
F1S
1B16AC
1A13AC
1B16AC
F1D
F1C
1A14AC
1A13AC
1A15AC
F2A
F2D
F2C
F2B
F2S
F1D
F1C
F3A
1A19AC
1A18AC
1A13AC
1A16AC
1B18AC
A
B
C
D
1B9AC
1B20AC
STT01
1B2 11
STT02
1B2 14
LRCH 1A1 5
BLK2
1A20AC
1A21AC
1B12AC
STT03
1B3 15
1B11AC
STT04
1B3 3
1A13AC
STT05
1B3 5
1A11AC
F3A
1A15AC
1A16AC
F3B
1B10AC
1A20AC
T5
LRCH
1B17AC
FF 1A17KH
F3C
1A13AC
1B14AC
1B4AC
STT06
1B1 14
1B7AC
STT12
1B1 11
1B8AC
STT11
1B1 13
SMO 1A1 7
C1 1μf 35VDC
1B4AC
C2 1μf 35VDC
SEX I
1B1 9
C16 1μf 35V
1B5AC
STLOAD 1B1 8
STREAD 1B1 19
STRDCH 1B1 2
STLDCH 1B1 3
STTCSA1 1B1 12
1A4AC
STFB1
STT12
STT11
FF 1B6KH
STFB0
1B5AC
1B7AC
STINKL 1B2 4
1A6AC
SSTTCFB 1A1 6
STTCSA 1B2 12
C4 1μf 35VDC
SSTLDFB 1A2 4
C5 1μf 35VDC
1B8AC
STLINC 1B2 8
SSTOS2 1A1 7
C3 1μf 35VDC
STT01
STFB1
SEX II 1B2 2
C17 1μf 35VDC
STFB0
1B1 18
DRTEST 1A1 8
C6 1μf 35VDC
1A6AC
SSTRDFB 1A1 14
C7 1μf 35VDC
STDINC 1B1 4
1B19AC
1B1AC
F3B
1B11AC
STT10
1B2 10
1B10AC
STT09
1B2 15
1B12AC
STT08
1B3 2
1B13AC
STT07
1B3 14
BLK2
STT01
1B20AC
STT07
BLK2
1B20AC
1A20AC

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
AC	NOR	1014036
KH	GATED FLIP FLOP	1014072
MK	DRIVER MODULE	1014123

REV STATUS OF WIREWRAP	
PLATE REV	WIREWRAP CARD REV
1	0
—	—
A	A

REFERENCE
1. ASSEMBLY DWG 2014362

[illegible] REFERENCE DESIGNATIONS ARE
[illegible] FOR COMPLETE DESIGNATIONS
[illegible] WITH SUB-ASSEMBLY DESIGNATIONS
[illegible] DRAWING IN ACCORDANCE WITH STANDARDS
[illegible] BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX .XXX ±
± ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 JUL 65
CHECKED 19 AUG 65
APPROVAL
APPROVAL D. O'Bryant
APPROVAL
NASA APPROVAL A. C. Metzger
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

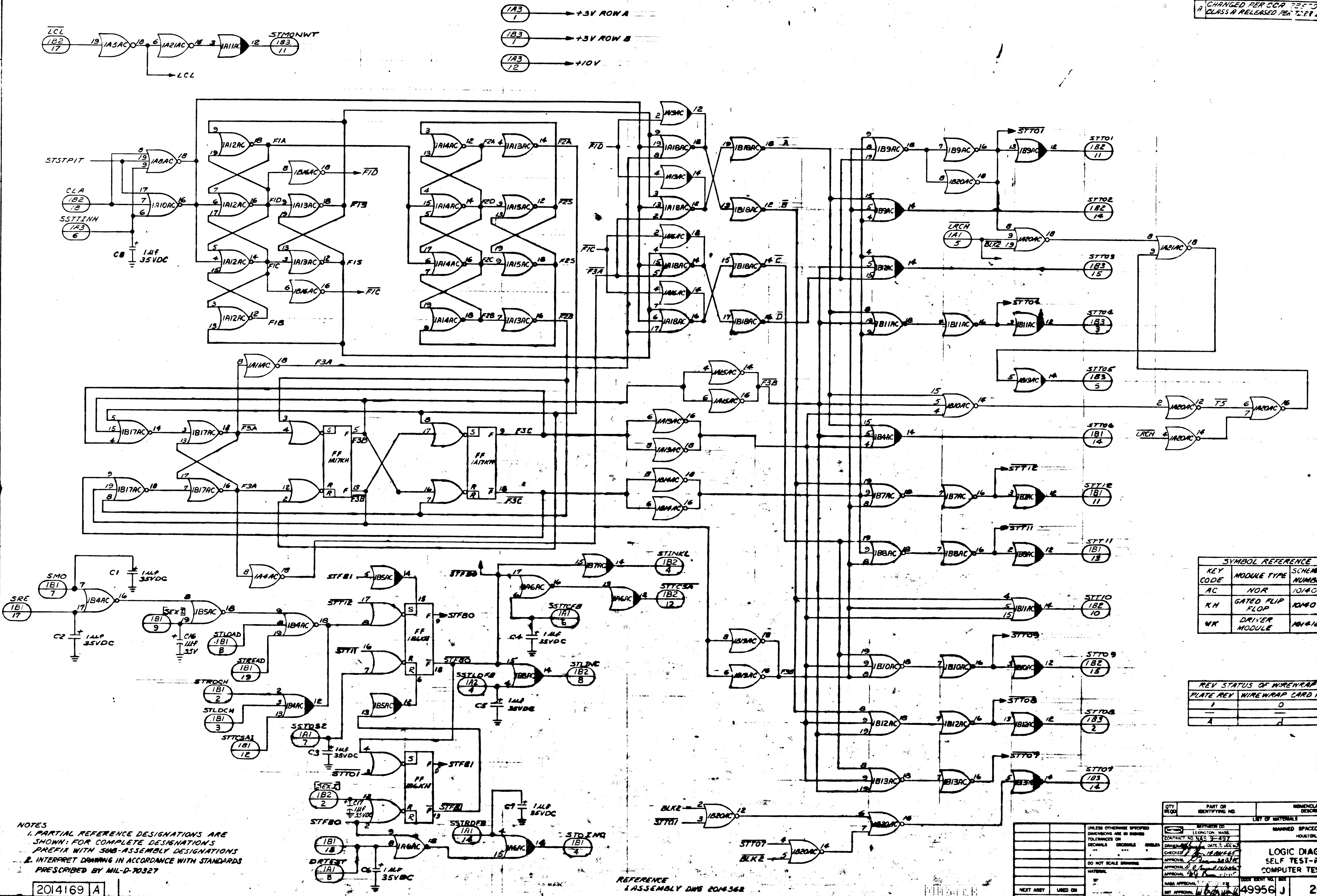
LOGIC DIAGRAM
SELF TEST-PLATE I
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
2014169
SCALE NONE
WT
SHEET 1 OF 2

2014169 A

REVISIONS

SYM	DESCRIPTION	DATE	
O	RELEASED PER CCA R25488		
—	CLASS B NO CHANGE PER CCA R2 55CZ		
A	CHANGED PER CCA R25 [illegible] AND CLASS A RELEASED PER TDRR 2472		



LCL
1B2 17
1A5AC
1A21AC
1A11AC
STMONWT
1B3 11
LCL
1A3 1 → +3V ROW A
1B3 1 → +3V ROW B
1A3 12 → +10V
STSTPIT
CLA
1B2 18
SSTTINH
1A3 6
C8 1μf 35VDC
1A8AC
1A10AC
1A12AC
F1A
F1D
F1B
F1C
F1S
F1C
1B16AC
1A13AC
1A14AC
1A13AC
1A15AC
F2A
F2D
F2B
F2C
F2S
F1D
F1C
F3A
1B3AC
1A18AC
1B18AC
A
B
C
D
1A11AC
F3A
1B17AC
F3A
F3B
FF 1A17KH
F3B
F3C
F3C
1A15AC
1A16AC
F3B
1A13AC
1A14AC
1A4AC
SMO
1B1 7
SRE
1B1 17
C1 1μf 35VDC
C2 1μf 35VDC
1B4AC
SEX B
1B1 9
1B5AC
C16 1μf 35V
STLOAD
1B1 8
STREAD
1B1 19
1B4AC
STRDCH
1B1 2
STLDCH
1B1 3
STTCSA1
1B1 12
1B4AC
STFB1
STTI2
STTI1
FF 1B6KH
STFB0
1B5AC
1B5AC
SSTOBE
1A1 7
C3 1μf 35VDC
STT01
FF 1B6KH
STFB1
SEX B
1B2 18
C17 1μf 35VDC
STFB0
STFB0
1B1 18
DRTEST
1A1 8
C6 1μf 35VDC
1A6AC
SSTRDFB
1A1 14
C7 1μf 35VDC
1A6AC
STDINQ
1B1 4
STFB0
1A6AC
SSTTCFB
1A1 6
C4 1μf 35VDC
1A6AC
STTCSA
1B2 12
1B7AC
STINKL
1B2 4
1B8AC
STLDIC
1B2 8
SSTLDFB
1A2 4
C5 1μf 35VDC
1B13AC
1B13AC
F3B
BLKE
STT01
1B20AC
STT07
BLKE
1B20AC
1B20AC
1B9AC
1B20AC
STT01
STT01
1B2 11
STT02
1B2 14
LRCH
1A1 5
BLKE
1A20AC
1A21AC
STT03
1B3 15
STT04
1B3 3
1B11AC
STT06
1B3 5
1B13AC
1B10AC
1A20AC
T5
1A20AC
LRCH
1A20AC
STT06
1B1 14
1B4AC
STT12
1B1 11
1B7AC
STT11
1B1 13
1B8AC
STT10
1B2 10
1B11AC
STT09
1B2 15
1B10AC
STT08
1B3 2
1B12AC
STT07
1B3 14
1B13AC
REFERENCE
1 ASSEMBLY DWG 2014362

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
AC	NOR	1014036
KH	GATED FLIP FLOP	1014072
WK	DRIVER MODULE	1014163

REV STATUS OF WIREWRAP	
PLATE REV	WIREWRAP CARD REV
1	0
—	—
A	d

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014169 A

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 31 JUL 63
CHECKED 14 AUG 65
APPROVAL
APPROVAL D. O. Bryant 10/20/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
SELF TEST-PLATE 1
COMPUTER TEST SET

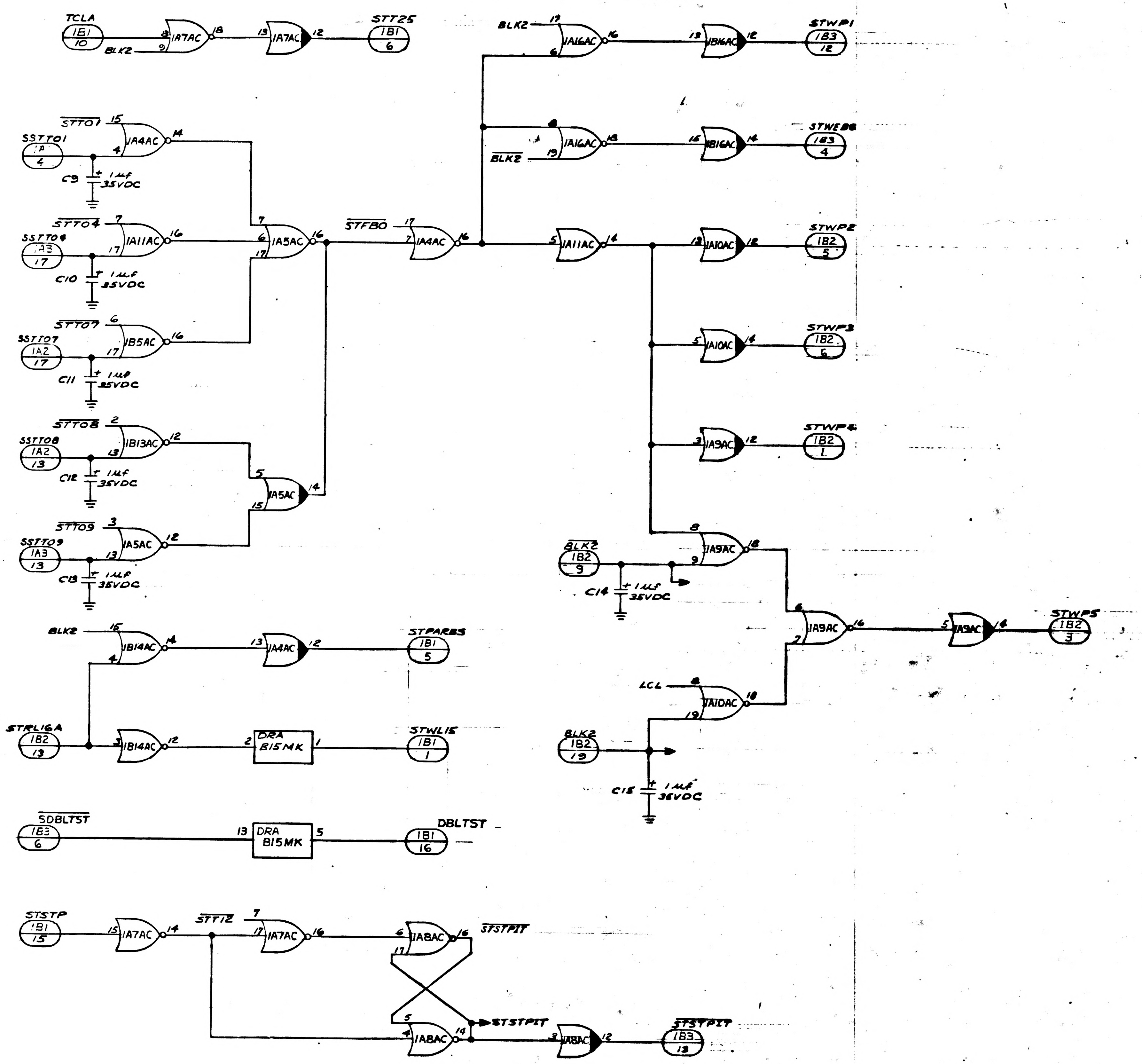
CODE IDENT NO.	SIZE	DWG NO.
49956	J	2014169

SCALE NONE WT SHEET

F 1/2

2014169 A

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B NO CHANGE PER CCA R25502	1/4/66	Jal.
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	4/15/66	Jal.


TCLA
1B1
10
BLK2
8
9
1A7AC
18
13
1A7AC
12
STT25
1B1
6
$\overline{STTO1}$
15
SSTTO1
1A
4
1A4AC
14
C9
1μf
35VDC
$\overline{STTO4}$
7
SSTTO4
1A3
17
1A11AC
16
C10
1μf
35VDC
$\overline{STTO7}$
6
SSTTO7
1A2
17
1B5AC
16
C11
1μf
35VDC
$\overline{STTO8}$
2
SSTTO8
1A2
13
1B13AC
12
C12
1μf
35VDC
$\overline{STTO9}$
3
SSTTO9
1A3
13
1A5AC
12
C13
1μf
35VDC
1A5AC
5
15
14
1A5AC
7
6
17
16
$\overline{STFBO}$
17
7
1A4AC
16
BLK2
17
6
1A16AC
16
13
1B16AC
12
STWP1
1B3
12
8
19
$\overline{BLK2}$
1A16AC
18
15
1B16AC
14
STWEB6
1B3
4
5
1A11AC
14
13
1A10AC
12
STWP2
1B2
5
5
1A10AC
14
STWP3
1B2
6
3
1A9AC
12
STWP4
1B2
1
8
9
1A9AC
18
$\overline{BLK2}$
1B2
9
C14
1μf
35VDC
6
7
1A9AC
16
5
1A9AC
14
STWP5
1B2
3
LCL
8
19
1A10AC
18
BLK2
1B2
19
C15
1μf
35VDC
BLK2
15
4
1B14AC
14
13
1A4AC
12
STPARBS
1B1
5
STRLIGA
1B2
13
3
1B14AC
12
2
DRA
B15MK
1
STWL15
1B1
1
$\overline{SDBLTST}$
1B3
6
13
DRA
B15MK
5
DBLTST
1B1
16
STSTP
1B1
15
15
1A7AC
14
$\overline{STT12}$
7
17
1A7AC
16
6
17
1A8AC
16
$\overline{STSTPIT}$
5
4
1A8AC
14
STSTPIT
3
1A8AC
12
$\overline{STSTPIT}$
1B3
13

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 JUL 65
CHECKED 18 AUG 65
APPROVAL 2 AUG 65
APPROVAL 8/20/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

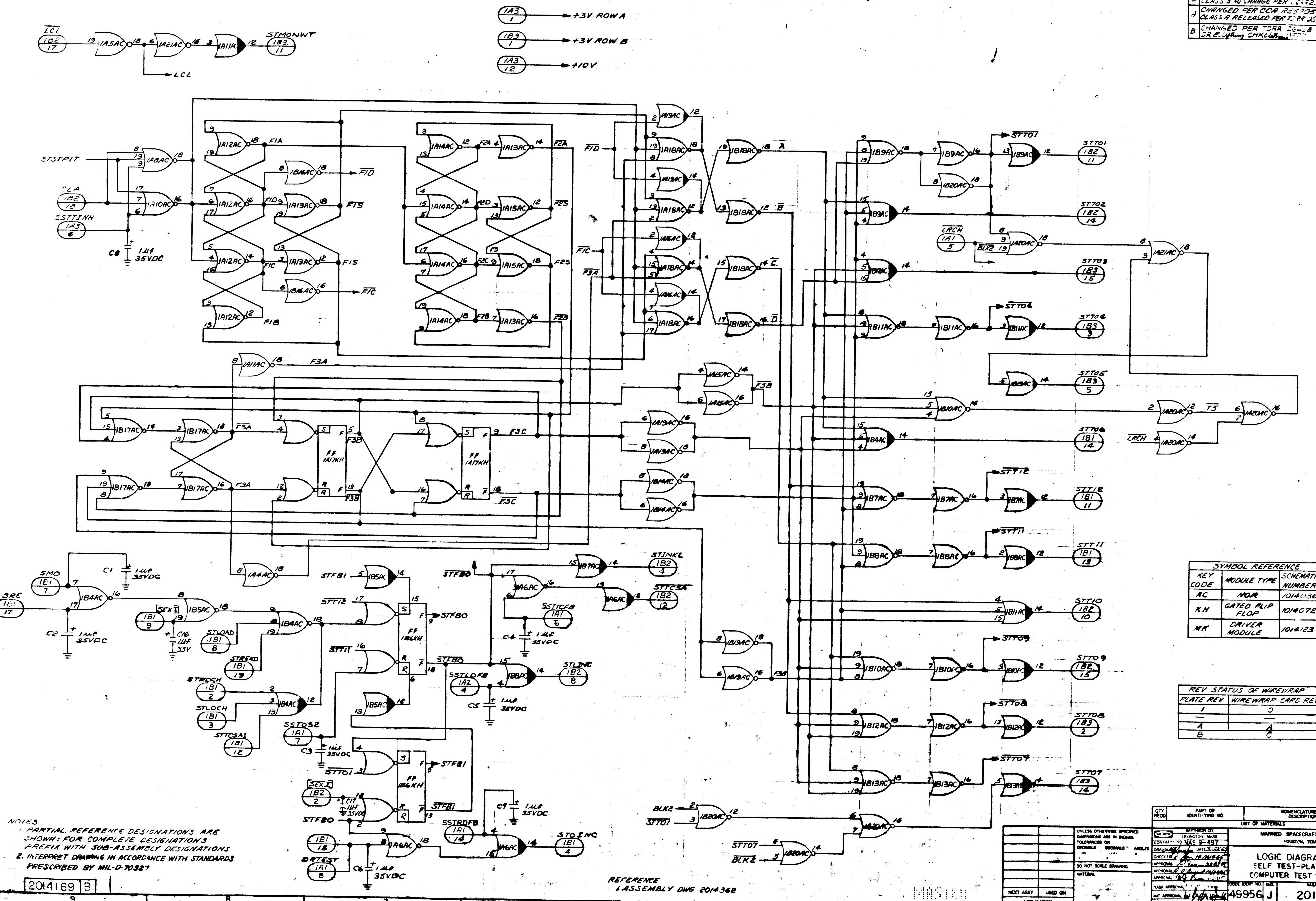
LOGIC DIAGRAM
SELF TEST-PLATE I
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
2014169
SCALE NONE
WT
SHEET 2 OF 2

2014169 A

2014169 B

SYM	REVISIONS DESCRIPTION	DATE	APPROVEL
O	RELEASED PER CCA R25488		
—	CLASS 3 NO CHANGE PER CCAR25502	9/6/64	
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	1/15/66	
B	CHANGED PER TDRR 26468 DR E. CHK	2/24/66	



LCL 1B2 17
1A5AC
1A21AC
1A11AC
STMONWT 1B3 11
LCL
1A3 1 → +3V ROW A
1B3 1 → +3V ROW B
1A3 12 → +10V
STSTPIT
CLA 1B2 18
SSTTINH 1A3 6
C8 1μf 35VDC
1A8AC
1A10AC
1A12AC
1A16AC
1A13AC
1A14AC
1A15AC
F1A
F1B
F1C
F1D
F1S
F1S
F2A
F2B
F2C
F2D
F2S
F3A
F3B
F3C
1A11AC
1A19AC
1A18AC
1B18AC
A
B
C
D
1B17AC
FF 1A17KH
1A15AC
1A13AC
1B14AC
1B13AC
1B9AC
1B20AC
1B3AC
1B11AC
1B10AC
1B4AC
1B7AC
1B8AC
1B12AC
1A21AC
1A20AC
LRCH 1A1 5
BLK2
STT01 1B2 11
STT02 1B2 14
STT03 1B3 15
STT04 1B3 3
STT05 1B3 5
STT06 1B1 14
STT12 1B1 11
STT11 1B1 13
STT10 1B2 10
STT09 1B2 15
STT08 1B3 2
STT07 1B3 14
T5
LRCH
SMO 1B1 7
SRE 1B1 17
C1 1μf 35VDC
C2 1μf 35VDC
1B4AC
1B5AC
SEX II 1B1 9
C16 1μf 35V
STLOAD 1B1 8
STREAD 1B1 19
STRDCH 1B1 2
STLDCH 1B1 3
STTCSA1 1B1 12
1A4AC
STFB1
STFB0
STT12
STT11
FF 1B6KH
SSTOS2 1A1 7
C3 1μf 35VDC
STT01
SEX I 1B2 2
C17 1μf 35VDC
FF 1B6KH
1B1 18
DRTEST 1A1 8
C6 1μf 35VDC
1A6AC
1A9AC
1B7AC
STINKL 1B2 4
STTCSA 1B2 12
SSTTCFB 1A1 6
C4 1μf 35VDC
1B8AC
SSTLDFB 1A2 4
STINC 1B2 8
C5 1μf 35VDC
C7 1μf 35VDC
SSTRDFB 1A1 14
STOINC 1B1 4
BLK2
STT01
1B20AC
STT07
BLK2

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
AC	NOR	1014036
KH	GATED FLIP FLOP	1014072
MK	DRIVER MODULE	1014123

REV STATUS OF WIREWRAP	
PLATE REV	WIREWRAP CARD REV
1	0
—	—
A	A
B	C

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REFERENCE
ASSEMBLY DWG 2014362

2014169 B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX .XXX ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS
CONTRACT NO NAS 9-497
DRAWN DATE 30 JUL 65
CHECKED 12 AUG 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

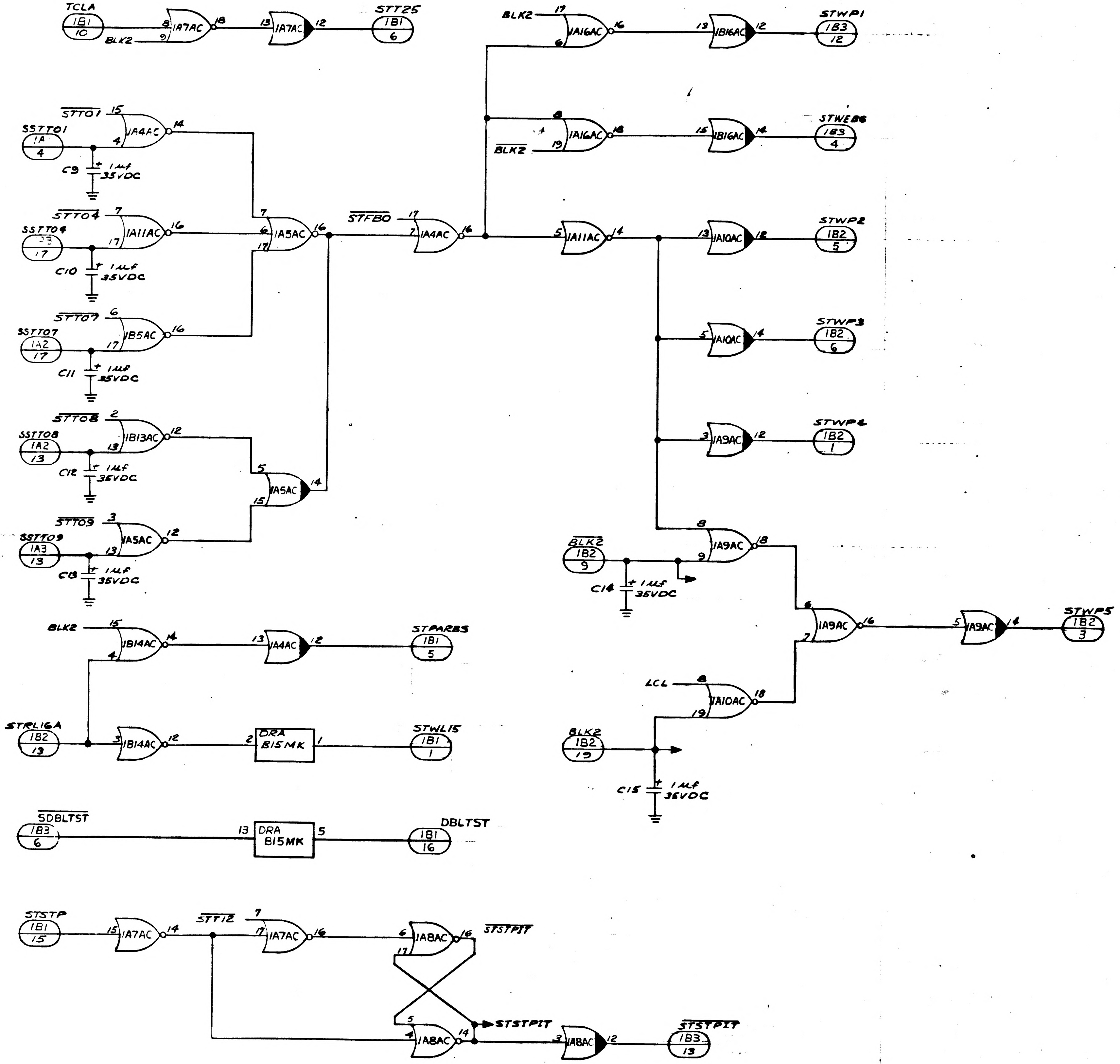
LOGIC DIAGRAM
SELF TEST-PLATE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 201416
SCALE NONE
WT
SHEET 1 OF 2

2014169

2014169 B

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B NO CHANGE PER CCA R25502	1/4/66	Jad
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	1/15/66	Jad
B	CHANGED PER TDRR 26468 DR E. Uffing CHK C.O. [illegible] APPD	3/24/66	Jad



TCLA
1B1
10
BLK2
1A7AC
1A7AC
STT25
1B1
6
$\overline{STT01}$
SSTT01
1A
4
1A4AC
C9
1 µf 35VDC
$\overline{STT04}$
SSTT04
1A3
17
1A11AC
C10
1 µf 35VDC
$\overline{STT07}$
SSTT07
1A2
17
1B5AC
C11
1 µf 35VDC
$\overline{STT08}$
SSTT08
1A2
13
1B13AC
C12
1 µf 35VDC
$\overline{STT09}$
SSTT09
1A3
13
1A5AC
C13
1 µf 35VDC
1A5AC
1A5AC
$\overline{STFB0}$
1A4AC
BLK2
1A16AC
1B16AC
STWP1
1B3
12
$\overline{BLK2}$
1A16AC
1B16AC
STWEB6
1B3
4
1A11AC
1A10AC
STWP2
1B2
5
1A10AC
STWP3
1B2
6
1A9AC
STWP4
1B2
1
$\overline{BLK2}$
1B2
9
C14
1 µf 35VDC
1A9AC
LCL
1A10AC
BLK2
1B2
19
C15
1 µf 35VDC
1A9AC
1A9AC
STWP5
1B2
3
BLK2
1B14AC
1A4AC
STPARBS
1B1
5
STRL16A
1B2
13
1B14AC
DRA B15MK
STWL15
1B1
1
$\overline{SDBLTST}$
1B3
6
DRA B15MK
DBLTST
1B1
16
STSTP
1B1
15
1A7AC
$\overline{STT12}$
1A7AC
1A8AC
$\overline{STSTPIT}$
1A8AC
STSTPIT
1A8AC
$\overline{STSTPIT}$
1B3
13

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX ± .XXX ± ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 30JUL65
CHECKED [illegible] 4AUG65
APPROVAL [illegible]
APPROVAL D. J. [illegible] 12/29/65
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
SELF TEST-PLATE I
COMPUTER TEST SET

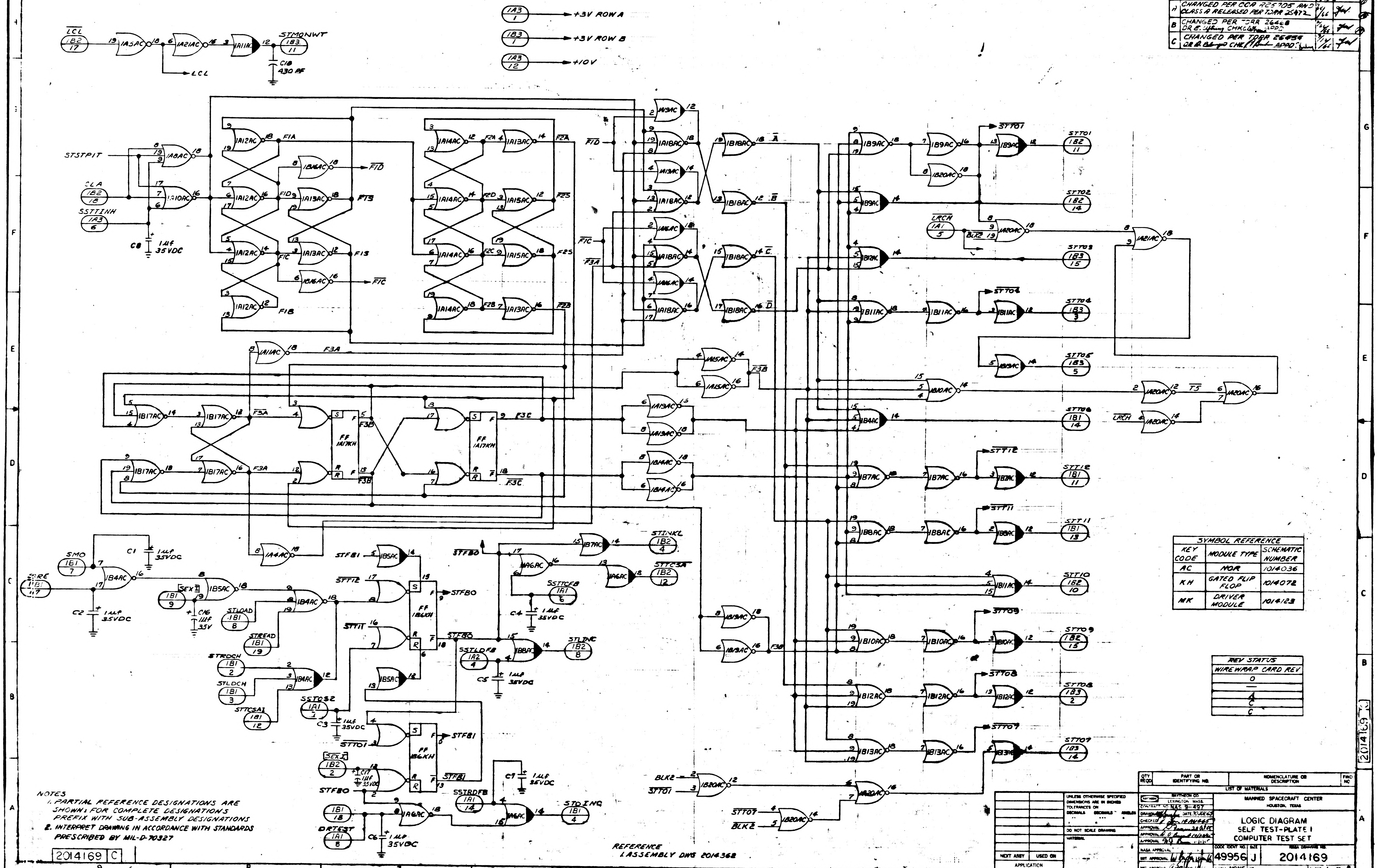
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014169
SCALE NONE
WT
SHEET 2 OF 2

2014169 B

2014169 B

2014169 C

SYM	DESCRIPTION	DATE	APPROVAL
O	RELEASED PER CCA R25488		
—	CLASS B NO CHANGE PER CCAR25502	9/6/65	
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	7/15/66	
B	CHANGED PER TDRR 26468 DR E. CHK APPD	7/26/66	
C	CHANGED PER TDRR 25454 DR CHK APPD	8/17/66	


LCL 1B2 17
1A5AC
1A21AC
1A11AC
STMONWT 1B3 11
C18 430 PF
LCL
1A3 1 +3V ROW A
1B3 1 +3V ROW B
1A3 12 +10V
STSTPIT
CLA 1B2 18
SSTTINH 1A3 6
C8 1 µf 35VDC
1A8AC
1A10AC
1A12AC
1A13AC
1A14AC
1A15AC
1A16AC
1A18AC
F1A F1B F1C F1D F1S
F2A F2B F2C F2D F2S F2A F2S F2B
F1D F1C F1S
1B18AC
A B C D
F1D F1C F3A
1B9AC 1B20AC 1B11AC 1B7AC 1B8AC 1B10AC 1B12AC 1B13AC 1B4AC
STT01 1B2 11
STT02 1B2 14
LRCH 1A1 5
BLKZ
1A20AC
1A21AC
STT03 1B3 15
STT04 1B3 3
STT05 1B3 5
STT06 1B1 14
STT12 1B1 11
STT11 1B1 13
STT10 1B2 10
STT09 1B2 13
STT08 1B3 2
STT07 1B3 14
1A11AC F3A
1B17AC
F3B F3C
FF 1A17KH
1A15AC 1A13AC 1A14AC
T5
LRCH 1A20AC
1A4AC
SMO 1B1 7
SRE 1B1 4
C1 1 µf 35VDC
C2 1 µf 35VDC
1B4AC 1B5AC
SEX II 1B1 9
C16 1µf 35V
STLOAD 1B1 8
STREAD 1B1 19
STRDCH 1B1 2
STLDCH 1B1 3
STTCSA1 1B1 12
STFB1 STT12 STT11 STFB0
FF 1B6KH
SSTOS2 1A1 1
C3 1 µf 35VDC
STT01
SEX I 1B2 2
C17 1µf 35VDC
STFB0
1B1 18
DRTEST 1A1 8
C6 1 µf 35VDC
1A6AC
STFB0
1A6AC
STINKL 1B2 4
STTCSA 1B2 12
SSTTCFB 1A1 6
C4 1µf 35VDC
SSTLDFB 1A2 4
C5 1 µf 35VDC
1B8AC
STLINC 1B2 8
C7 1 µf 35VDC
SSTRDFB 1A1 14
STOINC 1B1 4
1B13AC 1B3AC F3B
BLK2 STT01 1B20AC
STT07 BLK2 1B20AC
1A20AC

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REFERENCE
1. ASSEMBLY DWG 2014362

SYMBOL REFERENCE

KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
AC	NOR	1014036
KH	GATED FLIP FLOP	1014072
MK	DRIVER MODULE	1014123

REV STATUS

WIREWRAP CARD REV
0
—
A
C
C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX DECIMALS .XXX ANGLES
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 30 JUL 65
CHECKED 14 AUG 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
SELF TEST-PLATE I
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014169
SCALE NONE
WT
SHEET 1 OF

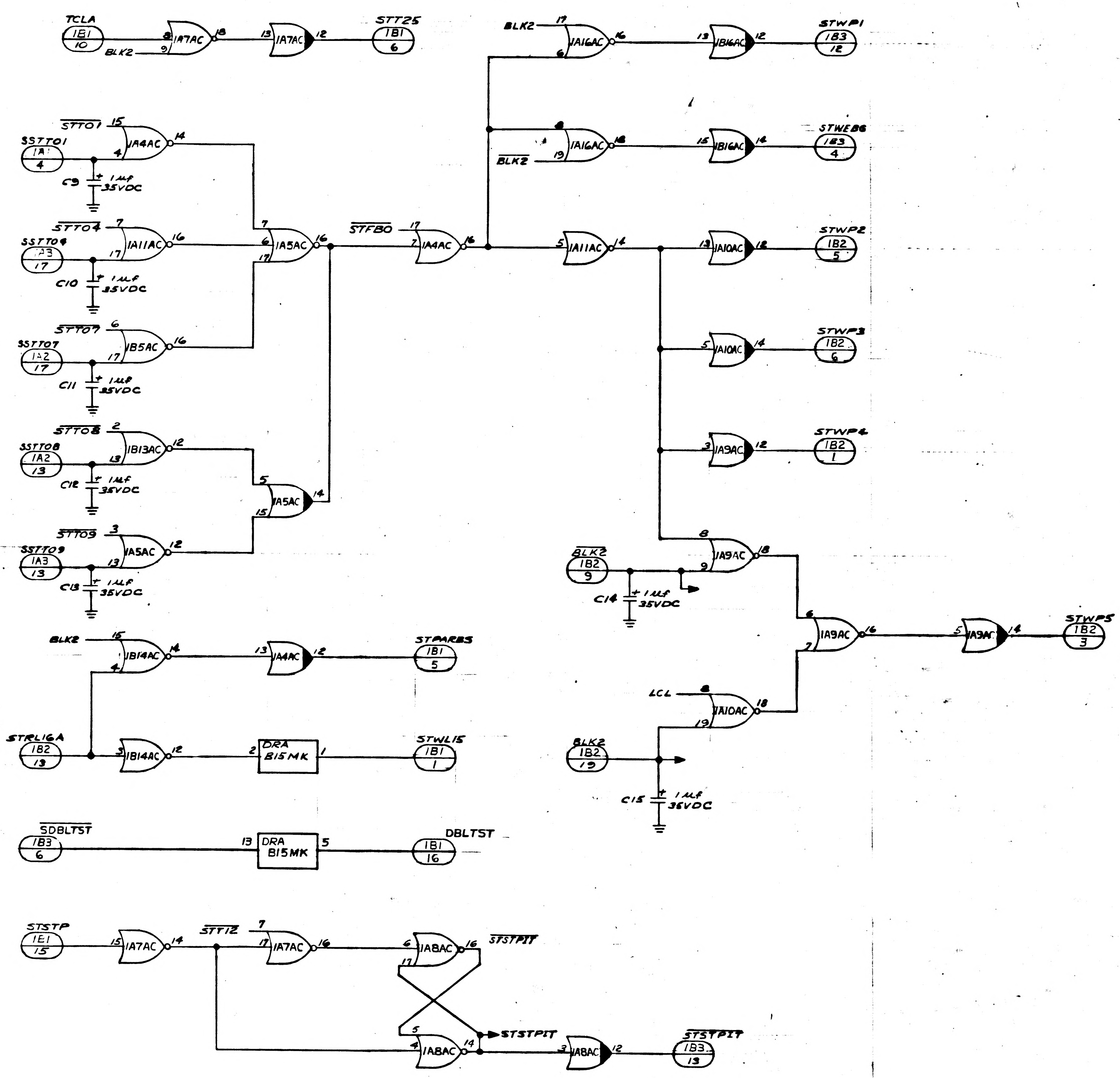
2014169 C

2014169 C

2014169 C

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
–	CLASS B NO CHANGE PER CCA R25502	9/4/64	
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	1/15/66	
B	CHANGED PER TDRR 26468 DR E. Uhring CHK C.D. APPD	3/24/66	
C	CHANGED PER TDRR 26454 DR D. CHK APPD	3/17/66	


TCLA
1B1
10
BLK2
8
9
1A7AC
18
13
1A7AC
12
STT25
1B1
6
STT01
15
SSTT01
1A1
4
4
1A4AC
14
C9
+ 1μf 35VDC
STT04
7
SSTT04
1A3
17
17
1A11AC
16
C10
+ 1μf 35VDC
STT07
6
SSTT07
1A2
17
17
1B5AC
16
C11
+ 1μf 35VDC
7
6
17
1A5AC
16
STFB0
17
7
1A4AC
16
STT08
2
SSTT08
1A2
13
13
1B13AC
12
C12
+ 1μf 35VDC
5
15
1A5AC
14
STT09
3
SSTT09
1A3
13
13
1A5AC
12
C13
+ 1μf 35VDC
BLK2
15
4
1B14AC
14
13
1A4AC
12
STPARBS
1B1
5
STRLIGA
1B2
13
3
1B14AC
12
2
DRA B15MK
1
STWL15
1B1
1
SDBLTST
1B3
6
13
DRA B15MK
5
DBLTST
1B1
16
STSTP
1E1
15
15
1A7AC
14
STT12
7
17
1A7AC
16
6
17
1A8AC
16
STSTPIT
5
4
1A8AC
14
STSTPIT
3
1A8AC
12
STSTPIT
1B3
13
BLK2
17
6
1A16AC
16
13
1B16AC
12
STWP1
1B3
12
8
19
BLK2
1A16AC
18
15
1B16AC
14
STWEB6
1B3
4
5
1A11AC
14
13
1A10AC
12
STWP2
1B2
5
5
1A10AC
14
STWP3
1B2
6
3
1A9AC
12
STWP4
1B2
1
8
9
1A9AC
18
BLK2
1B2
9
C14
+ 1μf 35VDC
6
7
1A9AC
16
5
1A9AC
14
STWP5
1B2
3
LCL
8
19
1A10AC
18
BLK2
1B2
19
C15
+ 1μf 35VDC

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30JUL65
CHECKED 14AUG65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
SELF TEST-PLATE 1
COMPUTER TEST SET

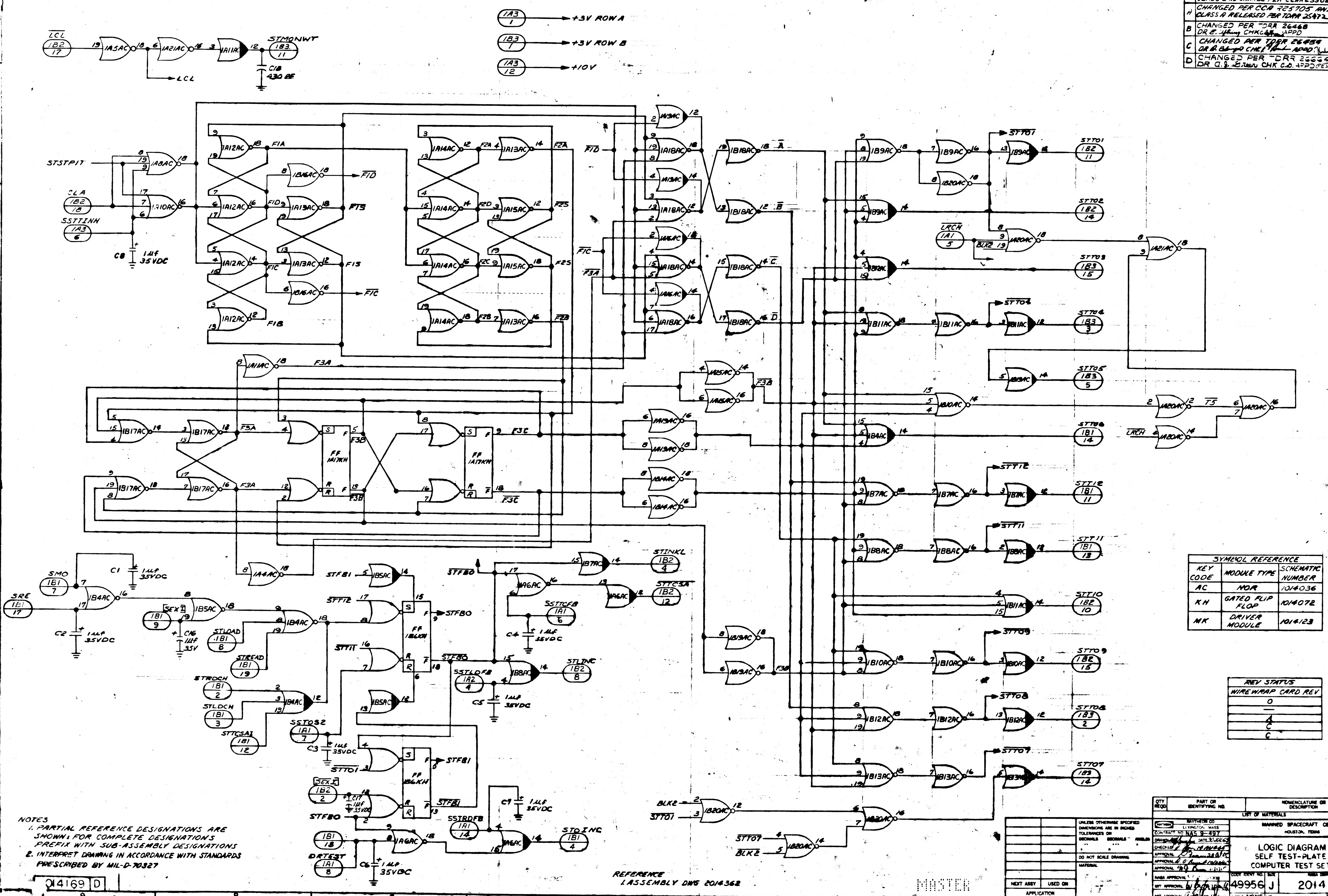
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014169
SCALE NONE
WT
SHEET 2 OF 2

2014169 C

2014169 C

2014169 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
O	RELEASED PER CCA R25488		
–	CLASS 3 NO CHANGE PER CCAR25502		
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	/66	
B	CHANGED PER TDRR 26468 DR E. [illegible] CHK [illegible] APPD	/66	
C	CHANGED PER TDRR 26454 DR [illegible] CHK [illegible] APPD	/66	
D	CHANGED PER TDRR 26664 DR [illegible] CHK C.D. APPROVED	/66	



LCL
1B2
17
1A5AC
1A21AC
1A11AC
STMONWT
1B3
11
C18
430 PF
LCL
1A3
1
+3V ROW A
1B3
1
+3V ROW B
1A3
12
+10V
STSTPIT
1A8AC
CLA
1B2
18
1A10AC
SSTTINH
1A3
6
C8
1μf
35VDC
1A12AC
F1A
1B16AC
F1D
F1D
1A13AC
F1S
F1C
F1B
F1C
1A14AC
F2A
1A13AC
F2A
F2D
1A15AC
F2S
F2C
F2S
F2B
F2B
1A19AC
1A18AC
1B18AC
A
B
C
D
F1C
F3A
1A11AC
F3A
1B17AC
F3A
F3B
FF
1A17KH
F3C
F3C
F3B
1A15AC
1A16AC
1A13AC
1A14AC
F3B
1A4AC
SMO
1B1
7
C1
1μf
35VDC
SRE
1B1
17
1B4AC
C2
1μf
35VDC
SEX II
1B1
9
1B5AC
C16
1μf
35V
STLOAD
1B1
8
STREAD
1B1
19
STRDCH
1B1
2
STLDCH
1B1
3
STTCSA1
1B1
12
STFB1
1B5AC
STT12
STT11
FF
1B1KH
STFB0
STFB0
1B7AC
STINKL
1B2
4
1A6AC
1A6AC
STTCSA
1B2
12
SSTCFB
1A1
6
C4
1μf
35VDC
SSTLDFB
1A2
4
1B8AC
STLINC
1B2
8
C5
1μf
35VDC
SSTOS2
1A1
7
C3
1μf
35VDC
STT01
FF
1B6KH
STFB1
STFB1
SEX I
1B2
2
C17
1μf
35VDC
STFB0
C7
1μf
35VDC
SSTRDFB
1A1
14
1A6AC
1A6AC
STOINC
1B1
4
1B1
18
DRTEST
1A1
8
C6
1μf
35VDC
1B9AC
1B20AC
STT01
1B2
11
STT02
1B2
14
LRCN
1A1
5
BLK2
1A20AC
1A21AC
STT03
1B3
15
1B11AC
STT04
1B3
3
STT05
1B3
5
1B10AC
1A20AC
T5
1A20AC
LRCH
1A8AC
STT06
1B1
14
1B7AC
STT12
1B1
11
1B8AC
STT11
1B1
13
STT10
1B2
10
1B10AC
STT09
1B2
15
1B12AC
STT08
1B3
2
1B13AC
STT07
1B3
14
BLK2
STT01
1B20AC
STT07
BLK2
1B20AC

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
AC	NOR	1014036
KH	GATED FLIP FLOP	1014072
MK	DRIVER MODULE	1014123

REV STATUS
WIREWRAP CARD REV
O
—
A
C
C

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REFERENCE
ASSEMBLY DWG 2014362

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 30 JUL 65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL D. O'[illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
SELF TEST-PLATE I
COMPUTER TEST SET

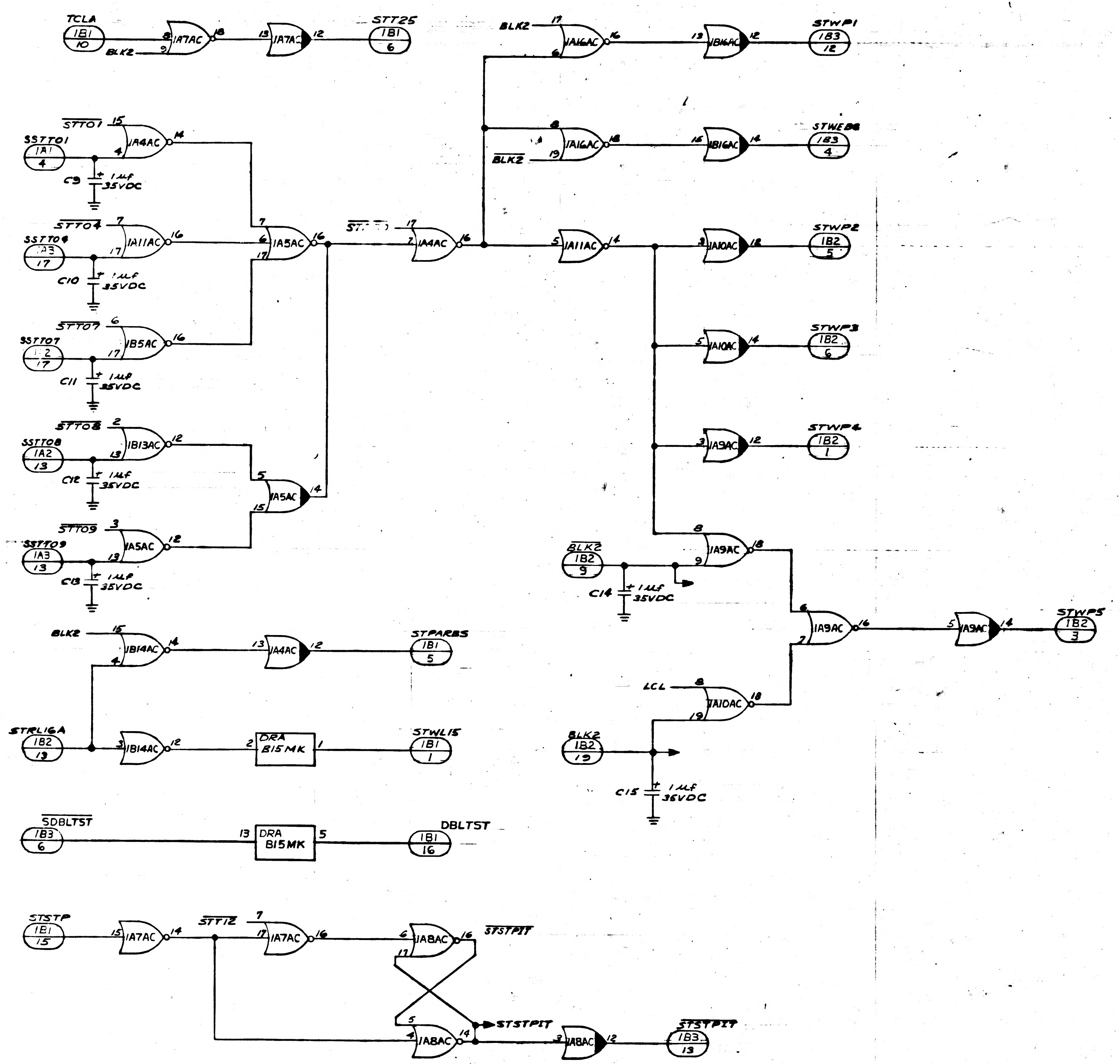
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014169
SCALE NONE
WT
SHEET 1 OF

MASTER

2014169 D

2014169 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B NO CHANGE PER CCA R25502	1/4/66	[illegible]
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25972	1/15/66	[illegible]
B	CHANGED PER TDRR 26468 DR E. [illegible] CHK C.D. [illegible] APPD	3/24/66	[illegible]
C	CHANGED PER TDRR 26454 DR [illegible] CHK H.L. APPD [illegible]	3/17/66	[illegible]
D	CHANGED PER TDRR 26664 DR C. [illegible] CHK [illegible] APPD	[illegible]	[illegible]



TCLA 1B1 10
BLK2
1A7AC
STT25 1B1 6
STT01
SSTT01 1A1 4
1A4AC
C9 1µf 35VDC
STT04
SSTT04 1A3 17
1A11AC
C10 1µf 35VDC
STT07
SSTT07 1A2 17
1B5AC
C11 1µf 35VDC
STT08
SSTT08 1A2 13
1B13AC
C12 1µf 35VDC
STT09
SSTT09 1A3 13
1A5AC
C13 1µf 35VDC
1A5AC
1A4AC
BLK2
1A16AC
1B16AC
STWP1 1B3 12
STWEB6 1B3 4
1A11AC
1A10AC
STWP2 1B2 5
STWP3 1B2 6
1A9AC
STWP4 1B2 1
BLK2 1B2 9
C14 1µf 35VDC
1A9AC
STWP5 1B2 3
LCL
1A10AC
BLK2 1B2 19
C15 1µf 35VDC
BLK2
1B14AC
1A4AC
STPARBS 1B1 5
STRL16A 1B2 13
DRA B15MK
STWL15 1B1 1
SDBLTST 1B3 6
DRA B15MK
DBLTST 1B1 16
STSTP 1B1 15
1A7AC
STT12
1A8AC
STSTPIT
STSTPIT
STSTPIT 1B3 13

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 30JUL65
CHECKED [illegible] 18AUG65
APPROVAL [illegible] 20AUG65
APPROVAL D. [illegible] 10/20/65
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
SELF TEST-PLATE I
COMPUTER TEST SET

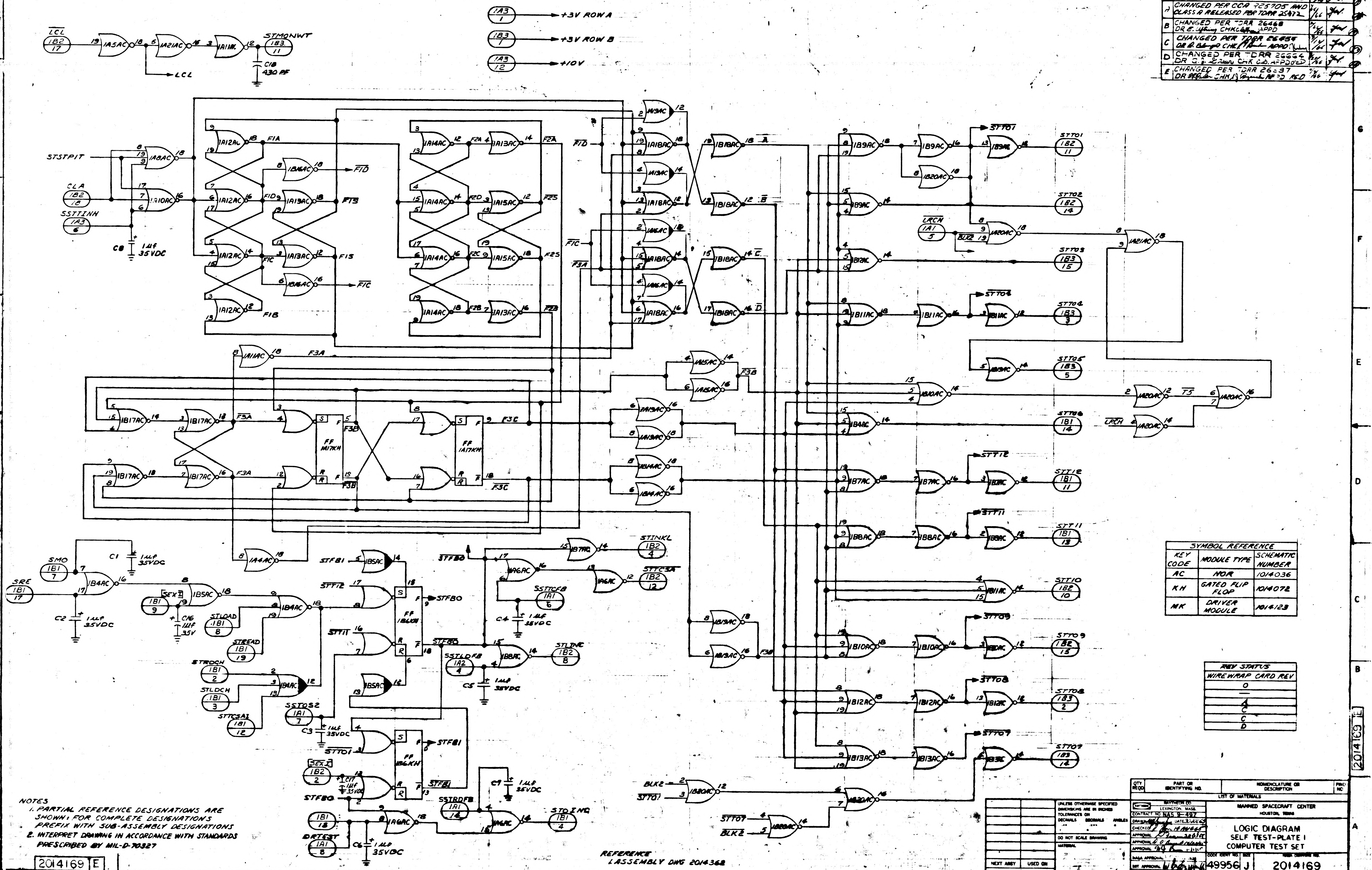
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014169

SCALE NONE WT SHEET 2 OF 2

2014169 D

2014169 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVEL
O	RELEASED PER CCA R25488		
—	CLASS B NO CHANGE PER CCAR25502		
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	/66	
B	CHANGED PER TDRR 26468 DR E. CHK APPD	2/24/66	
C	CHANGED PER TDRR 26454 DR CHK APPD	3/17/66	
D	CHANGED PER TDRR 26664 DR C.J. CHK C.D. APPD	/20/66	
E	CHANGED PER TDRR 26=37 DR CHK APPD	4/7/66	



1A3 / 1 +3V ROW A
1B3 / 1 +3V ROW B
1A3 / 12 +10V
LCL 1B2 / 17
1A5AC
1A21AC
1A11AC
STMONWT 1B3 / 11
LCL
C18 430 PF
STSTPIT
CLA 1B2 / 18
SSTTINH 1A3 / 6
C8 1 µf 35VDC
1A8AC
1A10AC
1A12AC
1A13AC
1A14AC
1A15AC
1B16AC
F1A
F1D
F1S
F1C
F1B
F2A
F2D
F2S
F2C
F2B
F2A
F2S
F2B
F1D
F1C
F3A
1A3AC
1A18AC
1A6AC
1B18AC
A
B
C
D
1A11AC
1A4AC
1A15AC
F3B
1A19AC
1B14AC
1B17AC
F3A
F3B
F3C
FF 1A17KH
FF 1A17KH
F3C
STTO1
1B9AC
1B20AC
1B2 / 11
STTO2 1B2 / 14
LRCN 1A1 / 5
BLK2
1A20AC
1A21AC
STTO3 1B3 / 15
1B11AC
STTO4 1B3 / 3
STTO4
STTO5 1B3 / 5
1B10AC
T5
1A20AC
LRCH
1B4AC
STTO6 1B1 / 14
1B7AC
STT12
STT12 1B1 / 11
1B8AC
STT11
STT11 1B1 / 13
STT10 1B2 / 10
STTO9
STTO9 1B2 / 13
1B12AC
STTO8
STTO8 1B3 / 2
1B13AC
STTO7
STTO7 1B3 / 14
SMO 1B1 / 7
SRE 1B1 / 17
C1 1 µf 35VDC
1B4AC
C2 1 µf 35VDC
1B1 / 9 SEX 2
1B5AC
C16 1 µf 35V
STLOAD 1B1 / 8
STREAD 1B1 / 19
STRDCH 1B1 / 2
STLDCH 1B1 / 3
STTCSA1 1B1 / 12
1B4AC
STFB1
1B5AC
STT12
STT11
FF 1B6KH
STFBO
STFBO
SSTLDFB 1A2 / 4
C5 1 µf 35VDC
1B8AC
STLINC 1B2 / 8
1A6AC
SSTTCFB 1A1 / 6
C4 1 µf 35VDC
1B7AC
STINKL 1B2 / 4
1A6AC
STTCSA 1B2 / 12
SSTOS2 1A1 / 7
C3 1 µf 35VDC
STTO1
FF 1B6KH
STFB1
STFB1
SEX 2 1B2 / 2
C11 1 µf 35VDC
STFBO
SSTRDFB 1A1 / 14
C7 1 µf 35VDC
1A6AC
STOINC 1B1 / 4
1B1 / 18
DRTEST 1A1 / 8
C6 1 µf 35VDC
1B13AC
1B3AC
F3B
BLK2
STTO1
1B20AC
1A20AC
STTO7
BLK2
1B20AC

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
AC	NOR	1014036
KH	GATED FLIP FLOP	1014072
MK	DRIVER MODULE	1014123

REV STATUS
WIREWRAP CARD REV
O
—
A
C
C
D

NOTES

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REFERENCE
1. ASSEMBLY DWG 2014368

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX DECIMALS .XXX ANGLES
DO NOT SCALE DRAWING
MATERIAL

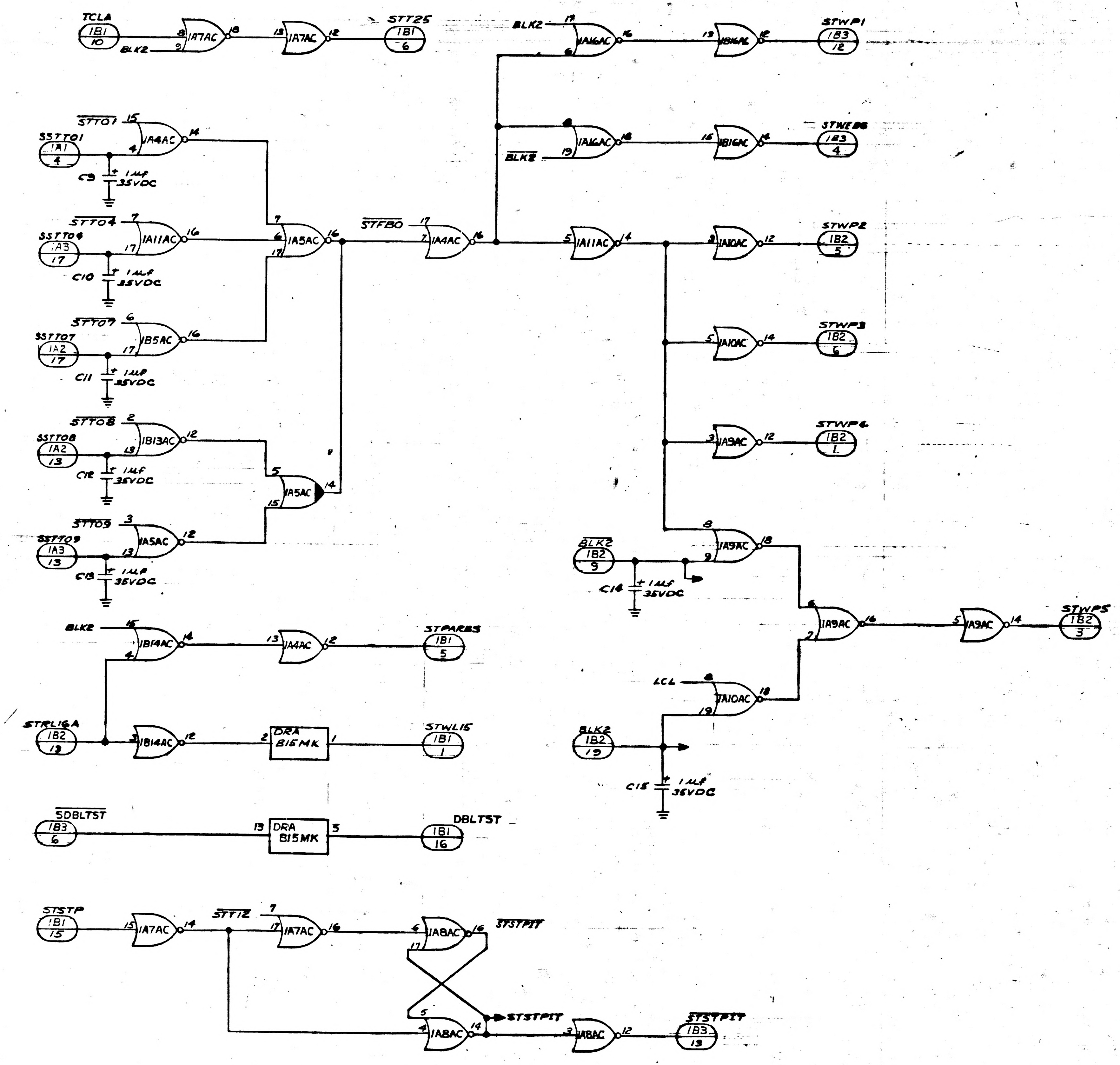
RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 JUL 65
CHECKED 14 AUG 65
APPROVAL
APPROVAL D. O'
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
SELF TEST-PLATE I
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014169
SCALE NONE
WT
SHEET 1 OF 2

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25488		
–	CLASS B NO CHANGE PER CCAR25502	1/4/66	Jed
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	1/25/66	Jed
B	CHANGED PER TDRR 26468 DR E. Whiting CHK C.D. APPD	3/2/66	Jed
C	CHANGED PER TDRR 26459 DR CHK APPD	3/17/66	Jed
D	CHANGED PER TDRR 26664 DR G. J. Green CHK C.D. APPD	6/4/66	Jed
E	CHANGED PER TDRR 25687 DR CHK APPD	9/2/66	Jed


TCLA
1B1
10
BLK2
8
9
1A7AC
18
13
1A7AC
12
STT25
1B1
6
$\overline{\text{STT01}}$
15
SSTT01
1A1
4
1A4AC
14
C9
+ 1µf 35VDC
$\overline{\text{STT04}}$
7
SSTT04
1A3
17
1A11AC
16
C10
+ 1µf 35VDC
$\overline{\text{STT07}}$
6
SSTT07
1A2
17
1B5AC
16
C11
+ 1µf 35VDC
$\overline{\text{STT08}}$
2
SSTT08
1A2
13
1B13AC
12
C12
+ 1µf 35VDC
$\overline{\text{STT09}}$
3
SSTT09
1A3
13
1A5AC
12
C13
+ 1µf 35VDC
1A5AC
5
15
14
1A5AC
7
6
17
16
$\overline{\text{STFBO}}$
17
7
1A4AC
16
BLK2
17
6
1A16AC
16
13
1B16AC
12
STWP1
1B3
12
8
19
$\overline{\text{BLK2}}$
1A16AC
18
15
1B16AC
14
STWEBS
1B3
4
5
1A11AC
14
3
1A10AC
12
STWP2
1B2
5
5
1A10AC
14
STWP3
1B2
6
3
1A9AC
12
STWP4
1B2
1
8
9
1A9AC
18
$\overline{\text{BLK2}}$
1B2
9
C14
+ 1µf 35VDC
6
7
1A9AC
16
5
1A9AC
14
STWP5
1B2
3
LCL
8
19
1A10AC
18
BLK2
1B2
19
C15
+ 1µf 35VDC
BLK2
15
4
1B14AC
14
13
1A4AC
12
STPARBS
1B1
5
STRLIGA
1B2
13
3
1B14AC
12
2
DRA B15MK
1
STWL15
1B1
1
$\overline{\text{SDBLTST}}$
1B3
6
13
DRA B15MK
5
DBLTST
1B1
16
STSTP
1B1
15
15
1A7AC
14
$\overline{\text{STT12}}$
7
17
1A7AC
16
6
17
1A8AC
16
$\overline{\text{STSTPIT}}$
5
4
1A8AC
14
STSTPIT
3
1A8AC
12
$\overline{\text{STSTPIT}}$
1B3
13

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

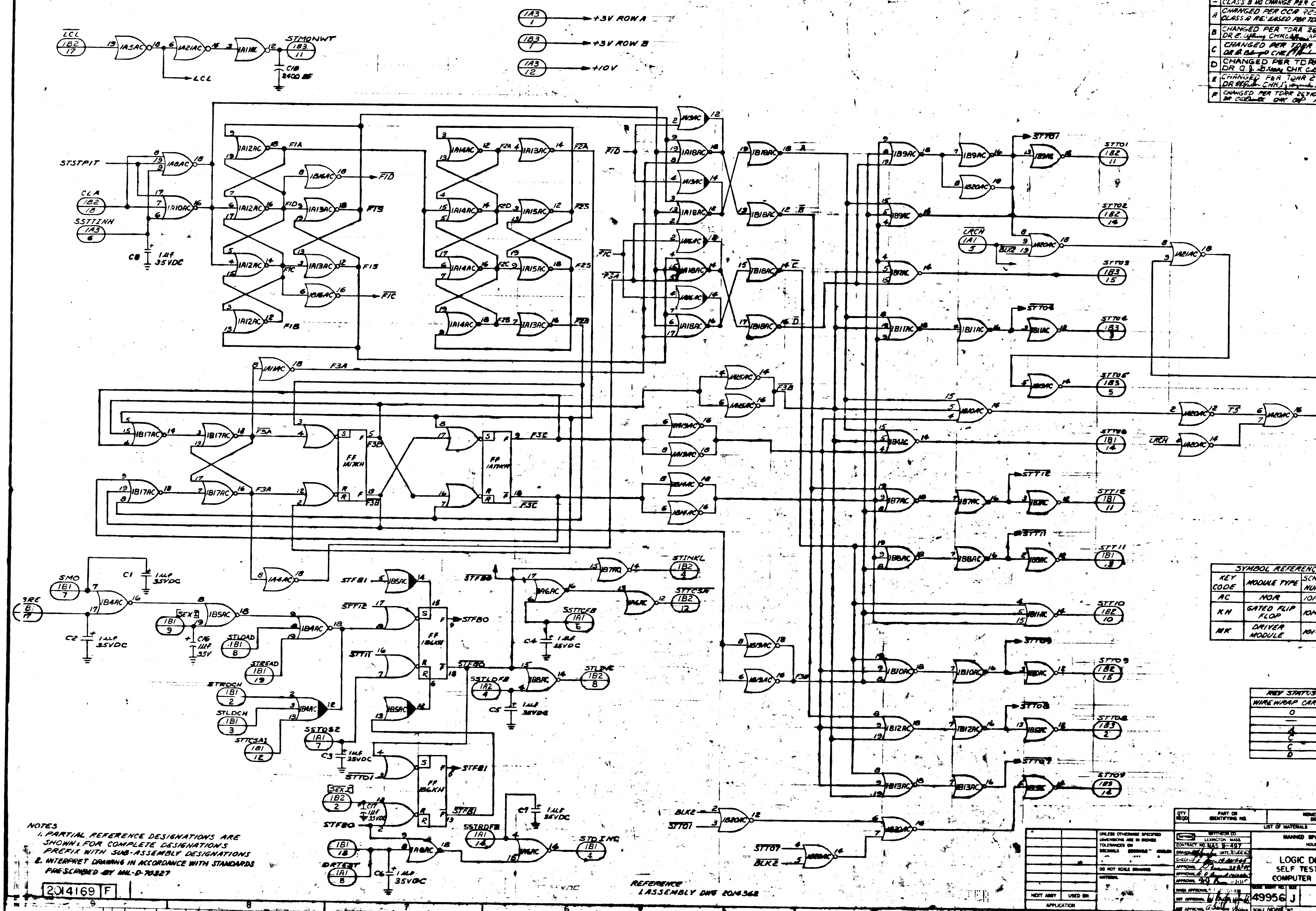
RAYTHEON CO.
LEXINGTON, MASS
CONTRACT NO NAS 9-497
DRAWN DATE 30 JUL 65
CHECKED 18 AUG 65
APPROVAL
APPROVAL 12/20/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
SELF TEST-PLATE I
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014169
SCALE NONE
WT
SHEET 2 OF 2

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
–	CLASS B NO CHANGE PER CCAR25502	[illegible]	[illegible]
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	[illegible]/66	[illegible]
B	CHANGED PER TDRR 26468 DR E. [illegible] CHK [illegible] APPD	[illegible]	[illegible]
C	CHANGED PER TDRR 26484 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
D	CHANGED PER TDRR 26664 DR [illegible] CHK C.O. APPD [illegible]	[illegible]	[illegible]
E	CHANGED PER TDRR 26587 DR [illegible] CHK [illegible] APPD	[illegible]/66	[illegible]
F	CHANGED PER TDRR 26710 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]



LCL
1B2 17
1A5AC
1A21AC
1A1AC
STMONWT
1B3 11
C18 2400 PF
1A3 1 +3V ROW A
1B3 7 +3V ROW B
1A3 12 +10V
STSTPIT
CLA 1B2 18
SSTTINH 1A3 6
C8 1µF 35VDC
1A8AC
1A10AC
1A12AC
1A16AC
1A13AC
1A14AC
1A15AC
1A18AC
1B18AC
F1A
F1D
F1S
F1C
F1B
F2A
F2D
F2S
F2C
F2B
F3A
F3B
F3C
FF 1A17KH
1B17AC
1A4AC
A
B
C
D
1B9AC
1B20AC
1B2AC
1B11AC
1B7AC
1B8AC
1B1AC
1B10AC
1B12AC
1B13AC
1A20AC
1A21AC
LRCH 1A1 5
BLK2
T5
STT01 1B2 11
STT02 1B2 14
STT03 1B3 15
STT04 1B3 3
STT05 1B3 5
STT06 1B1 14
STT12 1B1 11
STT11 1B1 13
STT10 1B2 10
STT09 1B2 15
STT08 1B3 2
STT07 1B3 14
SMO 1B1 7
C1 1µF 35VDC
SRE B1 17
1B4AC
C2 1µF 35VDC
SEX I 1B1 9
1B5AC
C16 1µF 35V
STLOAD 1B1 8
STREAD 1B1 13
STRDCH 1B1 2
STLDCH 1B1 3
STTCSA1 1B1 12
SSTOS2 1A1 7
C3 1µF 35VDC
STFB1
STTT2
STTT1
FF 1B6KH
STFBO
1B5AC
STT01
SEX I 1B2 2
C11 1µF 35VDC
STFBO
1B1 18
DRTEST 1A1 8
C6 1µF 35VDC
1A6AC
STINKL 1B2 4
STTCSA 1B2 12
SSTTCFB 1A1 6
C4 1µF 35VDC
SSTLDFB 1A2 4
C5 1µF 35VDC
STLINC 1B2 8
SSTRDFB 1A1 14
C7 1µF 35VDC
STDINC 1B1 4
BLK2
STT01
STT07

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN & FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REFERENCE
1 ASSEMBLY DWG 2014362

SYMBOL REFERENCE		
KEY CODE	MODULE TYPE	SCHEMATIC NUMBER
AC	NOR	1014036
KH	GATED FLIP FLOP	1014072
MK	DRIVER MODULE	1014123

REV STATUS
WIREWRAP CARD REV
O
—
A
C
C
D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS FRACTIONS ANGLES
.XX ± .XXX ± ±

DO NOT SCALE DRAWING

MATERIAL

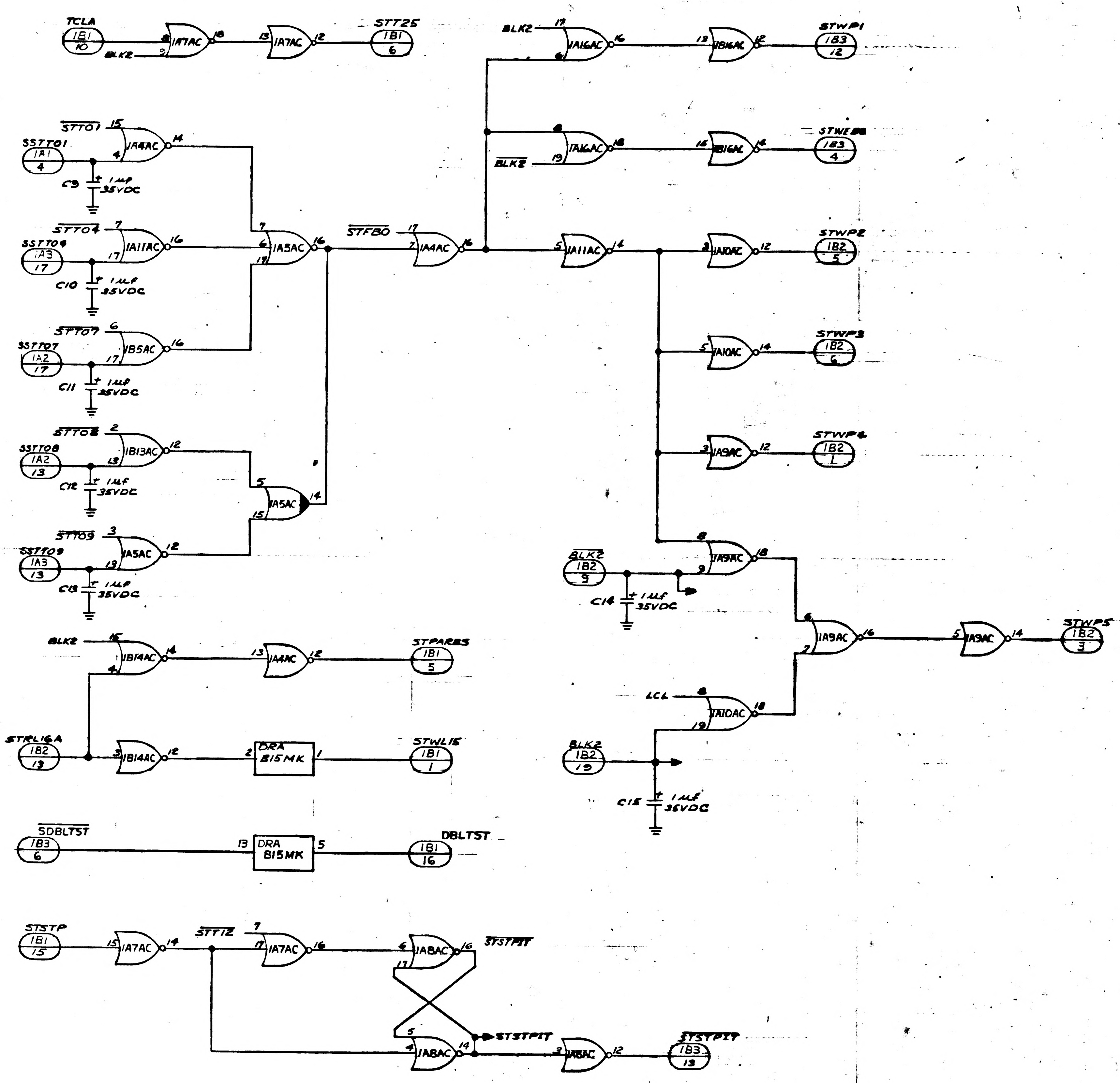
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 30 JUL 65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL D. O'[illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
SELF TEST-PLATE I
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014169
SCALE NONE WT SHEET 1 OF [illegible]

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25488		
—	CLASS B NO CHANGE PER CCAR25502	1/4/66	
A	CHANGED PER CCA R23705 AND CLASS A RELEASED PER TDRR 25872	4/15/66	
B	CHANGED PER TDRR 26468 DR E. [illegible] CHK C.D. [illegible] APPD	[illegible]	
C	CHANGED PER TDRR 26458 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	
D	CHANGED PER TDRR 26664 DR G. J. Green CHK C.D. APPD PED	[illegible]	
E	CHANGED PER TDRR 25687 DR [illegible] CHK [illegible] APPD P.E.D	[illegible]	
F	CHANGED PER TDRR 26710 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	


TCLA
1B1
10
BLK2
1A7AC
1A7AC
STT25
1B1
6
$\overline{STT01}$
SSTT01
1A1
4
1A4AC
C9
1 µf 35VDC
$\overline{STT04}$
SSTT04
1A3
17
1A11AC
C10
1 µf 35VDC
$\overline{STT07}$
SSTT07
1A2
17
1B5AC
C11
1 µf 35VDC
$\overline{STT08}$
SSTT08
1A2
13
1B13AC
C12
1 µf 35VDC
$\overline{STT09}$
SSTT09
1A3
13
1A5AC
C13
1 µf 35VDC
1A5AC
1A5AC
$\overline{STFBO}$
1A4AC
BLK2
1A16AC
1B16AC
STWP1
1B3
12
$\overline{BLK2}$
1A16AC
1B16AC
STWEB8
1B3
4
1A11AC
1A10AC
STWP2
1B2
5
1A10AC
STWP3
1B2
6
1A9AC
STWP4
1B2
L
$\overline{BLK2}$
1B2
9
C14
1 µf 35VDC
1A9AC
1A9AC
1A9AC
STWP5
1B2
3
LCL
1A10AC
BLK2
1B2
19
C15
1 µf 36VDC
BLK2
1B14AC
1A4AC
STPARES
1B1
5
STRLIGA
1B2
13
1B14AC
DRA B15MK
STWL15
1B1
1
$\overline{SDBLTST}$
1B3
6
DRA B15MK
DBLTST
1B1
16
STSTP
1B1
15
1A7AC
$\overline{STT12}$
1A7AC
1A8AC
$\overline{STSTPIT}$
1A8AC
STSTPIT
1A8AC
$\overline{STSTPIT}$
1B3
13

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 20/OCT/65
CHECKED 18 AUG 65
APPROVAL 20 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL A. [illegible]
MIT APPROVAL
MIT APPROVAL

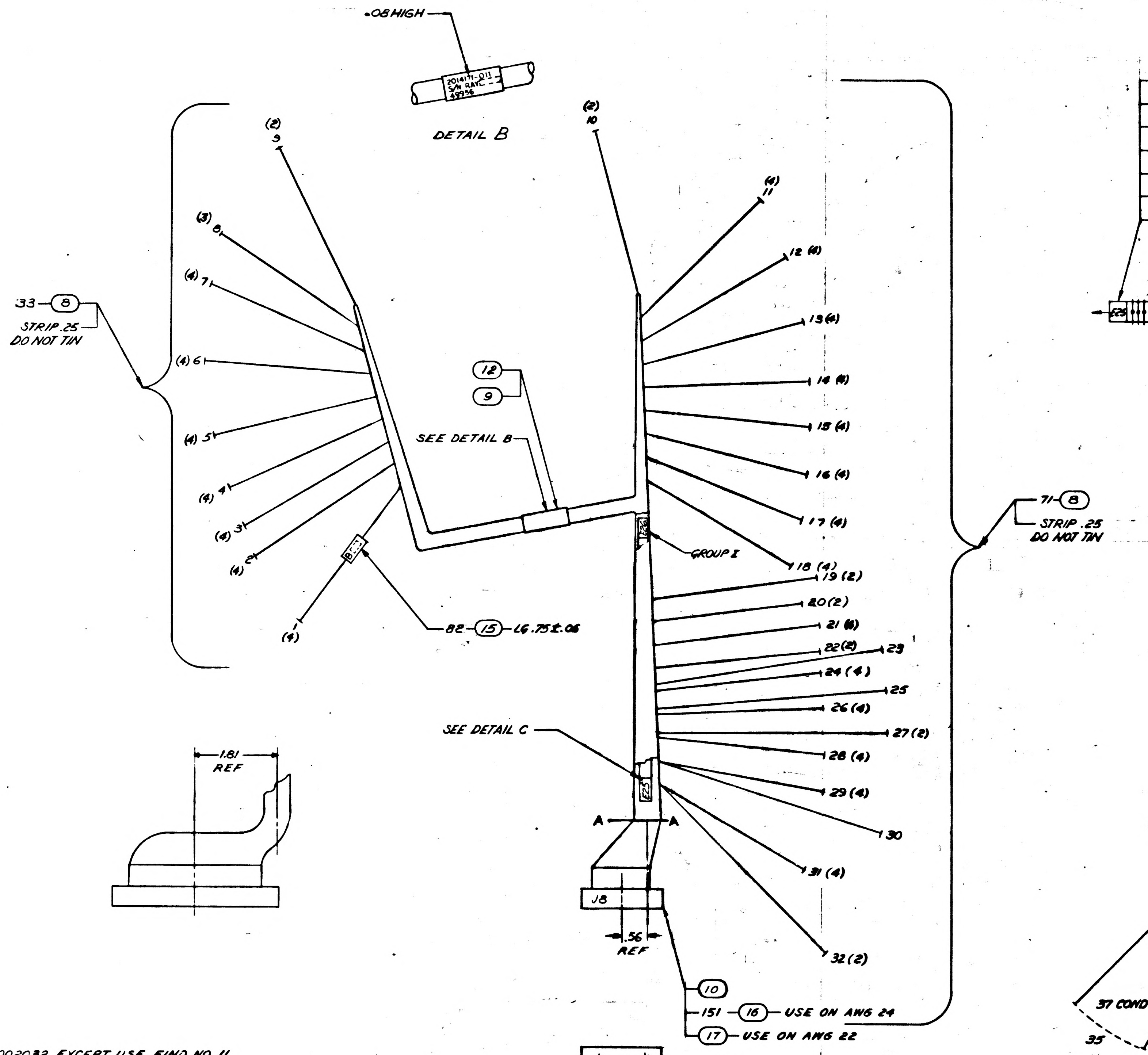
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
SELF TEST-PLATE F
COMPUTER TEST SET

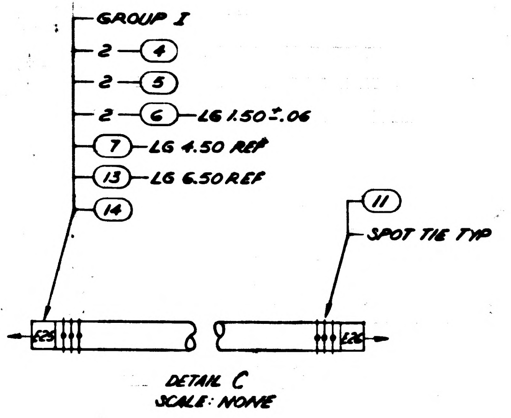
CODE IDENT NO. 49956
SIZE J
DRAWING NO. 2014169
SCALE NONE
WT
SHEET 2 OF 2

2014171 | —

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25275	1/4/66	W. Harano
1	CHANGE PER CCA R25386 DR W. Kelly CHK C. DeBenedictis APPD David Cohen	12 Jan 65	[illegible]
—	CLASS A RELEASED PER TDRR 25476		

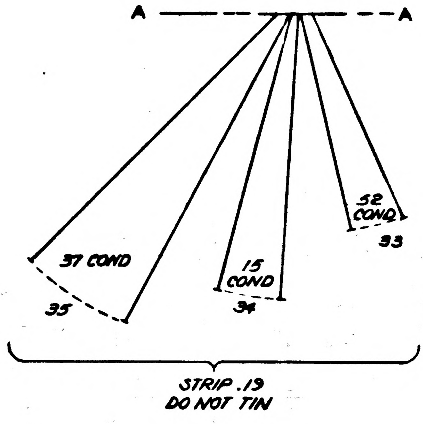


.08 HIGH
2014171-011 S/N RAYL -- 49956
DETAIL B
33 — 8
STRIP .25 DO NOT TIN
(2) 9
(2) 10
(3) 8
(4) 7
(4) 6
(4) 5
(4) 4
(4) 3
(4) 2
(4) 1
(4) 11
12 (4)
13 (4)
14 (4)
15 (4)
16 (4)
17 (4)
18 (4)
19 (2)
20 (2)
21 (4)
22 (2)
23
24 (4)
25
26 (4)
27 (2)
28 (4)
29 (4)
30
31 (4)
32 (2)
12
9
SEE DETAIL B
82 — 15 — LG .75 ± .06
GROUP I
SEE DETAIL C
E26
E25
A
A
J8
.56 REF
10
151 — 16 — USE ON AWG 24
17 — USE ON AWG 22
71 — 8
STRIP .25 DO NOT TIN

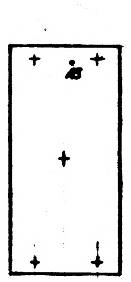


GROUP I
2 — 4
2 — 5
2 — 6 — LG 1.50 ± .06
7 — LG 4.50 REF
13 — LG 6.50 REF
14
11
SPOT TIE TYP
E25
E26
DETAIL C
SCALE: NONE

1.81 REF



A
A
37 COND
35
15 COND
34
52 COND
33
STRIP .19
DO NOT TIN



NOTES

1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 11
2. LACE ENTIRE HARNESS CONFIGURATION
3. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
4. STRIP ALL LEADS .50 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
5. CRIMP PER ND 1002206
6. SERIALIZE PER ND 1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
8. CUT SLEEVING & SHIELD LENGTH AS SHOWN
9. QQ-B-575 FOR FIND NO. 13 BRAID SIZE .50 I.D. AWG 34
10. MIL-I-23053 CLASS I COLOR BLK, ID .750 FOR FIND NO 6
11. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
12. NUMBERS PRECEDING BALLOONS DENOTE QUANITITY
13. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
14. AR DENOTES AS REQUIRED
15. MIL-I-23053 COLOR WHT, ID .125 FOR FIND NO. 16

☒	2014136	SCHEMATIC	REF
1	1006491-012	CONTACT, ELEC	17
151	1006491-010	CONTACT, ELEC	16
* 5.3	SEE NOTE 15	INSULATION, SLEEVING, ELEC	15
AR	1006699	SOLVENT	14
* 0.6	SEE NOTE 9	SHIELD, BRAID	13
AR	1006253	ADHESIVE	12
AR	1006458-004	TAPE, LACING	11
1	1006671-001	CONNECTOR	10
1	1006415-130	MARKER, CABLE	9
104	1006468-004	TAPER PINS	8
* 0.4	1006696-4	INSULATION, SLEEVING, ELEC	7
* 0.3	SEE NOTE 10	INSULATION, SLEEVING, ELEC	6
2	1000242-36	FERRULE, OUTER	5
2	1000243-40	FERRULE, INNER	4
* 1.5	MIL-W-16878/4 E22	WIRE, ELEC, BLK	3
* 60.0	1014341-12	WIRE, ELEC	2
* 15.0	MIL-W-16878/4 E24	WIRE, ELEC WHT	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014340	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN S P Siegel DATE 12 JUL 65
CHECKED [illegible] 24 Sept 65
APPROVAL [illegible]
APPROVAL D. O'Brien
APPROVAL [illegible]
NASA APPROVAL C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED B
AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014171
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

7 2014171 —

2014171

—	2014171

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25375		C. Harano
1	CHANGE PER CCA R25386 DR W. Kelly CHK C. DeGrenia APPD R. Conley		
—	CLASS A RELEASED PER TDRR 25476		

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	B1	33	J8-E7	WHT	24	2	1	TB3B-19	
		33	E8	BLK			1	TB3B-20	
	B2	33	G8	WHT		2	1	TB4B-19	
		34	H8	BLK			1	TB4B-20	
	B3	33	F1	WHT		2	2	TB3B-21	
		33	F2	BLK			2	TB3B-22	
	B4	34	H1	WHT		2	2	TB4B-21	
		34	H2	BLK			2	TB4B-22	
	B5	33	F3	WHT		2	3	TB3B-23	
		33	F4	BLK			3	TB3B-24	
	B6	33	F5	WHT		2	4	TB3B-25	
		33	F6	BLK			4	TB3B-26	
	B7	34	H5	WHT		2	4	TB4B-25	
		34	H6	BLK			4	TB4B-26	
	B8	33	F7	WHT		2	5	TB3B-27	
		33	F8	BLK			5	TB3B-28	
	B9	34	H7	WHT		2	5	TB4B-27	
		34	J8	BLK			5	TB4B-28	
	B10	34	H3	WHT		2	3	TB4B-23	
		34	H4	BLK			3	TB4B-24	
	B11	33	G1	WHT		2	6	TB3B-29	
		33	G2	BLK			6	TB3B-30	
	B12	34	J3	WHT		2	7	TB4B-31	
		34	J4	BLK			7	TB4B-32	
	B13	33	G3	WHT		2	7	TB3B-31	
		33	G4	BLK			7	TB3B-32	
	B14	34	J5	WHT		1	8	TB4B-33	
	B15	34	J1	WHT		1	6	TB4B-29	
	B16	33	G5	WHT		2	8	TB3B-33	
		33	G6	BLK			8	TB3B-34	
	B17	33	G7	WHT		1	9	TB3B-35	GROUP I
	B18	34	J2	WHT		1	6	TB4B-30	
	B19	33	A4	BLK		2	18	TB1B-20	
			A3	WHT			18	TB1B-19	
	B20		C5	WHT		1	10	TB1B-35	
	B21		E6	WHT		1	10	TB2B-35	
	B22		E5	BLK		2	11	TB2B-34	
			E4	WHT			11	TB2B-33	
	B23		C4	BLK		2	11	TB1B-34	
			C3	WHT			11	TB1B-33	
	B24		E3	BLK		2	12	TB2B-32	
			E2	WHT			12	TB2B-31	
	B25		C2	BLK		2	12	TB1B-32	
			C1	WHT			12	TB1B-31	
	B26		E1	BLK		2	13	TB2B-30	
			D1	WHT			13	TB2B-29	
	B27		B8	BLK		2	13	TB1B-30	
			B7	WHT			13	TB1B-29	
	B28		D7	BLK		2	14	TB2B-28	
			D6	WHT			14	TB2B-27	
	B29		B6	BLK		2	14	TB1B-28	
			B5	WHT			14	TB1B-27	
	B30		D5	BLK		2	15	TB2B-26	
			D4	WHT			15	TB2B-25	
	B31		B4	BLK		2	15	TB1B-26	
			B3	WHT			15	TB1B-25	
	B32		D3	BLK		2	16	TB2B-24	
			D2	WHT			16	TB2B-23	
	B33		B2	BLK		2	16	TB1B-24	
			B1	WHT			16	TB1B-23	
	B34		D8	BLK		2	17	TB2B-22	
			C8	WHT			17	TB2B-21	
	B35		A6	BLK		2	17	TB1B-22	
			A5	WHT			17	TB1B-21	
	B36		C7	BLK		2	18	TB2B-20	
		33	J8-C6	WHT	24		18	TB2B-19	
		⚠1	E25	SHLD			⚠1	E26	
	B37	34	J8-J7	BLK	22	3	⚠1	E25	
	B38	⚠1	E26	BLK	22	3	9	TB4B-35	

⚠1 INTERNAL CONNECTION

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	B39	35	J8-T6	WHT	24	1	19	TB6B-35	
	B40		V5	WHT		1	19	TB5B-35	
	B41		V4	BLK		2	20	TB5B-34	
			V3	WHT			20	TB5B-33	
	B42		T3	WHT		1	21	TB6B-32	
	B43		T2	WHT		1	21	TB6B-31	
	B44		V2	BLK		2	21	TB5B-32	
			V1	WHT			21	TB5B-31	
	B45		T1	WHT		1	22	TB6B-30	
	B46		U7	WHT		1	22	TB6B-29	
	B47		S8	WHT		1	23	TB7B-26	
	B48		U6	WHT		1	24	TB6B-28	
	B49		U5	WHT		1	24	TB6B-27	
	B50		W6	BLK		2	24	TB5B-28	
			W5	WHT			24	TB5B-27	
	B51		S7	WHT		1	25	TB7B-25	
	B52		U4	WHT		1	26	TB6B-26	
	B53		U3	WHT		1	26	TB6B-25	
	B54		W4	BLK		2	26	TB5B-26	
			W3	WHT			26	TB5B-25	
	B55		T5	BLK		2	27	TB7B-23	
			T4	WHT			27	TB7B-22	
	B56		W2	BLK		2	28	TB5B-24	
			W1	WHT			28	TB5B-23	
	B57		U2	BLK		2	28	TB6B-24	
			U1	WHT			28	TB6B-23	
	B58		V8	BLK		2	29	TB6B-21	
			U8	WHT			29	TB6B-22	
	B59		S1	WHT		1	30	TB7B-21	
	B60		X6	BLK		2	29	TB5B-22	
			X5	WHT			29	TB5B-21	
	B61		X4	BLK		2	31	TB5B-20	
			X3	WHT			31	TB5B-19	
	B62		T8	WHT		1	32	TB7B-20	
	B63		T7	WHT		1	32	TB7B-19	
	B64		V7	BLK		2	31	TB6B-20	
		35	J8-V6	WHT	24		31	TB6B-19	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 7-14-65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED B
AGC JUNCTION ASSY
OPERATION CONSOLE

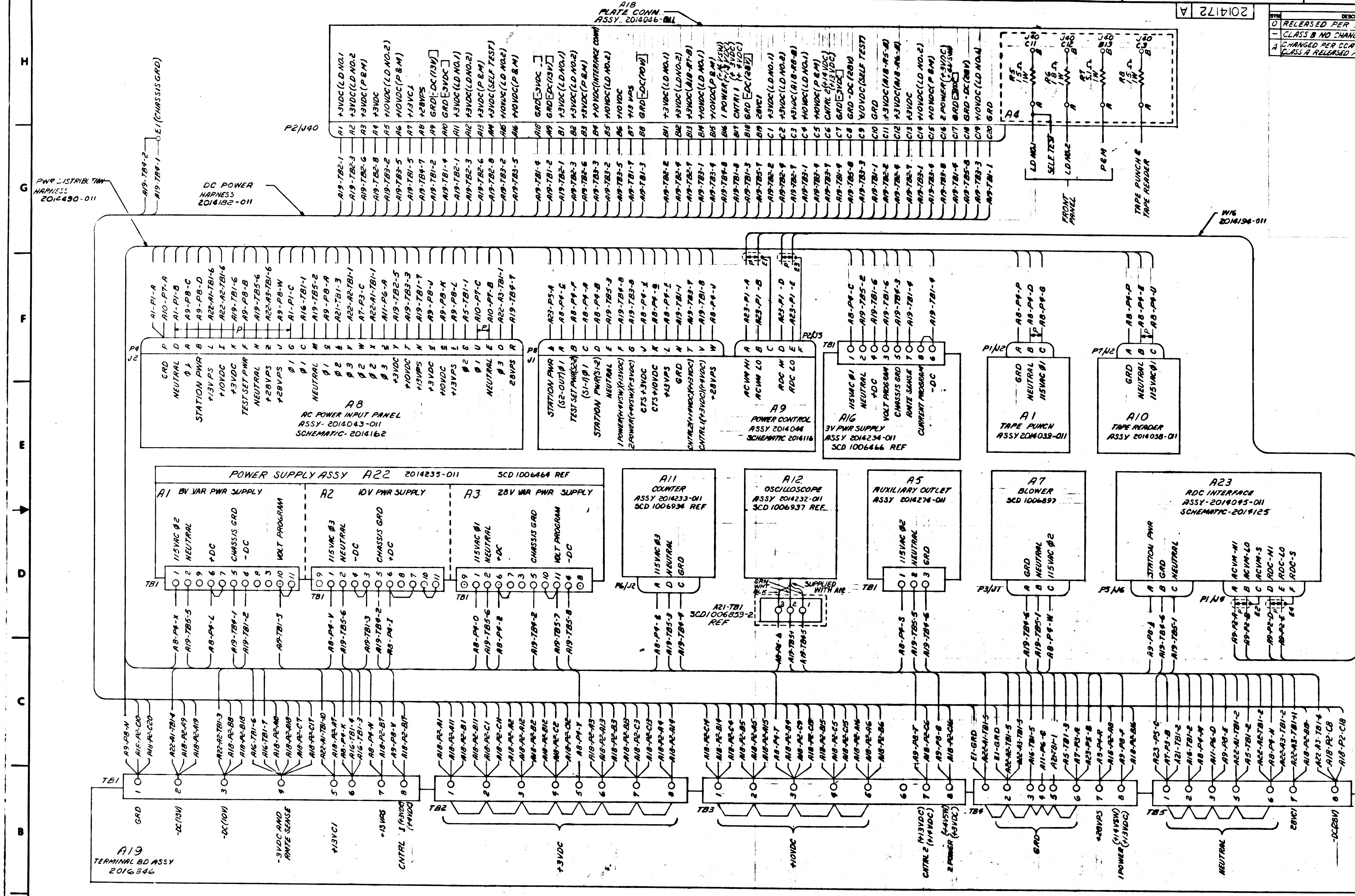
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014171
SCALE NONE WT SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014171	—

2014171

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R2534	1-14-65	
–	CLASS B NO CHANGE PER CCA R25502	4/3/65	
A	CHANGED PER CCA R25757 AND CLASS A RELEASED PER TDRR 25472	6/15	


A18
PLATE CONN.
ASSY 2014046-011
P2/J40
A4
R5 15 Ω 1W
R6 15 Ω 1W
R7 15 Ω 1W
R8 15 Ω 1W
LD NO.1
SELF TEST
LD NO.2
P&M
TAPE PUNCH & TAPE READER
FRONT PANEL
PWR DISTRIBUTION HARNESS 2014490-011
DC POWER HARNESS 2014182-011
E1 (CHASSIS GRD)
W16 2014194-011
A8
AC POWER INPUT PANEL
ASSY- 2014043-011
SCHEMATIC- 2014162
A9
POWER CONTROL
ASSY 2014044
SCHEMATIC 2014116
A16
3V PWR SUPPLY
ASSY 2014234-011
SCD 1006466 REF
A1
TAPE PUNCH
ASSY 2014039-011
A10
TAPE READER
ASSY 2014038-011
POWER SUPPLY ASSY A22 2014235-011 SCD 1006464 REF
A1 8V VAR PWR SUPPLY
A2 10V PWR SUPPLY
A3 28V VAR PWR SUPPLY
A11
COUNTER
ASSY 2014233-011
SCD 1006934 REF
A12
OSCILLOSCOPE
ASSY 2014232-011
SCD 1006937 REF
A5
AUXILIARY OUTLET
ASSY 2014276-011
A7
BLOWER
SCD 1006897
A23
RDC INTERFACE
ASSY-2014095-011
SCHEMATIC-2014125
A21-TB1
SCD 1006853-2
REF
GRN WHT BLK
SUPPLIED WITH A12
A19
TERMINAL BD ASSY
2016346
TB1
TB2
TB3
TB4
TB5
GRD
-DC (13V)
-DC (10V)
-3VDC AND RMTE SENSE
+13VC1
+13VPS
CNTRL 1 (+3VDC) (+4VDC)
+3VDC
+10VDC
CNTRL 2 (+13VDC) (+14VDC)
2 POWER (+4.15V) (+3VDC)
GRD
+28VPS
1 POWER (+4.15V) (+13VDC)
NEUTRAL
28V(C)
-DC(28V)

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS

REFERENCE.
1. ASSY DWG 2014042

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4?7
DRAWN DATE 1 AUG 65
CHECKED 5 AUG 65
APPROVAL 17 AUG 65
APPROVAL P.E. Dunk 17 AUG 65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION DIAGRAM
AC & DC POWER DISTRIBUTION
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014172
SCALE NONE
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	75	J5-A	BLK	22	29	98	A2-14	
	A2		-D	BLK		29	82	-2	
	A3		-E	BLK		29	83	-3	
	A4		-F	BLK		29	97	-15	
	A5		-G	WHT		1	84	-4	
	A6		-H	BLK		29	96	-16	
	A7		-J	WHT		1	85	-6	
	A8		-K	WHT		1	94	-17	
	A9		-L	WHT		1	93	-18	
	A10		-S	BLK		29	88	-21	
	A11		-T	WHT		1	102	-28	
	A12		-U	WHT		1	87	-12	
	A13		-V	WHT		1	101	-25	
	A14		-W	BLK		29	115	-37	
	A15		-X	WHT		1	114	-39	
	A16		-Y	BLK		29	86	-9	
	A17		-Z				113	-40	
	A18		-a				111	-43	
	A19		-b				106	-33	
	A20		-c	BLK		29	105	-32	
	A21		-d	WHT		1	103	-42	
	A22		-e				104	-41	
	A23		-f				112	A2-31	
	A24		-g				73	P1-A13	
	A25		-h	WHT		1		-A14	
	A26		-q	BLK		29		-A19	
	A27		-r					-B3	
	A28		-s					-B4	
	A29		-t					-B5	
	A30		-u					-B6	
	A31		-v					-B20	
	A32		-w					-A20	
	A33		-y	BLK		29		-C20	
	A34		-z	WHT		1		-B8	
	A35		-AA					-B9	
	A36		-BB					-B10	
	A37		-CC					-B11	
	A38		-DD					-B12	
	A39		-EE					-B13	
	A40		-FF					-B14	
	A41		-GG					-B15	
	A42		-HH					-B16	
	A43		-JJ	WHT		1	73	P1-B7	
	A44		-B	BLK		2	100	A2-13	
			-C	WHT			99	-1	
	A45		-M	WHT		1	92	-7	
	A46		-N	BLK		29	91	-19	
	A47		-P	WHT		1	90	-8	
	A48		-R	BLK		29	89	A2-20	
	A49		-i	BLK		2	73	P1-A15	
			-j	WHT				-A16	
	A50		-k	BLK		2		-A17	
			-m	WHT				-A18	
	A51		-n	BLK		2		-B1	
		75	J5-p	WHT			73	P1-B2	
	A52	79	J3-M3	WHT		1	42	S25-B(NC)	
	A53	13	S79-D3	BLK	22	29	82	A2-2	

△ DENOTES INTERNAL CONNECTION

~~MARK FIND 29 WITH COND IDENT NO. OF ASSOCIATED COAX LEAD & ASSEMBLE PER DETAIL B~~

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A54	79	J3-K1	WHT	22	2	50	S14-B(NO)	
			-K2	BLK			50	S14-B(C)	
	A55		-K3	BLK		29	40	S9-B(NC)	
	A56		-P1	WHT		1	74	P3-C13	
	A57		-P2					-C14	
	A58		-P3					-C15	
	A59		-P4					-C16	
	A60		-P5					-C17	
	A61		-P6					-C18	
	A62		-P7					-C19	
	A63	79	-P8					-C20	
	A64	80	-R1					-C5	
	A65		-R2					-C6	
	A66		-R3					-C7	
	A67		-R4					-C8	
	A68		-R5					-C9	
	A69		-R6					-C10	
	A70		-R7					-C11	
	A71		-R8					-C12	
	A72		-S5					-C1	
	A73		-S6					-C2	
	A74		-S7					-C3	
	A75	80	-S8	WHT		1	74	P3-C4	
	A76	78	-G1	BLK		2	45	S26-B(NO)	
			-G2	WHT			45	S26-B(C)	
	A77		-G3	BLK			47	S27-B(NO)	
		78	-G4	WHT			47	S27-B(C)	
	A78	79	-H1	BLK			40	S9-B(NO)	
			-H2	WHT			40	S9-B(C)	
	A79		-H3	BLK			42	S25-B(NO)	
			-H4	WHT			42	S25-B(C)	
	A80		-J1	BLK			41	S10-B(NO)	
			-J2	WHT			41	S10-B(C)	
	A81		-J3	BLK			46	S41-B(NO)	
		79	-J4	WHT			46	S41-B(C)	
	~~A82~~	~~79~~	~~-L1~~	~~BLK~~			~~6~~	~~S78G-9~~	
		~~79~~	~~-L2~~	~~WHT~~			~~7~~	~~S78H-9~~	
	~~A83~~	~~79~~	~~-M1~~	~~BLK~~			~~6~~	~~S78G-8~~	
		~~79~~	~~-M2~~	~~WHT~~			~~7~~	~~S78H-8~~	
	A84	79	-N2	BLK			62	S83-A(NO)	
			-N1	WHT			62	S83-B(NO)	
	A85		-N4	BLK			64	S84-A(NO)	
			-N3	WHT			64	S84-B(NO)	
	A86		-N6	BLK			61	S82-A(NO)	
		79	-N5	WHT			61	S82-B(NO)	
	~~A87~~	~~79~~	~~-N7~~	~~BLK~~			~~6~~	~~S78G-7~~	
		~~79~~	~~-N8~~	~~WHT~~			~~7~~	~~S78H-7~~	
	A88	80	-S1	BLK			74	P3-B17	
			-S2	WHT				-B18	
	A89		-S3	BLK				-B19	
			-S4	WHT				-B20	
	A90		-T1	BLK				-B9	
			-T2	WHT				-B10	
	A91		-T3	BLK				-B11	
			-T4	WHT				-B12	
	A92		-T5	BLK				-B13	
			-T6	WHT				-B14	
	A93		-T7	BLK				-B15	
			-T8	WHT				-B16	
	A94		-U1	BLK				-B1	
			-U2	WHT				-B2	
	A95		-U3	BLK				-B3	
			-U4	WHT				-B4	
	A96		-U5	BLK				-B5	
			-U6	WHT				-B6	
	A97		-U7	BLK				-B7	
			-U8	WHT				-B8	
	A98		-V1	BLK				-A13	
			-V2	WHT				-A14	
	A99		-V3	BLK				-A15	
			-V4	WHT				-A16	
	A100		-V5	BLK				-A17	
			-V6	WHT				-A18	
	A101		-V7	BLK				-A19	
			-V8	WHT				-A20	
	A102		-W1	BLK				-A5	
			-W2	WHT				-A6	
	A103		-W3	BLK				-A7	
			-W4	WHT				-A8	
	A104		-W5	BLK				-A9	
			-W6	WHT				-A10	
	A105		-W7	BLK				-A11	
			-W8	WHT				-A12	
	A106		-X3	BLK				-A1	
			-X4	WHT				-A2	
	A107		-X5	BLK		2		-A3	
		80	J3-X6	WHT	22		74	P3-A4	

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND 21
2. STRIP ALL LEADS .50±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
3. CRIMP PER ND1002206
4. MARK CONDUCTOR IDENTIFICATION PER ND1002019
5. SERIALIZE PER ND1002023
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
10. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
11. AR DENOTES AS REQUIRED
12. POT PER ND1002009 METHOD E & PRIME
13. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG 1014047
14. INSTALL FIND 13 IN OUTSIDE ROWS OF P1, P3 & P4
15. MIL-W-16878/4 E22 WHT & BLK TWISTED, SHIELDED, TFE JACKET, WHITE
16. MIL-W-16878/4 E22 WHT, SHIELDED, TFE JACKET, WHT
17. MIL-I-23053 CLASS I, COLOR WHITE, ID .187 FOR FIND 20, ID .125 FOR FIND 38
18. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
19. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
20. SEAL INSULATORS & TERMINALS PER ND1002004 TYPE VI
21. POTTING TO BE $^{+.00}_{-.04}$ WITHIN TOP OF VENT HOLES
22. MIL-I-23053 CLASS I, COLOR BLK, ID .250 FOR FIND 41

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA [illegible]	[illegible]	[illegible]
1	CHANGED PER CCA 23365 DR [illegible] CHK [illegible] APPD [illegible]	5 NOV 65	[illegible]
2	CHANGED PER CCA R25530 DR [illegible] CHK [illegible] APPD [illegible]	11 NOV 65	[illegible]
—	CLASS B. CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25585 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25641 DR [illegible] CHK [illegible] APPD	[illegible]	[illegible]
C	CHANGED PER CCA R25667 DR [illegible] CHK [illegible] APPD [illegible]	1/10/66	[illegible]
D	CHANGED PER CCA R25968 DR [illegible] CHK [illegible] APPD [illegible]	1/15/66	[illegible]
E	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25472	[illegible]/66	[illegible]

LIST OF MATERIALS

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
	☒	2014125	SCHEMATIC	REF
*	0.3	SEE NOTE 22	SLEEVING, INSULATION	41
	2	1010402-2	SLEEVE, SOLDER	40
	1	MS25036-1	TERMINAL LUG	39
*	8.0	SEE NOTE 17	SLEEVING, INSULATION	38
	2	1006915-011	BAND MARKER	37
	4	1010402-1	SLEEVE, SOLDER	36
	~~2~~	~~1006406~~	~~FERRULE, COAX~~	~~35~~
	60	1010380	INS. BUSHING FEMALE, WRAPOST	34
	60	1010379-1	CONTACT, ELEC, FEMALE	33
	1	1020371-4	BUSHING	32
*	9.0	RG180B/U	CABLE, COAX	31
*	1.5	SEE NOTE 16	WIRE, ELEC	30
*	43.0	MIL-W-16878/4 E22 BLK	WIRE, ELEC	29
	~~1~~	~~1020370-23~~	~~BUSHING~~	28
	1	1020370-11	BUSHING	27
*	.75	1006696-4	SLEEVING	26
	AR	1006699	SOLVENT	25
*	.75	1006696-5	SLEEVING	24
*	19.0	SEE NOTE 15	WIRE, ELEC	23
	12	1010402-3	SLEEVE, SOLDER	22
	AR	1006458-009	TAPE, LACING	21
*	1.0	SEE NOTE 17	SLEEVING, INSULATION	20
	152	1006491-01	CONTACT ELEC	19
	8	1006997	WASHER, FLAT	18
	8	MS35337-79	WASHER, LOCK	17
	8	1006998-1	SCREW, CAPTIVE	16
	5	1020370-23	BUSHING	15
	180	1006995-000	CONTACT ELEC, MALE, CRIMP	14
	60	1014310	INSULATOR, CONTACT, MALE	13
	120	1006987	INS. CONTACT ELEC, MALE CRIMP	12
	8	1014032	RECEPTACLE, INDEXING	11
	4	1014021	PLATE, CONNECTOR	10
	4	1014024-3	BRACKET, ANGLE	9
	2	M23329/3-07	CONNECTOR, BNC	8
	1	1006671-001	CONNECTOR	7
	1	MS3120F-24-61P	CONNECTOR	6
	1	MS3120F-16-8P	CONNECTOR	5
	AR	1006253	ADHESIVE	4
	1	1006915-136	MARKER, CABLE	3
*	192	1014391-11	WIRE, ELEC TWISTED PAIR	2
*	408	MIL-W-16878/4 E22 WHT	WIRE, ELEC	1

-011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 28AUG65
CHECKED [illegible] 29SEP65
APPROVAL [illegible] 9Oct65
APPROVAL [illegible]
APPROVAL [illegible] 10/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED A
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014174
SCALE NONE WT SHEET 1 OF 3

2014174 E

2014174 E

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	~~A108~~	~~73~~	~~P1-A7~~	~~WHT~~	~~22~~	~~2~~	~~101~~	~~A2-25~~	
			~~P1-A8~~	~~BLK~~			~~115~~	~~A2-37~~	
	A109	73	P1-A11	BLK	22	29	109	A2-36	
	A110		P1-A12	WHT		1	110	A2-47	
	A111		P1-A1	WHT		2	95	A2-4	
			P1-A2	BLK			96	A2-16	
	A112		P1-A3	WHT			92	A2-7	
			P1-A4	BLK			91	A2-19	
	A113		P1-A5	WHT			90	A2-8	
			P1-A6	BLK			89	A2-20	
	A114		P1-A9	BLK			108	A2-35	
		73	P1-A10	WHT			107	A2-46	
	~~A115~~	~~112~~	~~A2-42~~	~~WHT~~		~~2~~	~~28~~	~~S61A-3~~	
		~~105~~	~~A2-32~~	~~BLK~~			~~28~~	~~S61D-NO~~	
	A116	71	P2-A1	WHT		1	25	S61A-C	
	A117		P2-A2				24	S63B-C	
	A118		P2-A3				24	S63A-C	
	A119		P2-A4				22	S65A-C	
	A120		P2-A5				20	S66B-C	
	A121		P2-A6				20	S66A-C	
	A122		P2-A7			1	18	S68B-NC	
	A123		P2-A10	WHT		2	16	S69B-NO	
			P2-A11	BLK			16	S69B-C	
	A124		P2-A12	WHT		1	16	S69A-C	
	A125		P2-A13	WHT		2	15	S70B-NO	
			P2-A14	BLK			15	S70B-C	
	A126		P2-A17	WHT		1	18	S68A-C	
	A127		P2-A18				14	S71A-C	
	A128		P2-B3				17	S54A-C	
	A129		P2-B4				14	S56A-C	
	A130		P2-B5				58	S58A-C	
	A131		P2-B6				33	S34A-C	
	A132		P2-B7				36	S36A-C	
	A133		P2-B10				57	S73A-C	
	A134		P2-B14				19	S52A-C	
	A135		P2-B15				22	S50A-C	
	A136		P2-B16				24	S48A-C	
	A137		P2-B17				26	S46A-C	
	A138		P2-B18				28	S31A-C	
	A139		P2-B19				30	S32A-C	
	A140		P2-C1				47	S27A-C	
	A141		P2-C2				51	S29A-C	
	A142		P2-C3				52	S44A-C	
	A143		P2-C4				48	S42A-C	
	A144		P2-C5				43	S40A-C	
	A145		P2-C6				39	S38A-C	
	A146		P2-C7				53	S15A-C	
	A147		P2-C8				49	S13-A-C	
	A148		P2-C9				44	S11-A-C	
	A149		P2-C10				40	S9A-C	
	A150		P2-C11				37	S7A-C	
	A151		P2-C12				34	S5A-C	
	A152		P2-C13				31	S3A-C	
	A153		P2-C14				27	S1A-C	
	A154		P2-C15				29	S17A-C	
	A155		P2-C16				32	S19A-C	
	A156		P2-C17				35	S21A-C	
	A157		P2-C18				38	S23A-C	
	A158		P2-C19	WHT		1	42	S25A-C	
	A159		P2-A8	BLK		2	18	S68B-NO	
			P2-A9	WHT			18	S68B-C	
	A160		P2-A15	BLK			14	S71B-NO	
			P2-A19	WHT			14	S71C-NO	
	A161		P2-A16	BLK			14	S71B-C	
			P2-B11	WHT			14	S71C-C	
	A162		P2-B1	BLK			57	S73B-C	
			P2-B2	WHT			57	S73B-NO	
	A163		P2-B8	BLK			59	S72B-C	
			P2-B9	WHT			59	S72B-NO	
	A164		P2-B12	BLK		2	56	S74B-NO	
		71	P2-B13	WHT			56	S74B-C	
	A165	72	P4-A1			1	54	S60B-C	
	A166		P4-A2				54	S60B-NO	
	A167		P4-A3				54	S60A-C	
	A168		P4-A4				55	S75B-C	
	A169		P4-A5				55	S75B-NO	
	A170		P4-A6				55	S75B-NC	
	A171		P4-A7				61	S91A-NC	
	A172		P4-A12				68	A4-56	
	A173		P4-A13				67	A4-61	
	A174		P4-A16				69	A4-45	
	A175		P4-B5				8	S80A-NO	
	A176		P4-B6				8	S80B-C	
	A177		P4-B7			1	9	S81A-NC	
	A178		P4-B8	WHT		2	9	S81A-NO	
			P4-B9	BLK			9	S81A-C	
	A179	72	P4-B12	WHT	22	1	9	S86A-NC	

ASSEMBLY INFORMATION CHART

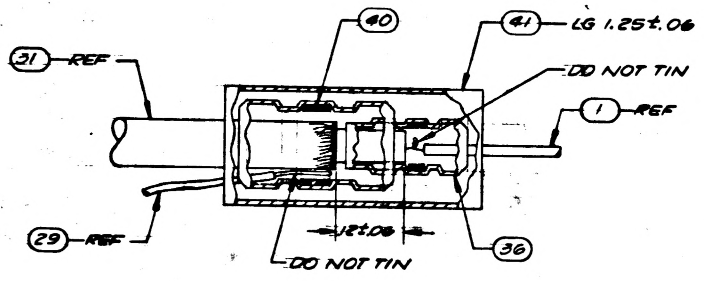
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A180	72	P4-B15	WHT	22	1	8	S85A-NC	
	A181	72	P4-B20	BLK		29	117	A3-7	
	~~A182~~	~~94~~	~~A2-17~~	~~WHT~~		~~1~~	~~25~~	~~S61D-NC~~	
	A183	72	P4-A8	BLK		2	61	S91A-NO	
			P4-A9	WHT			61	S91A-C	
	A184		P4-A10	BLK			66	A4-21	
			P4-A11	WHT			66	A4-20	
	~~A185~~		~~P4-A14~~	~~BLK~~			~~69~~	~~A4-64~~	
			~~P4-A15~~	~~WHT~~			~~70~~	~~A4-40~~	
	A186		P4-A17	BLK			65	A4-2	
			P4-A18	WHT			65	A4-1	
	A187		P4-B1	BLK			118	A3-10	
			P4-B2	WHT			118	A3-11	
	A188		P4-B3	BLK			119	A3-9	
			P4-B4	WHT			119	A3-8	
	A189		P4-B10	BLK			9	S86A-C	
			P4-B11	WHT			9	S86A-NO	
	A190		P4-B13	BLK			8	S85A-C	
		72	P4-B14	WHT			8	S85A-NO	
	A191	77	T1-6	BLK		2	63	S92A-C	
		77	T1-8	WHT			63	S92B-C	
	~~A192~~	~~27~~	~~S16D-NO~~	~~BLK~~		~~2~~	~~111~~	~~A2-43~~	
		~~27~~	~~S16A-3~~	~~WHT~~			~~104~~	~~A2-31~~	
	~~A193~~	~~27~~	~~S16D-NC~~	~~WHT~~		~~1~~	~~85~~	~~A2-6~~	
	~~A194~~	~~26~~	~~S46D-NO~~	~~BLK~~		~~2~~	~~106~~	~~A2-33~~	
		~~26~~	~~S46A-3~~	~~WHT~~			~~112~~	~~A2-41~~	
	~~A195~~	~~26~~	~~S46D-NC~~	~~WHT~~		~~1~~	~~93~~	~~A2-18~~	
	A196	23	S76C-ARM	WHT		1	118	A3-4	
	A197	23	S76A-ARM	WHT		1	114	A2-40	
	A198	21	S77A-A2	BLK		2	13	S79-A7	
		21	S77A-B3	WHT			13	S79-B7	
	A199	21	S77A-C1	WHT		2	13	S79B-ARM	
		21	S77A-D1	BLK			13	S79A-ARM	
	A200	21	S77B-D2	BLK		29	38	E17	
	A201	6	S78F-ARM	WHT		1	13	S79-A6	
	~~A202~~	~~6~~	~~S78G-ARM~~	~~BLK~~		~~2~~	~~13~~	~~S79-A7~~	
		~~7~~	~~S78H-ARM~~	~~WHT~~			~~13~~	~~S79-B7~~	
	~~A203~~	~~6~~	~~S78G-G1~~	~~WHT~~			~~67~~	~~A4-60~~	
		~~7~~	~~S78H-H1~~	~~BLK~~			~~67~~	~~A4-63~~	
	~~A204~~	~~6~~	~~S78G-G2~~	~~WHT~~			~~68~~	~~A4-49~~	
		~~7~~	~~S78H-H2~~	~~BLK~~			~~68~~	~~A4-55~~	
	~~A205~~	~~6~~	~~S78G-G3~~	~~WHT~~			~~69~~	~~A4-39~~	
		~~7~~	~~S78H-H3~~	~~BLK~~			~~69~~	~~A4-44~~	
	~~A206~~	~~6~~	~~S78G-G4~~	~~BLK~~			~~66~~	~~A4-34~~	
		~~7~~	~~S78H-H4~~	~~WHT~~		2	~~66~~	~~A4-35~~	
	A207	13	S79A-B6	WHT		1	83	A2-3	
	A208	8	S80A-C	WHT		1	119	A3-34	
	A209	8	S80B-NO	WHT		1	117	A3-12	
	A210	62	S82A-C	BLK		2	69	A4-44	
		62	S82B-C	WHT			69	A4-39	
	A211	62	S83A-C	BLK			67	A4-63	
		62	S83B-C	WHT			67	A4-60	
	A212	64	S84A-C	BLK			67	A4-55	
		64	S84B-C	WHT			67	A4-49	
	A213	63	S92B-NO	BLK			66	A4-34	
		63	S92B-NC	WHT		2	66	A4-35	
	A214	64	S93A-NO	WHT			99	A2-1	
		64	S93B-NO	BLK	22	23	100	A2-13	
		△	E9	SHLD			△	E10	
	A215	64	S93C-C	BLK	22	29	△	E9	
	A216	△	E10	BLK		29	96	A2-14	
	A217	61	S94A-NC	WHT		1	65	A4-4	
	A218	61	S94A-NO	BLK		2	65	A4-5	
		61	S94A-C	WHT			65	A4-6	
	A219	63	S95A-NC	WHT		1	70	A4-17	
	A220	63	S95A-NO	BLK		2	70	A4-7	
		63	S95A-C	WHT			70	A4-8	
	A221	63	S96A-NC	WHT		1	70	A4-18	
	A222	63	S96A-NO	BLK			70	A4-9	
		63	S96A-C	WHT	22	23	70	A4-19	
		△	E11	SHLD			△	E12	
	A223	△	E12	BLK	22	29	70	A4-27	
	A224	68	A4-62	BLK	22	29	60	R1-CCW	
	~~A225~~	~~68~~	~~A4-64~~	~~WHT~~	~~22~~	~~30~~	~~60~~	~~R1-CW~~	
		~~△~~	~~E15~~	~~SHLD~~			~~△~~	~~E16~~	
		~~60~~	~~R1-CCW~~	~~BLK~~	~~22~~	~~29~~	~~△~~	~~E16~~	
	~~A226~~	~~5~~	~~P8~~	~~COAX~~	~~30~~	~~31~~	~~△~~	~~E3~~	
		~~5~~	~~P8~~	~~SHLD~~			~~3~~	~~R1-CCW~~	△
		~~△~~	~~E3~~	~~WHT~~	~~22~~	~~1~~	~~3~~	~~R1-ARM~~	△
	~~A227~~	~~4~~	~~P7~~	~~COAX~~	~~30~~	~~31~~	~~△~~	~~E5~~	
		~~4~~	~~P7~~	~~SHLD~~			~~76~~	~~T1-2~~	
			~~E5~~	~~WHT~~	~~22~~	~~1~~	~~76~~	~~T1-1~~	
	A228	18	S8C-NO	WHT	22	1	102	A2-28	
	A229	81	J4-E	WHT	22	23	2	S7A-C-ARM	
		81	J4-D	BLK	22		2	S7A-D-ARM	
		△	E-8	SHLD			△	E2	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A230	81	J4-F	BLK	22	29	△	E-8	
	A231	△	E-2	BLK	22	29	2	S77B-D2	
	A232	81	J4-B	WHT	22	23	1	S77A-B-ARM	
		81	J4-A	BLK	22		1	S77A-A-ARM	
		△	E-7	SHLD			△	E1	
	A233	81	J4-C	BLK	22	29	△	E7	
	A234	△	E-1	BLK	22	29	1	S77B-D3	
	A235	64	S93A-C	BLK	22	23	116	A5-12	
		64	S93B-C	WHT	22		116	A5-16	
		△	E13	SHLD			△	E-14	
	A236	64	S93C-C	BLK	22	29	△	E-13	
	A237	79	J3-K8	BLK	22	23	12	S79A-ARM	
		79	J3-L8	WHT	22		12	S79B-ARM	
		△	E-6	SHLD			△	E-4	
	A238	79	J3-J8	BLK	22	29	△	E-6	
	A239	△	E-4	BLK		29	12	S79-D3	
	A240	61	S94D-NC	WHT		1	11	S90D-NC	
	A241	61	S94D-NO	WHT		1	11	S90D-NO	
	A242	61	S94-3	WHT		1	11	S90-1	
	A243	10	S87D-NC	WHT		1	9	S86D-NC	
	A244	10	S87D-NO	WHT		1	9	S86D-NO	
	A245	10	S87-3	WHT		1	9	S86-1	
	A246	75	J5-KK	BLK		29	88	A2-22	
	A247	75	J5-LL	BLK	22	29	86	A2-10	
	A248	70	A4-30	WHT	22	30	60	R1-CW	
		△	E15	SHLD			△	E16	
	A249	60	R1-CCW	BLK	22	29	△	E16	
SEE DETAIL B	A250	5	P8	COAX	30	31	△	E3	
		5	P8-SHELL	SHLD			△	E3-SHLD	
	A251	△	E3	WHT	22	1	3	R1-ARM	
SEE DETAIL B	A252	4	P7	COAX	30	31	△	E5	
		4	P7-SHELL	SHLD			△	E5-SHLD	
	A253	△	E5	WHT	22	1	76	T1-1	
	A254	73	P1-A7	WHT	22	1	101	A2-25	TWIST
	A255	73	P1-A8	BLK	22	29	115	A2-37	
	A256	27	S16A-3	WHT	22	1	104	A2-31	TWIST
	A257	27	S16D-NO	BLK	22	29	111	A2-43	
	A258	26	S46A-3	WHT	22	1	112	A2-41	TWIST
	A259	26	S46D-NO	BLK	22	29	106	A2-33	
	A260	81	J4-G	WHITE	22	1	94	A2-17	
	A261	79	J3-L1	BLK		29	6	S78G-9	TWIST
	A262	79	-L2	WHT		1	7	S78H-9	
	A263	79	-M1	BLK		29	6	S78G-8	TWIST
	A264	79	-M2	WHT		1	7	S78H-8	
	A265	79	-N7	BLK		29	6	S78G-7	TWIST
	A266	79	J3-N8	WHT		1	7	S78H-7	
	A267	112	A2-42	WHT		1	25	S61A-3	TWIST
	A268	105	A2-32	BLK		29	25	S61D-NO	
	A269	72	P4-A14	BLK		29	69	A4-64	TWIST
	A270	72	P4-A15	WHT		1	70	A4-40	
	A271	6	S78G-ARM	BLK		29	13	S79-A7	TWIST
	A272	7	S78H-ARM	WHT		1	13	S79-B7	
	A273	6	S78G-G1	WHT		1	67	A4-60	TWIST
	A274	7	S78H-H1	BLK		29	67	A4-63	
	A275	6	S78G-G2	WHT		1	68	A4-49	TWIST
	A276	7	S78H-H2	BLK		29	68	A4-55	
	A277	6	S78G-G3	WHT		1	69	A4-39	TWIST
	A278	7	S78H-H3	BLK		29	69	A4-44	
	A279	6	S78G-G4	BLK		29	66	A4-34	TWIST
	A280	7	S78H-H4	WHT		1	66	A4-35	
SEE DETAIL B	A281	△	E3-SHLD	BLK		29	3A	R1-CCW	
SEE DETAIL B	A282	△	E5-SHLD	BLK	22	29	75A	T1-2	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25293	4/13/65	
1	CHANGED PER CCA 25365 DR CHK APPD	5 NOV 65	
2	CHANGED PER CCA R25530 DR CHK APPD	11/17/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25585 DR CHK APPD		
B	CHANGED PER CCA R25641 DR CHK APPD		
C	CHANGED PER CCA R25667 DR D. CHK APPD	1/10/66	
D	CHANGED PER CCA R25768 DR CHK APPD	1/13/66	
E	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TORR 2472	1/19/66	



DETAIL B
SCALE: NONE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 27 SEP 65
CHECKED 23 SEP 65
APPROVAL 9 Oct 65
APPROVAL
APPROVAL 10/13/65
NASA APPROVAL C. C. METZGER
MIT APPROVAL
MIT APPROVAL

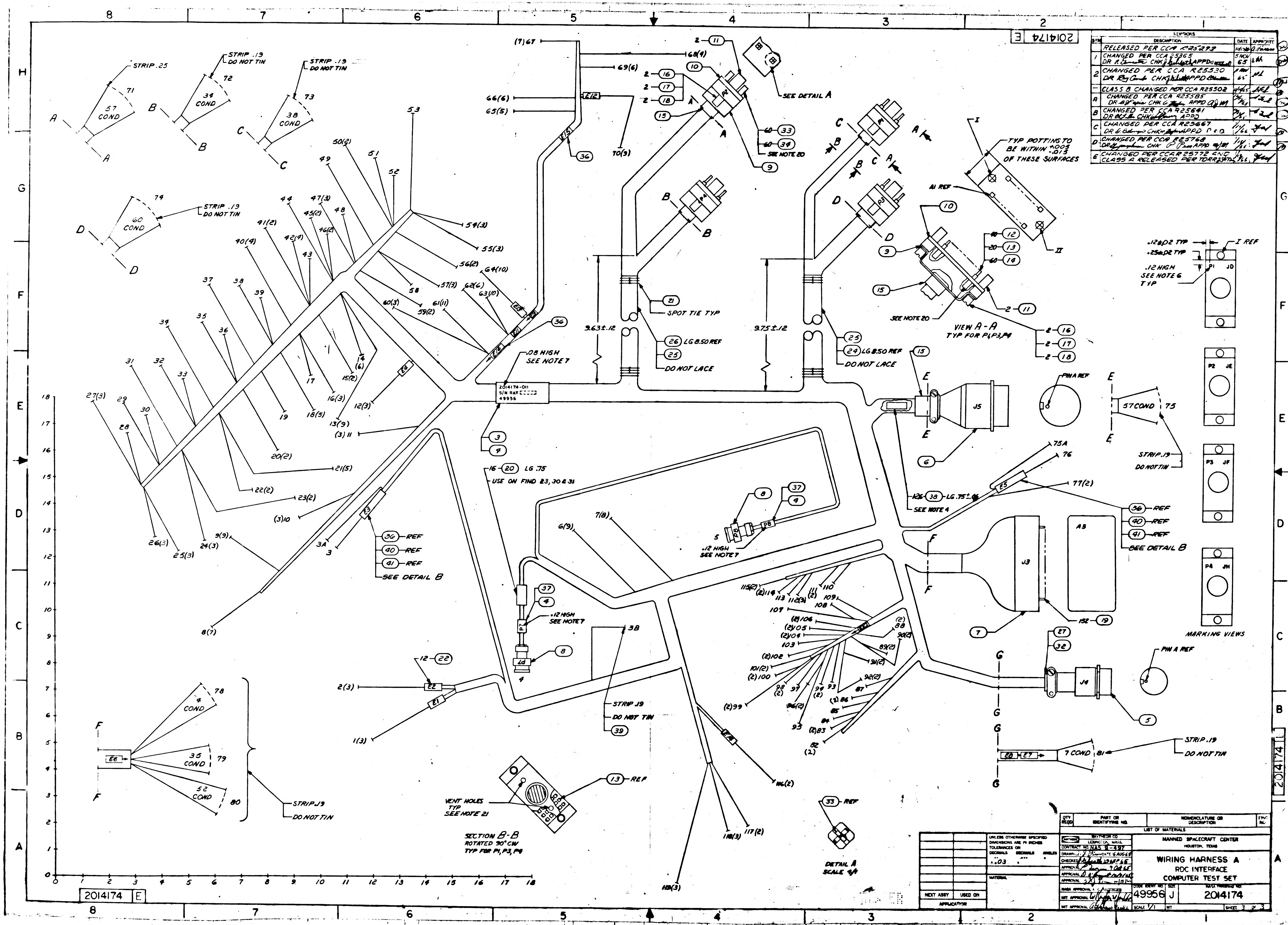
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED A
RDC INT_RFACE
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014174
SCALE NONE | WT | SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014174 E


2014174 E
STRIP .25
57 COND 71
STRIP .19 DO NOT TIN
34 COND 72
38 COND 73
60 COND 74
A
B
C
D
SEE DETAIL A
SEE NOTE 20
TYP POTTING TO BE WITHIN +.005 -.015 OF THESE SURFACES
A1 REF
I
II
VIEW A-A TYP FOR P1, P3, P4
SPOT TIE TYP
LG 8.50 REF
DO NOT LACE
3.63±.12
9.75±.12
2014174-011 S/N RAY 49956
.08 HIGH SEE NOTE 7
USE ON FIND 23, 30 & 31
LG .75
SEE NOTE 4
SEE DETAIL B
.12 HIGH SEE NOTE 7
.12±.02 TYP
.25±.02 TYP
I REF
.12 HIGH SEE NOTE 6 TYP
P1 JD
P2 JE
P3 JF
P4 JH
MARKING VIEWS
J5
J3
J4
A3
PIN A REF
57 COND 75
7 COND 81
4 COND 78
35 COND 79
52 COND 80
STRIP .19 DO NOT TIN
VENT HOLES TYP SEE NOTE 21
SECTION B-B ROTATED 90° CW TYP FOR P1, P3, P4
DETAIL A SCALE 4/1
13 REF
33 REF
36 REF
40 REF
41 REF
2014174 E

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
	RELEASED PER CCA R25293	10/13/65	A. [illegible]
1	CHANGED PER CCA 25365 DR R. [illegible] CHK J. [illegible] APPD [illegible]	5 NOV 65	[illegible]
2	CHANGED PER CCA R25530 DR Ray [illegible] CHK J. [illegible] APPD [illegible]	[illegible] 65	[illegible]
—	CLASS B CHANGED PER CCA R25502	11/1/65	[illegible]
A	CHANGED PER CCA R25585 DR [illegible] CHK G. [illegible] APPD [illegible]	12/3/65	[illegible]
B	CHANGED PER CCA R25641 DR [illegible] CHK [illegible] APPD	[illegible]	[illegible]
C	CHANGED PER CCA R25667 DR D. [illegible] CHK [illegible] APPD [illegible]	1/11/66	[illegible]
D	CHANGED PER CCA R25768 DR [illegible] CHK P. [illegible] APPD [illegible]	1/[illegible]/66	[illegible]
E	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TORR [illegible]	[illegible]/66	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. J. [illegible] DATE 6 AUG 65
CHECKED [illegible] 29 SEP 65
APPROVAL [illegible] 7 Oct 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS A
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO 49956 SIZE J NASA DRAWING NO. 2014174
SCALE 1/1 WT SHEET 3 OF 3

2014174 F

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25293	10/13/65	D. Hansen
1	CHANGED PER CCA 25365 DR R. Bennett CHK J. Gilbreath APPD	5 NOV 65	
2	CHANGED PER CCA R25530 DR Bo Gonda CHK APPD	11 NOV 65	
—	CLASS B. CHANGED PER CCA R25502		
A	CHANGED PER CCA R25585 DR A. Papia CHK APPD		
B	CHANGED PER CCA R25641 DR CHK APPD		
C	CHANGED PER CCA R25667 DR R. Belanger CHK APPD	1/10/66	
D	CHANGED PER CCA R25768 DR CHK P. APPD	1/13/66	
E	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25472	/66	
F	CHANGED PER TDRR 26303 DR. W. Dunn CHK APPD RPC	2/27/66	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	75	J5-A	BLK	22	29	98	A2-14	
	A2		-D	BLK		29	82	-2	
	A3		-E	BLK		29	83	-3	
	A4		-F	BLK		29	97	-15	
	A5		-G	WHT		1	84	-4	
	A6		-H	BLK		29	96	-16	
	A7		-J	WHT		1	85	-6	
	A8		-K	WHT		1	94	-17	
	A9		-L	WHT		1	93	-18	
	A10		-S	BLK		29	88	-21	
	A11		-T	WHT		1	102	-28	
	A12		-U	WHT		1	87	-12	
	A13		-V	WHT		1	101	-25	
	A14		-W	BLK		29	115	-37	
	A15		-X	WHT		1	114	-39	
	A16		-Y	BLK		29	86	-9	
	A17		-Z				113	-40	
	A18		-a				111	-43	
	A19		-b				106	-33	
	A20		-c	BLK		29	105	-32	
	A21		-d	WHT		1	103	-42	
	A22		-e				104	-41	
	A23		-f				112	A2-31	
	A24		-g				73	P1-A13	
	A25		-h	WHT		1		-A14	
	A26		-q	BLK		29		-A19	
	A27		-r					-B3	
	A28		-s					-B4	
	A29		-t					-B5	
	A30		-u					-B6	
	A31		-v					-B20	
	A32		-w					-A20	
	A33		-y	BLK		29		-C20	
	A34		-z	WHT		1		-B8	
	A35		-AA					-B9	
	A36		-BB					-B10	
	A37		-CC					-B11	
	A38		-DD					-B12	
	A39		-EE					-B13	
	A40		-FF					-B14	
	A41		-GG					-B15	
	A42		-HH					-B16	
	A43		-JJ	WHT		1	73	P1-B7	
	A44		-B	BLK		2	100	A2-13	
			-C	WHT			99	-1	
	A45		-M	WHT		1	92	-7	
	A46		-N	BLK		29	91	-19	
	A47		-P	WHT		1	90	-8	
	A48		-R	BLK		29	89	A2-20	
	A49		-i	BLK		2	73	P1-A15	
			-j	WHT				-A16	
	A50		-k	BLK		2		-A17	
			-m	WHT				-A18	
	A51		-n	BLK		2		-B1	
		75	J5-p	WHT			73	P1-B2	
	A52	79	J3-M3	WHT		1	42	S25-B(NC)	
	A53	13	S79-D3	BLK	22	29	82	A2-2	

⚠ DENOTES INTERNAL CONNECTION

~~MARK FIND 29 WITH COND IDENT NO. OF ASSOCIATED COAX LEAD & ASSEMBLE PER DETAIL B~~

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A54	79	J3-K1	WHT	22	2	50	S14-B(NO)	
			-K2	BLK			50	S14-B(C)	
	A55		-K3	BLK		29	40	S9-B(NC)	
	A56		-P1	WHT		1	74	P3-C13	
	A57		-P2					-C14	
	A58		-P3					-C15	
	A59		-P4					-C16	
	A60		-P5					-C17	
	A61		-P6					-C18	
	A62		-P7					-C19	
	A63	79	-P8					-C20	
	A64	80	-R1					-C5	
	A65		-R2					-C6	
	A66		-R3					-C7	
	A67		-R4					-C8	
	A68		-R5					-C9	
	A69		-R6					-C10	
	A70		-R7					-C11	
	A71		-R8					-C12	
	A72		-S5					-C1	
	A73		-S6					-C2	
	A74		-S7					-C3	
	A75	80	-S8	WHT		1	74	P3-C4	
	A76	78	-G1	BLK		2	45	S26-B(NO)	
			-G2	WHT			45	S26-B(C)	
	A77		-G3	BLK			47	S27-B(NO)	
		78	-G4	WHT			47	S27-B(C)	
	A78	79	-H1	BLK			40	S9-B(NO)	
			-H2	WHT			40	S9-B(C)	
	A79		-H3	BLK			42	S25-B(NO)	
			-H4	WHT			42	S25-B(C)	
	A80		-J1	BLK			41	S10-B(NO)	
			-J2	WHT			41	S10-B(C)	
	A81		-J3	BLK			46	S41-B(NO)	
		79	-J4	WHT			46	S41-B(C)	
	~~A82~~	~~79~~	~~-L1~~	~~BLK~~			~~6~~	~~S78G-9~~	
		~~79~~	~~-L2~~	~~WHT~~			~~7~~	~~S78H-9~~	
	~~A83~~	~~79~~	~~-M1~~	~~BLK~~			~~6~~	~~S78G-8~~	
		~~79~~	~~-M2~~	~~WHT~~			~~7~~	~~S78H-8~~	
	A84	79	-N2	BLK			62	S83-A(NO)	
			-N1	WHT			62	S83-B(NO)	
	A85		-N4	BLK			64	S84-A(NO)	
			-N3	WHT			64	S84-B(NO)	
	A86		-N6	BLK			61	S82-A(NO)	
		79	-N5	WHT			61	S82-B(NO)	
	~~A87~~	~~79~~	~~-N7~~	~~BLK~~			~~6~~	~~S78G-7~~	
		~~79~~	~~-N8~~	~~WHT~~			~~7~~	~~S78H-7~~	
	A88	80	-S1	BLK			74	P3-B17	
			-S2	WHT				-B18	
	A89		-S3	BLK				-B19	
			-S4	WHT				-B20	
	A90		-T1	BLK				-B9	
			-T2	WHT				-B10	
	A91		-T3	BLK				-B11	
			-T4	WHT				-B12	
	A92		-T5	BLK				-B13	
			-T6	WHT				-B14	
	A93		-T7	BLK				-B15	
			-T8	WHT				-B16	
	A94		-U1	BLK				-B1	
			-U2	WHT				-B2	
	A95		-U3	BLK				-B3	
			-U4	WHT				-B4	
	A96		-U5	BLK				-B5	
			-U6	WHT				-B6	
	A97		-U7	BLK				-B7	
			-U8	WHT				-B8	
	A98		-V1	BLK				-A13	
			-V2	WHT				-A14	
	A99		-V3	BLK				-A15	
			-V4	WHT				-A16	
	A100		-V5	BLK				-A17	
			-V6	WHT				-A18	
	A101		-V7	BLK				-A19	
			-V8	WHT				-A20	
	A102		-W1	BLK				-A5	
			-W2	WHT				-A6	
	A103		-W3	BLK				-A7	
			-W4	WHT				-A8	
	A104		-W5	BLK				-A9	
			-W6	WHT				-A10	
	A105		-W7	BLK				-A11	
			-W8	WHT				-A12	
	A106		-X3	BLK				-A1	
			-X4	WHT				-A2	
	A107		-X5	BLK		2		-A3	
		80	J3-X6	WHT	22		74	P3-A4	

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND 21
2. STRIP ALL LEADS .50±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
3. CRIMP PER ND1002206
4. MARK CONDUCTOR IDENTIFICATION PER ND1002019
5. SERIALIZE PER ND1002023
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
10. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
11. AR DENOTES AS REQUIRED
12. POT PER ND1002009 METHOD E & PRIME
13. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG 1014047
14. INSTALL FIND 13 IN OUTSIDE ROWS OF P1, P3 & P4
15. MIL-W-16878/4 E22 WHT & BLK TWISTED, SHIELDED, TFE JACKET, WHITE
16. MIL-W-16878/4 E22 WHT, SHIELDED TFE JACKET, WHT
17. MIL-I-23053 CLASS I, COLOR WHITE, ID .187 FOR FIND 20, ID .125 FOR FIND 38
18. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
19. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
20. SEAL INSULATORS & TERMINALS PER ND1002004 TYPE VI
21. POTTING TO BE $^{+.00}_{-.04}$ WITHIN TOP OF VENT HOLES
22. MIL-I-23053 CLASS I, COLOR BLK, ID .250 FOR FIND 41

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014125	SCHEMATIC	REF
*	0.3	SEE NOTE 22	SLEEVING, INSULATION	41
	2	1010402-2	SLEEVE, SOLDER	40
	1	MS25036-1	TERMINAL LUG	39
*	8.0	SEE NOTE 17	SLEEVING, INSULATION	38
	2	1006915-011	BAND MARKER	37
	4	1010402-1	SLEEVE, SOLDER	36
	~~2~~	~~1006406~~	~~FERRULE, COAX~~	~~35~~
	60	1010380	INS, BUSHING FEMALE, WRAPOST	34
	60	1010379-1	CONTACT, ELEC, FEMALE	33
	1	1020371-4	BUSHING	32
*	9.0	RG180B/U	CABLE, COAX	31
*	1.5	SEE NOTE 16	WIRE, ELEC	30
*	43.0	MIL-W-16378/4 E22 BLK	WIRE, ELEC	29
	~~1~~	~~1020370-23~~	~~BUSHING~~	28
	1	1020370-11	BUSHING	27
*	.75	1006696-4	SLEEVING	26
	AR	1006699	SOLVENT	25
*	.75	1006696-5	SLEEVING	24
*	19.0	SEE NOTE 15	WIRE, ELEC	23
	12	1010402-3	SLEEVE, SOLDER	22
	AR	1006458-009	TAPE, LACING	21
*	1.0	SEE NOTE 17	SLEEVING, INSULATION	20
	152	1006491-01.	CONTACT ELEC	19
	8	1006997	WASHER, FLAT	18
	8	MS35337-79	WASHER, LOCK	17
	8	1006998-1	SCREW, CAPTIVE	16
	5	1020370-23	BUSHING	15
	180	1006995-000	CONTACT ELEC, MALE, CRIMP	14
	60	1014310	INSULATOR, CONTACT, MALE	13
	120	1006987	INS, CONTACT ELEC, MALE CRIMP	12
	8	1014032	RECEPTACLE, INDEXING	11
	4	1014021	PLATE, CONNECTOR	10
	4	1014024-3	BRACKET, ANGLE	9
	2	M23329/3-07	CONNECTOR, BNC	8
	1	1006671-001	CONNECTOR	7
	1	MS3120F-24-61P	CONNECTOR	6
	1	MS3120F-16-8P	CONNECTOR	5
	AR	1006253	ADHESIVE	4
	1	1006915-135	MARKER, CABLE	3
*	192	1014391-11	WIRE, ELEC TWISTED PAIR	2
*	408	MIL-W-16878/4 E22 WHT	WIRE, ELEC	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN A.J. DATE 29AUG65
CHECKED 29SEP65
APPROVAL 9Oct65
APPROVAL
APPROVAL 10/11/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 66
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED A
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO. 2014174
SCALE NONE
WT
SHEET 1 OF 3

2014174 F

2014174 F

2014174 F

ASSEMBLY INFORMATION CHART

	ROM			DESCRIPTION			TO		
REMAR	ND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	~~A108~~	~~73~~	~~P1-A7~~	~~WHT~~	~~22~~	~~2~~	~~101~~	~~A2-25~~	
		~~↑~~	~~P1-A8~~	~~BLK~~	~~↑~~		~~115~~	~~A2-37~~	
	A109	73	P1-A11	BLK	22	29	109	A2-36	
	A110	↑	P1-A12	WHT	↑	1	110	A2-47	
	A111		P1-A1	WHT		2	95	A2-4	
			P1-A2	BLK		↑	96	A2-16	
	A112		P1-A3	WHT			92	A2-7	
			P1-A4	BLK			91	A2-19	
	A113		P1-A5	WHT			90	A2-8	
			P1-A6	BLK			89	A2-20	
	A114	↓	P1-A9	BLK			108	A2-35	
		73	P1-A10	WHT			107	A2-46	
	~~A115~~	~~112~~	~~A2-42~~	~~WHT~~		↓	~~28~~	~~S61A-3~~	
		~~105~~	~~A2-38~~	~~BLK~~		~~2~~	~~26~~	~~S61D-NO~~	
	A116	71	P2-A1	WHT		1	25	S61A-C	
	A117	↑	P2-A2	↑		↑	24	S63B-C	
	A118		P2-A3				24	S63A-C	
	A119		P2-A4				22	S65A-C	
	A120		P2-A5				20	S66B-C	
	A121		P2-A6			↓	20	S66A-C	
	A122		P2-A7	↓		1	18	S68B-NC	
	A123		P2-A10	WHT		2	16	S69B-NO	
			P2-A11	BLK			16	S69B-C	
	A124		P2-A12	WHT		1	16	S69A-C	
	A125		P2-A13	WHT		2	15	S70B-NO	
			P2-A14	BLK			15	S70B-C	
	A126		P2-A17	WHT		1	18	S68A-C	
	A127		P2-A18	↑		↑	14	S71A-C	
	A128		P2-B3				17	S54A-C	
	A129		P2-B4				14	S56A-C	
	A130		P2-B5				58	S58A-C	
	A131		P2-B6				33	S34A-C	
	A132		P2-B7				36	S36A-C	
	A133		P2-B10				57	S73A-C	
	A134		P2-B14				19	S52A-C	
	A135		P2-B15				22	S50A-C	
	A136		P2-B16				24	S48A-C	
	A137		P2-B17				26	S46A-C	
	A138		P2-B18				28	S31A-C	
	A139		P2-B19				30	S32A-C	
	A140		P2-C1				47	S27A-C	
	A141		P2-C2				51	S29A-C	
	A142		P2-C3				52	S44A-C	
	A143		P2-C4				48	S42A-C	
	A144		P2-C5				43	S40A-C	
	A145		P2-C6				39	S38A-C	
	A146		P2-C7				53	S15A-C	
	A147		P2-C8				49	S13-A-C	
	A148		P2-C9				44	S11-A-C	
	A149		P2-C10				40	S9A-C	
	A150		P2-C11				37	S7A-C	
	A151		P2-C12				34	S5A-C	
	A152		P2-C13				31	S3A-C	
	A153		P2-C14				27	S1A-C	
	A154		P2-C15				29	S17A-C	
	A155		P2-C16				32	S19A-C	
	A156		P2-C17				35	S21A-C	
	A157		P2-C18	↓		↓	38	S23A-C	
	A158		P2-C19	WHT		1	42	S25A-C	
	A159		P2-A8	BLK		2	18	S68B-NO	
			P2-A9	WHT		↑	18	S68B-C	
	A160		P2-A15	BLK			14	S71B-NO	
			P2-A19	WHT			14	S71C-NO	
	A161		P2-A16	BLK			14	S71B-C	
			P2-B11	WHT			14	S71C-C	
	A162		P2-B1	BLK			57	S73B-C	
			P2-B2	WHT			57	S73B-NO	
	A163		P2-B8	BLK			59	S72B-C	
			P2-B9	WHT			59	S72B-NO	
	A164	↓	P2-B12	BLK		↓	56	S74B-NO	
		71	P2-B13	WHT		2	56	S74B-C	
	A165	72	P4-A1	↑		1	54	S60B-C	
	A166	↑	P4-A2			↑	54	S60B-NO	
	A167		P4-A3				54	S60A-C	
	A168		P4-A4				55	S75B-C	
	A169		P4-A5				55	S75B-NO	
	A170		P4-A6				55	S75B-NC	
	A171		P4-A7				61	S91A-NC	
	A172		P4-A12				68	A4-56	
	A173		P4-A13				67	A4-61	
	A174		P4-A16				69	A4-45	
	A175		P4-B5				8	S80A-NO	
	A176		P4-B6			↓	8	S80B-C	
	A177		P4-B7	↓		1	9	S81A-NC	
	A178		P4-B8	WHT		2	9	S81A-NO	
		↓	P4-B9	BLK	↓		9	S81A-C	
	A179	72	P4-B12	WHT	22	1	9	S86A-NC	

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A180	72	P4-B15	WHT	22	1	8	S85A-NC	
	A181	72	P4-B20	BLK	↑	29	117	A3-7	
	~~A182~~	~~34~~	~~A2-17~~	~~WHT~~		~~1~~	~~25~~	~~S61D-NC~~	
	A183	72	P4-A8	BLK		2	61	S91A-NO	
		↑	P4-A9	WHT		↑	61	S91A-C	
	A184		P4-A10	BLK			66	A4-21	
			P4-A11	WHT			66	A4-20	
	~~A185~~		~~P4-A14~~	~~BLK~~			~~69~~	~~A4-64~~	
			~~P4-A15~~	~~WHT~~			~~70~~	~~A4-40~~	
	A186		P4-A17	BLK			65	A4-2	
			P4-A18	WHT			65	A4-1	
	A187		P4-B1	BLK			118	A3-10	
			P4-B2	WHT			118	A3-11	
	A188		P4-B3	BLK			119	A3-9	
			P4-B4	WHT			119	A3-8	
	A189		P4-B10	BLK			9	S86A-C	
			P4-B11	WHT			9	S86A-NO	
	A190	↓	P4-B13	BLK			8	S85A-C	
		72	P4-B14	WHT		↓	8	S85A-NO	
	A191	77	T1-6	BLK		2	63	S92A-C	
		77	T1-8	WHT			63	S92B-C	
	~~A192~~	~~27~~	~~S16D-NO~~	~~BLK~~		~~2~~	~~111~~	~~A2-43~~	
		~~27~~	~~S16A-3~~	~~WHT~~			~~104~~	~~A2-31~~	
	~~A193~~	~~27~~	~~S16D-NC~~	~~WHT~~		~~1~~	~~85~~	~~A2-6~~	
	~~A194~~	~~26~~	~~S46D-NO~~	~~BLK~~		~~2~~	~~106~~	~~A2-33~~	
		~~26~~	~~S46A-3~~	~~WHT~~			~~112~~	~~A2-41~~	
	~~A195~~	~~26~~	~~S46D-NC~~	~~WHT~~		~~1~~	~~93~~	~~A2-18~~	
	A196	23	S76C-ARM	WHT		1	118	A3-4	
	A197	23	S76A-ARM	WHT		1	114	A2-40	
	A198	21	S77A-A3	BLK		2	13	S79-A7	
		21	S77A-B3	WHT			13	S79-B7	
	A199	21	S77A-C1	WHT		2	13	S79B-ARM	
		21	S77A-D1	BLK			13	S79A-ARM	
	A200	21	S77B-D2	BLK		29	38	E17	
	A201	6	S78F-ARM	WHT		1	13	S79-A6	
	~~A202~~	~~6~~	~~S78G-ARM~~	~~BLK~~		2	~~13~~	~~S79-A7~~	
		~~7~~	~~S78H-ARM~~	~~WHT~~		↑	~~13~~	~~S79-B7~~	
	~~A203~~	~~6~~	~~S78G-G1~~	~~WHT~~			~~67~~	~~A4-60~~	
		~~7~~	~~S78H-H1~~	~~BLK~~			~~67~~	~~A4-63~~	
	~~A204~~	~~6~~	~~S78G-G2~~	~~WHT~~			~~68~~	~~A4-49~~	
		~~7~~	~~S78H-H2~~	~~BLK~~			~~68~~	~~A4-55~~	
	~~A205~~	~~6~~	~~S78G-G3~~	~~WHT~~			~~69~~	~~A4-39~~	
		~~7~~	~~S78H-H3~~	~~BLK~~			~~69~~	~~A4-44~~	
	~~A206~~	~~6~~	~~S78G-G4~~	~~BLK~~		↓	~~66~~	~~A4-34~~	
		~~7~~	~~S78H-H4~~	~~WHT~~		2	~~66~~	~~A4-35~~	
	A207	13	S79A-B6	WHT		1	83	A2-3	
	A208	8	S80A-C	WHT		1	119	A3-34	
	A209	8	S80B-NO	WHT		1	117	A3-12	
	A210	62	S82A-C	BLK		2	69	A4-44	
		62	S82B-C	WHT		↑	69	A4-39	
	A211	62	S83A-C	BLK			67	A4-63	
		62	S83B-C	WHT			67	A4-60	
	A212	64	S84A-C	BLK			67	A4-55	
		64	S84B-C	WHT			67	A4-49	
	A213	63	S92B-NO	BLK		↓	66	A4-34	
		63	S92B-NC	WHT		2	66	A4-35	
	A214	64	S93A-NO	WHT	↓	23	99	A2-1	
		64	S93B-NO	BLK	22		100	A2-13	
		⚠	E9	SHLD			⚠	E10	
	A215	64	S93C-C	BLK	22	29	⚠	E9	
	A216	⚠	E10	BLK	↑	29	98	A2-14	
	A217	61	S94A-NC	WHT		1	65	A4-4	
	A218	61	S94A-NO	BLK		2	65	A4-5	
		61	S94A-C	WHT			65	A4-6	
	A219	63	S95A-NC	WHT		1	70	A4-17	
	A220	63	S95A-NO	BLK		2	70	A4-7	
		63	S96A-C	WHT			70	A4-8	
	A221	63	S96A-NC	WHT		1	70	A4-18	
	A222	63	S96A-NO	BLK	↓	23	70	A4-9	
		63	S96A-C	WHT	22		70	A4-19	
		⚠	E11	SHLD			⚠	E12	
	A223	⚠	E12	BLK	22	29	70	A4-27	
	A224	68	A4-62	BLK	22	29	60	R1-CCW	
	~~A225~~	~~63~~	~~A4-64~~	~~WHT~~	~~22~~	~~30~~	~~60~~	~~R1-CW~~	
		~~⚠~~	~~E15~~	~~SHLD~~			~~⚠~~	~~E16~~	
		~~60~~	~~R1-CCW~~	~~BLK~~	~~22~~	~~29~~	~~⚠~~	~~E16~~	
	~~A226~~	~~5~~	~~P8~~	~~COAX~~	~~30~~	~~31~~	~~⚠~~	~~E3~~	
		~~5~~	~~P8~~	~~SHLD~~			~~3~~	~~R1-CCW~~	⚠
		~~⚠~~	~~E3~~	~~WHT~~	~~22~~	~~1~~	~~3~~	~~R1-ARM~~	⚠
	~~A227~~	~~4~~	~~P7~~	~~COAX~~	~~30~~	~~31~~	~~⚠~~	~~E5~~	
		~~4~~	~~P7~~	~~SHLD~~			~~76~~	~~T1-2~~	
			~~E5~~	~~WHT~~	~~22~~	~~1~~	~~76~~	~~T1-1~~	
	A228	18	S80C-NO	WHT	22	1	102	A2-28	
	A229	81	J4-E	WHT	22	23	2	S7A-C-ARM	
		81	J4-D	BLK	22		2	S7A-D-ARM	
		⚠	E-8	SHLD			⚠	E2	

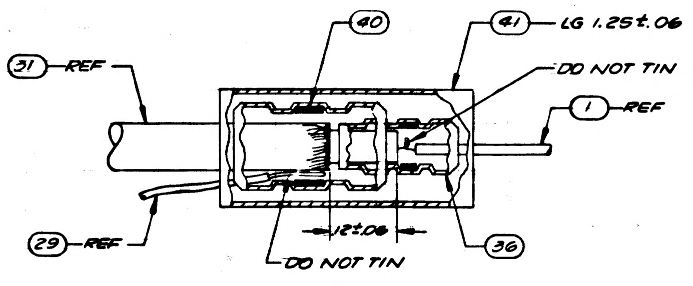
2014174 F

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A230	81	J4-F	BLK	22	29	⚠	E-8	
	A231	⚠	E-2	BLK	22	29	2	S77B-D2	
	A232	81	J4-B	WHT	22	23	1	S77A-B-ARM	
		81	J4-A	BLK	22		1	S77A-A-ARM	
		⚠	E-7	SHLD			⚠	E1	
	A233	81	J4-C	BLK	22	29	⚠	E7	
	A234	⚠	E-1	BLK	22	29	1	S77B-D3	
	A235	64	S93A-C	BLK	22	23	116	A5-12	
		64	S93B-C	WHT	22		116	A5-16	
		⚠	E13	SHLD			⚠	E-14	
	A236	64	S93C-C	BLK	22	29	⚠	E-13	
	A237	79	J3-K8	BLK	22	23	12	S79A-ARM	
		79	J3-L8	WHT	22		12	S79B-ARM	
		⚠	E-6	SHLD			⚠	E-4	
	A238	79	J3-J8	BLK	22	29	⚠	E-6	
	A239	⚠	E-4	BLK	↑	29	12	S79-D3	
	A240	61	S94D-NC	WHT		1	11	S90D-NC	
	A241	61	S94D-NO	WHT		1	11	S90D-NO	
	A242	61	S94-3	WHT		1	11	S90-1	
	A243	10	S87D-NC	WHT		1	9	S86D-NC	
	A244	10	S87D-NO	WHT		1	9	S86D-NO	
	A245	10	S87-3	WHT		1	9	S86-1	
	A246	75	J5-KK	BLK	↓	29	88	A2-22	
	A247	75	J5-LL	BLK	22	29	86	A2-10	
	A248	70	A4-30	WHT	22	30	60	R1-CW	
		⚠	E15	SHLD			⚠	E16	
	A249	60	R1-CCW	BLK	22	29	⚠	E16	
SEE DETAIL B	A250	5	P8	COAX	30	31	⚠	E3	
		5	P8-SHELL	SHLD			⚠	E3-SHLD	
	A251	⚠	E3	WHT	22	1	3	R1-ARM	
SEE DETAIL B	A252	4	P7	COAX	30	31	⚠	E5	
		4	P7-SHELL	SHLD			⚠	E5-SHLD	
	A253	⚠	E5	WHT	22	1	76	T1-1	
	A254	73	P1-A7	WHT	22	1	101	A2-25	TWIST
	A255	73	P1-A8	BLK	22	29	115	A2-37	
	A256	27	S16A-3	WHT	22	1	104	A2-31	TWIST
	A257	27	S16D-NO	BLK	22	29	111	A2-43	
	A258	26	S46A-3	WHT	22	1	112	A2-41	TWIST
	A259	26	S46D-NO	BLK	22	29	106	A2-33	
	A260	81	J4-6	WHITE	22	1	94	A2-17	
	A261	79	J3-L1	BLK	↑	29	6	S78G-9	TWIST
	A262	79	↑ -L2	WHT		1	7	S78H-3	
	A263	79	-M1	BLK		29	6	S78G-8	TWIST
	A264	79	-M2	WHT		1	7	S78H-8	
	A265	79	↓ -N7	BLK		29	6	S78G-7	TWIST
	A266	79	J3-N8	WHT		1	7	S78H-7	
	A267	112	A2-42	WHT		1	25	S61A-3	TWIST
	A268	105	A2-32	BLK		29	25	S61D-NO	
	A269	72	P4-A14	BLK		29	68	A4-65	TWIST
	A270	72	P4-A15	WHT		1	70	A4-40	
	A271	6	S78G-ARM	BLK		29	13	S79-A7	TWIST
	A272	7	S78H-ARM	WHT		1	13	S79-B7	
	A273	6	S78G-G1	WHT		1	67	A4-60	TWIST
	A274	7	S78H-H1	BLK		29	67	A4-63	
	A275	6	S78G-G2	WHT		1	68	A4-49	TWIST
	A276	7	S78H-H2	BLK		29	68	A4-55	
	A277	6	S78G-G3	WHT		1	69	A4-39	TWIST
	A278	7	S78H-H3	BLK		29	69	A4-44	
	A279	6	S78G-G4	BLK		29	66	A4-34	TWIST
	A280	7	S78H-H4	WHT		1	66	A4-35	
SEE DETAIL B	A281	⚠	E3-SHLD	BLK	↓	29	3A	R1-CCW	
SEE DETAIL B	A282	⚠	E5-SHLD	BLK	22	29	75A	T1-3	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA C25293	10/13/65	D. Havens
1	CHANGED PER CCA 25365 DR [illegible] CHK J. Gilbreath APPD [illegible]	5 NOV 65	
2	CHANGED PER CCA R25530 DR [illegible] CHK [illegible] APPD [illegible]	11/17/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25585 DR [illegible] CHK [illegible] APPD [illegible]		
B	CHANGED PER CCA R25641 DR [illegible] CHK [illegible] APPD		
C	CHANGED PER CCA R25667 DR D. [illegible] CHK [illegible] APPD [illegible]	1/10/66	
D	CHANGED PER CCA R25769 DR [illegible] CHK [illegible] APPD [illegible]	1/13/66	
E	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25472	1/19/66	
F	CHANGED PER TDRR 26303 DR. W. Crow CHK. [illegible] APPD. [illegible]	[illegible]/27/66	



DETAIL B
SCALE: NONE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 27SEP65
CHECKED [illegible] 29SEP65
APPROVAL [illegible] 7Oct65
APPROVAL [illegible] 10/6/65
APPROVAL [illegible] 10/13/65
NASA APPROVAL METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED A
RDC INTERFACE
COMPUTER TEST SET

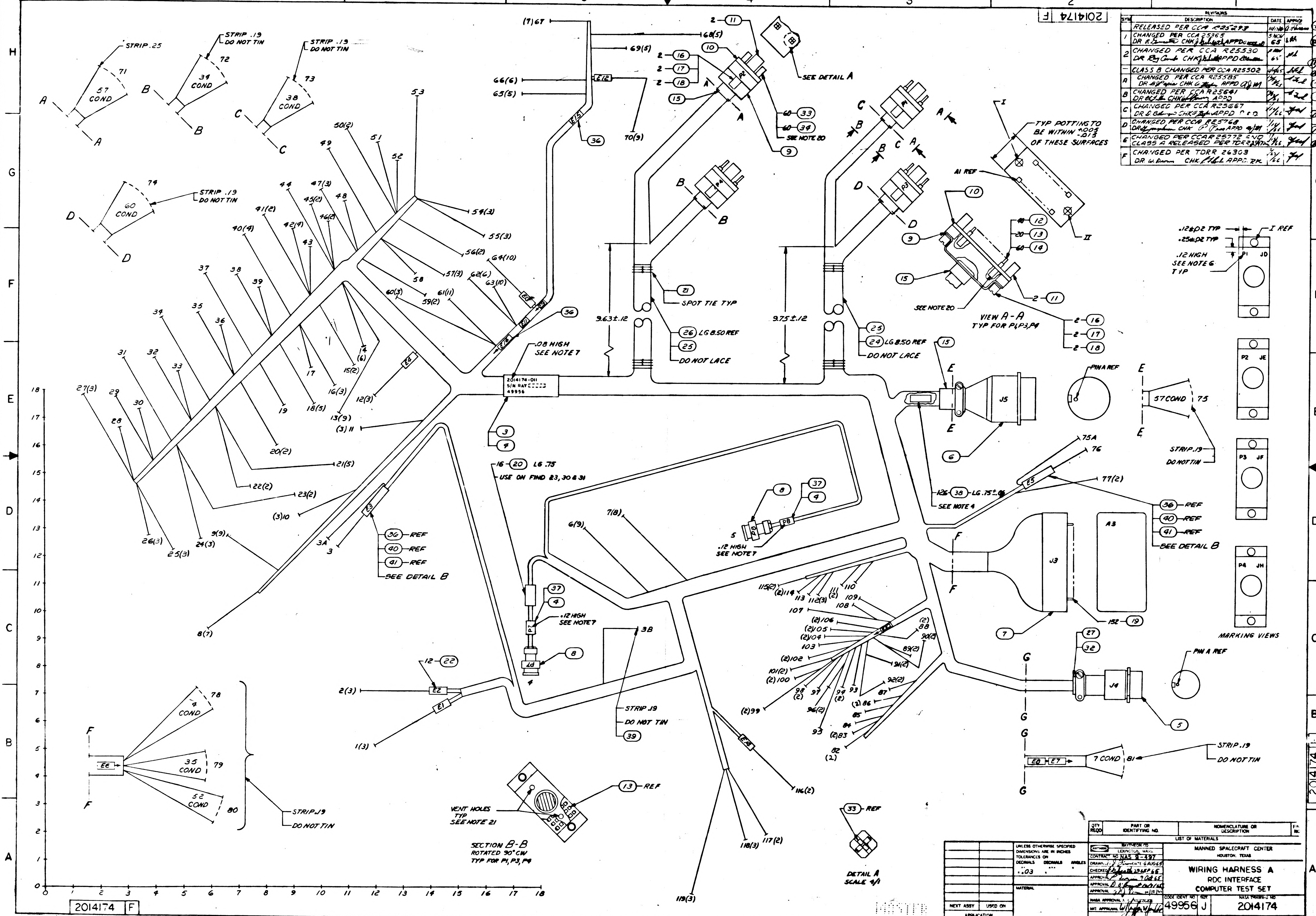
SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014174
SCALE NONE
WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014174 F

2014174 F

SYM	DESCRIPTION	DATE	APPR
	RELEASED PER CCA R25293	10/13/65	A. Hansen
1	CHANGED PER CCA 25365 DR R. Emmett CHK J. Gilbreath APPD	5 NOV 65	
2	CHANGED PER CCA R25530 DR Ray Combs CHK J. Gilbreath APPD	NOV 65	
—	CLASS B CHANGED PER CCA R25502	11/19/65	
A	CHANGED PER CCA R25585 DR B. Papia CHK G. Hayden APPD AJM	12/3/65	
B	CHANGED PER CCA R25641 DR CHK APPD		
C	CHANGED PER CCA R25667 DR D. Belanger CHK G. Hayden APPD	1/10/66	
D	CHANGED PER CCA R25768 DR CHK P. Pear APPD	1/18/66	
E	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25872	1/26/66	
F	CHANGED PER TDRR 26303 DR. W. Darum CHK. L. H. L. APPD. RK	7/27/66	



STRIP .25
57 COND
71
A
STRIP .19
DO NOT TIN
34 COND
72
B
38 COND
73
C
60 COND
74
D
(7)67
68(5)
69(5)
66(6)
65(5)
E12
E15
36
70(9)
53
50(2)
51
52
49
44
47(3)
45(2)
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60(3)
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14 (6)
15(2)
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16(3)
18(5)
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13(9)
(3) 11
12(3)
E4
E16
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31
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27(3)
29
30
28
20(2)
21(5)
22(2)
23(2)
(3)10
26(3)
25(3)
24(3)
9(9)
8(7)
3A
3
E3
36 — REF
40 — REF
41 — REF
SEE DETAIL B
.08 HIGH SEE NOTE 7
2014174-011 S/N RAY 49956
3
4
16 — 20 LG .75
USE ON FIND 23, 30 & 31
2 — 11
10
2 — 16
2 — 17
2 — 18
15
P2
SEE DETAIL A
60 — 33
60 — 34
SEE NOTE 20
9
A
B
C
D
P1
P3
21
SPOT TIE TYP
26 LG 8.50 REF
25
DO NOT LACE
9.63 ± .12
9.75 ± .12
24 LG 8.50 REF
TYP POTTING TO BE WITHIN +.003 −.013 OF THESE SURFACES
I
II
A1 REF
10
12
13
14
9
15
SEE NOTE 20
2 — 11
VIEW A-A TYP FOR P1, P3, P4
2 — 16
2 — 17
2 — 18
.12 ± .02 TYP
.25 ± .02 TYP
I REF
.12 HIGH SEE NOTE 6 TYP
P1 JD
P2 JE
P3 JF
P4 JH
MARKING VIEWS
15
E
J5
PIN A REF
57 COND
75
STRIP .19
DO NOT TIN
6
75A
76
77(2)
E5
126 — 38 — LG .75 ± .06
SEE NOTE 4
36 — REF
40 — REF
41 — REF
SEE DETAIL B
A3
J3
F
7
152 — 19
8
37
4
5
P8
P6
.12 HIGH SEE NOTE 7
7(8)
6(9)
37
4
P
.12 HIGH SEE NOTE 7
P7
8
4
3B
STRIP .19
DO NOT TIN
39
12 — 22
E2
E1
2(3)
1(3)
115(2)
(2)114
113
112(3)
111
110
109
108
107
(2)106
(2)105
(2)104
103
(2)102
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96(2)
95 (2)
94 (2)
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91(2)
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89(2)
88 (2)
87
(3)86
85
84
(2)83
82 (2)
E9
116(2)
117(2)
118(3)
119(3)
27
32
G
J4
5
PIN A REF
E8
E7
7 COND
81
STRIP .19
DO NOT TIN
E6
4 COND
78
35 COND
79
52 COND
80
STRIP .19
DO NOT TIN
13 — REF
VENT HOLES TYP SEE NOTE 21
SECTION B-B ROTATED 90° CW TYP FOR P1, P3, P4
33 — REF
DETAIL A SCALE 4/1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
8 7 6 5 4 3 2 1
H G F E D C B A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±

MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN A. J. Binon DATE 6 AUG 65
CHECKED J. Gilbreath 29 SEP 65
APPROVAL 9 Oct 65
APPROVAL D. O'Brien
APPROVAL 10/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS A
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO 49956 | SIZE J | NASA DRAWING NO. 2014174
SCALE 1/1 | WT | SHEET 3 OF 3

2014174 G

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	75	J5-A	BLK	22	29	98	A2-14	
	A2		-D	BLK		29	82	-2	
	A3		-E	BLK		29	83	-3	
	A4		-F	BLK		29	97	-15	
	A5		-G	WHT		1	84	-4	
	A6		-H	BLK		29	96	-16	
	A7		-J	WHT		1	85	-6	
	A8		-K	WHT		1	94	-17	
	A9		-L	WHT		1	93	-18	
	A10		-S	BLK		29	88	-21	
	A11		-T	WHT		1	102	-28	
	A12		-U	WHT		1	87	-12	
	A13		-V	WHT		1	101	-25	
	A14		-W	BLK		29	115	-37	
	A15		-X	WHT		1	114	-39	
	A16		-Y	BLK		29	86	-9	
	A17		-Z				113	-40	
	A18		-a				111	-43	
	A19		-b				106	-33	
	A20		-c	BLK		29	105	-32	
	A21		-d	WHT		1	112	-42	
	A22		-e				112	-41	
	A23		-f				104	A2-31	
	A24		-g				73	P1-A13	
	A25		-h	WHT		1		-A14	
	A26		-q	BLK		29		-A19	
	A27		-r					-B3	
	A28		-s					-B4	
	A29		-t					-B5	
	A30		-u					-B6	
	A31		-v					-B20	
	A32		-w					-A20	
	A33		-y	BLK		29		-C20	
	A34		-z	WHT		1		-B8	
	A35		-AA					-B9	
	A36		-BB					-B10	
	A37		-CC					-B11	
	A38		-DD					-B12	
	A39		-EE					-B13	
	A40		-FF					-B14	
	A41		-GG					-B15	
	A42		-HH					-B16	
	A43		-JJ	WHT		1	73	P1-B7	
	A44		-B	BLK		2	100	A2-13	
			-C	WHT			99	-1	
	A45		-M	WHT		1	92	-7	
	A46		-N	BLK		29	91	-19	
	A47		-P	WHT		1	90	-8	
	A48		-R	BLK		29	89	A2-20	
	A49		-i	BLK		2	73	P1-A15	
			-j	WHT				-A16	
	A50		-k	BLK		2		-A17	
			-m	WHT				-A18	
	A51		-n	BLK		2		-B1	
		75	J5-p	WHT			73	P1-B2	
	A52	79	J3-M3	WHT		1	42	S25-B(NO)	
	A53	13	S79-D3	BLK	22	29	82	A2-2	

⚠ DENOTES INTERNAL CONNECTION

~~⚠ MARK FIND 29 WITH COND IDENT NO. OF ASSOCIATED COAX LEAD & ASSEMBLE PER DETAIL B~~

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A54	79	J3-K1	WHT	22	2	50	S14-B(NO)	
			-K2	BLK			50	S14-B(C)	
	A55		-K3	BLK		29	40	S9-B(NC)	
	A56		-P1	WHT		1	74	P3-C13	
	A57		-P2					-C14	
	A58		-P3					-C15	
	A59		-P4					-C16	
	A60		-P5					-C17	
	A61		-P6					-C18	
	A62		-P7					-C19	
	A63	79	-P8					-C20	
	A64	80	-R1					-C5	
	A65		-R2					-C6	
	A66		-R3					-C7	
	A67		-R4					-C8	
	A68		-R5					-C9	
	A69		-R6					-C10	
	A70		-R7					-C11	
	A71		-R8					-C12	
	A72		-S5					-C1	
	A73		-S6					-C2	
	A74		-S7					-C3	
	A75	80	-S8	WHT		1	74	P3-C4	
	A76	78	-G1	BLK		2	45	S26-B(NO)	
			-G2	WHT			45	S26-B(C)	
	A77		-G3	BLK			47	S27-B(NO)	
		78	-G4	WHT			47	S27-B(C)	
	A78	79	-H1	BLK			40	S9-B(NO)	
			-H2	WHT			40	S9-B(C)	
	A79		-H3	BLK			42	S25-B(NO)	
			-H4	WHT			42	S25-B(C)	
	A80		-J1	BLK			41	S10-B(NO)	
			-J2	WHT			41	S10-B(C)	
	A81		-J3	BLK			46	S41-B(NO)	
		79	-J4	WHT			46	S41-B(C)	
	~~A82~~	~~79~~	~~-L1~~	~~BLK~~			~~6~~	~~S78G-9~~	
		~~79~~	~~-L2~~	~~WHT~~			~~7~~	~~S78H-9~~	
	~~A83~~	~~79~~	~~-M1~~	~~BLK~~			~~6~~	~~S78G-8~~	
		~~79~~	~~-M2~~	~~WHT~~			~~7~~	~~S78H-8~~	
	A84	79	-N2	BLK			62	S83-A(NO)	
			-N1	WHT			62	S83-B(NO)	
	A85		-N4	BLK			64	S89-A(NO)	
			-N3	WHT			64	S89-B(NO)	
	A86		-N6	BLK			61	S82-A(NO)	
		79	-N5	WHT			61	S82-B(NO)	
	~~A87~~	~~79~~	~~-N7~~	~~BLK~~			~~6~~	~~S78G-7~~	
		~~79~~	~~-N8~~	~~WHT~~			~~7~~	~~S78H-7~~	
	A88	80	-S1	BLK			74	P3-B17	
			-S2	WHT				-B18	
	A89		-S3	BLK				-B19	
			-S4	WHT				-B20	
	A90		-T1	BLK				-B9	
			-T2	WHT				-B10	
	A91		-T3	BLK				-B11	
			-T4	WHT				-B12	
	A92		-T5	BLK				-B13	
			-T6	WHT				-B14	
	A93		-T7	BLK				-B15	
			-T8	WHT				-B16	
	A94		-U1	BLK				-B1	
			-U2	WHT				-B2	
	A95		-U3	BLK				-B3	
			-U4	WHT				-B4	
	A96		-U5	BLK				-B5	
			-U6	WHT				-B6	
	A97		-U7	BLK				-B7	
			-U8	WHT				-B8	
	A98		-V1	BLK				-A13	
			-V2	WHT				-A14	
	A99		-V3	BLK				-A15	
			-V4	WHT				-A16	
	A100		-V5	BLK				-A17	
			-V6	WHT				-A18	
	A101		-V7	BLK				-A19	
			-V8	WHT				-A20	
	A102		-W1	BLK				-A5	
			-W2	WHT				-A6	
	A103		-W3	BLK				-A7	
			-W4	WHT				-A8	
	A104		-W5	BLK				-A9	
			-W6	WHT				-A10	
	A105		-W7	BLK				-A11	
			-W8	WHT				-A12	
	A106		-X3	BLK				-A1	
			-X4	WHT				-A2	
	A107		-X5	BLK		2		-A3	
		80	J3-X6	WHT	22		74	P3-A4	

22. MIL-I-23053 CLASS I, COLOR BLK, ID .250 FOR FIND 41

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
0	RELEASED PER CCA ~~R25293~~		
1	CHANGED PER CCA 23365 DR CHK APPD	5 NOV 65	
2	CHANGED PER CCA R25530 DR CHK APPD	65	
—	CLASS B. CHANGED PER CCA R25502		
A	CHANGED PER CCA R25585 DR CHK APPD		
B	CHANGED PER CCA R25641 DR CHK APPD	65	
C	CHANGED PER CCA R25667 DR CHK APPD	1/10/66	
D	CHANGED PER CCA R25768 DR CHK APPD	1/18/66	
E	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25472	/66	
F	CHANGED PER TDRR 26303 DR W. D. CHK APPD RPC	/66	
G	CHANGED PER TDRR 2:453 DR CHK APPD	/66	

LIST OF MATERIALS

☒	2014125	SCHEMATIC	REF
* 0.3	SEE NOTE 22	SLEEVING, INSULATION	41
2	1010402-2	SLEEVE, SOLDER	40
1	MS25036-1	TERMINAL LUG	39
* 8.0	SEE NOTE 17	SLEEVING, INSULATION	38
2	1006915-011	BAND MARKER	37
4	1010402-1	SLEEVE, SOLDER	36
~~2~~	~~1006406~~	~~FERRULE, COAX~~	~~35~~
60	1010380	INS, BUSHING FEMALE, WRAPOST	34
60	1010379-1	CONTACT, ELEC, FEMALE	33
1	1020371-4	BUSHING	32
* 9.0	RG180B/U	CABLE, COAX	31
* 1.5	SEE NOTE 16	WIRE, ELEC	30
* 43.0	MIL-W-16878/4 E22 BLK	WIRE, ELEC	29
~~1~~	~~1020370-23~~	~~BUSHING~~	28
1	1020370-11	BUSHING	27
* .75	1006696-4	SLEEVING	26
AR	1006699	SOLVENT	25
* .75	1006696-5	SLEEVING	24
* 19.0	SEE NOTE 15	WIRE, ELEC	23
12	1010402-3	SLEEVE, SOLDER	22
AR	1006458-009	TAPE, LACING	21
* 1.0	SEE NOTE 17	SLEEVING, INSULATION	20
152	1006491-01.	CONTACT ELEC	19
8	1006997	WASHER, FLAT	18
8	MS35337-79	WASHER, LOCK	17
8	1006998-1	SCREW, CAPTIVE	16
5	1020370-23	BUSHING	15
180	1006995-000	CONTACT ELEC, MALE, CRIMP	14
60	1014310	INSULATOR, CONTACT, MALE	13
120	1006987	INS, CONTACT ELEC, MALE CRIMP	12
8	1014032	RECEPTACLE, INDEXING	11
4	1014021	PLATE, CONNECTOR	10
4	1014024-3	BRACKET, ANGLE	9
2	M23329/3-07	CONNECTOR, BNC	8
1	1006671-001	CONNECTOR	7
1	MS3120F-24-61P	CONNECTOR	6
1	MS3120F-16-8P	CONNECTOR	5
AR	1006253	ADHESIVE	4
1	1006915-135	MARKER, CABLE	3
* 192.	1014391-11	WIRE, ELEC TWISTED PAIR	2
* 406	MIL-W-16878/4 E22 WHT	WIRE, ELEC	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND 21
2. STRIP ALL LEADS .50 ± .06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
3. CRIMP PER ND1002206
4. MARK CONDUCTOR IDENTIFICATION PER ND1002019
5. SERIALIZE PER ND1002023
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
10. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
11. AR DENOTES AS REQUIRED
12. POT PER ND1002009 METHOD E & PRIME
13. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG 1014047
14. INSTALL FIND 13 IN OUTSIDE ROWS OF P1, P3 & P4
15. MIL-W-16878/4 E22 WHT & BLK TWISTED, SHIELDED, TFE JACKET, WHITE
16. MIL-W-16878/4 E22 WHT, SHIELDED, TFE JACKET, WHT
17. MIL-I-23053 CLASS I, COLOR WHITE, ID .187 FOR FIND 20, ID .125 FOR FIND 38
18. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
19. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
20. SEAL INSULATORS & TERMINALS PER ND1002004 TYPE VI
21. POTTING TO BE $^{+.00}_{-.04}$ WITHIN TOP OF VENT HOLES

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN A. J. B. DATE 2 AUG 65
CHECKED 29 SEP 65
APPROVAL 9 Oct 65
APPROVAL
APPROVAL 10/11/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED A
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO 49956 | SIZE J | NASA DRAWING NO. 2014174
SCALE NONE | WT | SHEET 1 OF 3

2014174 G

2014174 G

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	~~A108~~	~~73~~	~~P1-A7~~	~~WHT~~	~~22~~	~~2~~	~~101~~	~~A2-25~~	
			~~P1-A8~~	~~BLK~~			~~115~~	~~A2-37~~	
	A109	73	P1-A11	BLK	22	29	109	A2-36	
	A110		P1-A12	WHT		1	110	A2-47	
	A111		P1-A1	WHT		2	95	A2-4	
			P1-A2	BLK			96	A2-16	
	A112		P1-A3	WHT			92	A2-7	
			P1-A4	BLK			91	A2-19	
	A113		P1-A5	WHT			90	A2-8	
			P1-A6	BLK			89	A2-20	
	A114		P1-A9	BLK			108	A2-35	
		73	P1-A10	WHT			107	A2-46	
	~~A115~~	~~112~~	~~A2-42~~	~~WHT~~			~~25~~	~~S61A-3~~	
		~~105~~	~~A2-32~~	~~BLK~~		2	~~25~~	~~S61D-NO~~	
	A116	71	P2-A1	WHT		1	25	S61A-C	
	A117		P2-A2				24	S63B-C	
	A118		P2-A3				24	S63A-C	
	A119		P2-A4				22	S65A-C	
	A120		P2-A5				20	S66B-C	
	A121		P2-A6				20	S66A-C	
	A122		P2-A7			1	18	S68B-NC	
	A123		P2-A10	WHT		2	16	S69B-NO	
			P2-A11	BLK			16	S69B-C	
	A124		P2-A12	WHT		1	16	S69A-C	
	A125		P2-A13	WHT		2	15	S70B-NO	
			P2-A14	BLK			15	S70B-C	
	A126		P2-A17	WHT		1	18	S68A-C	
	A127		P2-A18				14	S71A-C	
	A128		P2-B3				17	S54A-C	
	A129		P2-B4				14	S56A-C	
	A130		P2-B5				58	S58A-C	
	A131		P2-B6				33	S34A-C	
	A132		P2-B7				36	S36A-C	
	A133		P2-B10				57	S73A-C	
	A134		P2-B14				19	S52A-C	
	A135		P2-B15				22	S50A-C	
	A136		P2-B16				24	S48A-C	
	A137		P2-B17				26	S46A-C	
	A138		P2-B18				28	S31A-C	
	A139		P2-B19				30	S32A-C	
	A140		P2-C1				47	S27A-C	
	A141		P2-C2				51	S29A-C	
	A142		P2-C3				52	S44A-C	
	A143		P2-C4				48	S42A-C	
	A144		P2-C5				43	S40A-C	
	A145		P2-C6				39	S38A-C	
	A146		P2-C7				53	S15A-C	
	A147		P2-C8				49	S13-A-C	
	A148		P2-C9				44	S11-A-C	
	A149		P2-C10				40	S9A-C	
	A150		P2-C11				37	S7A-C	
	A151		P2-C12				34	S5A-C	
	A152		P2-C13				31	S3A-C	
	A153		P2-C14				27	S1A-C	
	A154		P2-C15				29	S17A-C	
	A155		P2-C16				32	S19A-C	
	A156		P2-C17				35	S21A-C	
	A157		P2-C18				38	S23A-C	
	A158		P2-C19	WHT		1	42	S25A-C	
	A159		P2-A8	BLK		2	18	S68B-NO	
			P2-A9	WHT			18	S68B-C	
	A160		P2-A15	BLK			14	S71B-NO	
			P2-A19	WHT			14	S71C-NO	
	A161		P2-A16	BLK			14	S71B-C	
			P2-B11	WHT			14	S71C-C	
	A162		P2-B1	BLK			57	S73B-C	
			P2-B2	WHT			57	S73B-NO	
	A163		P2-B8	BLK			59	S72B-C	
			P2-B9	WHT			59	S72B-NO	
	A164		P2-B12	BLK			56	S74B-NO	
		71	P2-B13	WHT		2	56	S74B-C	
	A165	72	P4-A1			1	54	S60B-C	
	A166		P4-A2				54	S60B-NO	
	A167		P4-A3				54	S60A-C	
	A168		P4-A4				55	S75B-C	
	A169		P4-A5				55	S75B-NO	
	A170		P4-A6				55	S75B-NC	
	A171		P4-A7				61	S91A-NC	
	A172		P4-A12				68A	A4-56	
	A173		P4-A13				67	A4-61	
	A174		P4-A16				70B	A4-15	
	A175		P4-B5				8	S80A-NO	
	A176		P4-B6				8	S80B-C	
	A177		P4-B7			1	9	S81A-NC	
	A178		P4-B8	WHT		2	9	S81A-NO	
			P4-B9	BLK			9	S81A-C	
	A179	72	P4-B12	WHT	22	1	9	S86A-NC	

ASSEMBLY INFORMATION CHART

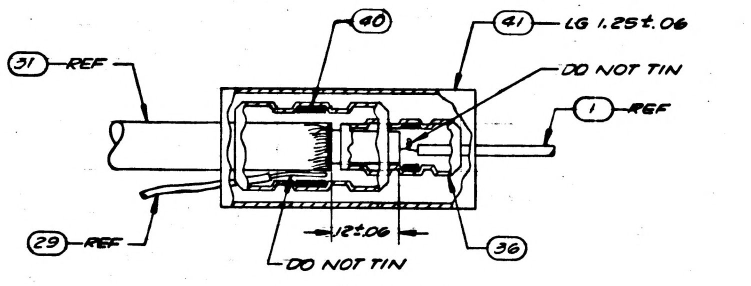
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A180	72	P4-B15	WHT	22	1	8	S85A-NC	
	A181	72	P4-B20	BLK		29	117	A3-7	
	~~A182~~	~~94~~	~~A2-17~~	~~WHT~~		~~1~~	~~25~~	~~S61D-NC~~	
	A183	72	P4-A8	BLK		2	61	S91A-NO	
			P4-A9	WHT			61	S91A-C	
	A184		P4-A10	BLK			66	A4-21	
			P4-A11	WHT			66	A4-20	
	~~A185~~		~~P4-A14~~	~~BLK~~			~~69~~	~~A4-64~~	
			~~P4-A15~~	~~WHT~~			~~70~~	~~A4-40~~	
	A186		P4-A17	BLK			65	A4-2	
			P4-A18	WHT			65	A4-1	
	A187		P4-B1	BLK			118	A3-10	
			P4-B2	WHT			118	A3-11	
	A188		P4-B3	BLK			119	A3-9	
			P4-B4	WHT			119	A3-8	
	A189		P4-B10	BLK			9	S86A-C	
			P4-B11	WHT			9	S86A-NO	
	A190		P4-B13	BLK			8	S85A-C	
		72	P4-B14	WHT			8	S85A-NO	
	A191	77	T1-6	BLK		2	63	S92A-C	
		77	T1-8	WHT			63	S92B-C	
	~~A192~~	~~27~~	~~S16D-NO~~	~~BLK~~		~~2~~	~~111~~	~~A2-43~~	
		~~27~~	~~S16A-3~~	~~WHT~~			~~104~~	~~A2-31~~	
	~~A193~~	~~27~~	~~S16D-NC~~	~~WHT~~		~~1~~	~~85~~	~~A2-6~~	
	~~A194~~	~~26~~	~~S46D-NO~~	~~BLK~~		~~2~~	~~106~~	~~A2-33~~	
		~~26~~	~~S46A-3~~	~~WHT~~			~~112~~	~~A2-41~~	
	~~A195~~	~~26~~	~~S46D-NC~~	~~WHT~~		~~1~~	~~93~~	~~A2-18~~	
	A196	23	S76C-ARM	WHT		1	118	A3-4	
	A197	23	S76A-ARM	WHT		1	113	A2-40	
	A198	21	S77A-A3	BLK		2	13	S79-A7	
		21	S77A-B3	WHT			13	S79-B7	
	A199	21	S77A-C1	WHT		2	13	S79B-ARM	
		21	S77A-D1	BLK			13	S79A-ARM	
	A200	21	S77B-D2	BLK		29	38	E17	
	A201	6	S78F-ARM	WHT		1	13	S79-A6	
	~~A202~~	~~6~~	~~S78G-ARM~~	~~BLK~~		2	~~13~~	~~S79-A7~~	
		~~7~~	~~S78H-ARM~~	~~WHT~~			~~13~~	~~S79-B7~~	
	~~A203~~	~~6~~	~~S78G-G1~~	~~WHT~~			~~67~~	~~A4-60~~	
		~~7~~	~~S78H-H1~~	~~BLK~~			~~67~~	~~A4-63~~	
	~~A204~~	~~6~~	~~S78G-G2~~	~~WHT~~			~~68~~	~~A4-49~~	
		~~7~~	~~S78H-H2~~	~~BLK~~			~~68~~	~~A4-55~~	
	~~A205~~	~~6~~	~~S78G-G3~~	~~WHT~~			~~69~~	~~A4-39~~	
		~~7~~	~~S78H-H3~~	~~BLK~~			~~69~~	~~A4-44~~	
	~~A206~~	~~6~~	~~S78G-G4~~	~~BLK~~			~~66~~	~~A4-34~~	
		~~7~~	~~S78H-H4~~	~~WHT~~		2	~~66~~	~~A4-35~~	
	A207	13	S73A-B6	WHT		1	83	A2-3	
	A208	8	S80A-C	WHT		1	119	A3-34	
	A209	8	S80B-NO	WHT		1	117	A3-12	
	A210	62	S82A-C	BLK		2	69	A4-44	
		62	S82B-C	WHT			69	A4-39	
	A211	62	S83A-C	BLK			67	A4-63	
		62	S83B-C	WHT			67	A4-60	
	A212	64	S84A-C	BLK			67	A4-55	
		64	S84B-C	WHT			67	A4-49	
	A213	63	S92B-NO	BLK			66	A4-34	
		63	S92B-NC	WHT		2	66	A4-35	
	A214	64	S93A-NO	WHT			99	A2-1	
		64	S93B-NO	BLK	22	23	100	A2-13	
		⚠	E9	SHLD			⚠	E10	
	A215	64	S93C-C	BLK	22	29	⚠	E9	
	A216	⚠	E10	BLK		29	98	A2-14	
	A217	61	S94A-NC	WHT		1	65	A4-4	
	A218	61	S94A-NO	BLK		2	65	A4-5	
		61	S94A-C	WHT			65	A4-6	
	A219	63	S95A-NC	WHT		1	70	A4-17	
	A220	63	S95A-NO	BLK		2	70	A4-7	
		63	S96A-C	WHT			70	A4-8	
	A221	63	S96A-NC	WHT		1	70	A4-18	
	A222	63	S96A-NO	BLK			70	A4-9	
		63	S96A-C	WHT	22	23	70	A4-19	
		⚠	E11	SHLD			⚠	E12	
	A223	⚠	E12	BLK	22	29	70	A4-27	
	A224	68	A4-62	BLK	22	29	60	R1-CCW	
	~~A225~~	~~68~~	~~A4-64~~	~~WHT~~	~~22~~	~~30~~	~~60~~	~~R1-CW~~	
		~~⚠~~	~~E15~~	~~SHLD~~			~~⚠~~	~~E16~~	
		~~60~~	~~R1-CCW~~	~~BLK~~	~~22~~	~~29~~	~~⚠~~	~~E16~~	
	~~A226~~	~~5~~	~~P8~~	~~COAX~~	~~30~~	~~31~~	~~⚠~~	~~E3~~	
		~~5~~	~~P8~~	~~SHLD~~			~~3~~	~~R1-CCW~~	⚠
		~~⚠~~	~~E3~~	~~WHT~~	~~22~~	~~1~~	~~3~~	~~R1-ARM~~	⚠
	~~A227~~	~~4~~	~~P7~~	~~COAX~~	~~30~~	~~31~~	~~⚠~~	~~E5~~	
		~~4~~	~~P7~~	~~SHLD~~			~~76~~	~~T1-2~~	
			~~E5~~	~~WHT~~	~~22~~	~~1~~	~~76~~	~~T1-1~~	
	A228	8	S80C-NO	WHT	22	1	102	A2-28	
	A229	81	J4-E	WHT	22		2	S77A-C-ARM	
		81	J4-D	BLK	22	23	2	S77A-D-ARM	
		⚠	E-8	SHLD			⚠	E2	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A230	81	J4-F	BLK	22	29	⚠	E-8	
	A231	⚠	E-2	BLK	22	29	2	S77B-D2	
	A232	81	J4-B	WHT	22		1	S77A-B-ARM	
		81	J4-A	BLK	22	23	1	S77A-A-ARM	
		⚠	E-7	SHLD			⚠	E1	
	A233	81	J4-C	BLK	22	29	⚠	E7	
	A234	⚠	E-1	BLK	22	29	1	S77B-D3	
	A235	64	S93A-C	BLK	22		116	A5-12	
		64	S93B-C	WHT	22	23	116	A5-16	
		⚠	E13	SHLD			⚠	E-14	
	A236	64	S93C-C	BLK	22	29	⚠	E-13	
	A237	79	J3-K8	BLK	22		12	S79A-ARM	
		79	J3-L8	WHT	22	23	12	S79B-ARM	
		⚠	E-6	SHLD			⚠	E-4	
	A238	79	J3-J8	BLK	22	29	⚠	E-6	
	A239	⚠	E-4	BLK		29	12	S79-D3	
	A240	61	S94D-NC	WHT		1	11	S90D-NC	
	A241	61	S94D-NO	WHT		1	11	S90D-NO	
	A242	61	S94-3	WHT		1	11	S90-1	
	A243	10	S87D-NC	WHT		1	9	S86D-NC	
	A244	10	S87D-NO	WHT		1	9	S86D-NO	
	A245	10	S87-3	WHT		1	9	S86-1	
	A246	75	J5-KK	BLK		29	88	A2-22	
	A247	75	J5-LL	BLK	22	29	86	A2-10	
	A248	70	A4-30	WHT	22	30	60	R1-CW	
		⚠	E15	SHLD			⚠	E16	
	A249	60	R1-CCW	BLK	22	29	⚠	E16	
SEE DETAIL B	A250	5	P8	COAX	30	31	⚠	E3	
		5	P8-SHELL	SHLD			⚠	E3-SHLD	
	A251	⚠	E3	WHT	22	1	3	R1-ARM	
SEE DETAIL B	A252	4	P7	COAX	30	31	⚠	E5	
		4	P7-SHELL	SHLD			⚠	E5-SHLD	
	A253	⚠	E5	WHT	22	1	76	T1-1	
	A254	73	P1-A7	WHT	22	1	101	A2-25	TWIST
	A255	73	P1-A8	BLK	22	29	115	A2-37	
	A256	27	S16-3	WHT	22	1	104	A2-31	TWIST
	A257	27	S16D-NO.	BLK	22	29	111	A2-43	
	A258	26	S46-3	WHT	22	1	112	A2-41	TWIST
	A259	26	S46D-NO.	BLK	22	29	106	A2-33	
	A260	81	J4-6	WHITE	22	1	94	A2-17	
	A261	79	J3-L1	BLK		29	6	S78G-9	TWIST
	A262	79	-L2	WHT		1	7	S78H-9	
	A263	79	-M1	BLK		29	6	S78G-8	TWIST
	A264	79	-M2	WHT		1	7	S78H-8	
	A265	79	-N7	BLK		29	6	S78G-7	TWIST
	A266	79	J3-N8	WHT		1	7	S78H-7	
	A267	112	A2-42	WHT		1	25	S61-3	TWIST
	A268	105	A2-32	BLK		29	25	S61D-NO	
	A269	72	P4-A14	BLK		29	70A	A4-14	TWIST
	A270	72	P4-A15	WHT		1	70	A4-40	
	A271	6	S78G-ARM	BLK		29	13	S79-A7	TWIST
	A272	7	S78H-ARM	WHT		1	13	S79-B7	
	A273	6	S78G-G1	WHT		1	67	A4-60	TWIST
	A274	7	S78H-H1	BLK		29	67	A4-63	
	A275	6	S78G-G2	WHT		1	66A	A4-49	TWIST
	A276	7	S78H-H2	BLK		29	66A	A4-55	
	A277	6	S78G-G3	WHT		1	69	A4-39	TWIST
	A278	7	S78H-H3	BLK		29	69	A4-44	
	A279	6	S78G-G4	BLK		29	66	A4-34	TWIST
	A280	7	S78H-H4	WHT		1	66	A4-35	
SEE DETAIL B	A281	⚠	E3-SHLD	BLK		29	3A	R1-CCW	
SEE DETAIL B	A282	⚠	E5-SHLD	BLK	22	29	75A	T1-3	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA C25293	10/13/65	
1	CHANGED PER CCA 25365 DR CHK APPD	5NOV 65	
2	CHANGED PER CCA R25530 DR CHK APPD	11/17 65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25585 DR CHK APPD		
B	CHANGED PER CCA R25641 DR CHK APPD		
C	CHANGED PER CCA R25667 DR D. CHK APPD	1/10/66	
D	CHANGED PER CCA R25768 DR CHK APPD	/66	
E	CHANGED PER CCA R25 AND CLASS A RELEASED PER TDRR 25472	1/ /66	
F	CHANGED PER TDRR 26303 DR. W. CHK. APPD.	3/27/66	
G	CHANGED PER TDRR 26453 DR A. J. CHK APPD	/66	



DETAIL B
SCALE: NONE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 27SEP65
CHECKED 29SEP65
APPROVAL 7 Oct 65
APPROVAL 10/6/65
APPROVAL 10/13/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

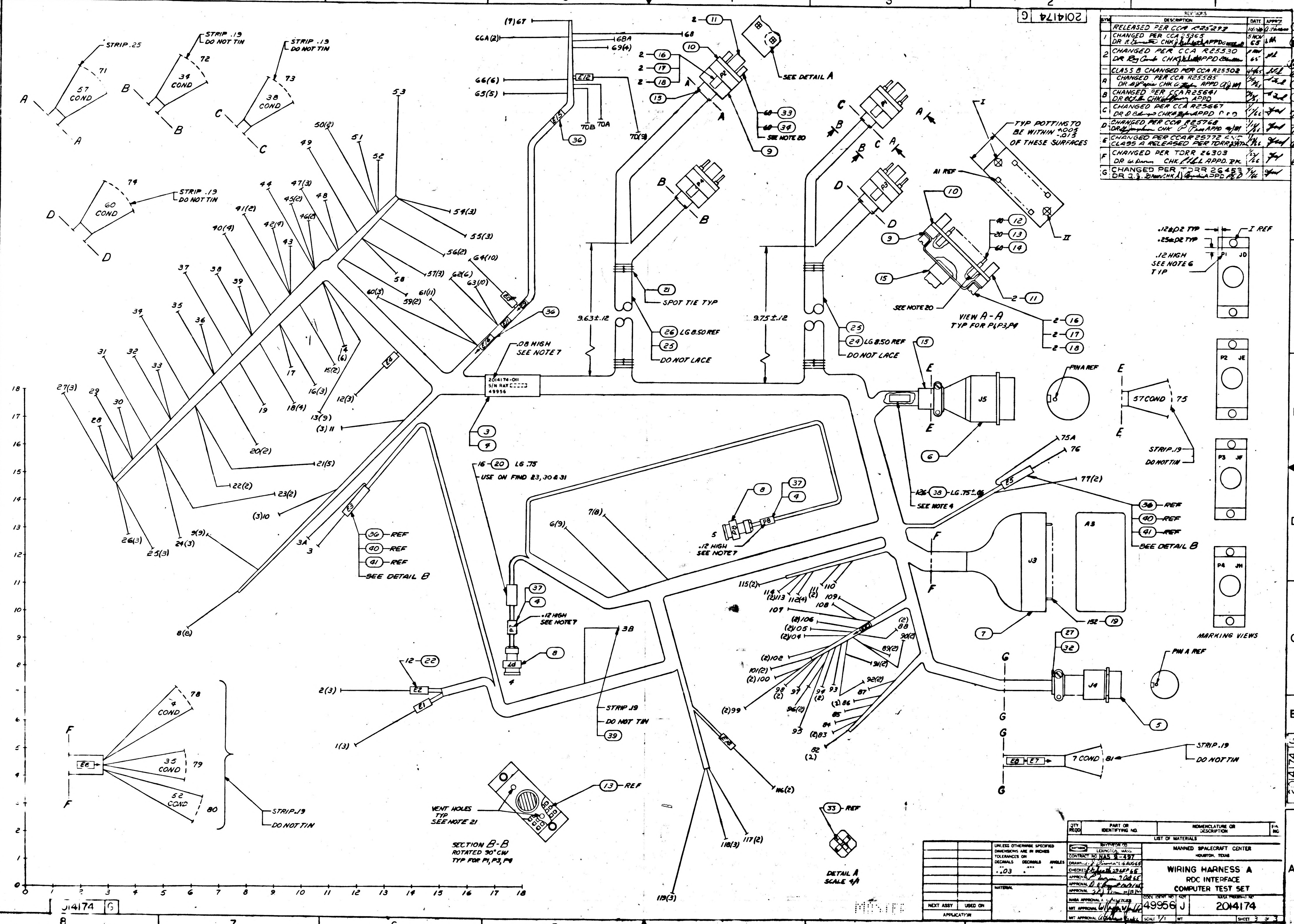
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED A
RDC INTERFACE
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014174
SCALE NONE | WT | SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014174 G



STRIP .25
57 COND
71
A
STRIP .19
DO NOT TIN
34 COND
72
B
38 COND
73
C
60 COND
74
D
(7)67
66A(2)
68A
68
69(4)
66(6)
65(5)
70B
70A
70(9)
E12
36
53
50(2)
51
52
49
54(3)
55(3)
56(2)
57(3)
58
59(2)
60(3)
61(11)
62(6)
63(10)
64(10)
2014174-011
S/N RAY
49956
3
4
.08 HIGH
SEE NOTE 7
9.63±.12
9.75±.12
21
SPOT TIE TYP
26 LG 8.50 REF
25
DO NOT LACE
24 LG 8.50 REF
DO NOT LACE
SEE DETAIL A
SEE NOTE 80
VIEW A-A
TYP FOR P1,P3,P4
SEE NOTE 20
TYP POTTING TO BE WITHIN ±.005 .013 OF THESE SURFACES
A1 REF
I
II
J5
PIN A REF
57 COND
75
STRIP .19
DO NOT TIN
75A
76
77(2)
12/38 LG .75±.06
SEE NOTE 4
36 REF
40 REF
41 REF
SEE DETAIL B
J3
A3
152
19
7
6
15
J4
27
32
5
PIN A REF
G
7 COND
81
E8
E7
.12±.02 TYP
.25±.02 TYP
I REF
.12 HIGH SEE NOTE 6 TYP
P1 JD
P2 JE
P3 JF
P4 JH
MARKING VIEWS
16 - 20 LG .75
USE ON FIND 23, 30 & 31
.12 HIGH SEE NOTE 7
P8
37
8
STRIP .19
DO NOT TIN
39
38
12 - 22
2(3)
E2
E1
1(3)
4 COND
78
35 COND
79
52 COND
80
E6
F
STRIP .19
DO NOT TIN
VENT HOLES TYP
SEE NOTE 21
13 REF
SECTION B-B
ROTATED 90° CW
TYP FOR P1, P3, P4
33 REF
DETAIL A
SCALE 4/1
115(2)
110
109
108
107
106
105
104
102
101(2)
100
99
98
97
96(2)
95
94
93
92(2)
91(2)
90(2)
89(2)
88
87
86
85
84
83
82
116(2)
117(2)
118(3)
119(3)
E4
E3
E5
E8
3A
8(8)
9(9)

SYM	REVISIONS DESCRIPTION	DATE	APPR
	RELEASED PER CCA R25293	10/13/65	A. [illegible]
1	CHANGED PER CCA 25365 DR R [illegible] CHK [illegible] APPD [illegible]	5 NOV 65	[illegible]
2	CHANGED PER CCA R25530 DR Ray Combs CHK [illegible] APPD [illegible]	11 NOV 65	[illegible]
—	CLASS B CHANGED PER CCA R25502	11/[illegible]/65	[illegible]
A	CHANGED PER CCA R25585 DR B.J. Papia CHK A. [illegible] APPD A.J.M	12/13/65	[illegible]
B	CHANGED PER CCA R25641 DR [illegible] CHK [illegible] APPD	[illegible]	[illegible]
C	CHANGED PER CCA R25667 DR D. Belanger CHK [illegible] APPD R.E.D.	1/10/66	[illegible]
D	CHANGED PER CCA R25768 DR [illegible] CHK P. Pease APPD [illegible]	1/18/66	[illegible]
E	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TORR 25472	1/24/66	[illegible]
F	CHANGED PER TORR 26303 DR. W. Darrow CHK. [illegible] APPD. R.K.	7/22/66	[illegible]
G	CHANGED PER TORR 26453 DR J. J. Brown CHK [illegible] APPD R.E.D.	8/4/66	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN J. J. Bireau DATE 16 AUG 65
CHECKED [illegible] 29 SEP 65
APPROVAL P. [illegible] 9 Oct 65
APPROVAL D. [illegible] 10/1/65
APPROVAL [illegible] 10/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

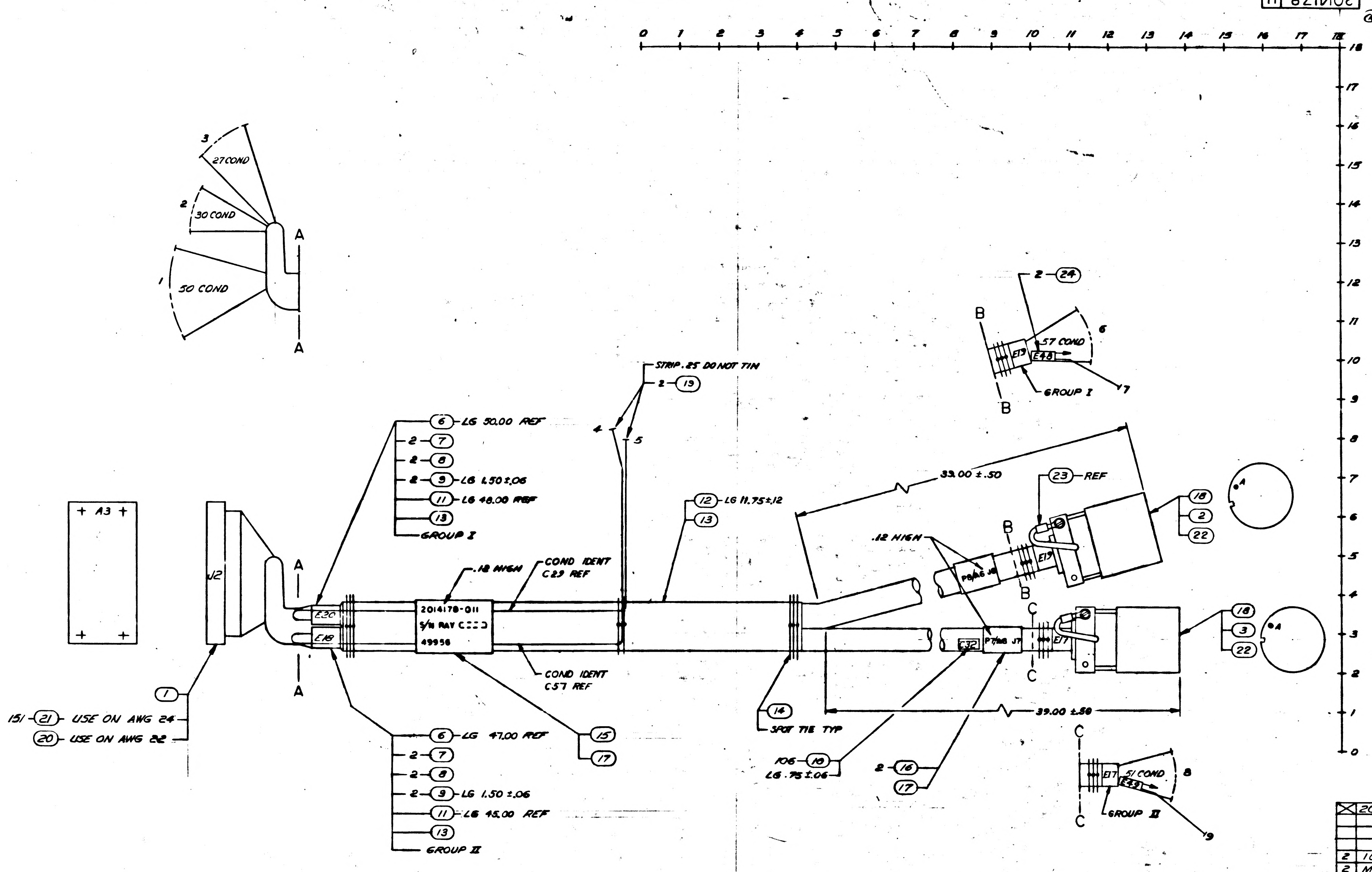
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS A
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014174
SCALE 1/1
WT
SHEET 3 OF 3

2014178 H

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27701		
H	CHANGED PER TDRR 28371 DR CHK APPD		



3
27 COND
2
30 COND
1
50 COND
A
A
A3
J2
E20
E18
A
A
2014178-011
S/N RAY C
49956
.12 HIGH
COND IDENT C29 REF
COND IDENT C57 REF
6 - LG 50.00 REF
2 - 7
2 - 8
2 - 9 - LG 1.50 ±.06
11 - LG 48.00 REF
13
GROUP I
6 - LG 47.00 REF
2 - 7
2 - 8
2 - 9 - LG 1.50 ±.06
11 - LG 45.00 REF
13
GROUP II
1
151 - 21 - USE ON AWG 24
20 - USE ON AWG 22
15
17
STRIP .25 DO NOT TIN
2 - 19
4
5
12 - LG 11.75±.12
13
14
SPOT TIE TYP
106 - 16
LG .75±.06
2 - 16
17
33.00 ±.50
39.00 ±.50
.12 HIGH
P8/A6 J8
E19
P7/A6 J7
E17
E32
23 - REF
18
2
22
18
3
22
A
A
B
B
B
B
C
C
2 - 24
57 COND
E13
E48
6
7
GROUP I
C
C
E17
E29
51 COND
8
9
GROUP II

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 14
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019 UNLESS OTHERWISE SPECIFIED
3. STRIP ALL LEADS .19 DO NOT TIN
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
5. SERIALIZE PER ND 1002023.
6. QQ-B-575 FOR FIND NO.6 BRAID SIZE 1/2 ID AWG 34
7. CUT SHIELD & SLEEVING LENGTH AS SHOWN
8. CRIMP PER ND 1002206
9. MIL-I-23053 CLASS I COLOR BLACK I.D. .75 FOR FIND NO. 9
10. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
11. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
12. MIL-I-23053 CLASS I COLOR WHITE I.D. .12 FOR FIND NO. 10
13. AR DENOTES AS REQUIRED
14. MARK SLEEVING WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH BLK PER ND1002019

✱ DENOTES LENGTH IN FEET

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014136	SCHEMATIC	REF
	2	1010402-1	SLEEVE, SOLDER	24
	2	MS25036-49	TERMINAL, LUG	23
	2	1020371-19	BUSHING, SLEEVING	22
	151	1006491-010	CONTACT ELEC	21
	1	1006491-012	CONTACT ELEC	20
	2	1006488-004	TAPER PIN	19
	2	1020371-16	BUSHING, SLV, CABLE ADAPTER	18
	AR	1006253	ADHESIVE	17
	2	1006415-057	BAND MARKER, CABLE	16
	1	1006415-138	BAND MARKER, CABLE	15
	AR	1006458-004	TAPE, LACING	14
	AR	1006699	SOLVENT	13
✱	1.0	1006696-7	INSULATION, SLEEVING	12
✱	8.2	1006696-4	INSULATION, SLEEVING	11
✱	5.7	SEE NOTE 12	SLEEVING, SHRINK	10
✱	0.5	SEE NOTE 9	SLEEVING, SHRINK	9
	4	1000242-37	FERRULE, ELEC COND	8
	4	1000243-41	FERRULE, ELEC COND	7
✱	8.4	SEE NOTE 6	SHIELD, BRAID	6
✱	25.7	MIL-W-16878/4 E22	WIRE, ELECTRICAL BLK	5
✱	222	1014341-12	WIRE, ELECTRICAL	4
	1	MS3126F-22-55P	CONNECTOR, PLUG	3
	1	MS3126F-24-61P	CONNECTOR, PLUG	2
	1	1006671-001	CONNECTOR, RECEPTACLE	1
	011	LIST OF MATERIALS		

2014178 H

2

2014340	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-[illegible]
DRAWN R. [illegible] DATE 9 MAR 66
CHECKED 9 MAR 66
APPROVAL 9 MAR 66
APPROVAL D. [illegible] 9 MAR 66
APPROVAL 9 MAR 66
A.C. [illegible]
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS C
AGC JUNCTION BOX
OPERATION CONSOLE

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014178
SCALE 1/1 WT SHEET 1 OF 2

MASTER

2014178 H

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014178 H

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27701		
H	CHANGED PER TDRR 2837 DR CHKC APPD		

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	C1	3	J2-B7	BLK	24	4	6	P8-W	
			B8	WHT				X	
	C2		C1	BLK				Y	
			C2	WHT				Z	
	C3		C3	BLK				h	
			C4	WHT				g	
	C4		C5	BLK				H	
			C6	WHT				G	
	C5		A3	BLK				A	
			A4	WHT				B	
	C6		A5	BLK				C	
			A6	WHT				D	
	C7		B1	BLK				E	
			B2	WHT				F	
	C8		B3	BLK				c	
			B4	WHT				d	
	C9		B5	BLK				e	
			B6	WHT				f	
	C10		D1	BLK				J	
			D2	WHT				K	
	C11		D3	BLK				L	
			D4	WHT				M	
	C12		D5	BLK				N	
			D6	WHT				P	
	C13		D7	BLK				R	
		3	D8	WHT				S	GROUP I
	C14	2	E1	BLK				T	
			E2	WHT				U	
	C15		E3	BLK				V	
			E4	WHT				W	
	C16		E5	BLK				X	
			E6	WHT				Y	
	C17		E7	BLK				i	
			E8	WHT				j	
	C18		F1	BLK				k	
			F2	WHT				m	
	C19		F3	BLK				n	
			F4	WHT				p	
	C20		F5	BLK				q	
			F6	WHT				r	
	C21		F7	BLK				s	
			F8	WHT				t	
	C22		G1	BLK				u	
			G2	WHT				v	
	C23		G3	BLK				AA	
			G4	WHT				BB	
	C24		G5	BLK				CC	
			G6	WHT				DD	
	C25		G7	BLK				EE	
			G8	WHT				FF	
	C26		H1	BLK				GG	
			H2	WHT				HH	
	C27		H3	BLK				JJ	
			H4	WHT				KK	
	C28		H5	BLK		4		LL	
		2	J2-H6	WHT	24		6	P8-MM	
		△1	E20	SHLD			△1	E19	
	C29	3	J2-C7	BLK	22	5	△1	E20	
	C30	△1	E20	BLK	22	5	5	TB7A-11	
	C31	△1	E19	BLK	22	5	△1	E48	SEE C59 & C60

△1 DENOTES INTERNAL CONNECTION
▲2 ATTACH 1 OF FIND NO. 23 & 1.00 OF FIND NO. 10 SEE NOTE 14

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	C32	1	J2-X3	BLK	24	4	8	P7-A	
			X4	WHT				B	
	C33		X5	BLK				C	
			X6	WHT				D	
	C34		W1	BLK				E	
			W2	WHT				F	
	C35		W3	BLK				G	
			W4	WHT				H	
	C36		W5	BLK				J	
			W6	WHT				K	
	C37		W7	BLK				L	
			W8	WHT				M	
	C38		V1	BLK				N	
			V2	WHT				P	
	C39		V3	BLK				R	
			V4	WHT				S	
	C40		V5	BLK				T	
			V6	WHT				U	
	C41		V7	BLK				V	
			V8	WHT				W	
	C42		U1	BLK				X	
			U2	WHT				Y	GROUP II
	C43		U3	BLK				a	
			U4	WHT				b	
	C44		U5	BLK				c	
			U6	WHT				d	
	C45		U7	BLK				e	
			U8	WHT				f	
	C46		T1	BLK				g	
			T2	WHT				h	
	C47		T3	BLK				i	
			T4	WHT				j	
	C48		T5	BLK				k	
			T6	WHT				m	
	C49		T7	BLK				n	
			T8	WHT				p	
	C50		S1	BLK				q	
			S2	WHT				r	
	C51		S3	BLK				s	
			S4	WHT				t	
	C52		S5	BLK				u	
			S6	WHT				v	
	C53		S7	BLK				w	
			S8	WHT				x	
	C54		R1	BLK				y	
			R2	WHT				z	
	C55		R3	BLK				AA	
			R4	WHT				BB	
	C56		R5	BLK		4		CC	
		1	J2-R6	WHT	24		8	P7-DD	
		△1	E18	SHLD			△1	E17	
	C57		E18	BLK	22	5	4	TB7A-29	
	C58		E17				△1	E49	SEE C61 & C62
SEE C31	C59		E48				6	P8-Z	
	C60		E48				7	P8-GRD	▲2
SEE C58	C61		E49				8	P7-Z	
	C62	△1	E49	BLK	22	5	9	P7-GRD	▲2

2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9 MAR 66
CHECKED 9 MAR 66
APPROVAL 9 MAR 66
APPROVAL D. O'B 9 MAR 66
APPROVAL MAR 66
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS C
JUNCTION BOX
OPERATION CONSOLE

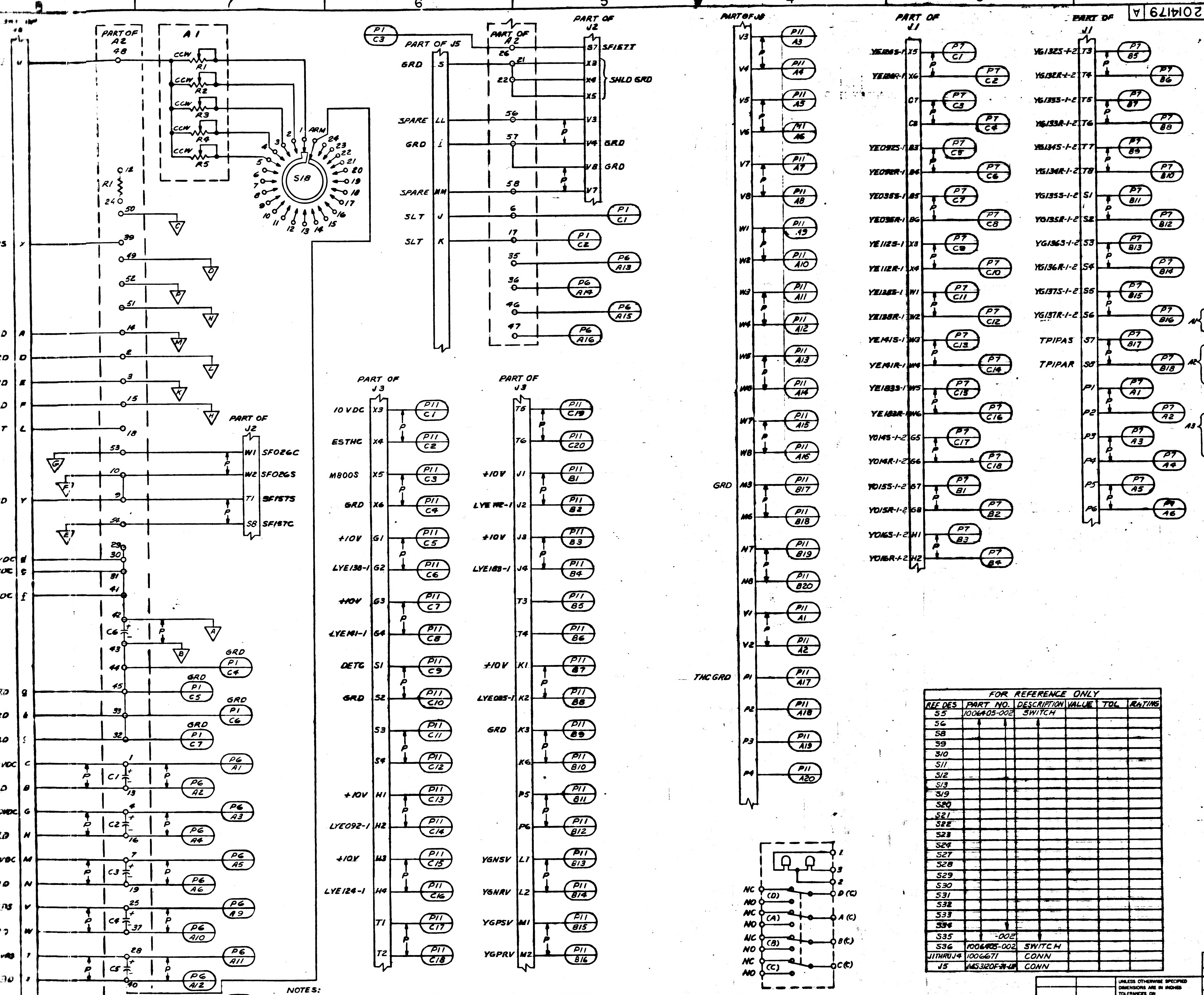
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014178
SCALE NONE
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014178 H

2014178 H

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25207	9/23/65	G. Navarro
1	CHANGED PER CCA R25527 DR [illegible] CHK [illegible] APPD [illegible]	11/16/65	[illegible]
—	CLASS B CHANGED PER CCA R25502 DR [illegible] CHK [illegible] APPR [illegible]	2/14/66	[illegible]
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	3/10/66	[illegible]


PART OF A2
A1
CCW
R1
R2
R3
R4
R5
ARM
S18
R1
C6
PART OF J2
W1 SF026C
W2 SF026S
T1 SF157S
S8 SF157C
GRD
P1 C4
P1 C5
P1 C6
P1 C7
P6 A1
P6 A2
P6 A3
P6 A4
P6 A5
P6 A6
P6 A9
P6 A10
P6 A11
P6 A12
P6 A7
P6 A8
C1
C2
C3
C4
C5
P1 C3
PART OF J5
GRD
SPARE
GRD
SPARE
SLT
SLT
PART OF A2
PART OF J2
S7 SF157T
X3
X4
X5
SHLD GRD
V3
V4 GRD
V8 GRD
V7
P1 C1
P1 C2
P6 A13
P6 A14
P6 A15
P6 A16
PART OF J3
10 VDC
ESTHC
M800S
GRD
+10V
LYE138-1
+10V
LYE141-1
DETC
GRD
+10V
LYE092-1
+10V
LYE124-1
PART OF J3
+10V
LYE118-1
+10V
LYE183-1
+10V
LYE085-1
GRD
YGNSV
YGNRV
YGPSV
YGPRV
PART OF J8
GRD
THC GRD
PART OF J1
PART OF J1
TPIPAS
TPIPAR
NC
NO
(D)
(A)
(B)
(C)
D (C)
A (C)
B (C)
C (C)

TYPICAL SWITCH SCHEMATIC
S5,S6, S8 THRU S13, S19 THRU S24, S27 THRU S36

FOR REFERENCE ONLY						
	REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
A1	R1, R4	1006468-008	POT.	1K	1 %	2 W
A1	R2, R3, R5	1006468-007	POT.	2.5K	1 %	2 W
A2	R1	1010389-49	RESISTOR	51Ω	1 %	3 W
A2	C1, C2, C3, C4, C6	1006755-89	CAPACITOR	47UF		35V
A2	C5	1006755-133	CAPACITOR	18 UF		50V
	~~R1 THRU R5~~	[illegible]	~~RESISTOR~~	~~51~~	~~5%~~	~~1/2 W~~
A3	R6, R8	1010389-49	RESISTOR	510	1%	3W
A3	R7, R9	1010389-39	RESISTOR	200	1%	3W
A3	T1 THRU T5	1006762-1	TRANSFORMER			
	J6 THRU J11	MS35179-[illegible]	CONNECTOR			
	DS1	1006404-002	LIGHT			
	DS2					
	DS3					
	DS4					
	DS5					
	DS6					
	DS7					
	DS8					
	DS9					
	DS10					
	DS11					
	DS12					
	DS13					
	DS14					
	DS15					
	DS16					
	DS17					
	DS18					
	DS19					
	DS20					
	DS21					
	DS22					
	DS23					
	DS24					
	DS25					
	DS26					
	DS27					
	DS28					
	DS29					
	DS30					
	DS31					
	DS32					
	DS33					
	DS34					
	DS35					
	DS36					
	DS37					
	DS38	-002				
	DS39	1006404-002	LIGHT			
	S1, S2, S3	1006892-1	SWITCH			
	S17	1006890-2				
	S18	1006876-1				
	S15	1006461-001				
	S16	1006257				
	S14, S25, S26	SEE NOTE 2				
	S4, S7	1006257-002	SWITCH			

FOR REFERENCE ONLY					
REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
S5	1006405-002	SWITCH			
S6					
S8					
S9					
S10					
S11					
S12					
S13					
S19					
S20					
S21					
S22					
S23					
S24					
S27					
S28					
S29					
S30					
S31					
S32					
S33					
S34					
S35	-002				
S36	1006405-002	SWITCH			
J1 THRU J4	1006671	CONN			
J5	MS3120F-24-[illegible]	CONN			

NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. MIL-S-6743 TYPE M 6743/3-029
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REFERENCES:
1. ASSEMBLY DWG 2014040
2. ASSEMBLY DWG A1 2014348
3. ASSEMBLY DWG A2 2014381
4. ASSEMBLY DWG A3 2014283

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

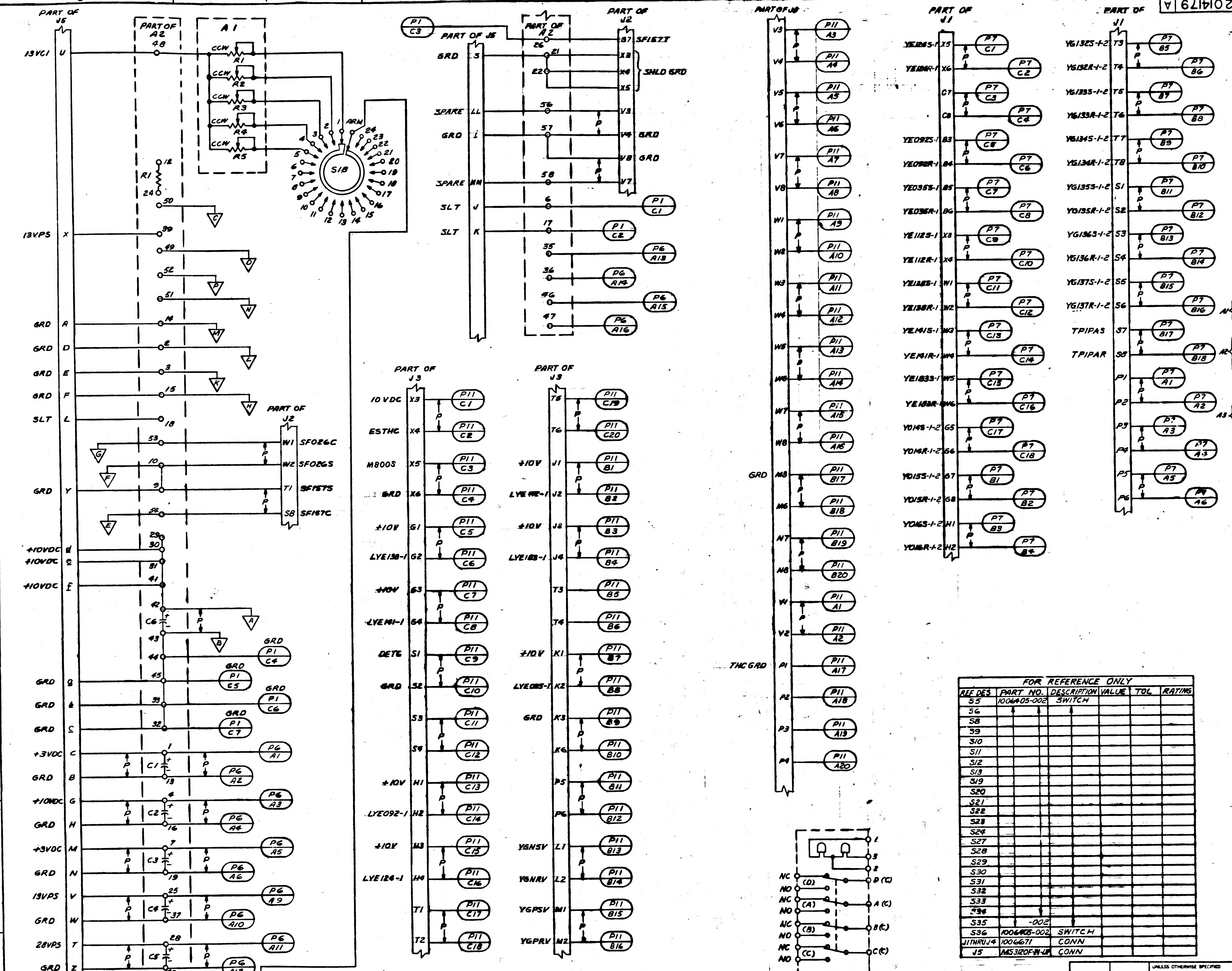
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 20 Jul 65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. Metzger
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC X Y INTERFACE COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO 2014179
SCALE NONE
WT
SHEET 1 OF 2

2H



PART OF J5
13VCI U
13VPS X
GRD A
GRD D
GRD E
GRD F
SLT L
GRD Y
+10VDC d
+10VDC e
+10VDC f
GRD g
GRD k
GRD c
+3VDC C
GRD B
+10VDC G
GRD H
+3VDC M
GRD N
13VPS V
GRD W
28VPS T
GRD Z
+10VDC P
GRD R
PART OF A2
A1
R1
R2
R3
R4
R5
CCW
ARM
S18
R1
C1
C2
C3
C4
C5
C6
GRD
PART OF J2
W1 SF026C
W2 SF026S
T1 SF157S
S8 SF157C
P1 C3
PART OF J5
GRD S
SPARE LL
GRD i
SPARE MM
SLT J
SLT K
PART OF A2
PART OF J2
S7 SF157T
X3
X4 SHLD GRD
X5
V3
V4 GRD
V8 GRD
V7
PART OF J3
10VDC X3
ESTHG X4
M800S X5
GRD X6
+10V G1
LYE138-1 G2
+10V G3
LYE141-1 G4
DETG S1
GRD S2
S3
S4
+10V H1
LYE092-1 H2
+10V H3
LYE124-1 H4
T1
T2
PART OF J3
+10V J1
LYE112-1 J2
+10V J3
LYE183-1 J4
+10V K1
LYE085-1 K2
GRD K3
YGNSV L1
YGNRV L2
YGPSV M1
YGPRV M2
PART OF J4
GRD
THC GRD
PART OF J1
PART OF J1
TPIPAS S7
TPIPAR S8
P
P1
P6
P7
P11
NC
NO
(A)
(B)
(C)
(D)
D(C)
A(C)
B(C)
C(C)

NOTES:

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. MIL-S-6743 TYPE M 6743/3-029
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REFERENCES:

1. ASSEMBLY DWG 2014040
2. ASSEMBLY DWG A1 2014348
3. ASSEMBLY DWG A2 2014381
4. ASSEMBLY DWG A3 2014283

TYPICAL SWITCH SCHEMATIC
S5, S6, S8 THRU S13, S19 THRU S24, S27 THRU S36

FOR REFERENCE ONLY					
REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
S5	1006405-002	SWITCH			
S6					
S8					
S9					
S10					
S11					
S12					
S13					
S19					
S20					
S21					
S22					
S23					
S24					
S27					
S28					
S29					
S30					
S31					
S32					
S33					
S34					
S35	-002				
S36	1006405-002	SWITCH			
J1 THRU J4	1006671	CONN			
J5	MS3120F-[illegible]	CONN			

	FOR REFERENCE ONLY					
	REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
A1	R1, R4	1006468-008	POT.	1K	1 %	2 W
A1	R2, R3, R5	1006468-007	POT.	2.5K	1 %	2 W
A2	R1	1010389-49	RESISTOR	51Ω	1 %	3 W
A2	C1, C2, C3, C4, C6	1006755-89	CAPACITOR	47UF		35V
A2	C5	1006755-133	CAPACITOR	18 UF		50V
	~~R1 THRU R5~~	~~1006780-1~~	~~RESISTOR~~	~~51~~	~~5%~~	~~1/2 W~~
A3	R6, R8	1010389-49	RESISTOR	510	1%	3W
A3	R7, R9	1010389-39	RESISTOR	200	1%	3W
A3	T1 THRU T5	1006762-1	TRANSFORMER			
	J6 THRU J11	MS35179-[illegible]	CONNECTOR			
	DS1	1006404-002	LIGHT			
	DS2					
	DS3					
	DS4					
	DS5					
	DS6					
	DS7					
	DS8					
	DS9					
	DS10					
	DS11					
	DS12					
	DS13					
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	DS22					
	DS23					
	DS24					
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	DS27					
	DS28					
	DS29					
	DS30					
	DS31					
	DS32					
	DS33					
	DS34					
	DS35					
	DS36					
	DS37					
	DS38	-002				
	DS39	1006404-002	LIGHT			
	S1, S2, S3	1006892-3	SWITCH			
	S17	1006890-2				
	S18	1006876-1				
	S15	1006461-001				
	S16	1006257				
	S14, S25, S26	SEE NOTE 2				
	S4, S7	1006257-002	SWITCH			

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

REVISIONS		
SYM	DESCRIPTION	
0	RELEASED PER CCA R25207	
1	CHANGED PER CCA R2552- DR [illegible] CHK [illegible] APPD	
—	CLASS B CHANGED PER CCA R2552 DR [illegible] CHK [illegible] APPR	
A	CHANGED PER CCA R2586 [illegible] CLASS A RELEASED PER TDRR [illegible]	

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 20 Jul 66
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A.C. [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 2/1/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
X Y INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014179
SCALE NONE WT
SHEET

2014179 A

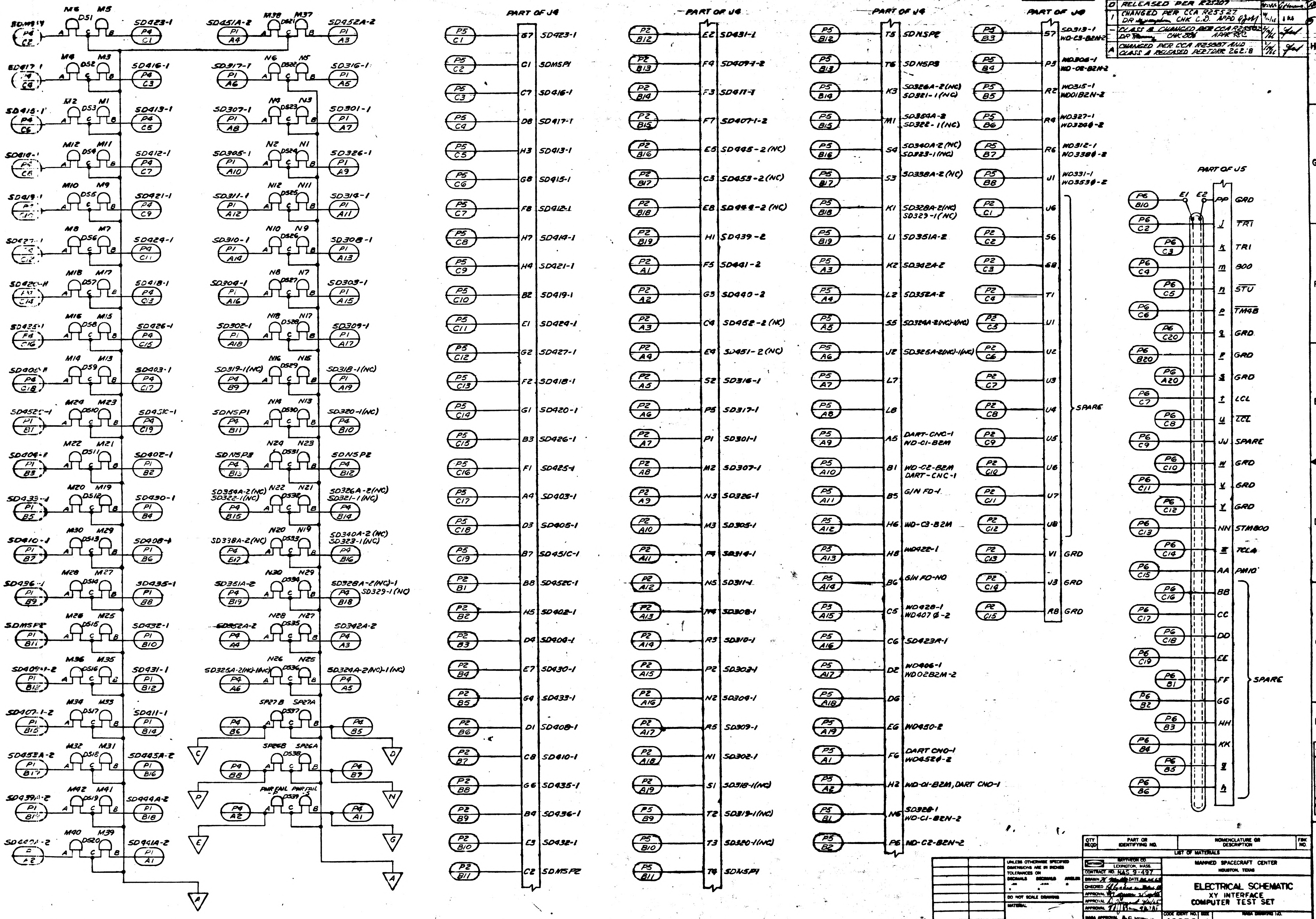
2014179 A

MASTER

2014179

24

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER R25207	8/23/65	G Havens
1	CHANGED PER CCA R25527 DR [illegible] CHK C.D. APPD [illegible]	4/14/65	[illegible]
–	CLASS B CHANGED PER CCA R25502 DR [illegible] CHK [illegible] APPR RSC	[illegible]	[illegible]
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	[illegible]	[illegible]



PART OF J4
PART OF J4
PART OF J4
PART OF J4
PART OF J5
SPARE
SPARE
GRD
TRI
300
STU
TMAB
LCL
STM800
TCLA
PMIO
E1
E2
DS1
DS20
DS21
DS40
PWR FAIL
SP27B
SP27A
SP26B
SP26A

2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX .XXX ±
± ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible]
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NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

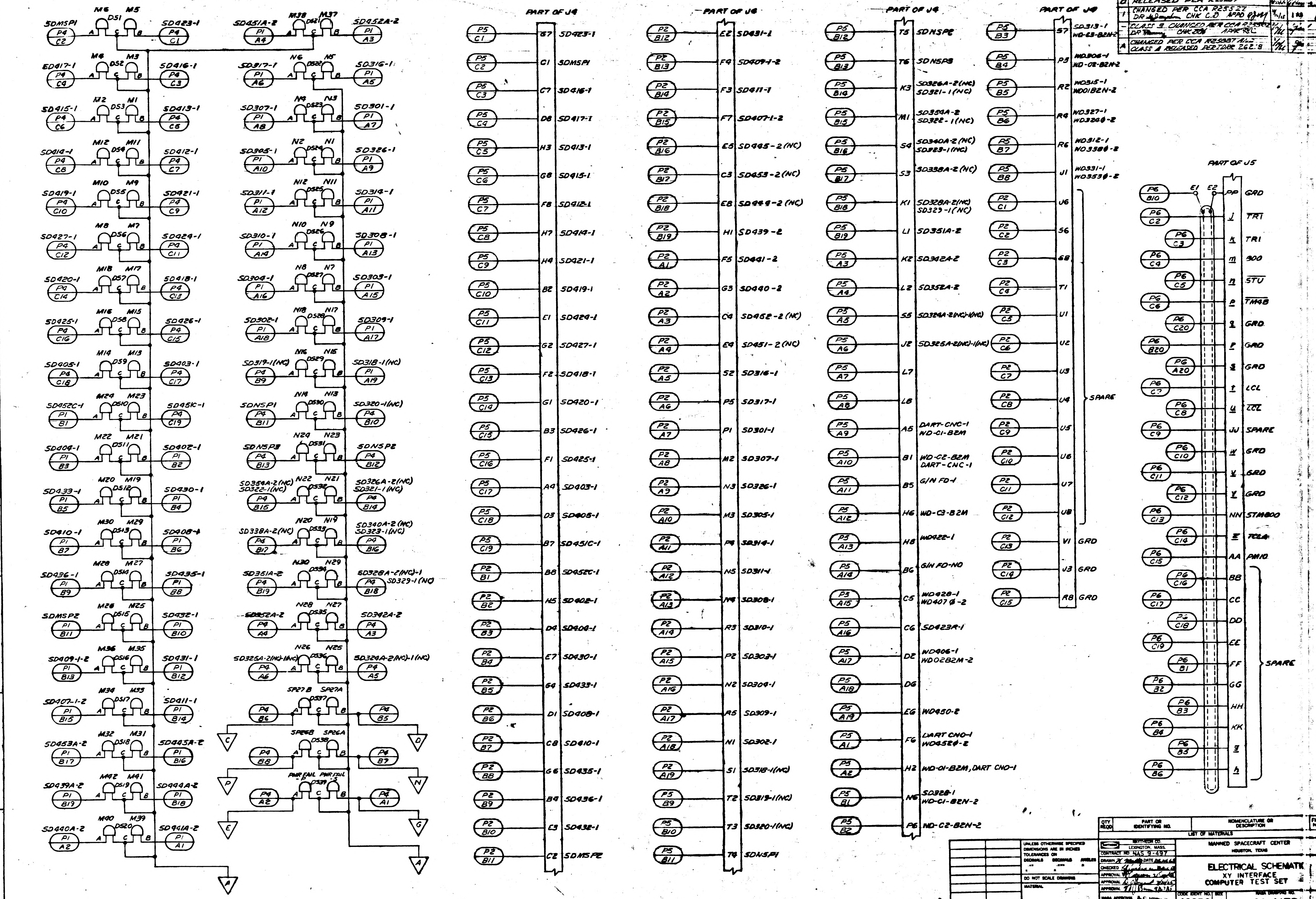
ELECTRICAL SCHEMATIC
XY INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014179
SCALE NONE
WT
SHEET 2 OF 7

MASTER

SYM	DESCRIPTION	DATE	APPR'D
REVISIONS			
0	RELEASED PER R25207		
1	CHANGED PER CCA R25527 DR CHK C.D. APPD		
–	CLASS 3 CHANGED PER CCA R25502 DR CHK APPR REC		
A	CHANGED PER CCA R25887 ALL CLASS A RELEASED PER TDRR 262:9		

2014179 A



8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
SDMSP1 P4 C2 M6 DS1 M5 SD423-1 P4 C1
ED417-1 P4 C4 M4 DS2 M3 SD416-1 P4 C3
SD415-1 P4 C6 M2 DS3 M1 SD413-1 P4 C5
SD414-1 P4 C8 M12 DS4 M11 SD412-1 P4 C7
SD419-1 P4 C10 M10 DS5 M9 SD421-1 P4 C9
SD427-1 P4 C12 M8 DS6 M7 SD424-1 P4 C11
SD420-1 P4 C14 M18 DS7 M17 SD418-1 P4 C13
SD425-1 P4 C16 M16 DS8 M15 SD426-1 P4 C15
SD405-1 P4 C18 M14 DS9 M13 SD403-1 P4 C17
SD452C-1 P1 B1 M24 DS10 M23 SD451C-1 P4 C19
SD404-1 P1 B3 M22 DS11 M21 SD402-1 P1 B2
SD433-1 P1 B5 M20 DS12 M19 SD430-1 P1 B4
SD410-1 P1 B7 M30 DS13 M29 SD408-1 P1 B6
SD436-1 P1 B9 M28 DS14 M27 SD435-1 P1 B8
SDMSP2 P1 B11 M26 DS15 M25 SD432-1 P1 B10
SD409-1-2 P1 B13 M36 DS16 M35 SD431-1 P1 B12
SD407-1-2 P1 B15 M34 DS17 M33 SD411-1 P1 B14
SD453A-2 P1 B17 M32 DS18 M31 SD445A-2 P1 B16
SD439A-2 P1 B19 M42 DS19 M41 SD444A-2 P1 B18
SD440A-2 P1 A2 M40 DS20 M39 SD441A-2 P1 A1
SD451A-2 P1 A4 M38 DS21 M37 SD452A-2 P1 A3
SD317-1 P1 A6 N6 DS22 N5 SD316-1 P1 A5
SD307-1 P1 A8 N4 DS23 N3 SD301-1 P1 A7
SD305-1 P1 A10 N2 DS24 N1 SD326-1 P1 A9
SD311-1 P1 A12 N12 DS25 N11 SD314-1 P1 A11
SD310-1 P1 A14 N10 DS26 N9 SD308-1 P1 A13
SD304-1 P1 A16 N8 DS27 N7 SD303-1 P1 A15
SD302-1 P1 A18 N18 DS28 N17 SD309-1 P1 A17
SD319-1(NC) P4 B9 N16 DS29 N15 SD318-1(NC) P1 A19
SDNSP1 P4 B11 N14 DS30 N13 SD320-1(NC) P4 B10
SDNSP3 P4 B13 N24 DS31 N23 SDNSP2 P4 B12
SD354A-2(NC) SD322-1(NC) P4 B15 N22 DS32 N21 SD326A-2(NC) SD321-1(NC) P4 B14
SD338A-2(NC) P4 B17 N20 DS33 N19 SD340A-2(NC) SD323-1(NC) P4 B16
SD351A-2 P4 B19 N30 DS34 N29 SD328A-2(NC)-1 SD329-1(NC) P4 B18
SD352A-2 P4 A4 N28 DS35 N27 SD342A-2 P4 A3
SD325A-2(NC)-1(NC) P4 A6 N26 DS36 N25 SD324A-2(NC)-1(NC) P4 A5
P4 B6 SP27B DS37 SP27A P4 B5
P4 B8 SP26B DS38 SP26A P4 B7
P4 A2 PWR FAIL -P DS39 PWR FAIL -S P4 A1
A C B
C
D
P
N
E
G
A
A
PART OF J4
P5 C1 G7 SD423-1
P5 C2 C1 SDMSP1
P5 C3 C7 SD416-1
P5 C4 D8 SD417-1
P5 C5 H3 SD413-1
P5 C6 G8 SD415-1
P5 C7 F8 SD412-1
P5 C8 H7 SD414-1
P5 C9 H4 SD421-1
P5 C10 B2 SD419-1
P5 C11 E1 SD424-1
P5 C12 G2 SD427-1
P5 C13 F2 SD418-1
P5 C14 G1 SD420-1
P5 C15 B3 SD426-1
P5 C16 F1 SD425-1
P5 C17 A4 SD403-1
P5 C18 D3 SD405-1
P5 C19 B7 SD451C-1
P2 B1 B8 SD452C-1
P2 B2 H5 SD402-1
P2 B3 D4 SD404-1
P2 B4 E7 SD430-1
P2 B5 G4 SD433-1
P2 B6 D1 SD408-1
P2 B7 C8 SD410-1
P2 B8 G6 SD435-1
P2 B9 B4 SD436-1
P2 B10 E3 SD432-1
P2 B11 C2 SDMSP2
PART OF J4
P2 B12 E2 SD431-1
P2 B13 F4 SD409-1-2
P2 B14 F3 SD411-1
P2 B15 F7 SD407-1-2
P2 B16 E5 SD445-2 (NC)
P2 B17 C3 SD453-2 (NC)
P2 B18 E8 SD444-2 (NC)
P2 B19 H1 SD439-2
P2 A1 F5 SD441-2
P2 A2 G3 SD440-2
P2 A3 C4 SD452-2 (NC)
P2 A4 E4 SD451-2 (NC)
P2 A5 S2 SD316-1
P2 A6 P5 SD317-1
P2 A7 P1 SD301-1
P2 A8 M2 SD307-1
P2 A9 N3 SD326-1
P2 A10 M3 SD305-1
P2 A11 P4 SD314-1
P2 A12 N5 SD311-1
P2 A13 N4 SD308-1
P2 A14 R3 SD310-1
P2 A15 P2 SD303-1
P2 A16 N2 SD304-1
P2 A17 R5 SD309-1
P2 A18 N1 SD302-1
P2 A19 S1 SD318-1(NC)
P5 B9 T2 SD319-1(NC)
P5 B10 T3 SD320-1(NC)
P5 B11 T4 SDNSP1
PART OF J4
P5 B12 T5 SDNSP2
P5 B13 T6 SDNSP3
P5 B14 K3 SD326A-2(NC) SD321-1(NC)
P5 B15 M1 SD354A-2 SD322-1(NC)
P5 B16 S4 SD340A-2(NC) SD323-1(NC)
P5 B17 S3 SD338A-2(NC)
P5 B18 K1 SD328A-2(NC) SD329-1(NC)
P5 B19 L1 SD351A-2
P5 A3 K2 SD342A-2
P5 A4 L2 SD352A-2
P5 A5 S5 SD324A-2(NC)-1(NC)
P5 A6 J2 SD325A-2(NC)-1(NC)
P5 A7 L7
P5 A8 L8
P5 A9 A5 DART-CNC-1 WD-C1-B2M
P5 A10 B1 WD-C2-B2M DART-CNC-1
P5 A11 B5 G/N FD-1
P5 A12 H6 WD-C3-B2M
P5 A13 H8 WD422-1
P5 A14 B6 G/N FD-NO
P5 A15 C5 WD428-1 WD407Ø-2
P5 A16 C6 SD423R-1
P5 A17 D2 WD406-1 WD02B2M-2
P5 A18 D6
P5 A19 E6 WD450-2
P5 A1 F6 DART CNO-1 WD452Ø-2
P5 A2 H2 WD-01-B2M, DART CNO-1
P5 B1 N6 SD328-1 WD-C1-B2N-2
P5 B2 P6 WD-C2-B2N-2
PART OF J4
P5 B3 S7 SD313-1 WD-C3-B2N-2
P5 B4 P3 WD306-1 WD-02-B2N-2
P5 B5 R2 WD315-1 WD01B2N-2
P5 B6 R4 WD327-1 WD324Ø-2
P5 B7 R6 WD312-1 WD338Ø-2
P5 B8 J1 WD331-1 WD353Ø-2
P2 C1 U6
P2 C2 S6
P2 C3 S8
P2 C4 T1
P2 C5 U1
P2 C6 U2
P2 C7 U3
P2 C8 U4
P2 C9 U5
P2 C10 U6
P2 C11 U7
P2 C12 U8
SPARE
P2 C13 V1 GRD
P2 C14 J3 GRD
P2 C15 R8 GRD
PART OF J5
E1 E2
P6 B10 PP GRD
P6 C2 J TR1
P6 C3 K TR1
P6 C4 m 300
P6 C5 n STU
P6 C6 p TM4B
P6 C20 q GRD
P6 B20 r GRD
P6 A20 s GRD
P6 C7 t LCL
P6 C8 u LCL
P6 C9 JJ SPARE
P6 C10 w GRD
P6 C11 x GRD
P6 C12 y GRD
P6 C13 NN STM800
P6 C14 z TCLA
P6 C15 AA PM10
P6 C16 BB
P6 C17 CC
P6 C18 DD
P6 C19 EE
P6 B1 FF
P6 B2 GG
P6 B3 HH
P6 B4 KK
P6 B5 g
P6 B6 h
SPARE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
XY INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014179
SCALE NONE
WT
SHEET 2

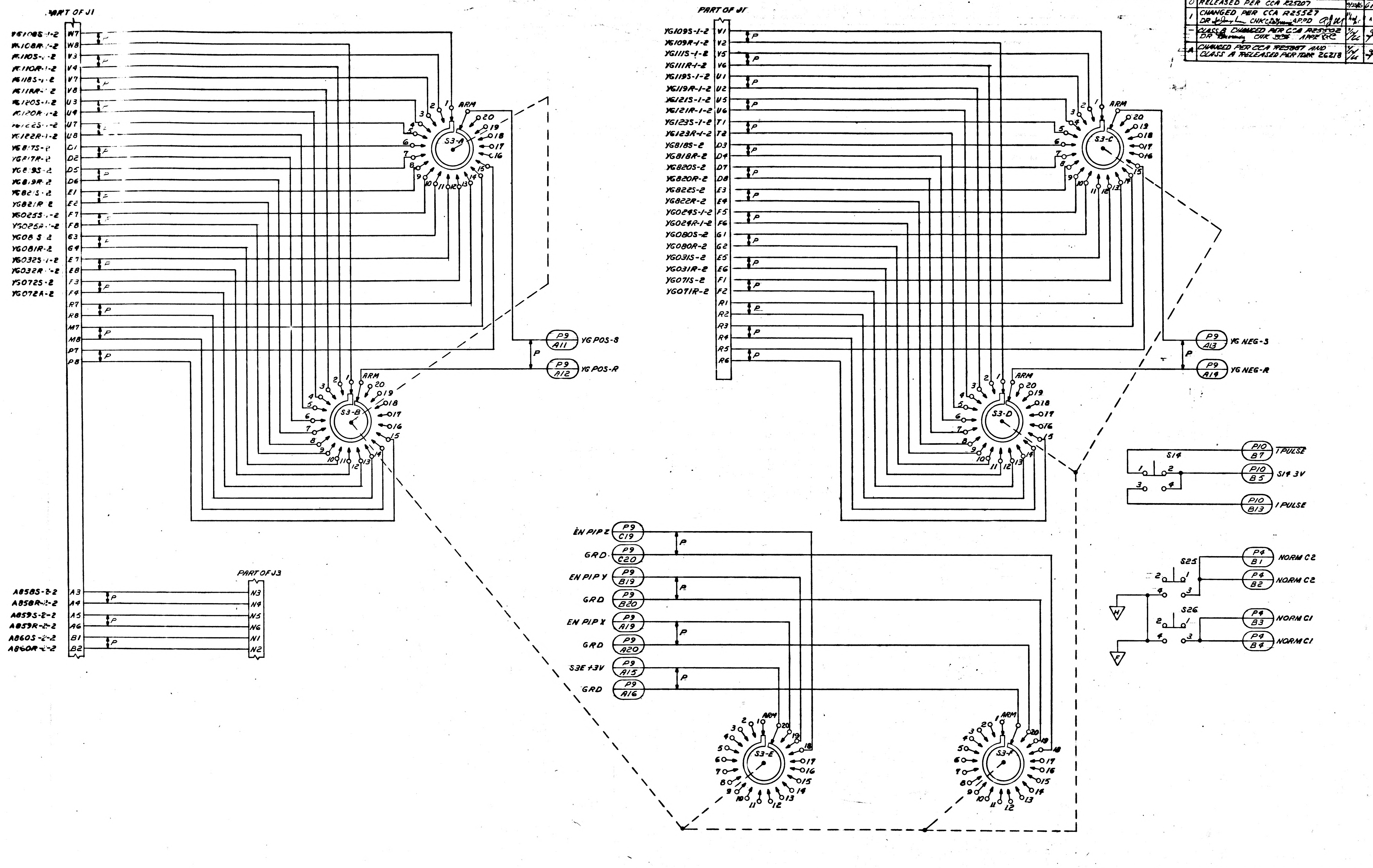
MASTER

2014179 A

2014179 A

2014179 A

SYM	REVISIONS DESCRIPTION	DATE	APPROVEL
0	RELEASED PER CCA R25207	9/23/65	G. Havens
1	CHANGED PER CCA R25527 DR CHK APPD	11/4/65	
–	CLASS B CHANGED PER CCA R25502 DR CHK APPR RFC	3/11/66	
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	4/14/66	



PART OF J1
YG108S-1-2 W7
YG108R-1-2 W8
YG110S-1-2 V3
YG110R-1-2 V4
YG118S-1-2 V7
YG118R-1-2 V8
YG120S-1-2 U3
YG120R-1-2 U4
YG122S-1-2 U7
YG122R-1-2 U8
YG817S-2 D1
YG817R-2 D2
YG819S-2 D5
YG819R-2 D6
YG821S-2 E1
YG821R-2 E2
YG025S-1-2 F7
YG025R-1-2 F8
YG081S-2 G3
YG081R-2 G4
YG032S-1-2 E7
YG032R-1-2 E8
YG072S-2 F3
YG072R-2 F4
R7
R8
M7
M8
P7
P8
P
S3-A
S3-B
ARM
P9 A11 YG POS-S
P9 A12 YG POS-R
PART OF J1
YG109S-1-2 V1
YG109R-1-2 V2
YG111S-1-2 V5
YG111R-1-2 V6
YG119S-1-2 U1
YG119R-1-2 U2
YG121S-1-2 U5
YG121R-1-2 U6
YG123S-1-2 T1
YG123R-1-2 T2
YG818S-2 D3
YG818R-2 D4
YG820S-2 D7
YG820R-2 D8
YG822S-2 E3
YG822R-2 E4
YG024S-1-2 F5
YG024R-1-2 F6
YG080S-2 G1
YG080R-2 G2
YG031S-2 E5
YG031R-2 E6
YG071S-2 F1
YG071R-2 F2
R1
R2
R3
R4
R5
R6
S3-C
S3-D
P9 A13 YG NEG-S
P9 A14 YG NEG-R
S14
P10 B7 1 PULSE
P10 B5 S14 3V
P10 B13 1 PULSE
S25
P4 B1 NORM C2
P4 B2 NORM C2
S26
P4 B3 NORM C1
P4 B4 NORM C1
H
F
A858S-2-2 A3
A858R-2-2 A4
A859S-2-2 A5
A859R-2-2 A6
A860S-2-2 B1
A860R-2-2 B2
PART OF J3
N3
N4
N5
N6
N1
N2
EN PIP Z P9 C19
GRD P9 C20
EN PIP Y P9 B19
GRD P9 B20
EN PIP X P9 A19
GRD P9 A20
S3E +3V P9 A15
GRD P9 A16
S3-E
S3-F

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN A. J. Bisson DATE 28 JUL 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
X Y INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014179
SCALE NONE WT SHEET 3 OF 7

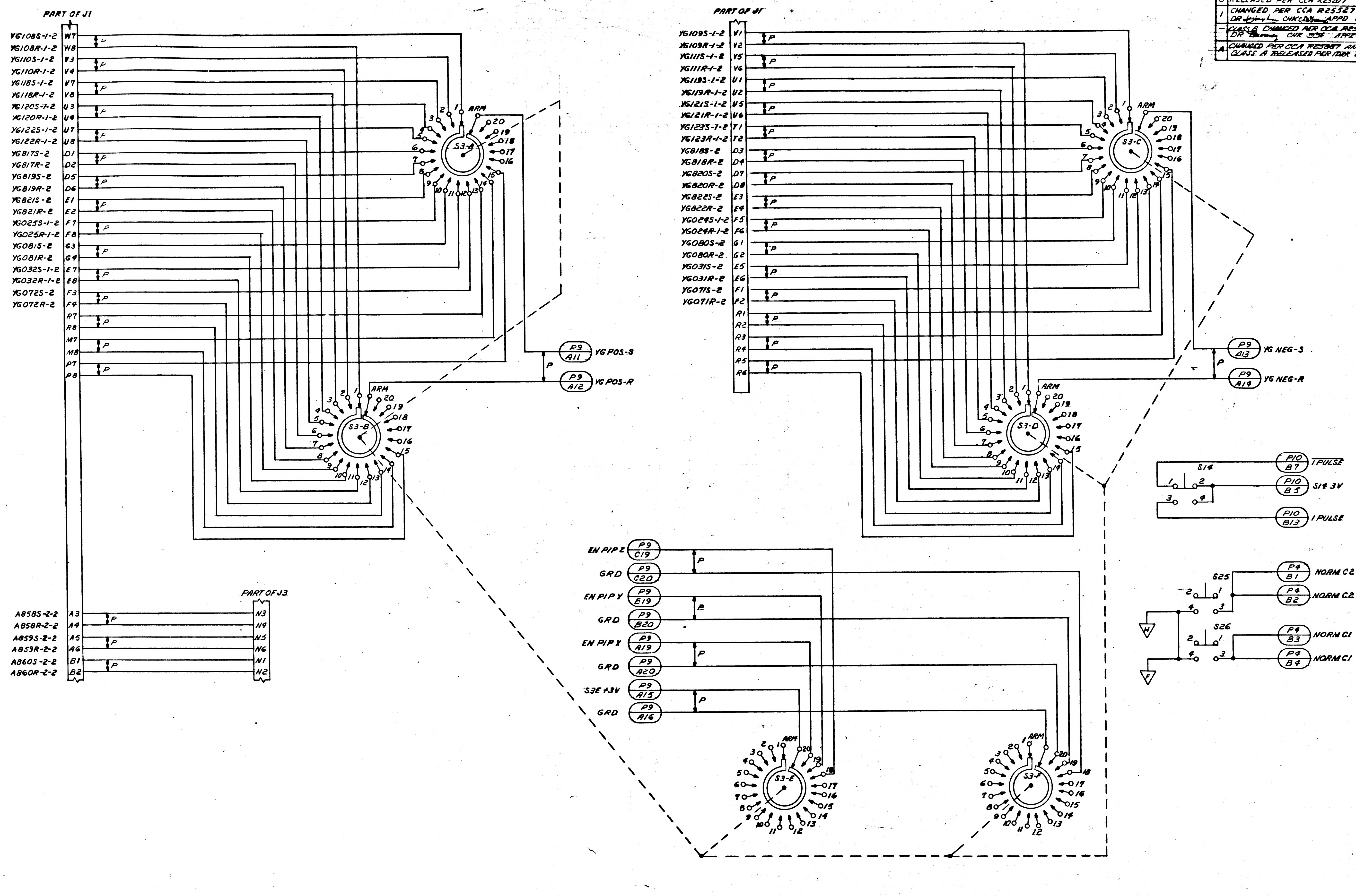
2014179 A

MASTER

2H

2014179 A

SYM	DESCRIPTION	DATE
0	RELEASED PER CCA R25207	9/23/65
1	CHANGED PER CCA R25527 DR [illegible] CHK C. [illegible] APPD [illegible]	11/4/65
–	~~CLASS B CHANGED PER CCA R25502~~ ~~DR [illegible] CHK [illegible] APPD [illegible]~~	[illegible]
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	[illegible]



PART OF J1
YG108S-1-2 W7
YG108R-1-2 W8
YG110S-1-2 V3
YG110R-1-2 V4
YG118S-1-2 V7
YG118R-1-2 V8
YG120S-1-2 U3
YG120R-1-2 U4
YG122S-1-2 U7
YG122R-1-2 U8
YG817S-2 D1
YG817R-2 D2
YG819S-2 D5
YG819R-2 D6
YG821S-2 E1
YG821R-2 E2
YG025S-1-2 F7
YG025R-1-2 F8
YG081S-2 G3
YG081R-2 G4
YG032S-1-2 E7
YG032R-1-2 E8
YG072S-2 F3
YG072R-2 F4
R7
R8
M7
M8
P7
P8
P
S3-A
S3-B
ARM
P9 A11 YG POS-S
P9 A12 YG POS-R
PART OF J1
YG109S-1-2 V1
YG109R-1-2 V2
YG111S-1-2 V5
YG111R-1-2 V6
YG119S-1-2 U1
YG119R-1-2 U2
YG121S-1-2 U5
YG121R-1-2 U6
YG123S-1-2 T1
YG123R-1-2 T2
YG818S-2 D3
YG818R-2 D4
YG820S-2 D7
YG820R-2 D8
YG822S-2 E3
YG822R-2 E4
YG024S-1-2 F5
YG024R-1-2 F6
YG080S-2 G1
YG080R-2 G2
YG031S-2 E5
YG031R-2 E6
YG071S-2 F1
YG071R-2 F2
R1
R2
R3
R4
R5
R6
S3-C
S3-D
P9 A13 YG NEG-S
P9 A14 YG NEG-R
S14
P10 B7 T PULSE
P10 B5 S14 3V
P10 B13 I PULSE
S25
P4 B1 NORM C2
P4 B2 NORM C2
S26
P4 B3 NORM C1
P4 B4 NORM C1
H
F
PART OF J3
A858S-2-2 A3 N3
A858R-2-2 A4 N4
A859S-2-2 A5 N5
A859R-2-2 A6 N6
A860S-2-2 B1 N1
A860R-2-2 B2 N2
EN PIP Z P9 C19
GRD P9 C20
EN PIP Y P9 E19
GRD P9 B20
EN PIP X P9 A19
GRD P9 A20
S3E +3V P9 A15
GRD P9 A16
S3-E
S3-F

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX ± .XXX ± ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN A. J. [illegible] DATE 28JUL65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible] 9/[illegible]
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATI
X Y INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 201417
SCALE NONE
WT
SHEET
OF 7

2014179 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER R25207	9/23/65	
1	CHANGED PER CCA R25527 DR CHK C.D. APPD		
—	CLASS B CHANGED PER CCA R25502 DR CHK BCR APPR RRC		
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218		

S1, S2 & S3

SWITCH LEGEND	
POSITION	MARKING
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20

S25

SWITCH LEGEND	
POSITION	MARKING
1	NO 2

S4 & S7

SWITCH LEGEND	
POSITION	MARKING
1	100
2	200
3	300

S14

SWITCH LEGEND	
POSITION	MARKING
NO	SINGLE PULSE
NC	

S15

SWITCH LEGEND	
POSITION	MARKING
1	S
2	T
3	V
4	OFF
5	S→T
6	T→V
7	S→V

S26

SWITCH LEGEND	
POSITION	MARKING
1	NO 1

S16

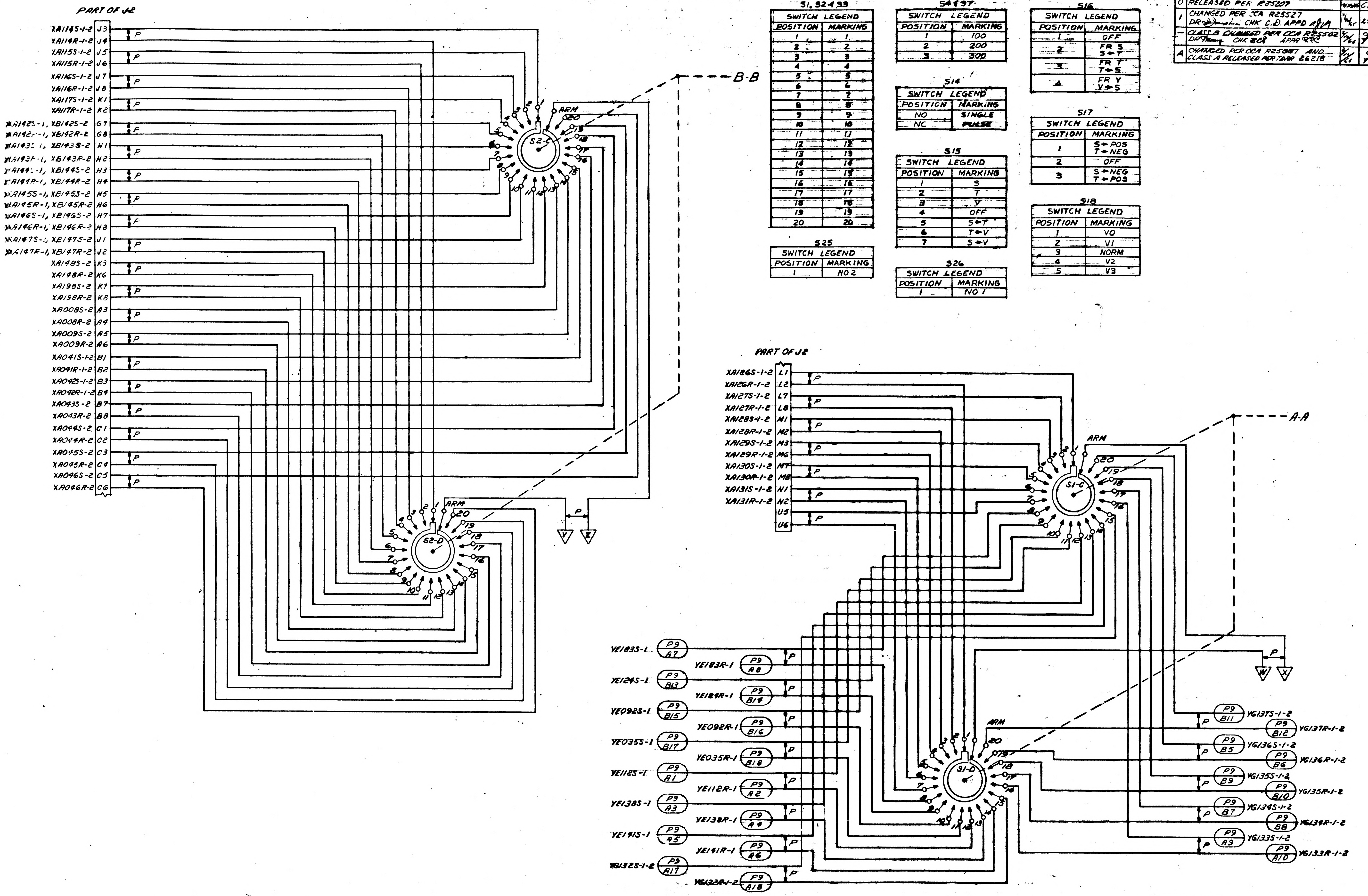
SWITCH LEGEND	
POSITION	MARKING
1	OFF
2	FR S S→T
3	FR T T→S
4	FR V V→S

S17

SWITCH LEGEND	
POSITION	MARKING
1	S→POS T→NEG
2	OFF
3	S→NEG T→POS

S18

SWITCH LEGEND	
POSITION	MARKING
1	V0
2	V1
3	NORM
4	V2
5	V3


PART OF J2
XA114S-1-2 J3
XA114R-1-2 J4
XA115S-1-2 J5
XA115R-1-2 J6
XA116S-1-2 J7
XA116R-1-2 J8
XA117S-1-2 K1
XA117R-1-2 K2
XA142S-1, XB142S-2 G7
XA142R-1, XB142R-2 G8
XA143S-1, XB143S-2 H1
XA143R-1, XB143R-2 H2
XA144S-1, XE144S-2 H3
XA144R-1, XE144R-2 H4
XA145S-1, XB145S-2 H5
XA145R-1, XB145R-2 H6
XA146S-1, XE146S-2 H7
XA146R-1, XE146R-2 H8
XA147S-1, XE147S-2 J1
XA147R-1, XB147R-2 J2
XA148S-2 K3
XA148R-2 K6
XA198S-2 K7
XA198R-2 K8
XA008S-2 A3
XA008R-2 A4
XA009S-2 A5
XA009R-2 A6
XA041S-1-2 B1
XA041R-1-2 B2
XA042S-1-2 B3
XA042R-1-2 B4
XA043S-2 B7
XA043R-2 B8
XA044S-2 C1
XA044R-2 C2
XA045S-2 C3
XA045R-2 C4
XA046S-2 C5
XA046R-2 C6
P
S2-C
S2-D
ARM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
B-B
A-A
V
Z
PART OF J2
XA126S-1-2 L1
XA126R-1-2 L2
XA127S-1-2 L7
XA127R-1-2 L8
XA128S-1-2 M1
XA128R-1-2 M2
XA129S-1-2 M3
XA129R-1-2 M6
XA130S-1-2 M7
XA130R-1-2 M8
XA131S-1-2 N1
XA131R-1-2 N2
U5
U6
S1-C
S1-D
W
X
YE183S-1 P9 A7
YE183R-1 P9 A8
YE124S-1 P9 B13
YE124R-1 P9 B14
YE092S-1 P9 B15
YE092R-1 P9 B16
YE035S-1 P9 B17
YE035R-1 P9 B18
YE112S-1 P9 A1
YE112R-1 P9 A2
YE138S-1 P9 A3
YE138R-1 P9 A4
YE141S-1 P9 A5
YE141R-1 P9 A6
YG132S-1-2 P9 A17
YG132R-1-2 P9 A18
P9 B11 YG137S-1-2
P9 B12 YG137R-1-2
P9 B5 YG136S-1-2
P9 B6 YG136R-1-2
P9 B9 YG135S-1-2
P9 B10 YG135R-1-2
P9 B7 YG134S-1-2
P9 B8 YG134R-1-2
P9 A9 YG133S-1-2
P9 A10 YG133R-1-2

2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

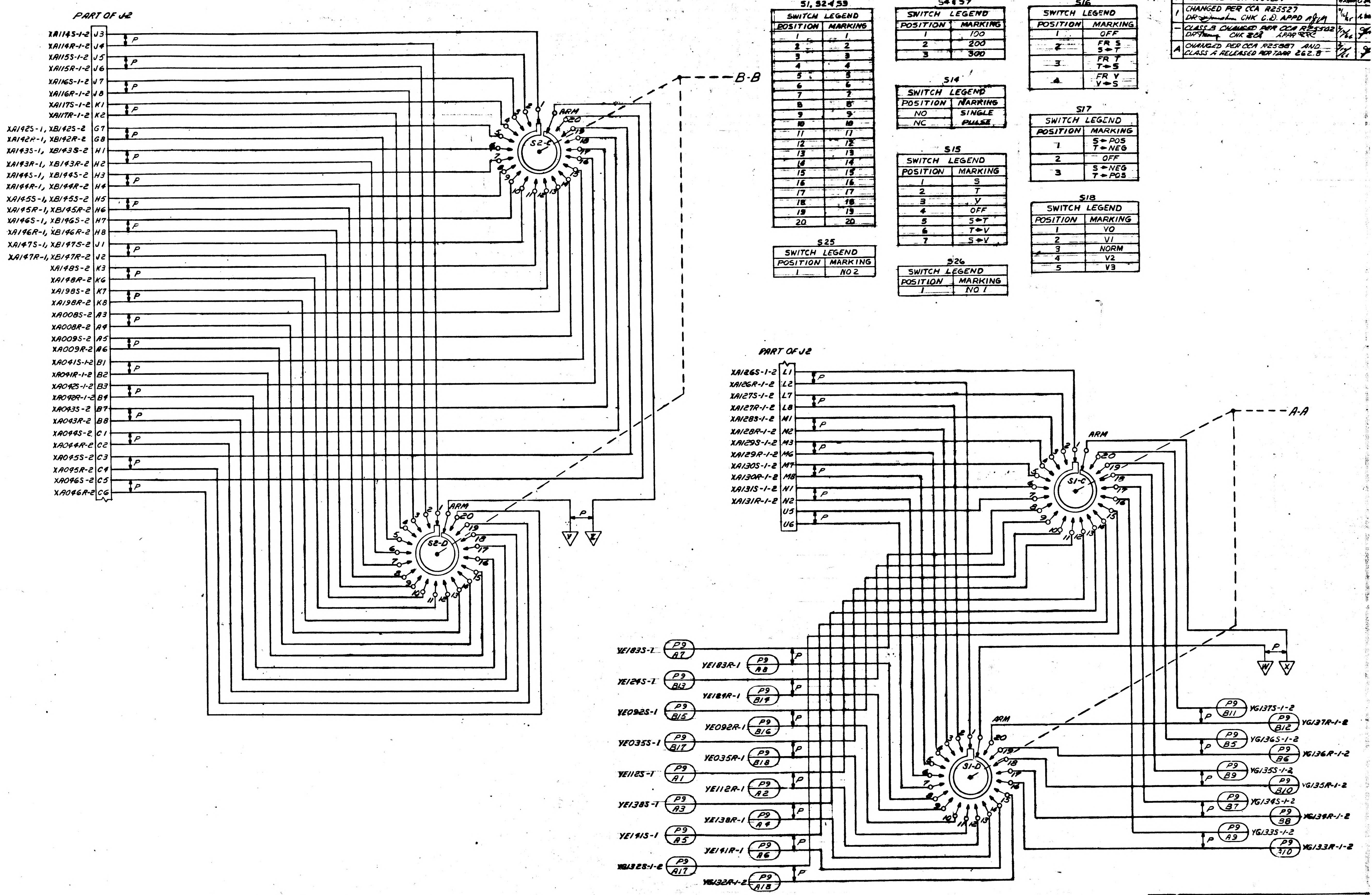
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL D. O'Bryant
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
X Y INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014179
SCALE NONE WT SHEET 6 OF 7

MASTER


PART OF J2
XA114S-1-2 J3
XA114R-1-2 J4
XA115S-1-2 J5
XA115R-1-2 J6
XA116S-1-2 J7
XA116R-1-2 J8
XA117S-1-2 K1
XA117R-1-2 K2
XA142S-1, XB142S-2 G7
XA142R-1, XB142R-2 G8
XA143S-1, XB143S-2 H1
XA143R-1, XB143R-2 H2
XA144S-1, XB144S-2 H3
XA144R-1, XB144R-2 H4
XA145S-1, XB145S-2 H5
XA145R-1, XB145R-2 H6
XA146S-1, XB146S-2 H7
XA146R-1, XB146R-2 H8
XA147S-1, XB147S-2 J1
XA147R-1, XB147R-2 J2
XA148S-2 K3
XA148R-2 K6
XA198S-2 K7
XA198R-2 K8
XA008S-2 A3
XA008R-2 A4
XA009S-2 A5
XA009R-2 A6
XA041S-1-2 B1
XA041R-1-2 B2
XA042S-1-2 B3
XA042R-1-2 B4
XA043S-2 B7
XA043R-2 B8
XA044S-2 C1
XA044R-2 C2
XA045S-2 C3
XA045R-2 C4
XA046S-2 C5
XA046R-2 C6
P
S2-C
S2-D
ARM
B-B
A-A
Y
Z
PART OF J2
XA126S-1-2 L1
XA126R-1-2 L2
XA127S-1-2 L7
XA127R-1-2 L8
XA128S-1-2 M1
XA128R-1-2 M2
XA129S-1-2 M3
XA129R-1-2 M6
XA130S-1-2 M7
XA130R-1-2 M8
XA131S-1-2 N1
XA131R-1-2 N2
U5
U6
S1-C
S1-D
W
X
YE183S-1 P9 A7
YE183R-1 P9 A8
YE124S-1 P9 B13
YE124R-1 P9 B14
YE092S-1 P9 B15
YE092R-1 P9 B16
YE035S-1 P9 B17
YE035R-1 P9 B18
YE112S-1 P9 A1
YE112R-1 P9 A2
YE138S-1 P9 A3
YE138R-1 P9 A4
YE141S-1 P9 A5
YE141R-1 P9 A6
YG132S-1-2 P9 A17
YG132R-1-2 P9 A18
YG137S-1-2 P9 B11
YG137R-1-2 P9 B12
YG136S-1-2 P9 B5
YG136R-1-2 P9 B6
YG135S-1-2 P9 B9
YG135R-1-2 P9 B10
YG134S-1-2 P9 B7
YG134R-1-2 P9 B8
YG133S-1-2 P9 A9
YG133R-1-2 P9 B10

S1, S2 & S3

SWITCH LEGEND	
POSITION	MARKING
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20

S25

SWITCH LEGEND	
POSITION	MARKING
1	NO 2

S4 & S7

SWITCH LEGEND	
POSITION	MARKING
1	100
2	200
3	300

S14

SWITCH LEGEND	
POSITION	MARKING
NO	SINGLE
NC	PULSE

S15

SWITCH LEGEND	
POSITION	MARKING
1	S
2	T
3	V
4	OFF
5	S→T
6	T→V
7	S→V

S26

SWITCH LEGEND	
POSITION	MARKING
1	NO 1

S16

SWITCH LEGEND	
POSITION	MARKING
1	OFF
2	FR S S→T
3	FR T T→S
4	FR V V→S

S17

SWITCH LEGEND	
POSITION	MARKING
1	S→POS T→NEG
2	OFF
3	S→NEG T→POS

S18

SWITCH LEGEND	
POSITION	MARKING
1	V0
2	V1
3	NORM
4	V2
5	V3

REVISIONS

SYM	DESCRIPTION	DATE	APPD
0	RELEASED PER R25207	9/23/65	C.R.
1	CHANGED PER CCA R25527 DR [illegible] CHK C.D. APPD [illegible]	11/4/65	[illegible]
—	CLASS B CHANGED PER CCA R25502 DR [illegible] CHK [illegible] APPR [illegible]	3/1/66	[illegible]
A	CHANGED PER CCA R25587 AND CLASS A RELEASED PER TARR 262.8	3/11/66	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN A.J. [illegible] DATE 28 JUL 65
CHECKED [illegible] 30 AUG 65
APPROVAL [illegible]
APPROVAL D. O'[illegible]
APPROVAL [illegible]
NASA APPROVAL R. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

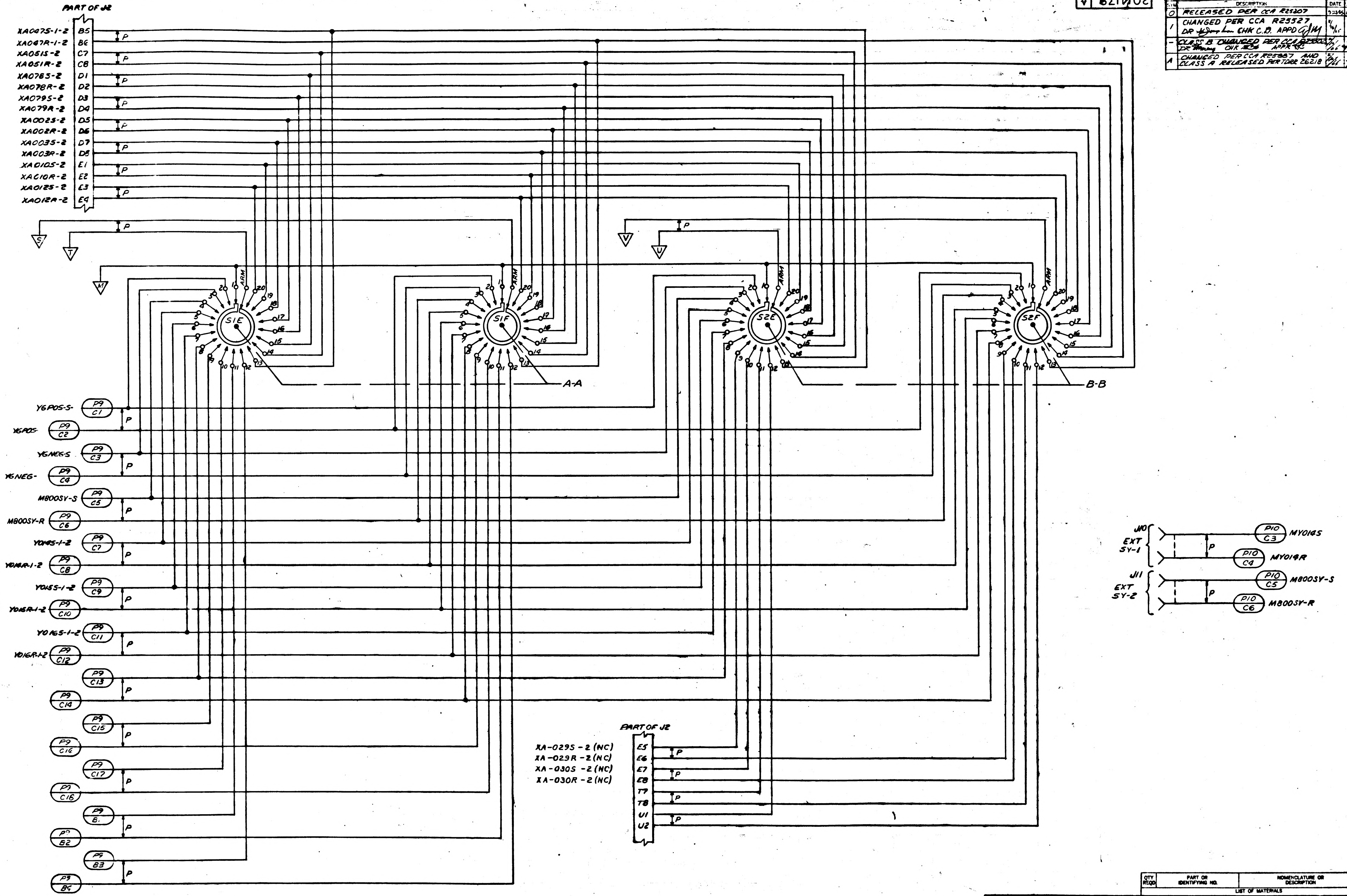
ELECTRICAL SCHEMATIC
X Y INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014179
SCALE NONE
WT
SHEET [illegible]

MASTER

2014179 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25207	9-23-65	G. Hermans
1	CHANGED PER CCA R25527 DR H. Jorgensen CHK C.D. APPD	11/16/65	
–	CLASS B CHANGED PER CCA R25802 DR Mooney CHK ECS APPR RC	7/12/66	
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	7/13/66	



PART OF J2
XA047S-1-2 B5
XA047R-1-2 B6
XA051S-2 C7
XA051R-2 C8
XA078S-2 D1
XA078R-2 D2
XA079S-2 D3
XA079R-2 D4
XA002S-2 D5
XA002R-2 D6
XA003S-2 D7
XA003R-2 D8
XA010S-2 E1
XA010R-2 E2
XA012S-2 E3
XA012R-2 E4
P
S
T
M
V
U
ARM
S1E
S1F
S2E
S2F
A-A
B-B
Y6POS-S- P9 C1
Y6POS- P9 C2
Y6NEG-S P9 C3
Y6NEG- P9 C4
M800SY-S P9 C5
M800SY-R P9 C6
Y014S-1-2 P9 C7
Y014R-1-2 P9 C8
Y015S-1-2 P9 C9
Y015R-1-2 P9 C10
Y016S-1-2 P9 C11
Y016R-1-2 P9 C12
P9 C13
P9 C14
P9 C15
P9 C16
P9 C17
P9 C18
P9 B1
P9 B2
P9 B3
P9 B5
PART OF J2
XA-029S-2 (NC) E5
XA-029R-2 (NC) E6
XA-030S-2 (NC) E7
XA-030R-2 (NC) E8
T7
T8
U1
U2
J10 EXT SY-1
P10 C3 MY014S
P10 C4 MY014R
J11 EXT SY-2
P10 C5 M800SY-S
P10 C6 M800SY-R

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY USED ON

APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL 9/21/65
APPROVAL 9/21/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
XY INTERFACE
COMPUTER TEST SET

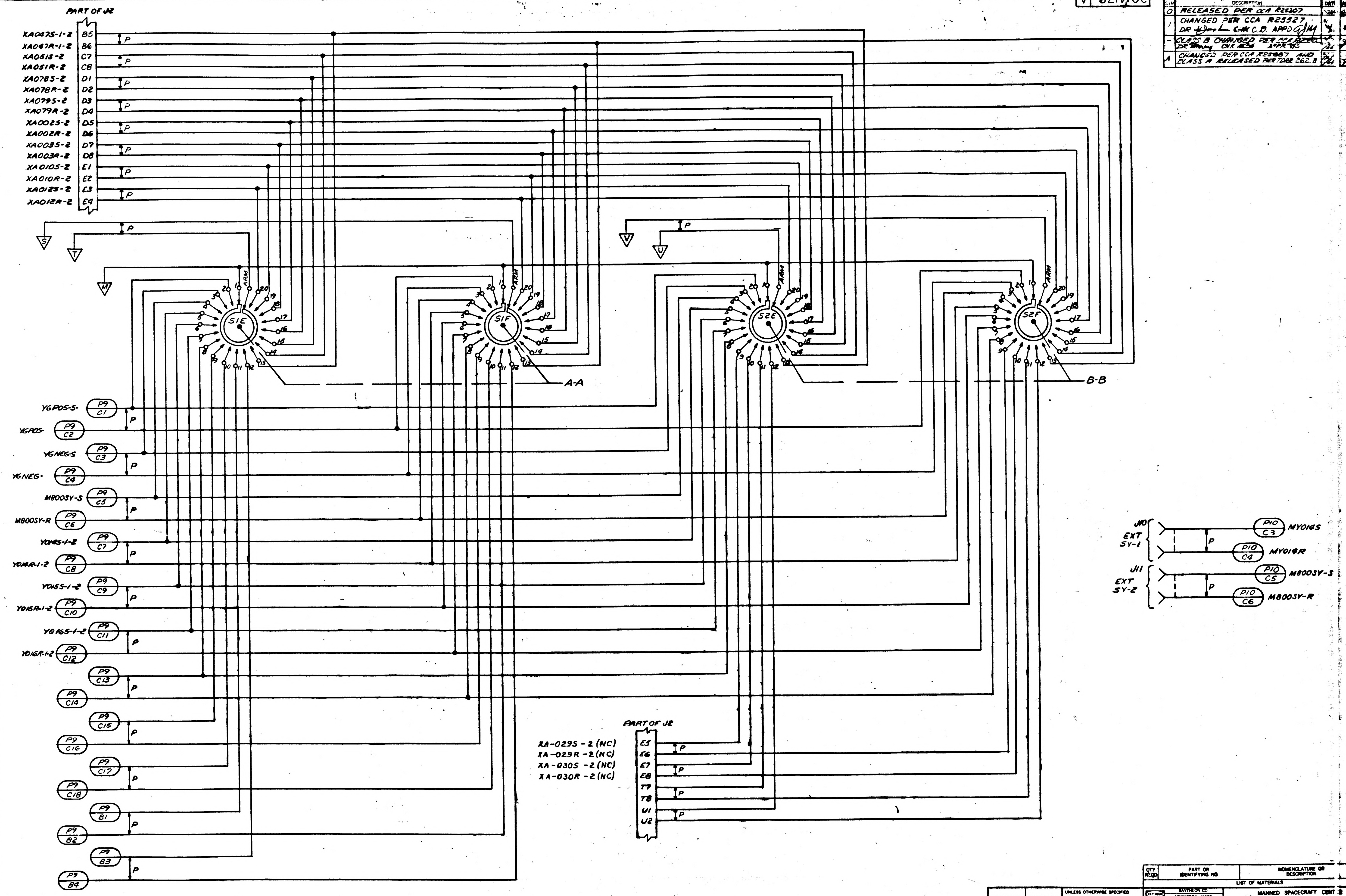
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014179
SCALE NONE
WT
SHEET 5 OF 7

2014179 A

2014179 A

MASTER

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25207		
1	CHANGED PER CCA R25527 DR CHK C.D. APPD		
-	~~CLASS B CHANGED PER CCA~~ DR CHK APPR		
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 262.8		



PART OF J2
XA047S-1-2 B5
XA047R-1-2 B6
XA051S-2 C7
XA051R-2 C8
XA078S-2 D1
XA078R-2 D2
XA079S-2 D3
XA079R-2 D4
XA002S-2 D5
XA002R-2 D6
XA003S-2 D7
XA003R-2 D8
XA010S-2 E1
XA010R-2 E2
XA012S-2 E3
XA012R-2 E4
P
S
T
M
V
U
S1E
S1F
S2E
S2F
ARM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
A-A
B-B
YGPOS-S- P9 C1
YGPOS- P9 C2
YGNEG-S P9 C3
YGNEG- P9 C4
M800SY-S P9 C5
M800SY-R P9 C6
YO14S-1-2 P9 C7
YO14R-1-2 P9 C8
YO15S-1-2 P9 C9
YO15R-1-2 P9 C10
YO16S-1-2 P9 C11
YO16R-1-2 P9 C12
P9 C13
P9 C14
P9 C15
P9 C16
P9 C17
P9 C18
P9 B1
P9 B2
P9 B3
P9 B4
PART OF J2
XA-029S -2 (NC) E5
XA-029R -2 (NC) E6
XA-030S -2 (NC) E7
XA-030R -2 (NC) E8
T7
T8
U1
U2
J10
EXT SY-1
J11
EXT SY-2
P10 C3 MY014S
P10 C4 MY014R
P10 C5 M800SY-S
P10 C6 M800SY-R

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
XY INTERFACE
COMPUTER TEST SET

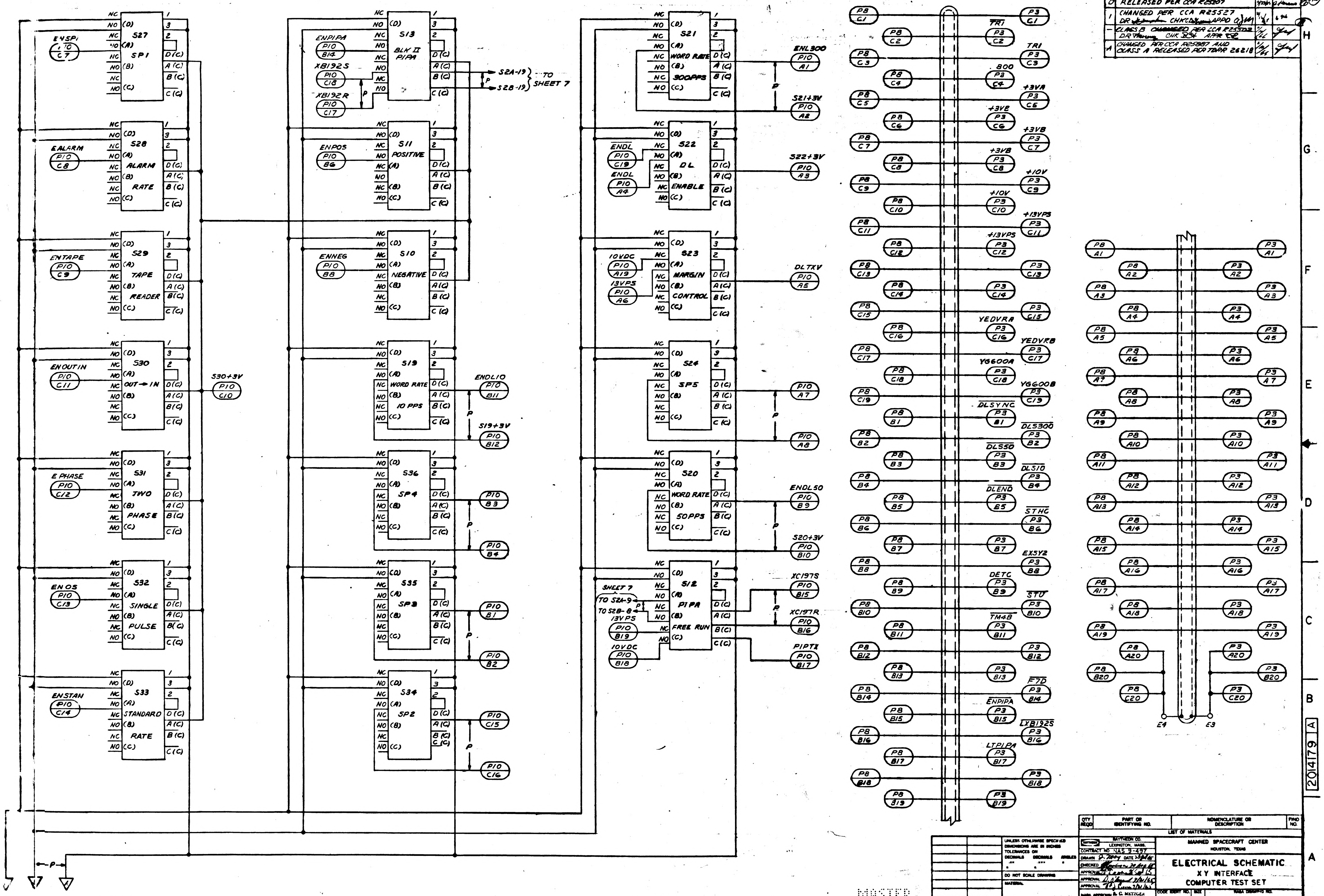
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014179
SCALE NONE
WT
SHEET 5 OF 7

2014179 A

MASTER

2014179 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25207	9/29/65	
1	CHANGED PER CCA R25527 DR CHKC APPD		
—	CLASS B ~~CHANGED~~ PER CCA R25502 DR CHK APPR	2/14/66	
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218		



S27 SP1
S28 ALARM RATE
S29 TAPE READER
S30 OUT → IN
S31 TWO PHASE
S32 SINGLE PULSE
S33 STANDARD RATE
S13 BLK II PIPA
S11 POSITIVE
S10 NEGATIVE
S19 WORD RATE 10 PPS
S36 SP4
S35 SP3
S34 SP2
S21 WORD RATE 300PPS
S22 DL ENABLE
S23 MARGIN CONTROL
S24 SP5
S20 WORD RATE 50PPS
S12 PIPA FREE RUN
NC
NO
(D)
(A)
(B)
(C)
D(C)
A(C)
B(C)
C(C)
E4SP1
EALARM
ENTAPE
ENOUTIN
E PHASE
ENOS
ENSTAN
ENPIPA
XB192S
XB192R
ENPOS
ENNEG
ENDL
10VDC
13VPS
S30+3V
ENDL10
S19+3V
ENL300
S21+3V
S22+3V
DLTXV
ENDL50
S20+3V
XC197S
XC197R
PIPTX
S2A-19
S2B-19
TO SHEET 7
SHEET 7
TO S2A-9
TO S2B-8
P
R
P10
P8
P3
TR1
800
+3VA
+3VB
+10V
+13VPS
YEDVRA
YEDVRB
YG600A
YG600B
DLSYNC
DLS300
DLS50
DLS10
DLEND
STHC
EXSY2
DETC
STD
TM4B
F7D
ENPIPA
LXB192S
LTPIPA
E4
E3

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED 30 Aug 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
X Y INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014179
SCALE NONE
WT
SHEET 6 OF 7

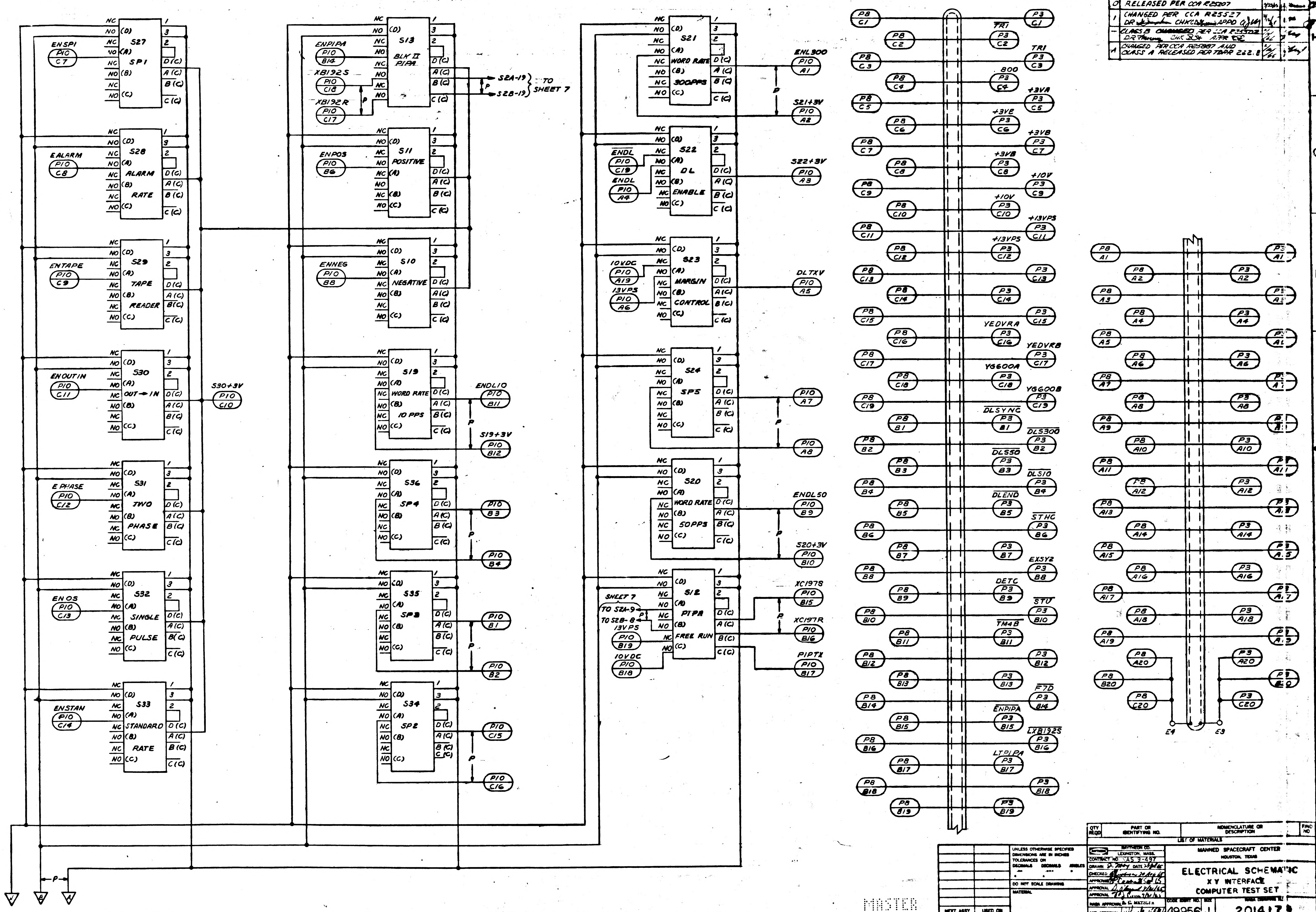
MASTER

2014179 A

2H

2014179 A

SYM	DESCRIPTION	DATE	
0	RELEASED PER CCA R25207	9/23/65	
1	CHANGED PER CCA R25527 DR CHK APPD	4/14/66	
–	CLASS B ~~CHANGED~~ PER CCA R25502 DR CHK APPR	2/?/66	
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 25218	2/?/66	



8
7
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1
H
G
F
E
D
C
B
A
S27 SP1
ENSP1 P10 C7
S28 ALARM RATE
EALARM P10 C8
S29 TAPE READER
ENTAPE P10 C9
S30 OUT → IN
ENOUTIN P10 C11
S30+3V P10 C10
S31 TWO PHASE
EPHASE P10 C12
S32 SINGLE PULSE
ENOS P10 C13
S33 STANDARD RATE
ENSTAN P10 C14
S13 BLK II PIPA
ENPIPA P10 B14
XB192S P10 C18
XB192R P10 C17
S2A-19
S2B-19
TO SHEET 7
S11 POSITIVE
ENPOS P10 B6
S10 NEGATIVE
ENNEG P10 B8
S19 WORD RATE 10 PPS
ENDL10 P10 B11
S19+3V P10 B12
S36 SP4
P10 B3
P10 B4
S35 SP3
P10 B1
P10 B2
S34 SP2
P10 C15
P10 C16
S21 WORD RATE 300PPS
ENL300 P10 A1
S21+3V P10 A2
S22 DL ENABLE
ENDL P10 C19
ENDL P10 A4
S22+3V P10 A3
S23 MARGIN CONTROL
10VDC P10 A19
13VPS P10 A6
DLTXV P10 A5
S24 SP5
P10 A7
P10 A8
S20 WORD RATE 50PPS
ENDL50 P10 B9
S20+3V P10 B10
S12 PIPA FREE RUN
SHEET 7 TO S2A-9 TO S2B-8
13VPS P10 B19
10VDC P10 B18
XC197S P10 B15
XC197R P10 B16
PIPTX P10 B17
NC NO (D) (A) (B) (C)
1 2 3
D(C) A(C) B(C) C(C)
P
TRI
800
+3VA
+3VB
+10V
+13VPS
YEDVRA
YEDVRB
YG600A
YG600B
DLSYNC
DLS300
DLS50
DLS10
DLEND
STHC
EXSY2
DETC
STU
TM4B
F7D
ENPIPA
LXB192S
LTPIPA
P8 C1 … C20
P8 B1 … B20
P8 A1 … A20
P3 C1 … C20
P3 B1 … B19
P3 A1 … A20
E4
E3
MASTER
2014179 A

QTY REQD | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION | FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. May DATE 23 Jul 65
CHECKED 30 Aug 65
APPROVAL 5 Oct 65
APPROVAL D. ? 9/21/65
APPROVAL 9/21/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 2/?/66

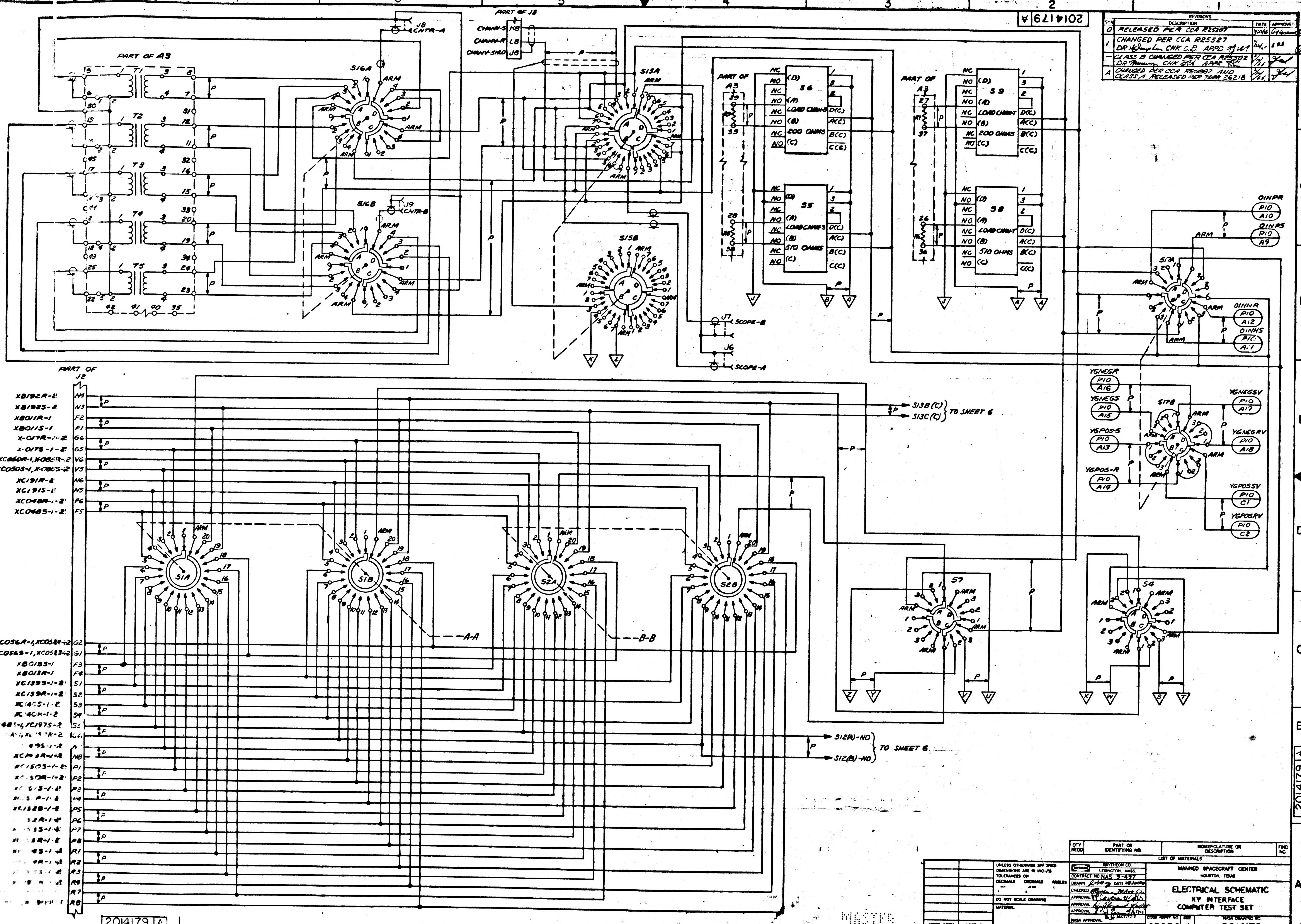
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
XY INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 201417
SCALE NONE
WT
SHEET OF 7

2014179 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25207	9/23/65	
1	CHANGED PER CCA R25527 DR CHK C.D. APPD	11/14/65	
—	CLASS B CHANGED PER CCA R25702 DR CHK BCA APPR	3/14/66	
A	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	7/14/66	



PART OF A3
T1
T2
T3
T4
T5
J8 CNTR-A
J9 CNTR-B
PART OF J8
CHAN-S K8
CHAN-R L8
CHAN-SHLD J8
S16A
S16B
S15A
S15B
ARM
P
PART OF A3
S6
S5
S9
S8
NC
NO
LOAD CHAN-S
LOAD CHAN-3
200 OHMS
510 OHMS
J7 SCOPE-B
J6 SCOPE-A
OINPR P10 A10
OINPS P10 A9
S17A
OINNR P10 A12
OINNS P10 A11
YGNEGR P10 A16
YGNEGS P10 A15
YGPOS-S P10 A13
YGPOS-R P10 A14
S17B
YGNEGSV P10 A17
YGNEGRV P10 A18
YGPOSSV P10 C1
YGPOSRV P10 C2
PART OF J2
XB192R-2 N4
XB192S-2 N3
XB011R-1 F2
XB011S-1 F1
X-017R-1-2 G6
X-017S-1-2 G5
XC050R-1,XC085R-2 V6
XC050S-1,XC085S-2 V5
XC191R-2 N6
XC191S-2 N5
XC048R-1-2 F6
XC048S-1-2 F5
S13B(C)
S13C(C)
TO SHEET 6
S1A
S1B
S2A
S2B
A-A
B-B
S7
S4
XC056R-1,XC058R-2 G2
XC056S-1,XC058S-2 G1
XB018S-1 F3
XB018R-1 F4
XC139S-1-2 S1
XC139R-1-2 S2
XC140S-1-2 S3
XC140R-1-2 S4
N8
P1
P2
P3
P4
P5
P6
P7
P8
R1
R2
R3
R4
R7
R8
S12(A)-NO
S12(B)-NO
TO SHEET 6

2014179 A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES
.XX .XXX
± ± ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL E.C. METZGER
MIT APPROVAL
MIT APPROVAL 7/14/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
XY INTERFACE
COMPUTER TEST SET

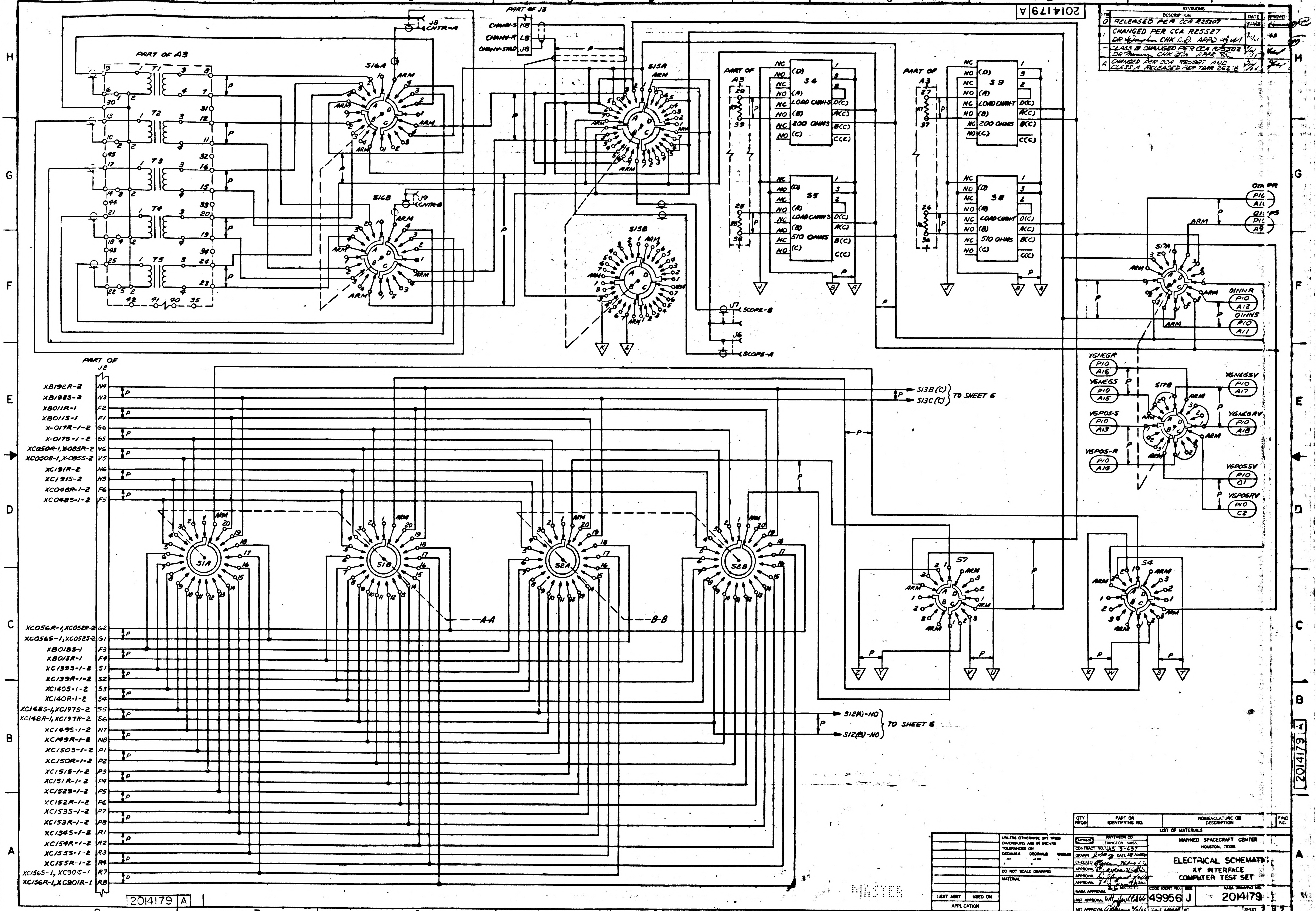
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014179
SCALE NONE
WT
SHEET 7 OF 7

2014179 A

2H

MASTER

F-2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A
2014179 A
PART OF A3
T1
T2
T3
T4
T5
PART OF J3
CHAN-S K8
CHAN-R L8
CHAN-SHLD J8
J8 CNTR-A
J9 CNTR-B
S16A
S16B
S15A
S15B
ARM
P
PART OF A3
S6
NC (D)
NO (A)
LOAD CHAN-S
(B)
200 OHMS
(C)
S5
510 OHMS
S9
LOAD CHAN-T
S8
R7
R8
J7 SCOPE-B
J6 SCOPE-A
OIA PR P10 A10
OIIN PS P10 A9
S17A
OINNR P10 A12
OINNS P10 A11
YGNEGR P10 A16
YGNEGS P10 A15
YGPOS-S P10 A13
YGPOS-R P10 A14
S17B
YGNEGSV P10 A17
YGNEGRV P10 A18
YGPOSSV P10 C1
YGPOSRV P10 C2
S13B (C)
S13C (C)
TO SHEET 6
S1A
S1B
S2A
S2B
A-A
B-B
S7
S4
S12(A)-NO
S12(B)-NO
TO SHEET 6
PART OF J2
XB192R-2 N4
XB192S-2 N3
XB011R-1 F2
XB011S-1 F1
X-017R-1-2 G6
X-017S-1-2 G5
XC050R-1, X-085R-2 V6
XC0508-1, X-085S-2 V5
XC191R-2 N6
XC191S-2 N5
XC048R-1-2 F6
XC048S-1-2 F5
XC056R-1, XC052R-2 G2
XC056S-1, XC052S-2 G1
XB013S-1 F3
XB013R-1 F4
XC139S-1-2 S1
XC139R-1-2 S2
XC140S-1-2 S3
XC140R-1-2 S4
XC148S-1, XC197S-2 S5
XC148R-1, XC197R-2 S6
XC149S-1-2 N7
XC149R-1-2 N8
XC150S-1-2 P1
XC150R-1-2 P2
XC151S-1-2 P3
XC151R-1-2 P4
XC152S-1-2 P5
XC152R-1-2 P6
XC153S-1-2 P7
XC153R-1-2 P8
XC154S-1-2 R1
XC154R-1-2 R2
XC155S-1-2 R3
XC155R-1-2 R4
XC156S-1, XC90S-1 R7
XC156R-1, XC901R-1 R8
2014179 A
MASTER

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25207	9/23/65	
1	CHANGED PER CCA R25527 DR CHK C.D. APPD	11/10/65	
—	CLASS B CHANGED PER CCA R25302 DR CHK APPR		
A	CHANGED PER CCA R25587 AND CLASS A RELEASED PER TDRR 262		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 29 JUN 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL E.C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
XY INTERFACE
COMPUTER TEST SET

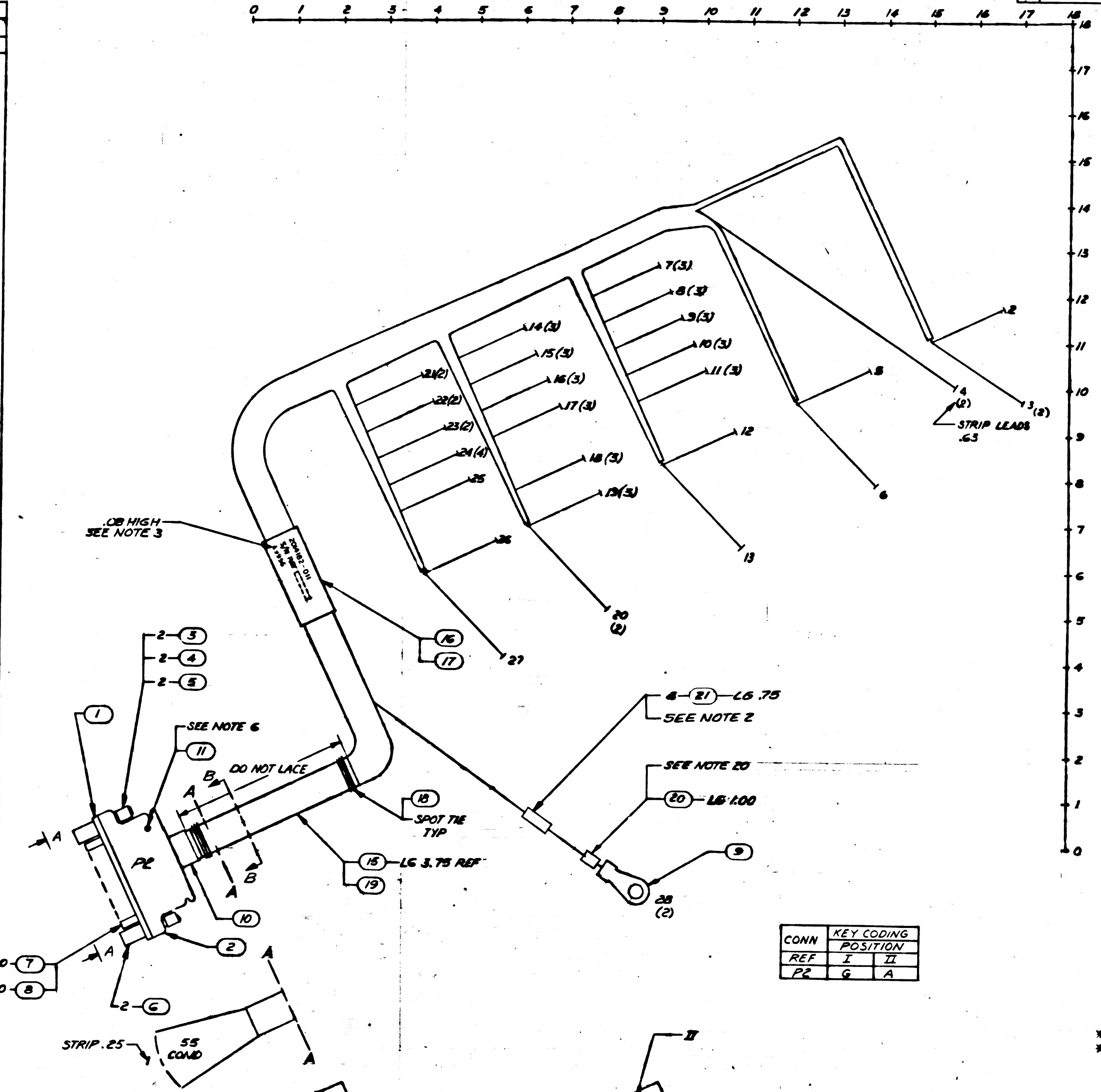
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014179
SCALE NONE
WT
SHEET 7 7

2014179 A

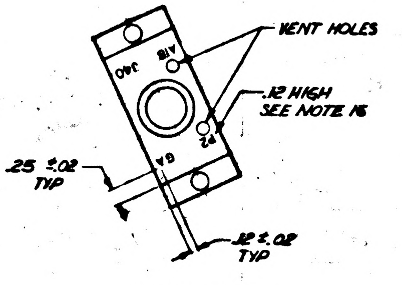
SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25314	11/4/65	G. Hanzo
—	CLASS B CHANGED PER CCA R25502	4/15/65	
A	CHANGED PER CCA R25590 & CLASS A RELEASED PER TDRR 25472	7/1/66	

ASSEMBLY INFORMATION CHART

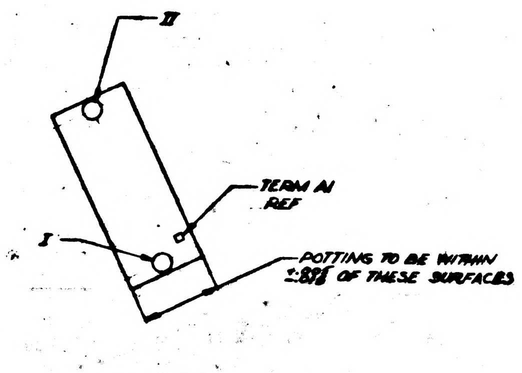
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	B1	1	P2-A1	WHT	20	12	14	TB2-1	
	B2		P2-A2				16	TB2-3	
	B3		P2-A3				18	TB2-6	
	B4		P2-A4				20	TB2-8	
	B5		P2-A5				8	TB3-2	
	B6		P2-A6				11	TB3-5	
	B7		P2-A7				25	TB1-5	
	B8		P2-A8	WHT		12	5	TB4-7	
	B9		P2-A9	BLK		13	22	TB1-2	
	B10		P2-A10	BLK		13	24	TB1-4	
	B11		P2-A11	WHT		12	14	TB2-1	
	B12		P2-A12				16	TB2-3	
	B13		P2-A13				18	TB2-6	
	B14		P2-A14				20	TB2-8	
	B15		P2-A15				8	TB3-2	
	B16		P2-A16	WHT		12	11	TB3-5	
	B17		P2-A18	BLK		13	24	TB1-4	
	B18		P2-A19	BLK		13	22	TB1-2	
	B19		P2-B1	WHT		12	14	TB2-1	
	B20		P2-B2				16	TB2-3	
	B21		P2-B3				18	TB2-6	
	B22		P2-B4				9	TB3-3	
	B23		P2-B5				8	TB3-2	
	B24		P2-B6				11	TB3-5	
	B25		P2-B7	WHT		12	26	TB1-7	
	B26		P2-B8	BLK		13	23	TB1-3	
	B27		P2-C20	BLK		13	21	TB1-1	
	B28		P2-B11	WHT		12	15	TB2-2	
	B29		P2-B12				17	TB2-4	
	B30		P2-B13				19	TB2-7	
	B31		P2-B14				7	TB3-1	
	B32		P2-B15				10	TB3-4	
	B33		P2-B16				6	TB4-8	
	B34		P2-B17	WHT		12	27	TB1-8	
	B35		P2-B18	BLK		13	23	TB1-3	
	B36		P2-B19	WHT		12	2	TB5-7	
	B37		P2-C1				15	TB2-2	
	B38		P2-C2				17	TB2-4	
	B39		P2-C3				19	TB2-7	
	B40		P2-C4				7	TB3-1	
	B41		P2-C5				10	TB3-4	
	B42		P2-C6	WHT		12	12	TB3-7	
	B43		P2-C7	BLK		13	24	TB1-4	
	B44		P2-C8	BLK		13	3	TB5-8	
	B45		P2-C9	WHT		12	9	TB3-3	
	B46		P2-C10	BLK		13	21	TB1-1	
	B47		P2-C11	WHT		12	15	TB2-2	
	B48		P2-C12				17	TB2-4	
	B49		P2-C13				19	TB2-7	
	B50		P2-C14				7	TB3-1	
	B51		P2-C15				10	TB3-4	
	B52		P2-C16	WHT		12	13	TB3-8	
	B53		P2-C17	BLK		13	24	TB1-4	
	B54		P2-C18	BLK		13	3	TB5-8	
	B55	1	P2-C19	WHT	20	12	9	TB3-3	
	B56	28	E1	NONE	8	14	4	TB4-1	
	B57	28	E1	NONE	8	14	4	TB4-2	



CONN REF	KEY CODING POSITION	
	I	II
P2	G	A



SECTION B-B



VIEW A-A

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 18
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG NO. 1014047
6. FILL WITH FIND NO. 11 PER ND1002009 METHOD E & PRIME
7. SERIALIZE PER ND1002023
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
9. STRIP ALL LEADS .50 DO NOT TIN UNLESS OTHERWISE SPECIFIED
10. MIL-I-23053, CLASS I, COLOR WHITE, SIZE I.D. .750 FOR FIND 20, SIZE I.D. .375 FOR FIND 21
11. SEAL TERMINALS & INSULATORS PER ND1002004 TYPE III
12. CRIMP PER ND1002206
13. SOLDER PER ND1002071
14. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATION
15. POTTING TO BE FLUSH TO .04 BELOW TOP OF VENT HOLES OF FIND 2
16. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
17. CUT SLEEVING LENGTH AS SHOWN
18. AR DENOTES AS REQUIRED
19. NUMBERS ENCLOSED IN PARENTHESIS INDICATE NO. OF CONDUCTORS
20. MARK SLEEVING WITH REFERENCE DESIGNATION AS SHOWN, .12 HIGH USING BLK INK ND1006256-001 PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014172	INTERCONNECTION DIAGRAM	REF
* .3	SEE NOTE 10	SLEEVE, SHRINK	21
* .1	SEE NOTE 10	SLEEVE, SHRINK	20
AR	1006699	SOLVENT	19
AR	1006458-004	TAPE, LACING	18
AR	1006253	ADHESIVE	17
1	1006415-131	BAND MARKER, CABLE	16
* .4	1006696-4	SLEEVING, INSULATION	15
* 6.2	MS25190-B-8	WIRE, ELEC	14
* 29	MIL-W-16878/4 E2C	WIRE, ELEC, BLK	13
* 110	MIL-W-16878/4 E2C	WIRE, ELEC, WHT	12
AR	1006683	COMPOUND, SILICONE RUBBER	11
1	1020370-23	BUSHING, SLEEVE	10
1	MS25036-26	TERMINAL, LUG	9
60	1010380	INSULATOR BUSHING, FEMALE	8
60	1010379-1	CONTACT, ELECTRICAL FEMALE	7
2	1014032	RECEPTACLE, INDEXING	6
2	1006997	WASHER, PLAIN FLAT	5
2	MS35337-79	WASHER, LOCK	4
2	1006998-1	SCREW, CAPTIVE	3
1	1014000-4	FRAME, MODULE	2
1	1014021	PLATE, CONNECTOR	1

011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN W. Kelly DATE 17 SEPT 65
CHECKED A. Casimano 28 Sep 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
DC PWR DISTR
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014182
SCALE 1/1 | WT | SHEET 1 OF 1

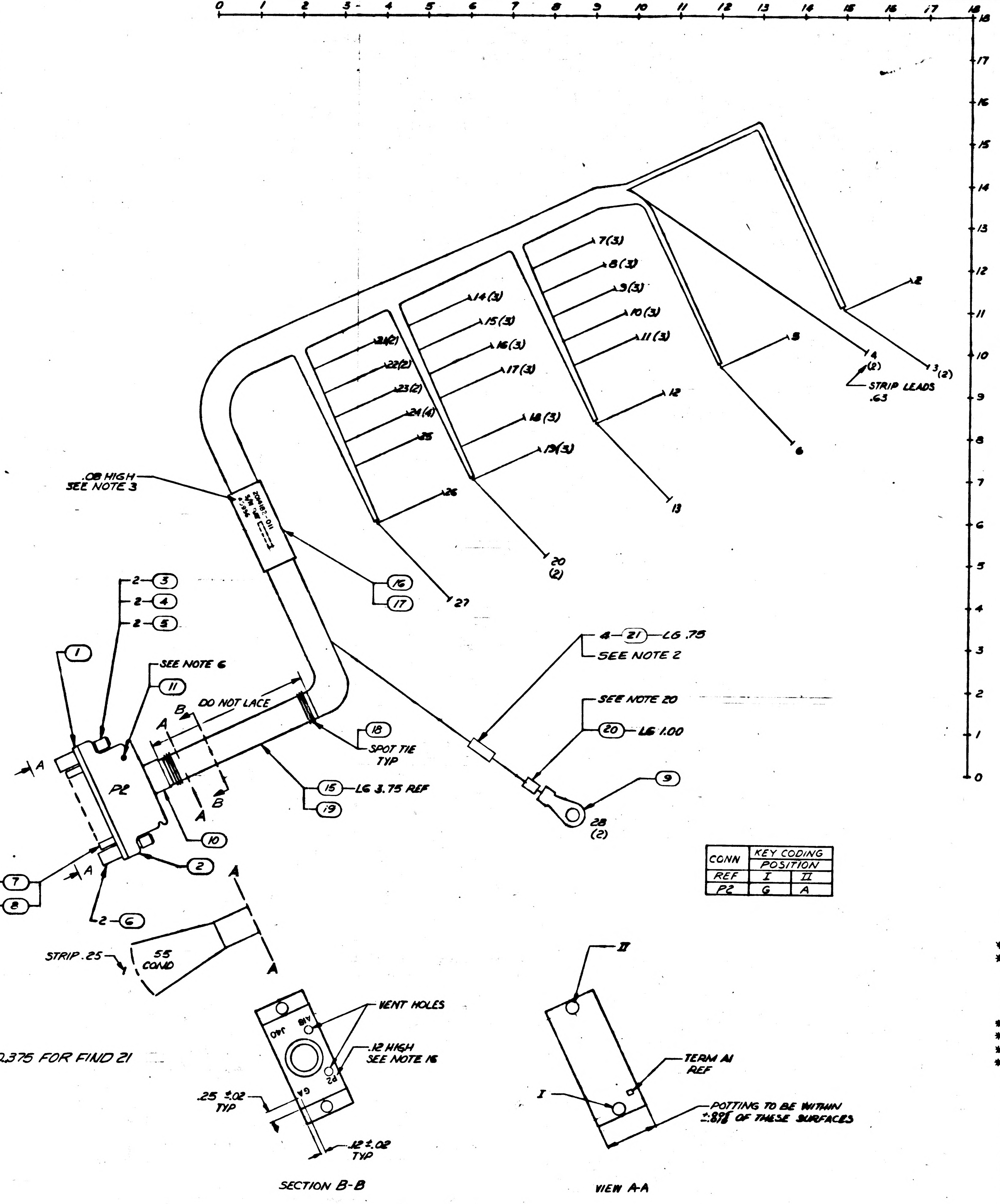
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25314		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25590 & CLASS A RELEASED PER TDRR 25472	1/14/66	
B	CHANGED PER TDRR 26482 DR Q. J. Greenink & Jazynski APPD	2/4/66	

2014182 B

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	B1	1	P2-A1	WHT	20	12	14	TB2-1	
	B2		P2-A2				16	TB2-3	
	B3		P2-A3				18	TB2-6	
	B4		P2-A4				20	TB2-8	
	B5		P2-A5				8	TB3-2	
	B6		P2-A6				11	TB3-5	
	B7		P2-A7				25	TB1-5	
	B8		P2-A8	WHT		12	5	TB4-7	
	B9		P2-A9	BLK		13	22	TB1-2	
	B10		P2-A10	BLK		13	24	TB1-4	
	B11		P2-A11	WHT		12	14	TB2-1	
	B12		P2-A12				16	TB2-3	
	B13		P2-A13				18	TB2-6	
	B14		P2-A14				20	TB2-8	
	B15		P2-A15				8	TB3-2	
	B16		P2-A16	WHT		12	11	TB3-5	
	B17		P2-A18	BLK		13	24	TB1-4	
	B18		P2-A19	BLK		13	22	TB1-2	
	B19		P2-B1	WHT		12	14	TB2-1	
	B20		P2-B2				16	TB2-3	
	B21		P2-B3				18	TB2-6	
	B22		P2-B4				9	TB3-3	
	B23		P2-B5				8	TB3-2	
	B24		P2-B6				11	TB3-5	
	B25		P2-B7	WHT		12	26	TB1-7	
	B26		P2-B8	BLK		13	23	TB1-3	
	B27		P2-C20	BLK		13	21	TB1-1	
	B28		P2-B11	WHT		12	15	TB2-2	
	B29		P2-B12				17	TB2-4	
	B30		P2-B13				19	TB2-7	
	B31		P2-B14				7	TB3-1	
	B32		P2-B15				10	TB3-4	
	B33		P2-B16				6	TB4-8	
	B34		P2-B17	WHT		12	27	TB1-8	
	B35		P2-B18	BLK		13	23	TB1-3	
	B36		P2-B19	WHT		12	2	TB5-7	
	B37		P2-C1				15	TB2-2	
	B38		P2-C2				17	TB2-4	
	B39		P2-C3				19	TB2-7	
	B40		P2-C4				7	TB3-1	
	B41		P2-C5				10	TB3-4	
	B42		P2-C6	WHT		12	12	TB3-7	
	B43		P2-C7	BLK		13	24	TB1-4	
	B44		P2-C8	BLK		13	3	TB5-8	
	B45		P2-C9	WHT		12	9	TB3-3	
	B46		P2-C10	BLK		13	21	TB1-1	
	B47		P2-C11	WHT		12	15	TB2-2	
	B48		P2-C12				17	TB2-4	
	B49		P2-C13				19	TB2-7	
	B50		P2-C14				7	TB3-1	
	B51		P2-C15				10	TB3-4	
	B52		P2-C16	WHT		12	13	TB3-8	
	B53		P2-C17	BLK		13	24	TB1-4	
	B54		P2-C18	BLK		13	3	TB5-8	
	B55	1	P2-C19	WHT	20	12	9	TB3-3	
	B56	28	W1	NONE	8	14	4	TB4-1	
	B57	28	W1	NONE	8	14	4	TB4-2	



CONN	KEY CODING POSITION	
REF	I	II
P2	G	A

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 18
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG NO. 1014047
6. FILL WITH FIND NO. 11 PER ND1002009 METHOD E & PRIME
7. SERIALIZE PER ND1002023
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
9. STRIP ALL LEADS .50 DO NOT TIN UNLESS OTHERWISE SPECIFIED
10. MIL-I-23053, CLASS I, COLOR WHITE, SIZE I.D. .750 FOR FIND 20, SIZE I.D. .375 FOR FIND 21
11. SEAL TERMINALS & INSULATORS PER ND1002004 TYPE III
12. CRIMP PER ND1002206
13. SOLDER PER ND1002071
14. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATION
15. POTTING TO BE FLUSH TO .04 BELOW TOP OF VENT HOLES OF FIND 2
16. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
17. CUT SLEEVING LENGTH AS SHOWN
18. AR DENOTES AS REQUIRED
19. NUMBERS ENCLOSED IN PARENTHESIS INDICATE NO. OF CONDUCTORS
20. MARK SLEEVING WITH REFERENCE DESIGNATION AS SHOWN, .12 HIGH USING BLK INK ND1006256-001 PER ND1002019

☒	2014172	INTERCONNECTION DIAGRAM	REF
* .3	SEE NOTE 10	SLEEVE, SHRINK	21
* .1	SEE NOTE 10	SLEEVE, SHRINK	20
AR	1006699	SOLVENT	19
AR	1006458-004	TAPE, LACING	18
AR	1006253	ADHESIVE	17
1	1006415-131	BAND MARKER, CABLE	16
* .4	1006696-4	SLEEVING, INSULATION	15
* 6.2	MS25190-B-8	WIRE, ELEC	14
* 29	MIL-W-16878/4 E20	WIRE, ELEC, BLK	13
* 110	MIL-W-16878/4 E20	WIRE, ELEC, WHT	12
AR	1006683	COMPOUND, SILICONE RUBBER	11
1	1020378-23	BUSHING, SLEEVE	10
1	MS25036-26	TERMINAL, LUG	9
60	1010380	INSULATOR, BUSHING FEMALE	8
60	1010379-1	CONTACT, ELECTRICAL FEMALE	7
2	1014032	RECEPTACLE, INDEXING	6
2	1006997	WASHER, PLAIN FLAT	5
2	MS35337-79	WASHER, LOCK	4
2	1006998-1	SCREW, CAPTIVE	3
1	1014000-4	FRAME, MODULE	2
1	1014021	PLATE, CONNECTOR	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN W. Kelley DATE 17 SEPT 65
CHECKED A. Caccione 20 Sep 65
APPROVAL
APPROVAL D. D'Amico
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
DC PWR DISTR
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014182
SCALE 1/1
WT
SHEET 1 OF 1

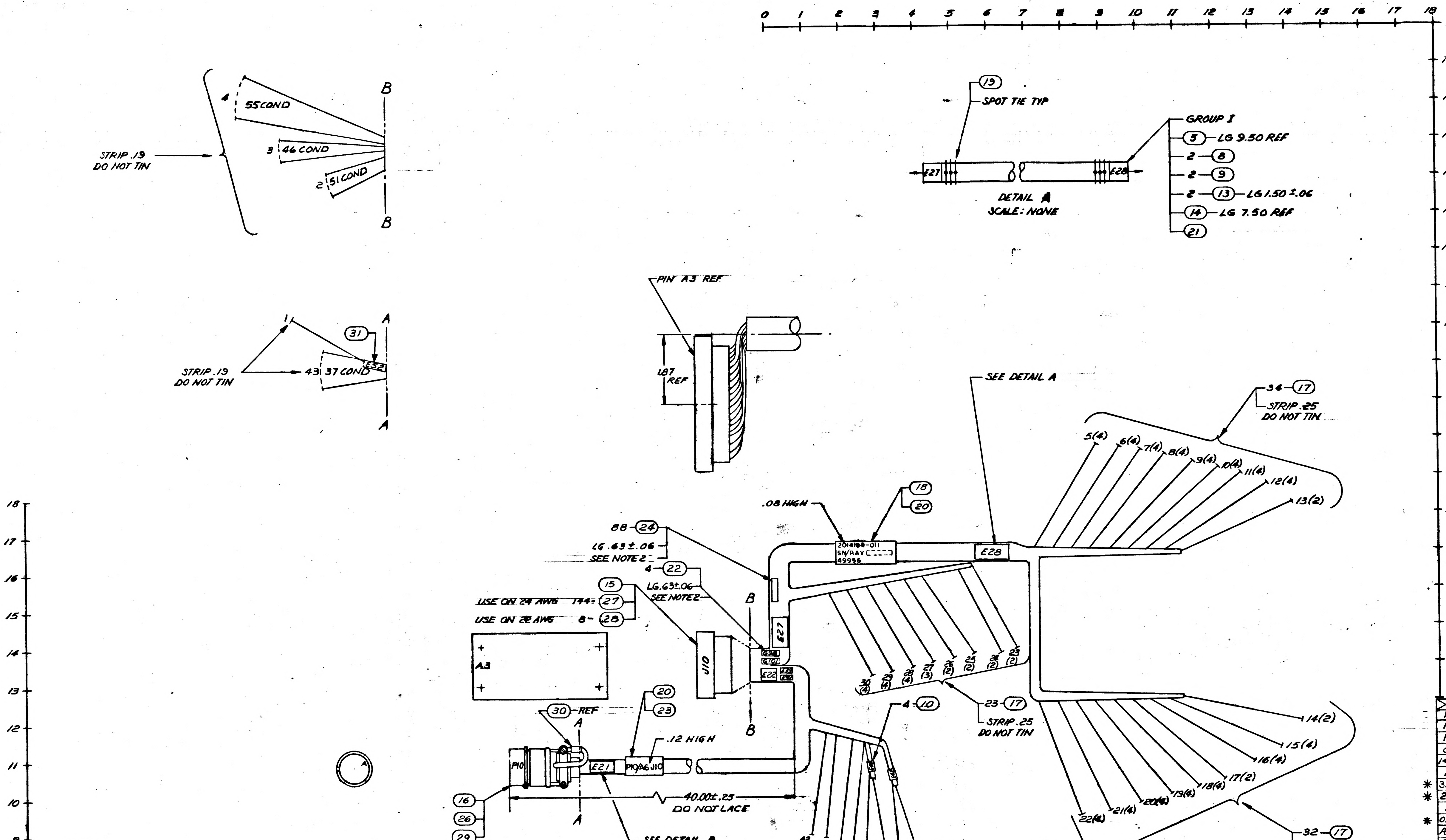
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014182 B

2014182 B

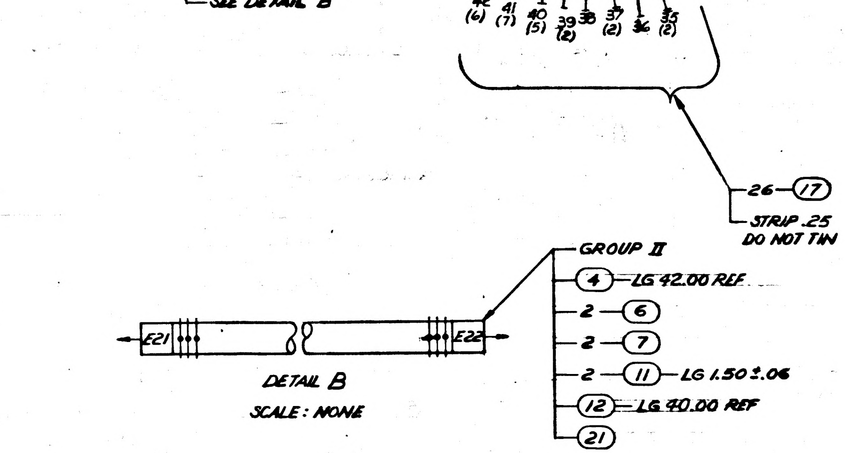
SYM	DESCRIPTION	DATE	APPROVED
E	CLASS A RELEASED PER TDRR 27701		



2014184 E
B
55 COND
4
3 46 COND
2 51 COND
STRIP .19 DO NOT TIN
B
19
SPOT TIE TYP
E27
E28
DETAIL A
SCALE: NONE
GROUP I
5 - LG 9.50 REF
2 - 8
2 - 9
2 - 13 - LG 1.50 ±.06
14 - LG 7.50 REF
21
PIN A3 REF
.187 REF
1
31
A
STRIP .19 DO NOT TIN
43 37 COND
E52
A
SEE DETAIL A
34 - 17
STRIP .25 DO NOT TIN
5(4) 6(4) 7(4) 8(4) 9(4) 10(4) 11(4) 12(4) 13(2)
.08 HIGH
18
20
2014184-011 SN/RAY 49956
88 - 24
LG .63 ±.06
SEE NOTE 2
4 - 22
LG .63 ±.06
SEE NOTE 2
15
USE ON 24 AWG 144 - 27
USE ON 22 AWG 8 - 28
B
J10
E27
G9
G10
E22
B
A3
30 - REF
A
20
23
.12 HIGH
P10
E21
P10/A6 J10
40.00 ±.25 DO NOT LACE
A
16
26
29
SEE DETAIL B
30(4) 29(4) 28(4) 27(3) 26(2) 25(2) 24(2) 23(2)
23 - 17
STRIP .25 DO NOT TIN
4 - 10
14(2) 15(4) 16(4) 17(2) 18(4) 19(4) 20(4) 21(4) 22(4)
32 - 17
STRIP .25 DO NOT TIN
42 (6) 41 (7) 40 (5) 39 (2) 38 37 (2) 36 35 (2)

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO.19
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
3. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
4. STRIP ALL LEADS .50 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
5. SERIALIZE PER ND 1002023
6. CRIMP PER ND 1002206
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
8. QQ-B-575 AWG 34 SIZE .38 FOR FIND NO. 4 & .50 FOR FIND NO. 5
9. MIL-I-23053 CLASS I, COLOR WHT I.D. .12 FOR FIND NO. 24 & I.D. .187 FOR FIND NO. 22

10. MIL-W-16878/4 E22 WHT & BLK, SHIELDED, JACKET TFE WHITE
11. CUT SHIELD AND SLEEVING LENGTH AS SHOWN
12. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
13. AR DENOTES AS REQUIRED
14. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
15. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
16. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
17. MIL-I-23053 CLASS I, COLOR BLK, I.D. .50 FOR FIND NO. 11 & I.D. .75 FOR FIND NO. 13
18. MARK SLEEVING WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH BLK PER ND1002019



26 - 17
STRIP .25 DO NOT TIN
E21
E22
DETAIL B
SCALE: NONE
GROUP II
4 - LG 42.00 REF
2 - 6
2 - 7
2 - 11 - LG 1.50 ±.06
12 - LG 40.00 REF
21

* DENOTES LENGTH IN FEET

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014136	SCHEMATIC	REF
	1	1010402-1	SLV SOLDER ELEC COND	31
	1	MS25036-49	TERMINAL, LUG	30
	1	1020371-20	BUSHING, SLEEVING	29
	8	1006491-012	CONTACT, ELEC	28
	144	1006491-010	CONTACT, ELEC	27
	1	1020371-14	BUSHING, SLV CABLE ADAPTOR	26
*	3.3	MIL-W-16878/4 E22	WIRE, ELEC BLK	25
*	2.8	SEE NOTE 9	INSULATION SLEEVING ELEC	24
	1	1006415-054	BAND MARKER CABLE	23
*	0.3	SEE NOTE 9	INSULATION, SLEEVING ELEC	22
	AR	1006699	SOLVENT	21
	AR	1006253	ADHESIVE	20
	AR	1006458-004	TAPE, LACING	19
	1	1006415-132	MARKER, CABLE	18
	115	1006488-004	TAPER PIN	17
	1	MS3126F-22-55PY	CONNECTOR, ELEC	16
	1	1006671-001	CONNECTOR, ELEC	15
*	0.7	1006696-4	INSULATION, SLEEVING ELEC	14
*	0.3	SEE NOTE 17	INSULATION, SLEEVING ELEC	13
*	3.4	1006696-3	INSULATION, SLEEVING ELEC	12
*	.2	SEE NOTE 17	INSULATION, SLEEVING ELEC	11
	4	1010402-2	SLEEVE, SOLDER, ELEC COND	10
	2	1000242-37	FERRULE	9
	2	1000243-41	FERRULE	8
	2	1000242-30	FERRULE	7
	2	1000243-34	FERRULE	6
*	0.8	SEE NOTE 8	SHIELD, BRAID	5
*	3.6	SEE NOTE 8	SHIELD, BRAID	4
*	2.0	SEE NOTE 10	WIRE, ELEC	3
*	165.0	MIL-W-16878/4 E24	WIRE, ELEC WHT	2
*	75.0	1014341-12	WIRE, ELEC	1
	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014340	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN
CHECKED 10 MAR 66
APPROVAL 10 MAR 66
APPROVAL D. O. 10 MAR 66
APPROVAL 10 MAR 66
NASA APPROVAL
MIT APPROVAL 4-1-66
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED G
AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014184
SCALE 1/1
WT
SHEET 1 OF 2

2014184 E

MASTER

SYM	DESCRIPTION	DATE	APPROVED
E	CLASS A RELEASED PER TDRR 27701	4-16	

ASSEMBLY INFORMATION CHART									
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP I	G1	2	J10-A3	WHT	24	1	5	TB1B-1	
		↑	J10-A4	BLK	↑		5	TB1B-2	
	G2		J10-A5	WHT		↑	6	TB1B-3	
			J10-A6	BLK			6	TB1B-4	
	G3		J10-B1	WHT			7	TB1B-5	
			J10-B2	BLK			7	TB1B-6	
	G4		J10-B3	WHT			8	TB1B-7	
			J10-B4	BLK			8	TB1B-8	
	G5		J10-B5	WHT			9	TB1B-9	
			J10-B6	BLK			9	TB1B-10	
	G6		J10-B7	WHT			10	TB1B-11	
			J10-B8	BLK			10	TB1B-12	
	G7		J10-C1	WHT			11	TB1B-13	
			J10-C2	BLK		↓	11	TB1B-14	
	G8		J10-C3	WHT		1	12	TB1B-15	
			J10-C4	BLK			12	TB1B-16	
	G9		J10-C5	WHT		2	13	TB1B-17	
	G10		J10-C6	WHT		1	5	TB2B-1	
			J10-C7	BLK			5	TB2B-2	
	G11		J10-C8	WHT		↑	6	TB2B-3	
			J10-D8	BLK			6	TB2B-4	
	G12		J10-D2	WHT			7	TB2B-5	
			J10-D3	BLK			7	TB2B-6	
	G13		J10-D4	WHT			8	TB2B-7	
			J10-D5	BLK			8	TB2B-8	
	G14		J10-D6	WHT			9	TB2B-9	
			J10-D7	BLK			9	TB2B-10	
	G15		J10-D1	WHT			10	TB2B-11	
			J10-E1	BLK			10	TB2B-12	
	G16		J10-E2	WHT			11	TB2B-13	
			J10-E3	BLK		↓	11	TB2B-14	
	G17		J10-E4	WHT		1	12	TB2B-15	
			J10-E5	BLK			12	TB2B-16	
	G18		J10-E6	WHT		2	13	TB2B-17	
	G19		J10-E7	WHT		1	22	TB3B-1	
			J10-E8	BLK			22	TB3B-2	
	G20		J10-F1	WHT		↑	21	TB3B-3	
			J10-F2	BLK			21	TB3B-4	
	G21		J10-F3	WHT			20	TB3B-5	
			J10-F4	BLK			20	TB3B-6	
	G22		J10-F5	WHT			19	TB3B-7	
			J10-F6	BLK			19	TB3B-8	
	G23		J10-F7	WHT			18	TB3B-9	
			J10-F8	BLK			18	TB3B-10	
	G24		J10-G1	WHT			17	TB3B-11	
			J10-G2	BLK			17	TB3B-12	
	G25		J10-G3	WHT			16	TB3B-13	
			J10-G4	BLK		↓	16	TB3B-14	
	G26		J10-G5	WHT		1	15	TB3B-15	
		↓	J10-G6	BLK			15	TB3B-16	
	G27	2	J10-G7	WHT		2	14	TB3B-17	
	G28	3	J10-G8	WHT		1	22	TB4B-1	
		↑	J10-H8	BLK			22	TB4B-2	
	G29		J10-H1	WHT		↑	21	TB4B-3	
			J10-H2	BLK			21	TB4B-4	
	G30		J10-H3	WHT			20	TB4B-5	
			J10-H4	BLK			20	TB4B-6	
	G31		J10-H5	WHT			19	TB4B-7	
			J10-H6	BLK			19	TB4B-8	
	G32		J10-H7	WHT			18	TB4B-9	
			J10-J8	BLK		↓	18	TB4B-10	
	G33		J10-J3	WHT		1	16	TB4B-13	
			J10-J4	BLK			16	TB4B-14	
	G34	↓	J10-J5	WHT	↓	2	15	TB4B-15	
	G35	3	J10-J6	WHT	24	2	15	TB4B-16	
		△1	E27	SHLD			△1	E28	
	G36	3	J10-J7	BLK	22	25	△1	E27	
	G37	△1	E28	BLK	22	25	14	TB4B-17	
GROUP II	G38	3	J10-P1	WHT	24	2	43	P10-A	
	G39	3	J10-P2	↑	↑	↑	↑	P10-B	
	G40	3	J10-P3					P10-C	
	G41	3	J10-P4					P10-D	
	G42	4	J10-S3					P10-E	
	G43	4	J10-S4					P10-F	
	G44	4	J10-S5					P10-G	
	G45	3	J10-J2					P10-J	
	G46	↑	J10-K3					P10-K	
	G47		J10-K1					P10-L	
	G48		J10-K2					P10-M	
	G49		J10-L1					P10-N	
	G50		J10-L2					P10-P	
	G51		J10-M1					P10-R	
	G52		J10-M2					P10-S	
	G53		J10-M3					P10-T	
	G54		J10-N1					P10-U	
	G55	↓	J10-N2	↓	↓	↓	↓	P10-V	
	G56	3	J10-N3	WHT	24	2	43	P10-W	

△1 DENOTES INTERNAL CONNECTION
△2 ATTACH 1 OF FIND NO.30 & 1.00 OF FIND NO.24 SEE NOTE 18

ASSEMBLY INFORMATION CHART									
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP II	G57	3	J10-N4	WHT	24	2	43	P10-X	
	G58	3	J10-N5	↑	↑	↑	↑	P10-Y	
	G59	3	J10-N6					P10-d	
	G60	3	J10-P5					P10-f	
	G61	3	J10-P6					P10-i	
	G62	4	J10-R1					P10-j	
	G63	↑	J10-R2					P10-k	
	G64		J10-R3					P10-m	
	G65		J10-R4					P10-n	
	G66		J10-R5					P10-p	
	G67		J10-R6					P10-q	
	G68		J10-S1					P10-r	
	G69		J10-T2					P10-s	
	G70		J10-T3					P10-t	
	G71	↓	J10-S7					P10-AA	
	G72	4	J10-S2	↓	↓	↓	↓	P10-BB	
	G73	3	J10-J1	WHT	24	2	43	P10-CC	
			E22	SHLD			△1	E21	
	G74	4	J10-R8	BLK	22	25	△1	E22	
	G75	△1	E21	BLK	22	25	△1	E52	SEE G111 & G112
	G76	4	J10-X3	WHT	24	1	30	TB5B-1	
		↑	J10-X4	BLK	↑		30	TB5B-2	
	G77		J10-X5	WHT		↑	29	TB5B-3	
			J10-X6	BLK			29	TB5B-4	
	G78		J10-W1	WHT			28	TB5B-5	
			J10-W2	BLK			28	TB5B-6	
	G79		J10-W3	WHT			27	TB5B-7	
			J10-W4	BLK			27	TB5B-8	
	G80		J10-W5	WHT			26	TB5B-9	
			J10-W6	BLK			26	TB5B-10	
	G81		J10-W7	WHT			25	TB5B-11	
			J10-W8	BLK		↓	25	TB5B-12	
	G82		J10-V3	WHT		1	24	TB5B-15	
			J10-V4	BLK			24	TB5B-16	
	G83		J10-V5	WHT		2	23	TB5B-17	
	G84		J10-V6	WHT		1	30	TB6B-1	
			J10-V7	BLK			30	TB6B-2	
	G85		J10-V8	WHT		1	29	TB6B-3	
			J10-U8	BLK			29	TB6B-4	
	G86		J10-U1	WHT		1	28	TB6B-5	
			J10-U2	BLK			28	TB6B-6	
	G87		J10-U7	WHT		2	27	TB6B-7	
	G88		J10-T6	WHT		2	23	TB6B-17	
	G89		J10-T7	WHT		2	42	TB7B-1	
	G90		J10-T8	WHT		2	42	TB7B-2	
	G91		J10-T1	WHT		2	41	TB7B-3	
	G92		J10-T4	WHT		1	41	TB7B-4	
			J10-T5	BLK			41	TB7B-5	
	G93	↓	J10-S6	WHT		2	40	TB7B-6	
	G94	4	J10-S8	WHT		2	39	TB7B-8	
	G95	3	J10-P7	WHT		1	42	TB8B-1	
		↑	J10-P8	BLK			42	TB8B-2	
	G96		J10-K8	WHT		1	41	TB8B-3	
			J10-L8	BLK			41	TB8B-4	
	G97		J10-M8	WHT	↓	1	40	TB8B-5	
			J10-N8	BLK	24		40	TB8B-6	
	G98	↓	J10-K7	WHT	22	3	37	TB8B-7	
		3	J10-L7	BLK	22		37	TB8B-8	
		△1	E39	SHLD			△1	E40	
	G99	3	J10-K6	BLK	22	25	△1	E39	
	G100	△1	E40	BLK	22	25	38	TB8B-9	
	G101	4	J10-M7	WHT	22	3	35	TB8B-10	
		4	J10-N7	BLK	22		35	TB8B-11	
		△1	E41	SHLD			△1	E42	
	G102	4	J10 M6	BLK	22	25	△1	E41	
	G103	△1	E42	BLK	22	25	36	TB8B-12	
	G104	4	J10-U6	WHT	24	2	42	TB9B-19	
	G105	↑	J10-R7	↑	↑	↑	42	TB9B-20	
	G106		J10-U3				41.	TB9B-21	
	G107		J10-U4				41	TB9B-22	
	G108		J10-U5				40	TB9B-23	
	G109	↓	J10-V1	↓	↓	↓	40	TB9B-24	
	G110	4	J10-V2	WHT	24	2	39	TB9B-25	
SEE G75	G111	△1	E52	BLK	22	25	43	P10-Z	
	G112	△1	E52	BLK	22	25	1	P10-GRD △2	

2H

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. Ahern DATE 9 MAR 66
CHECKED K. A. Chance CC 9 MAR 66
APPROVAL 9 MAR 66
APPROVAL D. A. Bryant 9 MAR 66
APPROVAL 9 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 4-4-66
MIT APPROVAL

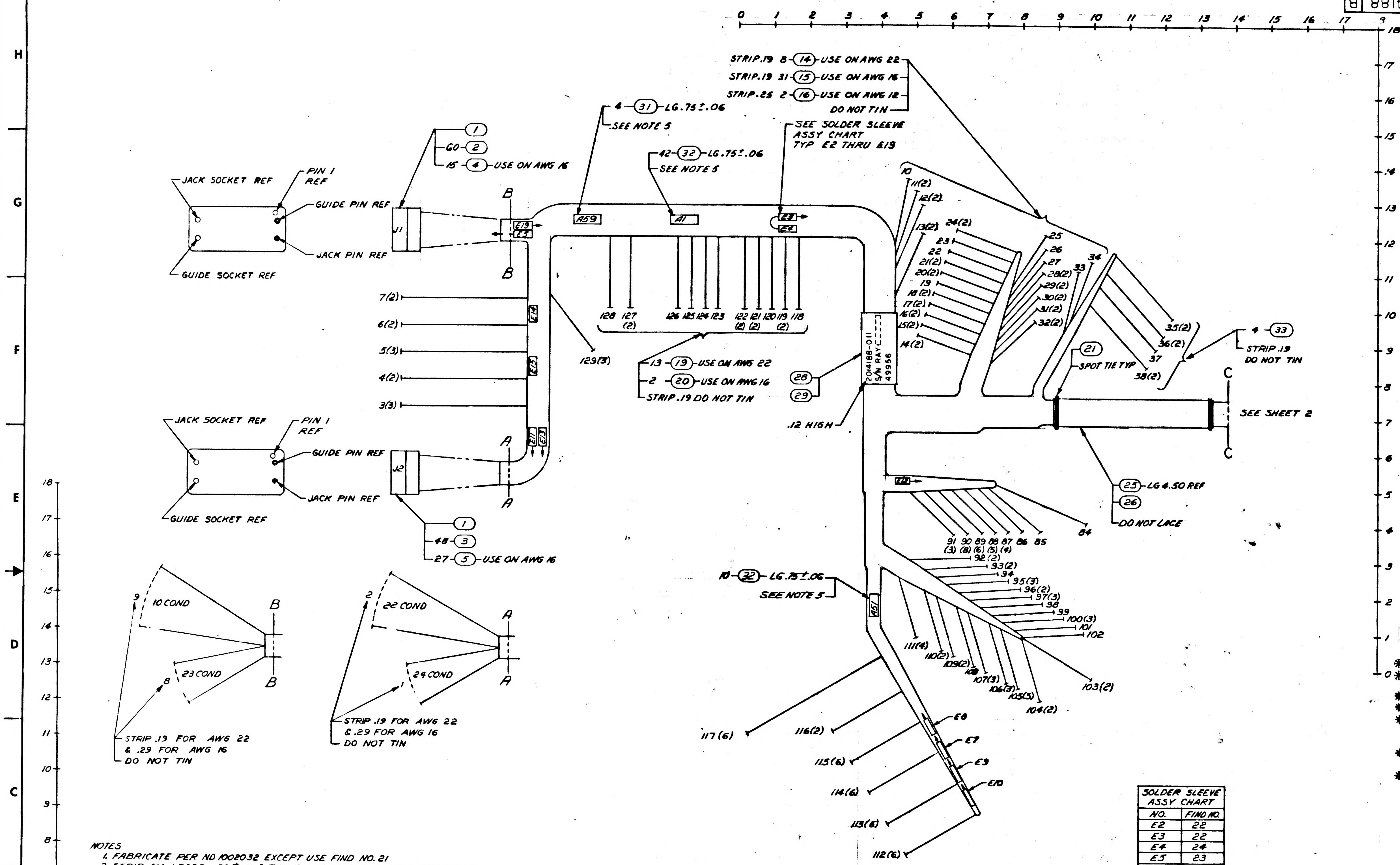
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED G
AGC JUNCTION ASSY
OPERATION CONSOLE

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014184
SCALE NONE | WT | SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25486		
1	CHANGED PER CCA R25445 DR P. Milutto CHK C.D. APPD	11/14/65	
—	CLASS B NO CHANGE PER CCA RE-5509	12/5/65	
A	CHANGED PER CCA R 25564 DR CHK APPD		
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	1/11/66	



STRIP.19 8-(14)-USE ON AWG 22
STRIP.19 31-(15)-USE ON AWG 16
STRIP.25 2-(16)-USE ON AWG 12
DO NOT TIN
4-(31)-LG.75±.06
SEE NOTE 5
(1)
60-(2)
15-(4)-USE ON AWG 16
42-(32)-LG.75±.06
SEE NOTE 5
SEE SOLDER SLEEVE ASSY CHART TYP E2 THRU E19
JACK SOCKET REF
PIN 1 REF
GUIDE PIN REF
JACK PIN REF
GUIDE SOCKET REF
J1
J2
B
A
C
E19
E5
A59
A1
E3
E4
E14
E15
E11
E13
E12
A51
7(2)
6(2)
5(3)
4(2)
3(3)
129(3)
128
127 (2)
126
125
124
123
122 (2)
121 (2)
120
119 (2)
118
13-(19)-USE ON AWG 22
2-(20)-USE ON AWG 16
STRIP.19 DO NOT TIN
(28)
(29)
.12 HIGH
2014188-011 S/N RAY 49956
10
11(2)
12(2)
13(2)
14(2)
15(2)
16(2)
17(2)
18(2)
19
20(2)
21(2)
22
23
24(2)
25
26
27
28(2)
29(2)
30(2)
31(2)
32(2)
33
34
35(2)
36(2)
37
38(2)
4-(33)
STRIP.19 DO NOT TIN
(21)-SPOT TIE TYP
SEE SHEET 2
(25)-LG 4.50 REF
(26)
DO NOT LACE
84
85
86
87 (4)
88 (5)
89 (6)
90 (8)
91 (3)
92(2)
93(2)
94
95(3)
96(2)
97(3)
98
99
100(3)
101
102
103(2)
104(2)
105(3)
106(3)
107(3)
108
109(2)
110(2)
111(4)
112(6)
113(6)
114(6)
115(6)
116(2)
117(6)
E8
E7
E9
E10
10-(32)-LG.75±.06
SEE NOTE 5
10 COND
23 COND
22 COND
24 COND
9
8
2
1
STRIP .19 FOR AWG 22 & .29 FOR AWG 16 DO NOT TIN
STRIP .19 FOR AWG 22 & .29 FOR AWG 16 DO NOT TIN
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 21
2. STRIP ALL LEADS .50 ±.06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
3. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
4. CRIMP PER ND 1002206
5. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
6. SERIALIZE PER ND 1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
10. AR DENOTES AS REQUIRED
11. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
12. MIL-W-16878/4 E22 WHT, RED, BLACK, TWISTED SHIELDED, JACKET TFE WHITE
13. MIL-W-16878/4 E22 WHT SHIELDED JACKET TFE WHITE
14. MIL-W-16878/4 E22 WHT & BLK, TWISTED SHIELDED, JACKET TFE WHITE
15. MIL-I-23053 CLASS I COLOR WHITE, I.D. .250
16. MIL-I-23053 CLASS I, COLOR WHITE, I.D. .187
17. MIL-I-23053 CLASS I, COLOR WHITE, I.D. .125

SOLDER SLEEVE ASSY CHART

NO.	FIND NO.
E2	22
E3	22
E4	24
E5	23
E6	23
E7	22
E8	22
E9	22
E10	22
E11	22
E12	23
E13	22
E14	22
E15	22
E16	23
E17	24
E18	24
E19	24

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014156	SCHEMATIC	REF
✱	1.3	MIL-W-16878/4E20	WIRE, ELEC BLK	35
✱	8.0	MIL-W-16878/4E20	WIRE, ELEC WHT	34
	8	MS25036-49	LUG, TERMINAL	33
✱	3.2	SEE NOTE 17	SLEEVING, INSULATION	32
✱	0.3	SEE NOTE 16	SLEEVING, INSULATION	31
✱	0.3	SEE NOTE 15	SLEEVING, INSULATION	30
	AR	1006253	ADHESIVE	29
	1	1006415-135	MARKER, CABLE	28
✱	7.0	MIL-W-16878/4 E12	WIRE, ELEC WHITE	27
	AR	1006699	SOLVENT	26
✱	4.5	1006696-5	SLEEVING, INSULATION	25
	4	1010402-3	SLEEVE, SOLDER	24
	4	1010402-2	SLEEVE, SOLDER	23
	10	1010402-1	SLEEVE, SOLDER	22
	AR	1006458-004	LACING, TAPE	21
	2	MS25036-6	LUG, TERMINAL	20
	13	MS25036-1	LUG, TERMINAL	19
	3	MS25036-57	LUG, TERMINAL	18
	6	MS25036-50	LUG, TERMINAL	17
	2	MS17143-21	LUG, TERMINAL	16
	31	MS17143-20	LUG, TERMINAL	15
	8	MS17143-19	LUG, TERMINAL	14
✱	75	MIL-W-16878/4 E22	WIRE, ELEC BLK	13
✱	60	SEE NOTE 14	WIRE, ELEC	12
✱	20.0	SEE NOTE 12	WIRE, ELEC	11
✱	40.0	SEE NOTE 13	WIRE, ELEC	10
✱	100	1014341-11	WIRE, ELEC	9
✱	38.7	MIL-W-16878/4 E16	WIRE, ELEC BLACK	8
✱	110	MIL-W-16878/4 E22	WIRE, ELEC WHT	7
✱	107.	MIL-W-16878/4 E16	WIRE, ELEC WHT	6
	27	1006491-014	CONTACT, ELECTRICAL	5
	15	1006491-013	CONTACT, ELECTRICAL	4
	48	1006491-012	CONTACT, ELECTRICAL	3
	60	1006491-011	CONTACT, ELECTRICAL	2
	2	1006494-002	CONNECTOR	1
	-011	LIST OF MATERIALS		

✱ DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014297	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 21 SEPT 65
CHECKED 4 OCT 65
APPROVAL 19 OCT 65
APPROVAL 10/18/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

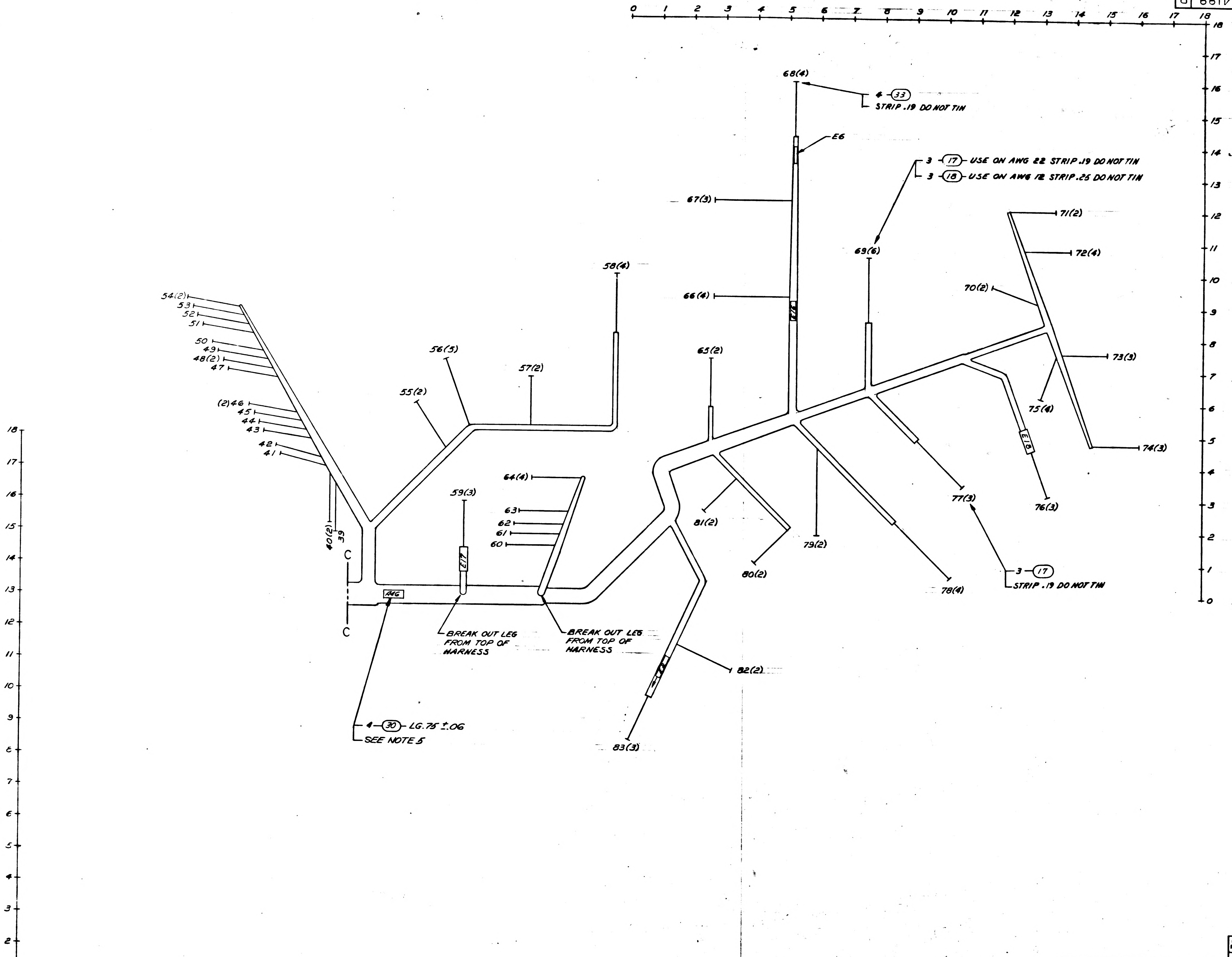
WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014188
SCALE 1/1 | WT | SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014188 B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25486		
1	CHANGED PER CCA R25445 DR P. Milnet CHK: APPD	11/65	
—	CLASS B NO CHANGE PER CCA R25509	65	
A	CHANGED PER CCA R25564 DR CHK APPD	12/17/65	
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	1/18/66	


68(4)
4-(33)
STRIP .19 DO NOT TIN
E6
3-(17) USE ON AWG 22 STRIP .19 DO NOT TIN
3-(18) USE ON AWG 12 STRIP .25 DO NOT TIN
67(3)
69(6)
71(2)
72(4)
70(2)
58(4)
66(4)
E14
54(2)
53
52
51
50
49
48(2)
47
56(5)
57(2)
65(2)
73(3)
55(2)
(2)46
45
44
43
42
41
75(4)
E18
74(3)
64(4)
59(3)
63
62
61
60
E17
40(2)
39
C
C
81(2)
79(2)
77(3)
76(3)
80(2)
78(4)
3-(17)
STRIP .19 DO NOT TIN
A4G
BREAK OUT LEG FROM TOP OF HARNESS
BREAK OUT LEG FROM TOP OF HARNESS
82(2)
E20
4-(30) LG .75 ±.06
SEE NOTE 5
83(3)

2014188 B

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 21 SEPT 65
CHECKED 4 OCT 65
APPROVAL P. 19 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014188
SCALE 1/1
WT
SHEET 2 OF 3

2014188 B

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	104	A1-1	WHT	22	9	72	S8-3NO	
		105	-2	BLK			72	S8-4NO	
	A2	106	-10	WHT		9	71	S10-3NO	
		107	A1-14	BLK			71	S10-4NO	
	A3	120	A3-3	WHT		7	83	R4-CW	
	A4	109	A1-6	WHT		7	38	DS2-1	
	A5	110	-7	WHT	22	7	74	S2-4NO	
	A6	105	-11	WHT	16	6	23	TB1B-3	TWIST
	A7	111	-12	BLK		8	22	TB1B-4	
	A8	105	-11	WHT		6	46	S15B-9	TWIST
	A9	111	-12	BLK		8	54	S15A-9	
	A10	100	-15	BLK		8	58	S17-2C	TWIST
	A11	92	-16	WHT	16	6	58	S16-1C	
	A12	103	-17	WHT	22	7	8	J1-57	
	A13	100	-19		22	7	57	R5-1	
	A14	99	-18		22	7	8	J1-75	
	A15	98	-21		16	6	5	F2-2	
	A16	97	-22			6	1	J2-44	
	A17	97	-22			6	1	J2-50	
	A18	96	-23			6	3	F3-2	
	A19	95	-24			6	1	J2-48	
	A20	95	-24		16	6	1	J2-54	
	A21	94	-25		22	7	56	S18B-ARM	
	A22	93	-26		22	7	8	J1-76	
	A23	93	-26		22	7	55	S18A-ARM	
	A24	87	-28	WHT	16	6	8	J1-74	TWIST
	A25	89	-30	BLK		8	8	J1-72	
	A26	87	-28	WHT		6	42	S15A-4	TWIST
	A27	89	-30	BLK		8	50	S15B-4	
	A28	88	-29	WHT		6	8	J1-73	
	A29	90	-31	WHT	16	6	65	R3-3	
	A30	90	-32	BLK	22	13	△	E7	
	A31	90	-32	BLK		13	△	E8	
	A32	90	-32	BLK		13	△	E12	
	A33	91	-33	WHT		7	8	J1-64	
	A34	84	-34			7	8	J1-54	
	A35	86	-38			7	36	DS2-3	
	A36	87	-39			7	35	DS2-4	
	A37	88	-40	WHT		12	66	S14A-ARM	
		89	A1-41	BLK	22		67	S14B-3	
		△	E12	SHLD			△	E16	
	A38	90	A1-42	BLK	22	13	△	E6	
	A39	90	-42	BLK	22	13	△	E9	
	A40	90	-42	BLK	22	13	△	E10	
	A41	91	-43	WHT	16	6	8	J1-53	TWIST
	A42	91	-44	BLK	16	8	8	J1-52	
	A43	103	A1R1-3	WHT	22	7	56	S18A-7	
	A44	64	A2-1	WHT		7	118	A3-1	
	A45	64	-2	BLK		13	119	A3-2	
	A46	59	-4	WHT		11	121	A3-4	
		59	-5	BLK			122	A3-5	
		59	A2-6	RED	22		122	A3-6	
		△	E17	SHLD			△	E4	
	A47	62	A2-7	WHT	22	7	123	A3-7	
	A48	61	-8			7	124	A3-8	
	A49	60	-9			7	125	A3-9	
	A50	63	A2-10			7	126	A3-10	
	A51	121	A3-4	WHT	22	10	83	R4-CCW	
		△	E3	SHLD			△	E2	
	A52	△	E2	BLK	22	13	83	R4-ARM	
	A53	△	E3	BLK	22	13	△	E4	
	A54	△	E3	BLK	22	13	119	A3-2	
	A55	127	A3-13	BLK	16	8	13	TB1A-7	TWIST
	A56	127	A3-14	WHT	16	6	13	TB1A-6	
	A57	128	A3-15	WHT	22	7	9	J1-8	
	A58	9	J1-1	BLK	22	13	△	E5	
	A59	9	J1-2	WHT	22	12	68	T1-2	
		9	J1-3	BLK	22		68	T1-1	
		△	E5	SHLD			△	E6	
	A60	123	E1	BLK	16	8	10	TB1A-2	
	A61	9	J1-10	BLK	22	9	20	TB1B-6	
			-11	WHT	22		26	TB2A-6	
	A62		-12	BLK	16	8	129	E1	
	A63		-13	WHT	22	11	76	DS1(+)	
			-14	BLK	22		76	S1-2	
		9	J1-15	RED	22		76	DSK(-)	
		△	E19	SHLD			△	E18	
	A64	8	J1-51	WHT	22	7	2	J2-30	
	A65		-60	WHT	22	7	73	S6-3NO	
	A66		-62	WHT	16	6	18	TB1B-8	TWIST
	A67		-63	BLK	16	8	28	TB2A-8	
	A68		-65	WHT	16	6	18	TB1B-8	TWIST
	A69		-66	BLK	16	8	28	TB2A-8	
	A70		-67	WHT	16	6	65	R3-1	
	A71		-70	BLK	22	9	43	S15B-6	
		8	J1-71	WHT	22		51	S15A-6	

△ DENOTES INTERNAL CONNECTION

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A72	8	J1-77	WHT	16	6	11	TB1A-3	TWIST
	A73	8	J1-78	BLK	16	8	12	TB1A-4	
	A74	8	J1-79	WHT	16	6	11	TB1A-3	TWIST
	A75	8	J1-80	BLK	16	8	12	TB1A-4	
	A76	2	J2-1	WHT	22	9	52	S15A-7	
			-4	BLK	22		44	S15B-7	
	A77		-2	WHT	16	6	32	TB2A-12	TWIST
	A78		-3	BLK		8	14	TB1B-12	
	A79		-5	WHT		6	31	TB2A-11	TWIST
	A80		-8	BLK		8	15	TB1B-11	
	A81		-7	WHT		6	32	TB2A-12	TWIST
	A82		-11	BLK		8	14	TB1B-12	
	A83		-10	WHT		6	30	TB2A-10	TWIST
	A84		-21	BLK		8	16	TB1B-10	
	A85		-12	BLK		8	15	TB1B-11	TWIST
	A86		-13	WHT		6	31	TB2A-11	
	A87		-14	WHT		6	30	TB2A-10	TWIST
	A88		-17	BLK		8	16	TB1B-10	
	A89		-15	WHT		6	29	TB2A-9	TWIST
	A90		-18	BLK	16	8	17	TB1B-9	
	A91		-16	WHT	22	9	53	S15A-8	
			-23	BLK	22		45	S15B-8	
	A92		-22	BLK	16	8	17	TB1B-9	TWIST
	A93		-25	WHT	16	6	29	TB2A-9	
	A94	2	-24	WHT	22	7	38	DS2-1	
	A95	1	-43	WHT	16	6	5	F2-1	
	A96		-45	WHT	22	9	48	S15A-2	
			-46	BLK	22		40	S15B-2	
	A97		-47	WHT	16	6	3	F3-1	
	A98		-49	WHT	16	6	5	F2-1	
	A99		-51	WHT	16	6	3	F3-1	
	A100		-52	WHT	22	9	41	S15B-3	
			-53	BLK	22		49	S15A-3	
	A101		-62	BLK	16	8	24	TB1B-2	
	A102		-63	WHT	22	9	81	R2-3	
			-64	BLK	22		81	R2-1	
	A103		-65	BLK	16	8	24	TB1B-2	
	A104		-66	WHT	22	9	80	R1-3	
			-67	BLK	22		80	R1-1	
	A105		-76	BLK	22	13	△	E13	
	A106	1	J2-77	WHT	22	10	113	K2-4	
		△	E13	SHLD			△	E8	
	A107	1	J2-78	WHT	16	6	6	F4-1	
	A108	1	J2-79	BLK	22	13	△	E11	
	A109	1	J2-80	WHT	22	6	4	F5-1	
	A110	1	J2-82	WHT	22	10	112	K1-4	
		△	E11	SHLD			△	E9	
	A111	82	J3	WHT	22	9	47	S15A-1	
		82	J4	BLK			39	S15B-1	
	A112	7	F1-1	BLK		9	19	TB1B-7	
		7	F1-2	WHT			27	TB2A-7	
	A113	6	F4-2	WHT		10	113	K2-5	
		△	E14	SHLD			△	E7	
	A114	4	F5-2	WHT	22	10	112	K1-5	
		△	E15	SHLD			△	E10	
	A115	77	M1-140V	WHT	22	7	66	S14A-1	TWIST
	A116	77	M1-70V		22	7	66	S14A-3	
	A117	77	M1-COM		22	7	67	S14B-ARM	
	A118	69	M2-(+)		12	27	34	TB2B-8	
	A119		-(-)		22	7	78	S12A-ARM	
	A120		-10A		22	7	78	S12A-2	
	A121		-5A		22	7	78	S12A-3	
	A122		-1A		12	27	33	TB2B-9	
	A123	69	M2-1A		22	7	79	S13-4	
	A124	70	M3-1	WHT	22	9	20	TB1B-6	
		70	M3-2	BLK			21	TB1B-5	
	A125	37	DS2-2	WHT		7	56	S18B-1	
	A126	36	DS2-3	WHT		7	56	S18A-5	
	A127	35	DS2-4	WHT		7	55	S18A-1	
	A128	129	E1	BLK		13	△	E19	
	A129	57	R5-3	WHT		7	56	S18A-9	
	A130	74	S2-1C	BLK		9	54	S15A-9	
		74	S3-2C	WHT			46	S15B-9	
	A131	73	S6-4NO	BLK		9	21	TB1B-5	
		73	S6-4C	WHT			25	TB2A-5	
	A132	75	S7-1C	WHT		9	58	S16-1C	
		75	S7-2C	BLK			58	S17-2C	
	A133	75	S7-1C	WHT		9	72	S8-3C	
		75	S7-2C	BLK			72	S8-4C	
	A134	78	S12A-4	WHT		7	79	S13-3	
	A135	66	S14A-ARM	WHT		9	68	T1-3	
		67	S14B-2	BLK	22		68	T1-2	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A136	100	A1-15	WHT	16	6	117	K6-5	
	A137	92	A1-16	BLK	16	8	117	K6-1	
	A138	111	A1-12	BLK	16	8	117	K6-6	
	A139	105	A1-11	WHT	16	6	117	K6-2	
	A140	110	A1-7	WHT	22	7	117	K6-3	
	A141	111	A1-8	WHT	22	7	117	K6-7	
	A142	64	A2-2	BLK	22	9	40	S15B-ARM	
		64	A2-16	WHT	22		48	S15A-ARM	
	A143	108	A1-5	WHT	22	7	116	K5-2	
	A144	109	A1-6	WHT	22	7	116	K5-7	
	A145	101	A1-13	WHT	22	7	112	K1-7	
	A146	102	A1-9	WHT	22	7	112	K1-2	
	A147	88	A1-40	WHT	22	9	112	K1-3	
		89	A1-41	BLK			112	K1-6	
	A148	89	A1-41	BLK	22	9	113	K2-6	
		88	A1-40	WHT			113	K2-3	
	A149	106	A1-3	WHT	22	7	113	K2-2	
	A150	107	A1-4	BLK	22	13	113	K2-7	
	A151	96	A1-23	WHT	20	34	114	K3-4	
	A152	95	A1-24	WHT	20	34	114	K3-5	
	A153	90	A1-31	WHT	20	34	114	K3-6	
	A154	88	A1-29	WHT	20	34	114	K3-3	
	A155	104	A1-1	WHT	22	7	114	K3-2	
	A156	105	A1-2	BLK	22	13	114	K3-7	
	A157	89	A1-30	BLK	20	35	115	K4-6	
	A158	87	A1-28	WHT	20	34	115	K4-3	
	A159	106	A1-3	WHT	22	7	115	K4-2	
	A160	107	A1-4	BLK	22	13	115	K4-7	
	A161	85	A1-21	WHT	20	34	115	K4-4	
	A162	97	A1-22	WHT	20	34	115	K4-5	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25786		
1	CHANGED PER CCA R25445 DR R Miller CHK [illegible] APPD [illegible]	11/10/65	[illegible]
—	CLASS B NO CHANGE PER CCA R25509	[illegible]	[illegible]
A	CHANGED PER CCA R25564 DR [illegible] CHK [illegible] APPD [illegible]	1/13/65	[illegible]
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	1/15/66	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. S. May DATE 23 Sep 65
CHECKED [illegible] 4 OCT 65
APPROVAL P. Graggian 19 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. O. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014188
SCALE NONE | WT | SHEET 3 OF 3

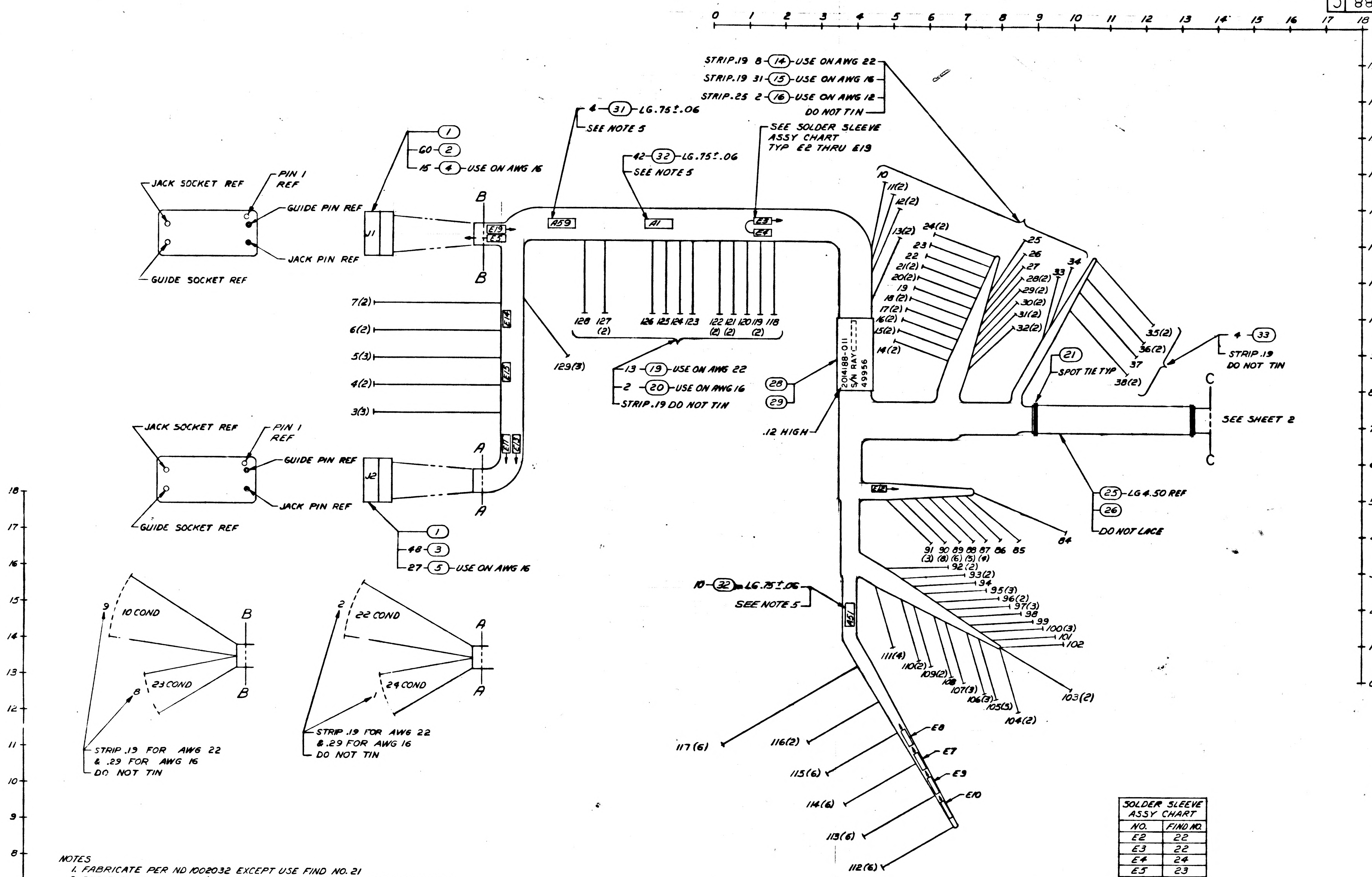
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014188 B

2014188 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25496		
1	CHANGED PER CCA R25445 DR P. Milster CHK C.D. APPD	11/16/65	
—	CLASS B NO CHANGE PER CCA R25509	12/1/65	
A	CHANGED PER CCA R 25564 DR CHK APPD	1/17/65	
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	1/15/66	
C	CHANGED PER TDRR 26307 DR J.P. Leonard CHK APPD		



STRIP.19 8-(14)-USE ON AWG 22
STRIP.19 31-(15)-USE ON AWG 16
STRIP.25 2-(16)-USE ON AWG 12
DO NOT TIN
4-(31)-LG.75±.06
SEE NOTE 5
SEE SOLDER SLEEVE ASSY CHART TYP E2 THRU E19
42-(32)-LG.75±.06
SEE NOTE 5
(1)
60-(2)
15-(4)-USE ON AWG 16
JACK SOCKET REF
PIN 1 REF
GUIDE PIN REF
JACK PIN REF
GUIDE SOCKET REF
J1
B
B
E18
E5
A59
A1
E3
E4
7(2)
6(2)
5(3)
4(2)
3(3)
E14
E13
E17
E16
128 127 (2) 126 125 124 123 122 (2) 121 (2) 120 119 (2) 118
129(3)
13-(19)-USE ON AWG 22
2-(20)-USE ON AWG 16
STRIP.19 DO NOT TIN
2014188-011 S/N RAY 49956
(28)
(29)
.12 HIGH
10 11(2) 12(2) 13(2) 24(2) 23 22 21(2) 20(2) 19 18(2) 17(2) 16(2) 15(2) 14(2)
25 26 27 28(2) 29(2) 30(2) 31(2) 32(2) 33 34
35(2) 36(2) 37 38(2)
4-(33)
STRIP.19 DO NOT TIN
(21)-SPOT TIE TYP
C
SEE SHEET 2
C
(25)-LG 4.50 REF
(26)
DO NOT LACE
E12
84
91 (3) 90 (8) 89 (6) 88 (5) 87 (4) 86 85
92(2) 93(2) 94 95(3) 96(2) 97(3) 98 99 100(3) 101 102
103(2)
111(4) 110(2) 109(2) 108 107(3) 106(3) 105(5) 104(2)
10-(32)-LG.75±.06
SEE NOTE 5
A51
E8
E7
E9
E10
117(6)
116(2)
115(6)
114(6)
113(6)
112(6)
JACK SOCKET REF
PIN 1 REF
GUIDE PIN REF
JACK PIN REF
GUIDE SOCKET REF
J2
A
A
(1)
48-(3)
27-(5)-USE ON AWG 16
9
10 COND
B
8
23 COND
B
STRIP .19 FOR AWG 22 & .29 FOR AWG 16 DO NOT TIN
2
22 COND
A
1
24 COND
A
STRIP .19 FOR AWG 22 & .29 FOR AWG 16 DO NOT TIN
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 21
2. STRIP ALL LEADS .50 ±.06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
3. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
4. CRIMP PER ND 1002206
5. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
6. SERIALIZE PER ND 1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
10. AR DENOTES AS REQUIRED
11. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
12. MIL-W-16878/4 E22 WHT, RED, BLACK, TWISTED SHIELDED, JACKET TFE WHITE
13. MIL-W-16878/4 E22 WHT SHIELDED JACKET TFE WHITE
14. MIL-W-16878/4 E22 WHT & BLK, TWISTED SHIELDED, JACKET TFE WHITE
15. MIL-I-23053 CLASS 1 COLOR WHITE, I.D. .250
16. MIL-I-23053 CLASS 1, COLOR WHITE, I.D. .187
17. MIL-I-23053 CLASS 1, COLOR WHITE, I.D. .125

SOLDER SLEEVE ASSY CHART

NO.	FIND NO.
E2	22
E3	22
E4	24
E5	23
E6	23
E7	22
E8	22
E9	22
E10	22
E11	22
E12	23
E13	22
E14	22
E15	22
E16	23
E17	24
E18	24
E19	24

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014156	SCHEMATIC	REF
✱	1.3	MIL-W-16878/4E20	WIRE, ELEC BLK	35
✱	8.0	MIL-W-16878/4E20	WIRE, ELEC WHT	34
	8	MS25036-49	LUG, TERMINAL	33
✱	3.2	SEE NOTE 17	SLEEVING, INSULATION	32
✱	0.3	SEE NOTE 16	SLEEVING, INSULATION	31
✱	0.3	SEE NOTE 15	SLEEVING, INSULATION	30
	AR	1006253	ADHESIVE	29
	1	1006415-135	MARKER, CABLE	28
✱	7.0	MIL-W-16878/4 E12	WIRE, ELEC WHITE	27
	AR	1006699	SOLVENT	26
✱	4.5	1006696-5	SLEEVING, INSULATION	25
	4	1010402-3	SLEEVE, SOLDER	24
	4	1010402-2	SLEEVE, SOLDER	23
	10	1010402-1	SLEEVE, SOLDER	22
	AR	1006458-004	LACING, TAPE	21
	2	MS25036-6	LUG, TERMINAL	20
	13	MS25036-1	LUG, TERMINAL	19
	3	MS25036-57	LUG, TERMINAL	18
	6	MS25036-50	LUG, TERMINAL	17
	2	MS17143-21	LUG, TERMINAL	16
	31	MS17143-20	LUG, TERMINAL	15
	8	MS17143-19	LUG, TERMINAL	14
✱	75	MIL-W-16878/4 E22	WIRE, ELEC BLK	13
✱	60	SEE NOTE 14	WIRE, ELEC	12
✱	20.0	SEE NOTE 12	WIRE, ELEC	11
✱	40.0	SEE NOTE 13	WIRE, ELEC	10
✱	100	1014341-11	WIRE, ELEC	9
✱	38.7	MIL-W-16878/4 E16	WIRE, ELEC BLACK	8
✱	110	MIL-W-16878/4 E22	WIRE, ELEC WHT	7
✱	107.	MIL-W-16878/4 E16	WIRE, ELEC WHT	6
	27	1006491-014	CONTACT, ELECTRICAL	5
	15	1006491-013	CONTACT ELECTRICAL	4
	48	1006491-012	CONTACT, ELECTRICAL	3
	60	1006491-011	CONTACT, ELECTRICAL	2
	2	1006494-002	CONNECTOR	1
	-011	LIST OF MATERIALS		

✱ DENOTES LENGTH IN FEET

2014188 C

2014297	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-437
DRAWN Ray Coombs DATE 21 SEPT 65
CHECKED H. Leath 4 OCT 65
APPROVAL 19 OCT 65
APPROVAL 10/18/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

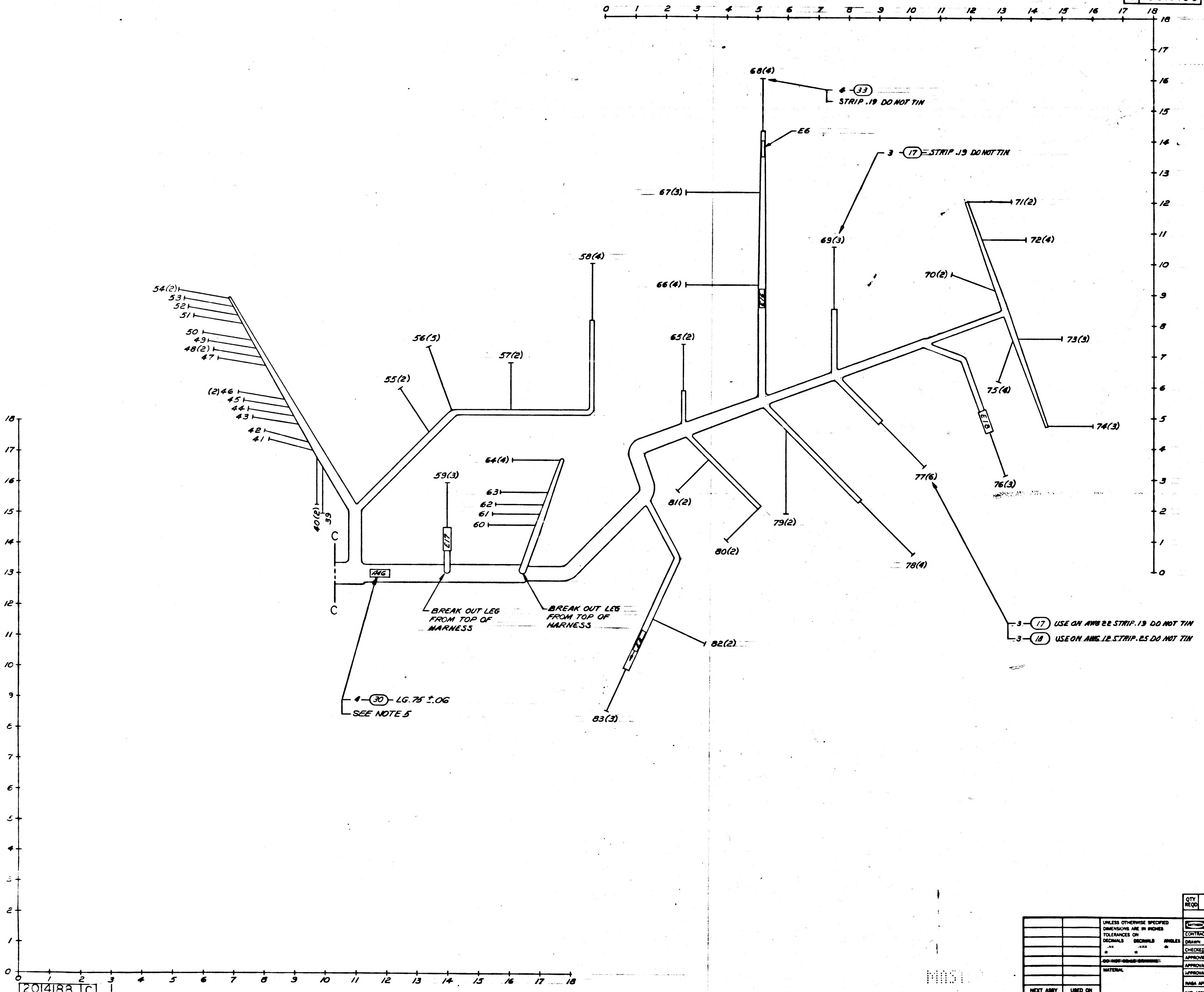
WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014188
SCALE 1/1
WT
SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014188 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25486		
1	CHANGED PER CCA R 25445 DR P. Milner CHK: Williams APPD	[illegible]	[illegible]
—	CLASS B NO CHANGE PER CCA R25509	[illegible]	[illegible]
A	CHANGED PER CCA R25564 DR [illegible] CHK [illegible] APPD [illegible]	12/17/65	[illegible]
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	1/13/66	[illegible]
C	CHANGED PER TDPR 26307 DR J.P. Leonard CHK [illegible] APPD [illegible]	3/[illegible]/66	[illegible]



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
68(4)
4 - (33)
STRIP .19 DO NOT TIN
E6
3 - (17) STRIP .19 DO NOT TIN
67(3)
69(3)
71(2)
72(4)
70(2)
66(4)
E16
58(4)
54(2)
53
52
51
50
49
48(2)
47
(2)46
45
44
43
42
41
40(2)
39
56(5)
57(2)
55(2)
65(2)
73(3)
75(4)
E18
74(3)
76(3)
77(6)
64(4)
63
62
61
60
59(3)
E17
C
C
A16
81(2)
79(2)
80(2)
78(4)
BREAK OUT LEG FROM TOP OF HARNESS
BREAK OUT LEG FROM TOP OF HARNESS
82(2)
83(3)
3 - (17) USE ON AWG 22 STRIP .13 DO NOT TIN
3 - (18) USE ON AWG 12 STRIP .25 DO NOT TIN
4 - (30) - LG .75 ±.06
SEE NOTE 5

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

~~DO NOT SCALE DRAWING~~

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Fay [illegible] DATE 21 SEPT 65
CHECKED [illegible] 4 OCT 65
APPROVAL P. [illegible] 19 OCT 65
APPROVAL D. [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014188
SCALE 1/1
WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014188 C

2014188 C

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	104	A1-1	WHT	22	9	72	S8-3NO	
		105	-2	BLK			72	S8-4NO	
	A2	106	-10	WHT		9	71	S10-3NO	
		107	A1-14	BLK			71	S10-4NO	
	A3	120	A3-3	WHT		7	83	R4-CW	
	A4	109	A1-6	WHT		7	38	DS2-1	
	A5	110	-7	WHT	22	7	74	S2-4NC	
	A6	105	-11	WHT	16	6	23	TB1B-3	TWIST
	A7	111	-12	BLK		8	22	TB1B-4	
	A8	105	-11	WHT		6	46	S15B-9	TWIST
	A9	111	-12	BLK		8	54	S15A-9	
	A10	100	-15	BLK		8	58	S17-2C	TWIST
	A11	92	-16	WHT	16	6	58	S16-1C	
	A12	103	-17	WHT	22	7	8	J1-57	
	A13	100	-19		22	7	57	R5-1	
	A14	99	-18		22	7	8	J1-75	
	A15	98	-21		16	6	5	F2-2	
	A16	97	-22			6	1	J2-44	
	A17	97	-22			6	1	J2-50	
	A18	96	-23			6	3	F3-2	
	A19	95	-24			6	1	J2-48	
	A20	95	-24		16	6	1	J2-54	
	A21	94	-25		22	7	56	S18B-ARM	
	A22	93	-26		22	7	8	J1-76	
	A23	93	-26		22	7	55	S18A-ARM	
	A24	87	-28	WHT	16	6	8	J1-74	TWIST
	A25	89	-30	BLK		8	8	J1-72	
	A26	87	-28	WHT		6	42	S15A-4	TWIST
	A27	89	-30	BLK		8	50	S15B-4	
	A28	88	-29	WHT		6	8	J1-73	
	A29	90	-31	WHT	16	6	65	R3-3	
	A30	90	-32	BLK	22	13	⚠	E7	
	A31	90	-32	BLK		13	⚠	E8	
	A32	90	-32	BLK		13	⚠	E12	
	A33	91	-33	WHT		7	8	J1-64	
	A34	84	-34			7	8	J1-54	
	A35	86	-38			7	36	DS2-3	
	A36	87	-39			7	35	DS2-4	
	A37	88	-40	WHT		12	66	S14A-ARM	
		89	A1-41	BLK	22		67	S14B-3	
		⚠	E12	SHLD			⚠	E16	
	A38	90	A1-42	BLK	22	13	⚠	E6	
	A39	90	-42	BLK	22	13	⚠	E9	
	A40	90	-42	BLK	22	13	⚠	E10	
	A41	91	-43	WHT	16	6	8	J1-53	TWIST
	A42	91	-44	BLK	16	8	8	J1-52	
	A43	103	A1R1-3	WHT	22	7	56	S18A-7	
	A44	64	A2-1	WHT		7	118	A3-1	
	A45	64	-2	BLK		13	119	A3-2	
	A46	59	-4	WHT		11	121	A3-4	
		59	-5	BLK			122	A3-5	
		59	A2-6	RED	22		122	A3-6	
		⚠	E17	SHLD			⚠	E4	
	A47	62	A2-7	WHT	22	7	123	A3-7	
	A48	61	-8			7	124	A3-8	
	A49	60	-9			7	125	A3-9	
	A50	63	A2-10			7	126	A3-10	
	A51	121	A3-4	WHT	22	10	83	R4-CCW	
		⚠	E3	SHLD			⚠	E2	
	A52	⚠	E2	BLK	22	13	83	R4-ARM	
	A53	⚠	E3	BLK	22	13	⚠	E4	
	A54	⚠	E3	BLK	22	13	119	A3-2	
	A55	127	A3-13	BLK	16	8	13	TB1A-7	TWIST
	A56	127	A3-14	WHT	16	6	13	TB1A-6	
	A57	128	A3-15	WHT	22	7	9	J1-8	
	A58	9	J1-1	BLK	22	13	⚠	E5	
	A59	9	J1-2	WHT	22	12	68	T1-2	
		9	J1-3	BLK	22		68	T1-1	
		⚠	E5	SHLD			⚠	E6	
	A60	123	E1	BLK	16	8	10	TB1A-2	
	A61	9	J1-10	BLK	22	9	20	TB1B-6	
			-11	WHT	22		26	TB2A-6	
	A62		-12	BLK	16	8	129	E1	
	A63		-13	WHT	22	11	76	DS1(+)	
			-14	BLK	22		76	S1-2	
		9	J1-15	RED	22		76	DS1(-)	
		⚠	E19	SHLD			⚠	E18	
	A64	8	J1-51	WHT	22	7	2	J2-30	
	A65		-60	WHT	22	7	73	S6-3NO	
	A66		-62	WHT	16	6	18	TB1B-8	TWIST
	A67		-63	BLK	16	8	28	TB2A-8	
	A68		-65	WHT	16	6	18	TB1B-8	TWIST
	A69		-66	BLK	16	8	28	TB2A-8	
	A70		-67	WHT	16	6	65	R3-1	
	A71		-70	BLK	22	9	43	S15B-6	
		8	J1-71	WHT	22		51	S15A-6	

⚠ DENOTES INTERNAL CONNECTION

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A72	8	J1-77	WHT	16	6	11	TB1A-3	TWIST
	A73	8	J1-78	BLK	16	8	12	TB1A-4	
	A74	8	J1-79	WHT	16	6	11	TB1A-3	TWIST
	A75	8	J1-80	BLK	16	8	12	TB1A-4	
	A76	2	J2-1	WHT	22	9	52	S15A-7	
			-4	BLK	22		44	S15B-7	
	A77		-2	WHT	16	6	32	TB2A-12	TWIST
	A78		-3	BLK		8	14	TB1B-12	
	A79		-5	WHT		6	31	TB2A-11	TWIST
	A80		-8	BLK		8	15	TB1B-11	
	A81		-7	WHT		6	32	TB2A-12	TWIST
	A82		-11	BLK		8	14	TB1B-12	
	A83		-10	WHT		6	30	TB2A-10	TWIST
	A84		-21	BLK		8	16	TB1B-10	
	A85		-12	BLK		8	15	TB1B-11	TWIST
	A86		-13	WHT		6	31	TB2A-11	
	A87		-14	WHT		6	30	TB2A-10	TWIST
	A88		-17	BLK		8	16	TB1B-10	
	A89		-15	WHT		6	29	TB2A-9	TWIST
	A90		-18	BLK	16	8	17	TB1B-9	
	A91		-16	WHT	22	9	53	S15A-8	
			-23	BLK	22		45	S15B-8	
	A92		-22	BLK	16	8	17	TB1B-9	TWIST
	A93		-25	WHT	16	6	29	TB2A-9	
	A94	2	-24	WHT	22	7	38	DS2-1	
	A95	1	-43	WHT	16	6	5	F2-1	
	A96		-45	WHT	22	9	48	S15A-2	
			-46	BLK	22		40	S15B-2	
	A97		-47	WHT	16	6	3	F3-1	
	A98		-49	WHT	16	6	5	F2-1	
	A99		-51	WHT	16	6	3	F3-1	
	A100		-52	WHT	22	9	41	S15B-3	
			-53	BLK	22		49	S15A-3	
	A101		-62	BLK	16	8	24	TB1B-2	
	A102		-63	WHT	22	9	81	R2-3	
			-64	BLK	22		81	R2-1	
	A103		-65	BLK	16	8	24	TB1B-2	
	A104		-66	WHT	22	9	80	R1-3	
			-67	BLK	22		80	R1-1	
	A105		-76	BLK	22	13	⚠	E13	
	A106	1	J2-77	WHT	22	10	113	K2-4	
		⚠	E13	SHLD			⚠	E8	
	A107	1	J2-78	WHT	16	6	6	F4-1	
	A108	1	J2-79	BLK	22	13	⚠	E11	
	A109	1	J2-80	WHT	22	6	4	F5-1	
	A110	1	J2-82	WHT	22	10	112	K1-4	
		⚠	E11	SHLD			⚠	E9	
	A111	82	J3	WHT	22	9	47	S15A-1	
		82	J4	BLK			39	S15B-1	
	A112	7	F1-1	BLK		9	19	TB1B-7	
		7	F1-2	WHT			27	TB2A-7	
	A113	6	F4-2	WHT		10	113	K2-5	
		⚠	E14	SHLD			⚠	E7	
	A114	4	F5-2	WHT	22	10	112	K1-5	
		⚠	E15	SHLD			⚠	E10	
	A115	69	M1-140V	WHT	22	7	66	S14A-1	TWIST
	A116	69	M1-70V		22	7	66	S14A-3	
	A117	69	M1-COM		22	7	67	S14B-ARM	
	A118	77	M2-(+)		12	27	34	TB2B-8	
	A119		-(-)		22	7	78	S12A-ARM	
	A120		-10A		22	7	78	S12A-2	
	A121		-5A		22	7	78	S12A-3	
	A122		-1A		12	27	33	TB2B-9	
	A123	77	M2-1A		22	7	79	S13-4	
	A124	70	M3-1	WHT	22	9	20	TB1B-6	
		70	M3-2	BLK			21	TB1B-5	
	A125	37	DS2-2	WHT		7	56	S18B-1	
	A126	36	DS2-3	WHT		7	56	S18A-5	
	A127	35	DS2-4	WHT		7	55	S18A-1	
	A128	129	E1	BLK		13	⚠	E19	
	A129	57	R5-3	WHT		7	56	S18A-9	
	A130	74	S2-1C	BLK		9	54	S15A-9	
		74	S3-2C	WHT			46	S15B-9	
	A131	73	S6-4NO	BLK		9	21	TB1B-5	
		73	S6-4C	WHT			25	TB2A-5	
	A132	75	S7-1C	WHT		9	58	S16-1C	
		75	S7-2C	BLK			58	S17-2C	
	A133	75	S7-1C	WHT		9	72	S8-3C	
		75	S7-2C	BLK			72	S8-4C	
	A134	78	S12A-4	WHT		7	79	S13-3	
	A135	66	S14A-ARM	WHT		9	68	T1-3	
		67	S14B-2	BLK	22		68	T1-2	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A136	100	A1-15	WHT	16	6	117	K6-5	
	A137	92	A1-16	BLK	16	8	117	K6-1	
	A138	111	A1-12	BLK	16	8	117	K6-6	
	A139	105	A1-11	WHT	16	6	117	K6-2	
	A140	110	A1-7	WHT	22	7	117	K6-3	
	A141	111	A1-8	WHT	22	7	117	K6-7	
	A142	64	A2-2	BLK	22	9	40	S15B-ARM	
		64	A2-16	WHT	22		48	S15A-ARM	
	A143	108	A1-5	WHT	22	7	116	K5-2	
	A144	109	A1-6	WHT	22	7	116	K5-7	
	A145	101	A1-13	WHT	22	7	112	K1-7	
	A146	102	A1-9	WHT	22	7	112	K1-2	
	A147	88	A1-40	WHT	22	9	112	K1-3	
		89	A1-41	BLK			112	K1-6	
	A148	89	A1-41	BLK	22	9	113	K2-6	
		88	A1-40	WHT			113	K2-3	
	A149	106	A1-3	WHT	22	7	113	K2-2	
	A150	107	A1-4	BLK	22	13	113	K2-7	
	A151	96	A1-23	WHT	20	34	114	K3-4	
	A152	95	A1-24	WHT	20	34	114	K3-5	
	A153	90	A1-31	WHT	20	34	114	K3-6	
	A154	88	A1-29	WHT	20	34	114	K3-3	
	A155	104	A1-1	WHT	22	7	114	K3-2	
	A156	105	A1-2	BLK	22	13	114	K3-7	
	A157	89	A1-30	BLK	20	35	115	K4-6	
	A158	87	A1-28	WHT	20	34	115	K4-3	
	A159	106	A1-3	WHT	22	7	115	K4-2	
	A160	107	A1-4	BLK	22	13	115	K4-7	
	A161	85	A1-21	WHT	20	34	115	K4-4	
	A162	97	A1-22	WHT	20	34	115	K4-5	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER R25786		
1	CHANGED PER CCA R25445 DR R Miller CHK APPD	11/10/65	
—	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25564 DR CHK APPD	12/13/65	
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	1/15/66	
C	CHANGED PER TDRR 26307 DR S.P. Leonard CHK APPD		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO. NAS 9-497
DRAWN DATE 23 Sep 65
CHECKED 4 OCT 65
APPROVAL 19 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014188

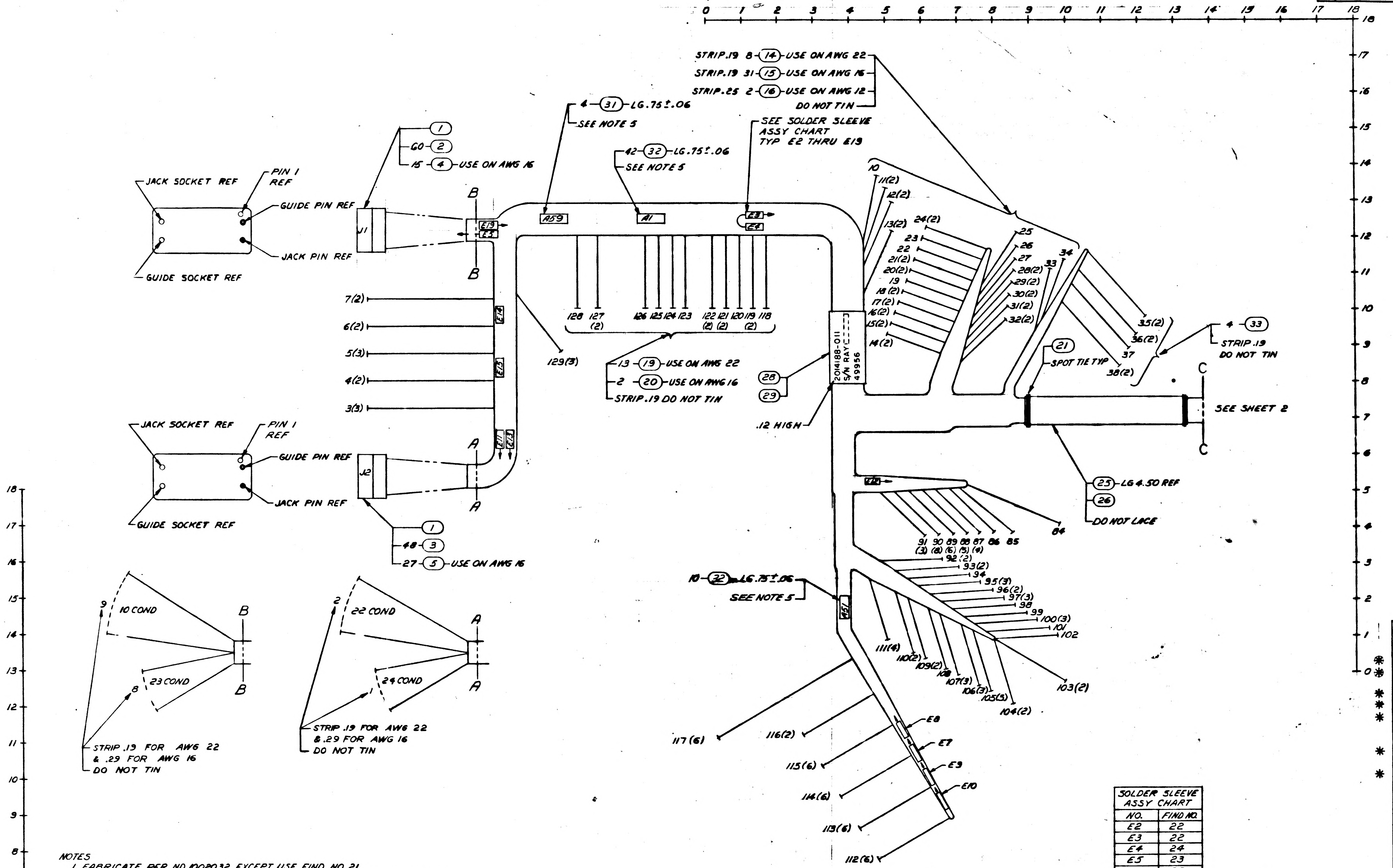
SCALE NONE WT SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014188 C

2014188 D

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25496		
1	CHANGED PER CCA R25445 DR P. Milutto CHK C.D. APPD		
—	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25564 DR CHK APPD		
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476		
C	CHANGED PER TDRR 26307 DR J.P. Leonard CHK APPD		
D	CHANGED PER TDRR 26308 DR CHK APPD		



STRIP .19 8-(14)-USE ON AWG 22
STRIP .19 31-(15)-USE ON AWG 16
STRIP .25 2-(16)-USE ON AWG 12
DO NOT TIN
4-(31)-LG .75±.06
SEE NOTE 5
42-(32)-LG .75±.06
SEE NOTE 5
SEE SOLDER SLEEVE ASSY CHART TYP E2 THRU E19
(1)
60-(2)
15-(4)-USE ON AWG 16
JACK SOCKET REF
PIN 1 REF
GUIDE PIN REF
JACK PIN REF
GUIDE SOCKET REF
J1
J2
B
A
E19
E5
E2
E6
E11
E12
E3
E4
A59
A1
A51
E13
7(2)
6(2)
5(3)
4(2)
3(3)
128 127 (2)
126 125 124 123
122 121 120 119 118 (2) (2) (2)
129(3)
13-(19)-USE ON AWG 22
2-(20)-USE ON AWG 16
STRIP .19 DO NOT TIN
(28)
(29)
2014188-011 S/N RAY 49956
.12 HIGH
10 11(2) 12(2) 13(2) 14(2) 15(2) 16(2) 17(2) 18(2) 19 20(2) 21(2) 22 23 24(2)
25 26 27 28(2) 29(2) 30(2) 31(2) 32(2)
33 34 35(2) 36(2) 37 38(2)
4-(33)
STRIP .19 DO NOT TIN
(21) SPOT TIE TYP
SEE SHEET 2
C
(25)-LG 4.50 REF
(26)
DO NOT LACE
84 85 86 87 88 89 90 91 (4) (5) (6) (8) (3)
92(2) 93(2) 94 95(3) 96(2) 97(3) 98 99 100(3) 101 102 103(2)
104(2) 105(5) 106(3) 107(3) 108 109(2) 110(2) 111(4)
112(6) 113(6) 114(6) 115(6) 116(2) 117(6)
E7 E8 E9 E10
10-(32)-LG .75±.06
SEE NOTE 5
1-(1)
48-(3)
27-(5)-USE ON AWG 16
10 COND
23 COND
22 COND
24 COND
STRIP .19 FOR AWG 22 & .29 FOR AWG 16 DO NOT TIN

NOTES

1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 21
2. STRIP ALL LEADS .50 ±.06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
3. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
4. CRIMP PER ND 1002206
5. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
6. SERIALIZE PER ND 1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
10. AR DENOTES AS REQUIRED
11. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
12. MIL-W-16878/4 E22 WHT, RED, BLACK, TWISTED SHIELDED, JACKET TFE WHITE
13. MIL-W-16878/4 E22 WHT SHIELDED JACKET TFE WHITE
14. MIL-W-16878/4 E22 WHT & BLK, TWISTED SHIELDED, JACKET TFE WHITE
15. MIL-I-23053 CLASS 1 COLOR WHITE, I.D. .250
16. MIL-I-23053 CLASS 1, COLOR WHITE, I.D. .187
17. MIL-I-23053 CLASS 1, COLOR WHITE, I.D. .125

SOLDER SLEEVE ASSY CHART	
NO.	FIND NO.
E2	22
E3	22
E4	24
E5	23
E6	23
E7	22
E8	22
E9	22
E10	22
E11	22
E12	23
E13	22
E14	22
E15	22
E16	23
E17	24
E18	24
E19	24

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014156	SCHEMATIC	REF
*	1.3	MIL-W-16878/4E20	WIRE, ELEC BLK	35
*	8.0	MIL-W-16878/4E20	WIRE, ELEC WHT	34
	8	MS25036-49	LUG, TERMINAL	33
*	3.2	SEE NOTE 17	SLEEVING, INSULATION	32
*	0.3	SEE NOTE 16	SLEEVING, INSULATION	31
*	0.3	SEE NOTE 15	SLEEVING, INSULATION	30
	AR	1006253	ADHESIVE	29
	1	1006415-135	MARKER, CABLE	28
*	7.0	MIL-W-16878/4 E12	WIRE, ELEC WHITE	27
	AR	1006699	SOLVENT	26
*	4.5	1006696-5	SLEEVING, INSULATION	25
	4	1010402-3	SLEEVE, SOLDER	24
	4	1010402-2	SLEEVE, SOLDER	23
	10	1010402-1	SLEEVE, SOLDER	22
	AR	1006458-004	LACING, TAPE	21
	2	MS25036-6	LUG, TERMINAL	20
	13	MS25036-1	LUG, TERMINAL	19
	2	MS25036-57	LUG, TERMINAL	18
	7	MS25036-50	LUG, TERMINAL	17
	2	MS17143-21	LUG, TERMINAL	16
	31	MS17143-20	LUG, TERMINAL	15
	8	MS17143-19	LUG, TERMINAL	14
*	75	MIL-W-16878/4 E22	WIRE, ELEC BLK	13
*	60	SEE NOTE 14	WIRE, ELEC	12
*	20.0	SEE NOTE 12	WIRE, ELEC	11
*	40.0	SEE NOTE 13	WIRE, ELEC	10
*	100	1014341-11	WIRE, ELEC	9
*	38.7	MIL-W-16878/4 E16	WIRE, ELEC BLACK	8
*	110	MIL-W-16878/4 E22	WIRE, ELEC WHT	7
*	107.	MIL-W-16878/4 E16	WIRE, ELEC WHT	6
	27	1006491-014	CONTACT, ELECTRICAL	5
	15	1006491-013	CONTACT, ELECTRICAL	4
	48	1006491-012	CONTACT, ELECTRICAL	3
	60	1006491-011	CONTACT, ELECTRICAL	2
	2	1006494-002	CONNECTOR	1
	-011	LIST OF MATERIALS		

2014188 D

* DENOTES LENGTH IN FEET

2014297	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN Ray Combs DATE 21 SEPT 65
CHECKED 4 OCT 65
APPROVAL 19 OCT 65
APPROVAL 10/18/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/20

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

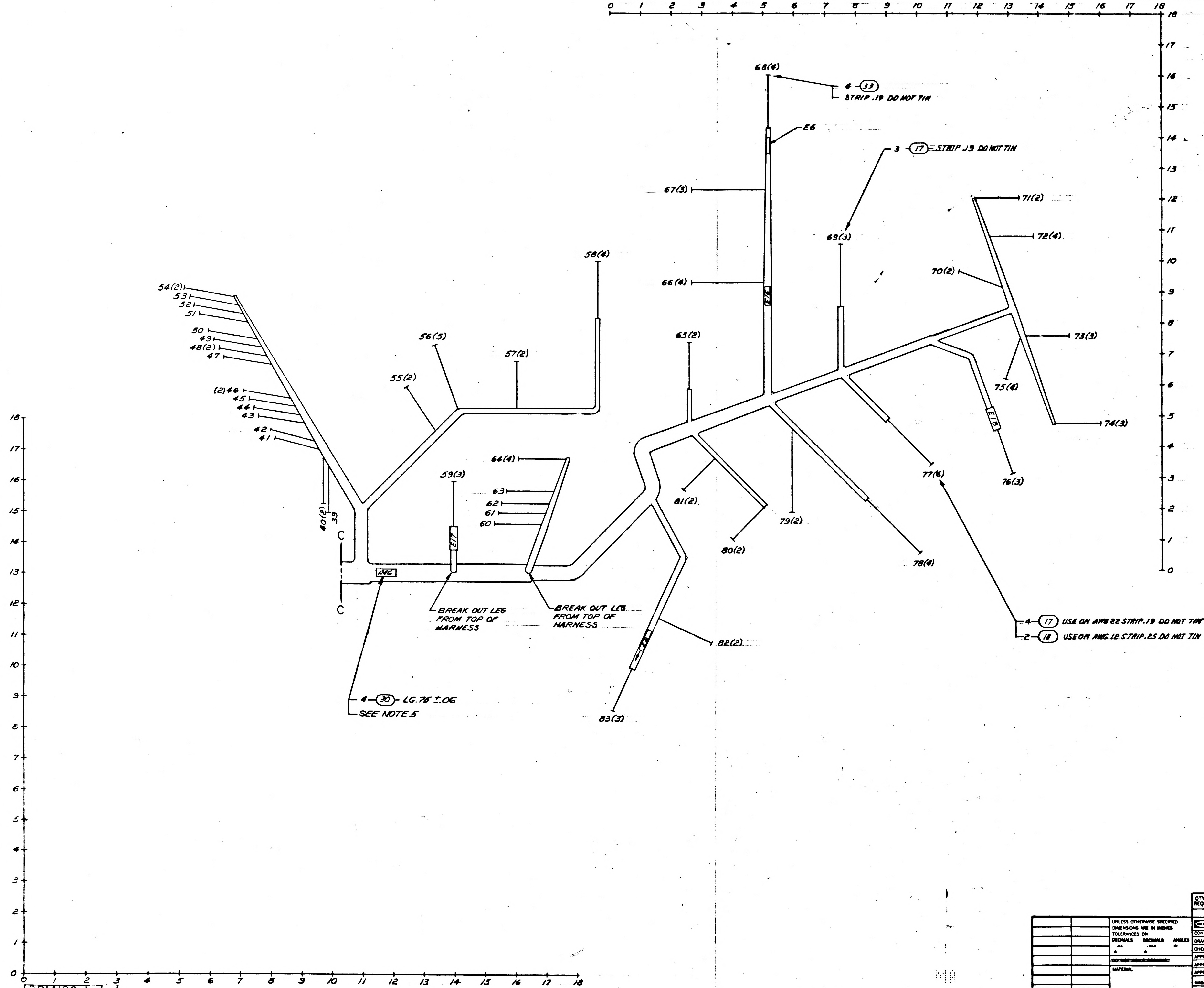
WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014188
SCALE 1/1 | WT | SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014188 D

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25486		
1	CHANGED PER CCA R25445 DR P. Milner CHK C. Dalheim APPD		
—	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25564 DR CHK APPD		
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476		
C	CHANGED PER TDRR 26307 DR S.P. Leonard CHK APPD		
D	CHANGED PER TDRR 26308 DR CHK APPD	3/3/66	



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75(4)
74(3)
E18
76(3)
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56(5)
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64(4)
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59(3)
E17
E16
82(2)
83(3)

4 –(33) STRIP .19 DO NOT TIN

3 –(17) STRIP .19 DO NOT TIN

4 –(17) USE ON AWG 22 STRIP .19 DO NOT TIN
2 –(18) USE ON AWG 12 STRIP .25 DO NOT TIN

BREAK OUT LEG FROM TOP OF HARNESS

BREAK OUT LEG FROM TOP OF HARNESS

4 –(30) LG .75 ± .06
SEE NOTE 5

2014188 D

2014188 D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

~~DO NOT SCALE DRAWING~~

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 21 SEPT 65
CHECKED 4 OCT 65
APPROVAL 19 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J CODE IDENT NO. 49956 NASA DRAWING NO. 2014188
SCALE 1/1 WT SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	104	A1-1	WHT	22	9	72	S8-3NO	
		105	-2	BLK			72	S8-4NO	
	A2	106	-10	WHT		9	71	S10-3NO	
		107	A1-14	BLK			71	S10-4NO	
	A3	120	A3-3	WHT		7	83	R4-CW	
	A4	109	A1-6	WHT		7	38	DS2-1	
	A5	110	-7	WHT	22	7	74	S2-4NO	
	A6	105	-11	WHT	16	6	23	TB1B-3	TWIST
	A7	111	-12	BLK		8	22	TB1B-4	
	A8	105	-11	WHT		6	46	S15B-9	TWIST
	A9	111	-12	BLK		8	54	S15A-9	
	A10	100	-15	BLK		8	58	S17-2C	TWIST
	A11	92	-16	WHT	16	6	58	S16-1C	
	A12	103	-17	WHT	22	7	8	J1-57	
	A13	100	-19		22	7	57	R5-1	
	A14	99	-18		22	7	8	J1-75	
	A15	98	-21		16	6	5	F2-2	
	A16	97	-22			6	1	J2-44	
	A17	97	-22			6	1	J2-50	
	A18	96	-23			6	3	F3-2	
	A19	95	-24			6	1	J2-48	
	A20	95	-24		16	6	1	J2-54	
	A21	94	-25		22	7	56	S18B-ARM	
	A22	93	-26		22	7	8	J1-76	
	A23	93	-26		22	7	55	S18A-ARM	
	A24	87	-28	WHT	16	6	8	J1-74	TWIST
	A25	89	-30	BLK		8	8	J1-72	
	A26	87	-28	WHT		6	42	S15A-4	TWIST
	A27	89	-30	BLK		8	50	S15B-4	
	A28	88	-29	WHT		6	8	J1-73	
	A29	90	-31	WHT	16	6	65	R3-3	
	A30	90	-32	BLK	22	13	⚠	E7	
	A31	90	-32	BLK		13	⚠	E8	
	A32	90	-32	BLK		13	⚠	E12	
	A33	91	-33	WHT		7	8	J1-64	
	A34	84	-34			7	8	J1-54	
	A35	86	-38			7	36	DS2-3	
	A36	87	-39			7	35	DS2-4	
	A37	88	-40	WHT		12	66	S14A-ARM	
		89	A1-41	BLK	22		67	S14B-3	
		⚠	E12	SHLD			⚠	E16	
	A38	90	A1-42	BLK	22	13	⚠	E6	
	A39	90	-42	BLK	22	13	⚠	E9	
	A40	90	-42	BLK	22	13	⚠	E10	
	A41	91	-43	WHT	16	6	8	J1-53	TWIST
	A42	91	-44	BLK	16	8	8	J1-52	
	A43	103	A1R1-3	WHT	22	7	56	S18A-7	
	A44	64	A2-1	WHT		7	118	A3-1	
	A45	64	-2	BLK		13	119	A3-2	
	A46	59	-4	WHT		11	121	A3-4	
		59	-5	BLK			122	A3-5	
		59	A2-6	RED	22		122	A3-6	
		⚠	E17	SHLD			⚠	E4	
	A47	62	A2-7	WHT	22	7	123	A3-7	
	A48	61	-8			7	124	A3-8	
	A49	60	-9			7	125	A3-9	
	A50	63	A2-10			7	126	A3-10	
	A51	121	A3-4	WHT	22	10	83	R4-CCW	
		⚠	E3	SHLD			⚠	E2	
	A52	⚠	E2	BLK	22	13	83	R4-ARM	
	A53	⚠	E3	BLK	22	13	⚠	E4	
	A54	⚠	E3	BLK	22	13	119	A3-2	
	A55	127	A3-13	BLK	16	8	13	TB1A-7	TWIST
	A56	127	A3-14	WHT	16	6	13	TB1A-6	
	A57	128	A3-15	WHT	22	7	9	J1-8	
	A58	9	J1-1	BLK	22	13	⚠	E5	
	A59	9	J1-2	WHT	22	12	68	T1-2	
		9	J1-3	BLK	22		68	T1-1	
		⚠	E5	SHLD			⚠	E6	
	A60	123	E1	BLK	16	8	10	TB1A-2	
	A61	9	J1-10	BLK	22	9	20	TB1B-6	
			-11	WHT	22		26	TB2A-6	
	A62		-12	BLK	16	8	129	E1	
	A63		-13	WHT	22	11	76	DS1(+)	
			-14	BLK	22		76	S1-2	
		9	J1-15	RED	22		76	DS1(-)	
		⚠	E19	SHLD			⚠	E18	
	A64	8	J1-51	WHT	22	7	2	J2-30	
	A65		-60	WHT	22	7	73	S6-3NO	
	A66		-62	WHT	16	6	18	TB1B-8	TWIST
	A67		-63	BLK	16	8	28	TB2A-8	
	A68		-65	WHT	16	6	18	TB1B-8	TWIST
	A69		-66	BLK	16	8	28	TB2A-8	
	A70		-67	WHT	16	6	65	R3-1	
	A71		-70	BLK	22	9	43	S15B-6	
		8	J1-71	WHT	22		51	S15A-6	

⚠ DENOTES INTERNAL CONNECTION

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A72	8	J1-77	WHT	16	6	11	TB1A-3	TWIST
	A73	8	J1-78	BLK	16	8	12	TB1A-4	
	A74	8	J1-79	WHT	16	6	11	TB1A-3	TWIST
	A75	8	J1-80	BLK	16	8	12	TB1A-4	
	A76	2	J2-1	WHT	22	9	52	S15A-7	
			-4	BLK	22		44	S15B-7	
	A77		-2	WHT	16	6	32	TB2A-12	TWIST
	A78		-3	BLK		8	14	TB1B-12	
	A79		-5	WHT		6	31	TB2A-11	TWIST
	A80		-8	BLK		8	15	TB1B-11	
	A81		-7	WHT		6	32	TB2A-12	TWIST
	A82		-11	BLK		8	14	TB1B-12	
	A83		-10	WHT		6	30	TB2A-10	TWIST
	A84		-21	BLK		8	16	TB1B-10	
	A85		-12	BLK		8	15	TB1B-11	TWIST
	A86		-13	WHT		6	31	TB2A-11	
	A87		-14	WHT		6	30	TB2A-10	TWIST
	A88		-17	BLK		8	16	TB1B-10	
	A89		-15	WHT		6	29	TB2A-9	TWIST
	A90		-18	BLK	16	8	17	TB1B-9	
	A91		-16	WHT	22	9	53	S15A-8	
			-23	BLK	22		45	S15B-8	
	A92		-22	BLK	16	8	17	TB1B-9	TWIST
	A93		-25	WHT	16	6	29	TB2A-9	
	A94	2	-24	WHT	22	7	38	DS2-1	
	A95	1	-43	WHT	16	6	5	F2-1	
	A96		-45	WHT	22	9	48	S15A-2	
			-46	BLK	22		40	S15B-2	
	A97		-47	WHT	16	6	3	F3-1	
	A98		-49	WHT	16	6	5	F2-1	
	A99		-51	WHT	16	6	3	F3-1	
	A100		-52	WHT	22	9	41	S15B-3	
			-53	BLK	22		49	S15A-3	
	A101		-62	BLK	16	8	24	TB1B-2	
	A102		-63	WHT	22	9	81	R2-3	
			-64	BLK	22		81	R2-1	
	A103		-65	BLK	16	8	24	TB1B-2	
	A104		-66	WHT	22	9	80	R1-3	
			-67	BLK	22		80	R1-1	
	A105		-76	BLK	22	13	⚠	E13	
	A106	1	J2-77	WHT	22	10	113	K2-4	
		⚠	E13	SHLD			⚠	E8	
	A107	1	J2-78	WHT	16	6	6	F4-1	
	A108	1	J2-79	BLK	22	13	⚠	E11	
	A109	1	J2-80	WHT	22	6	4	F5-1	
	A110	1	J2-82	WHT	22	10	112	K1-4	
		⚠	E11	SHLD			⚠	E9	
	A111	82	J3	WHT	22	9	47	S15A-1	
		82	J4	BLK			39	S15B-1	
	A112	7	F1-1	BLK		9	19	TB1B-7	
		7	F1-2	WHT			27	TB2A-7	
	A113	6	F4-2	WHT		10	113	K2-5	
		⚠	E14	SHLD			⚠	E7	
	A114	4	F5-2	WHT	22	10	112	K1-5	
		⚠	E15	SHLD			⚠	E10	
	A115	69	M1-140V	WHT	22	7	66	S14A-1	TWIST
	A116	69	M1-70V		22	7	66	S14A-3	
	A117	69	M1-COM		22	7	67	S14B-ARM	
	A118	77	M2-(+)		12	27	34	TB2B-8	
	A119		-(-)		22	7	78	S12A-ARM	
	A120		-10A		22	7	78	S12A-2	
	A121		-5A		22	7	78	S12A-3	
	A122		-1A		12	27	33	TB2B-9	
	A123	77	M2-1A		22	7	79	S13-4	
	A124	70	M3-1	WHT	22	9	20	TB1B-6	
		70	M3-2	BLK			21	TB1B-5	
	A125	37	DS2-2	WHT		7	56	S18B-1	
	A126	36	DS2-3	WHT		7	56	S18A-5	
	A127	35	DS2-4	WHT		7	55	S18A-1	
	A128	129	E1	BLK		13	⚠	E19	
	A129	57	R5-3	WHT		7	56	S18A-9	
	A130	74	S2-1C	BLK		9	54	S15A-9	
		74	S3-2C	WHT			46	S15B-9	
	A131	73	S6-4NO	BLK		9	21	TB1B-5	
		73	S6-4C	WHT			25	TB2A-5	
	A132	75	S7-1C	WHT		9	58	S16-1C	
		75	S7-2C	BLK			58	S17-2C	
	A133	75	S7-1C	WHT		9	72	S8-3C	
		75	S7-2C	BLK			72	S8-4C	
	A134	78	S12A-4	WHT		7	79	S13-3	
	A135	66	S14A-ARM	WHT		9	68	T1-3	
		67	S14B-2	BLK	22		68	T1-2	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A136	100	A1-15	WHT	16	6	117	K6-5	
	A137	92	A1-16	BLK	16	8	117	K6-1	
	A138	111	A1-12	BLK	16	8	117	K6-6	
	A139	105	A1-11	WHT	16	6	117	K6-2	
	A140	110	A1-7	WHT	22	7	117	K6-3	
	A141	111	A1-8	WHT	22	7	117	K6-7	
	A142	64	A2-2	BLK	22	9	40	S15B-ARM	
		64	A2-16	WHT	22		48	S15A-ARM	
	A143	108	A1-5	WHT	22	7	116	K5-2	
	A144	109	A1-6	WHT	22	7	116	K5-7	
	A145	101	A1-13	WHT	22	7	112	K1-7	
	A146	102	A1-9	WHT	22	7	112	K1-2	
	A147	88	A1-40	WHT	22	9	112	K1-3	
		89	A1-41	BLK			112	K1-6	
	A148	89	A1-41	BLK	22	9	113	K2-6	
		88	A1-40	WHT			113	K2-3	
	A149	106	A1-3	WHT	22	7	113	K2-2	
	A150	107	A1-4	BLK	22	13	113	K2-7	
	A151	96	A1-23	WHT	20	34	114	K3-4	
	A152	95	A1-24	WHT	20	34	114	K3-5	
	A153	90	A1-31	WHT	20	34	114	K3-6	
	A154	88	A1-29	WHT	20	34	114	K3-3	
	A155	104	A1-1	WHT	22	7	114	K3-2	
	A156	105	A1-2	BLK	22	13	114	K3-7	
	A157	89	A1-30	BLK	20	35	115	K4-6	
	A158	87	A1-28	WHT	20	34	115	K4-3	
	A159	106	A1-3	WHT	22	7	115	K4-2	
	A160	107	A1-4	BLK	22	13	115	K4-7	
	A161	85	A1-21	WHT	20	34	115	K4-4	
	A162	97	A1-22	WHT	20	34	115	K4-5	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CA R25486		
1	CHANGED PER CCA R25445 DR R Miller CHK [illegible] APPD [illegible]	9/14/65	[illegible]
—	CLASS B NO CHANGE PER CCA R25509	[illegible]	[illegible]
A	CHANGED PER CCA R25564 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	[illegible] /66	[illegible]
C	CHANGED PER TDRR 26307 DR S.P. Leonard CHK [illegible] APPD PER	[illegible]	[illegible]
D	CHANGED PER TDRR 26308 DR [illegible] CHK [illegible] APPD [illegible]	[illegible] /66	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. S. May DATE 23 Sep 65
CHECKED [illegible] 4 OCT 65
APPROVAL P. [illegible] 19 Oct 65
APPROVAL [illegible] 10/19/65
APPROVAL [illegible]
NASA APPROVAL A. G. [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

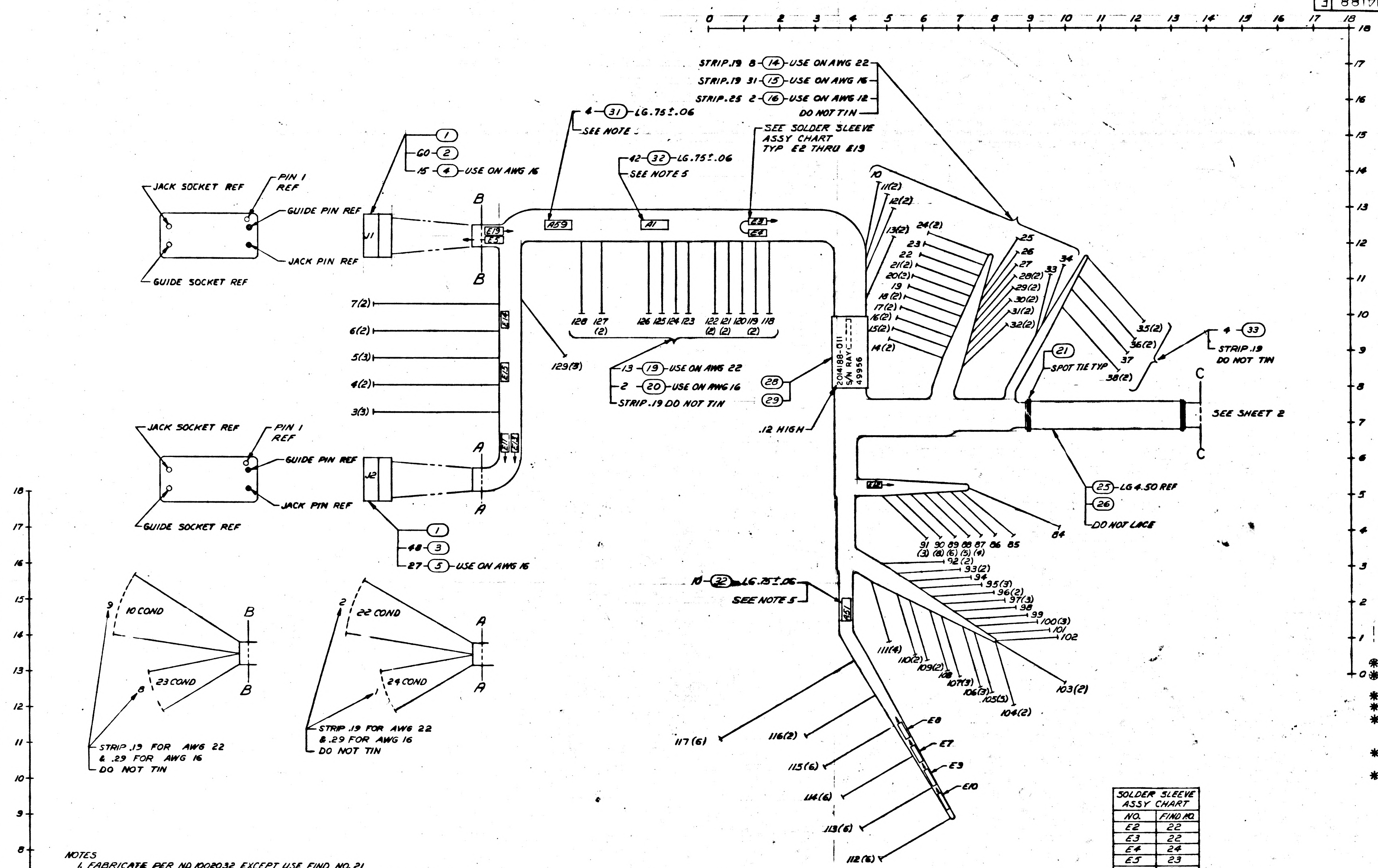
WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014188
SCALE NONE | WT | SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014188 E

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25496		
1	CHANGED PER CCA R25445 DR P. Milato CHK C.D. APPD		
—	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25564 DR CHK APPD	11/3/65	
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476		
C	CHANGED PER TDRR 26307 DR J.P. Leonard CHK APPD P.C.D.	3/24/66	
D	CHANGED PER TDRR 26308 DR CHK APPD	3/24/66	
E	CHANGED PER TDRR 26311 DR CHK APPD PCD	3/24/66	



STRIP .19 8 (14) USE ON AWG 22
STRIP .19 31 (15) USE ON AWG 16
STRIP .25 2 (16) USE ON AWG 12
DO NOT TIN
4 (31) LG .75 ± .06
SEE NOTE 5
42 (32) LG .75 ± .06
SEE NOTE 5
SEE SOLDER SLEEVE ASSY CHART TYP E2 THRU E19
60 (2)
15 (4) USE ON AWG 16
JACK SOCKET REF
PIN 1 REF
GUIDE PIN REF
JACK PIN REF
GUIDE SOCKET REF
J1
J2
A59
A1
E2
E3
E4
E13
B
A
7(2)
6(2)
5(3)
4(2)
3(3)
128 127 (2) 126 125 124 123 122 121 120 119 118 (2) (2) (2)
129(3)
13 (19) USE ON AWG 22
2 (20) USE ON AWG 16
STRIP .19 DO NOT TIN
(28)
(29)
2014188-011 S/N RAY C 49956
.12 HIGH
48 (3)
27 (5) USE ON AWG 16
SPOT TIE TYP
(21)
4 (33)
STRIP .19 DO NOT TIN
SEE SHEET 2
C
(25) LG 4.50 REF
(26)
DO NOT LACE
10 (32) LG .75 ± .06
SEE NOTE 5
91 90 89 88 87 86 85 84
10 CONDUCTOR
22 COND
23 COND
24 COND
STRIP .19 FOR AWG 22 & .29 FOR AWG 16 DO NOT TIN
E8
E7
E9
E10
117(6) 116(2) 115(6) 114(6) 113(6) 112(6)
103(2) 104(2) 105(3) 106(3) 107(3) 108 109(2) 110(2) 111(4)

NOTES

1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 21
2. STRIP ALL LEADS .50 ± .06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
3. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
4. CRIMP PER ND 1002206
5. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
6. SERIALIZE PER ND 1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
10. AR LENOTES AS REQUIRED
11. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
12. MIL-W-16878/4 E22 WHT, RED, BLACK, TWISTED SHIELDED, JACKET TFE WHITE
13. MIL-W-16878/4 E22 WHT SHIELDED JACKET TFE WHITE
14. MIL-W-16878/4 E22 WHT & BLK, TWISTED SHIELDED, JACKET TFE WHITE
15. MIL-I-23053 CLASS I COLOR WHITE, I.D. .250
16. MIL-I-23053 CLASS I, COLOR WHITE, I.D. .187
17. MIL-I-23053 CLASS I, COLOR WHITE, I.D. .125

SOLDER SLEEVE ASSY CHART

NO.	FIND NO.
E2	22
E3	22
E4	24
E5	23
E6	23
E7	22
E8	22
E9	22
E10	22
E11	22
E12	23
E13	22
E14	22
E15	22
E16	23
E17	24
E18	24
E19	24

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014156	SCHEMATIC	REF
✱	1.3	MIL-W-16878/4E20	WIRE, ELEC BLK	35
✱	8.0	MIL-W-16878/4E20	WIRE, ELEC WHT	34
	11	MS25036-49	LUG, TERMINAL	33
✱	3.2	SEE NOTE 17	SLEEVING, INSULATION	32
✱	0.3	SEE NOTE 16	SLEEVING, INSULATION	31
✱	0.3	SEE NOTE 15	SLEEVING, INSULATION	30
	AR	1006253	ADHESIVE	29
	1	1006415-135	MARKER, CABLE	28
✱	7.0	MIL-W-16878/4 E12	WIRE, ELEC WHITE	27
	AR	1006699	SOLVENT	26
✱	4.5	1006696-5	SLEEVING, INSULATION	25
	4	1010402-3	SLEEVE, SOLDER	24
	4	1010402-2	SLEEVE, SOLDER	23
	10	1010402-1	SLEEVE, SOLDER	22
	AR	1006458-004	LACING, TAPE	21
	2	MS25036-6	LUG, TERMINAL	20
	13	MS25036-1	LUG, TERMINAL	19
	2	MS25036-57	LUG, TERMINAL	18
	4	MS25036-50	LUG, TERMINAL	17
	2	MS17143-21	LUG, TERMINAL	16
	31	MS17143-20	LUG, TERMINAL	15
	8	MS17143-19	LUG, TERMINAL	14
✱	75	MIL-W-16878/4 E22	WIRE, ELEC BLK	13
✱	60	SEE NOTE 14	WIRE, ELEC	12
✱	20.0	SEE NOTE 12	WIRE, ELEC	11
✱	40.0	SEE NOTE 13	WIRE, ELEC	10
✱	100	1014341-11	WIRE, ELEC	9
✱	38.7	MIL-W-16878/4 E16	WIRE, ELEC BLACK	8
✱	110	MIL-W-16878/4 E22	WIRE, ELEC WHT	7
✱	107.	MIL-W-16878/4 E16	WIRE, ELEC WHT	6
	27	1006491-014	CONTACT, ELECTRICAL	5
	15	1006491-013	CONTACT, ELECTRICAL	4
	48	1006491-012	CONTACT, ELECTRICAL	3
	60	1006491-011	CONTACT, ELECTRICAL	2
	2	1006494-002	CONNECTOR	1
	-011	LIST OF MATERIALS		

✱ DENOTES LENGTH IN FEET

2014188 E

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

NEXT ASSY	USED ON
2014297	

APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 21 SEPT 65
CHECKED 20 OCT 65
APPROVAL 19 OCT 65
APPROVAL 10/18/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014188
SCALE 1/1
WT
SHEET 1 OF 3

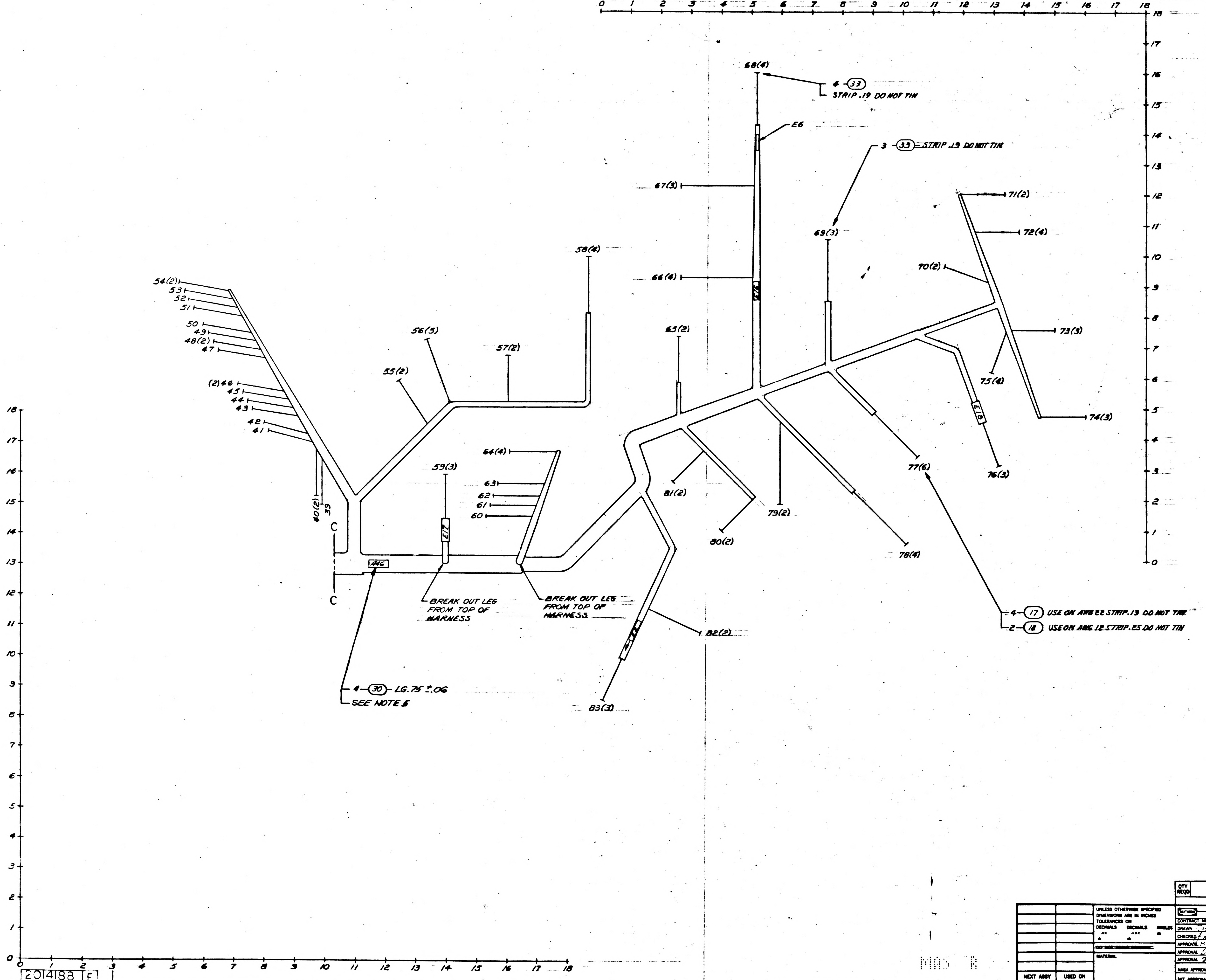
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014188 E

2014188 E

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25496		
1	CHANGED PER CCA R25445 DR P. Milner CHK [illegible] APPD [illegible]	9/[illegible]/65	[illegible]
—	CLASS B NO CHANGE PER CCA R25509	[illegible]	[illegible]
A	CHANGED PER CCA R25564 DR [illegible] CHK [illegible] APPD [illegible]	2/13/65	[illegible]
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	1/15/66	[illegible]
C	CHANGED PER TDRR 26307 DR S.P. Leonard CHK [illegible] APPD PCD	2/[illegible]/66	[illegible]
D	CHANGED PER TDRR 26308 DR [illegible] CHK [illegible] APPD [illegible]	3/1/66	[illegible]
E	CHANGED PER TDRR 26311 DR [illegible] CHK [illegible] APPD PCD	3/[illegible]/66	[illegible]



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
68(4)
4 - 33
STRIP .19 DO NOT TIN
E6
3 - 33 = STRIP .19 DO NOT TIN
67(3)
69(3)
71(2)
72(4)
70(2)
66(4)
E7
58(4)
54(2)
53
52
51
50
49
48(2)
47
56(5)
57(2)
65(2)
73(3)
55(2)
75(4)
(2)46
45
44
43
42
41
74(3)
E18
64(4)
59(3)
63
62
61
60
E17
40(2)
39
C
C
81(2)
79(2)
77(6)
76(3)
80(2)
78(4)
A46
BREAK OUT LEG FROM TOP OF HARNESS
BREAK OUT LEG FROM TOP OF HARNESS
4 - 17 USE ON AWG 22 STRIP .19 DO NOT TIN
2 - 18 USE ON AWG 12 STRIP .25 DO NOT TIN
82(2)
E19
4 - 30 - LG .75 ±.06
SEE NOTE 5
83(3)

MIS R

2014188 E

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Ray Conrad DATE 21 SEPT 65
CHECKED [illegible] 4 OCT 65
APPROVAL P. Fagan 19 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014188
SCALE 1/1
WT
SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014188 E

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	104	A1-1	WHT	22	9	72	S8-3NO	
		105	-2	BLK			72	S8-4NO	
	A2	106	-10	WHT		9	71	S10-3NO	
		107	A1-14	BLK			71	S10-4NO	
	A3	120	A3-3	WHT		7	83	R4-CW	
	A4	109	A1-6	WHT		7	38	DS2-1	
	A5	110	-7	WHT	22	7	74	S2-4NO	
	A6	105	-11	WHT	16	6	23	TB1B-3	TWIST
	A7	111	-12	BLK		8	22	TB1B-4	
	A8	105	-11	WHT		6	46	S15B-9	TWIST
	A9	111	-12	BLK		8	54	S15A-9	
	A10	100	-15	BLK		8	58	S17-2C	TWIST
	A11	92	-16	WHT	16	6	58	S16-1C	
	A12	103	-17	WHT	22	7	8	J1-57	
	A13	100	-19		22	7	57	R5-1	
	A14	99	-18		22	7	8	J1-75	
	A15	98	-21		16	6	5	F2-2	
	A16	97	-22			6	1	J2-44	
	A17	97	-22			6	1	J2-50	
	A18	96	-23			6	3	F3-2	
	A19	95	-24			6	1	J2-48	
	A20	95	-24		16	6	1	J2-54	
	A21	94	-25		22	7	56	S18B-ARM	
	A22	93	-26		22	7	8	J1-76	
	A23	93	-26		22	7	55	S18A-ARM	
	A24	87	-28	WHT	16	6	8	J1-74	TWIST
	A25	89	-30	BLK		8	8	J1-72	
	A26	87	-28	WHT		6	42	S15A-4	TWIST
	A27	89	-30	BLK		8	50	S15B-4	
	A28	88	-29	WHT		6	8	J1-73	
	A29	90	-31	WHT	16	6	65	R3-3	
	A30	90	-32	BLK	22	13	△	E7	
	A31	90	-32	BLK		13	△	E8	
	A32	90	-32	BLK		13	△	E12	
	A33	91	-33	WHT		7	8	J1-64	
	A34	84	-34			7	8	J1-54	
	A35	86	-38			7	36	DS2-3	
	A36	87	-39			7	35	DS2-4	
	A37	88	-40	WHT		12	66	S14A-ARM	
		89	A1-41	BLK	22		67	S14B-3	
		△	E12	SHLD			△	E16	
	A38	90	A1-42	BLK	22	13	△	E6	
	A39	90	-42	BLK	22	13	△	E9	
	A40	90	-42	BLK	22	13	△	E10	
	A41	91	-43	WHT	16	6	8	J1-53	TWIST
	A42	91	-44	BLK	16	8	8	J1-52	
	A43	103	A1R1-3	WHT	22	7	56	S18A-7	
	A44	64	A2-1	WHT		7	118	A3-1	
	A45	64	-2	BLK		13	119	A3-2	
	A46	59	-4	WHT		11	121	A3-4	
		59	-5	BLK			122	A3-5	
		59	A2-6	RED	22		122	A3-6	
		△	E17	SHLD			△	E4	
	A47	62	A2-7	WHT	22	7	123	A3-7	
	A48	61	-8			7	124	A3-8	
	A49	60	-9			7	125	A3-9	
	A50	63	A2-10			7	126	A3-10	
	A51	121	A3-4	WHT	22	10	83	R4-CCW	
		△	E3	SHLD			△	E2	
	A52	△	E2	BLK	22	13	83	R4-ARM	
	A53	△	E3	BLK	22	13	△	E4	
	A54	△	E3	BLK	22	13	113	A3-2	
	A55	127	A3-13	BLK	16	8	13	TB1A-7	TWIST
	A56	127	A3-14	WHT	16	6	13	TB1A-6	
	A57	128	A3-15	WHT	22	7	9	J1-8	
	A58	9	J1-1	BLK	22	13	△	E5	
	A59	9	J1-2	WHT	22	12	68	T1-2	
		9	J1-3	BLK	22		68	T1-1	
		△	E5	SHLD			△	E6	
	A60	123	E1	BLK	16	8	10	TB1A-2	
	A61	9	J1-10	BLK	22	9	20	TB1B-6	
			-11	WHT	22		26	TB2A-6	
	A62		-12	BLK	16	8	129	E1	
	A63		-13	WHT	22	11	76	DS1(+)	
			-14	BLK	22		76	S1-2	
		9	J1-15	RED	22		76	DSK(-)	
		△	E19	SHLD			△	E18	
	A64	8	J1-51	WHT	22	7	2	J2-30	
	A65		-60	WHT	22	7	73	S6-3NO	
	A66		-62	WHT	16	6	18	TB1B-8	TWIST
	A67		-63	BLK	16	8	28	TB2A-8	
	A68		-65	WHT	16	6	18	TB1B-8	TWIST
	A69		-66	BLK	16	8	28	TB2A-8	
	A70		-67	WHT	16	6	65	R3-1	
	A71		-70	BLK	22	9	43	S15B-6	
		8	J1-71	WHT	22		51	S15A-6	

△ DENOTES INTERNAL CONNECTION

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A72	8	J1-77	WHT	16	6	11	TB1A-3	TWIST
	A73	8	J1-78	BLK	16	8	12	TB1A-4	
	A74	8	J1-79	WHT	16	6	11	TB1A-3	TWIST
	A75	8	J1-80	BLK	16	8	12	TB1A-4	
	A76	2	J2-1	WHT	22	9	52	S15A-7	
			-4	BLK	22		44	S15B-7	
	A77		-2	WHT	16	6	32	TB2A-12	TWIST
	A78		-3	BLK		8	14	TB1B-12	
	A79		-5	WHT		6	31	TB2A-11	TWIST
	A80		-8	BLK		8	15	TB1B-11	
	A81		-7	WHT		6	32	TB2A-12	TWIST
	A82		-11	BLK		8	14	TB1B-12	
	A83		-10	WHT		6	30	TB2A-10	TWIST
	A84		-21	BLK		8	16	TB1B-10	
	A85		-12	BLK		8	15	TB1B-11	TWIST
	A86		-13	WHT		6	31	TB2A-11	
	A87		-14	WHT		6	30	TB2A-10	TWIST
	A88		-17	BLK		8	16	TB1B-10	
	A89		-15	WHT		6	29	TB2A-9	TWIST
	A90		-18	BLK	16	8	17	TB1B-9	
	A91		-16	WHT	22	9	53	S15A-8	
			-23	BLK	22		45	S15B-8	
	A92		-22	BLK	16	8	17	TB1B-9	TWIST
	A93		-25	WHT	16	6	29	TB2A-9	
	A94	2	-24	WHT	22	7	38	DS2-1	
	A95	1	-43	WHT	16	6	5	F2-1	
	A96		-45	WHT	22	9	48	S15A-2	
			-46	BLK	22		40	S15B-2	
	A97		-47	WHT	16	6	3	F3-1	
	A98		-49	WHT	16	6	5	F2-1	
	A99		-51	WHT	16	6	3	F3-1	
	A100		-52	WHT	22	9	41	S15B-3	
			-53	BLK	22		49	S15A-3	
	A101		-62	BLK	16	8	24	TB1B-2	
	A102		-63	WHT	22	9	81	R2-3	
			-64	BLK	22		81	R2-1	
	A103		-65	BLK	16	8	24	TB1B-2	
	A104		-66	WHT	22	9	80	R1-3	
			-67	BLK	22		80	R1-1	
	A105		-76	BLK	22	13	△	E13	
	A106	1	J2-77	WHT	22	10	113	K2-4	
		△	E13	SHLD			△	E8	
	A107	1	J2-78	WHT	16	6	6	F4-1	
	A108	1	J2-79	BLK	22	13	△	E11	
	A109	1	J2-80	WHT	22	6	4	F5-1	
	A110	1	J2-82	WHT	22	10	112	K1-4	
		△	E11	SHLD			△	E9	
	A111	82	J3	WHT	22	9	47	S15A-1	
		82	J4	BLK			39	S15B-1	
	A112	7	F1-1	BLK		9	19	TB1B-7	
		7	F1-2	WHT			27	TB2A-7	
	A113	6	F4-2	WHT		10	113	K2-5	
		△	E14	SHLD			△	E7	
	A114	4	F5-2	WHT	22	10	112	K1-5	
		△	E15	SHLD			△	E10	
	A115	69	M1-140V	WHT	22	7	66	S14A-2	TWIST
	A116	69	M1-70V		22	7	66	S14A-3	
	A117	69	M1-COM		22	7	67	S14B-ARM	
	A118	77	M2-(+)		12	27	34	TB2B-8	
	A119		-(-)		22	7	78	S12A-ARM	
	A120		-10A		22	7	78	S12A-2	
	A121		-5A		22	7	78	S12A-3	
	A122		-1A		12	27	33	TB2B-9	
	A123	77	M2-1A		22	7	79	S13-4	
	A124	70	M3-1	WHT	22	9	20	TB1B-6	
		70	M3-2	BLK			21	TB1B-5	
	A125	37	DS2-2	WHT		7	56	S18B-1	
	A126	36	DS2-3	WHT		7	56	S18A-5	
	A127	35	DS2-4	WHT		7	55	S18A-1	
	A128	129	E1	BLK		13	△	E19	
	A129	57	R5-3	WHT		7	56	S18A-9	
	A130	74	S2-1C	BLK		9	54	S15A-9	
		74	S3-2C	WHT			46	S15B-9	
	A131	73	S6-4NO	BLK		9	21	TB1B-5	
		73	S6-4C	WHT			25	TB2A-5	
	A132	75	S7-1C	WHT		9	58	S16-1C	
		75	S7-2C	BLK			58	S17-2C	
	A133	75	S7-1C	WHT		9	72	S8-3C	
		75	S7-2C	BLK			72	S8-4C	
	A134	78	S12A-4	WHT		7	79	S13-3	
	A135	66	S14A-ARM	WHT		9	68	T1-3	
		67	S14B-2	BLK	22		68	T1-2	

2014188 E

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A136	100	A1-15	WHT	16	6	117	K6-5	
	A137	92	A1-16	BLK	16	8	117	K6-1	
	A138	111	A1-12	BLK	16	8	117	K6-6	
	A139	105	A1-11	WHT	16	6	117	K6-2	
	A140	110	A1-7	WHT	22	7	117	K6-3	
	A141	111	A1-8	WHT	22	7	117	K6-7	
	A142	64	A2-2	BLK	22	9	40	S15B-ARM	
		64	A2-16	WHT	22		48	S15A-ARM	
	A143	108	A1-5	WHT	22	7	116	K5-2	
	A144	109	A1-6	WHT	22	7	116	K5-7	
	A145	101	A1-13	WHT	22	7	112	K1-7	
	A146	102	A1-9	WHT	22	7	112	K1-2	
	A147	88	A1-40	WHT	22	9	112	K1-3	
		89	A1-41	BLK			112	K1-6	
	A148	89	A1-41	BLK	22	9	113	K2-6	
		88	A1-40	WHT			113	K2-3	
	A149	106	A1-3	WHT	22	7	113	K2-2	
	A150	107	A1-4	BLK	22	13	113	K2-7	
	A151	96	A1-23	WHT	20	34	114	K3-4	
	A152	95	A1-24	WHT	20	34	114	K3-5	
	A153	90	A1-31	WHT	20	34	114	K3-6	
	A154	88	A1-29	WHT	20	34	114	K3-3	
	A155	104	A1-1	WHT	22	7	114	K3-2	
	A156	105	A1-2	BLK	22	13	114	K3-7	
	A157	89	A1-30	BLK	20	35	115	K4-6	
	A158	87	A1-28	WHT	20	34	115	K4-3	
	A159	106	A1-3	WHT	22	7	115	K4-2	
	A160	107	A1-4	BLK	22	13	115	K4-7	
	A161	85	A1-21	WHT	20	34	115	K4-4	
	A162	97	A1-22	WHT	20	34	115	K4-5	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25486		
1	CHANGED PER CCA R25445 DR R Miller CHK APPD	9/14/65	
—	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25564 DR CHK APPD	11/12/65	
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	1/25/66	
C	CHANGED PER TDRR 26307 DR J.P. Leonard CHK APPD		
D	CHANGED PER TDRR 26308 DR CHK APPD		
E	CHANGED PER TDRR 26311 DR CHK APPD		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 23 Sep 65
CHECKED 4 OCT 65
APPROVAL 19 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

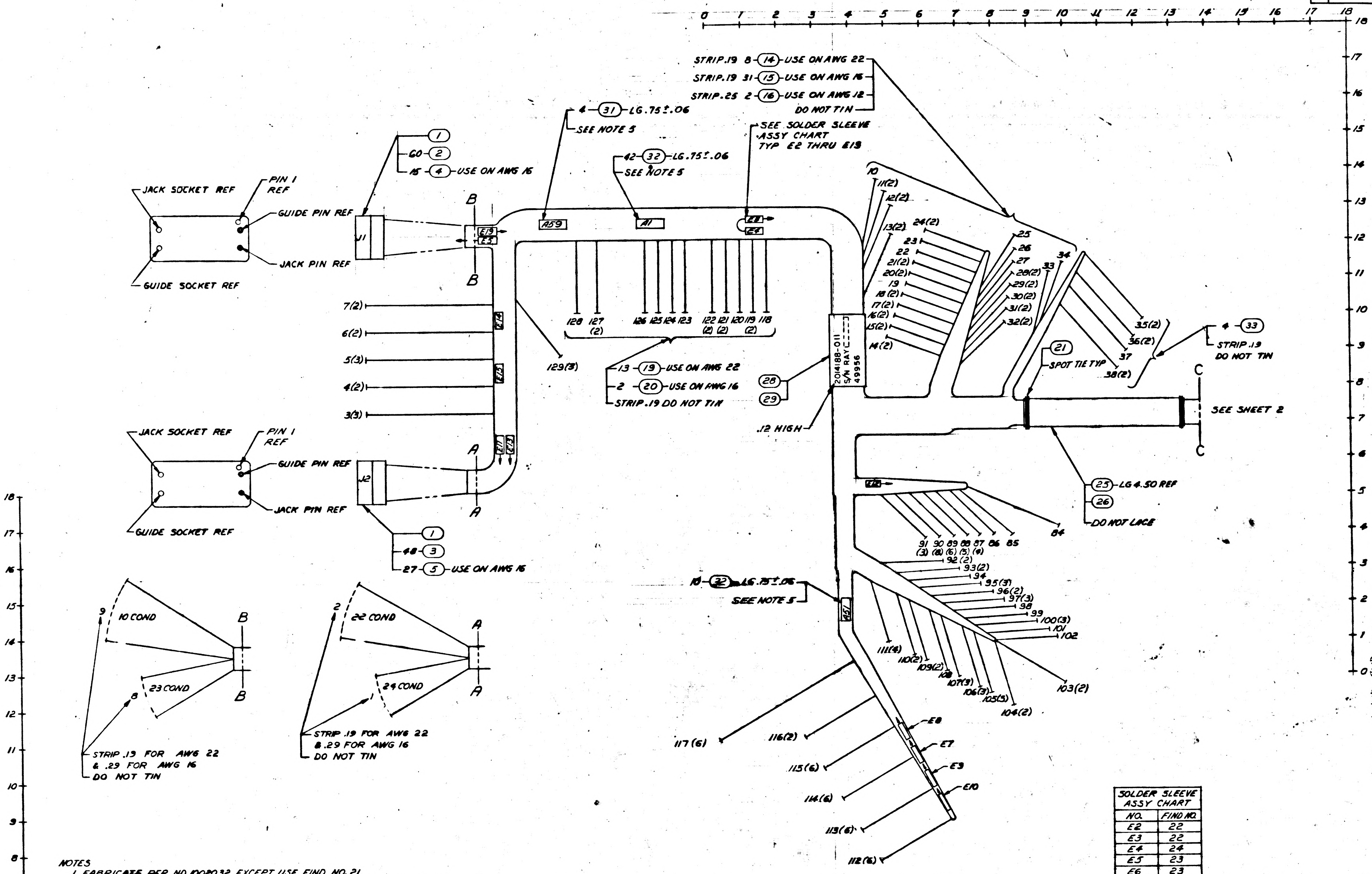
WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014188
SCALE NONE
WT
SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014188 F

SYM	DESCRIPTION	DATE	APPROVED
	REVISIONS		
0	RELEASED PER CCA R25496		
1	CHANGED PER CCA R25445 DR P. Milstr CHK C.D. APPD [illegible]	[illegible]	[illegible]
—	CLASS B NO CHANGE PER CCA RE-5509	[illegible]	[illegible]
A	CHANGED PER CCA R 25564 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	[illegible]	[illegible]
C	CHANGED PER TDRR 26307 DR J.P. Leonard CHK [illegible] APPD C.D	[illegible]	[illegible]
D	CHANGED PER TDRR 26308 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
E	CHANGED PER TDRR 26311 DR [illegible] CHK [illegible] APPD PED	[illegible]	[illegible]
F	CHANGED PER TDRR 26519 DR [illegible] CHK [illegible] APPD PED	[illegible]	[illegible]


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
STRIP.19 8-(14)-USE ON AWG 22
STRIP.19 31-(15)-USE ON AWG 16
STRIP.25 2-(16)-USE ON AWG 12
DO NOT TIN
4-(31)-LG.75±.06
SEE NOTE 5
42-(32)-LG.75±.06
SEE NOTE 5
SEE SOLDER SLEEVE ASSY CHART TYP E2 THRU E19
(1)
60-(2)
15-(4)-USE ON AWG 16
JACK SOCKET REF
PIN 1 REF
GUIDE PIN REF
JACK PIN REF
GUIDE SOCKET REF
J1
J2
B
A
E19
E5
A59
A1
E3
E4
E14
E15
E11
E13
E12
A51
7(2)
6(2)
5(3)
4(2)
3(3)
129(3)
128
127 (2)
126 125 124 123
122 (2) 121 (2) 120 119 (2) 118
13-(19)-USE ON AWG 22
2-(20)-USE ON AWG 16
STRIP.19 DO NOT TIN
(28)
(29)
2014188-011 S/N RAY 49956
.12 HIGH
10
11(2)
12(2)
13(2)
24(2)
23
22
21(2)
20(2)
19
18(2)
17(2)
16(2)
15(2)
14(2)
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28(2)
29(2)
30(2)
31(2)
32(2)
33
34
35(2)
36(2)
37
38(2)
4-(33)
STRIP .19 DO NOT TIN
(21)
SPOT TIE TYP
C
SEE SHEET 2
(25)-LG 4.50 REF
(26)
DO NOT LACE
84
91 (3) 90 (8) 89 (6) 88 (5) 87 (4) 86 85
92(2)
93(2)
94
95(3)
96(2)
97(3)
98
99
100(3)
101
102
103(2)
104(2)
105(3)
106(3)
107(3)
108
109(2)
110(2)
111(4)
10-(32)-LG.75±.06
SEE NOTE 5
E8
E7
E9
E10
117(6)
116(2)
115(6)
114(6)
113(6)
112(6)
(1)
48-(3)
27-(5)-USE ON AWG 16
9
10 COND
23 COND
8
STRIP .19 FOR AWG 22 & .29 FOR AWG 16 DO NOT TIN
2
22 COND
24 COND
1
STRIP .19 FOR AWG 22 &.29 FOR AWG 16 DO NOT TIN

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 21
2. STRIP ALL LEADS .50 ±.06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
3. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
4. CRIMP PER ND 1002206
5. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
6. SERIALIZE PER ND 1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
10. AR DENOTES AS REQUIRED
11. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
12. MIL-W-16878/4 E22 WHT, RED, BLACK, TWISTED SHIELDED, JACKET TFE WHITE
13. MIL-W-16878/4 E22 WHT SHIELDED JACKET TFE WHITE
14. MIL-W-16878/4 E22 WHT & BLK, TWISTED SHIELDED, JACKET TFE WHITE
15. MIL-I-23053 CLASS 1 COLOR WHITE, I.D. .250
16. MIL-I-23053 CLASS 1, COLOR WHITE, I.D. .187
17. MIL-I-23053 CLASS 1, COLOR WHITE, I.D. .125

SOLDER SLEEVE ASSY CHART	
NO.	FIND NO.
E2	22
E3	22
E4	24
E5	23
E6	23
E7	22
E8	22
E9	22
E10	22
E11	22
E12	23
E13	22
E14	22
E15	22
E16	23
E17	24
E18	24
E19	24

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014156	SCHEMATIC	REF
*	1.3	MIL-W-16878/4E20	WIRE, ELEC BLK	35
*	8.0	MIL-W-16878/4E20	WIRE, ELEC WHT	34
	11	MS25036-49	LUG, TERMINAL	33
*	3.2	SEE NOTE 17	SLEEVING, INSULATION	32
*	0.3	SEE NOTE 16	SLEEVING, INSULATION	31
*	0.3	SEE NOTE 15	SLEEVING, INSULATION	30
	AR	1006253	ADHESIVE	29
	1	1006415-135	MARKER, CABLE	28
*	7.0	MIL-W-16878/4 E12	WIRE, ELEC WHITE	27
	AR	1006699	SOLVENT	26
*	4.5	1006696-5	SLEEVING, INSULATION	25
	4	1010402-3	SLEEVE, SOLDER	24
	4	1010402-2	SLEEVE, SOLDER	23
	10	1010402-1	SLEEVE, SOLDER	22
	AR	1006458-004	LACING, TAPE	21
	2	MS25036-6	LUG, TERMINAL	20
	13	MS25036-1	LUG, TERMINAL	19
	2	MS25036-57	LUG, TERMINAL	18
	4	MS25036-50	LUG, TERMINAL	17
	2	MS17143-21	LUG, TERMINAL	16
	31	MS17143-20	LUG, TERMINAL	15
	8	MS17143-19	LUG, TERMINAL	14
*	75	MIL-W-16878/4 E22	WIRE, ELEC BLK	13
*	60	SEE NOTE 14	WIRE, ELEC	12
*	20.0	SEE NOTE 12	WIRE, ELEC	11
*	40.0	SEE NOTE 13	WIRE, ELEC	10
*	100	1014341-11	WIRE, ELEC	9
*	38.7	MIL-W-16878/4 E16	WIRE, ELEC BLACK	8
*	110	MIL-W-16878/4 E22	WIRE, ELEC WHT	7
*	107.	MIL-W-16878/4 E16	WIRE, ELEC WHT	6
	27	1006491-014	CONTACT, ELECTRICAL	5
	15	1006491-013	CONTACT, ELECTRICAL	4
	48	1006491-012	CONTACT, ELECTRICAL	3
	60	1006491-011	CONTACT, ELECTRICAL	2
	2	1006494-002	CONNECTOR	1

-011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014297	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 21 SEPT 65
CHECKED [illegible] 4 OCT 65
APPROVAL [illegible] 19 OCT 65
APPROVAL [illegible] 10/18/65
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL [illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

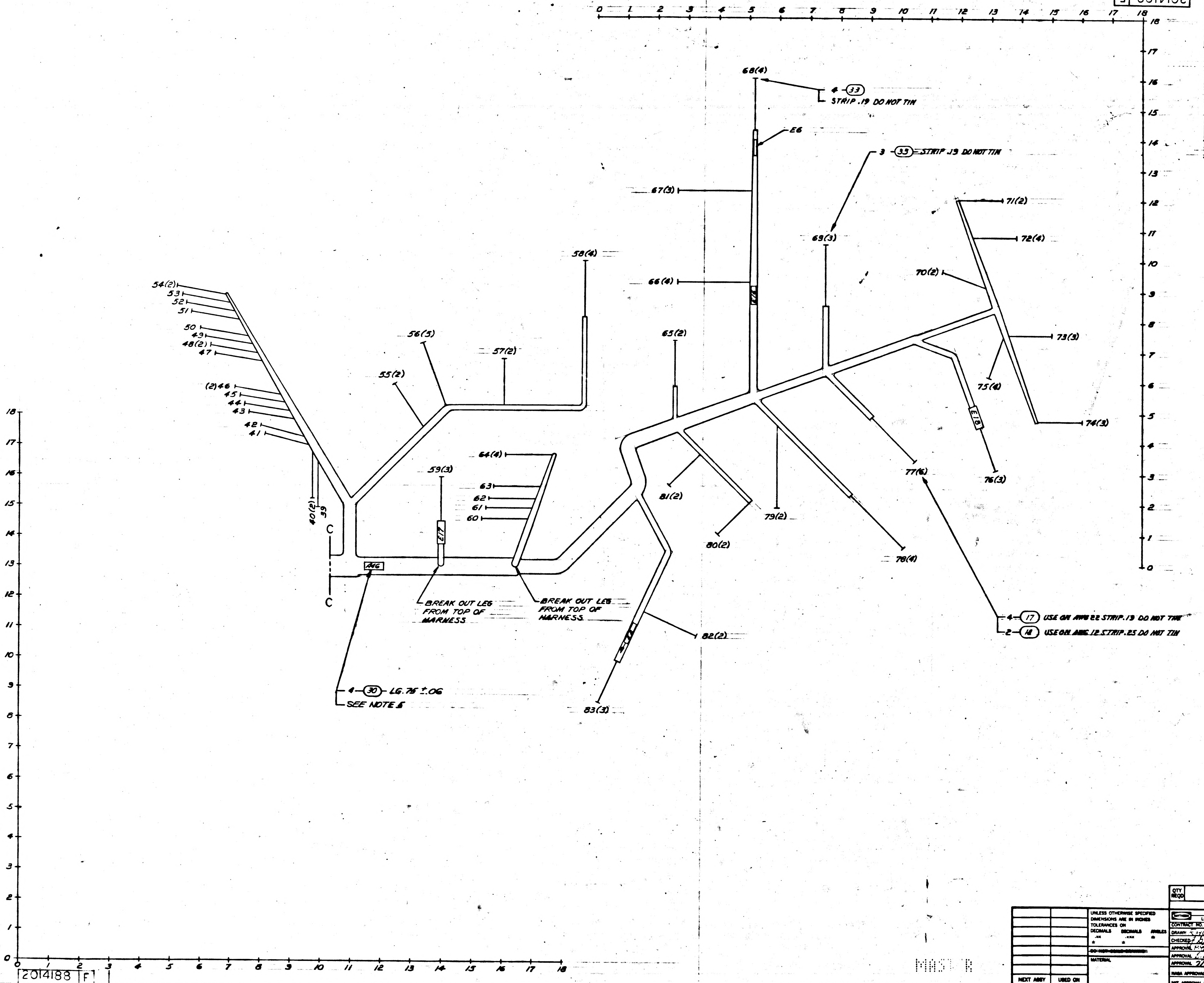
SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014188

SCALE 1/1 WT SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014188 F

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25476		
1	CHANGED PER CCA R25445 DR P. Milner CHK C. Dalhaus APPD	9/1/65	
—	CLASS B NO CHANGE PER CCA R25503		
A	CHANGED PER CCA R25564 DR CHK APPD	12/13/65	
B	CHANGED PER CCA R25695 AND CLASS A RELEASED PER TDRR 25476	1/13/66	
C	CHANGED PER TDRR 26307 DR J.P. Leonard CHK APPD		
D	CHANGED PER TDRR 26308 DR CHK APPD	3/3/66	
E	CHANGED PER TDRR 26311 DR CHK APPD	3/4/66	
F	CHANGED PER TDRR 26519 DR CHK APPD	4/4/66	



68(4)
4 - (33)
STRIP .19 DO NOT TIN
E6
3 - (33) STRIP .19 DO NOT TIN
67(3)
69(3)
71(2)
72(4)
70(2)
66(4)
E17
58(4)
54(2)
53
52
51
50
49
48(2)
47
(2)46
45
44
43
42
41
40(2)
39
56(5)
57(2)
55(2)
65(2)
73(3)
75(4)
74(3)
E18
76(3)
77(6)
81(2)
79(2)
80(2)
78(4)
64(4)
63
62
61
60
59(3)
E17
C
C
A46
BREAK OUT LEG FROM TOP OF HARNESS
BREAK OUT LEG FROM TOP OF HARNESS
4 - (17) USE ON AWG 22 STRIP .19 DO NOT TIN
2 - (18) USE ON AWG 12 STRIP .25 DO NOT TIN
82(2)
83(3)
4 - (30) - LG .75 ± .06
SEE NOTE 5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 21 SEPT 65
CHECKED 4 OCT 65
APPROVAL P. 19 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J CODE IDENT NO. 49956 NASA DRAWING NO. 2014188
SCALE 1/1 WT SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014188 F

2014188 F

2014188 F

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	104	A1-1	WHT	22	9	72	S8-3NO	
		105	-2	BLK			72	S8-4NO	
	A2	106	-10	WHT		9	71	S10-3NO	
		107	A1-14	BLK			71	S10-4NO	
	A3	120	A3-3	WHT		7	83	R4-CW	
	A4	109	A1-6	WHT		7	38	DS2-1	
	A5	110	-7	WHT	22	7	74	S2-4NO	
	A6	105	-11	WHT	16	6	23	TB1B-3	TWIST
	A7	111	-12	BLK		8	22	TB1B-4	
	A8	105	-11	WHT		6	46	S15B-9	TWIST
	A9	111	-12	BLK		8	54	S15A-9	
	A10	100	-15	BLK		8	58	S17-2C	TWIST
	A11	92	-16	WHT	16	6	58	S16-1C	
	A12	103	-17	WHT	22	7	8	J1-57	
	A13	100	-19		22	7	57	R5-1	
	A14	99	-18		22	7	8	J1-75	
	A15	98	-21		16	6	5	F2-2	
	A16	97	-22			6	1	J2-44	
	A17	97	-22			6	1	J2-50	
	A18	96	-23			6	3	F3-2	
	A19	95	-24			6	1	J2-48	
	A20	95	-24		16	6	1	J2-54	
	A21	94	-25		22	7	56	S18B-ARM	
	A22	93	-26		22	7	8	J1-76	
	A23	93	-26		22	7	55	S18A-ARM	
	A24	87	-28	WHT	16	6	8	J1-74	TWIST
	A25	89	-30	BLK		8	8	J1-72	
	A26	87	-28	WHT		6	50	S15A-4	TWIST
	A27	89	-30	BLK		8	42	S15B-4	
	A28	88	-29	WHT		6	8	J1-73	
	A29	90	-31	WHT	16	6	65	R3-3	
	A30	90	-32	BLK	22	13	△	E7	
	A31	90	-32	BLK		13	△	E8	
	A32	90	-32	BLK		13	△	E12	
	A33	91	-33	WHT		7	8	J1-64	
	A34	84	-34			7	8	J1-54	
	A35	86	-38			7	36	DS2-3	
	A36	87	-39			7	35	DS2-4	
	A37	88	-40	WHT		12	66	S14A-ARM	
		89	A1-41	BLK	22		67	S14B-3	
		△	E12	SHLD			△	E16	
	A38	90	A1-42	BLK	22	13	△	E6	
	A39	90	-42	BLK	22	13	△	E9	
	A40	90	-42	BLK	22	13	△	E10	
	A41	91	-43	WHT	16	6	8	J1-53	TWIST
	A42	91	-44	BLK	16	8	8	J1-52	
	A43	103	A1R1-3	WHT	22	7	56	S18A-7	
	A44	64	A2-1	WHT		7	118	A3-1	
	A45	64	-2	BLK		13	119	A3-2	
	A46	59	-4	WHT		11	121	A3-4	
		59	-5	BLK			122	A3-5	
		59	A2-6	RED	22		122	A3-6	
		△	E17	SHLD			△	E4	
	A47	62	A2-7	WHT	22	7	123	A3-7	
	A48	61	-8			7	124	A3-8	
	A49	60	-9			7	125	A3-9	
	A50	63	A2-10			7	126	A3-10	
	A51	121	A3-4	WHT	22	10	83	R4-CCW	
		△	E3	SHLD			△	E2	
	A52	△	E2	BLK	22	13	83	R4-ARM	
	A53	△	E3	BLK	22	13	△	E4	
	A54	△	E3	BLK	22	13	119	A3-2	
	A55	127	A3-13	BLK	16	8	13	TB1A-7	TWIST
	A56	127	A3-14	WHT	16	6	13	TB1A-6	
	A57	128	A3-15	WHT	22	7	9	J1-8	
	A58	9	J1-1	BLK	22	13	△	E5	
	A59	9	J1-2	WHT	22	12	68	T1-2	
		9	J1-3	BLK	22		68	T1-1	
		△	E5	SHLD			△	E6	
	A60	123	E1	BLK	16	8	10	TB1A-2	
	A61	9	J1-10	BLK	22	9	20	TB1B-6	
			-11	WHT	22		26	TB2A-6	
	A62		-12	BLK	16	8	129	E1	
	A63		-13	WHT	22	11	76	DS1(+)	
			-14	BLK	22		76	S1-2	
		9	J1-15	RED	22		76	DS1(-)	
		△	E19	SHLD			△	E18	
	A64	8	J1-51	WHT	22	7	2	J2-30	
	A65		-60	WHT	22	7	73	S6-3NO	
	A66		-62	WHT	16	6	18	TB1B-8	TWIST
	A67		-63	BLK	16	8	28	TB2A-8	
	A68		-65	WHT	16	6	18	TB1B-8	TWIST
	A69		-66	BLK	16	8	28	TB2A-8	
	A70		-67	WHT	16	6	65	R3-1	
	A71		-70	BLK	22	9	43	S15B-6	
		8	J1-71	WHT	22		51	S15A-6	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A72	8	J1-77	WHT	16	6	11	TB1A-3	TWIST
	A73	8	J1-78	BLK	16	8	12	TB1A-4	
	A74	8	J1-79	WHT	16	6	11	TB1A-3	TWIST
	A75	8	J1-80	BLK	16	8	12	TB1A-4	
	A76	2	J2-1	WHT	22	9	52	S15A-7	
			-4	BLK	22		44	S15B-7	
	A77		-2	WHT	16	6	32	TB2A-12	TWIST
	A78		-3	BLK		8	14	TB1B-12	
	A79		-5	WHT		6	31	TB2A-11	TWIST
	A80		-8	BLK		8	15	TB1B-11	
	A81		-7	WHT		6	32	TB2A-12	TWIST
	A82		-11	BLK		8	14	TB1B-12	
	A83		-10	WHT		6	30	TB2A-10	TWIST
	A84		-21	BLK		8	16	TB1B-10	
	A85		-12	BLK		8	15	TB1B-11	TWIST
	A86		-13	WHT		6	31	TB2A-11	
	A87		-14	WHT		6	30	TB2A-10	TWIST
	A88		-17	BLK		8	16	TB1B-10	
	A89		-15	WHT		6	29	TB2A-9	TWIST
	A90		-18	BLK	16	8	17	TB1B-9	
	A91		-16	WHT	22	9	53	S15A-8	
			-23	BLK	22		45	S15B-8	
	A92		-22	BLK	16	8	17	TB1B-9	TWIST
	A93		-25	WHT	16	6	29	TB2A-9	
	A94	2	-24	WHT	22	7	38	DS2-1	
	A95	1	-43	WHT	16	6	5	F2-1	
	A96		-45	WHT	22	9	48	S15A-2	
			-46	BLK	22		40	S15B-2	
	A97		-47	WHT	16	6	3	F3-1	
	A98		-49	WHT	16	6	5	F2-1	
	A99		-51	WHT	16	6	3	F3-1	
	A100		-52	WHT	22	9	41	S15B-3	
			-53	BLK	22		49	S15A-3	
	A101		-62	BLK	16	8	24	TB1B-2	
	A102		-63	WHT	22	9	81	R2-3	
			-64	BLK	22		81	R2-1	
	A103		-65	BLK	16	8	24	TB1B-2	
	A104		-66	WHT	22	9	80	R1-3	
			-67	BLK	22		80	R1-1	
	A105		-76	BLK	22	13	△	E13	
	A106	1	J2-77	WHT	22	10	113	K2-4	
		△	E13	SHLD			△	E8	
	A107	1	J2-78	WHT	16	6	6	F4-1	
	A108	1	J2-79	BLK	22	13	△	E11	
	A109	1	J2-80	WHT	22	6	4	F5-1	
	A110	1	J2-82	WHT	22	10	112	K1-4	
		△	E11	SHLD			△	E9	
	A111	82	J3	WHT	22	9	47	S15A-1	
		82	J4	BLK			39	S15B-1	
	A112	7	F1-1	BLK		9	19	TB1B-7	
		7	F1-2	WHT			27	TB2A-7	
	A113	6	F4-2	WHT		10	113	K2-5	
		△	E14	SHLD			△	E7	
	A114	4	F5-2	WHT	22	10	112	K1-5	
		△	E15	SHLD			△	E10	
	A115	69	M1-140V	WHT	22	7	66	S14A-2	TWIST
	A116	69	M1-70V		22	7	66	S14A-3	
	A117	69	M1-COM		22	7	67	S14B-ARM	
	A118	77	M2-(+)		12	27	34	TB2B-8	
	A119		-(-)		22	7	78	S12A-ARM	
	A120		-10A		22	7	78	S12A-2	
	A121		-5A		22	7	78	S12A-3	
	A122		-1A		12	27	33	TB2B-9	
	A123	77	M2-1A		22	7	79	S13-4	
	A124	70	M3-1	WHT	22	9	20	TB1B-6	
		70	M3-2	BLK			21	TB1B-5	
	A125	37	DS2-2	WHT		7	56	S18B-1	
	A126	36	DS2-3	WHT		7	56	S18A-5	
	A127	35	DS2-4	WHT		7	55	S18A-1	
	A128	129	E1	BLK		13	△	E19	
	A129	57	R5-3	WHT		7	56	S18A-9	
	A130	74	S2-1C	BLK		9	54	S15A-9	
		74	S3-2C	WHT			46	S15B-9	
	A131	73	S6-4NO	BLK		9	21	TB1B-5	
		73	S6-4C	WHT			25	TB2A-5	
	A132	75	S7-1C	WHT		9	58	S16-1C	
		75	S7-2C	BLK			58	S17-2C	
	A133	75	S7-1C	WHT		9	72	S8-3C	
		75	S7-2C	BLK			72	S8-4C	
	A134	78	S12A-4	WHT		7	79	S13-3	
	A135	66	S14A-ARM	WHT		9	68	T1-3	
		67	S14B-2	BLK	22		68	T1-2	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A136	100	A1-15	WHT	16	6	117	K6-5	
	A137	92	A1-16	BLK	16	8	117	K6-1	
	A138	111	A1-12	BLK	16	8	117	K6-6	
	A139	105	A1-11	WHT	16	6	117	K6-2	
	A140	110	A1-7	WHT	22	7	117	K6-3	
	A141	111	A1-8	WHT	22	7	117	K6-7	
	A142	64	A2-2	BLK	22	9	40	S15B-ARM	
		64	A2-16	WHT	22		48	S15A-ARM	
	A143	108	A1-5	WHT	22	7	116	K5-2	
	A144	109	A1-6	WHT	22	7	116	K5-7	
	A145	101	A1-13	WHT	22	7	112	K1-7	
	A146	102	A1-9	WHT	22	7	112	K1-2	
	A147	88	A1-40	WHT	22	9	112	K1-3	
		89	A1-41	BLK			112	K1-6	
	A148	89	A1-41	BLK	22	9	113	K2-6	
		88	A1-40	WHT			113	K2-3	
	A149	106	A1-3	WHT	22	7	113	K2-2	
	A150	107	A1-4	BLK	22	13	113	K2-7	
	A151	96	A1-23	WHT	20	34	114	K3-4	
	A152	95	A1-24	WHT	20	34	114	K3-5	
	A153	90	A1-31	WHT	20	34	114	K3-6	
	A154	88	A1-29	WHT	20	34	114	K3-3	
	A155	104	A1-1	WHT	22	7	114	K3-2	
	A156	105	A1-2	BLK	22	13	114	K3-7	
	A157	89	A1-30	BLK	20	35	115	K4-6	
	A158	87	A1-28	WHT	20	34	115	K4-3	
	A159	106	A1-3	WHT	22	7	115	K4-2	
	A160	107	A1-4	BLK	22	13	115	K4-7	
	A161	85	A1-21	WHT	20	34	115	K4-4	
	A162	97	A1-22	WHT	20	34	115	K4-5	

△ DENOTES INTERNAL CONNECTION

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25486		
1	CHANGED PER CCA R25445 DR R Miller CHK [illegible] APPD [illegible]	9/14/65	[illegible]
—	CLASS B NO CHANGE PER CCA R25509	[illegible]	[illegible]
A	CHANGED PER CCA R25564 DR [illegible] CHK [illegible] APPD [illegible]	12/13/65	[illegible]
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	1/5/66	[illegible]
C	CHANGED PER TDRR 26307 DR J.P. Leonard CHK [illegible] APPD PCD	2/24/66	[illegible]
D	CHANGED PER TDRR 26308 DR [illegible] CHK [illegible] APPD [illegible]	3/7/66	[illegible]
E	CHANGED PER TDRR 26311 DR [illegible] CHK [illegible] APPD PCD	3/24/66	[illegible]
F	CHANGED PER TDRR 25519 DR [illegible] CHK [illegible] APPD PCD	4/4/66	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J Smoy DATE 23 Sep 65
CHECKED [illegible] 4 OCT 65
APPROVAL [illegible] 19 OCT 65
APPROVAL [illegible] 10/18/65
APPROVAL [illegible]
NASA APPROVAL A. O. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

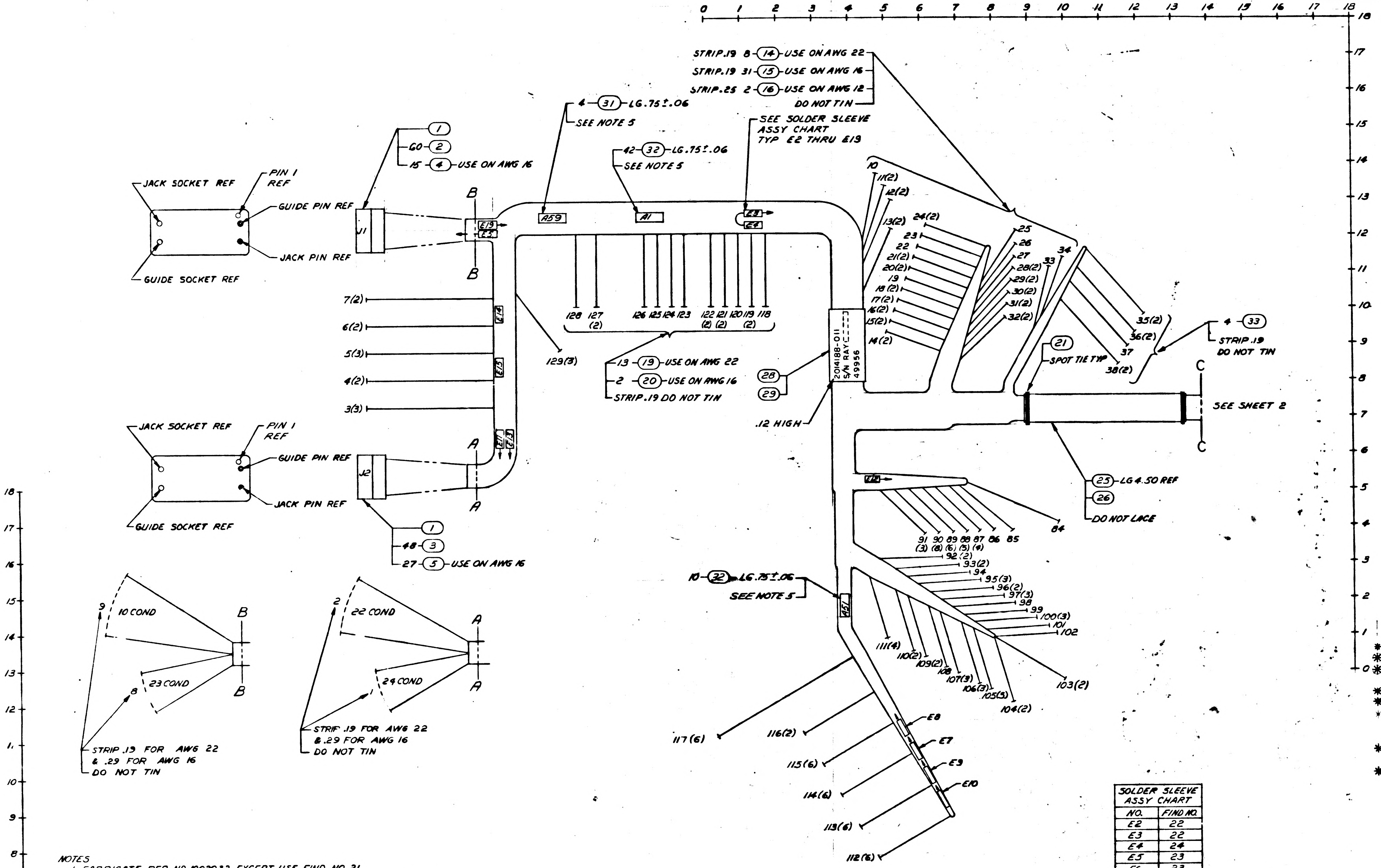
WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014188
SCALE NONE | WT | SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014188 G

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25486		
1	CHANGED PER CCA R25445 DR P. Milutto CHK C.B. APPD	9/4/65	
—	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25564 DR CHK APPD	11/17/65	
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25976		
C	CHANGED PER TDRR 26307 DR J.P. Leonard CHK APPD		
D	CHANGED PER TDRR 26308 DR CHK APPD		
E	CHANGED PER TDRR 263.. DR CHK APPD PED		
F	CHANGED PER TDRR 25519 DR CHK APPD PED		
G	CHANGED PER TDRR 26531 DR CHK APPD PED		


STRIP .19 8 -(14)- USE ON AWG 22
STRIP .19 31 -(15)- USE ON AWG 16
STRIP .25 2 -(16)- USE ON AWG 12
DO NOT TIN
4 -(31)- LG .75 ± .06
SEE NOTE 5
42 -(32)- LG .75 ± .06
SEE NOTE 5
SEE SOLDER SLEEVE ASSY CHART TYP E2 THRU E19
(1)
60 -(2)
15 -(4)- USE ON AWG 16
JACK SOCKET REF
PIN 1 REF
GUIDE PIN REF
JACK PIN REF
GUIDE SOCKET REF
J1
J2
B
A
E19
E5
E4
E3
E2
A59
A1
7(2)
6(2)
5(3)
4(2)
3(3)
129(3)
128 127 (2) 126 125 124 123 122 (2) 121 (2) 120 119 118
13 -(19)- USE ON AWG 22
2 -(20)- USE ON AWG 16
STRIP .19 DO NOT TIN
(28)
(29)
2014188-011 S/N RAY 49956
.12 HIGH
10 11(2) 12(2) 13(2) 24(2) 23 22 21(2) 20(2) 19 18(2) 17(2) 16(2) 15(2) 14(2)
25 26 27 28(2) 29(2) 30(2) 31(2) 32(2) 33 34
35(2) 36(2) 37 38(2)
4 -(33)
STRIP .19 DO NOT TIN
(21) SPOT TIE TYP
C
SEE SHEET 2
(25)- LG 4.50 REF
(26)
DO NOT LACE
84
91 (3) 90 (8) 89 (6) 88 (5) 87 (4) 86 85
92(2) 93(2) 94 95(3) 96(2) 97(3) 98 99 100(3) 101 102
103(2) 104(2) 105(5) 106(3) 107(3) 108 109(2) 110(2) 111(4)
10 -(32)- LG .75 ± .06
SEE NOTE 5
117(6) 116(2) 115(6) 114(6) 113(6) 112(6)
E8 E7 E9 E10
1 -(1)
48 -(3)
27 -(5)- USE ON AWG 16
9 10 COND
8 23 COND
2 22 COND
24 COND
STRIP .19 FOR AWG 22 & .29 FOR AWG 16 DO NOT TIN
STRIP .19 FOR AWG 22 & .29 FOR AWG 16 DO NOT TIN

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 21
2. STRIP ALL LEADS .50 ± .06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
3. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
4. CRIMP PER ND 1002206
5. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
6. SERIALIZE PER ND 1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
10. AR DENOTES AS REQUIRED
11. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
12. MIL-W-16878/4 E22 WHT, RED, BLACK, TWISTED SHIELDED, JACKET TFE WHITE
13. MIL-W-16878/4 E22 WHT SHIELDED JACKET TFE WHITE
14. MIL-W-16878/4 E22 WHT & BLK, TWISTED SHIELDED, JACKET TFE WHITE
15. MIL-I-23053 CLASS 1 COLOR WHITE, I.D. .250
16. MIL-I-23053 CLASS 1, COLOR WHITE, I.D. .187
17. MIL-I-23053 CLASS 1, COLOR WHITE, I.D. .125

SOLDER SLEEVE ASSY CHART

NO.	FIND NO.
E2	22
E3	22
E4	24
E5	23
E6	23
E7	22
E8	22
E9	22
E10	22
E11	22
E12	23
E13	22
E14	22
E15	22
E16	23
E17	24
E18	24
E19	24

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014156	SCHEMATIC	REF
*	2.0	MIL-W-16878/4E18	WIRE, ELEC WHT	36
*	1.3	MIL-W-16878/4E20	WIRE, ELEC BLK	35
*	8.0	MIL-W-16878/4E20	WIRE, ELEC WHT	34
	11	MS25036-49	LUG, TERMINAL	33
*	3.2	SEE NOTE 17	SLEEVING, INSULATION	32
*	0.7	SEE NOTE 16	SLEEVING, INSULATION	31
*	0.3	SEE NOTE 15	SLEEVING, INSULATION	30
	AR	1006253	ADHESIVE	29
	1	1006415-135	MARKER, CABLE	28
*	7.0	MIL-W-16878/4 E12	WIRE, ELEC WHITE	27
	AR	1006699	SOLVENT	26
*	4.5	1006696-5	SLEEVING, INSULATION	25
	4	1010402-3	SLEEVE, SOLDER	24
	4	1010402-2	SLEEVE, SOLDER	23
	10	1010402-1	SLEEVE, SOLDER	22
	AR	1006458-004	LACING, TAPE	21
	2	MS25036-6	LUG, TERMINAL	20
	13	MS25036-1	LUG, TERMINAL	19
	2	MS25036-57	LUG, TERMINAL	18
	4	MS25036-50	LUG, TERMINAL	17
	2	MS17143-21	LUG, TERMINAL	16
	31	MS17143-20	LUG, TERMINAL	15
	8	MS17143-19	LUG, TERMINAL	14
*	75	MIL-W-16878/4 E22	WIRE, ELEC BLK	13
*	60	SEE NOTE 14	WIRE, ELEC	12
*	20.0	SEE NOTE 12	WIRE, ELEC	11
*	40.0	SEE NOTE 13	WIRE, ELEC	10
*	100	1014341-11	WIRE, ELEC	9
*	38.7	MIL-W-16878/4 E16	WIRE, ELEC BLACK	8
*	110	MIL-W-16878/4 E22	WIRE, ELEC WHT	7
*	107.	MIL-W-16878/4 E16	WIRE, ELEC WHT	6
	27	1006491-014	CONTACT, ELECTRICAL	5
	15	1006491-013	CONTACT, ELECTRICAL	4
	48	1006491-012	CONTACT, ELECTRICAL	3
	60	1006491-011	CONTACT, ELECTRICAL	2
	2	1006494-002	CONNECTOR	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014297	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-437
DRAWN DATE 21 SEPT 65
CHECKED 20 OCT 65
APPROVAL 19 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

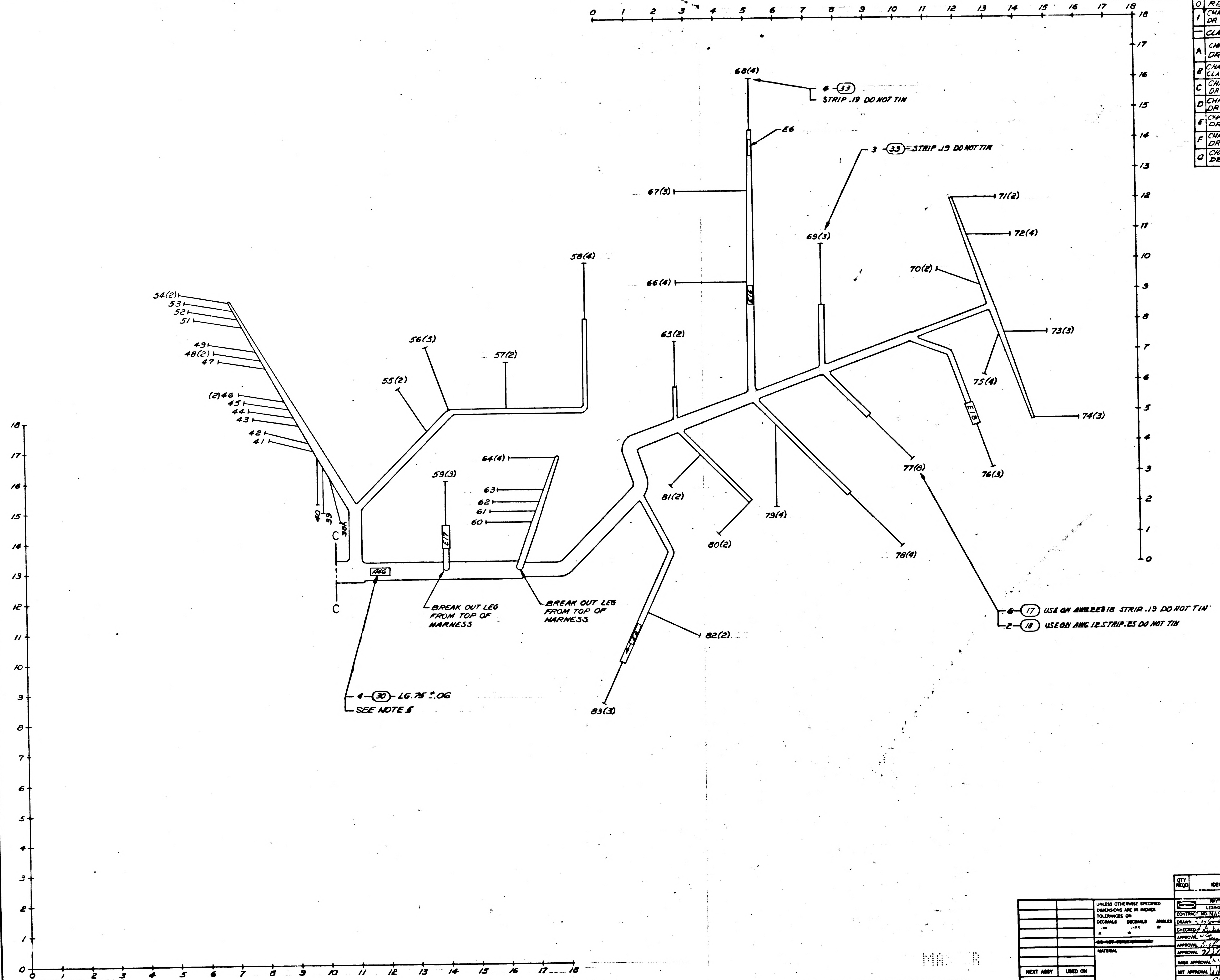
SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014188
SCALE 1/1 | WT | SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014188 G

2014188 G

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25486		
1	CHANGED PER CCA R25445 DR P. Miller CHK C. Dalhouse APPD	11/4/65	
—	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25564 DR CHK APPD	12/13/65	
B	CHANGED PER CCA R25695 AND CLASS A RELEASED PER TDRR 25476	1/13/66	
C	CHANGED PER TDRR 26307 DR J P Leonard CHK APPD PED		
D	CHANGED PER TDRR 26308 DR CHK APPD	3/7/66	
E	CHANGED PER TDRR 26311 DR CHK APPD PED	3/1/66	
F	CHANGED PER TDRR 26519 DR CHK APPD PED	7/7/66	
G	CHANGED PER TDRR 26531 DR CHK APPD PED	7/27/66	


68(4)
4 - 33
STRIP .19 DO NOT TIN
E6
3 - 33 - STRIP .19 DO NOT TIN
67(3)
69(3)
71(2)
72(4)
70(2)
66(4)
E16
58(4)
54(2)
53
52
51
49
48(2)
47
56(5)
57(2)
65(2)
73(3)
55(2)
75(4)
74(3)
(2)46
45
44
43
42
41
64(4)
59(3)
63
62
61
60
40
39
38K
E17
E18
77(8)
76(3)
81(2)
79(4)
80(2)
78(4)
C
C
A4G
BREAK OUT LEG FROM TOP OF HARNESS
BREAK OUT LEG FROM TOP OF HARNESS
6 - 17 USE ON AWG 22 & 18 STRIP .19 DO NOT TIN
2 - 18 USE ON AWG 12 STRIP .25 DO NOT TIN
82(2)
E7
4 - 30 - LG .75 ± .06
SEE NOTE 5
83(3)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

2014188 G

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 21 SEPT 65
CHECKED 4 OCT 65
APPROVAL P. 19 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014188

SCALE 1/1 WT SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014188 G

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	104	A1-1	WHT	22	9	72	S8-3NO	
		105	-2	BLK			72	S8-4NO	
	A2	106	-10	WHT		9	71	S10-3NO	
		107	A1-14	BLK			71	S10-4NO	
	A3	120	A3-3	WHT		7	83	R4-CW	
	A4	109	A1-6	WHT		7	38	DS2-1	
	A5	110	-7	WHT	22	7	74	S2-4NO	
	A6	105	-11	WHT	16	6	23	TB1B-3	TWIST
	A7	111	-12	BLK		8	22	TB1B-4	
	A8	105	-11	WHT		6	46	S15B-9	TWIST
	A9	111	-12	BLK		8	54	S15A-9	
	A10	100	-15	BLK		8	58	S17-2C	TWIST
	A11	92	-16	WHT	16	6	58	S16-1C	
	A12	103	-17	WHT	22	7	8	J1-57	
	A13	100	-19		22	7	57	R5-1	
	A14	99	-18		22	7	8	J1-75	
	A15	98	-21		16	6	5	F2-2	
	A16	97	-22			6	1	J2-44	
	A17	97	-22			6	1	J2-50	
	A18	96	-23			6	3	F3-2	
	A19	95	-24			6	1	J2-48	
	A20	95	-24		16	6	1	J2-54	
	A21	94	-25		22	7	56	S18B-ARM	
	A22	93	-26		22	7	8	J1-76	
	A23	93	-26		22	7	55	S18A-ARM	
	A24	87	-28	WHT	16	6	8	J1-74	TWIST
	A25	89	-30	BLK		8	8	J1-72	
	A26	89	-30	BLK		8	38A	S15A-4	TWIST
	A27	87	-28	WHT		6	42	S15B-4	
	A28	88	-29	WHT		6	8	J1-73	
	A29	90	-31	WHT	16	6	65	R3-3	
	A30	90	-32	BLK	22	13	△	E7	
	A31	90	-32	BLK		13	△	E8	
	A32	90	-32	BLK		13	△	E12	
	A33	91	-33	WHT		7	8	J1-64	
	A34	84	-34			7	8	J1-54	
	A35	86	-38			7	36	DS2-3	
	A36	87	-39			7	35	DS2-4	
	A37	88	-40	WHT		12	66	S14A-ARM	
		89	A1-41	BLK	22		67	S14B-3	
		△	E12	SHLD			△	E16	
	A38	90	A1-42	BLK	22	13	△	E6	
	A39	90	-42	BLK	22	13	△	E9	
	A40	90	-42	BLK	22	13	△	E10	
	A41	91	-43	WHT	16	6	8	J1-53	TWIST
	A42	91	-44	BLK	16	8	8	J1-52	
	A43	103	A1R1-3	WHT	22	7	56	S18A-7	
	A44	64	A2-1	WHT		7	118	A3-1	
	A45	64	-2	BLK		13	119	A3-2	
	A46	59	-4	WHT		11	121	A3-4	
		59	-5	BLK			122	A3-5	
		59	A2-6	RED	22		122	A3-6	
		△	E17	SHLD			△	E4	
	A47	62	A2-7	WHT	22	7	123	A3-7	
	A48	61	-8			7	124	A3-8	
	A49	60	-9			7	125	A3-9	
	A50	63	A2-10			7	126	A3-10	
	A51	121	A3-4	WHT	22	10	83	R4-CCW	
		△	E3	SHLD			△	E2	
	A52	△	E2	BLK	22	13	83	R4-ARM	
	A53	△	E3	BLK	22	13	△	E4	
	A54	△	E3	BLK	22	13	119	A3-2	
	A55	127	A3-13	BLK	16	8	13	TB1A-7	TWIST
	A56	127	A3-14	WHT	16	6	13	TB1A-6	
	A57	128	A3-15	WHT	22	7	9	J1-8	
	A58	9	J1-1	BLK	22	13	△	E5	
	A59	9	J1-2	WHT	22	12	68	T1-2	
		9	J1-3	BLK	22		68	T1-1	
		△	E5	SHLD			△	E6	
	A60	129	E1	BLK	16	8	10	TB1A-2	
	A61	9	J1-10	BLK	22	9	20	TB1B-6	
			-11	WHT	22		26	TB2A-6	
	A62		-12	BLK	16	8	129	E1	
	A63		-13	WHT	22	11	76	DS1(+)	
			-14	BLK	22		76	S1-2	
		9	J1-15	RED	22		76	DS1(-)	
		△	E19	SHLD			△	E18	
	A64	8	J1-51	WHT	22	7	2	J2-30	
	A65		-60	WHT	22	7	73	S6-3NO	
	A66		-62	WHT	16	6	18	TB1B-8	TWIST
	A67		-63	BLK	16	8	28	TB2A-8	
	A68		-65	WHT	16	6	18	TB1B-8	TWIST
	A69		-66	BLK	16	8	28	TB2A-8	
	A70		-67	WHT	16	6	65	R3-1	
	A71		-70	BLK	22	9	43	S15B-6	
		8	J1-71	WHT	22		51	S15A-6	

△ DENOTES INTERNAL CONNECTION

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A72	8	J1-77	WHT	16	6	11	TB1A-3	TWIST
	A73	8	J1-78	BLK	16	8	12	TB1A-4	
	A74	8	J1-79	WHT	16	6	11	TB1A-3	TWIST
	A75	8	J1-80	BLK	16	8	12	TB1A-4	
	A76	2	J2-1	WHT	22	9	52	S15A-7	
			-4	BLK	22		44	S15B-7	
	A77		-2	WHT	16	6	32	TB2A-12	TWIST
	A78		-3	BLK		8	14	TB1B-12	
	A79		-5	WHT		6	31	TB2A-11	TWIST
	A80		-8	BLK		8	15	TB1B-11	
	A81		-7	WHT		6	32	TB2A-12	TWIST
	A82		-11	BLK		8	14	TB1B-12	
	A83		-10	WHT		6	30	TB2A-10	TWIST
	A84		-21	BLK		8	16	TB1B-10	
	A85		-12	BLK		8	15	TB1B-11	TWIST
	A86		-13	WHT		6	31	TB2A-11	
	A87		-14	WHT		6	30	TB2A-10	TWIST
	A88		-17	BLK		8	16	TB1B-10	
	A89		-15	WHT		6	29	TB2A-9	TWIST
	A90		-18	BLK	16	8	17	TB1B-9	
	A91		-16	WHT	22	9	53	S15A-8	
			-23	BLK	22		45	S15B-8	
	A92		-22	BLK	16	8	17	TB1B-9	TWIST
	A93		-25	WHT	16	6	29	TB2A-9	
	A94	2	-24	WHT	22	7	38	DS2-1	
	A95	1	-43	WHT	16	6	5	F2-1	
	A96		-45	WHT	22	9	48	S15A-2	
			-46	BLK	22		40	S15B-2	
	A97		-47	WHT	16	6	3	F3-1	
	A98		-49	WHT	16	6	5	F2-1	
	A99		-51	WHT	16	6	3	F3-1	
	A100		-52	WHT	22	9	41	S15B-3	
			-53	BLK	22		49	S15A-3	
	A101		-62	BLK	16	8	24	TB1B-2	
	A102		-63	WHT	22	9	81	R2-3	
			-64	BLK	22		81	R2-1	
	A103		-65	BLK	16	8	24	TB1B-2	
	A104		-66	WHT	22	9	80	R1-3	
			-67	BLK	22		80	R1-1	
	A105		-76	BLK	22	13	△	E13	
	A106	1	J2-77	WHT	22	10	113	K2-4	
		△	E13	SHLD			△	E8	
	A107	1	J2-78	WHT	16	6	6	F4-1	
	A108	1	J2-79	BLK	22	13	△	E11	
	A109	1	J2-80	WHT	22	6	4	F5-1	
	A110	1	J2-82	WHT	22	10	112	K1-4	
		△	E11	SHLD			△	E9	
	A111	82	J3	WHT	22	9	47	S15A-1	
		82	J4	BLK			39	S15B-1	
	A112	7	F1-1	BLK		9	19	TB1B-7	
		7	F1-2	WHT			27	TB2A-7	
	A113	6	F4-2	WHT		10	113	K2-5	
		△	E14	SHLD			△	E7	
	A114	4	F5-2	WHT	22	10	112	K1-5	
		△	E15	SHLD			△	E10	
	A115	69	M1-140V	WHT	22	7	66	S14A-2	TWIST
	A116	69	M1-70V		22	7	66	S14A-3	
	A117	69	M1-COM		22	7	67	S14B-ARM	
	A118	77	M2-(+)		12	27	34	TB2B-8	
	A119		-(-)		22	7	78	S12A-ARM	
	A120		-10A		22	7	78	S12A-2	
	A121		-5A		22	7	78	S12A-3	
	A122		-1A		12	27	33	TB2B-9	
	A123	77	M2-1A		22	7	79	S13-4	
	A124	70	M3-1	WHT	22	9	20	TB1B-6	
		70	M3-2	BLK			21	TB1B-5	
	A125	37	DS2-2	WHT		7	56	S18B-1	
	A126	36	DS2-3	WHT		7	56	S18A-5	
	A127	35	DS2-4	WHT		7	55	S18A-1	
	A128	129	E1	BLK		13	△	E19	
	A129	57	R5-3	WHT		7	56	S18A-9	
	A130	74	S2-1C	BLK		9	54	S15A-9	
		74	S3-2C	WHT			46	S15B-9	
	A131	73	S6-4NO	BLK		9	21	TB1B-5	
		73	S6-4C	WHT			25	TB2A-5	
	A132	75	S7-1C	WHT		9	58	S16-1C	
		75	S7-2C	BLK			58	S17-2C	
	A133	75	S7-1C	WHT		9	72	S8-3C	
		75	S7-2C	BLK			72	S8-4C	
	A134	78	S12A-4	WHT		7	79	S13-3	
	A135	66	S14A-ARM	WHT		9	68	T1-3	
		67	S14B-2	BLK	22		68	T1-2	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A136	100	A1-15	WHT	16	6	117	K6-5	
	A137	92	A1-16	BLK	16	8	117	K6-1	
	A138	111	A1-12	BLK	16	8	117	K6-6	
	A139	105	A1-11	WHT	16	6	117	K6-2	
	A140	110	A1-7	WHT	22	7	117	K6-3	
	A141	111	A1-8	WHT	22	7	117	K6-7	
	A142	64	A2-2	BLK	22	9	40	S15B-ARM	
		64	A2-16	WHT	22		48	S15A-ARM	
	A143	108	A1-5	WHT	22	7	116	K5-2	
	A144	109	A1-6	WHT	22	7	116	K5-7	
	A145	101	A1-13	WHT	22	7	112	K1-7	
	A146	102	A1-9	WHT	22	7	112	K1-2	
	A147	88	A1-40	WHT	22	9	112	K1-3	
		89	A1-41	BLK			112	K1-6	
	A148	89	A1-41	BLK	22	9	113	K2-6	
		88	A1-40	WHT			113	K2-3	
	A149	106	A1-3	WHT	22	7	113	K2-2	
	A150	107	A1-4	BLK	22	13	113	K2-7	
	A151	96	A1-23	WHT	20	34	114	K3-4	
	A152	95	A1-24	WHT	20	34	114	K3-5	
	A153	90	A1-31	WHT	20	34	114	K3-6	
	A154	88	A1-29	WHT	20	34	114	K3-3	
	A155	104	A1-1	WHT	22	7	114	K3-2	
	A156	105	A1-2	BLK	22	13	114	K3-7	
	A157	89	A1-30	BLK	20	35	115	K4-6	
	A158	87	A1-28	WHT	20	34	115	K4-3	
	A159	106	A1-3	WHT	22	7	115	K4-2	
	A160	107	A1-4	BLK	22	13	115	K4-7	
	A161	85	A1-21	WHT	20	34	115	K4-4	
	A162	97	A1-22	WHT	20	34	115	K4-5	
	A163	79	S13-2	WHT	18	36	77	M2-1A	
	A164	79	S13-1	WHT	18	36	77	M2-5A	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25486		
1	CHANGED PER CCA R25445 DR CHK APPD		
—	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25564 DR CHK APPD		
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476		
C	CHANGED PER TDRR 26307 DR J.P. Leonard CHK APPD PED		
D	CHANGED PER TDRR 26308 DR CHK APPD		
E	CHANGED PER TDRR 26311 DR CHK APPD PED		
F	CHANGED PER TDRR 26519 DR CHK APPD PED		
G	CHANGED PER TDRR 26531 DR CHK APPD PED		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 23 Sep 65
CHECKED 4 OCT 65
APPROVAL 19 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL A. O. METZGER
MIT APPROVAL
MIT APPROVAL

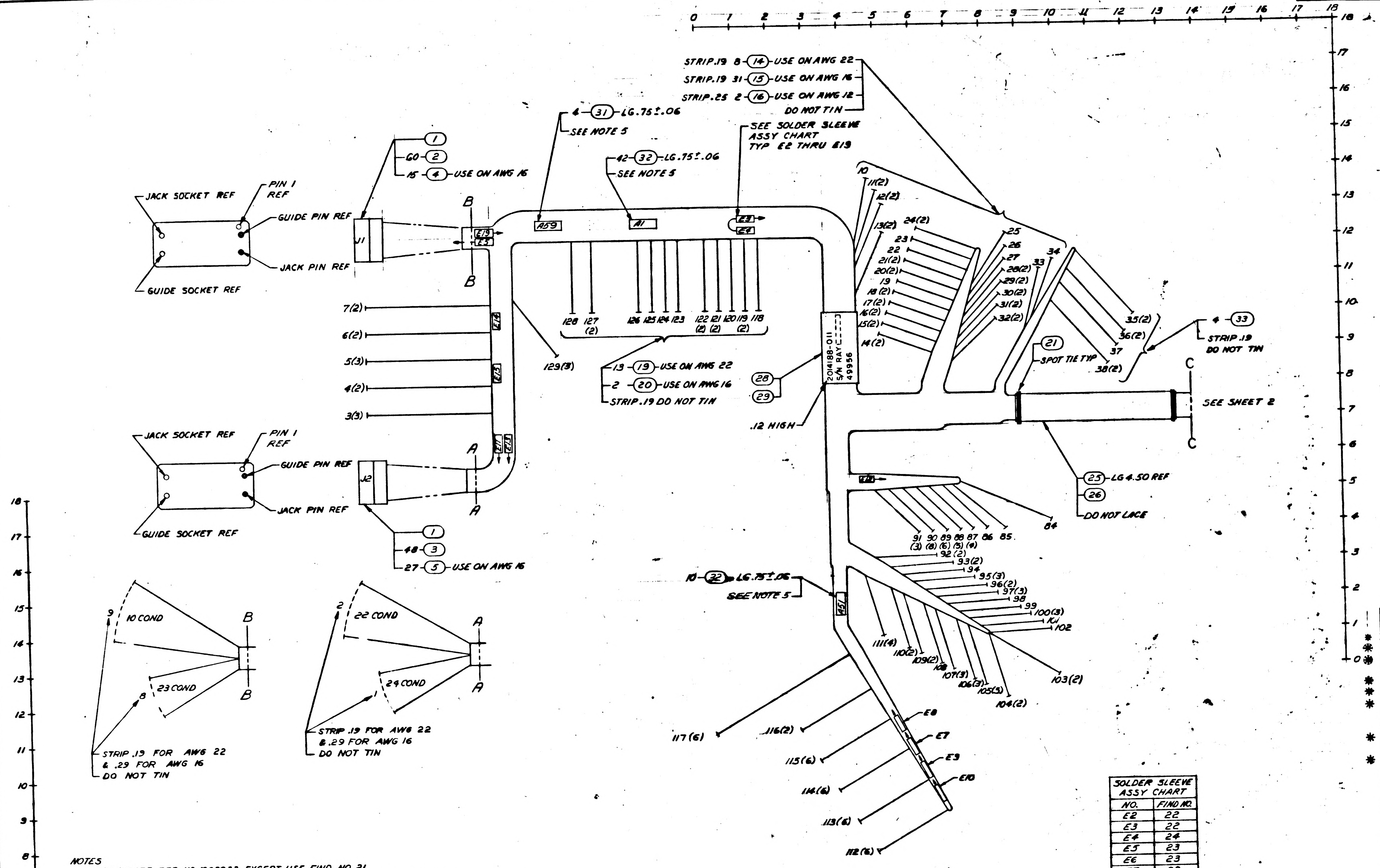
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014188
SCALE NONE | WT | SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25346		
1	CHANGED PER CCA R25445 DR R. Milner CHK C.G. APPD	[illegible]	[illegible]
	CLASS B NO CHANGE PER CCA R25909	[illegible]	[illegible]
A	CHANGED PER CCA R 25564 DR CHK APPD	[illegible]	[illegible]
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	[illegible]	[illegible]
C	CHANGED PER TDRR 26307 DR CHK APPD P.G.O	[illegible]	[illegible]
D	CHANGED PER TDRR 26308 DR CHK APPD	[illegible]	[illegible]
E	CHANGED PER TDRR 26311 DR CHK APPD PEO	[illegible]	[illegible]
F	CHANGED PER TDRR 26519 DR CHK APPD PEO	[illegible]	[illegible]
G	CHANGED PER TDRR 26531 DR CHK APPD PEO	[illegible]	[illegible]
H	CHANGED PER TDRR 26670 DR CHK APPD PEO	[illegible]	[illegible]



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
STRIP.19 8-(14)-USE ON AWG 22
STRIP.19 31-(15)-USE ON AWG 16
STRIP.25 2-(16)-USE ON AWG 12
DO NOT TIN
4-(31)-LG.75±.06
SEE NOTE 5
42-(32)-LG.75±.06
SEE NOTE 5
SEE SOLDER SLEEVE ASSY CHART TYP E2 THRU E19
(1)
60-(2)
15-(4)-USE ON AWG 16
JACK SOCKET REF
PIN 1 REF
GUIDE PIN REF
JACK PIN REF
GUIDE SOCKET REF
J1
B
B
E19
E5
A59
A1
E3
E4
7(2)
6(2)
5(3)
4(2)
3(3)
E14
E15
E11
E13
128
127 (2)
126 125 124 123
122 (2)
121 (2)
120
119 (2)
118
129(3)
13-(19)-USE ON AWG 22
2-(20)-USE ON AWG 16
STRIP.19 DO NOT TIN
(28)
(29)
2014188-011 S/N RAY 49956
.12 HIGH
10
11(2)
12(2)
13(2)
24(2)
23
22
21(2)
20(2)
19
18(2)
17(2)
16(2)
15(2)
14(2)
25
26
27
28(2)
29(2)
30(2)
31(2)
32(2)
33
34
35(2)
36(2)
37
38(2)
4-(33)
STRIP.19 DO NOT TIN
(21)
SPOT TIE TYP
C
C
SEE SHEET 2
(25)-LG 4.50 REF
(26)
DO NOT LACE
E2
84
91 (3)
90 (8)
89 (6)
88 (5)
87 (4)
86
85
92(2)
93(2)
94
95(3)
96(2)
97(3)
98
99
100(3)
101
102
103(2)
104(2)
105(3)
106(3)
107(3)
108
109(2)
110(2)
111(4)
10-(32)-LG.75±.06
SEE NOTE 5
A51
E8
E7
E9
E10
117(6)
116(2)
115(6)
114(6)
113(6)
112(6)
JACK SOCKET REF
PIN 1 REF
GUIDE PIN REF
JACK PIN REF
GUIDE SOCKET REF
J2
A
A
(1)
48-(3)
27-(5)-USE ON AWG 16
9
10 COND
B
8
23 COND
B
STRIP .19 FOR AWG 22 & .29 FOR AWG 16 DO NOT TIN
2
22 COND
A
1
24 COND
A
STRIP .19 FOR AWG 22 & .29 FOR AWG 16 DO NOT TIN

NOTES

1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 21
2. STRIP ALL LEADS .50 ±.06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
3. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
4. CRIMP PER ND 1002206
5. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
6. SERIALIZE PER ND 1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
10. AR DENOTES AS REQUIRED
11. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
12. MIL-W-16878/4 E22 WHT, RED, BLACK, TWISTED SHIELDED, JACKET TFE WHITE
13. MIL-W-16878/4 E22 WHT SHIELDED JACKET TFE WHITE
14. MIL-W-16878/4 E22 WHT & BLK, TWISTED SHIELDED, JACKET TFE WHITE
15. MIL-I-23053 CLASS 1 COLOR WHITE, I.D. .250
16. MIL-I-23053 CLASS 1, COLOR WHITE, I.D. .187
17. MIL-I-23053 CLASS 1, COLOR WHITE, I.D. .125

SOLDER SLEEVE ASSY CHART	
NO.	FIND NO.
E2	22
E3	22
E4	24
E5	23
E6	23
E7	22
E8	22
E9	22
E10	22
E11	22
E12	23
E13	22
E14	22
E15	22
E16	23
E17	24
E18	24
E19	24

	☒	2014156	SCHEMATIC	REF
*	2.0	MIL-W-16878/4E18	WIRE, ELEC WHT	36
*	1.3	MIL-W-16878/4E20	WIRE, ELEC BLK	35
*	8.0	MIL-W-16878/4E20	WIRE, ELEC WHT	34
	11	MS25036-49	LUG, TERMINAL	33
*	3.2	SEE NOTE 17	SLEEVING, INSULATION	32
*	0.3	SEE NOTE 16	SLEEVING, INSULATION	31
*	0.3	SEE NOTE 15	SLEEVING, INSULATION	30
	AR	1006253	ADHESIVE	29
	1	1006415-135	MARKER, CABLE	28
*	7.0	MIL-W-16878/4 E12	WIRE, ELEC WHITE	27
	AR	1006699	SOLVENT	26
*	4.5	1006696-5	SLEEVING, INSULATION	25
	4	1010402-3	SLEEVE, SOLDER	24
	4	1010402-2	SLEEVE, SOLDER	23
	10	1010402-1	SLEEVE, SOLDER	22
	AR	1006458-004	LACING, TAPE	21
	2	MS25036-6	LUG, TERMINAL	20
	13	MS25036-1	LUG, TERMINAL	19
	2	MS25036-57	LUG, TERMINAL	18
	4	MS25036-50	LUG, TERMINAL	17
	2	MS17143-21	LUG, TERMINAL	16
	31	MS17143-20	LUG, TERMINAL	15
	8	MS17143-19	LUG, TERMINAL	14
*	75	MIL-W-16878/4 E22	WIRE, ELEC BLK	13
*	60	SEE NOTE 14	WIRE, ELEC	12
*	20.0	SEE NOTE 12	WIRE, ELEC	11
*	40.0	SEE NOTE 13	WIRE, ELEC	10
*	100	1014341-11	WIRE, ELEC	9
*	38.7	MIL-W-16878/4 E16	WIRE, ELEC BLACK	8
*	110	MIL-W-16878/4 E22	WIRE, ELEC WHT	7
*	177.	MIL-W-16878/4 E16	WIRE, ELEC WHT	6
	27	1006491-014	CONTACT, ELECTRICAL	5
	15	1006491-013	CONTACT, ELECTRICAL	4
	48	1006491-012	CONTACT, ELECTRICAL	3
	60	1006491-011	CONTACT, ELECTRICAL	2
	2	1006494-002	CONNECTOR	1
	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014297	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 21 Sept 65
CHECKED 4 OCT 65
APPROVAL 19 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

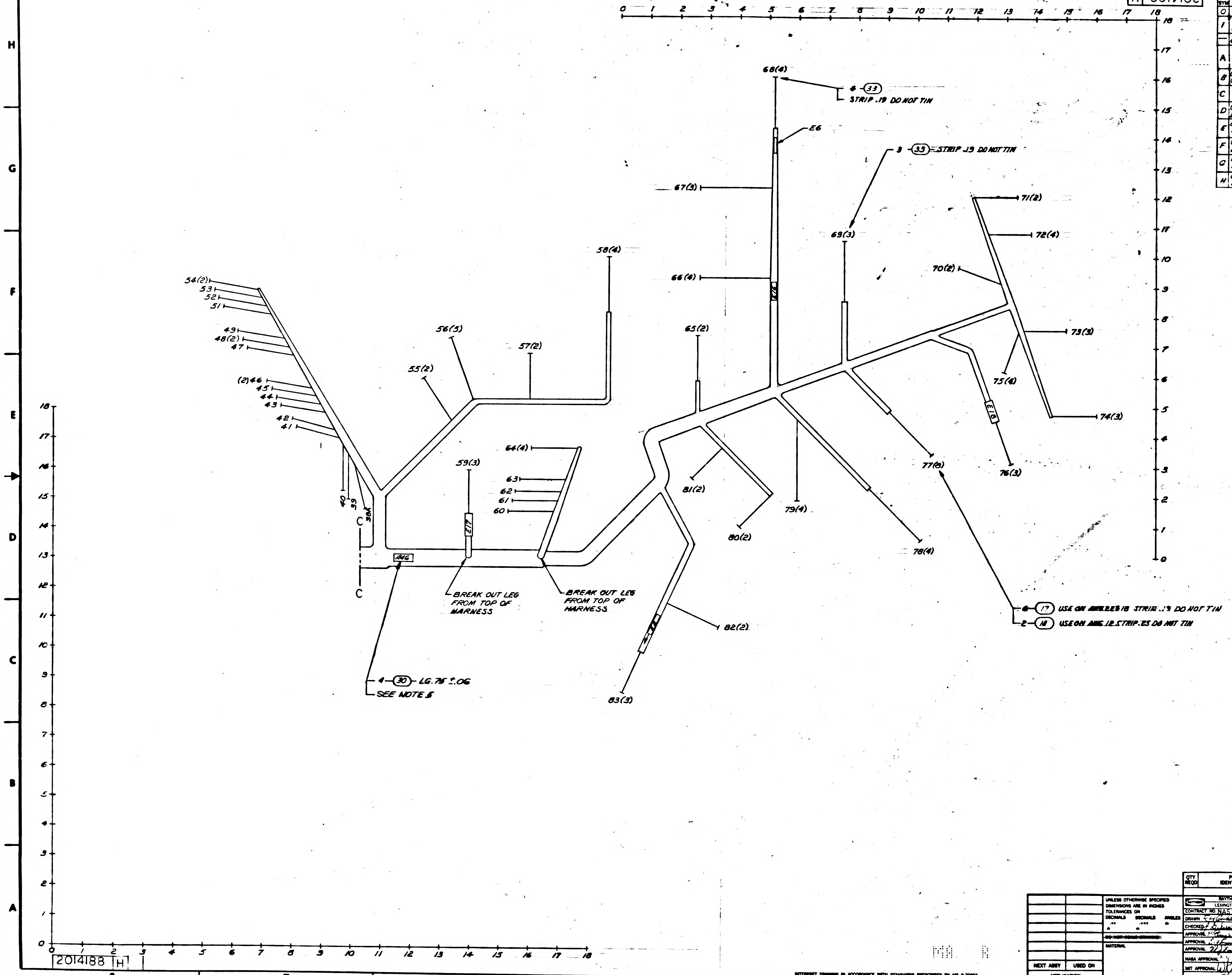
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014188
SCALE 1/1
WT
SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25486		
1	CHANGED PER CCA R25445 DR P. Milner CHK C. Bellamane APPD		
—	CLASS B NO CHANGE PER CCA R25539		
A	CHANGED PER CCA R25564 DR CHK APPD	12/17/65	
B	CHANGED PER CCA R25695 AND CLASS A RELEASED PER TDRR 25476	1/18/66	
C	CHANGED PER TDRR 26307 DR S.P. Leonard CHK APPD P.C.B.		
D	CHANGED PER TDRR 26308 DR CHK APPD		
E	CHANGED PER TDRR 26311 DR CHK APPD PED		
F	CHANGED PER TDRR 26519 DR CHK APPD PED		
G	CHANGED PER TDRR 26531 DR CHK APPD PED		
H	CHANGED PER TDRR 26670 DR CHK APPD PED		


68(4)
4 — (33)
STRIP .19 DO NOT TIN
E6
3 — (33) — STRIP .19 DO NOT TIN
67(3)
69(3)
71(2)
72(4)
70(2)
66(4)
58(4)
54(2)
53
52
51
49
48(2)
47
56(5)
57(2)
55(2)
65(2)
73(3)
75(4)
74(3)
(2)46
45
44
43
42
41
E18
64(4)
59(3)
63
62
61
60
81(2)
77(8)
76(3)
40
39
38A
C
C
E17
A46
79(4)
80(2)
78(4)
BREAK OUT LEG FROM TOP OF HARNESS
BREAK OUT LEG FROM TOP OF HARNESS
6 — (17) USE ON AWG 22 & 18 STRIP .19 DO NOT TIN
2 — (18) USE ON AWG 12 STRIP .25 DO NOT TIN
82(2)
4 — (30) — LG .75 ± .06
SEE NOTE 5
83(3)

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 21 SEPT 65
CHECKED 4 OCT 65
APPROVAL P. 19 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014188
SCALE 1/1
WT
SHEET 2 OF 3

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	104	A1-1	WHT	22	9	72	S8-3NO	
		105	-2	BLK			72	S8-4NO	
	A2	106	-10	WHT		9	71	S10-3NO	
		107	A1-14	BLK			71	S10-4NO	
	A3	120	A3-3	WHT		7	83	R4-CW	
	A4	109	A1-6	WHT		7	38	DS2-1	
	A5	110	-7	WHT	22	7	74	S2-4NO	
	A6	105	-11	WHT	16	6	23	TB1B-3	TWIST
	A7	111	-12	BLK		8	22	TB1B-4	
	A8	105	-11	WHT		6	46	S15B-9	TWIST
	A9	111	-12	BLK		8	54	S15A-9	
	A10	100	-15	BLK		8	58	S17-2C	TWIST
	A11	92	-16	WHT	16	6	58	S16-1C	
	A12	103	-17	WHT	22	7	8	J1-57	
	A13	100	-19		22	7	57	R5-1	
	A14	99	-18		22	7	8	J1-75	
	A15	98	-21		16	6	5	F2-2	
	A16	97	-22			6	1	J2-44	
	A17	97	-22			6	1	J2-50	
	A18	96	-23			6	3	F3-2	
	A19	95	-24			6	1	J2-48	
	A20	95	-24		16	6	1	J2-54	
	A21	94	-25		22	7	56	S18B-ARM	
	A22	93	-26		22	7	8	J1-76	
	A23	93	-26		22	7	55	S18A-ARM	
	A24	87	-28	WHT	16	6	8	J1-74	TWIST
	A25	89	-30	BLK		8	8	J1-72	
	A26	87	-28	WHT		6	42	S15B-4	TWIST
	A27	89	-30	BLK		8	38A	S15A-4	
	A28	88	-29	WHT		6	8	J1-73	
	A29	90	-31	WHT	16	6	65	R3-3	
	A30	90	-32	BLK	22	13	△	E7	
	A31	90	-32	BLK		13	△	E8	
	A32	90	-32	BLK		13	△	E12	
	A33	91	-33	WHT		7	8	J1-64	
	A34	84	-34			7	8	J1-54	
	A35	86	-38			7	36	DS2-3	
	A36	87	-39			7	35	DS2-4	
	A37	88	-40	WHT		12	66	S14A-ARM	
		89	A1-41	BLK	22		67	S14B-3	
		△	E12	SHLD			△	E16	
	A38	90	A1-42	BLK	22	13	△	E6	
	A39	90	-42	BLK	22	13	△	E9	
	A40	90	-42	BLK	22	13	△	E10	
	A41	91	-43	WHT	16	6	8	J1-53	TWIST
	A42	91	-44	BLK	16	8	8	J1-52	
	A43	103	A1R1-3	WHT	22	7	56	S18A-7	
	A44	64	A2-1	WHT		7	118	A3-1	
	A45	64	-2	BLK		13	119	A3-2	
	A46	59	-4	WHT		11	121	A3-4	
		59	-5	BLK			122	A3-5	
		59	A2-6	RED	22		122	A3-6	
		△	E17	SHLD			△	E4	
	A47	62	A2-7	WHT	22	7	123	A3-7	
	A48	61	-8			7	124	A3-8	
	A49	60	-9			7	125	A3-9	
	A50	63	A2-10			7	126	A3-10	
	A51	121	A3-4	WHT	22	10	83	R4-CCW	
		△	E3	SHLD			△	E2	
	A52	△	E2	BLK	22	13	83	R4-ARM	
	A53	△	E3	BLK	22	13	△	E4	
	A54	△	E3	BLK	22	13	119	A3-2	
	A55	127	A3-13	BLK	16	8	13	TB1A-7	TWIST
	A56	127	A3-14	WHT	16	6	13	TB1A-6	
	A57	128	A3-15	WHT	22	7	9	J1-8	
	A58	9	J1-1	BLK	22	13	△	E5	
	A59	9	J1-2	WHT	22	12	68	T1-2	
		9	J1-3	BLK	22		68	T1-1	
		△	E5	SHLD			△	E6	
	A60	129	E1	BLK	16	8	10	TB1A-2	
	A61	9	J1-10	BLK	22	9	20	TB1B-6	
			-11	WHT	22		26	TB2A-6	
	A62		-12	BLK	16	8	129	E1	
	A63		-13	WHT	22	11	76	DS1(+)	
			-14	BLK	22		76	S1-2	
		9	J1-15	RED	22		76	DS1(-)	
		△	E19	SHLD			△	E18	
	A64	8	J1-51	WHT	22	7	2	J2-30	
	A65		-60	WHT	22	7	73	S6-3NO	
	A66		-62	WHT	16	6	18	TB1B-8	TWIST
	A67		-63	BLK	16	8	28	TB2A-8	
	A68		-65	WHT	16	6	18	TB1B-8	TWIST
	A69		-66	BLK	16	8	28	TB2A-8	
	A70		-67	WHT	16	6	65	R3-1	
	A71		-70	BLK	22	9	43	S15B-6	
		8	J1-71	WHT	22		51	S15A-6	

△ DENOTES INTERNAL CONNECTION

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A72	8	J1-77	WHT	16	6	11	TB1A-3	TWIST
	A73	8	J1-78	BLK	16	8	12	TB1A-4	
	A74	8	J1-79	WHT	16	6	11	TB1A-3	TWIST
	A75	8	J1-80	BLK	16	8	12	TB1A-4	
	A76	2	J2-1	WHT	22	9	52	S15A-7	
			-4	BLK	22		44	S15B-7	
	A77		-2	WHT	16	6	32	TB2A-12	TWIST
	A78		-3	BLK		8	14	TB1B-12	
	A79		-5	WHT		6	31	TB2A-11	TWIST
	A80		-8	BLK		8	15	TB1B-11	
	A81		-7	WHT		6	32	TB2A-12	TWIST
	A82		-11	BLK		8	14	TB1B-12	
	A83		-10	WHT		6	30	TB2A-10	TWIST
	A84		-21	BLK		8	16	TB1B-10	
	A85		-12	BLK		8	15	TB1B-11	TWIST
	A86		-13	WHT		6	31	TB2A-11	
	A87		-14	WHT		6	30	TB2A-10	TWIST
	A88		-17	BLK		8	16	TB1B-10	
	A89		-15	WHT		6	29	TB2A-9	TWIST
	A90		-18	BLK	16	8	17	TB1B-9	
	A91		-16	WHT	22	9	53	S15A-8	
			-23	BLK	22		45	S15B-8	
	A92		-22	BLK	16	8	17	TB1B-9	TWIST
	A93		-25	WHT	16	6	29	TB2A-9	
	A94	2	-24	WHT	22	7	38	DS2-1	
	A95	1	-43	WHT	16	6	5	F2-1	
	A96		-45	WHT	22	9	48	S15A-2	
			-46	BLK	22		40	S15B-2	
	A97		-47	WHT	16	6	3	F3-1	
	A98		-49	WHT	16	6	5	F2-1	
	A99		-51	WHT	16	6	3	F3-1	
	A100		-52	WHT	22	9	41	S15B-3	
			-53	BLK	22		49	S15A-3	
	A101		-62	BLK	16	8	24	TB1B-2	
	A102		-63	WHT	22	9	81	R2-3	
			-64	BLK	22		81	R2-1	
	A103		-65	BLK	16	8	24	TB1B-2	
	A104		-66	WHT	22	9	80	R1-3	
			-67	BLK	22		80	R1-1	
	A105		-76	BLK	22	13	△	E13	
	A106	1	J2-77	WHT	22	10	113	K2-4	
		△	E13	SHLD			△	E8	
	A107	1	J2-78	WHT	16	6	6	F4-1	
	A108	1	J2-79	BLK	22	13	△	E11	
	A109	1	J2-80	WHT	22	6	4	F5-1	
	A110	1	J2-82	WHT	22	10	112	K1-4	
		△	E11	SHLD			△	E9	
	A111	82	J3	WHT	22	9	47	S15A-1	
		82	J4	BLK			39	S15B-1	
	A112	7	F1-1	BLK		9	19	TB1B-7	
		7	F1-2	WHT			27	TB2A-7	
	A113	6	F4-2	WHT		10	113	K2-5	
		△	E14	SHLD			△	E7	
	A114	4	F5-2	WHT	22	10	112	K1-5	
		△	E15	SHLD			△	E10	
	A115	69	M1-140V	WHT	22	7	66	S14A-2	TWIST
	A116	69	M1-70V		22	7	66	S14A-3	
	A117	69	M1-COM		22	7	67	S14B-ARM	
	A118	77	M2-(+)		12	27	34	TB2B-8	
	A119		-(-)		22	7	78	S12A-ARM	
	A120		-10A		22	7	78	S12A-2	
	A121		-5A		22	7	78	S12A-3	
	A122		-1A		12	27	33	TB2B-9	
	A123	77	M2-1A		22	7	79	S13-4	
	A124	70	M3-1	WHT	22	9	20	TB1B-6	
		70	M3-2	BLK			21	TB1B-5	
	A125	37	DS2-2	WHT		7	56	S18B-1	
	A126	36	DS2-3	WHT		7	56	S18A-5	
	A127	35	DS2-4	WHT		7	55	S18A-1	
	A128	129	E1	BLK		13	△	E19	
	A129	57	R5-3	WHT		7	56	S18A-9	
	A130	74	S2-1C	BLK		9	54	S15A-9	
		74	S3-2C	WHT			46	S15B-9	
	A131	73	S6-4NO	BLK		9	21	TB1B-5	
		73	S6-4C	WHT			25	TB2A-5	
	A132	75	S7-1C	WHT		9	58	S16-1C	
		75	S7-2C	BLK			58	S17-2C	
	A133	75	S7-1C	WHT		9	72	S8-3C	
		75	S7-2C	BLK			72	S8-4C	
	A134	78	S12A-4	WHT		7	79	S13-3	
	A135	66	S14A-ARM	WHT		9	68	T1-3	
		67	S14B-2	BLK	22		68	T1-2	

2014188 H

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A136	100	A1-15	WHT	16	6	117	K6-5	
	A137	92	A1-16	BLK	16	8	117	K6-1	
	A138	111	A1-12	BLK	16	8	117	K6-6	
	A139	105	A1-11	WHT	16	6	117	K6-2	
	A140	110	A1-7	WHT	22	7	117	K6-3	
	A141	111	A1-8	WHT	22	7	117	K6-7	
	A142	64	A2-2	BLK	22	9	40	S15B-ARM	
		64	A2-16	WHT	22		48	S15A-ARM	
	A143	108	A1-5	WHT	22	7	116	K5-2	
	A144	109	A1-6	WHT	22	7	116	K5-7	
	A145	101	A1-13	WHT	22	7	112	K1-7	
	A146	102	A1-9	WHT	22	7	112	K1-2	
	A147	88	A1-40	WHT	22	9	112	K1-3	
		89	A1-41	BLK			112	K1-6	
	A148	89	A1-41	BLK	22	9	113	K2-6	
		88	A1-40	WHT			113	K2-3	
	A149	106	A1-3	WHT	22	7	113	K2-2	
	A150	107	A1-4	BLK	22	13	113	K2-7	
	A151	96	A1-23	WHT	20	34	114	K3-4	
	A152	95	A1-24	WHT	20	34	114	K3-5	
	A153	90	A1-31	WHT	20	34	114	K3-6	
	A154	88	A1-29	WHT	20	34	114	K3-3	
	A155	104	A1-1	WHT	22	7	114	K3-2	
	A156	105	A1-2	BLK	22	13	114	K3-7	
	A157	89	A1-30	BLK	20	35	115	K4-6	
	A158	87	A1-28	WHT	20	34	115	K4-3	
	A159	106	A1-3	WHT	22	7	115	K4-2	
	A160	107	A1-4	BLK	22	13	115	K4-7	
	A161	85	A1-21	WHT	20	34	115	K4-4	
	A162	97	A1-22	WHT	20	34	115	K4-5	
	A163	79	S13-2	WHT	18	36	77	M2-1A	
	A164	79	S13-1	WHT	18	36	77	M2-5A	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25486		
1	CHANGED PER CCA R25445 DR R Miller CHK APPD	10/14/65	
—	CLASS B NO CHANGE PER CCA R25509		
A	CHANGED PER CCA R25564 DR CHK APPD	12/3/65	
B	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	1/5/66	
C	CHANGED PER TDRR 26307 DR CHK APPD	2/2/66	
D	CHANGED PER TDRR 26308 DR CHK APPD	3/7/66	
E	CHANGED PER TDRR 26311 DR CHK APPD	3/31/66	
F	CHANGED PER TDRR 25519 DR CHK APPD		
G	CHANGED PER TDRR 26531 DR CHK APPD		
H	CHANGED PER TDRR 26670 DR CHK APPD	66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 23 Sep 65
CHECKED 4 OCT 65
APPROVAL 19 Oct 65
APPROVAL 10/18/65
APPROVAL
NASA APPROVAL A. O. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER CONTROL ASSY
OPERATION CONSOLE

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014188
SCALE NONE | WT | SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014189 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER COM R20489		
1	CHANGED PER CCA R25526 DR C Bunker CHK G. Kuhn APPD 9J	11/1/65	ЧСВ
–	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25556 AND CLASS A RELEASED PER TORR 25472	1/14/66	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
B1	S2 - A	S2 - B	BUS	22	⚠
B2	↑ A	↑ D	WHT	↑	
B3	C	D	BUS		⚠
B4	C	1NO	WHT		
B5	1C	4C	BUS		⚠
B6	4C	1	BLK		
B7	2C	↓ 2	WHT		
B8	2NO	S2 - G	WHT		
B9	↓ 2NO	S3-2NC	WHT		
B10	S2-1NC	↑ B	WHT		
B11	S3 - A	B	BUS		⚠
B12	↑ A	D	WHT		
B13	↓ C	↓ D	BUS		⚠
B14	S3 - G	S3 2C	WHT		
B15	S4 - A	S4 - B	BUS		⚠
B16	↑ A	↑ D	WHT		
B17	C	D	BUS		⚠
B18	C	1NO	WHT		
B19	1C	1	WHT		
B20	2C	2	WHT		
B21	1NC	↓ 2NC	BUS		
B22	2NO	S4 - G	WHT		
B23	1NC	S5 - B	↑		
B24	↓ 2NO	S5-2NC	↓		
B25	S4 - 1C	S6 - 3C	WHT		
B26	S5 - A	S5 - B	BUS		⚠
B27	↑ A	↑ D	WHT		
B28	C	↓ D	BUS		⚠
B29	↓ G	S5 - 2C	BLK		
B30	S5 - 2C	S7 - 2C	BLK		
B31	S6 - A	S6 - B	BUS		⚠
B32	↑ A	↑ D	WHT		
B33	C	D	BUS		⚠
B34	C	1NO	WHT		
B35	1C	3C	BUS		⚠
B36	2C	↓ 2	WHT		
B37	G	S6 - 2NO	↑		
B38	2NO	S7-2NC			
B39	1NC	S7 - B			
B40	↓ 1C	S6 - 1	↓	↓	
B41	S6 - 1C	S7 - 1C	WHT	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
B42	S7 - A	S7 - B	BUS	22	⚠
B43	↑ A	↑ D	WHT	↑	
B44	↓ C	↓ D	BUS		⚠
B45	S7 - G	S7 - 2C	BLK		
B46	S8 - A	S8 - B	BUS		⚠
B47	↑ A	↑ D	WHT		
B48	C	D	BUS		⚠
B49	C	1NO	WHT		
B50	1C	3C	BUS		⚠
B51	3C	1	WHT		
B52	2C	2	WHT		
B53	2NO	↓ G	WHT		
B54	1C	S10-3C	WHT		
B55	4C	S9 - G	BLK		
B56	4C	S10-4C	BLK		
B57	↓ 2NO	S9 - 2C	WHT		
B58	S8-1NC	↑ B	WHT		
B59	S9 - A	B	BUS		⚠
B60	↑ A	D	WHT		
B61	↓ C	↓ D	BUS		⚠
B62	S9 - G	S9-2NC	BLK		
B63	S10 - A	S10 - B	BUS		⚠
B64	↑ A	↑ D	WHT		
B65	C	D	BUS		⚠
B66	C	1NO	WHT		
B67	1C	3C	BUS		⚠
B68	1C	1	WHT		
B69	2C	↓ 2	WHT		
B70	G	S10-2NO	WHT		
B71	1NC	S11 - B	WHT		
B72	↓ 2NO	↑ 2C	WHT		
B73	S10-4C	G	BLK		
B74	S11 - A	B	BUS		⚠
B75	↑ A	D	WHT		
B76	↓ C	↓ D	BUS		⚠
B77	S11 - G	S11-2NC	BLK		
B78	S14A - 1	S14A - 2	BUS		
B79	S14A - 2	S14B - 1	WHT		
B80	S14B - 2	S143 - 3	BUS	↓	
B81	S15A - 5	S15B - 5	WHT	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
B82	S16 - A	S16 - B	BUS	22	⚠
B83	↑ D	↑ C	BUS	↑	⚠
B84	C	NO1	WHT		
B85	A	D	↑		
B86	1C	1			
B87	2C	2			
B88	G	S16-2NO			
B89	↓ 2NO	S17-2NC	↓		
B90	S16-1NC	S17 - B	WHT		
B91	S17 - A	↑ B	BUS		⚠
B92	↑ A	D	WHT		
B93	↓ C	↓ D	BUS		⚠
B94	S17 - G	S17 - C2	BLK		
B95	S18A - 1	S18A - 3	BUS		⚠
~~B96~~	~~S18B-ARM~~	~~S18C-ARM~~			⚠
B97	R2-ARM	R2-CW	BUS		
B98	R3-ARM	R3-CW	BUS		
B99	R5-ARM	R5-CW	BUS		
B100	S1-1	DS1- +	WHT		
B101	R1-ARM	R1-CW	BUS		
B102	S18A-1	S18A-2	↑		
B103	S18A-3	S18A-4			
B104	S18A-5	S18A-6			
B105	S18A-7	S18A-8			
B106	S18B-1	S18B-2			
B107	S18B-3	S18B-4			
B108	S18B-5	S18B-6	↓	↓	
B109	S18B-7	S18B-8	BUS	22	

⚠ ASSEMBLE INSULATION OVER BUS WIRE

NOTES

~~1 MARK CONDUCTOR IDENTIFICATION PER MD1002019~~

2 PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSY DESIGNATION

~~3 STRIP BOTH ENDS OF STRANDED JUMPERS .50 ± .1N PER MD1002071~~

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014297	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9 SEPT 65
CHECKED J. Gilpatrick 1 OCT 65
APPROVAL 19 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1/24/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LEAD ELECTRICAL
POWER CONTROL ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014189
SCALE WT SHEET OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014189 A

2014189 B

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25489		
1	CHANGED PER CCA R25526 DR CHK APPD	11/16/65	
–	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25556 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
B	CHANGED PER TDRR 26308 DR CHK APPD	3/2/66	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
B1	S2 - A	S2 - B	BUS	22	⚠
B2	↑ A	↑ D	WHT	↑	
B3	C	D	BUS		⚠
B4	C	1NO	WHT		
B5	1C	4C	BUS		⚠
B6	4C	1	BLK		
B7	2C	↓ 2	WHT		
B8	2NO	S2 - G	WHT		
B9	↓ 2NO	S3-2NC	WHT		
B10	S2-1NC	↑ B	WHT		
B11	S3 - A	B	BUS		⚠
B12	↑ A	D	WHT		
B13	↓ C	↓ D	BUS		⚠
B14	S3 - G	S3 2C	WHT		
B15	S4 - A	S4 - B	BUS		⚠
B16	↑ A	↑ D	WHT		
B17	C	D	BUS		⚠
B18	C	1NO	WHT		
B19	1C	1	WHT		
B20	2C	2	WHT		
B21	1NC	↓ 2NC	BUS		
B22	2NO	S4 - G	WHT		
B23	1NC	S5 - B	↑		
B24	↓ 2NO	S5-2NC	↓		
B25	S4-1C	S6-3C	WHT		
B26	S5 - A	S5 - B	BUS		⚠
B27	↑ A	↑ D	WHT		
B28	C	↓ D	BUS		⚠
B29	↓ G	S5-2C	BLK		
B30	S5-2C	S7-2C	BLK		
B31	S6 - A	S6 - B	BUS		⚠
B32	↑ A	↑ D	WHT		
B33	C	D	BUS		⚠
B34	C	1NO	WHT		
B35	1C	3C	BUS		⚠
B36	2C	↓ 2	WHT		
B37	G	S6 - 2NO	↑		
B38	2NO	S7-2NC			
B39	1NC	S7 - B			
B40	↓ 1C	S6 - 1	↓	↓	
B41	S6 - 1C	S7-1C	WHT	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
B42	S7 - A	S7 - B	BUS	22	⚠
B43	↑ A	↑ D	WHT	↑	
B44	↓ C	↓ D	BUS		⚠
B45	S7 - G	S7 - 2C	BLK		
B46	S8 - A	S8 - B	BUS		⚠
B47	↑ A	↑ D	WHT		
B48	C	D	BUS		⚠
B49	C	1NO	WHT		
B50	1C	3C	BUS		⚠
B51	3C	1	WHT		
B52	2C	2	WHT		
B53	2NO	↓ G	WHT		
B54	1C	S10-3C	WHT		
B55	4C	S9 - G	BLK		
B56	4C	S10-4C	BLK		
B57	↓ 2NO	S9 - 2C	WHT		
B58	S8-1NC	↑ B	WHT		
B59	S9 - A	B	BUS		⚠
B60	↑ A	D	WHT		
B61	↓ C	↓ D	BUS		⚠
B62	S9 - G	S9-2NC	BLK		
B63	S10 - A	S10 - B	BUS		⚠
B64	↑ A	↑ D	WHT		
B65	C	D	BUS		⚠
B66	C	1NO	WHT		
B67	1C	3C	BUS		⚠
B68	1C	1	WHT		
B69	2C	↓ 2	WHT		
B70	G	S10-2NO	WHT		
B71	1NC	S11 - B	WHT		
B72	↓ 2NO	↑ 2C	WHT		
B73	S10-4C	G	BLK		
B74	S11 - A	B	BUS		⚠
B75	↑ A	D	WHT		
B76	↓ C	↓ D	BUS		⚠
B77	S11 - G	S11-2NC	BLK		
~~B78~~	~~S14A-1~~	~~S14A-2~~	~~BUS~~		
B79	S14A-2	S14B-1	WHT		
B80	S14B-2	S14B-3	BUS	↓	
B81	S15A-5	S15B-5	WHT	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
B82	S16 - A	S16 - B	BUS	22	⚠
B83	↑ D	↑ C	BUS	↑	⚠
B84	C	NO1	WHT		
B85	A	D	↑		
B86	1C	1			
B87	2C	2			
B88	G	S16-2NO			
B89	↓ 2NO	S17-2NC	↓		
B90	S16-1NC	S17- B	WHT		
B91	S17- A	↑ B	BUS		⚠
B92	↑ A	D	WHT		
B93	↓ C	↓ D	BUS		⚠
B94	S17- G	S17- C2	BLK		
B95	S18A - 1	S18A - 3	BUS		⚠
~~B96~~	~~S18B-ARM~~	~~S18C-ARM~~			⚠
B97	R2-ARM	R2-CW	BUS		
B98	R3-ARM	R3-CW	BUS		
B99	R5-ARM	R5-CW	BUS		
B100	S1-1	DS1- +	WHT		
B101	R1-ARM	R1-CW	BUS		
B102	S18A-1	S18A-2	↑		
B103	S18A-3	S18A-4			
B104	S18A-5	S18A-6			
B105	S18A-7	S18A-8			
B106	S18B-1	S18B-2			
B107	S18B-3	S18B-4			
B108	S18B-5	S18B-6			
B109	S18B-7	S18B-8			
B110	S14B-3	S14B-ARM	↓		⚠
B111	S13-2	S13-4	BUS	↓	⚠
B112	S13-1	S12A-3	WHT	22	

⚠ ASSEMBLE INSULATION OVER BUS WIRE

NOTES

~~1. MARK CONDUCTOR IDENTIFICATION PER ND1002019~~

2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSY DESIGNATION

~~3. STRIP BOTH ENDS OF STRANDED JUMPERS .50 ± .1 IN. PER ND1002071~~

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014297	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± .06 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 9 SEP 65
CHECKED 1 OCT 65
APPROVAL 19 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

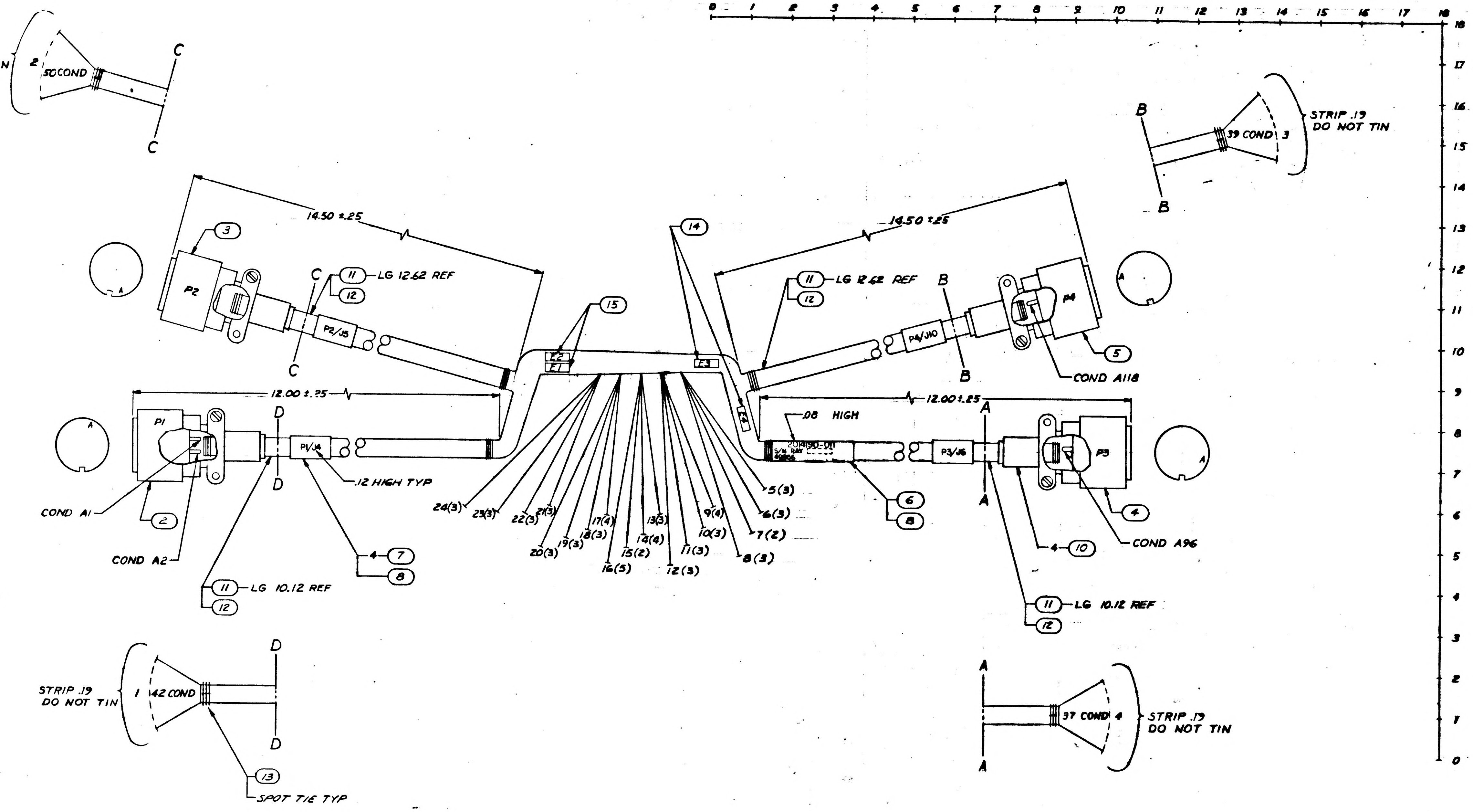
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LEAD ELECTRICAL
POWER CONTROL ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014189
SCALE
WT
SHEET OF 1

2014189 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25166		G Narano
1	CHANGED PER CCA R25447 DR Willey CHK Urban APPD	11/12/65	
–	CLASS B CHANGED PER CCA R25500		
A	CHANGED PER CCA R25558 DR B Smith CHK APPD		
B	CHANGED PER CCA R25618 AND CLASS A RELEASED PER TDR R25478		


STRIP .19
DO NOT TIN
2
50 COND
C
C
B
B
39 COND
3
STRIP .19
DO NOT TIN
14.50 ±.25
3
P2
C
11 — LG 12.62 REF
12
P2/J5
C
15
14
14.50 ±.25
11 — LG 12.62 REF
12
B
P4/J10
P4
B
5
COND A118
A
A
E2
E1
E3
E4
12.00 ±.25
P1
A
P1/J4
D
D
.12 HIGH TYP
COND A1
2
COND A2
4 — 7
8
11 — LG 10.12 REF
12
24(3)
23(3)
22(3)
21(3)
20(3)
19(3)
18(3)
17(4)
16(5)
15(2)
14(4)
13(3)
12(3)
11(3)
10(3)
9(4)
8(3)
7(2)
6(3)
5(3)
12.00 ±.25
.08 HIGH
2014190-011
S/N RAY
49956
A
P3/J6
P3
A
6
8
4
COND A96
4 — 10
11 — LG 10.12 REF
12
A
D
STRIP .19
DO NOT TIN
1
42 COND
D
13
SPOT TIE TYP
A
37 COND
4
STRIP .19
DO NOT TIN
A

NOTES

1. FOR FABRICATION SEE ND1002032 EXCEPT USE FIND NO. 13
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. LACE ENTIRE HARNESS CONFIGURATION
   UNLESS OTHERWISE SPECIFIED
4. STRIP ALL LEADS .50±.06 & TIN PER ND1002071
   UNLESS OTHERWISE SPECIFIED
5. CRIMP PER ND1002206
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN
   PER ND1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN:
   FOR COMPLETE DESIGNATIONS PREFIX WITH
   SUB-ASSEMBLY DESIGNATIONS
9. ~~BOND USING FIND NO. 8~~
10. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
11. ~~SEAL FIND NO. 11 WITH FIND NO. 12~~
12. AR DENOTES AS REQUIRED
13. NUMBERS PRECEDING BALLOONS INDICATE QUANTITY
14. CUT LENGTHS OF SLEEVING AS SHOWN
15. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

✱ DENOTES LENGTH IN FEET

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014191	ELECTRICAL SCHEMATIC	REF
	2	1010402-2	SLEEVE, SOLDER	15
	2	1010402-1	SLEEVE, SOLDER	14
	AR	1006458-004	TAPE, LACING	13
	AR	1006699	SOLVENT	12
✱	3.9	1006696-3	INSULATION SLEEVING	11
	4	1020371-17	BUSHING, SLEEVE	10
	~~4~~	~~1020371-12~~	~~BUSHING, SLEEVE~~	~~9~~
	AR	1006253	ADHESIVE	8
	4	1006415-055	MARKER, BAND	7
	1	1006415-131	MARKER, BAND	6
	1	MS3126F24-61PW	CONNECTOR, PLUG	5
	1	MS3126F24-61PY	CONNECTOR, PLUG	4
	1	MS3126F24-61PZ	CONNECTOR, PLUG	3
	1	MS3126F24-61PX	CONNECTOR, PLUG	2
✱	234	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHT	1

011 LIST OF MATERIALS

2014392	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN C Bowley DATE 21JULY65
CHECKED Fenwick 11AUG65
APPROVAL B. Olmsted 8/18/65
APPROVAL C C Dyck 8/23/65
APPROVAL 9/14/65
NASA APPROVAL A/C METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
SELF TEST ASSY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014190
SCALE 1/1
WT
SHEET 1 OF 2

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	△2	P1-k	WHT	22	1		P1-HH	
	A2	△2	↑ -m	↑	↑	↑		P1-w	
	A3	1	-V				4	P3-x	
	A4	↑	-e				↑	↑ -KK	
	A5		-f					-g	
	A6		-q					-CC	
	A7		-r					-y	
	A8		-s					-e	
	A9		-x					-PP	
	A10		-y					-z	
	A11		-EE					-f	
	A12		-FF					-r	
	A13		-JJ					-MM	
	A14		-KK					-LL	
	A15		-MM					-q	
	A16		-NN				↓	↓ -EE	
	A17		-PP				4	P3-DD	
	A18		-p				3	P4-J	
	A19		-t				↑	↑ -R	
	A20		-v					-BB	
	A21		-CC					-P	
	A22		-DD				↓	↓ -m	
	A23		-LL				3	P4-k	
	A24		-D				11	SID-5	
	A25		-E				10	SID-7	
	A26		-G				9	SID-9	
	A27		-H				5	SIE-11	
	A28		-J				5	SIE-10	
	A29		-L				8	SIE-3	
	A30		-T				10	SID-8	
	A31		-U				9	SID-9	
	A32		-X				12	SID-3	
	A33		-c				20	SIB-1	
	A34		-d				17	SIB-11	
	A35		-g				24	SIA-1	
	A36		-i				9	SID-10	
	A37		-j				9	SID-11	
	A38		-n				8	SIE-1	
	A39		-u				18	SIB-6	
	A40		-z				24	SIA-2	
	A41		-AA				23	SIA-4	
	A42		-BB				24	SIA-3	
	A43	↓	↓ -GG				11	SID-4	
	A44	1	P1-W				△1	E2	
	A45	2	P2-G				3	P4-K	
	A46	↑	↑ -H				↑	↑ -L	
	A47		-c					-MM	
	A48		-r					-G	
	A49		-s					-DD	
	A50		-x					-q	
	A51		-CC				↓	↓ -S	
	A52		-DD				3	P4-p	
	A53		-C				10	SID-6	
	A54		-D				6	SIE-8	
	A55	↓	↓ -E				5	SIE-9	
	A56	2	P2-F				7	SIE-5	
	A57	4	P3-C				21	SIA-10	
	A58	2	P2-K				22	SIA-6	
	A59	↑	↑ -L				6	SIE-6	
	A60		-N				6	SIE-7	
	A61		-P				7	SIE-4	
	A62		-J				21	SIA-11	
	A63		-S				22	SIA-8	
	A64	↓	↓ -V	↓	↓	↓	12	SID-2	
	A65	2	P2-e	WHT	22	1	19	SIB-4	

△1 DENOTES INTERNAL CONNECTION
△2 DENOTES JUMPER WITHIN P1
△3 DENOTES JUMPER WITHIN P3
△4 DENOTES JUMPER WITHIN P4

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A66	2	P2-f	WHT	22	1	13	SIC-9	
	A67	↑	↑ -q	↑	↑	↑	16	SIC-3	
	A68		-l				23	SIA-5	
	A69		-j				22	SIA-7	
	A70		-k				18	SIB-7	
	A71		-n				21	SIA-9	
	A72		-p				15	SIC-4	
	A73		-q				13	SIC-10	
	A74		-w				12	SID-1	
	A75		-y				14	SIC-8	
	A76		-z				18	SIB-8	
	A77		-BB				17	SIB-9	
	A78		-EE				19	SIB-5	
	A79		-HH				13	SIC-11	
	A80		-JJ				17	SIB-10	
	A81		-KK				14	SIC-7	
	A82		-LL				15	SIC-5	
	A83		-MM				20	SIB-2	
	A84		-NN				14	SIC-6	
	A85		-PP				20	SIB-3	
	A86		-W				△1	E2	
	A87		-X				↑	E2	
	A88		-d					E2	
	A89		-m					E1	
	A90		-t					E1	
	A91		-u					E1	
	A92		-v					E2	
	A93		-AA					E1	
	A94	↓	↓ -FF				↓	E3	
	A95	2	P2-GG				△1	E3	
	A96	△3	P3-H					P3-J	
	A97	4	↑ -s				3	P4-D	
	A98	↑	-V				↑	↑ -w	
	A99		-W					-C	
	A100		-X					-X	
	A101		-c					-c	
	A102		-d					-d	
	A103		-p					-JJ	
	A104		-t					-W	
	A105		-w					-HH	
	A106		-FF					-V	
	A107		-GG					-t	
	A108		-HH					-GG	
	A109		-JJ				↓	↓ -FF	
	A110		-NN				3	P4-s	
	A111		-D				8	SIE-2	
	A112		-AA				16	SIC-2	
	A113		-BB				16	SIC-1	
	A114		-k				△1	E3	
	A115		-m				△1	E3	
	A116	↓	↓ -u				△1	E4	
	A117	4	P3-v				△1	E4	
	A118	△4	P4-n					P4-Z	
	A119	3	↑ -E				16	SIC-2	
	A120	↑	-H				11	SID-4	
	A121		-h				17	SIB-9	
	A122		-l				23	SIA-C	
	A123		-j				19	SIB-C	
	A124		-z				14	SIC-6	
	A125		-NN				16	SIC-1	
	A126		-U				△1	E2	
	A127		-r				△1	E1	
	A128	↓	↓ -y	↓	↓	↓	△1	E4	
	A129	3	P4-LL	WHT	22	1	△1	E3	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25.00	31AUG65	
1	CHANGED PER CCA R25447 DR H. Ulberg CHK E. Urban APPD R.P. Christiani	11/17/65	
—	CLASS B CHANGED PER CCA R25500	[illegible]	
A	CHANGED PER CCA R25558 DR R. Smith CHK APPD	[illegible]	
B	CHANGED PER CCA R25618 AND CLASS A RELEASED PER TDRR 25478	1/4/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 21JULY65
CHECKED 11AUG65
APPROVAL
APPROVAL 9/14/65
APPROVAL 9/14/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

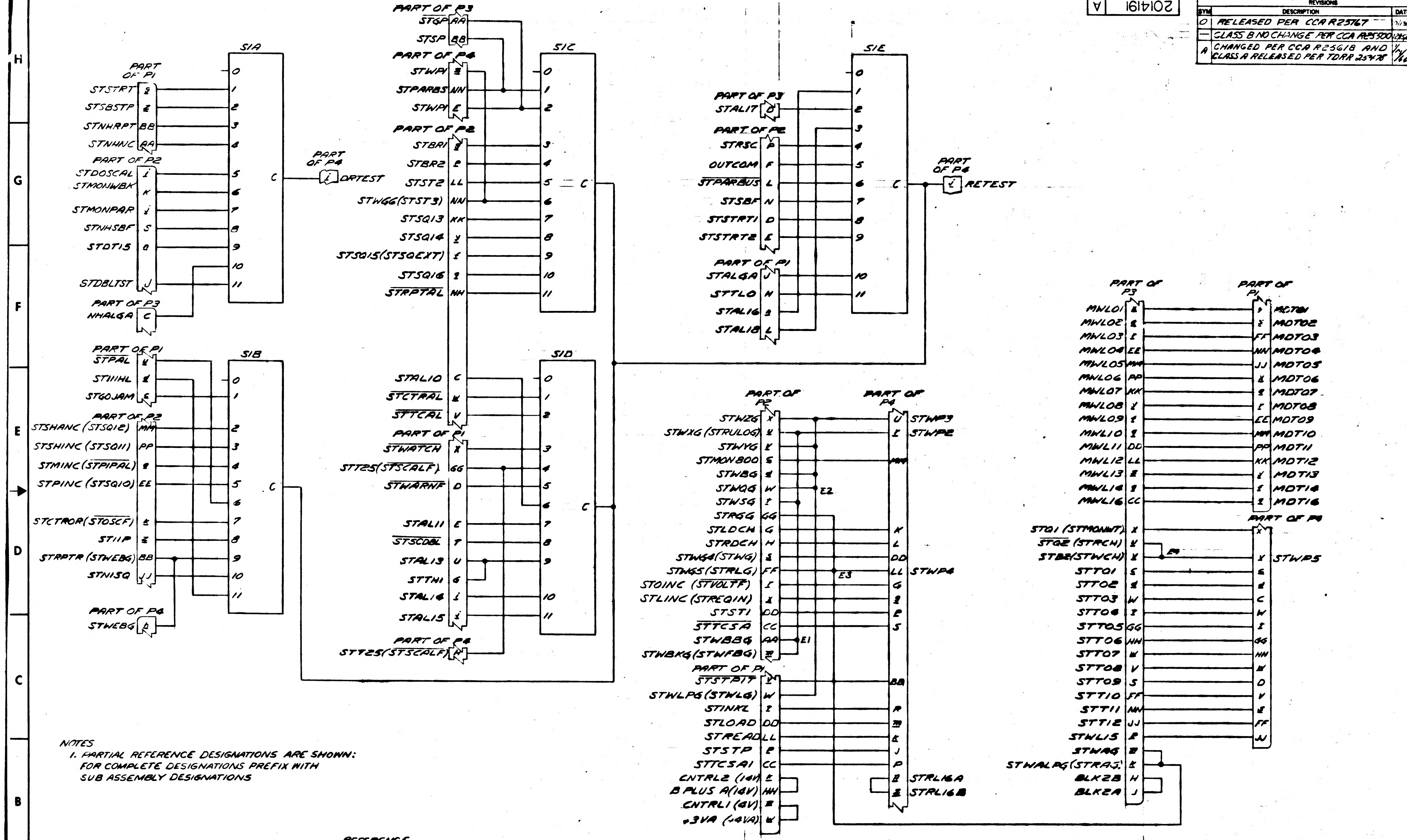
WIRING HARNESS, BRANCHED
SELF TEST ASSY

CODE IDENT NO 49956 SIZE J NASA DRAWING NO. 2014190
SCALE NONE WT SHEET 2 OF 2

2014190 B

A	2014191

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25767	9/13/65	G Wa[illegible]
—	CLASS B NO CHANGE PER CCA R25500	12/15/65	JFB
A	CHANGED PER CCA R25618 AND CLASS A RELEASED PER TDRR 25478	1/11/66	



8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
S1A
PART OF P1
STSTRT
STSBSTP
STNHRPT BB
STNHNC AA
PART OF P2
STDOSCAL
STMONWBK
STMONPAR
STNHSBF
STDT15
STDBLTST J
PART OF P3
NHALGA C
0 1 2 3 4 5 6 7 8 9 10 11
C
PART OF P4
ORTEST
S1B
PART OF P1
STPAL
STIIIHL
STGOJAM
PART OF P2
STSHANC (STSQ12) MM
STSHINC (STSQ11) PP
STMINC (STPIPAL)
STPINC (STSQ10) EE
STCTROR (STOSCF)
STIIP
STRPTR (STWEBG) BB
STNISQ JJ
PART OF P4
STWEBG
PART OF P3
STGP AA
STSP BB
PART OF P4
STWP1
STPARBS NN
STWP1 E
PART OF P2
STBR1
STBR2
STST2 LL
STWG6(STST3) NN
STSQ13 KK
STSQ14
STSQ15(STSQEXT)
STSQ16
STRPTAL NH
S1C
STAL10 C
STCTRAL
STTCAL V
PART OF P1
STWATCH
STT25(STSCALF) GG
STWARNF D
STAL11 E
STSCDBL T
STAL13 U
STTHI G
STAL14
STAL15
PART OF P4
STT25(STSCALF)
S1D
S1E
PART OF P3
STAL17
PART OF P2
STRSC
OUTCOM F
STPARBUS L
STSBF N
STSTRT1 D
STSTRT2 E
PART OF P1
STALGA J
STTLO N
STAL16
STAL18 L
PART OF P4
RETEST
PART OF P2
PART OF P4
STWZG X
STWXG (STRULOG)
STWYG
STMON800
STWBG
STWQG W
STWSG
STRGG GG
STLDCH G
STRDCH H
STWG4(STWG)
STWG5(STRLG) FF
STOINC (STVOLTF)
STLINC (STREQIN)
STST1 DD
STTCSA CC
STWBBG AA
STWBKG(STWFBG)
E1
E2
E3
PART OF P1
STSTPIT
STWLPG(STWLG) W
STINKL
STLOAD DD
STREAD LL
STSTP
STTCSA1 CC
CNTRL2 (14V)
B PLUS A(14V) HH
CNTRL1 (4V)
+3VA (+4VA)
STWP3 U
STWP2
STWP4 LL
STRL16A
STRL16B
PART OF P3
PART OF P1
MWL01 MOT01
MWL02 MOT02
MWL03 MOT03
MWL04 EE MOT04
MWL05 MOT05
MWL06 PP MOT06
MWL07 KK MOT07
MWL08 MOT08
MWL09 MOT09
MWL10 MOT10
MWL11 DD MOT11
MWL12 LL MOT12
MWL13 MOT13
MWL14 MOT14
MWL16 CC MOT16
PART OF P4
STQ1 (STMONWT) X
STQ2 (STRCH)
STB2(STWCH)
E4
STWP5
STT01
STT02
STT03 W
STT04
STT05 GG
STT06 HH
STT07
STT08 V
STT09 S
STT10 FF
STT11 NN
STT12 JJ
STWL15
STWAG
STWALPG(STRAJ)
BLKZB H
BLKZA J

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB ASSEMBLY DESIGNATIONS

REFERENCE
1. ASSEMBLY DRAWING 2014392

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN E[illegible] DATE 25JUL65
CHECKED [illegible] 11 AUG65
APPROVAL R E Dule 8/25/65
APPROVAL [illegible]
APPROVAL [illegible] 9/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

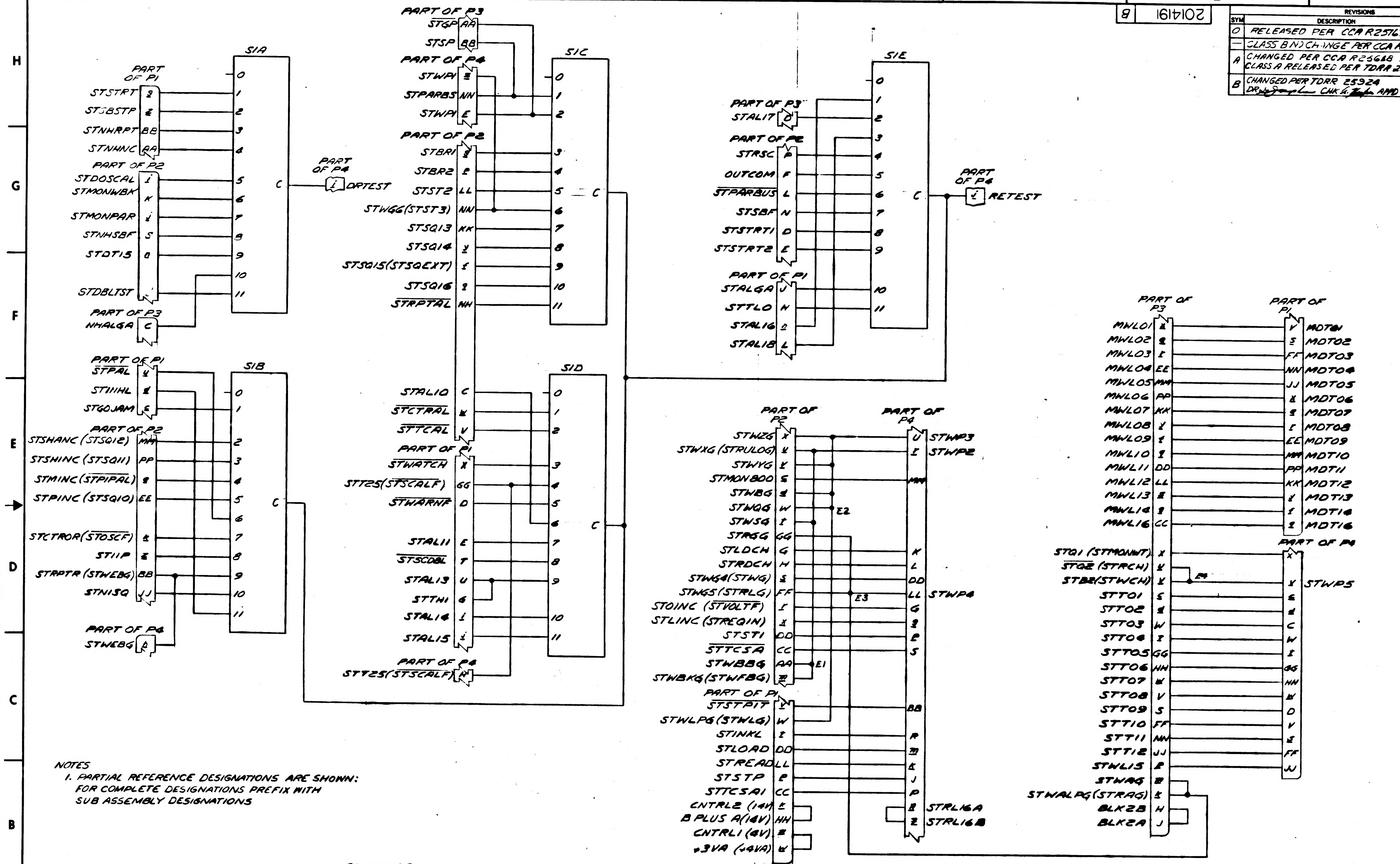
ELECTRICAL SCHEMATIC
SELF TEST CABLE ASSY

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014191
SCALE NONE
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014191 B

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167		
—	CLASS B N) CHANGE PER CCA R25500		
A	CHANGED PER CCA R25648 AND CLASS A RELEASED PER TDRR 25478	1/11/66	
B	CHANGED PER TDRR 25924 DR CHK APPD	4/15/66	


S1A
PART OF P1
STSTRPT
STSBSTP
STNHRPT
STNHNC
PART OF P2
STDOSCAL
STMONWBK
STMONPAR
STNHSBF
STDTI5
STDBLTST
PART OF P3
NHALGA
PART OF P4
DRTEST
S1B
PART OF P1
STPAL
STIIHL
STGOJAM
PART OF P2
STSHANC (STSQ12)
STSHINC (STSQ11)
STMINC (STPIPAL)
STPINC (STSQ10)
STCTROR (STOSCF)
STIIP
STRPTR (STWEBG)
STNISQ
PART OF P4
STWEBG
PART OF P3
STGP
STSP
PART OF P4
STWPI
STPARBS
STWPI
PART OF P2
STBRI
STBR2
STST2
STWGG(STST3)
STSQ13
STSQ14
STSQ15(STSQEXT)
STSQ16
STRPTAL
S1C
STALI0
STCTRAL
STTCAL
PART OF P1
STWATCH
STT25(STSCALF)
STWARNF
STALI1
STSCDBL
STALI3
STTHI
STALI4
STALI5
PART OF P4
STT25(STSCALF)
S1D
PART OF P3
STALI7
PART OF P2
STRSC
OUTCOM
STPARBUS
STSBF
STSTRT1
STSTRT2
PART OF P1
STALGA
STTLO
STALI6
STALI8
S1E
PART OF P4
RETEST
PART OF P2
PART OF P4
STWZG
STWXG (STRULOG)
STWYG
STMON800
STWBG
STWQG
STWSG
STRGG
STLDCH
STRDCH
STWG4(STWG)
STWG5(STRLG)
STOINC (STVOLTF)
STLINC (STREQIN)
STSTI
STTCSA
STWBBG
STWBKG(STWFBG)
PART OF P1
STSTPIT
STWLPG(STWLG)
STINKL
STLOAD
STREAD
STSTP
STTCSA1
CNTRL2 (14V)
B PLUS A(14V)
CNTRL1 (4V)
+3VA (+4VA)
STWP3
STWP2
STWP4
STRL16A
STRL16B
E1
E2
E3
PART OF P3
PART OF P1
MWL01
MWL02
MWL03
MWL04
MWL05
MWL06
MWL07
MWL08
MWL09
MWL10
MWL11
MWL12
MWL13
MWL14
MWL16
MDT01
MDT02
MDT03
MDT04
MDT05
MDT06
MDT07
MDT08
MDT09
MDT10
MDT11
MDT12
MDT13
MDT14
MDT16
PART OF P4
STQ1 (STMONWT)
STQ2 (STRCH)
STB2(STWCH)
STT01
STT02
STT03
STT04
STT05
STT06
STT07
STT08
STT09
STT10
STT11
STT12
STWL15
STWAG
STWALPG(STRAG)
BLK2B
BLK2A
E4
STWP5

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB ASSEMBLY DESIGNATIONS

REFERENCE
1. ASSEMBLY DRAWING 2014392

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 25JUL65
CHECKED 11 AUG65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ELECTRICAL SCHEMATIC
SELF TEST CABLE ASSY

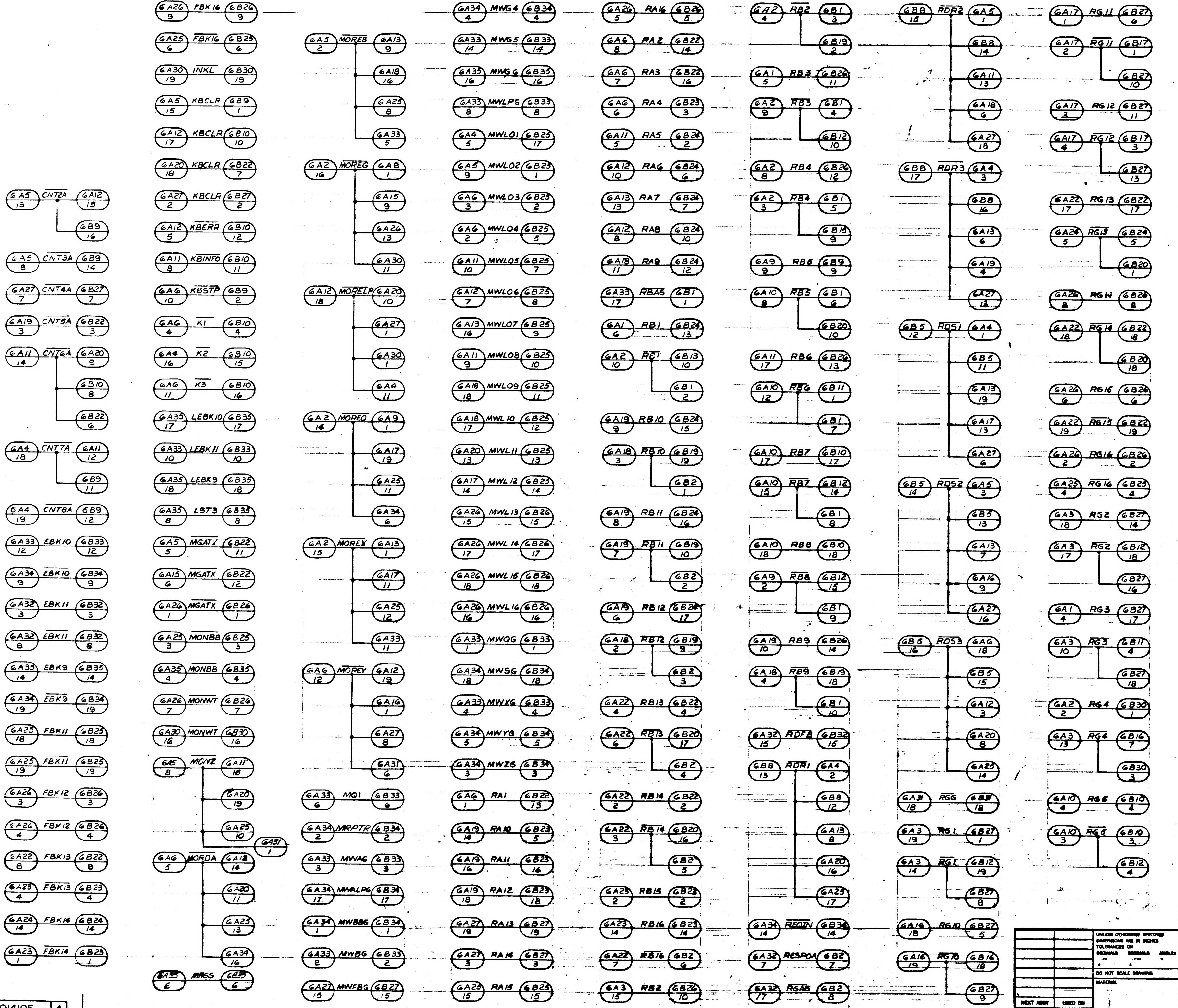
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014191
SCALE NONE
WT
SHEET 1 OF 1

2014191 B

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014195 A

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
1	CHANGED PER CCA R25485 DR F. Zuma CHK C. Dellaguia APPD P.C. Dodge	4/4/65	
–	CLASS 3 NO CHANGE PER CCA R25502		
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TORR 2547		



CNT2A
CNT3A
CNT4A
CNT5A
CNT6A
CNT7A
CNT8A
EBK10
EBK10
EBK11
EBK11
EBK9
EBK9
FBK11
FBK11
FBK12
FBK12
FBK13
FBK13
FBK14
FBK14
FBK16
FBK16
INKL
KBCLR
KBCLR
KBCLR
KBCLR
KBERR
KBINFO
KBSTP
K1
K2
K3
LEBK10
LEBK11
LEBK9
LST3
MGATX
MGATX
MGATX
MONB8
MONB8
MONWT
MONWT
MONZ
MORDA
MRSG
MOREB
MOREG
MORELP
MOREQ
MOREX
MOREY
MQ1
MRPTR
MWAG
MWALPG
MWBBG
MWBG
MWFBG
MWG4
MWG5
MWG6
MWLPG
MWL01
MWL02
MWL03
MWL04
MWL05
MWL06
MWL07
MWL08
MWL09
MWL10
MWL11
MWL12
MWL13
MWL14
MWL15
MWL16
MWQG
MWSG
MWXG
MWYG
MWZG
RA1
RA10
RA11
RA12
RA13
RA14
RA15
RA16
RA2
RA3
RA4
RA5
RA6
RA7
RA8
RA9
RBA6
RB1
RB1
RB10
RB10
RB11
RB11
RB12
RB12
RB13
RB13
RB14
RB14
RB15
RB16
RB16
RB2
RB2
RB3
RB3
RB4
RB4
RB5
RB5
RB6
RB6
RB7
RB7
RB8
RB8
RB9
RB9
RDFB
RDR1
REQIN
RESPOA
RGAS
RDR2
RDR3
RDS1
RDS2
RDS3
RG6
RG1
RG1
RG10
RG10
RG11
RG11
RG12
RG12
RG13
RG13
RG14
RG14
RG15
RG15
RG16
RG16
RG2
RG2
RG3
RG3
RG4
RG4
RG5
RG5

NOTES:

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB ASSEMBLY DESIGNATIONS

REFERENCES:

1. ASSEMBLY DWG 2014228

REV STATUS OF WIREWRAP	
PLATE REV	WIREWRAP CARD REV
2	0
A	A

MASTER

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DO NOT SCALE DRAWING

RAYTHEON CO. LEXINGTON, MASS.
CONTRACT NO NAS 9-497
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DRAWER I PLATE 6
COMPUTER TEST SET

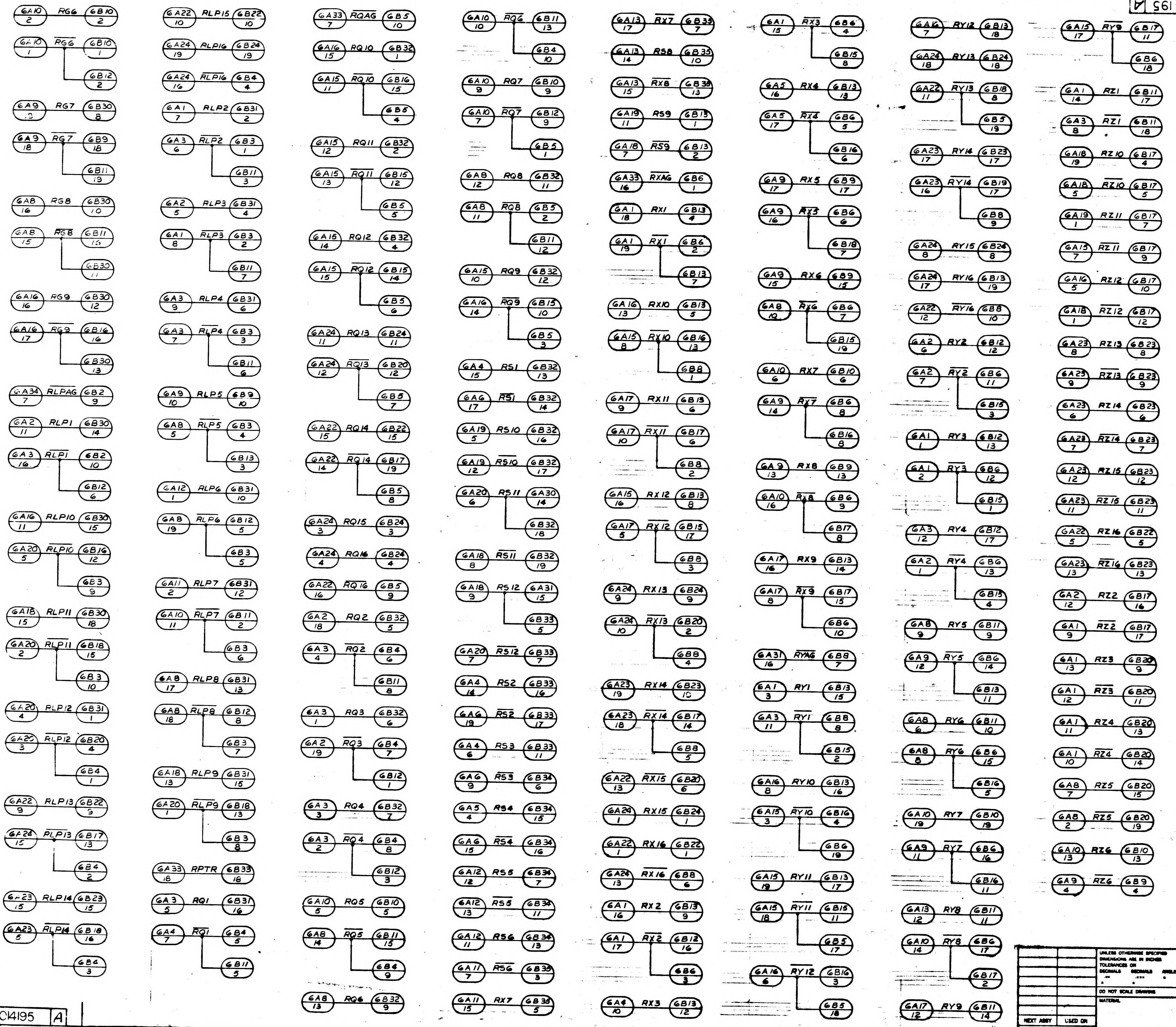
49956 J 2014195

SCALE NONE SHEET 1 OF 1

2014195 A

2014195 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
1	CHANGED PER CCA R25485 DR V. [illegible] CHKC [illegible] APPD [illegible] 11-13-65	11/[illegible]/65	[illegible]
–	CLASS B NO CHANGE PER CCAR25502	1/4/66	[illegible]
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 25472	1/15/66	[illegible]



MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO. NAS 9-497
DRAWN S.P. [illegible] DATE 8-26-65
CHECKED C. [illegible] 10 Sept 65
APPROVAL [illegible] 27 Oct 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DRAWER I PLATE 6
COMPUTER TEST SET

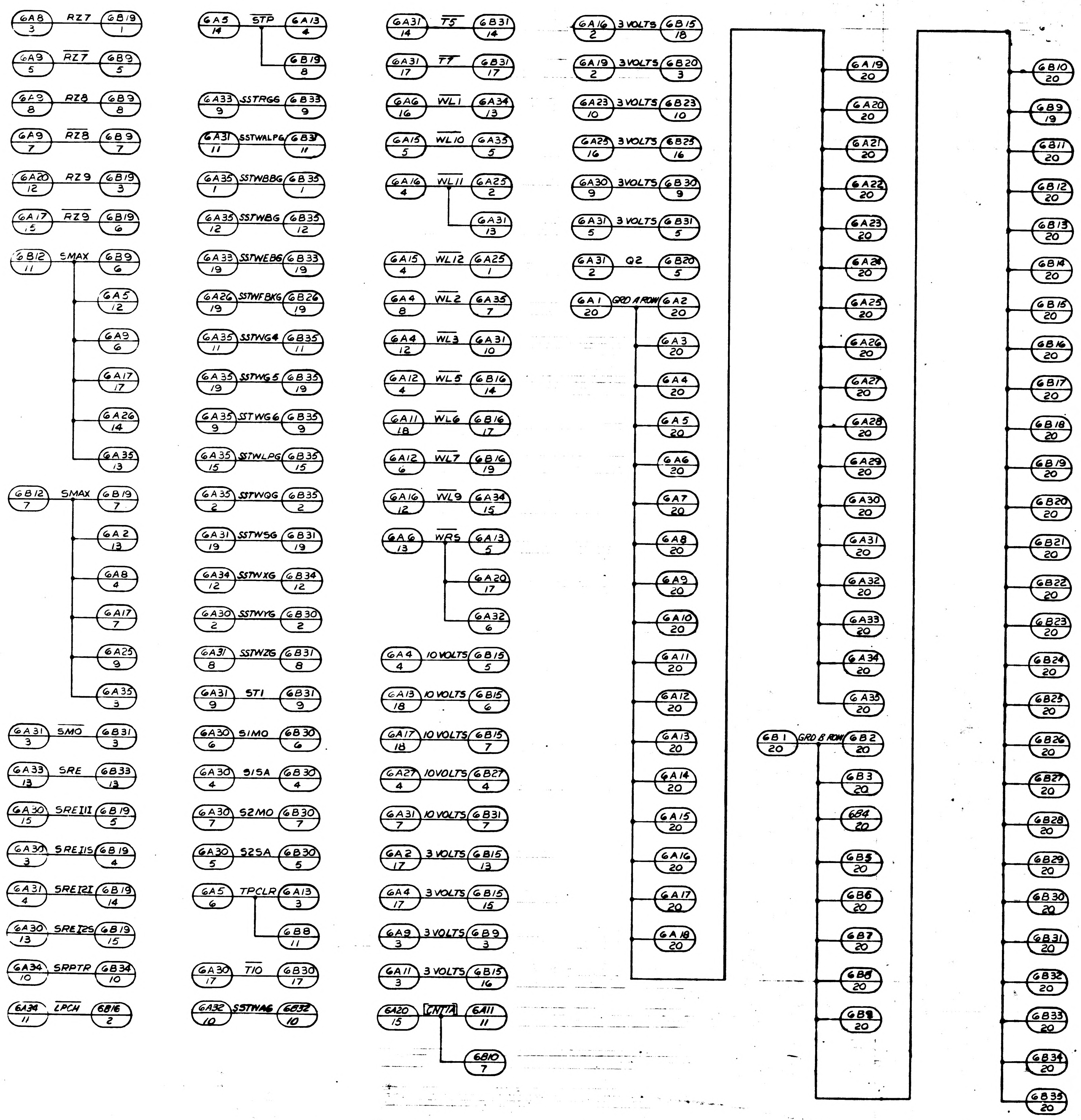
CODE IDENT NO. 49956 SIZE J DRAWING NO. 2014195

SCALE NONE UNIT SHEET 2 OF 3

2014195 A

2014195 A

LTR	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25488		
1	CHANGED PER CCA R25485 DR V. [illegible] CHK [illegible] APPD	11/11/65	[illegible]
–	CLASS B NO CHANGE PER CCA R25502	1/6/66	
A	CHANGED PER CCA R25705 AND CLASS A RELEASED PER TDRR 29472	1/25/66	


6A8 3 — RZ7 — 6B19 1
6A9 5 — RZ7 — 6B9 5
6A9 8 — RZ8 — 6B9 8
6A9 7 — RZ8 — 6B9 7
6A20 12 — RZ9 — 6B19 3
6A17 15 — RZ9 — 6B19 6
6B12 11 — SMAX — 6B9 6, 6A5 12, 6A9 6, 6A17 17, 6A26 14, 6A35 13
6B12 7 — SMAX — 6B19 7, 6A2 13, 6A8 4, 6A17 7, 6A25 9, 6A35 3
6A31 3 — SMO — 6B31 3
6A33 13 — SRE — 6B33 13
6A30 15 — SREI1I — 6B19 5
6A30 3 — SREI1S — 6B19 4
6A31 4 — SREI2I — 6B19 14
6A30 13 — SREI2S — 6B19 15
6A34 10 — SRPTR — 6B34 10
6A34 11 — LPCH — 6B16 2
6A5 14 — STP — 6A13 4, 6B19 8
6A33 9 — SSTRGG — 6B33 9
6A31 11 — SSTWALPG — 6B31 11
6A35 1 — SSTWBBG — 6B35 1
6A35 12 — SSTWBG — 6B35 12
6A33 19 — SSTWEBG — 6B33 19
6A26 19 — SSTWFBKG — 6B26 19
6A35 11 — SSTWG4 — 6B35 11
6A35 19 — SSTWG5 — 6B35 19
6A35 9 — SSTWG6 — 6B35 9
6A35 15 — SSTWLPG — 6B35 15
6A35 2 — SSTWQG — 6B35 2
6A31 19 — SSTWSG — 6B31 19
6A34 12 — SSTWXG — 6B34 12
6A30 2 — SSTWYG — 6B30 2
6A31 8 — SSTWZG — 6B31 8
6A31 9 — ST1 — 6B31 9
6A30 6 — S1MO — 6B30 6
6A30 4 — S1SA — 6B30 4
6A30 7 — S2MO — 6B30 7
6A30 5 — S2SA — 6B30 5
6A5 6 — TPCLR — 6A13 3, 6B8 11
6A30 17 — T10 — 6B30 17
6A32 10 — SSTWAG — 6B32 10
6A31 14 — T5 — 6B31 14
6A31 17 — T7 — 6B31 17
6A6 16 — WL1 — 6A34 13
6A15 5 — WL10 — 6A35 5
6A16 4 — WL11 — 6A25 2, 6A31 13
6A15 4 — WL12 — 6A25 1
6A4 8 — WL2 — 6A35 7
6A4 12 — WL3 — 6A31 10
6A12 4 — WL5 — 6B16 14
6A11 18 — WL6 — 6B16 17
6A12 6 — WL7 — 6B16 19
6A16 12 — WL9 — 6A34 15
6A6 13 — WRS — 6A13 5, 6A20 17, 6A32 6
6A4 4 — 10 VOLTS — 6B15 5
6A13 18 — 10 VOLTS — 6B15 6
6A17 18 — 10 VOLTS — 6B15 7
6A27 4 — 10VOLTS — 6B27 4
6A31 7 — 10 VOLTS — 6B31 7
6A2 17 — 3 VOLTS — 6B15 13
6A4 17 — 3 VOLTS — 6B15 15
6A9 3 — 3 VOLTS — 6B9 3
6A11 3 — 3 VOLTS — 6B15 16
6A20 15 — CNT1A — 6A11 11, 6B10 7
6A16 2 — 3 VOLTS — 6B15 18
6A19 2 — 3VOLTS — 6B20 3
6A23 10 — 3 VOLTS — 6B23 10
6A25 16 — 3 VOLTS — 6B25 16
6A30 9 — 3VOLTS — 6B30 9
6A31 5 — 3 VOLTS — 6B31 5
6A31 2 — Q2 — 6B20 5
6A1 20 — GRD A ROW — 6A2 20, 6A3 20, 6A4 20, 6A5 20, 6A6 20, 6A7 20, 6A8 20, 6A9 20, 6A10 20, 6A11 20, 6A12 20, 6A13 20, 6A14 20, 6A15 20, 6A16 20, 6A17 20, 6A18 20
6A19 20, 6A20 20, 6A21 20, 6A22 20, 6A23 20, 6A24 20, 6A25 20, 6A26 20, 6A27 20, 6A28 20, 6A29 20, 6A30 20, 6A31 20, 6A32 20, 6A33 20, 6A34 20, 6A35 20
6B1 20 — GRD B ROW — 6B2 20, 6B3 20, 6B4 20, 6B5 20, 6B6 20, 6B7 20, 6B8 20, 6B9 20
6B10 20, 6B9 19, 6B11 20, 6B12 20, 6B13 20, 6B14 20, 6B15 20, 6B16 20, 6B17 20, 6B18 20, 6B19 20, 6B20 20, 6B21 20, 6B22 20, 6B23 20, 6B24 20, 6B25 20, 6B26 20, 6B27 20, 6B28 20, 6B29 20, 6B30 20, 6B31 20, 6B32 20, 6B33 20, 6B34 20, 6B35 20

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS DECIMALS ANGLES

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS
CONTRACT NO. NAS 9-497
DRAWN S [illegible] DATE [illegible]
CHECKED C. [illegible] 10 Sept 65
APPROVAL [illegible] 27 Oct 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

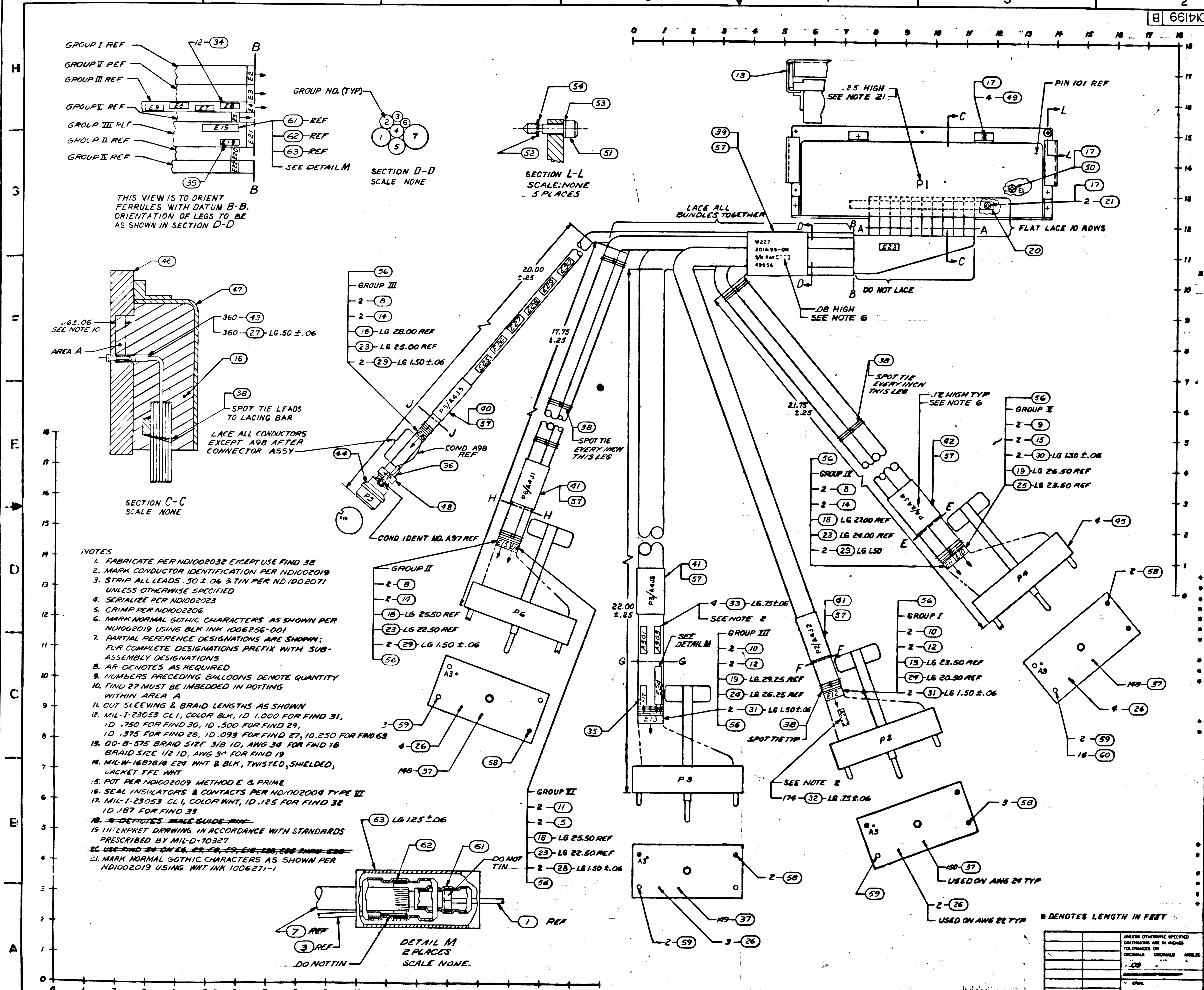
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC DIAGRAM
LOGIC DRAWER I PLATE 6
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014195
SCALE NONE WT SHEET 1 OF 1

2014195 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25348		
-1	CHANGED PER CCA R25449 DR R Comb CHK APPD		
-	CLASS B CHANGED PER CCAR25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TORR2977		



GROUP I REF
GROUP V REF
GROUP III REF
GROUP V REF
GROUP III REF
GROUP II REF
GROUP II REF
12-(34)
B
E2
E3
E4
E5
E6
E7
E8
E9
E19
E20
E21
E22
(61)-REF
(62)-REF
(63)-REF
SEE DETAIL M
(35)
THIS VIEW IS TO ORIENT FERRULES WITH DATUM B-B. ORIENTATION OF LEGS TO BE AS SHOWN IN SECTION D-D
GROUP NO. (TYP)
SECTION D-D
SCALE NONE
(54)
(53)
(52)
(51)
SECTION L-L
SCALE: NONE
5 PLACES
(13)
.25 HIGH
SEE NOTE 21
(17)
4-(49)
PIN 101 REF
P1
(50)
E1
2-(21)
FLAT LACE 10 ROWS
(20)
(39)
(57)
LACE ALL BUNDLES TOGETHER
W227
2014199-011
S/N RAY
49956
E23
DO NOT LACE
.08 HIGH
SEE NOTE 6
(46)
(47)
.16±.06
SEE NOTE 10
360-(43)
360-(27)-LG .50 ±.06
AREA A
(16)
(38)
SPOT TIE LEADS TO LACING BAR
LACE ALL CONDUCTORS EXCEPT A98 AFTER CONNECTOR ASSY
SECTION C-C
SCALE NONE
20.00 ±.25
(56)
GROUP III
2-(8)
2-(14)
(18)-LG 28.00 REF
(23)-LG 25.00 REF
2-(29)-LG 1.50 ±.06
P5/A4J5
(40)
(57)
(44)
COND A98 REF
(36)
(48)
P5
COND IDENT NO. A97 REF
17.75 ±.25
(38)
SPOT TIE EVERY INCH THIS LEG
P6/A4J1
(41)
(57)
GROUP II
2-(8)
2-(14)
(18)-LG 25.50 REF
(23)-LG 22.50 REF
2-(29)-LG 1.50 ±.06
(56)
P6
A3
3-(59)
4-(26)
148-(37)
(58)
GROUP VI
2-(11)
2-(5)
(18)-LG 25.50 REF
(23)-LG 22.50 REF
2-(28)-LG 1.50 ±.06
(56)
22.00 ±.25
P3/A4J3
(41)
(57)
4-(33)-LG .75±.06
SEE NOTE 2
SEE DETAIL M
GROUP VII
2-(10)
2-(12)
(19)-LG 29.25 REF
(24)-LG 26.25 REF
2-(31)-LG 1.50±.06
(56)
E13
(35)
P3
2-(58)
2-(59)
149-(37)
3-(26)
(38)
21.75 ±.25
SPOT TIE EVERY INCH THIS LEG
.12 HIGH TYP
SEE NOTE 6
(42)
(57)
(56)
GROUP IV
2-(8)
2-(14)
(18) LG 22.00 REF
(23) LG 24.00 REF
2-(29) LG 1.50
(56)
GROUP V
2-(9)
2-(15)
2-(30)-LG 1.50 ±.06
(19)-LG 26.50 REF
(25)-LG 23.50 REF
P4/A4J4
4-(45)
P4
2-(58)
148-(37)
4-(26)
2-(59)
16-(60)
(41)
(57)
P2/A4J2
(56)
GROUP I
2-(10)
2-(12)
(19)-LG 23.50 REF
(24)-LG 20.50 REF
2-(31)-LG 1.50 ±.06
E12
SPOT TIE TYP
(38)
P2
SEE NOTE 2
174-(32)-LG .75±.06
3-(58)
150-(37)
USED ON AWG 24 TYP
(59)
2-(26)
USED ON AWG 22 TYP
(63) LG 1.25±.06
(62)
(61)
DO NOT TIN
(7) REF
(3) REF
DO NOT TIN
(1) REF
DETAIL M
2 PLACES
SCALE NONE

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 38
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. STRIP ALL LEADS .50 ±.06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
4. SERIALIZE PER ND1002023
5. CRIMP PER ND1002206
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLK INK 1006256-001
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
8. AR DENOTES AS REQUIRED
9. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
10. FIND 27 MUST BE IMBEDDED IN POTTING WITHIN AREA A
11. CUT SLEEVING & BRAID LENGTHS AS SHOWN
12. MIL-I-23053 CL I, COLOR BLK, ID 1.000 FOR FIND 31, ID .750 FOR FIND 30, ID .500 FOR FIND 29, ID .375 FOR FIND 28, ID .093 FOR FIND 27, ID .250 FOR FIND 63
13. QQ-B-575 BRAID SIZE 3/8 ID, AWG 34 FOR FIND 18 BRAID SIZE 1/2 ID, AWG 34 FOR FIND 19
14. MIL-W-16878/4 E24 WHT & BLK, TWISTED, SHIELDED, JACKET TFE WHT
15. POT PER ND1002009 METHOD E & PRIME
16. SEAL INSULATORS & CONTACTS PER ND1002004 TYPE VI
17. MIL-I-23053 CL I, COLOR WHT, ID .125 FOR FIND 32 ID .187 FOR FIND 33
18. ~~• DENOTES MALE GUIDE PIN~~
19. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
20. ~~USE FIND 34 ON E6, E7, E8, E9, E18, E25, E25 THRU E30~~
21. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHT INK 1006271-1

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	0.3	SEE NOTE 12	SLEEVING, SHRINK	63
	2	1010402-2	SLEEVE, SOLDER	62
	2	1010402-1	SLEEVE, SOLDER	61
	16	1006672-005	NUT, STOP	60
	8	1006672-006	SOCKET, GUIDE	59
	8	1006672-002	PIN, GUIDE	58
	AR	1006253	ADHESIVE	57
	AR	1006699	SOLVENT	56
	2	MS25036-1	TERMINAL, LUG	55
	5	1004546-3	WASHER, FLAT	54
	5	1004546-1	WASHER, FLAT	53
	5	MS16633-4015	RING, RETAINING, EXT "E"	52
	5	1004579-1	SCREW, JACKING	51
	1	MS51957-28	SCREW, PAN HD	50
	4	MS51957-15	SCREW, PAN HD	49
	1	1010774-2	CLAMP, CABLE	48
	1	2014286	COVER, CONNECTOR	47
	1	1006418	HEADER, CONNECTOR	46
	4	1006672-001	CONNECTOR, PLUG	45
	1	1010771-113	CONNECTOR, PLUG, ELEC	44
	360	1006248	CONTACT, ELECTRICAL	43
	1	1006415-102	BAND MARKER, CABLE	42
	3	-099		41
	1	-095		40
	1	1006415-143	BAND MARKER, CABLE	39
	AR	1006458-004	TAPE, LACING	38
	595	1006491-009	CONTACT, ELEC	37
	1	1020371-7	BUSHING, SLEEVE	36
	2	1010402-3	SLEEVE, SOLDER	35
	12	1010402-5	SLEEVE, SOLDER	34
*	.3	SEE NOTE 17	SLEEVING, SHRINK	33
*	11.2	SEE NOTE 17		32
*	.5	SEE NOTE 12		31
*	.3			30
*	.8			29
*	.3			28
*	15.0	SEE NOTE 12	SLEEVING, SHRINK	27
	13	1006491-011	CONTACT, ELEC	26
*	2.0	1006696-5	SLEEVING, OUTER	25
*	3.9	1006696-6	SLEEVING, OUTER	24
*	7.9	1006696-3	SLEEVING, OUTER	23
	~~2~~	~~1006408~~	~~FERRULE, COAX~~	~~22~~
	2	MS51957-31	SCREW, PAN HD	21
	1	2014427-002	BRACKET, STRAIN RELIEF	20
*	6.7	SEE NOTE 13	BRAID, WIRE	19
*	8.9	SEE NOTE 13	BRAID, WIRE	18
	AR	MIL-S-22473 GRADE HV	RETAINING COMP	17
	AR	1006683	RUBBER COMPOUND SILICONE	16
	2	1000243-41	FERRULE, ELECTRICAL COND	15
	6	1000243-34	FERRULE, ELECTRICAL COND	14
	1	2016310-011	COVER, PROTECTIVE	13
	4	1000243-38	FERRULE, ELECTRICAL COND	12
	2	1000242-29		11
	4	-38		10
	2	-37		9
	6	1000242-30	FERRULE, ELECTRICAL COND	8
*	2.1	RG180 B/U	WIRE, COAX	7
*	168.8	1014341-12	WIRE, ELEC TW PR BLK/WHT	6
	2	1000243-31	FERRULE, ELEC, COND	5
*	3.3	SEE NOTE 14	WIRE, ELEC WHT/BLK TW SHLD PR	4
*	3.8	MIL-W-16878/4E22	WIRE, ELECTRICAL BLK	3
*	470.5	MIL-W-16878/4E24	WIRE, ELECTRICAL WHT	2
*	43.5	MIL-W-16878/4E22	WIRE, ELECTRICAL WHT	1

011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014268	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN E. F. Correia DATE 27 AUG 65
CHECKED R. Drainoni 10/1/65
APPROVAL 15 Oct 65
APPROVAL 10/15/65
APPROVAL
NASA APPROVAL A. O. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W227

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014199
SCALE 1/1
WT
SHEET 1 OF 1

MASTER

2014199 B

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP I	A1	7	P1-122	WHT	24	6	22	P2-G3	
			222	BLK				G4	
	A2		123	WHT				G1	
			223	BLK				G2	
	A3		124	WHT				F3	
		7	224	BLK				F4	
	A4	6	125	WHT				F1	
			225	BLK			22	F2	
	A5		126	WHT			23	E7	
			226	BLK				E8	
	A6		127	WHT				E5	
			227	BLK			23	E6	
	A7		128	WHT			22	F7	
			228	BLK				F8	
	A8		129	WHT				F5	
			229	BLK				F6	
	A9		130	WHT				H1	
		6	230	BLK				H2	
	A10	5	132	WHT				G7	
			232	BLK				G8	
	A11		133	WHT				G5	
			233	BLK			22	G6	
	A12		134	WHT			21	S5	
			234	BLK				S6	
	A13		135	WHT				S3	
			235	BLK				S4	
	A14		136	WHT				S1	
			236	BLK				S2	
	A15		137	WHT				T7	
		5	237	BLK				T8	
	A16	4	138	WHT				T5	
			238	BLK				T6	
	A17		139	WHT				T3	
			239	BLK			21	T4	
	A18		140	WHT			23	B1	
			240	BLK				B2	
	A19		141	WHT				A5	
			241	BLK				A6	
	A20		142	WHT				A3	
			242	BLK			23	A4	
	A21		143	WHT			21	T1	
		4	243	BLK			21	T2	
	A22	3	144	WHT			20	U7	
			244	BLK				U8	
	A23		145	WHT				U5	
			245	BLK				U6	
	A24		146	WHT				U3	
			246	BLK				U4	
	A25		147	WHT				U1	
			247	BLK				U2	
	A26		148	WHT				V7	
			248	BLK				V8	
	A27		149	WHT				V5	
		3	249	BLK				V6	
	A28	2	150	WHT				V3	
			250	BLK				V4	
	A29		151	WHT				V1	
			251	BLK				V2	
	A30		152	WHT				W7	
			252	BLK			20	W8	
	A31		153	WHT			23	E3	
			253	BLK				E4	
	A32		154	WHT				E1	
			254	BLK				E2	
	A33		155	WHT				D7	
		2	255	BLK				D8	
	A34	1	156	WHT				D5	
			256	BLK				D6	
	A35		157	WHT				D3	
			257	BLK				D4	
	A36		158	WHT		6		D1	
		1	P1-258	BLK	24		23	P2-D2	
		△1	E2	SHLD			△1	E12	
	A37	△1	E12	BLK	22	3	23	P2-C7	
	A38	△1	E12	BLK	22	3	23	P2-C8	
	A39	△1	E2	BLK	22	3	△1	E23	SEE DETAIL K
GROUP II	A40	10	P1-304	WHT	24	2	33	P6-A5	
	A41	10	305					C1	
	A42	10	306					D4	
	A43	9	307				33	E7	
	A44	9	308				32	G1	
	A45	9	309				32	H7	
	A46	10	204				33	B1	
	A47	10	205					C3	
	A48	10	404					A3	
	A49	10	405					B7	
	A50	10	406					D2	
	A51	9	407				33	E4	
	A52	9	408				32	F7	
	A53	9	P1-409	WHT	24	2	32	P6-H1	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP II	A54	10	P1-206	WHT	24	2	33	P6-D6	
	A55	9	207				32	F1	
	A56	10	504				32	H3	
	A57	10	505				33	B5	
	A58	10	506				33	C8	
	A59	9	507				33	E2	
	A60		508				32	F5	
	A61		509					H5	
	A62	9	208					G3	
	A63	10	604				32	G5	
	A64	10	605				33	B3	
	A65	10	606				33	C6	
	A66	9	607				33	D1	
	A67	9	608				32	F3	
	A68	9	609				32	G8	
	A69	8	116				31	S8	
	A70	10	104				31	S6	
	A71	10	105				31	S7	
	A72	10	106				32	J2	
	A73	9	107				32	J6	
	A74	9	P1-108	WHT	24	2	32	P6-J5	
		△1	E20	SHLD			△1	E15	
	A75	△1	E15	BLK	22	3	32	P6-J7	
	A76	△1	E15	BLK	22	3	31	P6-R6	
GROUP III	A77	1	P1-159	WHT	22	1	△1	E25	
	A78		259				△1	E26	
	A79		359				34	P5-2	
	A80		260				△1	E30	
	A81		360				△1	E29	
	A82		261				34	P5-18	
	A83		361				△1	E27	
	A84		461				△1	E28	
	A85	1	P1-459				△1	E6	
	A86	△1	E6				34	P5-9	
	A87	△1	E6					6	TWIST
	A88	△1	E7					3	
	A89	△1	E7				34	P5-13	
	A90	1	P1-160				△1	E7	
	A91	1	P1-460				△1	E8	
	A92	△1	E8				34	P5-5	
	A93	△1	E8					16	TWIST
	A94	△1	E9					12	
	A95	△1	E9				34	P5-17	
	A96	1	P1-161				△1	E9	
	A97	34	P5-4	WHT	22	1	34	P5-8	
		△1	E4	SHLD			△1	E16	
	A98	△1	E16	BLK	22	3	33A	P5-SHELL	
	A99	△1	E4	BLK		3	△1	E23	SEE DETAIL K
	A100	1	P1-659	WHT		1	△1	E25	
	A101	△1	E25				34	P5-10	
	A102	1	P1-559				△1	E26	
	A103	△1	E26				34	P5-11	
	A104	1	P1-661				△1	E27	
	A105	△1	E27				34	P5-7	
	A106	1	P1-561				△1	E28	
	A107	△1	E28				34	P5-19	
	A108	1	P1-560				△1	E29	
	A109	△1	E29				34	P5-15	
	A110	1	P1-660				△1	E30	
	A111	△1	E30	WHT	22	1	34	P5-14	
GROUP IV	A112	7	P1-619	WHT	24	2	16	P4-V5	
	A113	2	552				17	S6	
	A114	2	651					S7	
	A115	2	551					S8	
	A116	7	521				17	S5	
	A117	9	109				16	U4	
	A118		110				16	U6	
	A119		111				17	T4	
	A120	9	112				18	L2	
	A121	8	113				16	X3	
	A122	8	114				18	M1	
	A123	9	209				16	U1	
	A124		210				16	U7	
	A125		211				17	T1	
	A126	9	212				16	X6	
	A127	8	213				17	S1	
	A128	9	310				16	U2	
	A129	9	311				17	T6	
	A130	9	312				16	W1	
	A131	8	313					X4	
	A132	8	314					W6	
	A133	9	410				16	U3	
	A134	9	411				17	T7	
	A135	9	412				16	W3	
	A136	8	413				17	S4	
	A137	8	414				16	W5	
	A138	9	510				16	U8	
	A139	9	P1-511	WHT	24	2	17	P4-T8	

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ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP IV	A140	9	P1-512	WHT	24	2	17	P4-T2	
	A141	8	513				16	V8	
	A142	8	514				16	W4	
	A143	9	610				16	U5	
	A144	9	611				17	T5	
	A145	9	612				17	T3	
	A146	8	615				16	W2	
	A147	8	P1-614	WHT	24	2	16	P4-X5	
		△1	E22	SHLD			△1	E11	
	A148	△1	E11	BLK	22	3	19	P4-G5	
	A149	△1	E11	BLK	22	3	18	P4-M3	
GROUP V	A150	7	P1-520	WHT	24	2	12	P4-P2	
	A151		519				13	M8	
	A152		522				15	B2	
	A153		523				14	F6	
	A154	7	524				15	A4	
	A155	6	525					B6	
	A156		526					D2	
	A157		527					C8	
	A158		528				15	C6	
	A159		529				14	G8	
	A160	6	530				14	H6	
	A161	7	620				12	R5	
	A162		621				14	G6	
	A163		622				15	B4	
	A164		623					A6	
	A165	7	624					B1	
	A166	6	625					A5	
	A167		626					D1	
	A168		627					C7	
	A169		628				15	C5	
	A170		629				14	G7	
	A171	6	630				14	H5	
	A172	5	532				14	F4	
	A173		533				13	M7	
	A174		534				15	B3	
	A175		535				12	P8	
	A176		536				15	E3	
	A177	5	537				12	R4	
	A178	4	538				14	H7	
	A179		539				12	P6	
	A180		540				15	C3	
	A181		541				15	E2	
	A182		542				12	P5	
	A183	4	543				14	F3	
	A184	3	544				14	F1	
	A185		545				15	E7	
	A186		546				15	E5	
	A187		547				14	H4	
	A188		548				13	K7	
	A189	3	549					L1	
	A190	2	550					K8	
	A191	8	214				13	K6	
	A192	2	553				15	D8	
	A193	2	554				15	D6	
	A194	2	555				15	D4	
	A195	1	556				13	N3	
	A196	1	557				15	B7	
	A197	1	558				15	C4	
	A198	5	632				14	F5	
	A199		633				13	N8	
	A200		634				13	N1	
	A201		635				12	P7	
	A202		636				15	C2	
	A203	5	637				12	P4	
	A204	4	638				15	B5	
	A205		639				12	R1	
	A206		640				15	C1	
	A207		641				15	E1	
	A208		642				12	P3	
	A209	4	643				14	F2	
	A210	3	644				15	E8	
	A211		645				15	E6	
	A212		646				15	E4	
	A213		647				12	R2	
	A214		648				14	H3	
	A215	3	649				14	H1	
	A216	2	650				14	H2	
	A217		652				12	P1	
	A218		653				15	D7	
	A219		654				15	D5	
	A220	2	655				15	D3	
	A221	1	656				13	M6	
	A222	1	P1-657	WHT	24	2	15	P4-B8	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
O	RELEASED PER CCA R25348		
1	CHANGED PER CCA R25449 DR R. [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
—	CLASS B CHANGED PER CCAR25501	[illegible]/65	
A	CHANGED PER CCA R25731 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR 25972	1/19/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 13OCT65
CHECKED R. [illegible] 14OCT65
APPROVAL [illegible] 15OCT65
APPROVAL D. O'[illegible] 10/18/65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W227

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014199
SCALE NONE
WT
SHEET 2 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014199 B

2014199 B

ASSEMBLY INFORMATION CHART

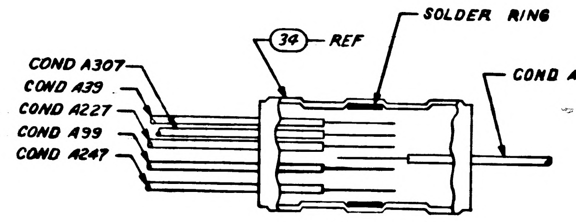
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A223	1	P1-658	WHT	24	2	13	P4-N6	
	A224	8	P1-216	WHT	24	2	13	P4-K3	
	A225	8	P1-215	WHT	24	2	13	P4-K2	
GROUP V		△1	E3	SHLD		19	△1	E10	
	A226	△1	E10	BLK	22	3	14	P4-G4	
	A227	△1	E3	BLK	22	3	△1	E23	SEE DETAIL K
	A228	△1	E10	BLK	22	3	14	P4-G3	
	A229	10	P1-101	WHT	24	2	29	P6-W7	
	A230	↑	↑ 103	↑	↑	↑	↑	↑ V1	
	A231		201					W5	
	A232		301					W3	
	A233		401					W1	
	A234		501					X5	
	A235		601					X3	
	A236		502				↓	V3	
	A237		402				29	V6	
	A238		203				30	T3	
	A239		303				30	T2	
GROUP VI	A240		403				30	T1	
	A241		503				29	U7	
	A242		603				29	U6	
	A243	↓	602				30	T8	
	A244	10	↓ 302	↓	↓	↓	29	↓ V5	
	A245	8	P1-115	WHT	24	2	29	P6-V8	
		△1	E5	SHLD			△1	E14	
	A246	△1	E14	BLK	22	3	30	P6-T7	
	A247	△1	E5	BLK	22	3	△1	E23	SEE DETAIL K
	A248	△1	E23	BLK	22	3	11	E1	SEE DETAIL K
	A249	△1	E14	BLK	22	3	30	P6-R7	
	A250	8	P1-315	WHT	24	6	25	P3-P5	
		↑	↑ 415	BLK	↑		25	↑ P6	
	A251		316	WHT		↑	25	P3	
			416	BLK			25	P4	
	A252		317	WHT			26	N3	
			417	BLK			↑	N4	
	A253	↓	318	WHT				K3	
		8	418	BLK				K6	
	A254	7	319	WHT			↓	K7	
		↑	419	BLK			26	K8	
	A255		320	WHT			27	J1	
			420	BLK			↑	J2	
	A256		321	WHT			↓	H7	
			421	BLK			27	H8	
	A257		322	WHT			25	P1	
			422	BLK			25	P2	
	A258		323	WHT			26	N7	
			423	BLK			26	N8	
	A259	↓	324	WHT			25	R7	
		7	424	BLK			↑	R8	
GROUP VII	A260	6	325	WHT				S5	
		↑	425	BLK				S6	
	A261		326	WHT				S3	
			426	BLK				S4	
	A262		327	WHT			↓	S1	
			427	BLK			25	S2	
	A263		328	WHT			26	N1	
			428	BLK			↑	N2	
	A264		329	WHT				M7	
			429	BLK				M8	
	A265	↓	330	WHT				M3	
		6	430	BLK				M6	
	A266	5	332	WHT				M1	
		↑	432	BLK				M2	
	A267		333	WHT				L7	
			433	BLK				L8	
	A268		334	WHT				L1	
			434	BLK				L2	
	A269		335	WHT			↓	K1	
			435	BLK			26	K2	
	A270		336	WHT			27	J7	
			436	BLK			↑	J8	
	A271	↓	337	WHT				J5	
		5	437	BLK				J6	
	A272	4	338	WHT				J3	
		↑	438	BLK				J4	
	A273		339	WHT			↓	G1	
			439	BLK			27	G2	
	A274		340	WHT			28	C7	
			440	BLK			↑	C8	
	A275		341	WHT				C5	
			441	BLK				C6	
	A276		342	WHT				C3	
			442	BLK		↓		C4	
	A277	↓	↓ 343	WHT	↓	6	↓	↓ C1	
		4	P1-443	BLK	24		28	P3-C2	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A278	3	P1-344	WHT	24	6	28	P3-B7	
		↑	↑ 444	BLK	↑		28	↑ B8	
	A279		345	WHT		↑	27	F5	
			445	BLK			27	F6	
	A280		346	WHT			28	B5	
			446	BLK			↑	B6	
	A281		347	WHT				B3	
			447	BLK				B4	
	A282		348	WHT				B1	
			448	BLK				B2	
	A283	↓	349	WHT				E7	
		3	449	BLK				E8	
	A284	2	350	WHT			↓	E5	
		↑	450	BLK			28	E6	
	A285		351	WHT			24	V5	
			451	BLK			24	V6	
	A286		352	WHT			27	G5	
			452	BLK			27	G6	
	A287		353	WHT			28	A5	
			453	BLK			↑	A6	
	A288		354	WHT				A3	
			454	BLK				A4	
	A289	↓	355	WHT				E3	
		2	455	BLK				E4	
	A290	1	356	WHT				E1	
		↑	456	BLK				E2	
	A291		357	WHT				D7	
			457	BLK				D8	
	A292	↓	358	WHT				D5	
		1	458	BLK				D6	
GROUP VII	A293	8	517	WHT				D3	
		↑	617	BLK				D4	
	A294		518	WHT			↓	D1	
			618	BLK			28	D2	
	A295		117	WHT			25	R3	
			217	BLK			25	R4	
	A296	↓	118	WHT			27	H5	
		8	218	BLK			↑	H6	
	A297	7	119	WHT				H3	
		↑	219	BLK				H4	
	A298		120	WHT				H1	
			220	BLK				H2	
	A299	↓	121	WHT			↓	G7	
		7	221	BLK		↓	27	G8	
	A300	8	515	WHT		6	26	N5	
		8	615	BLK			26	N6	
	A301	10	↓ 102	WHT	↓	4	24	↓ X5	
		10	P1-202	BLK	24		24	P3-X6	
		△1	E18	SHLD			△1	E17	
	A302	△1	E17	BLK	22	3	24	P3-X4	
△B	~~A303~~	~~△1~~	~~E19~~	~~COAX~~	~~30~~	~~7~~	~~△1~~	~~E24~~	
		~~8~~	~~P1-616~~	~~SHLD~~			~~24~~	~~P3-U8~~	△B
	A304	8	P1-516	WHT	22	1	△1	E19	△B
△B	A305	△1	E24	WHT	22	1	24	P3-U7	
		△1	E21	SHLD			△1	E13	
	A306	△1	E13	BLK	22	3	24	P3-X3	
	A307	△1	E21	BLK	22	3	△1	E23	SEE DETAIL K
△B	A308	△1	E19	COAX	30	7	△1	E24	△B
		△1	E19-SHLD	SHLD			△1	E24	
	A309	△1	P1-616	BLK	22	3	8	E19	△B
△B	A310	△1	E24	BLK	22	3	24	P3-U8	

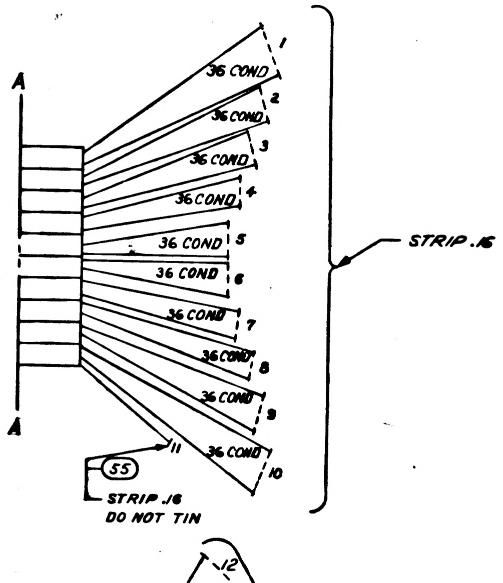
△1 DENOTES INTERNAL CONNECTION
~~△2 ATTACH FIND 2~~
~~△3 ATTACH FIND 22 PER DETAIL M~~
~~△4 MARK FIND NO. 3 WITH CONDUCTOR IDENT NO. OF ASSOCIATED COAX LEAD & ASSEMBLE PER DETAIL M~~
~~△ STRIP .44 & TIN .06~~
~~△ STRIP .31 & TIN .06~~
~~△ STRIP .25, DO NOT TIN~~

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25348		
1	CHANGED PER CCA R25449 DR R Gamb CHK Schwab APPD GJM	11/12/65	LFA
–	CLASS B CHANGED PER CCAR25501	1/13/66	Ford
A	CHANGED PER CCA R25731 DR TW Ramm CHK GS APPD GJM	18 JAN 66	Ford
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR 25477	19 JAN 66	Ford

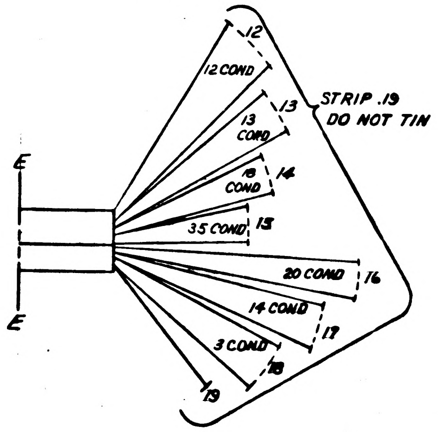


(34) REF
SOLDER RING
COND A307
COND A39
COND A227
COND A99
COND A247
COND A248

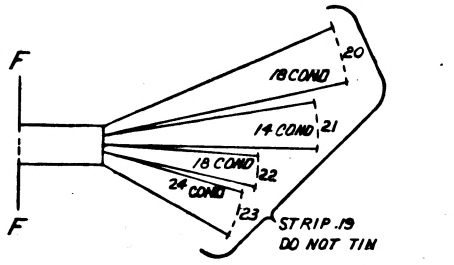
DETAIL K
SCALE NONE
ALL COND IDENT ARE FOR REFERENCE



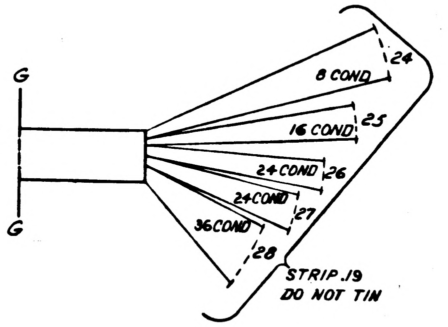
A
A
36 COND
1
36 COND
2
36 COND
3
36 COND
4
36 COND
5
36 COND
6
36 COND
7
36 COND
8
36 COND
9
36 COND
10
11
(55)
STRIP .16
DO NOT TIN
STRIP .16



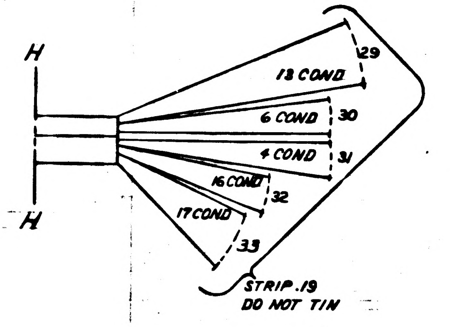
E
E
12
12 COND
13
13 COND
18 COND
14
35 COND
15
20 COND
16
14 COND
17
3 COND
18
19
STRIP .19
DO NOT TIN



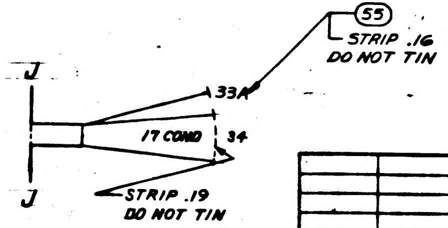
F
F
20
18 COND
14 COND
21
18 COND
22
24 COND
23
STRIP .19
DO NOT TIN



G
G
24
8 COND
16 COND
25
24 COND
26
24 COND
27
36 COND
28
STRIP .19
DO NOT TIN



H
H
29
13 COND
6 COND
30
4 COND
31
16 COND
32
17 COND
33
STRIP .19
DO NOT TIN



(55)
STRIP .16
DO NOT TIN
J
J
33A
17 COND
34
STRIP .19
DO NOT TIN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J.J. Carroll DATE 31 AUG 65
CHECKED R. Drummond 10 OCT 65
APPROVAL P. Bergin 15 Oct 65
APPROVAL D.J. Byrd 10 Oct 65
APPROVAL M.J. Born 12/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

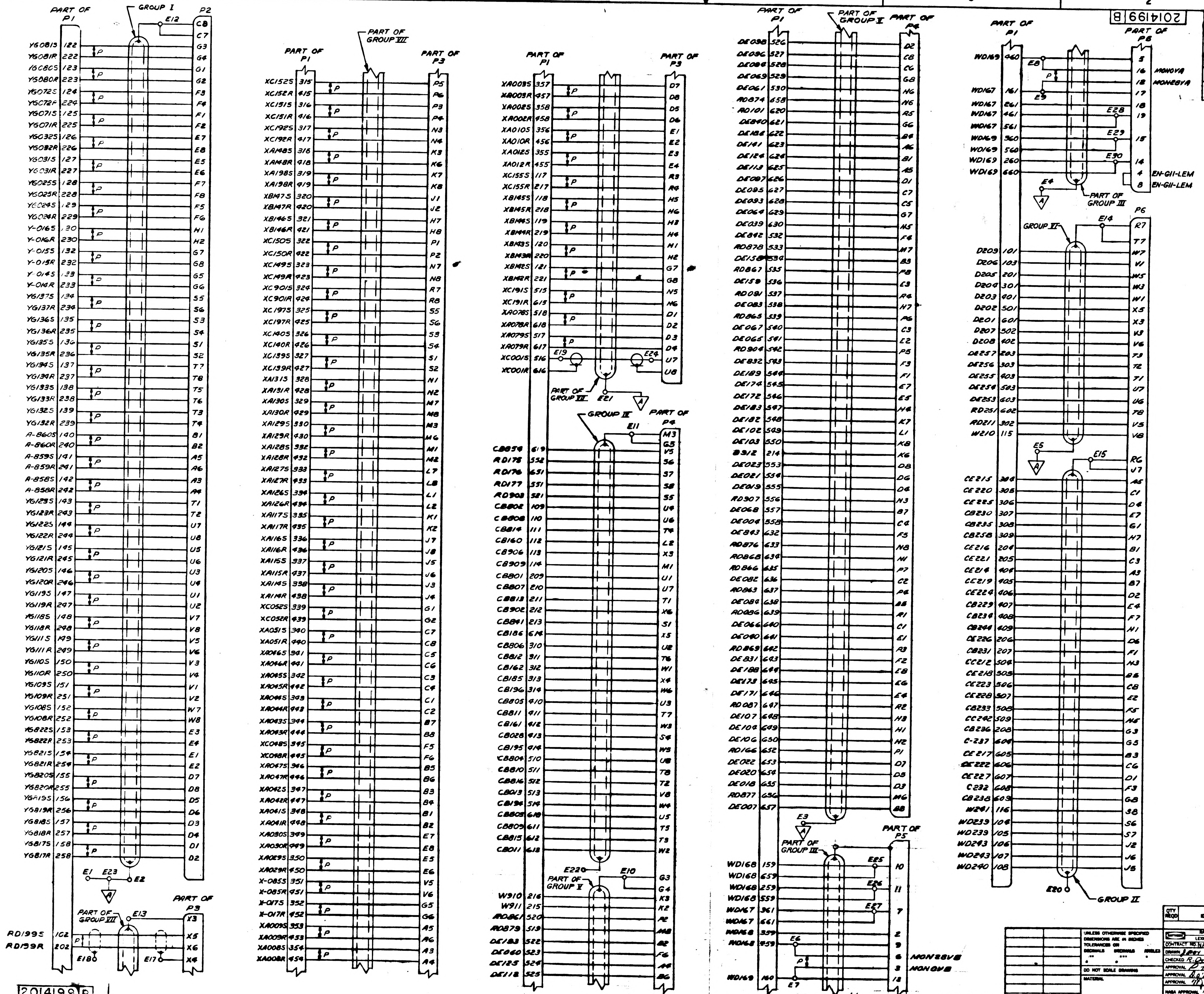
CABLE ASSEMBLY
W227

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014199
SCALE 1/1
WT
SHEET 3 OF 4

MASTER

2014199 B

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA E25948		
1	CHANGED PER CCA R25449 DR R.Grah CHK J.Schwartz APPD JJM		
—	CLASS B CHANGED PER CCBR25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR25477		



PART OF P1
GROUP I
P2
E12
PART OF GROUP VII
PART OF P3
PART OF P1
PART OF P3
E19
E24
PART OF GROUP VI
E21
GROUP IV
PART OF P4
E11
E22
E10
PART OF GROUP V
PART OF P1
PART OF GROUP V
PART OF P6
E3
PART OF GROUP III
PART OF P5
E25
E26
E27
E6
E7
MON28VB
MON28VA
PART OF P1
PART OF P6
E8
E9
E28
E29
E30
E4
PART OF GROUP III
MON28VA
MON28VB
EN-GII-LEM
EN-GII-LEM
GROUP VI
E14
P6
E5
E15
E20
GROUP II
E1
E23
E2
PART OF P3
PART OF GROUP VIII
E13
E18
E17
RD199S
RD199R
P

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON DECIMALS ANGLES
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO. LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN
CHECKED R.
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MSC APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

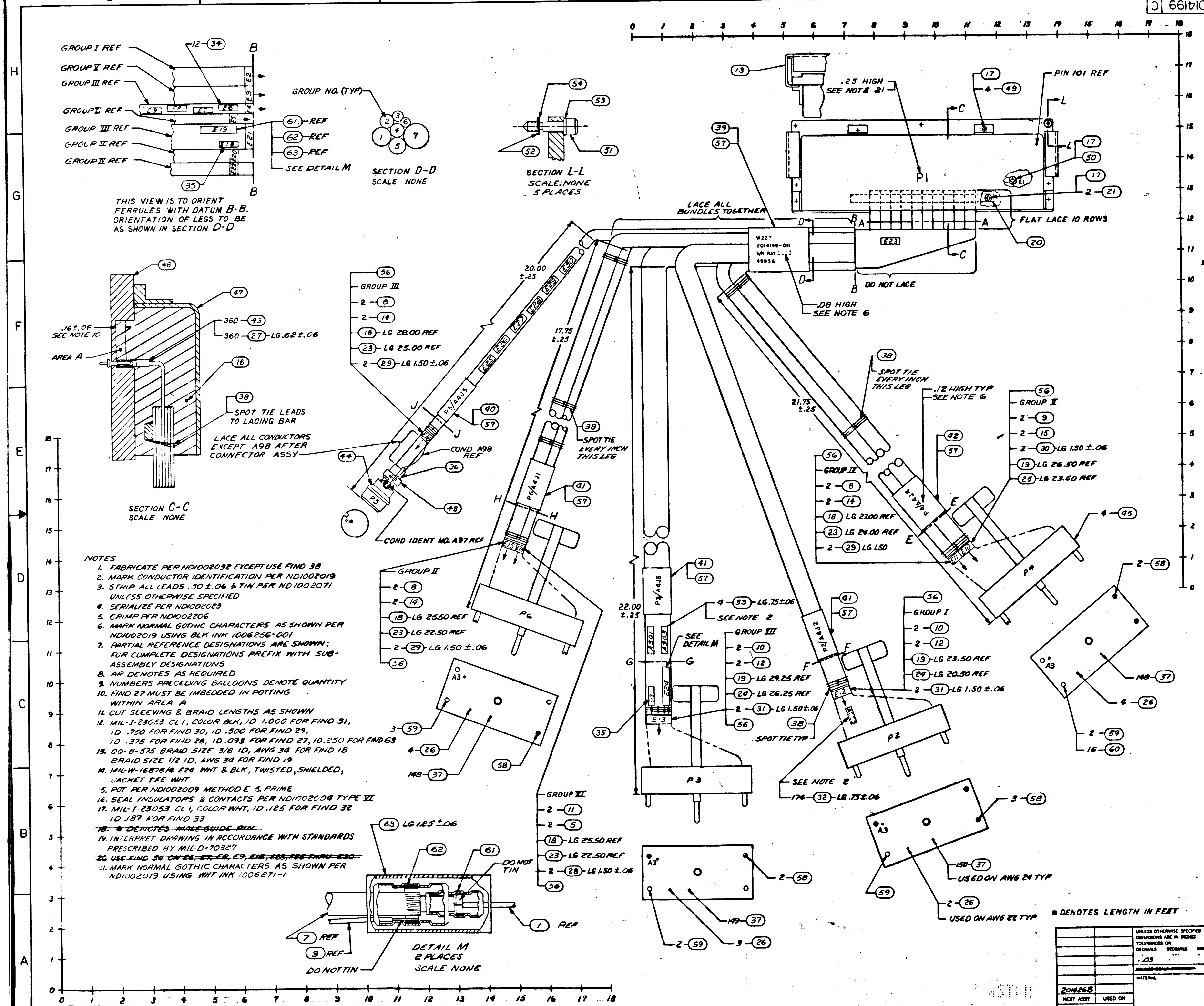
CABLE ASSEMBLY
W27

CODE IDENT NO 49956 J
NASA DRAWING NO 2014199
SCALE NONE
SHEET 4 OF 4

NEXT ASSY | USED ON
APPLICATION

2014199 B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25348		
-1	CHANGED PER CCA R25449 DR R Comb CHK APPD		
–	CLASS B CHANGED PER CCAR25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TORR2597		
C	CHANGED PER TRR 26459 DR CHK APPD	2/24/66	



GROUP I REF
GROUP V REF
GROUP III REF
GROUP VI REF
GROUP III REF
GROUP II REF
GROUP IV REF
12-(34)
B
B
(61)-REF
(62)-REF
(63)-REF
SEE DETAIL M
(35)
THIS VIEW IS TO ORIENT FERRULES WITH DATUM B-B. ORIENTATION OF LEGS TO BE AS SHOWN IN SECTION D-D
GROUP NO. (TYP)
SECTION D-D
SCALE NONE
(54)
(53)
(52)
(51)
SECTION L-L
SCALE: NONE
5 PLACES
(13)
.25 HIGH
SEE NOTE 21
(17)
4-(49)
PIN 101 REF
P1
(17)
(50)
(17)
2-(21)
FLAT LACE 10 ROWS
(20)
(39)
(57)
LACE ALL BUNDLES TOGETHER
W227
2014199-011
S/N
49956
DO NOT LACE
.08 HIGH
SEE NOTE 6
(46)
(47)
.16±.06
SEE NOTE 10
360-(43)
360-(27)-LG.62±.06
AREA A
(16)
(38)
SPOT TIE LEADS TO LACING BAR
LACE ALL CONDUCTORS EXCEPT A98 AFTER CONNECTOR ASSY
SECTION C-C
SCALE NONE
20.00 ±.25
(56)
GROUP III
2-(8)
2-(14)
(18)-LG 28.00 REF
(23)-LG 25.00 REF
2-(29)-LG 1.50 ±.06
J
J
P5/A4J5
(40)
(57)
COND A98 REF
(44)
(36)
(48)
P5
COND IDENT NO. A97 REF
17.75 ±.25
(38)
SPOT TIE EVERY INCH THIS LEG
P6/A4J1
(41)
(57)
H
H
GROUP II
2-(8)
2-(14)
(18)-LG 25.50 REF
(23)-LG 22.50 REF
2-(29)-LG 1.50 ±.06
(56)
P6
A3
3-(59)
4-(26)
148-(37)
(58)
22.00 ±.25
P3/A4J3
(41)
(57)
4-(33)-LG.75±.06
SEE NOTE 2
SEE DETAIL M
G
G
GROUP VII
2-(10)
2-(12)
(19)-LG 29.25 REF
(24)-LG 26.25 REF
2-(31)-LG 1.50±.06
(56)
(35)
P3
GROUP VI
2-(11)
2-(5)
(18)-LG 25.50 REF
(23)-LG 22.50 REF
2-(28)-LG 1.50 ±.06
(56)
A3
2-(58)
149-(37)
2-(59)
3-(26)
21.75 ±.25
(38)
SPOT TIE EVERY INCH THIS LEG
.12 HIGH TYP
SEE NOTE 6
(56)
GROUP V
2-(9)
2-(15)
2-(30)-LG 1.30 ±.06
(19)-LG 26.50 REF
(25)-LG 23.50 REF
(42)
(57)
P4/A4J4
E
E
(56)
GROUP IV
2-(8)
2-(14)
(18) LG 27.00 REF
(23) LG 24.00 REF
2-(29) LG 1.50
4-(45)
P4
2-(58)
A3
148-(37)
4-(26)
2-(59)
16-(60)
(41)
(57)
P2/A4J2
F
F
(56)
GROUP I
2-(10)
2-(12)
(19)-LG 23.50 REF
(24)-LG 20.50 REF
2-(31)-LG 1.50 ±.06
(38)
SPOT TIE TYP
P2
SEE NOTE 2
174-(32)-LG.75±.06
A3
3-(58)
150-(37)
USED ON AWG 24 TYP
(59)
2-(26)
USED ON AWG 22 TYP
(63) LG 1.25±.06
(62)
(61)
DO NOT TIN
(7) REF
(3) REF
(1) REF
DO NOT TIN
DETAIL M
2 PLACES
SCALE NONE

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 38
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. STRIP ALL LEADS .50 ± .06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
4. SERIALIZE PER ND1002023
5. CRIMP PER ND1002206
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLK INK 1006256-001
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
8. AR DENOTES AS REQUIRED
9. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
10. FIND 27 MUST BE IMBEDDED IN POTTING WITHIN AREA A
11. CUT SLEEVING & BRAID LENGTHS AS SHOWN
12. MIL-I-23053 CL 1, COLOR BLK, ID 1.000 FOR FIND 31, ID .750 FOR FIND 30, ID .500 FOR FIND 29, ID .375 FOR FIND 28, ID .093 FOR FIND 27, ID .250 FOR FIND 63
13. QQ-B-575 BRAID SIZE 3/8 ID, AWG 34 FOR FIND 18 BRAID SIZE 1/2 ID, AWG 34 FOR FIND 19
14. MIL-W-16878/4 E24 WHT & BLK, TWISTED, SHIELDED, JACKET TFE WHT
15. POT PER ND1002009 METHOD E & PRIME
16. SEAL INSULATORS & CONTACTS PER ND1002004 TYPE VI
17. MIL-I-23053 CL 1, COLOR WHT, ID .125 FOR FIND 32 ID .187 FOR FIND 33
18. ~~* DENOTES MALE GUIDE PIN~~
19. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
20. ~~USE FIND 34 ON E6, E7, E8, E9, E18, E28, E28 THRU E30~~
21. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHT INK 1006271-1

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
*	0.3	SEE NOTE 12	SLEEVING, SHRINK	63
	2	1010402-2	SLEEVE, SOLDER	62
	2	1010402-1	SLEEVE, SOLDER	61
	16	1006672-005	NUT, STOP	60
	8	1006672-006	SOCKET, GUIDE	59
	8	1006672-002	PIN, GUIDE	58
	AR	1006253	ADHESIVE	57
	AR	1006699	SOLVENT	56
	2	MS25036-1	TERMINAL, LUG	55
	5	1004546-3	WASHER, FLAT	54
	5	1004546-1	WASHER, FLAT	53
	5	MS16633-4015	RING, RETAINING, EXT "E"	52
	5	1004579-1	SCREW, JACKING	51
	1	MS51957-28	SCREW, PAN HD	50
	4	MS51957-15	SCREW, PAN HD	49
	1	1010774-2	CLAMP, CABLE	48
	1	2014286	COVER, CONNECTOR	47
	1	1006418	HEADER, CONNECTOR	46
	4	1006672-001	CONNECTOR, PLUG	45
	1	1010771-113	CONNECTOR, PLUG, ELEC	44
	360	1006248	CONTACT, ELECTRICAL	43
	1	1006415-102	BAND MARKER, CABLE	42
	3	-099		41
	1	-095		40
	1	1006415-143	BAND MARKER, CABLE	39
	AR	1006458-004	TAPE, LACING	38
	595	1006491-009	CONTACT, ELEC	37
	1	1020371-7	BUSHING, SLEEVE	36
	2	1010402-3	SLEEVE, SOLDER	35
	12	1010402-5	SLEEVE, SOLDER	34
*	.3	SEE NOTE 17	SLEEVING, SHRINK	33
*	11.2	SEE NOTE 17		32
*	.5	SEE NOTE 12		31
*	.3			30
*	.8			29
*	.3			28
*	18.6	SEE NOTE 12	SLEEVING, SHRINK	27
	13	1006491-011	CONTACT, ELEC	26
*	2.0	1006696-5	SLEEVING, OUTER	25
*	3.9	1006696-6	SLEEVING, OUTER	24
*	7.9	1006696-3	SLEEVING, OUTER	23
	~~2~~	~~1006406~~	~~FERRULE, COAX~~	~~22~~
	2	MS51957-31	SCREW, PAN HD	21
	1	2014427-002	BRACKET, STRAIN RELIEF	20
*	6.7	SEE NOTE 13	BRAID, WIRE	19
*	8.9	SEE NOTE 13	BRAID, WIRE	18
	AR	MIL-S-22473 GRADE HV	RETAINING COMP	17
	AR	1006683	RUBBER COMPOUND SILICONE	16
	2	1000243-41	FERRULE, ELECTRICAL COND	15
	6	1000243-34	FERRULE, ELECTRICAL COND	14
	1	2016310-011	COVER, PROTECTIVE	13
	4	1000243-38	FERRULE, ELECTRICAL COND	12
	2	1000242-29		11
	4	-38		10
	2	-37		9
	6	1000242-30	FERRULE, ELECTRICAL COND	8
*	2.1	RG180 B/U	WIRE, COAX	7
*	166.0	1014341-12	WIRE, ELEC TW PR BLK/WHT	6
	2	1000243-31	FERRULE, ELEC, COND	5
*	3.3	SEE NOTE 14	WIRE, ELEC WHT/BLK TW SHLD PR	4
*	3.8	MIL-W-16878/4E22	WIRE, ELECTRICAL BLK	3
*	470.5	MIL-W-16878/4E24	WIRE, ELECTRICAL WHT	2
*	43.5	MIL-W-16878/4E22	WIRE, ELECTRICAL WHT	1

011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014268	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN F. F. Correia DATE 27 AUG 65
CHECKED R. Drainone 18 Oct 65
APPROVAL 15 Oct 65
APPROVAL 10/15/65
APPROVAL
NASA APPROVAL A. O. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W227

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014199
SCALE 1/1 WT SHEET 1 OF 4

2014199 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25348		
1	CHANGED PER CCA R25449 DR R Comb CHK J Heath APPD AJM	[illegible]	[illegible]
—	CLASS B CHANGED PER CCAR25501	[illegible]	[illegible]
A	CHANGED PER CCA R25731 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR [illegible]	4/4/66	[illegible]
C	CHANGED PER TDRR 26449 DR D. [illegible] CHK [illegible] APPD	2/ /66	[illegible]

ASSEMBLY INFORMATION CHART									
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	7	P1-122	WHT	24	6	22	P2-G3	
		↑	↑ 222	BLK	↑		↑	↑ G4	
	A2		123	WHT		↑		G1	
			223	BLK				G2	
	A3	↓	124	WHT				F3	
		7	224	BLK				F4	
	A4	6	125	WHT			↓	F1	
		↑	225	BLK			22	F2	
	A5		126	WHT			23	E7	
			226	BLK			↑	E8	
	A6		127	WHT			↓	E5	
			227	BLK			23	E6	
	A7		128	WHT			22	F7	
			228	BLK			↑	F8	
	A8		129	WHT				F5	
			229	BLK				F6	
	A9	↓	130	WHT				H1	
		6	230	BLK				H2	
	A10	5	132	WHT				G7	
		↑	232	BLK				G8	
	A11		133	WHT			↓	G5	
			233	BLK			22	G6	
	A12		134	WHT			21	S5	
			234	BLK			↑	S6	
	A13		135	WHT				S3	
			235	BLK				S4	
	A14		136	WHT				S1	
			236	BLK				S2	
	A15	↓	137	WHT				T7	
		5	237	BLK				T8	
	A16	4	138	WHT				T5	
		↑	238	BLK				T6	
	A17		139	WHT			↓	T3	
			239	BLK			21	T4	
	A18		140	WHT			23	B1	
			240	BLK			↑	B2	
	A19		141	WHT				A5	
			241	BLK				A6	
GROUP I	A20		142	WHT			↓	A3	
			242	BLK			23	A4	
	A21	↓	143	WHT			21	T1	
		4	243	BLK			21	T2	
	A22	3	144	WHT			20	U7	
		↑	244	BLK			↑	U8	
	A23		145	WHT				U5	
			245	BLK				U6	
	A24		146	WHT				U3	
			246	BLK				U4	
	A25		147	WHT				U1	
			247	BLK				U2	
	A26		148	WHT				V7	
			248	BLK				V8	
	A27	↓	149	WHT				V5	
		3	249	BLK				V6	
	A28	2	150	WHT				V3	
		↑	250	BLK				V4	
	A29		151	WHT				V1	
			251	BLK				V2	
	A30		152	WHT			↓	W7	
			252	BLK			20	W8	
	A31		153	WHT			23	E3	
			253	BLK			↑	E4	
	A32		154	WHT				E1	
			254	BLK				E2	
	A33	↓	155	WHT				D7	
		2	255	BLK				D8	
	A34	1	156	WHT				D5	
		↑	256	BLK				D6	
	A35		157	WHT				D3	
			257	BLK		↓		D4	
	A36	↓	↓ 158	WHT	↓	6	↓	↓ D1	
		1	P1-258	BLK	24		23	P2-D2	
		△1	E2	SHLD			△1	E12	
	A37	△1	E12	BLK	22	3	23	P2-C7	
	A38	△1	E12	BLK	22	3	23	P2-C8	
	A39	△1	E2	BLK	22	3	△1	E23	SEE DETAIL K
	A40	10	P1-304	WHT	24	2	33	P6-A5	
	A41	10	↑ 305	↑	↑	↑	↑	↑ C1	
	A42	10	306				↓	D4	
	A43	9	307				33	E7	
	A44	9	308				32	G1	
	A45	9	309				32	H7	
GROUP II	A46	10	204				33	B1	
	A47	10	205				↑	C3	
	A48	10	404					A3	
	A49	10	405					B7	
	A50	10	406				↓	D2	
	A51	9	407				33	E4	
	A52	9	↓ 408	↓	↓	↓	32	↓ F7	
	A53	9	P1-409	WHT	24	2	32	P6-H1	

ASSEMBLY INFORMATION CHART									
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A54	10	P1-206	WHT	24	2	33	P6-D6	
	A55	9	↑ 207	↑	↑	↑	32	↑ F1	
	A56	10	509				32	H3	
	A57	10	505				33	B5	
	A58	10	506				33	C8	
	A59	9	507				33	E2	
	A60	↑	508				32	F5	
	A61	↓	509				↑	H5	
GROUP II	A62	9	208				↓	G9	
	A63	10	604				32	G5	
	A64	10	605				33	B3	
	A65	10	606				33	C6	
	A66	9	607				33	D1	
	A67	9	608				32	F3	
	A68	9	609				32	G8	
	A69	8	116				31	S8	
	A70	10	104				31	S6	
	A71	10	105				31	S7	
	A72	10	106				32	J2	
	A73	9	↓ 107	↓	↓	↓	32	↓ J6	
	A74	9	P1-108	WHT	24	2	32	P6-U5	
		△1	E20	SHLD			△1	E15	
	A75	△1	E15	BLK	22	3	32	P6-J7	
	A76	△1	E15	BLK	22	3	31	P6-R6	
	A77	1	P1-159	WHT	22	1	△1	E25	
	A78	↑	↑ 259	↑	↑	↑	△1	E26	
	A79		359				34	P5-2	
	A80		260				△1	E30	
	A81		360				△1	E29	
	A82		261				34	P5-18	
	A83		361				△1	E27	
	A84	↓	↓ 461				△1	E28	
	A85	1	P1-459				△1	E6	
	A86	△1	E6				34	P5-9	
	A87	△1	E6				↑	↑ 6	TWIST
	A88	△1	E7				↓	↓ 3	
	A89	△1	E7				34	P5-13	
	A90	1	P1-160				△1	E7	
	A91	1	P1-460				△1	E8	
	A92	△1	E8				34	P5-5	
GROUP III	A93	△1	E8				↑	↑ 16	TWIST
	A94	△1	E9				↓	↓ 12	
	A95	△1	E9				34	P5-17	
	A96	1	P1-161	↓	↓	↓	△1	E9	
	A97	34	P5-4	WHT	22	1	34	P5-8	
		△1	E4	SHLD			△1	E16	
	A98	△1	E16	BLK	22	3	33A	P5-SHELL	
	A99	△1	E4	BLK	↑	3	△1	E23	SEE DETAIL K
	A100	1	P1-659	WHT		1	△1	E25	
	A101	△1	E25	↑		↑	34	P5-10	
	A102	1	P1-559				△1	E26	
	A103	△1	E26				34	P5-11	
	A104	1	P1-661				△1	E27	
	A105	△1	E27				34	P5-7	
	A106	1	P1-561				△1	E28	
	A107	△1	E28				34	P5-19	
	A108	1	P1-560				△1	E29	
	A109	△1	E29				34	P5-15	
	A110	1	P1-660	↓	↓	↓	△1	E30	
	A111	△1	E30	WHT	22	1	34	P5-14	
	A112	7	P1-619	WHT	24	2	16	P4-V5	
	A113	2	↑ 552	↑	↑	↑	17	↑ S6	
	A114	2	651				↑	S7	
	A115	2	551				↓	S8	
	A116	7	521				17	S5	
	A117	9	109				16	U4	
	A118	↑	110				16	U6	
	A119	↓	111				17	T4	
	A120	9	112				18	L2	
	A121	8	113				16	X3	
	A122	8	114				18	M1	
	A123	9	209				16	U1	
GROUP IV	A124	↑	210				16	U7	
	A125	↓	211				17	T1	
	A126	9	212				16	X6	
	A127	8	213				17	S1	
	A128	9	310				16	U2	
	A129	9	311				17	T6	
	A130	9	312				16	W1	
	A131	8	313				↑	X4	
	A132	8	314				↓	W6	
	A133	9	410				16	U3	
	A134	9	411				17	T7	
	A135	9	412				16	W3	
	A136	8	413				17	S4	
	A137	8	414				16	W5	
	A138	9	↓ 510	↓	↓	↓	16	↓ U8	
	A139	9	P1-511	WHT	24	2	17	P4-T8	

ASSEMBLY INFORMATION CHART									
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A140	9	P1-512	WHT	24	2	17	P4-T2	
	A141	8	↑ 513	↑	↑	↑	16	↑ V8	
	A142	8	514				16	W4	
	A143	9	610				16	U5	
GROUP IV	A144	9	611				17	T5	
	A145	9	612				17	T3	
	A146	8	↓ 613	↓	↓	↓	16	↓ W2	
	A147	8	P1-614	WHT	24	2	16	P4-X5	
		△1	E22	SHLD			△1	E11	
	A148	△1	E11	BLK	22	3	19	P4-G5	
	A149	△1	E11	BLK	22	3	18	P4-M3	
	A150	7	P1-520	WHT	24	2	12	P4-P2	
	A151	↑	↑ 519	↑	↑	↑	13	↑ M8	
	A152		522				15	B2	
	A153	↓	523				14	F6	
	A154	7	524				15	A4	
	A155	6	525				↑	B6	
	A156	↑	526					D2	
	A157		527				↓	C8	
	A158		528				15	C6	
	A159	↓	529				14	G8	
	A160	6	530				14	H6	
	A161	7	620				12	R5	
	A162	↑	621				14	G6	
	A163		622				15	B4	
	A164	↓	623				↑	A6	
	A165	7	624					B1	
	A166	6	625					A5	
	A167	↑	626					D1	
	A168		627				↓	C7	
	A169		628				15	C5	
	A170	↓	629				14	G7	
	A171	6	630				14	H5	
	A172	5	532				14	F4	
	A173	↑	533				13	M7	
	A174		534				15	B3	
	A175		535				12	P8	
	A176	↓	536				15	E3	
	A177	5	537				12	R4	
	A178	4	538				14	H7	
	A179	↑	539				12	P6	
	A180		540				15	C3	
	A181		541				15	E2	
	A182	↓	542				12	P5	
GROUP V	A183	4	543				14	F3	
	A184	3	544				14	F1	
	A185	↑	545				15	E7	
	A186		546				15	E5	
	A187		547				14	H4	
	A188	↓	548				13	K7	
	A189	3	549				↑	L1	
	A190	2	550				↓	K8	
	A191	8	214				13	K6	
	A192	2	553				15	D8	
	A193	2	554				15	D6	
	A194	2	555				15	D4	
	A195	1	556				13	N3	
	A196	1	557				15	B7	
	A197	1	558				15	C4	
	A198	5	632				14	F5	
	A199	↑	633				13	N8	
	A200		634				13	N1	
	A201		635				12	P7	
	A202	↓	636				15	C2	
	A203	5	637				12	P4	
	A204	4	638				15	B5	
	A205	↑	639				12	R1	
	A206		640				15	C1	
	A207		641				15	E1	
	A208	↓	642				12	P3	
	A209	4	643				14	F2	
	A210	3	644				15	E8	
	A211	↑	645				15	E6	
	A212		646				15	E9	
	A213		647				12	R2	
	A214	↓	648				14	H3	
	A215	3	649				14	H1	
	A216	2	650				14	H2	
	A217	↑	652				12	P1	
	A218		653				15	D7	
	A219	↓	654				15	D5	
	A220	2	655				15	D3	
	A221	1	↓ 656	↓	↓	↓	13	↓ M6	
	A222	1	P1-657	WHT	24	2	15	P4-B8	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN P. [illegible] DATE 13 OCT 65
CHECKED R. [illegible] 14 OCT 65
APPROVAL [illegible] 15 OCT 65
APPROVAL D. O'[illegible] 10/15/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W227

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014199
SCALE NONE | WT | SHEET 2 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014199 C

2014199

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25348		
1	CHANGED PER CCA R25449 DR R. [illegible] CHK [illegible] APPD [illegible]	11/12/65	[illegible]
–	CLASS B CHANGED PER CCAR25501	[illegible]	[illegible]
A	CHANGED PER CCA R25731 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCAR25778 AND CLASS A RELEASED PER TDRR 25477	[illegible]	[illegible]
C	CHANGED PER TDRR 26449 DR D. [illegible] APPD	3/24/66	[illegible]

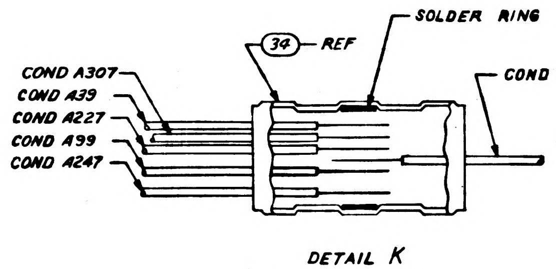
ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP V	A223	1	P1-658	WHT	24	2	13	P4-N6	
	A224	8	P1-216	WHT	24	2	13	P4-K3	
	A225	8	P1-215	WHT	24	2	13	P4-K2	
		△1	E3	SHLD		19	△1	E10	
	A226	△1	E10	BLK	22	3	14	P4-G4	
	A227	△1	E3	BLK	22	3	△1	E23	SEE DETAIL K
	A228	△1	E10	BLK	22	3	14	P4-G3	
GROUP VI	A229	10	P1-101	WHT	24	2	29	P6-W7	
	A230	↑	↑ 103	↑	↑	↑	↑	↑ V1	
	A231		201					W5	
	A232		301					W3	
	A233		401					W1	
	A234		501					X5	
	A235		601					X3	
	A236		502				↓	V3	
	A237		402				29	V6	
	A238		203				30	T3	
	A239		303				30	T2	
	A240		403				30	T1	
	A241		503				29	U7	
	A242		603				29	U6	
	A243	↓	602				30	T8	
	A244	10	↓ 302	↓	↓	↓	29	↓ V5	
	A245	8	P1-115	WHT	24	2	29	P6-V8	
		△1	E5	SHLD			△1	E14	
	A246	△1	E14	BLK	22	3	30	P6-T7	
	A247	△1	E5	BLK	22	3	△1	E23	SEE DETAIL K
	A248	△1	E23	BLK	22	3	11	E1	SEE DETAIL K
	A249	△1	E14	BLK	22	3	30	P6-R7	
GROUP VII	A250	8	P1-315	WHT	24	6	25	P3-P5	
		↑	↑ 415	BLK	↑		25	↑ P6	
	A251		316	WHT		↑	25	P3	
			416	BLK			25	P4	
	A252		317	WHT			26	N3	
			417	BLK			↑	N4	
	A253	↓	318	WHT				K3	
		8	418	BLK				K6	
	A254	7	319	WHT			↓	K7	
		↑	419	BLK			26	K8	
	A255		320	WHT			27	J1	
			420	BLK			↑	J2	
	A256		321	WHT			↓	H7	
			421	BLK			27	H8	
	A257		322	WHT			25	P1	
			422	BLK			25	P2	
	A258		323	WHT			26	N7	
			423	BLK			26	N8	
	A259	↓	324	WHT			25	R7	
		7	424	BLK			↑	R8	
	A260	6	325	WHT				S5	
		↑	425	BLK				S6	
	A261		326	WHT				S3	
			426	BLK				S4	
	A262		327	WHT			↓	S1	
			427	BLK			25	S2	
	A263		328	WHT			26	N1	
			428	BLK			↑	N2	
	A264		329	WHT				M7	
			429	BLK				M8	
	A265	↓	330	WHT				M3	
		6	430	BLK				M6	
	A266	5	332	WHT				M1	
		↑	432	BLK				M2	
	A267		333	WHT				L7	
			433	BLK				L8	
	A268		334	WHT				L1	
			434	BLK				L2	
	A269		335	WHT			↓	K1	
			435	BLK			26	K2	
	A270		336	WHT			27	J7	
			436	BLK			↑	J8	
	A271	↓	337	WHT				J5	
		5	437	BLK				J6	
	A272	4	338	WHT				J3	
		↑	438	BLK				J4	
	A273		339	WHT			↓	G1	
			439	BLK			27	G2	
	A274		340	WHT			28	C7	
			440	BLK			↑	C8	
	A275		341	WHT				C5	
			441	BLK				C6	
	A276		342	WHT				C3	
			442	BLK		↓		C4	
	A277	↓	↓ 343	WHT	↓	6	↓	↓ C1	
		4	P1-443	BLK	24		28	P3-C2	

△1 DENOTES INTERNAL CONNECTION
~~△2 ATTACH FIND 3~~
~~△3 ATTACH FIND 22 PER DETAIL M~~
~~△4 MARK FIND NO. 3 WITH CONDUCTOR IDENT NO. OF ASSOCIATED COAX LEAD & ASSEMBLE PER DETAIL M~~
~~△ STRIP .44 & TIN .06~~
~~△ STRIP .31 & TIN .06~~
~~△ STRIP .25, DO NOT TIN~~

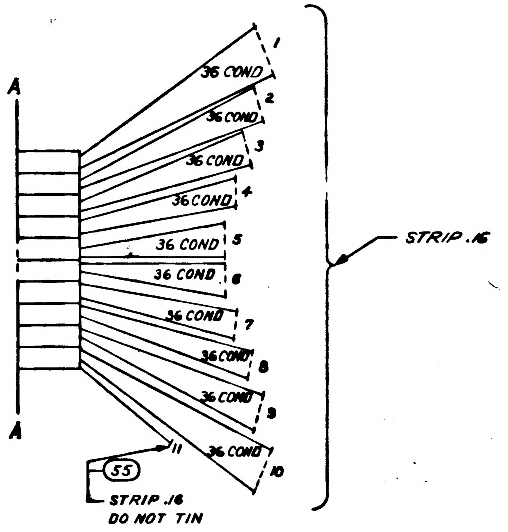
ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP VII	A278	3	P1-344	WHT	24	6	28	P3-B7	
		↑	↑ 444	BLK	↑		28	↑ B8	
	A279		345	WHT		↑	27	F5	
			445	BLK			27	F6	
	A280		346	WHT			28	B5	
			446	BLK			↑	B6	
	A281		347	WHT				B3	
			447	BLK				B4	
	A282		348	WHT				B1	
			448	BLK				B2	
	A283	↓	349	WHT				E7	
		3	449	BLK				E8	
	A284	2	350	WHT			↓	E5	
		↑	450	BLK			28	E6	
	A285		351	WHT			24	V5	
			451	BLK			24	V6	
	A286		352	WHT			27	G5	
			452	BLK			27	G6	
	A287		353	WHT			28	A5	
			453	BLK			↑	A6	
	A288		354	WHT				A3	
			454	BLK				A4	
	A289	↓	355	WHT				E3	
		2	455	BLK				E4	
	A290	1	356	WHT				E1	
		↑	456	BLK				E2	
	A291		357	WHT				D7	
			457	BLK				D8	
	A292	↓	358	WHT				D5	
		1	458	BLK				D6	
	A293	8	517	WHT				D3	
		↑	617	BLK				D4	
	A294		518	WHT			↓	D1	
			618	BLK			28	D2	
	A295		117	WHT			25	R3	
			217	BLK			25	R4	
	A296	↓	118	WHT			27	H5	
		8	218	BLK			↑	H6	
	A297	7	119	WHT				H3	
		↑	219	BLK				H4	
	A298		120	WHT				H1	
			220	BLK				H2	
	A299	↓	121	WHT			↓	G7	
		7	221	BLK		↓	27	G8	
	A300	8	515	WHT		6	26	N5	
		8	615	BLK			26	N6	
	A301	10	↓ 102	WHT	↓	4	24	↓ X5	
		10	P1-202	BLK	24		24	P3-X6	
		△1	E18	SHLD			△1	E17	
	A302	△1	E17	BLK	22	3	24	P3-X4	
△A	~~A303~~	~~△1~~	~~E19~~	~~COAX~~	~~30~~	~~7~~	~~△1~~	~~E24~~	
		~~8~~	~~P1-616~~	~~SHLD~~			~~24~~	~~P3-U8~~	△A
	A304	8	P1-516	WHT	22	1	△1	E19	△A
△A	A305	△1	E24	WHT	22	1	24	P3-U7	
		△1	E21	SHLD			△1	E13	
	A306	△1	E13	BLK	22	3	24	P3-X3	
	A307	△1	E21	BLK	22	3	△1	E23	SEE DETAIL K
△A	A308	△1	E19	COAX	30	7	△1	E24	△A
		△1	E19-SHLD	SHLD			△1	E24	
	A309	8	P1-616	BLK	22	3	△1	E19	△A
△A	A310	△1	E24	BLK	22	3	24	P3-U8	

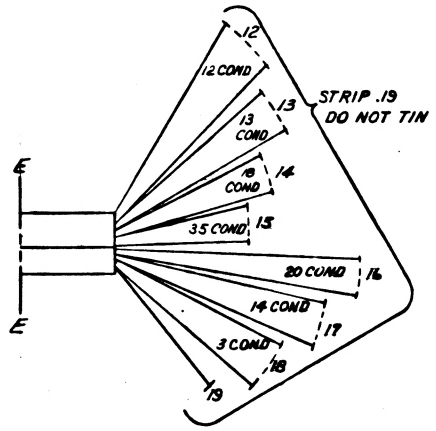


COND A307
COND A39
COND A227
COND A99
COND A247
34 REF
SOLDER RING
COND A248

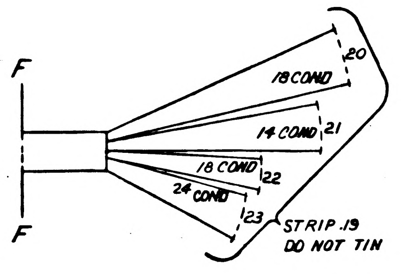
DETAIL K
SCALE NONE
ALL COND IDENT ARE FOR REFERENCE



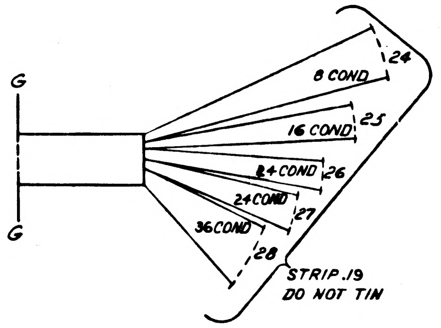
A
A
36 COND 1
36 COND 2
36 COND 3
36 COND 4
36 COND 5
36 COND 6
36 COND 7
36 COND 8
36 COND 9
36 COND 10
11
STRIP .16
55
STRIP .16
DO NOT TIN



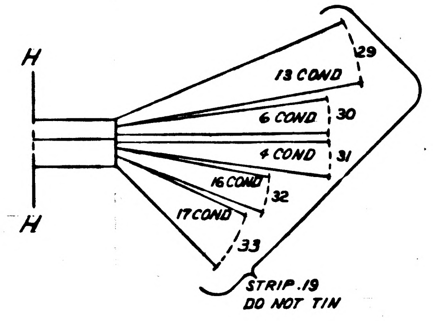
E
E
12
12 COND
13
13 COND
14
14 COND
15
35 COND
16
20 COND
17
14 COND
18
3 COND
19
STRIP .19
DO NOT TIN



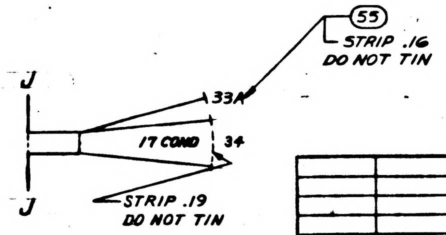
F
F
20
18 COND
21
14 COND
22
18 COND
23
24 COND
STRIP .19
DO NOT TIN



G
G
24
8 COND
25
16 COND
26
24 COND
27
24 COND
28
36 COND
STRIP .19
DO NOT TIN



H
H
29
13 COND
30
6 COND
31
4 COND
32
16 COND
33
17 COND
STRIP .19
DO NOT TIN



J
J
55
STRIP .16
DO NOT TIN
33A
34
17 COND
STRIP .19
DO NOT TIN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED R. [illegible] 1 OCT 65
APPROVAL [illegible] 15 OCT 65
APPROVAL [illegible] 10 OCT 65
APPROVAL [illegible]
NASA APPROVAL A. C. [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W227

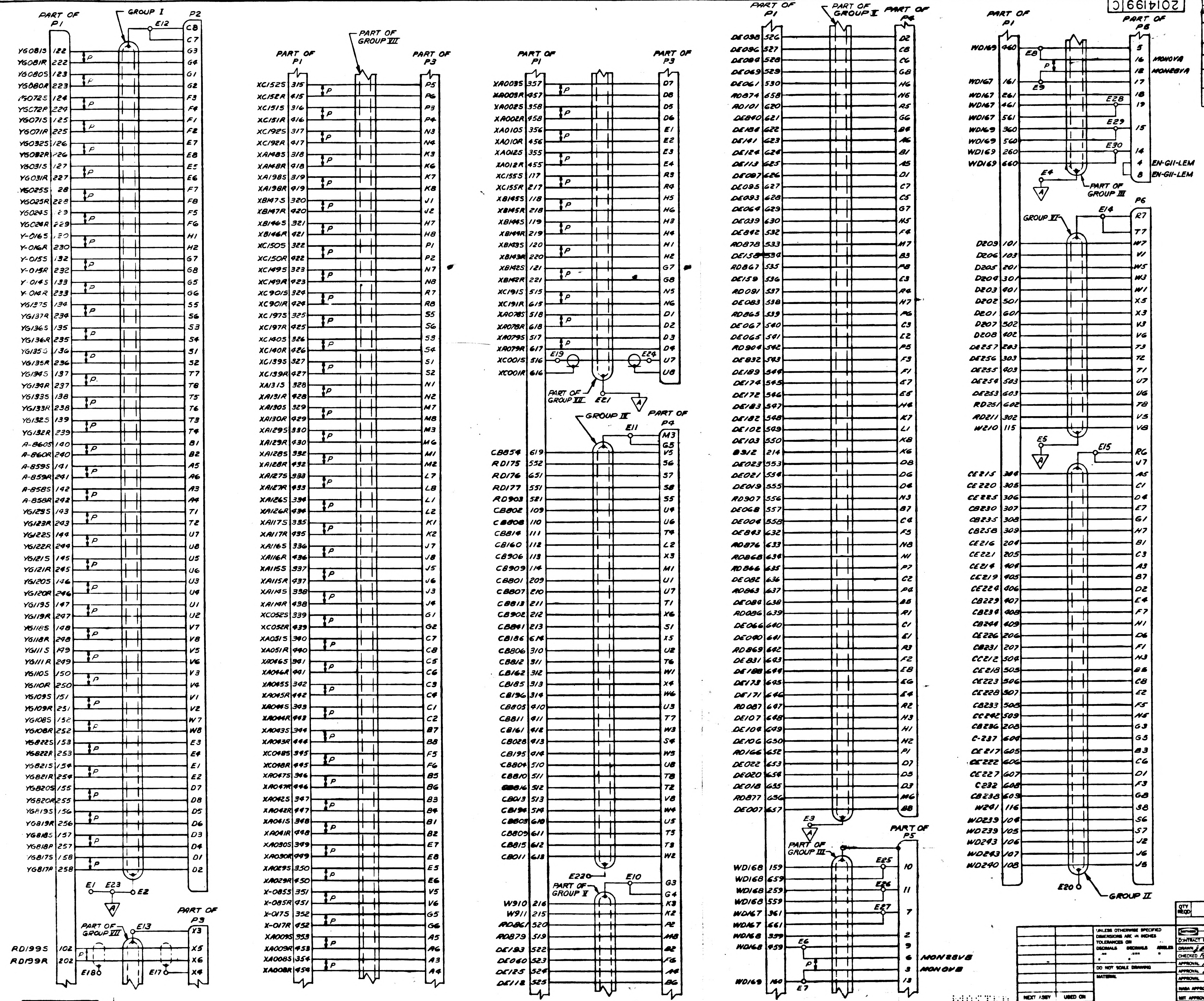
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014199
SCALE 1/1
WT
SHEET 3 OF 4

MASTER

2014199 C

2014199 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25348		
1	CHANGED PER CCA R25449 DR R Gonde CHK J Gilreath APPD	11/12/	
—	CLASS B CHANGED PER CCAR25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR25477	/66	
C	CHANGED PER TDRR 26449 DR CHK APPD	/66	



PART OF P1
GROUP I
E12
P2
PART OF GROUP VII
P3
PART OF P3
PART OF P1
E19
E24
PART OF GROUP VII
E21
GROUP IV
E11
PART OF P4
E22
E10
PART OF GROUP V
E1
E23
E2
PART OF GROUP VII
E13
E18
E17
RD199S 102
RD199R 202
PART OF GROUP X
PART OF P4
E3
PART OF GROUP III
PART OF P5
E25
E26
E27
E6
E7
MON28VB
MONOVB
PART OF P8
E8
E9
E28
E29
E30
MONOVA
MON28VA
EN-G11-LEM
E4
PART OF GROUP III
P6
E14
GROUP VI
E5
E15
E20
GROUP II

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX DECIMALS .XXX ANGLES
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. Roy DATE 23 AUG 65
CHECKED R. Dracinger
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

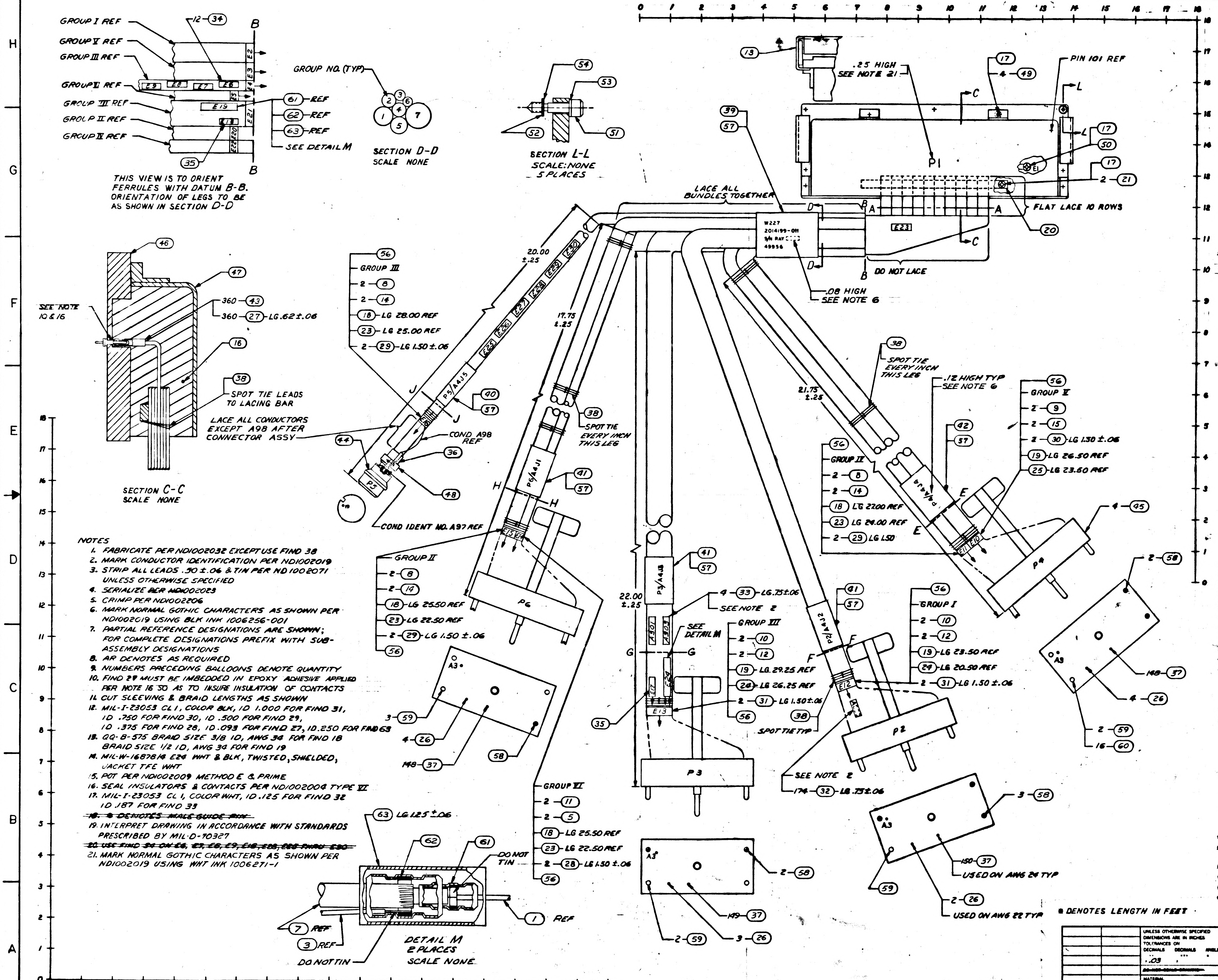
CABLE ASSEMBLY
W227

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO 2014199
SCALE NONE
WT
SHEET 4 OF 4

2014199

2014199 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA [illegible]		
-1	CHANGED PER CCA R25449 DR R Combs CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCAR255C[illegible]	[illegible]	[illegible]
A	CHANGED PER CCA R25731 DR [illegible] CHK APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR25[illegible]	[illegible]	[illegible]
C	CHANGED PER TDRR 26459 DR D. [illegible] CHK [illegible] APPD	2/24/66	[illegible]
D	CHANGED PER TDRR 26532 DR [illegible] CHK [illegible] APPD [illegible]	3/9/66	[illegible]



GROUP I REF
GROUP V REF
GROUP III REF
GROUP VI REF
GROUP III REF
GROUP II REF
GROUP IV REF
12-(34)
B
E2
E3
E4
E5
E6
E7
E8
E9
E19
E21
E18
E20
E22
(61)-REF
(62)-REF
(63)-REF
SEE DETAIL M
(35)
B
THIS VIEW IS TO ORIENT FERRULES WITH DATUM B-B. ORIENTATION OF LEGS TO BE AS SHOWN IN SECTION D-D
GROUP NO. (TYP)
1
2
3
4
5
6
7
SECTION D-D
SCALE NONE
(54)
(53)
(52)
(51)
SECTION L-L
SCALE: NONE
5 PLACES
(13)
.25 HIGH
SEE NOTE 21
(17)
4-(49)
PIN 101 REF
C
L
(17)
(50)
E1
P1
(17)
2-(21)
FLAT LACE 10 ROWS
(20)
(39)
(57)
LACE ALL BUNDLES TOGETHER
D
B
A
A
W227
2014199-011
S/N RAY
49956
E23
C
D
B
DO NOT LACE
.08 HIGH
SEE NOTE 6
(46)
(47)
SEE NOTE 10 & 16
360-(43)
360-(27)-LG .62±.06
(16)
(38)
SPOT TIE LEADS TO LACING BAR
LACE ALL CONDUCTORS EXCEPT A98 AFTER CONNECTOR ASSY
SECTION C-C
SCALE NONE
(56)
GROUP III
2-(8)
2-(14)
(18)-LG 28.00 REF
(23)-LG 25.00 REF
2-(29)-LG 1.50±.06
20.00 ±.25
E25
E26
E27
E28
E29
E30
J
P5/A4J5
(40)
(57)
COND A98 REF
(44)
(36)
P5
(48)
COND IDENT NO. A97 REF
17.75 ±.25
(38)
SPOT TIE EVERY INCH THIS LEG
P6/A4J1
(41)
(57)
H
E15
E14
GROUP II
2-(8)
2-(14)
(18)-LG 25.50 REF
(23)-LG 22.50 REF
2-(29)-LG 1.50±.06
(56)
P6
A3
3-(59)
4-(26)
148-(37)
(58)
GROUP VI
2-(11)
2-(5)
(18)-LG 25.50 REF
(23)-LG 22.50 REF
2-(28)-LG 1.50±.06
(56)
(63) LG 1.25±.06
(62)
(61)
DO NOT TIN
(7) REF
(3) REF
DO NOT TIN
(1) REF
DETAIL M
2 PLACES
SCALE NONE
22.00 ±.25
P3/A4J3
(41)
(57)
4-(33)-LG .75±.06
SEE NOTE 2
A301
A303
SEE DETAIL M
G
E17
E24
E13
(35)
GROUP III
2-(10)
2-(12)
(19)-LG 29.25 REF
(24)-LG 26.25 REF
2-(31)-LG 1.50±.06
(56)
P3
A3
2-(58)
2-(59)
149-(37)
3-(26)
21.75 ±.25
(38)
SPOT TIE EVERY INCH THIS LEG
.12 HIGH TYP
SEE NOTE 6
(42)
(57)
P4/A4J4
E
E11
E10
(56)
GROUP V
2-(9)
2-(15)
2-(30)-LG 1.30±.06
(19)-LG 26.50 REF
(25)-LG 23.50 REF
(56)
GROUP IV
2-(8)
2-(14)
(18) LG 27.00 REF
(23) LG 24.00 REF
2-(29) LG 1.50
4-(45)
P4
2-(58)
148-(37)
4-(26)
2-(59)
16-(60)
A3
P2/A4J2
(41)
(57)
F
E12
(38)
SPOT TIE TYP
(56)
GROUP I
2-(10)
2-(12)
(19)-LG 23.50 REF
(24)-LG 20.50 REF
2-(31)-LG 1.50±.06
SEE NOTE 2
174-(32)-LG .75±.06
P2
A3
3-(58)
150-(37)
USED ON AWG 24 TYP
(59)
2-(26)
USED ON AWG 22 TYP
MASTER

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND 38
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. STRIP ALL LEADS .50 ±.06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
4. SERIALIZE ~~PER ND1002023~~
5. CRIMP PER ND1002206
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLK INK 1006256-001
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
8. AR DENOTES AS REQUIRED
9. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
10. FIND 27 MUST BE IMBEDDED IN EPOXY ADHESIVE APPLIED PER NOTE 16 SO AS TO INSURE INSULATION OF CONTACTS
11. CUT SLEEVING & BRAID LENGTHS AS SHOWN
12. MIL-I-23053 CL I, COLOR BLK, ID 1.000 FOR FIND 31, ID .750 FOR FIND 30, ID .500 FOR FIND 29, ID .375 FOR FIND 28, ID .093 FOR FIND 27, ID .250 FOR FIND 63
13. QQ-B-575 BRAID SIZE 3/8 ID, AWG 34 FOR FIND 18 BRAID SIZE 1/2 ID, AWG 34 FOR FIND 19
14. MIL-W-16878/4 E24 WHT & BLK, TWISTED, SHIELDED, JACKET TFE WHT
15. POT PER ND1002009 METHOD E & PRIME
16. SEAL INSULATORS & CONTACTS PER ND1002004 TYPE VI
17. MIL-I-23053 CL I, COLOR WHT, ID .125 FOR FIND 32 ID .187 FOR FIND 33
~~18. ● DENOTES MALE GUIDE PIN~~
19. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
~~20. USE FIND 34 ON E6, E7, E8, E9, E18, E28, E25 THRU E30~~
21. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHT INK 1006271-1

* DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
* 0.3	SEE NOTE 12	SLEEVING, SHRINK	63
2	1010402-2	SLEEVE, SOLDER	62
2	1010402-1	SLEEVE, SOLDER	61
16	1006672-005	NUT, STOP	60
8	1006672-006	SOCKET, GUIDE	59
8	1006672-002	PIN, GUIDE	58
AR	1006253	ADHESIVE	57
AR	1006699	SOLVENT	56
2	MS25036-1	TERMINAL, LUG	55
5	1004546-3	WASHER, FLAT	54
5	1004546-1	WASHER, FLAT	53
5	MS16633-4015	RING, RETAINING, EXT "E"	52
5	1004579-1	SCREW, JACKING	51
1	MS51957-28	SCREW, PAN HD	50
4	MS51957-15	SCREW, PAN HD	49
1	1010774-2	CLAMP, CABLE	48
1	2014286	COVER, CONNECTOR	47
1	1006418	HEADER, CONNECTOR	46
4	1006672-001	CONNECTOR, PLUG	45
1	1010771-113	CONNECTOR, PLUG, ELEC	44
360	1006248	CONTACT, ELECTRICAL	43
1	1006415-102	BAND MARKER, CABLE	42
3	↕ -099	↕	41
1	↕ -095	↕	40
1	1006415-143	BAND MARKER, CABLE	39
AR	1006458-004	TAPE, LACING	38
595	1006491-009	CONTACT, ELEC	37
1	1020371-7	BUSHING, SLEEVE	36
2	1010402-3	SLEEVE, SOLDER	35
12	1010402-5	SLEEVE, SOLDER	34
* .3	SEE NOTE 17	SLEEVING, SHRINK	33
* 11.2	SEE NOTE 17	↕	32
* .5	SEE NOTE 12	↕	31
* .3	↕	↕	30
* .8	↕	↕	29
* .3	↕	↕	28
* 18.6	SEE NOTE 12	SLEEVING, SHRINK	27
13	1006491-011	CONTACT, ELEC	26
* 2.0	1006696-5	SLEEVING, OUTER	25
* 3.9	1006696-6	SLEEVING, OUTER	24
* 7.9	1006696-3	SLEEVING, OUTER	23
~~2~~	~~1006406~~	~~FERRULE, COAX~~	~~22~~
2	MS51957-31	SCREW, PAN HD	21
1	2014427-002	BRACKET, STRAIN RELIEF	20
* 6.7	SEE NOTE 13	BRAID, WIRE	19
* 8.9	SEE NOTE 13	BRAID, WIRE	18
AR	MIL-S-22473 GRADE HV	RETAINING COMP	17
AR	1006683	RUBBER COMPOUND SILICONE	16
2	1000243-41	FERRULE, ELECTRICAL COND	15
6	1000243-34	FERRULE, ELECTRICAL COND	14
1	2016310-011	COVER, PROTECTIVE	13
4	1000243-38	FERRULE, ELECTRICAL COND	12
2	1000242-29	↕	11
4	↕ -38	↕	10
2	↕ -37	↕	9
6	1000242-30	FERRULE, ELECTRICAL COND	8
* 2.1	RG180 B/U	WIRE, COAX	7
* 166.0	1014341-12	WIRE, ELEC TW PR BLK/WHT	6
2	1000243-31	FERRULE, ELEC, COND	5
* 3.3	SEE NOTE 14	WIRE, ELEC WHT/BLK TW SHLD PR	4
* 3.8	MIL-W-16878/4 E22	WIRE, ELECTRICAL BLK	3
* 470.5	MIL-W-16878/4 E24	WIRE, ELECTRICAL WHT	2
* 43.5	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHT	1

011 LIST OF MATERIALS

2014268	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON MASS
CONTRACT NO NAS 9-497
DRAWN E. F. Correia DATE 27 AUG 65
CHECKED R. Drinkwater 10/1/65
APPROVAL [illegible] 15 Oct 65
APPROVAL A. [illegible] 10/15/65
APPROVAL [illegible]
NASA APPROVAL A. O. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W227

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO. 2014199
SCALE 1/1
WT
SHEET 1 OF 4

2014199 D

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	7	P1-122	WHT	24	6	22	P2-G3	
		↑	↑ 222	BLK	↑		↑	↑ G4	
	A2		123	WHT		↑		G1	
			223	BLK				G2	
	A3	↓	124	WHT				F3	
		7	224	BLK				F4	
	A4	6	125	WHT			↓	F1	
		↑	225	BLK			22	F2	
	A5		126	WHT			23	E7	
			226	BLK			↑	E8	
	A6		127	WHT			↓	E5	
			227	BLK			23	E6	
	A7		128	WHT			22	F7	
			228	BLK			↑	F8	
	A8		129	WHT				F5	
			229	BLK				F6	
	A9	↓	130	WHT				H1	
		6	230	BLK				H2	
	A10	5	132	WHT				G7	
		↑	232	BLK				G8	
	A11		133	WHT			↓	G5	
			233	BLK			22	G6	
	A12		134	WHT			21	S5	
			234	BLK			↑	S6	
	A13		135	WHT				S3	
			235	BLK				S4	
	A14		136	WHT				S1	
			236	BLK				S2	
	A15	↓	137	WHT				T7	
		5	237	BLK				T8	
	A16	4	138	WHT				T5	
		↑	238	BLK				T6	
	A17		139	WHT			↓	T3	
			239	BLK			21	T4	
	A18		140	WHT			23	B1	
			240	BLK			↑	B2	
	A19		141	WHT				A5	
			241	BLK				A6	
GROUP I	A20		142	WHT			↓	A3	
			242	BLK			23	A4	
	A21	↓	143	WHT			21	T1	
		4	243	BLK			21	T2	
	A22	3	144	WHT			20	U7	
		↑	244	BLK			↑	U8	
	A23		145	WHT				U5	
			245	BLK				U6	
	A24		146	WHT				U3	
			246	BLK				U4	
	A25		147	WHT				U1	
			247	BLK				U2	
	A26		148	WHT				V7	
			248	BLK				V8	
	A27	↓	149	WHT				V5	
		3	249	BLK				V6	
	A28	2	150	WHT				V3	
		↑	250	BLK				V4	
	A29		151	WHT				V1	
			251	BLK				V2	
	A30		152	WHT			↓	W7	
			252	BLK			20	W8	
	A31		153	WHT			23	E3	
			253	BLK			↑	E4	
	A32		154	WHT				E1	
			254	BLK				E2	
	A33	↓	155	WHT				D7	
		2	255	BLK				D8	
	A34	1	156	WHT				D5	
		↑	256	BLK				D6	
	A35		157	WHT				D3	
			257	BLK		↓		D4	
	A36	↓	↓ 158	WHT	↓	6	↓	↓ D1	
		1	P1-258	BLK	24		23	P2-D2	
		△	E2	SHLD			△	E12	
	A37	△	E12	BLK	22	3	23	P2-C7	
	A38	△	E12	BLK	22	3	23	P2-C8	
	A39	△	E2	BLK	22	3	△	E23	SEE DETAIL K
	A40	10	P1-304	WHT	24	2	33	P6-A5	
	A41	10	↑ 305	↑	↑	↑	↑	↑ C1	
	A42	10	306				↓	D4	
	A43	9	307				33	E7	
	A44	9	308				32	G1	
	A45	9	309				32	H7	
GROUP II	A46	10	204				33	B1	
	A47	10	205				↑	C3	
	A48	10	404					A3	
	A49	10	405					B7	
	A50	10	406				↓	D2	
	A51	9	407				33	E4	
	A52	9	↓ 408	↓	↓	↓	32	↓ F7	
	A53	9	P1-409	WHT	24	2	32	P6-H1	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A54	10	P1-206	WHT	24	2	33	P6-D6	
	A55	9	↑ 207	↑	↑	↑	32	↑ F1	
	A56	10	504				32	H3	
	A57	10	505				33	B5	
	A58	10	506				33	C8	
	A59	9	507				33	E2	
	A60	↑	508				32	F5	
	A61	↓	509				↑	H5	
GROUP II	A62	9	208				↓	G3	
	A63	10	604				32	G5	
	A64	10	605				33	B3	
	A65	10	606				33	C6	
	A66	9	607				33	D1	
	A67	9	608				32	F3	
	A68	9	609				32	G8	
	A69	8	116				31	S8	
	A70	10	104				31	S6	
	A71	10	105				31	S7	
	A72	10	106				32	J2	
	A73	9	↓ 107	↓	↓	↓	32	↓ J6	
	A74	9	P1-108	WHT	24	2	32	P6-U5	
		△	E20	SHLD			△	E15	
	A75	△	E15	BLK	22	3	32	P6-J7	
	A76	△	E15	BLK	22	3	31	P6-R6	
	A77	1	P1-159	WHT	22	1	△	E25	
	A78	↑	↑ 259	↑	↑	↑	△	E26	
	A79		359				34	P5-2	
	A80		260				△	E30	
	A81		360				△	E29	
	A82		261				34	P5-18	
	A83		361				△	E27	
	A84	↓	↓ 461				△	E28	
	A85	1	P1-459				△	E6	
	A86	△	E6				34	P5-9	
	A87	△	E6				↑	↑ 6	TWIST
	A88	△	E7				↓	↓ 3	
	A89	△	E7				34	P5-13	
	A90	1	P1-160				△	E7	
	A91	1	P1-460				△	E8	
	A92	△	E8				34	P5-5	
GROUP III	A93	△	E8				↑	↑ 16	TWIST
	A94	△	E9				↓	↓ 12	
	A95	△	E9				34	P5-17	
	A96	1	P1-161	↓	↓	↓	△	E9	
	A97	34	P5-4	WHT	22	1	34	P5-8	
		△	E4	SHLD			△	E16	
	A98	△	E16	BLK	22	3	33A	P5-SHELL	
	A99	△	E4	BLK	↑	3	△	E23	SEE DETAIL K
	A100	1	P1-659	WHT		1	△	E25	
	A101	△	E25	↑		↑	34	P5-10	
	A102	1	P1-559				△	E26	
	A103	△	E26				34	P5-11	
	A104	1	P1-661				△	E27	
	A105	△	E27				34	P5-7	
	A106	1	P1-561				△	E28	
	A107	△	E28				34	P5-19	
	A108	1	P1-560				△	E29	
	A109	△	E29				34	P5-15	
	A110	1	P1-660	↓	↓	↓	△	E30	
	A111	△	E30	WHT	22	1	34	P5-14	
	A112	7	P1-619	WHT	24	2	16	P4-V5	
	A113	2	↑ 552	↑	↑	↑	17	↑ S6	
	A114	2	651				↑	S7	
	A115	2	551				↓	S8	
	A116	7	521				17	S5	
	A117	9	109				16	U4	
	A118	↑	110				16	U6	
	A119	↓	111				17	T4	
	A120	9	112				18	L2	
	A121	8	113				16	X3	
	A122	8	114				18	M1	
	A123	9	209				16	U1	
GROUP IV	A124	↑	210				16	U7	
	A125	↓	211				17	T1	
	A126	9	212				16	X6	
	A127	8	213				17	S1	
	A128	9	310				16	U2	
	A129	9	311				17	T6	
	A130	9	312				16	W1	
	A131	8	313				↑	X4	
	A132	8	314				↓	W6	
	A133	9	410				16	U3	
	A134	9	411				17	T7	
	A135	9	412				16	W3	
	A136	8	413				17	S4	
	A137	8	414				16	W5	
	A138	9	↓ 510	↓	↓	↓	16	↓ U8	
	A139	9	P1-511	WHT	24	2	17	P4-T8	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A140	9	P1-512	WHT	24	2	17	P4-T2	
	A141	8	↑ 513	↑	↑	↑	16	↑ V8	
	A142	8	514				16	W4	
	A143	9	610				16	U5	
GROUP IV	A144	9	611				17	T5	
	A145	9	612				17	T3	
	A146	8	↓ 613	↓	↓	↓	16	↓ W2	
	A147	8	P1-614	WHT	24	2	16	P4-X5	
		△	E22	SHLD			△	E11	
	A148	△	E11	BLK	22	3	19	P4-G5	
	A149	△	E11	BLK	22	3	18	P4-M3	
	A150	7	P1-520	WHT	24	2	12	P4-P2	
	A151	↑	↑ 519	↑	↑	↑	13	↑ M8	
	A152		522				15	B2	
	A153	↓	523				14	F6	
	A154	7	524				15	A4	
	A155	6	525				↑	B6	
	A156	↑	526					D2	
	A157		527				↓	C8	
	A158		528				15	C6	
	A159	↓	529				14	G8	
	A160	6	530				14	H6	
	A161	7	620				12	R5	
	A162	↑	621				14	G6	
	A163		622				15	B4	
	A164	↓	623				↑	A6	
	A165	7	624					B1	
	A166	6	625					A5	
	A167	↑	626					D1	
	A168		627				↓	C7	
	A169		628				15	C5	
	A170	↓	629				14	G7	
	A171	6	630				14	H5	
	A172	5	532				14	F4	
	A173	↑	533				13	M7	
	A174		534				15	B3	
	A175		535				12	P8	
	A176	↓	536				15	E3	
	A177	5	537				12	R4	
	A178	4	538				14	H7	
	A179	↑	539				12	P6	
	A180		540				15	C3	
	A181		541				15	E2	
	A182	↓	542				12	P5	
GROUP V	A183	4	543				14	F3	
	A184	3	544				14	F1	
	A185	↑	545				15	E7	
	A186		546				15	E5	
	A187		547				14	H4	
	A188	↓	548				13	K7	
	A189	3	549				↑	L1	
	A190	2	550				↓	K8	
	A191	8	214				13	K6	
	A192	2	553				15	D8	
	A193	2	554				15	D6	
	A194	2	555				15	D4	
	A195	1	556				13	N3	
	A196	1	557				15	B7	
	A197	1	558				15	C4	
	A198	5	632				14	F5	
	A199	↑	633				13	N8	
	A200		634				13	N1	
	A201		635				12	P7	
	A202	↓	636				15	C2	
	A203	5	637				12	P4	
	A204	4	638				15	B5	
	A205	↑	639				12	R1	
	A206		640				15	C1	
	A207		641				15	E1	
	A208	↓	642				12	P3	
	A209	4	643				14	F2	
	A210	3	644				15	E8	
	A211	↑	645				15	E6	
	A212		646				15	E4	
	A213		647				12	R2	
	A214	↓	648				14	H3	
	A215	3	649				14	H1	
	A216	2	650				14	H2	
	A217	↑	652				12	P1	
	A218		653				15	D7	
	A219	↓	654				15	D5	
	A220	2	655				15	D3	
	A221	1	↓ 656	↓	↓	↓	13	↓ M6	
	A222	1	P1-657	WHT	24	2	15	P4-B8	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25348		
1	CHANGED PER CCA R25449 DR R. CHK APPD		
—	CLASS B CHANGED PER CCAR25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR 25977	1/19/66	
C	CHANGED PER TDRR 26449 DR D. CHK APPD	2/24/66	
D	CHANGED PER TDRR 26532 DR R. CHK APPD	3/9/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. DATE 13 OCT 65
CHECKED R.
APPROVAL 15 OCT 65
APPROVAL D. 10/15/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W227

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014199
SCALE NONE
WT
SHEET 2 OF 4

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014199 D

2014199 D

ASSEMBLY INFORMATION CHART

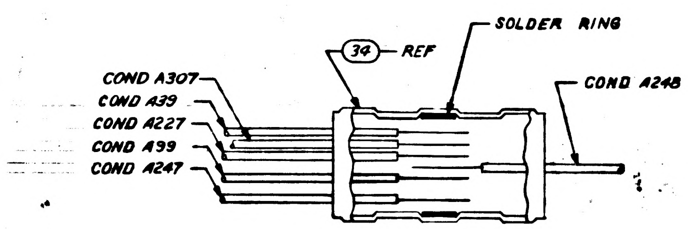
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP V	A223	1	P1-658	WHT	24	2	13	P4-N6	
	A224	8	P1-216	WHT	24	2	13	P4-K3	
	A225	8	P1-215	WHT	24	2	13	P4-K2	
		△1	E3	SHLD		19	△1	E10	
	A226	△1	E10	BLK	22	3	14	P4-G4	
	A227	△1	E3	BLK	22	3	△1	E23	SEE DETAIL K
	A228	△1	E10	BLK	22	3	14	P4-G3	
GROUP VI	A229	10	P1-101	WHT	24	2	29	P6-W7	
	A230	↑	↑ 103	↑	↑	↑	↑	↑ V1	
	A231		201					W5	
	A232		301					W3	
	A233		401					W1	
	A234		501					X5	
	A235		601					X3	
	A236		502				↓	V3	
	A237		402				29	V6	
	A238		203				30	T3	
	A239		303				30	T2	
	A240		403				30	T1	
	A241		503				29	U7	
	A242		603				29	U6	
	A243	↓	602				30	T8	
	A244	10	↓ 302	↓	↓	↓	29	↓ V5	
	A245	8	P1-115	WHT	24	2	29	P6-V8	
		△1	E5	SHLD			△1	E14	
	A246	△1	E14	BLK	22	3	30	P6-T7	
	A247	△1	E5	BLK	22	3	△1	E23	SEE DETAIL K
	A248	△1	E23	BLK	22	3	11	E1	SEE DETAIL K
	A249	△1	E14	BLK	22	3	30	P6-R7	
GROUP VII	A250	8	P1-315	WHT	24	6	25	P3-P5	
		↑	↑ 415	BLK	↑		25	↑ P6	
	A251		316	WHT		↑	25	P3	
			416	BLK			25	P4	
	A252		317	WHT			26	N3	
			417	BLK			↑	N4	
	A253	↓	318	WHT				K3	
		8	418	BLK				K6	
	A254	7	319	WHT			↓	K7	
		↑	419	BLK			26	K8	
	A255		320	WHT			27	J1	
			420	BLK			↑	J2	
	A256		321	WHT			↓	H7	
			421	BLK			27	H8	
	A257		322	WHT			25	P1	
			422	BLK			25	P2	
	A258		323	WHT			26	N7	
			423	BLK			26	N8	
	A259	↓	324	WHT			25	R7	
		7	424	BLK			↑	R8	
	A260	6	325	WHT				S5	
		↑	425	BLK				S6	
	A261		326	WHT				S3	
			426	BLK				S4	
	A262		327	WHT			↓	S1	
			427	BLK			25	S2	
	A263		328	WHT			26	N1	
			428	BLK			↑	N2	
	A264		329	WHT				M7	
			429	BLK				M8	
	A265	↓	330	WHT				M3	
		6	430	BLK				M6	
	A266	5	332	WHT				M1	
		↑	432	BLK				M2	
	A267		333	WHT				L7	
			433	BLK				L8	
	A268		334	WHT				L1	
			434	BLK				L2	
	A269		335	WHT			↓	K1	
			435	BLK			26	K2	
	A270		336	WHT			27	J7	
			436	BLK			↑	J8	
	A271	↓	337	WHT				J5	
		5	437	BLK				J6	
	A272	4	338	WHT				J3	
		↑	438	BLK				J4	
	A273		339	WHT			↓	G1	
			439	BLK			27	G2	
	A274		340	WHT			28	C7	
			440	BLK			↑	C8	
	A275		341	WHT				C5	
			441	BLK				C6	
	A276		342	WHT				C3	
			442	BLK		↓		C4	
	A277	↓	↓ 343	WHT	↓	6	↓	↓ C1	
		4	P1-443	BLK	24		28	P3-C2	

△1 DENOTES INTERNAL CONNECTION
~~△ ATTACH FIND 2~~
~~△ ATTACH FIND 22 PER DETAIL M~~
~~△ MARK FIND NO. 3 WITH CONDUCTOR IDENT NO. OF ASSOCIATED COAX LEAD & ASSEMBLE PER DETAIL M~~
~~△ STRIP .44 & TIN .06~~
~~△ STRIP .31 & TIN .06~~
~~△ STRIP .25, DO NOT TIN~~

ASSEMBLY INFORMATION CHART

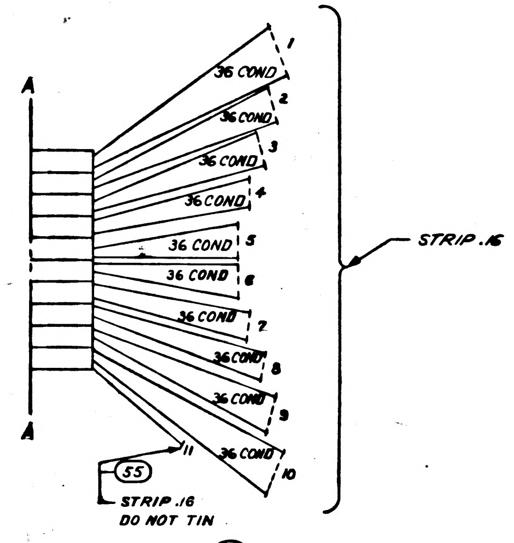
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP VII	A278	3	P1-344	WHT	24	6	28	P3-B7	
		↑	↑ 444	BLK	↑		28	↑ B8	
	A279		345	WHT		↑	27	F5	
			445	BLK			27	F6	
	A280		346	WHT			28	B5	
			446	BLK			↑	B6	
	A281		347	WHT				B3	
			447	BLK				B4	
	A282		348	WHT				B1	
			448	BLK				B2	
	A283	↓	349	WHT				E7	
		3	449	BLK				E8	
	A284	2	350	WHT			↓	E5	
		↑	450	BLK			28	E6	
	A285		351	WHT			24	V5	
			451	BLK			24	V6	
	A286		352	WHT			27	G5	
			452	BLK			27	G6	
	A287		353	WHT			28	A5	
			453	BLK			↑	A6	
	A288		354	WHT				A3	
			454	BLK				A4	
	A289	↓	355	WHT				E3	
		2	455	BLK				E4	
	A290	1	356	WHT				E1	
		↑	456	BLK				E2	
	A291		357	WHT				D7	
			457	BLK				D8	
	A292	↓	358	WHT				D5	
		1	458	BLK				D6	
	A293	8	517	WHT				D3	
		↑	617	BLK				D4	
	A294		518	WHT			↓	D1	
			618	BLK			28	D2	
	A295		117	WHT			25	R3	
			217	BLK			25	R4	
	A296	↓	118	WHT			27	H5	
		8	218	BLK			↑	H6	
	A297	7	119	WHT				H3	
		↑	219	BLK				H4	
	A298		120	WHT				H1	
			220	BLK				H2	
	A299	↓	121	WHT			↓	G7	
		7	221	BLK		↓	27	G8	
	A300	8	515	WHT		6	26	N5	
		8	615	BLK			26	N6	
	A301	10	↓ 102	WHT	↓	4	24	↓ X5	
		10	P1-202	BLK	24		24	P3-X6	
		△1	E18	SHLD			△1	E17	
	A302	△1	E17	BLK	22	3	24	P3-X4	
	~~A303~~	~~△1~~	~~E19~~	~~COAX~~	~~30~~	~~7~~	~~△1~~	~~E24~~	
△		~~8~~	~~P1-616~~	~~SHLD~~			~~24~~	~~P3-U8~~	△
	A304	8	P1-516	WHT	22	1	△1	E19	△
△	A305	△1	E24	WHT	22	1	24	P3-U7	
		△1	E21	SHLD			△1	E13	
	A306	△1	E13	BLK	22	3	24	P3-X3	
	A307	△1	E21	BLK	22	3	△1	E23	SEE DETAIL K
△	A308	△1	E19	COAX	30	7	△1	E24	△
		△1	E19-SHLD	SHLD			△1	E24	
	A309	8	P1-616	BLK	22	3	△1	E19	△
△	A310	△1	E24	BLK	22	3	24	P3-U8	

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25348		
1	CHANGED PER CCA R25449 DR R. Gomb CHK J. Adamek APPD	11/12/65	
–	CLASS B CHANGED PER CCBR25501		
A	CHANGED PER CCA R25731 DR W. CHK APPD		
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR 25477		
C	CHANGED PER TDRR 26449 DR D. Bilung CHK APPD	2/24/66	
D	CHANGED PER TDRR 26532 DR R. CHK APPD	3/ /66	

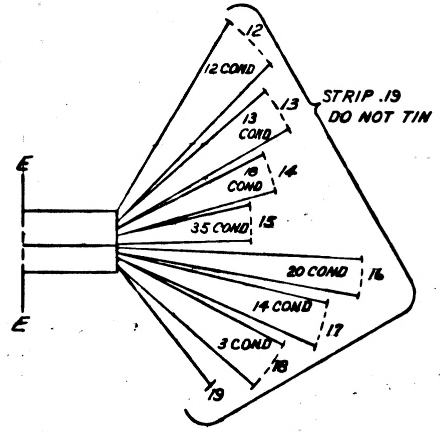


34 REF
SOLDER RING
COND A307
COND A39
COND A227
COND A99
COND A247
COND A248

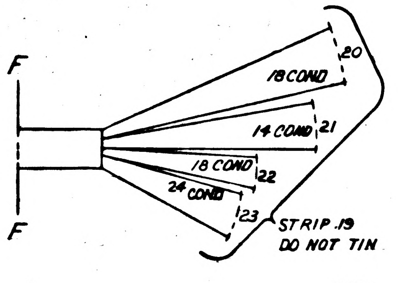
DETAIL K
SCALE NONE
ALL COND IDENT ARE FOR REFERENCE



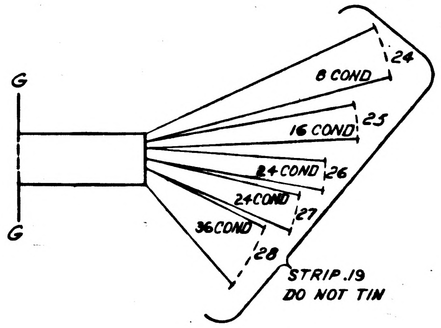
A
A
36 COND
1
2
3
4
5
6
7
8
9
10
11
STRIP .16
55
STRIP .16
DO NOT TIN



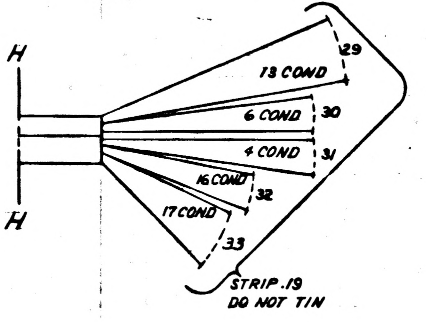
E
E
12
12 COND
13
13 COND
14
18 COND
15
35 COND
16
20 COND
17
14 COND
18
3 COND
19
STRIP .19
DO NOT TIN



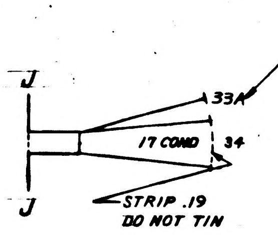
F
F
20
18 COND
21
14 COND
22
18 COND
23
24 COND
STRIP .19
DO NOT TIN



G
G
24
8 COND
25
16 COND
26
24 COND
27
24 COND
28
36 COND
STRIP .19
DO NOT TIN



H
H
29
13 COND
30
6 COND
31
4 COND
32
16 COND
33
17 COND
STRIP .19
DO NOT TIN



J
J
33A
34
17 COND
55
STRIP .16
DO NOT TIN
STRIP .19
DO NOT TIN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

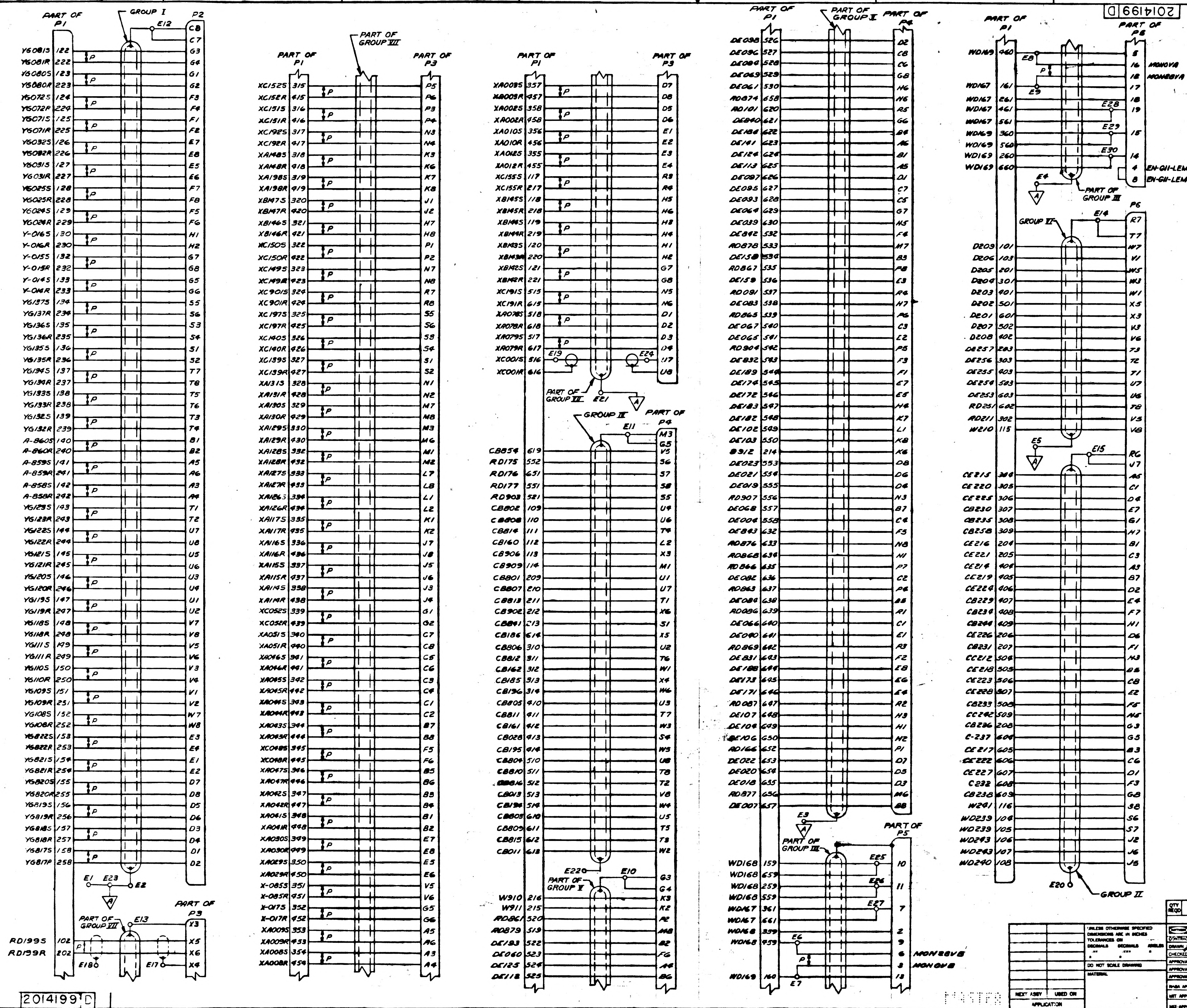
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 31 AUG 65
CHECKED R. Dramm 1 OCT 65
APPROVAL 15 OCT 65
APPROVAL 10/20/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W227

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014199
SCALE 1/1
WT
SHEET 3 OF 4

MASTER


PART OF P1
GROUP I
E12
P2
PART OF GROUP VII
PART OF P1
PART OF P3
PART OF P1
PART OF P3
E19
E24
PART OF GROUP VII
E21
GROUP II
PART OF P4
E11
E22
E10
PART OF GROUP V
E1
E23
E2
PART OF P3
PART OF GROUP VIII
E13
RD199S
RD199R
E180
E17
PART OF P1
PART OF GROUP V
PART OF P4
E3
PART OF GROUP III
PART OF P5
E25
E26
E27
E6
E7
MON28VB
MON6VB
PART OF P1
PART OF P8
E8
E9
E28
E29
E30
E4
PART OF GROUP III
MON6VA
MON28VA
EN-GII-LEM
EN-GII-LEM
GROUP IV
E14
P6
E5
E15
E20
GROUP II
P

2014199 D

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25348		
1	CHANGED PER CCA R25449 DR R Comb CHK J Gilbreath APPD		
—	CLASS B CHANGED PER CCAR25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR25477	/66	
C	CHANGED PER TDRR 26449 DR CHK APPD	3/24/66	
D	CHANGED PER TDRR 26532 DR CHK APPD		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 23 AUG 65
CHECKED R. Drainage
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W227

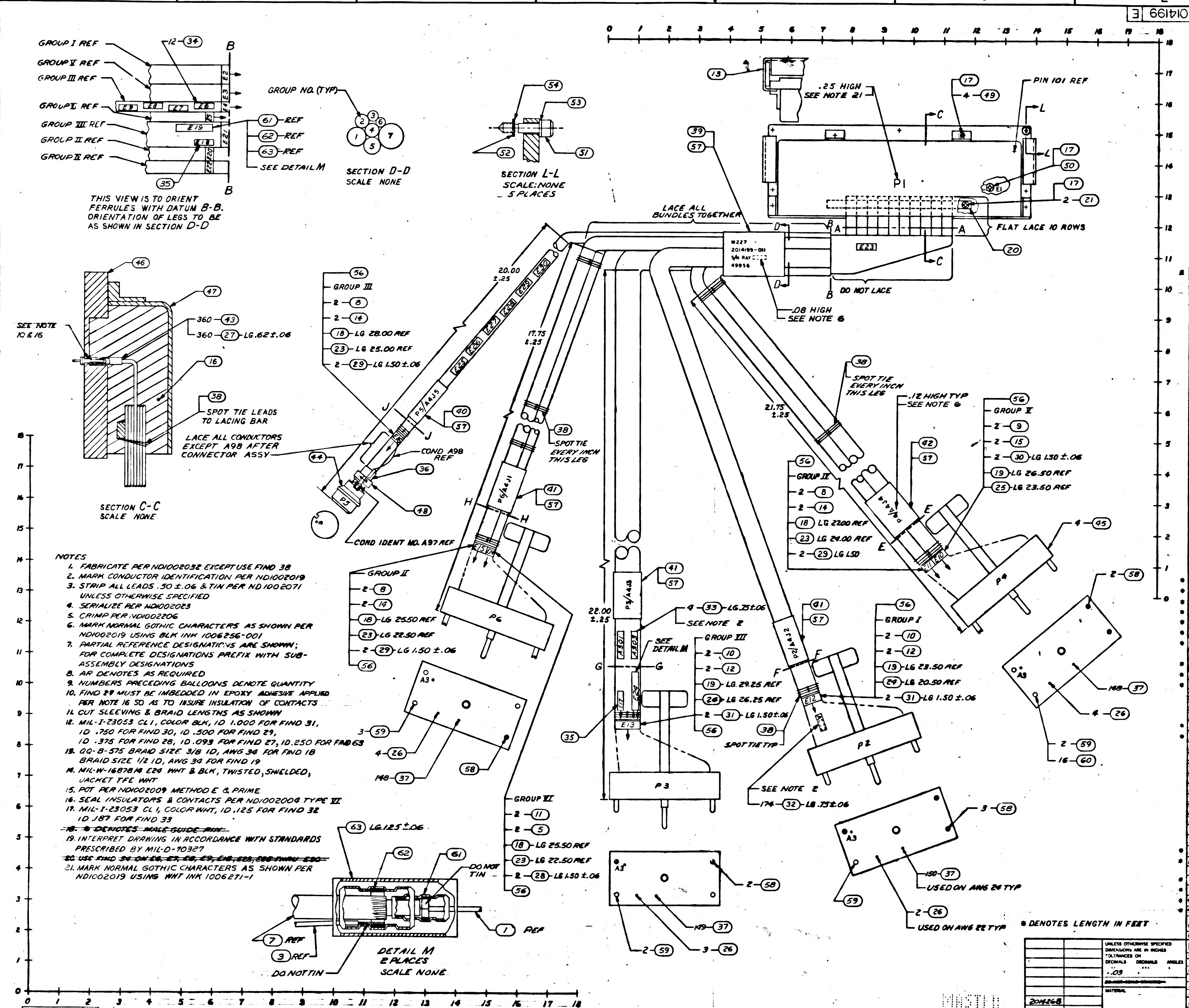
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO 2014199
SCALE NONE WT SHEET 4 OF 4

2014199 D

2014199 D

2014199 E

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25348		
-1	CHANGED PER CCA R25449 DR R Comb CHK APPD	11/4	
-	CLASS B CHANGED PER CCAR25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR25977		
C	CHANGED PER TDRR 26449 DR D. Balanger CHK APPD	2/24/66	
D	CHANGED PER TDRR 26532 DR CHK APPD	3/9/66	
E	CHANGED PER TDRR 27882 DR R Dubois CHK APPD PED	5/3/66	


GROUP I REF
GROUP V REF
GROUP III REF
GROUP VI REF
GROUP VII REF
GROUP II REF
GROUP IV REF
12-(34)
B
(61)-REF
(62)-REF
(63)-REF
SEE DETAIL M
(35)
THIS VIEW IS TO ORIENT FERRULES WITH DATUM B-B. ORIENTATION OF LEGS TO BE AS SHOWN IN SECTION D-D
GROUP NO. (TYP)
SECTION D-D
SCALE NONE
(54)
(53)
(52)
(51)
SECTION L-L
SCALE: NONE
5 PLACES
(13)
.25 HIGH SEE NOTE 21
(17)
4-(49)
PIN 101 REF
P1
(50)
2-(21)
FLAT LACE 10 ROWS
(20)
(39)
(57)
LACE ALL BUNDLES TOGETHER
W227
2014199-011
S/N RAY
49956
E23
DO NOT LACE
.08 HIGH SEE NOTE 6
(46)
(47)
SEE NOTE 10 & 16
360-(43)
360-(27)-LG .62±.06
(16)
(38)
SPOT TIE LEADS TO LACING BAR
LACE ALL CONDUCTORS EXCEPT A98 AFTER CONNECTOR ASSY
SECTION C-C
SCALE NONE
20.00 ±.25
GROUP III
2-(8)
2-(14)
(18)-LG 28.00 REF
(23)-LG 25.00 REF
2-(29)-LG 1.50±.06
P5/A4J5
(40)
(57)
COND A98 REF
(36)
(44)
P5
(48)
COND IDENT NO. A97 REF
17.75 ±.25
(38)
SPOT TIE EVERY INCH THIS LEG
P6/A4J1
(41)
(57)
GROUP II
2-(8)
2-(14)
(18)-LG 25.50 REF
(23)-LG 22.50 REF
2-(29)-LG 1.50±.06
(56)
P6
3-(59)
4-(26)
(58)
148-(37)
GROUP VI
2-(11)
2-(5)
(18)-LG 25.50 REF
(23)-LG 22.50 REF
2-(28)-LG 1.50±.06
(56)
22.00 ±.25
P3/A4J3
(41)
(57)
4-(33)-LG .25±.06
SEE NOTE 2
SEE DETAIL M
GROUP VII
2-(10)
2-(12)
(19)-LG 29.25 REF
(24)-LG 26.25 REF
2-(31)-LG 1.50±.06
(56)
(35)
E13
P3
2-(58)
145-(37)
2-(59)
3-(26)
SEE NOTE 2
174-(32)-LG .75±.06
(38)
SPOT TIE TYP
21.75 ±.25
P2/A4J2
(41)
(57)
GROUP I
2-(10)
2-(12)
(19)-LG 23.50 REF
(24)-LG 20.50 REF
2-(31)-LG 1.50±.06
E12
P2
3-(58)
150-(37)
USED ON AWG 24 TYP
2-(26)
USED ON AWG 22 TYP
(59)
(38)
SPOT TIE EVERY INCH THIS LEG
.12 HIGH TYP SEE NOTE 6
(56)
GROUP IV
2-(8)
2-(14)
(18) LG 22.00 REF
(23) LG 24.00 REF
2-(29) LG 1.50
(42)
(57)
GROUP V
2-(9)
2-(15)
2-(30)-LG 1.50±.06
(19)-LG 26.50 REF
(25)-LG 23.50 REF
P4
4-(45)
2-(58)
148-(37)
4-(26)
2-(59)
16-(60)
(63) LG 1.25±.06
(62)
(61)
DO NOT TIN
(7) REF
(3) REF
DO NOT TIN
(1) REF
DETAIL M
2 PLACES
SCALE NONE

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 38
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. STRIP ALL LEADS .50 ±.06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
4. SERIALIZE PER ND1002023
5. CRIMP PER ND1002206
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLK INK 1006256-001
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
8. AR DENOTES AS REQUIRED
9. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
10. FIND 27 MUST BE IMBEDDED IN EPOXY ADHESIVE APPLIED PER NOTE 16 SO AS TO INSURE INSULATION OF CONTACTS
11. CUT SLEEVING & BRAID LENGTHS AS SHOWN
12. MIL-I-23053 CL I, COLOR BLK, ID 1.000 FOR FIND 31, ID .750 FOR FIND 30, ID .500 FOR FIND 29, ID .375 FOR FIND 28, ID .093 FOR FIND 27, ID .250 FOR FIND 63
13. QQ-B-575 BRAID SIZE 3/8 ID, AWG 34 FOR FIND 18 BRAID SIZE 1/2 ID, AWG 34 FOR FIND 19
14. MIL-W-16878/4 E24 WHT & BLK, TWISTED, SHIELDED, JACKET TFE WHT
15. POT PER ND1002009 METHOD E & PRIME
16. SEAL INSULATORS & CONTACTS PER ND1002004 TYPE VI
17. MIL-I-23053 CL I, COLOR WHT, ID .125 FOR FIND 32 ID .187 FOR FIND 33
~~18. ● DENOTES MALE GUIDE PIN~~
19. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
~~20. USE FIND 34 ON E6, E7, E8, E9, E18, E23, E28 THRU E30~~
21. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHT INK 1006271-1

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
*	0.3	SEE NOTE 12	SLEEVING, SHRINK	63
	2	1010402-2	SLEEVE, SOLDER	62
	2	1010402-1	SLEEVE, SOLDER	61
	16	1006672-005	NUT, STOP	60
	8	1006672-006	SOCKET, GUIDE	59
	8	1006672-002	PIN, GUIDE	58
	AR	1006253	ADHESIVE	57
	AR	1006699	SOLVENT	56
	2	MS25036-1	TERMINAL, LUG	55
	5	1004546-3	WASHER, FLAT	54
	5	1004546-1	WASHER, FLAT	53
	5	MS16633-4015	RING, RETAINING, EXT "E"	52
	5	1004579-1	SCREW, JACKING	51
	1	MS51957-28	SCREW, PAN HD	50
	4	MS51957-15	SCREW, PAN HD	49
	1	1010774-2	CLAMP, CABLE	48
	1	2014286	COVER, CONNECTOR	47
	1	1006418	HEADER, CONNECTOR	46
	4	1006672-001	CONNECTOR, PLUG	45
	1	1010771-113	CONNECTOR, PLUG, ELEC	44
	360	1006248	CONTACT, ELECTRICAL	43
	1	1006415-102	BAND MARKER, CABLE	42
	3	-099		41
	1	-095		40
	1	1006415-143	BAND MARKER, CABLE	39
	AR	1006458-004	TAPE, LACING	38
	595	1006491-009	CONTACT, ELEC	37
	1	1020371-7	BUSHING, SLEEVE	36
	2	1010402-3	SLEEVE, SOLDER	35
	12	1010402-5	SLEEVE, SOLDER	34
*	.3	SEE NOTE 17	SLEEVING, SHRINK	33
*	11.2	SEE NOTE 17		32
*	.5	SEE NOTE 12		31
*	.3			30
*	.8			29
*	.3			28
*	18.6	SEE NOTE 12	SLEEVING, SHRINK	27
	13	1006491-011	CONTACT, ELEC	26
*	2.0	1006696-5	SLEEVING, OUTER	25
*	3.9	1006696-6	SLEEVING, OUTER	24
*	7.9	1006696-3	SLEEVING, OUTER	23
	~~2~~	~~1006406~~	~~FERRULE, COAX~~	~~22~~
	2	MS51957-31	SCREW, PAN HD	21
	1	2014427-002	BRACKET, STRAIN RELIEF	20
*	6.7	SEE NOTE 13	BRAID, WIRE	19
*	8.9	SEE NOTE 13	BRAID, WIRE	18
	AR	MIL-S-22473 GRADE HV	RETAINING COMP	17
	AR	1006683	RUBBER COMPOUND SILICONE	16
	2	1000243-41	FERRULE, ELECTRICAL COND	15
	6	1000243-34	FERRULE, ELECTRICAL COND	14
	1	2016310-011	COVER, PROTECTIVE	13
	4	1000243-38	FERRULE, ELECTRICAL COND	12
	2	1000242-29		11
	4	-38		10
	2	-37		9
	6	1000242-30	FERRULE, ELECTRICAL COND	8
*	2.1	RG180 B/U	WIRE, COAX	7
*	166.6	1014341-12	WIRE, ELEC TW PR BLK/WHT	6
	2	1000243-31	FERRULE, ELEC, COND	5
*	3.3	SEE NOTE 14	WIRE, ELEC WHT/BLK TW SHL 1PR	4
*	3.8	MIL-W-16878/4 E22	WIRE, ELECTRICAL BLK	3
*	470.5	MIL-W-16878/4 E24	WIRE, ELECTRICAL WHT	2
*	43.5	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHT	1

011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014268	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON MASS
CONTRACT NO NAS 9-497
DRAWN F. F. Correia DATE 27 AUG 65
CHECKED R. Drummond 10/1/65
APPROVAL 15 Oct 65
APPROVAL 10/15/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W227

CODE IDENT NO	SIZE	NASA DRAWING NO.
49956	J	2014199

SCALE 1/1 WT SHEET 1 OF 4

2014199 E

2014199 L

MASTER

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP I	A1	7	P1-122	WHT	24	6	22	P2-G3	
			222	BLK				G4	
	A2		123	WHT				G1	
			223	BLK				G2	
	A3		124	WHT				F3	
		7	224	BLK				F4	
	A4	6	125	WHT				F1	
			225	BLK			22	F2	
	A5		126	WHT			23	E7	
			226	BLK				E8	
	A6		127	WHT				E5	
			227	BLK			23	E6	
	A7		128	WHT			22	F7	
			228	BLK				F8	
	A8		129	WHT				F5	
			229	BLK				F6	
	A9		130	WHT				H1	
		8	230	BLK				H2	
	A10	5	132	WHT				G7	
			232	BLK				G8	
	A11		133	WHT				G5	
			233	BLK			22	G6	
	A12		134	WHT			21	S5	
			234	BLK				S6	
	A13		135	WHT				S3	
			235	BLK				S4	
	A14		136	WHT				S1	
			236	BLK				S2	
	A15		137	WHT				T7	
		5	237	BLK				T8	
	A16	4	138	WHT				T5	
			238	BLK				T6	
	A17		139	WHT				T3	
			239	BLK			21	T4	
	A18		140	WHT			23	B1	
			240	BLK				B2	
	A19		141	WHT				A5	
			241	BLK				A6	
	A20		142	WHT				A3	
			242	BLK			23	A4	
	A21		143	WHT			21	T1	
		4	243	BLK			21	T2	
	A22	3	144	WHT			20	U7	
			244	BLK				U8	
	A23		145	WHT				U5	
			245	BLK				U6	
	A24		146	WHT				U3	
			246	BLK				U4	
	A25		147	WHT				U1	
			247	BLK				U2	
	A26		148	WHT				V7	
			248	BLK				V8	
	A27		149	WHT				V5	
		3	249	BLK				V6	
	A28	2	150	WHT				V3	
			250	BLK				V4	
	A29		151	WHT				V1	
			251	BLK				V2	
	A30		152	WHT				W7	
			252	BLK			20	W8	
	A31		153	WHT			23	E3	
			253	BLK				E4	
	A32		154	WHT				E1	
			254	BLK				E2	
	A33		155	WHT				D7	
		2	255	BLK				D8	
	A34	1	156	WHT				D5	
			256	BLK				D6	
	A35		157	WHT				D3	
			257	BLK				D4	
	A36		158	WHT		6		D1	
		1	P1-258	BLK	24		23	P2-D2	
		△1	E2	SHLD			△1	E12	
	A37	△1	E12	BLK	22	3	23	P2-C7	
	A38	△1	E12	BLK	22	3	23	P2-C8	
	A39	△1	E2	BLK	22	3	△1	E23	SEE DETAIL K
GROUP II	A40	10	P1-304	WHT	24	2	33	P6-A5	
	A41	10	305					C1	
	A42	10	306					D4	
	A43	9	307				33	E7	
	A44	9	308				32	G1	
	A45	9	309				32	H7	
	A46	10	204				33	B1	
	A47	10	205					C3	
	A48	10	404					A3	
	A49	10	405					B7	
	A50	10	406					D2	
	A51	9	407				33	E4	
	A52	9	408				32	F7	
	A53	9	P1-409	WHT	24	2	32	P6-H1	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP II	A54	10	P1-206	WHT	24	2	33	P6-D6	
	A55	9	207				32	F1	
	A56	10	509				32	H3	
	A57	10	505				33	B5	
	A58	10	506				33	C8	
	A59	9	507				33	E2	
	A60		508				32	F5	
	A61		509					H5	
	A62	9	208					G3	
	A63	10	604				32	G5	
	A64	10	605				33	B3	
	A65	10	606				33	C6	
	A66	9	607				33	D1	
	A67	9	608				32	F3	
	A68	9	609				32	G8	
	A69	8	116				31	S8	
	A70	10	104				31	S6	
	A71	10	105				31	S7	
	A72	10	106				32	J2	
	A73	9	107				32	J6	
	A74	9	P1-108	WHT	24	2	32	P6-J5	
		△1	E20	SHLD			△1	E15	
	A75	△1	E15	BLK	22	3	32	P6-J7	
	A76	△1	E15	BLK	22	3	31	P6-R6	
GROUP III	A77	1	P1-159	WHT	22	1	△1	E25	
	A78		259				△1	E26	
	A79		359				34	P5-2	
	A80		260				△1	E30	
	A81		360				△1	E29	
	A82		261				34	P5-18	
	A83		361				△1	E27	
	A84		461				△1	E28	
	A85	1	P1-459				△1	E6	
	A86	△1	E6				34	P5-9	
	A87	△1	E6					6	TWIST
	A88	△1	E7					3	
	A89	△1	E7				34	P5-13	
	A90	1	P1-160				△1	E7	
	A91	1	P1-460				△1	E8	
	A92	△1	E8				34	P5-5	
	A93	△1	E8					16	TWIST
	A94	△1	E9					12	
	A95	△1	E9				34	P5-17	
	A96	1	P1-161				△1	E9	
	A97	34	P5-4	WHT	22	1	34	P5-8	
		△1	E4	SHLD			△1	E16	
	A98	△1	E16	BLK	22	3	33A	P5-SHELL	
	A99	△1	E4	BLK		3	△1	E23	SEE DETAIL K
	A100	1	P1-659	WHT		1	△1	E25	
	A101	△1	E25				34	P5-10	
	A102	1	P1-559				△1	E26	
	A103	△1	E26				34	P5-11	
	A104	1	P1-661				△1	E27	
	A105	△1	E27				34	P5-7	
	A106	1	P1-561				△1	E28	
	A107	△1	E28				34	P5-19	
	A108	1	P1-560				△1	E29	
	A109	△1	E29				34	P5-15	
	A110	1	P1-660				△1	E30	
	A111	△1	E30	WHT	22	1	34	P5-14	
GROUP IV	A112	7	P1-619	WHT	24	2	16	P4-V5	
	A113	2	552				17	S6	
	A114	2	651					S7	
	A115	2	551					S8	
	A116	7	521				17	S5	
	A117	9	109				16	U4	
	A118		110				16	U6	
	A119		111				17	T4	
	A120	9	112				18	L2	
	A121	8	113				16	X3	
	A122	8	114				18	M1	
	A123	9	209				16	U1	
	A124		210				16	U7	
	A125		211				17	T1	
	A126	9	212				16	X6	
	A127	8	213				17	S1	
	A128	9	310				16	U2	
	A129	9	311				17	T6	
	A130	9	312				16	W1	
	A131	8	313					X4	
	A132	8	314					W6	
	A133	9	410				16	U3	
	A134	9	411				17	T7	
	A135	9	412				16	W3	
	A136	8	413				17	S4	
	A137	8	414				16	W5	
	A138	9	510				16	U8	
	A139	9	P1-511	WHT	24	2	17	P4-T8	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP IV	A140	9	P1-512	WHT	24	2	17	P4-T2	
	A141	8	513				16	V8	
	A142	8	514				16	W4	
	A143	9	610				16	U5	
	A144	9	611				17	T5	
	A145	9	612				17	T3	
	A146	8	613				16	W2	
	A147	8	P1-614	WHT	24	2	16	P4-X5	
		△1	E22	SHLD			△1	E11	
	A148	△1	E11	BLK	22	3	19	P4-G5	
	A149	△1	E11	BLK	22	3	18	P4-M3	
GROUP V	A150	7	P1-520	WHT	24	2	12	P4-P2	
	A151		519				13	M8	
	A152		522				15	B2	
	A153		523				14	P6	
	A154	7	524				15	A4	
	A155	6	525					B6	
	A156		526					D2	
	A157		527					C8	
	A158		528				15	C6	
	A159		529				14	G8	
	A160	6	530				14	H6	
	A161	7	620				12	R5	
	A162		621				14	G6	
	A163		622				15	B4	
	A164		623					A6	
	A165	7	624					B1	
	A166	6	625					A5	
	A167		626					D1	
	A168		627					C7	
	A169		628				15	C5	
	A170		629				14	G7	
	A171	6	630				14	H5	
	A172	5	532				14	F4	
	A173		533				13	M7	
	A174		534				15	B3	
	A175		535				12	P8	
	A176		536				15	E3	
	A177	5	537				12	R4	
	A178	4	538				14	H7	
	A179		539				12	P6	
	A180		540				15	C3	
	A181		541				15	E2	
	A182		542				12	P5	
	A183	4	543				14	F3	
	A184	3	544				14	F1	
	A185		545				15	E7	
	A186		546				15	E5	
	A187		547				14	H4	
	A188		548				13	K7	
	A189	3	549					L1	
	A190	2	550					K8	
	A191	8	214				13	K6	
	A192	2	553				15	D8	
	A193	2	554				15	D6	
	A194	2	555				15	D4	
	A195	1	556				13	N3	
	A196	1	557				15	B7	
	A197	1	558				15	C4	
	A198	5	632				14	F5	
	A199		633				13	N8	
	A200		634				13	N1	
	A201		635				12	P7	
	A202		636				15	C2	
	A203	5	637				12	P4	
	A204	4	638				15	B5	
	A205		639				12	R1	
	A206		640				15	C1	
	A207		641				15	E1	
	A208		642				12	P3	
	A209	4	643				14	F2	
	A210	3	644				15	E8	
	A211		645				15	E6	
	A212		646				15	E4	
	A213		647				12	R2	
	A214		648				14	H3	
	A215	3	649				14	H1	
	A216	2	650				14	H2	
	A217		652				12	P1	
	A218		653				15	D7	
	A219		654				15	D5	
	A220	2	655				15	D3	
	A221	1	656				19	M6	
	A222	1	P1-657	WHT	24	2	15	P4-B8	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25348		
1	CHANGED PER CCA R25449 DR R. [illegible] CHK [illegible] APPD [illegible]	[illegible]	
—	CLASS B CHANGED PER CCAR25501	[illegible]	
A	CHANGED PER CCA R25731 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR 2[illegible]	1/[illegible]/66	
C	CHANGED PER TDRR 26449 DR D. [illegible] CHK [illegible] APPD	2/[illegible]/66	
D	CHANGED PER TDRR 26532 DR R. [illegible] CHK [illegible] APPD [illegible]	3/9/66	
E	CHANGED PER TDRR 27882 DR R. [illegible] CHK [illegible] APPD PED	3/[illegible]/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 1 OCT 65
CHECKED R. [illegible] 14 OCT 65
APPROVAL [illegible] 15 OCT 65
APPROVAL D. [illegible] 10/15/65
APPROVAL [illegible]
NASA APPROVAL A. K. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W227

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014199
SCALE NONE
WT
SHEET [illegible] OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014199 E

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25346		
1	CHANGED PER CCA R25449 DR R.G. CHK APPD		
–	CLASS B CHANGED PER CCA R25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25477		
C	CHANGED PER TDRR 26449 DR CHK APPD		
D	CHANGED PER TDRR 26532 DR CHK APPD	3/3/66	
E	CHANGED PER TDRR 27882 DR CHK APPD	/66	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP V	A223	1	P1-658	WHT	24	2	13	P4-N6	
	A224	8	P1-216	WHT	24	2	13	P4-K3	
	A225	8	P1-215	WHT	24	2	13	P4-K2	
		△1	E3	SHLD		19	△1	E10	
	A226	△1	E10	BLK	22	3	14	P4-G4	
	A227	△1	E3	BLK	22	3	△1	E23	SEE DETAIL K
	A228	△1	E10	BLK	22	3	14	P4-G3	
GROUP VI	A229	10	P1-101	WHT	24	2	29	P6-W7	
	A230	↑	↑ 103	↑	↑	↑	↑	↑ V1	
	A231		201					W5	
	A232		301					W3	
	A233		401					W1	
	A234		501					X5	
	A235		601					X3	
	A236		502				↓	V3	
	A237		402				29	V6	
	A238		203				30	T3	
	A239		303				30	T2	
	A240		403				30	T1	
	A241		503				29	U7	
	A242		603				29	U6	
	A243	↓	602				30	T8	
	A244	10	↓ 302	↓	↓	↓	29	↓ V5	
	A245	8	P1-115	WHT	24	2	29	P6-V8	
		△1	E5	SHLD			△1	E14	
	A246	△1	E14	BLK	22	3	30	P6-T7	
	A247	△1	E5	BLK	22	3	△1	E23	SEE DETAIL K
	A248	△1	E23	BLK	22	3	11	E1	SEE DETAIL K
	A249	△1	E14	BLK	22	3	30	P6-R7	
GROUP VII	A250	8	P1-315	WHT	24	6	25	P3-P5	
		↑	↑ 415	BLK	↑		25	↑ P6	
	A251		316	WHT		↑	25	P3	
			416	BLK			25	P4	
	A252		317	WHT			26	N3	
			417	BLK			↑	N4	
	A253	↓	318	WHT				K3	
		8	418	BLK				K6	
	A254	7	319	WHT			↓	K7	
		↑	419	BLK			26	K8	
	A255		320	WHT			27	J1	
			420	BLK			↑	J2	
	A256		321	WHT			↓	H7	
			421	BLK			27	H8	
	A257		322	WHT			25	P1	
			422	BLK			25	P2	
	A258		323	WHT			26	N7	
			423	BLK			26	N8	
	A259	↓	324	WHT			25	R7	
		7	424	BLK			↑	R8	
	A260	6	325	WHT				S5	
		↑	425	BLK				S6	
	A261		326	WHT				S3	
			426	BLK				S4	
	A262		327	WHT			↓	S1	
			427	BLK			25	S2	
	A263		328	WHT			26	N1	
			428	BLK			↑	N2	
	A264		329	WHT				M7	
			429	BLK				M8	
	A265	↓	330	WHT				M3	
		6	430	BLK				M6	
	A266	5	332	WHT				M1	
		↑	432	BLK				M2	
	A267		333	WHT				L7	
			433	BLK				L8	
	A268		334	WHT				L1	
			434	BLK				L2	
	A269		335	WHT			↓	K1	
			435	BLK			26	K2	
	A270		336	WHT			27	J7	
			436	BLK			↑	J8	
	A271	↓	337	WHT				J5	
		5	437	BLK				J6	
	A272	4	338	WHT				J3	
		↑	438	BLK				J4	
	A273		339	WHT			↓	G1	
			439	BLK			27	G2	
	A274		340	WHT			28	C7	
			440	BLK			↑	C8	
	A275		341	WHT				C5	
			441	BLK				C6	
	A276		342	WHT				C3	
			442	BLK		↓		C4	
	A277	↓	↓ 343	WHT	↓	6	↓	↓ C1	
		4	P1-443	BLK	24		28	P3-C2	

△1 DENOTES INTERNAL CONNECTION

~~△2 ATTACH FIND 2~~

~~△3 ATTACH FIND 22 PER DETAIL M~~

~~△4 MARK FIND NO. 3 WITH CONDUCTOR IDENT NO. OF ASSOCIATED COAX LEAD & ASSEMBLE PER DETAIL M~~

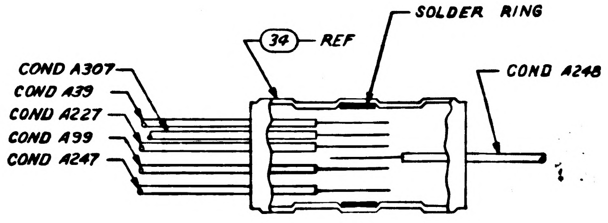
~~△5 STRIP .44 & TIN .06~~

~~△6 STRIP .31 & TIN .06~~

~~△7 STRIP .25, DO NOT TIN~~

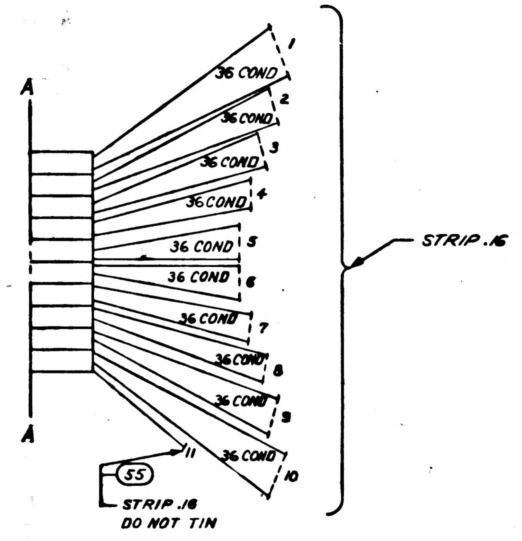
ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP VII	A278	3	P1-344	WHT	24	6	28	P3-B7	
		↑	↑ 444	BLK	↑		28	↑ B8	
	A279		345	WHT		↑	27	F5	
			445	BLK			27	F6	
	A280		346	WHT			28	B5	
			446	BLK			↑	B6	
	A281		347	WHT				B3	
			447	BLK				B4	
	A282		348	WHT				B1	
			448	BLK				B2	
	A283	↓	349	WHT				E7	
		3	449	BLK				E8	
	A284	2	350	WHT			↓	E5	
		↑	450	BLK			28	E6	
	A285		351	WHT			24	V5	
			451	BLK			24	V6	
	A286		352	WHT			27	G5	
			452	BLK			27	G6	
	A287		353	WHT			28	A5	
			453	BLK			↑	A6	
	A288		354	WHT				A3	
			454	BLK				A4	
	A289	↓	355	WHT				E3	
		2	455	BLK				E4	
	A290	1	356	WHT				E1	
		↑	456	BLK				E2	
	A291		357	WHT				D7	
			457	BLK				D8	
	A292	↓	358	WHT				D5	
		1	458	BLK				D6	
	A293	8	517	WHT				D9	
		↑	617	BLK				D4	
	A294		518	WHT			↓	D1	
			618	BLK			28	D2	
	A295		117	WHT			25	R3	
			217	BLK			25	R4	
	A296	↓	118	WHT			27	H5	
		8	218	BLK			↑	H6	
	A297	7	119	WHT				H3	
		↑	219	BLK				H4	
	A298		120	WHT				H1	
			220	BLK				H2	
	A299	↓	121	WHT			↓	G7	
		7	221	BLK		↓	27	G8	
	A300	8	515	WHT		6	26	N5	
		8	615	BLK			26	N8	
	A301	10	↓ 102	WHT	↓	4	24	↓ X5	
		10	P1-202	BLK	24		24	P3-X6	
		△1	E18	SHLD			△1	E17	
	A302	△1	E17	BLK	22	3	24	P3-X4	
	~~A303~~	~~△1~~	~~E19~~	~~COAX~~	~~30~~	~~7~~	~~△1~~	~~E24~~	
△E		~~8~~	~~P1-616~~	~~SHLD~~			~~24~~	~~P3-U8~~	△E
	A304	8	P1-516	WHT	22	1	△1	E19	△E
△E	A305	△1	E24	WHT	22	1	24	P3-U7	
		△1	E21	SHLD			△1	E13	
	A306	△1	E13	BLK	22	3	24	P3-X3	
	A307	△1	E21	BLK	22	3	△1	E23	SEE DETAIL K
△E	A308	△1	E19	COAX	30	7	△1	E24	△E
		△1	E19-SHLD	SHLD			△1	E24	
	A309	8	P1-616	BLK	22	3	△1	E19	△E
△E	A310	△1	E24	BLK	22	3	24	P3-U8	

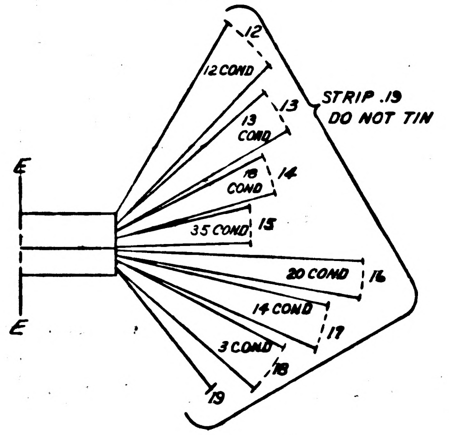


COND A307
COND A39
COND A227
COND A99
COND A247
34
REF
SOLDER RING
COND A248

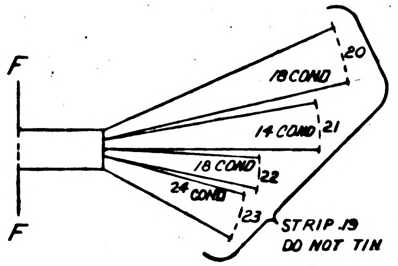
DETAIL K
SCALE NONE
ALL COND IDENT ARE FOR REFERENCE



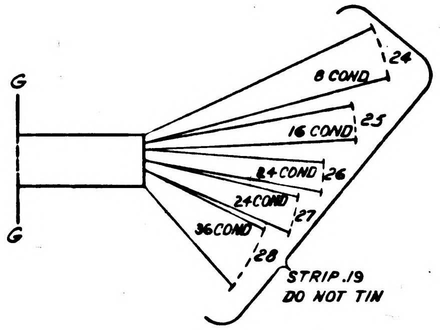
A
A
36 COND 1
36 COND 2
36 COND 3
36 COND 4
36 COND 5
36 COND 6
36 COND 7
36 COND 8
36 COND 9
36 COND 10
11
STRIP .16
55
STRIP .16
DO NOT TIN



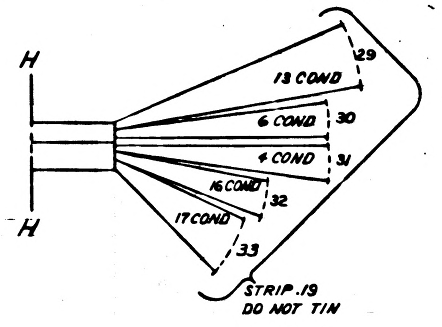
E
E
12
12 COND
13
13 COND
18 COND
14
35 COND
15
20 COND
16
14 COND
17
3 COND
18
19
STRIP .19
DO NOT TIN



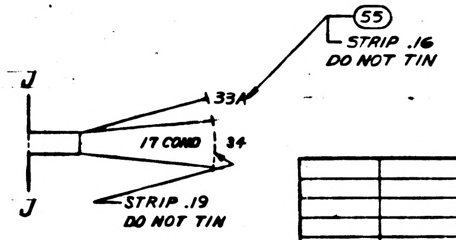
F
F
20
18 COND
14 COND
21
18 COND
22
24 COND
23
STRIP .19
DO NOT TIN



G
G
24
8 COND
16 COND
25
24 COND
26
24 COND
27
36 COND
28
STRIP .19
DO NOT TIN



H
H
29
13 COND
6 COND
30
4 COND
31
16 COND
32
17 COND
33
STRIP .19
DO NOT TIN



J
J
55
STRIP .16
DO NOT TIN
33A
17 COND
34
STRIP .19
DO NOT TIN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE
CHECKED R. Dr 1 OCT 65
APPROVAL 5 OCT 65
APPROVAL 10/18/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

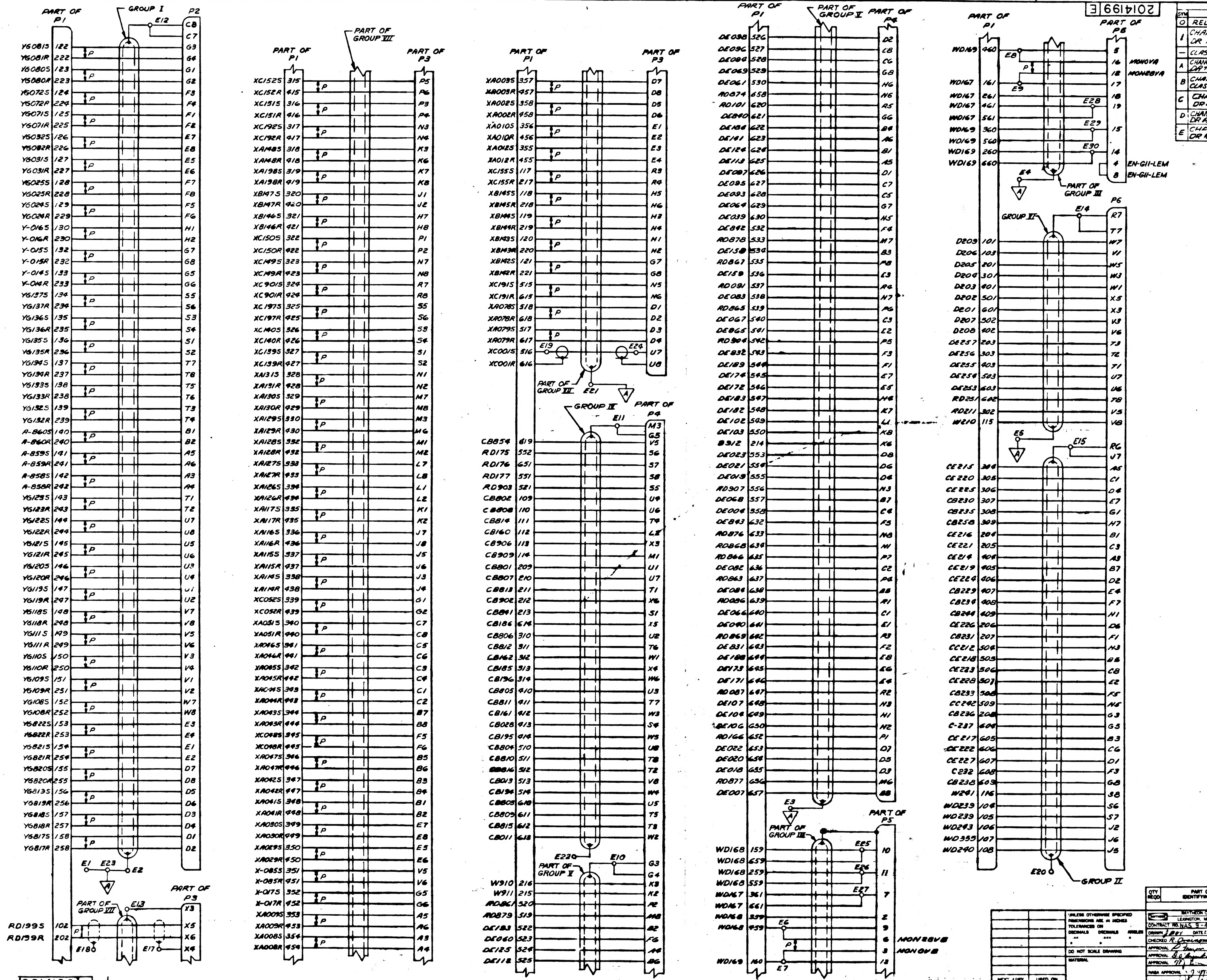
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W227

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO 2014199
SCALE 1/1
WT
SHEET 3 OF 4

2014199 E

SYM	DESCRIPTION	DATE		
O	RELEASED PER [illegible] E25348			
1	CHANGED PER CCA R25449 DR R[illegible] CHK [illegible] APPD [illegible]	[illegible]		
—	CLASS B CHANGED PER CCAR25501	[illegible]		✓
A	CHANGED PER CCA R25731 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]		✓
B	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR25477	[illegible]/66		✓
C	CHANGED PER TDRR 26449 DR [illegible] CHK [illegible] APPD	2/24/66		✓
D	CHANGED PER TDRR 26532 DR R[illegible] CHK [illegible] APPD [illegible]	3/[illegible]/66		✓
E	CHANGED PER TDRR 27882 DR R[illegible] CHK [illegible] APPD [illegible]	5/[illegible]/66		✓


PART OF P1
GROUP I
E12
P2
PART OF GROUP VII
PART OF P3
E1
E23
E2
PART OF GROUP VII
E13
E18
E17
RD199S 102
RD199R 202
PART OF GROUP VII
E19
E24
E21
PART OF P3
GROUP II
PART OF P4
E11
E22
E10
PART OF GROUP I
PART OF GROUP V
PART OF P4
E3
PART OF GROUP III
PART OF P5
E25
E26
E27
E6
E7
MONZ8VB
MONOVB
PART OF P6
E8
E9
E28
E29
E30
MONOVA
MONEBVA
EN-GII-LEM
EN-GII-LEM
E4
PART OF GROUP III
GROUP VI
E14
P6
E5
E15
E20
GROUP II
P

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .xx ± DECIMALS .xxx ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

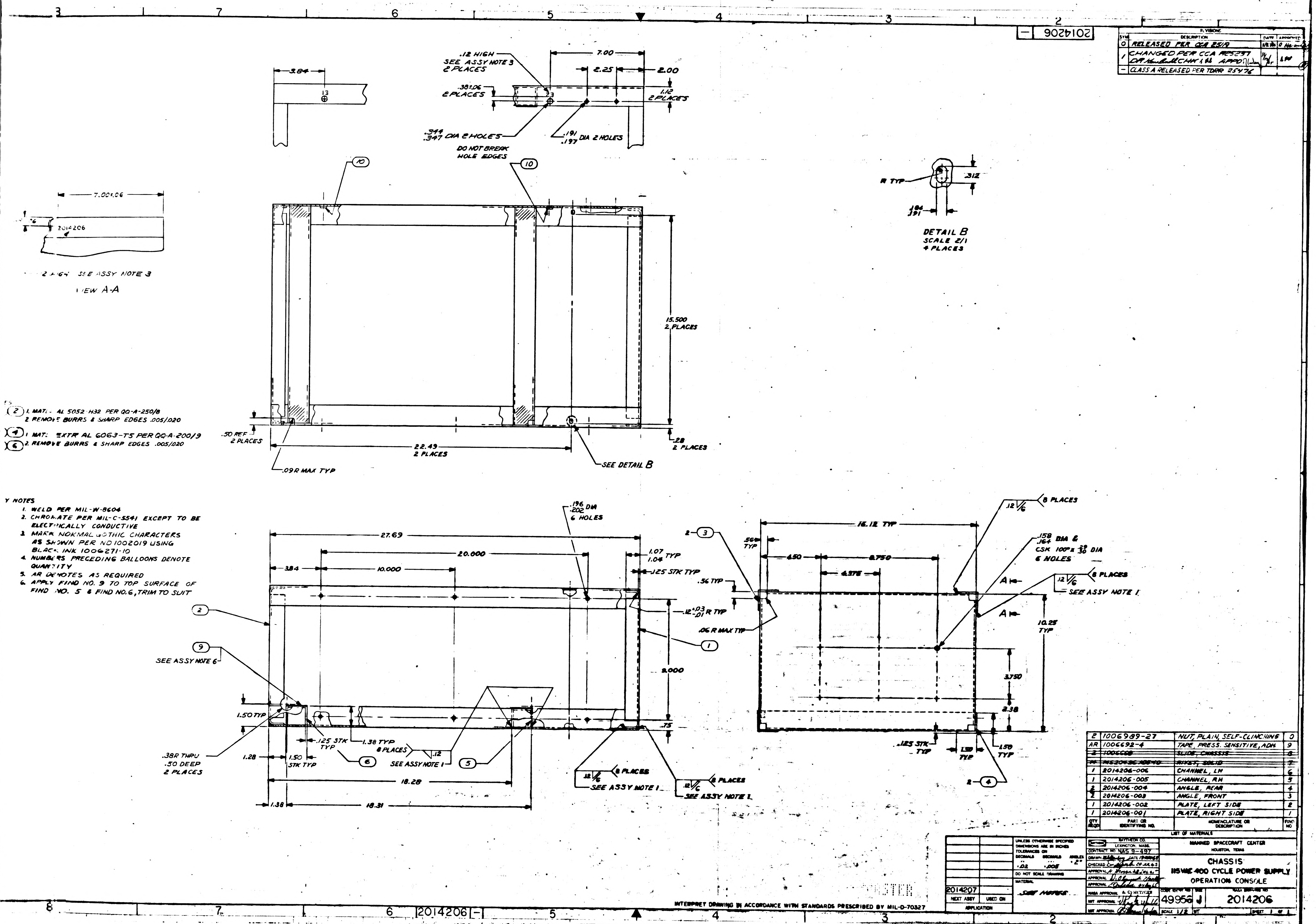
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J Roy DATE 23 Aug 65
CHECKED R. [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W227

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014199
SCALE NONE WT SHEET 1 OF 4

2014199 E


3.84
13
7.00
2.25
2.00
.12 HIGH
SEE ASSY NOTE 3
2 PLACES
.38±.06
2 PLACES
1.12
2 PLACES
.344 .347 DIA 2 HOLES
.191 .197 DIA 2 HOLES
DO NOT BREAK HOLE EDGES
7.00±.06
.6
2014206
.12 HIGH SEE ASSY NOTE 3
VIEW A-A
10
15.500
2 PLACES
.50 REF
2 PLACES
22.49
2 PLACES
.28
2 PLACES
SEE DETAIL B
.09 R MAX TYP
R TYP
.312
.184 .191
DETAIL B
SCALE 2/1
4 PLACES
.196 .202 DIA
6 HOLES
27.69
20.000
10.000
3.84
1.07 1.04 TYP
.125 STK TYP
.12 +.03 -.01 R TYP
.06 R MAX TYP
1
2
9
SEE ASSY NOTE 6
9.000
1.50 TYP
.75
.38R THRU
.50 DEEP
2 PLACES
1.28
1.50 STK TYP
.125 STK TYP
1.38 TYP
8 PLACES
.12
SEE ASSY NOTE 1
5
6
18.28
1.38
18.31
.12 ⁄6 8 PLACES
SEE ASSY NOTE 1
16.12 TYP
2-3
.56 TYP
4.50
8.750
4.375
.158 .164 DIA &
CSK 100° x 29/32 DIA
6 HOLES
A
12 ⁄6 8 PLACES
SEE ASSY NOTE 1
10.25 TYP
3.750
2.38
.125 STK TYP
1.50 TYP
1.50 TYP
2-4

2014206 | –

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 2519		
1	CHANGED PER CCA R25237 DR [illegible] CHK [illegible] APPD [illegible]		
–	CLASS A RELEASED PER TDRR 25476		

(2) 1. MAT: AL 5052 H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020

(4)(6) 1. MAT: EXTR AL 6063-T5 PER QQ-A-200/9
2. REMOVE BURRS & SHARP EDGES .005/.020

Y NOTES

1. WELD PER MIL-W-8604
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006271-10
4. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
5. AR DENOTES AS REQUIRED
6. APPLY FIND NO. 9 TO TOP SURFACE OF FIND NO. 5 & FIND NO. 6, TRIM TO SUIT

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
2	1006989-27	NUT, PLAIN, SELF-CLINCHING	0
AR	1006692-4	TAPE, PRESS. SENSITIVE, ADH.	9
~~2~~	~~1006608~~	~~SLIDE, CHASSIS~~	~~8~~
~~AR~~	~~MS20426AD4~~	~~RIVET, SOLID~~	~~7~~
1	2014206-006	CHANNEL, LH	6
1	2014206-005	CHANNEL, RH	5
2	2014206-004	ANGLE, REAR	4
2	2014206-003	ANGLE, FRONT	3
1	2014206-002	PLATE, LEFT SIDE	2
1	2014206-001	PLATE, RIGHT SIDE	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014207	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±2°
DO NOT SCALE DRAWING
MATERIAL
SEE NOTES

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE [illegible] 65
CHECKED [illegible] 20 JUL 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CHASSIS
115 VAC 400 CYCLE POWER SUPPLY
OPERATION CONSOLE

CODE IDENT NO 49956 | SIZE J | NASA DRAWING NO 2014206
SCALE 1/2 | WT | SHEET 1 OF 1

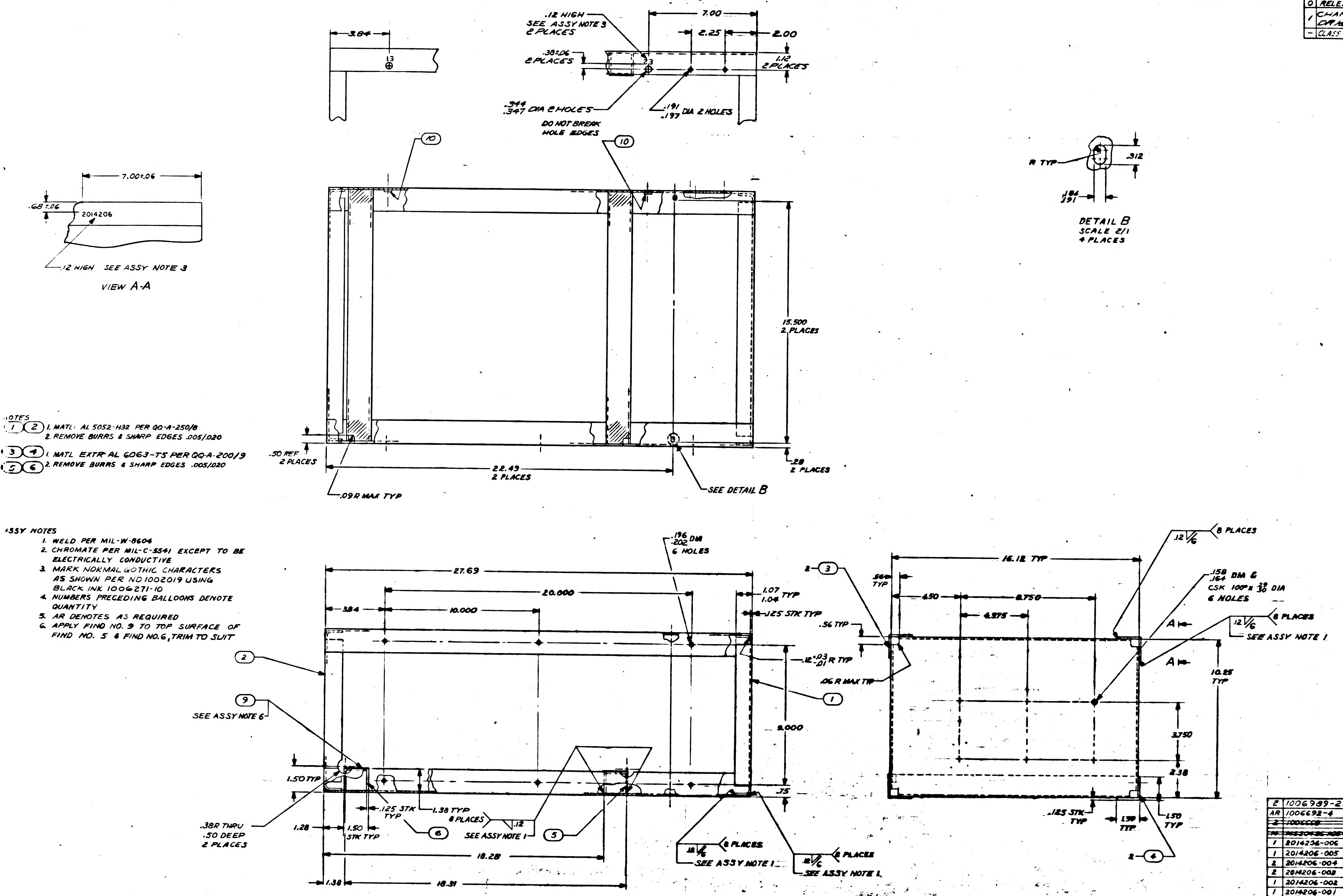
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014206 | –

F 2/2

2014206 —

SYM	DESCRIPTION	DATE	APPR
REVISIONS			
O	RELEASED PER CCA 2519		
1	CHANGED PER CCA 25797 DR CHK APPD		
—	CLASS A RELEASED PER TDRR 25476		



3.84
13
.12 HIGH SEE ASSY NOTE 3 2 PLACES
.38±.06 2 PLACES
.344 .347 DIA 2 HOLES
DO NOT BREAK HOLE EDGES
7.00
2.25
2.00
1.12 2 PLACES
.191 .197 DIA 2 HOLES
7.00±.06
.68±.06
2014206
.12 HIGH SEE ASSY NOTE 3
VIEW A-A
10
10
15.500 2 PLACES
.50 REF 2 PLACES
22.49 2 PLACES
.28 2 PLACES
.09 R MAX TYP
SEE DETAIL B
R TYP
.312
.184 .191
DETAIL B
SCALE 2/1
4 PLACES
.196 .202 DIA 6 HOLES
27.69
20.000
10.000
3.84
1.07 1.04 TYP
.125 STK TYP
.12 +.03 -.01 R TYP
.06 R MAX TYP
2
9
SEE ASSY NOTE 6
1
9.000
1.50 TYP
.38R THRU .50 DEEP 2 PLACES
1.28
1.50 STK TYP
.125 STK TYP
1.38 TYP 8 PLACES
.12
SEE ASSY NOTE 1
6
5
18.28
1.38
18.31
.75
.12 8 PLACES SEE ASSY NOTE 1
.12 8 PLACES SEE ASSY NOTE 1
2 – 3
.56 TYP
.56 TYP
16.12 TYP
4.50
8.750
4.375
.12 8 PLACES
.158 .164 DIA & CSK 100° x 29/32 DIA 6 HOLES
A
A
.12 8 PLACES SEE ASSY NOTE 1
10.25 TYP
3.750
2.38
.125 STK TYP
1.50 TYP
1.50 TYP
2 – 4

NOTES

(1)(2) 1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020

(3)(4) 1. MATL EXTR AL 6063-T5 PER QQ-A-200/9
(5)(6) 2. REMOVE BURRS & SHARP EDGES .005/.020

ASSY NOTES

1. WELD PER MIL-W-8604
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006271-10
4. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
5. AR DENOTES AS REQUIRED
6. APPLY FIND NO. 9 TO TOP SURFACE OF FIND NO. 5 & FIND NO. 6, TRIM TO SUIT

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
2	1006989-27	NUT, PLAIN, SELF-CLINCHING
AR	1006692-4	TAPE, PRESS. SENSITIVE, ADH
~~2~~	~~1006608~~	~~SLIDE, CHASSIS~~
~~[illegible]~~	~~MS20426AD4-[illegible]~~	~~RIVET, SOLID~~
1	2014206-006	CHANNEL, LH
1	2014206-005	CHANNEL, RH
2	2014206-004	ANGLE, REAR
2	2014206-003	ANGLE, FRONT
1	2014206-002	PLATE, LEFT SIDE
1	2014206-001	PLATE, RIGHT SIDE

LIST OF MATERIALS

NEXT ASSY	USED ON
2014207	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±2°
DO NOT SCALE DRAWING
MATERIAL SEE NOTES

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 20 JUL 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CHASSIS
115VAC 400 CYCLE POWER SUPPLY
OPERATION CONSOLE

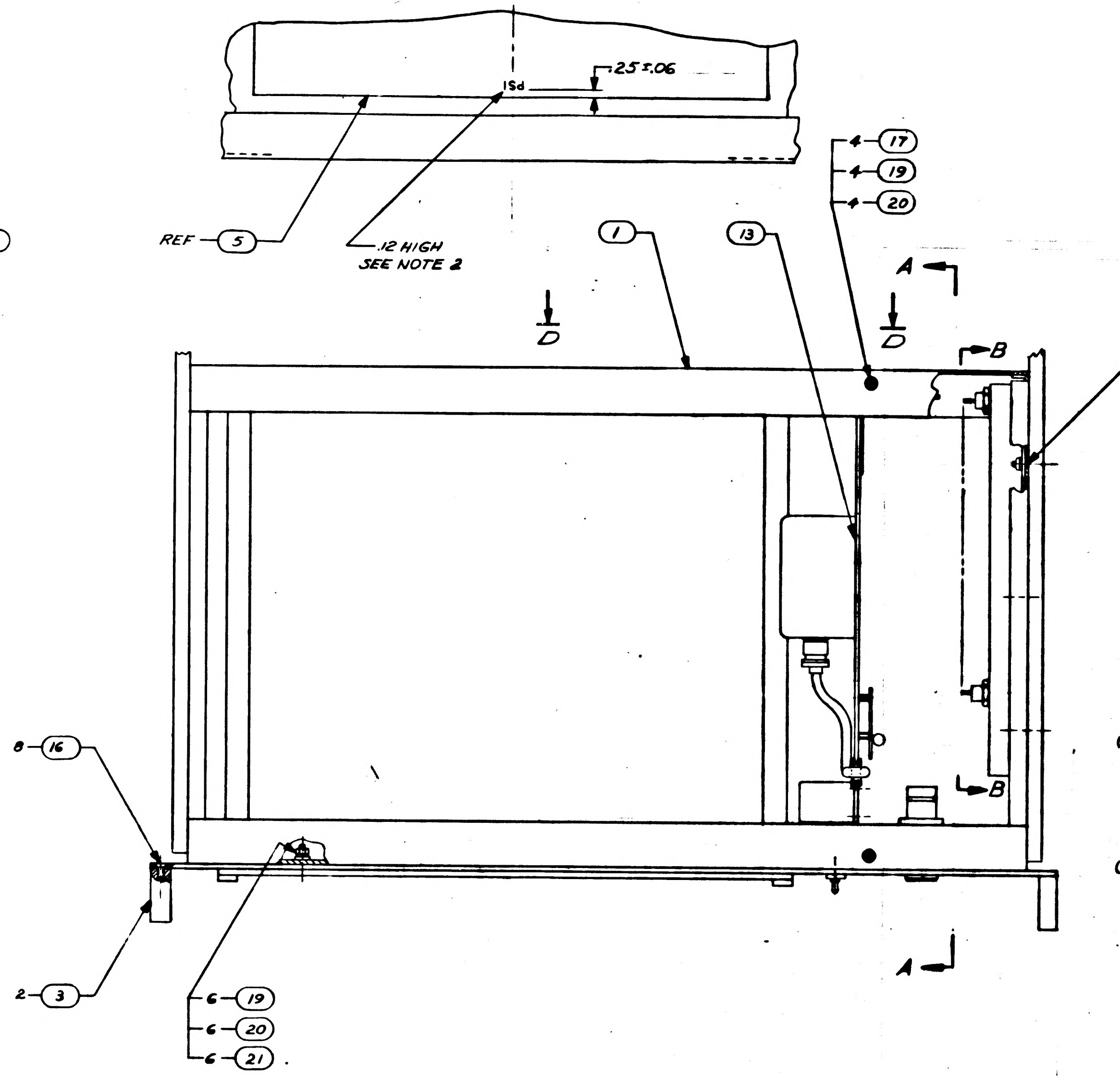
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014206
SCALE 1/2 WT SHEET 1 OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

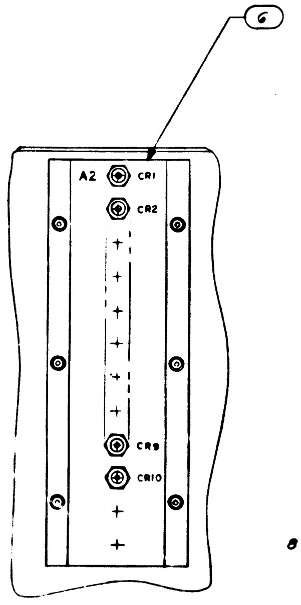
2014206 —

F1/2

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 2519		
1	CHANGED PER CCA R25237 DR Ken Bull CHK APPD		
–	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25537 AND CLASS A RELEASED PER TDRR 25476		



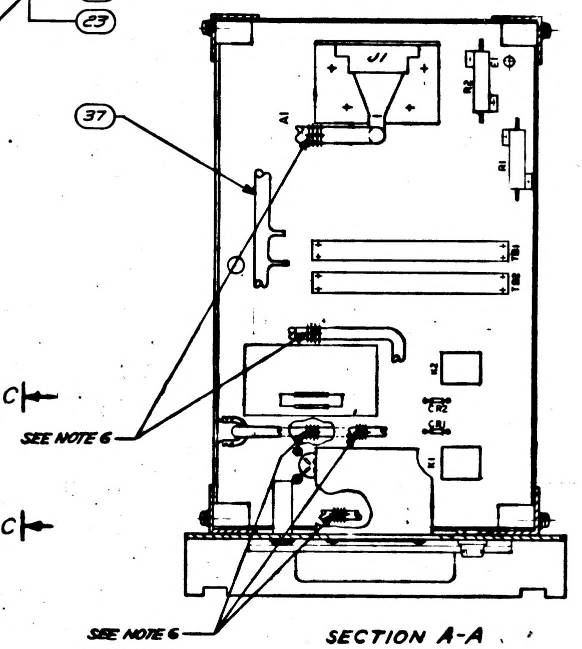
1Sd
.25±.06
REF 5
.12 HIGH
SEE NOTE 2



6
A2
CR1
CR2
CR9
CR10

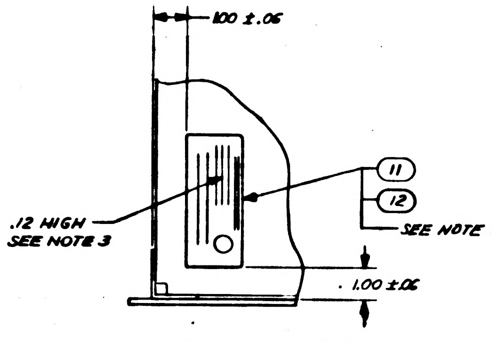
SECTION B-B

4-17
4-19
4-20
1
13
D
A
B
6-14
23
8-16
2-3
6-19
6-20
6-21



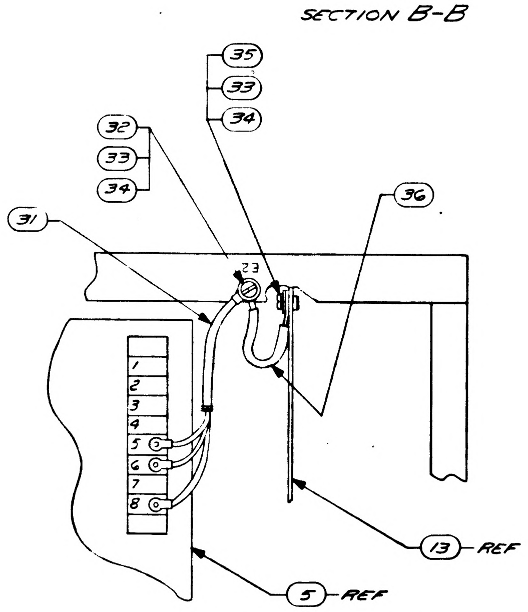
C
37
J1
A1
SEE NOTE 6

SECTION A-A



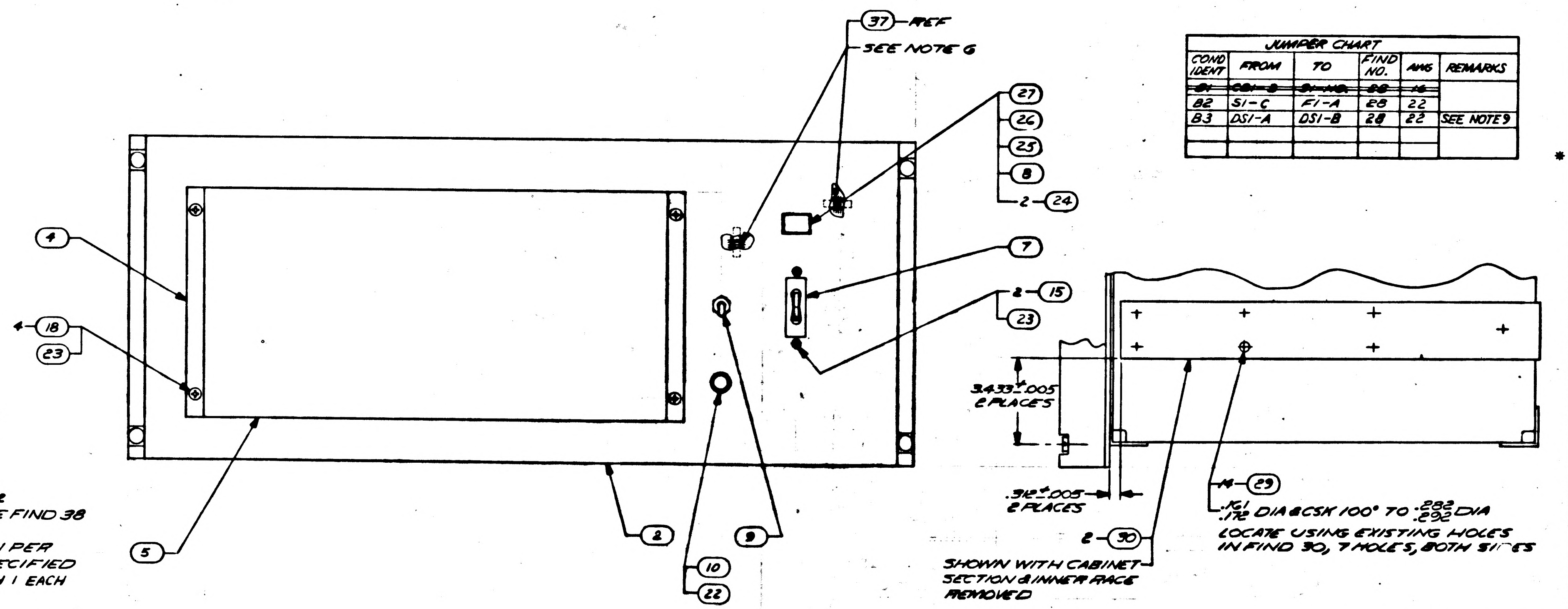
.100 ±.06
11
12
SEE NOTE 5
.12 HIGH
SEE NOTE 3
1.00 ±.06

PARTIAL VIEW C-C



35
33
34
32
33
34
31
36
23
1
2
3
4
5
6
7
8
13 REF
5 REF

PARTIAL VIEW D-D



37 REF
SEE NOTE 6
27
26
25
8
2-24
4
7
2-15
23
4-18
23
5
2
10
22
9
3.433±.005
2 PLACES
.312±.005
2 PLACES
14-29
.161/.170 DIA CSK 100° TO .282/.292 DIA
LOCATE USING EXISTING HOLES IN FIND 30, 7 HOLES, BOTH SIDES
2-30
SHOWN WITH CABINET SECTION & INNER RACE REMOVED

JUMPER CHART					
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	
B2	S1-C	F1-A	28	22	
B3	DS1-A	DS1-B	28	22	SEE NOTE 9

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1 CENTRALLY LOCATED ON FIND NO. 5
3. SERIALIZE PER ND1002023
4. AR DENOTES AS REQUIRED
5. BOND FIND NO. 11 TO FIND NO. 1 USING FIND NO. 12
6. FABRICATE PER ND1002032 EXCEPT USE FIND 38
7. SOLDER PER ND1002071
8. STRIP ALL LEADS .50±.06 AND TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
9. STRIP BOTH ENDS .19±.06 DO NOT TIN ATTACH 1 EACH END FIND NO. 39
10. CRIMP PER ND1002206

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014151	SCHEMATIC	REF
2	MS25036-1	TERMINAL LUG	39
☒	2014499	INTERCONNECTION DIAGRAM	REF
AR	1006458-004	TAPE, LACING	38
1	2014185-011	WIRING HARNESS	37
1	2014458-011	CABLE ASSY GRD	36
1	MS51957-84	SCREW, PAN HD	35
2	MS35338-82	WASHER, LOCK	34
2	MS15795-810	WASHER, FLAT	33
1	MS35307-302	SCREW, CAP, HEX HD	32
1	2014459-011	CABLE ASSY GRD	31
2	1006660	SLIDE, CHASSIS	30
14	MS20426AD5-10	RIVET, SOLID	29
* 0.5	MIL-W-16878/4E22	WIRE, ELECT WHT	28
1	1006404-037	LIGHT, INDICATOR-LENS	27
1	1006404-004	LIGHT, INDICATOR-DIS SCREEN	26
1	1006404-002	LIGHT, INDICATOR-COLOR FILTER	25
2	1006407-003	LAMP	24
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMP	23
1	F02A250V1½A	FUSE, 1 1/2 AMP (MIL-F-15160/02)	22
6	MS35649-84	NUT, HEX	21
10	MS15795-807	WASHER, FLAT	20
10	MS35338-80	WASHER, LOCK	19
4	MS51960-67	SCREW, FLAT HD	18
4	MS51957-44	SCREW, PAN HD	17
8	MS51959-45	SCREW, FLAT HD	16
2	MS51959-27	SCREW, FLAT HD	15
6	MS24693-C26	SCREW, FLAT HD	14
1	2014325-011	COMPONENT BD ASSY, A1	13
AR	MIL-A-5092 TYPE II	CEMENT	12
1	1004260-239	NAMEPLATE	11
1	MS26572-1	FUSEHOLDER	10
1	MS35058-22	SWITCH, TOGGLE	9
1	1006404-001	LIGHT, INDICATOR-BASIC UNIT	8
1	1006479-001	CIRCUIT BREAKER	7
1	2014077-011	BRACKET, DIODE ASSY, A2	6
1	1006433	POWER SUPPLY	5
2	2014211	STRAP	4
2	1014215-6	HANDLE ASSY	3
1	2014210	PANEL	2
1	2014206	CHASSIS	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 21 JUN 65
CHECKED 20 JUL 65
APPROVAL
APPROVAL D. O'Brien
APPROVAL
NASA APPROVAL A. K. MATHEWS
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY ASSY
115 VAC 400 CYCLES
OPERATION CONSOLE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014207

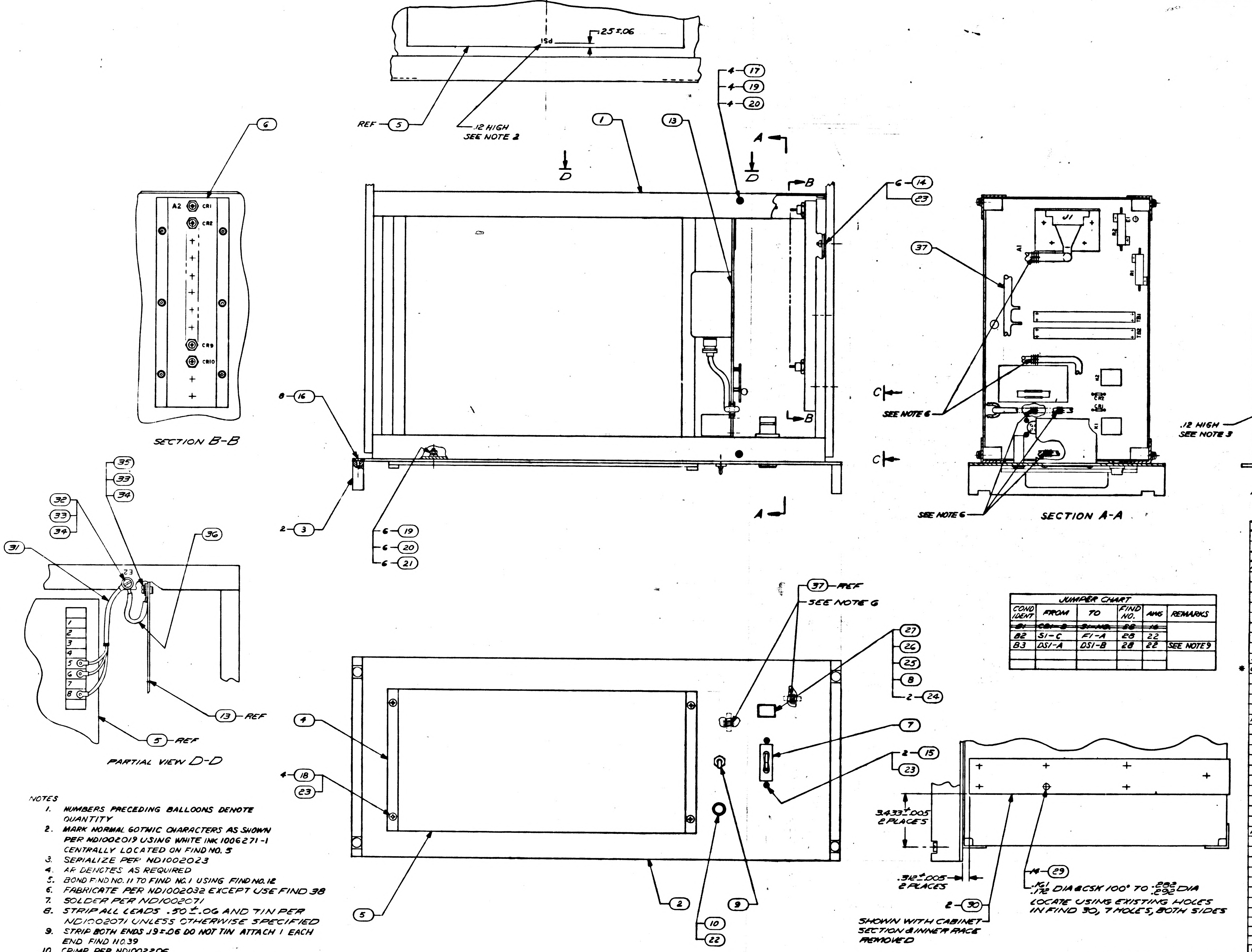
SCALE 1/2 WT SHEET OF 1

2014207 A

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014207 B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA 2519		
1	CHANGED PER CCA R25237 DR Ken Budd CHK APPD	4/17/65	
–	CLASS B CHANGED PER CCAR25509		
A	CHANGED PER CCA R25537 AND CLASS A RELEASED PER TDRR 25476	2/13/66	
B	CHANGED PER TDRR 26285 DR CHK APPD	3/7/66	



REF 5
.25 ±.06
.12 HIGH SEE NOTE 2
1
13
4 17
4 19
4 20
6 14
23
A
B
D
6
A2 CR1 CR2 CR9 CR10
SECTION B-B
8 16
2 3
6 19
6 20
6 21
37
SEE NOTE 6
C
J1
SECTION A-A
.100 ±.06
.12 HIGH SEE NOTE 3
11
12
SEE NOTE 5
1.00 ±.06
PARTIAL VIEW C-C
35
33
34
32
33
34
31
36
1 2 3 4 5 6 7 8
13 REF
5 REF
PARTIAL VIEW D-D
37 REF
SEE NOTE 6
27
26
25
8
2 24
4
7
2 15
23
4 18
23
5
2
10
22
9
3.433 ±.005 2 PLACES
.312 ±.005 2 PLACES
14 29
.161/.170 DIA & CSK 100° TO .282/.292 DIA LOCATE USING EXISTING HOLES IN FIND 30, 7 HOLES, BOTH SIDES
2 30
SHOWN WITH CABINET SECTION & INNER PIECE REMOVED

JUMPER CHART					
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
~~B1~~	~~CB1-B~~	~~S1-NO.~~	~~28~~	~~16~~	
B2	S1-C	F1-A	28	22	
B3	DS1-A	DS1-B	28	22	SEE NOTE 9

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1 CENTRALLY LOCATED ON FIND NO. 5
3. SERIALIZE PER ND1002023
4. AR DENOTES AS REQUIRED
5. BOND FIND NO. 11 TO FIND NO. 1 USING FIND NO. 12
6. FABRICATE PER ND1002032 EXCEPT USE FIND 38
7. SOLDER PER ND1002071
8. STRIP ALL LEADS .50 ±.06 AND TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
9. STRIP BOTH ENDS .19 ±.06 DO NOT TIN ATTACH 1 EACH END FIND NO.39
10. CRIMP PER ND1002206
11. REMOVE EXISTING JUMPERS FROM TERMINAL BOARD ON FIND NO. 5

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014151	SCHEMATIC	REF
2	MS25036-1	TERMINAL LUG	39
☒	2014499	INTERCONNECTION DIAGRAM	REF
AR	1006458-004	TAPE, LACING	38
1	2014185-011	WIRING HARNESS	37
1	2014458-011	CABLE ASSY GRD	36
1	MS51957-84	SCREW, PAN HD	35
2	MS35338-82	WASHER, LOCK	34
2	MS15795-810	WASHER, FLAT	33
1	MS35307-302	SCREW, CAP, HEX HD	32
1	2014459-011	CABLE ASSY GRD	31
2	1006660	SLIDE, CHASSIS	30
14	MS20426AD5-10	RIVET, SOLID	29
* 0.5	MIL-W-16878/4E22	WIRE, ELECT WHT	28
1	1006404-037	LIGHT, INDICATOR-LENS	27
1	1006404-004	LIGHT, INDICATOR-DIS SCREEN	26
1	1006404-002	LIGHT, INDICATOR-COLOR FILTER	25
2	1006407-003	LAMP	24
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMP	23
1	F02A250V1½A	FUSE, 1 1/2 AMP(MIL-F-15160/02)	22
6	MS35649-84	NUT, HEX	21
10	MS15795-807	WASHER, FLAT	20
10	MS35338-80	WASHER, LOCK	19
4	MS51960-67	SCREW, FLAT HD	18
4	MS51957-44	SCREW, PAN HD	17
8	MS51959-45	SCREW, FLAT HD	16
2	MS51959-27	SCREW, FLAT HD	15
6	MS24693-C26	SCREW, FLAT HD	14
1	2014325-011	COMPONENT BD ASSY, A1	13
AR	MIL-A-5092 TYPE II	CEMENT	12
1	1004260-239	NAMEPLATE	11
1	MS26572-1	FUSEHOLDER	10
1	MS35058-22	SWITCH, TOGGLE	9
1	1006404-001	LIGHT, INDICATOR-BASIC UNIT	8
1	1006479-001	CIRCUIT BREAKER	7
1	2014077-011	BRACKET, DIODE ASSY, A2	6
1	1006433	POWER SUPPLY	5
2	2014211	STRAP	4
2	1014215-6	HANDLE ASSY	3
1	2014210	PANEL	2
1	2014206	CHASSIS	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014207 J

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .xx ± DECIMALS .xxx ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 21 JUN 65
CHECKED 20 JUL 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY ASSY
115 VAC 400 CYCLES
OPERATION CONSOLE

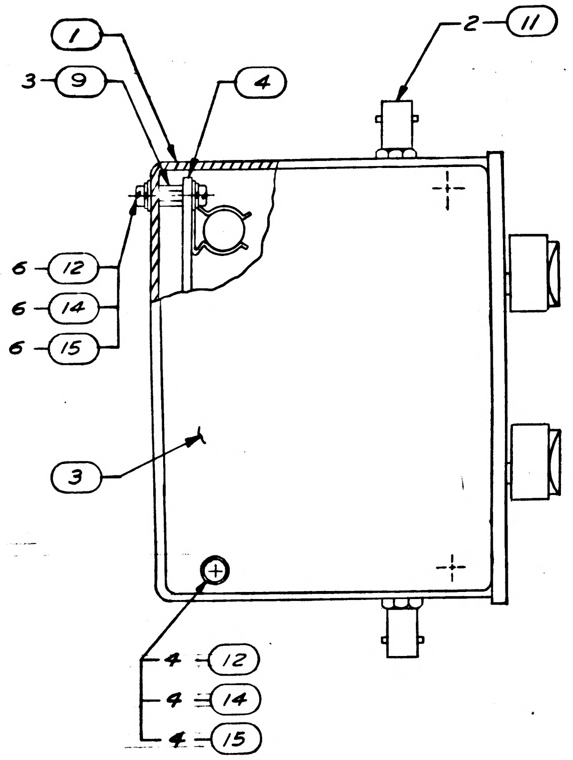
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014207
SCALE 1/2
WT
SHEET OF

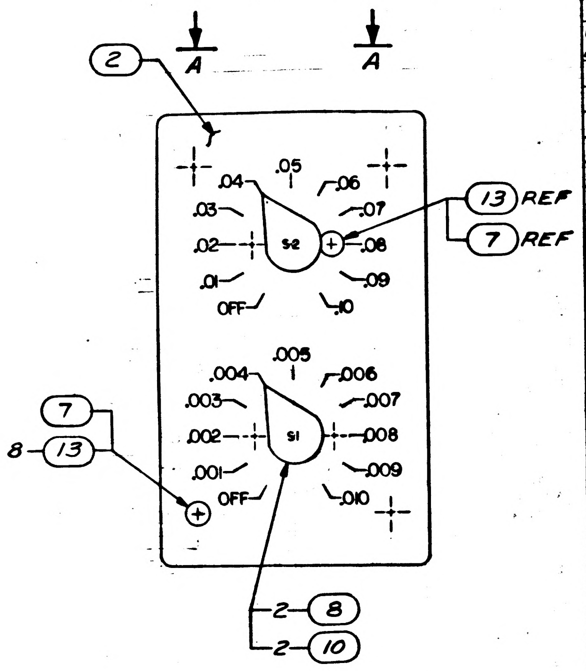
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

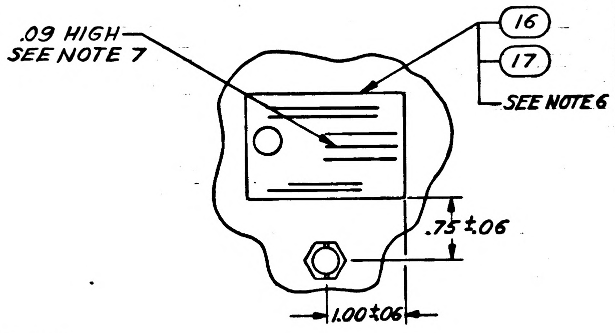
2014207 B

—	2014209

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25040	7/9/65	G Nenn
—	CLASS A RELEASE PER TDRR 23540		







VIEW A-A

JUMPER CHART

COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
A1	A-C10	J1	5	22	
A2	J2	S1(B)-ARM	5		
A3	S1(A)-ARM	S2(A)-ARM	5		
A4	S2(A)-ARM	S2(B)-ARM	5		
A5	S1(A)-A10	S1(A)-A9	6		
A6	S1(A)-A9	S1(A)-A8	6		
A7	S1(A)-A8	S1(A)-A7	6		
A8	S1(A)-A7	S1(A)-A6	6		
A9	S1(A)-A6	B-C5	5		
A10	S2(A)-A10	S2(A)-A9	6		
A11	S2(A)-A9	S2(A)-A8	6		
A12	S2(A)-A8	S2(A)-A7	6		
A13	S2(A)-A7	S2(A)-A6	6		
A14	S2(A)-A6	B-C10	5		
A15	S2(A)-A3	S2(B)-A8			
A16	S2(B)-A8	B-C7			
A17	S2(A)-A4	S2(B)-A9			
A18	S2(B)-A9	B-C8			
A19	S2(A)-A5	S2(B)-A10			
A20	S2(B)-A10	B-C9			
A21	S2(A)-A2	S2(B)-A7			
A22	S2(B)-A7	B-C6			
A23	S1(A)-A5	S1(B)-A10			
A24	S1(B)-A10	B-C4			
A25	S1(A)-A4	S1(B)-A9			
A26	S1(B)-A9	B-C3			
A27	S1(A)-A3	S1(B)-A8			
A28	S1(B)-A8	B-C2			
A29	S1(A)-A2	S1(B)-A7			
A30	S1(B)-A7	B-C1			
A31	S2(B)-ARM	S1(B)-ARM	5	22	

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. SOLDER PER ND1002071
4. FOR FABRICATION SEE ND1002032
5. QQ-W-343, TYPE S SOFT COATED (a) AWG 22
6. BOND FIND NO.16 TO FIND NO.1 USING FIND NO.17
7. SERIALIZE PER ND1002023

☒	2014109	SCHEMATIC	REF
AR	MIL-A-5092 TYPE II	ADHESIVE	17
1	1004260-228	PLATE IDENT	16
10	MS35338-79	WASHER, LOCK	15
10	MS15795-805	WASHER, FLAT	14
8	MS24693-525	SCREW, MACH, FLT HD, CROSS-RECESSED	13
10	MS51957-24	SCREW, MACH, PAN HD, CROSS-RECESSED	12
2	MS35182-911A	CONNECTOR, RECEPTACLE	11
2	1006472-001	SWITCH, ROTARY	10
3	1006480-002	POST, SPACING	9
2	MS91528B-1P2B	KNOB	8
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	7
* .7	SEE NOTE 5	WIRE, ELECTRICAL	6
* 8.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, WHITE	5
1	2014200-011	BOARD, CAPACITOR ASSY	4
1	2014201	PANEL, COVER	3
1	2014202	PANEL, FRONT	2
1	2014208	HOUSING	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014049	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .xx ± DECIMALS .xxx ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Jim Nagyas DATE 20MAY65
CHECKED J. Yon 26MAY65
APPROVAL G. E. Dale 7/9/65
APPROVAL D.O. Bryant/ [illegible] 7/8/65
APPROVAL [illegible] 7/8/65
NASA APPROVAL C. METZGER
MIT APPROVAL W. [illegible]
MIT APPROVAL [illegible] 10/7/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ANTENNA TUNING CAPACITOR ASSY
AGC CALIBRATION CONSOLE

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014209
SCALE 1/1
WT
SHEET 1 OF 1

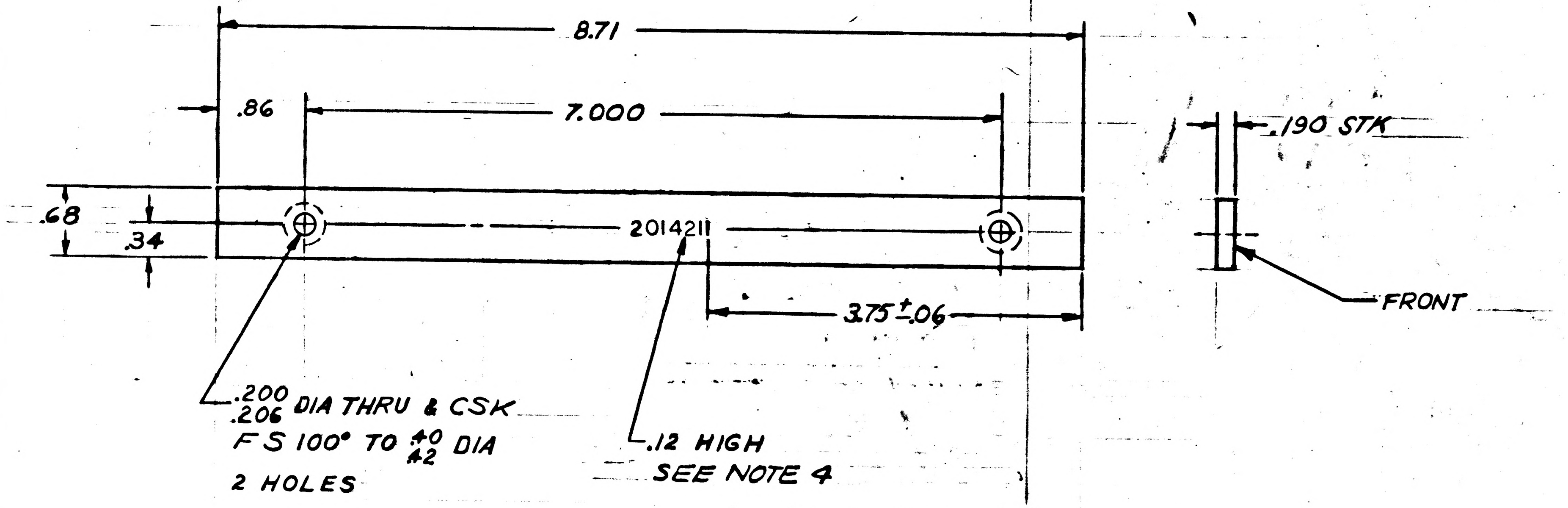
2014209	—

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014211 -

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25119	8/27/65	G. Horano
-	CLASS A RELEASED PER TDRR 25476		



NOTES
1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. PAINT FRONT & EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014207	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ±2°

DO NOT SCALE DRAWING

MATERIAL
AL 5052-H32
PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 19 MAY 65
CHECKED 20 JUL 65
APPROVAL H. Morse 28 JUL 65
APPROVAL D. O'Bryant 7/28/65
APPROVAL 24 Aug 65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

STRAP,
115VAC 400 CYCLE POWER SUPPLY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE C
NASA DRAWING NO. 2014211
SCALE 1/1
WT
SHEET 1 OF 1

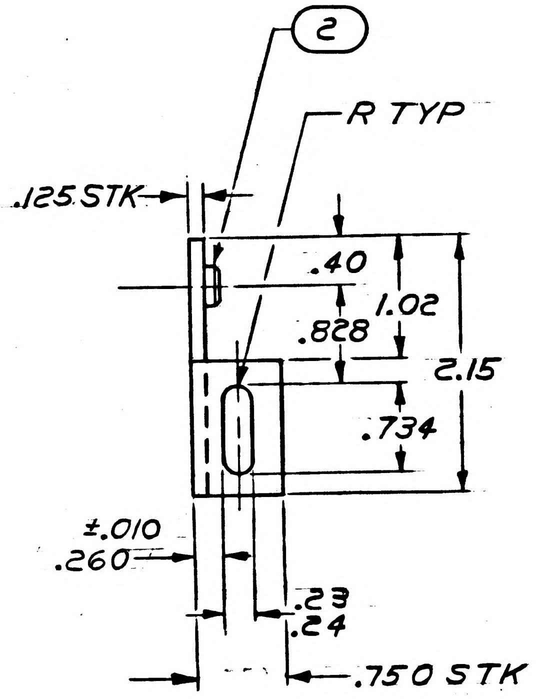
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

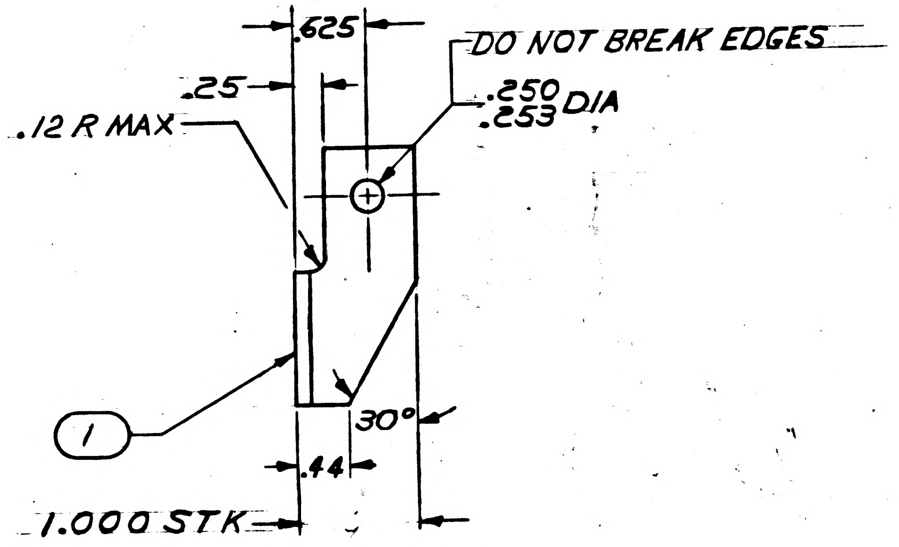
2014211 -

–	2014214

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER RD 25032		C Smeby
–	CLASS A RELEASE PER TDRR 23540		





NOTES
1. MATL 6063-T5 EXTRUDED ANGLE SHARP CORNERS (INNER & OUTER) PER QQ-A-200/9
2. REMOVE BURRS & SHARP EDGES .005/.020 EXCEPT AS NOTED
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELEC CONDUCTIVE
4. IDENTIFY WITH PART NO. PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006989-24	NUT, PLAIN, SELF-CLINCHING	2
1	2014214-001	BRACKET, ANGLE, RH	1

LIST OF MATERIALS

MASTER

2014049	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±5°
DO NOT SCALE DRAWING
MATERIAL SEE NOTE

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 18 MAY 65
CHECKED J. Yen 22 MAY 65
APPROVAL [illegible] 23 Jun 65
APPROVAL D. J. Bryant 6/23/65
APPROVAL [illegible] 6/21/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL A. Harano 10/7/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BRACKET, ANGLE, RH
AGC CALIBRATION CONSOLE
INSEPARABLE ASSEMBLY

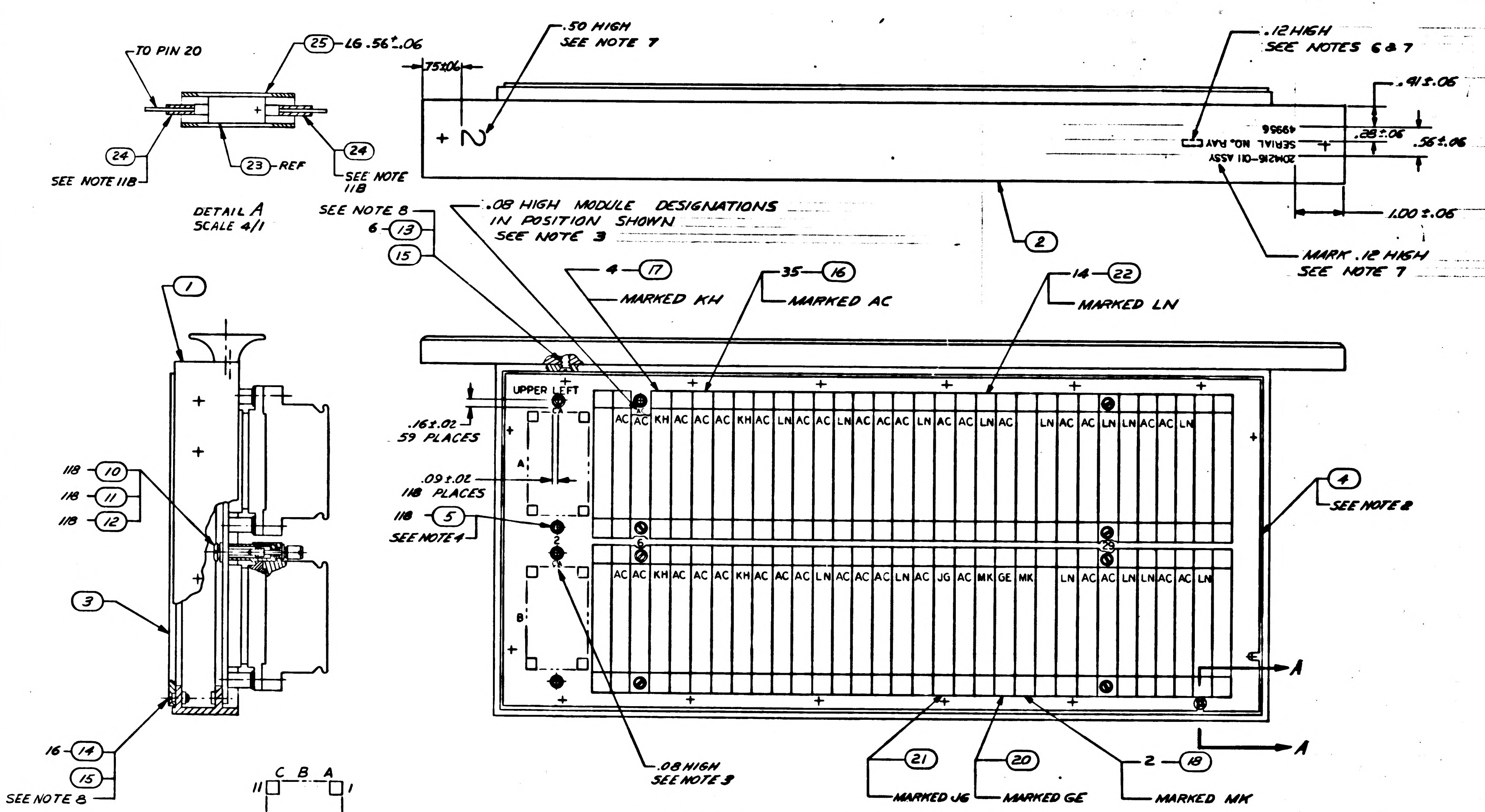
CODE IDENT NO. 49956
SIZE C
NASA DRAWING NO. 2014214
SCALE 1/1
WT
SHEET 1 OF 1

2014214	–

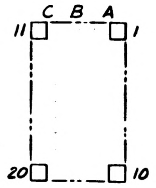
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014216 B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA 25059	7/23/65	[illegible]
1	CHANGED PER CCA R25485 DR P. [illegible] CHK E [illegible] APPD P.C. Dale 10-13-65	11/12/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	12/15/65	[illegible]
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD P.C.D.	1/6/66	[illegible]
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]



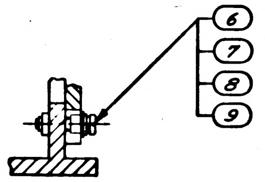
TO PIN 20
25 — LG .56 ±.06
24
SEE NOTE 11B
23 — REF
24
SEE NOTE 11B
DETAIL A
SCALE 4/1
.75±.06
.50 HIGH
SEE NOTE 7
2
.12 HIGH
SEE NOTES 6 & 7
.41±.06
.28±.06
.56±.06
1.00±.06
2014216-011 ASSY
SERIAL NO. RAY
49956
2
MARK .12 HIGH
SEE NOTE 7
SEE NOTE 8
6 — 13
15
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
4 — 17
MARKED KH
35 — 16
MARKED AC
14 — 22
MARKED LN
1
UPPER LEFT
.16±.02
59 PLACES
.09±.02
118 PLACES
118 — 10
118 — 11
118 — 12
118 — 5
SEE NOTE 4
3
4
SEE NOTE 2
A
B
AC AC KH AC AC AC KH AC LN AC AC LN AC AC AC LN AC AC LN AC LN AC AC LN LN AC AC LN
AC AC KH AC AC AC KH AC AC AC LN AC AC AC LN AC JG AC MK GE MK LN AC AC LN LN AC AC LN
6
29
A
A
16 — 14
15
SEE NOTE 8
.08 HIGH
SEE NOTE 3
21
MARKED J6
20
MARKED GE
2 — 18
MARKED MK



C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	23	2A15-4	2A15-20	
C2	↕	2B3-4	2B3-20	
C3		2A17-17	2A18-20	
C4		2B9-2	2B9-20	
C5	23	2B5-4	2B5-20	



SECTION A-A
16 PLACES
SCALE 2/1

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY.
2. WIREWRAP FIND NO. 4 USING FIND NO. 19 PER 2014086 AND ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10.
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047.
5. AR DENOTES AS REQUIRED.
6. SERIALIZE PER ND1002023.
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN. PER ND1002019 USING WHITE INK 1006271-1.
8. INSTALL FIND NO. 13 AND FIND NO. 14 USING FIND NO. 15
~~9. MIL-I-631, TYPE F, FORM Ua, GRADE 2, CLASS I, CATEGORY I, COLOR BLUE, AWG SIZE NO. 24 FOR FIND NO. 24~~
10. MIL-I-631, TYPE F, FORM Ua, GRADE 2, CLASS I, CATEGORY I COLOR CLEAR, AWG SIZE NO. 8 FOR FIND NO. 25
11. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 23 PER CHART A & DETAIL A
    11A. SOLDER PER ND1002071
    11B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014051	LOGIC DIAGRAM	REF
☒	2014086	WIREWRAP MACH. CARD	REF
* .4	SEE NOTE 10	SLEEVING	25
AR	1006776-197	SLEEVING, INSULATION	24
5	CS13AF010K	CAPACITOR, 1µF, 35VDC	23
14	2014000-011	MODULE, BUFFERED FLIP-FLOP	22
1	1014065-3	MODULE, RESISTOR	21
1	1014230	MODULE, INTERFACE RECEIVER	20
AR	1006945-1	WIRE, ELEC, INS, NO. 24 AWG SOLID	19
2	1014096	MODULE, DRIVER	18
4	1014079	MODULE, GATED FLIP-FLOP	17
35	1014034	MODULE, NOR	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
118	MS35338-79	WASHER, LOCK	12
118	1006997	WASHER, FLAT	11
118	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
118	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014007	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014037	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. [illegible]
DRAWN [illegible] DATE 21 MAY 65
CHECKED R. Mac[illegible] 16 JUN 65
APPROVAL [illegible] 23 JUN 65
APPROVAL [illegible]
APPROVAL [illegible] 7/[illegible]/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO. 2
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014216
SCALE 1/1
WT
SHEET 1 OF 1

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014216 C

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA [illegible]9	[illegible]	[illegible]
1	CHANGED PER CCA R25485 DR P. [illegible] CHK E Urban APPD P.C. Dale 11-13-65	11/12/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	12/15/65	[illegible]
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD P.C.D	1/6/66	[illegible]
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]
C	CHANGED PER TDRR 26502 DR E. [illegible] CHK P.A.C. APPD	3/24/66	[illegible]

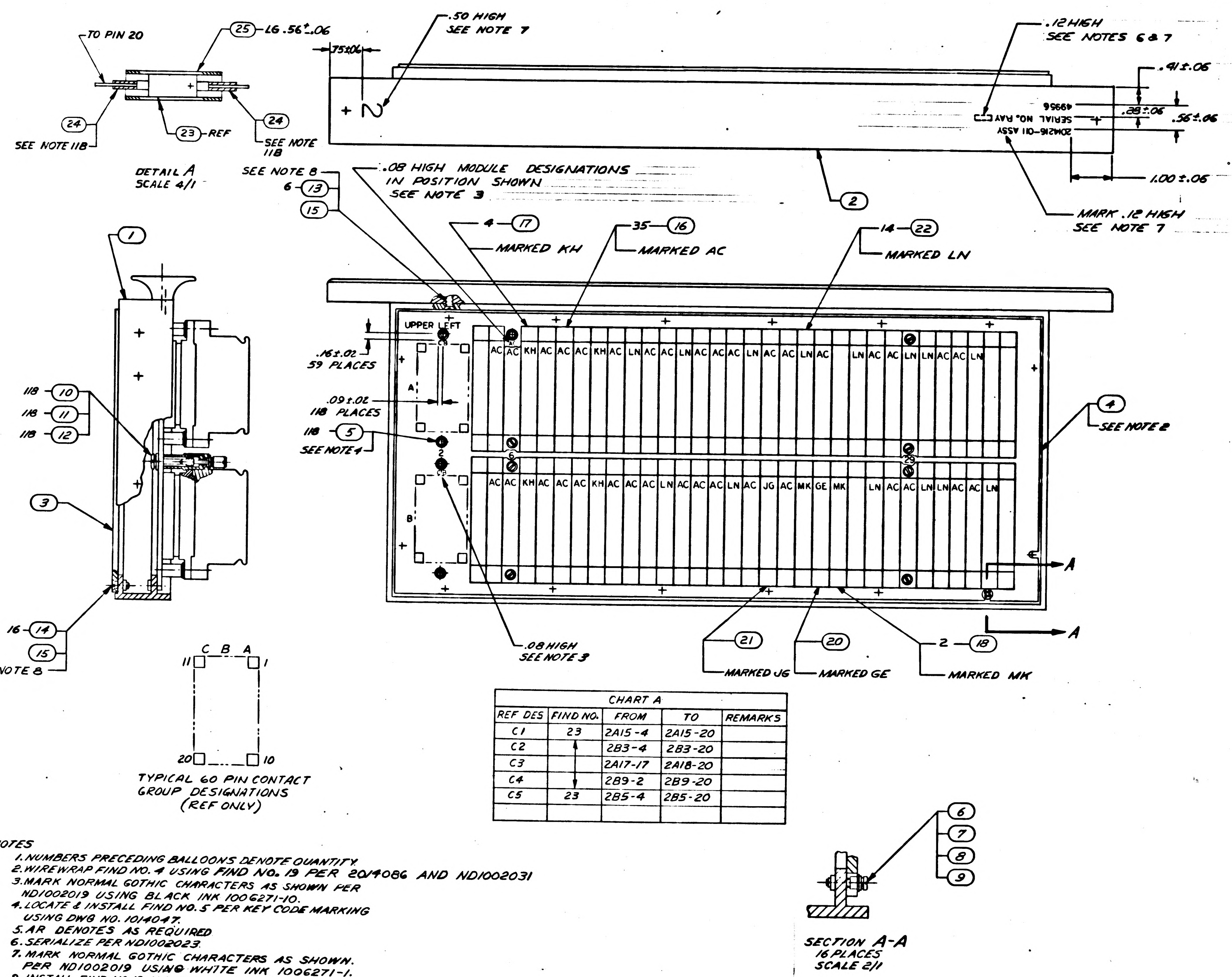

TO PIN 20
25 — L6.56±.06
24
23 — REF
24
SEE NOTE 11B
SEE NOTE 11B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
2
.12 HIGH
SEE NOTES 6 & 7
49956
SERIAL NO. RAY
2014216-011 ASSY
.41±.06
.28±.06
.56±.06
1.00±.06
MARK .12 HIGH
SEE NOTE 7
SEE NOTE 8
6 — 13
15
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
4 — 17 MARKED KH
35 — 16 MARKED AC
14 — 22 MARKED LN
1
UPPER LEFT
.16±.02
59 PLACES
.09±.02
118 PLACES
A
B
118 — 5
SEE NOTE 4
4
SEE NOTE 2
118 — 10
118 — 11
118 — 12
3
16 — 14
15
SEE NOTE 8
AC AC KH AC AC AC KH AC LN AC AC LN AC AC AC LN AC AC LN AC LN AC AC LN LN AC AC LN
AC AC KH AC AC AC KH AC AC AC LN AC AC AC LN AC JG AC MK GE MK LN AC AC LN LN AC AC LN
.08 HIGH
SEE NOTE 3
21 MARKED JG
20 MARKED GE
2 — 18 MARKED MK
A
A
C B A
11 1
20 10
TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)
6
7
8
9
SECTION A-A
16 PLACES
SCALE 2/1

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	23	2A15-4	2A15-20	
C2	↓	2B3-4	2B3-20	
C3		2A17-17	2A18-20	
C4		2B9-2	2B9-20	
C5	23	2B5-4	2B5-20	

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY.
2. WIREWRAP FIND NO. 4 USING FIND NO. 19 PER 2014086 AND ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10.
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047.
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023.
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN. PER ND1002019 USING WHITE INK 1006271-1.
8. INSTALL FIND NO. 13 AND FIND NO. 14 USING FIND NO. 15
~~9. MIL-I-631, TYPE F, FORM U, GRADE 2, CLASS I, CATEGORY I, COLOR BLUE, AWG SIZE NO. 24 FOR FIND NO. 24~~
10. MIL-I-631, TYPE F, FORM Ua, GRADE 2, CLASS I, CATEGORY I COLOR CLEAR, AWG SIZE NO. 8 FOR FIND NO. 25
11. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 23 PER CHART A & DETAIL A
 11A. SOLDER PER ND1002071
 11B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014051	LOGIC DIAGRAM	REF
☒	2014086	WIRE WRAP MACH. CARD	REF
* .4	SEE NOTE 10	SLEEVING	25
AR	1006776-197	SLEEVING, INSULATION	24
5	CS13AF010K	CAPACITOR, 1uF, 35VDC	23
14	2014000-011	MODULE, BUFFERED FLIP-FLOP	22
1	1014065-3	MODULE, RESISTOR	21
1	1014230	MODULE, INTERFACE RECEIVER	20
AR	1006945-1	WIRE, ELEC, INS, NO. 24 AWG SOLID	19
2	1014096	MODULE, DRIVER	18
4	1014079	MODULE, GATED FLIP-FLOP	17
35	1014034	MODULE, NOR	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
118	MS35338-79	WASHER, LOCK	12
118	1006997	WASHER, FLAT	11
118	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
118	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014007	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014037	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. [illegible]
DRAWN [illegible] Roper DATE 21 MAY 65
CHECKED R. Mac[illegible] 16 JUN 65
APPROVAL [illegible] 23 JUN 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. CAMELTZER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO. 2
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014216
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014217 C

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA 25059		
1	REVISED PER TDRR R25128 DR CHK APPD		
2	CHANGED PER CCA R25485 DR P. CHK APPD P.C.		
—	CLASS B CHANGED PER CCAR25502		
A	CHANGED PER CCA R25621 DR CHK APPD 1-6-66	1/6/66	
B	CHANGED PER CCA R25699 DR CHK APPD	1/14/66	
C	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	

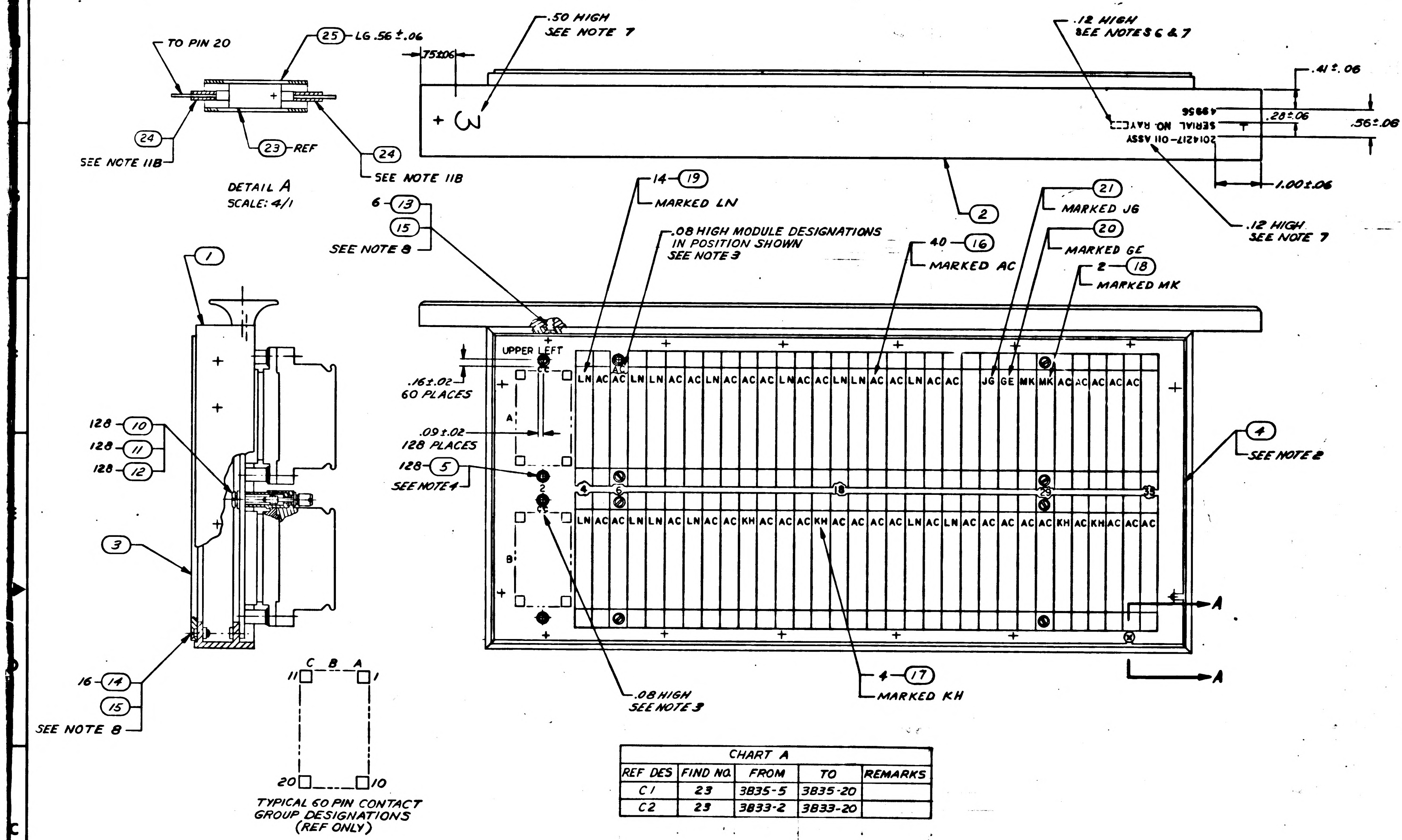
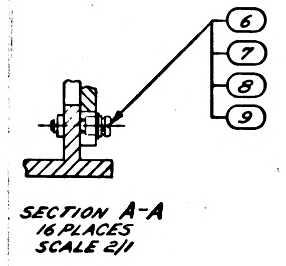

8
7
6
5
4
3
2
1
TO PIN 20
25 LG .56 ± .06
24
SEE NOTE 11B
23 REF
24
SEE NOTE 11B
DETAIL A
SCALE: 4/1
.50 HIGH
SEE NOTE 7
.75±.06
+ 3
.12 HIGH
SEE NOTES 6 & 7
.41 ± .06
.28 ± .06
.56 ± .06
49956
SERIAL NO. RAY
2014217-011 ASSY
1.00 ± .06
2
.12 HIGH
SEE NOTE 7
14 – 19
MARKED LN
6 – 13
15
SEE NOTE 8
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
40 – 16
MARKED AC
21
MARKED JG
20
MARKED GE
2 – 18
MARKED MK
1
UPPER LEFT
.16 ± .02
60 PLACES
.09 ± .02
128 PLACES
128 – 5
SEE NOTE 4
128 – 10
128 – 11
128 – 12
3
4
SEE NOTE 2
A
B
LN AC AC LN LN AC AC LN AC AC AC LN AC AC LN LN AC AC LN AC AC JG GE MK MK AC AC AC AC AC
4 6 18 29 35
LN AC AC LN LN AC LN AC AC KH AC AC AC KH AC AC AC AC LN AC LN AC AC AC AC AC KH AC KH AC AC AC
A
A
16 – 14
15
SEE NOTE 8
.08 HIGH
SEE NOTE 3
4 – 17
MARKED KH
C B A
11 1
20 10
TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	23	3B35-5	3B35-20	
C2	23	3B33-2	3B33-20	



SECTION A-A
16 PLACES
SCALE 2/1

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 22 PER 2014087 AND ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019
USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING
USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN
PER ND1002019 USING WHITE INK 1006271-1
8. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15
~~9. MIL-I-631, TYPE F, FORM U2, GRADE 2, CLASS 1, CATEGORY 1,~~
~~COLOR BLUE, AWG SIZE NO. 24 FOR FIND NO. 24~~
10. MIL-I-631, TYPE F, FORM U2, GRADE 2, CLASS 1, CATEGORY 1,
COLOR CLEAR, AWG SIZE NO. 8 FOR FIND NO. 25
11. AFTER MACHINE WIREWRAPPING PLATE, INSTALL FIND NO. 23 PER CHART A & DETAIL A
11A. SOLDER PER ND1002071
11B. LENGTH OF SLEEVING TO BE DETERMINED BY PIN LOCATION
AT ASSY

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014052	LOGIC DIAGRAM	REF
☒	2014087	WIREWRAP MACH. CARD	REF
* .2	SEE NOTE 10	SLEEVING	25
AR	1006776-197	SLEEVING, INSULATION	24
2	CS13AF010K	CAPACITOR, 1µF, 35VDC	23
AR	1006945-1	WIRE, ELECT, INSUL, 24AWG, SOLID	22
1	1014065-3	MODULE, RESISTOR 510Ω	21
1	1014230	MODULE, INTERFACE RECEIVER	20
14	2014000-001	MODULE, BUFFERED FLIP FLOP	19
2	1014096	MODULE, DRIVER	18
4	1014079	MODULE, GATED FLIP FLOP	17
40	1014034	MODULE, NOR	16
AR	MIL-S-22473, GR, HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
128	MS35338-79	WASHER, LOCK	12
128	1006997	WASHER, FLAT	11
128	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
128	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014007	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014036	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE MAY 65
CHECKED R H 16 JUN 65
APPROVAL P C 16 JUN 65
APPROVAL 6/28
APPROVAL 7/1 65
NASA APPROVAL C METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

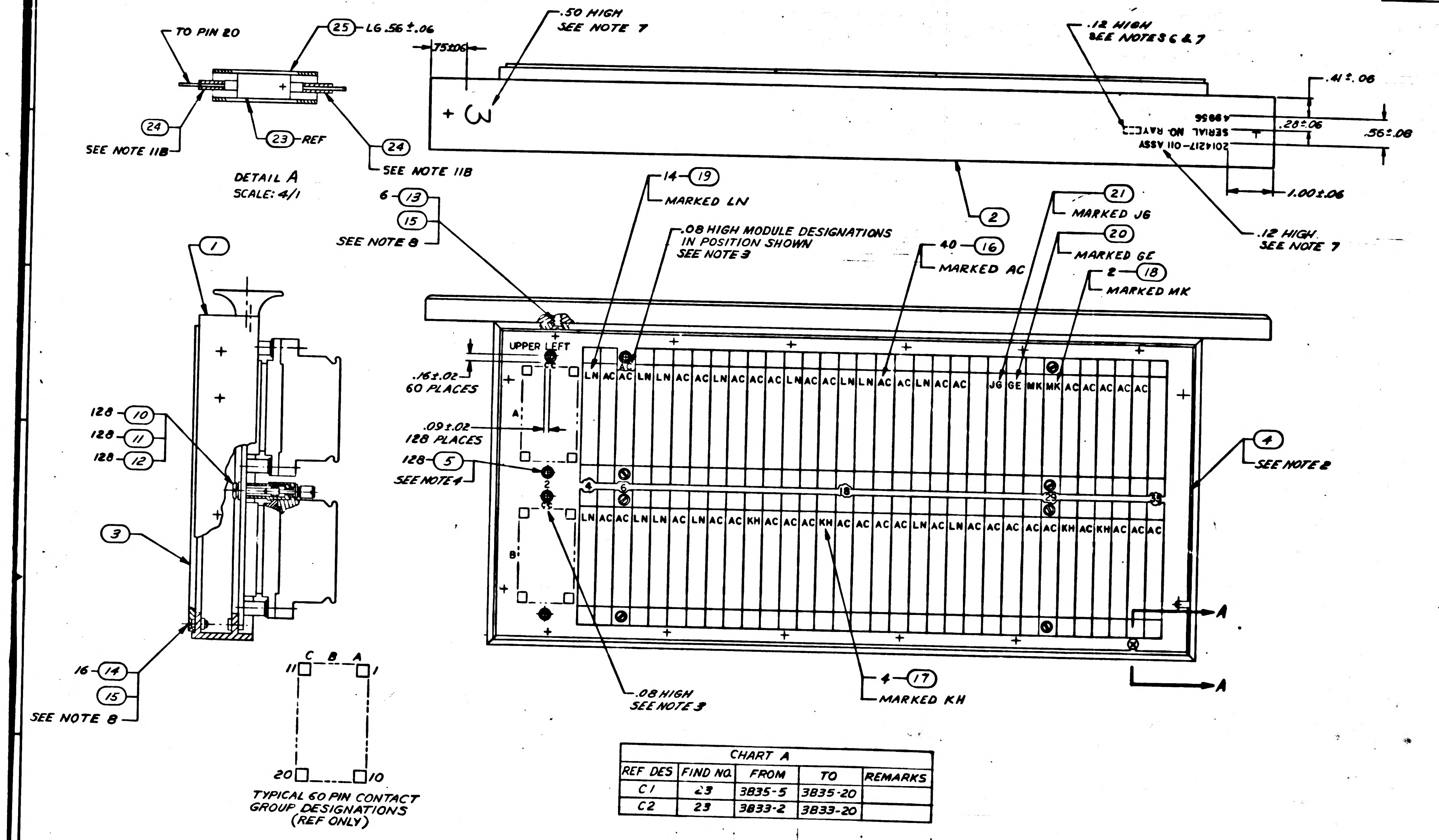
LOGIC PLATE ASSY NO. 3
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014217
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014217 D

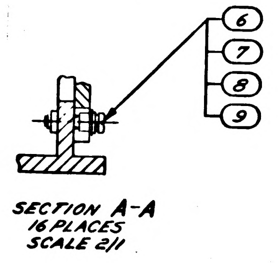
SYM	DESCRIPTION	DATE	APPROVED
—	RELEASED PER CCA 25059	[illegible]	[illegible]
1	REVISED PER TDRR R25128 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
2	CHANGED PER CCA R25485 DR P. [illegible] CHK [illegible] APPD P.C. [illegible]	[illegible]	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD [illegible] 1-6-66	1/6/66	[illegible]
B	CHANGED PER CCA R25699 DR [illegible] CHK [illegible] APPD [illegible]	1/14/66	[illegible]
C	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	[illegible]	[illegible]
D	CHANGED PER TDRR 27905 DR [illegible] CHK [illegible] APPD P.E.D	[illegible]	[illegible]



TO PIN 20
25 - LG .56 ± .06
24
SEE NOTE 11B
23 - REF
24
SEE NOTE 11B
DETAIL A
SCALE: 4/1
.75±.06
.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTES 6 & 7
SERIAL NO. RAYCO
2014217-011 ASSY
49956
.41 ± .06
.28 ± .06
.56 ± .08
1.00 ± .06
2
.12 HIGH
SEE NOTE 7
14 - 19
MARKED LN
6 - 13
15
SEE NOTE 8
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
40 - 16
MARKED AC
21
MARKED JG
20
MARKED GE
2 - 18
MARKED MK
1
UPPER LEFT
.16 ± .02
60 PLACES
.09 ± .02
128 PLACES
128 - 5
SEE NOTE 4
128 - 10
128 - 11
128 - 12
3
4
SEE NOTE 2
A
B
16 - 14
15
SEE NOTE 8
.08 HIGH
SEE NOTE 3
4 - 17
MARKED KH
A
A
C B A
11 1
20 10
TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A

REF DES	FIND NO.	FROM	TO	REMARKS
C1	23	3B35-5	3B35-20	
C2	23	3B33-2	3B33-20	



SECTION A-A
16 PLACES
SCALE 2/1

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 22 PER 2014087 AND ND1002051
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15
9. ~~MIL-I-631, TYPE F, FORM U2, GRADE 2, CLASS 1, CATEGORY 1, COLOR BLUE, AWG SIZE NO. 24 FOR FIND NO. 24~~
10. MIL-I-631, TYPE F, FORM U2, GRADE 2, CLASS 1, CATEGORY 1, COLOR CLEAR, AWG SIZE NO. 8 FOR FIND NO. 25
11. AFTER MACHINE WIREWRAPPING PLATE, INSTALL FIND NO. 23 PER CHART A & DETAIL A
    - 11A. SOLDER PER ND1002071
    - 11B. LENGTH OF SLEEVING TO BE DETERMINED BY PIN LOCATION AT ASSY

* DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014052	LOGIC DIAGRAM	REF
☒	2014087	WIREWRAP MACH. CARD	REF
* .2	SEE NOTE 10	SLEEVING	25
AR	1006776-197	SLEEVING, INSULATION	24
2	CS13AF010K	CAPACITOR, 1µF, 35VDC	23
AR	1006945-1	WIRE, ELECT, INSUL, 24AWG, SOLID	22
1	1014065-3	MODULE, RESISTOR 510Ω	21
1	1014230	MODULE, INTERFACE RECEIVER	20
14	2014000-011	MODULE, BUFFERED FLIP FLOP	19
2	1014096	MODULE, DRIVER	18
4	1014079	MODULE, GATED FLIP FLOP	17
40	1014034	MODULE, NOR	16
AR	MIL-S-22473, GR, HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
128	MS35338-79	WASHER, LOCK	12
128	1006997	WASHER, FLAT	11
128	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
128	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014007	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

2014036	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 20 MAY 65
CHECKED R.H. [illegible] 16 JUN 65
APPROVAL P.C. [illegible] 16 JUN 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO. 3
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014217
SCALE 1/1
WT
SHEET 1 OF 1

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014218 B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
—	RELEASED PER CCA 25044	7/[illegible]/65	
1	CHANGED PER CCA R25485 DR CHK APPD	11/12/65	
—	CLASS B CHANGED PER CCA R25502	12/[illegible]/65	
A	CHANGED PER CCA R25621 DR CHK APPD	1/6/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TORR 25472	4/14/66	

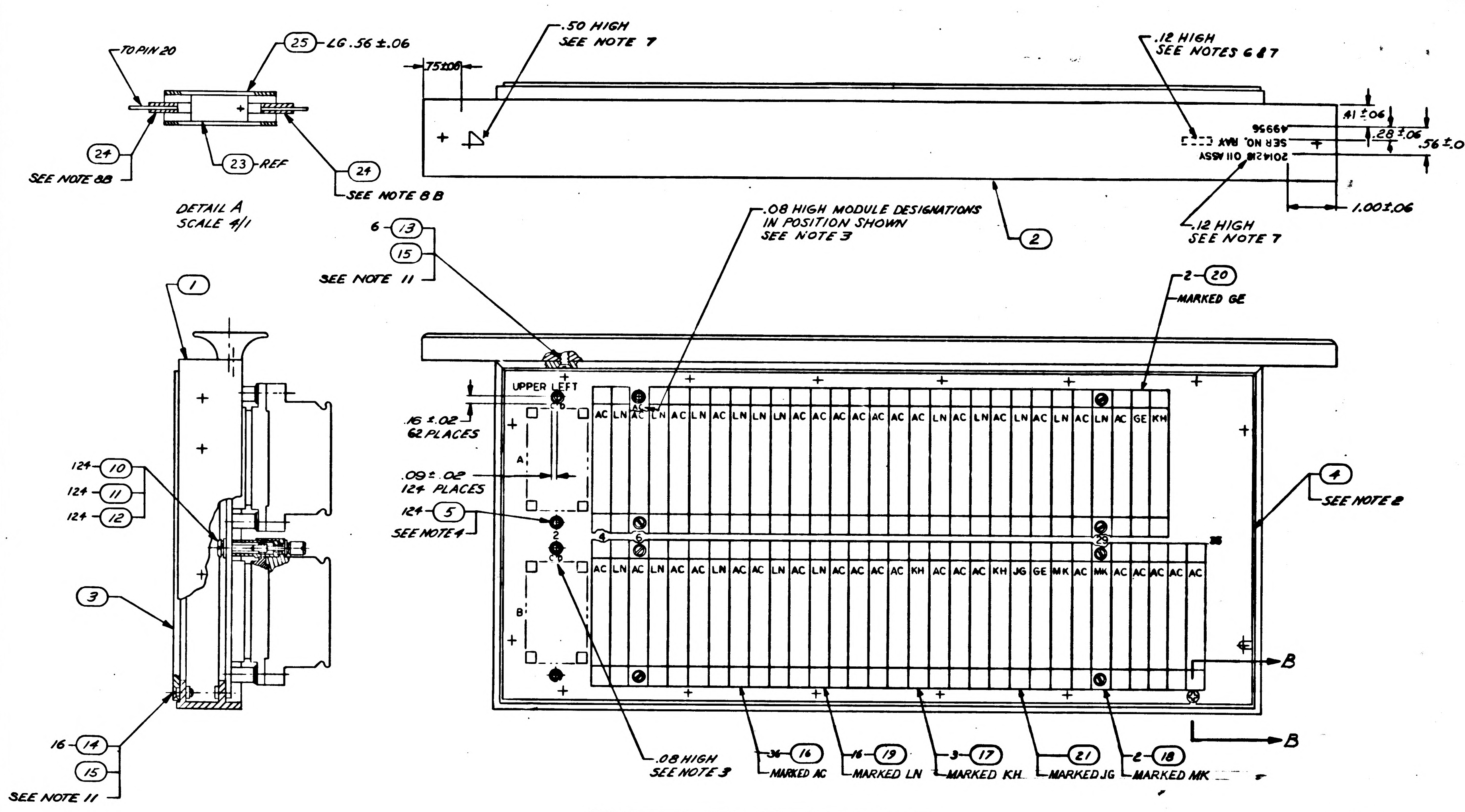
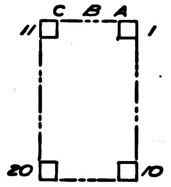
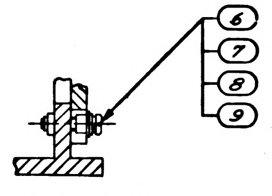

TO PIN 20
25 — LG .56 ±.06
24
23 — REF
24
SEE NOTE 8B
SEE NOTE 8B
DETAIL A
SCALE 4/1
.75±.06
.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTES 6 & 7
49956
SER NO. RAX
2014218 011 ASSY
.41 ±.06
.28 ±.06
.56 ±.06
1.00 ±.06
.12 HIGH
SEE NOTE 7
2
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
6 — 13
15
SEE NOTE 11
1
2 — 20
MARKED GE
UPPER LEFT
.16 ±.02
62 PLACES
.09 ±.02
124 PLACES
124 — 5
SEE NOTE 4
124 — 10
124 — 11
124 — 12
3
16 — 14
15
SEE NOTE 11
4
SEE NOTE 2
A
B
2
4
6
29
AC LN AC LN AC LN AC LN LN LN AC AC AC AC AC AC AC LN AC LN AC LN AC LN AC LN AC GE KH
AC LN AC LN AC AC LN AC AC LN AC LN AC AC AC AC KH AC AC AC KH JG GE MK AC MK AC AC AC AC AC
B
B
.08 HIGH
SEE NOTE 3
36 — 16
MARKED AC
16 — 19
MARKED LN
3 — 17
MARKED KH
21
MARKED JG
2 — 18
MARKED MK

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	23	4B33-2	4B33-20	
C2		4B33-19	4B35-20	
C3		4A27-3	4A27-20	
C4	23	4A21-13	4A21-20	


C B A
11
1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)



SECTION B-B
16 PLACES
SCALE 2/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 22 PER 2014088 AND ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG. NO. 1014047
5. AR DENOTES "AS REQUIRED"
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIREWRAPPING PLATE, INSTALL FIND NO. 23 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
9. ~~MIL-I-631 TYPE F FORM U2 GRADE & CLASS I CATEGORY I COLOR BLUE AWG SIZE NO 24 FOR FIND NO. 24~~
10. MIL-I-631 TYPE F FORM U2 GRADE & CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 25
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15

* DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014088	WIREWRAP MACH. CARD	REF
☒	2014053	LOGIC DIAGRAM	REF
* .3	SEE NOTE 10	SLEEVING	25
AR	1006776-197	SLEEVING, INSULATION	24
4	CS13AF010K	CAPACITOR 1 µf 35 V	23
AR	1006945-1	WIRE ELECTRICAL	22
1	1014065-3	MODULE, RESISTOR 510 Ω	21
2	1014230	MODULE, INTERFACE RECIEVER	20
16	2014000-011	MODULE, BUFFERED FLIP-FLOP	19
2	1014096	MODULE, DRIVER	18
3	1014079	MODULE, GATED FLIP FLOP	17
36	1014034	MODULE, NOR	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
124	MS35338-79	WASHER, LOCK	12
124	1006997	WASHER, FLAT	11
124	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
124	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014007	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014036	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NA[illegible]
DRAWN DATE 21 MAY 65
CHECKED 12 JUN 65
APPROVAL B.E. Duke 9 JULY 65
APPROVAL 7/9/65
APPROVAL 7/9/65
NASA APPROVAL A.C. MET[illegible]
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO. 4
LOGIC DRAWER NO. 1
COMPUTER TEST SET

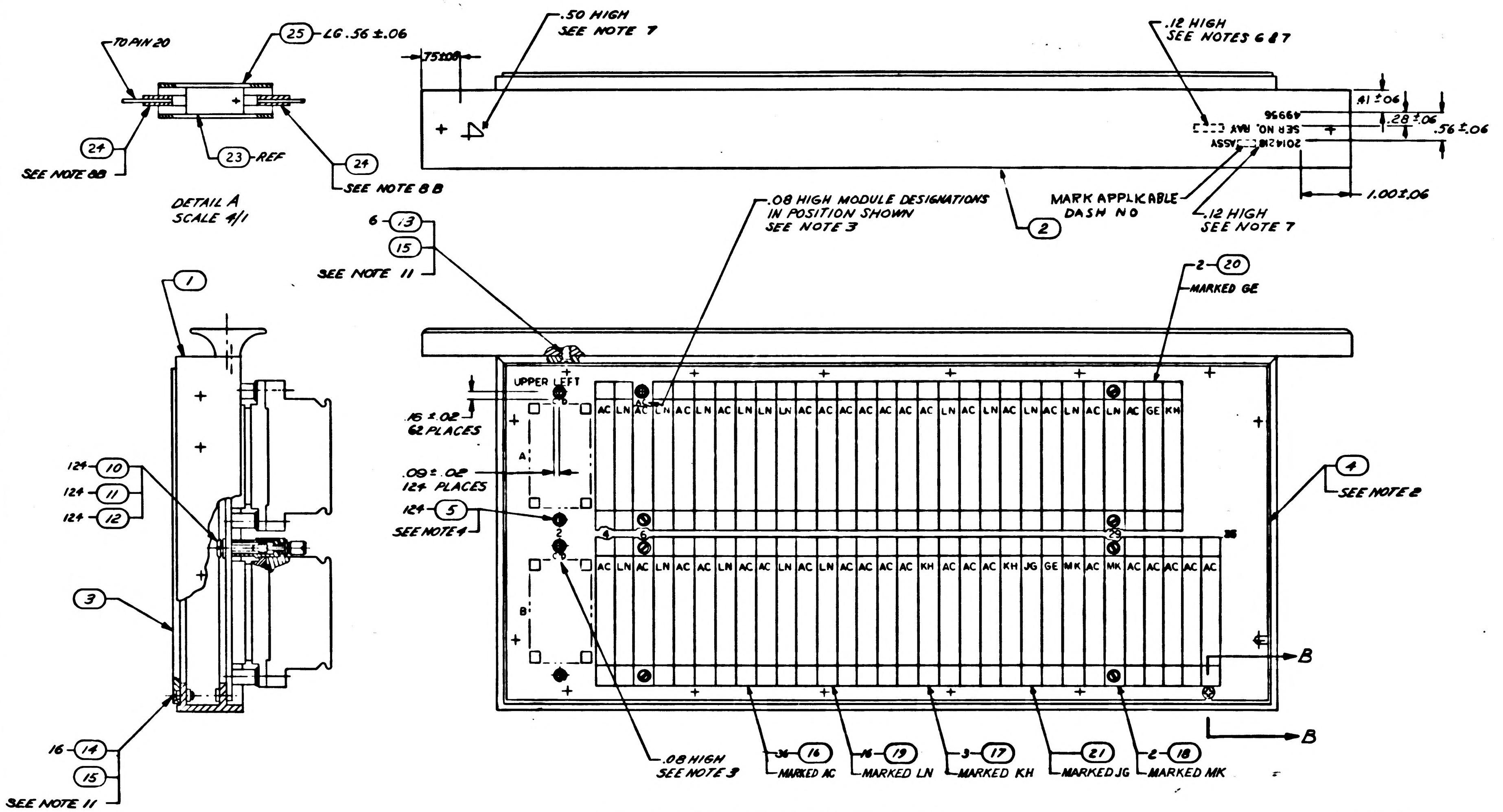
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014218
SCALE 1/1
WT
SHEET 1 OF 1

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014218 C

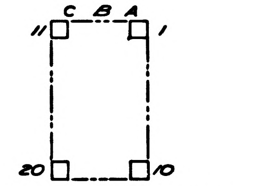
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
U	RELEASED PER CCA 25044	[illegible]	[illegible]
1	CHANGED PER CCA R25485 DR CHK APPD	1/12/65	[illegible]
—	~~CLASS B CHANGED PER CCA R25502~~	[illegible]	[illegible]
A	CHANGED PER CCA R25621 DR CHK APPD	1/6/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 35529 DR CHK	2/20/67	JBR



8
7
6
5
4
3
2
1
H
G
F
E
D
TO PIN 20
25
LG .56 ±.06
24
SEE NOTE 8B
23
REF
24
SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
.12 HIGH
SEE NOTES 6 & 7
49956
SER NO. RAY
2014218 ASSY
.41 ±.06
.28 ±.06
.56 ±.06
1.00±.06
MARK APPLICABLE DASH NO
.12 HIGH
SEE NOTE 7
2
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN
SEE NOTE 3
6-13
15
SEE NOTE 11
2-20
MARKED GE
1
UPPER LEFT
.15 ±.02
62 PLACES
.09 ±.02
124 PLACES
124-5
SEE NOTE 4
A
B
AC LN AC LN AC LN AC LN LN LN AC AC AC AC AC AC AC LN AC LN AC LN AC LN AC LN AC GE KH
AC LN AC LN AC AC LN AC AC LN AC LN AC AC AC AC KH AC AC AC KH JG GE MK AC MK AC AC AC AC AC
4
6
29
124-10
124-11
124-12
3
4
SEE NOTE 2
B
B
16-14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
36-16
MARKED AC
16-19
MARKED LN
3-17
MARKED KH
21
MARKED JG
2-18
MARKED MK

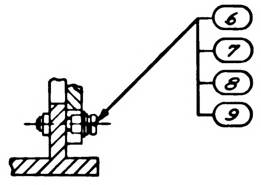
NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO 4 USING FIND NO 22 PER 2014088, OR 2016481 AND ND1002031.
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG. NO. 1014047
5. AR DENOTES 'AS REQUIRED'
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIREWRAPPING PLATE, INSTALL FIND NO. 23 PER CHART A & DETAIL A
   - 8A. SOLDER PER ND1002071
   - 8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
9. ~~MIL-I-631 TYPE F FORM U2 GRADE A CLASS I CATEGORY I COLOR BLUE AWG SIZE NO 24 FOR FIND NO. 24~~
10. MIL-I-631 TYPE F FORM U2 GRADE A CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 25
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	23	4B33-2	4B33-20	
C2	↕	4B33-19	4B35-20	
C3		4A27-3	4A27-20	
C4	23	4A21-13	4A21-20	



C
B
A
11
1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)



SECTION B-B
16 PLACES
SCALE 2/1

☒	—	2016481	WIREWRAP MACH CARD	REF
☒	—	2016477	LOGIC DIAGRAM	REF
—	☒	2014088	WIREWRAP MACH. CARD	REF
—	☒	2014053	LOGIC DIAGRAM	REF
* .3	.3	SEE NOTE 10	SLEEVING	25
AR	AR	1006776-197	SLEEVING, INSULATION	24
4	4	CS13AF010K	CAPACITOR 1 μf 35 V	23
AR	AR	1006945-1	WIRE ELECTRICAL	22
1	1	1014065-3	MODULE, RESISTOR 510 Ω	21
2	2	1014230	MODULE, INTERFACE RECIEVER	20
16	16	2014000-011	MODULE, BUFFERED FLIP-FLOP	19
2	2	1014096	MODULE, DRIVER	18
3	3	1014079	MODULE, GATED FLIP FLOP	17
36	36	1014034	MODULE, NOR	16
AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	MS51959-15	SCREW, FLAT HD	14
6	6	MS51959-27	SCREW, FLAT HD	13
124	124	MS35338-79	WASHER, LOCK	12
124	124	1006997	WASHER, FLAT	11
124	124	MS51957-29	SCREW, PAN HD	10
16	16	1005986	WASHER, SHOULDERED, NYLON	9
16	16	MS35338-78	WASHER, LOCK	8
16	16	MS15795-803	WASHER, FLAT	7
16	16	MS51957-17	SCREW, PAN HD	6
124	124	1014212	STAND-OFF, PROGRAM	5
1	1	1006495-001	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
1	1	1014007	SUPPORT, FRAME	2
1	1	1014014-2	FRAME	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-021	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014036	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO
DRAWN DATE 21 MAR 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

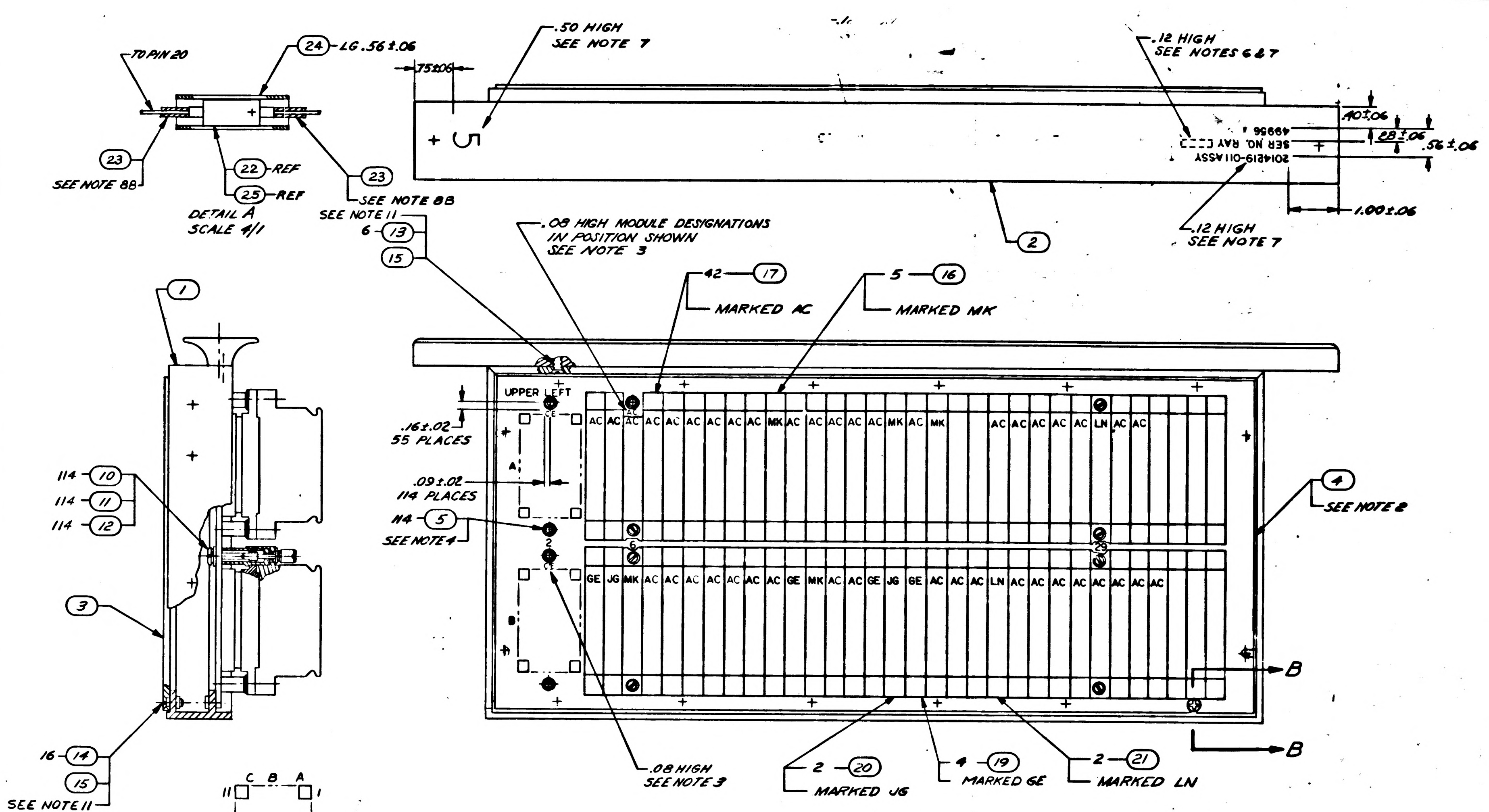
LOGIC PLATE ASSY NO. 4
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014218
SCALE 1/1
WT
SHEET 1 OF 1

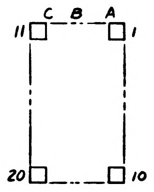
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014219 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
✓	RELEASED PER CCA 25059	7-2-65	
1	CHANGED PER CCA R25485 DR V. CHK E. APPD P. E. 11-13-65	11/13/65	
—	CLASS B CHANGED PER CCA R25502	12/10/65	
A	CHANGED PER CCA R25621 DR CHK APPD	1/6/66	
B	CHANGED PER CCA R25699 DR CHK C. APPD	1/19/66	
C	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	

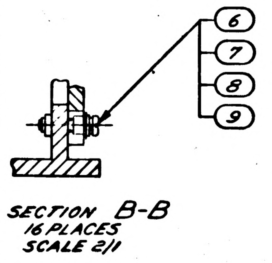


70 PIN 20
24 — LG .56 ± .06
23
SEE NOTE 8B
22 — REF
25 — REF
23
SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75 ± .06
5
.12 HIGH
SEE NOTES 6 & 7
2014219-011 ASSY
SER NO. RAY
49956
.40 ± .06
.28 ± .06
.56 ± .06
1.00 ± .06
.12 HIGH
SEE NOTE 7
2
SEE NOTE 11
6 — 13
15
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN
SEE NOTE 3
42 — 17
MARKED AC
5 — 16
MARKED MK
1
UPPER LEFT
.16 ± .02
55 PLACES
.09 ± .02
114 PLACES
114 — 10
114 — 11
114 — 12
114 — 5
SEE NOTE 4
3
A
B
AC AC AC AC AC AC AC AC AC AC MK AC AC AC AC AC MK AC MK AC AC AC AC AC LN AC AC
GE JG MK AC AC AC AC AC AC GE MK AC AC GE JG GE AC AC AC LN AC AC AC AC AC AC AC AC
4
SEE NOTE 2
B
B
16 — 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
2 — 20
MARKED JG
4 — 19
MARKED GE
2 — 21
MARKED LN



C B A
11
1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)



SECTION B-B
16 PLACES
SCALE 2/1

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C2	22	5B8-2	5B8-20	
C3		5B16-2	5B16-20	
C4		5B13-5	5B13-20	
C5		5B13-19	5B11-20	
C6		5A2-11	5A2-20	
C7		5A14-7	5A14-20	
C8		5A16-2	5A16-20	
C9		5A17-2	5A17-20	
C10		5B17-9	5B19-20	
C11		5B2-8	5B1-20	
C12		5A20-15	5A20-20	
C13		5A11-13	5A11-20	
C14		5A2-8	5A4-20	
C15		5B3-11	5B3-20	
C16		5B3-9	5B5-20	
C17		5B1-15	5B1-20	
C18		5B21-9	5B20-20	
C19		5B32-8	5B32-20	
C20		5B7-2	5B7-20	
C21		5B3-1	5B2-20	
C22		5A29-15	5A29-20	
C23	22	5B24-3	5B24-20	
C1	25	5A9-7	5A10-20	

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 18 PER 2014089 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 22 & NO. 25 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U4 GRADE 2 CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 23~~
10. MIL-I-631 TYPE F FORM U4 GRADE 2 CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 24
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15

☒	2014107	LOGIC DIAGRAM	REF
☒	2014089	WIREWRAP MACH. CARD	REF
1	MS15825-5	CAPACITOR, 750 uuf 300VDC	25
* 25	SEE NOTE 10	SLEEVING	24
AR	1006776-197	SLEEVING, INSULATION	23
22	CS13AF010K	CAPACITOR, 1uf 35V	22
2	2014000-011	MODULE, BUFFERED FLIP FLOP	21
2	1014065-3	MODULE, RESISTOR	20
4	1014230	MODULE, INTERFACE RECEIVER	19
AR	1006945-1	WIRE, ELECTRICAL	18
42	1014034	MODULE, NOR	17
5	1014096	MODULE, DRIVER	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
114	MS35338-79	WASHER, LOCK	12
114	1006997	WASHER, FLAT	11
114	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
114	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014007	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014036	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE MAY 65
CHECKED
APPROVAL 7/20/65
APPROVAL 19 JULY 65
APPROVAL 7/21/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO.5
LOGIC DRAWER NO. 1
COMPUTER TEST SET

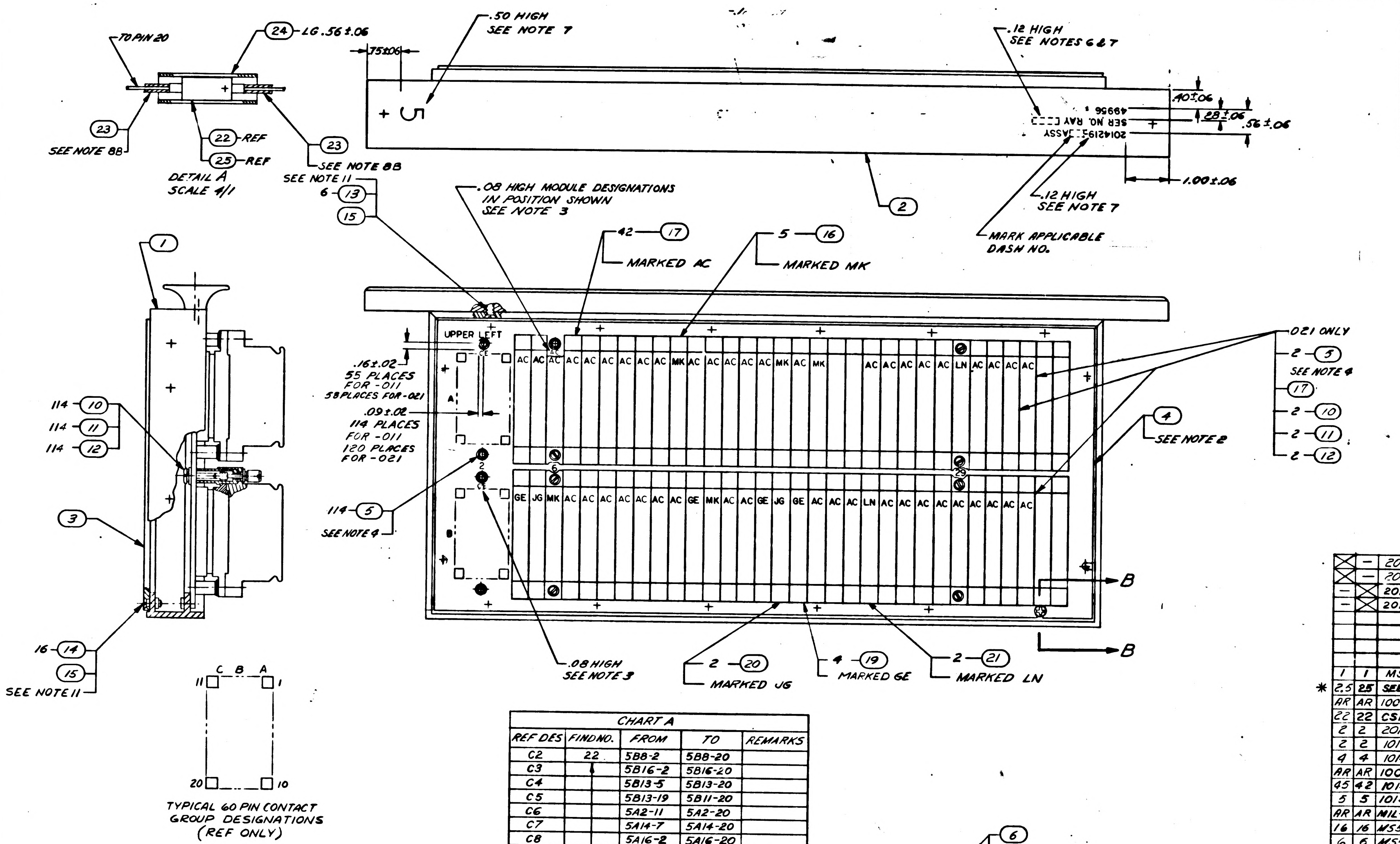
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014219
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014219 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25059	[illegible]	
1	CHANGED PER CCA R25485 DR V. [illegible] CHK E [illegible] APPD	[illegible]	
—	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD	[illegible]	
B	CHANGED PER CCA R25699 DR [illegible] CHK C. [illegible] APPD	[illegible]	
C	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	[illegible]	
D	CHANGED PER TDRR 28103 DR G. J. [illegible] CHK [illegible] APPD	[illegible]	



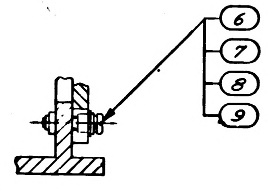
TO PIN 20
24 — LG .56 ±.06
23
SEE NOTE 8B
22 — REF
25 — REF
23
SEE NOTE 8B
DETAIL A
SCALE 4/1
.75±.06
.50 HIGH
SEE NOTE 7
+ 5
.12 HIGH
SEE NOTES 6 & 7
49956
SER NO. RAY
2014219- ASSY
.40±.06
.28±.06
.56±.06
1.00±.06
2
.12 HIGH
SEE NOTE 7
MARK APPLICABLE DASH NO.
SEE NOTE 11
6 — 13
15
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN SEE NOTE 3
42 — 17
MARKED AC
5 — 16
MARKED MK
1
UPPER LEFT
CE
.16±.02
55 PLACES FOR -011
58 PLACES FOR -021
.09±.02
114 PLACES FOR -011
120 PLACES FOR -021
A
B
AC AC AC AC AC AC AC AC AC MK AC AC AC AC AC MK AC MK AC AC AC AC AC LN AC AC AC AC
GE JG MK AC AC AC AC AC AC AC GE MK AC AC GE JG GE AC AC AC LN AC AC AC AC AC AC AC AC AC
6
29
2
114 — 10
114 — 11
114 — 12
3
114 — 5
SEE NOTE 4
16 — 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
2 — 20
MARKED JG
4 — 19
MARKED GE
2 — 21
MARKED LN
021 ONLY
2 — 5
SEE NOTE 4
17
2 — 10
2 — 11
2 — 12
4
SEE NOTE 2
B
B
C B A
11 1
20 10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C2	22	5B8-2	5B8-20	
C3		5B16-2	5B16-20	
C4		5B13-5	5B13-20	
C5		5B13-19	5B11-20	
C6		5A2-11	5A2-20	
C7		5A14-7	5A14-20	
C8		5A16-2	5A16-20	
C9		5A17-2	5A17-20	
C10		5B17-9	5B19-20	
C11		5B2-8	5B1-20	
C12		5A20-15	5A20-20	
C13		5A11-13	5A11-20	
C14		5A2-8	5A4-20	
C15		5B3-11	5B3-20	
C16		5B3-9	5B5-20	
C17		5B1-15	5B1-20	
C18		5B21-9	5B20-20	
C19		5B32-8	5B32-20	
C20		5B7-2	5B7-20	
C21		5B3-1	5B2-20	
C22		5A29-15	5A29-20	
C23	22	5B24-3	5B24-20	
C1	25	5A9-7	5A10-20	

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 18 PER 2014089 OR 2016371 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 22 & NO. 25 PER CHART A & DETAIL A
   - 8A. SOLDER PER ND1002071
   - 8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
9. ~~MIL-I-631 TYPE F FORM U GRADE a CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 23~~
10. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 24
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15



SECTION B-B
16 PLACES
SCALE 2/1

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2016383	LOGIC DIAGRAM	REF
☒	—	2016371	WIREWRAP MACH CARD	REF
—	☒	2014107	LOGIC DIAGRAM	REF
—	☒	2014089	WIREWRAP MACH. CARD	REF
1	1	MS15825-5	CAPACITOR, 750 uuf 500VDC	25
* 2.5	25	SEE NOTE 10	SLEEVING	24
AR	AR	1006776-197	SLEEVING, INSULATION	23
22	22	CS13AF010K	CAPACITOR, 1uf 35V	22
2	2	2014000-011	MODULE, BUFFERED FLIP FLOP	21
2	2	1014065-3	MODULE, RESISTOR	20
4	4	1014230	MODULE, INTERFACE RECEIVER	19
AR	AR	1006945-1	WIRE, ELECTRICAL	18
45	42	1014034	MODULE, NOR	17
5	5	1014096	MODULE, DRIVER	16
AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	MS51959-15	SCREW, FLAT HD	14
6	6	MS51959-27	SCREW, FLAT HD	13
120	114	MS35338-79	WASHER, LOCK	12
120	114	1006997	WASHER, FLAT	11
120	114	MS51957-29	SCREW, PAN HD	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	MS35338-78	WASHER, LOCK	8
16	16	MS15795-803	WASHER, FLAT	7
16	16	MS51957-17	SCREW, PAN HD	6
120	114	1014212	STAND-OFF, PROGRAM	5
1	1	1006495-001	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
1	1	1014007	SUPPORT, FRAME	2
1	1	1014014-2	FRAME	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014036	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NA[illegible] 437
DRAWN [illegible] DATE [illegible] MAY 65
CHECKED [illegible]
APPROVAL [illegible] 7/20/65
APPROVAL [illegible] 19 JULY 65
APPROVAL [illegible] 7/21/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

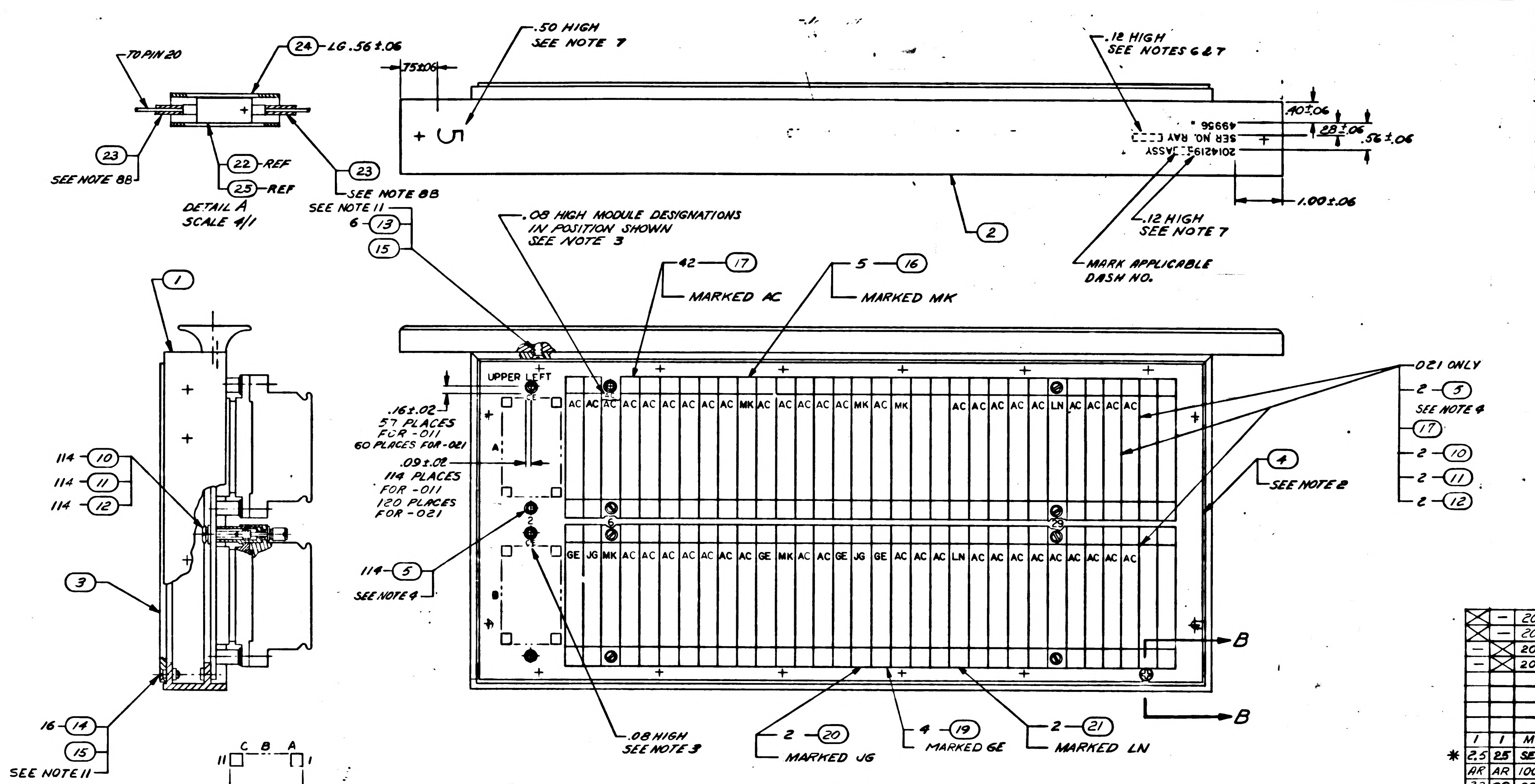
LOGIC PLATE ASSY NO. 5
LOGIC DRAWER NO. 1
COMPUTER TEST SET

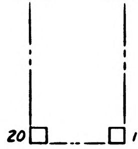
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014219
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014219 E

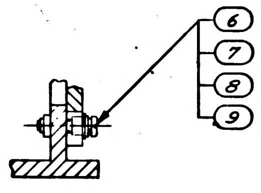
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER [illegible] A 25059	[illegible]	[illegible]
1	CHANGED PER CCA R25485 DR V. [illegible] CHK E. [illegible] APPD P E [illegible] 11-13-65	[illegible]	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD	1/6/66	[illegible]
B	CHANGED PER CCA R25639 DR [illegible] CHK C. [illegible] APPD [illegible]	1/4/66	[illegible]
C	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]
D	CHANGED PER TDRR 28103 DR G. J. Brian CHK [illegible] APPD [illegible]	4/26/66	[illegible]
E	CHANGED PER TDRR 28391 DR [illegible] CHK [illegible] APPD [illegible]	5/13/66	[illegible]


TO PIN 20
24 - LG .56 ±.06
23
SEE NOTE 8B
22 - REF
25 - REF
23
SEE NOTE 8B
DETAIL A
SCALE 4/1
.75±.06
.50 HIGH
SEE NOTE 7
5
.12 HIGH
SEE NOTES 6 & 7
49956
SER NO. RAY
2014219 ASSY
.40±.06
.28±.06
.56±.06
1.00±.06
2
.12 HIGH
SEE NOTE 7
MARK APPLICABLE
DASH NO.
SEE NOTE 11
6 - 13
15
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
42 - 17
MARKED AC
5 - 16
MARKED MK
1
114 - 10
114 - 11
114 - 12
3
16 - 14
15
SEE NOTE 11
UPPER LEFT
.16±.02
57 PLACES
FOR -011
60 PLACES FOR -021
.09±.02
114 PLACES
FOR -011
120 PLACES
FOR -021
A
B
CE
2
6
29
114 - 5
SEE NOTE 4
AC AC AC AC AC AC AC AC AC MK AC AC AC AC AC MK AC MK AC AC AC AC AC LN AC AC AC AC
GE JG MK AC AC AC AC AC AC AC GE MK AC AC GE JG GE AC AC AC LN AC AC AC AC AC AC AC AC AC
-021 ONLY
2 - 5
SEE NOTE 4
17
2 - 10
2 - 11
2 - 12
4
SEE NOTE 2
B
B
.08 HIGH
SEE NOTE 3
2 - 20
MARKED JG
4 - 19
MARKED GE
2 - 21
MARKED LN


C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C2	22	5B8-2	5B8-20	
C3		5B16-2	5B16-20	
C4		5B13-5	5B13-20	
C5		5B13-19	5B11-20	
C6		5A2-11	5A2-20	
C7		5A14-7	5A14-20	
C8		5A16-2	5A16-20	
C9		5A17-2	5A17-20	
C10		5B17-9	5B19-20	
C11		5B2-8	5B1-20	
C12		5A20-15	5A20-20	
C13		5A11-13	5A11-20	
C14		5A2-8	5A4-20	
C15		5B3-11	5B3-20	
C16		5B3-9	5B5-20	
C17		5B1-15	5B1-20	
C18		5B21-9	5B20-20	
C19		5B32-8	5B32-20	
C20		5B7-2	5B7-20	
C21		5B3-1	5B2-20	
C22		5A29-15	5A29-20	
C23	22	5B24-3	5B24-20	
C1	25	5A9-7	5A10-20	



SECTION B-B
16 PLACES
SCALE 2/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 18 PER 2014089 OR 2016371 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 22 & NO. 25 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE 2 CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 23~~
10. MIL-I-631 TYPE F FORM Ua GRADE 2 CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 24
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15

☒	—	2016383	LOGIC DIAGRAM	REF
☒	—	2016371	WIREWRAP MACH CARD	REF
—	☒	2014107	LOGIC DIAGRAM	REF
—	☒	2014089	WIREWRAP MACH. CARD	REF
1	1	MS15825-5	CAPACITOR, 750 uuf 500VDC	25
* 2.5	25	SEE NOTE 10	SLEEVING	24
AR	AR	1006776-197	SLEEVING, INSULATION	23
22	22	CS13AF010K	CAPACITOR, 1uf 35V	22
2	2	2014000-011	MODULE, BUFFERED FLIP FLOP	21
2	2	1014065-3	MODULE, RESISTOR	20
4	4	1014230	MODULE, INTERFACE RECEIVER	19
AR	AR	1006945-1	WIRE, ELECTRICAL	18
45	42	1014034	MODULE, NOR	17
5	5	1014096	MODULE, DRIVER	16
AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	MS51959-15	SCREW, FLAT HD	14
6	6	MS51959-27	SCREW, FLAT HD	13
120	114	MS35338-79	WASHER, LOCK	12
120	114	1006997	WASHER, FLAT	11
120	114	MS51957-29	SCREW, PAN HD	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	MS35338-78	WASHER, LOCK	8
16	16	MS15795-803	WASHER, FLAT	7
16	16	MS51957-17	SCREW, PAN HD	6
120	114	1014212	STAND-OFF, PROGRAM	5
1	1	1006495-001	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
1	1	1014007	SUPPORT, FRAME	2
1	1	1014014-2	FRAME	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-021	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014036	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NA[illegible] 497
DRAWN [illegible] DATE MAY 65
CHECKED [illegible]
APPROVAL [illegible] 7/20/65
APPROVAL [illegible] 19 JULY 65
APPROVAL [illegible] 7/21/65
NASA APPROVAL A. [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO. 5
LOGIC DRAWER NO. 1
COMPUTER TEST SET

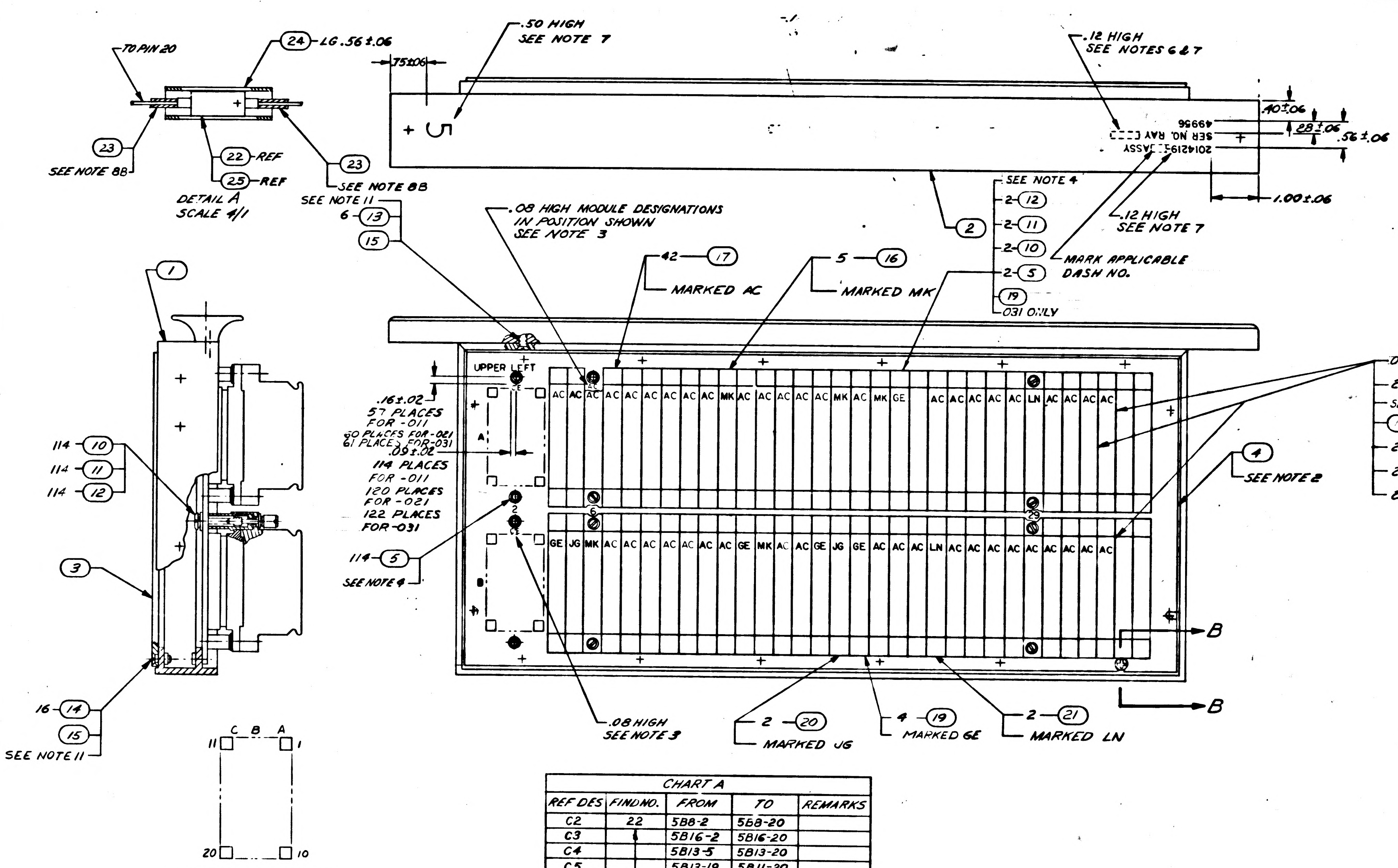
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	F	2014219

SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

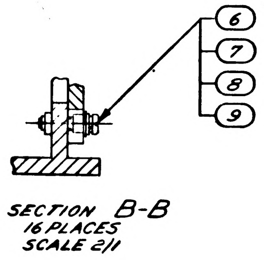
2014219 F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
	RELEASED [illegible] 25059	[illegible]	[illegible]
1	CHANGED PER CCA R25488 DR V. [illegible] CHK E. Urban APPD	11/13/65	
—	CLASS B CHANGED PER CCA R25502	12/10/65	
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD	1/6/66	
B	CHANGED PER CCA R25699 DR [illegible] CHK C. [illegible] APPD	1/4/66	
C	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/18/66	
D	CHANGED PER TDRR 28103 DR G. J. Brien CHK [illegible] APPD	4/26/66	
E	CHANGED PER TDRR 28391 DR [illegible] CHK [illegible] APPD	5/13/66	
F	CHANGED PER TDRR 29329 DR [illegible] CHK [illegible] APPD PED	6/14/66	



TO PIN 20
24 — LG .56±.06
23
22 — REF
25 — REF
SEE NOTE 8B
23
SEE NOTE 8B
DETAIL A
SCALE 4/1
.75±.06
.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTES 6 & 7
2014219 [ ] ASSY
SER NO. RAY [ ]
49956
.40±.06
.28±.06
.56±.06
1.00±.06
SEE NOTE 4
2 — 12
2 — 11
2 — 10
2 — 5
19
031 ONLY
.12 HIGH
SEE NOTE 7
MARK APPLICABLE DASH NO.
2
SEE NOTE 11
6 — 13
15
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN SEE NOTE 3
42 — 17
MARKED AC
5 — 16
MARKED MK
1
114 — 10
114 — 11
114 — 12
3
16 — 14
15
SEE NOTE 11
UPPER LEFT
.16±.02
57 PLACES FOR -011
60 PLACES FOR -021
61 PLACES FOR -031
.09±.02
114 PLACES FOR -011
120 PLACES FOR -021
122 PLACES FOR -031
114 — 5
SEE NOTE 4
A
B
AC AC AC AC AC AC AC AC AC MK AC AC AC AC AC MK AC MK GE AC AC AC AC AC LN AC AC AC AC
GE JG MK AC AC AC AC AC AC AC GE MK AC AC GE JG GE AC AC AC LN AC AC AC AC AC AC AC AC AC
6
29
2
D21 & 031 ONLY
2 — 5
SEE NOTE 4
17
2 — 10
2 — 11
2 — 12
4
SEE NOTE 2
B
B
.08 HIGH
SEE NOTE 3
2 — 20
MARKED JG
4 — 19
MARKED GE
2 — 21
MARKED LN
C B A
11 1
20 10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)



SECTION B-B
16 PLACES
SCALE 2/1

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C2	22	5B8-2	5B8-20	
C3		5B16-2	5B16-20	
C4		5B13-5	5B13-20	
C5		5B13-19	5B11-20	
C6		5A2-11	5A2-20	
C7		5A14-7	5A14-20	
C8		5A16-2	5A16-20	
C9		5A17-2	5A17-20	
C10		5B17-9	5B19-20	
C11		5B2-8	5B1-20	
C12		5A20-15	5A20-20	
C13		5A11-13	5A11-20	
C14		5A2-8	5A4-20	
C15		5B3-11	5B3-20	
C16		5B3-9	5B5-20	
C17		5B1-15	5B1-20	
C18		5B21-9	5B20-20	
C19		5B32-8	5B32-20	
C20		5B7-2	5B7-20	
C21		5B3-1	5B2-20	
C22		5A29-15	5A29-20	
C23	22	5B24-3	5B24-20	
C1	25	5A9-7	5A10-20	

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.18 PER 2014089 OR 2016371 OR 2016434 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.22 & NO.25 PER CHART A & DETAIL A
8A. SOLDER PER ND1002071
8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 23~~
10. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 24
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	—	2016433	LOGIC DIAGRAM	REF
☒	—	—	2016434	WIREWRAP MACH. CARD	REF
—	☒	—	2016383	LOGIC DIAGRAM	REF
—	☒	—	2016371	WIREWRAP MACH CARD	REF
—	—	☒	2014107	LOGIC DIAGRAM	REF
—	—	☒	2014089	WIREWRAP MACH. CARD	REF
1	1	1	MS15825-5	CAPACITOR, 750 μμf 500VDC	25
* 2.5	2.5	2.5	SEE NOTE 10	SLEEVING	24
AR	AR	AR	1006776-197	SLEEVING, INSULATION	23
22	22	22	CS13AF010K	CAPACITOR, 1μf 35V	22
2	2	2	2014000-011	MODULE, BUFFERED FLIP FLOP	21
2	2	2	1014065-3	MODULE, RESISTOR	20
4	4	4	1014230	MODULE, INTERFACE RECEIVER	19
AR	AR	AR	1006945-1	WIRE, ELECTRICAL	18
45	45	42	1014034	MODULE, NOR	17
5	5	5	1014096	MODULE, DRIVER	16
AR	AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	16	MS51959-15	SCREW, FLAT HD	14
6	6	6	MS51959-27	SCREW, FLAT HD	13
120	120	114	MS35338-79	WASHER, LOCK	12
120	120	114	1006997	WASHER, FLAT	11
120	120	114	MS51957-29	SCREW, PAN HD	10
16	16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	16	MS35338-78	WASHER, LOCK	8
16	16	16	MS15795-803	WASHER, FLAT	7
16	16	16	MS51957-17	SCREW, PAN HD	6
120	120	114	1014212	STAND-OFF, PROGRAM	5
1	1	1	1006495-001	PLATE ASSY	4
1	1	1	1014026	COVER, CONN PLATE	3
1	1	1	1014007	SUPPORT, FRAME	2
1	1	1	1014014-2	FRAME	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014036	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NA[illegible] 4[illegible]7
DRAWN [illegible] DATE [illegible] 65
CHECKED [illegible]
APPROVAL [illegible] 7/20/65
APPROVAL D. C. Duke 19 JULY 65
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

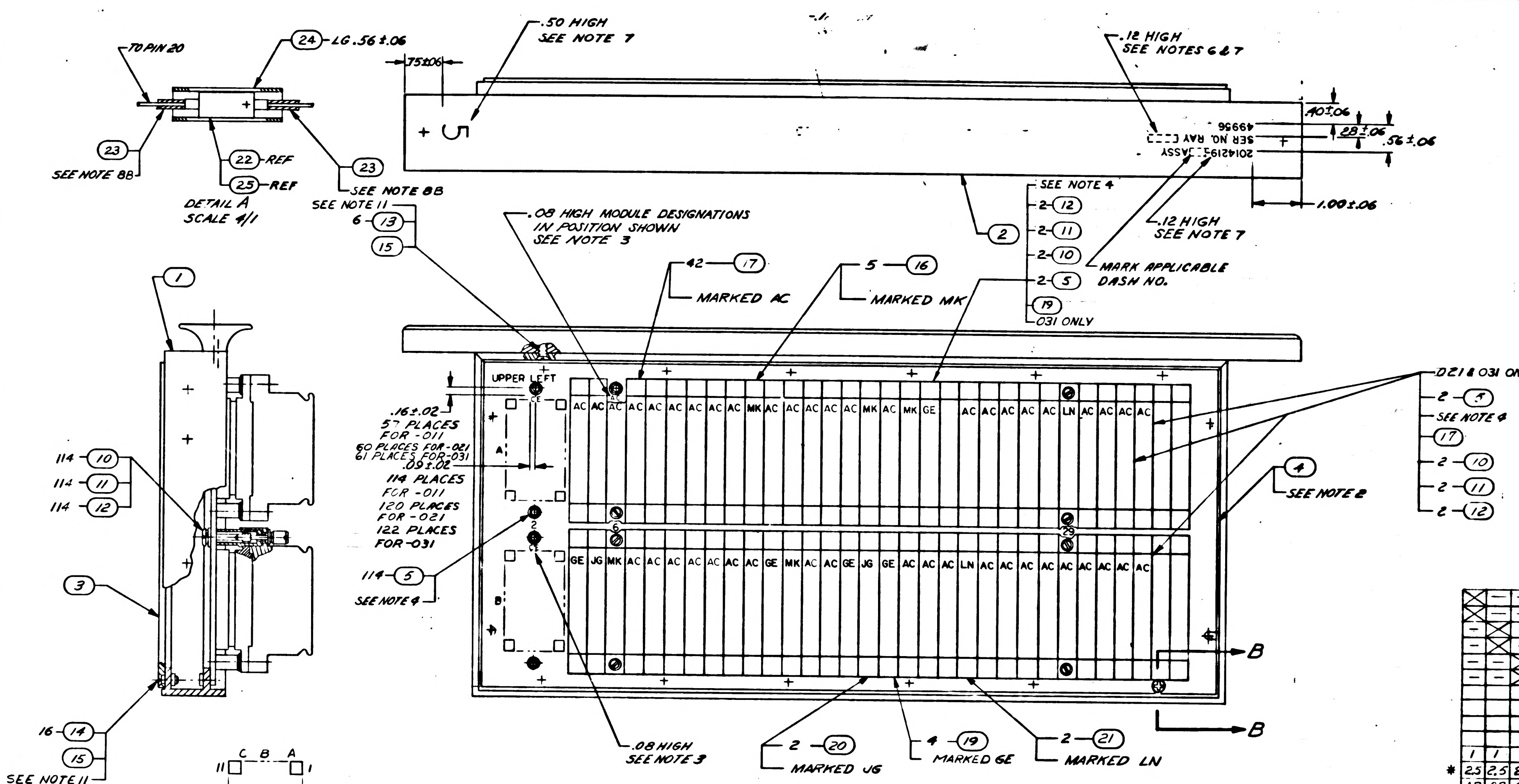
LOGIC PLATE ASSY NO.5
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014219
SCALE 1/1 WT SHEET 1 OF 1

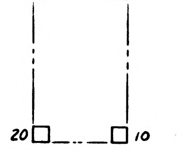
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014219 G

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25059	[illegible]	[illegible]
1	CHANGED PER CCA R25485 DR V. Russo CHK E. Urban APPD	[illegible]	[illegible]
—	CLASS B CHANGED PER CCA R25502	12/65	[illegible]
A	CHANGED PER CCA R25621 DR CHK APPD	1/6/66	[illegible]
B	CHANGED PER CCA R25699 DR CHK APPD	1/7/66	[illegible]
C	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]
D	CHANGED PER TDRR 28103 DR CHK APPD	[illegible]/66	[illegible]
E	CHANGED PER TDRR 28391 DR CHK APPD	5/13/66	[illegible]
F	CHANGED PER TDRR 29329 DR CHK APPD	[illegible]/66	[illegible]
G	CHANGED PER TDRR 29818 DR R Stahl CHK APPD	[illegible]/66	[illegible]



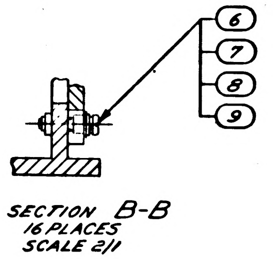
TO PIN 20
24 — LG .56 ±.06
23
SEE NOTE 8B
22 — REF
25 — REF
23
SEE NOTE 8B
DETAIL A
SCALE 4/1
.75±.06
.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTES 6 & 7
2014219-[ ] ASSY
49956
SER NO. RAY [ ]
.40±.06
.28±.06
.56±.06
1.00±.06
SEE NOTE 4
2-12
2-11
2-10
2-5
19
031 ONLY
.12 HIGH
SEE NOTE 7
MARK APPLICABLE DASH NO.
SEE NOTE 11
6-13
15
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN
SEE NOTE 3
42-17
MARKED AC
5-16
MARKED MK
2
1
UPPER LEFT
.16±.02
57 PLACES FOR -011
60 PLACES FOR -021
61 PLACES FOR -031
.09±.02
114 PLACES FOR -011
120 PLACES FOR -021
122 PLACES FOR -031
114-10
114-11
114-12
3
114-5
SEE NOTE 4
A
B
AC AC AC AC AC AC AC AC AC MK AC AC AC AC AC MK AC MK GE AC AC AC AC AC LN AC AC AC AC
GE JG MK AC AC AC AC AC AC GE MK AC AC GE JG GE AC AC AC LN AC AC AC AC AC AC AC AC AC
D21 & 031 ONLY
2-5
SEE NOTE 4
17
2-10
2-11
2-12
4
SEE NOTE 2
B
B
16-14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
2-20
MARKED JG
4-19
MARKED GE
2-21
MARKED LN
C B A
11
1



TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C2	22	5B8-2	5B8-20	
C3		5B16-2	5B16-20	
C4		5B13-5	5B13-20	
C5		5B13-19	5B11-20	
C6		5A2-11	5A2-20	
C7		5A14-7	5A14-20	
C8		5A16-2	5A16-20	
C9		5A17-2	5A17-20	
C10		5B17-9	5B19-20	
C11		5B2-8	5B1-20	
C12		5A20-15	5A20-20	
C13		5A11-13	5A11-20	
C14		5A2-8	5A4-20	
C15		5B3-11	5B3-20	
C16		5B3-9	5B5-20	
C17		5B1-15	5B1-20	
C18		5B21-9	5B20-20	
C19		5B32-8	5B32-20	
C20		5B7-2	5B7-20	
C21		5B3-1	5B2-20	
C22		5A29-15	5A29-20	
C23	22	5B24-3	5B24-20	
C1	25	5A9-7	5A10-20	

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.18 PER 2014089 OR 2016371 OR 2016434 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.22 & NO.25 PER CHART A & DETAIL A
8A. SOLDER PER ND1002071
8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 23~~
10. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 24
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15



SECTION B-B
16 PLACES
SCALE 2/1

✱ DENOTES LENGTH IN FEET

☒	—	—	2016433	LOGIC DIAGRAM	REF
☒	—	—	2016434	WIREWRAP MACH. CARD	REF
—	☒	—	2016383	LOGIC DIAGRAM	REF
—	☒	—	2016371	WIREWRAP MACH CARD	REF
—	—	☒	2014107	LOGIC DIAGRAM	REF
—	—	☒	2014089	WIREWRAP MACH. CARD	REF
1	1	1	MS15825-5	CAPACITOR, 750 μμf 500VDC	25
✱ 2.5	2.5	25	SEE NOTE 10	SLEEVING	24
AR	AR	AR	1006776-197	SLEEVING, INSULATION	23
22	22	22	CS13AF010K	CAPACITOR, 1μf 35V	22
2	2	2	2014000-011	MODULE, BUFFERED FLIP FLOP	21
2	2	2	1014065-3	MODULE, RESISTOR	20
5	4	4	1014230	MODULE, INTERFACE RECEIVER	19
AR	AR	AR	1006945-1	WIRE, ELECTRICAL	18
45	45	42	1014034	MODULE, NOR	17
5	5	5	1014096	MODULE, DRIVER	16
AR	AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	16	MS51959-15	SCREW, FLAT HD	14
6	6	6	MS51959-27	SCREW, FLAT HD	13
122	120	114	MS35338-79	WASHER, LOCK	12
122	120	114	1006937	WASHER, FLAT	11
122	120	114	MS51957-29	SCREW, PAN HD	10
16	16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	16	MS35338-78	WASHER, LOCK	8
16	16	16	MS15795-803	WASHER, FLAT	7
16	16	16	MS51957-17	SCREW, PAN HD	6
122	120	114	1014212	STAND-OFF, PROGRAM	5
1	1	1	1006495-001	PLATE ASSY	4
1	1	1	1014026	COVER, CONN PLATE	3
1	1	1	1014007	SUPPORT, FRAME	2
1	1	1	1014014-2	FRAME	1
QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-031	-021	-011	LIST OF MATERIALS		

2014036	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-437
DRAWN DATE
CHECKED
APPROVAL 7/20/65
APPROVAL 19 JULY 65
APPROVAL 7/21/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

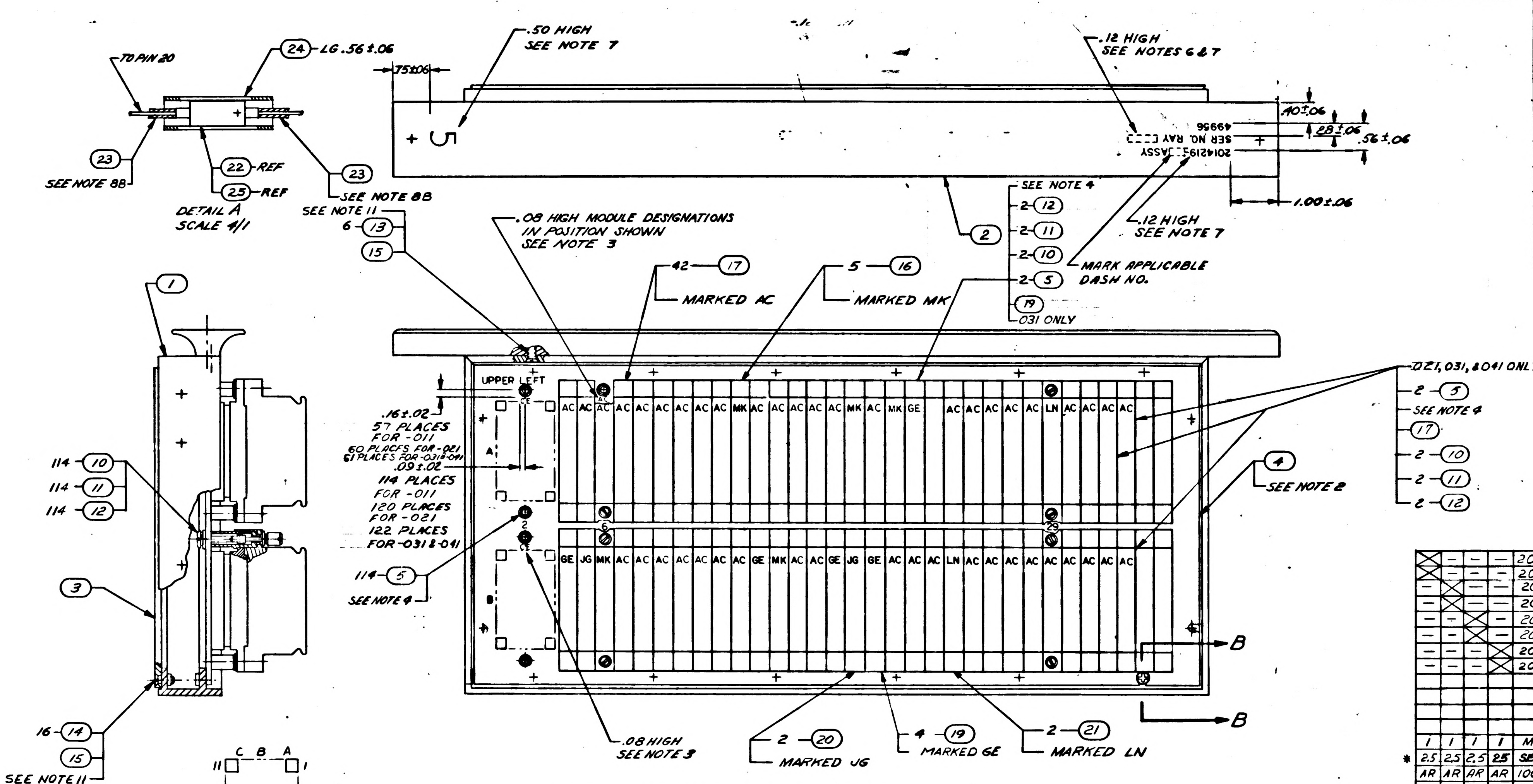
LOGIC PLATE ASSY NO. 5
LOGIC DRAWER NO. 1
COMPUTER TEST SET

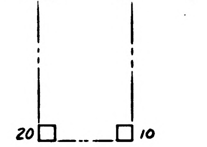
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014219
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014219 H

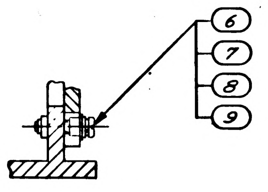
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED [illegible] CA [illegible]59	[illegible]	[illegible]
1	CHANGED PER CCA R25485 DR V. Russo CHK E. Uhlan APPD	11/13/65	
—	CLASS B CHANGED PER CCA R25502	12/1/65	
A	CHANGED PER CCA R25621 DR CHK APPD	1/6/66	
B	CHANGED PER CCA R25639 DR CHK C. APPD	1/4/66	
C	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
D	CHANGED PER TDRR 28103 DR CHK APPD	4/26/66	
E	CHANGED PER TDRR 28391 DR CHK CAP APPD	5/13/66	
F	CHANGED PER TDRR 29329 DR CHK APPD PED	6/14/66	
G	CHANGED PER TDRR 29818 DR R Stule CHK APPD	7/8/66	
H	CHANGED PER TDRR 31281 DR J P Giordano CHK APPD L+B	10/2/66	


TO PIN 20
24 — LG .56 ±.06
23
SEE NOTE 8B
22 — REF
25 — REF
23
SEE NOTE 8B
DETAIL A
SCALE 4/1
.75±.06
.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTES 6 & 7
2014219-ASSY
SER NO. RAY
49956
.40±.06
.28±.06
.56±.06
1.00±.06
SEE NOTE 4
2-12
2-10
2-5
2
19
.031 ONLY
.12 HIGH
SEE NOTE 7
MARK APPLICABLE
DASH NO.
SEE NOTE 11
6-13
15
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
42 — 17
MARKED AC
5 — 16
MARKED MK
1
UPPER LEFT
.16±.02
57 PLACES
FOR -011
60 PLACES FOR -021
61 PLACES FOR -031 & -041
.09±.02
114 PLACES
FOR -011
120 PLACES
FOR -021
122 PLACES
FOR -031 & -041
114 — 10
114 — 11
114 — 12
3
114 — 5
SEE NOTE 4
AC AC AC AC AC AC AC AC AC MK AC AC AC AC AC MK AC MK GE AC AC AC AC AC LN AC AC AC AC
GE JG MK AC AC AC AC AC AC GE MK AC AC GE JG GE AC AC LN AC AC AC AC AC AC AC AC AC AC
DZ1, 031, & 041 ONLY
2 — 5
SEE NOTE 4
17
2 — 10
2 — 11
2 — 12
4
SEE NOTE 2
B
B
16 — 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
2 — 20
MARKED JG
4 — 19
MARKED GE
2 — 21
MARKED LN


C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C2	22	5B8-2	5B8-20	
C3		5B16-2	5B16-20	
C4		5B13-5	5B13-20	
C5		5B13-19	5B11-20	
C6		5A2-11	5A2-20	
C7		5A14-7	5A14-20	
C8		5A16-2	5A16-20	
C9		5A17-2	5A17-20	
C10		5B17-9	5B19-20	
C11		5B2-8	5B1-20	
C12		5A20-15	5A20-20	
C13		5A11-13	5A11-20	
C14		5A2-8	5A4-20	
C15		5B3-11	5B3-20	
C16		5B3-9	5B5-20	
C17		5B1-15	5B1-20	
C18		5B21-9	5B20-20	
C19		5B32-8	5B32-20	
C20		5B7-2	5B7-20	
C21		5B3-1	5B2-20	
C22		5A29-15	5A29-20	
C23	22	5B24-3	5B24-20	
C1	25	5A9-7	5A10-20	



SECTION B-B
16 PLACES
SCALE 2/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 18 PER 2014089 OR 2016371 OR 2016434 OR 2016457 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 22 & NO. 25 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 23~~
10. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 24
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	—	—	2016458	LOGIC DIAGRAM	REF
☒	—	—	—	2016457	WIREWRAP MACH CARD	REF
—	☒	—	—	2016433	LOGIC DIAGRAM	REF
—	☒	—	—	2016434	WIREWRAP MACH. CARD	REF
—	—	☒	—	2016383	LOGIC DIAGRAM	REF
—	—	☒	—	2016371	WIREWRAP MACH CARD	REF
—	—	—	☒	2014107	LOGIC DIAGRAM	REF
—	—	—	☒	2014089	WIREWRAP MACH. CARD	REF
1	1	1	1	MS15825-5	CAPACITOR, 750 µµf 500VDC	25
✱ 2.5	2.5	2.5	25	SEE NOTE 10	SLEEVING	24
AR	AR	AR	AR	1006776-197	SLEEVING, INSULATION	23
22	22	22	22	CS13AF010K	CAPACITOR, 1µf 35V	22
2	2	2	2	2014000-011	MODULE, BUFFERED FLIP FLOP	21
2	2	2	2	1014065-3	MODULE, RESISTOR	20
5	5	4	4	1014230	MODULE, INTERFACE RECEIVER	19
AR	AR	AR	AR	1006945-1	WIRE, ELECTRICAL	18
45	45	45	42	1014034	MODULE, NOR	17
5	5	5	5	1014096	MODULE, DRIVER	16
AR	AR	AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	16	16	MS51959-15	SCREW, FLAT HD	14
6	6	6	6	MS51959-27	SCREW, FLAT HD	13
122	122	120	114	MS35338-79	WASHER, LOCK	12
122	122	120	114	1006997	WASHER, FLAT	11
122	122	120	114	MS51957-29	SCREW, PAN HD	10
16	16	16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	16	16	MS35338-78	WASHER, LOCK	8
16	16	16	16	MS15795-803	WASHER, FLAT	7
16	16	16	16	MS51957-17	SCREW, PAN HD	6
122	122	120	114	1014212	STAND-OFF, PROGRAM	5
1	1	1	1	1006495-001	PLATE ASSY	4
1	1	1	1	1014026	COVER, CONN PLATE	3
1	1	1	1	1014007	SUPPORT, FRAME	2
1	1	1	1	1014014-2	FRAME	1

LIST OF MATERIALS

✱ DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014036	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NA[illegible]
DRAWN DATE
CHECKED
APPROVAL 7/20/65
APPROVAL 19 JULY 65
APPROVAL 7/2 /65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

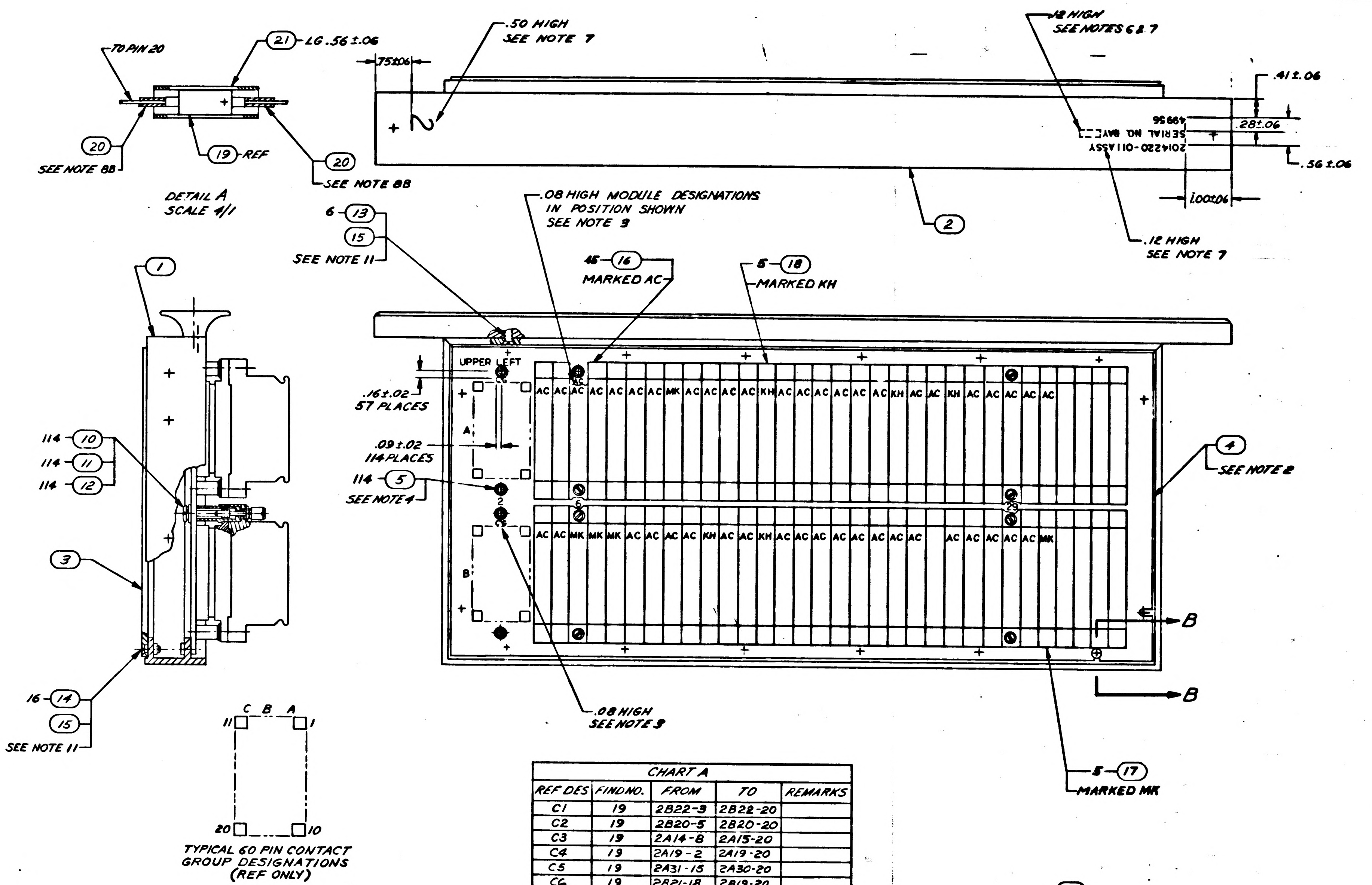
LOGIC PLATE ASSY NO. 5
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014219
SCALE 1/1
WT
SHEET 1 OF 1

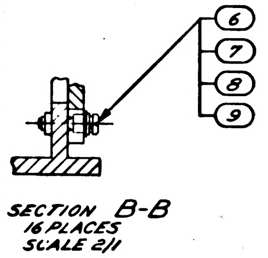
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014220 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25059		
1	CHANGED PER CCA R25485 DR V. Burns CHK APPD 11-13-65	11/13/65	
-	CLASS B CHANGED PER CCA R25502	11/16/65	
A	CHANGED PER CCA R25621 DR CHK APPD	1/6/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	


TO PIN 20
21 - LG .56 ±.06
20
SEE NOTE 8B
19 - REF
20
SEE NOTE 8B
DETAIL A
SCALE 4/1
.75±.06
.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTES 6 & 7
49956
SERIAL NO. BAY
2014220-011ASSY
.41±.06
.28±.06
.56±.06
1.00±.06
.12 HIGH
SEE NOTE 7
2
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
6 - 13
15
SEE NOTE 11
45 - 16
MARKED AC
5 - 18
MARKED KH
1
UPPER LEFT
.16±.02
57 PLACES
.09±.02
114 PLACES
114 - 5
SEE NOTE 4
A
B
4
SEE NOTE 2
AC AC AC AC AC AC AC MK AC AC AC AC KH AC AC AC AC AC AC KH AC AC KH AC AC AC AC AC
AC AC MK MK MK AC AC AC AC KH AC AC KH AC AC AC AC AC AC AC AC AC AC AC AC AC
114 - 10
114 - 11
114 - 12
3
16 - 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
B
B
5 - 17
MARKED MK
C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)



SECTION B-B
16 PLACES
SCALE 2/1

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	19	2B22-3	2B22-20	
C2	19	2B20-5	2B20-20	
C3	19	2A14-8	2A15-20	
C4	19	2A19-2	2A19-20	
C5	19	2A31-15	2A30-20	
C6	19	2B21-18	2B19-20	
C7	19	2A1-8	2A3-20	
C8	19	2A31-12	2A31-20	
C9	19	2B1-19	2B2-20	
C10	19	2B30-12	2B30-20	
C11	19	2B21-15	2B21-20	

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO.16 PER 2014092 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 19 PER CHART A & DETAIL A
   - 8A. SOLDER PER ND1002071
   - 8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
9. ~~MIL-I-631 TYPE F FORM U GRADE A CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 20~~
10. MIL-I-631 TYPE F FORM U GRADE A CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 21
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014067	LOGIC FLOW DIAGRAM	REF
	☒	2014092	WIREWRAP MACH. CARD	REF
	AR	1006945-1	WIRE, ELECTRICAL	22
*	.6	SEE NOTE 10	SLEEVING	21
	AR	1006776-197	SLEEVING, INSULATION	20
	11	CS13AF010K	CAPACITOR 1uf 35 V	19
	5	1014079	MODULE, GATED FLIP-FLOP	18
	5	1014096	MODULE, DRIVER	17
	45	1014034	MODULE, NOR	16
	AR	MIL-S-22473, GR, HV	SEALING & RETAINING COMPOUND	15
	16	MS51959-15	SCREW, FLAT HD	14
	6	MS51959-25	SCREW, FLAT HD	13
	114	MS35338-79	WASHER, LOCK	12
	114	1006997	WASHER, FLAT	11
	114	MS51957-29	SCREW, PAN HD	10
	16	1006986	WASHER, SHOULDERED, NYLON	9
	16	MS35338-78	WASHER, LOCK	8
	16	MS15795-803	WASHER, FLAT	7
	16	MS51957-17	SCREW, PAN HD	6
	114	1014212	STAND-OFF, PROGRAM	5
	1	1006495-001	PLATE ASSY	4
	1	1014026	COVER, CONN PLATE	3
	1	1014007	SUPPORT, FRAME	2
	1	1014014-2	FRAME	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014037	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 22MAY65
CHECKED 18 Jun
APPROVAL E. Duffy 20 Jun 65
APPROVAL
APPROVAL 7/1/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C S 1/6

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

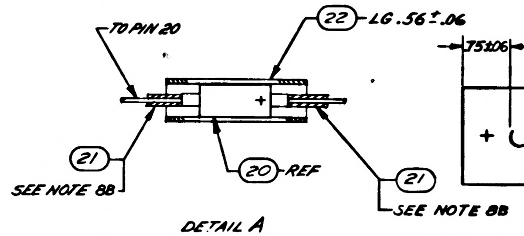
LOGIC PLATE ASSY NO.2
LOGIC DRAWER NO.2
COMPUTER TEST SET

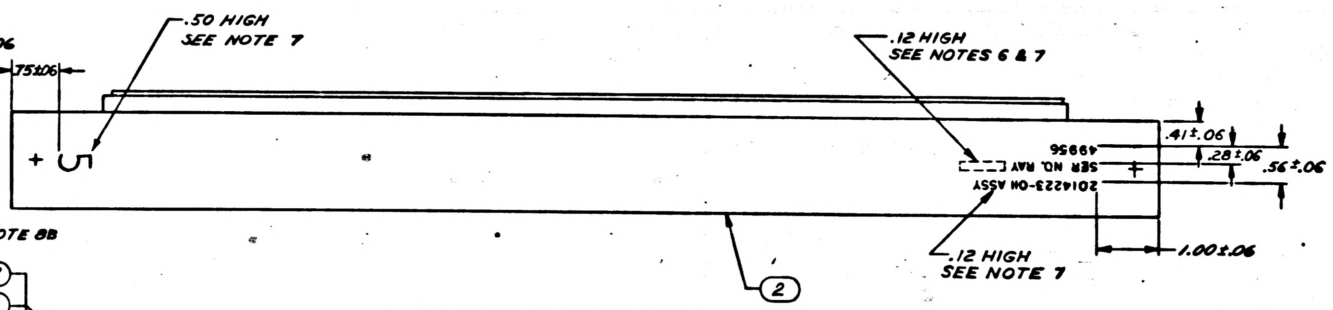
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014220
SCALE 1/1
WT
SHEET 1 OF 1

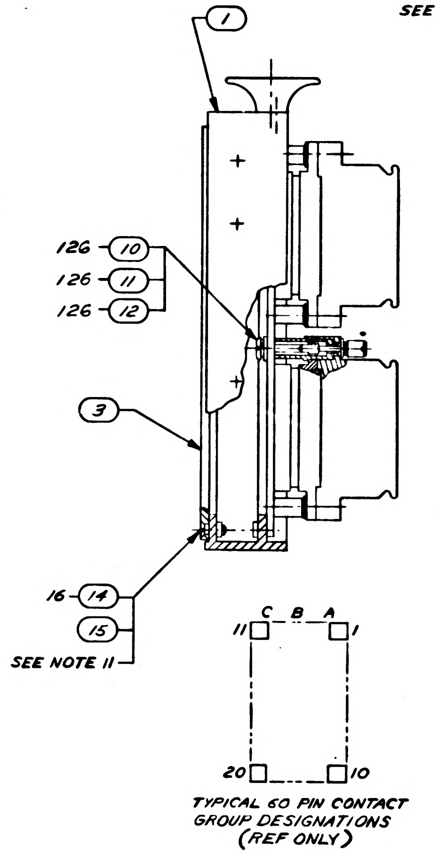
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014223 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25259	[illegible]	[illegible]
1	CHANGED PER CCA R25485 DR [illegible] CHK [illegible] APPD [illegible] 11-13-65	11/12/65	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD [illegible]	1/4/66	[illegible]
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	4/14/66	[illegible]


TO PIN 20
22
LG .56±.06
21
SEE NOTE 8B
20 REF
21
SEE NOTE 8B
DETAIL A
SCALE 4/1


.50 HIGH
SEE NOTE 7
.75±.06
.12 HIGH
SEE NOTES 6 & 7
.41±.06
.28±.06
.56±.06
2014223-ON ASSY
SER NO. RAY
49956
1.00±.06
.12 HIGH
SEE NOTE 7
2


1
126 10
126 11
126 12
3
16 14
15
SEE NOTE 11
C B A
11
1
20
10
TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

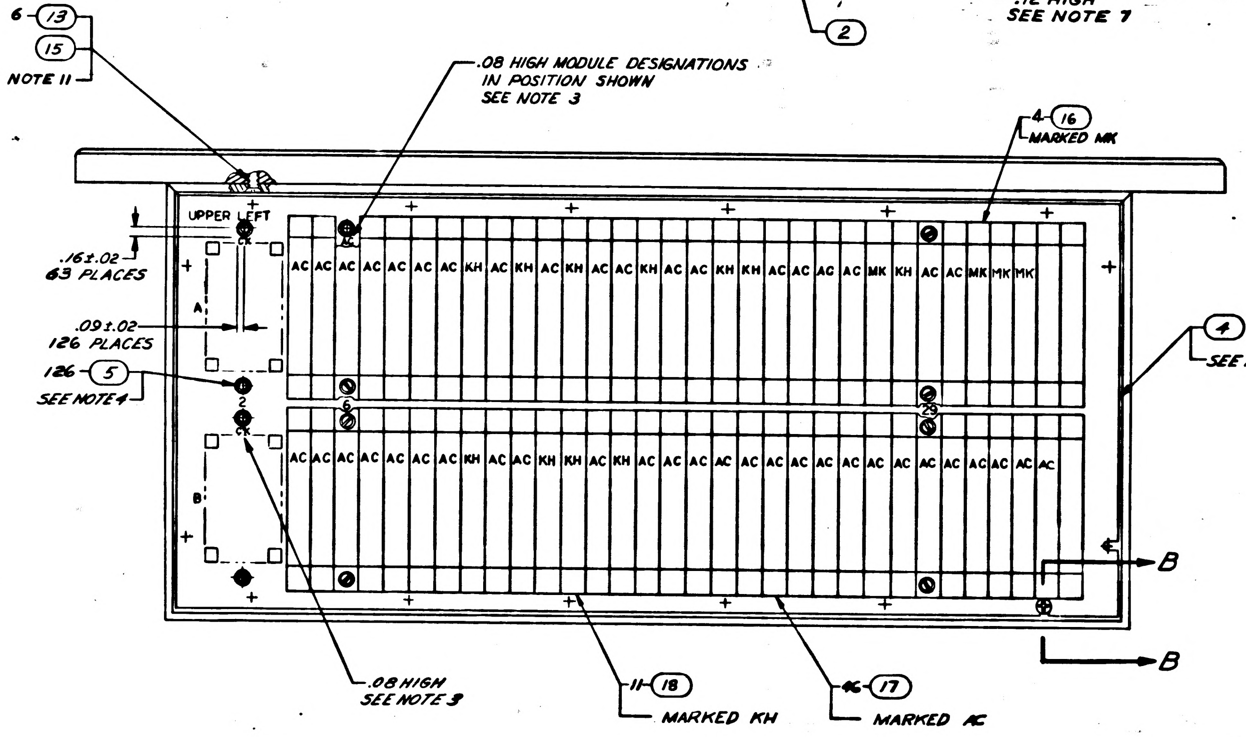
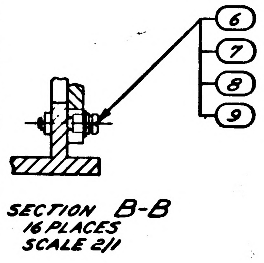

6 13
15
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
4 16
MARKED MK
UPPER LEFT
.16±.02
63 PLACES
.09±.02
126 PLACES
126 5
SEE NOTE 4
A
B
4
SEE NOTE 2
AC AC AC AC AC AC AC KH AC KH AC KH AC AC KH AC AC KH KH AC AC AC AC MK KH AC AC MK MK MK
AC AC AC AC AC AC AC KH AC AC KH AC KH AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC
B
B
.08 HIGH
SEE NOTE 3
11 18
MARKED KH
46 17
MARKED AC

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	5B20-7	5B20-20	
C2	20	5B22-7	5B22-20	
C3	20	5B23-2	5B23-20	
C4	20	5B21-2	5B21-20	
C5	20	5B12-4	5B12-20	
C6	20	5B1-13	5B1-20	
C7	20	5B2-4	5B2-20	


6
7
8
9
SECTION B-B
16 PLACES
SCALE 2/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 19 PER 2014095 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 20 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE A CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 21~~
10. MIL-I-631 TYPE F FORM U GRADE A CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 22
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014070	LOGIC DIAGRAM	REF
☒	2014095	WIREWRAP MACH. CARD	REF
* .7	SEE NOTE 10	SLEEVING	22
AR	1006776-197	SLEEVING, INSULATION	21
7	CS13AF010K	CAPACITOR, 1µf 35V (10%)	20
AR	1006945-1	WIRE, ELEC, INSUL, NO. 24 AWG, SOLID	19
11	1014079	MODULE, GATED FLIP FLOP	18
46	1014034	MODULE, NOR	17
4	1014096	MODULE, DRIVER	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
126	MS35338-79	WASHER, LOCK	12
126	1006997	WASHER, FLAT	11
126	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
126	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014007	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014037	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO [illegible]
DRAWN [illegible] DATE 5/20/65
CHECKED [illegible] 6-17-65
APPROVAL [illegible] 6/23/65
APPROVAL [illegible]
APPROVAL [illegible] 7/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO. 5
LOGIC DRAWER NO. 2
COMPUTER TEST SET

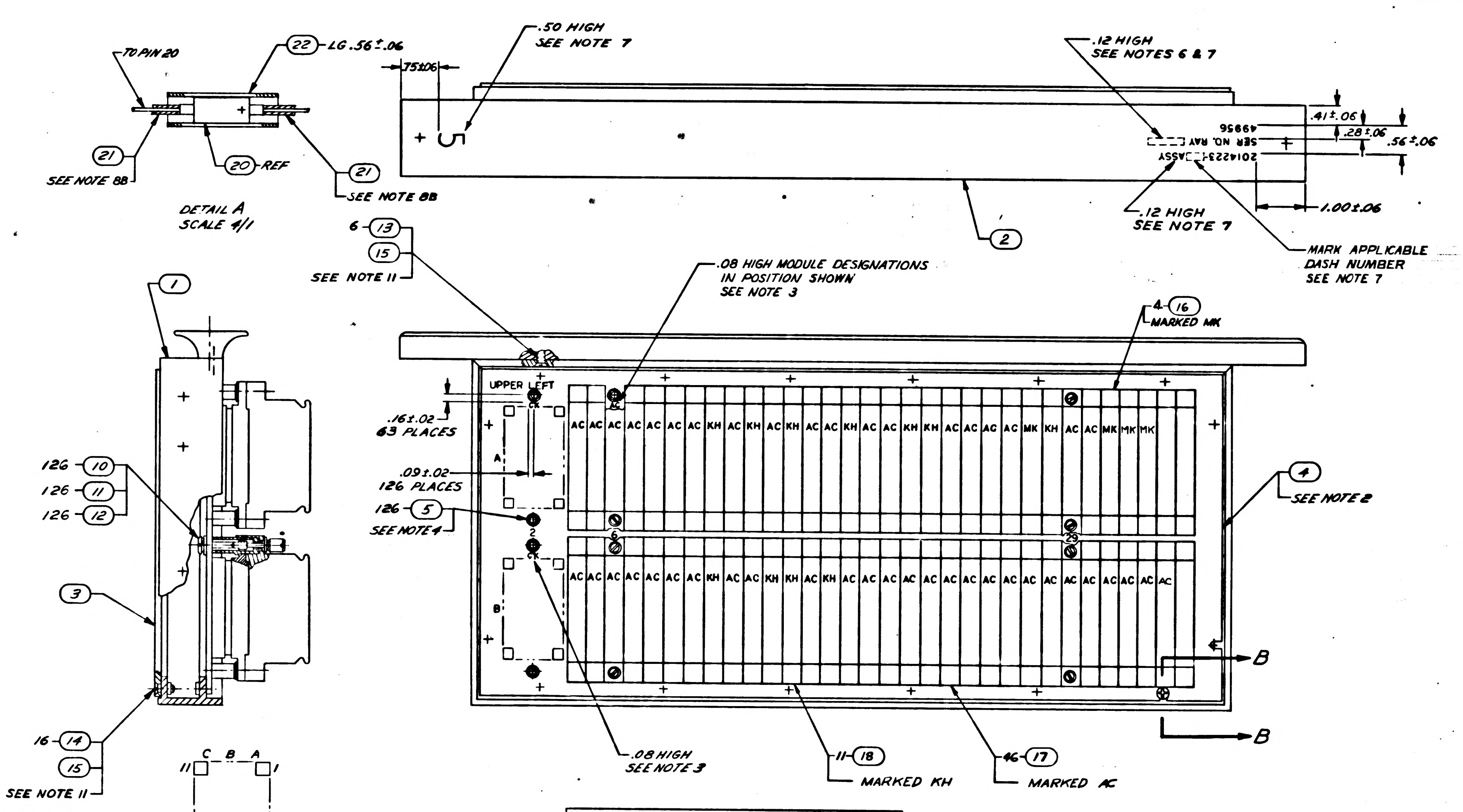
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014223
SCALE 1/1
WT
SHEET 1 OF 1

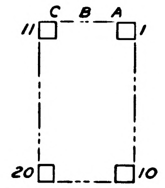
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014223 C

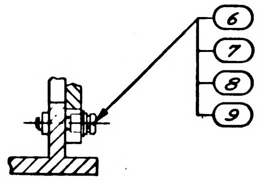
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25059		
1	CHANGED PER CCA R25485 DR CHK APPD 1-3-65	11/12/65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR CHK APPD	1/4/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 29337 DR. P CHK. G. APPD		


TO PIN 20
22 - LG .56±.06
21 SEE NOTE 8B
20 - REF
21 SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
.12 HIGH
SEE NOTES 6 & 7
49956
SER NO. RAY
2014223-ASSY
.41±.06
.28±.06
.56±.06
1.00±.06
.12 HIGH
SEE NOTE 7
MARK APPLICABLE
DASH NUMBER
SEE NOTE 7
2
6 - 13
15
SEE NOTE 11
1
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
4 - 16
MARKED MK
UPPER LEFT
.16±.02
63 PLACES
.09±.02
126 PLACES
126 - 5
SEE NOTE 4
A
B
AC AC AC AC AC AC AC KH AC KH AC KH AC AC KH AC AC KH KH AC AC AC AC MK KH AC AC MK MK MK
AC AC AC AC AC AC AC KH AC AC KH KH AC KH AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC
4
SEE NOTE 2
B
B
126 - 10
126 - 11
126 - 12
3
16 - 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
11 - 18
MARKED KH
46 - 17
MARKED AC


C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	5B20-7	5B20-20	
C2	20	5B22-7	5B22-20	
C3	20	5B23-2	5B23-20	
C4	20	5B21-2	5B21-20	
C5	20	5B12-4	5B12-20	
C6	20	5B1-13	5B1-20	
C7	20	5B2-4	5B2-20	



SECTION B-B
16 PLACES
SCALE 2/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 19 PER 2014095, 2016449 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 20 PER CHART A & DETAIL A
8A. SOLDER PER ND1002071
8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR BLUE AWG SIZE NO 24 FOR FIND NO 21~~
10. MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO 8 FOR FIND NO. 22
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15

☒	–	2016450	LOGIC DIAGRAM	REF
☒	–	2016449	WIREWRAP MACH. CARD	REF
–	☒	2014070	LOGIC DIAGRAM	REF
–	☒	2014095	WIREWRAP MACH. CARD	REF
*.7	.7	SEE NOTE 10	SLEEVING	22
AR	AR	1006776-197	SLEEVING, INSULATION	21
7	7	CS13AF010K	CAPACITOR, 1uf 35V (10%)	20
AR	AR	1006945-1	WIRE, ELEC, INSUL., NO. 24 AWG, SOLID	19
11	11	1014079	MODULE, GATED FLIP FLOP	18
46	46	1014034	MODULE, NOR	17
4	4	1014096	MODULE, DRIVER	16
AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	MS51959-15	SCREW, FLAT HD	14
6	6	MS51959-27	SCREW, FLAT HD	13
126	126	MS35338-79	WASHER, LOCK	12
126	126	1006997	WASHER, FLAT	11
126	126	MS51957-29	SCREW, PAN HD	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	MS35338-78	WASHER, LOCK	8
16	16	MS15795-803	WASHER, FLAT	7
16	16	MS51957-17	SCREW, PAN HD	6
126	126	1014212	STAND-OFF, PROGRAM	5
1	1	1006495-001	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
1	1	1014007	SUPPORT, FRAME	2
1	1	1014014-2	FRAME	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-021	-011	LIST OF MATERIALS		

*DENOTES LENGTH IN FEET

2014037	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO
DRAWN DATE 5/28/65
CHECKED 6-17-65
APPROVAL 6/23/65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO. 5
LOGIC DRAWER NO. 2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014223
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014224 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25059	[illegible]	[illegible]
1	CHANGED PER CCA R25209 DR R [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
2	CHANGED PER CCA R 25485 DR P. [illegible] CHK [illegible] APPD P.E.D. 11-17-65	[illegible]	[illegible]
-	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD P.E.D.	1/6/66	[illegible]
B	CHANGED PER CCA R25711 DR B.R. [illegible] CHK [illegible] APPD P.E.D.	[illegible]	[illegible]
C	CHANGED PER CCA R25751 AND CLASS A RELEASED PER TDRR 25472	4/15/66	[illegible]

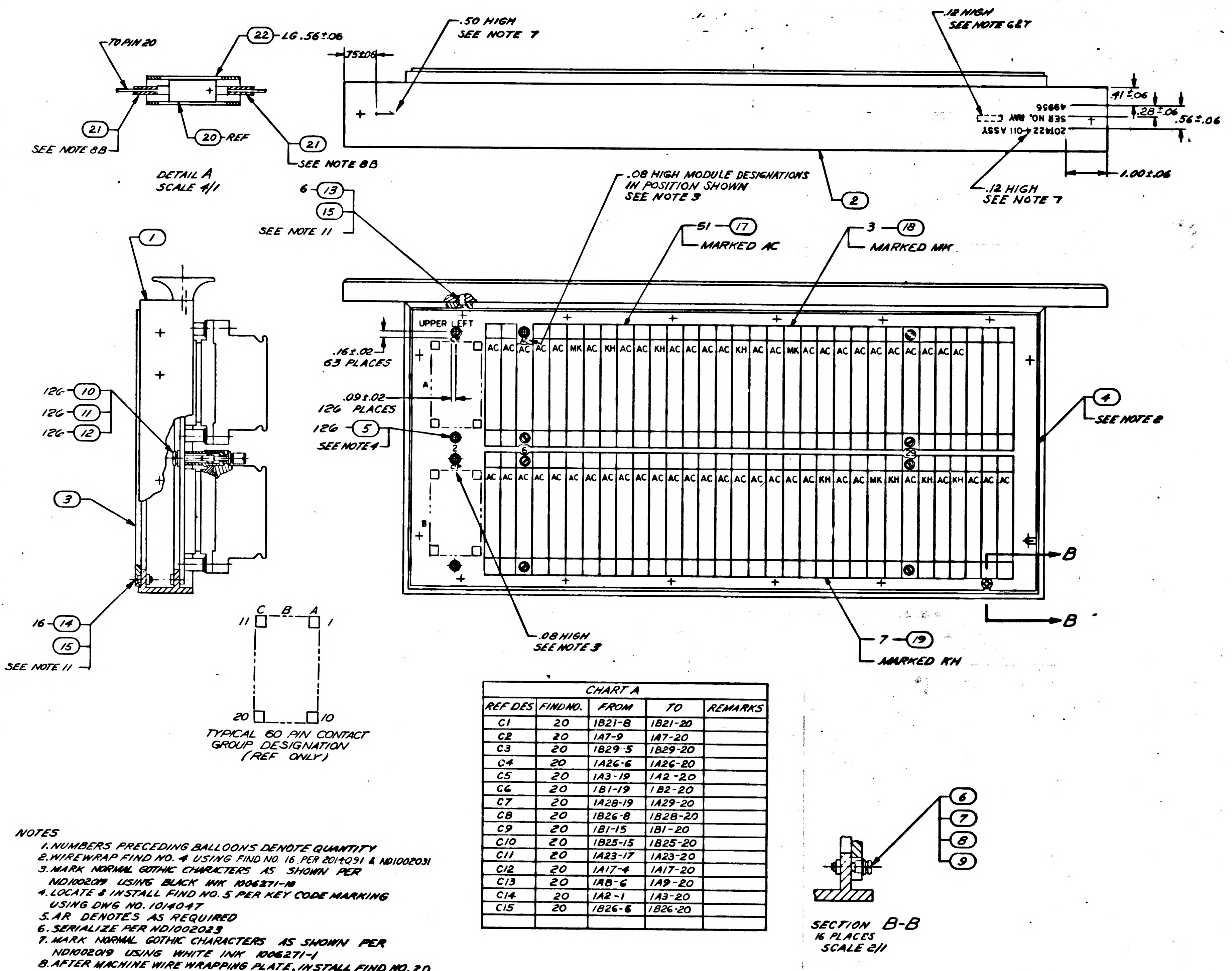

TO PIN 20
22 - LG .56±.06
21
SEE NOTE 8B
20 - REF
21
SEE NOTE 8B
DETAIL A
SCALE 4/1
.75±.06
.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTE 6&7
49956
SER NO.
2014224-011 ASSY
.41±.06
.28±.06
.56±.06
1.00±.06
.12 HIGH
SEE NOTE 7
2
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
6 - 13
15
SEE NOTE 11
51 - 17
MARKED AC
3 - 18
MARKED MK
1
UPPER LEFT
.16±.02
63 PLACES
.09±.02
126 PLACES
126 - 5
SEE NOTE 4
A
B
2
6
29
4
SEE NOTE 2
126 - 10
126 - 11
126 - 12
3
AC AC AC AC AC MK AC KH AC AC KH AC AC AC AC KH AC AC MK AC AC AC AC AC AC AC AC AC AC
AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC KH AC AC MK KH AC KH AC KH AC AC AC
B
B
16 - 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
7 - 19
MARKED KH
C B A
11 1
20 10
TYPICAL 60 PIN CONTACT
GROUP DESIGNATION
(REF ONLY)
6
7
8
9
SECTION B-B
16 PLACES
SCALE 2/1

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	1B21-8	1B21-20	
C2	20	1A7-9	1A7-20	
C3	20	1B29-5	1B29-20	
C4	20	1A26-6	1A26-20	
C5	20	1A3-19	1A2-20	
C6	20	1B1-19	1B2-20	
C7	20	1A28-19	1A29-20	
C8	20	1B26-8	1B28-20	
C9	20	1B1-15	1B1-20	
C10	20	1B25-15	1B25-20	
C11	20	1A23-17	1A23-20	
C12	20	1A17-4	1A17-20	
C13	20	1A8-6	1A9-20	
C14	20	1A2-1	1A3-20	
C15	20	1B26-6	1B26-20	

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 16 PER 2014091 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 20 PER CHART "A" & DETAIL A
   - 8A. SOLDER PER ND1002071
   - 8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
9. ~~MIL-I-631 TYPE F FORM U, GRADE 2 CLASS I CATEGORY I COLOR BLUE AWG SIZE NO 21 FOR FIND NO. 21~~
10. MIL-I-631 TYPE F FORM U GRADE 2 CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 22
11. ASSEMBLE FIND NO. 14 & FIND NO. 13 USING FIND NO. 15

☒	2014066	LOGIC DIAGRAM	REF
☒	2014091	WIREWRAP MACH. CARD	REF
* 1.4	SEE NOTE 10	SLEEVING	22
AR	1006776-197	SLEEVING, INSULATION	21
15	CS13AF010K	CAPACITOR, 1uf 35 V	20
7	1014079	MODULE, GATED FLIP-FLOP	19
3	1014096	MODULE, DRIVER	18
51	1014034	MODULE, NOR	17
AR	1006945-1	WIRE, ELECTRICAL	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
126	MS35338-79	WASHER, LOCK	12
126	1006997	WASHER, FLAT	11
126	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
126	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014007	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014037	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN E. Roger DATE 5 June 65
CHECKED [illegible] 18 Jun 65
APPROVAL P. E. D. 30/6/65
APPROVAL [illegible] 6/30/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 4/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO. 1
LOGIC DRAWER NO. 2
COMPUTER TEST SET

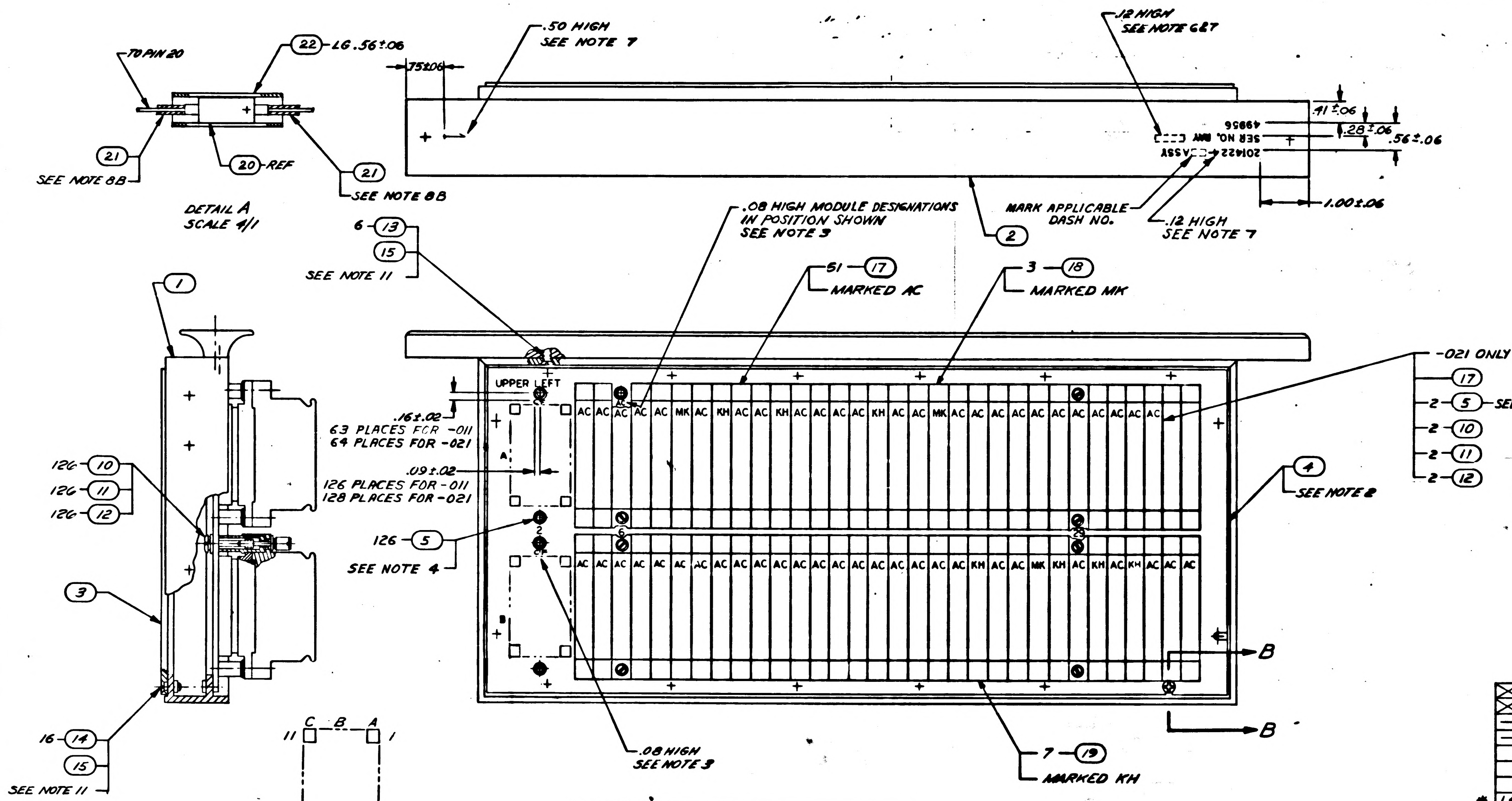
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014224
SCALE 1/1
WT
SHEET 1 OF 1

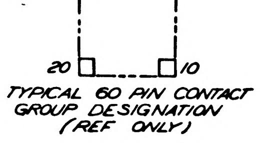
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014224 D

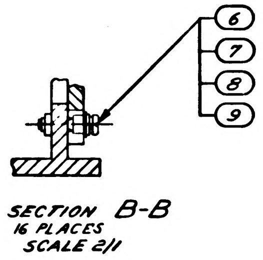
SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA 25059		
1	CHANGED PER CCA R25209 DR CHK APPD		
2	CHANGED PER CCA R 25485 DR P. CHK APPD 11-13-65		
-	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25681 DR CHK APPD P.E.D	1/6/66	
B	CHANGED PER CCA R25711 DR CHK APPD P.E.D		
C	CHANGED PER CCA R25751 AND CLASS A RELEASED PER TDRR 25472	4/15/66	
D	CHANGED PER TDRR 28101 DR CHK APPD PED		


TO PIN 20
22 - LG .56±.06
21
SEE NOTE 8B
20 - REF
21
SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
.12 HIGH
SEE NOTE 6&7
2014224 D
ASSY 201422
SER NO. 49956
.41±.06
.28±.06
.56±.06
MARK APPLICABLE DASH NO.
2
.12 HIGH
SEE NOTE 7
1.00±.06
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN
SEE NOTE 3
6 - 13
15
SEE NOTE 11
1
51 - 17 MARKED AC
3 - 18 MARKED MK
-021 ONLY
17
2 - 5 - SEE NOTE 4
2 - 10
2 - 11
2 - 12
4
SEE NOTE 2
UPPER LEFT
.16±.02
63 PLACES FOR -011
64 PLACES FOR -021
.09±.02
126 PLACES FOR -011
128 PLACES FOR -021
126 - 10
126 - 11
126 - 12
126 - 5
SEE NOTE 4
3
16 - 14
15
SEE NOTE 11
A
B
AC AC AC AC MK AC KH AC AC KH AC AC AC AC KH AC AC MK AC AC AC AC AC AC AC AC AC AC AC AC
AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC AC KH AC AC MK KH AC AC KH AC KH AC AC AC
B
B
.08 HIGH
SEE NOTE 3
7 - 19 MARKED KH


C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATION
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	1B21-8	1B21-20	—
C2	20	1A7-9	1A7-20	
C3	20	1B29-5	1B29-20	
C4	20	1A26-6	1A26-20	
C5	20	1A3-19	1A2-20	
C6	20	1B1-19	1B2-20	
C7	20	1A28-19	1A29-20	
C8	20	1B26-8	1B28-20	
C9	20	1B1-15	1B1-20	
C10	20	1B25-15	1B25-20	
C11	20	1A23-17	1A23-20	
C12	20	1A17-4	1A17-20	
C13	20	1A8-6	1A9-20	
C14	20	1A2-1	1A3-20	
C15	20	1B26-6	1B26-20	



SECTION B-B
16 PLACES
SCALE 2/1

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 16 PER 2014091 OR 2016373 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 20 PER CHART "A" & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U, GRADE 2 CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 21 FOR FIND NO. 21~~
10. MIL-I-631 TYPE F FORM U, GRADE 2 CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 22
11. ASSEMBLE FIND NO. 14 & FIND NO. 13 USING FIND NO. 15

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2016370	LOGIC DIAGRAM	REF
☒	—	2016373	WIREWRAP MACH. CARD	REF
—	☒	2014066	LOGIC DIAGRAM	REF
—	☒	2014091	WIREWRAP MACH. CARD	REF
* 1.4	1.4	SEE NOTE 10	SLEEVING	22
AR	AR	1006776-197	SLEEVING, INSULATION	21
15	15	CS13AF010K	CAPACITOR, 1uf 35 V	20
7	7	1014079	MODULE, GATED FLIP-FLOP	19
3	3	1014096	MODULE, DRIVER	18
52	51	1014034	MODULE, NOR	17
AR	AR	1006948-1	WIRE, ELECTRICAL	16
AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	MS51959-15	SCREW, FLAT HD	14
6	6	MS51959-27	SCREW, FLAT HD	13
128	126	MS35338-79	WASHER, LOCK	12
128	126	1006997	WASHER, FLAT	11
128	126	MS51957-29	SCREW, PAN HD	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	MS35338-78	WASHER, LOCK	8
16	16	MS15795-803	WASHER, FLAT	7
16	16	MS51957-17	SCREW, PAN HD	6
128	126	1014212	STAND-OFF, PROGRAM	5
1	1	1006495-001	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
1	1	1014007	SUPPORT, FRAME	2
1	1	1014014-2	FRAME	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014037	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN E. Roper DATE 5 JUNE 65
CHECKED 18 JUN 65
APPROVAL 30/6/65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO. 1
LOGIC DRAWER NO. 2
COMPUTER TEST SET

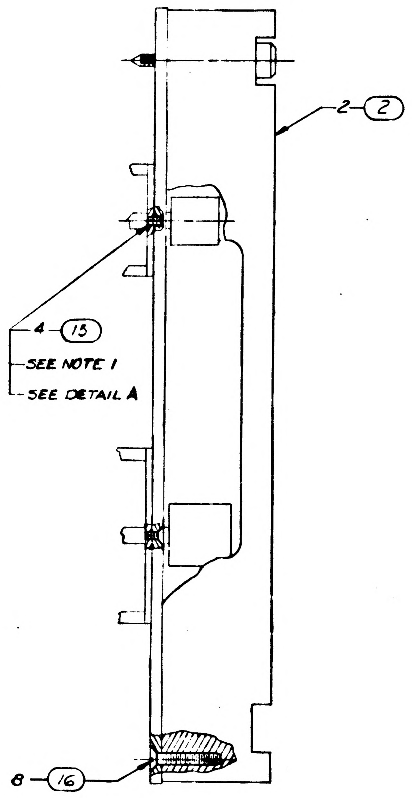
CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014224
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

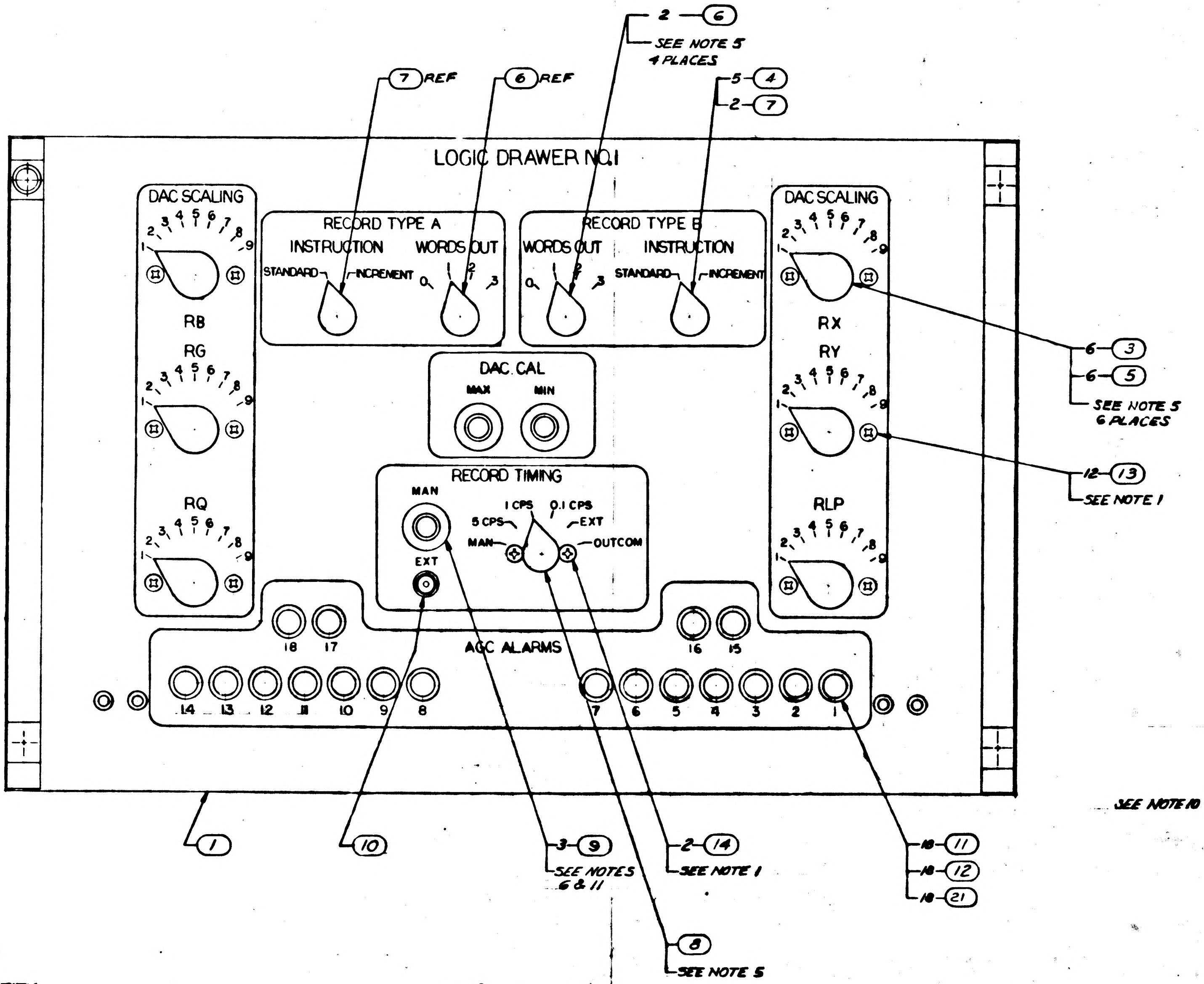
MASTER

2014225 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25069		
1	CHANGE PER CCA R25301 DR W. Kelly CHK APPD		
2	CHANGE PER CCA R25475 DR CHK APPD	4/26/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25547 DR CHK C.D. APPD		
B	CHANGED PER CCA R25626 DR CHK APPD		
C	CHANGED PER CCA R25651 AND CLASS A RELEASED PER TDRR 25472	1/13/66	

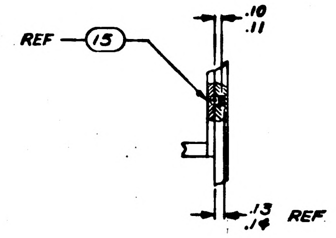


2-(2)
4-(15)
SEE NOTE 1
SEE DETAIL A
8-(16)



LOGIC DRAWER NO.1
DAC SCALING
RB
RG
RQ
RECORD TYPE A
INSTRUCTION
WORDS OUT
STANDARD
INCREMENT
RECORD TYPE B
DAC CAL
MAX
MIN
RECORD TIMING
MAN
EXT
5 CPS
1 CPS
0.1 CPS
EXT
OUTCOM
RX
RY
RLP
AGC ALARMS
18 17 16 15
14 13 12 11 10 9 8 7 6 5 4 3 2 1
(7) REF
(6) REF
2-(6)
SEE NOTE 5
4 PLACES
5-(4)
2-(7)
6-(3)
6-(5)
SEE NOTE 5
6 PLACES
12-(13)
SEE NOTE 1
(1)
(10)
3-(9)
SEE NOTES 6 & 11
2-(14)
SEE NOTE 1
(8)
SEE NOTE 5
18-(11)
18-(12)
18-(21)

NOTES:
1. ASSEMBLE FIND NO.13, 14, & 15 USING FIND NO.17
2. AR DENOTES AS REQUIRED
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. FOR FABRICATION SEE ND1002032, EXCEPT USE FIND NO. 22
5. DISCARD MTG SCREWS SUPPLIED WITH FIND NO. 5, 6, 7 & 8
6. REMOVE EXISTING TERMINAL LUGS ON FIND NO. 9
   & USE FIND NO. 18
7. SERIALIZE PER ND1002023
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN
   PER ND1002019 USING BLACK INK 1006271-10
9. STRIP ALL LEADS .50 ± .06 & TIN PER ND1002071
10. THIS WIRE IS USED IN CONJUNCTION WITH 2014119
11. APPLY FIND 17 TO INTERNAL THREADS OF FIND 9



REF (15)
.10
.11
.13
.14 REF

DETAIL A
4 PLACES

SEE NOTE 10 *

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014111	SCHEMATIC	REF
☒	2014119	LEAD ELECTRICAL	REF
AR	1006458-004	TAPE, LACING	22
18	1006401-003	LENS, CAP	21
.1	MIL-W-16878/4 E22	WIRE, ELEC (WHT)	20
1	2014110-011	WIRING HARNESS	19
12	1006236-1	TERMINAL LUG	18
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	17
8	MS51959-45	SCREW, MACH, FLAT HD	16
4	MS51022-22	SET SCREW	15
2	MS51959-28	SCREW, MACH, FLAT HD	14
12	MS51959-43	SCREW, MACH, FLAT HD	13
18	1006407-002	LAMP	12
18	1006481	LAMP, DRIVER	11
1	MS35179-1094A	CONNECTOR, RECP, BNC	10
3	MS25089-3C	SWITCH, PUSHBUTTON	9
1	1006891-2	SWITCH, ROTARY	8
2	1006953-3	SWITCH, ROTARY	7
2	1006953-4	SWITCH, ROTARY	6
8	1006894-2	SWITCH, ROTARY	5
5	MS91528-1K2B	KNOB, CONTROL, PLASTIC	4
6	MS91528-2K2B	KNOB, CONTROL, PLASTIC	3
2	1014215-6	HANDLE ASSY	2
1	2014075	PANEL, FRONT	1

-011 LIST OF MATERIALS

2014225 C

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014036	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C. Sterling

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

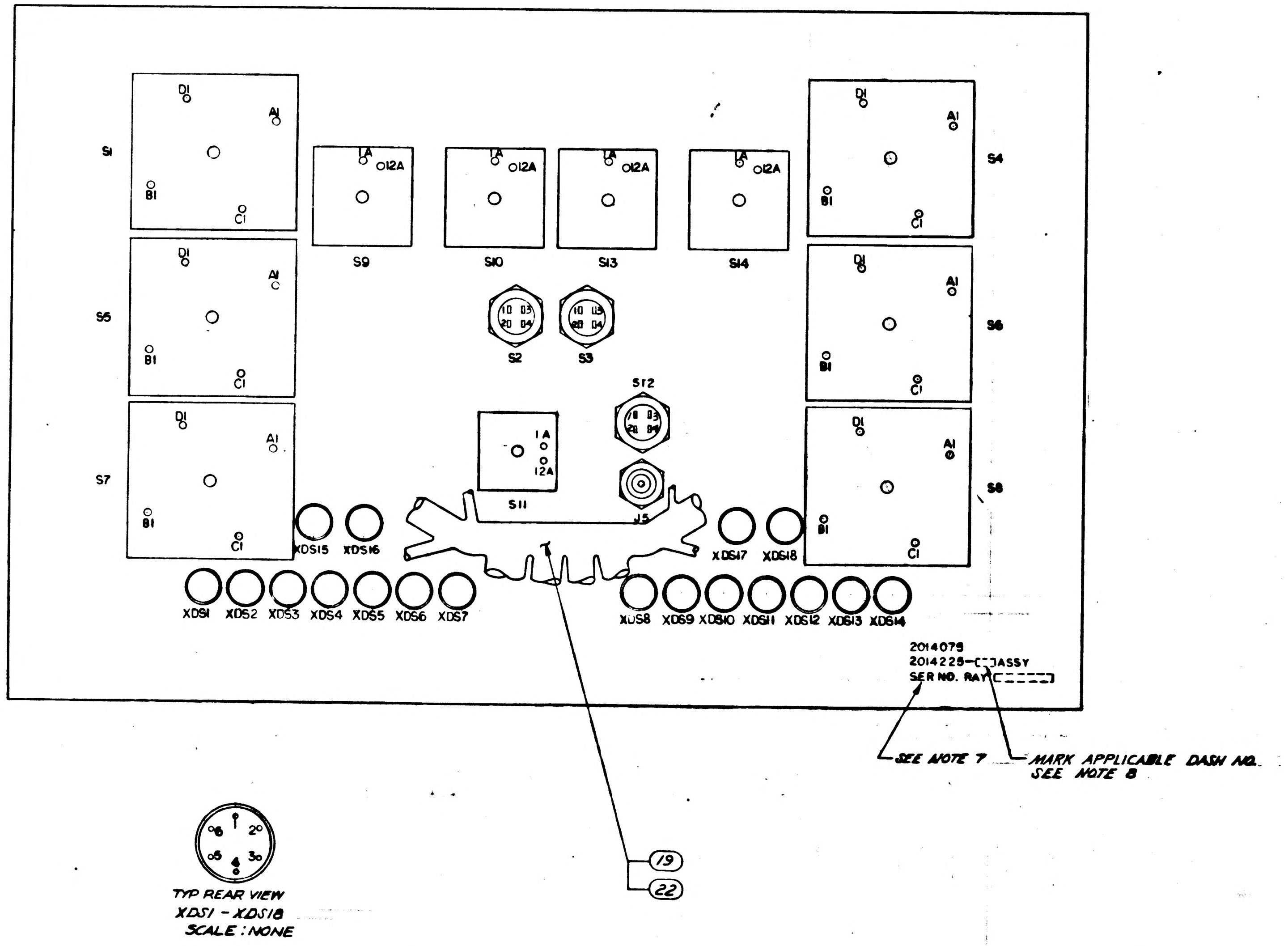
FRONT PANEL ASSEMBLY
LOGIC DRAWER NO.1
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014225
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014225 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25064	7/30/65	[illegible]
1	CHANGE PER CCA R25301 DR W Kelly CHK [illegible] APPD [illegible]	[illegible]	[illegible]
2	CHANGE PER CCA R25475 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25547 DR. [illegible] CHK C.D. APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25626 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/65	[illegible]
C	CHANGED PER CCA R25651 AND CLASS A RELEASED PER TDRR 25972	[illegible]	[illegible]



S1
D1
A1
B1
C1
S5
S7
S9
S10
S13
S14
1A
12A
S2
S3
10
20
S12
S11
J5
S4
S6
S8
XDS15
XDS16
XDS17
XDS18
XDS1
XDS2
XDS3
XDS4
XDS5
XDS6
XDS7
XDS8
XDS9
XDS10
XDS11
XDS12
XDS13
XDS14
2014075
2014225-[ ]ASSY
SER NO. RAY [ ]
SEE NOTE 7
MARK APPLICABLE DASH NO.
SEE NOTE 8
19
22
1
2
3
4
5
6

TYP REAR VIEW
XDS1 - XDS18
SCALE: NONE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 10 MAY 65
CHECKED [illegible] 4 JUN 65
APPROVAL [illegible] 22 JUNE 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSEMBLY
LOGIC DRAWER NO. 1
COMPUTER TEST SET

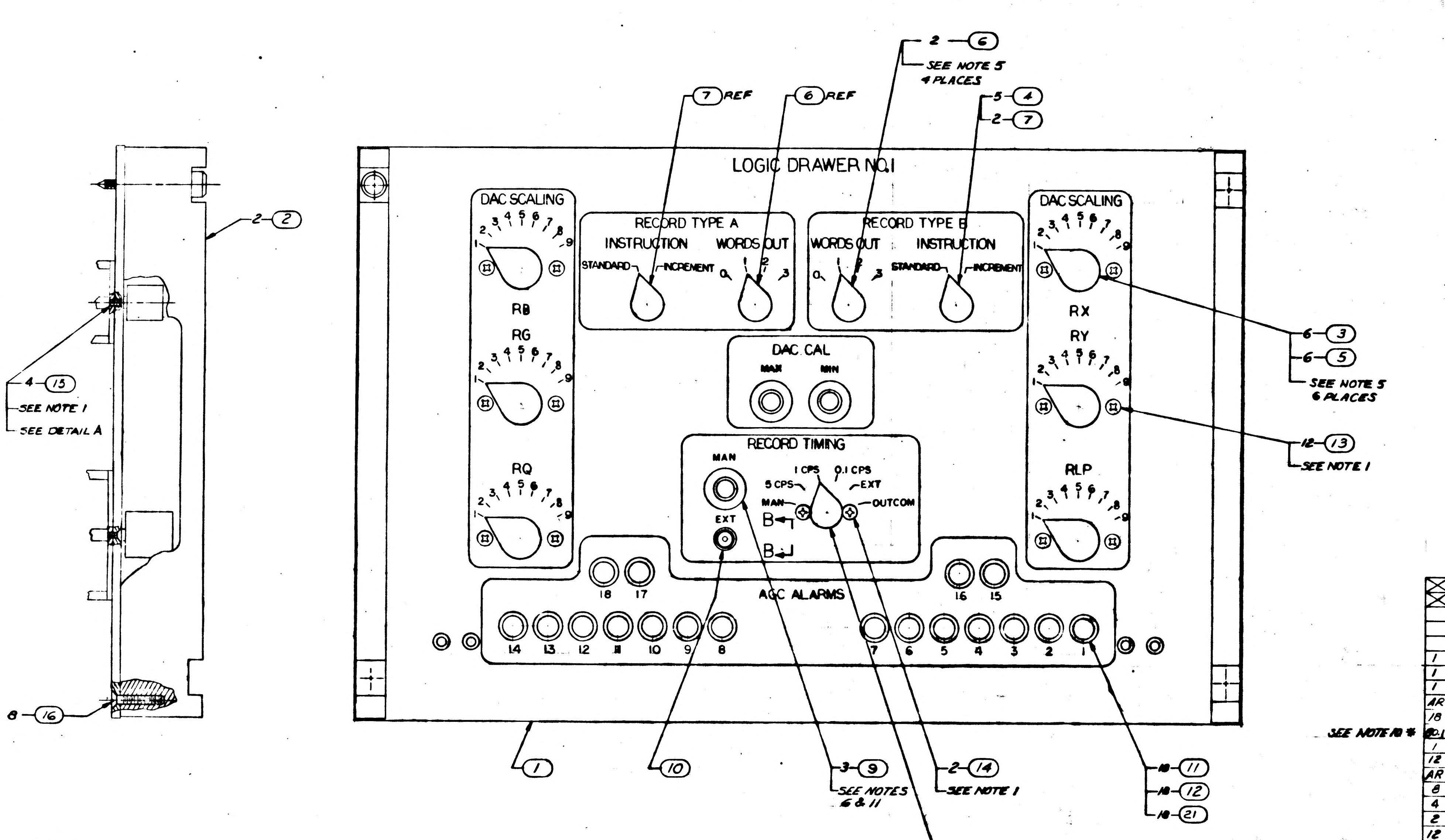
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014225
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014225 C

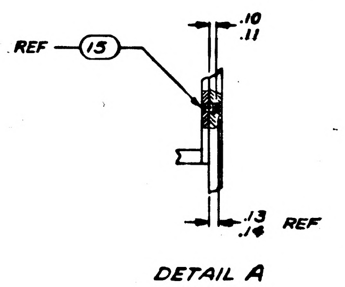
2014225 D

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA 224064	[illegible]	[illegible]
1	CHANGE PER CCA R25301 DR W. Kelly CHK [illegible] APPD [illegible]	[illegible]	[illegible]
2	CHANGE PER CCA R25475 DR [illegible] CHK [illegible] APPD [illegible]	9/16/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25547 DR [illegible] CHK C.B. APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25626 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
C	CHANGED PER CCA R25651 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]
D	CHANGED PER TDRR 26504 DR E. Uftring CHK [illegible] APPD	3/24/66	[illegible]



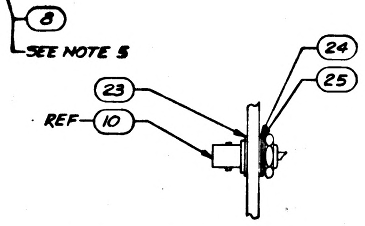
LOGIC DRAWER NO.1
DAC SCALING
RB
RG
RQ
RX
RY
RLP
RECORD TYPE A
RECORD TYPE B
INSTRUCTION
WORDS OUT
STANDARD
INCREMENT
DAC CAL
MAN
MIN
RECORD TIMING
MAN
EXT
5 CPS
1 CPS
0.1 CPS
EXT
OUTCOM
B
B
AGC ALARMS
18 17 16 15
14 13 12 11 10 9 8 7 6 5 4 3 2 1
7 REF
6 REF
2 — 6 SEE NOTE 5 4 PLACES
5 — 4
2 — 7
2 — 2
4 — 15 SEE NOTE 1 SEE DETAIL A
8 — 16
6 — 3
6 — 5 SEE NOTE 5 6 PLACES
12 — 13 SEE NOTE 1
1
10
3 — 9 SEE NOTES 6 & 11
2 — 14 SEE NOTE 1
8 SEE NOTE 5
18 — 11
18 — 12
18 — 21

NOTES:
1. ASSEMBLE FIND NO. 13, 14, & 15 USING FIND NO. 17
2. AR DENOTES AS REQUIRED
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. FOR FABRICATION SEE ND1002032, EXCEPT USE FIND NO. 22
5. DISCARD MTG SCREWS SUPPLIED WITH FIND NO. 5, 6, 7 & 8
6. REMOVE EXISTING TERMINAL LUGS ON FIND NO. 9 & USE FIND NO. 18
7. SERIALIZE PER ND1002023
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
9. STRIP ALL LEADS .50 ± .06 & TIN PER ND1002071
10. THIS WIRE IS USED IN CONJUNCTION WITH 2014119
11. APPLY FIND 17 TO INTERNAL THREADS OF FIND 9



REF — 15
.10
.11
.13
.14 REF

DETAIL A
4 PLACES



24
25
23
REF — 10

PARTIAL SECTION B-B

SEE NOTE 10 *

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014111	SCHEMATIC	REF
☒	2014119	LEAD, ELECTRICAL	REF
1	AN960C616L	WASHER, FLAT	25
1	1006982-10	WASHER, NYLON	24
1	1020376	WASHER, INSULATING	23
AR	1006458-004	TAPE, LACING	22
18	1006401-003	LENS, CAP	21
80.1	MIL-W-16878/[illegible]	WIRE, ELEC (WHT)	20
1	2014110-011	WIRING HARNESS	19
12	1006236-1	TERMINAL LUG	18
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	17
8	MS51959-45	SCREW, MACH, FLAT HD	16
4	MS51022-22	SET SCREW	15
2	MS51959-28	SCREW, MACH, FLAT HD	14
12	MS51959-43	SCREW, MACH, FLAT HD	13
18	1006407-002	LAMP	12
18	1006481	LAMP, DRIVER	11
1	MS35179-1094A	CONNECTOR, RECP., BNC	10
3	MS25089-3C	SWITCH, PUSHBUTTON	9
1	1006891-2	SWITCH, ROTARY	8
2	1006953-3	SWITCH, ROTARY	7
2	1006953-4	SWITCH, ROTARY	6
8	1006894-2	SWITCH, ROTARY	5
5	MS91528-1K2B	KNOB, CONTROL, PLASTIC	4
6	MS91528-2K2B	KNOB, CONTROL, PLASTIC	3
2	1014215-6	HANDLE ASSY	2
1	2014075	PANEL, FRONT	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014036	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible] MAY 65
CHECKED R. [illegible] 4 June 65
APPROVAL [illegible] 23 June 65
APPROVAL [illegible]
APPROVAL [illegible] 7/22/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. Sterling

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSEMBLY
LOGIC DRAWER NO. 1
COMPUTER TEST SET

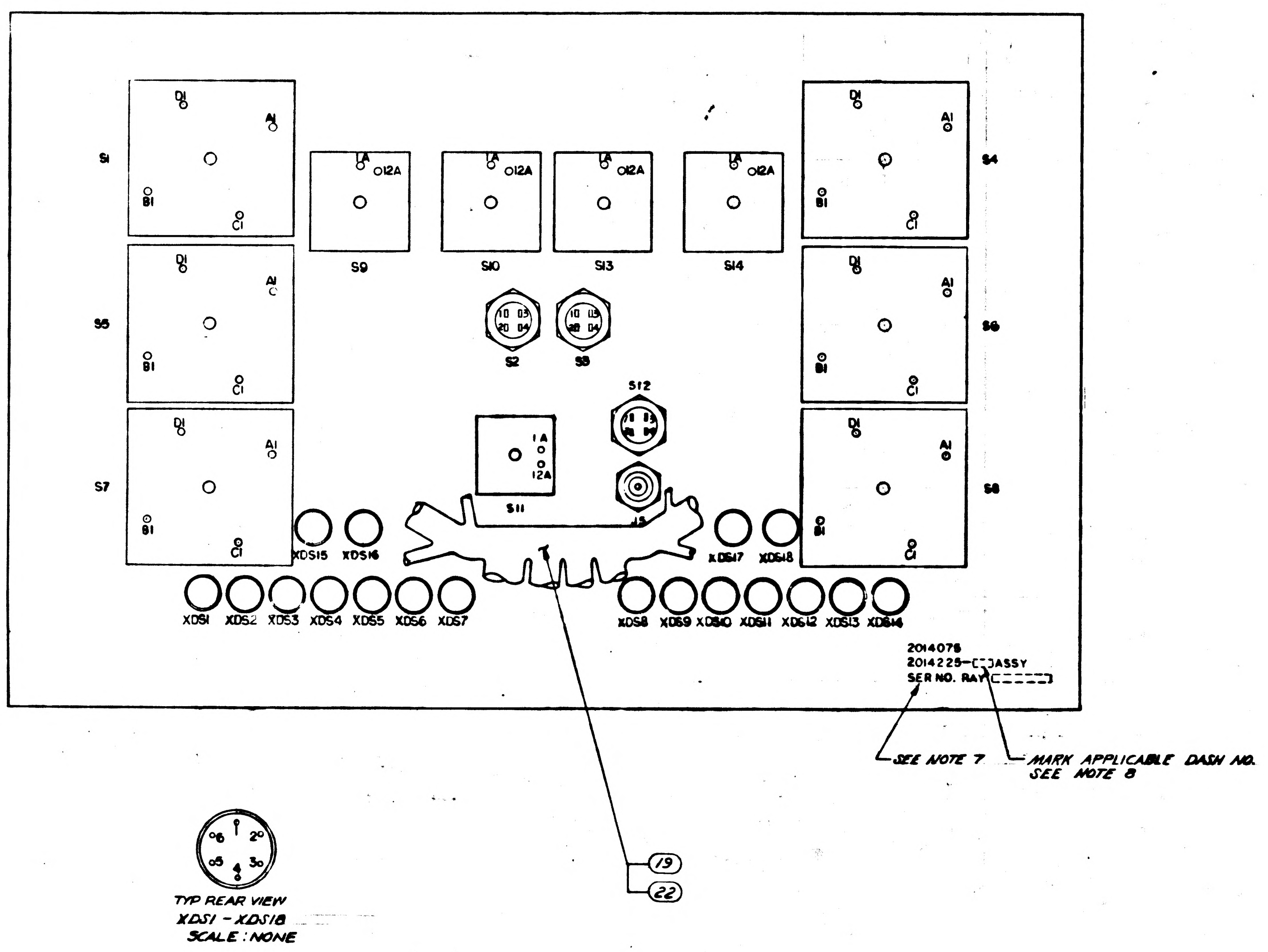
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014225
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014225 C

2014225 D

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25064	7/30/65	[illegible]
1	CHANGE PER CCA R25301 DR W. Kelly CHK [illegible] APPD [illegible]	[illegible]	[illegible]
2	CHANGE PER CCA R25475 DR [illegible] CHK [illegible] APPD [illegible]	9/16/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25547 DR. [illegible] CHK C.D. APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25626 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
C	CHANGED PER CCA R25651 AND CLASS A RELEASED PER TDRR 25972	[illegible]	[illegible]
D	CHANGED PER TDRR 26504 DR E. Uffing CHK R.R.E. APPD	[illegible]	[illegible]


S1
S5
S7
S4
S6
S8
D1
A1
B1
C1
1A
O12A
S9
S10
S13
S14
10 03
20 04
S2
S3
S12
1A
12A
S11
J5
XDS15
XDS16
XDS17
XDS18
XDS1
XDS2
XDS3
XDS4
XDS5
XDS6
XDS7
XDS8
XDS9
XDS10
XDS11
XDS12
XDS13
XDS14
2014075
2014225-[ ]ASSY
SER NO. RAY[ ]
SEE NOTE 7
MARK APPLICABLE DASH NO.
SEE NOTE 8
19
22
1
2
3
4
5
6
TYP REAR VIEW
XDS1 - XDS18
SCALE: NONE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 10 MAY 65
CHECKED R. [illegible] 4 JUN 65
APPROVAL [illegible] 22 JUNE '65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSEMBLY
LOGIC DRAWER NO. 1
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	F	2014225
SCALE 1/1	WT	SHEET 2 OF 2

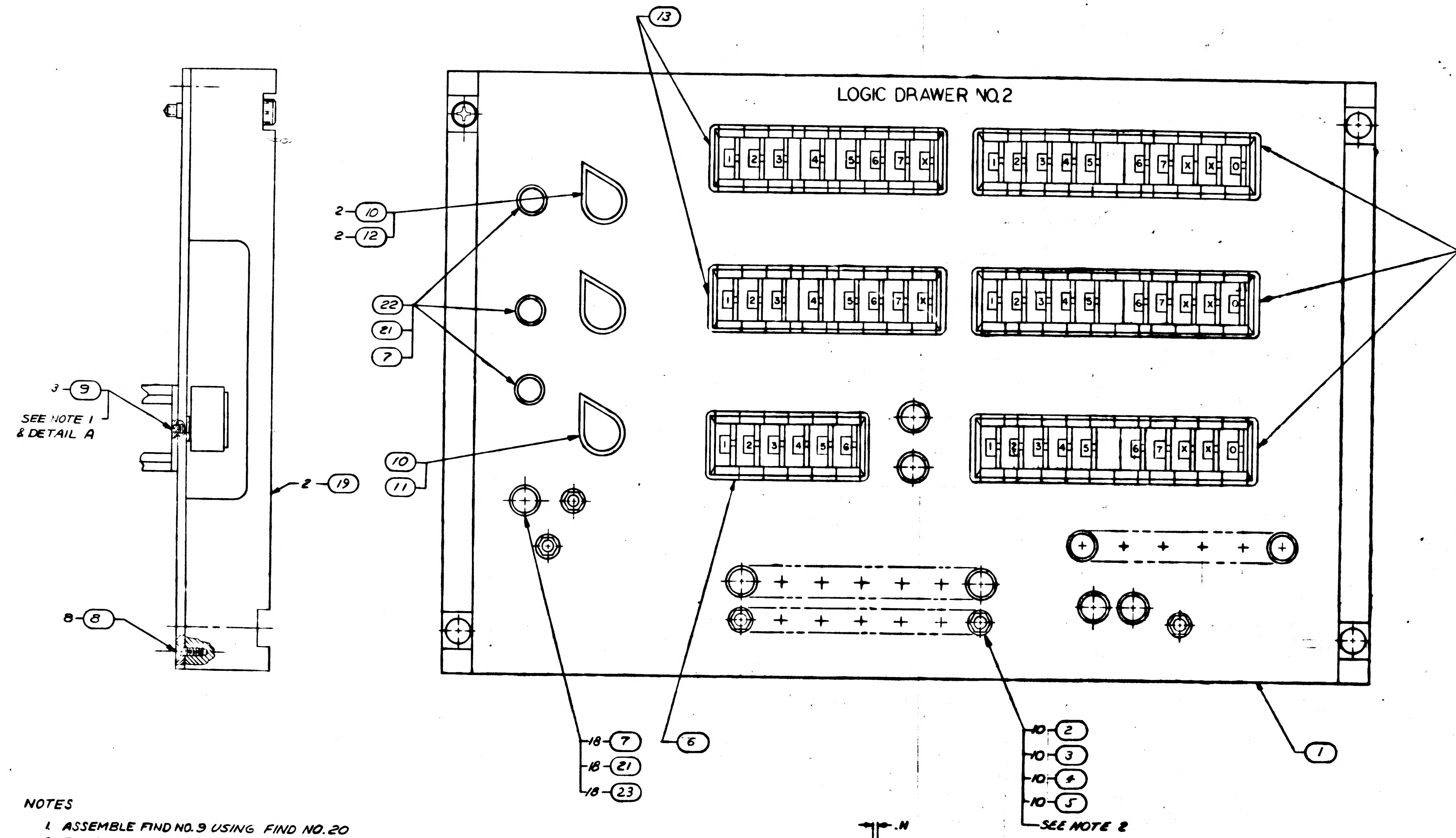
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

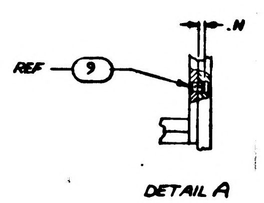
M STER

2014225

2014226 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25059	7/29/65	
1	CHANGED PER CCA R25127A DR D. Belanger CHK E Urban APPD R Cooley	9 Oct 65	
2	CHANGED PER CCA R25269 DR A.J. Biron CHK E Urban APPD R Cooley	11/9/65	
—	CLASS B CHANGED PER CCA R25502	12/15/65	
A	CHANGED PER CCA R25620 DR B R CHK APPD R P		
B	CHANGED PER CCA R25662 AND CLASS A RELEASED PER TDRR 25472	1/14/66	





DETAIL A
3 PLACES

NOTES

1. ASSEMBLE FIND NO. 9 USING FIND NO. 20
2. REMOVE EXISTING HARDWARE FROM FIND NO. 5
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002C19 USING BLACK INK 1006271-10
5. SERIALIZE PER ND1002023
6. SOLDER PER ND1002071
7. AR DENOTES 'AS REQUIRED'
8. MARK CONDUCTOR IDENTIFICATION PER ND1002019
9. QQ-W-343, TYPE S, SOFT, COATED, AWG SIZE 22 FOR FIND NO. 30
10. SLEEVE COND. IDENT, 091, USING FIND NO. 32
11. SLEEVE COND. IDENT, 099 & 0126, USING FIND NO. 31

● DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014076	SCHEMATIC	REF
☒	2014168	LEAD ELECTRICAL	REF
● 0.1	1006776-46	SLEEVING, BLK	32
● 0.2	1006776-21	SLEEVING, WHT	31
● 0.3	SEE NOTE 9	WIRE, ELECTRICAL	30
● 4.5	MIL-W-16878/4, E22	WIRE, ELECTRICAL, BLACK	29
● 6.5	MIL-W-16878/4, E22	WIRE, ELECTRICAL, WHITE	28
● 16.0	MIL-W-16878/4, E24	WIRE, ELECTRICAL, WHITE	27
1	2014124-011	WIRING HARNESS 'B'	26
1	2014134-011	WIRING HARNESS 'C'	25
1	2014118-011	WIRING HARNESS 'A'	24
18	1006401-005	LENS	23
3	1006401-003	LENS	22
21	1006481	LIGHT, INDICATOR	21
AR	MIL-S-22473, GRADE HV	SEALING & RETAINING COMP	20
2	1014215-6	HANDLE ASSY	19
3	1006478-006	SWITCH, BINARY, 10 DIGIT	18
AR	1006458-006	TAPE, LACING	17
24	MS35338-78	WASHER, LOCK	16
24	MS15795-804	WASHER, PLAIN	15
24	MS35649-44	NUT, HEX	14
2	1006478-005	SWITCH, BINARY, 8 DIGIT	13
2	1006895-2	SWITCH, ROTARY	12
1	1006895-1	SWITCH, ROTARY	11
3	MS91528-2P2B	KNOB, POINTER	10
3	MS51022-24	SET-SCREW, HEX SOCKET	9
8	MS51959-45	SCREW, MACH	8
21	1006407-002	LAMP	7
1	1006478-004	SWITCH, BINARY, 6 DIGIT	6
10	MS24656-23	SWITCH, TOGGLE	5
10	AN960C516L	WASHER, FLAT	4
10	MS35333-41	WASHER, LOCK	3
10	1006517-3	NUT, ADAPTER	2
1	2014072	PANEL, FRONT	1

-011 LIST OF MATERIALS

2014037	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 11/4/65
CHECKED NOV 22.65
APPROVAL 21 NOV 65
APPROVAL 2/24/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1/20

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
LOGIC DRAWER NO. 2
COMPUTER TEST SET

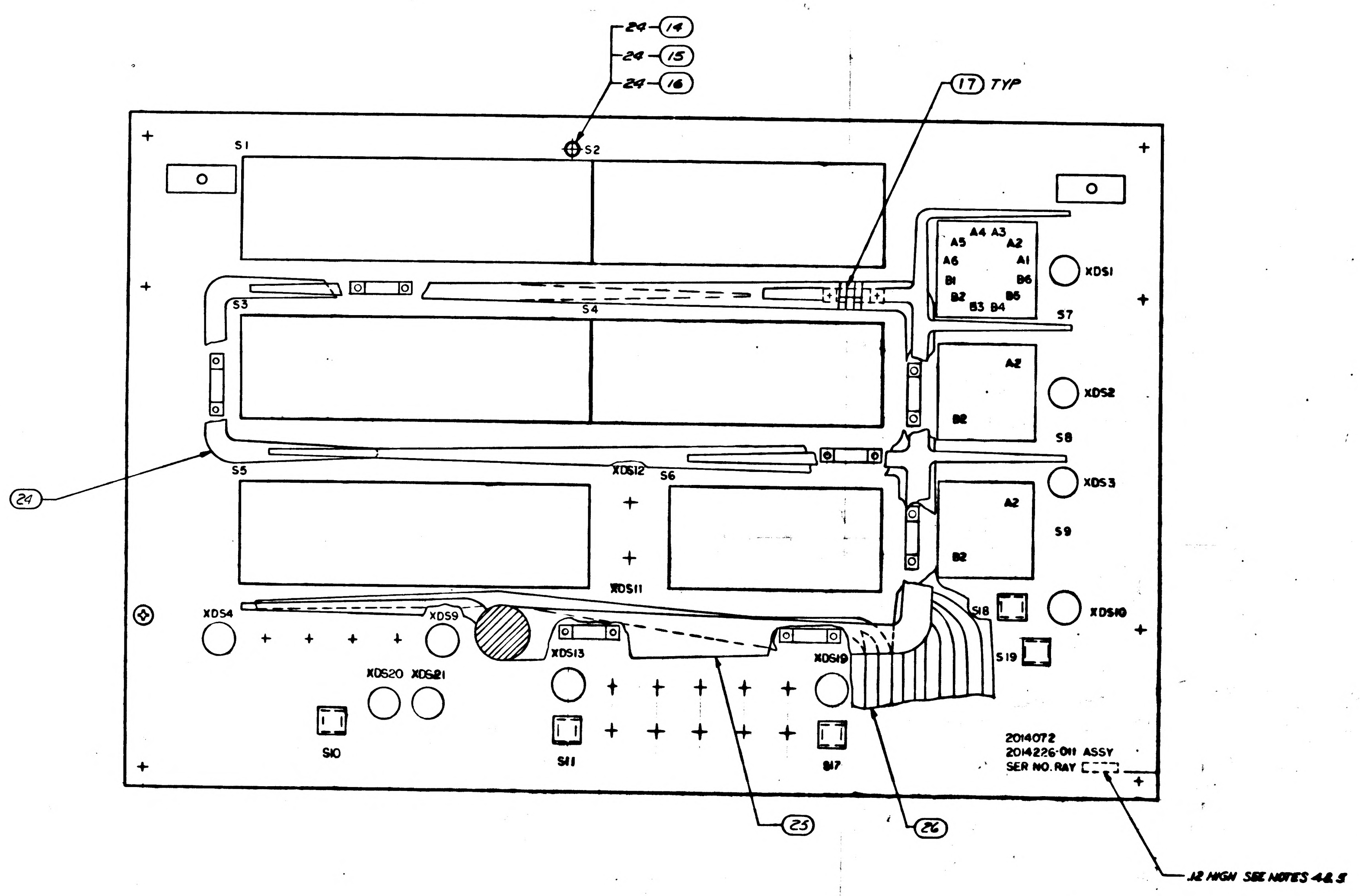
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014226
SCALE 1/1
WT —
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014226 B

2014226 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25059	[illegible]	[illegible]
1	CHANGED PER CCA R25127A DR [illegible] CHK [illegible] APPD [illegible]	[illegible] 65	[illegible]
2	CHANGED PER CCA R25269 DR A.J. [illegible] CHK [illegible] APPD [illegible]	4/17/65	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25620 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25662 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]



24 – 14
24 – 15
24 – 16
17 TYP
S1
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S3
S4
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S6
S7
S8
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S11
S17
S18
S19
A1
A2
A3
A4
A5
A6
B1
B2
B3
B4
B5
B6
XDS1
XDS2
XDS3
XDS4
XDS9
XDS10
XDS11
XDS12
XDS13
XDS19
XDS20
XDS21
24
25
26
2014072
2014226-011 ASSY
SER NO. RAY
.12 HIGH SEE NOTES 4 & 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE MAY 5,65
CHECKED [illegible]
APPROVAL [illegible] 21 JULY 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. Snerling 1/2[illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

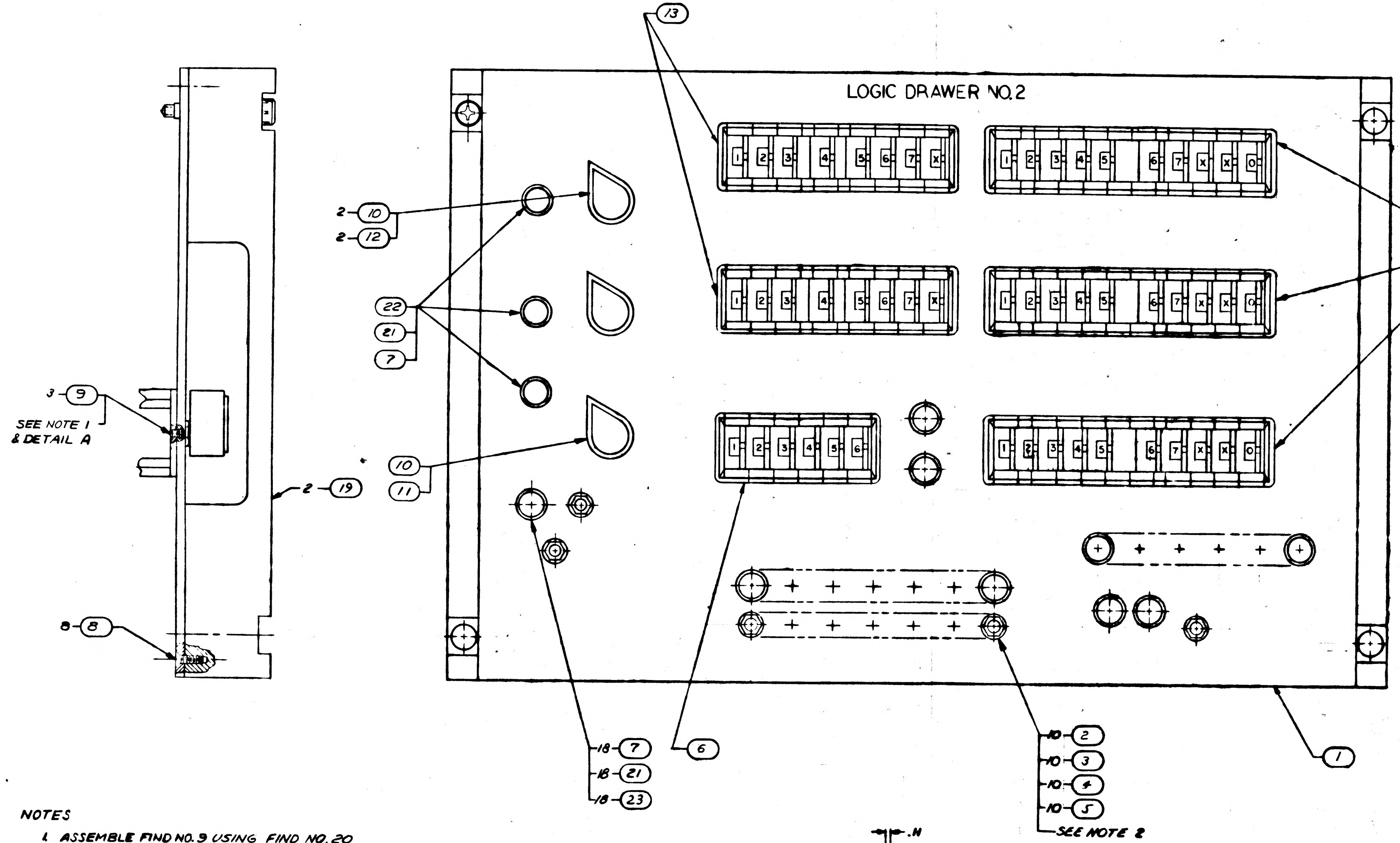
FRONT PANEL ASSY
LOGIC DRAWER NO.2
COMPUTER TEST SET

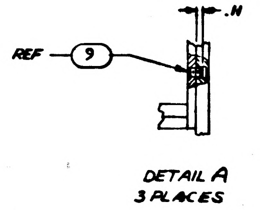
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014226
SCALE 1/1
WT —
SHEET 2 OF 2

2014226 B

2014226 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25259	[illegible]	[illegible]
1	CHANGED PER CCA R25127A DR D. Belanger CHK E. Urban APPD T. Conley	1903 65	[illegible]
2	CHANGED PER CCA R25269 DR A. J. Binn CHK E. Urban APPD T. Conley	4/27/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	12/14/65	[illegible]
A	CHANGED PER CCA R25620 DR B K [illegible] CHK [illegible] APPD R.P. [illegible]	12/21/65	[illegible]
B	CHANGED PER CCA R25662 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]
C	CHANGED PER TDRR 26289 DR [illegible] CHK C. DeGreenis APPD P.E.D.	7/19/66	[illegible]





DETAIL A
3 PLACES

NOTES

1. ASSEMBLE FIND NO. 9 USING FIND NO. 20
2. REMOVE EXISTING HARDWARE FROM FIND NO. 5
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. SERIALIZE PER ND1002023
6. SOLDER PER ND1002071
7. AR DENOTES "AS REQUIRED"
8. MARK CONDUCTOR IDENTIFICATION PER ND1002019
9. QQ-W-343, TYPE S, SOFT, COATED, AWG SIZE 22 FOR FIND NO. 30
10. SLEEVE COND. IDENT, D91, USING FIND NO. 32
11. SLEEVE COND. IDENT, D99 & D126, USING FIND NO. 31

☒	2014076	SCHEMATIC	REF
☒	2014168	LEAD ELECTRICAL	REF
* 0.1	1006776-46	SLEEVING, BLK	32
* 0.2	1006776-21	SLEEVING, WHT	31
* 0.6	SEE NOTE 9	WIRE, ELECTRICAL	30
* 4.3	MIL-W-16878/4, E22	WIRE, ELECTRICAL, BLACK	29
* 6.5	MIL-W-16878/4, E22	WIRE, ELECTRICAL, WHITE	28
* 16.0	MIL-W-16878/4, E24	WIRE, ELECTRICAL, WHITE	27
1	2014124-011	WIRING HARNESS 'B'	26
1	2014139-011	WIRING HARNESS 'C'	25
1	2014118-011	WIRING HARNESS 'A'	24
18	1006401-003	LENS	23
3	1006401-005	LENS	22
21	1006481	LIGHT, INDICATOR	21
AR	MIL-S-22473, GRADE HV	SEALING & RETAINING COMP.	20
2	1014215-6	HANDLE ASSY	19
3	1006478-006	SWITCH, BINARY, 10 DIGIT	18
AR	1006458-006	TAPE, LACING	17
24	MS35338-78	WASHER, LOCK	16
24	MS15795-804	WASHER, PLAIN	15
24	MS35649-44	NUT, HEX	14
2	1006478-005	SWITCH, BINARY, 8 DIGIT	13
2	1006895-2	SWITCH, ROTARY	12
1	1006895-1	SWITCH, ROTARY	11
3	MS91528-2P2B	KNOB, POINTER	10
3	MS51022-24	SET-SCREW, HEX SOCKET	9
8	MS51959-45	SCREW, MACH	8
21	1006407-002	LAMP	7
1	1006478-004	SWITCH, BINARY, 6 DIGIT	6
10	MS24656-23	SWITCH, TOGGLE	5
10	AN960C516L	WASHER, FLAT	4
10	MS35333-41	WASHER, LOCK	3
10	1006917-3	NUT, ADAPTER	2
1	2014072	PANEL, FRONT	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014037	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]/65
CHECKED [illegible] MAY 20 65
APPROVAL P. E. Dunk 21 MAY 65
APPROVAL [illegible] 7/21/65
APPROVAL [illegible] 7/21/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] Sprinkley 1/20

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

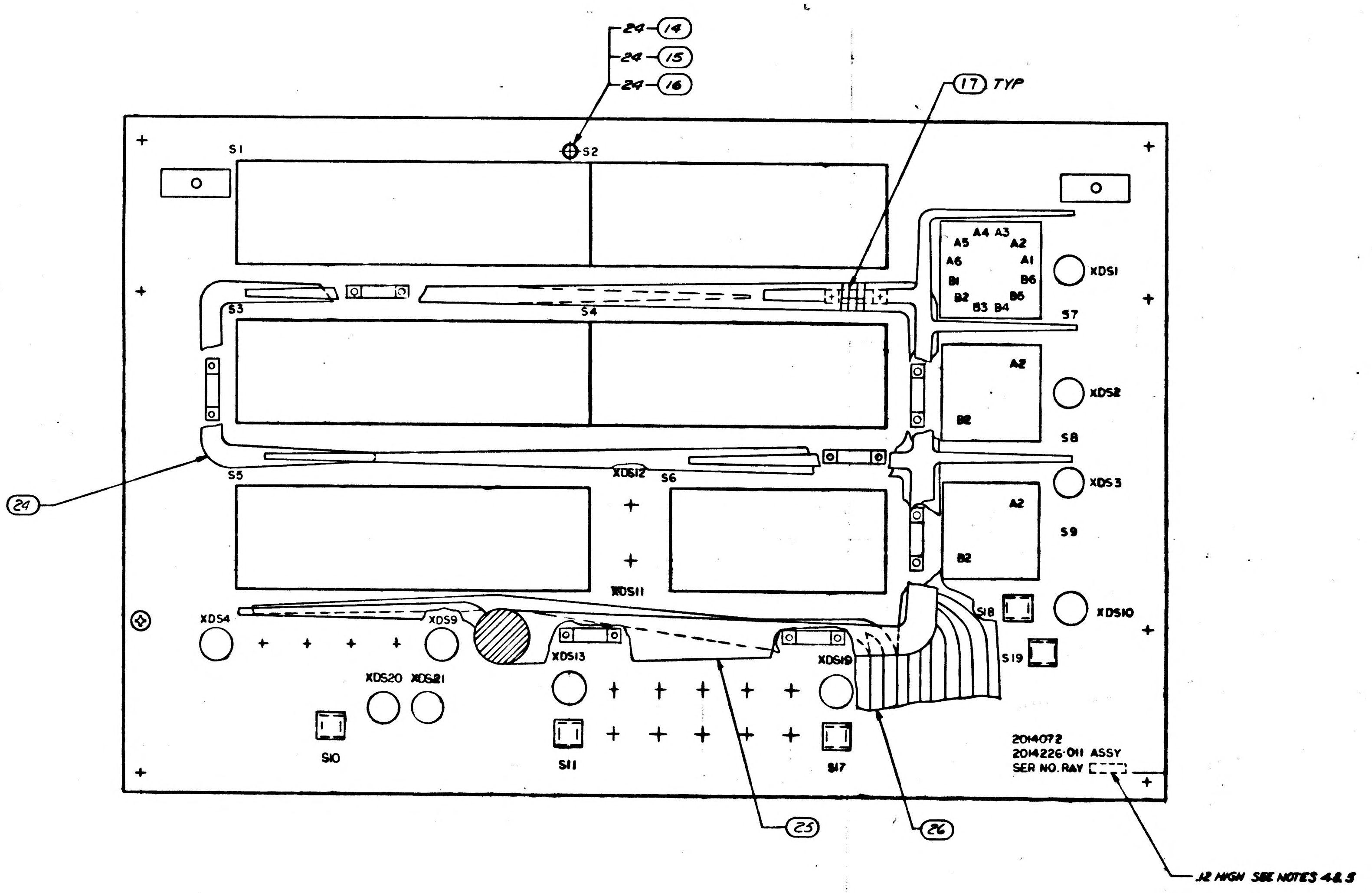
FRONT PANEL ASSY
LOGIC DRAWER NO. 2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014226
SCALE 1/1
WT —
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014226 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25059	7/3/65	[illegible]
1	CHANGED PER CCA R25127A DR [illegible] CHK [illegible] APPD [illegible]	10/?/65	[illegible]
2	CHANGED PER CCA R25269 DR A.J. [illegible] CHK [illegible] APPD [illegible]	11/17/65	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25620 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25662 AND CLASS A RELEASED PER TORR 25472	1/14/66	[illegible]
C	CHANGED PER TORR 26289 DR [illegible] CHK [illegible] APPD [illegible]	3/17/66	[illegible]



24 (14)
24 (15)
24 (16)
(17) TYP
S1
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S11
S17
S18
S19
A4 A3
A5 A2
A6 A1
B1 B6
B2 B5
B3 B4
A2
B2
XDS1
XDS2
XDS3
XDS4
XDS9
XDS10
XDS11
XDS12
XDS13
XDS19
XDS20
XDS21
(24)
(25)
(26)
2014072
2014226-011 ASSY
SER NO. RAY
.12 HIGH SEE NOTES 4&5

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE MAY 5,65
CHECKED [illegible] MAY 28 65
APPROVAL [illegible] 21 JULY 65
APPROVAL D. [illegible] 7/21/65
APPROVAL [illegible] 7/21/65
NASA APPROVAL A. [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/2?/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
LOGIC DRAWER NO.2
COMPUTER TEST SET

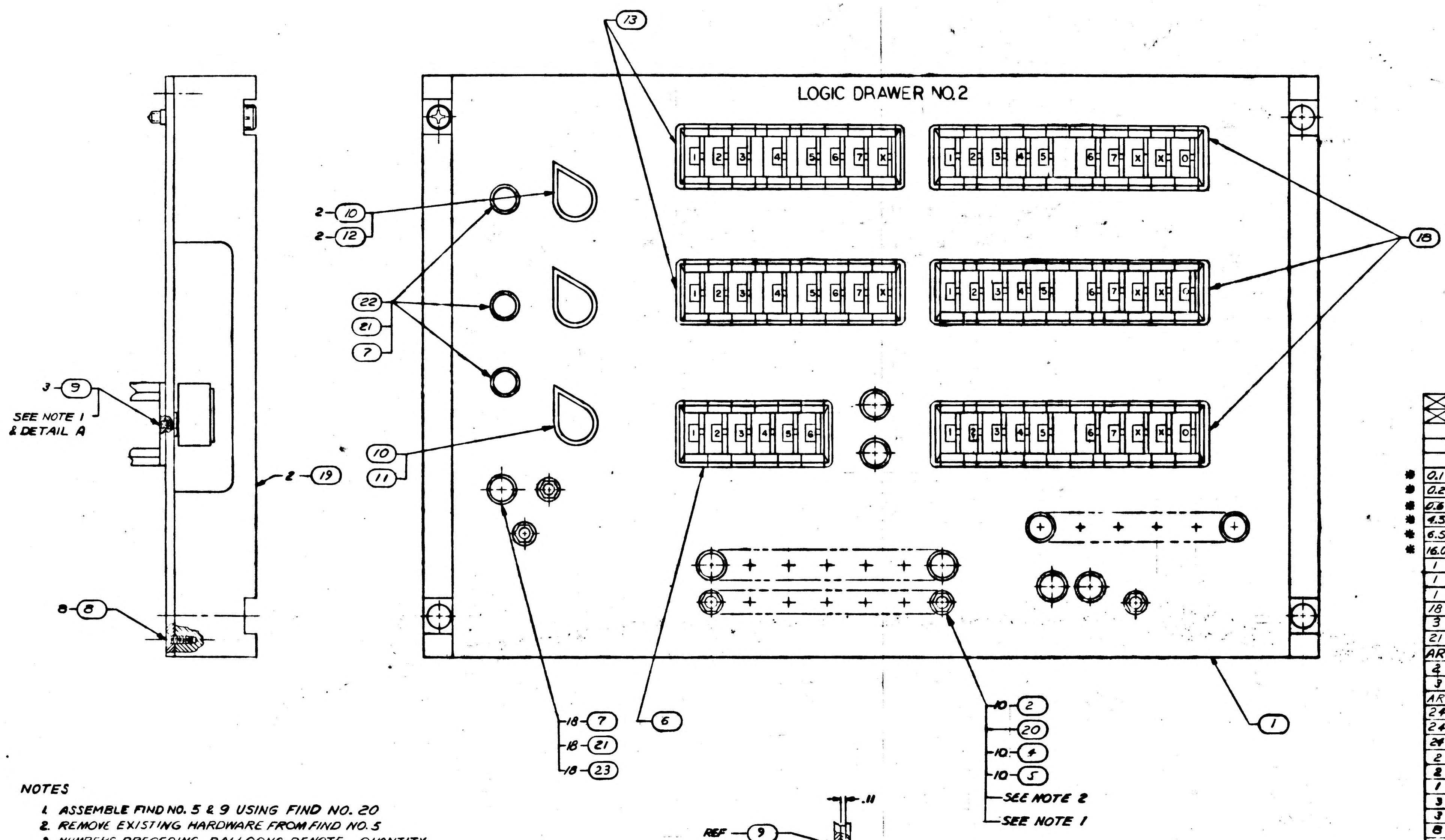
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014226
SCALE 1/1
WT —
SHEET 2 OF 2

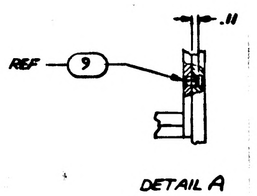
2014226 C

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014226 D

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25559		
1	CHANGED PER CCA R25127A DR D. Belanger CHK E. Urban APPD R. Conley	65	
2	CHANGED PER CCA R25269 DR A. J. Biron CHK E. Urban APPD R. Conley	11/17/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R 25620 DR B. K. Fuller CHK APPD		
B	CHANGED PER CCA R25662 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 26289 DR CHK APPD	66	
D	CHANGED PER TDRR 26290 DR B. K. Fuller CHK APPD R. Conley	3/66	





DETAIL A
3 PLACES

NOTES

1. ASSEMBLE FIND NO. 5 & 9 USING FIND NO. 20
2. REMOVE EXISTING HARDWARE FROM FIND NO. 5
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. SERIALIZE PER ND1002023
6. SOLDER PER ND1002071
7. AR DENOTES 'AS REQUIRED'
8. MARK CONDUCTOR IDENTIFICATION PER ND1002019
9. QQ-W-343, TYPE S, SOFT, COATED, AWG SIZE 22 FOR FIND NO. 30
10. SLEEVE COND. IDENT, 091, USING FIND NO. 32
11. SLEEVE COND. IDENT, 099 & 0126, USING FIND NO. 31

* DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2014076	SCHEMATIC	REF
☒	2014168	LEAD ELECTRICAL	REF
* 0.1	1006776-46	SLEEVING, BLK	32
* 0.2	1006776-21	SLEEVING, WHT	31
* 0.6	SEE NOTE 9	WIRE, ELECTRICAL	30
* 4.5	MIL-W-16878/4, E22	WIRE, ELECTRICAL, BLACK	29
* 6.5	MIL-W-16878/4, E22	WIRE, ELECTRICAL, WHITE	28
* 16.0	MIL-W-16878/4, E24	WIRE, ELECTRICAL, WHITE	27
1	2014124-011	WIRING HARNESS 'B'	26
1	2014134-011	WIRING HARNESS 'C'	25
1	2014118-011	WIRING HARNESS 'A'	24
18	1006401-003	LENS	23
3	1006401-005	LENS	22
21	1006481	LIGHT, INDICATOR	21
AR	MIL-S-22473, GRADE HV	SEALING & RETAINING COMP	20
2	1014215-6	HANDLE ASSY	19
3	1006478-006	SWITCH, BINARY, 10 DIGIT	18
AR	1006458-006	TAPE, LACING	17
24	MS35338-78	WASHER, LOCK	16
24	MS15795-804	WASHER, PLAIN	15
24	MS35649-44	NUT, HEX	14
2	1006478-005	SWITCH, BINARY, 8 DIGIT	13
2	1006895-2	SWITCH, ROTARY	12
1	1006895-1	SWITCH, ROTARY	11
3	MS91528-2P2B	KNOB, POINTER	10
3	MS51022-24	SET-SCREW, HEX SOCKET	9
8	MS51959-45	SCREW, MACH	8
21	1006107-002	LAMP	7
1	1006478-004	SWITCH, BINARY, 6 DIGIT	6
10	MS24656-23	SWITCH, TOGGLE	5
10	AN960C516L	WASHER, FLAT	4
~~10~~	~~MS35333~~	~~WASHER, LOCK~~	~~3~~
10	1006917-3	NUT, ADAPTER	2
1	2014072	PANEL, FRONT	1

-011 LIST OF MATERIALS

2014037	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 65
CHECKED 22.65
APPROVAL D. E. Dunk 21 65
APPROVAL 21/65
APPROVAL 21/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
LOGIC DRAWER NO. 2
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014226
SCALE 1/1 WT — SHEET 1 OF 2

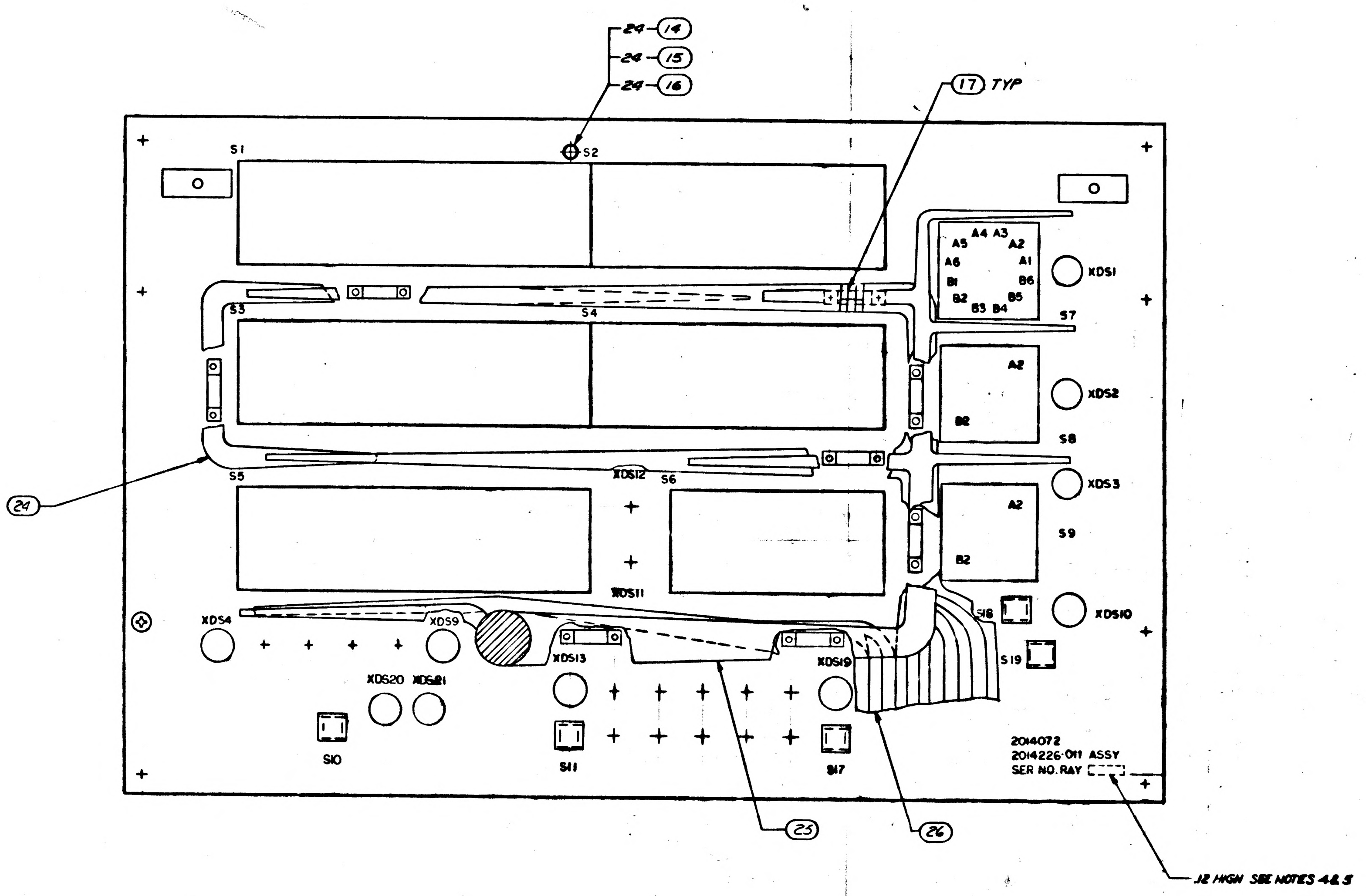
2014226 D

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014226 D

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA 25050	[illegible]	[illegible]
1	CHANGED PER CCA R25127A DR D. Belanger CHK E. Urban APPD R. Cooley	19 Oct 65	[illegible]
2	CHANGED PER CCA R25269 DR Q.J. Blum CHK E. Urban APPD R. Cooley	4/7/65	[illegible]
–	CLASS B CHANGED PER CCA R25502	2 Nov 65	[illegible]
A	CHANGED PER CCA R25620 DR B.F. Fuller CHK [illegible] APPD [illegible]	2/3/66	[illegible]
B	CHANGED PER CCA R25662 AND CLASS A RELEASED PER TDRR 25972	1/14/66	[illegible]
C	CHANGED PER TDRR 26289 DR A. Papia CHK C.D. Thelang APPD [illegible]	3/17/66	[illegible]
D	CHANGED PER TDRR 26290 DR B.F. Fuller CHK [illegible] APPD R. Cooley	3/5/66	[illegible]


24 — 14
24 — 15
24 — 16
17 TYP
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S17
S18
S19
A4 A3
A5 A2
A6 A1
B1 B6
B2 B5
B3 B4
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B2
A2
B2
XDS1
XDS2
XDS3
XDS4
XDS9
XDS10
XDS11
XDS12
XDS13
XDS19
XDS20
XDS21
24
25
26
2014072
2014226-011 ASSY
SER NO. RAY
.12 HIGH SEE NOTES 4 & 5

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE MAY 5, 65
CHECKED [illegible] MAY 28 65
APPROVAL G.E.D. [illegible] 21 JULY 65
APPROVAL D. [illegible] 7/21/65
APPROVAL [illegible] 7/21/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W. [illegible] 4 Feb 66
MIT APPROVAL C. Snerling 1/2 [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
LOGIC DRAWER NO.2
COMPUTER TEST SET

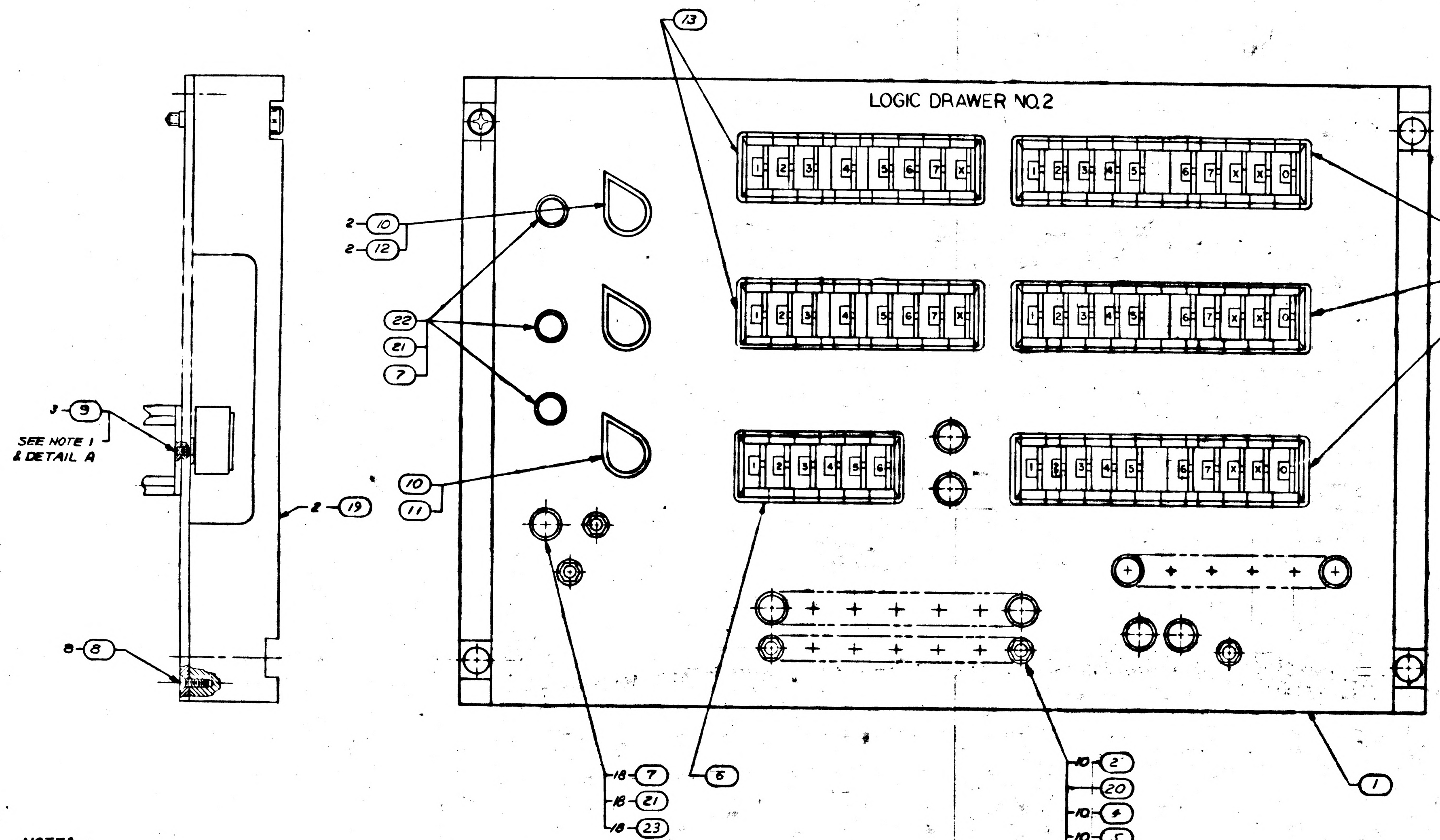
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014226
SCALE 1/1
WT —
SHEET 2 OF 2

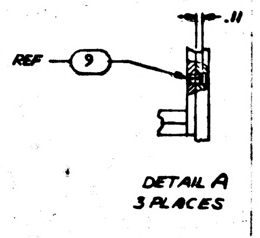
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014226 D

2014226 E

SYM	DESCRIPTION	DATE	APPROVED
—	RELEASED PER CCA 25059	[illegible]	[illegible]
1	CHANGED PER CCA R25127A DR [illegible] CHK [illegible] APPD [illegible]	[illegible] 65	[illegible]
2	CHANGED PER CCA R25269 DR A. J. Biron CHK E. Urban APPD [illegible]	[illegible]/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25620 DR B.R. Fuller CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25662 AND CLASS A RELEASED PER TDRR 25472	[illegible]/66	[illegible]
C	CHANGED PER TDRR 26289 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
D	CHANGED PER TDRR 26290 DR B.R. Fuller CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
E	CHANGED PER TDRR 26542 DR [illegible] CHK [illegible] APPD RCD	[illegible]/66	[illegible]





DETAIL A
3 PLACES

NOTES

1. ASSEMBLE FIND NO. 5 & 9 USING FIND NO. 20
2. REMOVE EXISTING HARDWARE FROM FIND NO. 5
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. SERIALIZE PER ND1002023
6. SOLDER PER ND1002071
7. AR DENOTES 'AS REQUIRED'
8. MARK CONDUCTOR IDENTIFICATION PER ND1002019
9. QQ-W-343, TYPE S, SOFT, COATED, AWG SIZE 22 FOR FIND NO. 30
10. SLEEVE COND. IDENT, 091, USING FIND NO. 32
11. SLEEVE COND. IDENT, 099 & 0126, USING FIND NO. 31
12. AFTER INSTALLATION OF HARNESSES FORM LEADS TO EACH SECTION OF SWITCHES S1, S2, S3, S4, S5 & S6 INTO LEGS AND SPOT TIE AS SHOWN USING FIND 17

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014076	SCHEMATIC	REF
☒	2014168	LEAD ELECTRICAL	REF
● 0.1	1006776-46	SLEEVING, BLK	32
● 0.2	1006776-21	SLEEVING, WHT	31
● 0.6	SEE NOTE 9	WIRE, ELECTRICAL	30
● 4.3	MIL-W-16878/4, E22	WIRE, ELECTRICAL, BLACK	29
● 6.5	MIL-W-16878/4, E22	WIRE, ELECTRICAL, WHITE	28
● 16.0	MIL-W-16878/4, E24	WIRE, ELECTRICAL, WHITE	27
1	2014124-011	WIRING HARNESS 'B'	26
1	2014139-011	WIRING HARNESS 'C'	25
1	2014118-011	WIRING HARNESS 'A'	24
18	1006401-003	LENS	23
3	1006401-005	LENS	22
21	1006481	LIGHT, INDICATOR	21
AR	MIL-S-22473, GRADE HV	SEALING & RETAINING COMP	20
2	1014215-6	HANDLE ASSY	19
3	1006478-006	SWITCH, BINARY, 10 DIGIT	18
AR	1006458-006	TAPE, LACING	17
24	MS35338-78	WASHER, LOCK	16
24	MS15795-804	WASHER, PLAIN	15
24	MS35649-44	NUT, HEX	14
2	1006478-005	SWITCH, BINARY, 8 DIGIT	13
2	1006895-2	SWITCH, ROTARY	12
1	1006895-1	SWITCH, ROTARY	11
3	MS91528-2P2B	KNOB, POINTER	10
3	MS51022-24	SET-SCREW, HEX SOCKET	9
8	MS51959-45	SCREW, MACH	8
21	1006407-002	LAMP	7
1	1006478-004	SWITCH, BINARY, 6 DIGIT	6
10	MS24656-23	SWITCH, TOGGLE	5
10	AN960C516L	WASHER, FLAT	4
~~10~~	~~MS35333-41~~	~~WASHER, LOCK~~	~~3~~
10	1006317-3	NUT, ADAPTER	2
1	2014072	PANEL, FRONT	1

-011 LIST OF MATERIALS

● DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014037	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]/65
CHECKED [illegible] [illegible] 20 65
APPROVAL R.E. Dunk [illegible] 65
APPROVAL [illegible] 2/21/65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. Sperling 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
LOGIC DRAWER NO. 2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014226
SCALE 1/1
WT —
SHEET 1 OF 2

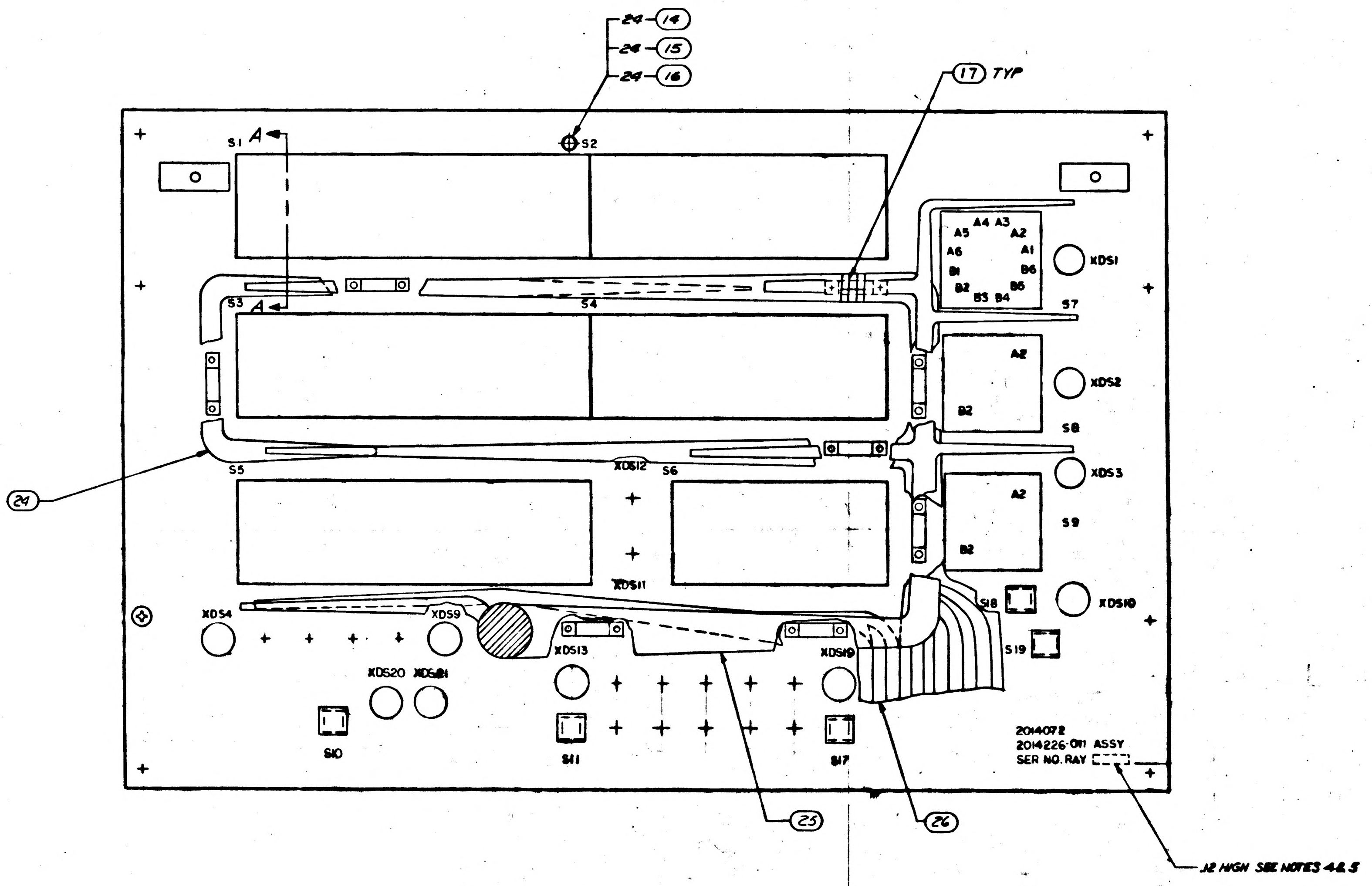
2014226 E

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014226 E

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 2505-		
1	CHANGED PER CCA R25127A DR CHK E Urban APPD		
2	CHANGED PER CCA R25269 DR A. J. CHK E Urban APPD	11/65	
–	CLASS B CHANGED PER CCA R25502	12/65	
A	CHANGED PER CCA R25620 DR CHK APPD		
B	CHANGED PER CCA R25662 AND CLASS A RELEASED PER TDRR 25472	1/66	
C	CHANGED PER TDRR 26289 DR CHK APPD	66	
D	CHANGED PER TDRR 26290 DR CHK APPD	3/5/66	
E	CHANGED PER TDRR 26-42 DR. CHK APPD	3/66	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24 (15)
24 (16)
(17) TYP
S1
A
S2
S3
A
S4
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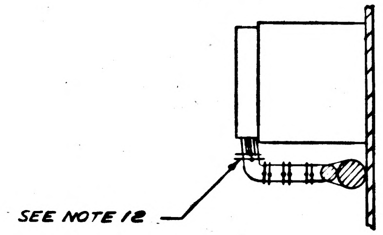
B1 B6
B2 B5
B3 B4
XDS1
S7
A2
B2
XDS2
S8
XDS3
A2
B2
S9
(24)
S5
XDS12
S6
XDS11
S18
XDS10
XDS4
XDS9
XDS13
XDS19
S19
XDS20
XDS21
S10
S11
S17
2014072
2014226-011 ASSY
SER NO. RAY
(25)
(26)
.12 HIGH SEE NOTES 4&5



SECTION A-A
SCALE: NONE

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE MAY 5,65
CHECKED MAY 12 65
APPROVAL C E D 21 JULY 65
APPROVAL D. 7/21/65
APPROVAL 7/21/65
NASA APPROVAL A. C. MI
MIT APPROVAL W
MIT APPROVAL C. Snerling 1/2

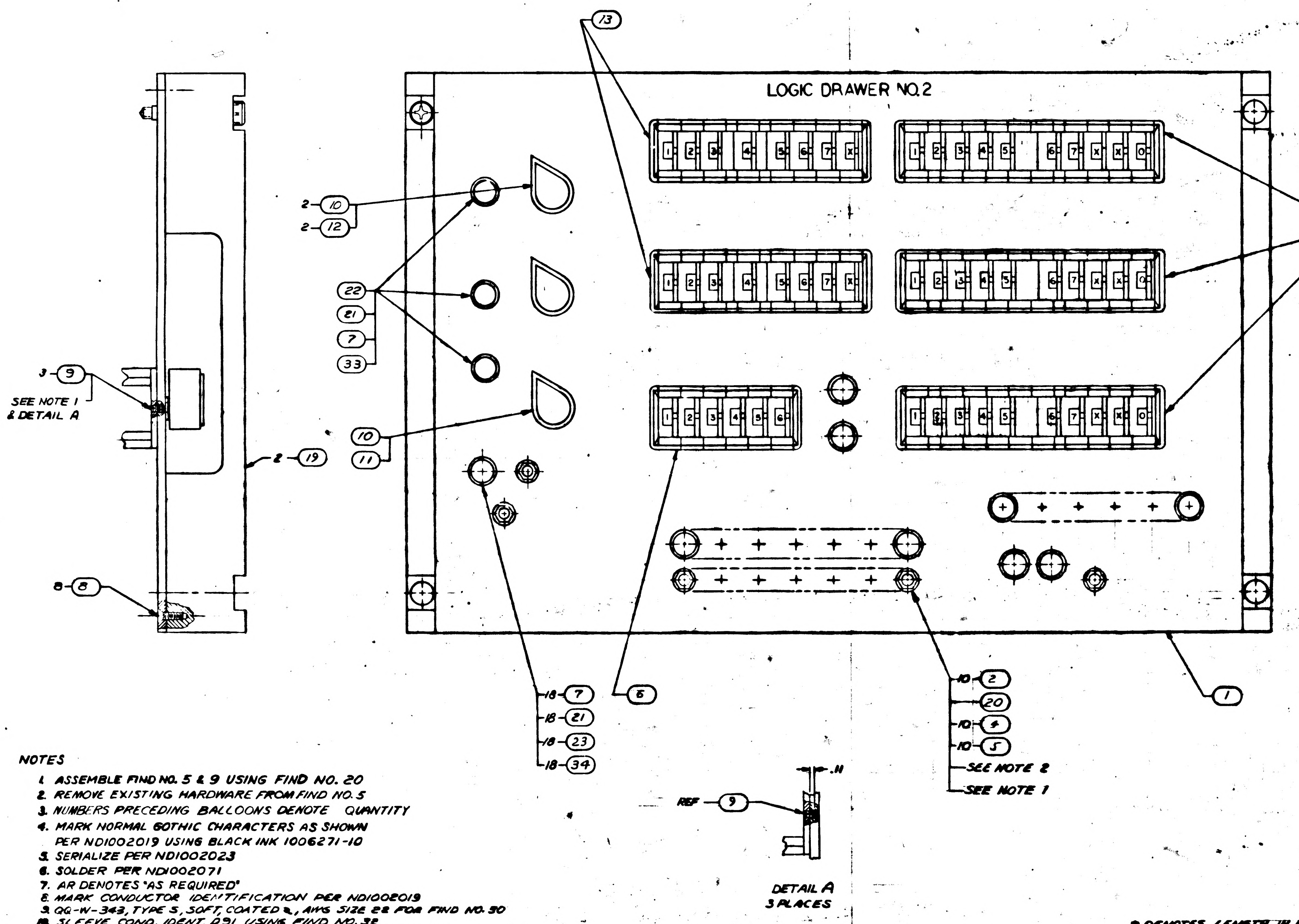
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
LOGIC DRAWER NO.2
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014226
SCALE 1/1
WT —
SHEET 2 OF 2

2014226 F

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25059	[illegible]	[illegible]
1	CHANGED PER CCA R25127A DR [illegible] CHK [illegible] APPD [illegible]	[illegible] 65	[illegible]
2	CHANGED PER CCA R25269 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/65	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25620 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25662 AND CLASS A RELEASED PER TDRR 25472	[illegible]/66	[illegible]
C	CHANGED PER TDRR 26289 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
D	CHANGED PER TDRR 26290 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
E	CHANGED PER TDRR 26542 DR [illegible] CHK [illegible] APPD RCD	[illegible]	[illegible]
F	CHANGED PER TDRR 28101 DR [illegible] CHK [illegible] APPD RCD	[illegible]/66	[illegible]



NOTES

1. ASSEMBLE FIND NO. 5 & 9 USING FIND NO. 20
2. REMOVE EXISTING HARDWARE FROM FIND NO. 5
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. SERIALIZE PER ND1002023
6. SOLDER PER ND1002071
7. AR DENOTES "AS REQUIRED"
8. MARK CONDUCTOR IDENTIFICATION PER ND1002019
9. QQ-W-343, TYPE S, SOFT, COATED, AWS SIZE 22 FOR FIND NO. 30
10. SLEEVE COND. IDENT, 091, USING FIND NO. 32
11. SLEEVE COND. IDENT, 099 & 0126, USING FIND NO. 31
12. AFTER INSTALLATION OF HARNESSES FORM LEADS TO EACH SECTION OF SWITCHES S1, S2, S3, S4, S5 & S6 INTO LEGS AND SPOT TIE AS SHOWN USING FIND 17

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	☒	2014076	SCHEMATIC	REF
☒	☒	2014168	LEAD ELECTRICAL	REF
18	—	1006446-003	LENS, PANEL LIGHT	34
3	—	1006446-005	LENS, PANEL LIGHT	33
● 0.1	0.1	1006776-46	SLEEVING, BLK	32
● 0.2	0.2	1006776-21	SLEEVING, WHT	31
● 0.6	0.6	SEE NOTE 9	WIRE, ELECTRICAL	30
● 4.5	4.5	MIL-W-16878/4, E22	WIRE, ELECTRICAL, BLACK	29
● 6.5	6.5	MIL-W-16878/4, E22	WIRE, ELECTRICAL, WHITE	28
● 16.0	16.0	MIL-W-16878/4, E24	WIRE, ELECTRICAL, WHITE	27
1	1	2014124-011	WIRING HARNESS 'B'	26
1	1	2014139-011	WIRING HARNESS 'C'	25
1	1	2014118-011	WIRING HARNESS 'A'	24
—	18	1006401-003	LENS	23
—	3	1006401-005	LENS	22
21	21	1006481	LIGHT, INDICATOR	21
AR	AR	MIL-S-22473, GRADE HV	SEALING & RETAINING COMP	20
2	2	1014215-6	HANDLE ASSY	19
3	3	1006478-006	SWITCH, BINARY, 10 DIGIT	18
AR	AR	1006458-006	TAPE, LACING	17
24	24	MS35338-78	WASHER, LOCK	16
24	24	MS15795-804	WASHER, PLAIN	15
24	24	MS35649-44	NUT, HEX	14
2	2	1006478-005	SWITCH, BINARY, 8 DIGIT	13
2	2	1006835-2	SWITCH, ROTARY	12
1	1	1006835-1	SWITCH, ROTARY	11
3	3	MS91528-2P2B	KNOB, POINTER	10
3	3	MS51022-24	SET-SCREW, HEX SOCKET	9
8	8	MS51959-45	SCREW, MACH	8
21	21	1006407-002	LAMP	7
1	1	1006478-004	SWITCH, BINARY, 6 DIGIT	6
10	10	MS24656-23	SWITCH, TOGGLE	5
10	10	AN960C516L	WASHER, FLAT	4
—	~~10~~	~~MS35338~~	~~WASHER, LOCK~~	~~3~~
10	10	1006517-3	NUT, ADAPTER	2
1	1	2014072	PANEL, FRONT	1

LIST OF MATERIALS

● DENOTES LENGTH IN FEET

2014037	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]/65
CHECKED [illegible] 22 65
APPROVAL R.E. [illegible] 21 [illegible] 65
APPROVAL [illegible] 2/24/65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. Sporley [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
LOGIC DRAWER NO. 2
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	F	2014226

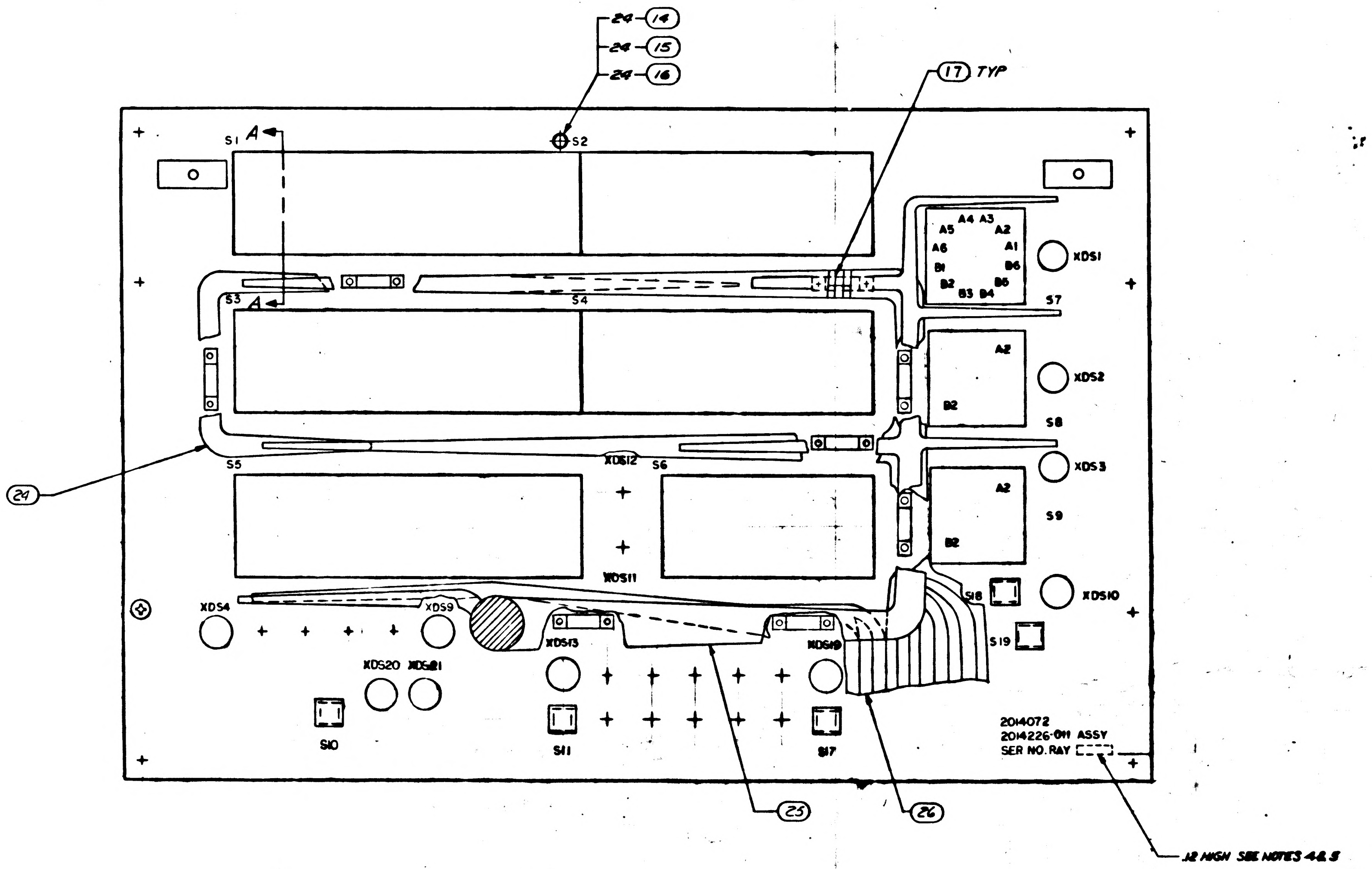
SCALE 1/1 WT — SHEET 1 OF 2

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014226 F

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25059	[illegible]	[illegible]
1	CHANGED PER CCA R25127A DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
2	CHANGED PER CCA R25269 DR A.J. [illegible] CHK [illegible] APPD [illegible]	4/19/65	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25620 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25662 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]
C	CHANGED PER TDRR 26283 DR [illegible] CHK [illegible] APPD PED	3/2/66	[illegible]
D	CHANGED PER TDRR 26290 DR [illegible] CHK [illegible] APPD [illegible]	3/5/66	[illegible]
E	CHANGED PER TDRR 26242 DR. [illegible] CHK [illegible] APPD PED	3/17/66	[illegible]
F	CHANGED PER TDRR 28101 DR [illegible] CHK [illegible] APPD PED	[illegible]	[illegible]



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S7
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XDS2
S8
XDS3
A2
B2
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S5
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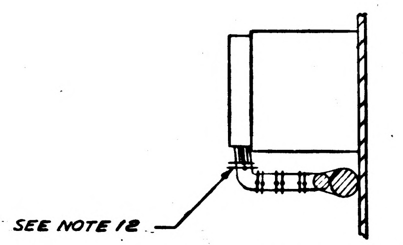
2014072
2014226-011 ASSY
SER NO. RAY
(25)
(26)
.12 HIGH SEE NOTES 4 & 5



SECTION A-A
SCALE: NONE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE MAY 5,65
CHECKED [illegible]
APPROVAL [illegible] 21 JULY 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
LOGIC DRAWER NO.2
COMPUTER TEST SET

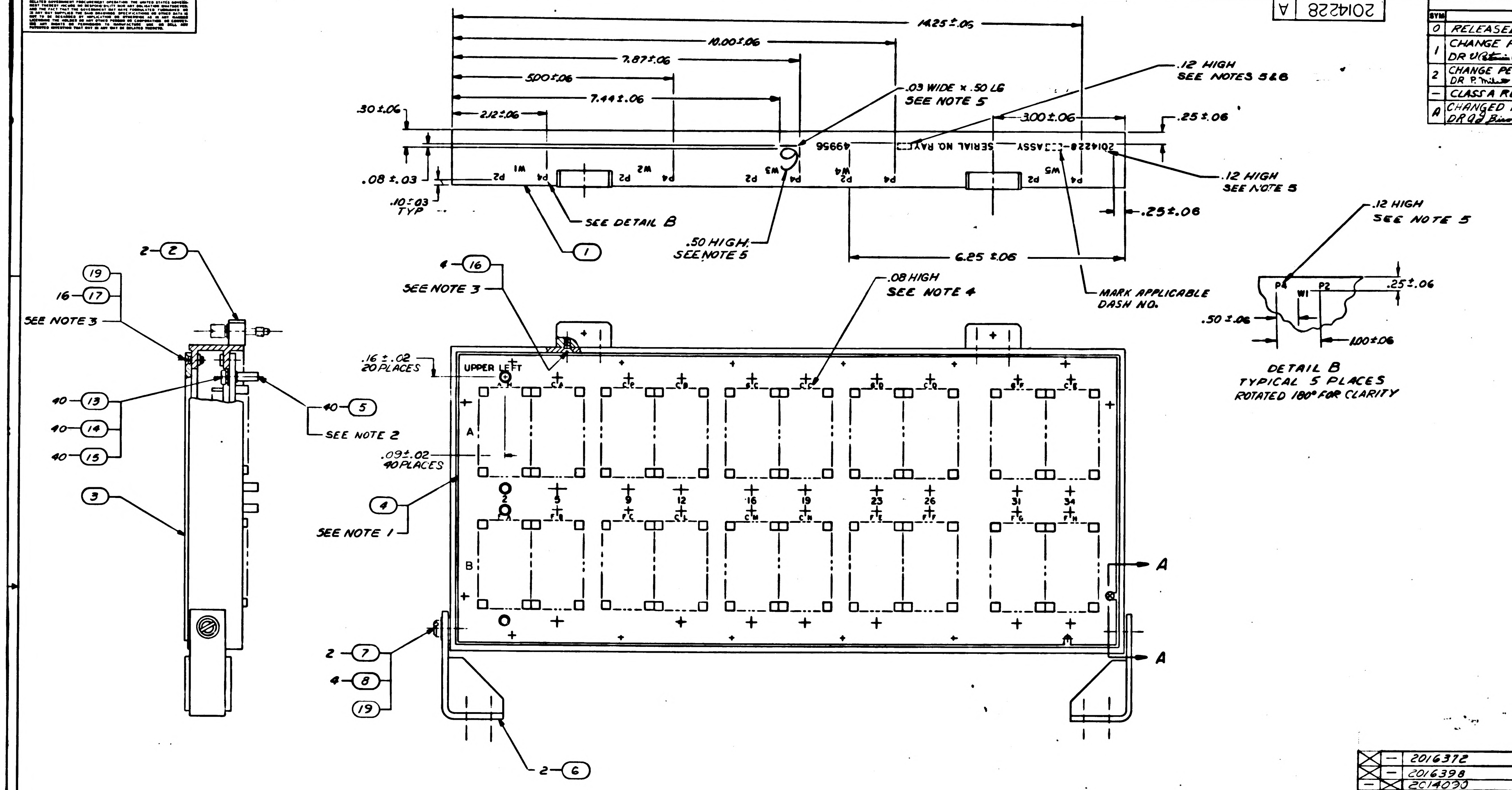
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014226
SCALE 1/1
WT —
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

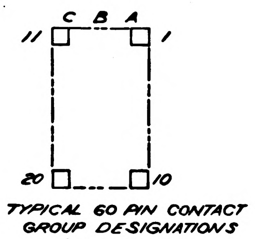
ANY USE OF THIS DOCUMENT FOR OTHER THAN GOVERNMENTAL PURPOSES IS SUBJECT TO PRIOR WRITTEN CONSENT OF RAYTHEON CO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER C.R 25044		
1	CHANGE PER CCA R25103 DR U.B. CHK S.J. Rzepecki APPD T. Harley	2 OCT 65	SFJ
2	CHANGE PER CCA R 25485 DR P. Milner CHK E. Unkns APPD	11/12/65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 28103 DR G.J. Bixon CHK APPD T. Harley	7/26/66	

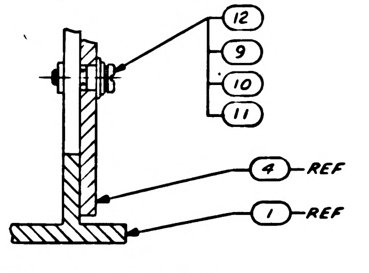
2014228 A


14.25 ±.06
10.00 ±.06
7.87 ±.06
5.00 ±.06
7.44 ±.06
2.12 ±.06
.30 ±.06
.08 ±.03
.10 ±.03 TYP
.03 WIDE x .50 LG SEE NOTE 5
.12 HIGH SEE NOTES 5&6
3.00 ±.06
.25 ±.06
49956
SERIAL NO. RAY
ASSY
2014228-
P2 W1 P4 P2 W2 P4 P2 W3 P4 W4 P2 P4 P2 W5 P4
.12 HIGH SEE NOTE 5
.25 ±.06
SEE DETAIL B
1
.50 HIGH SEE NOTE 5
6.25 ±.06
MARK APPLICABLE DASH NO.
.12 HIGH SEE NOTE 5
P4 W1 P2
.25 ±.06
.50 ±.06
.100 ±.06
DETAIL B
TYPICAL 5 PLACES
ROTATED 180° FOR CLARITY
2-2
19
16-17
SEE NOTE 3
40-13
40-14
40-15
3
40-5
SEE NOTE 2
4-16
SEE NOTE 3
.08 HIGH SEE NOTE 4
.16 ±.02 20 PLACES
UPPER LEFT
A
B
.09 ±.02 40 PLACES
4
SEE NOTE 1
2 5 9 12 16 19 23 26 31 34
A
A
2-7
4-8
19
2-6

NOTES
1. WIREWRAP FIND NO. 4 USING FIND NO. 18 PER 2014090 OR 2016372 & ND1002031
2. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
3. ASSEMBLE FIND NO. 7, 16 AND 17 USING FIND NO. 19
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. SERIALIZE PER ND1002023
7. AR DENOTES "AS REQUIRED"
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY


C B A
11
1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)


12
9
10
11
4 REF
1 REF

PARTIAL SECTION A-A
SCALE 2/1
16 PLACES

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	—	2016372	WIREWRAP MACH CARD	REF
☒	—	2016398	LOGIC DIAGRAM	REF
—	☒	2014090	WIREWRAP MACH. CARD	REF
—	☒	2014195	LOGIC DIAGRAM	REF
AR	AR	MIL-S-22473, GR, HV	COMPOUND, SEALING & RETAINING	19
AR	AR	1006945-1	WIRE, ELECTRICAL	18
16	16	MS51959-15	SCREW, FLAT HD	17
4	4	MS51959-14	SCREW, FLAT HD	16
40	40	MS35338-79	WASHER, LOCK	15
40	40	1006997	WASHER, FLAT	14
40	40	MS51957-29	SCREW, PAN HD	13
16	16	MS51957-17	SCREW, PAN HD	12
16	16	MS15795-803	WASHER, FLAT	11
16	16	MS35338-78	WASHER, LOCK	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
4	4	1006982-8	WASHER, NYLON	8
2	2	1014005	SCREW, SHOULDER	7
2	2	1014006	BRACKET, PIVOT	6
40	40	1014212	STAND OFF, PROGRAM	5
1	1	1006495-002	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
2	2	1014013	RETAINER, CAPTIVE SCREW	2
1	1	1014014-1	FRAME	1
-021	-011	LIST OF MATERIALS		

2014036	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN Joe Roper DATE 22 MAY 65
CHECKED 2 JUN 65
APPROVAL G E Dale 8 JULY '65
APPROVAL
APPROVAL
NASA APPROVAL A. C. MILLER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION PLATE
ASSY PLATE NO. 6
LOGIC DRAWER NO. 1
COMPUTER TEST SET

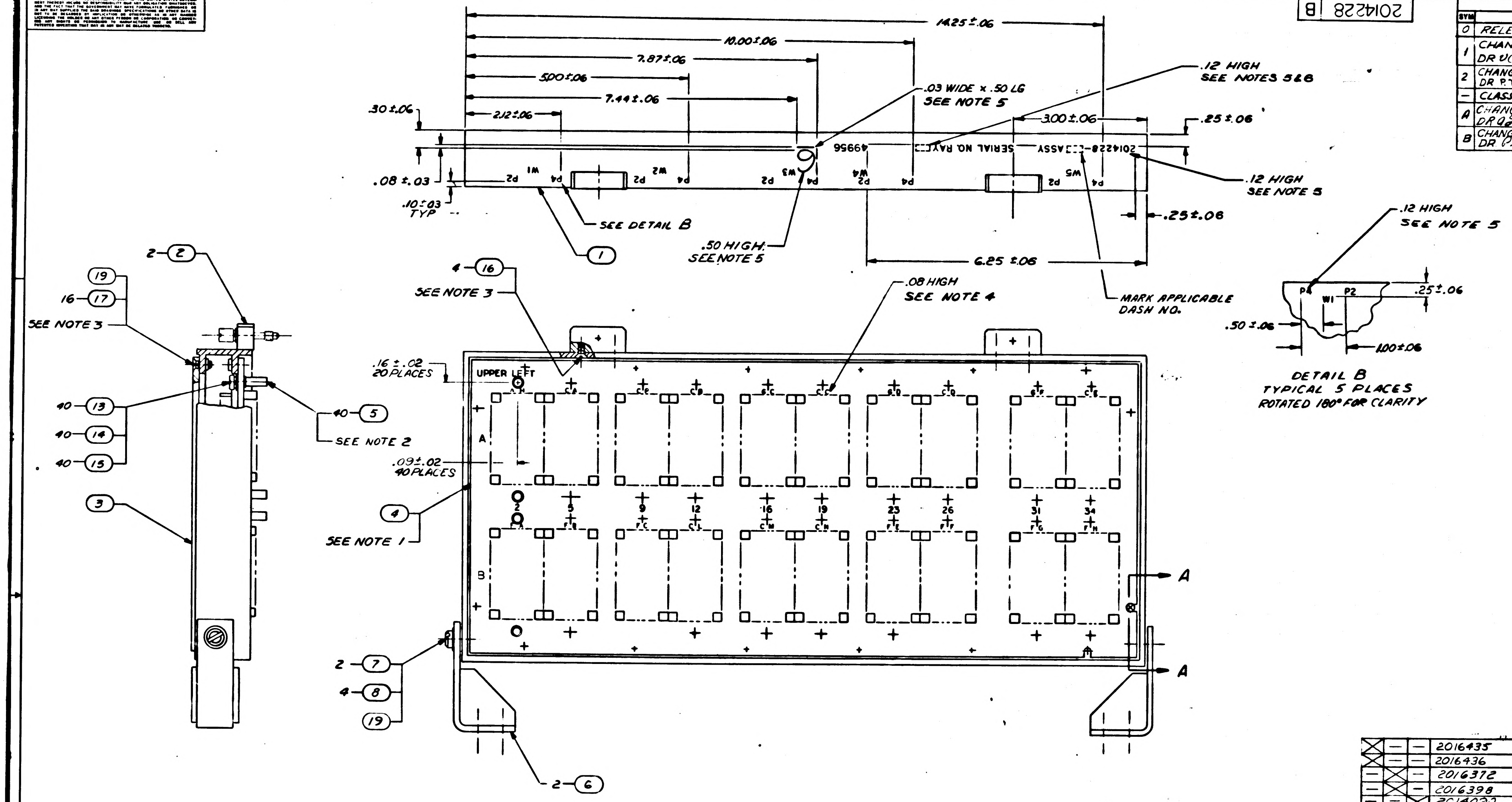
CODE IDENT NO	SIZE	NASA DRAWING NO.
49956	F	2014228
SCALE 1/1	WT	SHEET 1 OF 1

INTERPRET DRAWINGS IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014228 B

ANY USE OF THIS DOCUMENT FOR OTHER THAN GOVERNMENTAL PURPOSES IS SUBJECT TO PRIOR WRITTEN CONSENT OF RAYTHEON CO.

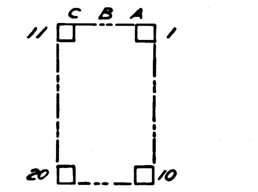
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER C.N 25044		
1	CHANGE PER CCA R25103 DR V. CHK S.J. APPD J. Harley	2 OCT 65	
2	CHANGE PER CCA R25485 DR P. Miller CHK E. APPD	11/12/65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 28103 DR R.J. Binon CHK APPD J. Harley	7/26/66	
B	CHANGED PER TDRR 29329 DR P. CHK APPD	8/17/66	



14.25±.06
10.00±.06
7.87±.06
5.00±.06
7.44±.06
2.12±.06
.30±.06
.08±.03
.10±.03 TYP
.03 WIDE x .50 LG SEE NOTE 5
.12 HIGH SEE NOTES 5&8
3.00±.06
.25±.06
.12 HIGH SEE NOTE 5
-.25±.06
6.25±.06
MARK APPLICABLE DASH NO.
SEE DETAIL B
.50 HIGH SEE NOTE 5
2014228-[ ]ASSY SERIAL NO. RAY[ ] 49956
W1 P2 P4 W2 W3 W4 W5
1
2-2
19
16-17
SEE NOTE 3
40-13
40-14
40-15
3
40-5
SEE NOTE 2
4-16
SEE NOTE 3
.08 HIGH SEE NOTE 4
.16±.02 20 PLACES
UPPER LEFT
A
B
.09±.02 40 PLACES
4
SEE NOTE 1
2 5 9 12 16 19 23 26 31 34
A
A
2-7
4-8
19
2-6
.12 HIGH SEE NOTE 5
.25±.06
.50±.06
1.00±.06
DETAIL B
TYPICAL 5 PLACES
ROTATED 180° FOR CLARITY

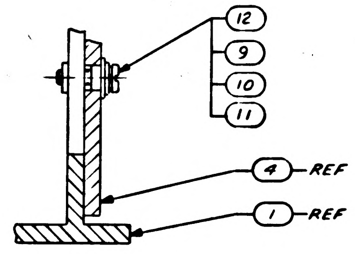
☒	—	—	2016435	LOGIC DIAGRAM	REF
☒	—	—	2016436	WIREWRAP MACH. CARD	REF
—	☒	—	2016372	WIREWRAP MACH CARD	REF
—	☒	—	2016398	LOGIC DIAGRAM	REF
—	—	☒	2014090	WIREWRAP MACH. CARD	REF
—	—	☒	2014195	LOGIC DIAGRAM	REF
AR	AR	AR	MIL-S-22473, GR. HV	COMPOUND, SEALING & RETAINING	19
AR	AR	AR	1006945-1	WIRE, ELECTRICAL	18
16	16	16	MS51959-15	SCREW, FLAT HD	17
4	4	4	MS51959-14	SCREW, FLAT HD	16
40	40	40	MS35338-79	WASHER, LOCK	15
40	40	40	1006997	WASHER, FLAT	14
40	40	40	MS51957-29	SCREW, PAN HD	13
16	16	16	MS51957-17	SCREW, PAN HD	12
16	16	16	MS15795-803	WASHER, FLAT	11
16	16	16	MS35338-78	WASHER, LOCK	10
16	16	16	1006986	WASHER, SHOULDERED, NYLON	9
4	4	4	1006982-8	WASHER, NYLON	8
2	2	2	1014005	SCREW, SHOULDER	7
2	2	2	1014006	BRACKET, PIVOT	6
40	40	40	1014212	STAND OFF, PROGRAM	5
1	1	1	1006495-002	PLATE ASSY	4
1	1	1	1014026	COVER, CONN PLATE	3
2	2	2	1014013	RETAINER, CAPTIVE SCREW	2
1	1	1	1014014-1	FRAME	1
QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
-031	-021	-011	LIST OF MATERIALS		

NOTES
1. WIREWRAP FIND NO. 4 USING FIND NO. 18 PER 2014090 OR 2016372 OR 2016436 & ND1002031
2. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
3. ASSEMBLE FIND NO. 7, 16 AND 17 USING FIND NO. 19
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. SERIALIZE PER ND1002023
7. AR DENOTES "AS REQUIRED"
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY



C B A
11
1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)



12
9
10
11
4-REF
1-REF

PARTIAL SECTION A-A
SCALE 2/1
16 PLACES

2014036	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4437
DRAWN Joe Roper DATE 22 May 65
CHECKED 3 June 65 (CC)
APPROVAL C.E. 8 JULY '65
APPROVAL 7/7/65
APPROVAL 7/15/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION PLATE
ASSY PLATE NO. 6
LOGIC DRAWER NO. 1
COMPUTER TEST SET

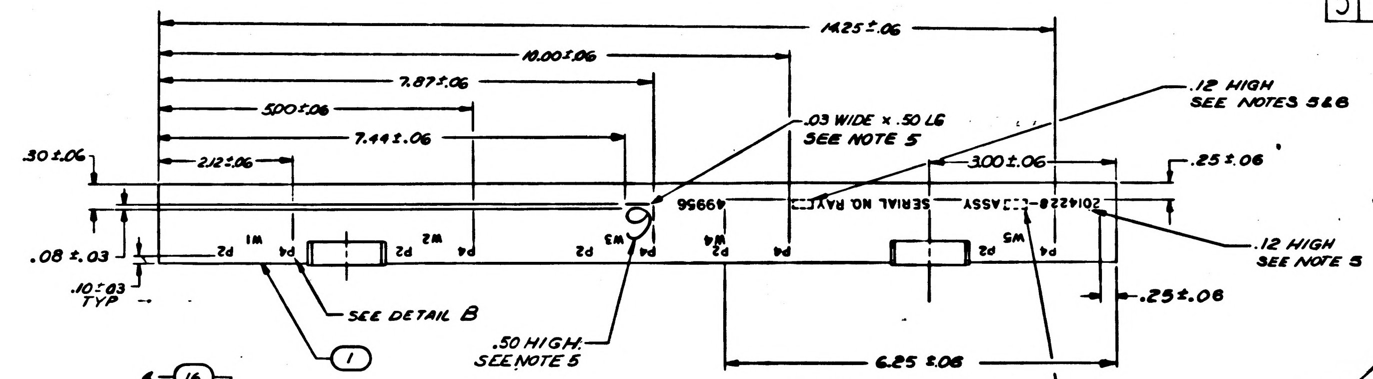
CODE IDENT NO 49956 | SIZE F | NASA DRAWING NO. 2014228
SCALE 1/1 | WT | SHEET 1 OF 1

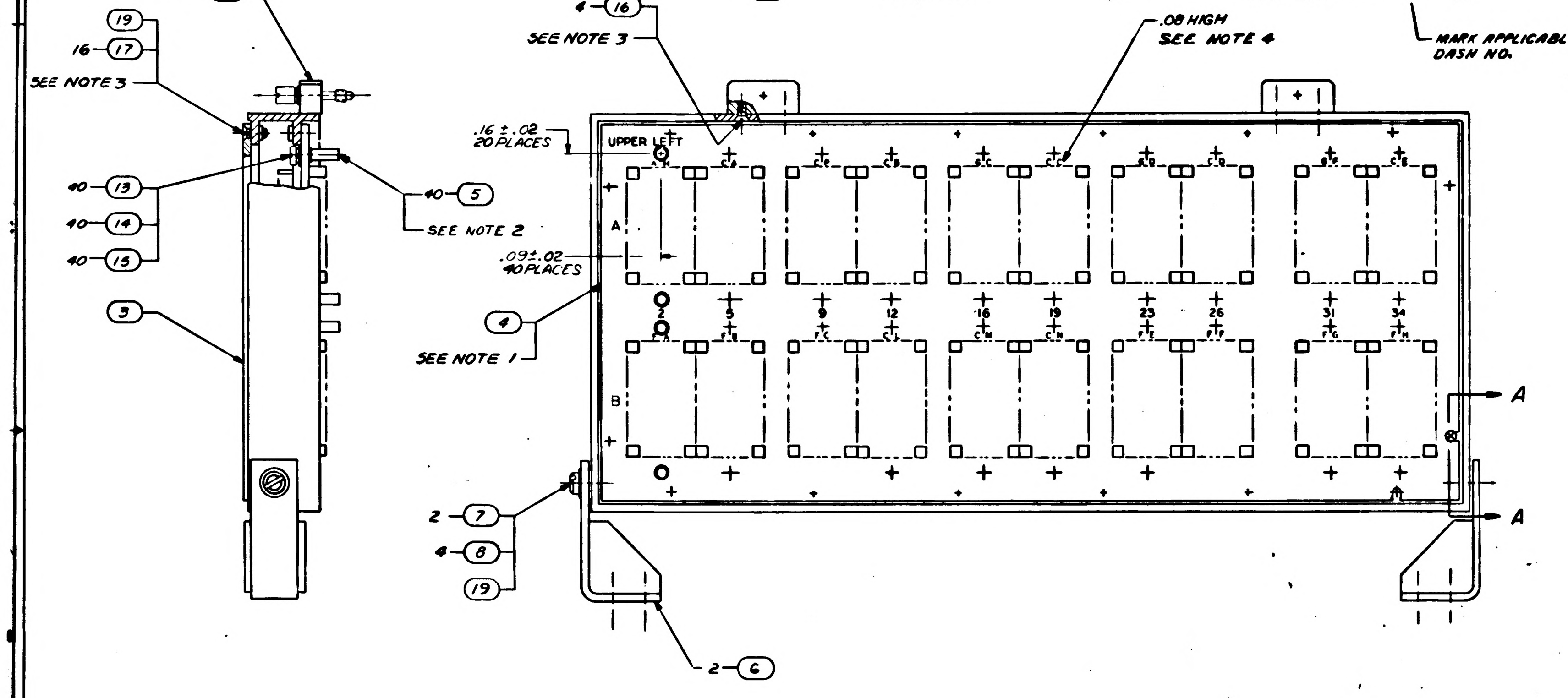
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

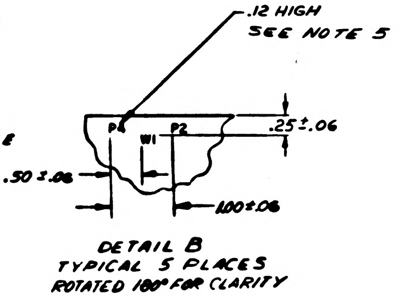
2014228 C

ANY USE OF THIS DOCUMENT FOR OTHER THAN GOVERNMENTAL PURPOSES IS SUBJECT TO PRIOR WRITTEN CONSENT OF RAYTHEON CO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25044		
1	CHANGE PER CCA R25103 DR V. Catanzano CHK S. J. Rozenski APPD J. Harley	6 SEP 65	JFJ
2	CHANGE PER CCA R25485 DR P. Milano CHK E. Urban APPD	12/65	JFJ
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 28103 DR A. J. Biron CHK APPD J. Harley	7/12/66	
B	CHANGED PER TDRR 29329 DR P. Bathrick CHK A. Kupfer APPD	9/14/66	
C	CHANGED PER TDRR 31281 DR J P Giordano CHK A. Kupfer APPD	10/25/66	


14.25±.06
10.00±.06
7.87±.06
5.00±.06
7.44±.06
2.12±.06
.30±.06
.03 WIDE x .50 LG
SEE NOTE 5
.12 HIGH
SEE NOTES 5&8
3.00±.06
.25±.06
49956 SERIAL NO. RAYTHEON 2014228-□□ASSY
P2 W1 P4 P2 W2 P4 P2 W3 P4 P2 W4 P4 P2 W5 P4
.08±.03
.10±.03 TYP
SEE DETAIL B
1
.50 HIGH
SEE NOTE 5
6.25±.06
.25±.06
.12 HIGH
SEE NOTE 5


2-2
19
16-17
SEE NOTE 3
40-13
40-14
40-15
40-5
SEE NOTE 2
3
4-16
SEE NOTE 3
.08 HIGH
SEE NOTE 4
MARK APPLICABLE DASH NO.
.16±.02
20 PLACES
UPPER LEFT
A
B
.09±.02
40 PLACES
4
SEE NOTE 1
2 5 9 12 16 19 23 26 31 34
A
A
2-7
4-8
19
2-6

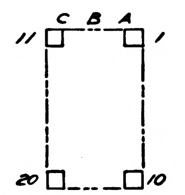

.12 HIGH
SEE NOTE 5
P4 P2 W1
.25±.06
.50±.06
1.00±.06

DETAIL B
TYPICAL 5 PLACES
ROTATED 180° FOR CLARITY

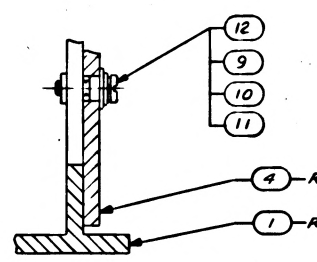
X	—	—	—	2016459	LOGIC DIAGRAM	REF
—	X	—	—	2016435	LOGIC DIAGRAM	REF
X	X	—	—	2016436	WIREWRAP MACH. CARD	REF
—	—	X	—	2016372	WIREWRAP MACH CARD	REF
—	—	X	—	2016398	LOGIC DIAGRAM	REF
—	—	—	X	2014090	WIREWRAP MACH. CARD	REF
—	—	—	X	2014195	LOGIC DIAGRAM	REF
AR	—	—	—	1006776-195	SLEEVING, INSULATION	21
1	—	—	—	CY20C242J	CAPACITOR, 2400PF, 500V	20
AR	AR	AR	AR	MIL-S-22473, GR, HV	COMPOUND, SEALING & RETAINING	19
AR	AR	AR	AR	1006945-1	WIRE, ELECTRICAL	18
16	16	16	16	MS51959-15	SCREW, FLAT HD	17
4	4	4	4	MS51959-14	SCREW, FLAT HD	16
40	40	40	40	MS35338-79	WASHER, LOCK	15
40	40	40	40	1006997	WASHER, FLAT	14
40	40	40	40	MS51957-29	SCREW, PAN HD	13
16	16	16	16	MS51957-17	SCREW, PAN HD	12
16	16	16	16	MS15795-803	WASHER, FLAT	11
16	16	16	16	MS35338-78	WASHER, LOCK	10
16	16	16	16	1006986	WASHER, SHOULDERED, NYLON	9
4	4	4	4	1006982-8	WASHER, NYLON	8
2	2	2	2	1014005	SCREW, SHOULDER	7
2	2	2	2	1014006	BRACKET, PIVOT	6
40	40	40	40	1014212	STAND OFF, PROGRAM	5
1	1	1	1	1006495-002	PLATE ASSY	4
1	1	1	1	1014026	COVER, CONN PLATE	3
2	2	2	2	1014013	RETAINER, CAPTIVE SCREW	2
1	1	1	1	1014014-1	FRAME	1
QTY REQD	QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
-041	-031	-021	-011	LIST OF MATERIALS		

SEE NOTE 9 (find no. 21)
SEE NOTE 10 (find no. 20)

NOTES
1. WIREWRAP FIND NO. 4 USING FIND NO. 18 PER 2014090 OR 2016372 OR 2016436 & ND1002031
2. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
3. ASSEMBLE FIND NO. 7, 16 AND 17 USING FIND NO. 19
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. SERIALIZE PER ND1002023
7. AR DENOTES "AS REQUIRED"
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
9. SLEEVE LEADS OF FIND NO. 20 (C1) USING FIND NO. 21 (FOR -041)
10. AFTER MACHINE WIRE WRAPPING PLATE INSTALL FIND NO. 20 (C1) BETWEEN PINS A5-6 & A10-20
    A. SOLDER PER ND1002071
    B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY CAPACITOR LOCATION AT ASSY


C B A
11
1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS
(REF ONLY)


12
9
10
11
4-REF
1-REF

PARTIAL SECTION A-A
SCALE 2/1
16 PLACES

MASTER

2014036		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ±	RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
NEXT ASSY	USED ON	DO NOT SCALE THIS DRAWING	CONTRACT NO NAS 9-497	INTERCONNECTION PLATE ASSY PLATE NO. 6 LOGIC DRAWER NO. 1 COMPUTER TEST SET	
APPLICATION		MATERIAL	DRAWN Joe Roper DATE 22 May 65		
		HEAT TREATMENT	CHECKED 3 June 65		
		FINAL FINISH	APPROVAL C E Dale 8 JULY '65	CODE IDENT NO 49956	SIZE F
			APPROVAL R. O. Bryant	NASA DRAWING NO. 2014228	
			APPROVAL	SCALE 1/1	WT
			NASA APPROVAL A. C. METZGER	SHEET 1 OF 1	
			MIT APPROVAL		
			MIT APPROVAL E. Sperling		

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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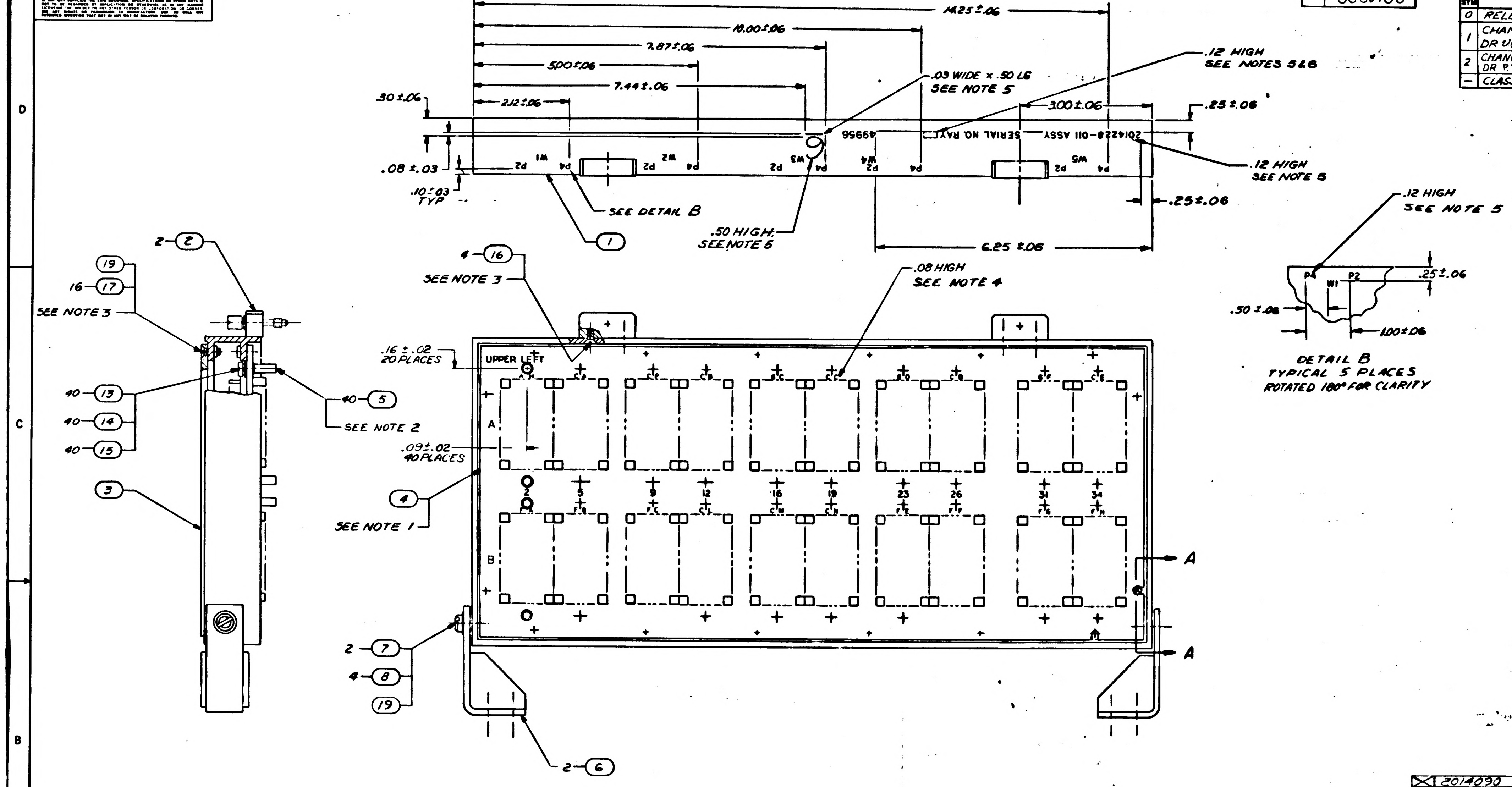
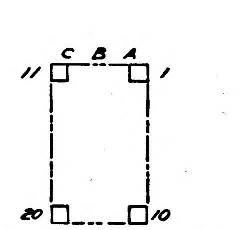
2014228 –

ANY USE OF THIS DOCUMENT FOR OTHER THAN GOVERNMENTAL PURPOSES IS SUBJECT TO PRIOR WRITTEN CONSENT OF RAYTHEON CO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25044	11/9/65	
1	CHANGE PER CCA R25103 DR V. Caterini CHK S. J. Rzeznicki APPD T. Conley	2 SEPT 65	
2	CHANGE PER CCA R 25485 DR P. Milano CHK E. Urban APPD	11/12/65	
–	CLASS A RELEASED PER TDRR 25472		


14.25±.06
10.00±.06
7.87±.06
5.00±.06
7.44±.06
2.12±.06
.30±.06
.03 WIDE x .50 LG SEE NOTE 5
.12 HIGH SEE NOTES 5&6
3.00±.06
.25±.06
49956 SERIAL NO. RAY 2014228-011 ASSY
W1 P2 P4 W2 P2 P4 W3 P2 P4 W4 P2 P4 W5 P2 P4
.12 HIGH SEE NOTE 5
.25±.06
.08±.03
.10±.03 TYP
SEE DETAIL B
1
.50 HIGH SEE NOTE 5
6.25±.06
.12 HIGH SEE NOTE 5
P4 W1 P2
.25±.06
.50±.06
1.00±.06
DETAIL B
TYPICAL 5 PLACES
ROTATED 180° FOR CLARITY
2–2
19
16–17
SEE NOTE 3
40–13
40–14
40–15
40–5
SEE NOTE 2
3
4–16
SEE NOTE 3
.08 HIGH SEE NOTE 4
.16±.02 20 PLACES
UPPER LEFT
A
B
.09±.02 40 PLACES
4
SEE NOTE 1
2 5 9 12 16 19 23 26 31 34
A
A
2–7
4–8
19
2–6

NOTES
1. WIREWRAP FIND NO. 4 USING FIND NO. 18 PER 2014090 & ND1002031
2. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
3. ASSEMBLE FIND NO. 7, 16 AND 17 USING FIND NO. 19
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. SERIALIZE PER ND1002023
7. AR DENOTES "AS REQUIRED"
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY


C B A
11
1
20
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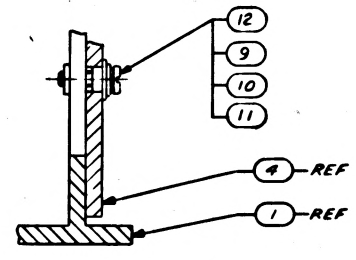
TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)


12
9
10
11
4–REF
1–REF

PARTIAL SECTION A-A
SCALE 2/1
16 PLACES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014090	WIREWRAP MACH. CARD	REF
☒	2014195	LOGIC DIAGRAM	REF
AR	MIL-S-22473, GR. HV	COMPOUND, SEALING & RETAINING	19
AR	1006945-1	WIRE, ELECTRICAL	18
16	MS51959-15	SCREW, FLAT HD	17
4	MS51959-14	SCREW, FLAT HD	16
40	MS35338-79	WASHER, LOCK	15
40	1006997	WASHER, FLAT	14
40	MS51957-29	SCREW, PAN HD	13
16	MS51957-17	SCREW, PAN HD	12
16	MS15795-803	WASHER, FLAT	11
16	MS35338-78	WASHER, LOCK	10
16	1006986	WASHER, SHOULDERED, NYLON	9
4	1006982-8	WASHER, NYLON	8
2	1014005	SCREW, SHOULDER	7
2	1014006	BRACKET, PIVOT	6
40	1014212	STAND OFF, PROGRAM	5
1	1006495-002	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
2	1014013	RETAINER, CAPTIVE SCREW	2
1	1014014-1	FRAME	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014036	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO
LEXINGTON, MASS
CONTRACT NO NAS 9-497
DRAWN Joe Roper DATE 22 MAY 65
CHECKED 3 JUN 65
APPROVAL C. E. Dale 8 JULY '65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL E. Sperling

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION PLATE
ASSY PLATE NO. 6
LOGIC DRAWER NO. 1
COMPUTER TEST SET

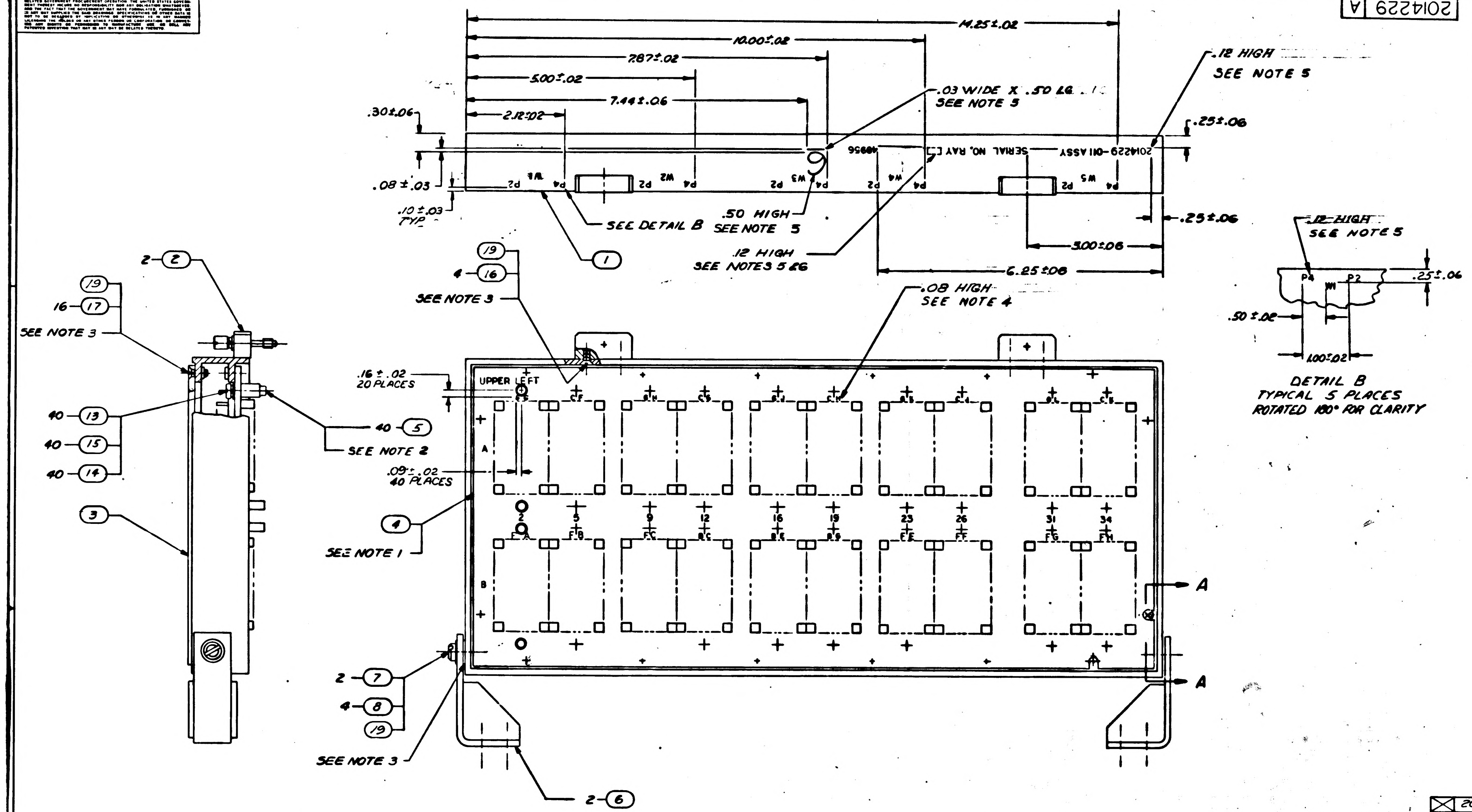
CODE IDENT NO	SIZE	NASA DRAWING NO.
49956	F	2014228
SCALE 1/1	WT	SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

ANY USE OF THIS DOCUMENT FOR OTHER THAN GOVERNMENTAL PURPOSES IS SUBJECT TO PRIOR WRITTEN CONSENT OF RAYTHEON CO.

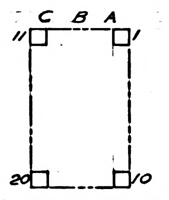
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25044	7/9/65	
1	CHANGE PER CCA R25485 DR P. Milato CHKE Urban APPD M.C. Dub 4-19-65	4/12/65	
–	CLASS B NO CHANGE PER CCAR25502		
A	CHANGE PER CCA R25737 AND CLASS A RELEASED PER TORR 25472	1/7/66	

2014229 A

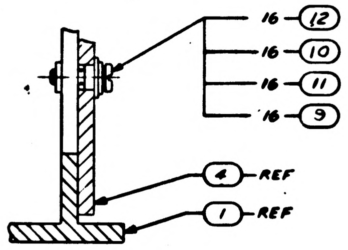

14.25±.02
10.00±.02
7.87±.02
5.00±.02
7.44±.06
2.12±.02
.30±.06
.08±.03
.10±.03 TYP
.03 WIDE X .50 LG
SEE NOTE 5
.12 HIGH
SEE NOTE 5
.25±.06
2014229-011 ASSY
SERIAL NO. RAY
49956
P2 W1 P4 P2 W2 P4 P2 W3 P4 P2 W4 P4 P2 W5 P4
SEE DETAIL B
.50 HIGH
SEE NOTE 5
.12 HIGH
SEE NOTES 5 & 6
1
.25±.06
3.00±.06
6.25±.06
.12 HIGH
SEE NOTE 5
P4 W1 P2
.25±.06
.50±.02
1.00±.02
DETAIL B
TYPICAL 5 PLACES
ROTATED 180° FOR CLARITY
19
4 16
SEE NOTE 3
.08 HIGH
SEE NOTE 4
2 2
19
16 17
SEE NOTE 3
40 13
40 15
40 14
40 5
SEE NOTE 2
3
.16±.02
20 PLACES
UPPER LEFT
.09±.02
40 PLACES
A
B
4
SEE NOTE 1
2 5 9 12 16 19 23 26 31 34
A
A
2 7
4 8
19
SEE NOTE 3
2 6

NOTES

1. WIREWRAP FIND NO. 4 USING FIND NO. 18 PER 2014096 & ND1002031
2. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DRAWING NO. 1014047
3. ASSEMBLE FIND NO. 7, 16, & 17 USING FIND NO. 19
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. SERIALIZE PER ND1002023
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. AR DENOTES "AS REQUIRED."


C B A
11
1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)


16 12
16 10
16 11
16 9
4 REF
1 REF

PARTIAL SECTION A-A
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2014096	WIREWRAP MACH. CARD	REF
☒	2014196	LOGIC DIAGRAM	REF
AR	MIL-S-22473 GR. HV	COMPOUND, SEALING & RETAINING	19
AR	1006943-1	WIRE, ELEC, INSUL, #24 AWG SOLID	18
16	MS51959-15	SCREW, FLAT HD	17
4	MS51959-14	SCREW, FLAT HD	16
40	MS35338-79	WASHER, LOCK	15
40	1006997	WASHER, FLAT	14
40	MS51957-29	SCREW, PAN HD	13
16	MS51957-17	SCREW, PAN HD	12
16	MS15795-803	WASHER, FLAT	11
16	MS35338-78	WASHER, LOCK	10
16	1006986	WASHER, SHOULDERED, NYLON	9
4	1006982-8	WASHER, NYLON	8
2	1014005	SCREW, SHOULDER	7
2	1014006	BRACKET, PIVOT	6
40	1014212	STAND OFF, PROGRAM	5
1	1006495-002	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
2	1014013	RETAINER, CAPTIVE SCREW	2
1	1014014-1	FRAME	1
-011	LIST OF MATERIALS		

2014037	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-49
DRAWN DATE 22MAY65
CHECKED JUN 65
APPROVAL P.E. Dub 9 JULY 65
APPROVAL 7/14/65
APPROVAL 7/9/65
NASA APPROVAL C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION PLATE ASSY
LOGIC DRAWER NO2 PLATE NO. 6
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	F	2014229
SCALE 1/1	WT	SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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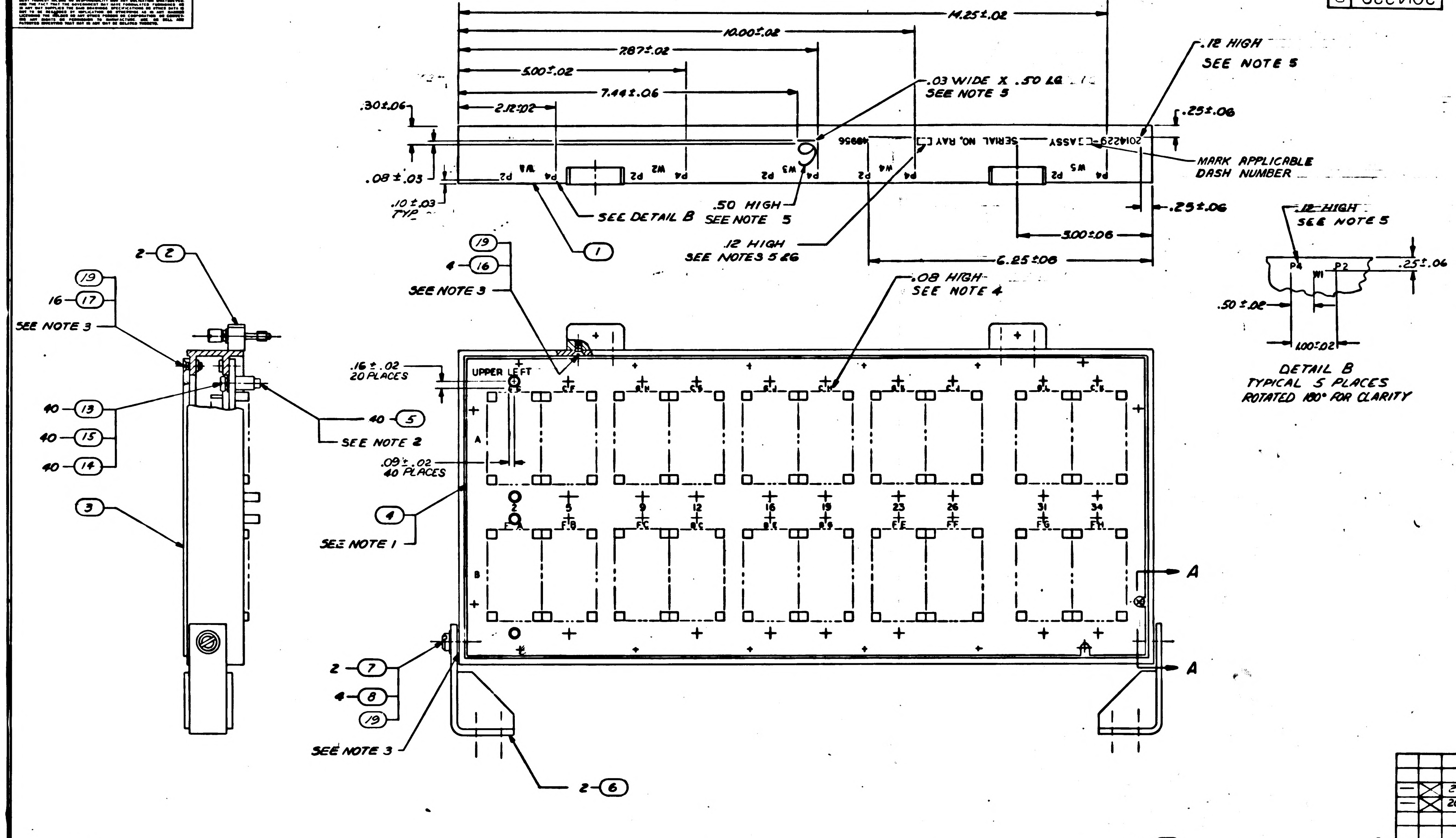
2014229 B

ANY USE OF THIS DOCUMENT FOR OTHER THAN GOVERNMENTAL PURPOSES IS SUBJECT TO PRIOR WRITTEN CONSENT OF RAYTHEON CO.

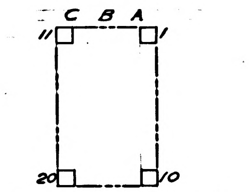
REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25044	7/9/65	
1	CHANGE PER CCA R25485 DR P. Milato CHKE Urban APPD		
—	CLASS B NO CHANGE PER CCAR25502		
A	CHANGE PER CCA R25737 AND CLASS A RELEASED PER TDRR 25472		
B	CHANGED PER TDRR 28101 DR CHKT APPD	5/4/66	

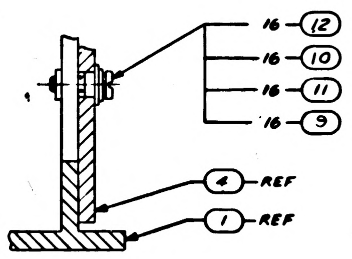

14.25±.02
10.00±.02
7.87±.02
5.00±.02
7.44±.06
2.12±.02
.30±.06
.08±.03
.10±.03 TYP
.03 WIDE X .50 LG
SEE NOTE 5
.12 HIGH
SEE NOTE 5
.25±.06
SERIAL NO. RAY
2014229-[ ]ASSY
49956
MARK APPLICABLE DASH NUMBER
P2 W1 P4 W2 P4 P2 W3 P4 P2 W4 P4 P2 W5 P4
SEE DETAIL B
.50 HIGH
SEE NOTE 5
.12 HIGH
SEE NOTES 5 & 6
1
.25±.06
3.00±.06
6.25±.06
19
4-16
SEE NOTE 3
.08 HIGH
SEE NOTE 4
2-2
19
16-17
SEE NOTE 3
.16±.02
20 PLACES
UPPER LEFT
40-13
40-15
40-14
40-5
SEE NOTE 2
.09±.02
40 PLACES
A
B
2 5 9 12 16 19 23 26 31 34
4
SEE NOTE 1
3
A
A
2-7
4-8
19
SEE NOTE 3
2-6
.12 HIGH
SEE NOTE 5
P4 W1 P2
.25±.06
.50±.02
1.00±.02

DETAIL B
TYPICAL 5 PLACES
ROTATED 180° FOR CLARITY

NOTES
1. WIREWRAP FIND NO. 4 USING FIND NO. 18 PER 2014096 OR 2016374 & ND1002031
2. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DRAWING NO. 1014047
3. ASSEMBLE FIND NO. 7, 16, & 17 USING FIND NO. 19
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. SERIALIZE PER ND1002023
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. AR DENOTES "AS REQUIRED."


C B A
11
1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)


16-12
16-10
16-11
16-9
4-REF
1-REF

PARTIAL SECTION A-A
SCALE 2/1

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
—	☒	2014096	WIREWRAP MACH. CARD	REF
—	☒	2014196	LOGIC DIAGRAM	REF
AR	AR	MIL-S-22473 GR. HV	COMPOUND, SEALING & RETAINING	19
AR	AR	1006945-1	WIRE, ELEC, INSUL, #24 AWG SOLID	18
16	16	MS51959-15	SCREW, FLAT HD	17
4	4	MS51959-14	SCREW, FLAT HD	16
40	40	MS35338-79	WASHER, LOCK	15
40	40	1006997	WASHER, FLAT	14
40	40	MS51957-29	SCREW, PAN HD	13
16	16	MS51957-17	SCREW, PAN HD	12
16	16	MS15795-803	WASHER, FLAT	11
16	16	MS35338-78	WASHER, LOCK	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
4	4	1006982-8	WASHER, NYLON	8
2	2	1014005	SCREW, SHOULDER	7
2	2	1014006	BRACKET, PIVOT	6
40	40	1014212	STAND OFF, PROGRAM	5
1	1	1006495-002	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
2	2	1014013	RETAINER, CAPTIVE SCREW	2
1	1	1014014-1	FRAME	1
-021	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014037	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 22MAY65
CHECKED WH 65
APPROVAL P.E. Dube 9JULY65
APPROVAL 7/1/65
APPROVAL 7/1/65
NASA APPROVAL A C METZGER
MIT APPROVAL
MIT APPROVAL C

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

INTERCONNECTION PLATE ASSY
LOGIC DRAWER NO2 PLATE NO. 6
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014229
SCALE 1/1 WT SHEET 1 OF 1

MASTER

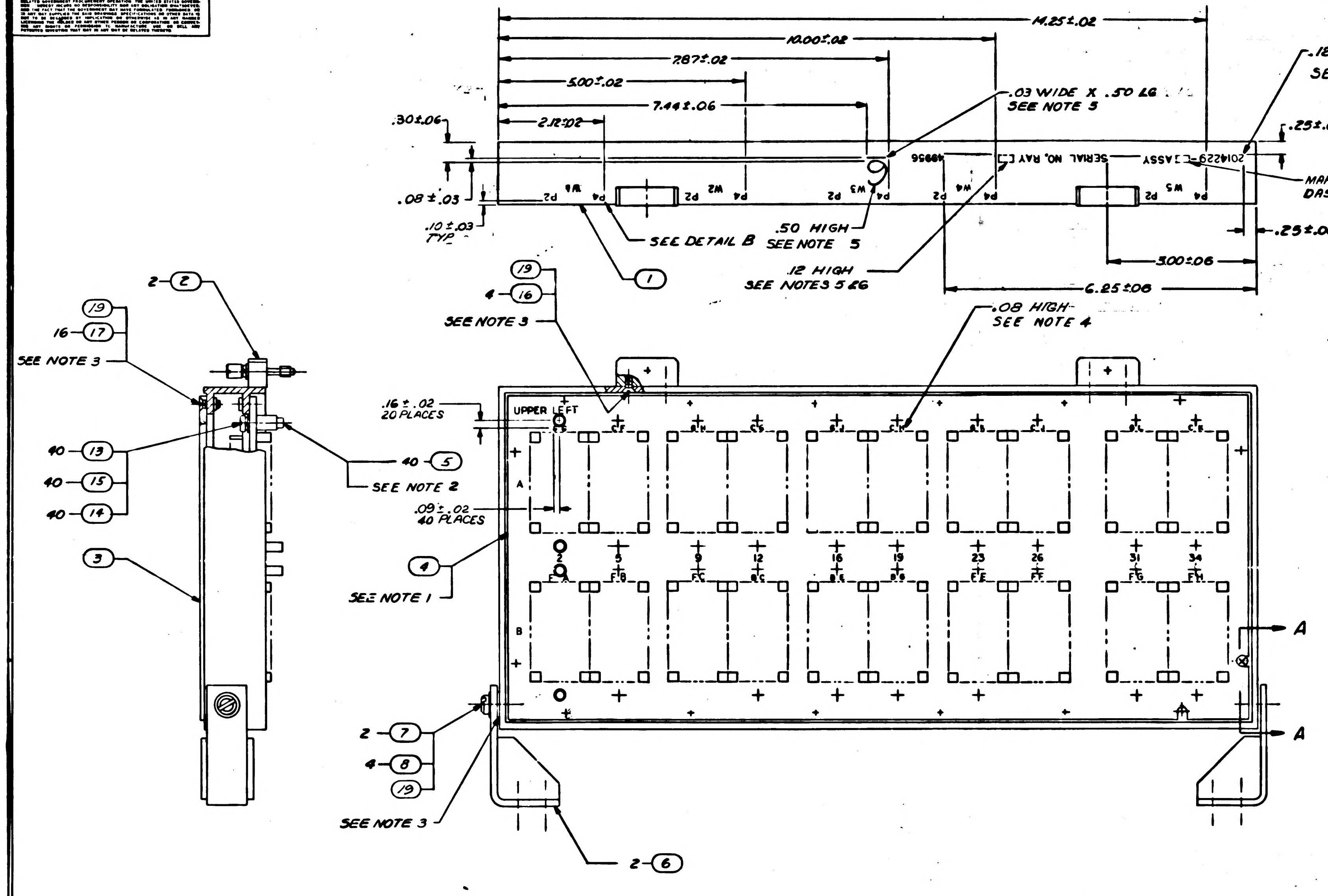
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

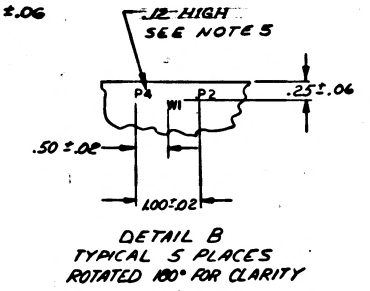
2014229 C

ANY USE OF THIS DOCUMENT FOR OTHER THAN GOVERNMENTAL PURPOSES IS SUBJECT TO PRIOR WRITTEN CONSENT OF RAYTHEON CO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25044	7/9/…	
1	CHANGE PER CCA R25485 DR P. Milano CHKE Urban APPD R.C. Dunk 11-18-65	11/12/…	
—	CLASS B NO CHANGE PER CCAR25502	…/66	
A	CHANGE PER CCA R25737 AND CLASS A RELEASED PER TORR 25472	1/…/66	
B	CHANGED PER TDRR 28101 DR … CHK … APPD …	5/4/66	
C	CHANGED PER TDRR 28831 DR … CHK A. … APPD REB	25 … 66	



14.25±.02
10.00±.02
7.87±.02
5.00±.02
7.44±.06
2.12±.02
.30±.06
.08±.03
.10±.03 TYP
.03 WIDE X .50 LG
SEE NOTE 5
.12 HIGH
SEE NOTE 5
.25±.06
MARK APPLICABLE DASH NUMBER
P2 W1 P4 P2 W2 P4 P2 W3 P4 P2 W4 P4 P2 W5 P4
6
49956
SERIAL NO. RAY [ ]
2014229-[ ] ASSY
SEE DETAIL B
.50 HIGH
SEE NOTE 5
.12 HIGH
SEE NOTES 5 & 6
3.00±.06
6.25±.06
1
2-2
19
16-17
SEE NOTE 3
19
4-16
SEE NOTE 3
40-13
40-15
40-14
40-5
SEE NOTE 2
3
.08 HIGH
SEE NOTE 4
.16±.02
20 PLACES
UPPER LEFT
.09±.02
40 PLACES
A
B
4
SEE NOTE 1
2 5 9 12 16 19 23 26 31 34
A
A
2-7
4-8
19
SEE NOTE 3
2-6

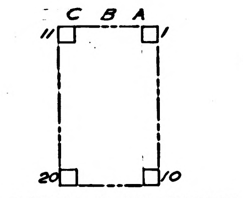


.12 HIGH
SEE NOTE 5
P4
W1
P2
.25±.06
.50±.02
1.00±.02

DETAIL B
TYPICAL 5 PLACES
ROTATED 180° FOR CLARITY

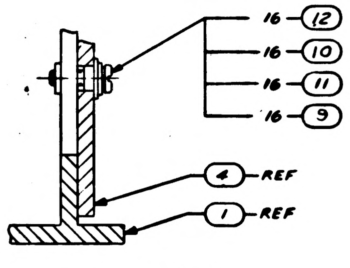
NOTES

1. WIREWRAP FIND NO. 4 USING FIND NO. 18 PER 2014096 OR 2016374 & ND1002031.
2. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DRAWING NO. 1014047
3. ASSEMBLE FIND NO. 7, 16, & 17 USING FIND NO. 19
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. SERIALIZE PER ND1002023
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. AR DENOTES "AS REQUIRED."



C B A
11
1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS
(REF ONLY)



16-12
16-10
16-11
16-9
4-REF
1-REF

PARTIAL SECTION A-A
SCALE 2/1

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	—	2016374	WIREWRAP MACH CARD	REF
☒	—	2016399	LOGIC DIAGRAM	REF
—	☒	2014096	WIREWRAP MACH. CARD	REF
—	☒	2014196	LOGIC DIAGRAM	REF
AR	AR	MIL-S-22473 GR, HV	COMPOUND, SEALING & RETAINING	19
AR	AR	1006945-1	WIRE, ELEC, INSUL, #24 AWG SOLID	18
16	16	MS51959-15	SCREW, FLAT HD	17
4	4	MS51959-14	SCREW, FLAT HD	16
40	40	MS35338-79	WASHER, LOCK	15
40	40	1006997	WASHER, FLAT	14
40	40	MS51957-29	SCREW, PAN HD	13
16	16	MS51957-17	SCREW, PAN HD	12
16	16	MS15795-803	WASHER, FLAT	11
16	16	MS35338-78	WASHER, LOCK	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
4	4	1006982-8	WASHER, NYLON	8
2	2	1014005	SCREW, SHOULDER	7
2	2	1014006	BRACKET, PIVOT	6
40	40	1014212	STAND OFF, PROGRAM	5
1	1	1006495-002	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
2	2	1014013	RETAINER, CAPTIVE SCREW	2
1	1	1014014-1	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014037	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN … DATE 22 MAY 65
CHECKED … JUN 65
APPROVAL P.E. Duke 9 JULY 65
APPROVAL … 7/1/65
APPROVAL … 7/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C. Sparling 1/2…

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

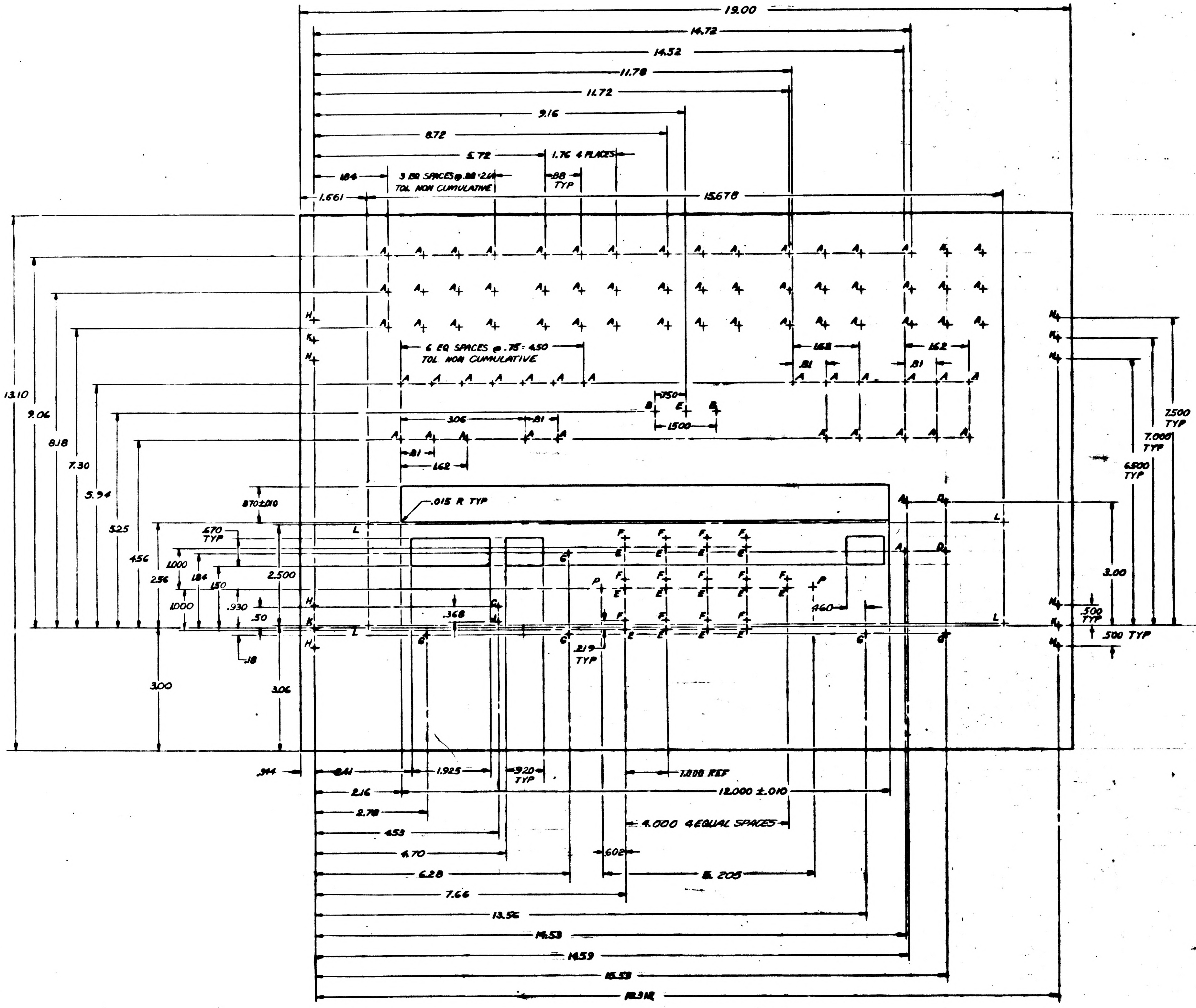
INTERCONNECTION PLATE ASSY
LOGIC DRAWER NO2 PLATE NO 6
COMPUTER TEST SET

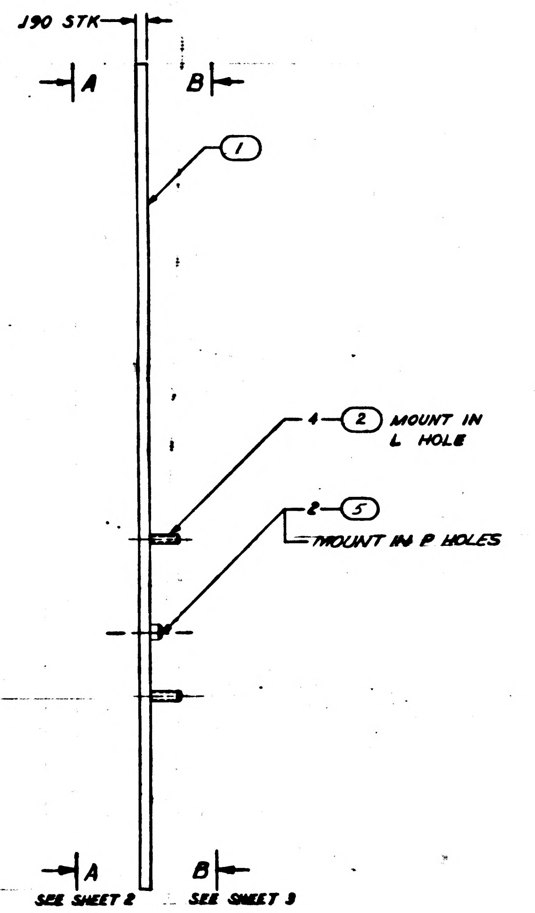
CODE IDENT NO 49956 | SIZE F | NASA DRAWING NO 2014229
SCALE 1/1 | WT | SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014230 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/13/65	
1	CHANGED PER CCA R25524 DR. CHKD APPD		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25702 AND CLASS A RELEASED PER TDRR 25472		


19.00
14.72
14.52
11.78
11.72
9.16
8.72
5.72
1.76 4 PLACES
.184
3 EQ SPACES @ .88 = 2.64
TOL NON CUMULATIVE
.88 TYP
1.661
15.678
6 EQ SPACES @ .75 = 4.50
TOL NON CUMULATIVE
1.68
.81
1.62
.750
1.500
3.06
.81
1.62
13.10
9.06
8.18
7.30
5.94
5.25
4.56
2.56
1.000
1.84
1.50
1.000
.930
.50
.18
.870±.010
.670 TYP
2.500
.368
.015 R TYP
.219 TYP
.460
2.500 TYP
7.000 TYP
6.500 TYP
3.00
.500 TYP
.500 TYP
3.00
3.06
.344
.641
1.925
.320 TYP
1.808 REF
2.16
12.000 ±.010
2.78
4.000 4 EQUAL SPACES
4.53
4.70
.602
6.28
5.205
7.66
13.56
14.53
14.59
15.53
18.312


.190 STK
A
B
1
4 2 MOUNT IN L HOLE
2 5 MOUNT IN P HOLES
A
SEE SHEET 2
B
SEE SHEET 3

HOLE TABLE

SYMBOL	HOLE DESCRIPTION	QTY
A	.475/.485 DIA	73
B	.184/.191 DIA THRU & CSK 82° x .34/.35 DIA	2
C	.480/.490 DIA	1
D	.64/.66 DIA	2
E	.261/.271 DIA	14
F	.110/.130 DIA x .06/.08 DEEP FARSIDE	13
G	.64/.66 DIA THRU & C'BORE .97/.98 DIA x .12 DEEP	5
H	.184/.191 DIA THRU & CSK 82° x .34/.35 DIA FARSIDE	8
J	.110/.130 DIA x .06/.08 DEEP FARSIDE	1
K	.37/.39 DIA	4
L	.312/.315 DIA x .07/.09 DEEP FARSIDE	4
M	.067/.070 DIA THRU & CSK 100° x .100/.110 DIA FARSIDE	8
N	.067/.070 DIA THRU & CSK 100° x .100/.110 DIA FARSIDE SEE NOTE 9	8
P	.166/.169 DIA DO NOT BREAK SHARP EDGES	2

NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. PAINT FRONT & EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P518 TYPE I
5. PAINT SURFACE A TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26251 PER MIL-F-14072 P513 TYPE I
6. SILKSCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. SILKSCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
9. LOCATE USING FIND NO. 3 AS TEMPLATE
10. HEAD OF FIND NO. 4 SHALL BE GROUND FLUSH TO SURFACE OF FIND NO. 1
11. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
2	1006989-8	NUT SELF-CLINCHING	5
16	MS20426AD2-6	RIVET, FLAT HD	4
8	1006906-2	BRACKET, CABLE	3
4	1006951-015	STUD, CAPTIVE CLINCH	2
1	2014230-001	PANEL	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014231	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±
DO NOT SCALE DRAWING
MATERIAL AL 6061-T6 PER QQ-A-250/11

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE
CHECKED A.I. 9 AUG 65
APPROVAL 8/13/65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL
PROGRAMMER AND MONITOR
COMPUTER, TEST SET

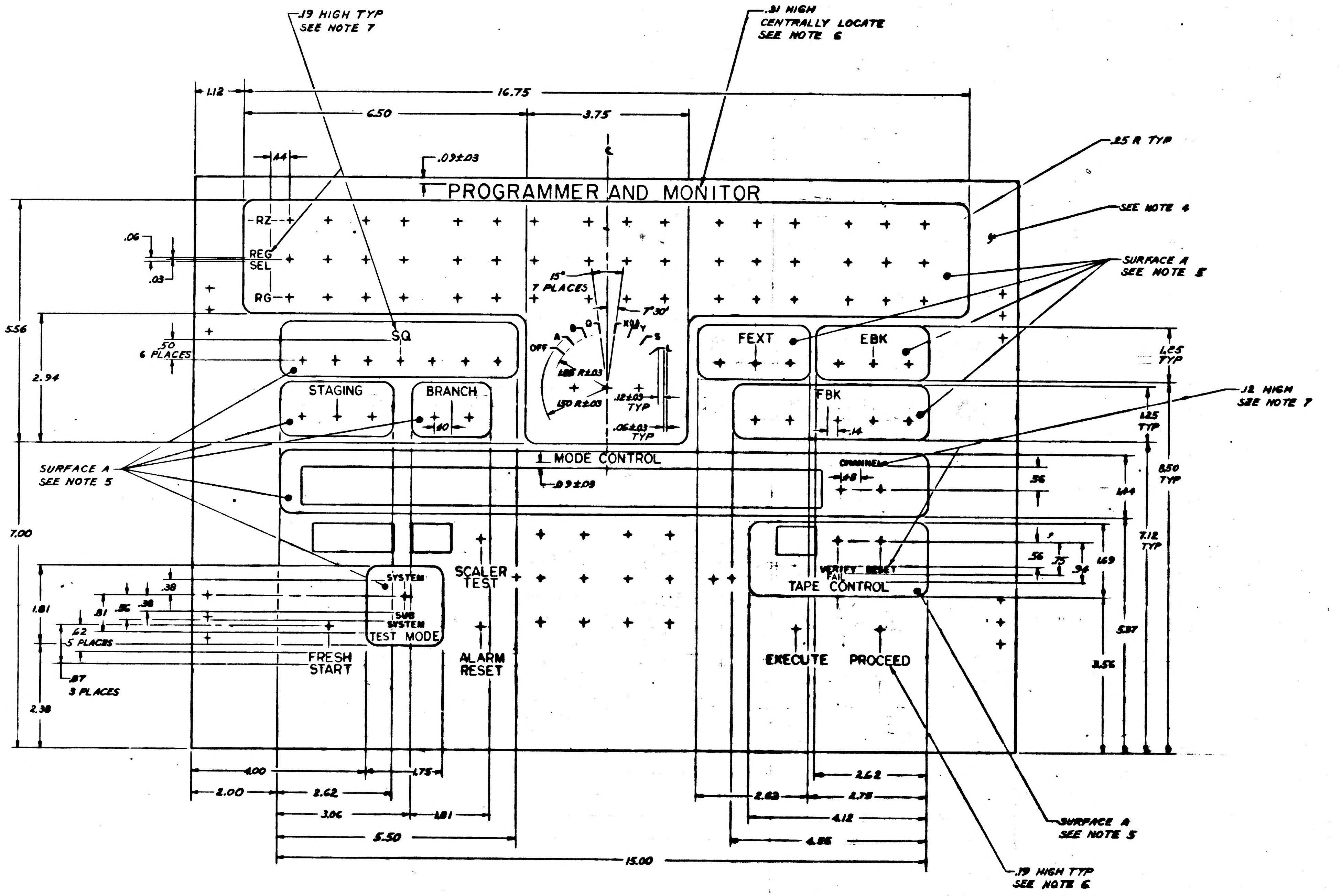
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014230
SCALE 1/1 WT SHEET 1 OF 3

2014230 A

2014230 A

2014230 A

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/13/65	C. Hansen
1	CHANGED PER CCA R25524 DR Dunn CHKD C. D. APPD		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25702 AND CLASS A RELEASED PER TDRR 25472	1/15/66	



.19 HIGH TYP
SEE NOTE 7
.31 HIGH
CENTRALLY LOCATE
SEE NOTE 6
1.12
16.75
6.50
3.75
.44
.09±.03
PROGRAMMER AND MONITOR
.25 R TYP
SEE NOTE 4
SURFACE A
SEE NOTE 5
.06
.03
RZ
REG SEL
RG
15°
7 PLACES
7°30'
OFF
A
B
Q
X
Y
S
1.25 R±.03
1.50 R±.03
.12±.03 TYP
.06±.03 TYP
5.56
2.94
.50
6 PLACES
SQ
STAGING
BRANCH
.40
FEXT
EBK
FBK
1.25 TYP
.12 HIGH
SEE NOTE 7
.14
1.25 TYP
8.50 TYP
MODE CONTROL
.09±.03
CHANNEL
.48
.56
1.44
7.12 TYP
SURFACE A
SEE NOTE 5
7.00
SYSTEM
SUB SYSTEM
TEST MODE
SCALER TEST
ALARM RESET
FRESH START
1.81
.38
.81
.56
.38
.62
5 PLACES
.87
3 PLACES
2.38
VERIFY FAIL
RESET
TAPE CONTROL
.9
.56
.75
.94
1.69
5.87
3.56
EXECUTE
PROCEED
4.00
.175
2.00
2.62
3.06
1.81
5.50
15.00
2.62
2.63
2.75
4.12
4.88
SURFACE A
SEE NOTE 5
.19 HIGH TYP
SEE NOTE 6

VIEW A-A
SEE SHEET 1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ± 0°30'
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED B. I. Elliott 9 AUG. 65
APPROVAL 8/13/65
APPROVAL 8/26/65
APPROVAL 9/13/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL
PROGRAMMER AND MONITOR
COMPUTER TEST SET

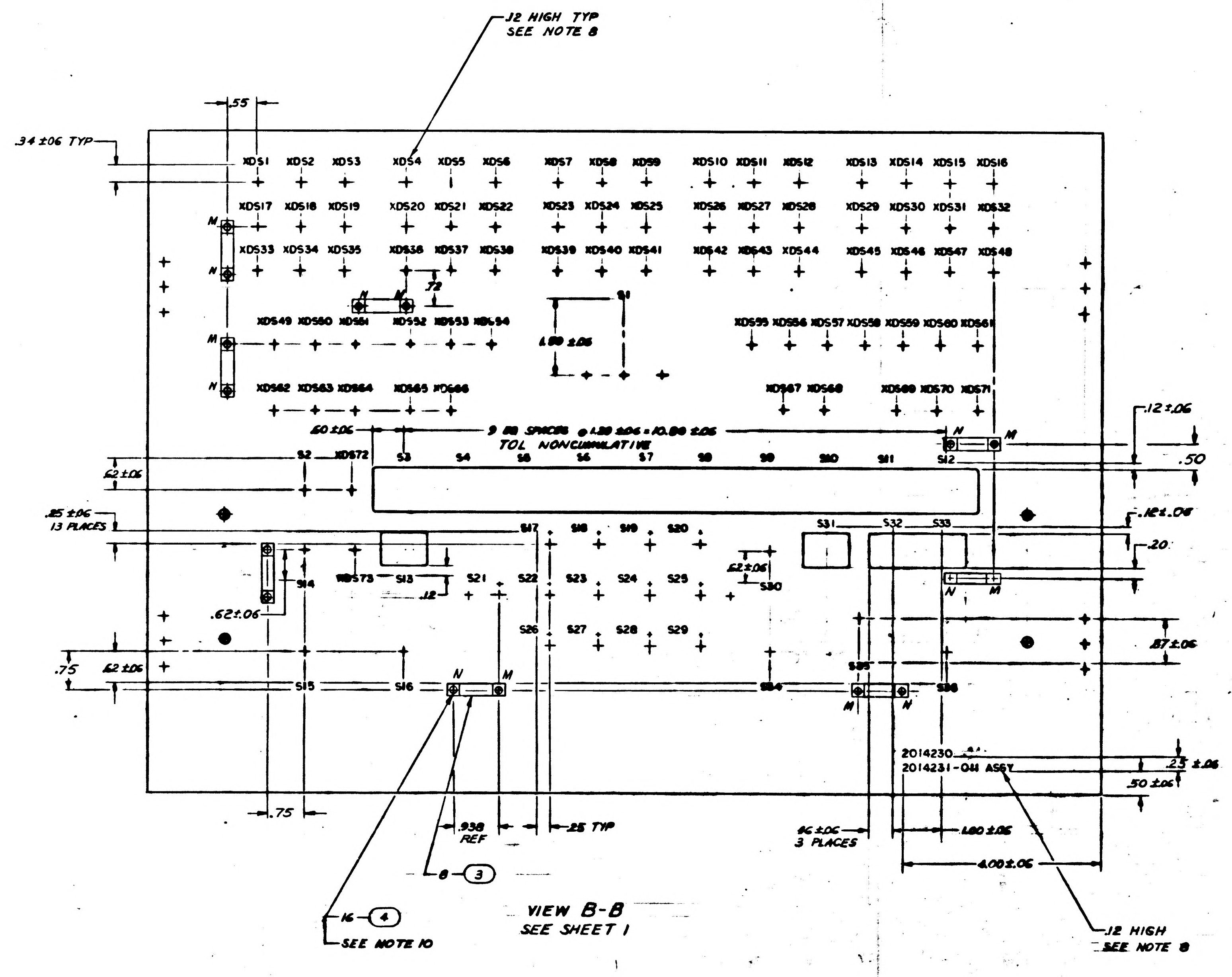
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014230

SCALE 1/1 WT. SHEET 2 OF 2

2014230 A

7 2014230 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASE PER CCA R25167	9/13/65	
1	CHANGED PER CCA R25524 DR CHKD APPD		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25702 AND CLASS A RELEASED PER TDRR 25472	1/15/66	



.12 HIGH TYP
SEE NOTE 8
.55
.34 ±06 TYP
XDS1 XDS2 XDS3 XDS4 XDS5 XDS6 XDS7 XDS8 XDS9 XDS10 XDS11 XDS12 XDS13 XDS14 XDS15 XDS16
XDS17 XDS18 XDS19 XDS20 XDS21 XDS22 XDS23 XDS24 XDS25 XDS26 XDS27 XDS28 XDS29 XDS30 XDS31 XDS32
XDS33 XDS34 XDS35 XDS36 XDS37 XDS38 XDS39 XDS40 XDS41 XDS42 XDS43 XDS44 XDS45 XDS46 XDS47 XDS48
M
N
.72
S1
1.80 ±.06
XDS49 XDS50 XDS51 XDS52 XDS53 XDS54
XDS55 XDS56 XDS57 XDS58 XDS59 XDS60 XDS61
XDS62 XDS63 XDS64 XDS65 XDS66
XDS67 XDS68 XDS69 XDS70 XDS71
.60 ±.06
9 EQ SPACES @ 1.20 ±.06 = 10.80 ±.06
TOL NONCUMULATIVE
S2 XDS72 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12
.12 ±.06
.50
.62 ±.06
.25 ±.06
13 PLACES
S17 S18 S19 S20
S31 S32 S33
.12 ±.06
.20
XDS73 S13 S14
S21 S22 S23 S24 S25
.12
.62 ±.06
S30
.62 ±.06
S26 S27 S28 S29
.87 ±.06
.75
.62 ±.06
S15 S16 S34 S35 S36
2014230
2014231-011 ASSY
.25 ±.06
.50 ±.06
.75
.938
REF
.25 TYP
.16 ±.06
3 PLACES
1.80 ±.06
4.00 ±.06
8 ③
16 ④
SEE NOTE 10
.12 HIGH
SEE NOTE 8

VIEW B-B
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 22 APR 65
CHECKED 9 AUG 65
APPROVAL 8/13/65
APPROVAL
APPROVAL 9/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

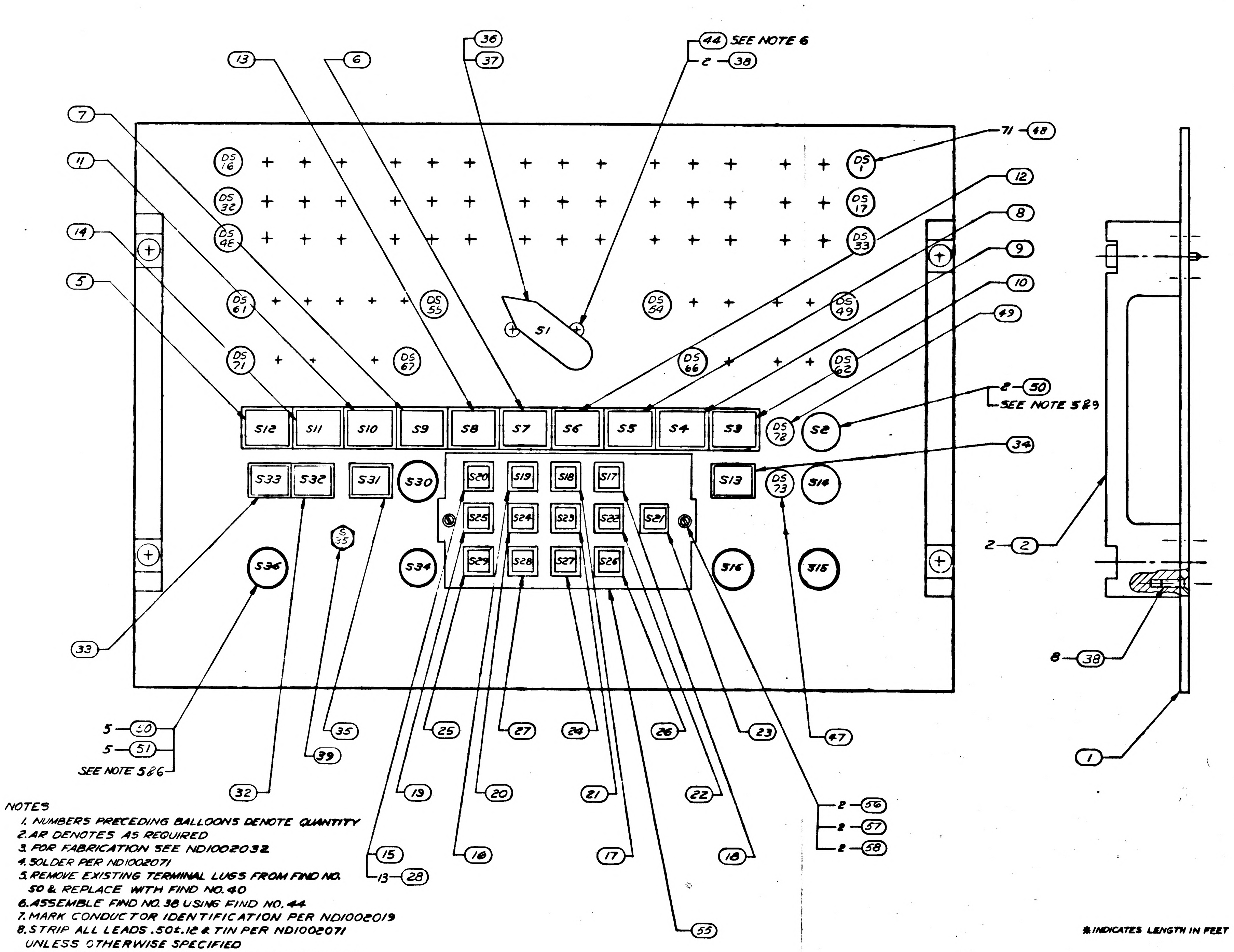
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL
PROGRAMMER AND MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014230
SCALE 1/1
WT
SHEET 3 OF 3

2014231 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/13/65	
1	REVISED PER CCA 25377 DR P. CHK APPD		
2	CHANGED PER CCA R25524 DR CHKD APPD	11/17/65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25620 AND CLASS A RELEASED PER TDRR 25472	1/14/66	


13
6
36
37
44 SEE NOTE 6
2 — 38
7
11
14
5
71 — 48
12
8
9
10
49
DS 16
DS 32
DS 48
DS 1
DS 17
DS 33
DS 61
DS 55
DS 54
DS 49
DS 71
DS 67
DS 66
DS 62
S1
S12
S11
S10
S9
S8
S7
S6
S5
S4
S3
DS 72
S2
2 — 50
SEE NOTE 5&9
34
S33
S32
S31
S30
S20
S19
S18
S17
S13
DS 73
S14
S25
S24
S23
S22
S21
S29
S28
S27
S26
S 35
S36
S34
S16
S15
33
2 — 2
8 — 38
1
5 — 50
5 — 51
SEE NOTE 5&6
35
39
32
25
27
24
26
23
47
19
20
21
22
15
13 — 28
16
17
18
2 — 56
2 — 57
2 — 58
55

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. FOR FABRICATION SEE ND1002032
4. SOLDER PER ND1002071
5. REMOVE EXISTING TERMINAL LUGS FROM FIND NO. 50 & REPLACE WITH FIND NO. 40
6. ASSEMBLE FIND NO. 38 USING FIND NO. 44
7. MARK CONDUCTOR IDENTIFICATION PER ND1002019
8. STRIP ALL LEADS .50±.12 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
9. APPLY FIND 44 TO INTERNAL THREADS OF FIND 50

FOR CONTINUATION OF LIST OF MATL SEE SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
5	1006865-1	GUARD, PUSHBUTTON	51
7	MS25089-3C	SWITCH, PUSH	50
1	1006401-003	LENS, CAP	49
71	1006401-005	LENS, CAP	48
1	1006401-001	LENS, CAP	47
73	1006481	LIGHT, INDICATOR	46
10	MS17821-1-9	STRAP, CABLE	45
AR	MIL-S-22473 GR HV	SEALING & RETAINING COMP	44
1	2014121-011	WIRING HARNESS "B"	43
1	2014120-011	WIRING HARNESS "A"	42
* 55.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL (WHITE)	41
28	1006238-1	TERMINAL LUG	40
1	MS25068-23	SWITCH, TOGGLE	39
10	MS51959-45	SCREW, MACH, CSK FLAT HD	38
1	1006928	KNOB, BAR	37
1	1006893-1	SWITCH, ROTARY	36
1	1006405-057	LENS, MARKED	35
1	1006405-056	LENS, MARKED	34
1	1006405-055	LENS, MARKED	33
1	1006405-054	LENS, MARKED	32
4	1006405-003	DISPLAY SCREEN	31
4	1006405-002	COLOR FILTER, WHITE	30
4	1006405-001	SWITCH, PUSH, BASIC UNIT	29
13	1006677	SWITCH, PUSH	28
1	1014474-13	PUSH BUTTON	27
1	1014474-12	PUSH BUTTON	26
1	1014474-11	PUSH BUTTON	25
1	1014474-10	PUSH BUTTON	24
1	1014474-9	PUSH BUTTON	23
1	1014474-8	PUSH BUTTON	22
1	1014474-7	PUSH BUTTON	21
1	1014474-6	PUSH BUTTON	20
1	1014474-5	PUSH BUTTON	19
1	1014474-4	PUSH BUTTON	18
1	1014474-3	PUSH BUTTON	17
1	1014474-2	PUSH BUTTON	16
1	1014474-1	PUSH BUTTON	15
1	1006471-010	LENS, MARKED	14
1	1006471-015		13
1	1006471-012		12
1	1006471-011		11
1	1006471-009		10
1	1006471-008		9
1	1006471-007		8
1	1006471-006		7
1	1006471-005		6
1	1006471-004	LENS, MARKED	5
40	1006471-003	LAMP BOOT, AMBER	4
10	1006471-001	SWITCH, PUSH, BASIC UNIT	3
2	1014292	HANDLE ASSY	2
1	2014230	PANEL, FRONT	1

-011 LIST OF MATERIALS

*INDICATES LENGTH IN FEET

2014231 A

2014041	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28 MAY 65
CHECKED B. V. 9 AUG. 65
APPROVAL 9/7/65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

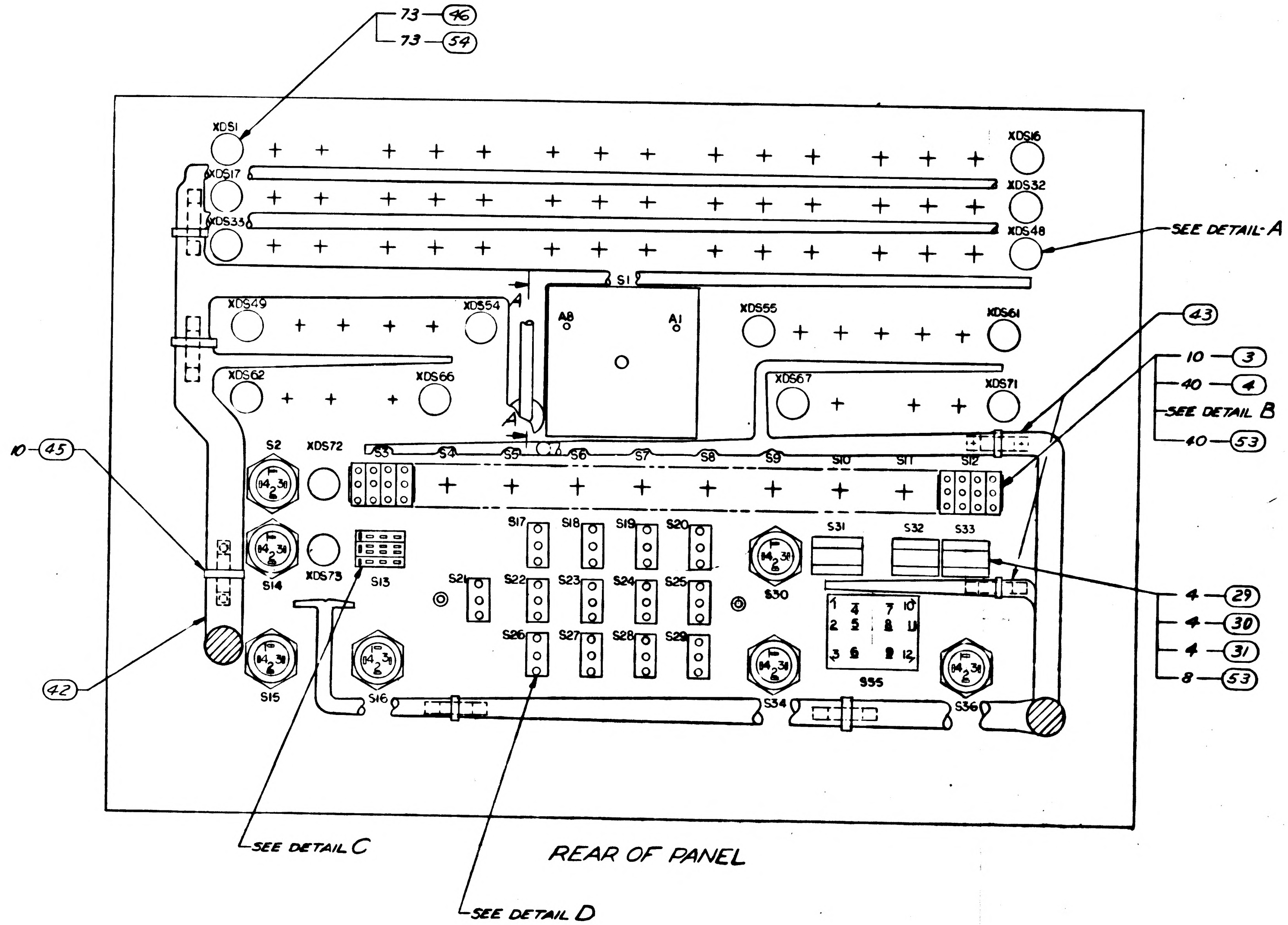
FRONT PANEL ASSY
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014231
SCALE 1/1
WT
SHEET 1 OF 2

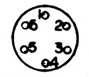
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

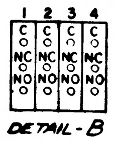
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167	7/13/65	G. [illegible]
1	REVISED PER CCA 25377 DR P. Milant CHK A. [illegible] APPD [illegible]	[illegible]	[illegible]
2	CHANGED PER CCA R25524 DR [illegible] CHKD [illegible] APPD [illegible]	[illegible]	[illegible]
-	CLASS B CHANGED PER CCA R25502	12/3/65	[illegible]
A	CHANGED PER CCA R25620 AND CLASS A RELEASED PER TDRR 25472	1/4/66	[illegible]


73 (46)
73 (54)
XDS1
XDS16
XDS17
XDS32
XDS33
XDS48
SEE DETAIL A
S1
A8
A1
XDS49
XDS54
XDS55
XDS61
XDS62
XDS66
XDS67
XDS71
A
A
(43)
10 (3)
40 (4)
SEE DETAIL B
40 (53)
10 (45)
S2
XDS72
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S14
XDS73
S13
S17
S18
S19
S20
S21
S22
S23
S24
S25
S26
S27
S28
S29
S30
S31
S32
S33
S35
4 (29)
4 (30)
4 (31)
8 (53)
(42)
S15
S16
S34
S36
SEE DETAIL C
SEE DETAIL D

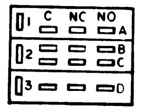
REAR OF PANEL


10
20
30
40
50
60

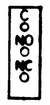
DETAIL-A
TYP FOR XDS1 THRU XDS73
SCALE: NONE



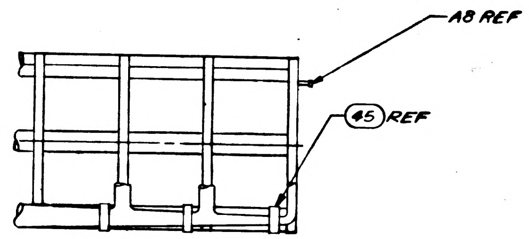
DETAIL-B
TYP FOR S3 THRU S12
SCALE: NONE


C NC NO
1
2
3
A
B
C
D

DETAIL-C
TYP FOR S13, S31 THRU S33
SCALE: NONE



DETAIL-D
TYP FOR S17 THRU S29
SCALE: NONE


A8 REF
(45) REF

VIEW A-A

* INDICATES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	MS15795-803	WASHER, FLAT	58
2	MS35338-78	WASHER, LOCK	57
2	MS51957-17	SCREW, PAN HEAD	56
☒	2014112	SCHEMATIC	REF
☒	2014122	LEAD ELECTRICAL	REF
1	2016315	COVER, KEYBOARD	[illegible]
73	1006407-002	LAMP	54
48	1006407-004	LAMP	53
* 18	MIL-W-16878/4E22	WIRE, ELECTRICAL (BLACK)	52
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 28 MAY 65
CHECKED A. I. [illegible] 9 AUG. 65
APPROVAL [illegible] 8/10/65
APPROVAL [illegible] 8/30/65
APPROVAL [illegible] 9/11/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 21 Jan 66
MIT APPROVAL [illegible] 1/20

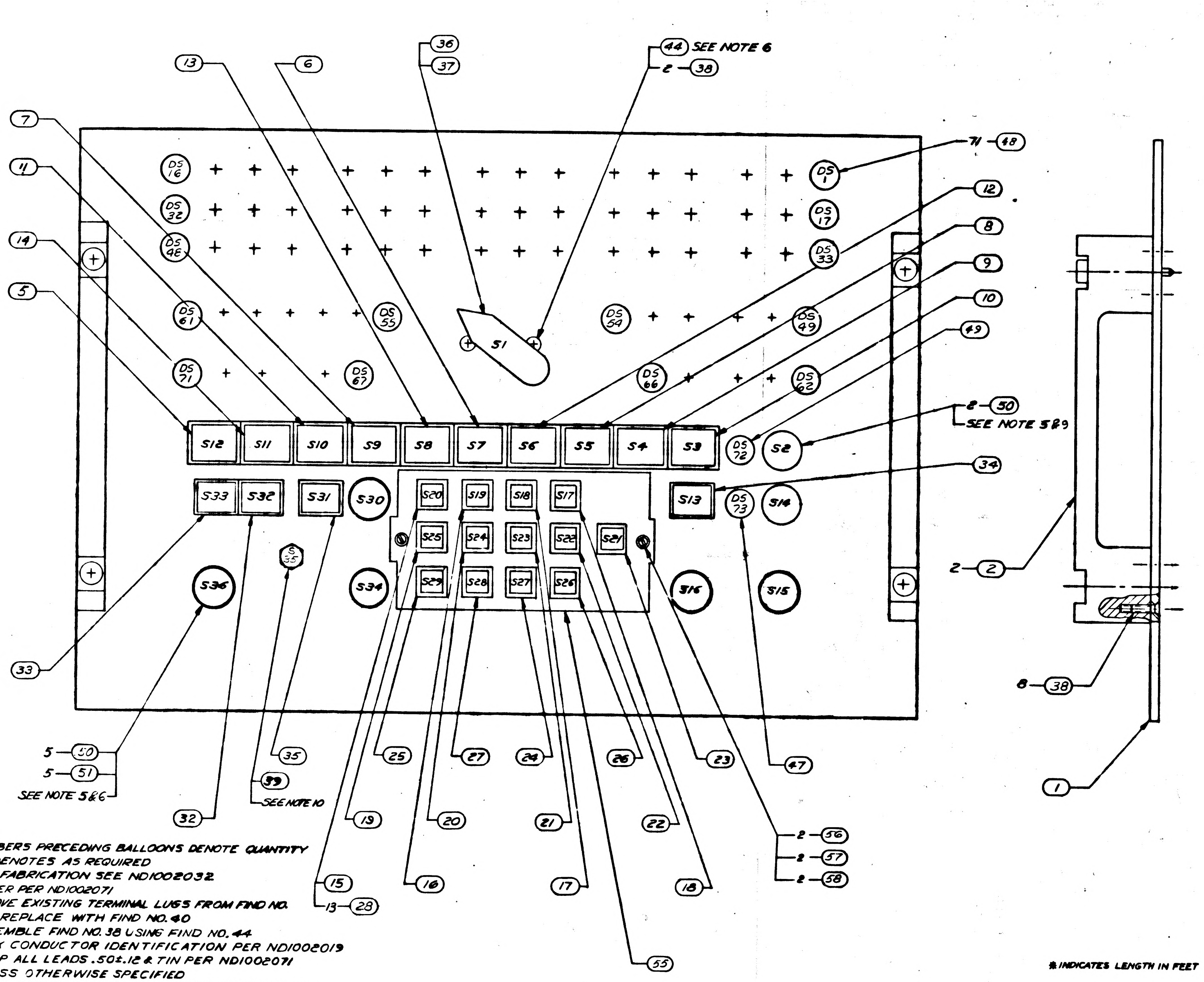
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014231
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	2/23/65	
1	REVISED PER CCA 25377 DR CHK APPD	[illegible]	
2	CHANGED PER CCA R25524 DR CHKD APPD	11/19/65	
–	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25620 AND CLASS A RELEASED PER TDRR 25972	1/14/66	
B	CHANGED PER TDRR 26496 DR CHK R.W.S. APPD	2/24/66	



13
6
36
37
44 SEE NOTE 6
2 – 38
7
4
14
5
71 – 48
12
8
9
10
49
2 – 50
SEE NOTE 5&9
34
DS 16
DS 32
DS 48
DS 1
DS 17
DS 33
DS 61
DS 55
DS 64
DS 49
DS 71
DS 67
DS 66
DS 62
S1
S12
S11
S10
S9
S8
S7
S6
S5
S4
S3
S2
DS 72
S33
S32
S31
S30
S20
S19
S18
S17
S13
DS 73
S14
S25
S24
S23
S22
S21
S29
S28
S27
S26
S35
S36
S34
S16
S15
2 – 2
8 – 38
1
33
5 – 50
5 – 51
SEE NOTE 5&6
35
39
SEE NOTE 10
32
25
27
24
26
23
47
19
20
21
22
15
13 – 28
16
17
18
55
2 – 56
2 – 57
2 – 58

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. FOR FABRICATION SEE ND1002032
4. SOLDER PER ND1002071
5. REMOVE EXISTING TERMINAL LUGS FROM FIND NO. 50 & REPLACE WITH FIND NO. 40
6. ASSEMBLE FIND NO. 38 USING FIND NO. 44
7. MARK CONDUCTOR IDENTIFICATION PER ND1002019
8. STRIP ALL LEADS .50±.12 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
9. APPLY FIND 44 TO INTERNAL THREADS OF FIND 50
10. REMOVE EXISTING SCREWS FROM TERMINAL LUGS OF FIND NO. 39

MASTER

FOR CONTINUATION OF LIST OF MATL SEE SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
5	1006865-1	GUARD, PUSHBUTTON	51
7	MS25089-3C	SWITCH, PUSH	50
1	1006401-003	LENS, CAP	49
71	1006401-005	LENS, CAP	48
1	1006401-001	LENS, CAP	47
73	1006481	LIGHT, INDICATOR	46
10	MS17821-1-9	STRAP, CABLE	45
AR	MIL-S-22473 GR HV	SEALING & RETAINING COMP	44
1	2014121-011	WIRING HARNESS "B"	43
1	2014120-011	WIRING HARNESS "A"	42
* 55.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL (WHITE)	41
28	1006236-1	TERMINAL LUG	40
1	MS25068-23	SWITCH, TOGGLE	39
10	MS51959-45	SCREW, MACH, CSK FLAT HD	38
1	1006928	KNOB, BAR	37
1	1006893-1	SWITCH, ROTARY	36
1	1006405-057	LENS, MARKED	35
1	1006405-056	LENS, MARKED	34
1	1006405-055	LENS, MARKED	33
1	1006405-054	LENS, MARKED	32
4	1006405-003	DISPLAY SCREEN	31
4	1006405-002	COLOR FILTER, WHITE	30
4	1006405-001	SWITCH, PUSH, BASIC UNIT	29
13	1006677	SWITCH, PUSH	28
1	1014474-13	PUSH BUTTON	27
1	1014474-12	PUSH BUTTON	26
1	1014474-11	PUSH BUTTON	25
1	1014474-10	PUSH BUTTON	24
1	1014474-9	PUSH BUTTON	23
1	1014474-8	PUSH BUTTON	22
1	1014474-7	PUSH BUTTON	21
1	1014474-6	PUSH BUTTON	20
1	1014474-5	PUSH BUTTON	19
1	1014474-4	PUSH BUTTON	18
1	1014474-3	PUSH BUTTON	17
1	1014474-2	PUSH BUTTON	16
1	1014474-1	PUSH BUTTON	15
1	1006471-010	LENS, MARKED	14
1	1006471-015		13
1	1006471-012		12
1	1006471-011		11
1	1006471-009		10
1	1006471-008		9
1	1006471-007		8
1	1006471-006		7
1	1006471-005		6
1	1006471-004	LENS, MARKED	5
40	1006471-003	LAMP BOOT, AMBER	4
10	1006471-001	SWITCH, PUSH, BASIC UNIT	3
2	1014292	HANDLE ASSY	2
1	2014230	PANEL, FRONT	1
-011	LIST OF MATERIALS		

* INDICATES LENGTH IN FEET

NEXT ASSY	USED ON
2014041	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28 MAY 65
CHECKED B. V. English 9 AUG. 65
APPROVAL 8/1/65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

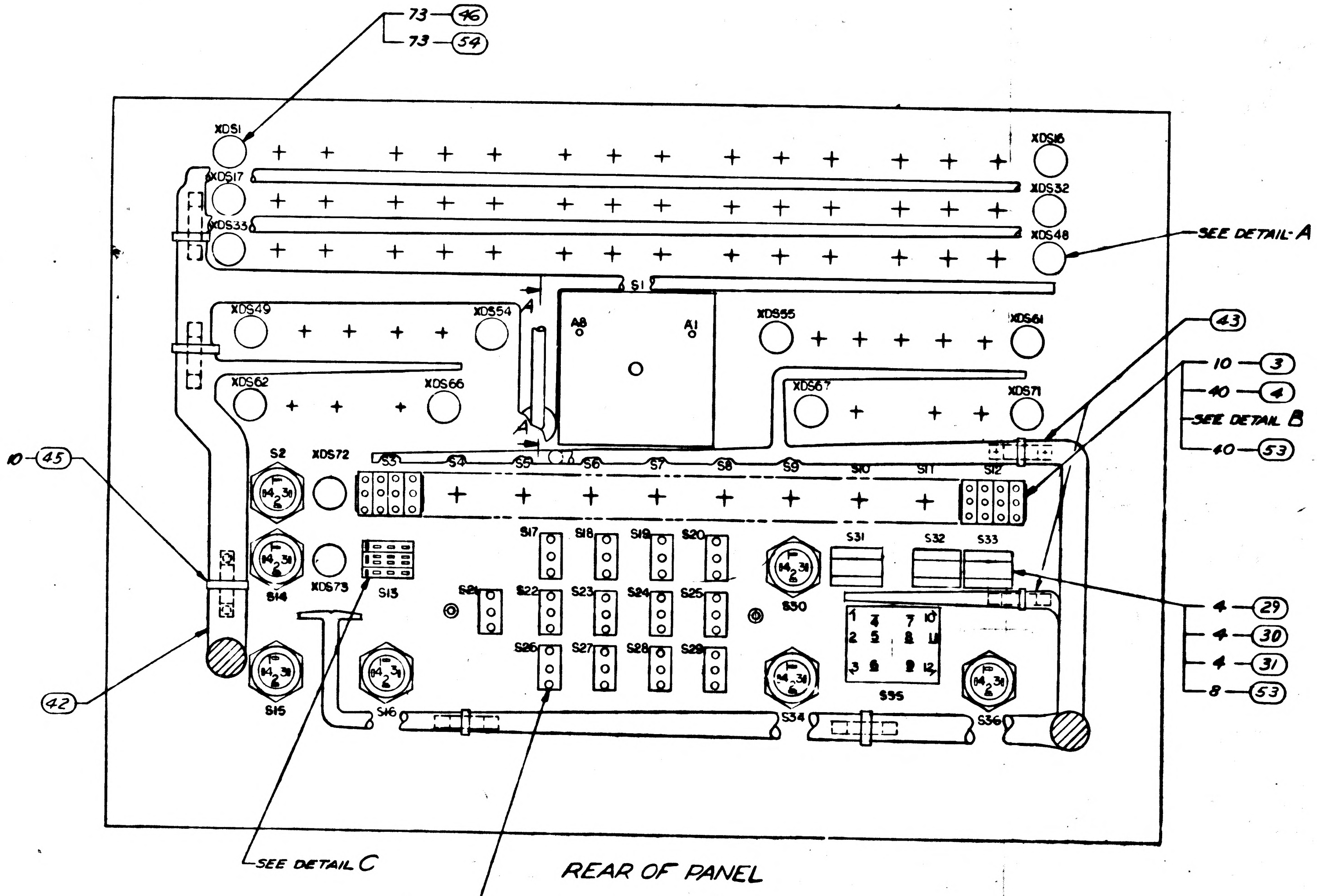
FRONT PANEL ASSY
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014231
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

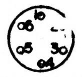
2014231 | B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25167		
1	REVISED PER CCA 25377 DR P. Milano CHK APPD		
2	CHANGED PER CCA R25524 DR CHKD APPD		
-	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25620 AND CLASS A RELEASED PER TDRR 25472	1/4/66	
B	CHANGED PER TDRR 26496 DR CHK APPD	2/24/65	

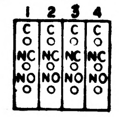


73 — 46
73 — 54
XDS1
XDS16
XDS17
XDS32
XDS33
XDS48
SEE DETAIL-A
S1
A8
A1
XDS49
XDS54
XDS55
XDS61
XDS62
XDS66
XDS67
XDS71
43
10 — 3
40 — 4
SEE DETAIL B
40 — 53
10 — 45
S2
XDS72
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
XDS73
S17
S18
S19
S20
S21
S22
S23
S24
S25
S26
S27
S28
S29
S30
S31
S32
S33
S34
S35
S36
S15
S16
42
4 — 29
4 — 30
4 — 31
8 — 53
SEE DETAIL C
SEE DETAIL D

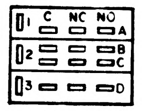
REAR OF PANEL



DETAIL-A
TYP FOR XDS1 THRU XDS73
SCALE: NONE

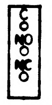


DETAIL-B
TYP FOR S3 THRU S12
SCALE: NONE

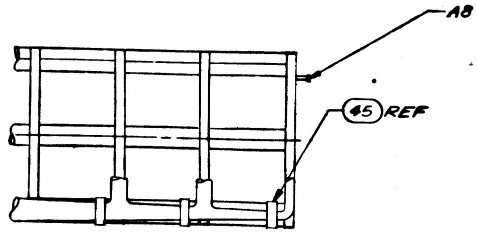


C NC NO
1 A
2 B C
3 D

DETAIL-C
TYP FOR S13, S31 THRU S33
SCALE: NONE



DETAIL-D
TYP FOR S17 THRU S29.
SCALE: NONE



A8 REF
45 REF

VIEW A-A

* INDICATES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	MS15795-803	WASHER, FLAT	58
2	MS35338-78	WASHER, LOCK	57
2	MS51957-17	SCREW, PAN HEAD	56
☒	2014112	SCHEMATIC	REF
☒	2014122	LEAD ELECTRICAL	REF
1	2016315	COVER, KEYBOARD	55
73	1006407-002	LAMP	54
48	1006407-004	LAMP	53
* 18	MIL-W-16878/4E22	WIRE, ELECTRICAL (BLACK)	52
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28 MAY 65
CHECKED 9 AUG. 65
APPROVAL 8/10/65
APPROVAL 8/30/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
PROGRAMMER & MONITOR
COMPUTER TEST SET

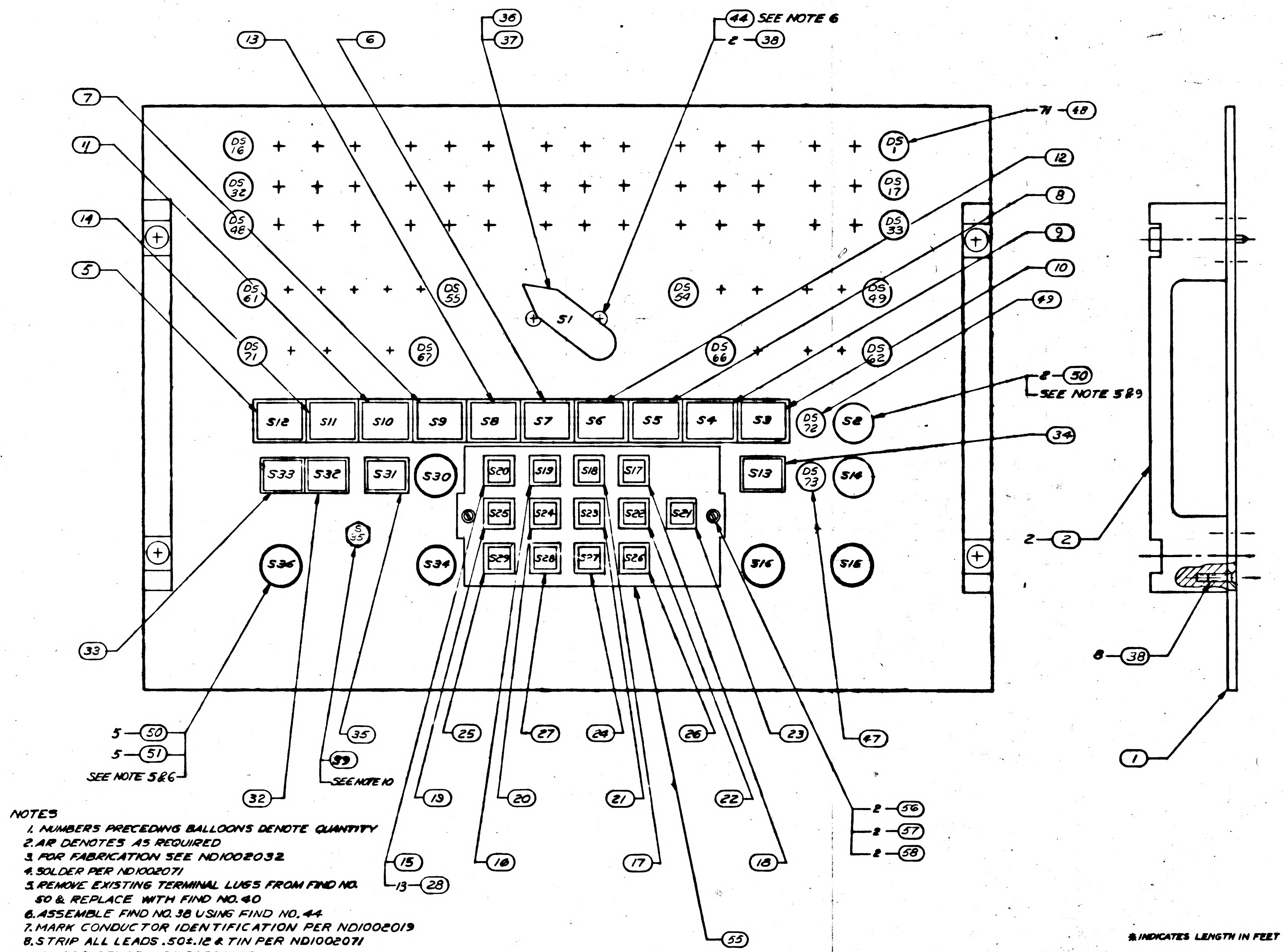
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	F	2014231
SCALE 1/1	WT	SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014231 B

2014231 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/13/65	
1	REVISED PER CCA 25377 DR P. CHK APPD		
2	CHANGED PER CCA R25524 DR CHKD APPD	11/4/65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25620 AND CLASS A RELEASED PER TDRR 25972	1/11/66	
B	CHANGED PER TDRR 26496 DR CHK APPD	3/24/66	
C	CHANGED PER TDRR 26495 DR CHK APPD P.E.D	4/7/66	


DS 16
DS 32
DS 48
DS 1
DS 17
DS 33
DS 61
DS 55
DS 54
DS 49
DS 71
DS 67
DS 66
DS 62
DS 72
DS 73
S1
S12
S11
S10
S9
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S33
S32
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S14
S25
S24
S23
S22
S21
S35
S36
S34
S29
S28
S27
S26
S16
S15
36
37
44 SEE NOTE 6
2 — 38
13
6
7
11
14
5
71 — 48
12
8
9
10
49
2 — 50
SEE NOTE 5&9
34
2 — 2
8 — 38
1
33
5 — 50
5 — 51
SEE NOTE 5&6
32
39
SEE NOTE 10
35
25
27
24
26
23
47
19
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21
22
2 — 56
2 — 57
2 — 58
15
13 — 28
16
17
18
55

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. FOR FABRICATION SEE ND1002032
4. SOLDER PER ND1002071
5. REMOVE EXISTING TERMINAL LUGS FROM FIND NO. 50 & REPLACE WITH FIND NO. 40
6. ASSEMBLE FIND NO. 38 USING FIND NO. 44
7. MARK CONDUCTOR IDENTIFICATION PER ND1002019
8. STRIP ALL LEADS .50±.12 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
9. APPLY FIND 44 TO INTERNAL THREADS OF FIND 50
10. REMOVE EXISTING SCREWS FROM TERMINAL LUGS OF FIND NO. 39

MASTER

FOR CONTINUATION OF LIST OF MATL SEE SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
5	1006865-1	GUARD, PUSHBUTTON	51
7	MS25089-3C	SWITCH, PUSH	50
1	1006401-003	LENS, CAP	49
71	1006401-005	LENS, CAP	48
1	1006401-001	LENS, CAP	47
73	1006481	LIGHT, INDICATOR	46
10	MS17821-1-9	STRAP, CABLE	45
AR	MIL-S-22473 GR HV	SEALING & RETAINING COMP	44
1	2014121-011	WIRING HARNESS "B"	43
1	2014120-011	WIRING HARNESS "A"	42
* 55.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL (WHITE)	41
28	1006236-1	TERMINAL LUG	40
1	MS25068-23	SWITCH, TOGGLE	39
10	MS51959-45	SCREW, MACH, CSK FLAT HD	38
1	1006928	KNOB, BAR	37
1	1006893-1	SWITCH, ROTARY	36
1	1006405-057	LENS, MARKED	35
1	1006405-056	LENS, MARKED	34
1	1006405-055	LENS, MARKED	33
1	1006405-054	LENS, MARKED	32
4	1006405-003	DISPLAY SCREEN	31
4	1006405-002	COLOR FILTER, WHITE	30
4	1006405-001	SWITCH, PUSH, BASIC UNIT	29
13	1006677	SWITCH, PUSH	28
1	1014474-13	PUSH BUTTON	27
1	1014474-12	PUSH BUTTON	26
1	1014474-11	PUSH BUTTON	25
1	1014474-10	PUSH BUTTON	24
1	1014474-9	PUSH BUTTON	23
1	1014474-8	PUSH BUTTON	22
1	1014474-7	PUSH BUTTON	21
1	1014474-6	PUSH BUTTON	20
1	1014474-5	PUSH BUTTON	19
1	1014474-4	PUSH BUTTON	18
1	1014474-3	PUSH BUTTON	17
1	1014474-2	PUSH BUTTON	16
1	1014474-1	PUSH BUTTON	15
1	1006471-010	LENS, MARKED	14
1	1006471-015		13
1	1006471-012		12
1	1006471-011		11
1	1006471-009		10
1	1006471-008		9
1	1006471-007		8
1	1006471-006		7
1	1006471-005		6
1	1006471-004	LENS, MARKED	5
40	1006471-003	LAMP BOOT, AMBER	4
10	1006471-001	SWITCH, PUSH, BASIC UNIT	3
2	1014292	HANDLE ASSY	2
1	2014230	PANEL, FRONT	1

-011 LIST OF MATERIALS

* INDICATES LENGTH IN FEET

2014231 C

2014041	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28 MAY 65
CHECKED B. Y. English 9 AUG. 65
APPROVAL P. C. Drake 9/21/65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

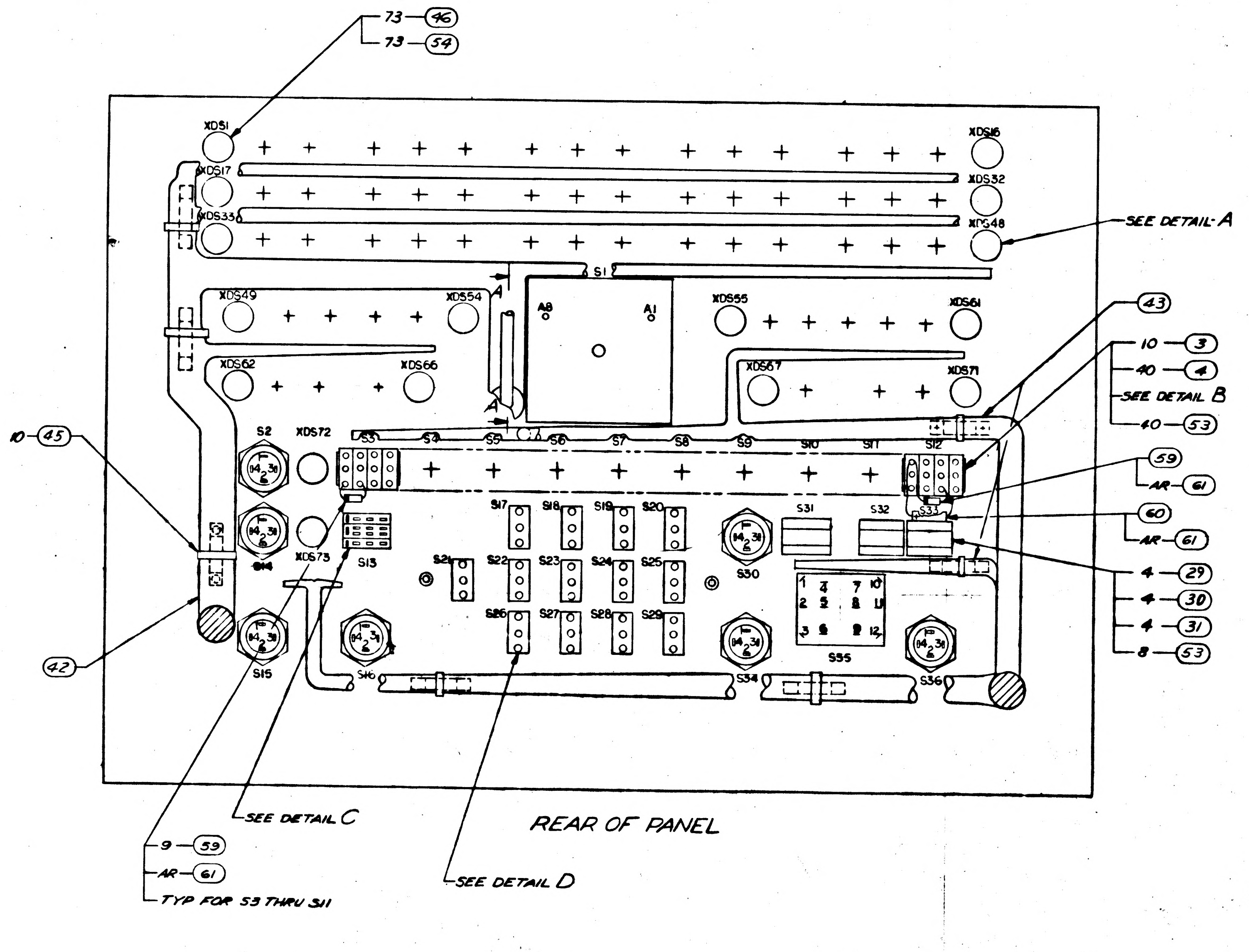
FRONT PANEL ASSY
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014231
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

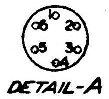
2014231 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167	[illegible]	[illegible]
1	REVISED PER CCA 25377 DR P. [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
2	CHANGED PER CCA R25524 DR [illegible] CHKD [illegible] APPD [illegible]	[illegible]	[illegible]
-	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25620 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]
B	CHANGED PER TDRR 26496 DR D. [illegible] CHK R.[illegible] APPD	2/24/66	[illegible]
C	CHANGED PER TDRR 26495 DR [illegible] CHK [illegible] APPD PE.D	4/2/66	[illegible]



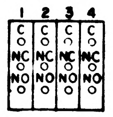
73 — 46
73 — 54
XDS1
XDS16
XDS17
XDS32
XDS33
XDS48
SEE DETAIL A
S1
A8
A1
A
XDS49
XDS54
XDS55
XDS61
XDS62
XDS66
XDS67
XDS71
43
10 — 3
40 — 4
SEE DETAIL B
40 — 53
10 — 45
S2
XDS72
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
59
AR — 61
60
AR — 61
S14
XDS73
S13
S17
S18
S19
S20
S21
S22
S23
S24
S25
S26
S27
S28
S29
S30
S31
S32
S33
S34
S35
S36
S15
S16
4 — 29
4 — 30
4 — 31
8 — 53
42
SEE DETAIL C
9 — 59
AR — 61
TYP FOR S3 THRU S11
SEE DETAIL D

REAR OF PANEL

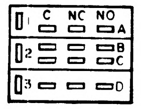


10
20
30
04
05
06

DETAIL-A
TYP FOR XDS1 THRU XDS73
SCALE: NONE

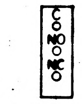


DETAIL-B
TYP FOR S3 THRU S12
SCALE: NONE

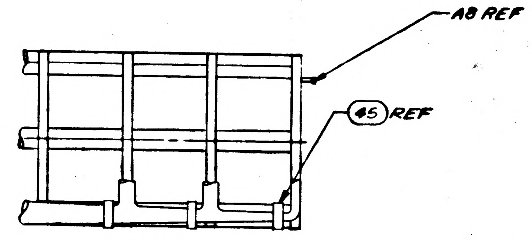


1
2
3
C NC NO
A
B
C
D

DETAIL-C
TYP FOR S13, S31 THRU S33
SCALE: NONE



DETAIL-D
TYP FOR S17 THRU S29
SCALE: NONE



A8 REF
45 REF

VIEW A-A

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	1.2	1006776-197	SLEEVING	61
	1	CS13BF685K	CAP, 6.8 µf, ±10%, 35V	60
	10	1006751-000	DIODE	59
	2	MS15795-803	WASHER, FLAT	58
	2	MS35338-78	WASHER, LOCK	57
	2	MS51957-17	SCREW, PAN HEAD	56
	☒	2014112	SCHEMATIC	REF
	☒	2014122	LEAD ELECTRICAL	REF
	1	2016315	COVER, KEYBOARD	55
	73	1006407-002	LAMP	54
	48	1006407-003	LAMP	53
*	18	MIL-W-16878/4E22	WIRE, ELECTRICAL (BLACK)	52
	-011	LIST OF MATERIALS		

* INDICATES LENGTH IN FEET

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NA[illegible]
DRAWN [illegible] DATE 28MAY65
CHECKED A.I. [illegible] 9 AUG.65
APPROVAL [illegible] 8/10/65
APPROVAL [illegible] 8/13/65
APPROVAL [illegible] 9/11/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/29

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

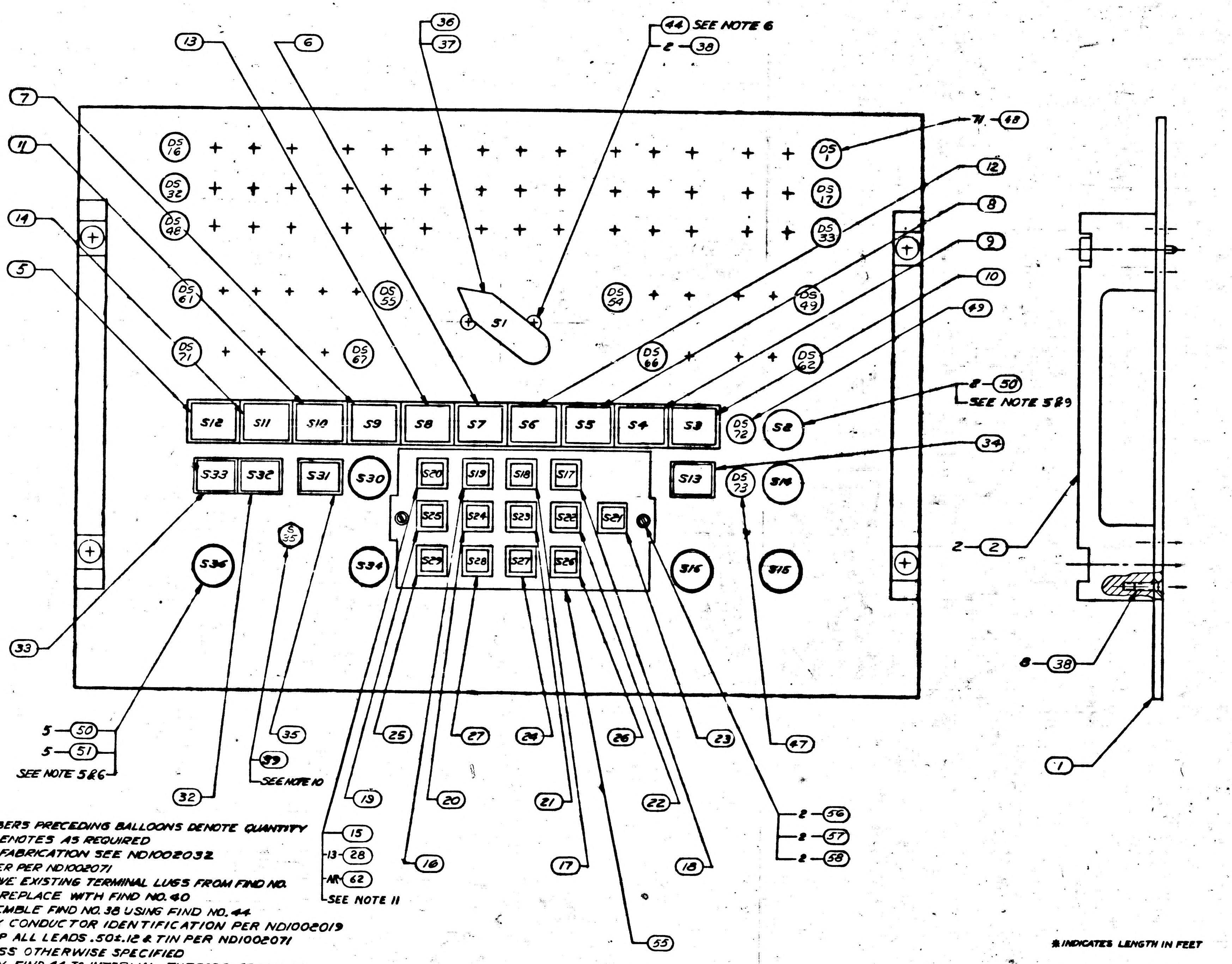
FRONT PANEL ASSY
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014231
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014231 D

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/13/65	
1	REVISED PER CCA 25377 DR P. CHK APPD		
2	CHANGED PER CCA R25524 DR CHKD APPD	10/4/65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25620 AND CLASS A RELEASED PER TDRR 25972	1/14/66	
B	CHANGED PER TDRR 26496 DR CHK APPD	3/24/66	
C	CHANGED PER TDRR 26495 DR D. CHK APPD P.E.D	4/7/66	
D	CHANGED PER TDRR 26699 DR CHK APPD	4/15/66	


13
6
36
37
44 SEE NOTE 6
2 — 38
7
11
14
5
71 — 48
12
8
9
10
49
DS 16
DS 32
DS 48
DS 61
DS 71
DS 55
DS 67
S1
DS 54
DS 49
DS 66
DS 62
DS 1
DS 17
DS 33
S12
S11
S10
S9
S8
S7
S6
S5
S4
S3
DS 72
S2
2 — 50
SEE NOTE 5 & 9
34
S33
S32
S31
S30
S20
S19
S18
S17
S13
DS 73
S14
S25
S24
S23
S22
S21
S35
S29
S28
S27
S26
S36
S34
S16
S15
2 — 2
8 — 38
33
5 — 50
5 — 51
SEE NOTE 5 & 6
35
39
SEE NOTE 10
32
25
27
24
26
23
47
1
19
20
21
22
15
13 — 28
AR — 62
SEE NOTE 11
16
17
18
2 — 56
2 — 57
2 — 58
55

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. FOR FABRICATION SEE ND1002032
4. SOLDER PER ND1002071
5. REMOVE EXISTING TERMINAL LUGS FROM FIND NO. 50 & REPLACE WITH FIND NO. 40
6. ASSEMBLE FIND NO. 38 USING FIND NO. 44
7. MARK CONDUCTOR IDENTIFICATION PER ND1002019
8. STRIP ALL LEADS .50±.12 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
9. APPLY FIND 44 TO INTERNAL THREADS OF FIND 50
10. REMOVE EXISTING SCREWS FROM TERMINAL LUGS OF FIND NO. 39
11. BOND FIND 15 THRU FIND 27 TO FIND 28 USING FIND 62

FOR CONTINUATION OF LIST OF MATL SEE SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
5	1006865-1	GUARD, PUSHBUTTON	51
7	MS25089-3C	SWITCH, PUSH	50
1	1006401-003	LENS, CAP	49
71	1006401-005	LENS, CAP	48
1	1006401-001	LENS, CAP	47
73	1006481	LIGHT, INDICATOR	46
10	MS17821-1-9	STRAP, CABLE	45
AR	MIL-S-22473 GR HV	SEALING & RETAINING COMP	44
1	2014121-011	WIRING HARNESS "B"	43
1	2014120-011	WIRING HARNESS "A"	42
* 55.0	MIL-W-16878/4 EEE	WIRE, ELECTRICAL (WHITE)	41
28	1006236-1	TERMINAL LUG	40
1	MS25068-23	SWITCH, TOGGLE	39
10	MS51959-45	SCREW, MACH, CSK FLAT HD	38
1	1006928	KNOB, BAR	37
1	1006893-1	SWITCH, ROTARY	36
1	1006405-057	LENS, MARKED	35
1	1006405-056	LENS, MARKED	34
1	1006405-055	LENS, MARKED	33
1	1006405-054	LENS, MARKED	32
4	1006405-003	DISPLAY SCREEN	31
4	1006405-002	COLOR FILTER, WHITE	30
4	1006405-001	SWITCH, PUSH, BASIC UNIT	29
13	1006677	SWITCH, PUSH	28
1	1014474-13	PUSH BUTTON	27
1	1014474-12	PUSH BUTTON	26
1	1014474-11	PUSH BUTTON	25
1	1014474-10	PUSH BUTTON	24
1	1014474-9	PUSH BUTTON	23
1	1014474-8	PUSH BUTTON	22
1	1014474-7	PUSH BUTTON	21
1	1014474-6	PUSH BUTTON	20
1	1014474-5	PUSH BUTTON	19
1	1014474-4	PUSH BUTTON	18
1	1014474-3	PUSH BUTTON	17
1	1014474-2	PUSH BUTTON	16
1	1014474-1	PUSH BUTTON	15
1	1006471-010	LENS, MARKED	14
1	1006471-015		13
1	1006471-012		12
1	1006471-011		11
1	1006471-009		10
1	1006471-008		9
1	1006471-007		8
1	1006471-006		7
1	1006471-005		6
1	1006471-004	LENS, MARKED	5
40	1006471-003	LAMP BOOT, AMBER	4
10	1006471-001	SWITCH, PUSH, BASIC UNIT	3
2	1014292	HANDLE ASSY	2
1	2014230	PANEL, FRONT	1

-011 LIST OF MATERIALS

* INDICATES LENGTH IN FEET

2014041	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28 MAY 65
CHECKED B. T. 9 AUG. 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
PROGRAMMER & MONITOR
COMPUTER TEST SET

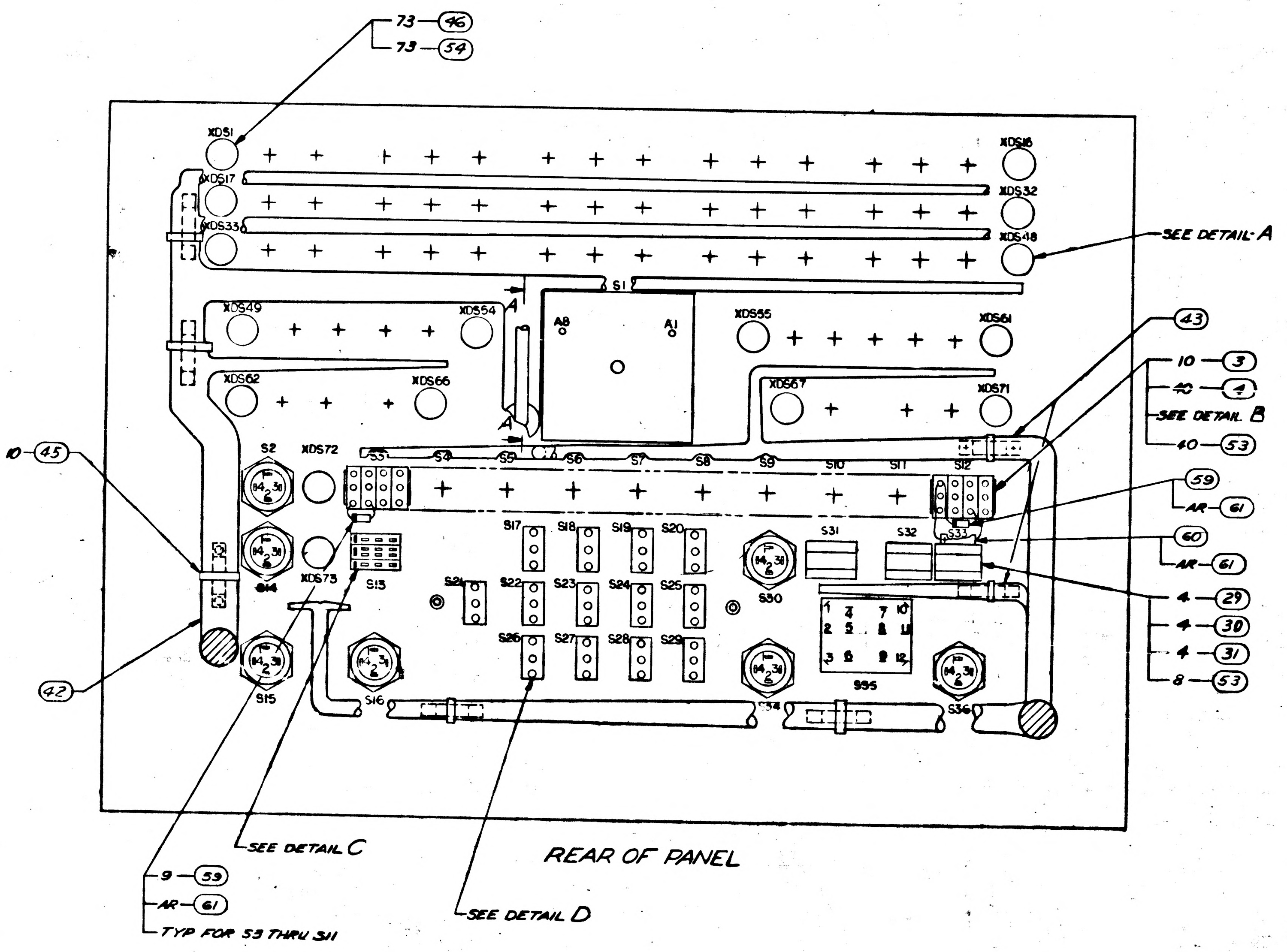
CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014231
SCALE 1/1 WT SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

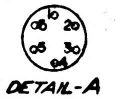
2014231 D

2014231 D

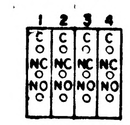
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167	[illegible]	[illegible]
1	REVISED PER CCA 25377 DR P. Milner CHK [illegible] APPD [illegible]	[illegible]	[illegible]
2	CHANGED PER CCA R25524 DR [illegible] CHKD [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25620 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]
B	CHANGED PER TDRR 26496 DR D. [illegible] CHK R.W. APPD	2/24/66	[illegible]
C	CHANGED PER TDRR 26495 DR D. [illegible] CHK [illegible] APPD P.E.D	4/2/66	[illegible]
D	CHANGED PER TDRR 26699 DR [illegible] CHK [illegible] APPD P.E.D	7/15/66	[illegible]


73 — 46
73 — 54
XDS1
XDS16
XDS17
XDS32
XDS33
XDS48
SEE DETAIL-A
S1
A8
A1
XDS49
XDS54
XDS55
XDS61
XDS62
XDS66
XDS67
XDS71
A
43
10 — 3
40 — 4
SEE DETAIL B
40 — 53
10 — 45
S2
XDS72
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
59
AR — 61
60
AR — 61
4 — 29
4 — 30
4 — 31
8 — 53
S14
XDS73
S13
S17
S18
S19
S20
S21
S22
S23
S24
S25
S26
S27
S28
S29
S30
S31
S32
S33
S34
S35
S36
S15
S16
42
SEE DETAIL C
SEE DETAIL D
9 — 59
AR — 61
TYP FOR S3 THRU S11

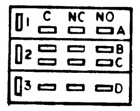
REAR OF PANEL



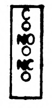
DETAIL-A
TYP FOR XDS1 THRU XDS73
SCALE: NONE



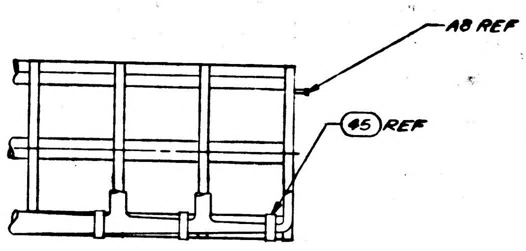
DETAIL-B
TYP FOR S3 THRU S12
SCALE: NONE


C NC NO
1
2
3
A
B
C
D

DETAIL-C
TYP FOR S13, S31 THRU S33
SCALE: NONE



DETAIL-D
TYP FOR S17 THRU S29
SCALE: NONE


A8 REF
45 REF

VIEW A-A

* INDICATES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	MIL-A-5092TYPE III	ADHESIVE	62
* 1.2	1006776-197	SLEEVING	61
1	CS13BF685K	CAP, 6.8 µf, ±10%, 35V	60
10	1006751-000	DIODE	59
2	MS15795-803	WASHER, FLAT	58
2	MS35338-78	WASHER, LOCK	57
2	MS51957-17	SCREW, PAN HEAD	56
☒	2014112	SCHEMATIC	REF
☒	2014122	LEAD ELECTRICAL	REF
1	2016315	COVER, KEYBOARD	55
73	1006407-002	LAMP	54
48	1006407-003	LAMP	53
* 18	MIL-W-16878/4 E22	WIRE, ELECTRICAL (BLACK)	52
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 20 MAY 65
CHECKED A. I. [illegible] 9 AUG 65
APPROVAL [illegible] 8/10/65
APPROVAL [illegible] 8/30/65
APPROVAL [illegible] 9/11/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C [illegible] 1/29

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
PROGRAMMER & MONITOR
COMPUTER TEST SET

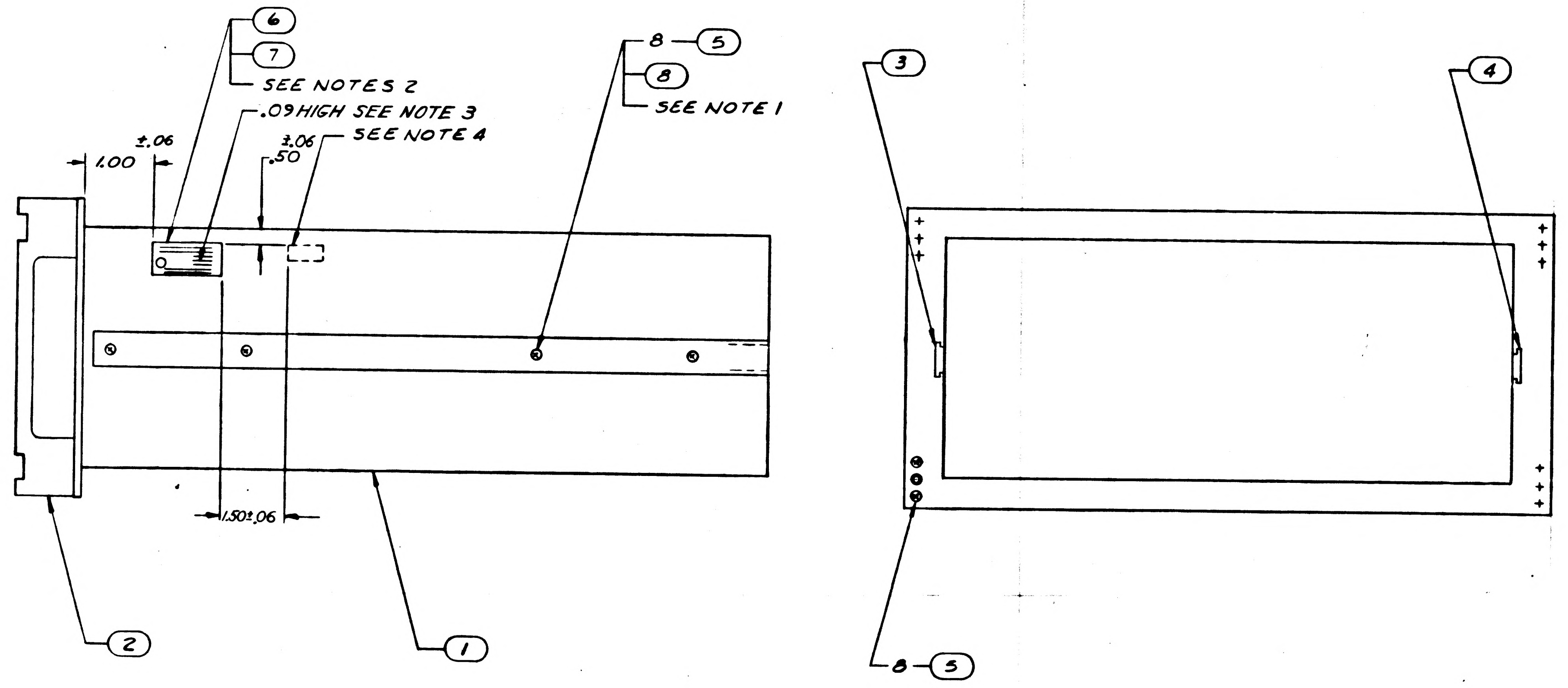
CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014231
SCALE 1/1 WT SHEET 2 OF 2

2014231 D

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014232 | –

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25042	7/9/65	A. Haas
–	CLASS A RELEASED PER TDRR 25472		



NOTES:
1. ASSEMBLE FIND NO. 5 USING FIND NO. 8
2. ASSEMBLE FIND NO. 6 USING FIND NO 7
3. SERIALIZE PER ND1002023
4. MARK APPROX WEIGHT IN LBS .25 HIGH NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006271-10 IN POSITION SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	MIL-S-22473, GR. HV	SEALING & RETAINING COMPOUND	8
AR	MIL-A-5092 TYPE II	CEMENT	7
1	1004260-224	PLATE, IDENT	6
16	MS51959-44	SCREW, FLAT HD	5
1	1006930-6	SLIDE, LH CHASSIS SECTION	4
1	1006930-5	SLIDE, RH CHASSIS SECTION	3
2	1014215-4	HANDLE ASSY	2
1	1006937	OSCILLOSCOPE	1
-011	LIST OF MATERIALS		

2014232 | –

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. Lloyd DATE 25 MAY 65
CHECKED B. V. Englund 6/2/65
APPROVAL R. C. Duke 7/8/65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

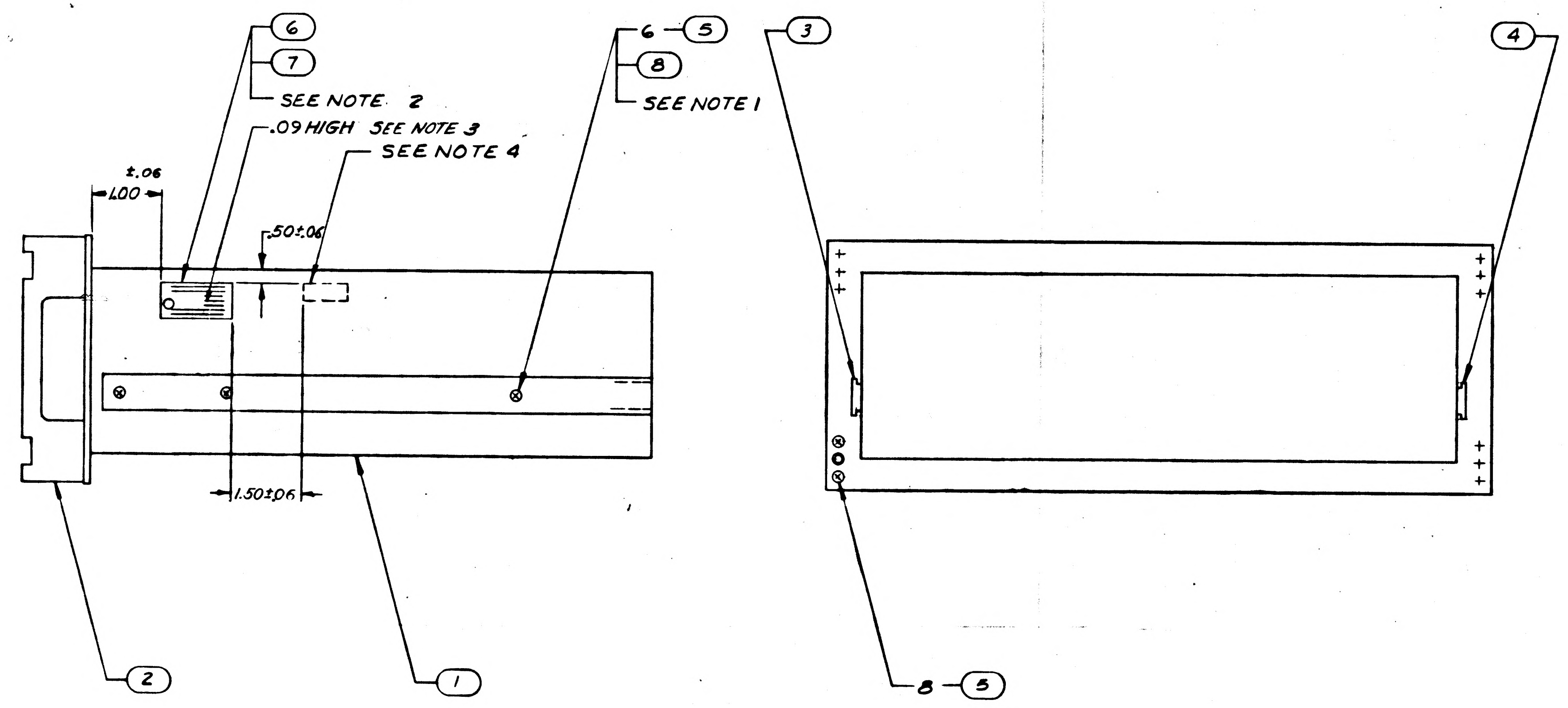
OSCILLOSCOPE ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014232
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014234 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25092	7/9/65	O. Howard
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26242 DR B.J.Papia CHK D. Ryzuk APPD P.C.D.	2/17/66	



NOTES:
1. ASSEMBLE FIND NO.5 USING FIND NO.8
2. ASSEMBLE FIND NO.6 USING FIND NO 7.
3. SERIALIZE PER ND1002023
4. MARK APPROX WEIGHT IN LBS .25 HIGH NORMAL GOTHIC CHARACTERS PER ND1002019 USING WHITE INK 1006271-1 IN POSITION SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	MIL-S-22473, GR. HV	SEALING & RETAINING COMPOUND	8
AR	MIL-A-5092 TYPE II	CEMENT	7
1	1004260-226	PLATE, IDENT	6
14	MS51959-45	SCREW, FLAT HD	5
1	1006930-4	SLIDE, LH CHASSIS SECTION	4
1	1006930-3	SLIDE, RH CHASSIS SECTION	3
2	1014215-3	HANDLE ASSY	2
1	1006466	POWER SUPPLY	1
-011	LIST OF MATERIALS		

2014234 A

MASTER

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .xx ±
DECIMALS .xxx ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. Kloyd DATE 25 MAY 65
CHECKED B.Y. Campbell 6/8/65
APPROVAL P.E. Dube 7/8/65
APPROVAL R.O'Connell 7/8/65
APPROVAL 7/9/65
NASA APPROVAL A. G. Metzger
MIT APPROVAL 7/7/66
MIT APPROVAL C. Searle 7/26/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

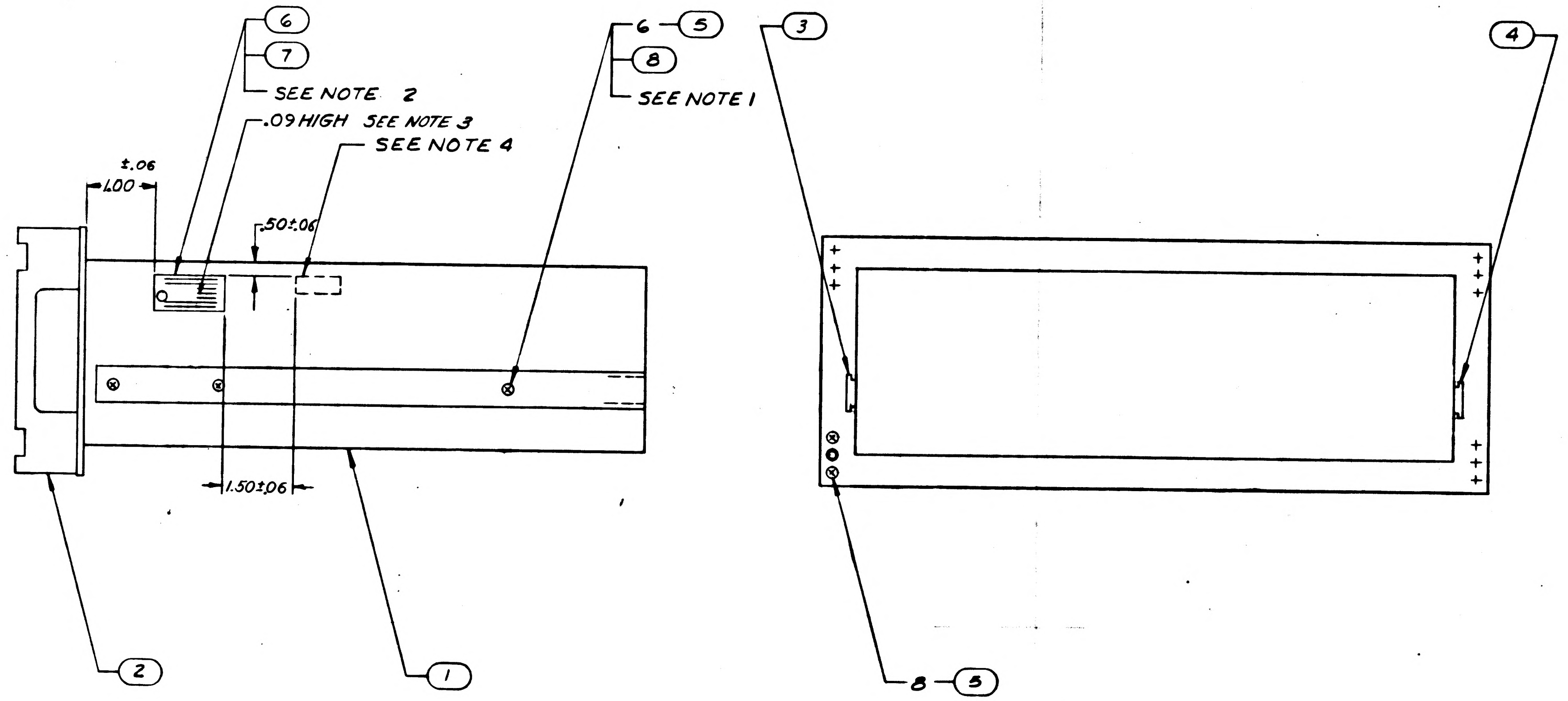
POWER SUPPLY 3VDC ASSY
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	D	2014234
SCALE 1/2	WT	SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014234 —

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25042	7/9/65	O. Harand
—	CLASS A RELEASED PER TDRR 25472		



NOTES:
1. ASSEMBLE FIND NO.5 USING FIND NO.8
2. ASSEMBLE FIND NO.6 USING FIND NO 7.
3. SERIALIZE PER ND1002023
4. MARK APPROX WEIGHT IN LBS .25 HIGH NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006271-10 IN POSITION SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	MIL-S-22473, GR. HV	SEALING & RETAINING COMPOUND	8
AR	MIL-A-5092 TYPE II	CEMENT	7
1	1004260-226	PLATE, IDENT	6
14	MS51959-45	SCREW, FLAT HD	5
1	1006930-4	SLIDE, LH CHASSIS SECTION	4
1	1006930-3	SLIDE, RH CHASSIS SECTION	3
2	1014215-3	HANDLE ASSY	2
1	1006466	POWER SUPPLY	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R Kloyd DATE 25 MAY 65
CHECKED B. Y. Campbell 6/2/65
APPROVAL P.E. Dube 7/8/65
APPROVAL 7/8/65
APPROVAL 7/9/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C. Snerling

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY 3VDC ASSY
COMPUTER TEST SET

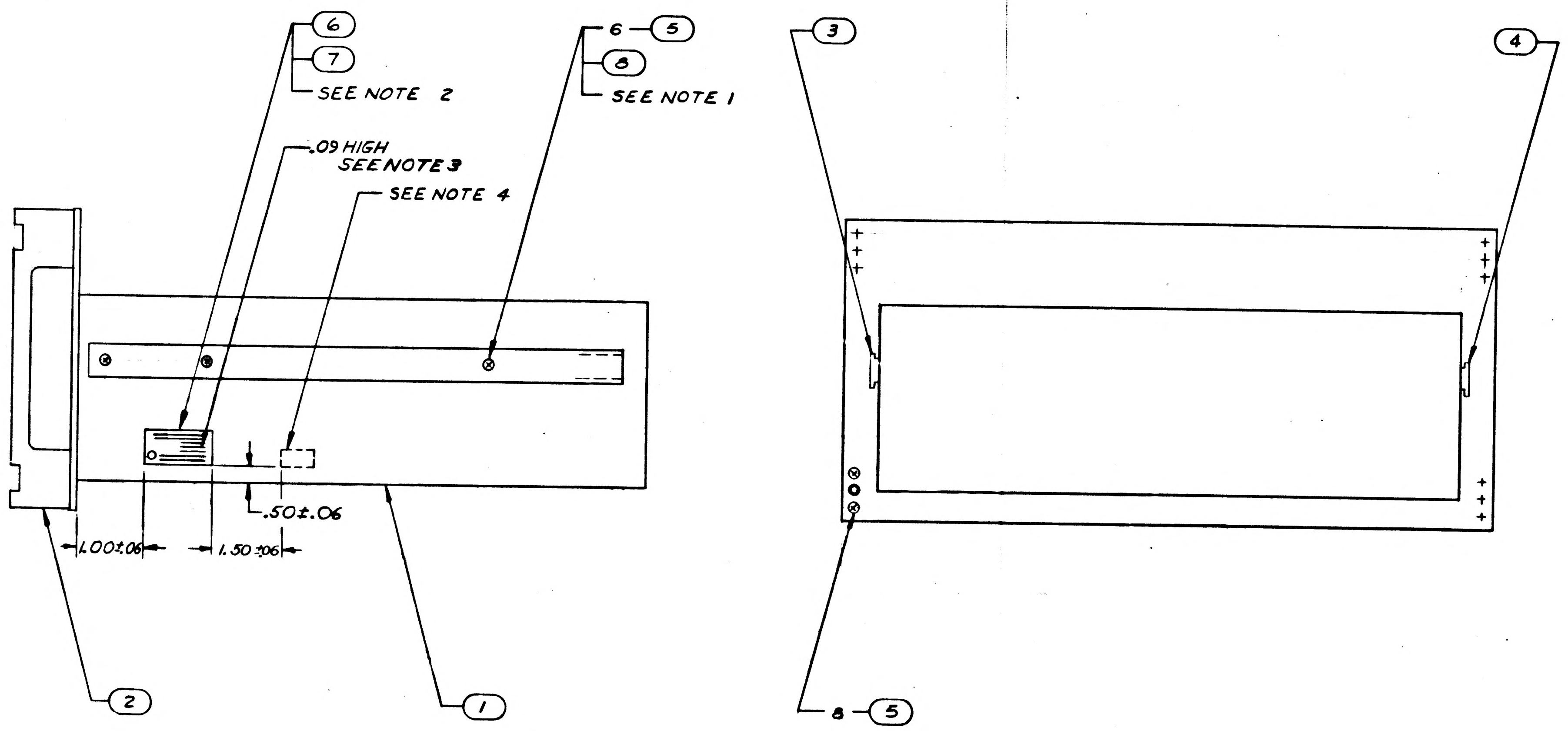
CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014234
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014234 —

2014235 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25042	7/9/65	G. Havens
-	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26242 DR B Papia CHK [illegible] APPD P.C.D	2/17/66	



NOTES:

1. ASSEMBLE FIND NO. 5 USING FIND NO. 8
2. ASSEMBLE FIND NO. 6 USING FIND NO. 7
3. SERIALIZE PER ND1002023
4. MARK APPROX WEIGHT IN LBS .25 HIGH NORMAL GOTHIC CHARACTERS PER ND1002019 USING WHITE INK 1006271-1 IN POSITION SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	MIL-S-22473, GR. HV	SEALING & RETAINING COMPOUND	8
AR	MIL-A-5092 TYPE II	CEMENT	7
1	1004260-221	PLATE IDENT	6
14	MS51959-45	SCREW, FLAT HD	5
1	1006930-4	SLIDE, LH CHASSIS SECTION	4
1	1006930-3	SLIDE, RH CHASSIS SECTION	3
2	1014215-4	HANDLE ASSY	2
1	1006464	POWER SUPPLY	1
-011	LIST OF MATERIALS		

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4?7
DRAWN R. Floyd DATE 25 MAY 65
CHECKED B. V. [illegible] 6/8/65
APPROVAL [illegible] 7/[illegible]/65
APPROVAL [illegible] JULY 65
APPROVAL [illegible] 7/8/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. [illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

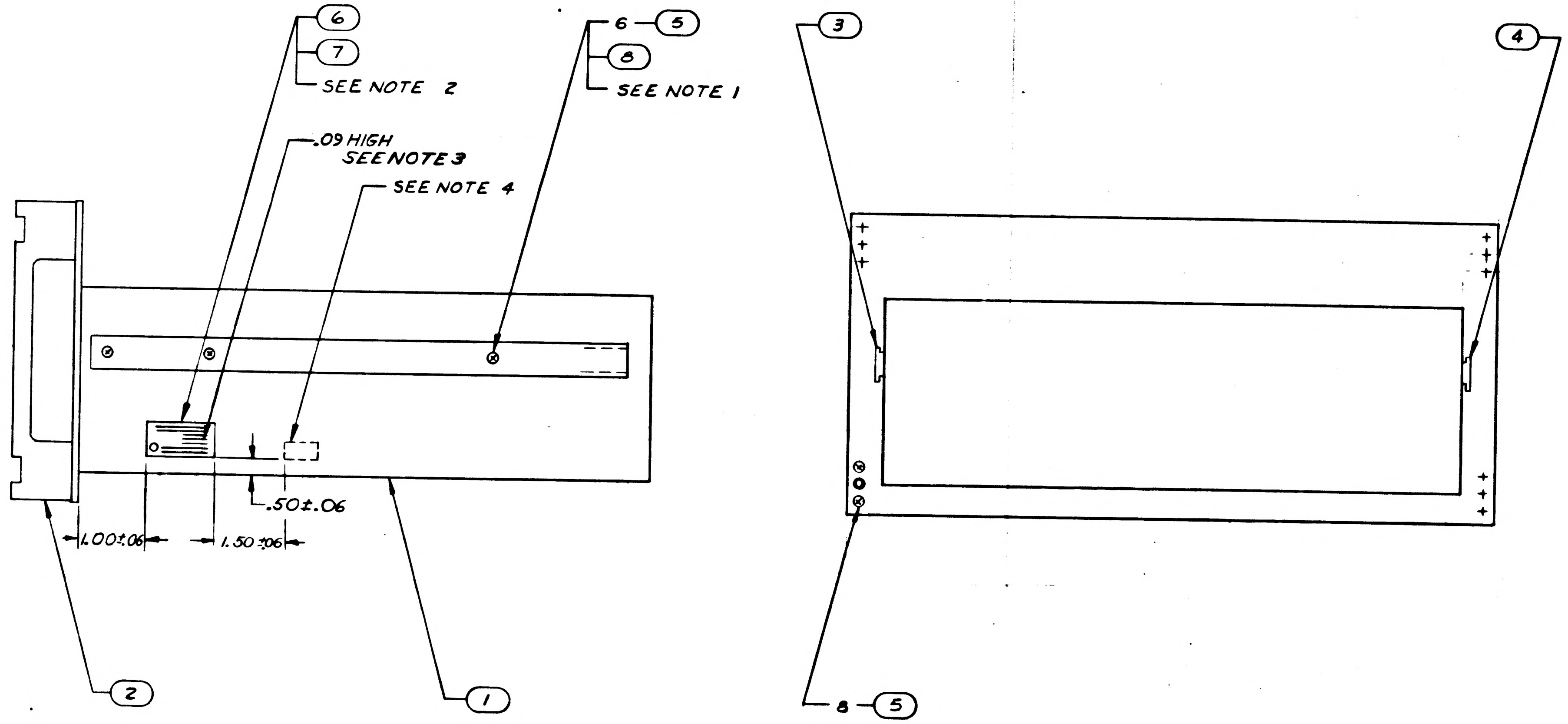
POWER SUPPLY 10,13,28 VDC ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE D NASA DRAWING NO. 2014235
SCALE 1/2 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014235 | -

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25002	7/9/65	G. Harang
-	CLASS A RELEASED PER TDRR 25472		



NOTES:

1. ASSEMBLE FIND NO. 5 USING FIND NO. 8
2. ASSEMBLE FIND NO. 6 USING FIND NO. 7
3. SERIALIZE PER ND1002023
4. MARK APPROX WEIGHT IN LBS .25 HIGH NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006271-10 IN POSITION SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	MIL-S-22473, GR. HV	SEALING & RETAINING COMPOUND	8
AR	MIL-A-5092 TYPE II	CEMENT	7
1	1004260-221	PLATE IDENT	6
14	MS51959-45	SCREW, FLAT HD	5
1	1006930-4	SLIDE, LH CHASSIS SECTION	4
1	1006930-3	SLIDE, RH CHASSIS SECTION	3
2	1014215-4	HANDLE ASSY	2
1	1006464	POWER SUPPLY	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. [illegible] DATE 25 MAY 65
CHECKED B. V. [illegible] 6/8/65
APPROVAL [illegible] 7/[illegible]
APPROVAL D. E. Dick 8 JULY 65
APPROVAL [illegible] 7/8/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. [illegible] 1/[illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY 10,13,28 VDC ASSY
COMPUTER TEST SET

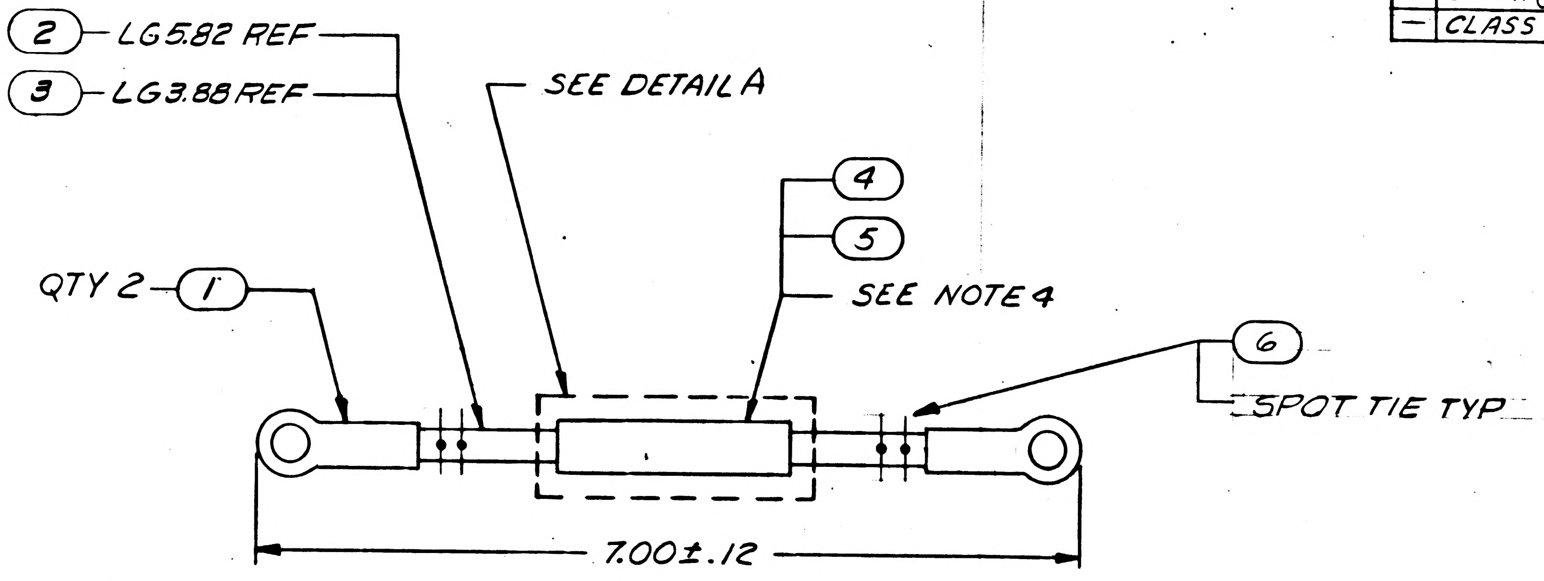
CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014235
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

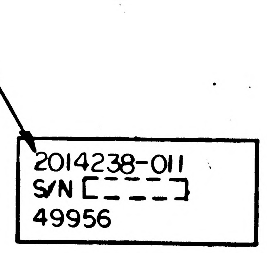
2014235 | -

2014238 | —

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167	9/13/65	A. Harano
1	CHANGE PER CCA R25455 DR H. Jones CHK C.D. APPD G. Bean	11/13/65	h.f.b.
—	CLASS A RELEASED PER TDRR 25472		



.08 HIGH



DETAIL A
SCALE: NONE

NOTES
1. CRIMP PER ND1002206
2. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
3. SERIALIZE PER ND 1002023
4. BOND USING FIND NO. 5
5. QQ-B-575 FOR FIND NO. 2, BRAID SIZE .50, AWG NO. 34
6. AR DENOTES AS REQUIRED
7. MIL-I-631, TYPE F, FORM Ua, GRADE a, CLASS 1, CATEGORY 1, COLOR WHT, AWG NO. 2
8. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 6
9. CUT LENGTHS OF SLEEVING AND BRAID AS SHOWN
10. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006458-004	TAPE, LACING	6
AR	1006253	ADHESIVE	5
1	1006415-129	BAND MARKER	4
* 0.4	SEE NOTE 7	SLEEVING	3
* 0.5	SEE NOTE 5	BRAID, WIRE	2
2	MS25036-15	TERMINAL LUG	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014041	
2014037	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9-497
DRAWN B. Katsuko DATE 21 Jul 65
CHECKED C. V. English 10 AUG 65
APPROVAL C. E. Dudek 31 AUG 65
APPROVAL D. O'Bryant 8/31/65
APPROVAL [illegible] 9/13/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL W. Kupfer 2/10/66
MIT APPROVAL A. Harano 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

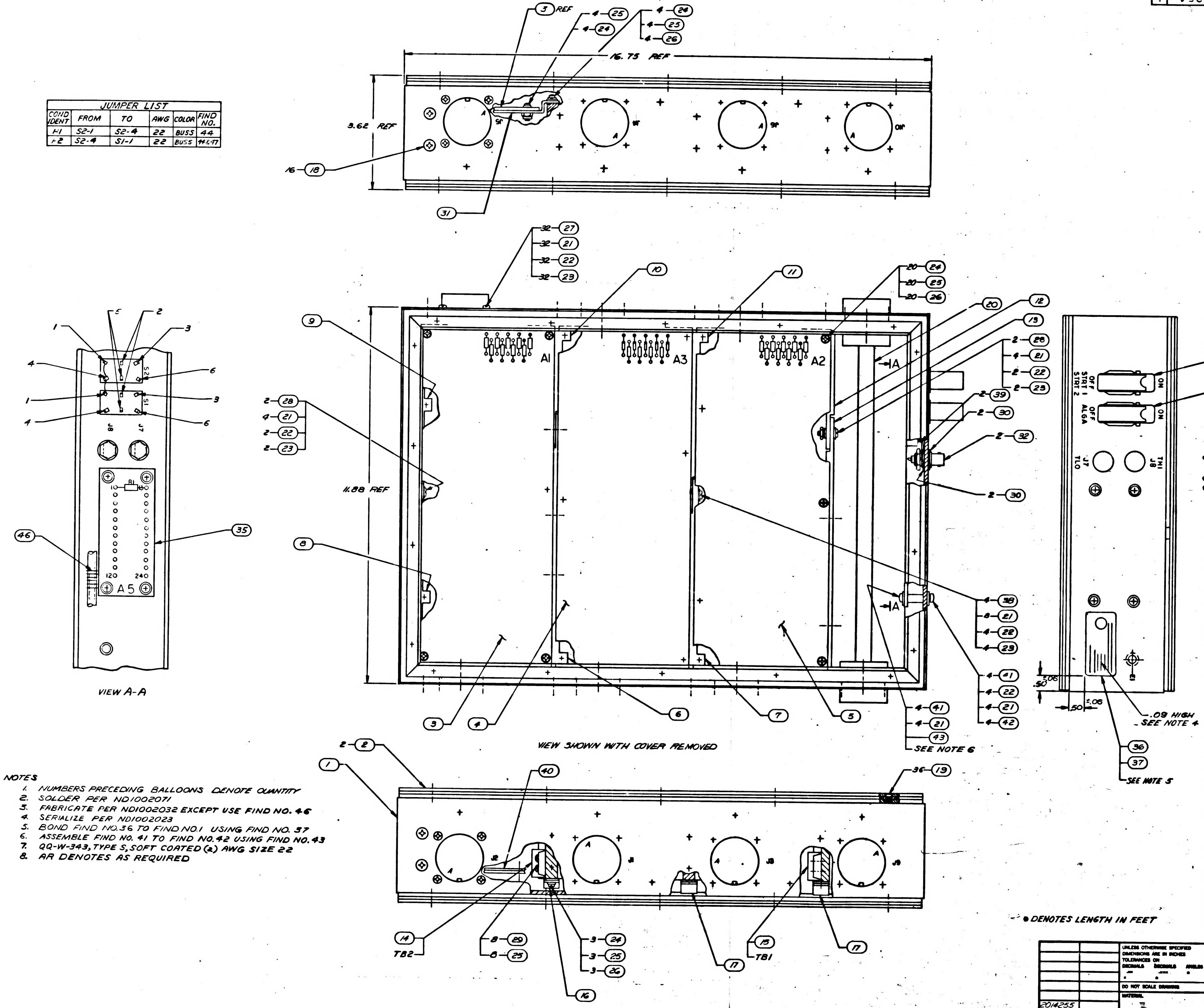
GROUND STRAP ASSY

CODE IDENT NO. 49956
SIZE C
NASA DRAWING NO. 2014238
SCALE 1/1
WT
SHEET 1 OF 1

2014238 | 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25133	[illegible]	[illegible]
1	CHANGED PER CCA R25307 DR [illegible] CHK A. [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25500	[illegible]	[illegible]
A	CHANGED PER CCA R25551 AND CLASS A RELEASED PER TDRR 25478	[illegible]	[illegible]

JUMPER LIST					
COND IDENT	FROM	TO	AWG	COLOR	FIND NO.
H1	S2-1	S2-4	22	BUSS	44
H2	S2-4	S1-1	22	BUSS	44&47


16.75 REF
3.62 REF
11.88 REF
3 REF
4-(25)
4-(24)
4-(24)
4-(25)
4-(26)
16-(18)
(31)
J6
J9
J10
A
32-(27)
32-(21)
32-(22)
32-(23)
(10)
(11)
20-(24)
20-(25)
20-(26)
(20)
(12)
(13)
2-(28)
2-(21)
2-(22)
2-(23)
2-(39)
2-(30)
2-(32)
2-(30)
(9)
2-(28)
4-(21)
2-(22)
2-(23)
(8)
A1
A3
A2
A
4-(38)
8-(21)
4-(22)
4-(23)
4-(41)
4-(22)
4-(21)
4-(42)
(3)
(4)
(6)
(7)
(5)
4-(41)
4-(21)
(43)
SEE NOTE 6
VIEW SHOWN WITH COVER REMOVED
(33)
(34)
(33)
(34)
OFF STRT 1 STRT 2
OFF ALGA
ON
ON
J7 TLO
J8 THI
.50
.06
.50
.06
.09 HIGH SEE NOTE 4
(36)
(37)
SEE NOTE 5
5
2
3
1
4
6
1
4
3
6
S2
S1
J8
J7
R1
10
18
120
240
A5
(46)
(35)
VIEW A-A
2-(2)
(1)
(40)
36-(19)
J1
J8
J9
J2
(14)
TB2
8-(29)
8-(25)
3-(24)
3-(25)
3-(26)
(16)
(17)
(15)
TB1
(17)

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SOLDER PER ND1002071
3. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 46
4. SERIALIZE PER ND1002023
5. BOND FIND NO.36 TO FIND NO.1 USING FIND NO. 37
6. ASSEMBLE FIND NO. 41 TO FIND NO.42 USING FIND NO.43
7. QQ-W-343, TYPE S, SOFT COATED (2) AWG SIZE 22
8. AR DENOTES AS REQUIRED

● DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014123	SCHEMATIC	REF
● .05	1006776-21	INSULATION, SLEEVING	47
AR	1006458-004	LACING CORD	46
● ~~.1~~	~~MIL-W-16878/4 E22~~	~~WIRE ELEC, BLK~~	~~45~~
● 0.2	SEE NOTE 7	WIRE, ELECTRICAL	44
AR	MIL-S-22473, GR, HV	SEALING & RETAINING COMPOUND	43
4	1006480-005	POST, SPACER	42
8	MS51957-28	SCREW, PAN HD	41
1	2014433	BRACKET, COMP BOARD	40
.2	1006950-1	TERMINAL, RING TONGUE	39
4	MS 51957-32	SCREW, PAN HD	38
AR	MIL-A-5092, TYPE II	CEMENT	37
1	1004260-234	PLATE, IDENTIFICATION	36
1	2014398-011	COMPONENT BOARD ASSY A5	35
2	MS35059-23	SWITCH, TOGGLE	34
2	MS25224-1	GUARD, TOGGLE SWITCH	33
2	MS35179-1094A	CONNECTOR, RECEPTACLE	32
1	2014283	BRACKET, COMP BOARD	31
4	1020376	INSULATING WASHER	30
8	MS 51957-17	SCREW, PAN HD	29
4	MS51957-31	SCREW, PAN HD	28
32	MS 51957-30	SCREW, PAN HD	27
27	MS35337-78	WASHER, LOCK	26
39	MS15795-803	WASHER, FLAT	25
31	MS 51957-14	SCREW, PAN HD	24
40	MS35649-64	NUT, PLAIN, HEX	23
44	MS35337-79	WASHER, LOCK	22
56	MS15795-805	WASHER, FLAT	21
1	2014197-011	WIRING HARNESS G	20
36	MS51959-31	SCREW, MACHINE, FLAT	19
16	MS51959-44	SCREW, MACHINE, FLAT	18
2	1015985-005	CLAMP LOOP	17
1	1015985-004	CLAMP LOOP	16
1	1006678-3	TERMINAL BOARD	15
1	1006678-4	TERMINAL BOARD	14
1	1020275	SUPPORT MOUNTING	13
1	1020274	SUPPORT MOUNTING	12
1	1020273	SUPPORT MOUNTING	11
1	2014253	SUPPORT MOUNTING	10
1	2014251	SUPPORT MOUNTING	9
1	2014250	SUPPORT MOUNTING	8
1	1020261	SUPPORT MOUNTING	7
1	2014252	SUPPORT MOUNTING	6
1	2014260-011	COMPONENT BOARD ASSY A2	5
1	2014262-011	COMPONENT BOARD ASSY A3	4
1	2014267-011	COMPONENT BOARD ASSY, A1&A4	3
2	1020310	COVER	2
1	2014287	WELDED ASSEMBLY	1

-011 LIST OF MATERIALS

2014254 A

2014255	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9 497
DRAWN [illegible] DATE 2 JUNE 65
CHECKED A. V. [illegible] 2 JUL 65
APPROVAL H. [illegible] 23 JUL 65
APPROVAL D. D. [illegible] 7/11/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

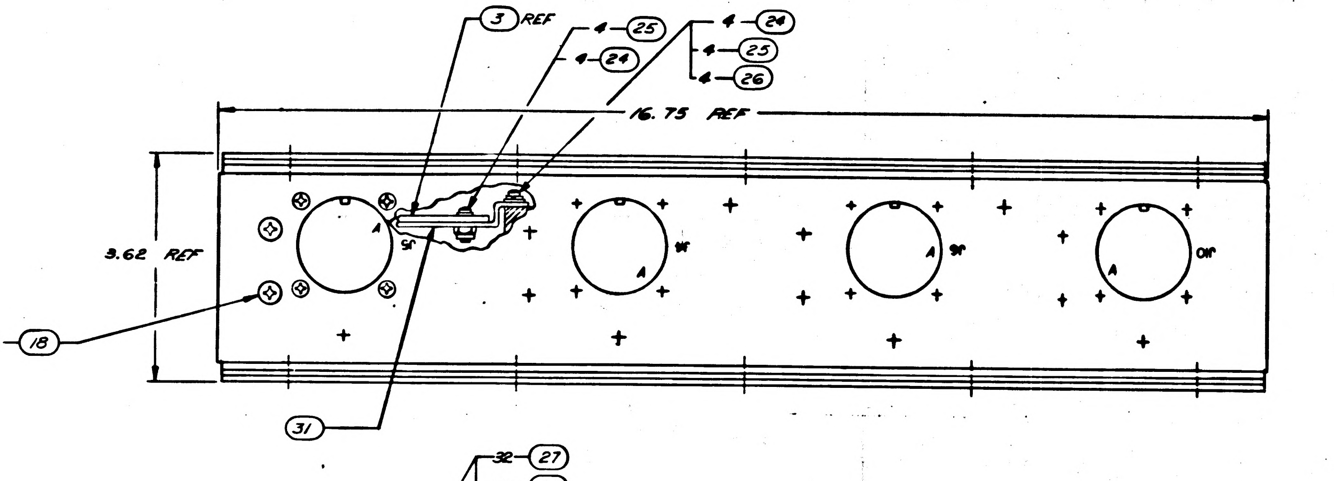
BUFFER CIRCUIT ASSEMBLY

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014254
SCALE 1/1 WT SHEET 1 OF 1

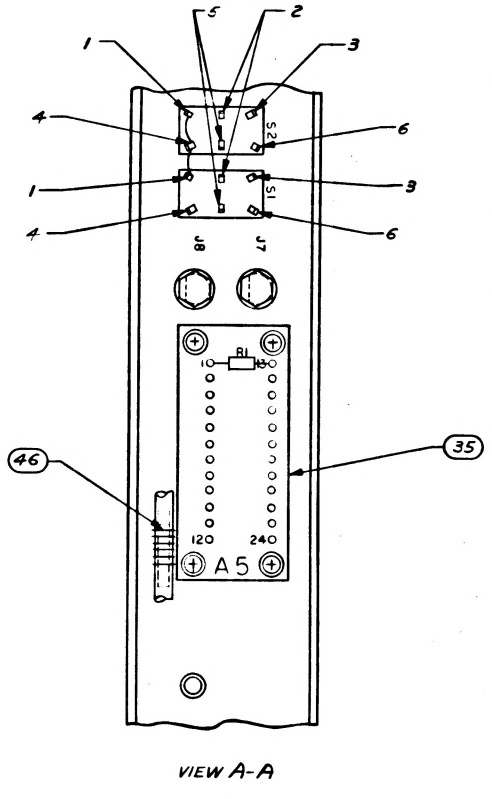
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25133	[illegible]	[illegible]
1	CHANGED PER CCA R25307 DR R. [illegible] CHK A. [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25500	[illegible]	[illegible]
A	CHANGED PER CCA R25551 AND CLASS A RELEASED PER TDRR 25478	1/15/66	[illegible]
B	CHANGED PER TDRR 26286 DR P. [illegible] CHK [illegible] APPD [illegible]	2/2/66	[illegible]

JUMPER LIST					
COND IDENT	FROM	TO	AWG	COLOR	FIND NO.
H1	S2-1	S2-4	22	BUSS	44
r2	S2-4	S1-1	22	BUSS	44&47

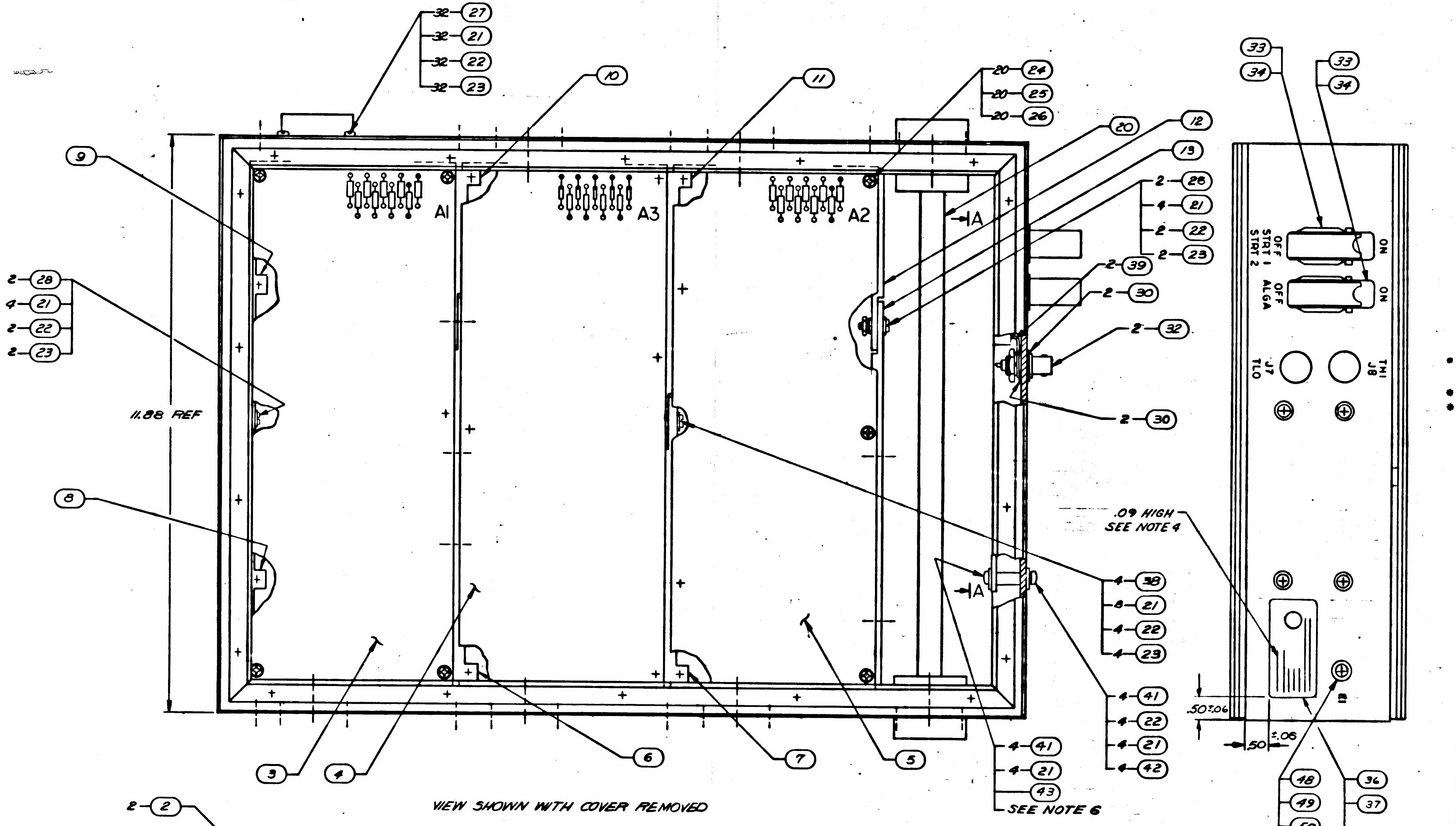


3 REF
4-(25)
4-(24)
4-(24)
4-(25)
4-(26)
16.75 REF
3.62 REF
16-(18)
(31)



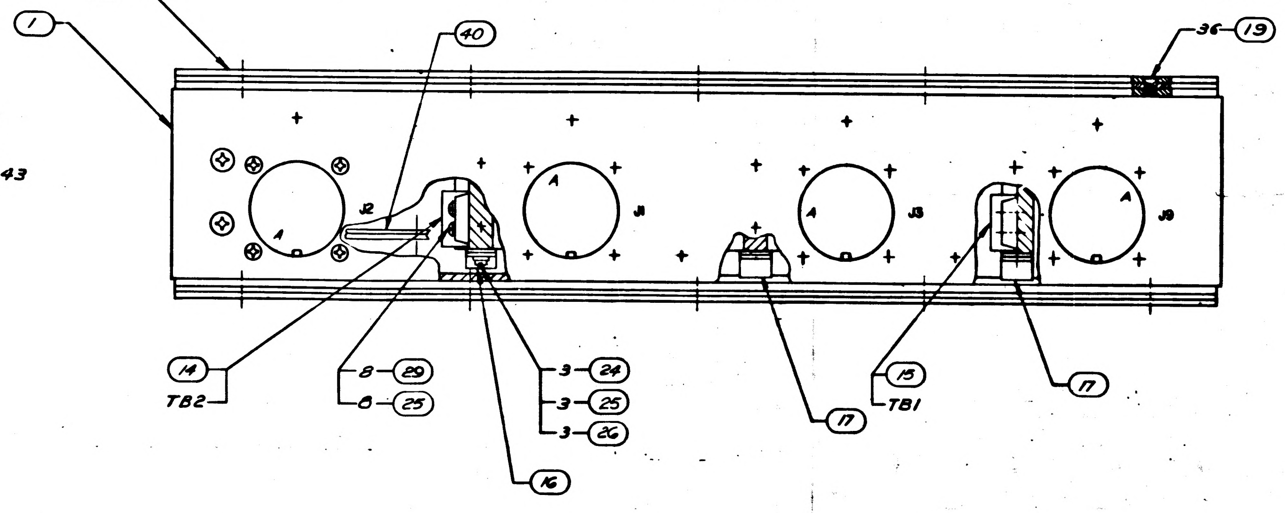
1
5
2
3
4
6
1
3
4
6
S2
S1
J8
J7
R1
120
240
A5
(46)
(35)

VIEW A-A



32-(27)
32-(21)
32-(22)
32-(23)
(10)
(11)
20-(24)
20-(25)
20-(26)
(20)
(12)
(13)
(9)
2-(28)
4-(21)
2-(22)
2-(23)
2-(28)
4-(21)
2-(22)
2-(23)
2-(39)
2-(30)
2-(32)
2-(30)
A1
A3
A2
A
A
11.88 REF
(8)
4-(38)
8-(21)
4-(22)
4-(23)
4-(41)
4-(22)
4-(21)
4-(42)
4-(41)
4-(21)
(43)
SEE NOTE 6
(3)
(4)
(6)
(7)
(5)
(33)
(34)
(33)
(34)
OFF STRT 1 STRT 2
OFF ALGA
ON
ON
J7 TLO
J8 TM1
.09 HIGH SEE NOTE 4
.50
.06
.50
E1
(48)
(49)
(50)
(36)
(37)
SEE NOTE 5

VIEW SHOWN WITH COVER REMOVED



2-(2)
(1)
(40)
36-(19)
J2
J1
J3
J9
(14)
TB2
8-(29)
8-(25)
3-(24)
3-(25)
3-(26)
(16)
(17)
(15)
TB1
(17)

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SOLDER PER ND1002071
3. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 46
4. SERIALIZE PER ND1002023
5. BOND FIND NO.36 TO FIND NO.1 USING FIND NO. 37
6. ASSEMBLE FIND NO. 41 TO FIND NO.42 USING FIND NO.43
7. QQ-W-343, TYPE S, SOFT COATED (2) AWG SIZE 22
8. AR DENOTES AS REQUIRED

● DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014123	SCHEMATIC	REF
1	MS15795-810	WASHER, FLAT	50
1	MS35338-82	WASHER, LOCK	49
1	MS51957-78	SCREW, PAN HD	48
● .05	1006776-21	INSULATION, SLEEVING	47
AR	1006458-004	LACING CORD	46
● ~~.1~~	~~MIL-W-16878/4 E22~~	~~WIRE ELEC, BLK~~	~~45~~
● 0.2	SEE NOTE 7	WIRE, ELECTRICAL	44
AR	MIL-S-22473, GR, HV	SEALING & RETAINING COMPOUND	43
4	1006480-005	POST, SPACER	42
8	MS51957-28	SCREW, PAN HD	41
1	2014433	BRACKET, COMP BOARD	40
.2	1006950-1	TERMINAL, RING TONGUE	39
4	MS 51957-32	SCREW, PAN HD	38
AR	MIL-A-5092, TYPE II	CEMENT	37
1	1004260-234	PLATE, IDENTIFICATION	36
1	2014398-011	COMPONENT BOARD ASSY A5	35
2	MS35059-23	SWITCH, TOGGLE	34
2	MS25224-1	GUARD, TOGGLE SWITCH	33
2	MS35179-1094A	CONNECTOR, RECEPTACLE	32
1	2014263	BRACKET, COMP BOARD	31
4	1020376	INSULATING WASHER	30
8	MS 51957-17	SCREW, PAN HD	29
4	MS51957-31	SCREW, PAN HD	28
32	MS 51957-30	SCREW, PAN HD	27
27	MS35337-78	WASHER, LOCK	26
39	MS15795-803	WASHER, FLAT	25
31	MS 51957-14	SCREW, PAN HD	24
40	MS35649-64	NUT, PLAIN, HEX	23
44	MS35337-79	WASHER, LOCK	22
56	MS15795-805	WASHER, FLAT	21
1	2014197-011	WIRING HARNESS G	20
36	MS51959-31	SCREW, MACHINE, FLAT	19
16	MS 51959-44	SCREW, MACHINE, FLAT	18
2	1015985-005	CLAMP LOOP	17
1	1015985-004	CLAMP LOOP	16
1	1006678-3	TERMINAL BOARD	15
1	1006678-4	TERMINAL BOARD	14
1	1020275	SUPPORT MOUNTING	13
1	1020274	SUPPORT MOUNTING	12
1	1020273	SUPPORT MOUNTING	11
1	2014253	SUPPORT MOUNTING	10
1	2014251	SUPPORT MOUNTING	9
1	2014250	SUPPORT MOUNTING	8
1	1020261	SUPPORT MOUNTING	7
1	2014252	SUPPORT MOUNTING	6
1	2014260-011	COMPONENT BOARD ASSY A2	5
1	2014262-011	COMPONENT BOARD ASSY A3	4
1	2014267-011	COMPONENT BOARD ASSY, A1 & A4	3
2	1020310	COVER	2
1	2014287	WELDED ASSEMBLY	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014255	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XXX ± DECIMALS .XXXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 2 JUNE 65
CHECKED A. V. Englert 2 JUL 65
APPROVAL [illegible] 23 JUL 65
APPROVAL [illegible] 8/11/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 21 Jan 66
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BUFFER CIRCUIT ASSEMBLY

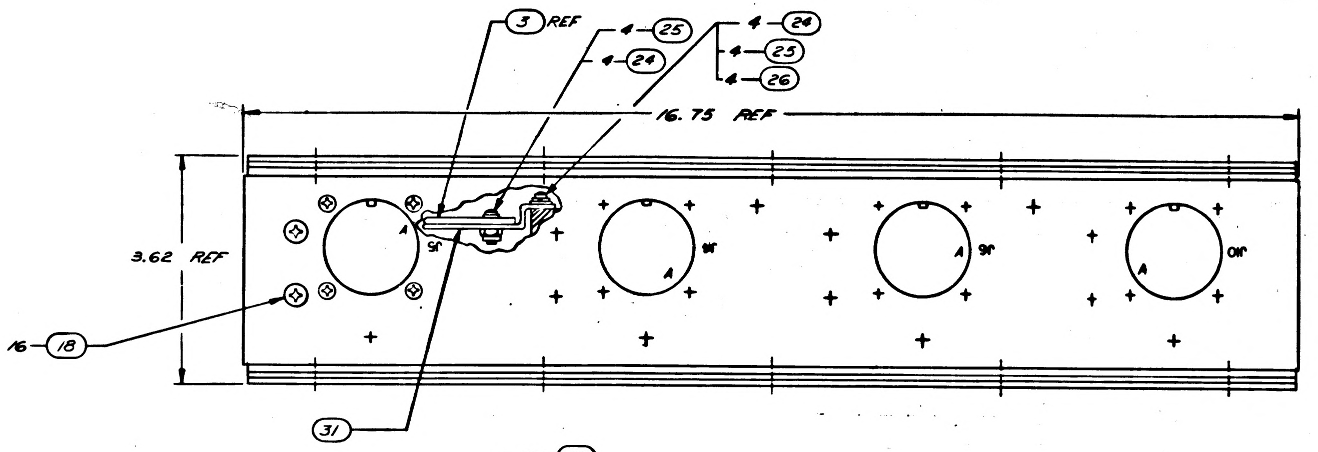
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014254
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

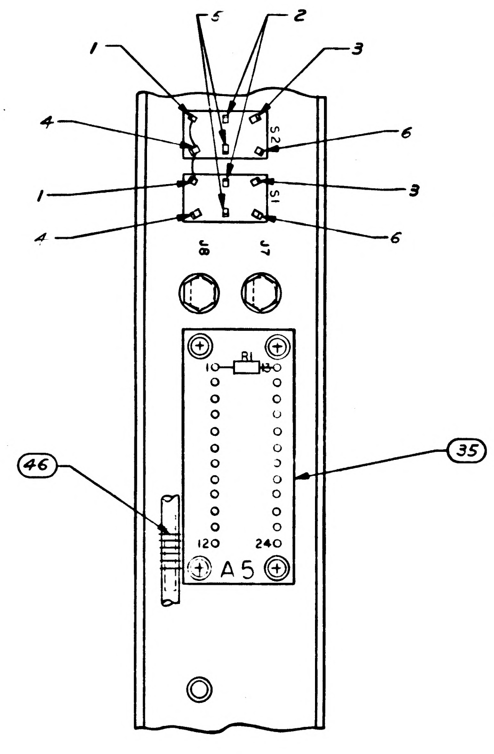
2014254 C

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA 27133		
1	CHANGED PER CCA R25307 DR CHK APPD		
–	CLASS B CHANGED PER CCA R25500		
A	CHANGED PER CCA R25551 AND CLASS A RELEASED PER TDRR 25478	1/15/66	
B	CHANGED PER TDRR 26286 DR P CHK APPD	2/4/66	
C	CHANGED PER TDRR 25297 DR CHK APPD	2/5/66	

JUMPER LIST					
COND IDENT	FROM	TO	AWG	COLOR	FIND NO.
H1	S2-1	S2-4	22	BUSS	44
H2	S2-4	S1-1	22	BUSS	44&47

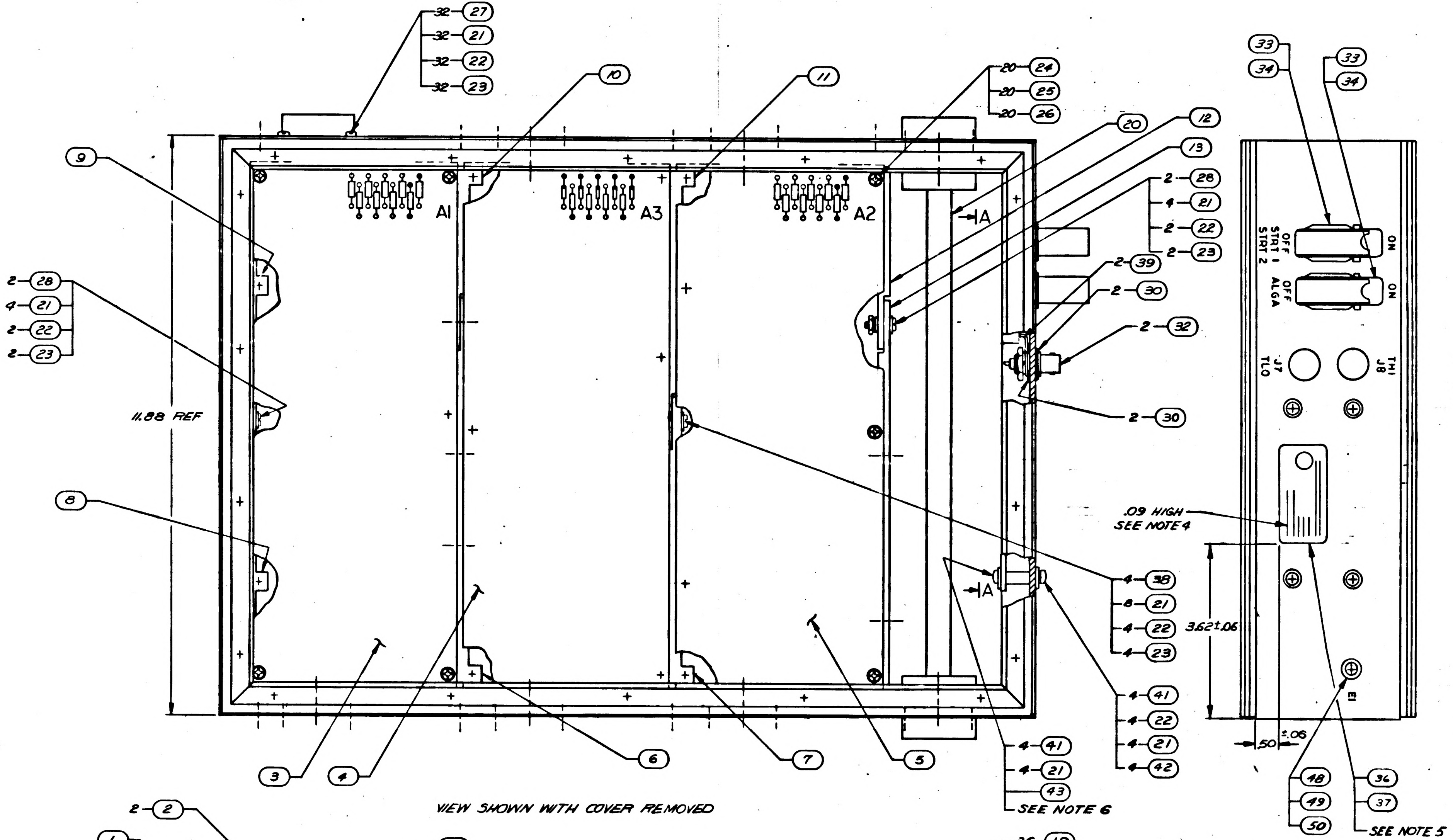


3 REF
4-25
4-24
4-24
4-25
4-26
16.75 REF
3.62 REF
J5
J4
J6
J10
A
16-18
31



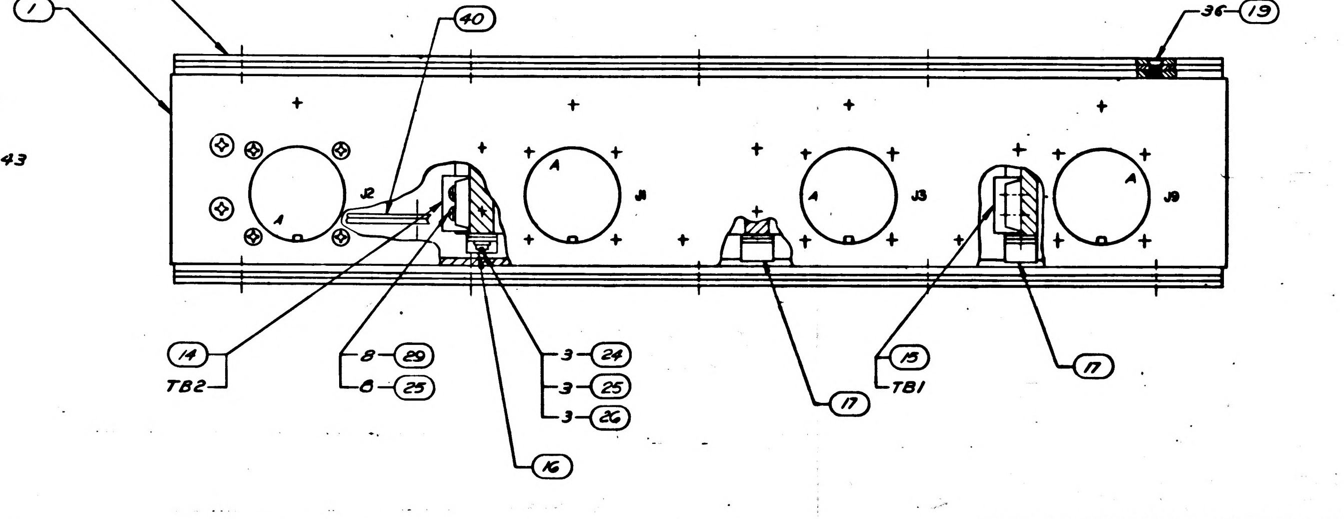
1
5
2
3
4
6
S2
S1
J8
J7
R1
10
120
240
A5
46
35

VIEW A-A



32-27
32-21
32-22
32-23
10
11
20-24
20-25
20-26
20
12
13
2-28
4-21
2-22
2-23
9
A1
A3
A2
A
2-39
2-30
2-32
2-30
11.88 REF
8
4-38
8-21
4-22
4-23
4-41
4-22
4-21
4-42
4-41
4-21
43
SEE NOTE 6
3
4
6
7
5
33
34
33
34
OFF STRT 1 STRT 2
ON
OFF ALGA
ON
J7 TLO
J8 THI
.09 HIGH SEE NOTE 4
3.62±.06
.50
.06
E1
48
49
50
36
37
SEE NOTE 5

VIEW SHOWN WITH COVER REMOVED



2-2
1
40
36-19
J2
J1
J3
J9
A
14
TB2
8-29
8-25
3-24
3-25
3-26
16
17
15
TB1
17

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SOLDER PER ND1002071
3. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 46
4. SERIALIZE PER ND1002023
5. BOND FIND NO.36 TO FIND NO.1 USING FIND NO. 57
6. ASSEMBLE FIND NO. 41 TO FIND NO.42 USING FIND NO.43
7. QQ-W-343, TYPE S, SOFT COATED (2) AWG SIZE 22
8. AR DENOTES AS REQUIRED

• DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014123	SCHEMATIC	REF
1	MS15795-810	WASHER, FLAT	50
1	MS35338-82	WASHER, LOCK	49
1	MS51957-78	SCREW, PAN HD	48
• .05	1006776-21	INSULATION, SLEEVING	47
AR	1006458-004	LACING CORD	46
• ~~.1~~	~~MIL-W-16878/4 E22~~	~~WIRE ELEC, BLK~~	~~45~~
• 0.2	SEE NOTE 7	WIRE, ELECTRICAL	44
AR	MIL-S-22473, GR, HV	SEALING & RETAINING COMPOUND	43
4	1006480-005	POST, SPACER	42
8	MS51957-28	SCREW, PAN HD	41
1	2014433	BRACKET, COMP BOARD	40
.2	1006950-1	TERMINAL, RING TONGUE	39
4	MS 51957-32	SCREW, PAN HD	38
AR	MIL-A-5092, TYPE II	CEMENT	37
1	1004260-234	PLATE, IDENTIFICATION	36
1	2014398-011	COMPONENT BOARD ASSY A5	35
2	MS35059-23	SWITCH, TOGGLE	34
2	MS25224-1	GUARD, TOGGLE SWITCH	33
2	MS35179-1094A	CONNECTOR, RECEPTACLE	32
1	2014263	BRACKET, COMP BOARD	31
4	1020376	INSULATING WASHER	30
8	MS 51957-17	SCREW, PAN HD	29
4	MS51957-31	SCREW, PAN HD	28
32	MS 51957-30	SCREW, PAN HD	27
27	MS35337-78	WASHER, LOCK	26
39	MS15795-803	WASHER, FLAT	25
31	MS 51957-14	SCREW PAN HD	24
40	MS35649-64	NUT, PLAIN, HEX	23
44	MS35337-79	WASHER, LOCK	22
56	MS15795-805	WASHER, FLAT	21
1	2014197-011	WIRING HARNESS 3	20
36	MS51959-31	SCREW, MACHINE, FLAT	19
16	MS51959-44	SCREW, MACHINE, FLAT	18
2	1015985-005	CLAMP LOOP	17
1	1015985-004	CLAMP LOOP	16
1	1006678-3	TERMINAL BOARD	15
1	1006678-4	TERMINAL BOARD	4
1	1020275	SUPPORT MOUNTING	13
1	1020274	SUPPORT MOUNTING	12
1	1020273	SUPPORT MOUNTING	11
1	2014253	SUPPORT MOUNTING	10
1	2014251	SUPPORT MOUNTING	9
1	2014250	SUPPORT MOUNTING	8
1	1020261	SUPPORT MOUNTING	7
1	2014252	SUPPORT MOUNTING	6
1	2014260-011	COMPONENT BOARD ASSY A2	5
1	2014262-011	COMPONENT BOARD ASSY A3	4
1	2014267-011	COMPONENT BOARD ASSY, A1 & A4	3
2	1020310	COVER	2
1	2014287	WELDED ASSEMBLY	1
-011	LIST OF MATERIALS		

2014254 C

2014255	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NA
DRAWN DATE 2 JUNE 65
CHECKED C V
APPROVAL
APPROVAL 3/11/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BUFFER CIRCUIT ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014254
SCALE 1/1	WT	SHEET 1 OF 1

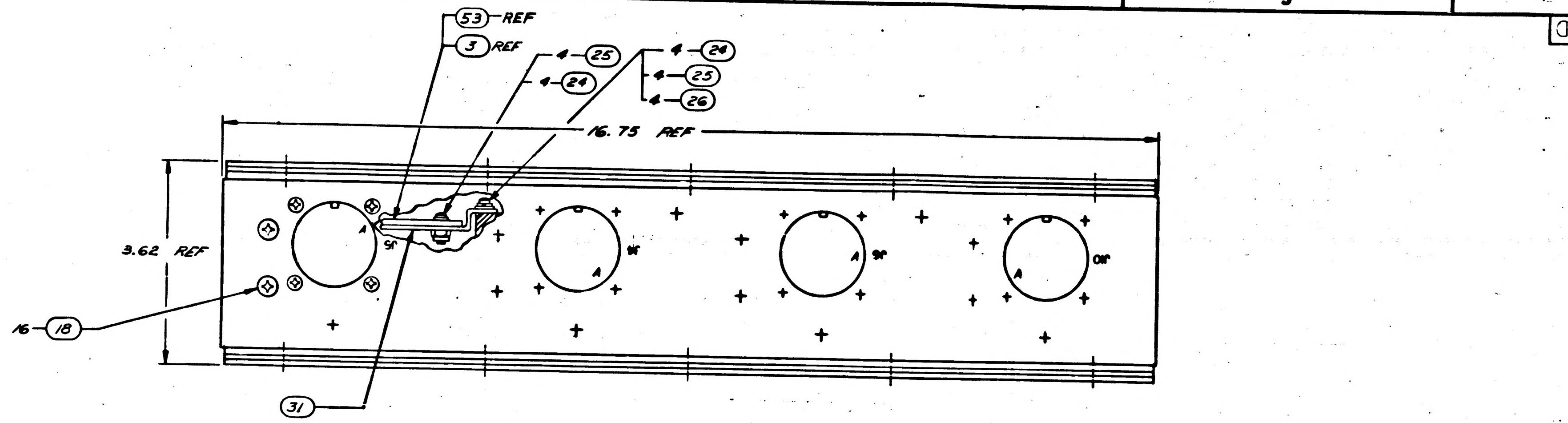
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014254 D

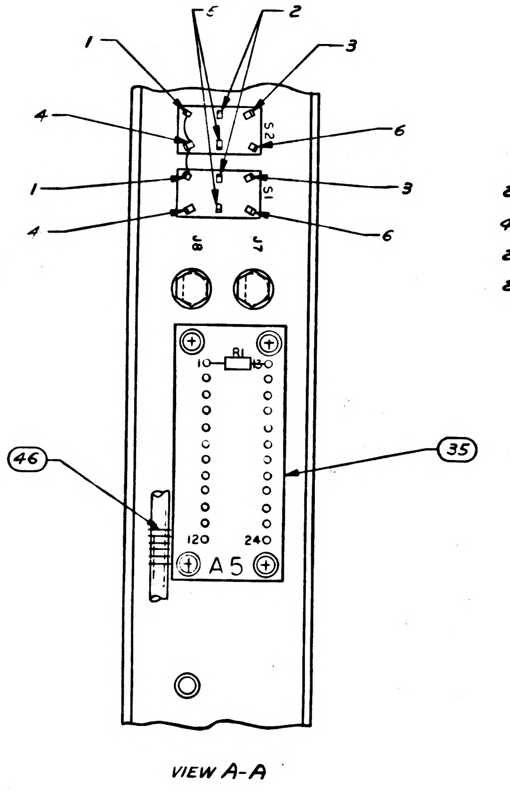
SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA 25133		
1	CHANGED PER CCA R25307 DR CHK APPD		
–	CLASS B CHANGED PER CCA R25500		
A	CHANGED PER CCA R25551 AND CLASS A RELEASED PER TDRR 25478	1/11/66	
B	CHANGED PER TDRR 26286 DR P. CHK APPD	2/24/66	
C	CHANGED PER TDRR 26287 DR CHK APPD	3/5/66	
D	CHANGED PER TDRR 27879 DR CHK APPD	7/20/66	

JUMPER LIST

COND IDENT	FROM	TO	AWG	COLOR	FIND NO.
H1	S2-1	S2-4	22	BUSS	44
H2	S2-4	S1-1	22	BUSS	44&47

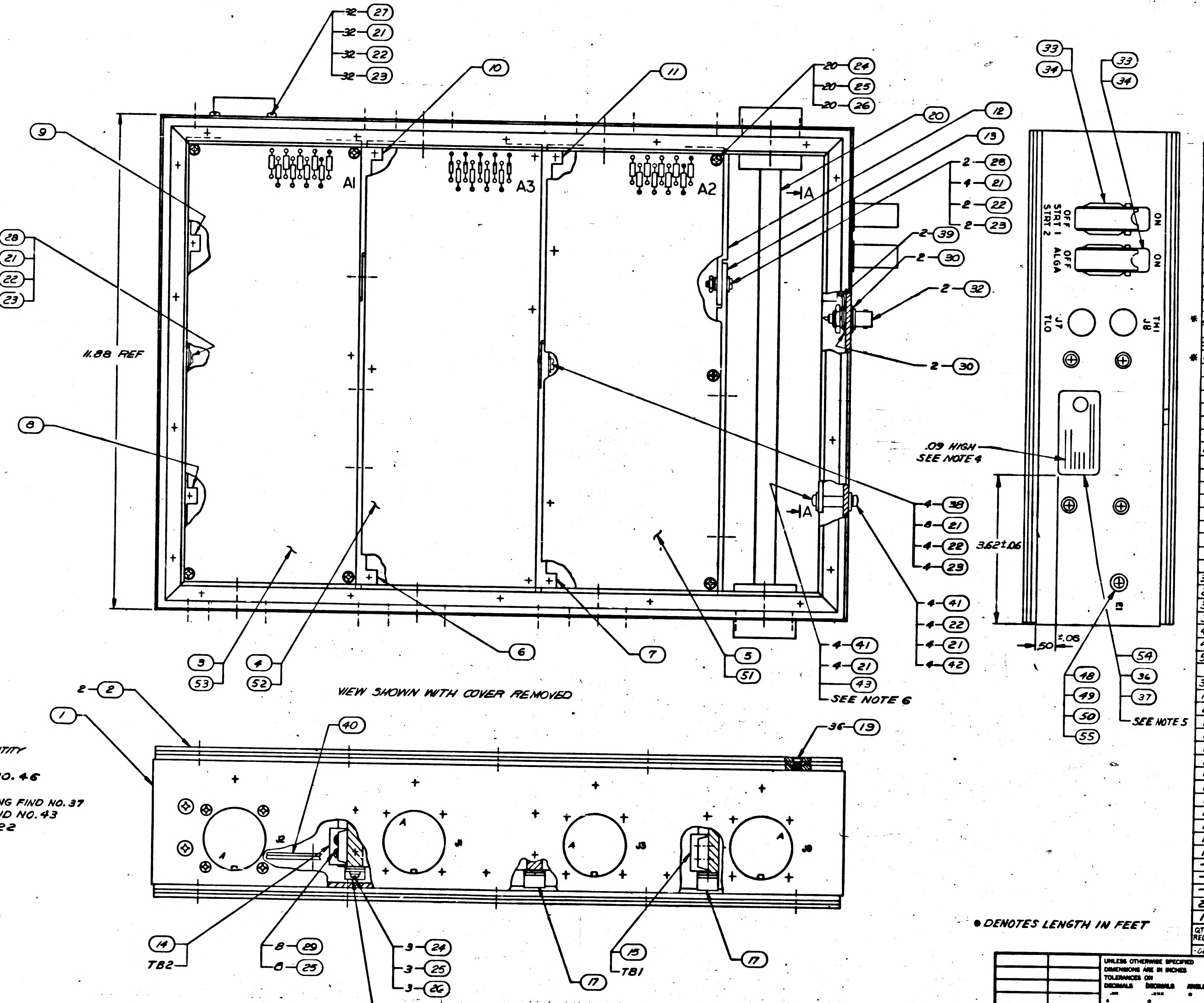


53 REF
3 REF
4-25
4-24
4-24
4-25
4-26
16.75 REF
3.62 REF
16-18
31



1
2
3
4
5
6
S2
S1
J8
J7
R1
10
120
240
A5
46
35

VIEW A-A



32-27
32-21
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4-21
2-22
2-23
2-39
2-30
2-32
2-30
9
8
11.88 REF
A1
A3
A2
A
A
4-38
8-21
4-22
4-23
4-41
4-22
4-21
4-42
4-41
4-21
43
SEE NOTE 6
3
53
4
52
6
7
5
51
33
34
33
34
OFF STRT 1 STRT 2
OFF ALGA
ON
ON
J7 TLO
J8 THI
.09 HIGH SEE NOTE 4
3.62±.06
.50
.06
48
49
50
55
54
36
37
SEE NOTE 5
2-2
1
40
36-19
J2
J1
J3
J9
14
TB2
8-29
8-25
3-24
3-25
3-26
16
17
15
TB1
17

VIEW SHOWN WITH COVER REMOVED

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SOLDER PER ND1002071
3. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 46
4. SERIALIZE PER ND1002023
5. BOND FIND NO.36 OR FIND NO.54 TO FIND NO.1 USING FIND NO. 37
6. ASSEMBLE FIND NO. 41 TO FIND NO.42 USING FIND NO.43
7. QQ-W-343, TYPE S, SOFT COATED (2) AWG SIZE 22
8. AR DENOTES AS REQUIRED

● DENOTES LENGTH IN FEET

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	–	2016384	SCHEMATIC	REF
–	☒	2014123	SCHEMATIC	REF
1	–	MS51957-80	SCREW, PAN HD	55
1	–	1004260-265	PLATE, IDENTIFICATION	54
1	–	2014267-021	COMPONENT BOARD ASSY, A1 & A4	53
1	–	2014262-021	COMPONENT BOARD ASSY, A3	52
1	–	2014260-021	COMPONENT BOARD ASSY, A2	51
1	1	MS15795-810	WASHER, FLAT	50
1	1	MS35338-82	WASHER, LOCK	49
–	1	MS51957-78	SCREW, PAN HD	48
* .05	.05	1006776-21	INSULATION, SLEEVING	47
AR	AR	1006458-004	LACING CORD	46
~~1~~	~~1~~	~~MIL-W-16878/4 E22~~	~~WIRE ELEC, BLK~~	45
* 0.2	0.2	SEE NOTE 7	WIRE, ELECTRICAL	44
AR	AR	MIL-S-22473, GR, HV	SEALING & RETAINING COMPOUND	43
4	4	1006480-005	POST, SPACER	42
8	8	MS51957-28	SCREW, PAN HD	41
1	1	2014433	BRACKET, COMP BOARD	40
2	.2	1006950-1	TERMINAL, RING TONGUE	39
4	4	MS 51957-32	SCREW, PAN HD	38
AR	AR	MIL-A-5092, TYPE II	CEMENT	37
–	1	1004260-234	PLATE, IDENTIFICATION	36
1	1	2014398-011	COMPONENT BOARD ASSY A5	35
2	2	MS35059-23	SWITCH, TOGGLE	34
2	2	MS25224-1	GUARD, TOGGLE SWITCH	33
2	2	MS35179-1094A	CONNECTOR, RECEPTACLE	32
1	1	2014263	BRACKET, COMP BOARD	31
4	4	1020376	INSULATING WASHER	30
8	8	MS 51957-17	SCREW, PAN HD	29
4	4	MS51957-31	SCREW, PAN HD	28
32	32	MS 51957-30	SCREW, PAN HD	27
27	27	MS35337-78	WASHER, LOCK	26
39	39	MS15795-803	WASHER, FLAT	25
31	31	MS 51957-14	SCREW, PAN HD	24
40	40	MS35649-64	NUT, PLAIN, HEX	23
44	44	MS35337-79	WASHER, LOCK	22
56	56	MS15795-805	WASHER, FLAT	21
1	1	2014197-011	WIRING HARNESS G	20
36	36	MS51959-31	SCREW, MACHINE, FLAT	19
16	16	MS51959-44	SCREW, MACHINE, FLAT	18
2	2	1015985-005	CLAMP LOOP	17
1	1	1015985-004	CLAMP LOOP	16
1	1	1006678-3	TERMINAL BOARD	15
1	1	1006678-4	TERMINAL BOARD	14
1	1	1020275	SUPPORT MOUNTING	13
1	1	1020274	SUPPORT MOUNTING	12
1	1	1020273	SUPPORT MOUNTING	11
1	1	2014253	SUPPORT MOUNTING	10
1	1	2014251	SUPPORT MOUNTING	9
1	1	2014250	SUPPORT MOUNTING	8
1	1	1020261	SUPPORT MOUNTING	7
1	1	2014252	SUPPORT MOUNTING	6
–	1	2014260-011	COMPONENT BOARD ASSY A2	5
–	1	2014262-011	COMPONENT BOARD ASSY A3	4
–	1	2014267-011	COMPONENT BOARD ASSY, A1 & A4	3
2	2	1020310	COVER	2
1	1	2014287	WELDED ASSEMBLY	1

LIST OF MATERIALS

2014255		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±	RAYTHEON CO. LEXINGTON, MASS. CONTRACT NO. NAS 9-[illegible] DRAWN DATE 2 JUNE 65 CHECKED C. V. English 2 JUL 65 APPROVAL 23 JULY APPROVAL 8/11/65 APPROVAL NASA APPROVAL MIT APPROVAL 21 Jan 66 MIT APPROVAL	MANNED SPACECRAFT CENTER HOUSTON, TEXAS BUFFER CIRCUIT ASSEMBLY
NEXT ASSY	USED ON	DO NOT SCALE DRAWING		CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014254
APPLICATION		MATERIAL		SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

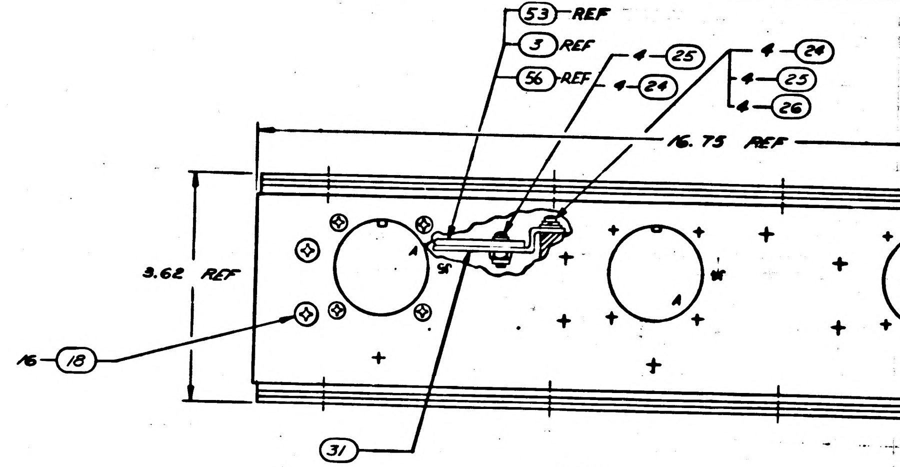
2014254 D 7

2014254 D

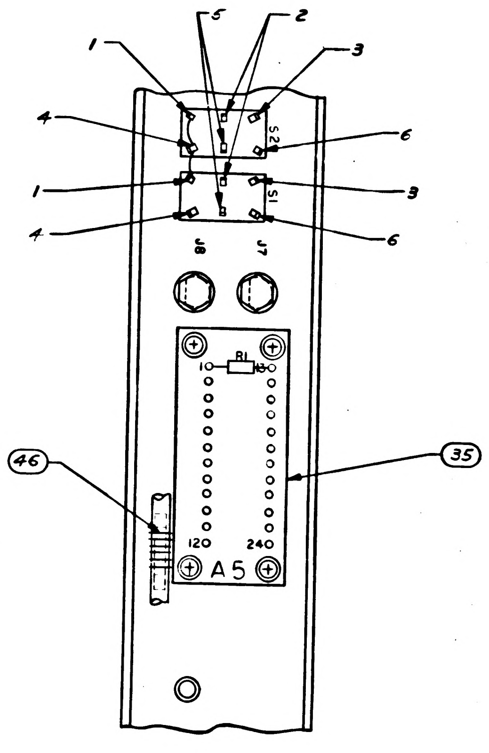
2014254 E

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA 25133	[illegible]	[illegible]
1	CHANGED PER CCA R25307 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25500	[illegible]	[illegible]
A	CHANGED PER CCA R25551 AND CLASS A RELEASED PER TDRR 25478	1/17/66	[illegible]
B	CHANGED PER TDRR 26286 DR P. [illegible] CHK [illegible] APPD [illegible]	2/24/66	[illegible]
C	CHANGED PER TDRR 26287 DR [illegible] CHK [illegible] APPD [illegible]	3/5/66	[illegible]
D	CHANGED PER TDRR 27879 DR [illegible] CHK [illegible] APPD [illegible]	7/66	[illegible]
E	CHANGED PER TDRR 32633 DR [illegible] CHK J.C. APPD	1/25/67	[illegible]

JUMPER LIST					
COND IDENT	FROM	TO	AWG	COLOR	FIND NO.
H1	S2-1	S2-4	22	BUSS	44
H2	S2-4	S1-1	22	BUSS	44 & 47

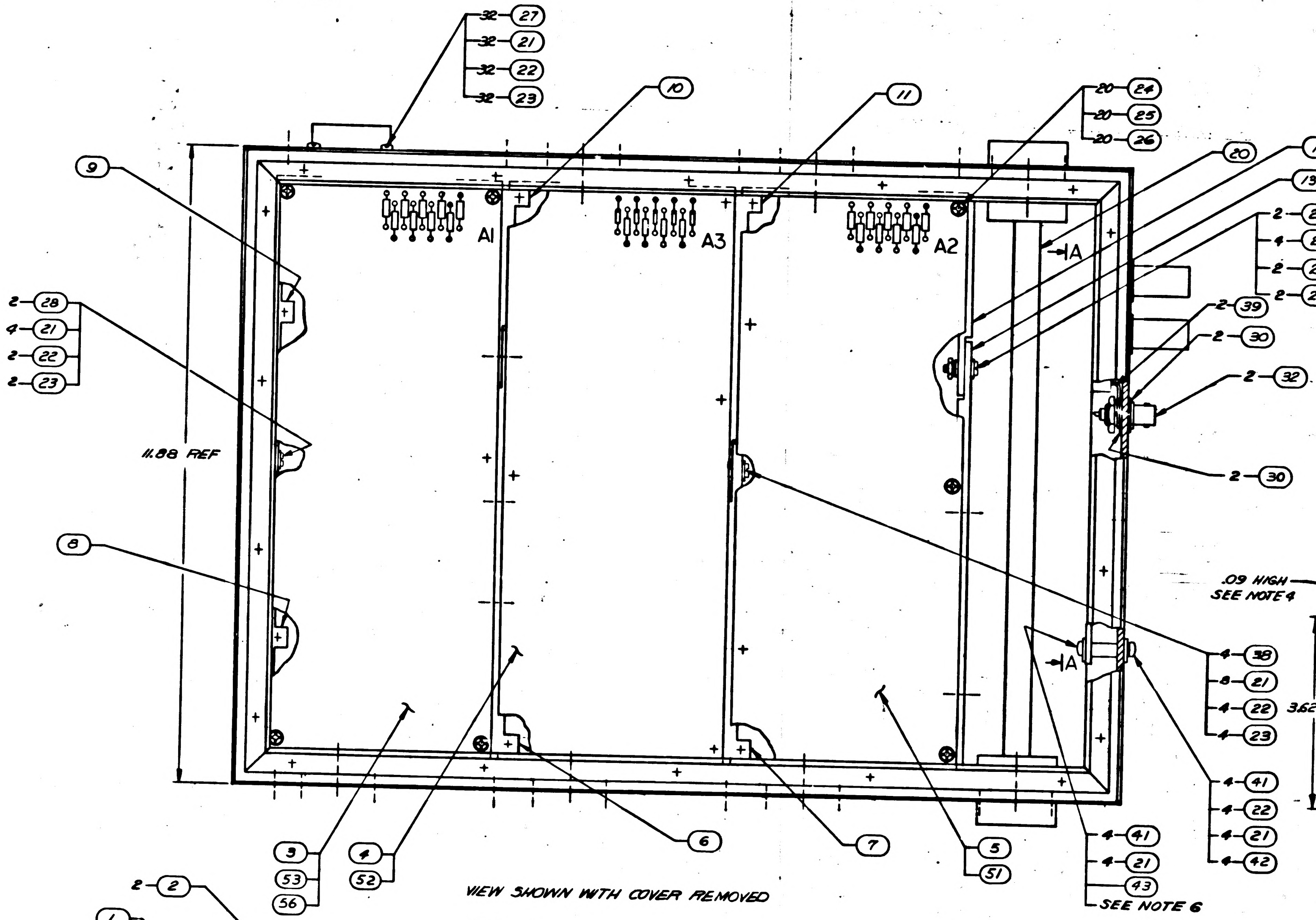


53 REF
3 REF
56 REF
4-25
4-24
4-24
4-25
4-26
16.75 REF
3.62 REF
16-18
31



1
5
2
3
4
6
S2
S1
J8
J7
R1
1
120
240
A5
46
35

VIEW A-A



32-27
32-21
32-22
32-23
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11
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20
12
13
9
A1
A3
A2
2-28
4-21
2-22
2-23
A
2-28
4-21
2-22
2-23
2-39
2-30
2-32
11.88 REF
8
2-30
4-38
8-21
4-22
4-23
A
4-41
4-22
4-21
4-42
3
53
56
4
52
6
7
5
51
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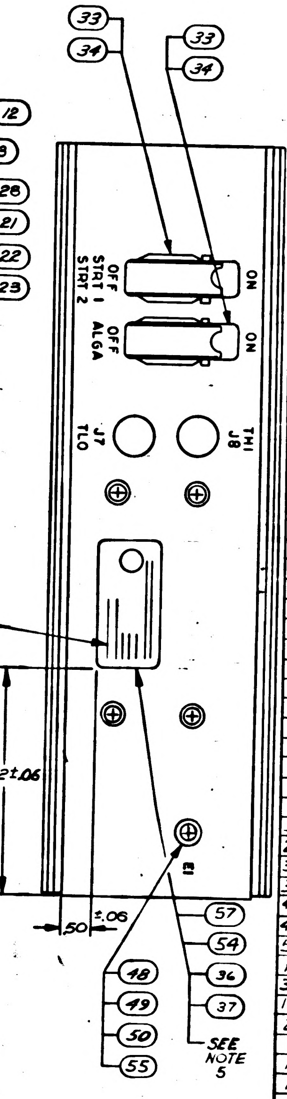
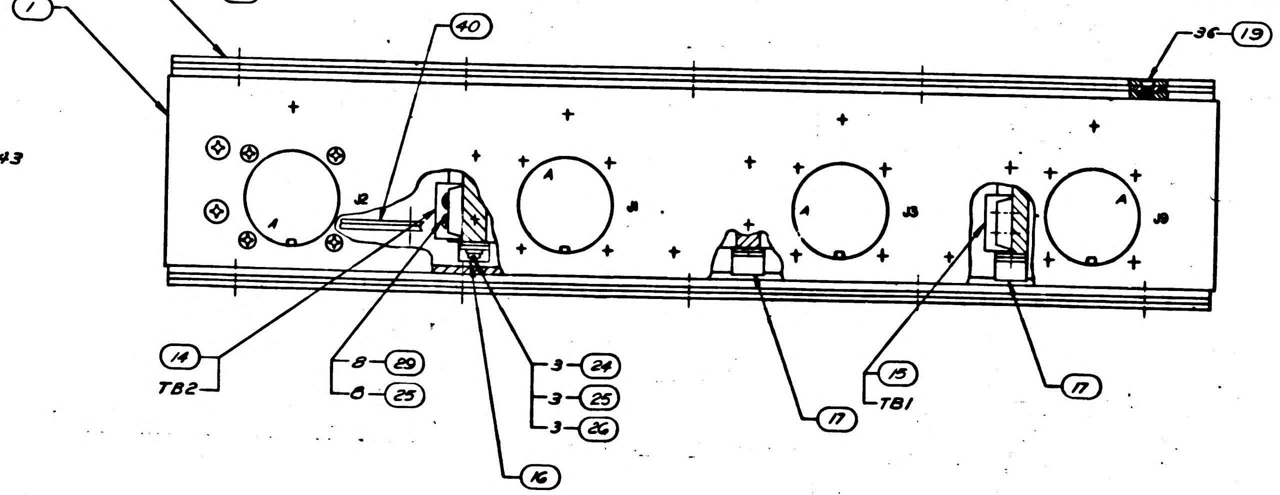
4-21
43
SEE NOTE 6

VIEW SHOWN WITH COVER REMOVED



33
34
33
34
OFF START 1 STRT 2
OFF ALGA
ON
ON
J7 TLO
J8 THI
.09 HIGH SEE NOTE 4
3.62±.06
.50±.06
E1
57
54
36
37
48
49
50
55
SEE NOTE 5



2-2
1
40
36-19
J2
J1
J3
J0
14
TB2
8-29
8-25
3-24
3-25
3-26
16
17
15
TB1
17

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SOLDER PER ND1002071
3. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 46
4. SERIALIZE PER ND1002023
5. BOND FIND NO. 36, 54 OR 57 TO FIND NO. 1 USING FIND NO. 37
6. ASSEMBLE FIND NO. 41 TO FIND NO. 42 USING FIND NO. 43
7. QQ-W-343, TYPE S, SOFT COATED (2) AWG SIZE 22
8. AR DENOTES AS REQUIRED

• DENOTES LENGTH IN FEET

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
X	–	–	2016464	SCHEMATIC	REF
–	X	–	2016384	SCHEMATIC	REF
–	–	X	2014123	SCHEMATIC	REF
1	–	–	1004260-285	NAME PLATE	57
1	–	–	2014767-031	COMPONENT BOARD ASSY, A1 + A4	56
1	1	–	MS51957-80	SCREW, PAN HD	55
–	1	–	1004260-265	PLATE, IDENTIFICATION	54
–	1	–	2014267-021	COMPONENT BOARD ASSY, A1 & A4	53
1	1	–	2014262-021	COMPONENT BOARD ASSY, A3	52
1	1	–	2014260-021	COMPONENT BOARD ASSY, A2	51
1	1	1	MS15795-810	WASHER, FLAT	50
1	1	1	MS35338-82	WASHER, LOCK	49
–	–	1	MS51957-78	SCREW, PAN HD	48
•.05	•.05	•.05	1006776-21	INSULATION, SLEEVING	47
AR	AR	AR	1006458-004	LACING CORD	46
~~1~~	~~1~~	~~1~~	~~MIL-W-16878/4 E22~~	~~WIRE ELEC, BLK~~	~~45~~
•0.2	•0.2	•0.2	SEE NOTE 7	WIRE, ELECTRICAL	44
AR	AR	AR	MIL-S-22473, GR, HV	SEALING & RETAINING COMPOUND	43
4	4	4	1006480-005	POST, SPACER	42
8	8	8	MS51957-28	SCREW, PAN HD	41
1	1	1	2014433	BRACKET, COMP BOARD	40
2	2	.2	1006950-1	TERMINAL, RING TONGUE	39
4	4	4	MS 51957-32	SCREW, PAN HD	38
AR	AR	AR	MIL-A-5092, TYPE II	CEMENT	37
–	–	1	1004260-234	PLATE, IDENTIFICATION	36
1	1	1	2014398-011	COMPONENT BOARD ASSY A5	35
2	2	2	MS35059-23	SWITCH, TOGGLE	34
2	2	2	MS25224-1	GUARD, TOGGLE SWITCH	33
2	2	2	MS35179-1094A	CONNECTOR, RECEPTACLE	32
1	1	1	2014263	BRACKET, COMP BOARD	31
4	4	4	1020376	INSULATING WASHER	30
8	8	8	MS 51957-17	SCREW, PAN HD	29
4	4	4	MS51957-31	SCREW, PAN HD	28
32	32	32	MS 51957-30	SCREW, PAN HD	27
27	27	27	MS35337-78	WASHER, LOCK	26
39	39	39	MS15795-803	WASHER, FLAT	25
31	31	31	MS 51957-14	SCREW PAN HD	24
40	40	40	MS35649-64	NUT, PLAIN, HEX	23
44	44	44	MS35337-79	WASHER, LOCK	22
56	56	56	MS15795-805	WASHER, FLAT	21
1	1	1	2014197-011	WIRING HARNESS G	20
36	36	36	MS51959-31	SCREW, MACHINE, FLAT	19
16	16	16	MS 51959-44	SCREW, MACHINE, FLAT	18
2	2	2	1015985-005	CLAMP LOOP	17
1	1	1	1015985-004	CLAMP LOOP	16
1	1	1	1006678-3	TERMINAL BOARD	15
1	1	1	1006678-4	TERMINAL BOARD	14
1	1	1	1020275	SUPPORT MOUNTING	13
1	1	1	1020274	SUPPORT MOUNTING	12
1	1	1	1020273	SUPPORT MOUNTING	11
1	1	1	2014253	SUPPORT MOUNTING	10
1	1	1	2014251	SUPPORT MOUNTING	9
1	1	1	2014250	SUPPORT MOUNTING	8
1	1	1	1020261	SUPPORT MOUNTING	7
1	1	1	2014252	SUPPORT MOUNTING	6
–	–	1	2014260-011	COMPONENT BOARD ASSY A2	5
–	–	1	2014262-011	COMPONENT BOARD ASSY A3	4
–	–	1	2014267-011	COMPONENT BOARD ASSY, A1 & A4	3
2	2	2	1020310	COVER	2
1	1	1	2014287	WELDED ASSEMBLY	1

LIST OF MATERIALS

2014254 E

NEXT ASSY	USED ON
2014255	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XXX ± DECIMALS .XXXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9 [illegible]
DRAWN [illegible] DATE 2 JUNE 65
CHECKED C. V. English 2 JUL 65
APPROVAL [illegible]
APPROVAL [illegible] 8/11/65
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BUFFER CIRCUIT ASSEMBLY

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014254
SCALE 1/1
WT
SHEET 1 OF 1

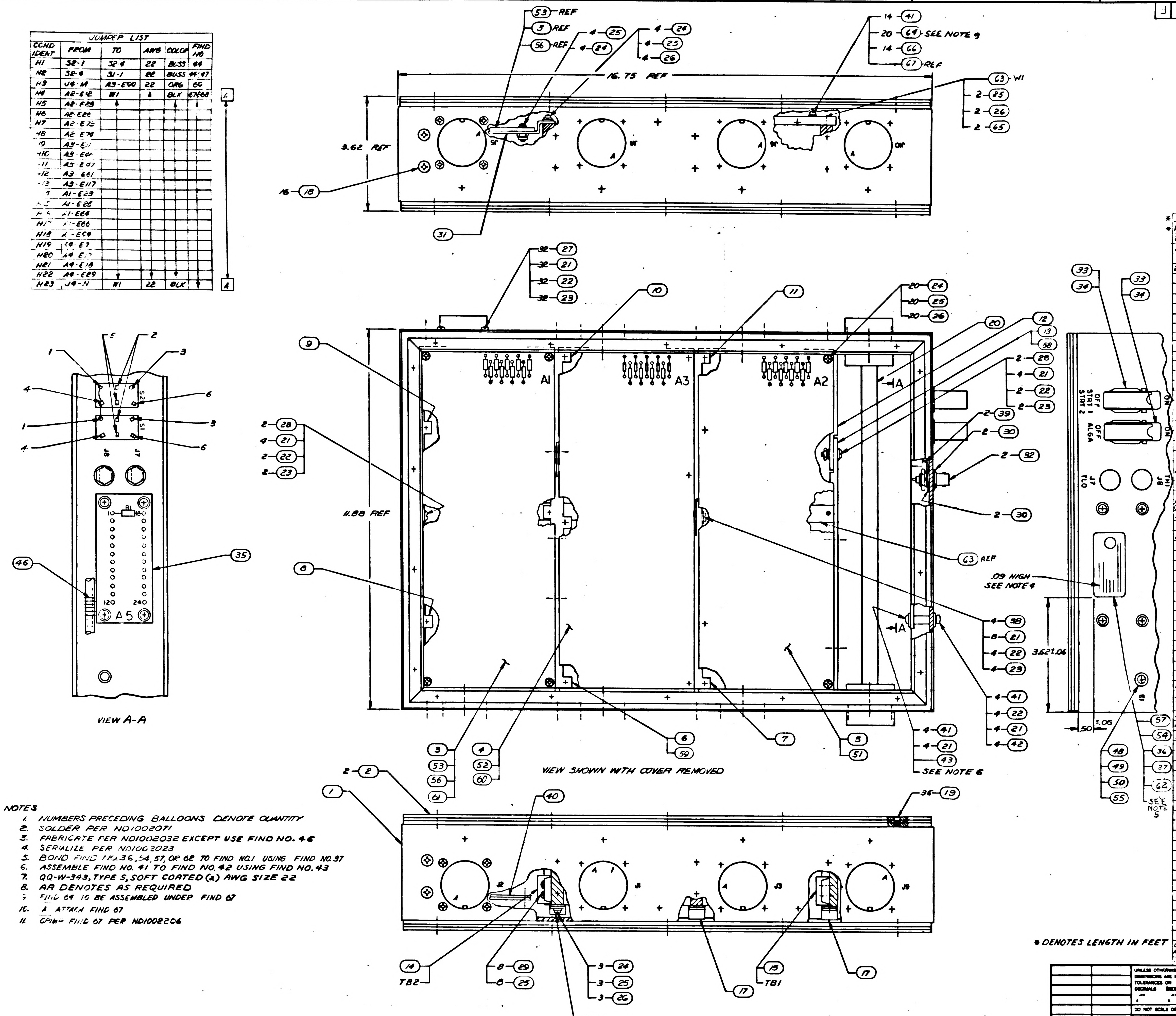
2014254 E

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER [illegible]		
1	CHANGED PER CCA 325307 DR. CHK APPD		
–	CLASS B CHANGED PER CCA R25500		
A	CHANGED PER CCA R25551 AND CLASS A RELEASED PER TDRR 25478		
B	CHANGED PER TDRR 26286 DR P Winfield CHK APPD		
C	CHANGED PER TDRR 26287 DR CHK APPD		
D	CHANGED PER TDRR 27879 DR CHK APPD		
E	CHANGED PER TDRR 32633 DR CHK APPD		
F	CHANGED PER TDRR 35519 DR CHK		

2014254 F

JUMPER LIST					
COND IDENT	FROM	TO	AWG	COLOR	FIND NO
H1	S2-1	S2-4	22	BUSS	44
H2	S2-4	S1-1	22	BUSS	44&47
H3	J4-M	A3-E99	22	ORG	69
H4	A2-E12	W1	▲	BLK	67&68
H5	A2-E29				
H6	A2-E26				
H7	A2-E73				
H8	A2-E79				
H9	A3-E11				
H10	A3-E44				
H11	A3-E47				
H12	A3-E61				
H13	A3-E117				
H14	A1-E29				
H15	A1-E25				
H16	A1-E64				
H17	A1-E66				
H18	A1-E69				
H19	A4-E7				
H20	A4-E17				
H21	A4-E18				
H22	A4-E29				
H23	J4-N	W1	22	BLK	▼


53 REF
3 REF
56 REF
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20-69 SEE NOTE 9
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67 REF
63 W1
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16.75 REF
3.62 REF
16-18
31
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A
A
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2-23
2-39
2-30
2-32
2-30
63 REF
A1
A3
A2
A
A
11.88 REF
8
4-38
8-21
4-22
4-29
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4-21
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3
53
56
61
4
52
60
6
59
7
5
51
4-41
4-21
43
SEE NOTE 6
VIEW SHOWN WITH COVER REMOVED
33
34
33
34
OFF START 2
OFF START 1 ALGA
ON
ON
J7 TLO
J8 TH1
.09 HIGH SEE NOTE 4
3.62±.06
.50
.06
57
54
36
37
62
SEE NOTE 5
48
49
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E1
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4
6
1
3
4
6
S2
S1
J8
J7
R1
10
120
240
A5
46
35
VIEW A-A
2-2
1
40
36-19
J2
J1
J3
J8
14
TB2
8-29
8-25
3-24
3-25
3-26
16
17
15
TB1
17

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SOLDER PER ND1002071
3. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 46
4. SERIALIZE PER ND1002023
5. BOND FIND NO. 36, 54, 57, OR 62 TO FIND NO. 1 USING FIND NO. 37
6. ASSEMBLE FIND NO. 41 TO FIND NO. 42 USING FIND NO. 43
7. QQ-W-343, TYPE S, SOFT COATED (2) AWG SIZE 22
8. AR DENOTES AS REQUIRED
9. FIND 64 TO BE ASSEMBLED UNDER FIND 67
10. A ATTACH FIND 67
11. CRIMP FIND 67 PER ND1002206

* .9	–	–	–	MIL-W-15878/4 E22	WIRE, ELEC ORN	69
* 17.0	–	–	–	MIL-W-15878/4 E22	WIRE, ELEC BLK	68
20	–	–	–	MS25036-1	TERMINAL LUG	67
14	–	–	–	MS35338-136	WASHER, LOCK	66
2	–	–	–	MS51957-16	SCREW, PAN HD	65
20	–	–	–	MS35335-58	WASHER, EXT TOOTH LOCK	64
1	–	–	–	2016496	BUS BAR	63
1	–	–	–	1004260-292	NAME PLATE	62
1	–	–	–	2014267-041	COMPONENT BD ASSY A1 & A4	61
1	–	–	–	2014262-031	COMPONENT BD ASSY A3	60
1	–	–	–	2016500	SUPPORT MOUNTING	59
1	–	–	–	2016501	SUPPORT MOUNTING	58
–	X	–	–	2016502	SCHEMATIC	REF
–	–	X	–	2016384	SCHEMATIC	REF
–	–	–	X	2014123	SCHEMATIC	REF
–	X	–	–	2016464	SCHEMATIC	REF
–	1	–	–	1004260-285	NAME PLATE	57
–	1	–	–	2014267-031	COMPONENT BOARD ASSY, A1 + A4	56
1	1	1	–	MS51957-80	SCREW, PAN HD	55
–	–	1	–	1004260-265	PLATE, IDENTIFICATION	54
–	–	1	–	2014267-021	COMPONENT BOARD ASSY, A1 & A4	53
–	1	1	–	2014262-021	COMPONENT BOARD ASSY, A3	52
1	1	1	–	2014260-021	COMPONENT BOARD ASSY, A2	51
1	1	1	1	MS15795-810	WASHER, FLAT	50
1	1	1	1	MS35338-82	WASHER, LOCK	49
–	–	–	1	MS51957-78	SCREW, PAN HD	48
[illegible]	.05	.05	.05	1006776-21	INSULATION, SLEEVING	47
AR	AR	AR	AR	1006458-004	LACING CORD	46
~~1~~	~~–~~	~~–~~	~~1~~	~~MIL-W-16878/4 E22~~	~~WIRE ELEC, BLK~~	~~45~~
0.2	0.2	0.2	0.2	SEE NOTE 7	WIRE, ELECTRICAL	44
AR	AR	AR	AR	MIL-S-22473, GR, HV	SEALING & RETAINING COMPOUND	43
4	4	4	4	1006480-005	POST, SPACER	42
8	8	8	8	MS51957-28	SCREW, PAN HD	41
	1	1	1	2014433	BRACKET, COMP BOARD	40
2	2	2	2	1006950-1	TERMINAL, RING TONGUE	39
4	4	4	4	MS51957-32	SCREW, PAN HD	38
AR	AR	AR	AR	MIL-A-5092, TYPE II	CEMENT	37
	–	–	1	1004260-234	PLATE, IDENTIFICATION	36
1	1	1	1	2014398-011	COMPONENT BOARD ASSY A5	35
2	2	2	2	MS35059-23	SWITCH, TOGGLE	34
2	2	2	2	MS25224-1	GUARD, TOGGLE SWITCH	33
2	2	2	2	MS35179-1094A	CONNECTOR, RECEPTACLE	32
	1	1	1	2014263	BRACKET, COMP BOARD	31
4	4	4	4	1020376	INSULATING WASHER	30
8	8	8	8	MS51957-17	SCREW, PAN HD	29
4	4	4	4	MS51957-31	SCREW, PAN HD	28
32	32	32	32	MS51957-30	SCREW, PAN HD	27
27	27	27	27	MS35337-78	WASHER, LOCK	26
[illegible]	39	39	39	MS15795-803	WASHER, FLAT	25
31	31	31	31	MS51957-14	SCREW, PAN HD	24
40	40	40	40	MS35649-64	NUT, PLAIN, HEX	23
44	44	44	44	MS35337-79	WASHER, LOCK	22
56	56	56	56	MS15795-805	WASHER, FLAT	21
1	1	1	1	2014137-011	WIRING HARNESS 3	20
36	36	36	36	MS51959-31	SCREW, MACHINE, FLAT	19
16	16	16	16	MS51959-44	SCREW, MACHINE, FLAT	18
2	2	2	2	1015985-005	CLAMP LOOP	17
1	1	1	1	1015985-004	CLAMP LOOP	16
1	1	1	1	1006678-3	TERMINAL BOARD	15
1	1	1	1	1006678-4	TERMINAL BOARD	14
–	1	1	1	1020275	SUPPORT MOUNTING	13
1	1	1	1	1020274	SUPPORT MOUNTING	12
1	1	1	1	1020273	SUPPORT MOUNTING	11
1	1	1	1	2014253	SUPPORT MOUNTING	10
1	1	1	1	2014251	SUPPORT MOUNTING	9
1	1	1	1	2014250	SUPPORT MOUNTING	8
1	1	1	1	1020261	SUPPORT MOUNTING	7
–	1	1	1	2014252	SUPPORT MOUNTING	6
–	–	–	1	2014260-011	COMPONENT BOARD ASSY A2	5
–	–	–	1	2014262-011	COMPONENT BOARD ASSY A3	4
–	–	–	1	2014267-011	COMPONENT BOARD ASSY, A1 & A4	3
2	2	2	2	1020310	COVER	2
1	1	1	1	2014287	WELDED ASSEMBLY	1
QTY REQD	QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-041	-031	-021	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014255	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO
DRAWN DATE 2 JUNE 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BUFFER CIRCUIT ASSEMBLY

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014254
SCALE 1/1 WT SHEET 1 OF 1

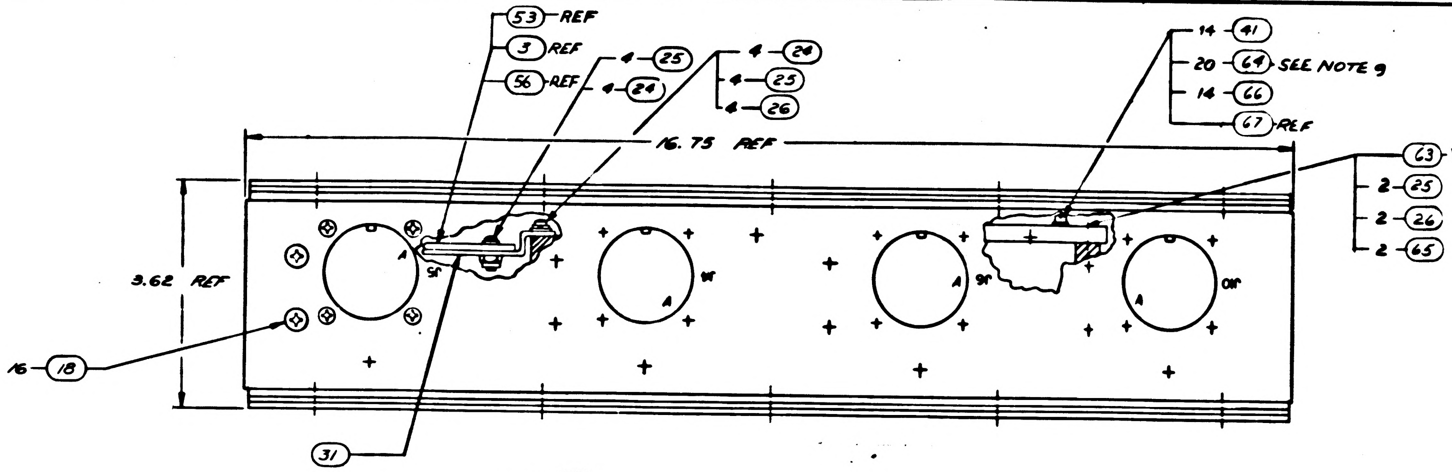
MASTER

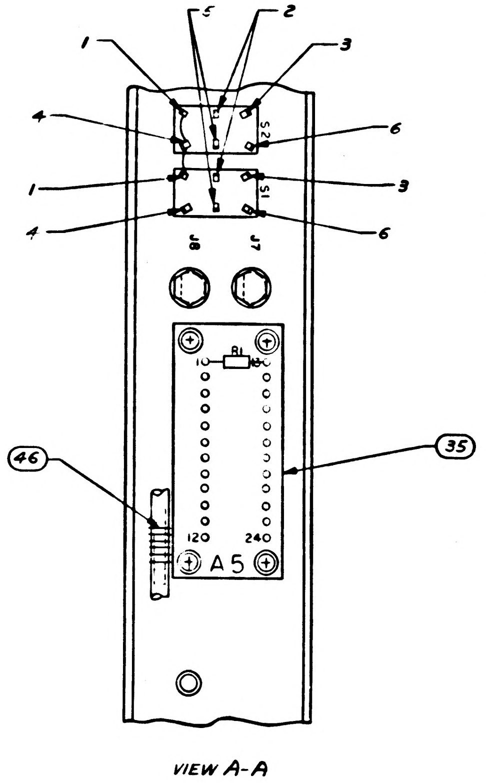
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014254 F

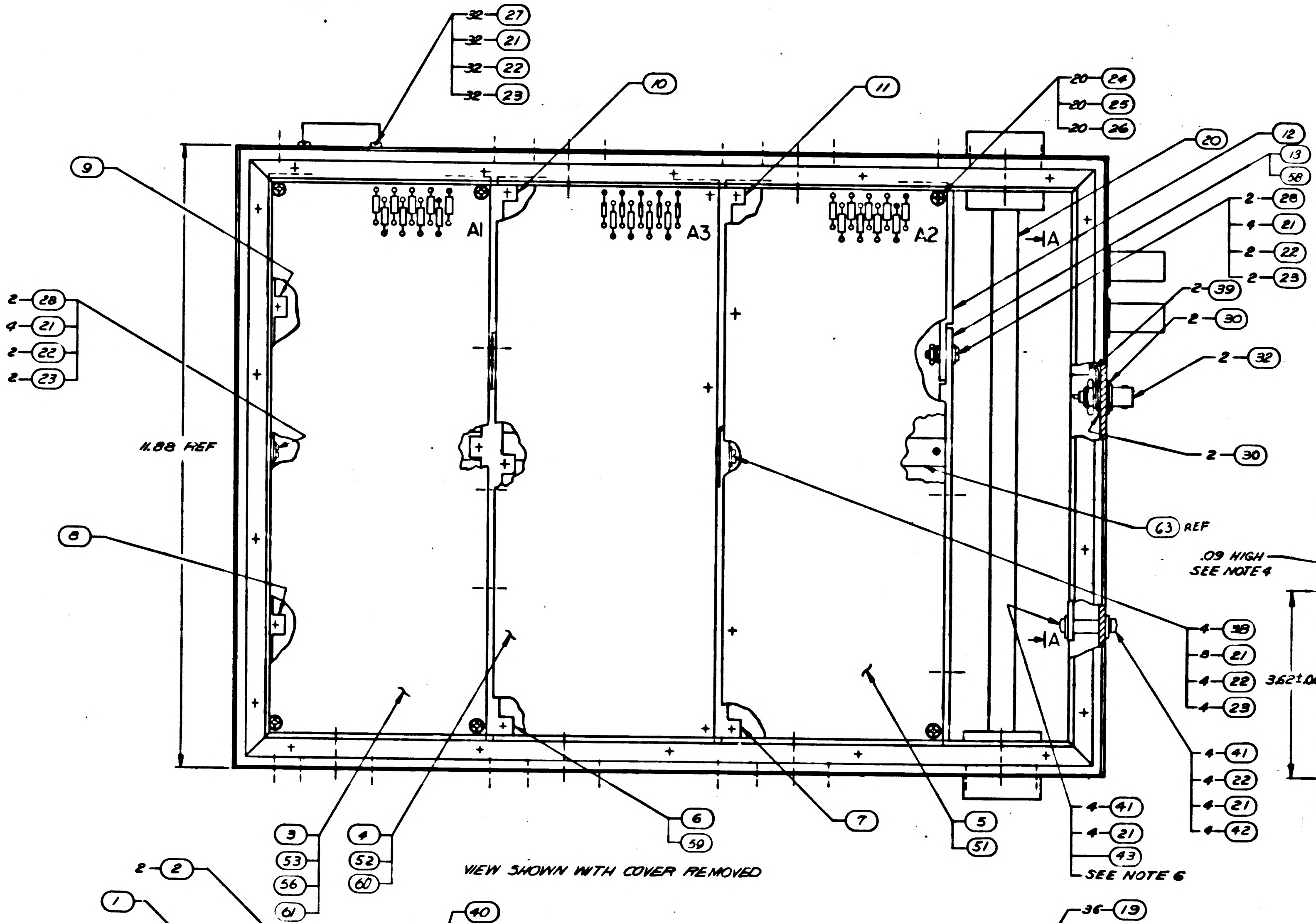
2014254 G

JUMPER LIST					
COND IDENT	FROM	TO	AWG	COLOR	FIND NO
H1	S2-1	S2-4	22	BUSS	44
H2	S2-4	S1-1	22	BUSS	44&47
H3	J4-M	A3-E99	22	ORG	69
H4	A2-E12	W1	↑	BLK	67&68
H5	A2-E29	↑		↑	↑
H6	A2-E24				
H7	A2-E75				
H8	A2-E79				
H9	A3-E11				
H10	A3-E4				
H11	A3-E47				
H12	A3-E61				
H13	A3-E117				
H14	A1-E23				
H15	A1-E25				
H16	A1-E24				
H17	A1-E66				
H18	A1-E94				
H19	A4-E7				
H20	A4-E17				
H21	A4-E18				
H22	A4-E29	↓	↓	↓	
H23	J4-N	W1	22	BLK	↓


53 REF
3 REF
56 REF
4-25
4-24
4-24
4-25
4-26
16.75 REF
14-41
20-64 SEE NOTE 9
14-66
67 REF
63 W1
2-25
2-26
2-65
3.62 REF
16-18
31
J5
J4
J2
J10


5
2
1
3
4
6
1
3
4
6
S2
S1
J8
J7
R1
120
240
A5
46
35

VIEW A-A


32-27
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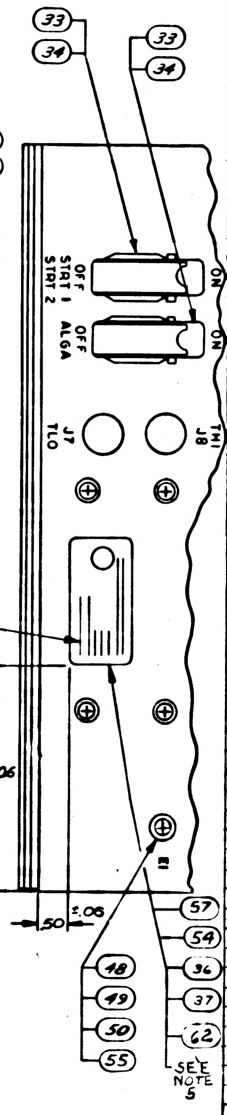
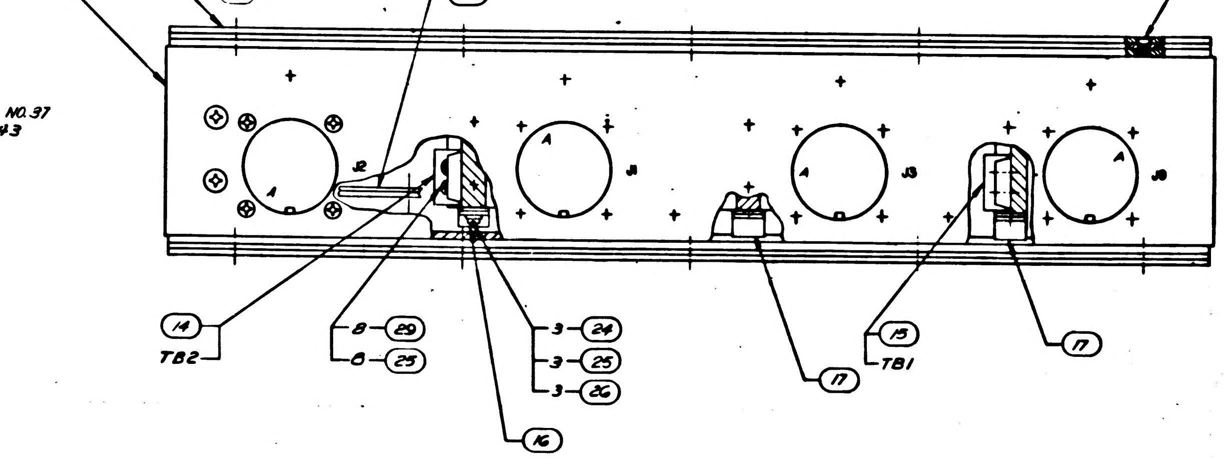
32-22
32-23
10
11
20-24
20-25
20-26
20
12
13
58
2-28
4-21
2-22
2-23
9
2-28
4-21
2-22
2-23
A1
A3
A2
A
39
2-30
2-32
2-30
11.88 REF
8
63 REF
4-38
8-21
4-22
4-23
A
4-41
4-22
4-21
4-42
3
53
56
61
4
52
60
6
59
7
5
51
4-41
4-21
43
SEE NOTE 6

VIEW SHOWN WITH COVER REMOVED


33
34
33
34
OFF START 2
OFF ALGA
ON
ON
J7 TLO
J8 TMI
.09 HIGH SEE NOTE 4
3.62±.06
.50±.06
57
54
36
37
62
SEE NOTE 5
48
49
50
55


2-2
1
40
36-19
J2
J1
J3
J9
14
TB2
8-29
8-25
3-24
3-25
3-26
16
17
15
TB1
17

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SOLDER PER ND1002071
3. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 46
4. SERIALIZE PER ND1002023
5. BOND FIND NO. 36, 54, 57, OR 62 TO FIND NO. 1 USING FIND NO. 37
6. ASSEMBLE FIND NO. 41 TO FIND NO. 42 USING FIND NO. 43
7. QQ-W-343, TYPE S, SOFT COATED (2) AWG SIZE 22
8. AR DENOTES AS REQUIRED
9. FIND 64 TO BE ASSEMBLED UNDER FIND 67
10. A ATTACH FIND 67
11. CRIMP FIND 67 PER ND1002206

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
–	RELEASED PER [illegible]		
1	CHANGED PER CCA R25307 DR [illegible] CHK [illegible] APPD [illegible]		
–	CLASS B CHANGED PER CCA R25500		
A	CHANGED PER CCA R25551 AND CLASS A RELEASED PER TDRR 25478		
B	CHANGED PER TDRR 26286 DR P [illegible] CHK [illegible] APPD [illegible]	/66	
C	CHANGED PER TDRR 25287 DR [illegible] CHK [illegible] APPD		
D	CHANGED PER TDRR 27679 DR [illegible] CHK [illegible] APPD [illegible]		
E	CHANGED PER TDRR 32633 DR [illegible] CHK G.C. APPD	/67	
F	CHANGED PER TDRR 35538 DR [illegible] CHK [illegible]	4/10/68	
G	CHANGED PER TDRR 35703 DR [illegible] CHK [illegible]	68	

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*.9	–	–	–	MIL-W-15878/4 E22	WIRE, ELEC ORN	69
*17.0	–	–	–	MIL-W-15878/4 E22	WIRE, ELEC BLK	68
20	–	–	–	MS25036-1	TERMINAL LUG	67
14	–	–	–	MS35338-136	WASHER, LOCK	66
2	–	–	–	MS51957-16	SCREW, PAN HD	65
20	–	–	–	MS35335-58	WASHER, EXT TOOTH LOCK	64
1	–	–	–	2016490	BUS BAR	63
1	–	–	–	1004260-292	NAME PLATE	62
1	–	–	–	2014267-041	COMPONENT BD ASSY A1 & A4	61
1	–	–	–	2014262-031	COMPONENT BD ASSY A3	60
1	–	–	–	2016500	SUPPORT MOUNTING	59
1	–	–	–	2016501	SUPPORT MOUNTING	58
–	☒	–	–	2016802	SCHEMATIC	REF
–	–	☒	–	2016384	SCHEMATIC	REF
–	–	–	☒	2014123	SCHEMATIC	REF
–	☒	–	–	2016464	SCHEMATIC	REF
–	1	–	–	1004260-285	NAME PLATE	57
–	1	–	–	2014267-031	COMPONENT BOARD ASSY, A1 + A4	56
1	1	1	–	MS51957-80	SCREW, PAN HD	55
–	–	1	–	1004260-265	PLATE, IDENTIFICATION	54
–	–	1	–	2014267-021	COMPONENT BOARD ASSY, A1 & A4	53
–	1	1	–	2014262-021	COMPONENT BOARD ASSY, A3	52
1	1	1	–	2014260-021	COMPONENT BOARD ASSY, A2	51
1	1	1	1	MS15795-810	WASHER, FLAT	50
1	1	1	1	MS35338-82	WASHER, LOCK	49
–	–	–	1	MS51957-78	SCREW, PAN HD	48
*.05	*.05	*.05	*.05	1006776-21	INSULATION, SLEEVING	47
AR	AR	AR	AR	1006458-004	LACING CORD	46
~~1~~	~~1~~	~~1~~	~~1~~	~~MIL-W-16878/4 E22~~	~~WIRE ELEC, BLK~~	~~45~~
*0.2	*0.2	*0.2	*0.2	SEE NOTE 7	WIRE, ELECTRICAL	44
AR	AR	AR	AR	MIL-S-22473, GR, HV	SEALING & RETAINING COMPOUND	43
4	4	4	4	1006480-005	POST, SPACER	42
2	8	8	8	MS51957-28	SCREW, PAN HD	41
1	1	1	1	2014433	BRACKET, COMP BOARD	40
2	2	2	2	1006950-1	TERMINAL, RING TONGUE	39
4	4	4	4	MS51957-32	SCREW, PAN HD	38
AR	AR	AR	AR	MIL-A-5092, TYPE II	CEMENT	37
–	–	–	1	1004260-234	PLATE, IDENTIFICATION	36
1	1	1	1	2014398-011	COMPONENT BOARD ASSY A5	35
2	2	2	2	MS35059-23	SWITCH, TOGGLE	34
2	2	2	2	MS25224-1	GUARD, TOGGLE SWITCH	33
2	2	2	2	MS35179-1094A	CONNECTOR, RECEPTACLE	32
	1	1	1	2014263	BRACKET, COMP BOARD	31
–	4	4	4	1020376	INSULATING WASHER	30
8	8	8	8	MS51957-17	SCREW, PAN HD	29
4	4	4	4	MS51957-31	SCREW, PAN HD	28
32	32	32	32	MS51957-30	SCREW, PAN HD	27
29	27	27	27	MS35337-78	WASHER, LOCK	26
41	39	39	39	MS15795-803	WASHER, FLAT	25
31	31	31	31	MS51957-14	SCREW, PAN HD	24
40	40	40	40	MS35649-64	NUT, PLAIN, HEX	23
44	44	44	44	MS35337-79	WASHER, LOCK	22
56	56	56	56	MS15795-805	WASHER, FLAT	21
1	1	1	1	2014197-011	WIRE HARNESS 3	20
36	36	36	36	MS51959-31	SCREW, MACHINE, FLAT	19
16	16	16	16	MS51959-44	SCREW, MACHINE, FLAT	18
2	2	2	2	1015985-005	CLAMP LOOP	17
1	1	1	1	1015985-004	CLAMP LOOP	16
	1	1	1	1006678-3	TERMINAL BOARD	15
1	1	1	1	1006678-4	TERMINAL BOARD	14
–	1	1	1	1020275	SUPPORT MOUNTING	13
1	1	1	1	1020274	SUPPORT MOUNTING	12
1	1	1	1	1020273	SUPPORT MOUNTING	11
1	1	1	1	2014253	SUPPORT MOUNTING	10
1	1	1	1	2014251	SUPPORT MOUNTING	9
1	1	1	1	2014250	SUPPORT MOUNTING	8
1	1	1	1	1020261	SUPPORT MOUNTING	7
–	1	1	1	2014252	SUPPORT MOUNTING	6
–	–	–	1	2014260-011	COMPONENT BOARD ASSY A2	5
–	–	–	1	2014262-011	COMPONENT BOARD ASSY A3	4
–	–	–	1	2014267-011	COMPONENT BOARD ASSY, A1 & A4	3
2	2	2	2	1020310	COVER	2
1	1	1	1	2014287	WELDED ASSEMBLY	1

LIST OF MATERIALS

● DENOTES LENGTH IN FEET

2014255	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO
DRAWN [illegible] DATE 2 JUNE 65
CHECKED [illegible]
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BUFFER CIRCUIT ASSEMBLY

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014254
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014254 G

2014255 F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
F	CLASS A RELEASED PER TDRR 26632	2/23/66	W.C.

NOTE

1. THIS KIT IS USED DURING G & N TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2014359, 2014360 & 2014460
2. SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014255

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014360	AGC/GSE INTERCONN BLK-I-100	REF
☒	2014359	AGC/GSE INTERCONN BLK II	REF
☒	2014460	AGC/GSE INTERCONN LEM	REF
~~1~~	~~MS16995-48~~	~~SCREW, SOCKET HEAD~~	~~16~~
~~1~~	~~MS15795-310~~	~~WASHER, FLAT~~	~~15~~
1	2016334-011	AGC/PSA/SC ADAPTER ASSY	14
2	UG306 A/U	ADAPTER RT ANGLE, BNC	13
1	2014254-011	BUFFER CIRCUIT ASSY	12
1	2014392-011	SELF TEST ASSY	11
1	2014482-011	CABLE ASSY W234	10
1	2016360-011	W265	9
1	2014483-011	W233	8
1	2014470-011	W259	7
1	2014137-011	W226	6
1	2014484-011	W232	5
1	2014462-031	W239	4
1	2014462-021	W238	3
1	2014462-011	W237	2
1	2014463-011	CABLE ASSY W236	1
-011	LIST OF MATERIALS		

FINAL	1900030
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B. Fuller DATE 22 Feb 66
CHECKED K. Clouthier 23 Feb 66
APPROVAL 2/23/66
APPROVAL D. O'Bryant 2/23/66
APPROVAL 2/23/66
NASA APPROVAL C. METZGER
MIT APPROVAL W. Ruffer 2/23/66
MIT APPROVAL 2/23/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC/GSE INTERCONNECTION SET G & N TEST

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014255
SCALE NONE
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014255 F

2014255 G

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
F	CLASS A RELEASED PER TDRR 26632	2/23/66	
G	CHANGED PER TDRR 27876 DR CHKC. APPD	19 May '66	

NOTE

1. SET(2014255-011) IS USED DURING G & N TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2014359, 2014360 & 2014460
2. SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014255
3. SET(2014255-021) IS USED DURING G & N TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2016405, 2016417 AND 2016418

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2016405	AGC/GSE INTERCONN LEM	REF.
1	—	2014254-021	BUFFER CIRCUIT ASSY	17
☒	☒	2014360	AGC/GSE INTERCONN BLK-I-100	REF.
☒	☒	2014359	AGC/GSE INTERCONN BLK II	REF.
—	☒	2014460	AGC/GSE INTERCONN LEM	REF.
~~—~~	~~1~~	~~MS16995-48~~	~~SCREW, SOCKET HEAD~~	~~16~~
~~—~~	~~1~~	~~MS15795-810~~	~~WASHER, FLAT~~	~~15~~
1	1	2016334-011	AGC/PSA/SC ADAPTER ASSY	14
2	2	U6306 A/U	ADAPTER RT ANGLE, BNC	13
—	1	2014254-011	BUFFER CIRCUIT ASSY	12
1	1	2014392-011	SELF TEST ASSY	11
1	1	2014482-011	CABLE ASSY W234	10
1	1	2016360-011	W265	9
1	1	2014483-011	W233	8
1	1	2014470-011	W259	7
1	1	2014137-011	W226	6
1	1	2014484-011	W232	5
1	1	2014462-031	W239	4
1	1	2014462-021	W238	3
1	1	2014462-011	W237	2
1	1	2014463-011	CABLE ASSY W236	1

LIST OF MATERIALS

FINAL	1900030
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 22 Feb 66
CHECKED 23 Feb 66
APPROVAL 2/23/66
APPROVAL 2/23/66
APPROVAL 2/23/66
NASA APPROVAL B. C. METZGER
MIT APPROVAL 2/23/66
MIT APPROVAL 2/23/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC/GSE INTERCONNECTION SET
G & N TEST

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014255
SCALE NONE
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014255 G

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
F	CLASS A RELEASED PER TDRR 26632	2/23/66	WK
G	CHANGED PER TDRR 27876 DR [illegible] CHK C. [illegible] APPD [illegible]	9 May 66	[illegible]
H	CHANGED PER TDRR 30570 DR J.P. Leonard CHK G. [illegible] APPD [illegible]	8/30/66	[illegible]

NOTE
1. SET(2014255-011) IS USED DURING G&N TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2014359, 2014360 & 2014460
2. SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014255
3. SET(2014255-021) IS USED DURING G&N TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2016405, 2016417 AND 2016418
4. SET(2014255-031) IS USED DURING G&N TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWG 2016405, 2016417 & 2016418

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	–	–	2014137-021	CABLE ASSY W226	18
☒	☒	–	2016418	AGC/GSE INTERCONN BLK I (100)	REF
☒	☒	–	2016417	AGC/GSE INTERCONN BLK II	
☒	☒	–	2016405	AGC/GSE INTERCONN LEM	REF
1	1	–	2014254-021	BUFFER CIRCUIT ASSY	17
–	☒	☒	2014360	AGC/GSE INTERCONN BLK-I-100	REF
–	☒	☒	2014359	AGC/GSE INTERCONN BLK II	REF
–	–	☒	2014460	AGC/GSE INTERCONN LEM	REF
–	–	~~1~~	~~MS16995-48~~	~~SCREW, SOCKET HEAD~~	~~16~~
–	–	~~1~~	~~MS15795-810~~	~~WASHER, FLAT~~	~~15~~
1	1	1	2016334-011	AGC/PSA/SC ADAPTER ASSY	14
2	2	2	UG306 A/U	ADAPTER RT ANGLE, BNC	13
–	–	1	2014254-011	BUFFER CIRCUIT ASSY	12
1	1	1	2014392-011	SELF TEST ASSY	11
1	1	1	2014482-011	CABLE ASSY W234	10
1	1	1	2016360-011	W265	9
1	1	1	2014483-011	W233	8
1	1	1	2014470-011	W259	7
–	1	1	2014137-011	W226	6
1	1	1	2014484-011	W232	5
1	1	1	2014462-031	W239	4
1	1	1	2014462-021	W238	3
1	1	1	2014462-011	W237	2
1	1	1	2014463-011	CABLE ASSY W236	1

LIST OF MATERIALS

FINAL	1900030
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Fuller DATE 22 Feb 66
CHECKED [illegible] 23 Feb 66
APPROVAL [illegible]
APPROVAL D.D. Bryant [illegible]
APPROVAL [illegible] 2/23/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL W. Ruffer 2/23/66
MIT APPROVAL [illegible] 2/23/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC/GSE INTERCONNECTION SET
G & N TEST

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014255
SCALE NONE
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014255 H

2014255 J

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
F	CLASS A RELEASED PER TDRR 26632	2/23/66	W.K.
G	CHANGED PER TDRR 27876 DR CHK C. DeGreenia APPD	19 May 66	
H	CHANGED PER TDRR 30570 DR J.P. Leonard CHK A. Kupfer APPD	8/30/66	
J	CHANGED PER TDRR 32632 DR R.A. CHK J.C. APPD	1/25/67	

NOTE

1. SET (2014255-011) IS USED DURING G & N TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2014359, 2014360 & 2014460
2. SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014255
3. SET (2014255-021) IS USED DURING G & N TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2016405, 2016417 AND 2016418
4. SET (2014255-031 & 041) IS USED DURING G & N TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWG 2016405, 2016417 & 2016418

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	—	—	—	2014254-031	BUFFER CIRCUIT ASSY	19
1	1	—	—	2014137-021	CABLE ASSY W226	18
☒	☒	☒	—	2016418	AGC/GSE INTERCONN BLK I (100)	REF
☒	☒	☒	—	2016417	AGC/GSE INTERCONN BLK II	
☒	☒	☒	—	2016405	AGC/GSE INTERCONN LEM	REF
—	1	1	—	2014254-021	BUFFER CIRCUIT ASSY	17
—	—	☒	☒	2014360	AGC/GSE INTERCONN BLK I-100	REF
—	—	☒	☒	2014359	AGC/GSE INTERCONN BLK II	REF
—	—	—	☒	2014460	AGC/GSE INTERCONN LEM	REF
~~—~~	~~—~~	~~—~~	~~1~~	~~[illegible]~~	~~SCREW, SOCKET HEAD~~	~~16~~
~~—~~	~~—~~	~~—~~	~~1~~	~~[illegible]~~	~~WASHER, FLAT~~	~~15~~
1	1	1	1	2016334-011	AGC/PSA/SC ADAPTER ASSY	14
2	2	2	2	UG306 A/U	ADAPTER RT ANGLE, BNC	13
—	—	—	1	2014254-011	BUFFER CIRCUIT ASSY	12
1	1	1	1	2014392-011	SELF TEST ASSY	11
1	1	1	1	2014482-011	CABLE ASSY W234	10
1	1	1	1	2016360-011	W265	9
1	1	1	1	2014483-011	W233	8
1	1	1	1	2014470-011	W259	7
—	—	1	1	2014137-011	W226	6
1	1	1	1	2014484-011	W232	5
1	1	1	1	2014462-031	W239	4
1	1	1	1	2014462-021	W238	3
1	1	1	1	2014462-011	W237	2
1	1	1	1	2014463-011	CABLE ASSY W236	1

LIST OF MATERIALS

FINAL	1900030
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Fuller DATE 22 Feb 66
CHECKED K Clouthier 23 Feb 66
APPROVAL 2/23/66
APPROVAL D D'Bryant 2/23/66
APPROVAL 2/23/66
NASA APPROVAL L. C. METZGER
MIT APPROVAL W Kupfer 2/23/66
MIT APPROVAL A Laroria 2/23/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC/GSE INTERCONNECTION SET
G & N TEST

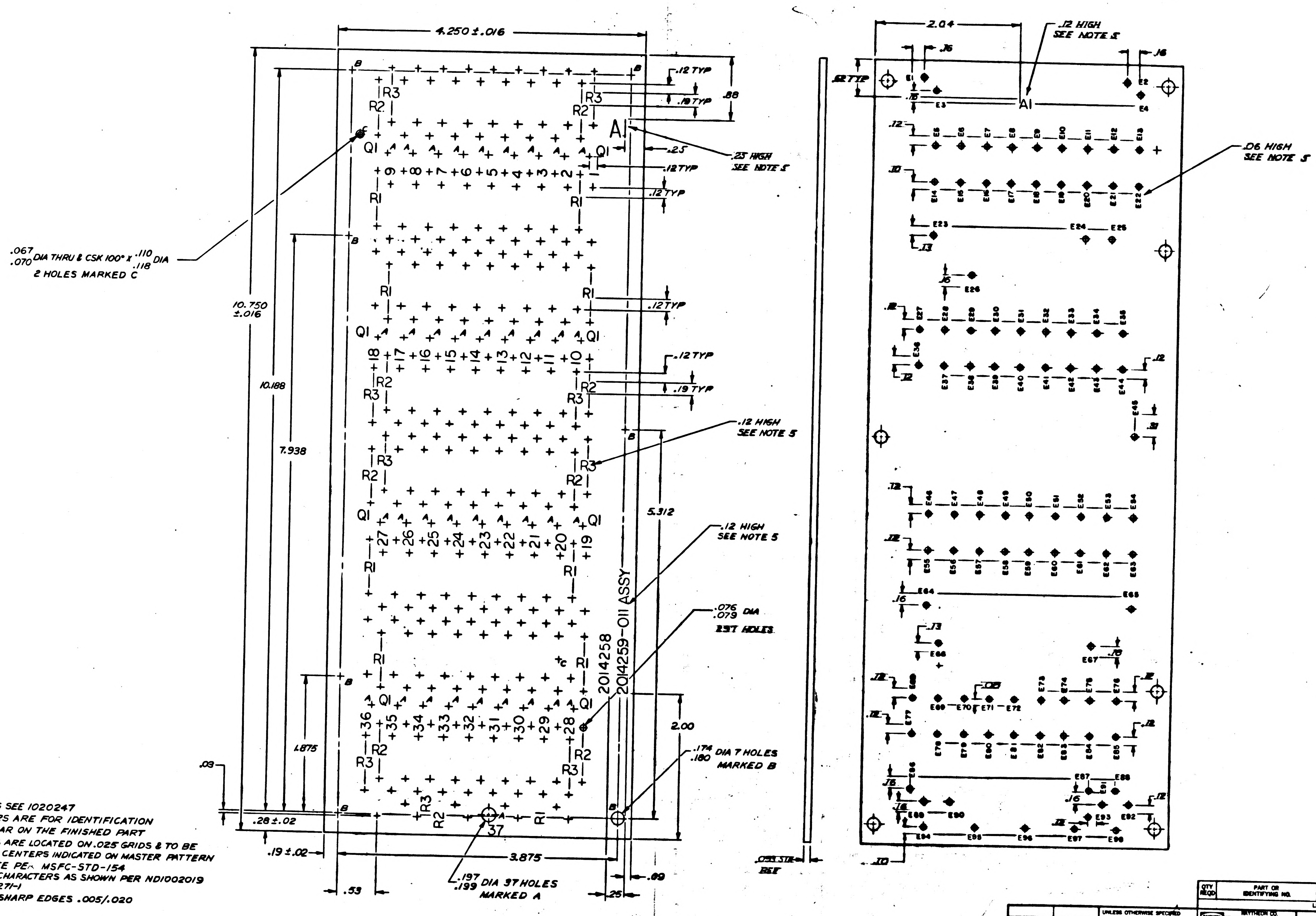
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	D	2014255

SCALE NONE WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014258 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25191	9/17/65	B Harano
—	CLASS B NO CHANGE PER CCA R25500		
A	CHANGED PER CCA R25665 AND CLASS A RELEASED PER TDRR 25478	1/66	


4.250 ±.016
.12 TYP
.19 TYP
.88
.25
.23 HIGH SEE NOTE 5
.12 TYP
.12 TYP
.067/.070 DIA THRU & CSK 100° x .110/.118 DIA 2 HOLES MARKED C
10.750 ±.016
10.188
7.938
5.312
2.00
1.875
.03
.28 ±.02
.19 ±.02
3.875
.53
.25
.09
.12 HIGH SEE NOTE 5
.12 HIGH SEE NOTE 5
.076/.079 DIA 237 HOLES
.174/.180 DIA 7 HOLES MARKED B
.197/.199 DIA 37 HOLES MARKED A
A1
2014258
2014259-011 ASSY
R1
R2
R3
Q1
37
2.04
.12 HIGH SEE NOTE 5
.06 HIGH SEE NOTE 5
.062 STK REF
.10
.12
.16
.13
.18
E1
E98

NOTES

1. FOR MASTER DRAWING SEE 1020247
2. HOLE SYMBOL LETTERS ARE FOR IDENTIFICATION ONLY AND DO NOT APPEAR ON THE FINISHED PART
3. UNDIMENSIONED HOLES ARE LOCATED ON .025 GRIDS & TO BE WITHIN ⊕ .028DIA OF CENTERS INDICATED ON MASTER PATTERN
4. TIN PLATE & FABRICATE PER MSFC-STD-154
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. REMOVE BURRS AND SHARP EDGES .005/.020

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014259	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING

MATERIAL
FL-GE 093C2 CLASS II PER MIL-P-13949

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 7 SEP 65
CHECKED R K 10 SEP 65
APPROVAL 9-16-65
APPROVAL 9/16/65
APPROVAL 9/16/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD A1
BUFFER CIRCUIT

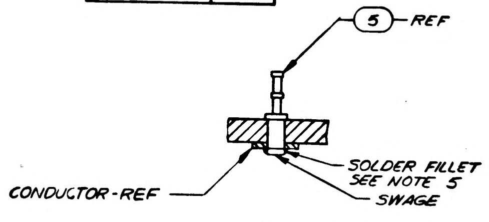
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014258
SCALE 2/1
WT
SHEET 1 OF 1

2014258 A

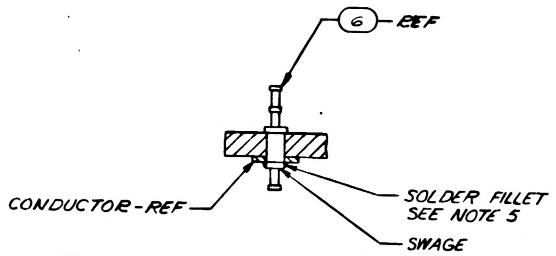
2014258 A

BUFFER CIRCUIT
CIRCUIT SUFFIX NO.'S 1 THRU 37

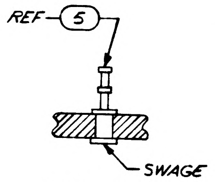
REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
Q1-1 THRU Q1-37	7
R1-1 THRU R1-37	2
R2-1 THRU R2-37	3
R3-1 THRU R3-37	4


5 REF
SOLDER FILLET SEE NOTE 5
SWAGE
CONDUCTOR-REF

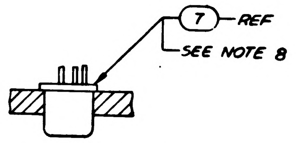
SECTION A-A
SCALE 4/1


6 REF
SOLDER FILLET SEE NOTE 5
SWAGE
CONDUCTOR-REF

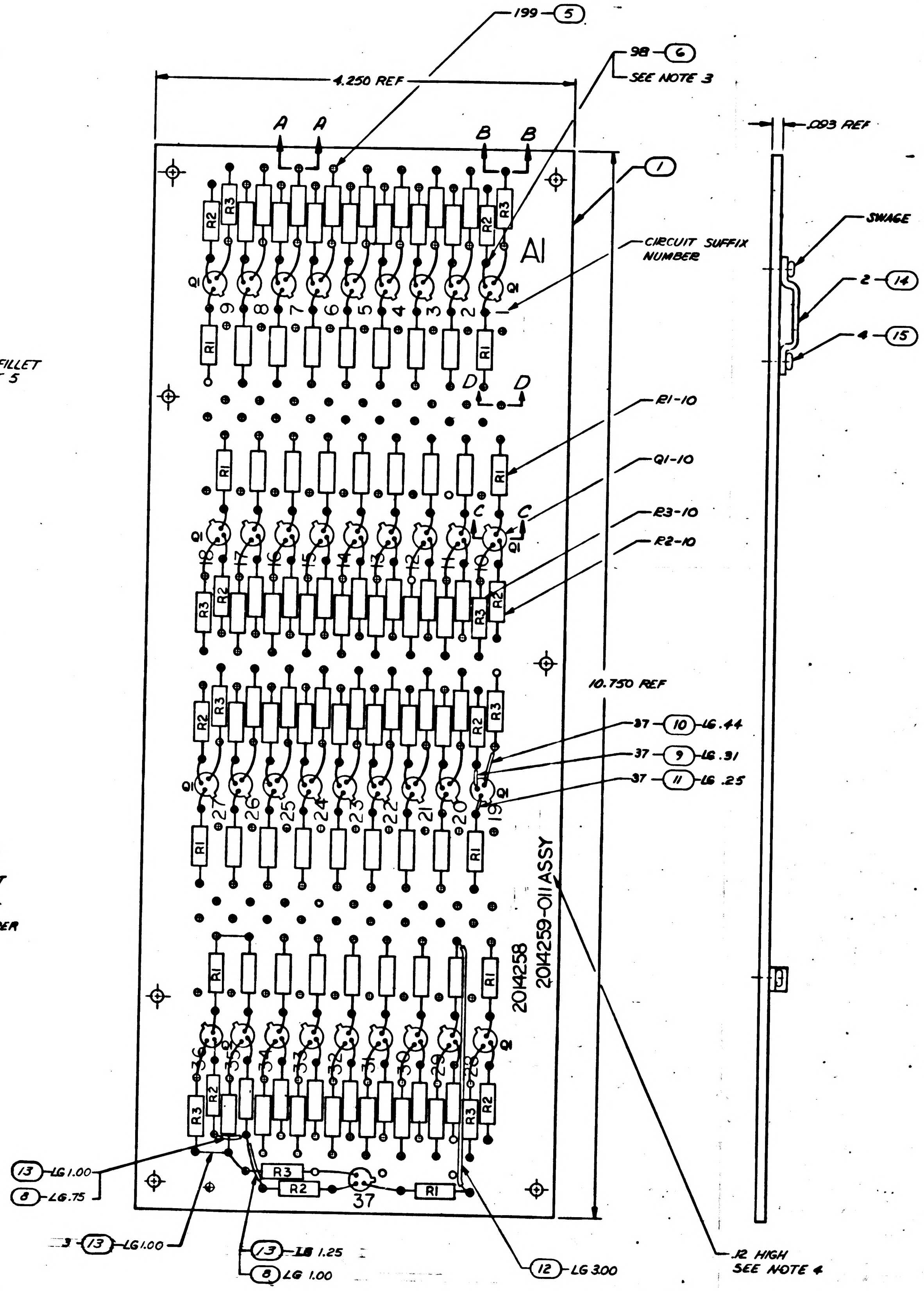
SECTION B-B
SCALE 4/1

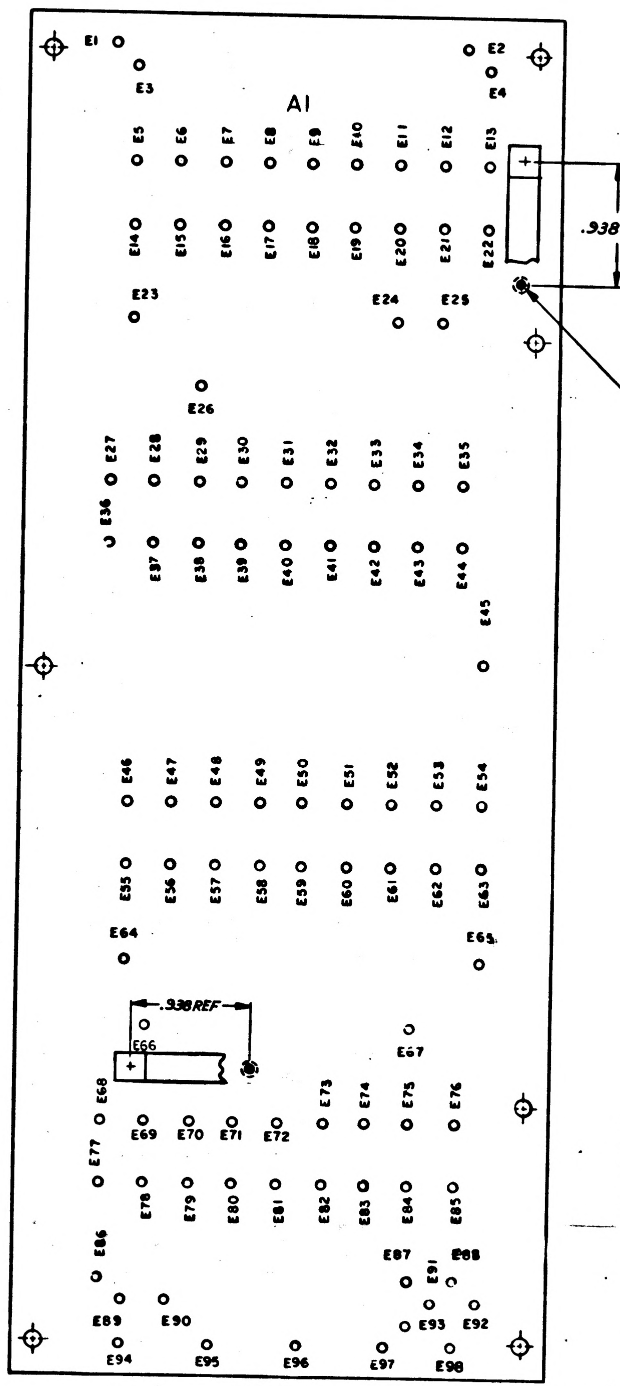


SECTION D-D
SCALE 4/1


7 REF
SEE NOTE 8

SECTION C-C
SCALE 4/1
37 PLACES


199 5
98 6 SEE NOTE 3
4.250 REF
A A
B B
1
A1
CIRCUIT SUFFIX NUMBER
D D
R1-10
Q1-10
R3-10
R2-10
C C
10.750 REF
37 10 LG .44
37 9 LG .31
37 11 LG .25
2014258
2014259-011 ASSY
13 LG 1.00
8 LG .75
3 13 LG 1.00
13 LG 1.25
8 LG 1.00
12 LG 3.00
R3 R2 37 R1
.093 REF
SWAGE
2 14
4 15
.12 HIGH SEE NOTE 4


A1
E1 E2 E3 E4
.938 REF
.067/.070 DIA THRU & CSK FARSIDE 100° X .110/.118 DIA
2 HOLES LOCATE USING FIND 14 AS TEMPLATE
E23 E24 E25 E26
E64 E65 E66 E67
.938 REF
E89 E90 E93 E92
E94 E95 E96 E97 E98

NOTES

1. FOR MASTER DRAWING SEE DRAWING NO. 1020247.
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN FOR COMPLETE DESIGNATIONS PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION(S).
3. ⊕ DESIGNATES FEEDTHRU TERMINALS (FIND NO. 6).
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1.
5. SOLDER PER ND 1002071
~~6. FOR FABRICATION, SEE ND1002032~~
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
8. ASSEMBLE FIND NO. 7 TO FIND NO. 1 PER ND 1002004, TYPE II, RIGID
9. QQ-W-343, TYPE S, SOFT COATED (a) AWG SIZE 22

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25142	4/5/65	[illegible]
1	CHANGED PER CCA R25245 DR [illegible] CHK [illegible]	23 Aug 65	[illegible]
-	CLASS B CHANGED PER CCA R25500	[illegible]	[illegible]
A	CHANGED PER CCA 25665 AND CLASS A RELEASED PER TDRR 25476	4/7/66	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
╳	2014123	SCHEMATIC	REF
4	MS20426AD2-4	RIVET, CSK FLAT HD	15
2	1006906-2	BRACKET, CABLE	14
* .3	SEE NOTE 9	WIRE, ELEC	13
* .3	MIL-W-16878/4E22 BLK	WIRE, ELEC	12
* .5	1006776-147	SLEEVING	11
* 1.0	1006776-197	SLEEVING	10
* .5	1006776-172	SLEEVING	9
* .2	1006776-21	SLEEVING	8
37	1006752	TRANSISTOR SILICON 2N914	7
38	SE14XC02(MIL-T-55155/14)	TERMINAL, FEEDTHRU	6
199	SE12XC02(MIL-T-55155/12)	TERMINAL, STANDOFF	5
37	1006760-1	RESISTOR, FIXED, 5.1Ω ±2%, 1/2W	4
37	1006760-49	RESISTOR, FIXED, 5100Ω ±2%, 1/2W	3
37	1006760-25	RESISTOR, FIXED, 510Ω ±2%, 1/2W	2
1	2014258	COMPONENT BOARD, A1	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014267	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. [illegible]
DRAWN [illegible] DATE 6/1/65
CHECKED R.P. [illegible] 9 JULY 65
APPROVAL H Morse 20 Jul 65
APPROVAL [illegible] 7/20/65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

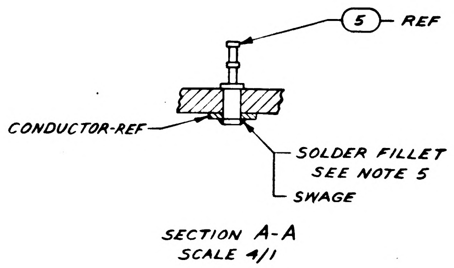
COMPONENT BOARD ASSEMBLY
PRINTED CIRCUIT BOARD, A1

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014259
SCALE 2/1
WT
SHEET 1 OF 1

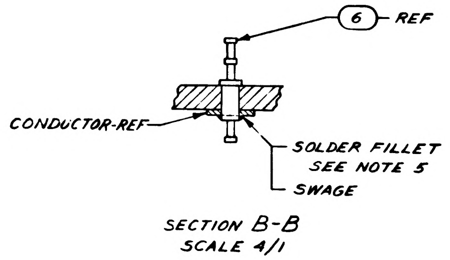
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25182	[illegible]	[illegible]
—	CLASS B CHANGED PER CCA R25500	[illegible]	[illegible]
A	CHANGED PER CCA R25550 DR [illegible] CHK [illegible] APPD [illegible]	4/27/66	[illegible]
B	CHANGED PER CCA R25665 AND CLASS A RELEASED PER TDRR 25478	4/17/66	[illegible]

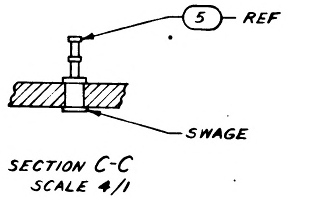
REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
Q1-1 THRU Q1-37	7
R1-1 THRU R1-37	3
R2-1 THRU R2-37	4
R3-1 THRU R3-37	2


5 – REF
CONDUCTOR-REF
SOLDER FILLET
SEE NOTE 5
SWAGE

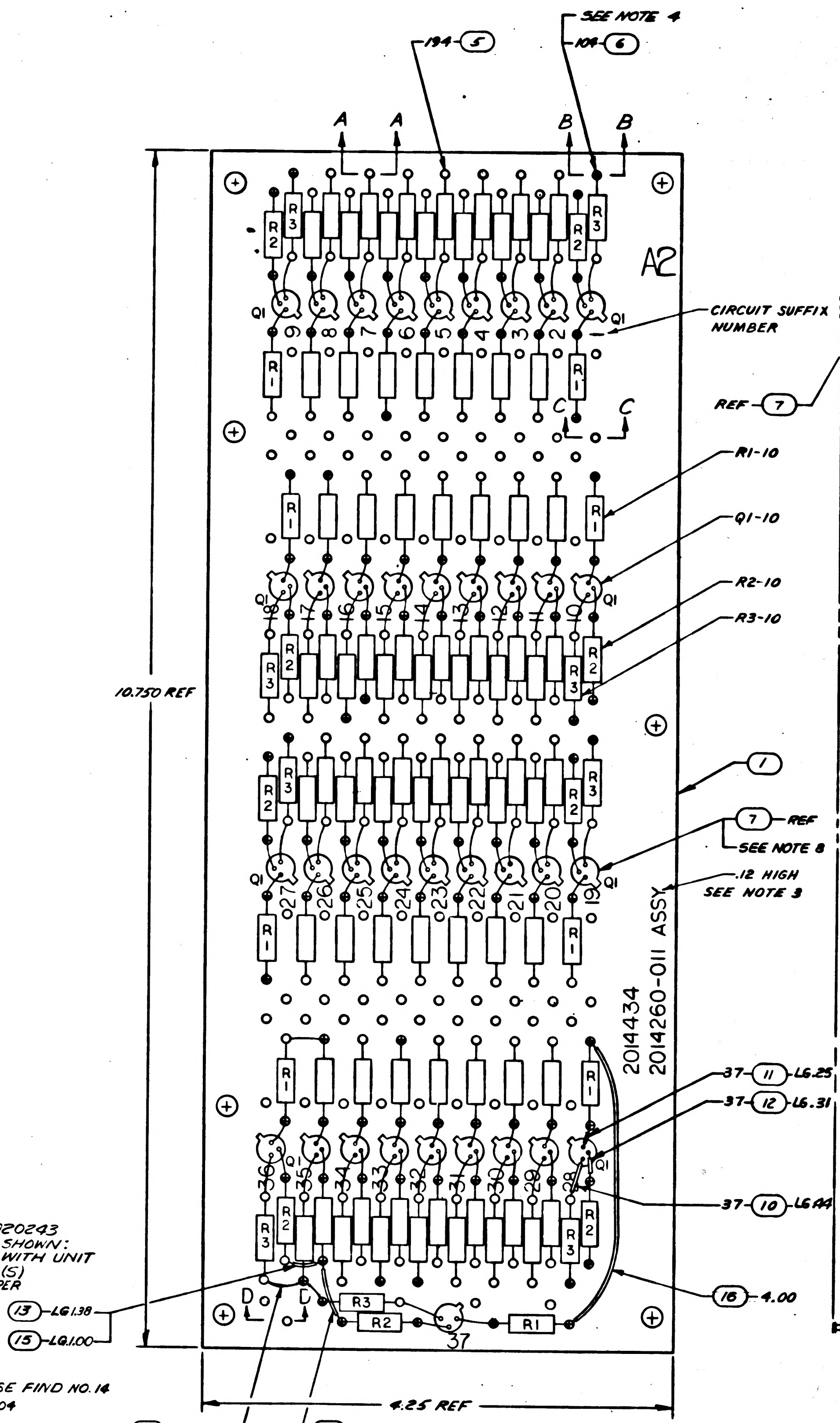
SECTION A-A
SCALE 4/1

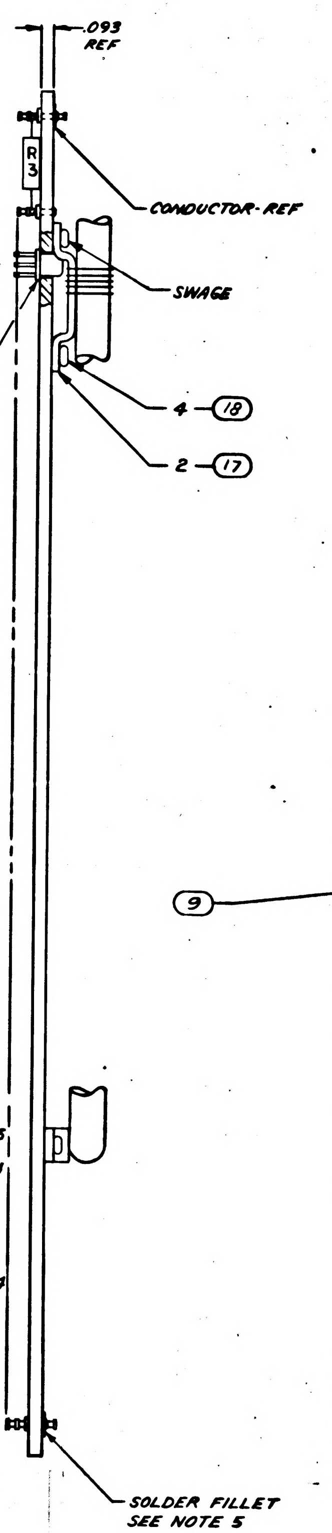

6 – REF
CONDUCTOR-REF
SOLDER FILLET
SEE NOTE 5
SWAGE

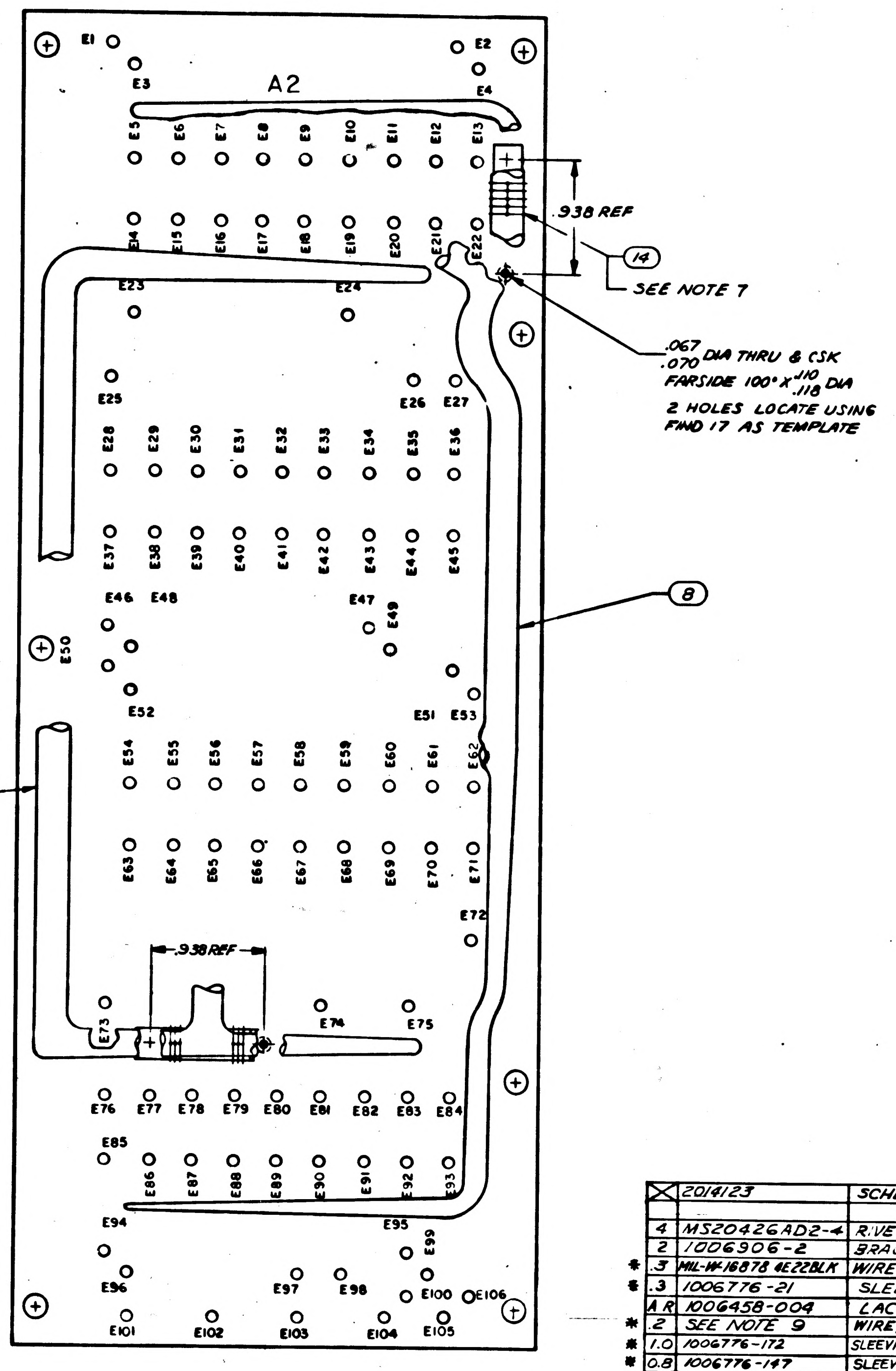
SECTION B-B
SCALE 4/1

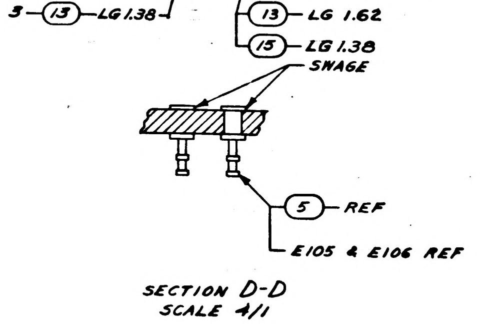


SECTION C-C
SCALE 4/1


SEE NOTE 4
194 – 5
104 – 6
A A B B
A2
R2 R3 R1 Q1
CIRCUIT SUFFIX NUMBER
C C
R1-10
Q1-10
R2-10
R3-10
10.750 REF
1
7 – REF
SEE NOTE 8
.12 HIGH
SEE NOTE 3
2014434
2014260-011 ASSY
37 – 11 – LG.25
37 – 12 – LG.31
37 – 10 – LG.44
18 – 4.00
13 – LG 1.38
15 – LG 1.00
D D
R3 R2 R1 37
4.25 REF


.093 REF
R3
CONDUCTOR-REF
SWAGE
REF – 7
4 – 18
2 – 17
SOLDER FILLET
SEE NOTE 5


A2
E1 E2 E3 E4
.938 REF
14
SEE NOTE 7
.067/.070 DIA THRU & CSK
FARSIDE 100° X .110/.118 DIA
2 HOLES LOCATE USING
FIND 17 AS TEMPLATE
8
9
.938 REF
E5 – E106


3 – 13 – LG 1.38
13 – LG 1.62
15 – LG 1.38
SWAGE
5 – REF
E105 & E106 REF

SECTION D-D
SCALE 4/1

NOTES

1. FOR MASTER DRAWING SEE DRAWING NO. 1020243
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION (S)
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1.
4. ⊕ DESIGNATES FEED THRU TERMINALS (FIND NO.6)
5. SOLDER PER ND 1002071.
6. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY.
7. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 14
8. ASSEMBLE FIND NO. 7 TO FIND NO. 1 PER ND 1002004 TYPE II, RIGID
9. QQ-W-343 TYPE S, SOFT COATED (2) AWG SIZE 22

	☒	2014123	SCHEMATIC	REF
	4	MS20426AD2-4	RIVET, CSK FLAT HD	18
	2	1006906-2	BRACKET, CABLE	17
*	.3	MIL-W-16878 4E22BLK	WIRE, ELEC	16
*	.3	1006776-21	SLEEVING	15
	A R	1006458-004	LACING CORD	14
*	.2	SEE NOTE 9	WIRE, ELEC	13
*	1.0	1006776-172	SLEEVING	12
*	0.8	1006776-147	SLEEVING	11
*	1.4	1006776-197	SLEEVING	10
	1	2014128-011	WIRING HARNESS, BRANCHED	9
	1	2014131-011	WIRING HARNESS, BRANCHED	8
	37	1006752	TRANSISTOR, SILICON, 2N914	7
	104	SE14XC02 (MIL-T-55155/14)	TERMINAL, FEEDTHRU	6
	194	SE12XC02 (MIL-T-55155/12)	TERMINAL, STANDOFF	5
	37	1006760-49	RESISTOR, FIXED, 5100Ω ±2%, 1/2W	4
	37	1006760-25	RESISTOR, FIXED, 510Ω ±2%, 1/2W	3
	37	1006760-1	RESISTOR, FIXED, 5Ω ±2%, 1/2W	2
	1	2014434	COMPONENT BOARD, A2	1
	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014260 B

2014254	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 6/19/65
CHECKED A. V. English 9 July 65
APPROVAL H. Moore 20 Jul 65
APPROVAL [illegible] 7/22/65
APPROVAL [illegible] 3 Sep 65
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

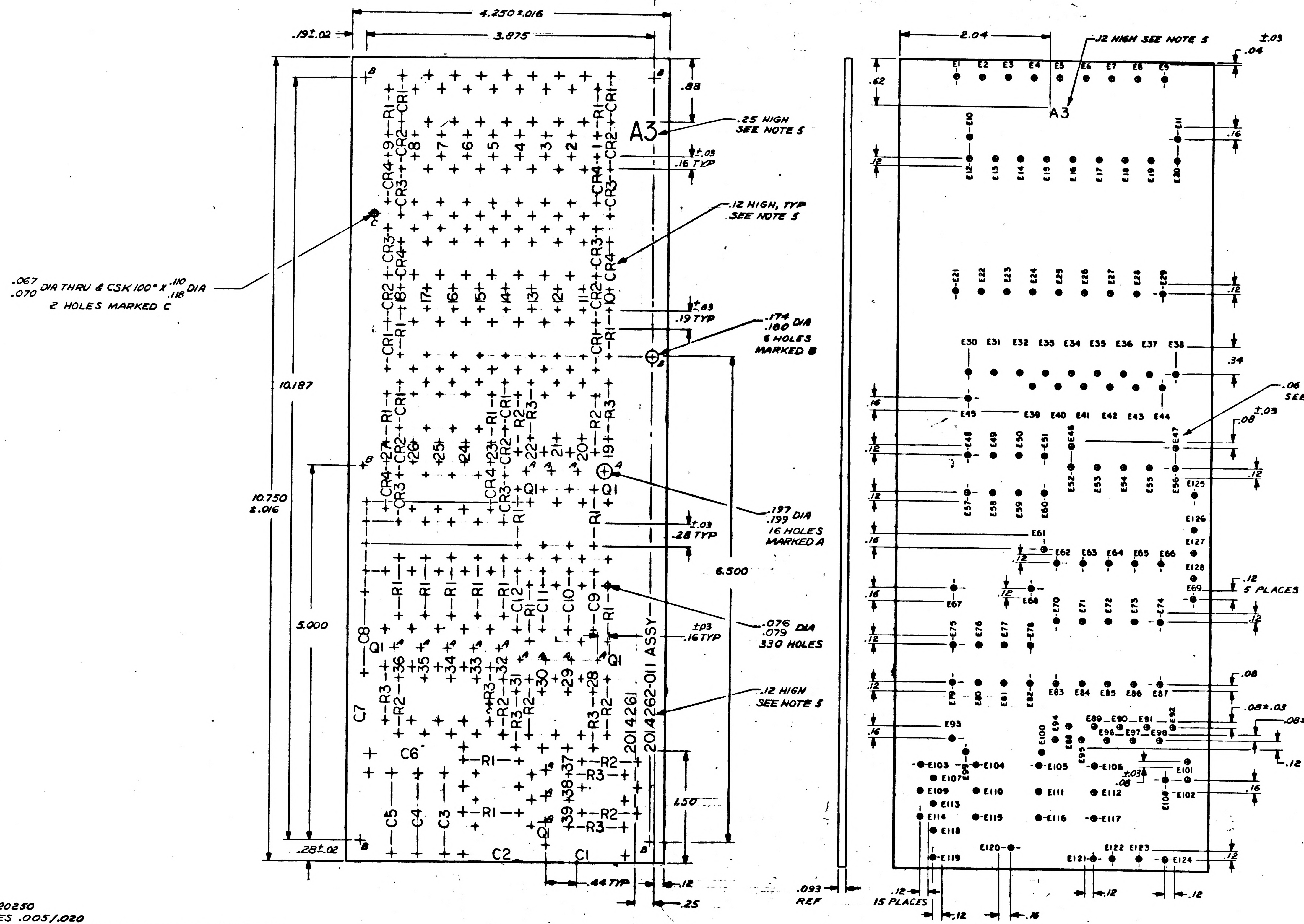
COMPONENT BOARD ASSEMBLY
PRINTED CIRCUIT BOARD, A2

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014260
SCALE 2/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014261 A

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25089	[illegible]	[illegible]
1	CHANGED PER CCA R25467 DR [illegible] CHK [illegible] APPD [illegible] 11-15-65	11/15/65	[illegible]
–	CLASS B CHANGED PER CCA R25500	11/19/65	[illegible]
A	CHANGED PER CCA R25665 AND CLASS A RELEASED PER TDRR 25478	1/17/66	[illegible]



4.250±.016
.19±.02
3.875
A3
.25 HIGH SEE NOTE 5
.12 HIGH, TYP SEE NOTE 5
.067/.070 DIA THRU & CSK 100° X .110/.118 DIA 2 HOLES MARKED C
.174/.180 DIA 6 HOLES MARKED B
.197/.199 DIA 16 HOLES MARKED A
.076/.079 DIA 330 HOLES
.12 HIGH SEE NOTE 5
10.187
10.750 ±.016
5.000
6.500
.28±.02
.88
±.03 .16 TYP
±.03 .19 TYP
±.03 .28 TYP
±.03 .16 TYP
1.50
.44 TYP
.12
.25
2014261
2014262-011 ASSY
.093 REF
2.04
.12 HIGH SEE NOTE 5
.06 HIGH SEE NOTE 5
.62
±.03 .04
.34
.12 5 PLACES
.08±.03
.12 4 PLACES
.12 15 PLACES

NOTES
1. FOR MASTER DRAWING SEE 1020250
2. REMOVE BURRS & SHARP EDGES .005/.020
3. UNDIMENSIONED HOLES ARE LOCATED ON .025 GRIDS & TO BE WITHIN ⊕.028 DIA OF CENTERS INDICATED ON MASTER PATTERN
4. TIN PLATE & FABRICATE PER MSFC-STD-154
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. HOLE SYMBOL LETTERS ARE FOR IDENTIFICATION ONLY & DO NOT APPEAR ON THE FINISHED PART

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2014262	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ±.06 DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
FL-GE093C2 CLASS II PER MIL-P-13949

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible] 20 JUL 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

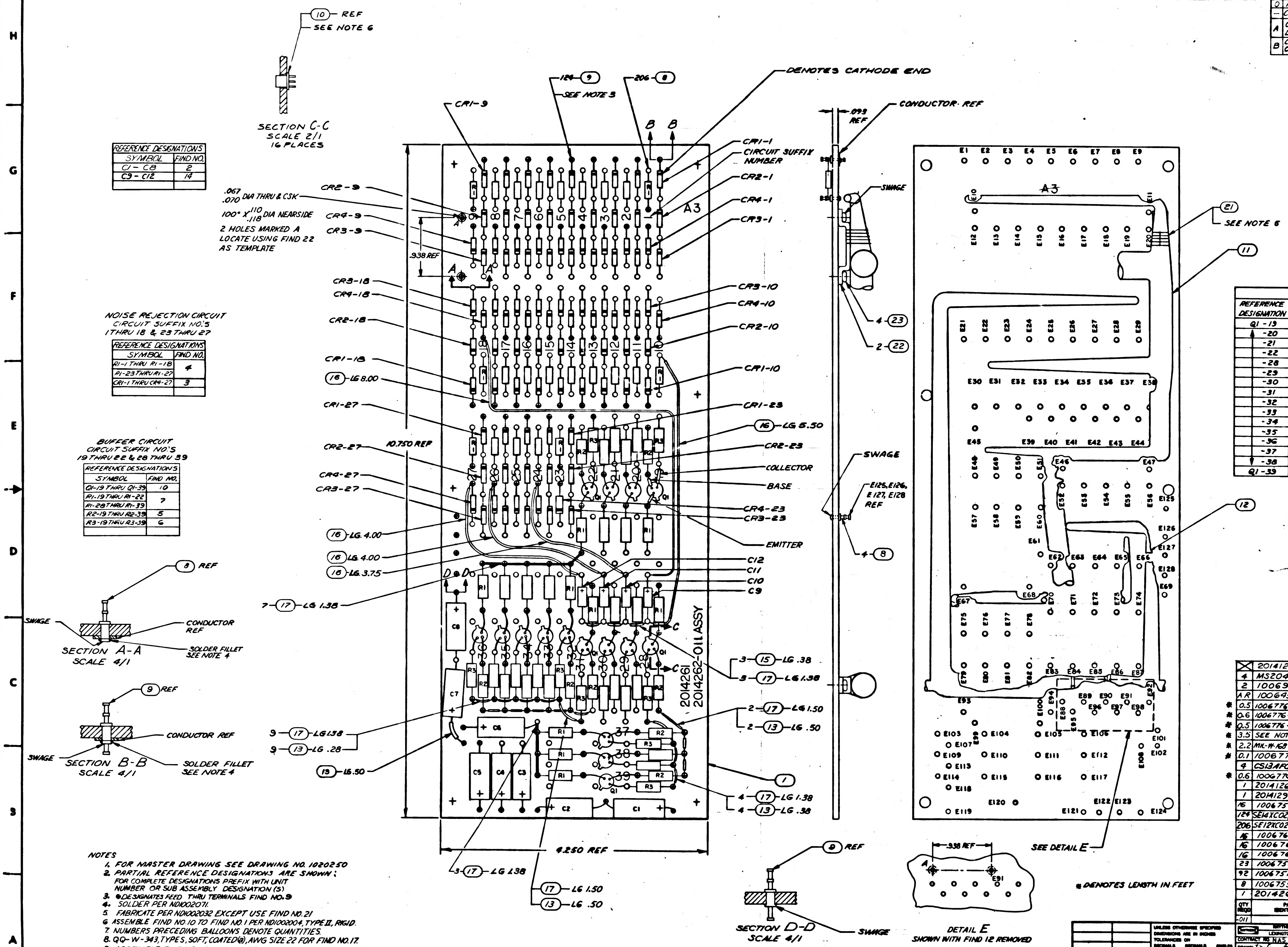
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD A3
BUFFER CIRCUIT

CODE IDENT NO 49956 SIZE J NASA DRAWING NO 2014261
SCALE 2/1 WT SHEET 1 OF 1

2014261 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25133	[illegible]	
–	CLASS B CHANGED PER CCA R25500	[illegible]	
A	CHANGED PER CCA R25550 DR CHK	[illegible]	
B	CHANGED PER CCA25665 AND CLASS A RELEASED PER TCRR 25478	[illegible]	



10 REF
SEE NOTE 6
SECTION C-C
SCALE 2/1
16 PLACES
.067 .070 DIA THRU & CSK
100° X .110 .118 DIA NEARSIDE
2 HOLES MARKED A
LOCATE USING FIND 22
AS TEMPLATE
CR1-9
126-9
SEE NOTE 3
206-8
B B
DENOTES CATHODE END
CR2-9
CR4-9
CR3-9
.938 REF
A A
CR1-1
CIRCUIT SUFFIX NUMBER
CR2-1
CR4-1
CR3-1
A3
CR3-18
CR4-18
CR2-18
CR1-18
16 - LG 8.00
CR3-10
CR4-10
CR2-10
CR1-10
CR1-27
CR1-23
16 - LG 5.50
CR2-27
10.750 REF
CR2-23
COLLECTOR
BASE
CR4-27
CR3-27
CR4-23
CR3-23
16 - LG. 4.00
16 - LG. 4.00
16 - LG. 3.75
EMITTER
C12
C11
C10
C9
D D
7-17-LG 1.38
C
C8
C7
R1
R2
R3
Q1
C5
C4
C3
C6
C2
C1
2014261
2014262-011 ASSY
3-15-LG .38
3-17-LG 1.38
2-17-LG 1.50
2-13-LG .50
9-17-LG 1.38
9-13-LG .28
13-LG 5.50
1
4-17-LG 1.38
4-13-LG .38
4.250 REF
3-17-LG 1.38
17 - LG 1.50
13 - LG .50
.093 REF
CONDUCTOR REF
SWAGE
4-23
2-22
SWAGE
E125, E126, E127, E128 REF
4-8
21
SEE NOTE 6
11
12
E1 E2 E3 E4 E5 E6 E7 E8 E9
E10 E11
E12 E13 E14 E15 E16 E17 E18 E19 E20
E21 E22 E23 E24 E25 E26 E27 E28 E29
E30 E31 E32 E33 E34 E35 E36 E37 E38
E45 E39 E40 E41 E42 E43 E44
E46 E47
E48 E49 E50 E51 E52 E53 E54 E55 E56
E57 E58 E59 E60
E61
E62 E63 E64 E65 E66
E67 E68 E69
E70 E71 E72 E73 E74
E75 E76 E77 E78
E79 E80 E81 E82 E83 E84 E85 E86 E87
E88 E89 E90 E91 E92 E93 E94 E95 E96 E97 E98
E99 E100 E101 E102
E103 E104 E105 E106 E107 E108
E109 E110 E111 E112 E113 E114 E115 E116 E117 E118 E119 E120 E121 E122 E123 E124
E125 E126 E127 E128
8 REF
SWAGE
CONDUCTOR REF
SECTION A-A
SCALE 4/1
SOLDER FILLET
SEE NOTE 4
9 REF
SWAGE
CONDUCTOR REF
SECTION B-B
SCALE 4/1
SOLDER FILLET
SEE NOTE 4
9 REF
SECTION D-D
SCALE 4/1
SWAGE
.938 REF
A
E91
DETAIL E
SHOWN WITH FIND 12 REMOVED
SEE DETAIL E

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
C1 – C8	2
C9 – C12	14

NOISE REJECTION CIRCUIT
CIRCUIT SUFFIX NO.'S
1 THRU 18 & 23 THRU 27

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
R1-1 THRU R1-18	4
R1-23 THRU R1-27	
CR1-1 THRU CR4-27	3

BUFFER CIRCUIT
CIRCUIT SUFFIX NO.'S
19 THRU 22 & 28 THRU 39

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
Q1-19 THRU Q1-39	10
R1-19 THRU R1-22	7
R1-28 THRU R1-39	
R2-19 THRU R2-39	5
R3-19 THRU R3-39	6

TABLE A

REFERENCE DESIGNATION	EMITTER		COLLECTOR		BASE	
	FIND NO.	LG	FIND NO.	LG	FIND NO.	LG
Q1-19	18	.25	20	.44	19	.31
↑ -20	↑	↑	↑	↑	↑	↑
-21						
-22						
-28						
-29						
-30		↓		↓		↓
-31		.25		.44		.31
-32		.44		.25		.44
-33		↑		↑		↑
-34						
-35						↓
-36						.44
-37						.50
↓ -38	↓	↓	↓	↓	↓	.50
Q1-39	18	.44	20	.25	19	.50

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014123	SCHEMATIC	REF
4	MS20426AD2-4	RIVET, CSK FLAT HD	23
2	1006906-2	BRACKET, CABLE	22
AR	1006458-004	LACING CORD	21
* 0.5	1006776-197	SLEEVING	20
* 0.6	1006776-172	SLEEVING	19
* 0.5	1006776-147	SLEEVING	18
* 3.5	SEE NOTE-8	WIRE, ELEC	17
* 2.2	MIL-W-16878/4E22, BLK	WIRE, ELEC	16
* 0.1	1006776-46	SLEEVING	15
4	CS13AF010K	CAPACITOR	14
* 0.6	1006776-21	SLEEVING	13
1	2014126-011	WIRING HARNESS	12
1	2014129-011	WIRING HARNESS	11
16	1006752	TRANSISTOR 2N914	10
124	SE14XC02(MIL-T-55155/14)	TERMINAL, FEEDTHRU	9
206	SE12XC02(MIL-T-55155/12)	TERMINAL, STANDOFF	8
16	1006760-25	RESISTOR, 510Ω ±2% 1/2W	7
16	1006760-1	RESISTOR, 51Ω ±2% 1/2W	6
16	1006760-49	RESISTOR, 5100Ω ±2% 1/2W	5
23	1006750-32	RESISTOR, 1000Ω ±2% 1/4W	4
92	1006751	DIODE	3
8	1006755-36	CAPACITOR 47UF ±15% 20V	2
1	2014261	COMPONENT BOARD, A3	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014262

NOTES
1. FOR MASTER DRAWING SEE DRAWING NO. 1020250
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH UNIT NUMBER OR SUB ASSEMBLY DESIGNATION (S)
3. ● DESIGNATES FEED THRU TERMINALS FIND NO. 9
4. SOLDER PER ND1002071.
5. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 21
6. ASSEMBLE FIND NO. 10 TO FIND NO. 1 PER ND1002004, TYPE II, RIGID.
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITIES.
8. QQ-W-343, TYPE S, SOFT, COATED(a), AWG SIZE 22 FOR FIND NO. 17.
9. ASSEMBLE FIND NO. 18, 19 & 20 TO LEADS OF FIND NO. 10 PER TABLE A
10. STRIP .50 & TIN PER ND1002071

NEXT ASSY	USED ON
2014254	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 4/2/65
CHECKED 9 JUL 65
APPROVAL 20 JUL 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD ASSEMBLY
PRINTED CIRCUIT BOARD A3

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014262
SCALE 2/1
WT
SHEET 1 OF 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25133		
—	CLASS B CHANGED PER CCA 225550		
A	CHANGED PER CCA 225550 DR [illegible] CHK [illegible] APPD [illegible]	7/14/66	
B	CHANGED PER CCA 25666 AND CLASS A RELEASE PER TDRR 25478	11/7/66	
C	CHANGED PER TDRR 26498 DR G.J. Bum C[illegible] L.A.E. APPD	2/27/66	

(10) REF
SEE NOTE 6

SECTION C-C
SCALE 2/1
16 PLACES

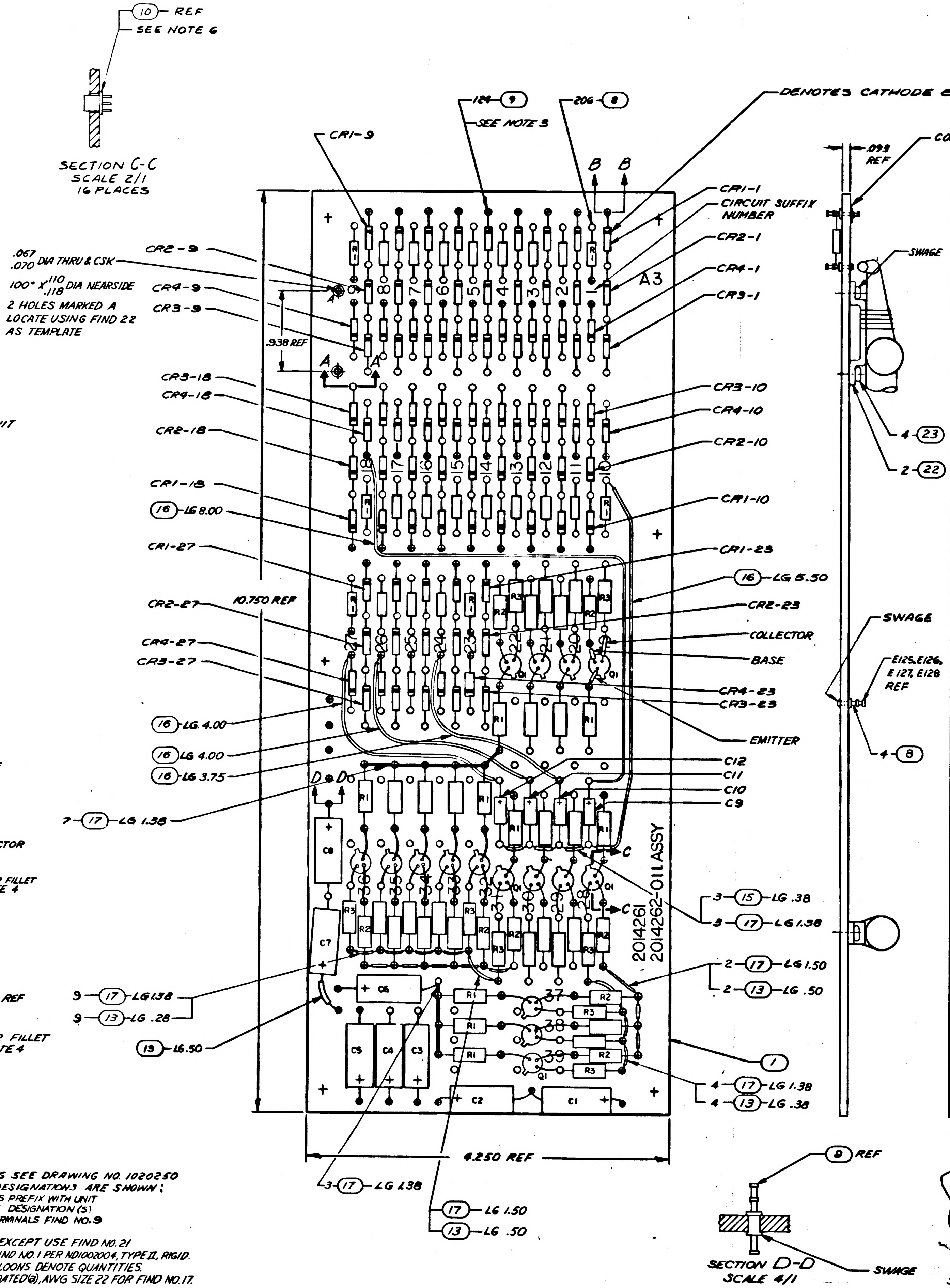
REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
C1 - C8	2
C9 - C12	14

NOISE REJECTION CIRCUIT
CIRCUIT SUFFIX NO.'S
1 THRU 18 & 23 THRU 27

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
R1-1 THRU R1-18	4
R1-23 THRU R1-27	
CR1-1 THRU CR4-27	3

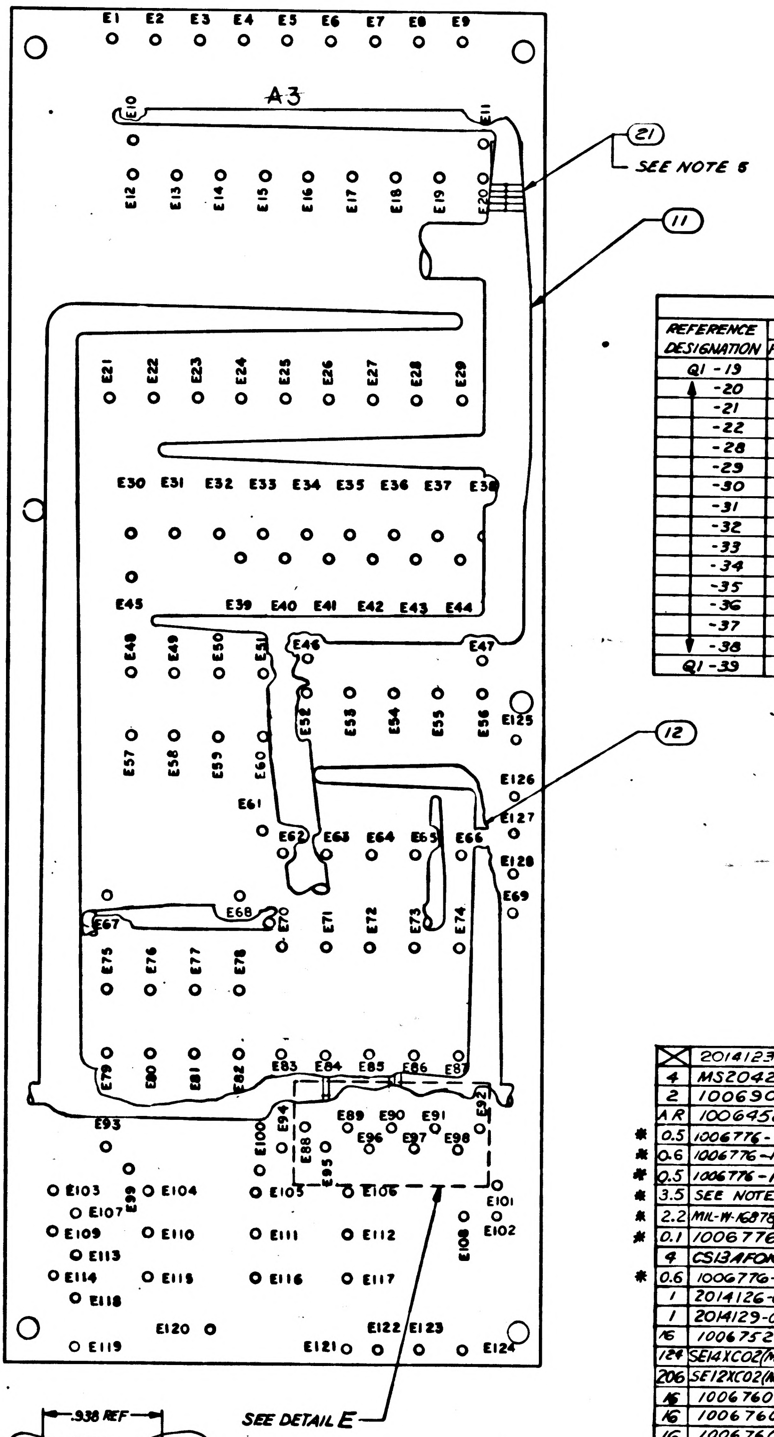
BUFFER CIRCUIT
CIRCUIT SUFFIX NO.'S
19 THRU 22 & 28 THRU 39

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
Q1-19 THRU Q1-39	10
R1-19 THRU R1-22	7
R1-28 THRU R1-39	
R2-19 THRU R2-39	5
R3-19 THRU R3-39	6

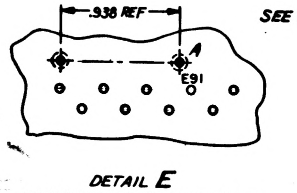


124 (9) SEE NOTE 3
206 (8)
DENOTES CATHODE END
B B
CR1-9
.067 .070 DIA THRU & CSK
100° X .110 .118 DIA NEARSIDE
2 HOLES MARKED A
LOCATE USING FIND 22
AS TEMPLATE
CR2-9
CR4-9
CR3-9
.938 REF
A A
CR1-1
CIRCUIT SUFFIX NUMBER
CR2-1
CR4-1
CR3-1
A3
CR3-18
CR4-18
CR2-18
CR1-18
(16) LG 8.00
CR3-10
CR4-10
CR2-10
CR1-10
CR1-27
CR2-27
10.750 REF
CR4-27
CR3-27
(16) LG 4.00
(16) LG 4.00
(16) LG 3.75
CR1-23
(16) LG 5.50
CR2-23
COLLECTOR
BASE
CR4-23
CR3-23
EMITTER
C12
C11
C10
C9
D D
7-(17)-LG 1.38
C
2014261
2014262-011 ASSY
3-(15)-LG .38
3-(17)-LG 1.38
2-(17)-LG 1.50
2-(13)-LG .50
9-(17)-LG 1.38
9-(13)-LG .28
(13)-LG .50
(1)
4-(17)-LG 1.38
4-(13)-LG .38
4.250 REF
3-(17)-LG 1.38
(17)-LG 1.50
(13)-LG .50
C8 C7 C6 C5 C4 C3 C2 C1
R1 R2 R3 Q1
37 38 39
.093 REF
CONDUCTOR REF
SWAGE
4-(23)
2-(22)
SWAGE
E125, E126, E127, E128 REF
4-(8)
(9) REF
SWAGE

SECTION D-D
SCALE 4/1



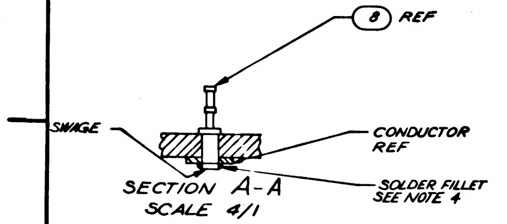
E1 E2 E3 E4 E5 E6 E7 E8 E9
A3
E10 E11
E12 E13 E14 E15 E16 E17 E18 E19 E20
(21)
SEE NOTE 5
(11)
E21 E22 E23 E24 E25 E26 E27 E28 E29
E30 E31 E32 E33 E34 E35 E36 E37 E38
E39 E40 E41 E42 E43 E44 E45
E46 E47 E48 E49 E50 E51 E52 E53 E54 E55 E56
E57 E58 E59 E60 E61
E62 E63 E64 E65 E66
E67 E68 E69 E70 E71 E72 E73 E74
E75 E76 E77 E78 E79 E80 E81 E82
E83 E84 E85 E86 E87
E88 E89 E90 E91 E92 E93 E94 E95 E96 E97 E98 E99 E100
E101 E102 E103 E104 E105 E106 E107 E108 E109 E110 E111 E112 E113 E114 E115 E116 E117 E118 E119 E120 E121 E122 E123 E124
E125 E126 E127 E128
(12)
SEE DETAIL E



.938 REF
A
A
E91

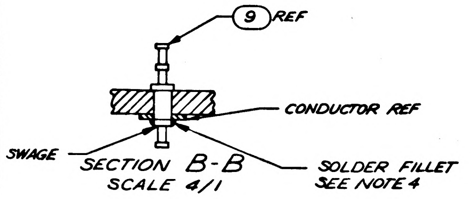
DETAIL E
SHOWN WITH FIND 12 REMOVED

TABLE A						
REFERENCE DESIGNATION	EMITTER		COLLECTOR		BASE	
	FIND NO.	LG	FIND NO.	LG	FIND NO.	LG
Q1 - 19	18	.25	20	.44	19	.31
-20	↕	↕	↕	↕	↕	↕
-21						
-22						
-28						
-29						
-30						
-31		.25		.44		.31
-32		.44		.25		.44
-33		↕		↕		↕
-34						
-35						
-36						.44
-37						.50
-38						.50
Q1 - 39	18	.44	20	.25	19	.50



(8) REF
SWAGE
CONDUCTOR REF
SOLDER FILLET SEE NOTE 4

SECTION A-A
SCALE 4/1



(9) REF
CONDUCTOR REF
SWAGE
SOLDER FILLET SEE NOTE 4

SECTION B-B
SCALE 4/1

NOTES
1. FOR MASTER DRAWING SEE DRAWING NO. 1020250
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH UNIT NUMBER OR SUB ASSEMBLY DESIGNATION (S)
3. ● DESIGNATES FEED THRU TERMINALS FIND NO. 9
4. SOLDER PER ND1002071.
5. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 21
6. ASSEMBLE FIND NO. 10 TO FIND NO. 1 PER ND1002004, TYPE II, RIGID.
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITIES.
8. QQ-W-343, TYPE S, SOFT, COATED(a), AWG SIZE 22 FOR FIND NO. 17.
9. ASSEMBLE FIND NO. 18, 19 & 20 TO LEADS OF FIND NO. 10 PER TABLE A
10. STRIP .50 & TIN PER ND1002071

✱ DENOTES LENGTH IN FEET

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014123	SCHEMATIC	REF
	4	MS20426AD2-4	RIVET, CSK FLAT HD	23
	2	1006906-2	BRACKET, CABLE	22
	AR	1006458-004	LACING CORD	21
✱	0.5	1006776-197	SLEEVING	20
✱	0.6	1006776-172	SLEEVING	19
✱	0.5	1006776-147	SLEEVING	18
✱	3.5	SEE NOTE-8	WIRE, ELEC	17
✱	2.2	MIL-W-16878/4E22, BLK	WIRE, ELEC	16
✱	0.1	1006776-46	SLEEVING	15
	4	CS13AF010K	CAPACITOR	14
✱	0.6	1006776-21	SLEEVING	13
	1	2014126-011	WIRING HARNESS	12
	1	2014129-011	WIRING HARNESS	11
	16	1006752	TRANSISTOR 2N914	10
	124	SE14XC02(MIL-T-55155/14)	TERMINAL, FEEDTHRU	9
	206	SE12XC02(MIL-T-55155/12)	TERMINAL, STANDOFF	8
	16	1006760-25	RESISTOR, 510Ω ±2% 1/2W	7
	16	1006760-1	RESISTOR, 51Ω ±2% 1/2W	6
	16	1006760-49	RESISTOR, 5100Ω ±2% 1/2W	5
	23	1006750-32	RESISTOR, 1000Ω ±2% 1/4W	4
	92	1006751	DIODE	3
	8	1006755-36	CAPACITOR 47UF ±15% 20V	2
	1	2014261	COMPONENT BOARD, A3	1
	-011	LIST OF MATERIALS		

2014262

2014254	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 4/3/65
CHECKED [illegible] 9 JUL 65
APPROVAL H. [illegible] 20 JUL 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD ASSEMBLY
PRINTED CIRCUIT BOARD A3

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014262
SCALE 2/1
WT
SHEET 1 OF 1

MASTER

2014262 D

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA 25133		
—	CLASS B CHANGED PER CCA R25500		
A	CHANGED PER CCA R25550 DR CHK APPD		
B	CHANGED PER CCA25665 AND CLASS A RELEASE PER TDRR 25476		
C	CHANGED PER TDRR 26448 DR G.J. B. CHK L.A.E. APPD		
D	CHANGED PER TDRR 27879 DR CHK APPD	9/20/66	

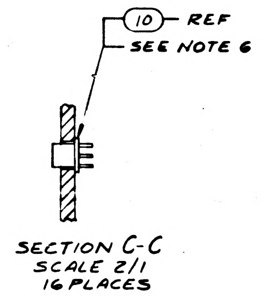
REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
C1 – C8	2
C9 – C12	14

NOISE REJECTION CIRCUIT
CIRCUIT SUFFIX NO.'S
1 THRU 18 & 23 THRU 27

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
R1-1 THRU R1-18 R1-23 THRU R1-27	4
CR1-1 THRU CR4-27	3

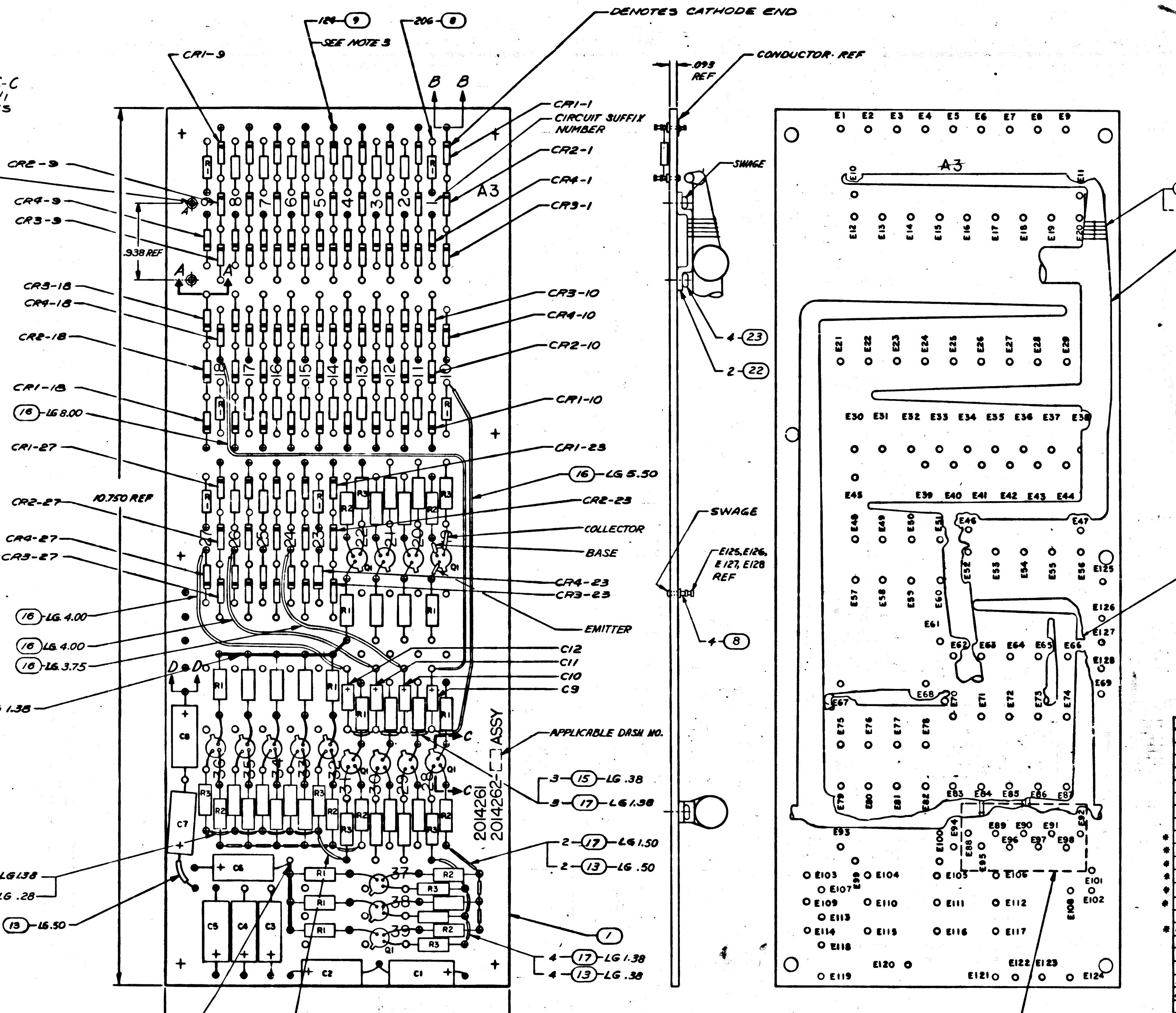
BUFFER CIRCUIT
CIRCUIT SUFFIX NO.'S
19 THRU 22 & 28 THRU 39

REFERENCE DESIGNATIONS		
SYMBOL	FIND NO.	
Q1-19 THRU Q1-22 Q1-28 THRU Q1-39	10	
R1-19 THRU R1-22 R1-28 THRU R1-39	7	
R2-19 THRU R2-22 R2-28 THRU R2-39	5	FOR -011
R2-19 THRU R2-22 R2-28 THRU R2-39	24	FOR -021
R3-19 THRU R3-22 R3-28 THRU R3-39	6	

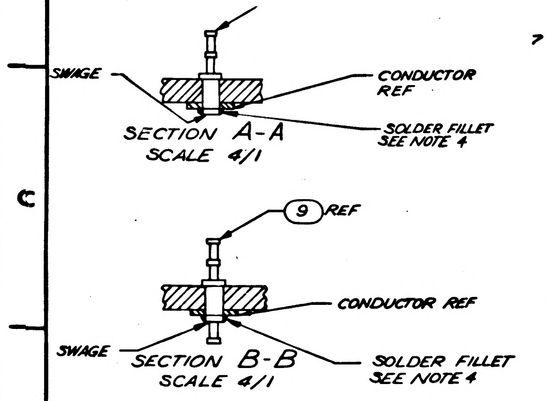


10 REF
SEE NOTE 6

SECTION C-C
SCALE 2/1
16 PLACES



.067 .070 DIA THRU & CSK
100° X .110 .118 DIA NEARSIDE
2 HOLES MARKED A
LOCATE USING FIND 22
AS TEMPLATE
.938 REF
A
CR1-9
124-9
SEE NOTE 3
206-8
DENOTES CATHODE END
B B
CR1-1
CIRCUIT SUFFIX NUMBER
A3
CR2-9
CR4-9
CR3-9
CR2-1
CR4-1
CR3-1
CR3-18
CR4-18
CR2-18
CR1-18
16-LG 8.00
CR1-27
CR3-10
CR4-10
CR2-10
CR1-10
CR1-23
16-LG 5.50
CR2-27
10.750 REF
CR2-23
COLLECTOR
BASE
CR4-27
CR3-27
CR4-23
CR3-23
EMITTER
16-LG 4.00
16-LG 4.00
16-LG 3.75
C12
C11
C10
C9
7-17-LG 1.38
D D
C
APPLICABLE DASH NO.
2014262-[ ] ASSY
2014261
3-15-LG .38
3-17-LG 1.38
2-17-LG 1.50
2-13-LG .50
9-17-LG 1.38
9-13-LG .28
13-LG .50
1
4-17-LG 1.38
4-13-LG .38
C8 C7 C6 C5 C4 C3 C2 C1
R1 R2 R3 Q1
4.250 REF
3-17-LG 1.38
17-LG 1.50
13-LG .50
.093 REF
CONDUCTOR REF
SWAGE
4-23
2-22
SWAGE
E125, E126, E127, E128 REF
4-8
A3
21
SEE NOTE 6
11
12
E1 E2 E3 E4 E5 E6 E7 E8 E9
E10 E11 E12 E13 E14 E15 E16 E17 E18 E19 E20
E21 E22 E23 E24 E25 E26 E27 E28 E29
E30 E31 E32 E33 E34 E35 E36 E37 E38
E39 E40 E41 E42 E43 E44 E45 E46 E47
E48 E49 E50 E51 E52 E53 E54 E55 E56
E57 E58 E59 E60 E61 E62 E63 E64 E65 E66
E67 E68 E69 E70 E71 E72 E73 E74 E75 E76 E77 E78
E79 E80 E81 E82 E83 E84 E85 E86 E87 E88 E89 E90 E91 E92 E93 E94 E95 E96 E97 E98
E100 E101 E102 E103 E104 E105 E106 E107 E108 E109 E110 E111 E112 E113 E114 E115 E116 E117 E118 E119 E120 E121 E122 E123 E124
E125 E126 E127 E128
SEE DETAIL E



SWAGE
CONDUCTOR REF
SOLDER FILLET SEE NOTE 4
9 REF
CONDUCTOR REF
SWAGE
SOLDER FILLET SEE NOTE 4

SECTION A-A
SCALE 4/1

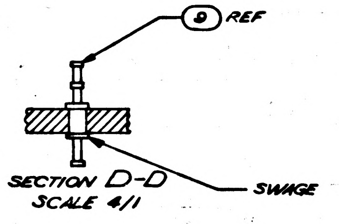
SECTION B-B
SCALE 4/1

TABLE A						
REFERENCE DESIGNATION	EMITTER		COLLECTOR		BASE	
	FIND NO.	LG	FIND NO.	LG	FIND NO.	LG
Q1 -19	18	.25	20	.44	19	.31
-20	↕	↕	↕	↕	↕	↕
-21						
-22						
-28						
-29						
-30						
-31		.25		.44		.31
-32		.44		.25		.44
-33		↕		↕		↕
-34						
-35						
-36						.44
-37						.50
-38						.50
Q1 -39	18	.44	20	.25	19	.50

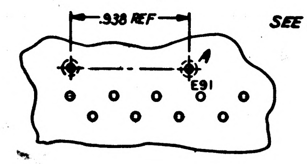
X	—	2016384	SCHEMATIC	REF
—	X	2014123	SCHEMATIC	REF
16	—	1006760-44	RESISTOR, 3300Ω ±2% 1/2W	24
4	4	MS20426AD2-4	RIVET, CSK FLAT HD	23
2	2	1006906-2	BRACKET, CABLE	22
AR	AR	1006458-004	LACING CORD	21
* 0.5	0.5	1006776-197	SLEEVING	20
* 0.6	0.6	1006776-172	SLEEVING	19
* 0.5	0.5	1006776-147	SLEEVING	18
* 3.5	3.5	SEE NOTE-8	WIRE, ELEC	17
* 2.2	2.2	MIL-W-16878/4E22, BLK	WIRE, ELEC	16
* 0.1	0.1	1006776-46	SLEEVING	15
4	4	CS13AF010K	CAPACITOR	14
* 0.6	0.6	1006776-21	SLEEVING	13
1	1	2014126-011	WIRING HARNESS	12
1	1	2014129-011	WIRING HARNESS	11
16	16	1006752	TRANSISTOR 2N914	10
124	124	SE14XC02(MIL-T-55155/14)	TERMINAL, FEEDTHRU	9
206	206	SE12XC02(MIL-T-55155/12)	TERMINAL, STANDOFF	8
16	16	1006760-25	RESISTOR, 510Ω ±2% 1/2W	7
16	16	1006760-1	RESISTOR, 51Ω ±2% 1/2W	6
—	16	1006760-49	RESISTOR, 5100Ω ±2% 1/2W	5
23	23	1006750-32	RESISTOR, 1000Ω ±2% 1/4W	4
92	92	1006751	DIODE	3
8	8	1006755-36	CAPACITOR 47UF ±15% 20V	2
1	1	2014261	COMPONENT BOARD, A3	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-021	-011	LIST OF MATERIALS		

2014262 D

* DENOTES LENGTH IN FEET



SECTION D-D
SCALE 4/1



.938 REF
A
E91

DETAIL E
SHOWN WITH FIND 12 REMOVED

NOTES
1. FOR MASTER DRAWING SEE DRAWING NO. 1020250
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH UNIT NUMBER OR SUB ASSEMBLY DESIGNATION (S)
3. ● DESIGNATES FEED THRU TERMINALS FIND NO. 9
4. SOLDER PER ND1002071.
5. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 21
6. ASSEMBLE FIND NO. 10 TO FIND NO. 1 PER ND1002004, TYPE II, RIGID.
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITIES.
8. QQ-W-343, TYPE S, SOFT, COATED (a), AWG SIZE 22 FOR FIND NO. 17.
9. ASSEMBLE FIND NO. 18, 19 & 20 TO LEADS OF FIND NO. 10 PER TABLE A
10. STRIP .50 & TIN PER ND1002071

2014254	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED 9 JUL 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

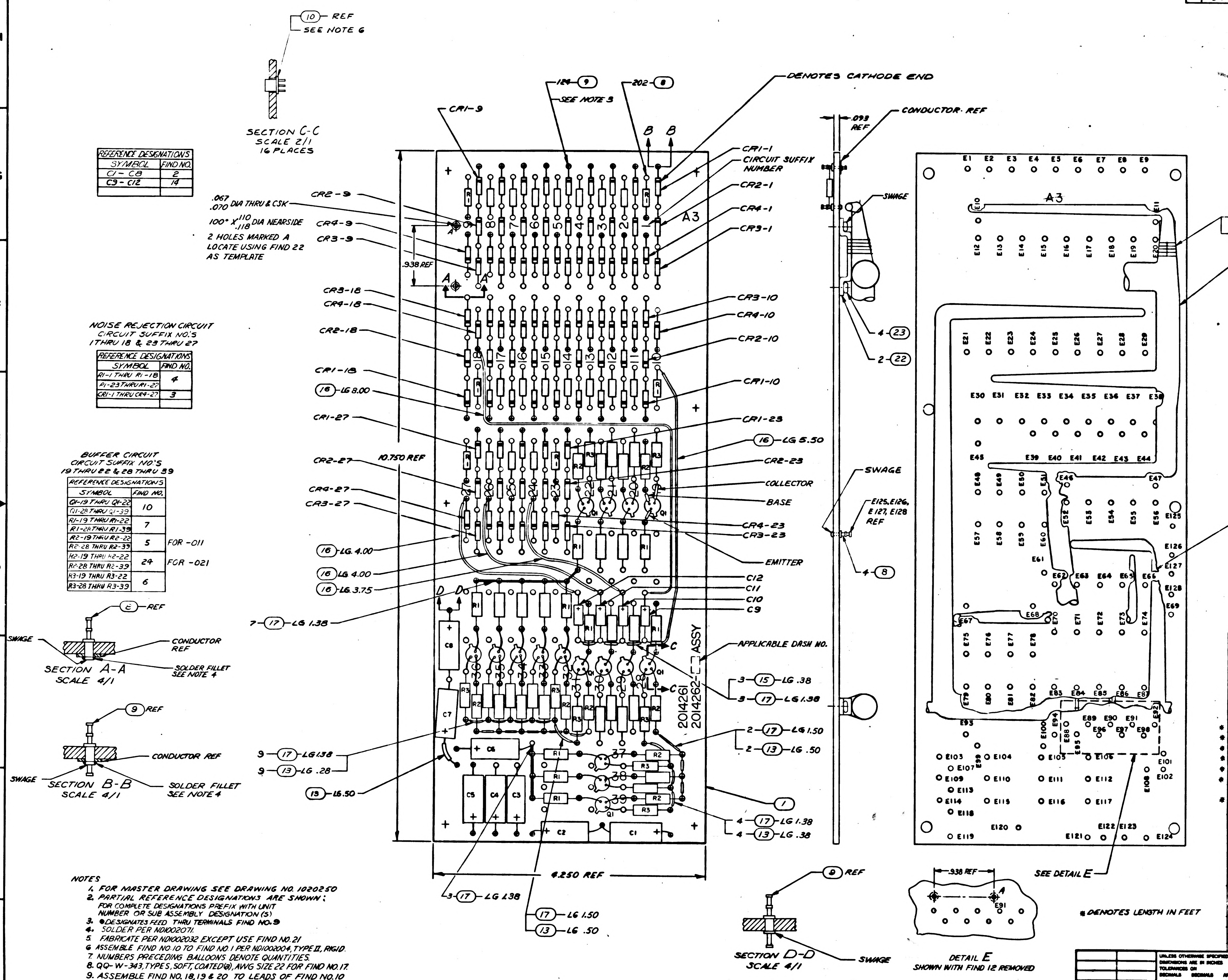
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD ASSEMBLY
PRINTED CIRCUIT BOARD A3

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014262
SCALE 2/1
WT
SHEET 1 OF 1

2014262 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25133	9/30	
—	CLASS B CHANGED PER CCA R25503		
A	CHANGED PER CCA R25550 DR CHK APPD	1/24/66	
B	CHANGED PER CCA25665 AND CLASS A RELEASED PER TDRR 25478	1/26/66	
C	CHANGED PER TDRR 26496 DR G.J. B CHK APPD	2/21/66	
D	CHANGED PER TDRR 27879 DR CHK APPD PED	4/20/66	
E	CHANGED PER TDRR 29576 DR CHK APPD		



10 REF
SEE NOTE 6
SECTION C-C
SCALE 2/1
16 PLACES
124-9
SEE NOTE 3
202-8
CR1-9
B B
DENOTES CATHODE END
CR1-1
CIRCUIT SUFFIX NUMBER
CR2-1
CR4-1
CR3-1
A3
CR2-9
.067 .070 DIA THRU & CSK
100° X .110 .118 DIA NEARSIDE
2 HOLES MARKED A
LOCATE USING FIND 22
AS TEMPLATE
CR4-9
CR3-9
.938 REF
A A
CR3-18
CR4-18
CR2-18
CR1-18
16-LG 8.00
CR3-10
CR4-10
CR2-10
CR1-10
CR1-27
CR1-23
16-LG 5.50
10.750 REF
CR2-27
CR2-23
COLLECTOR
BASE
CR4-27
CR3-27
CR4-23
CR3-23
16-LG. 4.00
EMITTER
16-LG 4.00
16-LG. 3.75
C12
C11
C10
C9
D D
7-17-LG 1.38
APPLICABLE DASH NO.
2014261
2014262-[ ] ASSY
3-15-LG .38
3-17-LG 1.38
2-17-LG 1.50
2-13-LG .50
9-17-LG 1.38
9-13-LG .28
13-LG .50
1
4-17-LG 1.38
4-13-LG .38
4.250 REF
3-17-LG 1.38
17-LG 1.50
13-LG .50
C8
C7
C6
C5
C4
C3
C2
C1
R1
R2
R3
Q1
.093 REF
CONDUCTOR REF
SWAGE
4-23
2-22
SWAGE
E125, E126, E127, E128 REF
4-8
21
SEE NOTE 5
11
12
SEE DETAIL E
E REF
SWAGE
CONDUCTOR REF
SOLDER FILLET SEE NOTE 4
SECTION A-A
SCALE 4/1
9 REF
SWAGE
CONDUCTOR REF
SECTION B-B
SCALE 4/1
SOLDER FILLET SEE NOTE 4
9 REF
SECTION D-D
SCALE 4/1
SWAGE
.938 REF
A
E91
DETAIL E
SHOWN WITH FIND 12 REMOVED

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
C1 – C8	2
C9 – C12	14

NOISE REJECTION CIRCUIT
CIRCUIT SUFFIX NO.'S
1 THRU 18 & 23 THRU 27

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
R1-1 THRU R1-18 R1-23 THRU R1-27	4
CR1-1 THRU CR4-27	3

BUFFER CIRCUIT
CIRCUIT SUFFIX NO.'S
19 THRU 22 & 28 THRU 39

REFERENCE DESIGNATIONS		
SYMBOL	FIND NO.	
Q1-19 THRU Q1-22 Q1-28 THRU Q1-39	10	
R1-19 THRU R1-22 R1-28 THRU R1-39	7	
R2-19 THRU R2-22 R2-28 THRU R2-39	5	FOR -011
R2-19 THRU R2-22 R2-28 THRU R2-39	24	FOR -021
R3-19 THRU R3-22 R3-28 THRU R3-39	6	

NOTES
1. FOR MASTER DRAWING SEE DRAWING NO. 1020250
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH UNIT NUMBER OR SUB ASSEMBLY DESIGNATION (S)
3. ● DESIGNATES FEED THRU TERMINALS FIND NO. 9
4. SOLDER PER ND1002071.
5. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 21
6. ASSEMBLE FIND NO. 10 TO FIND NO. 1 PER ND1002004, TYPE II, RIGID.
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITIES.
8. QQ-W-343, TYPE S, SOFT, COATED(a), AWG SIZE 22 FOR FIND NO. 17.
9. ASSEMBLE FIND NO. 18, 19 & 20 TO LEADS OF FIND NO. 10 PER TABLE A
10. STRIP .50 & TIN PER ND1002071

TABLE A						
REFERENCE DESIGNATION	EMITTER		COLLECTOR		BASE	
	FIND NO.	LG	FIND NO.	LG	FIND NO.	LG
Q1 - 19	18	.25	20	.44	19	.31
-20	↑	↑	↑	↑	↑	↑
-21						
-22						
-28						
-29						
-30		↓		↓		↓
-31		.25		.44		.31
-32		.44		.25		.44
-33		↑		↑		↑
-34						
-35						↓
-36						.44
-37						.50
-38	↓	↓	↓	↓	↓	.50
Q1 - 39	18	.44	20	.25	19	.50

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2016384	SCHEMATIC	REF
—	☒	2014123	SCHEMATIC	REF
16	—	1006760-44	RESISTOR, 3000Ω ±2%, 1/2W	24
4	4	MS20426AD2-4	RIVET, CSK FLAT HD	23
2	2	1006906-2	BRACKET, CABLE	22
AR	AR	1006458-004	LACING CORD	21
* 0.5	0.5	1006776-197	SLEEVING	20
* 0.6	0.6	1006776-172	SLEEVING	19
* 0.5	0.5	1006776-147	SLEEVING	18
* 3.5	3.5	SEE NOTE-8	WIRE, ELEC	17
* 2.2	2.2	MIL-W-16878/4E22, BLK	WIRE, ELEC	16
* 0.1	0.1	1006776-46	SLEEVING	15
4	4	CS13AF010K	CAPACITOR	14
* 0.6	0.6	1006776-21	SLEEVING	13
1	1	2014126-011	WIRING HARNESS	12
1	1	2014129-011	WIRING HARNESS	11
16	16	1006752	TRANSISTOR 2N914	10
124	124	SE14XC02(MIL-T-55155/14)	TERMINAL, FEEDTHRU	9
206	206	SE12XC02(MIL-T-55155/12)	TERMINAL, STANDOFF	8
16	16	1006760-25	RESISTOR, 510Ω ±2% 1/2W	7
16	16	1006760-1	RESISTOR, 51Ω ±2% 1/2W	6
—	16	1006760-49	RESISTOR, 5100Ω ±2% 1/2W	5
23	23	1006750-32	RESISTOR, 1000Ω ±2% 1/4W	4
92	92	1006751	DIODE	3
8	8	1006755-36	CAPACITOR 47UF ±15% 20V	2
1	1	2014261	COMPONENT BOARD, A3	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014254	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

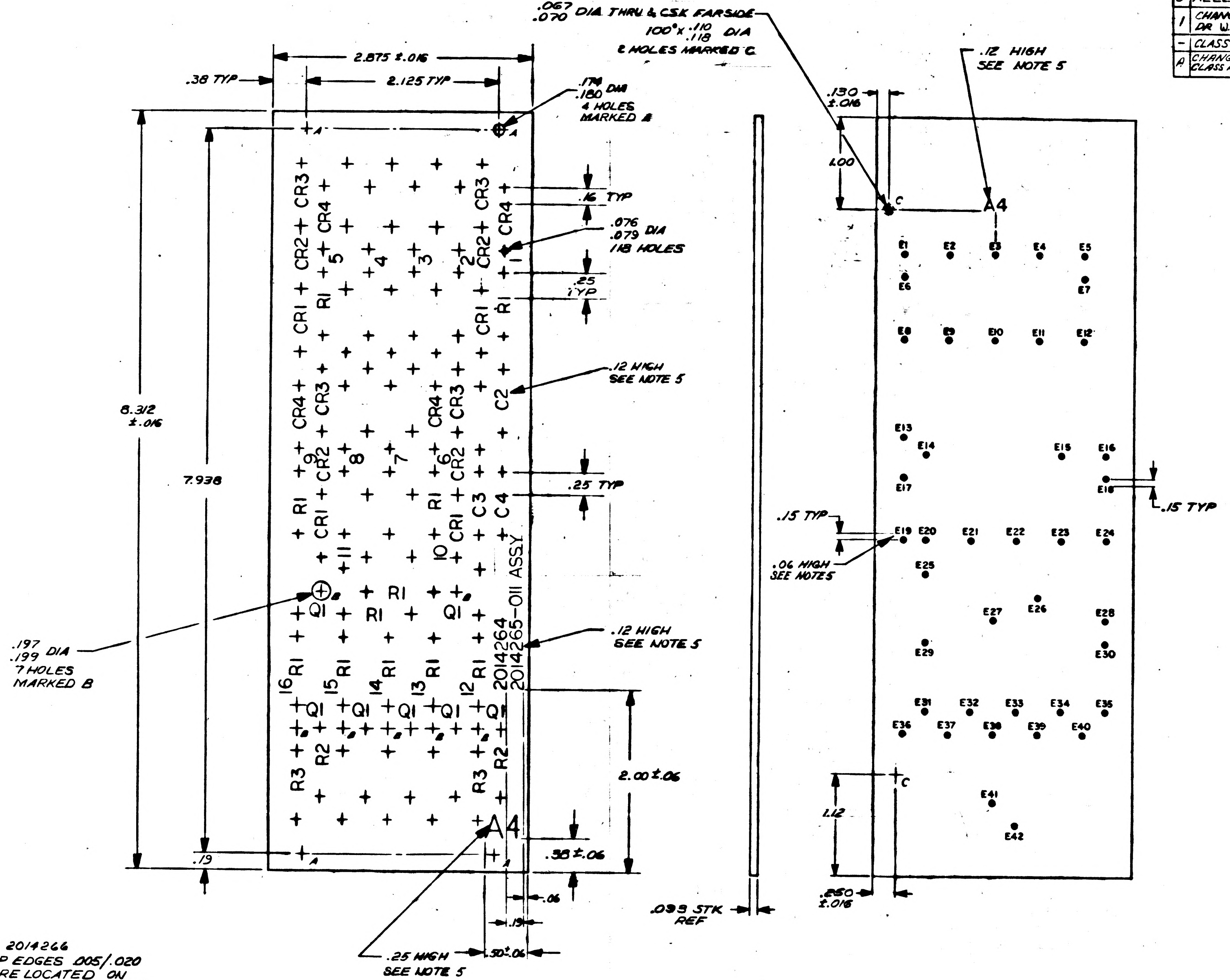
COMPONENT BOARD ASSEMBLY
PRINTED CIRCUIT BOARD A3

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014262
SCALE 2/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014264 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25089	[illegible]	[illegible]
1	CHANGED PER CCA R25238 DR W. Kelly CHK [illegible] APPD [illegible]	1 Nov 65	[illegible]
-	CLASS B NO CHANGE PER CCAR25500	[illegible]	[illegible]
A	CHANGED PER CCA R25665 AND CLASS A RELEASED PER TORR 25478	1/66	[illegible]



2.875 ±.016
2.125 TYP
.38 TYP
.174 DIA
.180
4 HOLES
MARKED A
.067 DIA THRU & CSK FARSIDE
.070
100° X .110 DIA
.118
2 HOLES MARKED C
.16 TYP
.076 DIA
.079
118 HOLES
.25 TYP
.12 HIGH
SEE NOTE 5
.25 TYP
.12 HIGH
SEE NOTE 5
8.312
±.016
7.938
.197 DIA
.199
7 HOLES
MARKED B
2.00 ±.06
.38 ±.06
.19
.06
.19
.50 ±.06
.25 HIGH
SEE NOTE 5
2014264
2014265-011 ASSY
CR1
CR2
CR3
CR4
R1
R2
R3
Q1
C2
C3
C4
A4
.093 STK
REF
.130
±.016
1.00
.12 HIGH
SEE NOTE 5
A4
.15 TYP
.06 HIGH
SEE NOTE 5
.15 TYP
1.12
.850
±.016
E1
E2
E3
E4
E5
E6
E7
E8
E9
E10
E11
E12
E13
E14
E15
E16
E17
E18
E19
E20
E21
E22
E23
E24
E25
E26
E27
E28
E29
E30
E31
E32
E33
E34
E35
E36
E37
E38
E39
E40
E41
E42

NOTES
1. FOR MASTER DRAWING SEE 2014266
2. REMOVE BURPS AND SHARP EDGES .005/.020
3. UNDIMENSIONED HOLES ARE LOCATED ON .025 GRIDS AND TO BE WITHIN $\boxed{\bullet .028 \text{ DIA}}$ OF CENTERS INDICATED ON MASTER PATTERN
4. TIN PLATE & FABRICATE PER MSFC-STD-154
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1
6. HOLE SYMBOL LETTERS ARE FOR IDENTIFICATION ONLY AND DO NOT APPEAR ON THE FINISHED PART

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014265	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL
FL-GE 093C2
CLASS II PER
MIL-P-13949

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 10 [illegible] 65
CHECKED [illegible]
APPROVAL [illegible] 20 [illegible]
APPROVAL [illegible] 7/20/65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD A4
BUFFER CIRCUIT

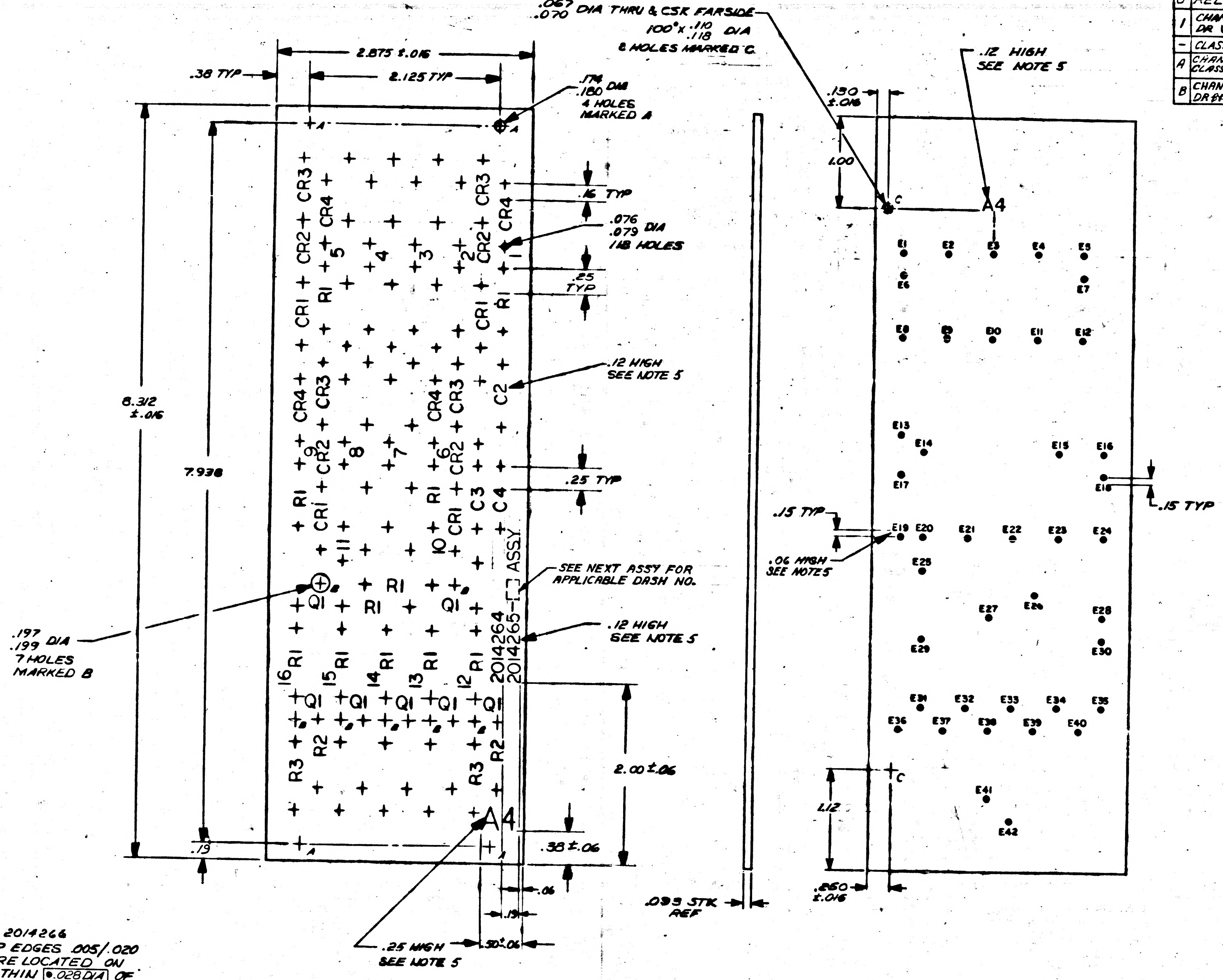
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014264
SCALE 2/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014264 A

2014264 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25089	[illegible]	[illegible]
1	CHANGED PER CCA R25238 DR W. Kelly CHK [illegible] APPD [illegible]	2 Nov 65	[illegible]
–	CLASS B NO CHANGE PER CCAR25500	[illegible]	[illegible]
A	CHANGED PER CCA R25665 AND CLASS A RELEASED PER TDRR 25478	1/7/66	[illegible]
B	CHANGED PER TDRR 27879 DR [illegible] CHK [illegible] APPD PED	4/2/66	[illegible]


.067 .070 DIA THRU & CSK FARSIDE 100° x .110 .118 DIA 8 HOLES MARKED C
2.875 ±.016
.38 TYP
2.125 TYP
.174 .180 DIA 4 HOLES MARKED A
.16 TYP
.076 .079 DIA 118 HOLES
.25 TYP
.12 HIGH SEE NOTE 5
8.312 ±.016
7.938
.25 TYP
SEE NEXT ASSY FOR APPLICABLE DASH NO.
.12 HIGH SEE NOTE 5
.197 .199 DIA 7 HOLES MARKED B
2.00 ±.06
.19
.38 ±.06
.06
.19
.25 HIGH SEE NOTE 5
.50 ±.06
.093 STK REF
CR1 CR2 CR3 CR4 R1 R2 R3 Q1 C2 C3 C4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
2014264
2014265-[ ] ASSY
A4
A B C
.130 ±.016
1.00
.12 HIGH SEE NOTE 5
E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13 E14 E15 E16 E17 E18 E19 E20 E21 E22 E23 E24 E25 E26 E27 E28 E29 E30 E31 E32 E33 E34 E35 E36 E37 E38 E39 E40 E41 E42
.15 TYP
.15 TYP
.06 HIGH SEE NOTE 5
1.12
.260 ±.016

NOTES
1. FOR MASTER DRAWING SEE 2014266
2. REMOVE BURRS AND SHARP EDGES .005/.020
3. UNDIMENSIONED HOLES ARE LOCATED ON .025 GRIDS AND TO BE WITHIN $\boxed{\oplus .028 \text{ DIA}}$ OF CENTERS INDICATED ON MASTER PATTERN
4. TIN PLATE & FABRICATE PER MSFC-STD-154
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-1
6. HOLE SYMBOL LETTERS ARE FOR IDENTIFICATION ONLY AND DO NOT APPEAR ON THE FINISHED PART

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014265	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING

MATERIAL
FL-GE 093C2
CLASS II PER
MIL-P-13949

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 10 JUNE 65
CHECKED B.T. [illegible] 8 JUL 65
APPROVAL H [illegible] 20 JUL 65
APPROVAL [illegible] 7/28/65
APPROVAL [illegible] 8/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C [illegible] 1/12/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD A4
BUFFER CIRCUIT

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014264
SCALE 2/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014264 B

2014265 | B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25133	3/1/65	
–	CLASS B NO CHANGE PER CCA R25500	4/27/65	
A	CHANGED PER CCA R25661 DR CHK APPD RCD.	1/12/66	
B	CHANGED PER CCA R25665 AND CLASS A RELEASED PER TDRR 25478	7/17/66	

NOISE REJECTION CIRCUIT
CIRCUIT SUFFIX NO'S 1 THRU 9

REFERENCE DESIGNATION	
SYMBOL	FIND NO.
CR1-1 THRU CR4-9	8
R1-1 THRU R1-9	3

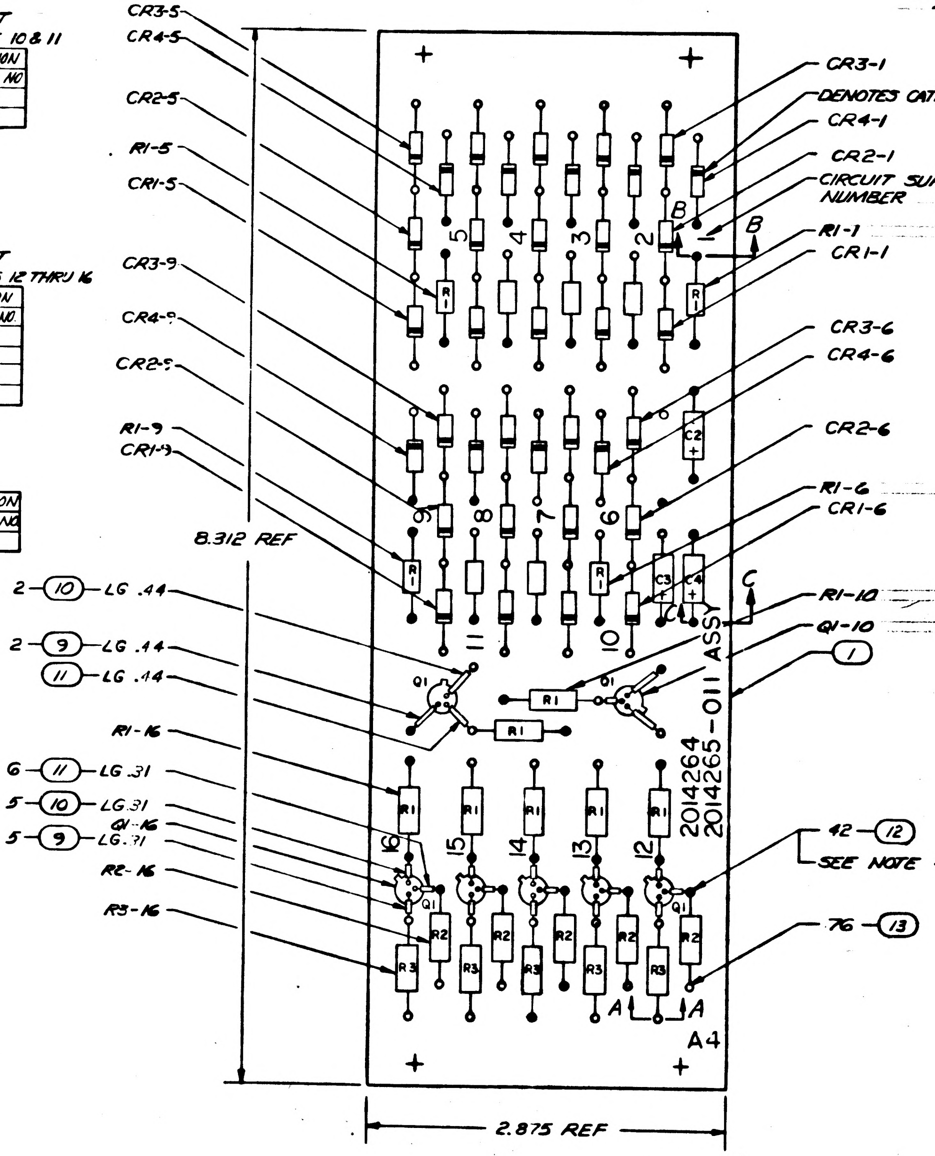
SPECIAL CIRCUIT
CIRCUIT SUFFIX NO'S 10 & 11

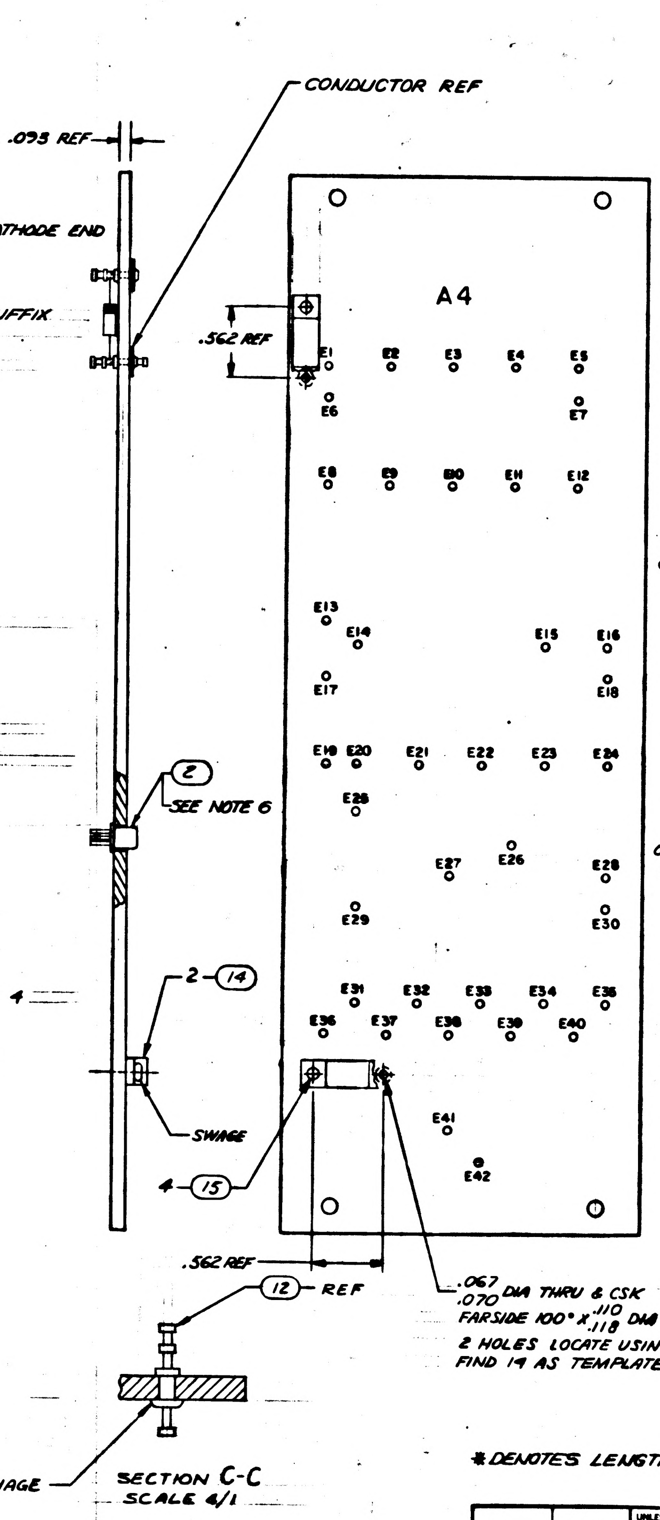
REFERENCE DESIGNATION	
SYMBOL	FIND NO
Q1-10 & Q1-11	2
R1-10 & R1-11	4

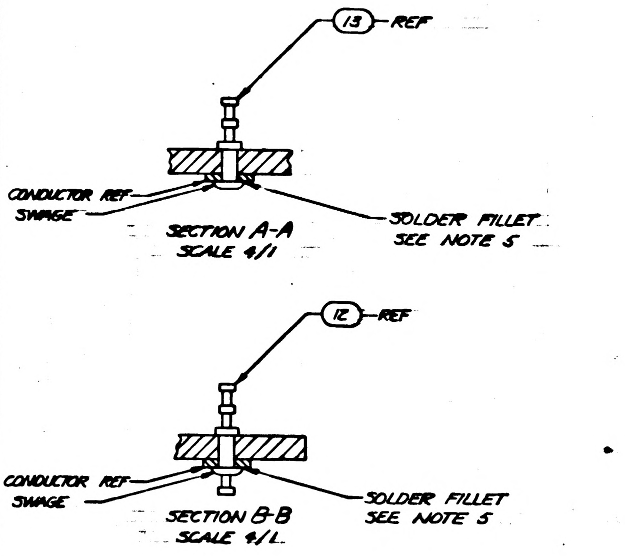
BUFFER CIRCUIT
CIRCUIT SUFFIX NO'S 12 THRU 16

REFERENCE DESIGNATION	
SYMBOL	FIND NO.
Q1-12 THRU Q1-16	2
R1-12 THRU R1-16	4
R2-12 THRU R2-16	5
R3-12 THRU R3-16	6

REFERENCE DESIGNATION	
SYMBOL	FIND NO
C2 THRU C4	7


CR3-5
CR4-5
CR2-5
R1-5
CR1-5
CR3-9
CR4-9
CR2-9
R1-9
CR1-9
8.312 REF
2-(10)-LG .44
2-(9)-LG .44
(11)-LG .44
R1-16
6-(11)-LG .31
5-(10)-LG .31
Q1-16
5-(9)-LG .31
R2-16
R3-16
CR3-1
DENOTES CATHODE END
CR4-1
CR2-1
CIRCUIT SUFFIX NUMBER
R1-1
CR1-1
CR3-6
CR4-6
CR2-6
R1-6
CR1-6
R1-10
Q1-10
(1)
42-(12)
SEE NOTE 4
76-(13)
B
C
A
A4
2014264
2014265-011 ASSY
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
R1
R2
R3
Q1
C2
C3
C4
2.875 REF


CONDUCTOR REF
.093 REF
.562 REF
(2)
SEE NOTE 6
2-(14)
SWAGE
4-(15)
.562 REF
(12)-REF
.067/.070 DIA THRU & CSK FARSIDE 100° X .110/.118 DIA
2 HOLES LOCATE USING FIND 14 AS TEMPLATE
SWAGE
SECTION C-C
SCALE 4/1
A4
E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13 E14 E15 E16 E17 E18 E19 E20 E21 E22 E23 E24 E25 E26 E27 E28 E29 E30 E31 E32 E33 E34 E35 E36 E37 E38 E39 E40 E41 E42


(13)-REF
CONDUCTOR REF
SWAGE
SECTION A-A
SCALE 4/1
SOLDER FILLET
SEE NOTE 5
(12)-REF
CONDUCTOR REF
SWAGE
SECTION B-B
SCALE 4/1
SOLDER FILLET
SEE NOTE 5

NOTES
1. FOR MASTER DRAWING SEE DRAWING NO. 2014266
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION(S)
3. FOR FABRICATION SEE ND1002032
4. ● DESIGNATES FEED THRU TERMINALS (FIND NO. 12)
5. SOLDER PER ND1002071
6. ASSEMBLE FIND NO.2 TO FIND NO.1 PER ND1002004 TYPE II RIGID
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY

* DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014123	SCHEMATIC	REF
4	MS20426AD-2	RIVET, CSK FLAT 4D	15
2	1006906-1	BRACKET, CABLE SUPPORT	14
76	SE12XC02(MIL-T-55155/12)	TERMINAL STANDOFF	13
42	SE14XC02(MIL-T-55155/14)	TERMINAL FEEDTHRU	12
* 0.3	1006776-172	SLEEVING	11
* 0.3	1006776-147	SLEEVING	10
* 0.3	1006776-197	SLEEVING	9
36	1006751	DIODE	8
3	CS13AF010K	CAPACITOR 1µF 10% 35V	7
5	1006760-1	RESISTOR 51Ω ±2%, 1/2W	6
5	1006760-49	RESISTOR 5100Ω ±2%, 1/2W	5
7	1006760-25	RESISTOR 510Ω ±2%, 1/2W	4
9	1006750-32	RESISTOR 10000Ω ±2%, 1/4W	3
7	1006752	TRANSISTOR 2N914	2
1	2014264	COMPONENT BOARD A4	1
-011	LIST OF MATERIALS		

2014267	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 11 June 65
CHECKED 8 JULY 65
APPROVAL 20 JULY 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C Sterling

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD ASSEMBLY PRINTED CIRCUIT BOARD A4

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014265
SCALE 2/1
WT
SHEET 1 OF 1

2014265 | B

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014265 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25133	9/3/65	
–	CLASS B NO CHANGE PER CCA R25500	12/27/65	SBA
A	CHANGED PER CCA R25661 DR CHK APPD PCD.	1/17/66	
B	CHANGED PER CCA R25665 AND CLASS A RELEASED PER TDRR 25478	7/17/66	
C	CHANGED PER TDRR 27069 DR CHK APPD	3/ /66	

NOISE REJECTION CIRCUIT
CIRCUIT SUFFIX NO.'S 1 THRU 9

REFERENCE DESIGNATION	
SYMBOL	FIND NO.
CR-1 THRU CR4-9	8
R1-1 THRU R1-9	3

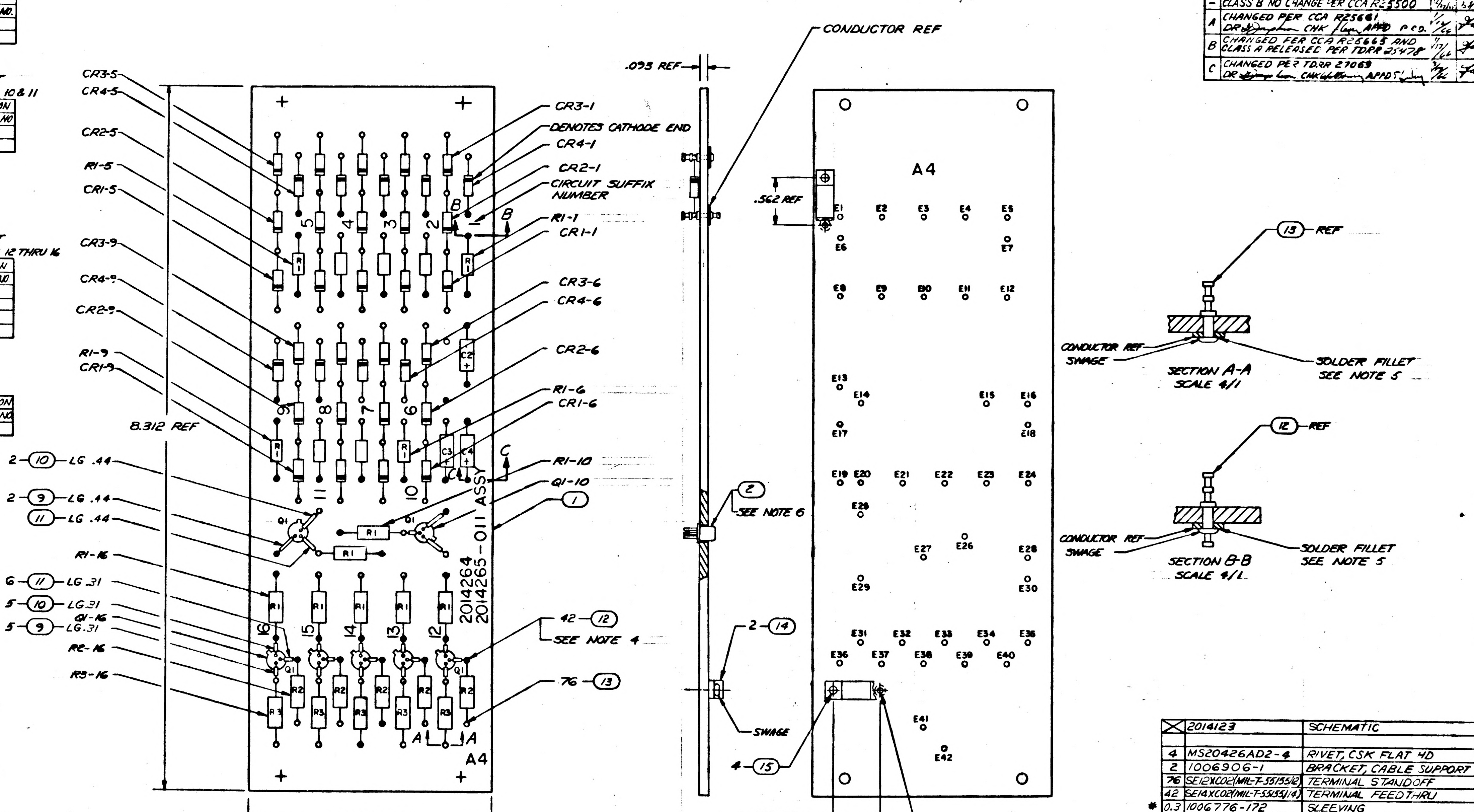
SPECIAL CIRCUIT
CIRCUIT SUFFIX NO'S 10 & 11

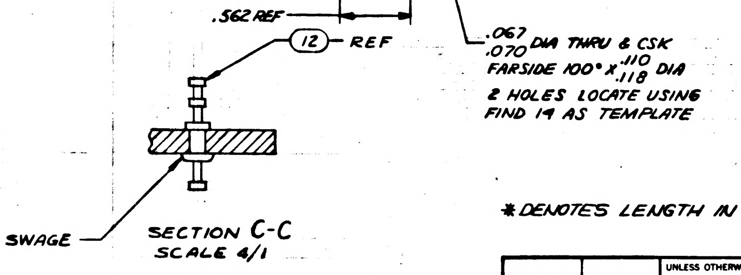
REFERENCE DESIGNATION	
SYMBOL	FIND NO
Q1-10 & Q1-11	2
R1-10 & R1-11	4

BUFFER CIRCUIT
CIRCUIT SUFFIX NO.'S 12 THRU 16

REFERENCE DESIGNATION	
SYMBOL	FIND NO.
Q1-12 THRU Q1-16	2
R-12 THRU R1-16	4
R2-12 THRU R2-16	5
R3-12 THRU R3-16	6

REFERENCE DESIGNATION	
SYMBOL	FIND NO
C2 THRU C4	7


CR3-5
CR4-5
CR2-5
R1-5
CR1-5
CR3-9
CR4-9
CR2-9
R1-9
CR1-9
8.312 REF
2-(10)-LG .44
2-(9)-LG .44
(11)-LG .44
R1-16
6-(11)-LG .31
5-(10)-LG .31
5-(9)-LG .31
Q1-16
R2-16
R3-16
5
4
3
2
1
B
B
R1
9
8
7
6
C2
C3
C4
11
10
C
C
Q1
R1
2014264
2014265-011 ASSY
16
15
14
13
12
R2
R3
A
A
A4
2.875 REF
CR3-1
DENOTES CATHODE END
CR4-1
CR2-1
CIRCUIT SUFFIX NUMBER
R1-1
CR1-1
CR3-6
CR4-6
CR2-6
R1-6
CR1-6
R1-10
Q1-10
(1)
42-(12)
SEE NOTE 4
76-(13)
.093 REF
CONDUCTOR REF
(2)
SEE NOTE 6
2-(14)
SWAGE
4-(15)
.562 REF
A4
E1
E2
E3
E4
E5
E6
E7
E8
E9
E10
E11
E12
E13
E14
E15
E16
E17
E18
E19
E20
E21
E22
E23
E24
E25
E26
E27
E28
E29
E30
E31
E32
E33
E34
E35
E36
E37
E38
E39
E40
E41
E42
(13)-REF
CONDUCTOR REF
SWAGE
SECTION A-A
SCALE 4/1
SOLDER FILLET
SEE NOTE 5
(12)-REF
CONDUCTOR REF
SWAGE
SECTION B-B
SCALE 4/1
SOLDER FILLET
SEE NOTE 5


.562 REF
(12)-REF
SWAGE
SECTION C-C
SCALE 4/1

.067/.070 DIA THRU & CSK FARSIDE 100° X .110/.118 DIA
2 HOLES LOCATE USING FIND 14 AS TEMPLATE

NOTES
1. FOR MASTER DRAWING SEE DRAWING NO. 2014266
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION(S)
3. FOR FABRICATION, SEE ND1002032
4. ● DESIGNATES FEED THRU TERMINALS (FIND NO. 12)
5. SOLDER PER ND1002071
6. ASSEMBLE FIND NO.2 TO FIND NO.1 PER ND1002004 TYPE II RIGID
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY

* DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014123	SCHEMATIC	REF
4	MS20426AD2-4	RIVET, CSK FLAT HD	15
2	1006906-1	BRACKET, CABLE SUPPORT	14
76	SE12XC02(MIL-T-55155/12)	TERMINAL STANDOFF	13
42	SE14XC02(MIL-T-55155/14)	TERMINAL FEEDTHRU	12
* 0.3	1006776-172	SLEEVING	11
* 0.3	1006776-147	SLEEVING	10
* 0.3	1006776-197	SLEEVING	9
36	1006751	DIODE	8
3	CS13AF010K	CAPACITOR 1µF 10% 35V	7
5	1006760-1	RESISTOR 51Ω ±2%, 1/2W	6
5	1006760-49	RESISTOR 5100Ω ±2%, 1/2W	5
7	1006760-25	RESISTOR 510Ω ±2%, 1/2W	4
9	1006750-32	RESISTOR 1000Ω ±2%, 1/4W	3
7	1006752	TRANSISTOR 2N914	2
1	2014264	COMPONENT BOARD A4	1
-011	LIST OF MATERIALS		

2014267 | NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 11 JUNE 65
CHECKED 8 JULY 65
APPROVAL 20 JULY 65
APPROVAL 7/24/65
APPROVAL
NASA APPROVAL A. E. METZGER
MIT APPROVAL
MIT APPROVAL C. Sperling 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD ASSEMBLY
PRINTED CIRCUIT BOARD A4

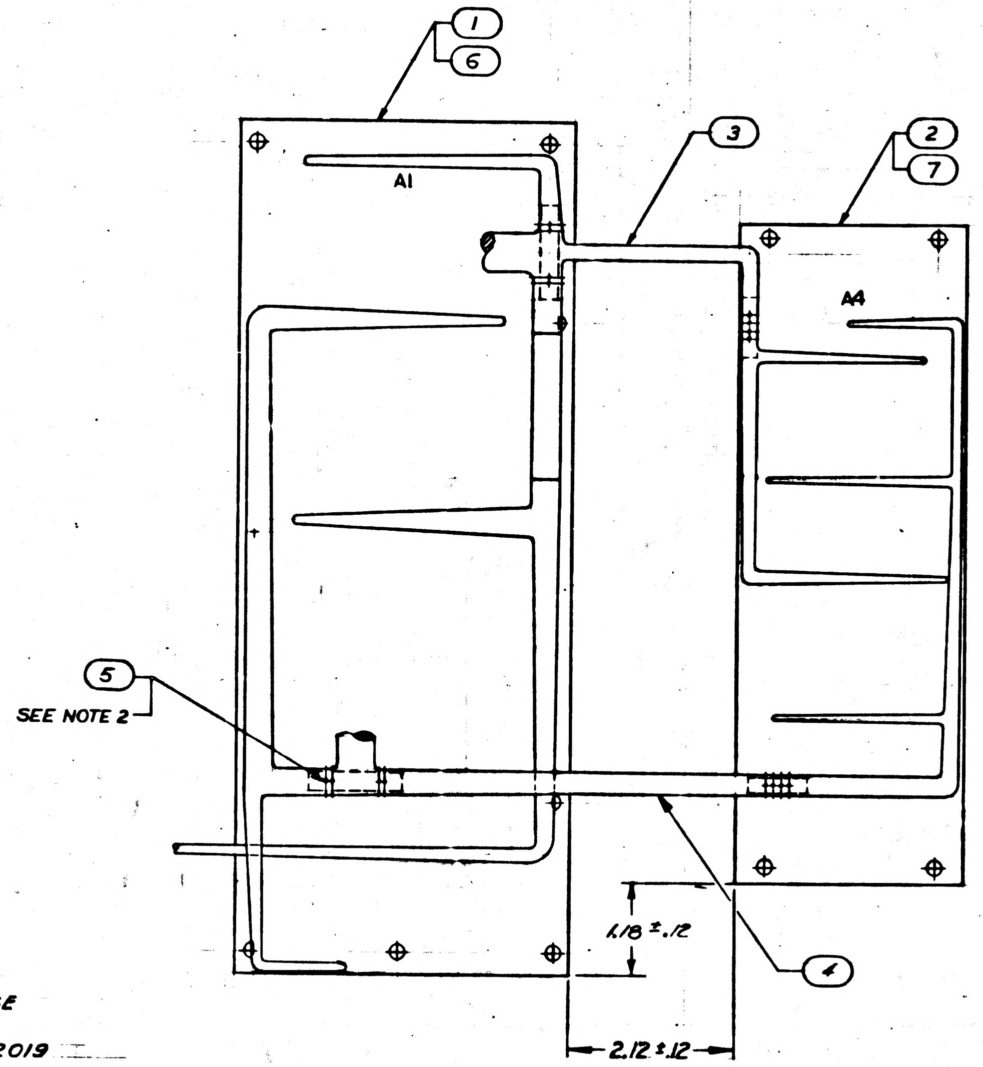
CODE IDENT NO. 49956 | SIZE F | NASA DRAWING NO. 2014265
SCALE 2/1 | WT | SHEET 1 OF 1

2014265 C

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL D-70327

2014267 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25089	9/13/65	G Harano
—	CLASS A RELEASED PER TDRR 25478		
A	CHANGED PER TDRR 27879 DR CHK APPD PED	7/2/66	



NOTES:

1. SOLDER PER ND1002071
2. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 5
3. IDENTIFY WITH PART NO. PER ND1002019

1	—	2014265-021	COMPONENT BD ASSY, A4	7
1	—	2014259-021	COMPONENT BD ASSY, A1	6
A/R	A/R	1006458-004	LACING CORD	5
1	1	2014127-011	WIRING HARN, BRANCHED	4
1	1	2014130-011	WIRING HARN, BRANCHED	3
—	1	2014265-011	COMPONENT BD ASSY, A4	2
—	1	2014259-011	COMPONENT BD ASSY, A1	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-021	-011	LIST OF MATERIALS		

2014254	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9JUN65
CHECKED B. V. English 9JULY65
APPROVAL H Morse 20 Jun 65
APPROVAL D. O'Bryant 7/26/65
APPROVAL 7/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C Sprinkle 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD ASSY
A1 & A4
BUFFER CIRCUIT

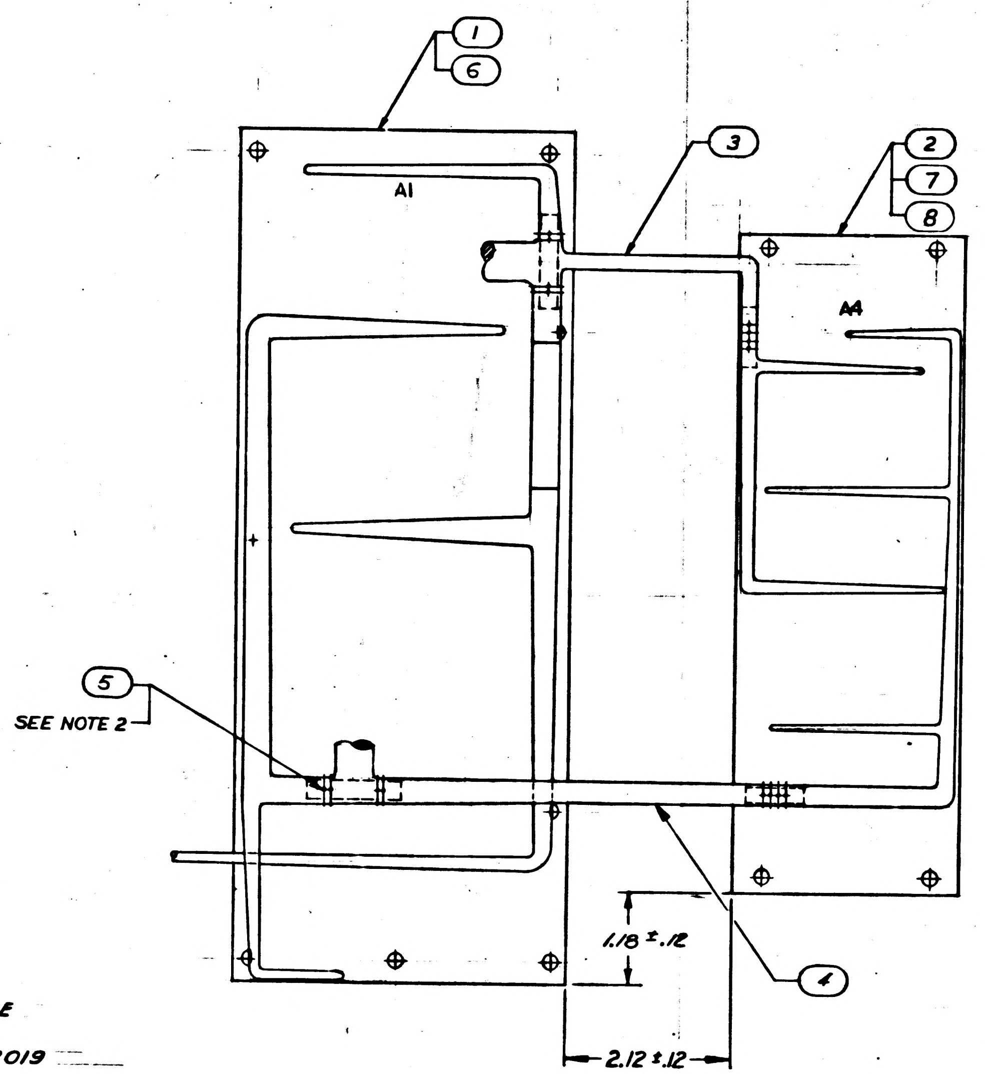
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	D	2014267
SCALE 1/1	WT	SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014267 A

2014267 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25089	9/13/65	G Harano
—	CLASS A RELEASED PER TDRR 25478		
A	CHANGED PER TDRR 27879 DR B.K. Fuller CHK CAP APPD PED	4/7/66	Fed
B	CHANGED PER TDRR 32634 DR. P. Battist CHK J.C. APPD	1/25/67	Fed



NOTES:
1. SOLDER PER ND1002071
2. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 5
3. IDENTIFY WITH PART NO. PER ND1002019
4. A/R DENOTES AS REQUIRED

QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	—	—	2016465-011	COMPONENT BD ASSY, A4	8
—	1	—	2014265-021	COMPONENT BD ASSY, A4	7
1	1	—	2014259-021	COMPONENT BD ASSY, A1	6
A/R	A/R	A/R	1006458-004	LACING CORD	5
1	1	1	2014127-011	WIRING HARN, BRANCHED	4
1	1	1	2014130-011	WIRING HARN, BRANCHED	3
—	—	1	2014265-011	COMPONENT BD ASSY, A4	2
—	—	1	2014259-011	COMPONENT BD ASSY, A1	1
-031	-021	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014254	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO. NAS 9-497
DRAWN P.J. Christides DATE 9JUN65
CHECKED B.V. English 9JULY65
APPROVAL H Morse 20 Jul 65
APPROVAL D. O'Bryant 7/28/65
APPROVAL [illegible] 8/1/66
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C Sparling 1/26/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD ASSY
A1 & A4
BUFFER CIRCUIT

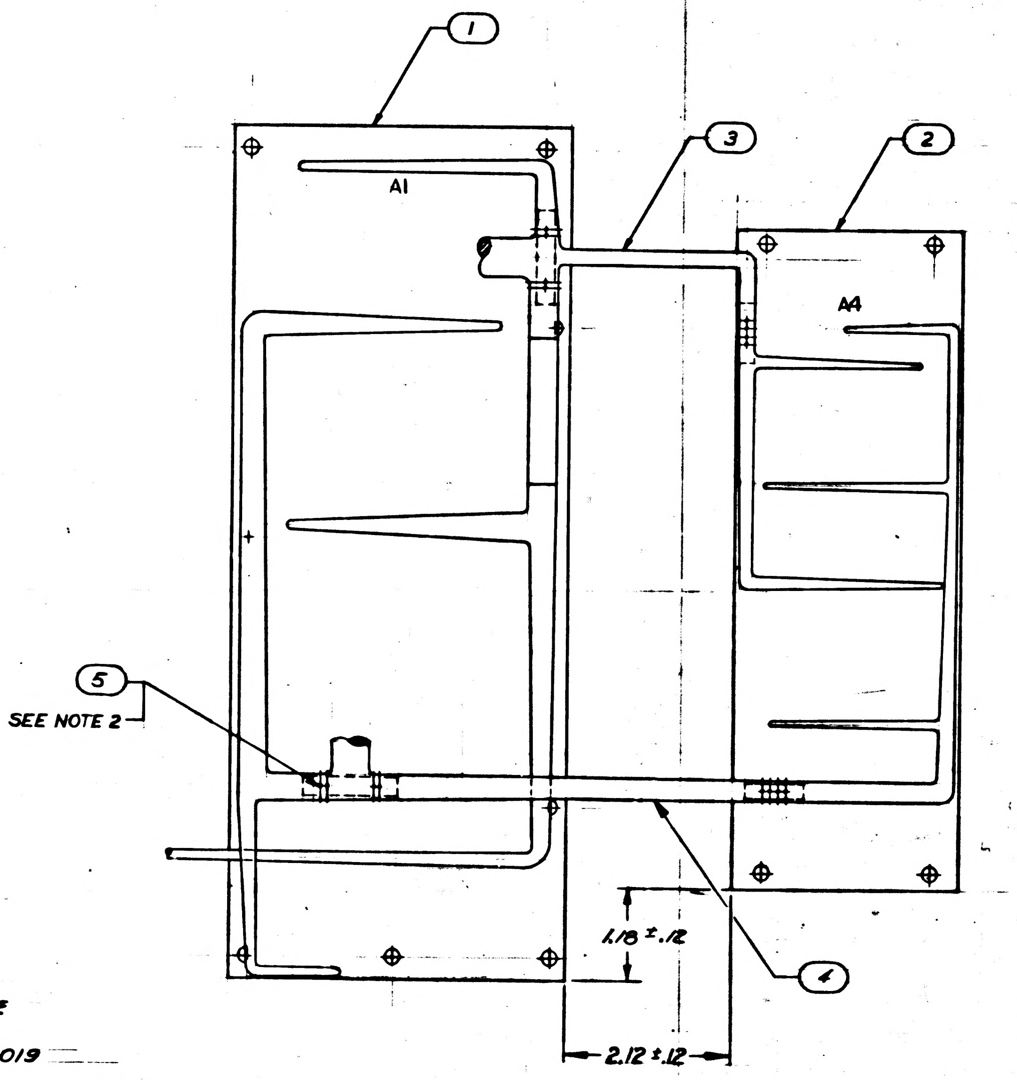
CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014267
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014267 B

2014267 —

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25089	9/13/65	G Harano
—	CLASS A RELEASED PER TDRR 25478		



NOTES:
1. SOLDER PER ND1002071
2. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 5
3. IDENTIFY WITH PART NO. PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
A/R	1006458-004	LACING CORD	5
1	2014127-011	WIRING HARN, BRANCHED	4
1	2014130-011	WIRING HARN, BRANCHED	3
1	2014265-011	COMPONENT BD ASSY, A4	2
1	2014259-011	COMPONENT BD ASSY, A1	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014254	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9JUN65
CHECKED B. V. English 9 JULY 65
APPROVAL H Morse 20 Jun 65
APPROVAL D. O'Bryant 7/30/65
APPROVAL 8/11/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C Sparling 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD ASSY
A1 & A4
BUFFER CIRCUIT

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014267
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014267 —

2014268 E

SYM	DESCRIPTION	DATE	APPROVED
E	CLASS A RELEASED PER TDRR 26633	2/23/66	WR

REVISIONS 26633

SUPPLIED WITH
AGC/GSE INTERCONN SET
2014255-011

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014358	AGC/GSE INTERCONN BLK II/LEM	REF
☒	2014361	AGC/GSE INTERCONN BLK I (100)	REF
☒	2014463-011	CABLE ASSY W236	REF
☒	2014254-011	BUFFER CIRCUIT ASSY	REF
☒	2016360-011	CABLE ASSY W265	REF
☒	2014392-011	SELF TEST ASSY	REF
☒	2014462-011	CABLE ASSY W237	REF
☒	2014137-011	TEST CABLE ASSY W226	REF
☒	2014470-011	CABLE ASSY W259	REF
☒	2014462-031	CABLE ASSY W239	REF
☒	2014462-021	CABLE ASSY W238	REF
1	2016314-011	CABLE ASSY W263	27
* 1	MS15795-809	WASHER, FLAT	26
* 1	MS16996-9	SCREW, SOCKET HEAD	25
1	2014456-011	CABLE ASSY W258	24
* 12	2016355	SCREW, CAP, HEX HD	23
* 12	2014247	SPACER	22
1	2014418-011	MOUNTING BRACKET ASSY	21
1	2014419-011	MOUNTING BRACKET ASSY	20
1	2014485-011	CABLE ASSY W231	19
1	2014487-011	CABLE ASSY W230	18
1	2014488-011	CABLE ASSY W229	17
1	2014489-011	CABLE ASSY W228	16
1	2014199-011	CABLE ASSY W227	15
1	2014486-011	CABLE ASSY W225	14
1	2014493-011	CABLE ASSY W224	13
1	1006482-012	CABLE ASSY W223	12
1	1006482-011	CABLE ASSY W222	11
1	1006482-010	CABLE ASSY W221	10
1	1006482-009	CABLE ASSY W220	9
1	1006482-008	CABLE ASSY W219	8
1	1006482-007	CABLE ASSY W218	7
1	1006482-006	CABLE ASSY W217	6
1	1006482-005	CABLE ASSY W216	5
1	1006482-004	CABLE ASSY W215	4
1	1006482-003	CABLE ASSY W214	3
1	1006482-002	CABLE ASSY W213	2
1	1006482-001	CABLE ASSY W212	1

-011 LIST OF MATERIALS

NOTES
1. THIS SET IS USED DURING COMPUTER SUBSYSTEM TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2014361 & 2014358
2. SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014268
* 3. IDENTIFY WITH PART NUMBER PER ND1002019

NEXT ASSY	USED ON
1900030	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN C. Damaw DATE 20 FEB66
CHECKED R Clouthier 22 FEB66
APPROVAL 2/23/66
APPROVAL D. O'Bryant 2/23/66
APPROVAL 2/23/66
NASA APPROVAL
MIT APPROVAL 13 Feb 66
MIT APPROVAL 2/23/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC/GSE INTERCONNECTION SET
SUB-SYSTEM TEST

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014268
SCALE NONE
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014268 E

2014268 F

REVISIONS 26633			
SYM	DESCRIPTION	DATE	APPROVED
E	CLASS A RELEASED PER TDRR 26633	[illegible]	[illegible]
F	CHANGED PER TDRR 27882 DR R [illegible] CHK [illegible] APPD P. E. O.	5/4/66	

SUPPLIED WITH AGC/GSE INTERCONNECTION SET 2014255-011

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
—	☒	2014358	AGC/GSE INTERCONN BLK II (LEM)	REF
—	☒	2014361	AGC/GSE INTERCONN BLK I (100)	REF
—	☒	2016463-011	CABLE ASSY W236	REF
—	☒	2014254-011	BUFFER CIRCUIT ASSY	REF
—	☒	2016360-011	CABLE ASSY W265	REF
—	☒	2014392-011	SELF TEST ASSY	REF
—	☒	2014462-011	CABLE ASSY W237	REF
—	☒	2014137-011	TEST CABLE ASSY W226	REF
—	☒	2014470-011	CABLE ASSY W259	REF
—	☒	2014462-031	CABLE ASSY W239	REF
—	☒	2014462-021	CABLE ASSY W238	REF
1	—	2016406-011	CABLE ASSY W267	29
1	—	2016408-011	CABLE ASSY W268	28
1	1	2016314-011	CABLE ASSY W263	27
* 1	1	MS15795-809	WASHER, FLAT	26
* 1	1	MS16996-9	SCREW, SOCKET HEAD	25
1	1	2014456-011	CABLE ASSY W258	24
* 12	12	2016355	SCREW, CAP, HEX HD	23
* 12	12	2014247	SPACER	22
1	1	2014418-011	MOUNTING BRACKET ASSY	21
1	1	2014419-011	MOUNTING BRACKET ASSY	20
1	1	2014485-011	CABLE ASSY W231	19
1	1	2014487-011	CABLE ASSY W230	18
1	1	2014488-011	CABLE ASSY W229	17
1	1	2014489-011	CABLE ASSY W228	16
1	1	2014199-011	CABLE ASSY W227	15
—	1	2014486-011	CABLE ASSY W225	14
—	1	2014493-011	CABLE ASSY W224	13
1	1	1006482-012	CABLE ASSY W223	12
1	1	1006482-011	CABLE ASSY W222	11
1	1	1006482-010	CABLE ASSY W221	10
1	1	1006482-009	CABLE ASSY W220	9
1	1	1006482-008	CABLE ASSY W219	8
1	1	1006482-007	CABLE ASSY W218	7
1	1	1006482-006	CABLE ASSY W217	6
1	1	1006482-005	CABLE ASSY W216	5
1	1	1006482-004	CABLE ASSY W215	4
1	1	1006482-003	CABLE ASSY W214	3
1	1	1006482-002	CABLE ASSY W213	2
1	1	1006482-001	CABLE ASSY W212	1

LIST OF MATERIALS

NOTES

1. SET 2014268-011 IS USED DURING COMPUTER SUBSYSTEM TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2014361 & 2014358
2. SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014268
3. * IDENTIFY WITH PART NUMBER PER ND1002019
4. SET 2014268-021 IS USED DURING COMPUTER SUBSYSTEM TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2016402 & 2016403

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2016402	AGC/GSE INTERCONN BLK II (LEM)	REF
☒	—	2016403	AGC/GSE INTERCONN BLK I (100)	REF
☒	—	2016463-011	CABLE ASSY W236	REF
☒	—	2014254-021	BUFFER CIRCUIT ASSY	REF
☒	—	2016360-011	CABLE ASSY W265	REF
☒	—	2014392-011	SELF TEST ASSY	REF
☒	—	2014462-011	CABLE ASSY W237	REF
☒	—	2014137-011	TEST CABLE ASSY W226	REF
☒	—	2014470-011	CABLE ASSY W259	REF
☒	—	2014462-031	CABLE ASSY W239	REF
☒	—	2014462-021	CABLE ASSY W238	REF

LIST OF MATERIALS

SUPPLIED WITH AGC/GSE INTERCONNECTION SET 2014255-021

1900030	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN C. [illegible] DATE 20 FEB 66
CHECKED [illegible] 22 FEB 66
APPROVAL [illegible] 2/23/66
APPROVAL [illegible] 2/23/66
APPROVAL [illegible] 2/23/66
NASA APPROVAL
MIT APPROVAL [illegible] 23 FEB 66
MIT APPROVAL [illegible] 2/23/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC/GSE INTERCONNECTION SET
SUB-SYSTEM TEST

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	D	2014268
SCALE NONE	WT	SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014268 F

2014268 G

SYM	REVISIONS 26633 DESCRIPTION	DATE	APPROVED
E	CLASS A RELEASED PER TDRR 26633	2/23/66	WH
F	CHANGED PER TDRR 27882 DR R Dubois CHK Hayward APPD P&O	5/16/66	
G	CHANGED PER TDRR 30571 DR J.P. Leonard CHK G. Kufer APPD L.T.G.	8/30/66	

	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	—	—	☒	2014358	AGC/GSE INTERCONN BLK II (LEM)	REF
	—	—	☒	2014361	AGC/GSE INTERCONN BLK I (100)	REF
	—	—	☒	2014463-011	CABLE ASSY W236	REF
	—	—	☒	2014254-011	BUFFER CIRCUIT ASSY	REF
	—	—	☒	2016360-011	CABLE ASSY W265	REF
	—	—	☒	2014392-011	SELF TEST ASSY	REF
	—	—	☒	2014462-011	CABLE ASSY W237	REF
	—	—	☒	2014137-011	TEST CABLE ASSY W226	REF
	—	—	☒	2014470-011	CABLE ASSY W259	REF
	—	—	☒	2014462-031	CABLE ASSY W239	REF
	—	—	☒	2014462-021	CABLE ASSY W238	REF
	1	—	—	2014199-021	CABLE ASSY W227	30
	1	1	—	2016406-011	CABLE ASSY W267	29
	1	1	—	2016408-011	CABLE ASSY W268	28
	1	1	1	2016314-011	CABLE ASSY W263	27
*	1	1	1	MS15795-809	WASHER, FLAT	26
*	1	1	1	MS16996-9	SCREW, SOCKET HEAD	25
	1	1	1	2014456-011	CABLE ASSY W258	24
*	12	12	12	2016355	SCREW, CAP, HEX HD	23
*	12	12	12	2014247	SPACER	22
	1	1	1	2014418-011	MOUNTING BRACKET ASSY	21
	1	1	1	2014419-011	MOUNTING BRACKET ASSY	20
	1	1	1	2014485-011	CABLE ASSY W231	19
	1	1	1	2014487-011	CABLE ASSY W230	18
	1	1	1	2014483-011	CABLE ASSY W229	17
	1	1	1	2014489-011	CABLE ASSY W228	16
	—	1	1	2014199-011	CABLE ASSY W227	15
	—	—	1	2014486-011	CABLE ASSY W225	14
	—	—	1	2014493-011	CABLE ASSY W224	13
	1	1	1	1006482-012	CABLE ASSY W223	12
	1	1	1	1006482-011	CABLE ASSY W222	11
	1	1	1	1006482-010	CABLE ASSY W221	10
	1	1	1	1006482-009	CABLE ASSY W220	9
	1	1	1	1006482-008	CABLE ASSY W219	8
	1	1	1	1006482-007	CABLE ASSY W218	7
	1	1	1	1006482-006	CABLE ASSY W217	6
	1	1	1	1006482-005	CABLE ASSY W216	5
	1	1	1	1006482-004	CABLE ASSY W215	4
	1	1	1	1006482-003	CABLE ASSY W214	3
	1	1	1	1006482-002	CABLE ASSY W213	2
	1	1	1	1006482-001	CABLE ASSY W212	1

LIST OF MATERIALS

SUPPLIED WITH AGC/GSE INTERCONNECTION SET 2014255-011 (2014463-011 through 2014462-021 above)

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	—	2014463-011	CABLE ASSY W236	REF
☒	—	—	2014254-021	BUFFER CIRCUIT ASSY	REF
☒	—	—	2016360-011	CABLE ASSY W265	REF
☒	—	—	2016392-011	SELF TEST ASSY	REF
☒	—	—	2014462-011	CABLE ASSY W237	REF
☒	—	—	2014137-021	TEST CABLE ASSY W226	REF
☒	—	—	2014470-011	CABLE ASSY W259	REF
☒	—	—	2014462-031	CABLE ASSY W239	REF
☒	—	—	2014462-021	CABLE ASSY W238	REF
☒	☒	—	2016402	AGC/GSE INTERCONN BLK II (LEM)	REF
☒	☒	—	2016403	AGC/GSE INTERCONN BLK I (100)	REF
—	☒	—	2014463-011	CABLE ASSY W236	REF
—	☒	—	2014254-021	BUFFER CIRCUIT ASSY	REF
—	☒	—	2016360-011	CABLE ASSY W265	REF
—	☒	—	2014392-011	SELF TEST ASSY	REF
—	☒	—	2014462-011	CABLE ASSY W237	REF
—	☒	—	2014137-011	TEST CABLE ASSY W226	REF
—	☒	—	2014470-011	CABLE ASSY W259	REF
—	☒	—	2014462-031	CABLE ASSY W239	REF
—	☒	—	2014462-021	CABLE ASSY W238	REF

LIST OF MATERIALS

SUPPLIED WITH AGC/GSE INTERCONNECTION SET 2014255-031 (first nine entries above)

SUPPLIED WITH AGC/GSE INTERCONNECTION SET 2014255-021 (last nine entries above)

NOTES

1. SET 2014268-011 IS USED DURING COMPUTER SUBSYSTEM TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2014361 & 2014358
2. SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014268
3. * IDENTIFY WITH PART NUMBER PER ND1002019
4. SET 2014268-021 IS USED DURING COMPUTER SUBSYSTEM TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2016402 & 2016403
5. SET 2014268-031 IS USED DURING COMPUTER SUBSYSTEM TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2016402 & 2016403

NEXT ASSY	USED ON
1900030	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN C. Damono DATE 20 FEB 66
CHECKED 22 FEB 66
APPROVAL 2/23/66
APPROVAL D. O'Bryant 2/23/66
APPROVAL 2/23/66
NASA APPROVAL
MIT APPROVAL 23 Feb 66
MIT APPROVAL 2/23/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC/GSE INTERCONNECTION SET
SUB-SYSTEM TEST

CODE IDENT NO. 49956 SIZE D NASA DRAWING NO. 2014268
SCALE NONE WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014268 G

2014268 H

REVISIONS 26633			
SYM	DESCRIPTION	DATE	APPROVED
E	CLASS A RELEASED PER TDRR 26633	2/2 66	
F	CHANGED PER TDRR 27882 DR R. [illegible] CHK [illegible] APPD PEO	5/ /66	
G	CHANGED PER TDRR 30571 DR J.P. Leonard CHK G. [illegible] APPD [illegible]	8/3 /66	
H	CHANGED PER TDRR 31059 DR J. [illegible] CHK G. [illegible] APPD [illegible]	11/ /66	

SUPPLIED WITH AGC/GSE INTERCONNECTION SET 2014255-011

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
–	–	☒	2014358	AGC/GSE INTERCONN BLK II (LEM)	REF
–	–	☒	2014361	AGC/GSE INTERCONN BLK I (100)	REF
–	–	☒	2014463-011	CABLE ASSY W236	REF
–	–	☒	2014254-011	BUFFER CIRCUIT ASSY	REF
–	–	☒	2016360-011	CABLE ASSY W265	REF
–	–	☒	2014392-011	SELF TEST ASSY	REF
–	–	☒	2014462-011	CABLE ASSY W237	REF
–	–	☒	2014137-011	TEST CABLE ASSY W226	REF
–	–	☒	2014470-011	CABLE ASSY W259	REF
–	–	☒	2014462-031	CABLE ASSY W239	REF
–	–	☒	2014462-021	CABLE ASSY W238	REF
1	–	–	2014199-021	CABLE ASSY W227	30
1	1	–	2016406-011	CABLE ASSY W267	29
1	1	–	2016408-011	CABLE ASSY W268	28
1	1	1	2016314-011	CABLE ASSY W263	27
* 1	1	1	MS15795-809	WASHER, FLAT	26
* 1	1	1	MS16996-9	SCREW, SOCKET HEAD	25
1	1	1	2014456-011	CABLE ASSY W258	24
* 12	12	12	2016355	SCREW, CAP, HEX HD	23
* 12	12	12	2014247	SPACER	22
1	1	1	2014419-011	MOUNTING BRACKET ASSY	21
1	1	1	2014419-011	MOUNTING BRACKET ASSY	20
1	1	1	2014485-011	CABLE ASSY W231	19
1	1	1	2014487-011	CABLE ASSY W230	18
1	1	1	2014488-011	CABLE ASSY W229	17
1	1	1	2014489-011	CABLE ASSY W228	16
–	1	1	2014199-011	CABLE ASSY W227	15
–	–	1	2014486-011	CABLE ASSY W225	14
–	–	1	2014493-011	CABLE ASSY W224	13
1	1	1	1006482-012	CABLE ASSY W223	12
1	1	1	1006482-011	CABLE ASSY W222	11
1	1	1	1006482-010	CABLE ASSY W221	10
1	1	1	1006482-009	CABLE ASSY W220	9
1	1	1	1006482-008	CABLE ASSY W219	8
1	1	1	1006482-007	CABLE ASSY W218	7
1	1	1	1006482-006	CABLE ASSY W217	6
1	1	1	1006482-005	CABLE ASSY W216	5
1	1	1	1006482-004	CABLE ASSY W2 5	4
1	1	1	1006482-003	CABLE ASSY W214	3
1	1	1	1006482-002	CABLE ASSY W213	2
1	1	1	1006482-001	CABLE ASSY W212	1

LIST OF MATERIALS

SUPPLIED WITH AGC/GSE INTERCONNECTION SET 2014255-031

SUPPLIED WITH AGC/GSE INTERCONNECTION SET 2014255-021

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	–	–	2014463-011	CABLE ASSY W236	REF
☒	–	–	2014254-021	BUFFER CIRCUIT ASSY	REF
☒	–	–	2016360-011	CABLE ASSY W265	REF
☒	–	–	2014392-011	SELF TEST ASSY	REF
☒	–	–	2014462-011	CABLE ASSY W237	REF
☒	–	–	2014137-021	TEST CABLE ASSY W226	REF
☒	–	–	2014470-011	CABLE ASSY W259	REF
☒	–	–	2014462-031	CABLE ASSY W239	REF
☒	–	–	2014462-021	CABLE ASSY W238	REF
☒	☒	–	2016402	AGC/GSE INTERCONN BLK II (LEM)	REF
☒	☒	–	2016403	AGC/GSE INTERCONN BLK I (100)	REF
–	☒	–	2014463-011	CABLE ASSY W236	REF
–	☒	–	2014254-021	BUFFER CIRCUIT ASSY	REF
–	☒	–	2016360-011	CABLE ASSY W265	REF
–	☒	–	2014392-011	SELF TEST ASSY	REF
–	☒	–	2014462-011	CABLE ASSY W237	REF
–	☒	–	2014137-011	TEST CABLE ASSY W226	REF
–	☒	–	2014470-011	CABLE ASSY W259	REF
–	☒	–	2014462-031	CABLE ASSY W239	REF
–	☒	–	2014462-021	CABLE ASSY W238	REF

LIST OF MATERIALS

NOTES

1. SET 2014268-011 IS USED DURING COMPUTER SUBSYSTEM TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2014361 & 2014358
2. SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014268
3. * IDENTIFY WITH PART NUMBER PER ND1002019
4. SET 2014268-021 IS USED DURING COMPUTER SUBSYSTEM TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2016402 & 2016403
5. SET 2014268-031 IS USED DURING COMPUTER SUBSYSTEM TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2016402 & 2016403

NEXT ASSY	USED ON
1900030	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN C. Damon DATE 20 FEB 66
CHECKED [illegible] 22 FEB 66
APPROVAL [illegible] 2/23/66
APPROVAL [illegible] 2/23/66
APPROVAL [illegible] 2/23/66
NASA APPROVAL
MIT APPROVAL [illegible] 13 Feb 66
MIT APPROVAL [illegible] 2/23/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC/GSE INTERCONNECTION SET SUB-SYSTEM TEST

CODE IDENT NO. 49956 SIZE D NASA DRAWING NO. 2014268
SCALE NONE WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014268 H

2014268 J

REVISIONS 26633

SYM	DESCRIPTION	DATE	APPROVED
E	CLASS A RELEASED PER TDRR 26633	2/24/66	
F	CHANGED PER TDRR 27882 DR R. Dunham CHK Hayward APPD P.E.O.	5/1/66	
G	CHANGED PER TDRR 30571 DR J.P. Leonard CHK G. Kupfer APPD X 78	7/30/66	
H	CHANGED PER TDRR 31059 DR J. Kelley CHK G. Kupfer APPD X 78	10/1/66	
J	CHANGED PER TDRR 32630 DR R.M.J. CHK J.C. APPD	1/67	

SUPPLIED WITH AGC/GSE INTERCONNECTION SET 2014255-041

SUPPLIED WITH AGC/GSE INTERCONNECTION SET 2014255-031

SUPPLIED WITH AGC/GSE INTERCONNECTION SET 2014255-021

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	—	2014463-011	CABLE ASSY W236	REF
☒	—	—	2014254-031	BUFFER CIRCUIT ASSY	REF
☒	—	—	2016360-011	CABLE ASSY W265	REF
☒	—	—	2014392-011	SELF TEST ASSY	REF
☒	—	—	2014462-011	CABLE ASSY W237	REF
☒	—	—	2014137-021	TEST CABLE ASSY W226	REF
☒	—	—	2014470-011	CABLE ASSY W259	REF
☒	—	—	2014462-031	CABLE ASSY W239	REF
☒	—	—	2014462-021	CABLE ASSY W238	REF
☒	—	—	2014463-011	CABLE ASSY W236	REF
☒	—	—	2014254-021	BUFFER CIRCUIT ASSY	REF
☒	—	—	2016360-011	CABLE ASSY W265	REF
☒	—	—	2014392-011	SELF TEST ASSY	REF
☒	—	—	2014462-011	CABLE ASSY W237	REF
☒	—	—	2014137-021	TEST CABLE ASSY W226	REF
☒	—	—	2014470-011	CABLE ASSY W259	REF
☒	—	—	2014462-031	CABLE ASSY W239	REF
☒	—	—	2014462-021	CABLE ASSY W238	REF
☒	☒	—	2016402	AGC/GSE INTERCONN BLK II (LEM)	REF
☒	☒	—	2016403	AGC/GSE INTERCONN BLK I (100)	REF
—	☒	—	2014463-011	CABLE ASSY W236	REF
—	☒	—	2014254-021	BUFFER CIRCUIT ASSY	REF
—	☒	—	2016360-011	CABLE ASSY W265	REF
—	☒	—	2014392-011	SELF TEST ASSY	REF
—	☒	—	2014462-011	CABLE ASSY W237	REF
—	☒	—	2014137-011	TEST CABLE ASSY W226	REF
—	☒	—	2014470-011	CABLE ASSY W259	REF
—	☒	—	2014462-031	CABLE ASSY W239	REF
—	☒	—	2014462-021	CABLE ASSY W238	REF

LIST OF MATERIALS

SUPPLIED WITH AGC/GSE INTERCONNECTION SET 2014255-011

	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	—	—	☒	2014358	AGC/GSE INTERCONN BLK II (LEM)	REF
	—	—	☒	2014361	AGC/GSE INTERCONN BLK I (100)	REF
	—	—	☒	2014463-011	CABLE ASSY W236	REF
	—	—	☒	2014254-011	BUFFER CIRCUIT ASSY	REF
	—	—	☒	2016360-011	CABLE ASSY W265	REF
	—	—	☒	2014392-011	SELF TEST ASSY	REF
	—	—	☒	2014462-011	CABLE ASSY W237	REF
	—	—	☒	2014137-011	TEST CABLE ASSY W226	REF
	—	—	☒	2014470-011	CABLE ASSY W259	REF
	—	—	☒	2014462-031	CABLE ASSY W239	REF
	—	—	☒	2014462-021	CABLE ASSY W238	REF
	1	—	—	2014199-021	CABLE ASSY W227	30
	1	1	—	2016406-011	CABLE ASSY W267	29
	1	1	—	2016408-011	CABLE ASSY W268	28
	1	1	1	2016314-011	CABLE ASSY W263	27
*	1	1	1	MS15795-809	WASHER, FLAT	26
*	1	1	1	MS16996-9	SCREW, SOCKET HEAD	25
	1	1	1	2014456-011	CABLE ASSY W258	24
*	12	12	12	2016355	SCREW, CAP, HEX HD	23
*	12	12	12	2014247	SPACER	22
	1	1	1	2014418-011	MOUNTING BRACKET ASSY	21
	1	1	1	2014419-011	MOUNTING BRACKET ASSY	20
	1	1	1	2014485-011	CABLE ASSY W231	19
	1	1	1	2014487-011	CABLE ASSY W230	18
	1	1	1	2014488-011	CABLE ASSY W229	17
	1	1	1	2014489-011	CABLE ASSY W228	16
	—	1	1	2014199-011	CABLE ASSY W227	15
	—	—	1	2014486-011	CABLE ASSY W225	14
	—	—	1	2014493-011	CABLE ASSY W224	13
	1	1	1	1006482-012	CABLE ASSY W223	12
	1	1	1	1006482-011	CABLE ASSY W222	11
	1	1	1	1006482-010	CABLE ASSY W221	10
	1	1	1	1006482-009	CABLE ASSY W220	9
	1	1	1	1006482-008	CABLE ASSY W219	8
	1	1	1	1006482-007	CABLE ASSY W218	7
	1	1	1	1006482-006	CABLE ASSY W217	6
	1	1	1	1006482-005	CABLE ASSY W216	5
	1	1	1	1006482-004	CABLE ASSY W215	4
	1	1	1	1006482-003	CABLE ASSY W214	3
	1	1	1	1006482-002	CABLE ASSY W213	2
	1	1	1	1006482-001	CABLE ASSY W212	1

LIST OF MATERIALS

NOTES

1. SET 2014268-011 IS USED DURING COMPUTER SUBSYSTEM TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2014361 & 2014358
2. SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2014268
3. * IDENTIFY WITH PART NUMBER PER ND1002019
4. SET 2014268-021 IS USED DURING COMPUTER SUBSYSTEM TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2016402 & 2016403
5. SET 2014268-031 IS USED DURING COMPUTER SUBSYSTEM TEST FOR INTERCONNECTING GROUND SUPPORT EQUIPMENT AND APOLLO GUIDANCE COMPUTERS PER AGC/GSE INTERCONNECTION DWGS 2016402 & 2016403

NEXT ASSY	USED ON
1900030	

APPLICATION

MASTER

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN C. Damon DATE 20 FEB 66
CHECKED A.P. Cynthus 22 FEB 66
APPROVAL 2/23/66
APPROVAL D. O'Bryant 2/23/66
APPROVAL 2/23/66
NASA APPROVAL
MIT APPROVAL W. Kupfer 23 Feb 66
MIT APPROVAL A. Alerano 2/23/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC/GSE INTERCONNECTION SET
SUB-SYSTEM TEST

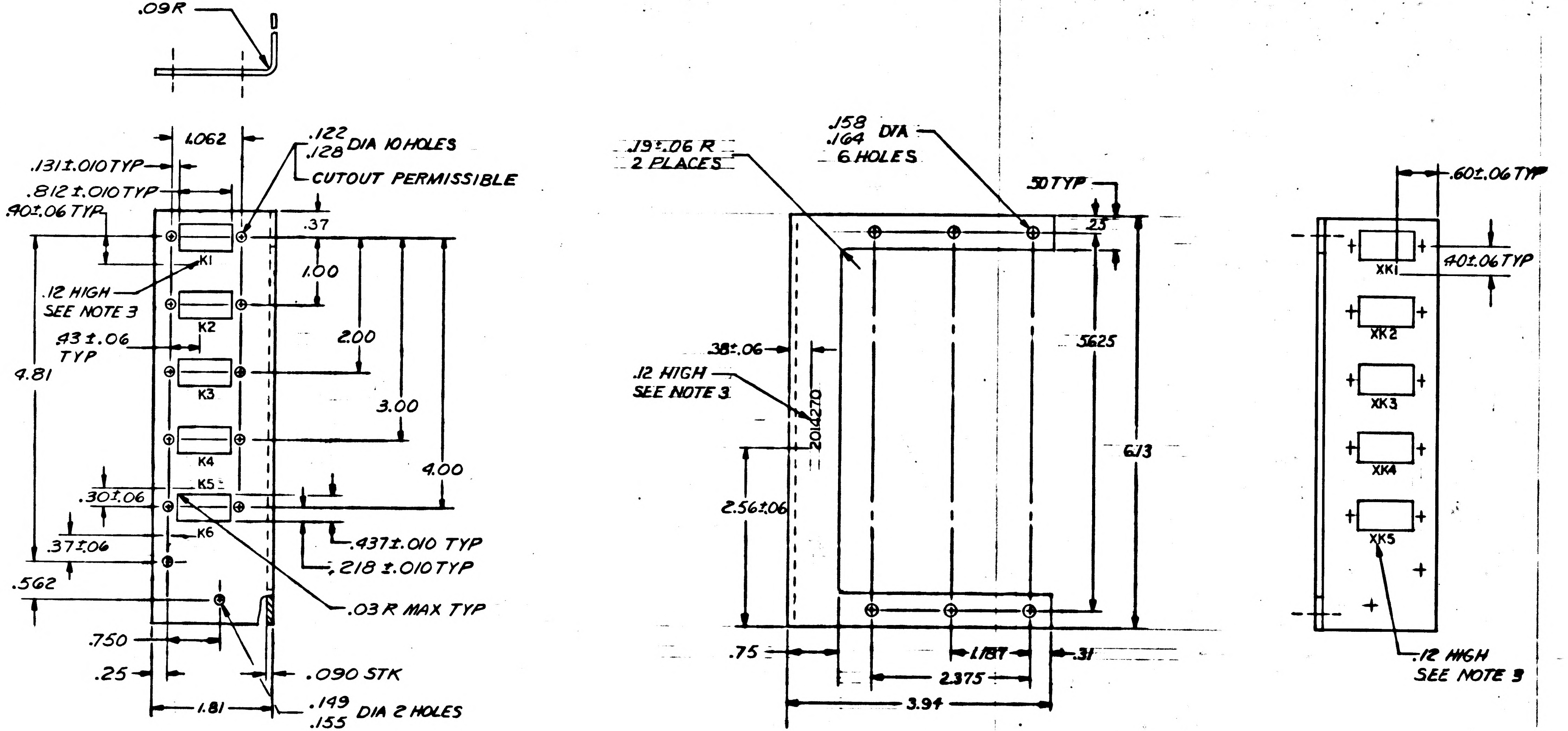
CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014268
SCALE NONE
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014268 J

2014270 | —

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCAR25084	8/13/65	G. Haas
—	CLASS A RELEASED PER TDRR 25476		



.09R
.062
.122
.128 DIA 10 HOLES
CUTOUT PERMISSIBLE
.131±.010 TYP
.812±.010 TYP
.40±.06 TYP
.37
K1
1.00
.12 HIGH
SEE NOTE 3
K2
.43±.06
TYP
2.00
4.81
K3
3.00
K4
4.00
K5
.30±.06
K6
.437±.010 TYP
.37±.06
.218±.010 TYP
.562
.03 R MAX TYP
.750
.25
.090 STK
1.81
.149
.155 DIA 2 HOLES
.19±.06 R
2 PLACES
.158
.164 DIA
6 HOLES
.50 TYP
.25
5.625
.38±.06
.12 HIGH
SEE NOTE 3
2014270
6.13
2.56±.06
.75
1.187
.31
2.375
3.94
.60±.06 TYP
XK1
.40±.06 TYP
XK2
XK3
XK4
XK5
.12 HIGH
SEE NOTE 3

NOTES
1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002013
USING BLACK INK 1006271-10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014079	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ±.005 ANGLES ±
DO NOT SCALE DRAWING
MATERIAL
AL 5052-H32
PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. J. Carrera DATE 5 JUNE 65
CHECKED C. DeGrassia 2 JUL 65
APPROVAL H Moses 21 JUL 65
APPROVAL D. Kinyon 7/26/65
APPROVAL [illegible] 8/1/65
NASA APPROVAL L. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. Sizeley 1/26/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BRACKET, RELAY MTG
POWER CONTROL
OPERATION CONSOLE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	D	2014270

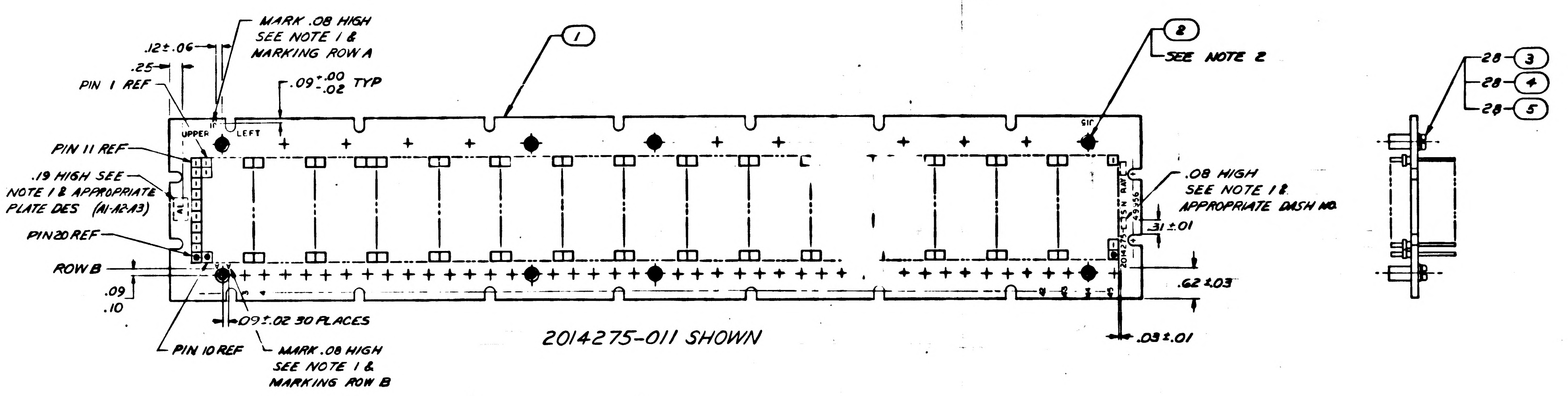
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014270 | —

2014275 | A

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25069		
/	CHANGED PER CCA R25120 DR J. D. CHK APPD	8 Sept 65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 28106 DR CHK APPD	8/9/66	



2014275-011 SHOWN

NOTES
1. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
2. LOCATE AND INSTALL FIND NO. 2 PER KEY CODE MARKING USING DWG NO. 1014047
3. WIRE WRAP 2014275-011 USING FIND NO. 6 AND 2014103, WIRE WRAP 2014275-021 USING FIND NO. 6 AND 2014104, WIRE WRAP 2014275-031 USING FIND NO. 6 AND 2014105, WIRE WRAP 2014275-041 USING FIND NO. 6 AND 2016380, WIREWRAP 2014275-051 USING FIND NO. 6 AND 2016381, WIREWRAP 2014275-061 USING FIND NO. 6 AND 2016419 PER ND1002031
4. AR DENOTES AS REQUIRED

PART NO.	PROGRAM STANDOFF ROW LOCATION																																													PLATE DES
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	
-011,-041	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	-	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	A1
-021,-051	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	A2
-031,-061	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	-	-	-	-	-	-	-	-	A3

PART NO.	MARKING ROW A															PLATE DES
	2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	
-011,-041	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12	J13	J14	J15	A1
-021,-051	J16	J17	J18	J19	J20	J21	J22	J23	J24	J25	J26	J27	J28	J29	J30	A2
-031,-061	J31	J32	J33	J34	J35	J36	J37	J38	J39	J40	J41	J42	J43	J44	J45	A3

PART NO.	MARKING ROW B															PLATE DES
	2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	
-011,-041	AA	AB	AD	AE	AF	AG	BK	-	AK	AL	AM	AN	AP	AR	BE	A1
-021,-051	BF	BG	BH	BJ	BK	BL	BM	BN	BP	BR	ED	EE	EF	EG	EH	A2
-031,-061	EJ	EK	EL	EM	EN	EP	ER	FK	FB	GA	AJ	BP	-	-	-	A3

QTY REQD -061	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	☒	☒	-	-	-	2016393	WIREWRAP MACH CARDS	REF
☒	-	-	-	-	-	2016419	WIREWRAP MACH CARDS	REF
-	☒	-	-	-	-	2016381	WIREWRAP MACH CARDS	REF
-	-	☒	-	-	-	2016382	WIREWRAP MACH CARDS	REF
-	-	-	☒	☒	☒	2014150	INTERCONNECTION DIAGRAM	REF
-	-	-	☒	-	-	2014105	WIRE WRAP MACH CARDS	REF
-	-	-	-	☒	-	2014104	WIRE WRAP MACH CARDS	REF
-	-	-	-	-	☒	2014103	WIRE WRAP MACH CARDS	REF
~~—~~	~~—~~	~~—~~	~~01~~	~~—~~	~~—~~	~~SEE NOTE 6~~	~~SLEEVING~~	~~9~~
~~—~~	~~—~~	~~—~~	~~AR~~	~~—~~	~~—~~	~~SEE NOTE 5~~	~~SLEEVING~~	~~8~~
~~—~~	~~—~~	~~—~~	~~2~~	~~—~~	~~—~~	~~CS13AF010K~~	~~CAPACITOR 1uf 35V~~	~~7~~
AR	AR	AR	AR	AR	AR	1006945-1	WIRE ELECTRICAL	6
24	30	28	24	30	28	MS51957-29	SCREW, PAN HD	5
24	30	28	24	30	28	MS35338-79	WASHER, LOCK	4
24	30	28	24	30	28	1006997	WASHER, FLAT	3
24	30	28	24	30	28	1014212	STANDOFF, PROGRAM	2
1	1	1	1	1	1	1006496-001	WIRE WRAP PLATE	1

LIST OF MATERIALS

2014046	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 7 Jun 65
CHECKED 28 JUN 65
APPROVAL 30 JUN 65
APPROVAL 6/30/65
APPROVAL 7/20/65
NASA APPROVAL C. MEIGHAN
MIT APPROVAL
MIT APPROVAL C. Sterling

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
A18 CONNECTOR PLATE
COMPUTER TEST SET

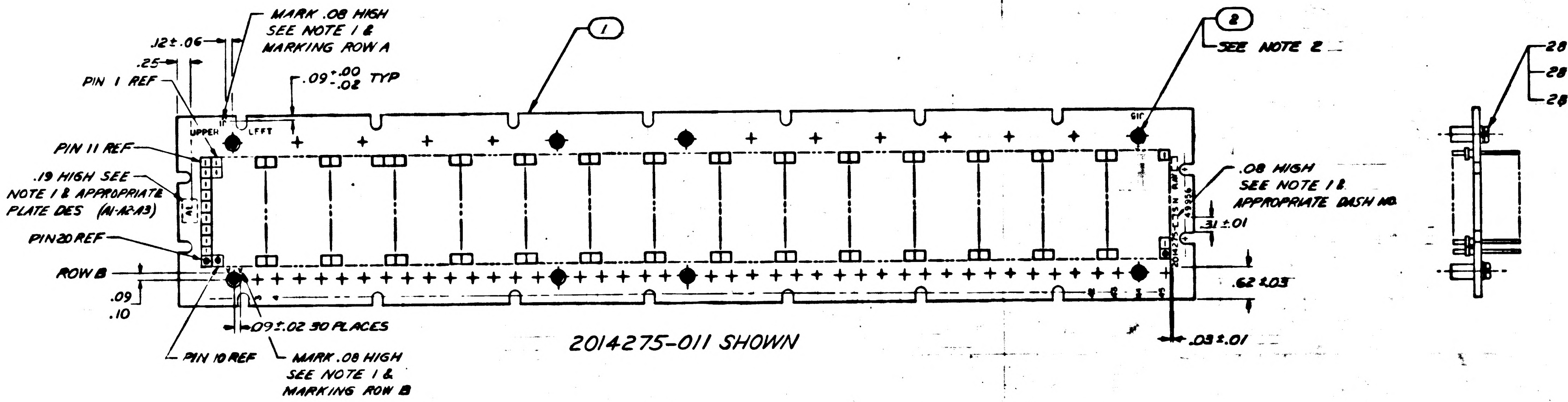
CODE IDENT NO. 49956 | SIZE F | NASA DRAWING NO. 2014275
SCALE 1/1 | WT | SHEET 1 OF 1

2014275 | A

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014275 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25069		
1	CHANGED PER CCA R25120 DR J. [illegible] CHK R. [illegible] APPD [illegible]		
–	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 28106 DR R. [illegible] CHK C. [illegible] APPD R.D	[illegible]/66	
B	CHANGED PER TDRR 28607 DR [illegible] CHK C. [illegible] APPD RED	25 [illegible] 66	



MARK .08 HIGH
SEE NOTE 1 &
MARKING ROW A
.12±.06
.25
PIN 1 REF
.09 +.00 -.02 TYP
UPPER
LEFT
PIN 11 REF
.19 HIGH SEE
NOTE 1 & APPROPRIATE
PLATE DES (A1-A2-A3)
PIN 20 REF
ROW B
.09
.10
.09±.02 30 PLACES
PIN 10 REF
MARK .08 HIGH
SEE NOTE 1 &
MARKING ROW B
1
2
SEE NOTE 2
J15
2014275-C-SN 49956
.08 HIGH
SEE NOTE 1 &
APPROPRIATE DASH NO.
.31±.01
.62±.03
.03±.01
28
3
28
4
28
5

2014275-011 SHOWN

PART NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	PLATE DES
	PROGRAM STANDOFF ROW LOCATION																																													
-011,-041	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	-	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	A1
-021,-051	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	A2
-031, ~~-081~~	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	-	-	-	-	-	-	-	-	A3

NOTES
1. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
2. LOCATE AND INSTALL FIND NO. 2 PER KEY CODE MARKING USING DWG NO. 1014047
3. WIRE WRAP 2014275-011 USING FIND NO. 6 AND 2014103, WIRE WRAP 2014275-021 USING FIND NO. 6 AND 2014104, WIRE WRAP 2014275-081 USING FIND NO. 6 AND 2014105, WIRE WRAP 2014275-041 USING FIND NO. 6 AND 2016380, WIREWRAP 2C14275-051 USING FIND NO. 6 AND 2016381, PER ND1002031
4. AR DENOTES AS REQUIRED

PART NO.	2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	PLATE DES
	MARKING ROW A															
-011,-041	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12	J13	J14	J15	A1
-021,-051	J16	J17	J18	J19	J20	J21	J22	J23	J24	J25	J26	J27	J28	J29	J30	A2
-031, ~~-081~~	J31	J32	J33	J34	J35	J36	J37	J38	J39	J40	J41	J42	J43	J44	J45	A3

PART NO.	2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	PLATE DES
	MARKING ROW B															
-011,-041	AA	AB	AD	AE	AF	AG	BK	-	AK	AL	AM	AN	AP	AR	BE	A1
-021,-051	BF	BG	BH	BJ	BK	BL	BM	BN	BP	BR	ED	EE	EF	EG	EH	A2
-031, ~~-081~~	EJ	EK	EL	EM	EN	EP	ER	FK	FR	GA	AJ	BP	-	-	-	A3

~~EFF~~ QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
~~-061~~	-051	-041	-031	-021	-011	LIST OF MATERIALS		
X	X	X	-	-	-	~~[illegible]~~	~~WIREWRAP MACH CARDS~~	~~REF~~
X	-	-	-	-	-	~~[illegible]~~	~~WIREWRAP MACH CARDS~~	~~REF~~
~~-~~	X	-	-	-	-	2016381	WIREWRAP MACH CARDS	REF
~~-~~	-	X	-	-	-	2016382	WIREWRAP MACH CARDS	REF
~~-~~	-	-	X	X	X	~~2014150~~	~~INTERCONNECTION DIAGRAM~~	~~REF~~
~~-~~	-	-	X	-	-	2014105	WIRE WRAP MACH CARDS	REF
~~-~~	-	-	-	X	-	2014104	WIRE WRAP MACH CARDS	REF
~~-~~	-	-	-	-	X	2014103	WIRE WRAP MACH CARDS	REF
~~-~~			~~.01~~			~~SEE NOTE 6~~	~~SLEEVING~~	~~9~~
~~-~~			~~AR~~			~~SEE NOTE 5~~	~~SLEEVING~~	~~8~~
			~~2~~			~~CS13AF010K~~	~~CAPACITOR 1µf 35V~~	~~7~~
~~AR~~	AR	AR	AR	AR	AR	1006945-1	WIRE ELECTRICAL	6
~~24~~	30	28	24	30	28	MS51957-29	SCREW, PAN HD	5
~~24~~	30	28	24	30	28	MS35338-79	WASHER, LOCK	4
~~24~~	30	28	24	30	28	1006997	WASHER, FLAT	3
~~24~~	30	28	24	30	28	1014212	STANDOFF, PROGRAM	2
~~1~~	1	1	1	1	1	1006496-001	WIRE WRAP PLATE	1

2014275 D

2014046	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN T. [illegible] DATE 7 Jun 65
CHECKED [illegible] JUN 65
APPROVAL [illegible] 30 JUN 65
APPROVAL [illegible] 6/30/65
APPROVAL [illegible] 7/20/65
NASA APPROVAL C. MEISSNER
MIT APPROVAL [illegible]
MIT APPROVAL C. Sterling [illegible]

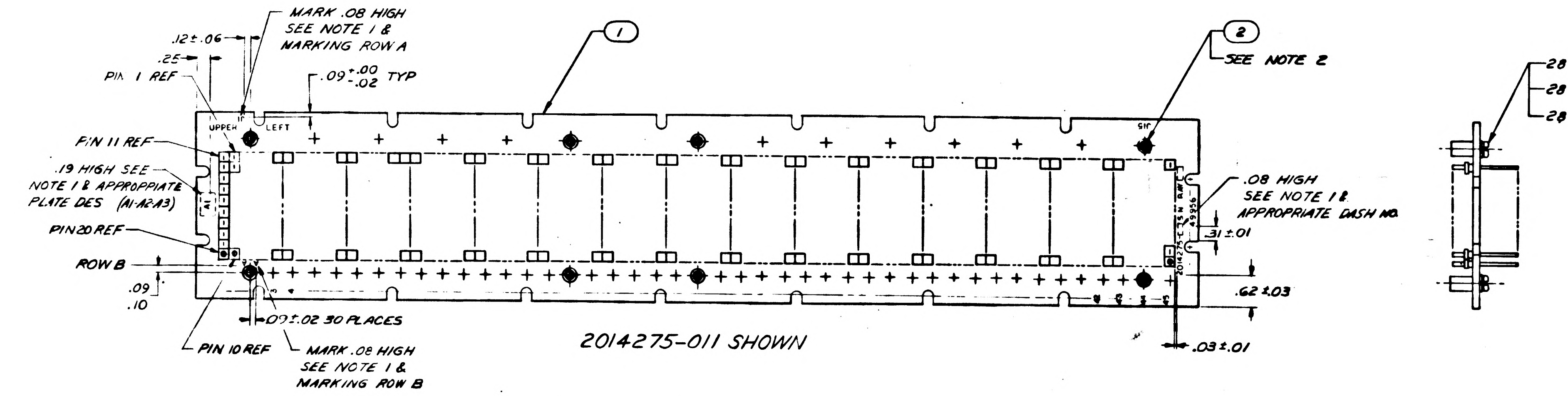
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
A18 CONNECTOR PLATE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014275
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25069		
1	CHANGED PER CCA R25120 DR J. Doty CHK R. Martin APPD	65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 28106 DR CHK C. DiGiacomo APPD	66	
B	CHANGED PER TDRR 28607 DR CHK C. DiGiacomo APPD	66	
C	CHANGED PER TDRR 29809 DR R. Stale CHK APPD	66	



MARK .08 HIGH SEE NOTE 1 & MARKING ROW A
.12±.06
.25
PIN 1 REF
.09 +.00 −.02 TYP
1
2
SEE NOTE 2
UPPER
LEFT
PIN 11 REF
.19 HIGH SEE NOTE 1 & APPROPPIATE PLATE DES (A1-A2-A3)
A1
PIN 20 REF
ROW B
.09
.10
.09±.02 30 PLACES
PIN 10 REF
MARK .08 HIGH SEE NOTE 1 & MARKING ROW B
.08 HIGH SEE NOTE 1 & APPROPRIATE DASH NO.
.31±.01
.62±.03
.03±.01
28 3
28 4
28 5

2014275-011 SHOWN

NOTES
1. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
2. LOCATE AND INSTALL FIND NO. 2 PER KEY CODE MARKING USING DWG NO. 1014047
3. WIRE WRAP 2014275-011 USING FIND NO. 6 AND 2014103, WIRE WRAP 2014275-021 USING FIND NO. 6 AND 2014104, WIRE WRAP 2014275-031 USING FIND NO. 6 AND 2014105, WIRE WRAP 2014275-041 USING FIND NO. 6 AND 2016380, WIREWRAP 2014275-051 USING FIND NO. 6 AND 2016381, PER ND1002031
4. AR DENOTES AS REQUIRED

PROGRAM STANDOFF ROW LOCATION

PART NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	PLATE DES
-011, -041	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	-	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	A1
-021, -051	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	A2
-031, ~~-061~~	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	-	-	-	-	-	-	-	-	A3

MARKING ROW A

PART NO.	2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	PLATE DES
-011, -041	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12	J13	J14	J15	A1
-021, -051	J16	J17	J18	J19	J20	J21	J22	J23	J24	J25	J26	J27	J28	J29	J30	A2
-031, ~~-061~~	J31	J32	J33	J34	J35	J36	J37	J38	J39	J40	J41	J42	J43	J44	J45	A3

MARKING ROW B

PART NO.	2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	PLATE DES
-011, -041	AA	AB	AD	AE	AF	AG	AH	-	AK	AL	AM	AN	AP	AR	DE	A1
-021, -051	DF	DG	DH	DJ	DK	DL	DM	DN	DP	DR	ED	EE	EF	EG	EH	A2
-031, ~~-061~~	EJ	EK	EL	EM	EN	EP	ER	FK	FB	GA	AJ	BP	-	-	-	A3

LIST OF MATERIALS

QTY REQD ~~-061~~	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
X	X	X	-	-	-	~~2016393~~	~~WIREWRAP MACH CARDS~~	~~REF~~
X	-	-	-	-	-	~~2016419~~	~~WIREWRAP MACH CARDS~~	~~REF~~
~~-~~	X	-	-	-	-	2016381	WIREWRAP MACH CARDS	REF
~~-~~	-	X	-	-	-	2016380	WIREWRAP MACH CARDS	REF
~~-~~	-	-	X	X	X	~~2014150~~	~~INTERCONNECTION DIAGRAM~~	~~REF~~
~~-~~	-	-	X	-	-	2014105	WIRE WRAP MACH CARDS	REF
~~-~~	-	-	-	X	-	2014104	WIRE WRAP MACH CARDS	REF
~~-~~	-	-	-	-	X	2014103	WIRE WRAP MACH CARDS	REF
~~-~~			~~.01~~			~~SEE NOTE 6~~	~~SLEEVING~~	~~9~~
~~-~~			~~AR~~			~~SEE NOTE 5~~	~~SLEEVING~~	~~8~~
			~~2~~			~~CS13AF010K~~	~~CAPACITOR 1µf 35 V~~	~~7~~
~~AR~~	AR	AR	AR	AR	AR	1006945-1	WIRE ELECTRICAL	6
~~24~~	30	28	24	30	28	MS51957-29	SCREW, PAN HD	5
~~24~~	30	28	24	30	28	MS35338-79	WASHER, LOCK	4
~~24~~	30	28	24	30	28	1006997	WASHER, FLAT	3
~~24~~	30	28	24	30	28	1014212	STANDOFF, PROGRAM	2
~~1~~	1	1	1	1	1	1006496-001	WIRE WRAP PLATE	1

NEXT ASSY	USED ON
2014046	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 7 Jun 65
CHECKED 29 JUN 65
APPROVAL 30 JUN 65
APPROVAL 6/30/65
APPROVAL 7/20/65
NASA APPROVAL C. Metzger
MIT APPROVAL
MIT APPROVAL C. 1/6

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
A18 CONNECTOR PLATE
COMPUTER TEST SET

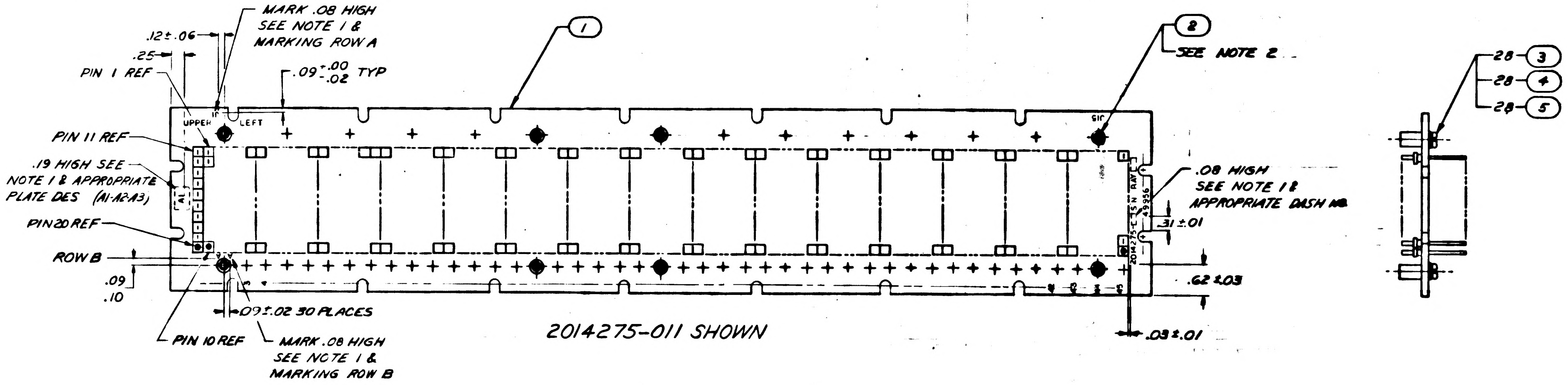
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014275
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014275 C

–	2014275

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25069		
1	CHANGED PER CCA R25120 DR J. Doty CHK P. Martin APPD	9 Sept 65	
–	CLASS A RELEASED PER TDRR 25472		



MARK .08 HIGH SEE NOTE 1 & MARKING ROW A
.12±.06
.25
PIN 1 REF
.09 +.00 −.02 TYP
①
②
SEE NOTE 2
UPPER
LEFT
J15
PIN 11 REF
.19 HIGH SEE NOTE 1 & APPROPRIATE PLATE DES (A1-A2-A3)
A1
PIN 20 REF
ROW B
.09
.10
.09±.02 30 PLACES
PIN 10 REF
MARK .08 HIGH SEE NOTE 1 & MARKING ROW B
.08 HIGH SEE NOTE 1 & APPROPRIATE DASH NO.
2014275-□ S/N RAY 49956
.31±.01
.62±.03
.03±.01
28 ③
28 ④
28 ⑤

2014275-011 SHOWN

NOTES

1. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
2. LOCATE AND INSTALL FIND NO. 2 PER KEY CODE MARKING USING DWG NO. 1014047
3. WIRE WRAP 2014275-011 USING FIND NO. 6 AND 2014103 WIRE WRAP 2014275-021 USING FIND NO. 6 AND 2014104 AND WIRE WRAP 2014275-031 USING FIND NO. 6 AND 2014105 PER ND1002031
4. AR DENOTES AS REQUIRED

PROGRAM STANDOFF ROW LOCATION

PART NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	PLATE DES
-011	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	-	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	A1
-021	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	A2
-031	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	2	-	-	-	-	-	-	-	-	-	-	A3

MARKING ROW A

PART NO.	2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	PLATE DES
-011	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12	J13	J14	J15	A1
-021	J16	J17	J18	J19	J20	J21	J22	J23	J24	J25	J26	J27	J28	J29	J30	A2
-031	J31	J32	J33	J34	J35	J36	J37	J38	J39	J40	J41	J42	J43	J44	J45	A3

MARKING ROW B

PART NO.	2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	PLATE DES
-011	AA	AB	AD	AE	AF	AG	BK	-	AK	AL	AM	AN	AP	AR	BE	A1
-021	BF	BG	BH	BJ	GH	BL	BM	BN	BP	BR	ED	EE	EF	EG	EH	A2
-031	EJ	EK	EL	EM	EN	EP	ER	FK	FR	GA	AJ	BP	-	-	-	A3

☒	☒	☒	2014150	INTERCONNECTION DIAGRAM	REF
☒	—	—	2014105	WIRE WRAP MACH CARDS	REF
—	☒	—	2014104	WIRE WRAP MACH CARDS	REF
—	—	☒	2014103	WIRE WRAP MACH CARDS	REF
~~* 0.1~~	~~—~~	~~—~~	~~SEE NOTE 6~~	~~SLEEVING~~	~~9~~
~~AR~~	~~—~~	~~—~~	~~SEE NOTE 5~~	~~SLEEVING~~	~~8~~
~~2~~	~~—~~	~~—~~	~~CS13AF010K~~	~~CAPACITOR 1 uf 35 V~~	~~7~~
AR	AR	AR	1006945-1	WIRE ELECTRICAL	6
24	30	28	MS51957-29	SCREW, PAN HD	5
24	30	28	MS35338-79	WASHER, LOCK	4
24	30	28	1006997	WASHER, FLAT	3
24	30	28	1014212	STANDOFF, PROGRAM	2
1	1	1	1006496-001	WIRE WRAP PLATE	1
QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-031	-021	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

NEXT ASSY	USED ON
2014046	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN T. D. DATE 7 JUN 65
CHECKED J. [illegible] 29 JUN 65
APPROVAL H. W. [illegible] 30 JUN 65
APPROVAL [illegible] 6/30/65
APPROVAL [illegible] 7/20/65
NASA APPROVAL C. METZLER
MIT APPROVAL
MIT APPROVAL C. Shepley 1/2

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

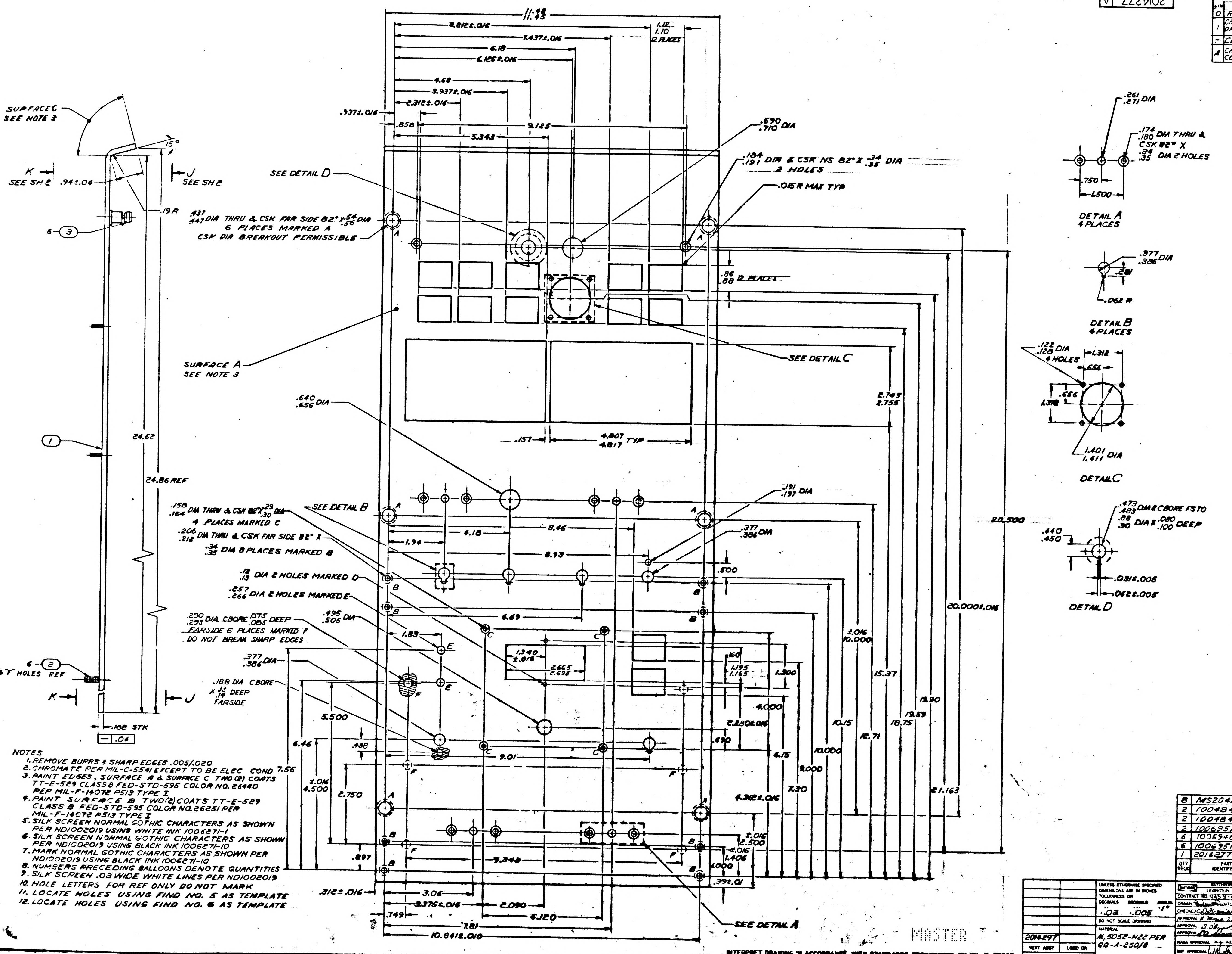
CONNECTOR PLATE ASSY
A18 CONNECTOR PLATE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014275
SCALE 1/1
WT
SHEET 1 OF 1

2014275	–

2014277	A	

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25191	9/3/65	G Harm
1	CHANGED PER CCA R25278 DR G.J. Brown CHK E Urban APPD R Cooley	9/4/65	
-	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR25476	1/5/66	



11.48
11.43
8.812±.016
7.437±.016
1.12
1.10
12 PLACES
6.18
6.125±.016
4.68
3.937±.016
2.312±.016
.937±.016
.858
9.125
5.343
SURFACE C
SEE NOTE 3
15°
K
SEE SH 2
.94±.04
J
SEE SH 2
.19R
6
3
24.62
24.86 REF
1
6
2
6 "T" HOLES REF
K
J
.188 STK
— .04
SEE DETAIL D
.690
.710 DIA
.184
.191 DIA & CSK NS 82° X .34 .35 DIA
2 HOLES
.015R MAX TYP
.437
.447 DIA THRU & CSK FAR SIDE 82° X .54 .56 DIA
6 PLACES MARKED A
CSK DIA BREAKOUT PERMISSIBLE
A
.86
.88 12 PLACES
SURFACE A
SEE NOTE 3
SEE DETAIL C
2.745
2.755
.640
.656 DIA
.157
4.807
4.817 TYP
SEE DETAIL B
.158
.164 DIA THRU & CSK 82° X .29 .30 DIA
4 PLACES MARKED C
.206
.212 DIA THRU & CSK FAR SIDE 82° X
.34
.35 DIA 8 PLACES MARKED B
.12
.13 DIA 2 HOLES MARKED D
.257
.266 DIA 2 HOLES MARKED E
.290
.293 DIA. CBORE .075 .085 DEEP
FARSIDE 6 PLACES MARKED F
DO NOT BREAK SHARP EDGES
.495
.505 DIA
.377
.386 DIA
.188 DIA CBORE
X .13 .14 DEEP
FARSIDE
.191
.197 DIA
.377
.386 DIA
1.94
4.18
8.46
8.93
.500
6.69
1.83
1.340
±.016
2.665
2.695
.160
1.195
1.165
1.500
±.016
10.000
15.37
20.500
20.000±.016
4.000
2.280±.016
.690
10.15
12.71
18.75
19.59
19.90
5.500
6.46
.438
9.01
7.56
±.016
4.500
2.750
6.15
8.000
10.000
6.312±.016
7.30
21.163
.897
9.343
2.016
2.500
±.016
1.406
1.000
.39±.01
.312±.016
3.06
3.375±.016
2.090
.749
7.81
6.120
10.841±.010
SEE DETAIL A
A
B
C
D
E
F
.261
.271 DIA
.176
.180 DIA THRU &
CSK 82° X
.34
.35 DIA 2 HOLES
.750
1.500
DETAIL A
4 PLACES
.377
.386 DIA
.281
.062 R
DETAIL B
4 PLACES
.122
.128 DIA
4 HOLES
1.312
.656
.656
1.312
1.401
1.411 DIA
DETAIL C
.473
.483 DIA & CBORE FS TO
.88
.90 DIA X .080 .100 DEEP
.440
.450
.031±.005
.062±.005
DETAIL D
MASTER

NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELEC COND
3. PAINT EDGES, SURFACE A & SURFACE C TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
4. PAINT SURFACE B TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26251 PER MIL-F-14072 P513 TYPE I
5. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITIES
9. SILK SCREEN .03 WIDE WHITE LINES PER ND1002019
10. HOLE LETTERS FOR REF ONLY DO NOT MARK
11. LOCATE HOLES USING FIND NO. 5 AS TEMPLATE
12. LOCATE HOLES USING FIND NO. 6 AS TEMPLATE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
8	MS20426A2-6	RIVET, SOLID FLAT HD	7
2	1004844-001	STRAP, RETAINING	6
2	1004844-003	STRAP, RETAINING	5
2	1006951-003	STUD, CAPTIVE, SELF-CLINCHING	4
6	1006942-1	FASTENER ASSY, CAPTIVE	3
6	1006951-007	STUD, CAPTIVE, SELF-CLINCHING	2
1	2014277-001	PANEL, FRONT	1

LIST OF MATERIALS

2014297	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING

MATERIAL
AL, 5052-H22 PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED C. DeGiovannia 7 JUL 65
APPROVAL H Moore 23 JUL 65
APPROVAL D O'Bryant 8/5/65
APPROVAL [illegible]
NASA APPROVAL A.L. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL,
POWER CONTROL
OPERATION CONSOLE

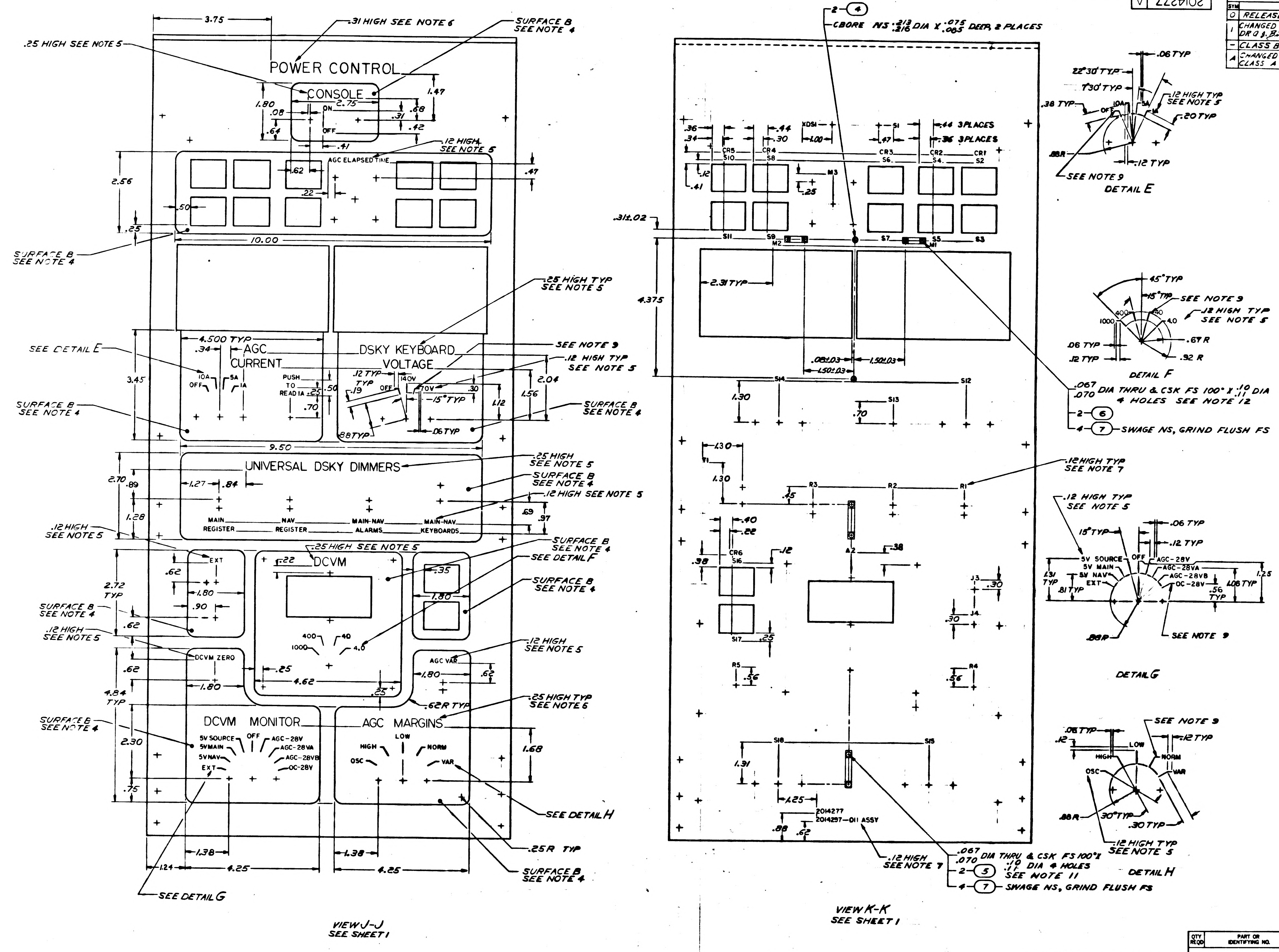
CODE IDENT NO. 49956
SIZE J
2014277
SCALE [illegible]
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014277	A

2014277 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25141	[illegible]	[illegible]
1	CHANGED PER CCA R25278 DR O J. Bisson CHK E Urban APPD	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25505	[illegible]	[illegible]
A	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	1/13/66	[illegible]



3.75
.31 HIGH SEE NOTE 6
SURFACE B SEE NOTE 4
.25 HIGH SEE NOTE 5
POWER CONTROL
CONSOLE
ON
OFF
1.80
.08
.64
2.75
1.47
.31
.68
.42
.41
.62
.12 HIGH SEE NOTE 5
AGC ELAPSED TIME
2.56
.22
.47
.50
.25
10.00
SURFACE B SEE NOTE 4
.25 HIGH TYP SEE NOTE 5
4.500 TYP
.34
AGC CURRENT
DSKY KEYBOARD VOLTAGE
SEE NOTE 9
.12 HIGH TYP SEE NOTE 5
SEE DETAIL E
10A
5A
OFF
1A
PUSH TO READ 1A
.25
.50
.70
3.45
.12 TYP
.19
OFF
140V
10V
.30
-15° TYP
2.04
1.56
1.12
.88 TYP
.06 TYP
SURFACE B SEE NOTE 4
9.50
UNIVERSAL DSKY DIMMERS
.25 HIGH SEE NOTE 5
2.70
.89
1.27
.84
1.28
MAIN REGISTER
NAV REGISTER
MAIN-NAV ALARMS
MAIN-NAV KEYBOARDS
.12 HIGH SEE NOTE 5
.69
.97
.25 HIGH SEE NOTE 5
.22
DCVM
EXT
.62
2.72 TYP
1.80
.90
SEE DETAIL F
.35
400
40
1000
4.0
DCVM ZERO
.62
1.80
.25
4.62
.25
4.84 TYP
AGC VAR
.62
.62R TYP
.25 HIGH TYP SEE NOTE 6
DCVM MONITOR
AGC MARGINS
2.30
5V SOURCE
5V MAIN
5V NAV
EXT
OFF
AGC-28V
AGC-28VA
AGC-28VB
OC-28V
HIGH
LOW
NORM
OSC
VAR
1.68
.75
SEE DETAIL H
.25R TYP
SURFACE B SEE NOTE 4
1.38
1.24
4.25
SEE DETAIL G
VIEW J-J SEE SHEET 1
2 – 4
CBORE NS .213/.216 DIA X .075/.085 DEEP, 2 PLACES
.36
.34
CR5 S10
CR4 S8
.44
.30
XDS1
1.00
S1
.47
CR3 S6
.44 3 PLACES
.36 3 PLACES
CR2 S4
CR1 S2
.12
.41
M3
.25
.31±.02
S11
S9
M2
S7
S5
M1
S3
4.375
2.31 TYP
.08±.03
1.50±.03
1.50±.03
S14
S12
1.30
S13
.70
1.30
1.30
R3
R2
R1
.45
.12 HIGH TYP SEE NOTE 7
.40
.22
CR6 S16
.12
A2
.38
.38
J3
.30
J4
.30
S17
.25
R5
.56
R4
.56
S18
S15
1.31
1.25
2014277
2014297-011 ASSY
.88
.62
.12 HIGH SEE NOTE 7
.067/.070 DIA THRU & CSK FS 100° X .10/.11 DIA 4 HOLES
2 – 5 SEE NOTE 11
4 – 7 SWAGE NS, GRIND FLUSH FS
VIEW K-K SEE SHEET 1
22°30' TYP
7°30' TYP
.06 TYP
.38 TYP
OFF
10A
5A
.12 HIGH TYP SEE NOTE 5
.20 TYP
.88R
.12 TYP
SEE NOTE 9
DETAIL E
45° TYP
15° TYP
SEE NOTE 9
400
40
1000
4.0
.12 HIGH TYP SEE NOTE 5
.06 TYP
.12 TYP
.67 R
.92 R
DETAIL F
.067/.070 DIA THRU & CSK FS 100° X .10/.11 DIA 4 HOLES SEE NOTE 12
2 – 6
4 – 7 SWAGE NS, GRIND FLUSH FS
.12 HIGH TYP SEE NOTE 5
15° TYP
.06 TYP
.12 TYP
5V SOURCE
5V MAIN
5V NAV
EXT
OFF
AGC-28V
AGC-28VA
AGC-28VB
OC-28V
1.31 TYP
.81 TYP
1.25
1.08 TYP
.56 TYP
.88R
SEE NOTE 9
DETAIL G
.06 TYP
.12
SEE NOTE 9
.12 TYP
LOW
HIGH
NORM
OSC
VAR
.88R
30° TYP
.30 TYP
.12 HIGH TYP SEE NOTE 5
DETAIL H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 12 [illegible] 65
CHECKED [illegible] 23 JUL 65
APPROVAL [illegible] 23 JUL 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL,
POWER CONTROL
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014277
SCALE 1/1
WT
SHEET 2 OF 2

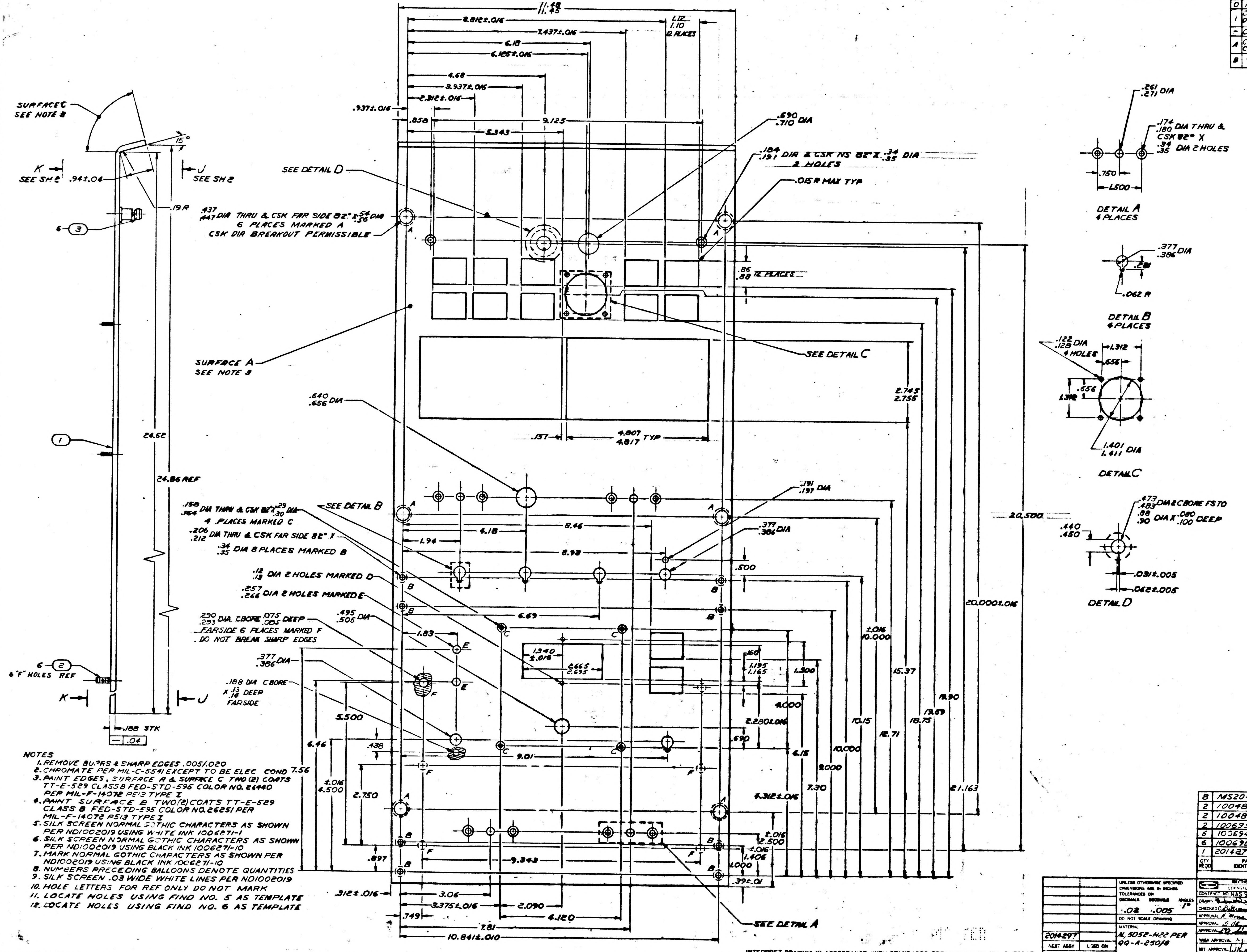
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014277 A

2014277 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25191	9/3/65	
1	CHANGED PER CCA R25278 DRG. J. B CHK APPD		
-	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	1/5/66	
B	CHANGED PER TDRR 26307 DR CHK APPD	2/22/66	



SURFACE C SEE NOTE 3
15°
K SEE SH 2
.94±.04
J SEE SH 2
.19 R
6 ③
①
24.62
24.86 REF
6 ② 6 "F" HOLES REF
K
J
.188 STK
— .04
11.48 11.43
8.812±.016
7.437±.016
1.72 1.70 12 PLACES
6.18
6.125±.016
4.68
3.937±.016
2.312±.016
.937±.016
.858
9.125
5.343
SEE DETAIL D
.690 .710 DIA
.184 .191 DIA & CSK MS 82° X .34 .35 DIA 2 HOLES
.015 R MAX TYP
.437 .447 DIA THRU & CSK FAR SIDE 82° X .54 .56 DIA 6 PLACES MARKED A CSK DIA BREAKOUT PERMISSIBLE
A
.86 .88 12 PLACES
SURFACE A SEE NOTE 3
SEE DETAIL C
.640 .656 DIA
2.745 2.755
.157
4.807 4.817 TYP
SEE DETAIL B
.158 .164 DIA THRU & CSK 82° X .29 .30 DIA 4 PLACES MARKED C
.206 .212 DIA THRU & CSK FAR SIDE 82° X .34 .35 DIA 8 PLACES MARKED B
.12 .13 DIA 2 HOLES MARKED D
.257 .266 DIA 2 HOLES MARKED E
.290 .293 DIA CBORE .075 .085 DEEP FARSIDE 6 PLACES MARKED F DO NOT BREAK SHARP EDGES
.495 .505 DIA
.377 .386 DIA
.188 DIA CBORE X .13 .14 DEEP FARSIDE
.191 .197 DIA
.377 .386 DIA
1.94
4.18
8.46
8.93
.500
6.69
1.83
1.340 ±.016
2.665 2.695
.160
1.195 1.165
1.500
4.000
2.280±.016
.690
5.500
6.46
7.56
.438
±.016 4.500
2.750
9.01
6.15
8.000
7.30
4.312±.016
10.000
10.15
12.71
15.37
18.75
19.69
19.90
±.016 10.000
20.000±.016
20.500
21.163
.897
9.343
±.016 2.500
.016 1.406
4.000
.39±.01
.312±.016
3.06
3.375±.016
2.090
.749
7.81
6.120
10.841±.010
SEE DETAIL A
A B C D E F
.261 .271 DIA
.174 .180 DIA THRU & CSK 82° X .34 .35 DIA 2 HOLES
.750
1.500
DETAIL A 4 PLACES
.377 .386 DIA
.281
.062 R
DETAIL B 4 PLACES
.122 .128 DIA 4 HOLES
1.312
.656
.656
1.312
1.401 1.411 DIA
DETAIL C
.473 .483 DIA & CBORE FS TO .88 .90 DIA X .080 .100 DEEP
.440 .450
.031±.005
.062±.005
DETAIL D

NOTES
1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELEC COND
3. PAINT EDGES, SURFACE A & SURFACE C TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
4. PAINT SURFACE B TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26251 PER MIL-F-14072 P513 TYPE I
5. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITIES
9. SILK SCREEN .03 WIDE WHITE LINES PER ND1002019
10. HOLE LETTERS FOR REF ONLY DO NOT MARK
11. LOCATE HOLES USING FIND NO. 5 AS TEMPLATE
12. LOCATE HOLES USING FIND NO. 6 AS TEMPLATE

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
8	MS20426A2-6	RIVET, SOLID FLAT HD	7
2	1004844-001	STRAP, RETAINING	6
2	1004844-003	STRAP, RETAINING	5
2	1006951-003	STUD, CAPTIVE, SELF-CLINCHING	4
6	1006942-1	FASTENER ASSY, CAPTIVE	3
6	1006951-007	STUD, CAPTIVE, SELF-CLINCHING	2
1	2014277-001	PANEL, FRONT	1

LIST OF MATERIALS

2014297	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS ±.03 DECIMALS ±.005 ANGLES 1°
DO NOT SCALE DRAWING
MATERIAL AL, 5052-H22 PER QQ-A-250/8

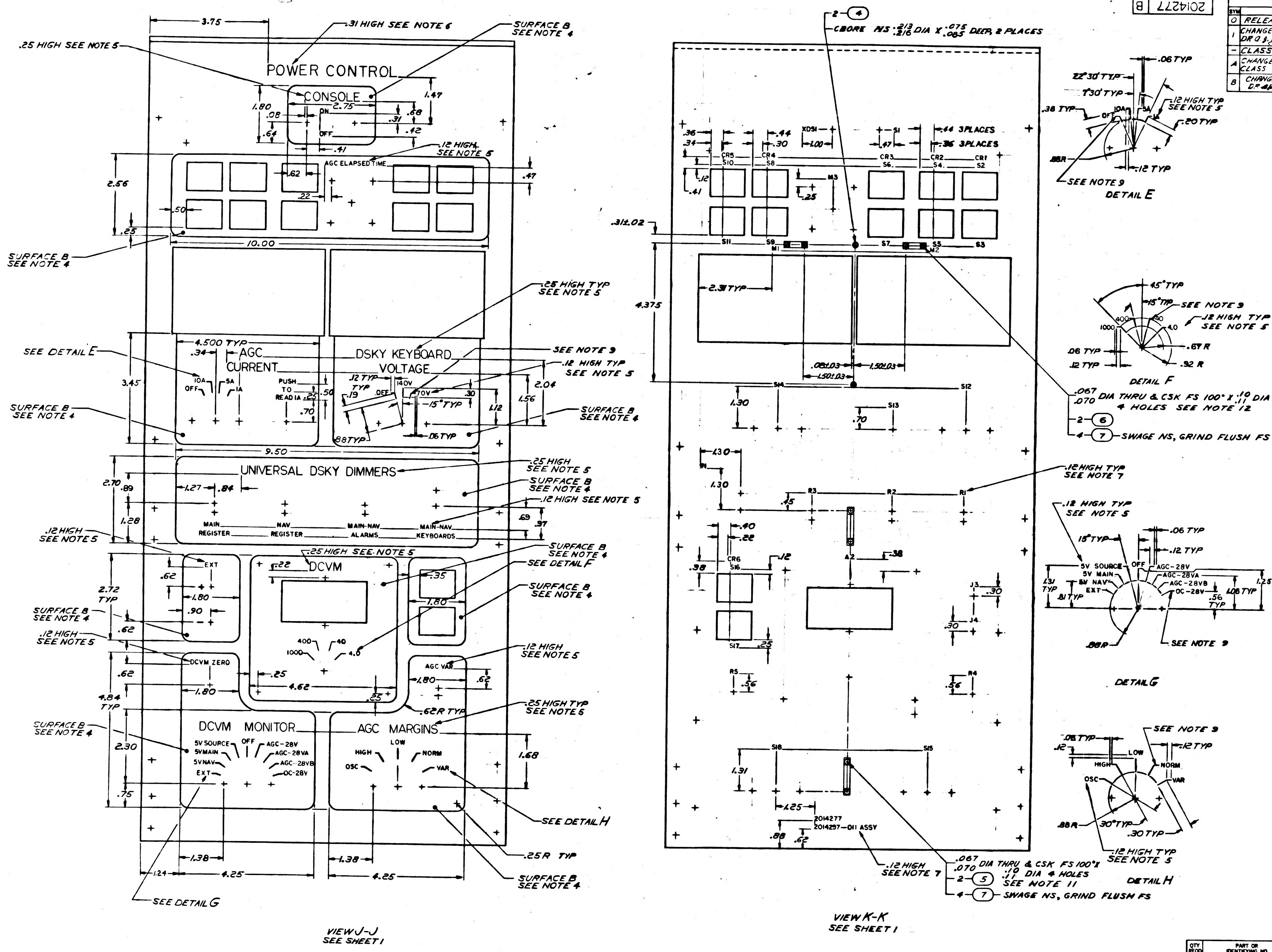
RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 12 June 65
CHECKED C. D 7 JUL 65
APPROVAL N Morse 23 JUL 65
APPROVAL D. O'B 8/5/65
APPROVAL
NASA APPROVAL A. L. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL,
POWER CONTROL
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014277
SCALE 1/1
WT
SHEET 1 OF 2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25191	7/3/65	
1	CHANGED PER CCA R25278 DR O. J. Bison CHK E. Urban APPD R. Conley		
–	CLASS 3 CHANGED PER CCA R25509		
A	CHANGED PER CCA R25645 AND CLASS A RELEASED PER TDRR 25476	1/13/66	
B	CHANGED PER TDRR 26307 DR CHK APPD	2/24/66	



POWER CONTROL
CONSOLE
ON
OFF
AGC ELAPSED TIME
AGC CURRENT
10A
OFF
5A
1A
PUSH TO READ 1A
DSKY KEYBOARD VOLTAGE
140V
OFF
70V
UNIVERSAL DSKY DIMMERS
MAIN REGISTER
NAV REGISTER
MAIN-NAV ALARMS
MAIN-NAV KEYBOARDS
EXT
DCVM
400
1000
40
4.0
DCVM ZERO
AGC VAR
DCVM MONITOR
5V SOURCE
5V MAIN
5V NAV
EXT
OFF
AGC-28V
AGC-28VA
AGC-28VB
OC-28V
AGC MARGINS
LOW
HIGH
NORM
OSC
VAR
.25 HIGH SEE NOTE 5
.31 HIGH SEE NOTE 6
SURFACE B SEE NOTE 4
.12 HIGH SEE NOTE 5
.25 HIGH TYP SEE NOTE 5
SEE DETAIL E
SEE NOTE 9
.12 HIGH TYP SEE NOTE 5
.12 HIGH SEE NOTE 5
.25 HIGH SEE NOTE 5
SEE DETAIL F
.25 HIGH TYP SEE NOTE 5
.62R TYP
SEE DETAIL H
.25R TYP
SEE DETAIL G
3.75
10.00
9.50
4.500 TYP
1.38
4.25
1.24
VIEW J-J
SEE SHEET 1
2-④
CBORE NS .213/.216 DIA X .075/.065 DEEP, 2 PLACES
.44 3 PLACES
.36 3 PLACES
XDS1
CR5 S10
CR4 S8
CR3 S6
CR2 S4
CR1 S2
S1
M3
S11
S9
M1
S7
S5
M2
S3
S14
S12
S13
R3
R2
R1
CR6
S16
S17
A2
J3
J4
R5
R4
S18
S15
4.375
2.31 TYP
1.50±.03
.06±.03
.067/.070 DIA THRU & CSK FS 100° X .10/.11 DIA 4 HOLES SEE NOTE 12
2-⑥
4-⑦-SWAGE NS, GRIND FLUSH FS
.12 HIGH TYP SEE NOTE 7
2014277
2014297-011 ASSY
.12 HIGH SEE NOTE 7
.067/.070 DIA THRU & CSK FS 100° X .10/.11 DIA 4 HOLES
2-⑤ SEE NOTE 11
4-⑦-SWAGE NS, GRIND FLUSH FS
VIEW K-K
SEE SHEET 1
22°30' TYP
7°30' TYP
.06 TYP
.38 TYP
10A
OFF
5A
1A
.12 HIGH TYP SEE NOTE 5
.20 TYP
.88R
.12 TYP
SEE NOTE 9
DETAIL E
45° TYP
15° TYP
SEE NOTE 9
.12 HIGH TYP SEE NOTE 5
400
40
1000
4.0
.67 R
.92 R
.06 TYP
.12 TYP
DETAIL F
.12 HIGH TYP SEE NOTE 5
15° TYP
.06 TYP
.12 TYP
5V SOURCE
5V MAIN
5V NAV
EXT
OFF
AGC-28V
AGC-28VA
AGC-28VB
OC-28V
.88R
SEE NOTE 9
DETAIL G
.06 TYP
SEE NOTE 9
.12 TYP
HIGH
LOW
NORM
OSC
VAR
.88R
30° TYP
.30 TYP
.12 HIGH TYP SEE NOTE 5
DETAIL H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 12 Dec 65
CHECKED 23 Jul 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

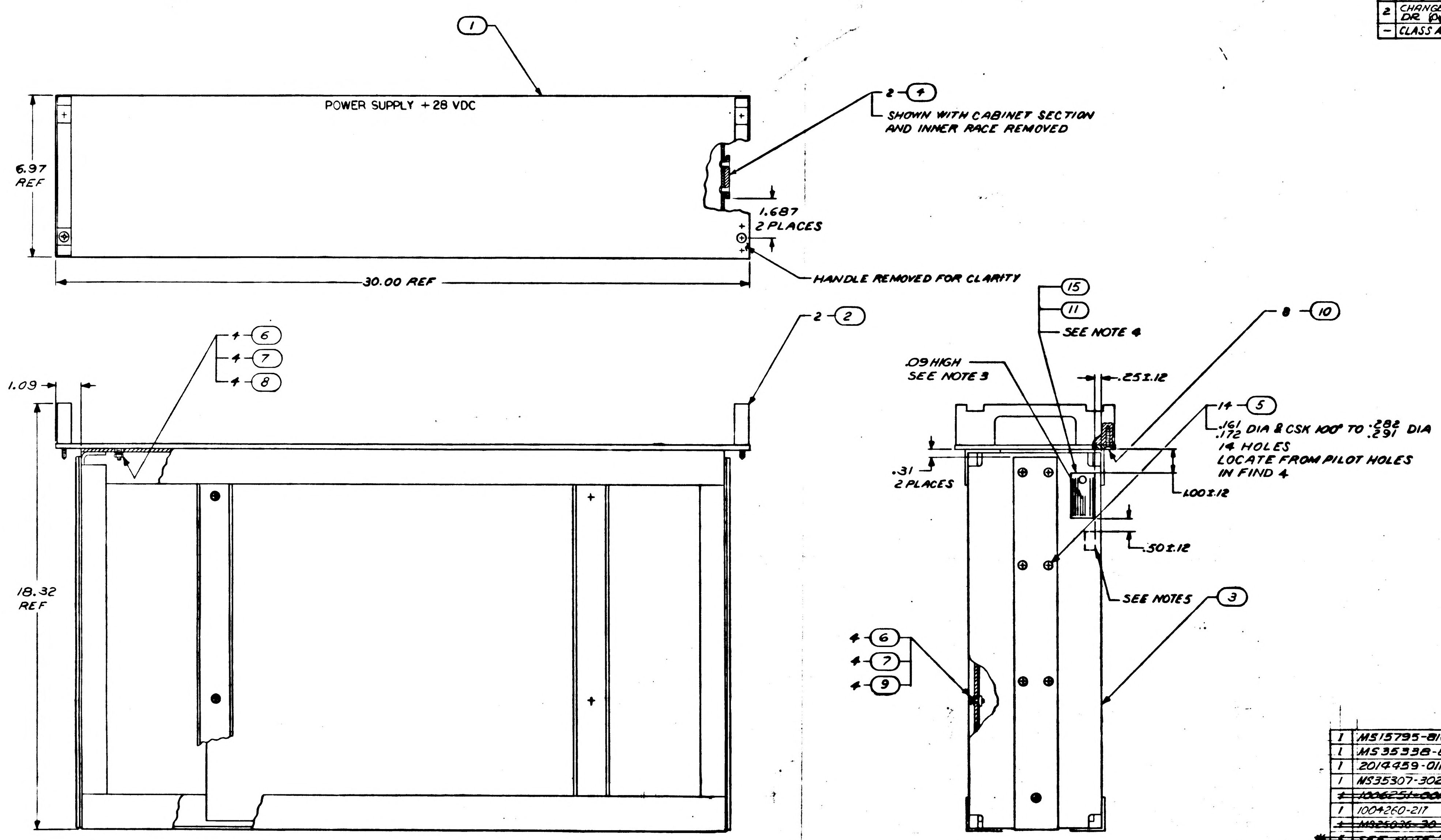
FRONT PANEL,
POWER CONTROL
OPERATION CONSOLE

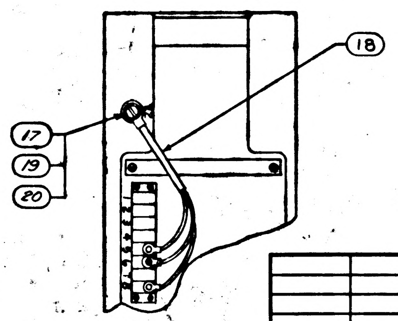
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014277
SCALE 1/1	WT	SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014279 -

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25066		
1	CHANGED PER CCA R25181 DR CHK APPD	65	
2	CHANGED PER CCA R25386 DR CHK APPD		
-	CLASS A RELEASED PER TDRR 25476		


1
POWER SUPPLY +28 VDC
2-4
SHOWN WITH CABINET SECTION AND INNER RACE REMOVED
6.97 REF
1.687 2 PLACES
HANDLE REMOVED FOR CLARITY
30.00 REF
2-2
4-6
4-7
4-8
1.09
18.32 REF
15
11
SEE NOTE 4
8-10
.09 HIGH SEE NOTE 3
.25±.12
14-5
.161/.172 DIA & CSK 100° TO .282/.291 DIA 14 HOLES LOCATE FROM PILOT HOLES IN FIND 4
.31 2 PLACES
1.00±.12
.50±.12
SEE NOTES
3
4-6
4-7
4-9



NOTES:

~~1. ATTACH FIND 14 TO FIND 13~~
~~2. SOLDER FIND 13 TO FIND 12 PER ND1002071~~
3. SERIALIZE PER ND1002023
4. BOND FIND NO. 15 TO FIND NO 3 USING FIND NO 11
5. MARK APPROX WEIGHT IN LB .25 HIGH NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006271-10
6. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
~~7. BRAID PER QQ-B-575, SIZE 3/16, AWG 36, FOR FIND NO. 13~~
~~8. SOLDER PER ND1002071~~

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	MS15795-810	WASHER, FLAT	20
1	MS35338-82	WASHER, LOCK	19
1	2014459-011	CABLE ASSY, GROUND	18
1	MS35307-302	SCREW, CAP, HEX HD	17
~~1~~	~~1006251-001~~	~~TERMINAL LUG~~	~~16~~
1	1004260-217	PLATE, IDENT	15
~~1~~	~~MS25036-30~~	~~TERMINAL LUG, CRIMP STYLE, INSUL~~	~~14~~
~~*5~~	~~SEE NOTE 7~~	~~WIRE, BRAID, ELECTRICAL~~	~~13~~
~~1~~	~~1017495-1~~	~~POST, BINDING~~	~~12~~
AR	MIL-A-5092 TYPE II	ADHESIVE	11
8	MS51959-45	SCREW, MACH. FLAT HD	10
4	MS51957-46	SCREW, MACH. PAN HD	9
4	MS35649-84	NUT, PLAIN HEX	8
8	MS35337-80	WASHER, LOCK	7
8	MS15795-807	WASHER, FLAT	6
14	MS20426AD5-10	RIVET, FLAT HD	5
2	1006660	SLIDE, CHASSIS QUICK DISCONNECT	4
1	2014415	CHASSIS, POWER SUPPLY ASSY	3
2	1014215-3	HANDLE, ASSY	2
1	1006887	POWER SUPPLY	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014024	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ±0°30'

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9 JUN 65
CHECKED 14 JUNE 65
APPROVAL 30 JUNE 65
APPROVAL 10/65
APPROVAL 8/11/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL 1/4/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY ASSY
OPERATION CONSOLE

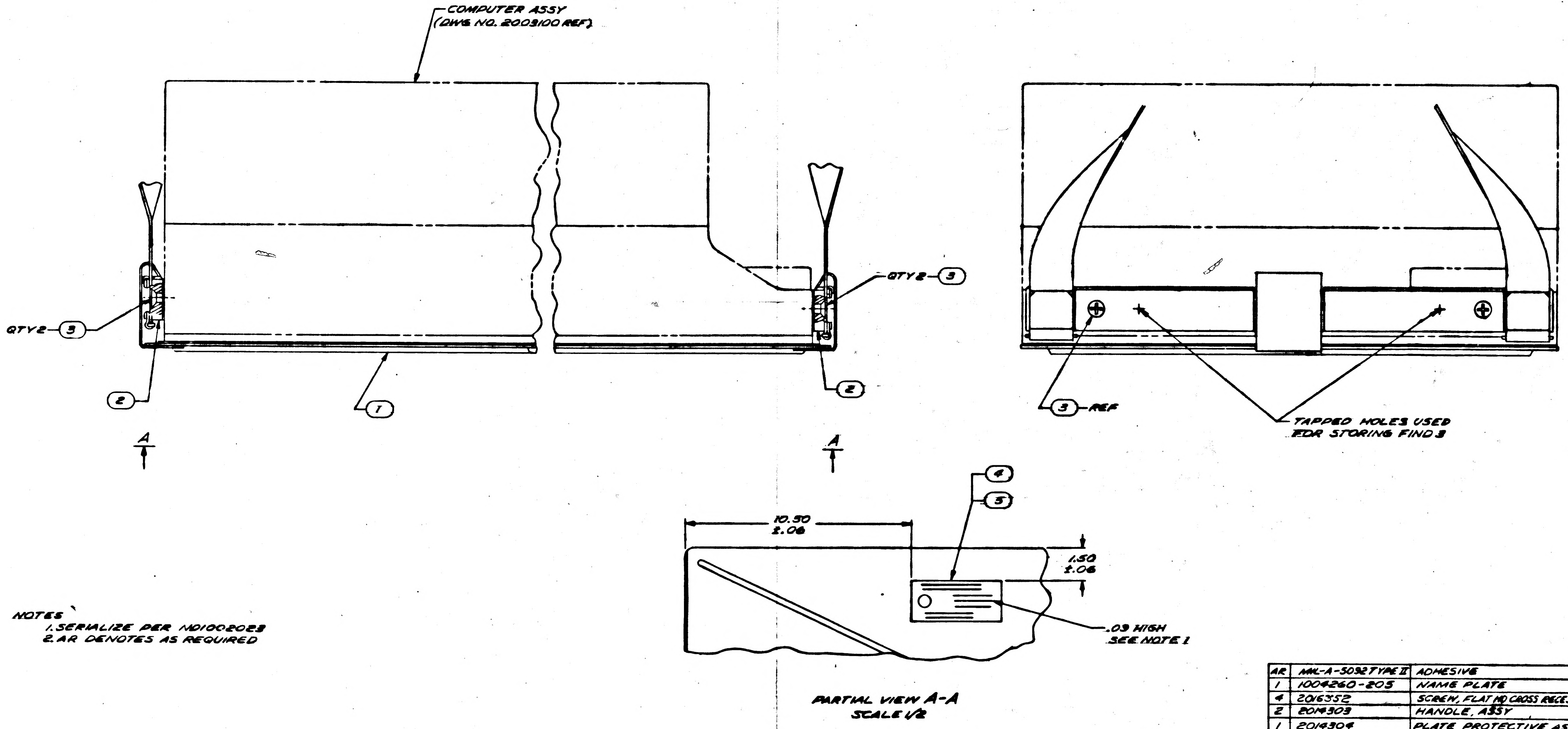
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014279
SCALE 1/2
WT
SHEET 1 OF 1

2014279 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014282 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25490		
–	CLASS A RELEASED PER TDRR 24484		
A	CHANGED PER TDRR 25927 DR Tom Allen CHK J. Reynolds APPD T. Lindsay	3/1/66	



COMPUTER ASSY
(DWG NO. 2003100 REF)
QTY 2 – 3
QTY 2 – 3
2
2
1
A
A
3 – REF
TAPPED HOLES USED FOR STORING FIND 3
4
5
10.50
±.06
1.50
±.06
.03 HIGH
SEE NOTE 1

PARTIAL VIEW A-A
SCALE 1/2

NOTES
1. SERIALIZE PER ND1002023
2. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	MIL-A-5092 TYPE II	ADHESIVE	5
1	1004260-205	NAME PLATE	4
4	2016352	SCREW, FLAT HD CROSS RECESSED	3
2	2014303	HANDLE, ASSY	2
1	2014304	PLATE, PROTECTIVE ASSY	1
-011	LIST OF MATERIALS		

FINAL	1900030
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 29 Oct 65
CHECKED [illegible] 29 Oct 65
APPROVAL [illegible] 29 Oct 65
APPROVAL D. [illegible] 10/29/65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

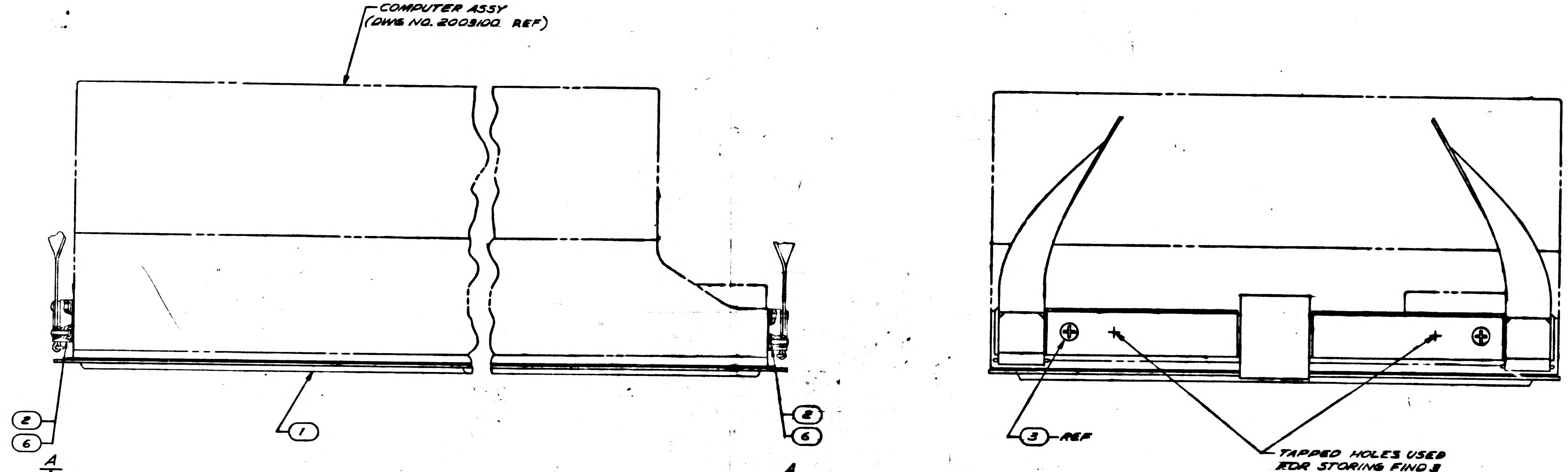
AGC HANDLING FIXTURE
ASSEMBLY

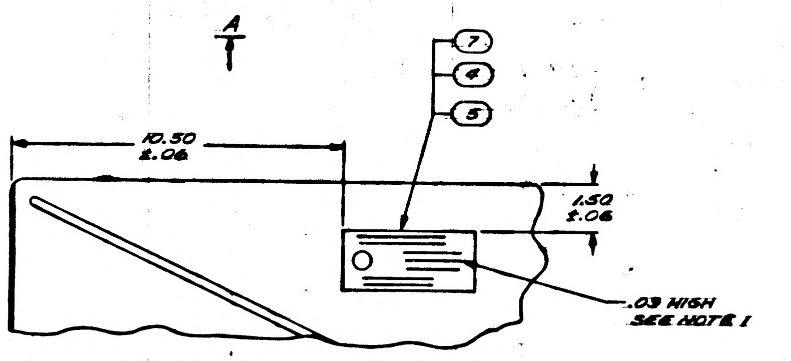
CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014282
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014282 B

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R35490		
–	CLASS A RELEASED PER TDRR 24484		
A	CHANGED PER TDRR 25927 DR Tom Allen CHK [illegible] APPD [illegible]	3/4/66	[illegible]
B	CHANGED PER TDRR 30886 DR J. Helsing CHK [illegible] APPD X73	9/1/66	[illegible]





PARTIAL VIEW A-A
SCALE 1/2

NOTES
1. SERIALIZE PER ND1002023
2. AR DENOTES AS REQUIRED

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	–	1004260-255	NAMEPLATE	7
2	–	2016367	HANDLE ASSY	6
AR	AR	MIL-A-5092 TYPE II	ADHESIVE	5
—	1	1004260-205	NAME PLATE	4
4	4	2016352	SCREW, FLAT HD CROSS RECESSED	3
—	2	2014303	HANDLE, ASSY	2
1	1	2014304	PLATE, PROTECTIVE ASSY	1
-021	-011	LIST OF MATERIALS		

FINAL	1900050
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 29 Oct 65
CHECKED E. Urban 29 Oct 65
APPROVAL [illegible] 29 Oct 65
APPROVAL D. J. [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 7 Dec 65
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

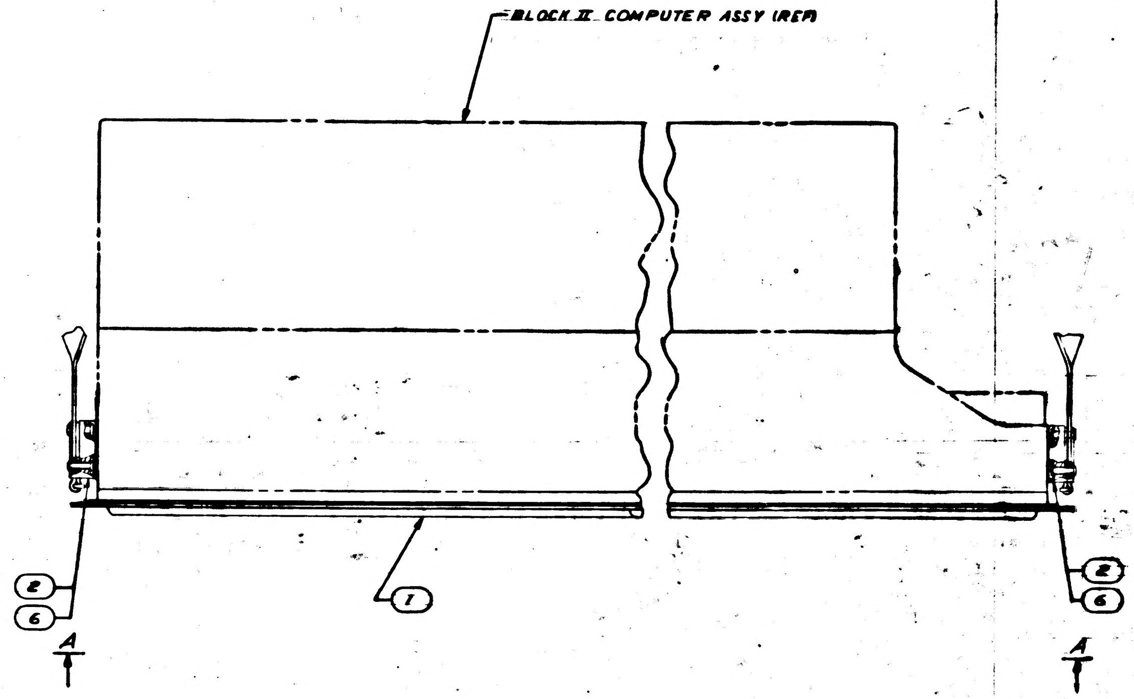
AGC HANDLING FIXTURE
ASSEMBLY

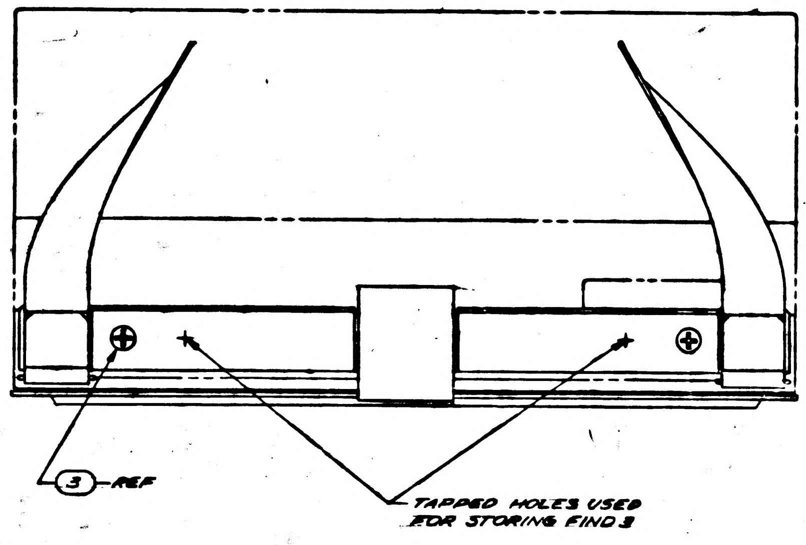
CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014282
SCALE 1/1 WT SHEET 1 OF 1

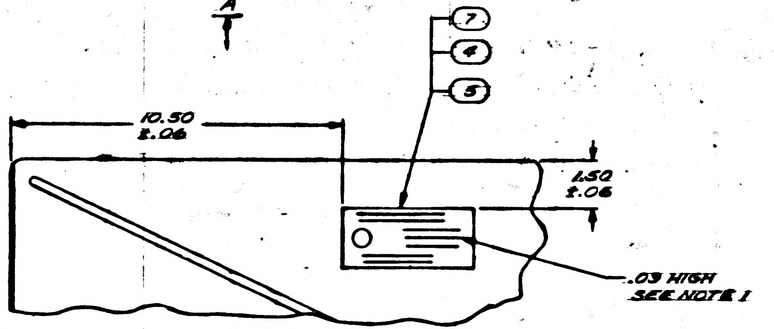
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014282 C

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA [illegible]		
–	CLASS A RELEASED PER TDRR [illegible]		
A	CHANGED PER TDRR 25927 DR CHK APPD	3/7/66	
B	CHANGED PER TDRR 30886 DR J. Halley CHK APPD KFB	5/11/66	
C	CHANGED PER TDRR 31133 DR CHK APPD	7/6/66	







PARTIAL VIEW A-A
SCALE 1/2

NOTES
1. SERIALIZE PER ND1002023
2. AR DENOTES AS REQUIRED

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	–	1004260-255	NAMEPLATE	7
2	–	2016367	HANDLE ASSY	6
AR	AR	MIL-A-5092 TYPE II	ADHESIVE	5
—	1	1004260-205	NAME PLATE	4
4	4	2016352	SCREW, FLAT HD CROSS RECESSED	3
—	2	2014303	HANDLE, ASSY	2
1	1	2014304	PLATE, PROTECTIVE ASSY	1

LIST OF MATERIALS

FINAL	1900030
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 29 Oct 65
CHECKED 29 Oct 65
APPROVAL 29 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL 7 Dec 65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

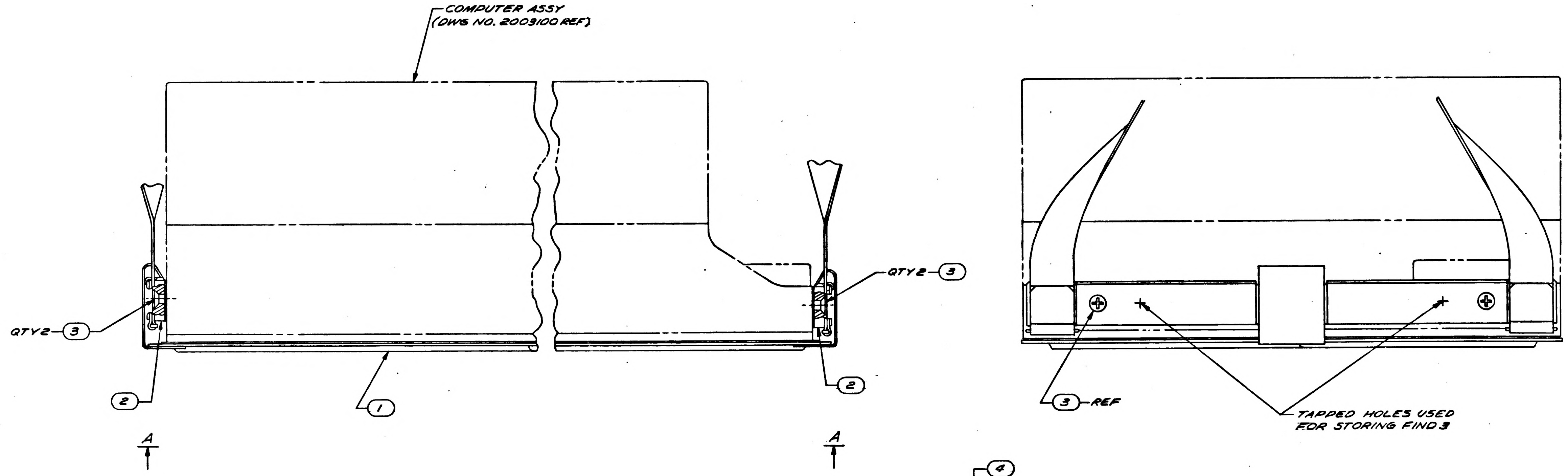
AGC HANDLING FIXTURE
ASSEMBLY

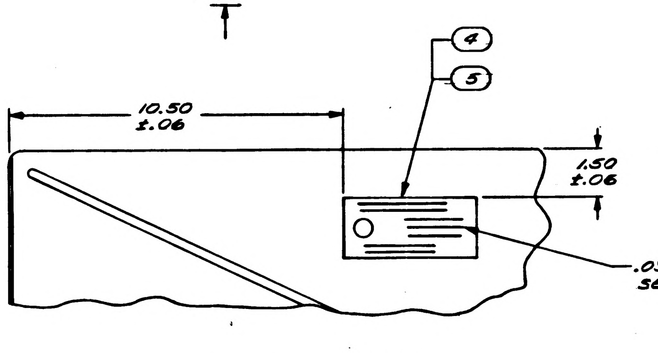
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014282
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014282 | —

SYM	DESCRIPTION	D	APPROVED
0	RELEASED PER CCA R25490		
—	CLASS A RELEASED PER TDRR 24484		


COMPUTER ASSY
(DWG NO. 2003100 REF)
QTY2—3
QTY2—3
2
1
2
3—REF
TAPPED HOLES USED
FOR STORING FIND 3
A
A


4
5
10.50
±.06
1.50
±.06
.09 HIGH
SEE NOTE 1

PARTIAL VIEW A-A
SCALE 1/2

NOTES
1. SERIALIZE PER ND1002023
2. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	MIL-A-5092 TYPE II	ADHESIVE	5
1	1004260-205	NAME PLATE	4
4	MS24694-S96	SCREW, FLAT HD CROSS RECESSED	3
2	2014303	HANDLE, ASSY	2
1	2014304	PLATE, PROTECTIVE ASSY	
-011	LIST OF MATERIALS		

FINAL	1900030
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN D. [illegible] DATE 29 Oct 65
CHECKED E. Urba. 29 Oct 65
APPROVAL P. [illegible] 29 Oct 65
APPROVAL D. [illegible] 10/29/65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL W. Kupfer 7 Dec 65
MIT APPROVAL [illegible] 12/6/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

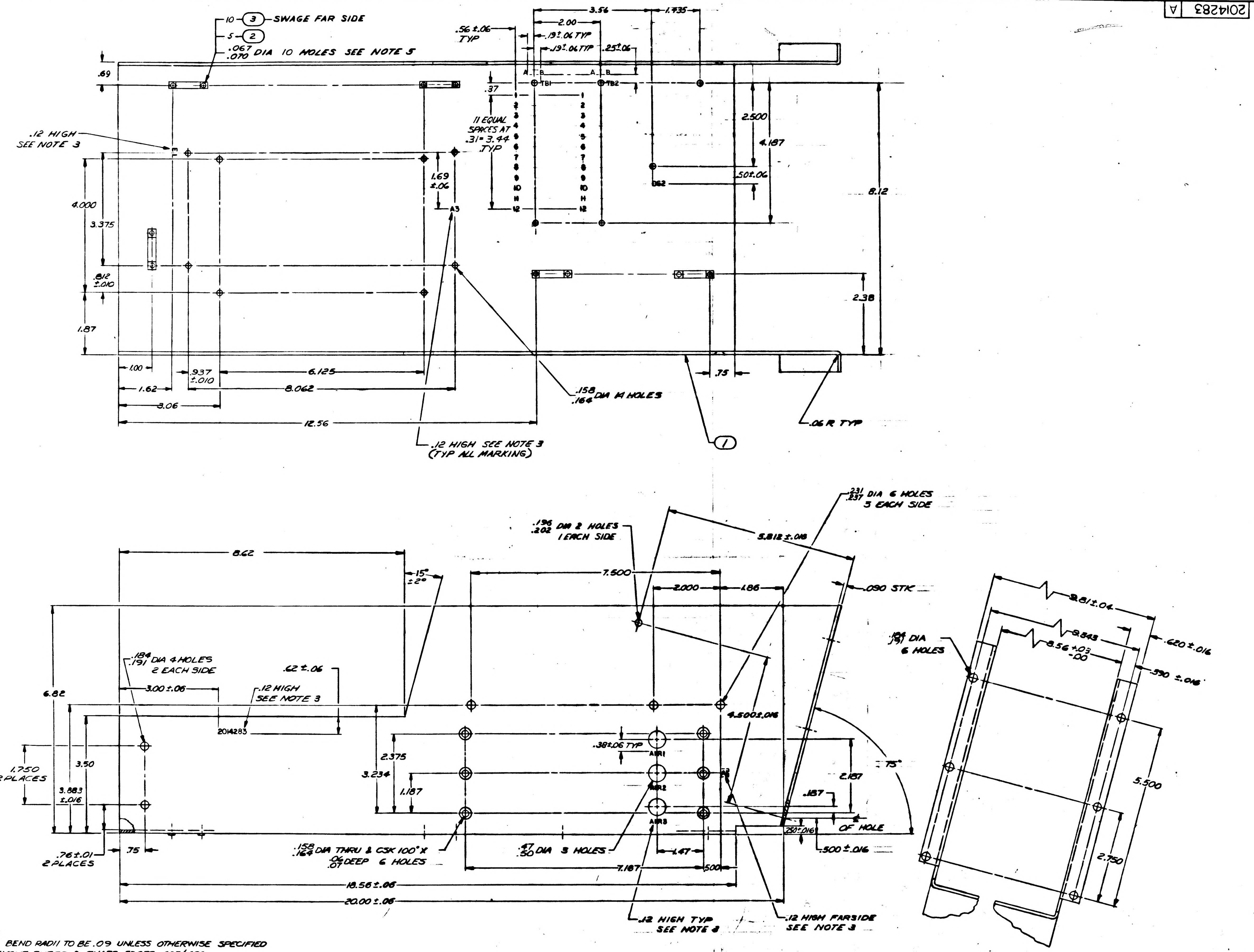
AGC HANDLING FIXTURE
ASSEMBLY

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014282
SCALE 1/1
WT
SHEET 1 OF 1

2014282 | —

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25138	9/3/65	
1	CHANGED PER CCA R25212 DR D. CHK APPD	19 OCT 65	
2	CHANGED PER CCA R25405 DR CHK APPD	65	
–	CLASS B CHANGED PER CCA R25509	65	
A	CHANGED PER CCA R25695 AND CLASS A RELEASED PER TDRR 25476		


10 ③ SWAGE FAR SIDE
5 ②
.067/.070 DIA 10 HOLES SEE NOTE 5
.12 HIGH SEE NOTE 3
.69
4.000
3.375
.812 ±.010
1.87
1.00
1.62
3.06
.937 ±.010
6.125
8.062
12.56
1.69 ±.06
A3
.12 HIGH SEE NOTE 3 (TYP ALL MARKING)
.158/.164 DIA 14 HOLES
.56 ±.06 TYP
3.56
2.00
1.435
.19±.06 TYP
.19±.06 TYP
.25±.06
.37
11 EQUAL SPACES AT .31=3.44 TYP
TB1
TB2
DS2
2.500
4.187
.50±.06
8.12
2.38
.75
①
.06 R TYP
8.62
15° ±2°
7.500
2.000
1.86
5.812 ±.016
.196/.202 DIA 2 HOLES 1 EACH SIDE
.231/.237 DIA 6 HOLES 3 EACH SIDE
.090 STK
.184/.191 DIA 4 HOLES 2 EACH SIDE
3.00 ±.06
.62 ±.06
.12 HIGH SEE NOTE 3
2014283
6.82
3.50
1.750 2 PLACES
3.883 ±.016
.76±.01 2 PLACES
.75
2.375
3.234
1.187
.38±.06 TYP
AIR1
AIR2
AIR3
4.500±.016
2.187
.187
75°
OF HOLE
.250±.016
.500 ±.016
.158/.164 DIA THRU & CSK 100° X .06/.07 DEEP 6 HOLES
.47/.50 DIA 3 HOLES
1.47
7.187
.500
18.56 ±.06
20.00 ±.06
.12 HIGH TYP SEE NOTE 3
.12 HIGH FARSIDE SEE NOTE 3
8.81 ±.04
8.843
8.56 +.03 -.00
.620 ±.016
.590 ±.016
.184/.191 DIA 6 HOLES
5.500
2.750

NOTES
1. ALL BEND RADII TO BE .09 UNLESS OTHERWISE SPECIFIED
2. REMOVE BURRS & SHARP EDGES .005/.020
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
5. LOCATE HOLES USING FIND NO. 2 AS TEMPLATE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
10	MS20470AD2-4	RIVET, UNIVERSAL HD	3
5	1004844-003	STRAP, RETAINING	2
1	2014283-001	CHASSIS	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014079	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±.005
ANGLES ±0°30'
DO NOT SCALE DRAWING
MATERIAL AL 5052-H32 PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 11 JUN 65
CHECKED C. 2 JUL 65
APPROVAL H. Mona 23 Jul 65
APPROVAL 7/23/65
APPROVAL 1 Sep 65
NASA APPROVAL NEITZCER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

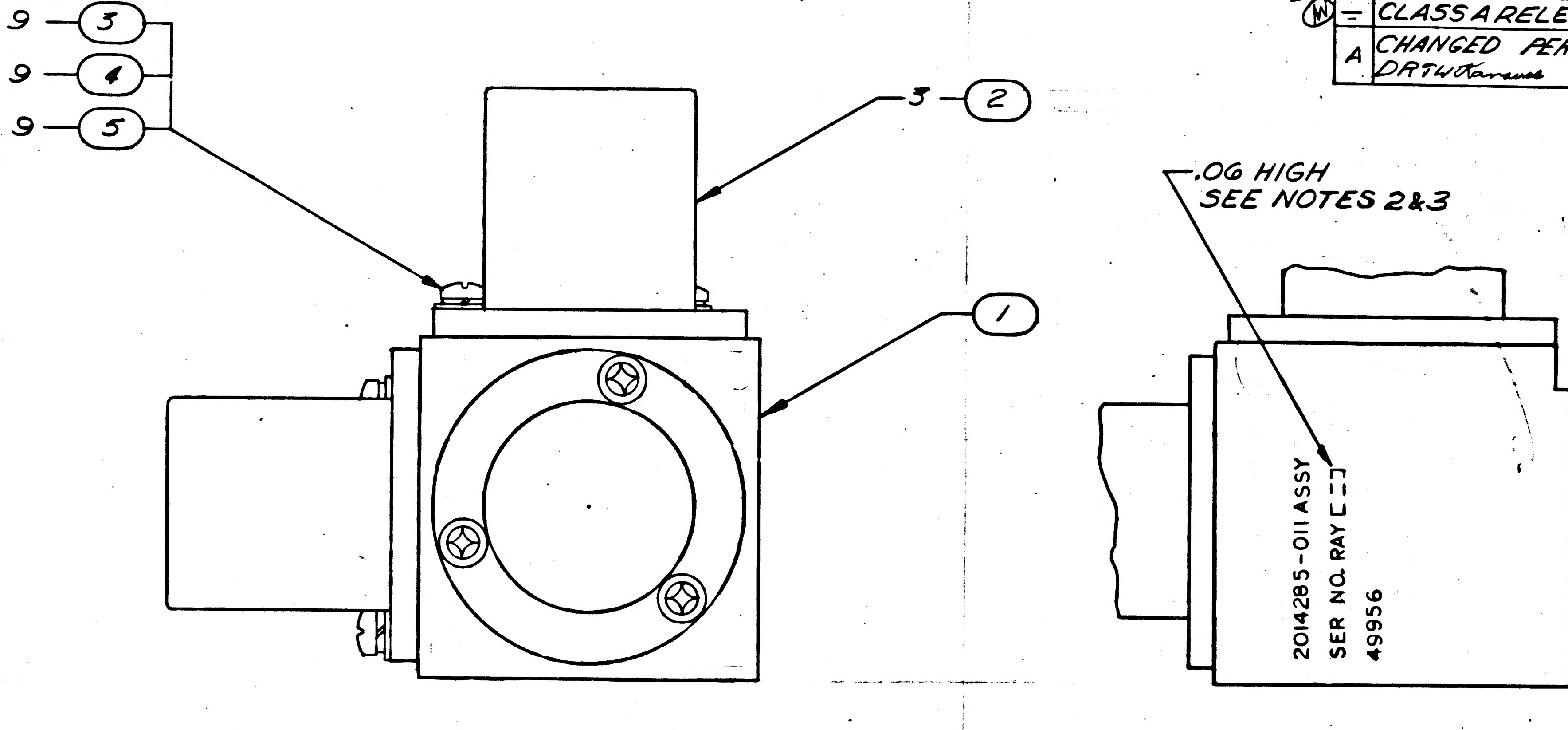
CHASSIS
POWER CONTROL
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014283
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014285 A

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA 25063	7/30/65	A. Harano
1	CHANGED PER CCA R 25199 DR R.L. CHK APPD	19 OCT. 65	
=	CLASS A RELEASED PER TDRR 24480		
A	CHANGED PER TDRR 25676 DR T.W. CHK APPD	3 FEB 66	



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLK INK 1006271-10
4. FIND NO. 6, 7, & 8 ARE TO BE SUPPLIED & IDENTIFIED PER ND1002019
5. FIND NO. 6, 7, & 8 ARE USED TO INSTALL SHOCK INDICATOR ASSEMBLY ON TO DSKY HANDLING FIXTURES PRIOR TO INSTALLATION IN SHIPPING CONTAINER PER DRAWING NO 2014407

NOT SHOWN SEE NOTES 4&5 (FIND NO. 6, 7, 8)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	MS15795-807	WASHER, FLAT	8
4	MS35338-80	WASHER, LOCK	7
4	MS16995-27	SCREW, CAP	6
9	1004237	WASHER, FLAT	5
9	MS35338-77	WASHER, LOCK	4
9	MS51957-6	SCREW, PAN HEAD	3
3	1006498-021	INDICATOR, MECH SHOCK	2
1	2014284	BLOCK, MTG, SHOCK INDICATOR	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2016316	
2016312	
2016313	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 10 JUNE 65
CHECKED 29 Jun '65
APPROVAL 30/6/65
APPROVAL 6/30/65
APPROVAL 7/27/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL A. Harano 12/6/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SHOCK INDICATOR ASSY
HANDLING FIXTURE

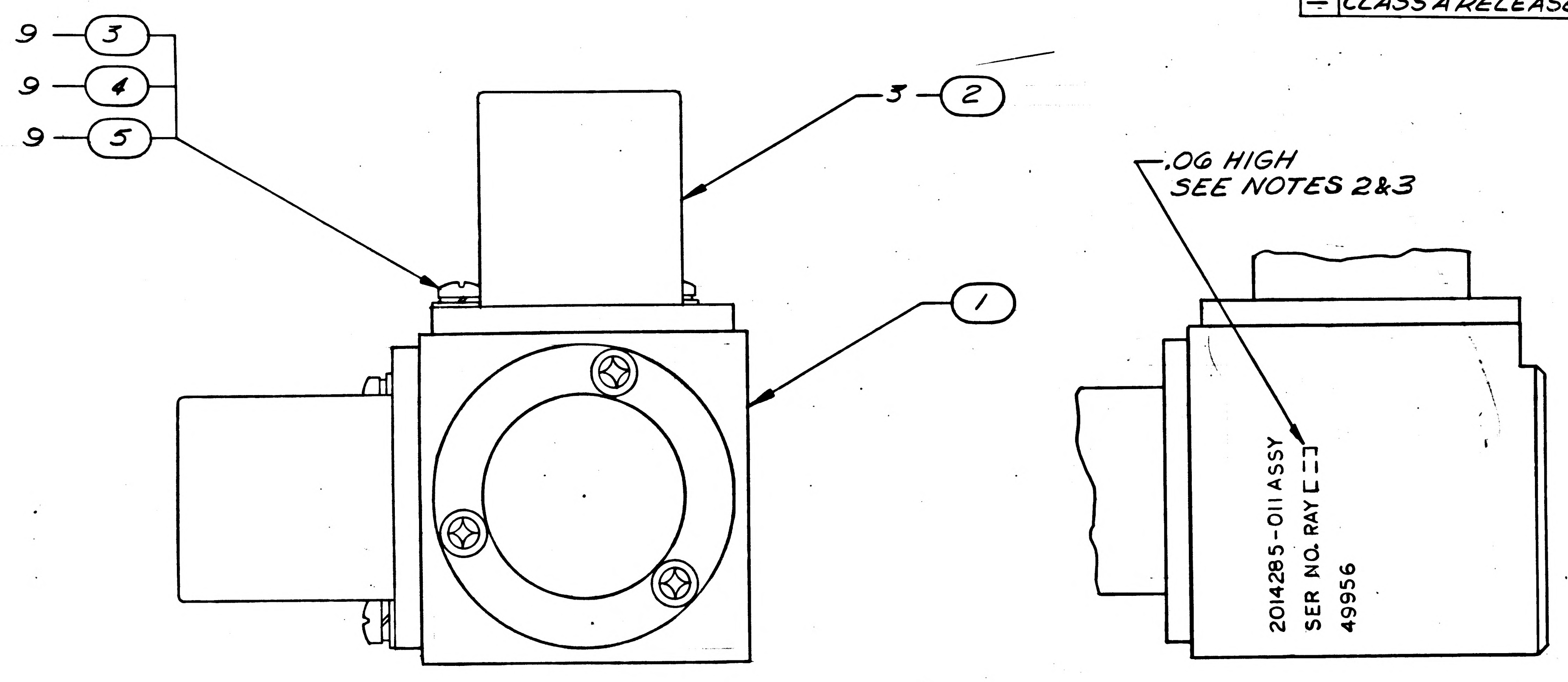
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	C	2014285
SCALE 2/1	WT	SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014285 A

2014285 –

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25063	7/30/65	A Varano
1	CHANGED PER CCA R 25199 DR R.L. [illegible] CHK [illegible] APPD	19 OCT. 65	S F S
–	CLASS A RELEASED PER TDRR 24480		



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLK INK 1006271-10
4. FIND NO. 6, 7, & 8 ARE TO BE SUPPLIED & IDENTIFIED PER ND1002019
5. FIND NO. 6, 7, & 8 ARE USED TO INSTALL SHOCK INDICATOR ASSEMBLY ONTO DSKY HANDLING FIXTURES PRIOR TO INSTALLATION IN SHIPPING CONTAINER PER DRAWING NO 2014407

NOT SHOWN SEE NOTES 4&5 (FIND NO. 6, 7, 8)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	MS15795-807	WASHER, FLAT	8
4	MS35338-80	WASHER, LOCK	7
4	MS16995-27	SCREW, CAP	6
9	MS15795-802	WASHER, FLAT	5
9	MS35338-77	WASHER, LOCK	4
9	MS51957-6	SCREW, PAN HEAD	3
3	1006498-021	INDICATOR, MECH SHOCK	2
1	2014284	BLOCK, MTG, SHOCK INDICATOR	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2016316	
2016312	
2016313	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Q.M. Donohue DATE 10 JUNE 65
CHECKED E Kessler 29 Jun '65
APPROVAL P.E. Dube 30/6/65
APPROVAL [illegible] 6/30/65
APPROVAL M J Bo[illegible] 7/27/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 7/1/65
MIT APPROVAL A Varano 12/6/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SHOCK INDICATOR ASSY
HANDLING FIXTURE

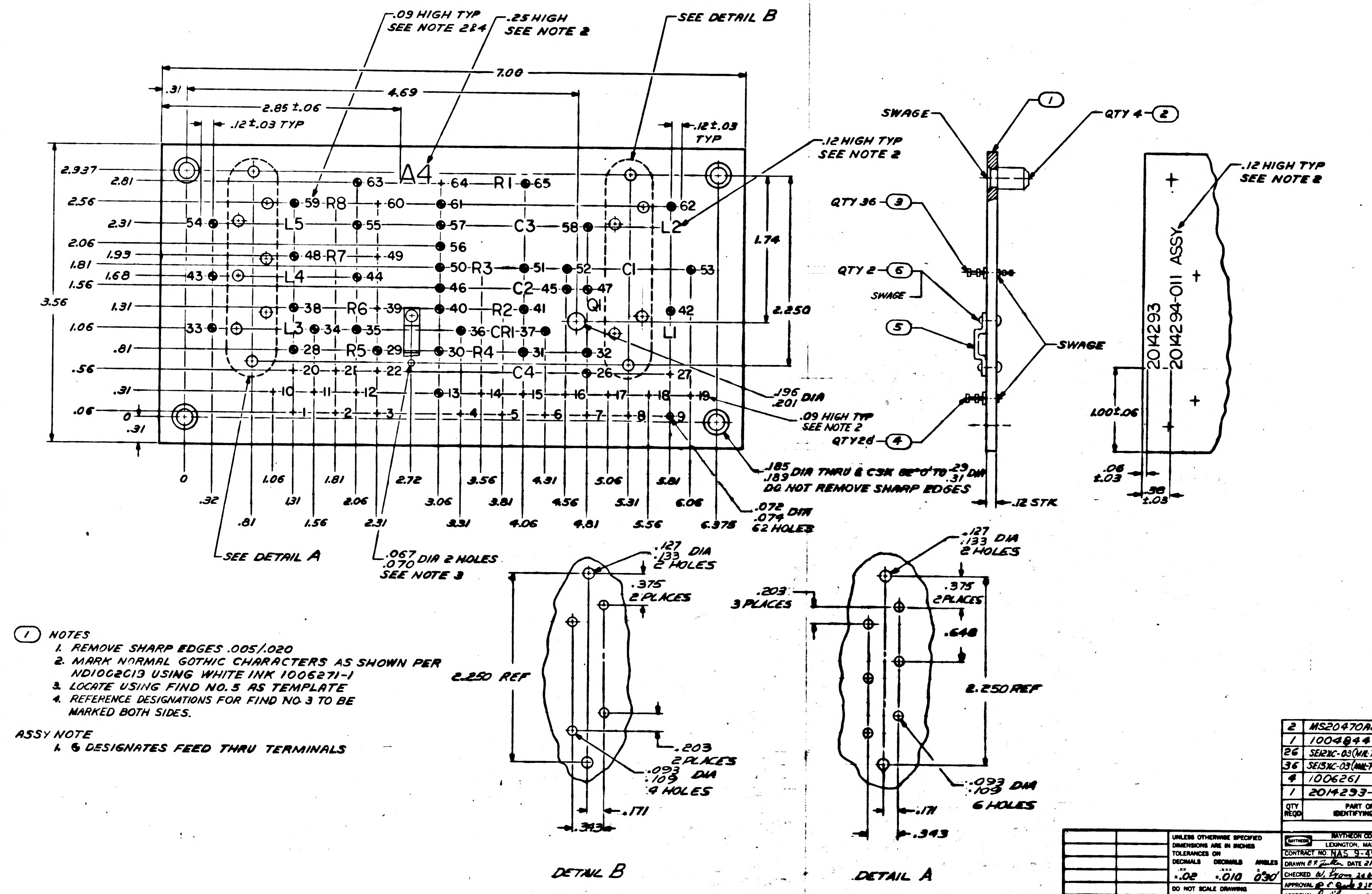
CODE IDENT NO. 49956
SIZE C
NASA DRAWING NO. 2014285
SCALE 2/1
WT
SHEET 1 OF 1

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014293 B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25167	9/15/65	
1	CHANGED PER CCA R25337 DR CHK APPD	11/4/65	
—	CLASS B CHANGEC PER CCA R25502		
A	CHANGED PER CCA R25546 DR CHK APPD		
B	CHANGED PER CCA R25658 AND CLASS A RELEASED PER TDRR 25472	1/14/66	



.09 HIGH TYP SEE NOTE 2&4
.25 HIGH SEE NOTE 2
SEE DETAIL B
7.00
4.69
2.85 ±.06
.12 ±.03 TYP
.12 HIGH TYP SEE NOTE 2
A4
R1 R8 R7 R6 R5 R4 R3 R2
C1 C2 C3 C4
L1 L2 L3 L4 L5
Q1 CR1
1.74
2.250
3.56
.196 .201 DIA
.09 HIGH TYP SEE NOTE 2
.185 .183 DIA THRU & CSK 82°0' TO .29 .31 DIA DO NOT REMOVE SHARP EDGES
.072 .074 DIA 62 HOLES
SEE DETAIL A
.067 .070 DIA 2 HOLES SEE NOTE 3
SWAGE
QTY 4
QTY 36
QTY 2
QTY 2
.12 STK
2014293
2014294-011 ASSY
1.00 ±.06
.06 ±.03
.38 ±.03
.127 .133 DIA 2 HOLES
.375 2 PLACES
2.250 REF
.203 2 PLACES
.093 .103 DIA 4 HOLES
.171
.343
DETAIL B
.203 3 PLACES
.648
.093 .103 DIA 6 HOLES
DETAIL A

① NOTES

1. REMOVE SHARP EDGES .005/.020
2. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002013 USING WHITE INK 1006271-1
3. LOCATE USING FIND NO. 5 AS TEMPLATE
4. REFERENCE DESIGNATIONS FOR FIND NO. 3 TO BE MARKED BOTH SIDES.

ASSY NOTE

1. ⑥ DESIGNATES FEED THRU TERMINALS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	MS20470A2-4	RIVET, SOLID, UNIV HEAD	6
1	1004844-001	STRAP, RETAINING	5
26	SE12XC-03 (MIL-T-55155/12)	TERMINAL, STUD	4
36	SE15XC-03 (MIL-T-55155/15)	TERMINAL, FEEDTHRU	3
4	1006261	NUT, CLINCH	2
1	2014293-001	BOARD	1

LIST OF MATERIALS

2014293 B

NEXT ASSY	USED ON
2014294	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.010 ANGLES ±0°30'
DO NOT SCALE DRAWING

MATERIAL
PLASTIC, SHEET PER MIL-P-18177 TYPE GEE

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B R Fuller DATE 21 AUG 65
CHECKED W. Lyons 24 AUG 65
APPROVAL 2 SEP 65
APPROVAL
APPROVAL 9/13/65
NASA APPROVAL A. J. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD A4
RDC INTERFACE
COMPUTER TEST SET

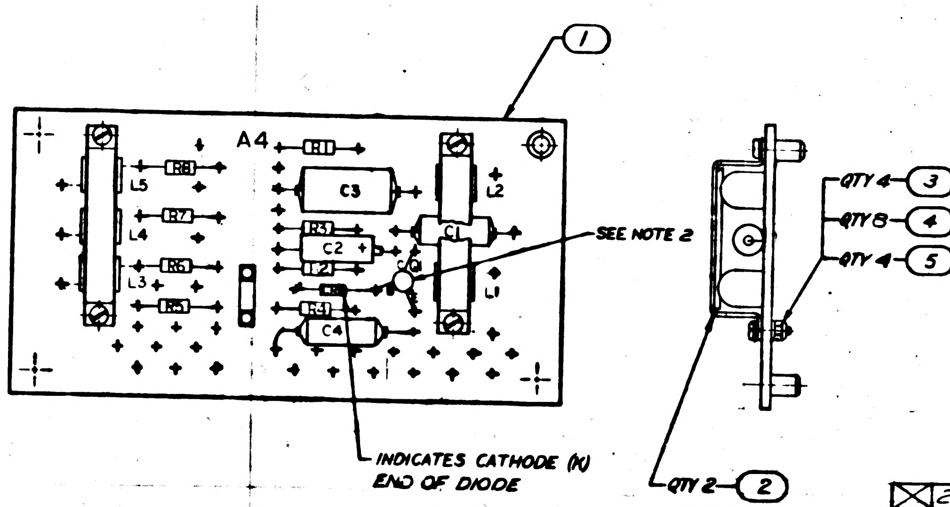
CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014293
SCALE 2/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014294 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/13/65	Harano
1	CHANGED PER CCA R25480 DR W. Kelly CHK A. Kufan APPD P.E.D 11/19/65	19 Nov 65	
—	CLASS B CHANGED PER CCA R25502	11/15/65	
A	CHANGED PER CCA R25576 DR W. CHK Kelly APPD P.E.D	12/14/65	
B	CHANGED PER CCA R25630 AND CLASS A RELEASED PER TDRR 25472	1/14/66	



JUMPER LIST FARSIDE		
COND IDENT	FROM	TO
A1	A4 - 54	A4 - 43
A2	A4 - 43	A4 - 33
A3	A4 - 33	A4 - 28
A4	A4 - 28	A4 - 34
A5	A4 - 63	A4 - 55
A6	A4 - 55	A4 - 44
A7	A4 - 44	A4 - 35
A8	A4 - 35	A4 - 29
A9	A4 - 40	A4 - 46
A10	A4 - 41	A4 - 37
A11	A4 - 32	A4 - 46
A12	A4 - 46	A4 - 56
A13	A4 - 56	A4 - 57
A14	A4 - 57	A4 - 61
A15	A4 - 61	A4 - 62
A16	A4 - 42	A4 - 53
A17	A4 - 47	A4 - 51
A18	A4 - 45	A4 - 50
A19	A4 - 65	A4 - 36
A20	A4 - 52	A4 - 58
A21	A4 - 58	A4 - 31
A22	A4 - 30	A4 - 13
A23	A4 - 31	A4 - 26

NOTES
1. SOLDER PER ND1002071
2. ASSEMBLE FIND NO. 15 TO FIND NO. 1 PER ND1002004, TYPE II, RIGID
3. QQ-W-343, TYPE S AWG 22 SOFT COATED & FOR FIND NO. 19
4. FABRICATE PER ND1002032.

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
C1	9
C2	8
C3	7
C4	21
CR1	6
L1	18
L2	17
L3, L4, L5	16
Q1	15
R1	11
R2	12
R3	14
R4	13
R5, R6, R7, R8	10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014125	SCHEMATIC	REF
1	1010316-14	CAPACITOR	21
* 1.5	1006776-21	SLEEVING	20
* 2.5	SEE NOTE 3	WIRE, ELECTRICAL	19
1	1006493-007	INDUCTOR	18
1	1006493-005	INDUCTOR	17
3	1006493-003	INDUCTOR	16
1	1006752	TRANSITOR	15
1	1006760-32	RESISTOR	14
1	1006760-56	RESISTOR	13
1	1006760-25	RESISTOR	12
1	1006760-16	RESISTOR	11
4	1006760-1	RESISTOR	10
1	1010316-13	CAPACITOR	9
1	1006755-89	CAPACITOR	8
1	1010316-21	CAPACITOR	7
1	1006751-000	DIODE	6
4	MS20365-440	NUT, SELF-LOCK	5
8	MS15795-803	WASHER, FLAT	4
4	MS51957-16	SCREW, MACH, PAN HD	3
2	2014326	BRACKET ASSY	2
1	2014293	COMPONENT BOARD A4	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 18 JUN 65
CHECKED W. Lyons 24 AUG 65
APPROVAL 8/8/65
APPROVAL D. O'B 9/8/65
APPROVAL 9/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C. 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD ASSY, A4
RDC INTERFACE
COMPUTER TEST SET

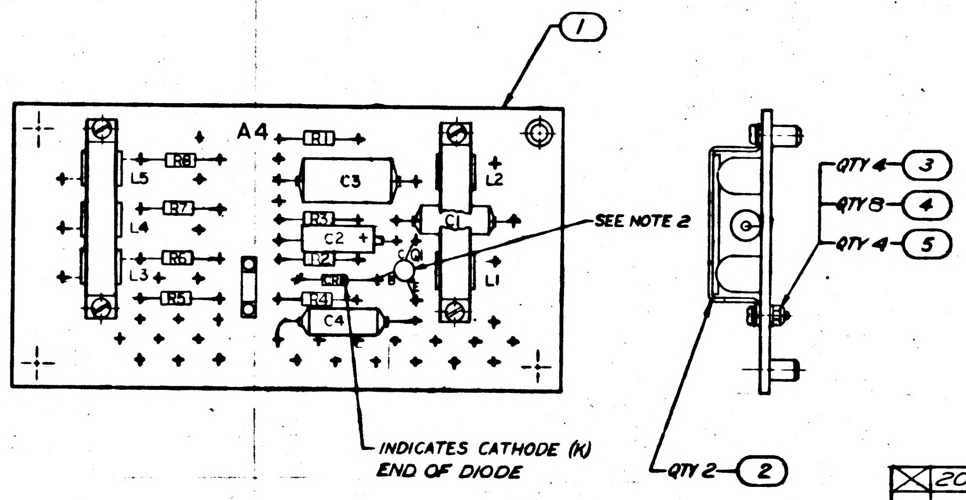
CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014294
SCALE 1/1
WT
SHEET 1 OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014294 B

2014294 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/3/65	
1	CHANGED PER CCA R25480 DR W. Kelly CHK A. Kufner APPD P.E.D 11/19/65	15 Nov 65	
–	CLASS B CHANGED PER CCA R25502	12/5/65	
A	CHANGED PER CCA R25576 DR W. CHK Kelly APPD PED	12/14/65	
B	CHANGED PER CCA R25630 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 26453 DR A.J. Green CHK L.J. APPD PED	1/2/66	



JUMPER LIST FARSIDE		
COND IDENT	FROM	TO
A1	A4 - 54	A4 - 43
A2	A4 - 43	A4 - 33
A3	A4 - 33	A4 - 28
A4	A4 - 28	A4 - 34
A5	A4 - 63	A4 - 55
A6	A4 - 55	A4 - 44
A7	A4 - 44	A4 - 35
A8	A4 - 35	A4 - 29
A9	A4 - 40	A4 - 46
A10	A4 - 41	A4 - 37
A11	A4 - 32	A4 - 46
A12	A4 - 46	A4 - 56
A13	A4 - 56	A4 - 57
A14	A4 - 57	A4 - 61
A15	A4 - 61	A4 - 62
A16	A4 - 42	A4 - 53
A17	A4 - 47	A4 - 51
A18	A4 - 45	A4 - 50
A19	A4 - 65	A4 - 36
A20	A4 - 52	A4 - 58
A21	A4 - 58	A4 - 31
A22	A4 - 30	A4 - 13
A23	A4 - 31	A4 - 26
A24	A4 - 14	A4 - 65
A25	A4 - 15	A4 - 45

NOTES
1. SOLDER PER ND1002071
2. ASSEMBLE FIND NO. 15 TO FIND NO. 1 PER ND1002004, TYPE II, RIGID
3. QQ-W-343, TYPE S AWG 22 SOFT COATED & FOR FIND NO. 19
4. FABRICATE PER ND1002032.

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
C1	9
C2	8
C3	7
C4	21
CR1	6
L1	18
L2	17
L3, L4, L5	16
Q1	15
R1	11
R2	12
R3	14
R4	13
R5, R6, R7, R8	10

☒	2014125	SCHEMATIC	REF
1	1010316-14	CAPACITOR	21
* 2.0	1006776-21	SLEEVING	20
* 3.0	SEE NOTE 3	WIRE, ELECTRICAL	19
1	1006493-007	INDUCTOR	18
1	1006493-005	INDUCTOR	17
3	1006493-003	INDUCTOR	16
1	1006752	TRANSITOR	15
1	1006760-32	RESISTOR	14
1	1006760-56	RESISTOR	13
1	1006760-25	RESISTOR	12
1	1006760-16	RESISTOR	11
4	1006760-1	RESISTOR	10
1	1010316-13	CAPACITOR	9
1	1006755-89	CAPACITOR	8
1	1010316-21	CAPACITOR	7
1	1006751-000	DIODE	6
4	MS20365-440	NUT, SELF-LOCK	5
8	MS15795-803	WASHER, FLAT	4
4	MS51957-16	SCREW, MACH, PAN HD	3
2	2014326	BRACKET ASSY	2
1	2014293	COMPONENT BOARD A4	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014294 C

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN R. J. DATE 18 JUN 65
CHECKED W. Lyons 24 AUG 65
APPROVAL P. E. Duke 9/8/65
APPROVAL 9/8/65
APPROVAL 9/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD ASSY, A4
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014294
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

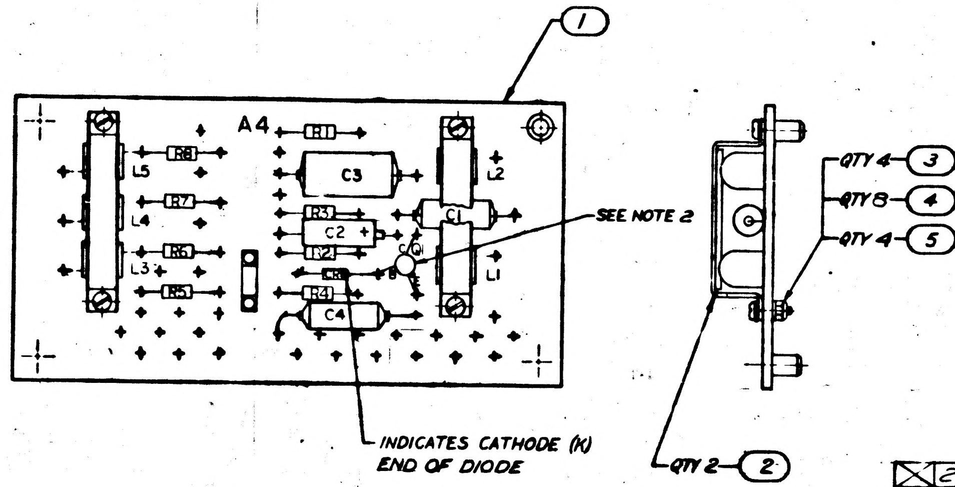
2014294 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/13/65	
1	CHANGED PER CCA R25480 DR W. Kelly CHK A. Kufer APPD P.E.D 11/19/65	19 Nov 65	
–	CLASS B CHANGED PER CCA R25502	12/15/65	
A	CHANGED PER CCA R25576 DR W. CHK Kelly APPD PED	12/14/65	
B	CHANGED PER CCA R25630 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 26453 DR A.J. Green CHK L.J. APPD PED	4/2/66	
D	CHANGED PER TDRR 26544 DR C Hayward CHK CP APPD P.E.D.	4/15/66	

JUMPER LIST			
COND IDENT	FROM	TO	REMARKS
A1	A4 - 54	A4 - 43	△1
A2	A4 - 43	A4 - 33	↓
A3	A4 - 33	A4 - 28	↓
A4	A4 - 28	A4 - 34	↓
A5	A4 - 63	A4 - 55	↓
A6	A4 - 55	A4 - 44	↓
A7	A4 - 44	A4 - 35	↓
A8	A4 - 35	A4 - 29	↓
A9	A4 - 40	A4 - 46	↓
A10	A4 - 41	A4 - 37	↓
A11	A4 - 32	A4 - 46	↓
A12	A4 - 46	A4 - 56	↓
A13	A4 - 56	A4 - 57	↓
A14	A4 - 57	A4 - 61	↓
A15	A4 - 61	A4 - 62	↓
A16	A4 - 42	A4 - 53	↓
A17	A4 - 47	A4 - 51	↓
A18	A4 - 45	A4 - 50	↓
A19	A4 - 65	A4 - 36	↓
A20	A4 - 52	A4 - 58	↓
A21	A4 - 58	A4 - 31	↓
A22	A4 - 30	A4 - 13	↓
A23	A4 - 31	A4 - 26	△1
A24	A4 - 14	A4 - 65	△2
A25	A4 - 15	A4 - 45	△2

△1 DENOTES WIRING ON FARSIDE

△2 DENOTES WIRING ON NEARSIDE



NOTES

1. SOLDER PER ND1002071
2. ASSEMBLE FIND NO. 15 TO FIND NO. 1 PER ND1002004, TYPE II, RIGID
3. QQ-W-343, TYPE S AWG 22 SOFT COATED & FOR FIND NO. 19
4. FABRICATE PER ND1002032.

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
C1	9
C2	8
C3	7
C4	21
CR1	6
L1	18
L2	17
L3, L4, L5	16
Q1	15
R1	11
R2	12
R3	14
R4	13
R5, R6, R7, R8	10

☒	2014125	SCHEMATIC	REF
1	1010316-14	CAPACITOR	21
* 2.0	1006776-21	SLEEVING	20
* 3.0	SEE NOTE 3	WIRE, ELECTRICAL	19
1	1006493-007	INDUCTOR	18
1	1006493-005	INDUCTOR	17
3	1006493-003	INDUCTOR	16
1	1006752	TRANSITOR	15
1	1006760-32	RESISTOR	14
1	1006760-56	RESISTOR	13
1	1006760-25	RESISTOR	12
1	1006760-16	RESISTOR	11
4	1006760-1	RESISTOR	10
1	1010316-13	CAPACITOR	9
1	1006755-89	CAPACITOR	8
1	1010316-21	CAPACITOR	7
1	1006751-000	DIODE	6
4	MS20365-440	NUT, SELF-LOCK	5
8	MS15795-803	WASHER, FLAT	4
4	MS51957-16	SCREW, MACH, PAN HD	3
2	2014326	BRACKET ASSY	2
1	2014293	COMPONENT BOARD A4	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 18 JUN 65
CHECKED W. 24 AUG 65
APPROVAL P E 9/8/65
APPROVAL D. 9/10/65
APPROVAL 9/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD ASSY, A4
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	D	2014294

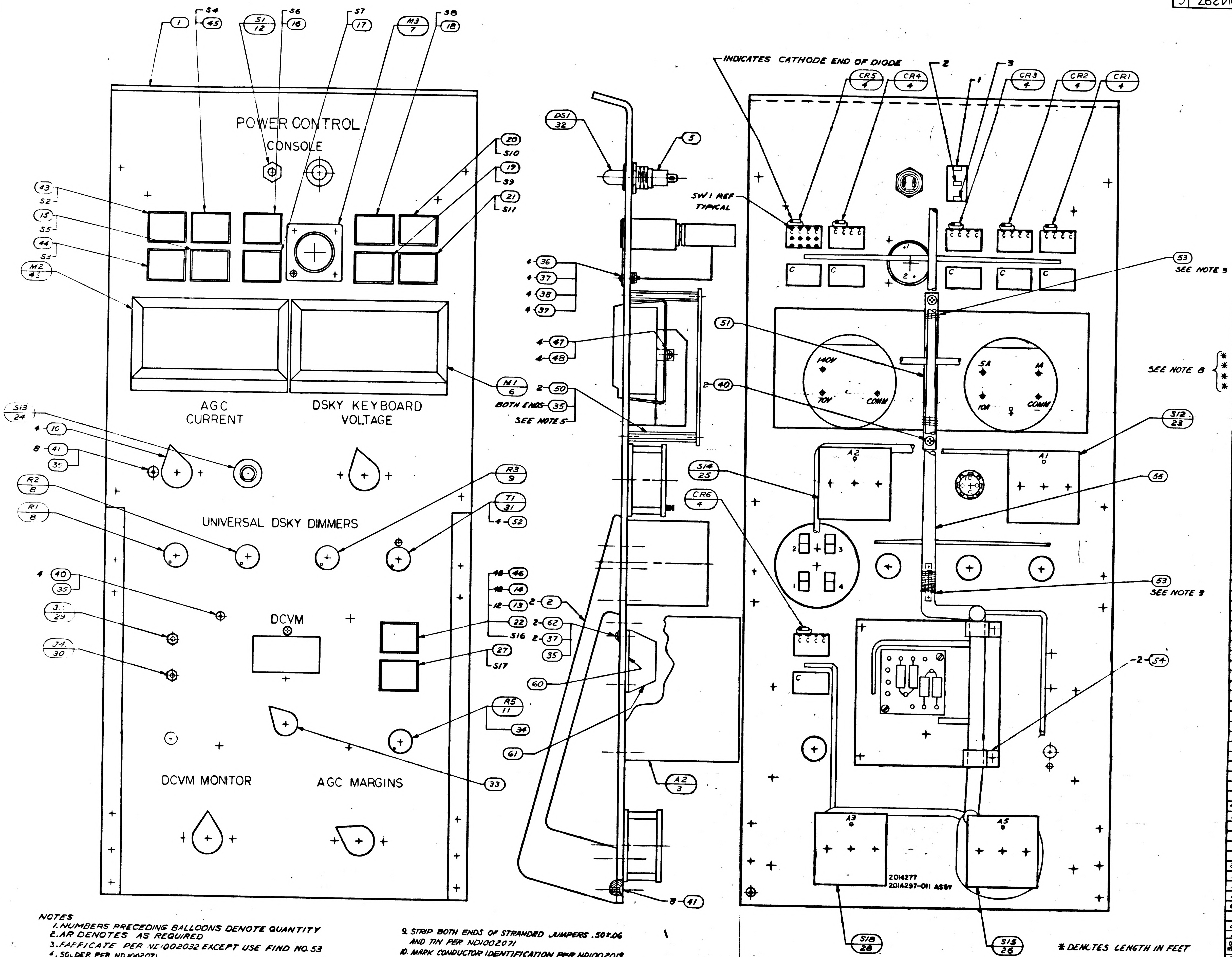
SCALE 1/1 WT SHEET 1 OF 1

2014294 D

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014297 C

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25206		
1	CHANGED PER CCA R25232 DR Ray Coombs CHK APPD		
–	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25645 DR CHK APPD		
B	CHANGED PER CCA R2570 DR CHK APPD	1/66	
C	CHANGED PER CCA R25 A D CLASS A RELEASED PER TD R25476		


POWER CONTROL
CONSOLE
AGC CURRENT
DSKY KEYBOARD VOLTAGE
UNIVERSAL DSKY DIMMERS
DCVM
DCVM MONITOR
AGC MARGINS
INDICATES CATHODE END OF DIODE
SW1 REF TYPICAL
SEE NOTE 3
SEE NOTE 5
BOTH ENDS
SEE NOTE 8
140V
70V
COMM
5A
1A
10A
A1
A2
A3
A5
2014277
2014297-011 ASSY
1
S4 45
S1 12
S6 16
S7 17
M3 7
S8 18
20 S10
19 S9
21 S11
43 S2
15 S5
44 S3
M2 43
M1 6
S13 24
4 16
8 41
35
R2 8
R1 8
R3 9
T1 31
4 52
4 40
35
J 29
J 30
22 S16
27 S17
R5 11
34
33
48 46
48 14
12 13
DS1 32
5
4 36
4 37
4 38
4 39
4 47
4 48
2 50
35
2 40
51
53
CR5 4
CR4 4
CR3 4
CR2 4
CR1 4
2
3
S12 23
S14 25
CR6 4
55
2 2
2 62
2 37
35
60
61
A2 3
2 54
8 41
S18 28
S15 26

*** DENOTES LENGTH IN FEET**

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 53
4. SOLDER PER ND1002071
5. MAXIMUM TORQUE TO BE 18 INCH POUNDS
6. QQ-W-343, TYPE S, SOFT, COATED (2), AWG SIZE 22
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
8. FOR APPLICATION OF FIND 56, 57, 58 & 59 SEE 2014189
9. STRIP BOTH ENDS OF STRANDED JUMPERS .50±.06 AND TIN PER ND1002071
10. MARK CONDUCTOR IDENTIFICATION PER ND1002019

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014156	SCHEMATIC	REF
	☒	2014189	LEAD ELECTRICAL	REF
	2	MS51957-16	SCREW, PAN HEAD	62
	1	2016317	MASK, METER WINDOW	61
	1	2014410	WINDOW, METER	60
SEE NOTE 8 *	4.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, BLK	59
*	5.0	1006776-21	INSULATION, SLEEVING	58
*	10.0	SEE NOTE 6	WIRE, ELECTRICAL	57
*	24.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, WHT	56
	1	2014188-011	WIRING HARNESS	55
	2	MS21322-38	CLAMP, LOOP	54
	AR	1006458-004	TAPE, LACING	53
	4	MS91528-1C2B	KNOB, CONTROL, ROUND	52
	1	2014408	STRAP, RETAINING	51
	2	2014409	SPACER, POST	50
	1	1006475	AMMETER DC	49
	4	MS35338-79	WASHER, LOCK	48
	4	MS15795-805	WASHER, FLAT	47
	48	1006407-004	LAMP 28V	46
	1	1006471-025	LENS	45
	1	1006471-024	LENS	44
	1	1006471-023	LENS	43
	~~1~~	~~1006427~~	~~RESISTOR, VARIABLE~~	~~42~~
	16	MS51959-45	SCREW, FLAT HD	41
	6	MS51959-29	SCREW, FLAT HD	40
	4	MS35649-44	NUT, PLAIN, HEX	39
	4	MS35338-78	WASHER, LOCK	38
	6	MS15795-803	WASHER, FLAT	37
	4	MS51957-17	SCREW, MACH, PAN HD	36
	AR	MIL-S-22473-GRADE HV	SEALING & RETAINING COMP	35
	1	MS91528-1E2B	KNOB, CONTROL, ROUND	34
	1	MS91528-1P2B	KNOB, CONTROL, POINTER	33
	1	1006869	LAMP, GLOW	32
	1	1006414	TRANSFORMER, VARIABLE	31
	1	MS16108-3A	JACK, TIP	30
	1	MS16108-2A	JACK, TIP	29
	1	1006257-004	SWITCH, ROTARY	28
	1	1006471-028	LENS	27
	1	1006465-001	SWITCH, ROTARY	26
	1	1006465-003	SWITCH, ROTARY	25
	1	MS25089-3C	SWITCH, PUSH	24
	1	1006465-002	SWITCH, ROTARY	23
	1	1006471-027	LENS	22
	1	1006471-019	LENS	21
	1	1006471-017	LENS	20
	1	1006471-020	LENS	19
	1	1006471-018	LENS	18
	1	1006471-022	LENS	17
	1	1006471-021	LENS	16
	1	1006471-026	LENS	15
	48	1006471-003	LAMP BOOT, AMBER	14
	12	1006471-002	BASIC UNIT	13
	1	MS35058-22	SWITCH, TOGGLE	12
	1	1006468-006	RESISTOR, VARIABLE	11
	4	MS91528-2K2B	KNOBS, CONTROL, POINTER	10
	1	1006468-003	RESISTOR, VARIABLE	9
	2	1006468-011	RESISTOR, VARIABLE	8
	1	1006927	INDICATOR, TOTAL TIME	7
	1	1006474	VOLTMETER 400 CYCLE	6
	1	1006905-1	INDICATOR, LIGHT	5
	6	1006751-000	DIODE	4
	1	10064[illegible]-002	INDICATOR, DIGITAL	3
	2	1014333	HANDLE	2
	1	2014277	FRONT PANEL	1

-011 LIST OF MATERIALS

2014297

2014079	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4[illegible]
DRAWN DATE 17 JUN 65
CHECKED C. D. 29 JUN 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
POWER CONTROL
OPERATION CONSOLE

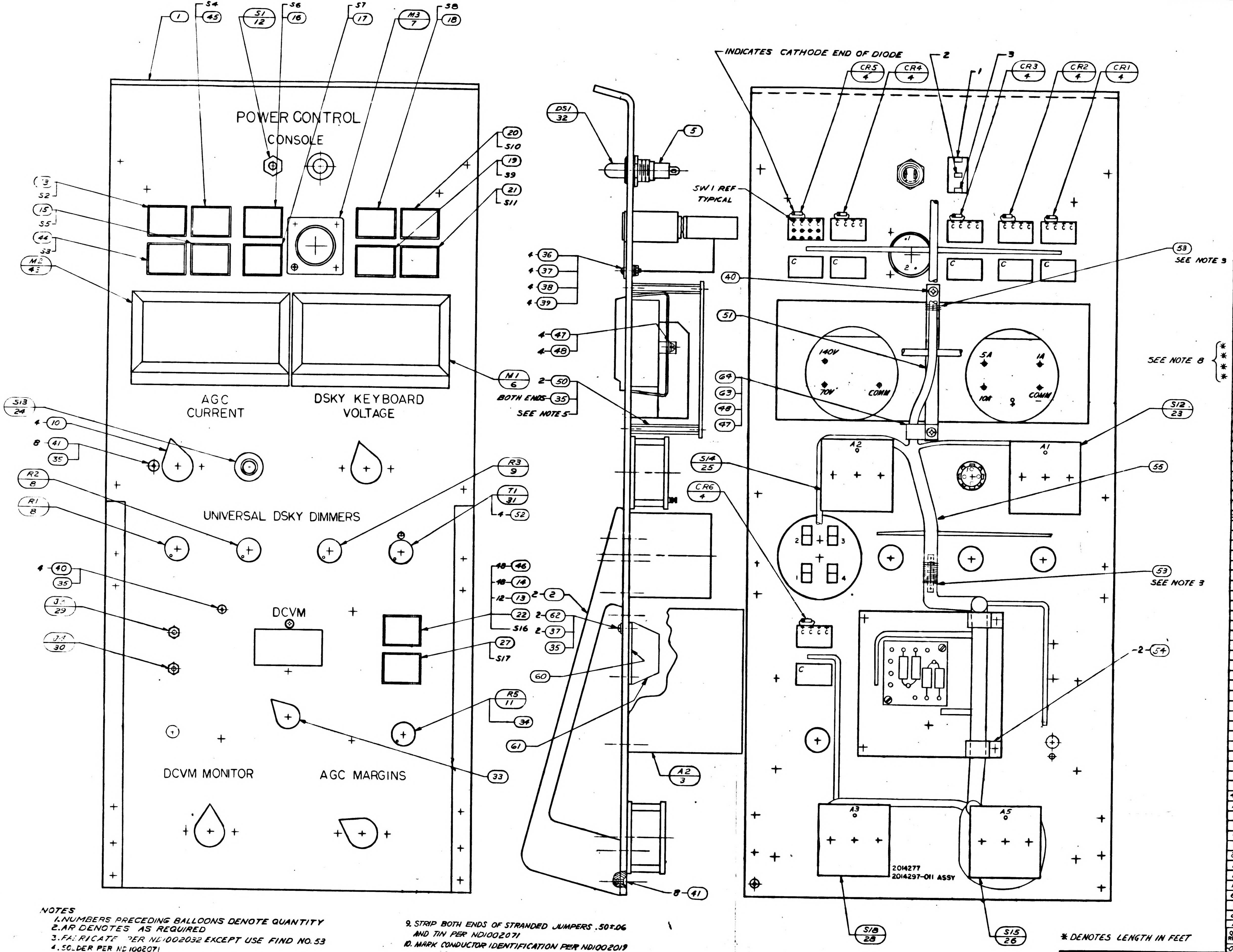
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014297
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2016297 C

2014297 D

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA 25205		
1	CHANGED PER CCA R25232 DR Ray Coombs CHK APPD		
–	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25645 DR CHK APPD		
B	CHANGED PER CCA R2570 DR CHK APPD		
C	CHANGED PER CCA R25 D CLASS A RELEASED PER TD 25476		
D	CHANGED PER TDRR 26 5 DR CHK APPD		


POWER CONTROL
CONSOLE
AGC
CURRENT
DSKY KEYBOARD
VOLTAGE
UNIVERSAL DSKY DIMMERS
DCVM
DCVM MONITOR
AGC MARGINS
1
S4 45
S1 12
S6 16
S7 17
M3 7
S8 18
13 S2
15 S5
44 S3
M2 43
20 S10
19 S9
21 S11
M1 6
S13 24
4 10
8 41
35
R2 8
R1 8
R3 9
T1 31
4 52
4 40
35
J2 29
J1 30
48 46
48 14
12 13
22
S16
27
S17
R5 11
34
33
DS1 32
5
4 36
4 37
4 38
4 39
4 47
4 48
2 50
BOTH ENDS 35
SEE NOTE 5
2 2
2 62
2 37
35
60
61
A2 3
8 41
INDICATES CATHODE END OF DIODE
2
1
3
CR5 4
CR4 4
CR3 4
CR2 4
CR1 4
SW1 REF TYPICAL
53 SEE NOTE 3
40
51
69
63
48
47
140V
70V
COMM
5A
1A
10A
COMM
SEE NOTE 8
S12 23
A1
A2
S14 25
CR6 4
55
53 SEE NOTE 3
2 54
A3
A5
2014277
2014297-011 ASSY
S18 28
S15 26

☒	2014156	SCHEMATIC	REF
☒	2014189	LEAD ELECTRICAL	REF
1	MS21919DG6	CLAMP, LOOP	64
1	MS51957-31	SCREW, MACH, PAN HD	63
2	MS51957-16	SCREW, PAN HEAD	62
1	2016317	MASK, METER WINDOW	61
1	2014410	WINDOW, METER	60
* 4.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, BLK	59
* 5.0	1006776-21	INSULATION, SLEEVING	58
* 10.0	SEE NOTE 6	WIRE, ELECTRICAL	57
* 24.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, WHT	56
1	2014188-011	WIRING HARNESS	55
2	MS21322-38	CLAMP, LOOP	54
AR	1006458-004	TAPE, LACING	53
4	MS91528-1C2B	KNOB, CONTROL, ROUND	52
1	2014408	STRAP, RETAINING	51
2	2014409	SPACER, POST	50
1	1006475	AMMETER DC	49
5	MS35338-79	WASHER, LOCK	48
5	MS15795-805	WASHER, FLAT	47
48	1006407-004	LAMP 28V	46
1	1006471-025	LENS	45
1	1006471-024	LENS	44
1	1006471-023	LENS	43
~~1~~	~~10064~~	~~RESISTOR, VARIABLE~~	~~42~~
16	MS51959-45	SCREW, FLAT HD	41
5	MS51959-29	SCREW, FLAT HD	40
4	MS35649-44	NUT, PLAIN, HEX	39
4	MS35338-78	WASHER, LOCK	38
6	MS15795-803	WASHER, FLAT	37
4	MS51957-17	SCREW, MACH, PAN HD	36
AR	MIL-S-22473-GRADE HV	SEALING & RETAINING COMP	35
1	MS91528-1E2B	KNOB, CONTROL, ROUND	34
1	MS91528-1P2B	KNOB, CONTROL, POINTER	33
1	1006869	LAMP, GLOW	32
1	1006414	TRANSFORMER, VARIABLE	31
1	MS16108-3A	JACK, TIP	30
1	MS16108-2A	JACK, TIP	29
1	1006257-004	SWITCH, ROTARY	28
1	1006471-028	LENS	27
1	1006465-001	SWITCH, ROTARY	26
1	1006465-003	SWITCH, ROTARY	25
1	MS25089-3C	SWITCH, PUSH	24
1	1006465-002	SWITCH, ROTARY	23
1	1006471-027	LENS	22
1	1006471-019	LENS	21
1	1006471-017	LENS	20
1	1006471-020	LENS	19
1	1006471-018	LENS	18
1	1006471-022	LENS	17
1	1006471-021	LENS	16
1	1006471-026	LENS	15
49	1006471-003	LAMP BOOT, AMBER	14
12	1006471-002	BASIC UNIT	13
1	MS35058-22	SWITCH, TOGGLE	12
1	1006468-006	RESISTOR, VARIABLE	11
4	MS91528-2K2B	KNOBS, CONTROL, POINTER	10
1	1006468-003	RESISTOR, VARIABLE	9
2	1006468-011	RESISTOR, VARIABLE	8
1	1006927	INDICATOR, TOTAL TIME	7
1	1006474	VOLTMETER 400 CYCLE	6
1	1006905-1	INDICATOR, LIGHT	5
6	1006751-000	DIODE	4
1	10064[illegible]-002	INDICATOR, DIGITAL	3
2	1014333	HANDLE	2
1	2014277	FRONT PANEL	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

2014297 D

* DENOTES LENGTH IN FEET

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 53
4. SOLDER PER ND 1002071
5. MAXIMUM TORQUE TO BE 18 INCH POUNDS
6. QQ-W-343, TYPE S, SOFT, COATED (2), AWG SIZE 22
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
8. FOR APPLICATION OF FIND 56, 57, 58 & 59 SEE 2014189
9. STRIP BOTH ENDS OF STRANDED JUMPERS .50±.06 AND TIN PER ND1002071
10. MARK CONDUCTOR IDENTIFICATION PER ND1002019

2016297 D

MASTER

2014079	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4?7
DRAWN DATE 17 JUN 65
CHECKED 27 JUL 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

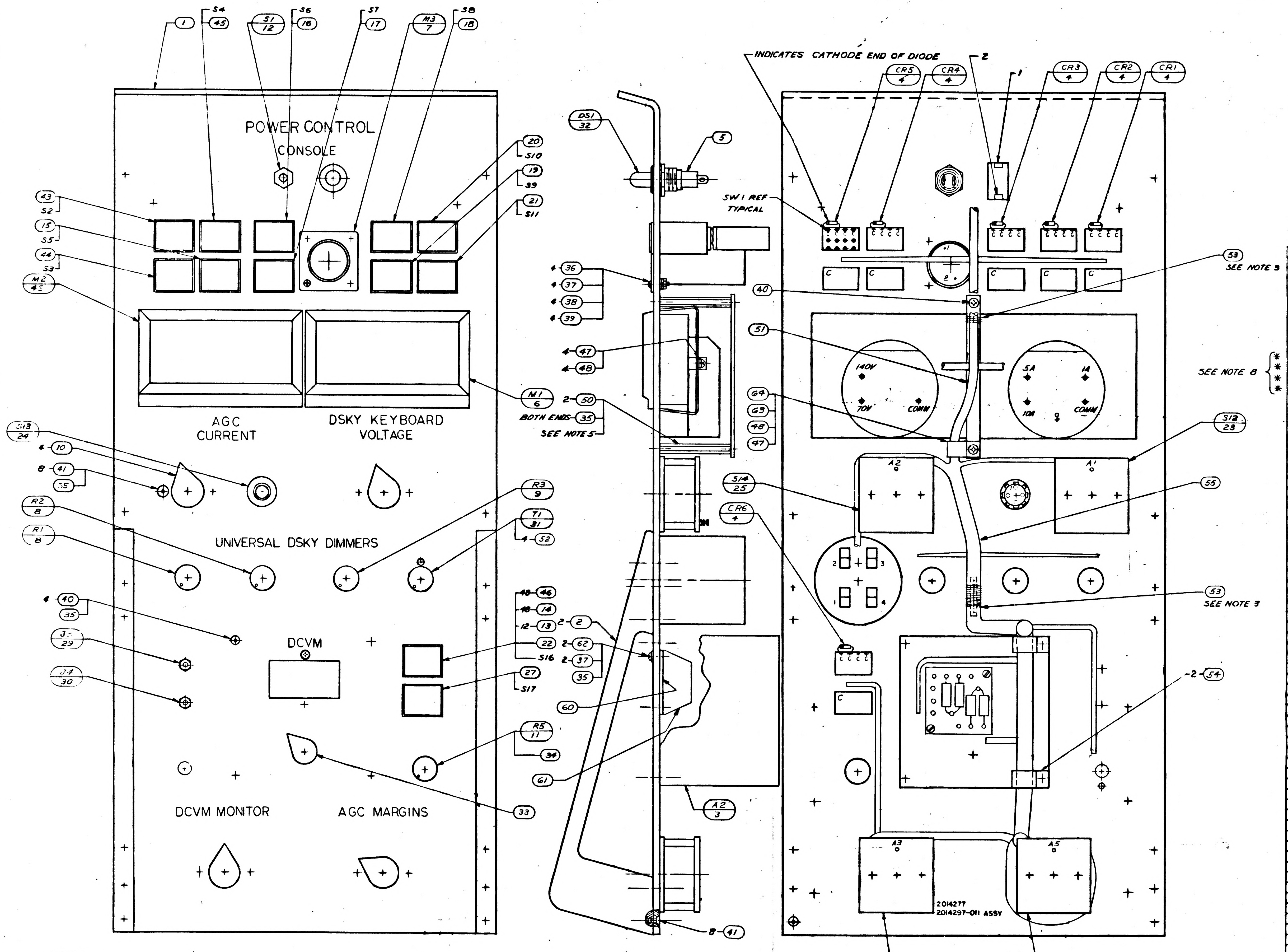
FRONT PANEL ASSY
POWER CONTROL
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014297
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014297 E

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25205		
1	CHANGED PER CCA R25232 DR CHK APPD	[illegible]	
–	CLASS B CHANGED PER CCA R25509	[illegible]	
A	CHANGED PER CCA R25645 DR CHK APPD	[illegible]	
B	CHANGED PER CCA R25708 DR CHK APPD	[illegible]/66	
C	CHANGED PER CCA R25739 AND CLASS A RELEASED PER TDRR 25476		
D	CHANGED PER TDRR 26445 DR CHK APPD		
E	CHANGED PER TDRR 27063 DR CHK APPD	[illegible]/66	


POWER CONTROL
CONSOLE
AGC
CURRENT
DSKY KEYBOARD
VOLTAGE
UNIVERSAL DSKY DIMMERS
DCVM
DCVM MONITOR
AGC MARGINS
1
S4 45
S1 12
S6 16
S7 17
M3 7
S8 18
20 S10
19 39
21 S11
43 S2
15 S5
44 S3
M2 43
M1 6
S13 24
4 10
8 41
55
R2 8
R1 8
R3 9
T1 31
4 52
4 40
35
J3 29
J4 30
R5 11
34
27 S17
48 46
48 14
12 13
22 S16
33
DS1 32
5
4 36
4 37
4 38
4 39
4 47
4 48
2 50
BOTH ENDS 35
SEE NOTE 5
2 2
2 62
2 37
35
60
61
A2 3
8 41
INDICATES CATHODE END OF DIODE
CR5 4
CR4 4
2
1
CR3 4
CR2 4
CR1 4
SW1 REF TYPICAL
53 SEE NOTE 3
40
51
69
63
48
47
140V
70V
COMM
5A
1A
10A
COMM
A2
A1
S12 23
S14 25
55
CR6 4
53 SEE NOTE 3
2 54
SEE NOTE 8
A3
A5
2014277
2014297-011 ASSY
S18 28
S15 26

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014156	SCHEMATIC	REF
☒	2014189	LEAD ELECTRICAL	REF
1	MS21919DG6	CLAMP, LOOP	64
1	MS51957-31	SCREW, MACH, PAN HD	63
2	MS51957-16	SCREW, PAN HEAD	62
1	2016317	MASK, METER WINDOW	61
1	2014410	WINDOW, METER	60
* 4.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, BLK	59
* 5.0	1006776-21	INSULATION, SLEEVING	58
* 10.0	SEE NOTE 6	WIRE, ELECTRICAL	57
* 24.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, WHT	56
1	2014188-011	WIRING HARNESS	55
2	MS21322-38	CLAMP, LOOP	54
AR	1006458-004	TAPE, LACING	53
4	MS91528-1C2B	KNOB, CONTROL, ROUND	52
1	2014408	STRAP, RETAINING	51
2	2014409	SPACER, POST	50
1	1006475	AMMETER DC	49
5	MS35338-79	WASHER, LOCK	48
5	MS15795-805	WASHER, FLAT	47
48	1006407-004	LAMP 28V	46
1	1006471-025	LENS	45
1	1006471-024	LENS	44
1	1006471-023	LENS	43
~~1~~	~~1006427~~	~~RESISTOR, VARIABLE~~	~~42~~
16	MS51959-45	SCREW, FLAT HD	41
5	MS51959-29	SCREW, FLAT HD	40
4	MS35649-44	NUT, PLAIN, HEX	39
4	MS35338-78	WASHER, LOCK	38
6	MS15795-803	WASHER, FLAT	37
4	MS51957-17	SCREW, MACH, PAN HD	36
AR	MIL-S-22473-GRADE HV	SEALING & RETAINING COMP	35
1	MS91528-1E2B	KNOB, CONTROL, ROUND	34
1	MS91528-1P2B	KNOB, CONTROL, POINTER	33
1	1006869	LAMP, GLOW	32
1	1006414	TRANSFORMER, VARIABLE	31
1	MS16108-3A	JACK, TIP	30
1	MS16108-2A	JACK, TIP	29
1	1006257-004	SWITCH, ROTARY	28
1	1006471-028	LENS	27
1	1006465-001	SWITCH, ROTARY	26
1	1006465-003	SWITCH, ROTARY	25
1	MS25089-3C	SWITCH, PUSH	24
1	1006465-002	SWITCH, ROTARY	23
1	1006471-027	LENS	22
1	1006471-019	LENS	21
1	1006471-017	LENS	20
1	1006471-020	LENS	19
1	1006471-018	LENS	18
1	1006471-022	LENS	17
1	1006471-021	LENS	16
1	1006471-026	LENS	15
48	1006471-003	LAMP BOOT, AMBER	14
12	1006471-002	BASIC UNIT	13
1	MS35058-22	SWITCH, TOGGLE	12
1	1006468-006	RESISTOR, VARIABLE	11
4	MS91528-2K2B	KNOB, CONTROL, POINTER	10
1	1006468-003	RESISTOR, VARIABLE	9
2	1006468-011	RESISTOR, VARIABLE	8
1	1006927	INDICATOR, TOTAL TIME	7
1	1006474	VOLTMETER 400 CYCLE	6
1	1006905-1	INDICATOR, LIGHT	5
6	1006751-000	DIODE	4
1	10064[illegible]-002	INDICATOR, DIGITAL	3
2	1014333	HANDLE	2
1	2014277	FRONT PANEL	1
-011	LIST OF MATERIALS		

2014297 E

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 53
4. SOLDER PER ND1002071
5. MAXIMUM TORQUE TO BE 18 INCH POUNDS
6. QQ-W-343, TYPE S, SOFT, COATED (a), AWG SIZE 22
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
8. FOR APPLICATION OF FIND 56, 57, 58 & 59 SEE 2014189
9. STRIP BOTH ENDS OF STRANDED JUMPERS .50±.06 AND TIN PER ND1002071
10. MARK CONDUCTOR IDENTIFICATION PER ND1002019

* DENOTES LENGTH IN FEET

2016297 E

2014079	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 7 JUN 65
CHECKED 29 JUL 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

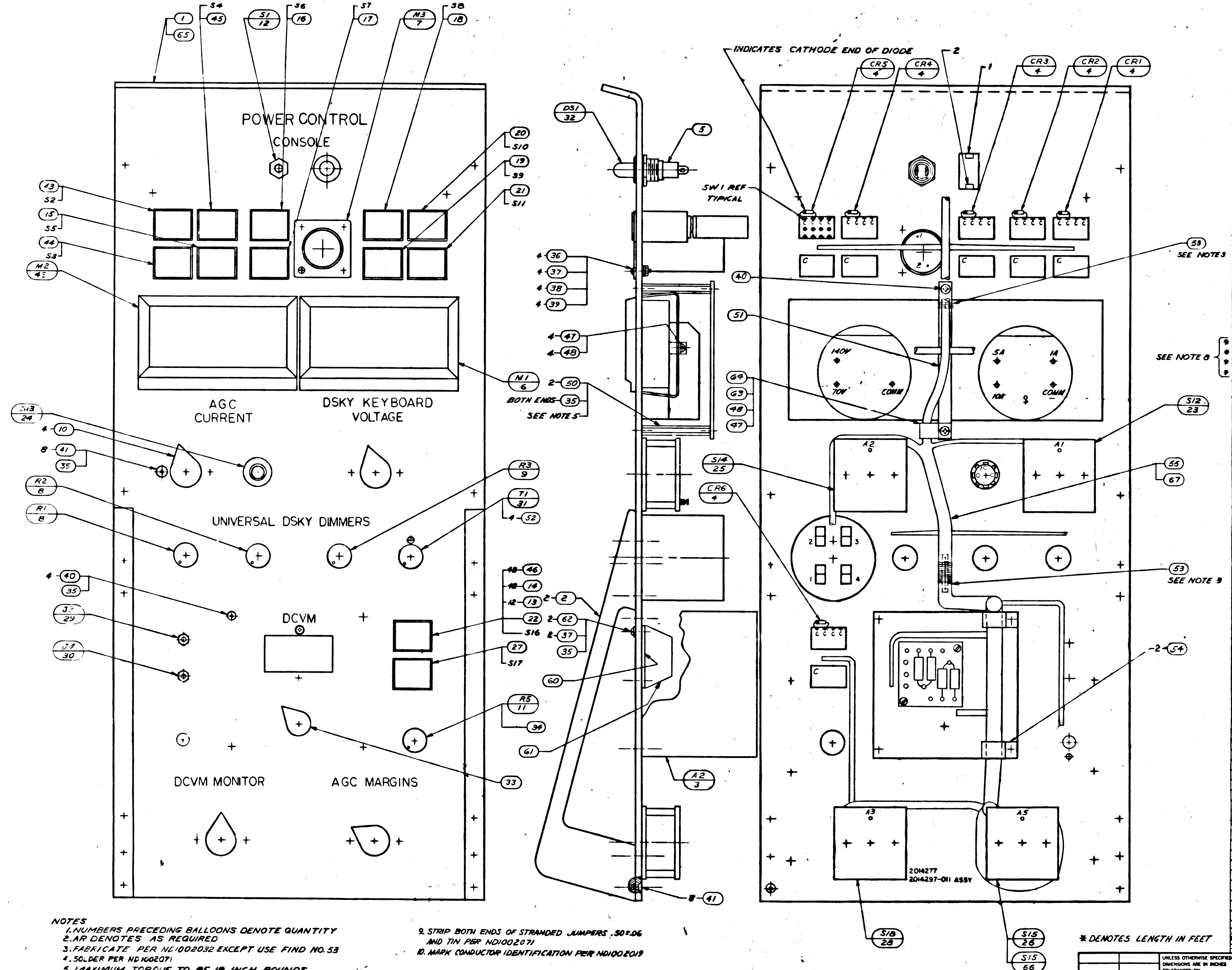
FRONT PANEL ASSY
POWER CONTROL
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014297
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014297 F

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25206		
1	CHANGED PER CCA R25232 DR CHK APPD	11/17/6	
-	CLASS B CHANGED PER CCA R25509	12/20/6	
A	CHANGED PER CCA R25645 DR CHK APPD	1/24/65	
B	CHANGED PER CCA R25768 DR CHK APPD	1/1/66	
C	CHANGED PER CCA R25739 A, D CLASS A RELEASED PER TDRR 25416	1/1/66	
D	CHANGED PER TDRR 26445 DR CHK APPD	2/21/66	
E	CHANGED PER TDRR 27063 DR CHK APPD	3/17/66	
F	CHANGED PER TDRR 28114 DR CHK APPD	5/9/66	


1
65
S4
45
S1
12
S6
16
S7
17
M3
7
S8
18
POWER CONTROL
CONSOLE
43
S2
15
S5
44
S3
M2
43
20
S10
19
S9
21
S11
AGC
CURRENT
DSKY KEYBOARD
VOLTAGE
M1
6
S13
24
4-10
8-41
35
R2
8
R1
8
UNIVERSAL DSKY DIMMERS
R3
9
T1
31
4-52
4-40
35
J3
29
J4
30
DCVM
48-46
48-14
12-13
22
S16
27
S17
R5
11
34
33
DCVM MONITOR
AGC MARGINS
DS1
32
5
4-36
4-37
4-38
4-39
4-47
4-48
2-50
BOTH ENDS-35
SEE NOTE 5
2-2
2-62
2-37
35
60
61
A2
3
8-41
INDICATES CATHODE END OF DIODE
CR5
4
CR4
4
2
1
CR3
4
CR2
4
CR1
4
SW1 REF
TYPICAL
C
40
53
SEE NOTE 3
51
69
63
48
47
140V
70V
COMM
5A
1A
10A
COMM
S12
23
A2
A1
S14
25
55
67
CR6
4
53
SEE NOTE 3
-2-54
A3
A5
2014277
2014297-011 ASSY
S18
28
S15
26
S15
66

SEE NOTE 8

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	-	2016394	SCHEMATIC	REF
☒	-	2016397	LEAD ELECTRICAL	REF
-	☒	2014156	SCHEMATIC	REF
-	☒	2014189	LEAD, ELECTRICAL	REF
1	-	2016413-011	WIRING HARNESS	67
1	-	1006465-004	SWITCH, ROTARY	66
1	-	2016401	FRONT PANEL	65
1	1	MS21919DG6	CLAMP, LOOP	64
1	1	MS51957-31	SCREW, MACH, PAN HD	63
2	2	MS51957-16	SCREW, PAN HEAD	62
1	1	2016317	MASK, METER WINDOW	61
1	1	2014410	WINDOW, METER	60
* 4.0	4.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, BLK	59
* 5.0	5.0	1006776-21	INSULATION, SLEEVING	58
* 10.0	10.0	SEE NOTE 6	WIRE, ELECTRICAL	57
* 24.0	24.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, WHT	56
-	1	2014188-011	WIRING HARNESS	55
2	2	MS21322-38	CLAMP, LOOP	54
AR	AR	1006458-004	TAPE, LACING	53
4	4	MS91528-1C2B	KNOB, CONTROL, ROUND	52
1	1	2014408	STRAP, RETAINING	51
2	2	2014409	SPACER, POST	50
1	1	1006475	AMMETER DC	49
5	5	MS35338-79	WASHER, LOCK	48
5	5	MS15795-805	WASHER, FLAT	47
48	48	1006407-004	LAMP 28V	46
1	1	1006471-025	LENS	45
1	1	1006471-024	LENS	44
1	1	1006471-023	LENS	43
	~~1~~	~~1006427~~	~~RESISTOR, VARIABLE~~	42
16	16	MS51959-45	SCREW, FLAT HD	41
5	5	MS51959-29	SCREW, FLAT HD	40
4	4	MS35649-44	NUT, PLAIN, HEX	39
4	4	MS35338-78	WASHER, LOCK	38
6	6	MS15795-803	WASHER, FLAT	37
4	4	MS51957-17	SCREW, MACH, PAN HD	36
AR	AR	MIL-S-22473-GRADE HV	SEALING & RETAINING COMP	35
1	1	MS91528-1E2B	KNOB, CONTROL, ROUND	34
1	1	MS91528-1P2B	KNOB, CONTROL, POINTER	33
1	1	1006869	LAMP, GLOW	32
1	1	1006414	TRANSFORMER, VARIABLE	31
1	1	MS16108-3A	JACK, TIP	30
1	1	MS16108-2A	JACK, TIP	29
1	1	1006257-004	SWITCH, ROTARY	28
1	1	1006471-028	LENS	27
-	1	1006465-001	SWITCH, ROTARY	26
1	1	1006465-003	SWITCH, ROTARY	25
1	1	MS25089-3C	SWITCH, PUSH	24
1	1	1006465-002	SWITCH, ROTARY	23
1	1	1006471-027	LENS	22
1	1	1006471-019	LENS	21
1	1	1006471-017	LENS	20
1	1	1006471-020	LENS	19
1	1	1006471-018	LENS	18
1	1	1006471-022	LENS	17
1	1	1006471-021	LENS	16
1	1	1006471-026	LENS	15
48	48	1006471-003	LAMP BOOT, AMBER	14
12	12	1006471-002	BASIC UNIT	13
1	1	MS35058-22	SWITCH, TOGGLE	12
1	1	1006468-006	RESISTOR, VARIABLE	11
4	4	MS91528-2K2B	KNOBS, CONTROL, POINTER	10
1	1	1006468-003	RESISTOR, VARIABLE	9
2	2	1006468-011	RESISTOR, VARIABLE	8
1	1	1006927	INDICATOR, TOTAL TIME	7
1	1	1006474	VOLTMETER 400 CYCLE	6
1	1	1006905-1	INDICATOR, LIGHT	5
6	6	1006751-000	DIODE	4
1	1	10064[illegible]-002	INDICATOR, DIGITAL	3
2	2	1014333	HANDLE	2
-	1	2014277	FRONT PANEL	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. AR DENOTES AS REQUIRED
3. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 53
4. SOLDER PER ND1002071
5. MAXIMUM TORQUE TO BE 18 INCH POUNDS
6. QQ-W-343, TYPE S, SOFT, COATED (a), AWG SIZE 22
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
8. FOR APPLICATION OF FIND 56, 57, 58 & 59 SEE 2014189
9. STRIP BOTH ENDS OF STRANDED JUMPERS .50±.06 AND TIN PER ND1002071
10. MARK CONDUCTOR IDENTIFICATION PER ND1002019

2014079	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 7 JUN 65
CHECKED 29 JUL 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
POWER CONTROL
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014297
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014297 F

2016297 F

2014298 B

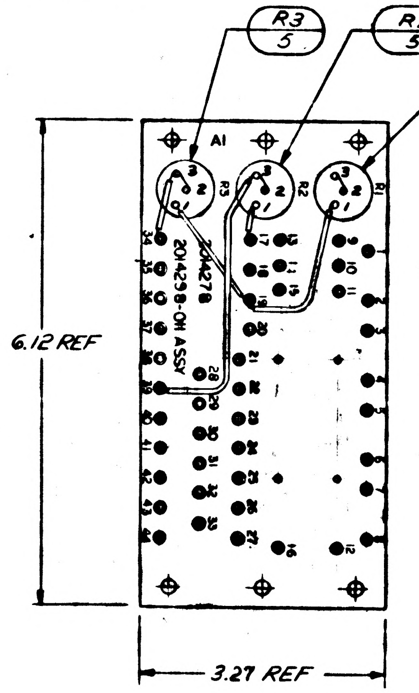
REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
CR1 THRU CR6	2
C1 & C2	3
R4 & R5	7
R6	8
R7	9

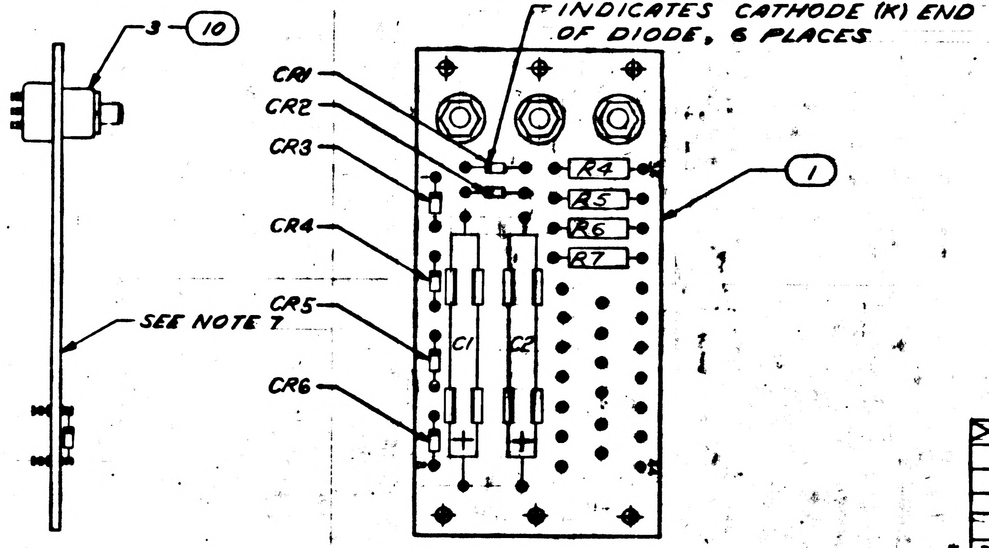
JUMPER CHART

COND IDENT	FROM	TO	FIND NO.	AWG	COND IDENT	FROM	TO	FIND NO.	AWG
D1	A1-8	A1-11	12	22	D14	A1-2	A1-13	12	22
~~D2~~	~~A1-18~~	~~A1-20~~	~~12~~	~~22~~	D15	A1-3	A1-10	12	22
D3	A1-32	A1-42	12	22	D16	A1-4	A1-14	12	22
D4	A1-35	A1-36	11	22	D17	A1-1	A1-9	11	22
D5	A1-6	A1-33	12	22	D18	A1-15	A1-6	12	22
D6	A1-19	A1R3-1	12	22	D19	A1-16	A1-43	12	22
D7	A1-34	A1R3-3	12	22	D20	A1-28	A1-29	11	22
D8	A1R3-2	A1R3-3	11	22	D21	A1-33	A1-44	12	22
D9	A1-17	A1R2-1	12	22	D22	A1-30	A1-31	11	22
D10	A1R2-2	A1R2-3	11	22	D23	A1-25	A1-43	12	22
D11	A1-39	A1R2-3	12	22	D24	A1-34	A1-38	12	22
D12	A1-19	A1R1-1	12	22					
D13	A1R1-2	A1R1-3	11	22					

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25191	9/3/65	A. Adams
1	CHANGED PER CCA R25278 DR A.J.B. CHK. APPD	11/16/65	
-	CLASS B CHANGED PER CCA R25509	11/15/65	
A	CHANGED PER CCA R25571 DR CHK APPD	12/20/65	
B	CHANGED PER CCA R25650 AND CLASS A RELEASED PER TDRR 25476	1/14/66	





NOTES

1. SOLDER PER ND1002071
2. FOR FABRICATION SEE ND1002032
3. STRIP ALL LEADS .50 AND TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
4. QQ-W-343 TYPE S SOFT COATED (a) AWG SIZE 22
5. * DENOTES LENGTH IN FEET
6. MIL-C-3965B TYPE CL25BJ151UP3
7. ALL JUMPERS ON THIS SIDE UNLESS OTHERWISE SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014156	SCHEMATIC	REF
* 3.5	MIL-W-16878/4E22	WIRE, ELECTRICAL WHT	12
* 1.0	SEE NOTE 4	WIRE, ELECTRICAL	11
3	1006663	SHAFT LOCK	10
1	1010389-60	RESISTOR 1.5K ±1%, 3W	9
1	1010389-47	RESISTOR 430Ω ±1%, 3W	8.
2	1010389-39	RESISTOR 200Ω ±1% 3W	7
~~1~~	~~1006468-007~~	~~RESISTOR, VAR 1500Ω, 2 1/4 W~~	~~6~~
2	1006468-005	RESISTOR, VAR 750Ω, 2 1/4 W	5
1	1006468-006	RESISTOR, VAR 1000Ω, 2 1/4 W	4
2	SEE NOTE 6	CAPACITOR 150 μF 50 V	3
6	1006751	DIODE	2
1	2014278	BOARD, TERMINAL, COMPONENT MTG	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014079	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 14 JUNE 65
CHECKED DeGrazia 24 JUL 65
APPROVAL H. Morse 24 JUL 65
APPROVAL D. O'Bryant 7/28/65
APPROVAL 3 Sept 65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C. Sparling 1/26/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BOARD, TERM. COMPONENT MTG ASSY
POWER CONTROL, A1
OPERATION CONSOLE

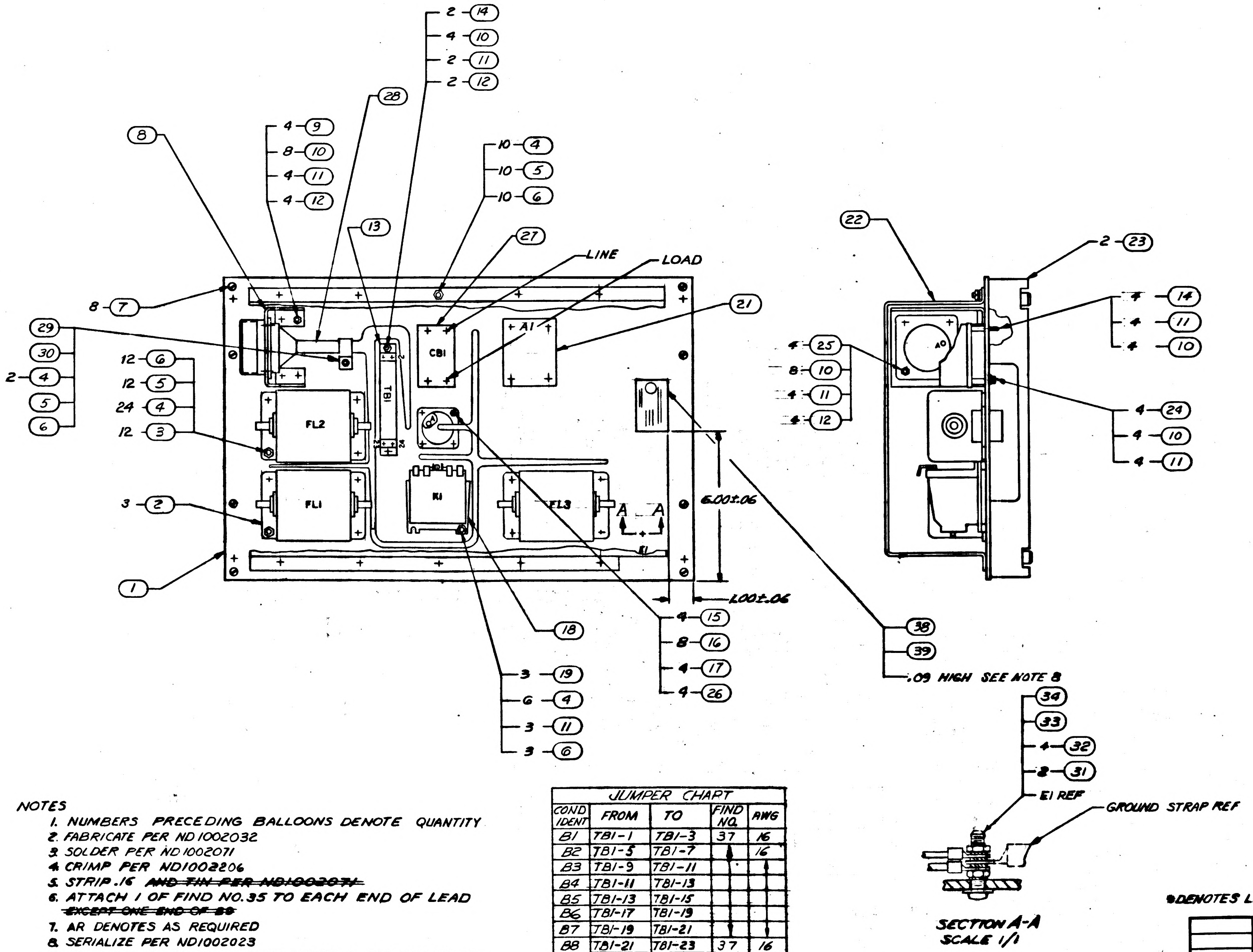
CODE IDENT NO. 49956 SIZE D NASA DRAWING NO. 2014298
SCALE 1/1 WT SHEET 1 OF 1

2014298 B

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014302 F

SYM	DESCRIPTION	DATE	APPROVED
F	CLASS A RELEASED PER TDRR 27693	4-1-66	



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. FABRICATE PER ND1002032
3. SOLDER PER ND1002071
4. CRIMP PER ND1002206
5. STRIP .16 ~~AND TIN PER ND1002071~~
6. ATTACH 1 OF FIND NO.35 TO EACH END OF LEAD ~~EXCEPT ONE END OF B9~~
7. AR DENOTES AS REQUIRED
8. SERIALIZE PER ND1002023
~~9. QQ-W-343, TYPE S AWG 16 SOFT COATED & FOR FIND NO.36~~
~~10. ON FIND 38 ADD PREFIX X TO PART NO. AS SHOWN PER ND1002013 USING WHITE INK 1006271-1~~

JUMPER CHART				
COND IDENT	FROM	TO	FIND NO.	AWG
B1	TB1-1	TB1-3	37	16
B2	TB1-5	TB1-7		16
B3	TB1-9	TB1-11		
B4	TB1-11	TB1-13		
B5	TB1-13	TB1-15		
B6	TB1-17	TB1-19		
B7	TB1-19	TB1-21		
B8	TB1-21	TB1-23	37	16
~~B9~~	~~TB1-17~~	~~E1~~	~~37~~	~~16~~

MASTER

•DENOTES LENGTH IN FEET

☒	2014142	SCHEMATIC	REF
~~7~~	~~MS25036-54~~	~~TERMINAL, LUG~~	~~40~~
AR	MIL-A-5092 TYPE II	CEMENT	39
1	1004260-247	NAMEPLATE	38
• 1.5	MIL-W-16878/4 E16	WIRE, ELEC BLK	37
~~• .5~~	~~SEE NOTE 9~~	~~WIRE, ELEC~~	~~36~~
16	MS17143-20	LUG, TERMINAL	35
1	MS51957-84	SCREW, PAN HD	34
1	MS15795-810	WASHER, FLAT	33
4	MS35335-61	WASHER, EXTERNAL LOCK	32
2	MS35690-410	NUT, HEX	31
.1	MS51957-46	SCREW, PAN HD	30
.1	MS25281-6	CLAMP, CABLE	29
1	2014198-011	WIRING HARNESS	28
1	1006957-17	CIRCUIT BREAKER ASSY	27
4	MS35649-44	NUT, HEX	26
4	MS51957-30	SCREW, PAN HD	25
4	MS51957-28	SCREW, PAN HD	24
2	1014215-6	HANDLE ASSY	23
1	2016364	COVER	22
1	2014390	COMPONENT BD ASSY	21
~~7~~	~~2014300~~	~~INSULATOR~~	~~20~~
3	MS51957-47	SCREW, PAN HD	19
1	1006926	RELAY, ARMATURE	18
4	MS35337-78	WASHER, LOCK	17
8	MS15795-803	WASHER, FLAT	16
4	MS51957-17	SCREW, PAN HD	15
6	MS51957-32	SCREW, PAN HD	14
1	MIL-T-16784/26TB12	TERMINAL BD	13
10	MS35649-64	NUT, HEX	12
21	MS35337-79	WASHER, LOCK	11
28	MS15795-805	WASHER, FLAT	10
4	MS 51957-31	SCREW, PAN HD	9
1	1014418	BRACKET, CONN	8
8	MS51959-44	SCREW, FLAT HD	7
26	MS35649-84	NUT, HEX	6
23	MS35337-80	WASHER, LOCK	5
42	MS15795-807	WASHER, FLAT	4
12	MS51957-45	SCREW, PAN HD	3
3	1006654	FILTER, RADIO INTERFERENCE	2
1	2014301	PANEL, FRONT	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Katsuka DATE 4 Mar 66
CHECKED W. Lyons 4 MAR 66
APPROVAL R. E. Dusk 4 MAR 66
APPROVAL 4 MAR 66
APPROVAL 4 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 4-1-66
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

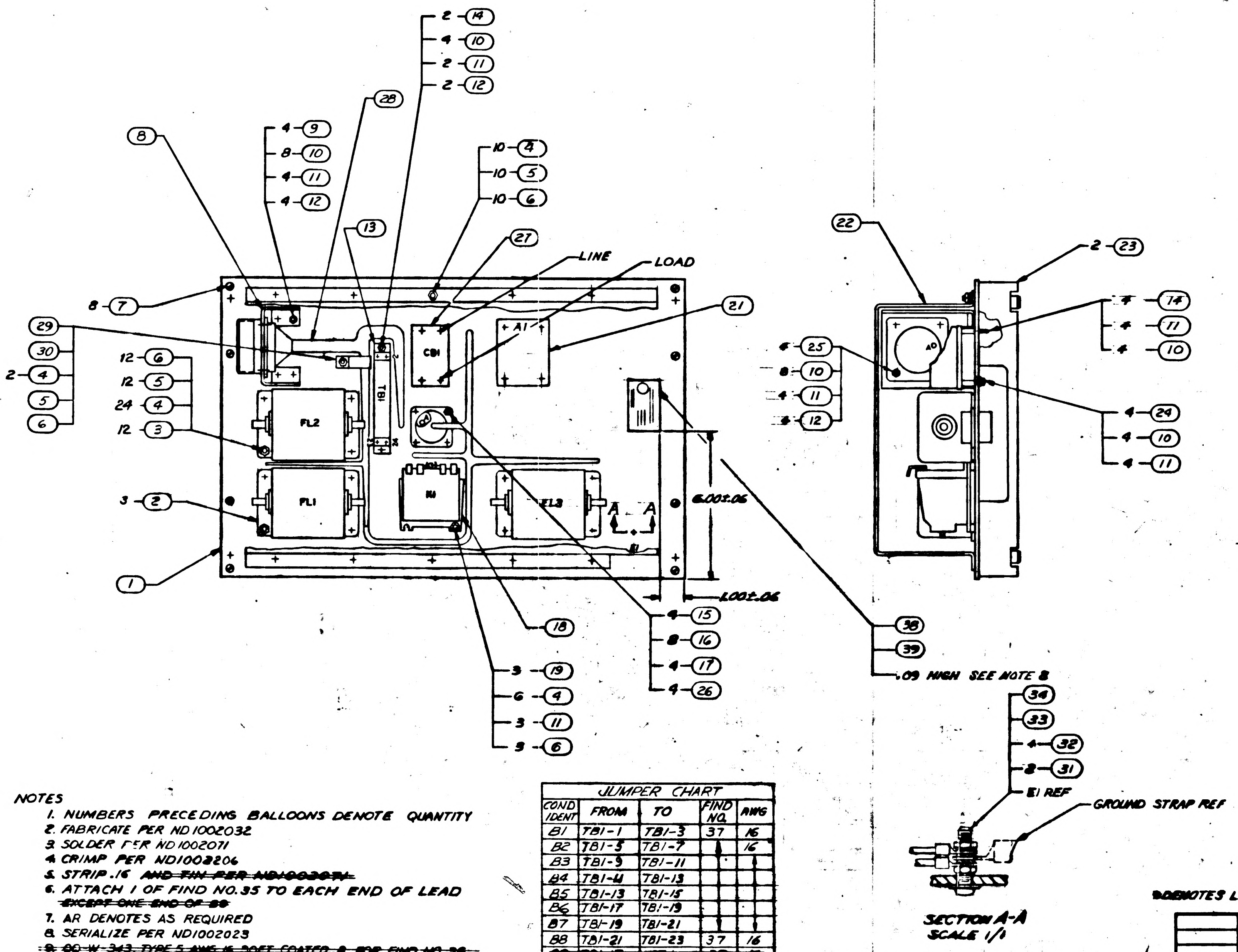
AC INPUT PANEL ASSEMBLY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014302
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014302 G

SYM	DESCRIPTION	DATE	APPROVED
F	CLASS A RELEASED PER TDRR 27693	4-1-66	
G	CHANGED PER TDRR 28369 DR J. Rible CHK C. DiFreeman APPD J. Cooley	4 May 66	J. Jones



NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. FABRICATE PER ND1002032
3. SOLDER PER ND1002071
4. CRIMP PER ND1002206
5. STRIP .16 ~~AND TIN PER ND1002071~~
6. ATTACH 1 OF FIND NO.35 TO EACH END OF LEAD ~~EXCEPT ONE END OF B9~~
7. AR DENOTES AS REQUIRED
8. SERIALIZE PER ND1002023
9. ~~QQ-W-343, TYPE 5 AWG 16 SOFT COATED & FOR FIND NO. 36~~
10. ~~ON FIND 36 ADD PREFIX X TO PART NO. AS SHOWN PER ND1002010 USING WHITE INK~~

JUMPER CHART				
COND IDENT	FROM	TO	FIND NO.	AWG
B1	TB1-1	TB1-3	37	16
B2	TB1-5	TB1-7		16
B3	TB1-9	TB1-11		
B4	TB1-11	TB1-13		
B5	TB1-13	TB1-15		
B6	TB1-17	TB1-19		
B7	TB1-19	TB1-21		
B8	TB1-21	TB1-23	37	16
~~B9~~	~~TB1-17~~	~~E1~~	~~37~~	~~16~~

● DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014142	SCHEMATIC	REF
~~7~~	~~MS25036-84~~	~~TERMINAL, LUG~~	~~40~~
AR	MIL-A-5092 TYPE II	CEMENT	39
1	1004260-247	NAMEPLATE	38
● 1.5	MIL-W-16878/4 E16	WIRE, ELEC BLK	37
~~● .5~~	~~SEE NOTE 9~~	~~WIRE, ELEC~~	~~36~~
16	MS17143-20	LUG, TERMINAL	35
1	MS51357-84	SCREW, PAN HD	34
1	MS15795-810	WASHER, FLAT	33
4	MS35335-61	WASHER, EXTERNAL LOCK	32
2	MS35690-410	NUT, HEX	31
1	MS51957-46	SCREW, PAN HD	30
1	MS25281-6	CLAMP, CABLE	29
1	2014198-011	WIRING HARNESS	28
1	1006957-17	CIRCUIT BREAKER ASSY	27
4	MS35649-44	NUT, HEX	26
4	MS51957-30	SCREW, PAN HD	25
4	MS51957-28	SCREW, PAN HD	24
2	1014215-6	HANDLE ASSY	23
1	2016364	COVER	22
1	2014390	COMPONENT BD ASSY	21
~~1~~	~~2014300~~	~~INSULATOR~~	~~20~~
3	MS51957-47	SCREW, PAN HD	19
1	1006926	RELAY, ARMATURE	18
4	MS35337-78	WASHER, LOCK	17
8	MS15795-803	WASHER, FLAT	16
4	MS51957-17	SCREW, PAN HD	15
6	MS51957-32	SCREW, PAN HD	14
1	MIL-T-16784/26TB12	TERMINAL BD	13
10	MS35649-64	NUT, HEX	12
21	MS35337-79	WASHER, LOCK	11
22	MS15795-805	WASHER, FLAT	10
4	MS 51957-31	SCREW, PAN HD	9
1	1014418	BRACKET, CONN	8
8	MS51959-44	SCREW, FLAT HD	7
26	MS35649-84	NUT, HEX	6
23	MS35337-80	WASHER, LOCK	5
42	MS15795-807	WASHER, FLAT	4
12	MS51957-45	SCREW, PAN HD	3
3	1006654	FILTER, RADIO INTERFERENCE	2
1	2014301	PANEL, FRONT	1
-011	LIST OF MATERIALS		

2014302 G

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Kafka DATE 4 Mar 66
CHECKED W Lenna 4 MAR 66
APPROVAL R.E. Dunk 4 MAR 66
APPROVAL 4 MAR 66
APPROVAL 4 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 4-1-66
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

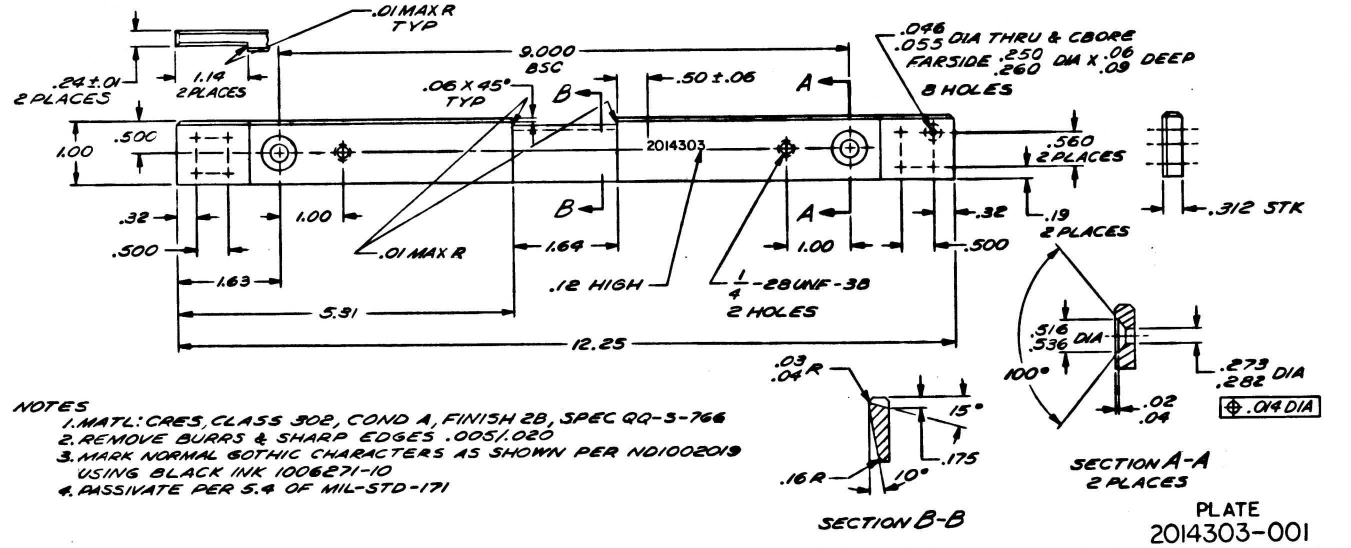
AC INPUT PANEL ASSEMBLY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014302
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

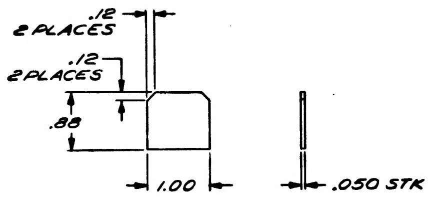
—	2014303

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25X 10		
—	CLASS A RELEASED PER TDRR 24465		


.01 MAX R TYP
.24 ±.01 2 PLACES
1.14 2 PLACES
9.000 BSC
.06 X 45° TYP
B
.50 ±.06
A
.046 .055 DIA THRU & CBORE FARSIDE .250 .260 DIA X .06 .09 DEEP 8 HOLES
1.00
.500
2014303
.560 2 PLACES
.32
.500
1.00
.01 MAX R
1.64
1.00
.32
.500
.19 2 PLACES
.312 STK
1.63
5.31
.12 HIGH
1/4-28UNF-3B 2 HOLES
12.25
.03 .04 R
15°
.175
.16 R
10°
SECTION B-B
.516 .536 DIA
100°
.273 .282 DIA
.02 .04
⌖ .014 DIA
SECTION A-A 2 PLACES

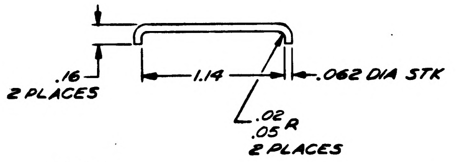
NOTES
1. MATL: CRES, CLASS 302, COND A, FINISH 2B, SPEC QQ-S-766
2. REMOVE BURRS & SHARP EDGES .005/.020
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. PASSIVATE PER 5.4 OF MIL-STD-171

PLATE
2014303-001


.12 2 PLACES
.12 2 PLACES
.88
1.00
.050 STK

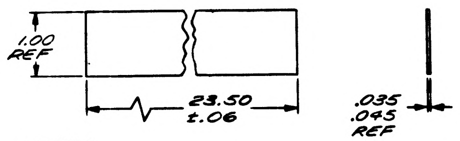
PLATE, RETAINER
2014303-002

NOTES
1. MATL: CRES, CLASS 302, COND A FINISH 2B, SPEC QQ-S-766
2. REMOVE BURRS & SHARP EDGES .005/.020
3. PASSIVATE PER 5.4 OF MIL-STD-171


.16 2 PLACES
1.14
.062 DIA STK
.02 .05 R 2 PLACES

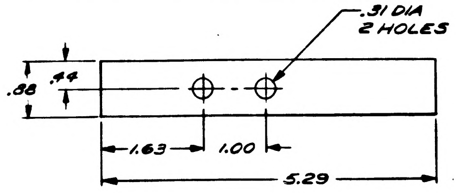
PIN
2014303-003

NOTES
1. MATL: CRES, CLASS 302, COND A FINISH CD, SPEC QQ-S-763
2. REMOVE BURRS & SHARP EDGES .005/.020
3. SCALE 2/1
4. PASSIVATE PER 5.4 OF MIL-STD-171


1.00 REF
23.50 ±.06
.035 .045 REF

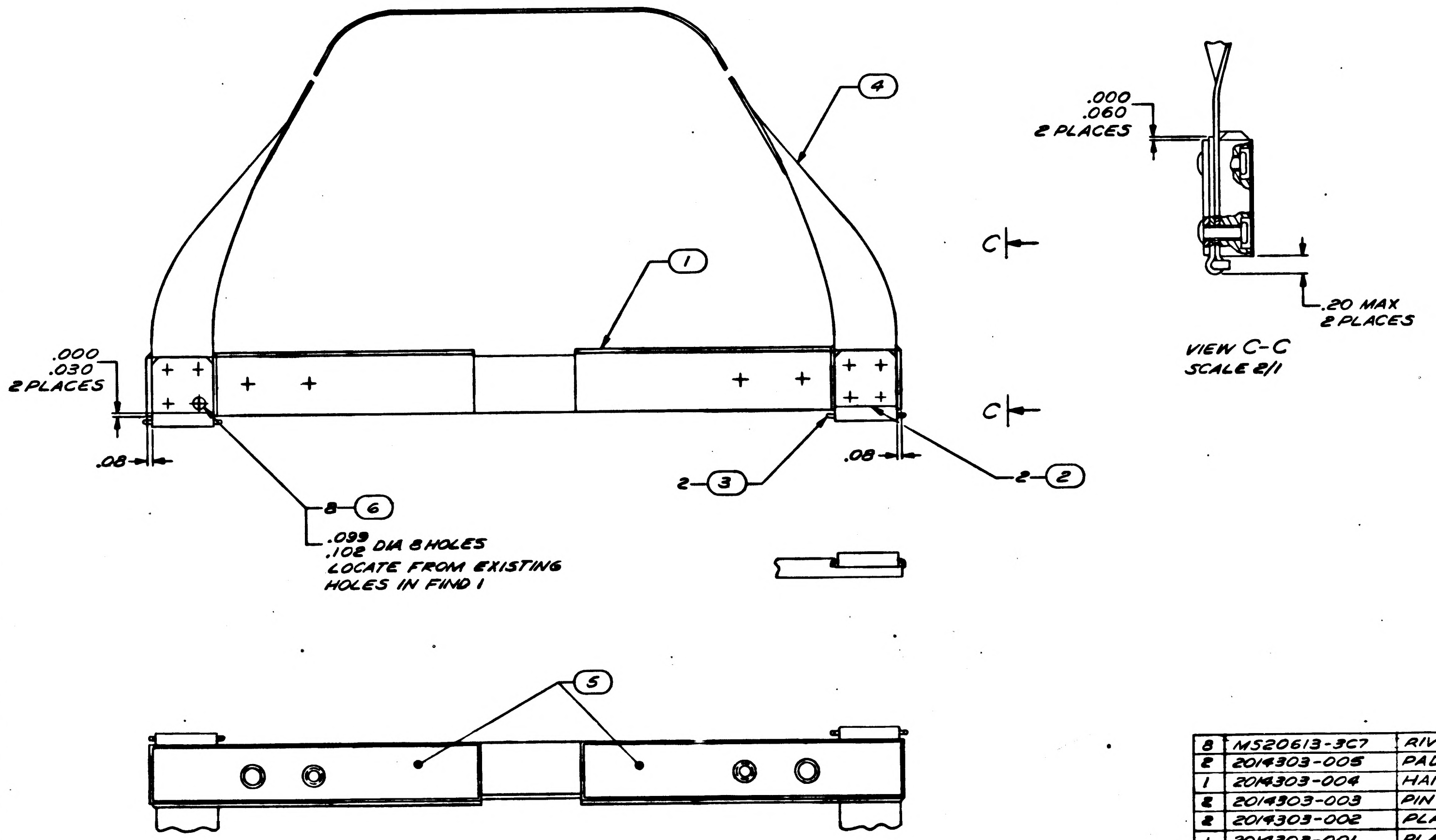
HANDLE
2014303-004

NOTES
1. MATL: TAPE, TEXTILE, NYLON PER MIL-T-5038C TYPE 4


.31 DIA 2 HOLES
.88
.44
1.63
1.00
5.29

PAD
2014303-005

NOTES
1. MATL: MAKE FROM 1006692-2


4
1
.000 .030 2 PLACES
.08
8-6
.099 .102 DIA 8 HOLES LOCATE FROM EXISTING HOLES IN FIND 1
2-3
.08
2-2
C
C
.000 .060 2 PLACES
.20 MAX 2 PLACES
VIEW C-C SCALE 2/1
5

ASSY NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITIES

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
8	MS20613-3C7	RIVET, SOLID, UNIV, HD	6
2	2014303-005	PAD	5
1	2014303-004	HANDLE	4
2	2014303-003	PIN	3
2	2014303-002	PLATE, RETAINER	2
1	2014303-001	PLATE	1

LIST OF MATERIALS

2014282	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL
SEE NOTES

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 3 Oct 65
CHECKED [illegible] 28 OCT 65
APPROVAL [illegible] 29 Oct 65
APPROVAL [illegible]
APPROVAL [illegible] 11-1-65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 65
MIT APPROVAL [illegible] 12/4/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HANDLE ASSEMBLY
AGC HANDLING FIXTURE

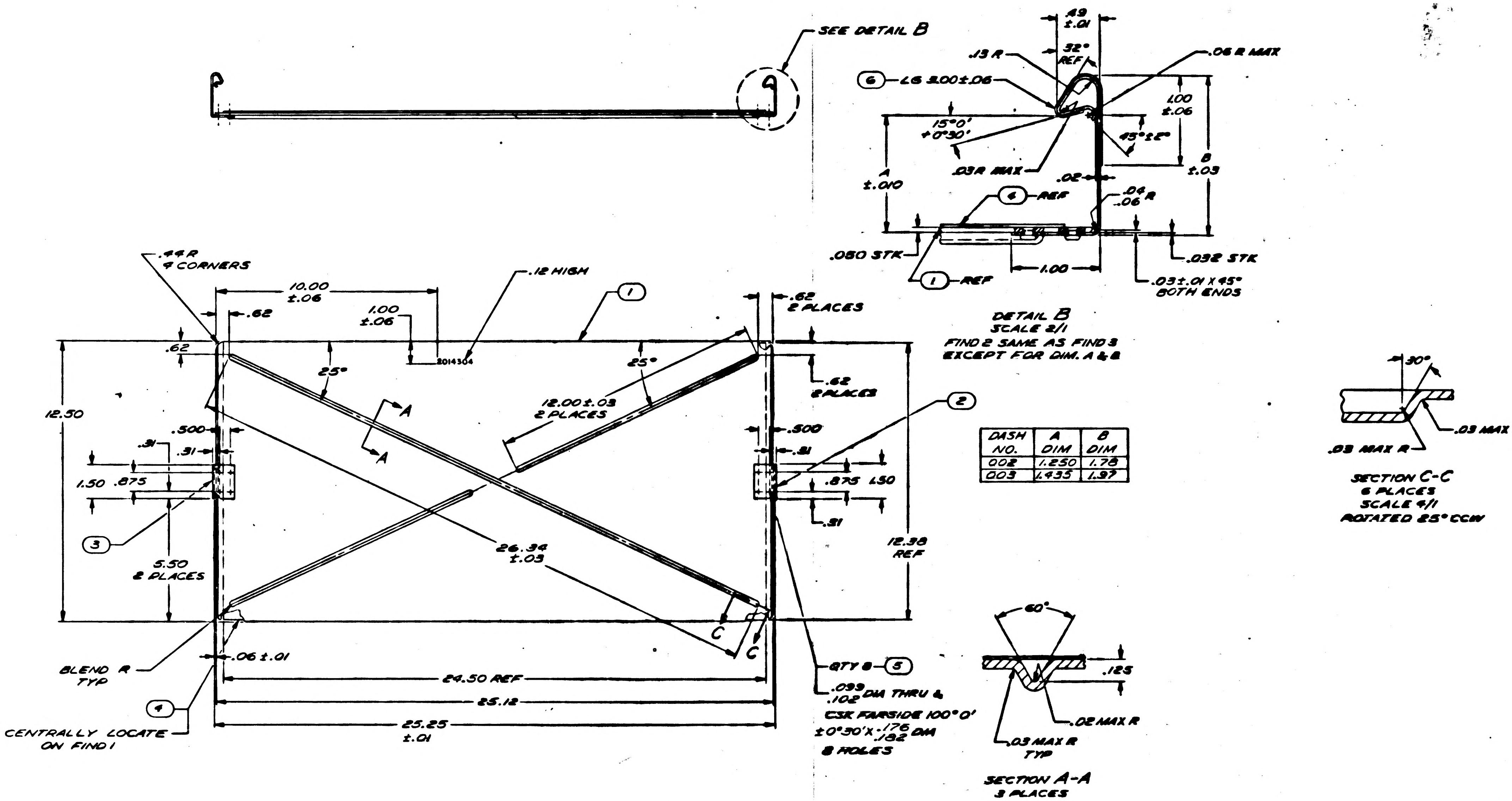
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	F	2014303

SCALE 1/1 WT SHEET 1 OF 1

2014303	—

2014304 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA #25490		
—	CLASS A RELEASED PER TDRR 24485		
A	CHANGED PER TDRR 25039 DR W. [illegible] CHK C.D. APPD RCD	1/11/66	


SEE DETAIL B
.44 R
4 CORNERS
10.00
±.06
.62
1.00
±.06
.12 HIGH
1
2014304
.62
.62
2 PLACES
.62
2 PLACES
25°
25°
12.50
A
A
12.00±.03
2 PLACES
2
.500
.31
.31
1.50
.875
.500
.31
.875
1.50
.31
3
5.50
2 PLACES
26.34
±.03
12.38
REF
C
C
BLEND R
TYP
.06±.01
QTY 8 — 5
.099
.102 DIA THRU &
CSK FARSIDE 100°0'
±0°30' X .176
.182 DIA
8 HOLES
24.50 REF
25.12
4
25.25
±.01
CENTRALLY LOCATE
ON FIND 1
.49
±.01
32°
REF
.13 R
.06 R MAX
6 — LG 3.00±.06
1.00
±.06
15°0'
±0°30'
45°±5°
.03R MAX
B
±.03
A
±.010
.02
4 — REF
.04
.06 R
.050 STK
1.00
1 — REF
.032 STK
.03±.01 X 45°
BOTH ENDS
30°
.03 MAX R
.03 MAX R
60°
.125
.02 MAX R
.03 MAX R
TYP

DETAIL B
SCALE 2/1
FIND 2 SAME AS FIND 3
EXCEPT FOR DIM. A & B

DASH NO.	A DIM	B DIM
002	1.250	1.78
003	1.435	1.97

SECTION C-C
6 PLACES
SCALE 4/1
ROTATED 25° CCW

SECTION A-A
3 PLACES
SCALE 4/1
ROTATED 65° CW

① NOTES
1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020
3. CHROMATE PER MIL-C-5541 EXCEPT TO ELECTRICALLY CONDUCTIVE
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10

②③ NOTES
1. MATL: BERYLLIUM COPPER PER QQ-C-533, COND A
2. REMOVE BURRS & SHARP EDGES .005/.020
3. HEAT TREAT TO CONDITION H PER MIL-H-7199

⑥ NOTES
1. MATL: MAKE FROM 1006692-3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	2014304-004	PAD	6
8	MS20426A3-4	RIVET, SOLID, FLAT HD	5
1	1006237-3	PLASTIC SHEET, ADHESIVE BACK	4
1	2014304-003	CLIP, LONG	3
1	2014304-002	CLIP, SHORT	2
1	2014304-001	PLATE	1

LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
2014282	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ±1°
DO NOT SCALE DRAWING

MATERIAL
SEE NOTE

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 28 Oct 65
CHECKED [illegible]
APPROVAL [illegible] 29 Oct 65
APPROVAL [illegible]
APPROVAL [illegible] 11-1-65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 12/6/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

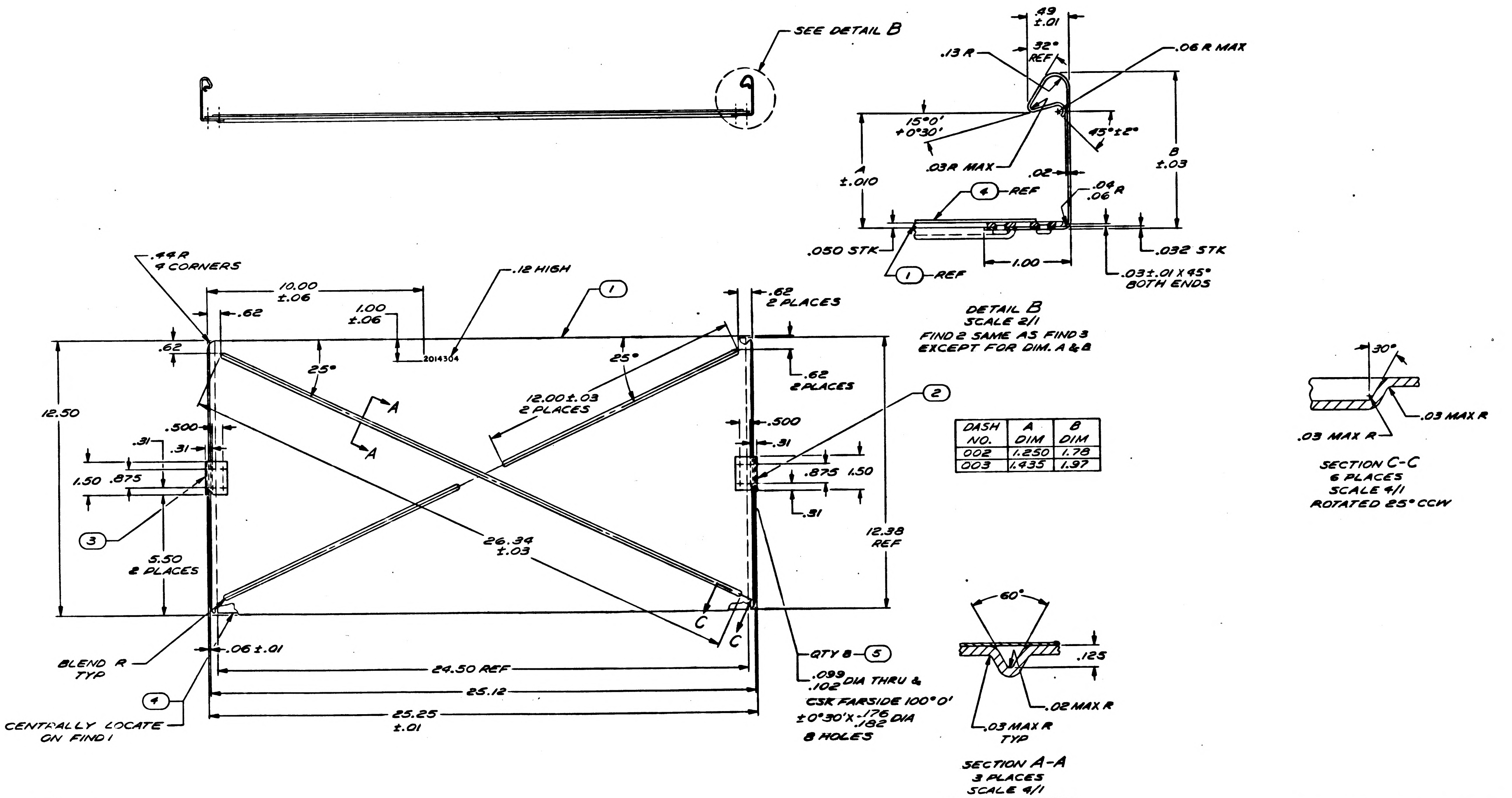
PLATE, PROTECTIVE
ASSEMBLY
AGC HANDLING FIXTURE

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014304
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

—	2014304

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25490		
—	CLASS A RELEASED PER TDRR 24485		



SEE DETAIL B
B
.49 ±.01
32° REF
.13 R
.06 R MAX
15°0' ±0°30'
45°±2°
A ±.010
B ±.03
.03R MAX
.02
④ REF
.04 .06 R
.050 STK
① REF
1.00
.032 STK
.03±.01 X 45° BOTH ENDS
DETAIL B
SCALE 2/1
FIND 2 SAME AS FIND 3 EXCEPT FOR DIM. A & B
.44 R 4 CORNERS
10.00 ±.06
.62
1.00 ±.06
.12 HIGH
①
.62 2 PLACES
.62
2014304
25°
25°
.62 2 PLACES
12.00±.03 2 PLACES
12.50
A
A
②
.500
.31
.31
.500
.31
1.50
.875
.875
1.50
.31
③
5.50 2 PLACES
26.34 ±.03
12.38 REF
C
C
BLEND R TYP
.06±.01
QTY 8 ⑤
24.50 REF
25.12
25.25 ±.01
.099 .102 DIA THRU & CSK FARSIDE 100°0' ±0°30' X .176 .182 DIA 8 HOLES
④
CENTRALLY LOCATE ON FIND 1
30°
.03 MAX R
.03 MAX R
SECTION C-C
6 PLACES
SCALE 4/1
ROTATED 25° CCW
60°
.125
.02 MAX R
.03 MAX R TYP
SECTION A-A
3 PLACES
SCALE 4/1
ROTATED 65° CW

DASH NO.	A DIM	B DIM
002	1.250	1.78
003	1.435	1.97

① NOTES
1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020
3. CHROMATE PER MIL-C-5541 EXCEPT TO ELECTRICALLY CONDUCTIVE
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10

②③ NOTES
1. MATL: BERYLLIUM COPPER PER QQ-C-533, COND A
2. REMOVE BURRS & SHARP EDGES .005/.020
3. HEAT TREAT TO CONDITION H PER MIL-H-7199

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
8	MS20426A3-4	RIVET, SOLID, FLAT HD	5
1	1006237-3	PLASTIC SHEET, ADHESIVE BACK	4
1	2014304-003	CLIP, LONG	3
1	2014304-002	CLIP, SHORT	2
1	2014304-001	PLATE	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014282	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL
SEE NOTE

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 28 Oct 65
CHECKED [illegible] 28 Oct 65
APPROVAL [illegible] 29 Oct 65
APPROVAL [illegible] 11/20/65
APPROVAL [illegible] 11/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 12/6/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

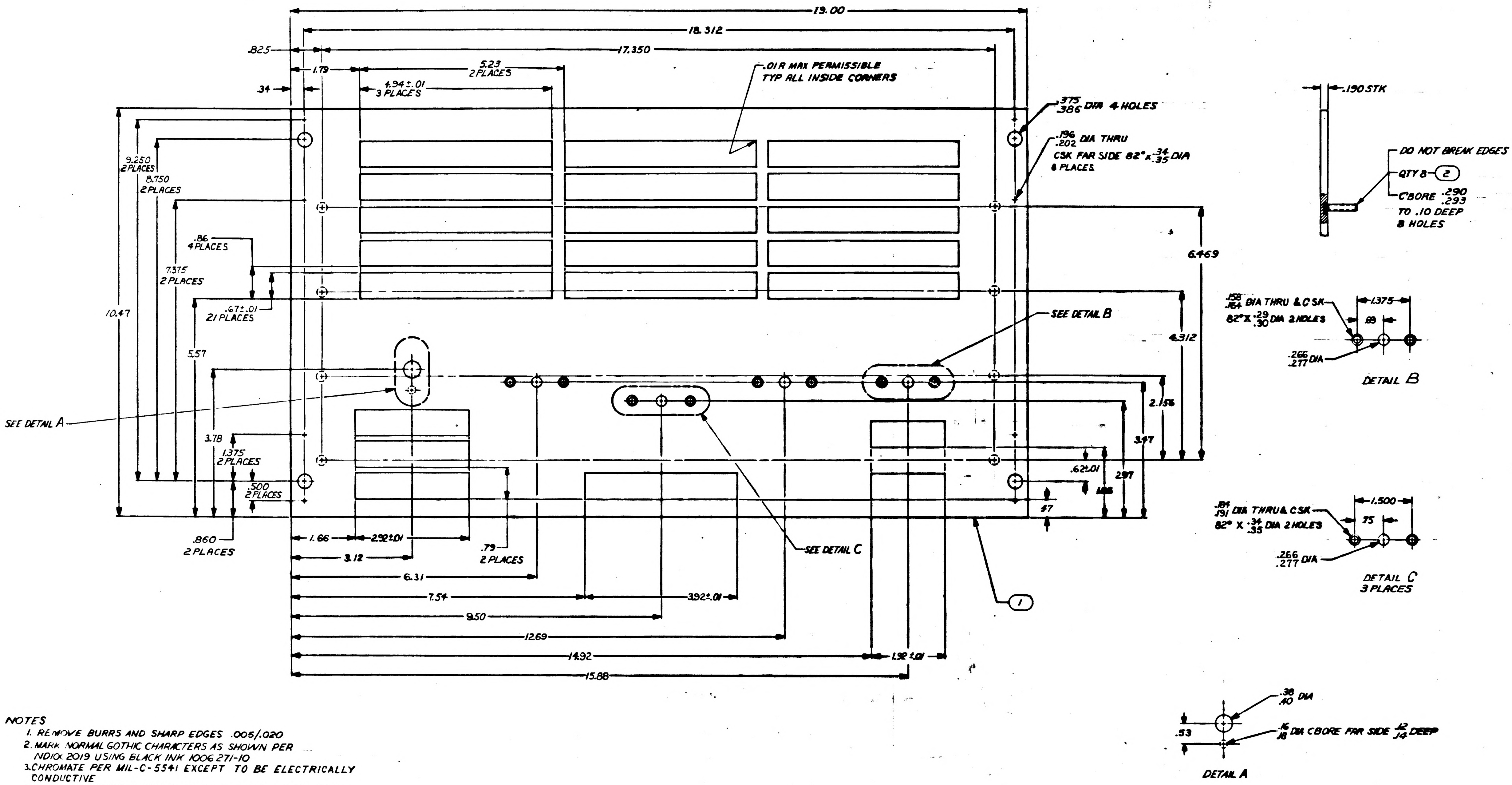
PLATE, PROTECTIVE
ASSEMBLY
AGC HANDLING FIXTURE

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014304
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014310 -

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA 25139	4/3/65	G [illegible]
-	CLASS A RELEASED PER TDRR 25472		



19.00
18.312
17.350
.825
1.79
.34
5.23 2 PLACES
4.94±.01 3 PLACES
.01R MAX PERMISSIBLE TYP ALL INSIDE CORNERS
.375 .386 DIA 4 HOLES
.196 .202 DIA THRU CSK FAR SIDE 82° x .34 .35 DIA 8 PLACES
9.250 2 PLACES
8.750 2 PLACES
.86 4 PLACES
7.375 2 PLACES
.67±.01 21 PLACES
10.47
5.57
SEE DETAIL A
3.78
1.375 2 PLACES
.500 2 PLACES
.860 2 PLACES
1.66
2.92±.01
3.12
.79 2 PLACES
6.31
7.54
3.92±.01
9.50
12.69
14.92
1.92±.01
15.88
SEE DETAIL C
SEE DETAIL B
1
6.469
4.312
2.156
3.47
2.97
1.86
.62±.01
.47
.190 STK
DO NOT BREAK EDGES
QTY 8 2
C'BORE .290 .293 TO .10 DEEP 8 HOLES
.158 .164 DIA THRU & CSK 82° X .29 .30 DIA 2 HOLES
1.375
.69
.266 .277 DIA
DETAIL B
.184 .191 DIA THRU & CSK 82° X .34 .35 DIA 2 HOLES
1.500
.75
.266 .277 DIA
DETAIL C 3 PLACES
.38 .40 DIA
.53
.16 .18 DIA CBORE FAR SIDE .12 .14 DEEP
DETAIL A

NOTES
1. REMOVE BURRS AND SHARP EDGES .005/.020
2. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. EXCEPT SURFACE A PAINT FRONT & EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
5. PAINT SURFACE A TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26251 PER MIL-F-14072 P513 TYPE I (PAINT PERMISSIBLE ON INSIDE EDGES OF CUTOUTS)
6. SILKSCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. SILKSCREEN NORMAL GOTHIC CHARACTERS & .03 WIDE LINES AS SHOWN PER ND1002019 USING WHITE INK 1006271-1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
8	1006951-007	STUD, CAPTIVE	2
1	2014310-001	PANEL, FRONT	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014327	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±0°30'
DO NOT SCALE DRAWING
MATERIAL AL 6061-T6 PER QQ-A-250/11

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN E.E. Correa DATE 22 JUNE 65
CHECKED [illegible] 6/24/65
APPROVAL P.E. Duda 8/13/65
APPROVAL [illegible] 8/13/65
APPROVAL [illegible]
NASA APPROVAL C METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, FRONT
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014310
SCALE 1/1
WT
SHEET 1 OF 2

MASTER

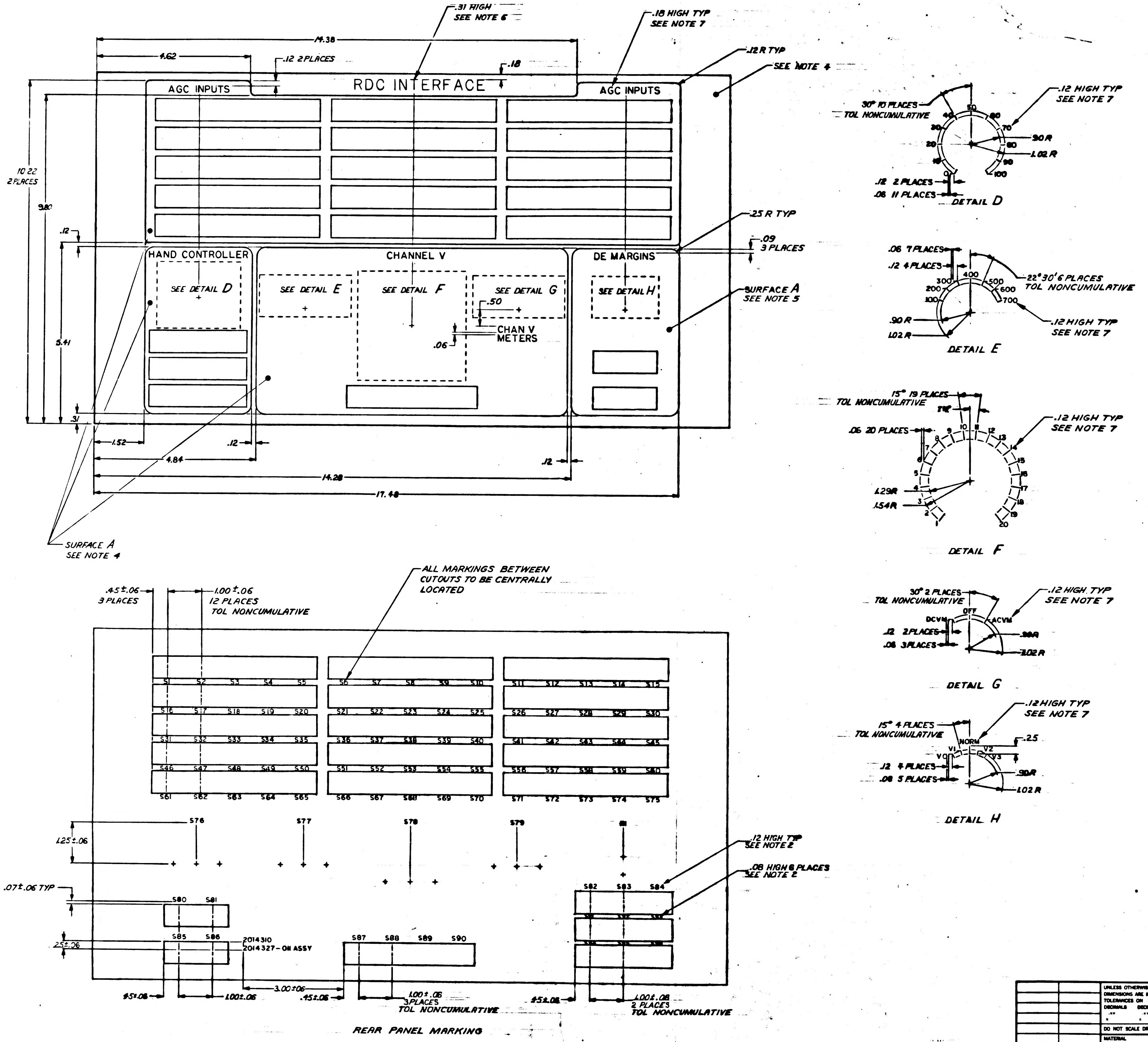
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014310 -

2014310

–	2014310

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25139	[illegible]	[illegible]
–	CLASS A RELEASED PER TDRR 25472		



RDC INTERFACE
AGC INPUTS
AGC INPUTS
HAND CONTROLLER
CHANNEL V
DE MARGINS
SEE DETAIL D
SEE DETAIL E
SEE DETAIL F
SEE DETAIL G
SEE DETAIL H
CHAN V METERS
.31 HIGH SEE NOTE 6
.18 HIGH TYP SEE NOTE 7
.12 R TYP
SEE NOTE 4
.25 R TYP
.09 3 PLACES
SURFACE A SEE NOTE 5
SURFACE A SEE NOTE 4
14.38
4.62
.12 2 PLACES
.18
10.22 2 PLACES
9.80
.12
5.41
.31
.50
.06
1.52
4.84
.12
.12
14.28
17.48
30° 10 PLACES TOL NONCUMULATIVE
.12 HIGH TYP SEE NOTE 7
.90 R
1.02 R
.12 2 PLACES
.06 11 PLACES
0 10 20 30 40 50 60 70 80 90 100
DETAIL D
.06 7 PLACES
.12 4 PLACES
22°30' 6 PLACES TOL NONCUMULATIVE
100 200 300 400 500 600 700
.90 R
1.02 R
.12 HIGH TYP SEE NOTE 7
DETAIL E
15° 19 PLACES TOL NONCUMULATIVE
TYP
.06 20 PLACES
.12 HIGH TYP SEE NOTE 7
1.29 R
1.54 R
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
DETAIL F
30° 2 PLACES TOL NONCUMULATIVE
.12 HIGH TYP SEE NOTE 7
DCVM
OFF
ACVM
.12 2 PLACES
.06 3 PLACES
.90 R
1.02 R
DETAIL G
15° 4 PLACES TOL NONCUMULATIVE
.12 HIGH TYP SEE NOTE 7
NORM
V1
V2
V0
V3
.25
.12 4 PLACES
.06 5 PLACES
.90 R
1.02 R
DETAIL H
ALL MARKINGS BETWEEN CUTOUTS TO BE CENTRALLY LOCATED
.45±.06 3 PLACES
1.00±.06 12 PLACES TOL NONCUMULATIVE
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15
S16 S17 S18 S19 S20 S21 S22 S23 S24 S25 S26 S27 S28 S29 S30
S31 S32 S33 S34 S35 S36 S37 S38 S39 S40 S41 S42 S43 S44 S45
S46 S47 S48 S49 S50 S51 S52 S53 S54 S55 S56 S57 S58 S59 S60
S61 S62 S63 S64 S65 S66 S67 S68 S69 S70 S71 S72 S73 S74 S75
S76 S77 S78 S79 S81
1.25±.06
.07±.06 TYP
S80 S81
S85 S86
.25±.06
2014310
2014327 – ON ASSY
S87 S88 S89 S90
S82 S83 S84
.12 HIGH TYP SEE NOTE 2
.08 HIGH 6 PLACES SEE NOTE 2
.45±.06
1.00±.06
3.00±.06
.45±.06
1.00±.06 3 PLACES TOL NONCUMULATIVE
.45±.06
1.00±.06 2 PLACES TOL NONCUMULATIVE
REAR PANEL MARKING

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 22 JUNE 65
CHECKED [illegible] 24-6-65
APPROVAL [illegible] 18 AUG 65
APPROVAL [illegible] 18 AUG 65
APPROVAL [illegible] 1 Sep 65
NASA APPROVAL C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, FRONT
RDC INTERFACE
COMPUTER TEST SET

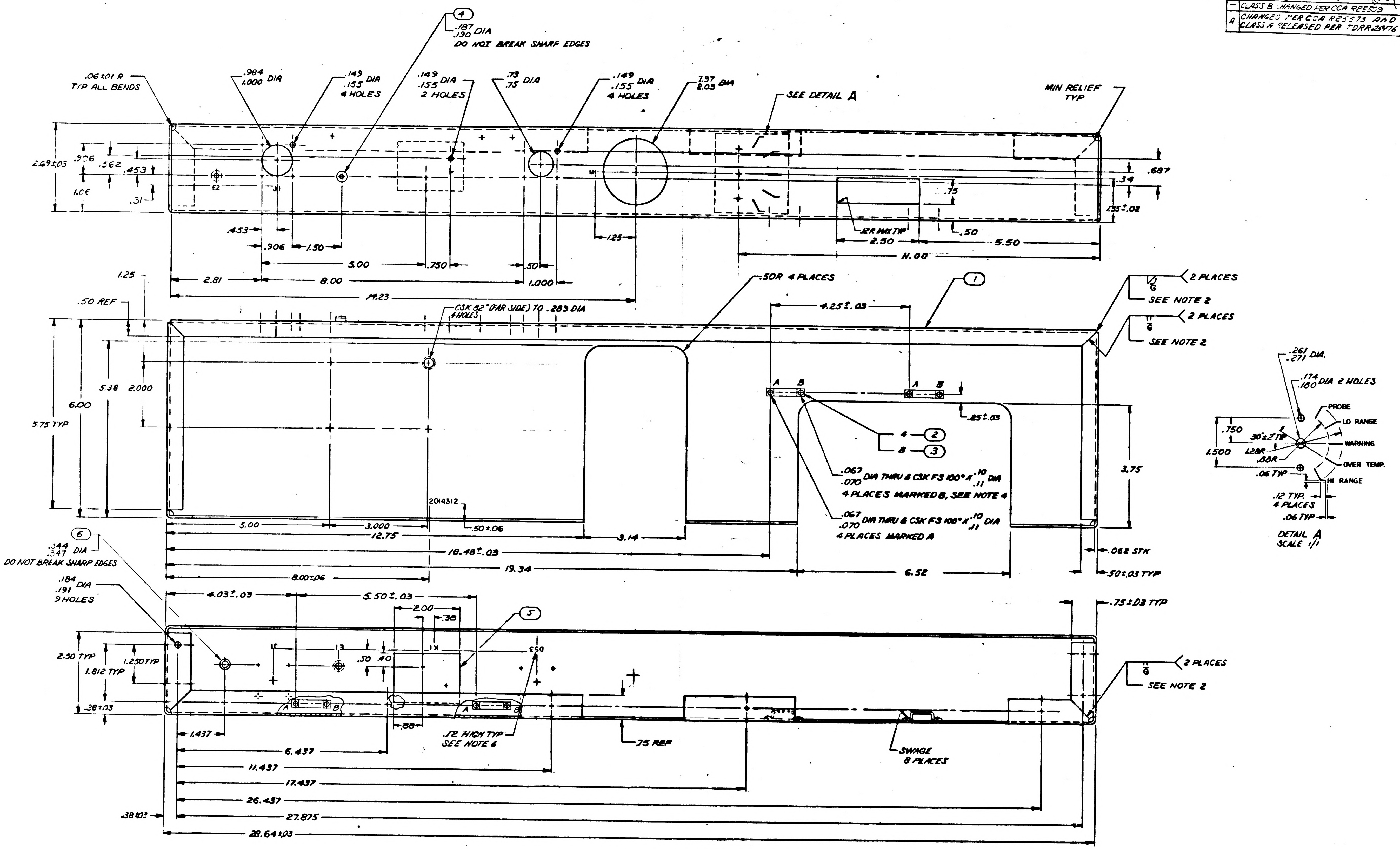
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014310
SCALE 1/1	WT	SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014310	–

2014312 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R2554		
1	CHANGE PER CCA R25317 DR W. Kelley CHK APPD	1/7/65	
—	CLASS B CHANGED PER CCA R25509	1/4/65	
A	CHANGED PER CCA R25573 AND CLASS A RELEASED PER TDRR 25476	1/7/66	



4
.187/.190 DIA
DO NOT BREAK SHARP EDGES
.06±.01 R TYP ALL BENDS
.984/1.000 DIA
.149/.155 DIA 4 HOLES
.149/.155 DIA 2 HOLES
.73/.75 DIA
.149/.155 DIA 4 HOLES
1.97/2.03 DIA
SEE DETAIL A
MIN RELIEF TYP
2.69±.03
.906
.562
.453
1.06
.31
E2
J1
M1
.687
.34
.75
.135±.02
.12R MAX TYP
.453
.906
1.50
5.00
.750
.50
1.000
2.81
8.00
14.23
1.25
2.50
5.50
11.00
.50
.50R 4 PLACES
1
2 PLACES
SEE NOTE 2
2 PLACES
SEE NOTE 2
.50 REF
CSK 82° (FAR SIDE) TO .283 DIA 4 HOLES
4.25±.03
A B
A B
.25±.03
4 — 2
8 — 3
.067/.070 DIA THRU & CSK FS 100° X .10/.11 DIA 4 PLACES MARKED B, SEE NOTE 4
.067/.070 DIA THRU & CSK FS 100° X .10/.11 DIA 4 PLACES MARKED A
6.00
5.38
2.000
5.75 TYP
3.75
2014312
5.00
3.000
12.75
.50±.06
3.14
18.48±.03
19.34
8.00±.06
6.52
.062 STK
.50±.03 TYP
.261/.271 DIA.
.174/.180 DIA 2 HOLES
PROBE
LO RANGE
WARNING
OVER TEMP.
HI RANGE
.750
1.500
30°±2° TYP
1.28R
.88R
.06 TYP
.12 TYP. 4 PLACES
.06 TYP
DETAIL A SCALE 1/1
6
.344/.347 DIA
DO NOT BREAK SHARP EDGES
.184/.191 DIA 9 HOLES
4.03±.03
5.50±.03
2.00
.38
5
.75±.03 TYP
2.50 TYP
1.812 TYP
1.250 TYP
.38±.03
.50
.40
2 PLACES
SEE NOTE 2
1.437
6.437
.88
11.437
.12 HIGH TYP SEE NOTE 6
.75 REF
SWAGE 8 PLACES
17.437
26.437
.38±.03
27.875
28.64±.03

NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. WELD PER MIL-W-8604
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELEC COND
4. LOCATE USING FIND NO. 2 AS TEMPLATE
5. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 10062[illegible]-10

1	1006989-25	NUT, SELF CLINCHING	6
* 0.2	1006692-3	TAPE PRESSURE S[illegible]TIVE	5
1	1006989-11	NUT, SELF CLINCHING	4
8	MS20426 A2-4	RIVET, CSK FLAT HD	3
4	1006906-2	BRACKET, CABLE SUPPORT	2
1	2014312-001	CHASSIS	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014313	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON DECIMALS .XX ±.06 DECIMALS .XXX ±.005 ANGLES ±0°30'
DO NOT SCALE DRAWING

MATERIAL
AL 5052-H32
PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 Jan 66
CHECKED
APPROVAL 2/8/65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CHASSIS
TEMP MONITOR
OPERATION CONSOLE

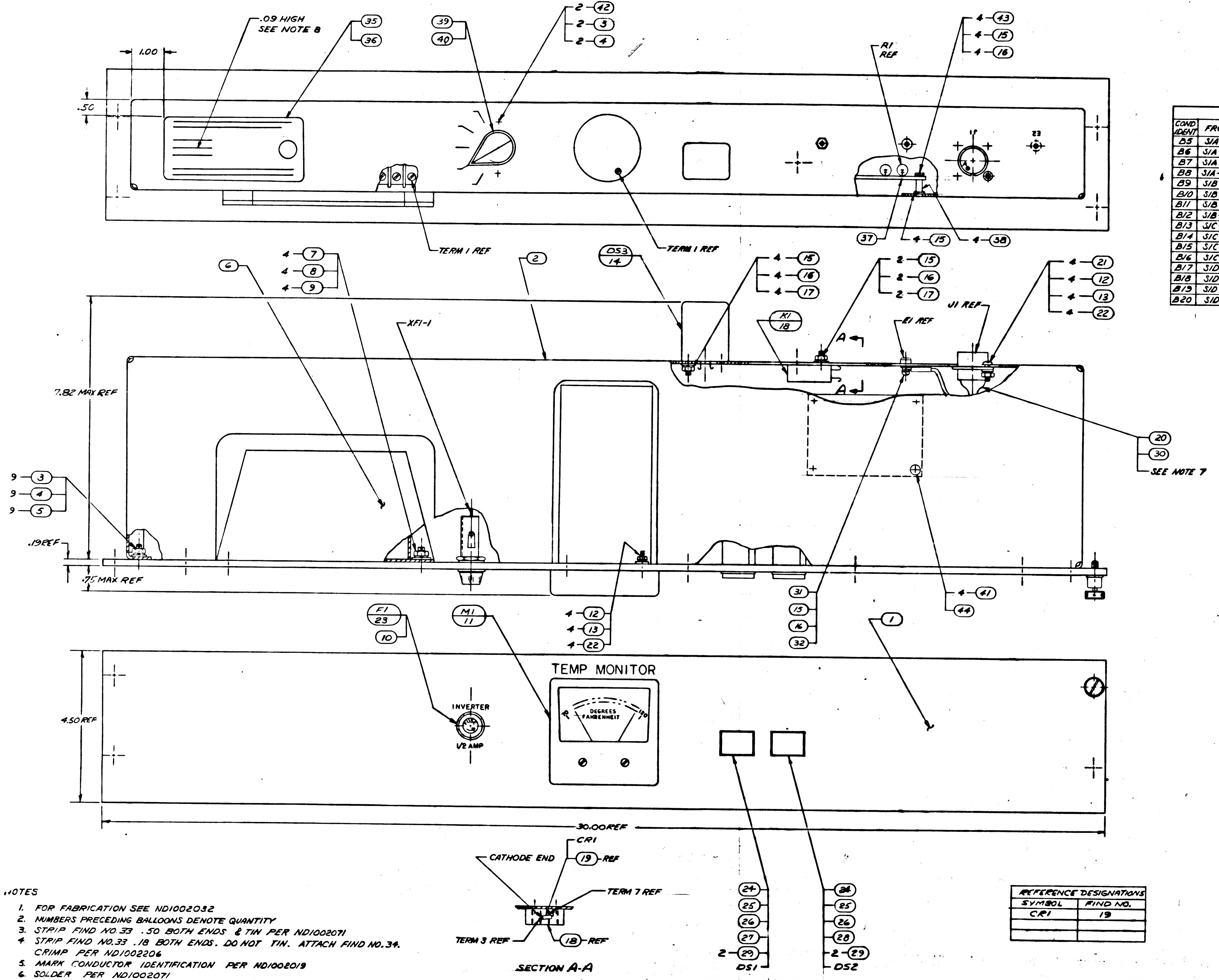
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014312
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014312 A

2014313 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25164	[illegible]	[illegible]
1	CHANGE PER CCA R25317 DR W. Kelly CHK [illegible] APPD [illegible]	11/17/65	[illegible]
–	CLASS B CHANGED PER CCA R25509	[illegible]	[illegible]
A	CHANGED PER CCA R25560 DR [illegible] CHK [illegible] APPD P.R.C	[illegible]	[illegible]
B	CHANGED PER CCA R25756 AND CLASS A RELEASED PER DRR 25476	11/17/66	[illegible]


.09 HIGH
SEE NOTE 8
35
36
1.00
.50
39
40
2 – 42
2 – 3
2 – 4
R1 REF
4 – 43
4 – 15
4 – 16
TERM 1 REF
TERM 1 REF
37
4 – 15
4 – 38
6
4 – 7
4 – 8
4 – 9
2
DS3
14
4 – 15
4 – 16
4 – 17
2 – 15
2 – 16
2 – 17
4 – 21
4 – 12
4 – 13
4 – 22
XF1-1
X1
18
A
E1 REF
J1 REF
7.82 MAX REF
20
30
SEE NOTE 7
9 – 3
9 – 4
9 – 5
.19 REF
.75 MAX REF
31
15
16
32
4 – 41
44
1
F1
23
10
M1
11
4 – 12
4 – 13
4 – 22
TEMP MONITOR
INVERTER
1/2 AMP
DEGREES FAHRENHEIT
4.50 REF
30.00 REF
CR1
CATHODE END
19 REF
TERM 7 REF
TERM 3 REF
18 REF
SECTION A-A
24
25
26
27
2 – 29
DS1
24
25
26
28
2 – 29
DS2

JUMPER CHART (CONT.)						
COND IDENT	FROM	TO	FIND NO.	AWG	LENGTH	REMARKS
B5	S1A-1	S1A-2	45	22	1.00	
B6	S1A-3	S1A-4	45	22	1.00	
B7	S1A-5	S1A-6	45	22	1.00	
B8	S1A-7	S1A-8	45	22	1.00	
B9	S1B-1	S1B-2	45	22	1.00	
B10	S1B-3	S1B-4	45	22	1.00	
B11	S1B-5	S1B-6	45	22	1.00	
B12	S1B-7	S1B-8	45	22	1.00	
B13	S1C-1	S1C-2	45	22	1.00	
B14	S1C-3	S1C-4	45	22	1.00	
B15	S1C-5	S1C-6	45	22	1.00	
B16	S1C-7	S1C-8	45	22	1.00	
B17	S1D-1	S1D-2	45	22	1.00	
B18	S1D-3	S1D-4	45	22	1.00	
B19	S1D-5	S1D-6	45	22	1.00	
B20	S1D-7	S1D-8	45	22	1.00	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014152	SCHEMATIC, ELECTRICAL	REF
* 1.4	SEE NOTE 9	WIRE, BUS	45
AR	MIL-S-22473, GR HV	SEALING AND RETAINING COMPOUND	44
4	MS51957-27	SCREW, PAN HD	43
2	MS51957-43	SCREW, PAN HD	42
4	MS51959-27	SCREW, FLAT CSK HEAD	41
1	MS91528-2K2B	KNOB, POINTER	40
1	1006257-004	SWITCH, ROTARY	39
4	1006480-005	POST, ELECTRICAL	38
1	2016339-011	COMPONENT BD ASSY A2	37
AR	MIL-A-5092 TYPE II	ADHESIVE	36
1	1004260-249	PLATE, IDENT	35
6	MS25036-1	TERMINAL LUG	34
* 1.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHITE	33
1	MS51957-29	SCREW, PAN HD, CROSS RECESSED	32
1	MS35333-71	WASHER, LOCK INT TOOTH	31
AR	1006458-004	TAPE, LACING	30
4	1006407-004	LAMP INCANDESCENT	29
1	1006404-038	FRONT LENS	28
1	1006404-036	FRONT LENS	27
2	1006404-004	DISPLAY SCREEN, FULL	26
2	1006404-002	COLOR FILTER, WHITE	25
2	1006404-001	LIGHT INDICATOR, BASIC UNIT	24
1	F02A250V1/2A	FUSE (MIL-F-15160/02)	23
8	MS35649-44	NUT, PLAIN, HEX	22
4	MS51957-15	SCREW, PAN HD, CROSS-RECESSED	21
1	2014491-011	HARNESS	20
1	1006751-000	SEMICOND DEVICE, DIODE	19
1	1006492-001	RELAY COIL	18
6	MS35649-64	NUT, PLAIN, HEX	17
11	MS35338-79	WASHER, LOCK	16
15	MS15795-806	WASHER, FLAT	15
1	1006485	FLASHER	14
8	MS35338-78	WASHER, LOCK	13
8	MS15795-804	WASHER, FLAT	12
1	1006469-001	INDICATOR, TEMP CONTROL	11
1	MS26572-1	FUSEHOLDER	10
4	MS35649-104	NUT, PLAIN, HEX	9
4	MS35338-81	WASHER, LOCK	8
4	MS15795-809	WASHER, FLAT	7
1	1006469-003	CONTROL MODULE	6
9	MS35649-84	NUT, PLAIN, HEX	5
11	MS35338-80	WASHER, LOCK	4
11	MS15795-807	WASHER, FLAT	3
1	2014312	CHASSIS	2
1	2014311	PANEL	1
-011	LIST OF MATERIALS		

2014313 L

NOTES

1. FOR FABRICATION SEE ND1002032
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. STRIP FIND NO.33 .50 BOTH ENDS & TIN PER ND1002071
4. STRIP FIND NO.33 .18 BOTH ENDS. DO NOT TIN. ATTACH FIND NO.34. CRIMP PER ND1002206
5. MARK CONDUCTOR IDENTIFICATION PER ND1002019
6. SOLDER PER ND1002071
7. SPOT TIE HARNESS TO RETAINING STRAPS USING FIND NO.30, 5 PLACES
8. SERIALIZE PER ND1002023
9. QQ-W-343, TYPE S, SOFT COATED (Q) AWG SIZE 22

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
CR1	19

JUMPER CHART						
COND IDENT	FROM	TO	FIND NO.	AWG	LENGTH	REMARKS
B1	K1-6	K1-7	33	22	3.00	SEE NOTE 3
B2	M1-8	M1-11	33	22	3.00	SEE NOTE 4
B3	DS1-A	DS1-B	33	22	3.00	SEE NOTE 4
B4	DS2-A	DS2-B	33	22	3.00	SEE NOTE 4

* DENOTES LENGTH IN FEET

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 15 JUNE 65
CHECKED [illegible] 23 AUG 65
APPROVAL P C Dunk 9/10/65
APPROVAL [illegible] 9/10/65
APPROVAL [illegible] 9/10/65
NASA APPROVAL A.C. Metzger
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TEMP MONITOR ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014313
SCALE 1/1
WT
SHEET 1 OF 1

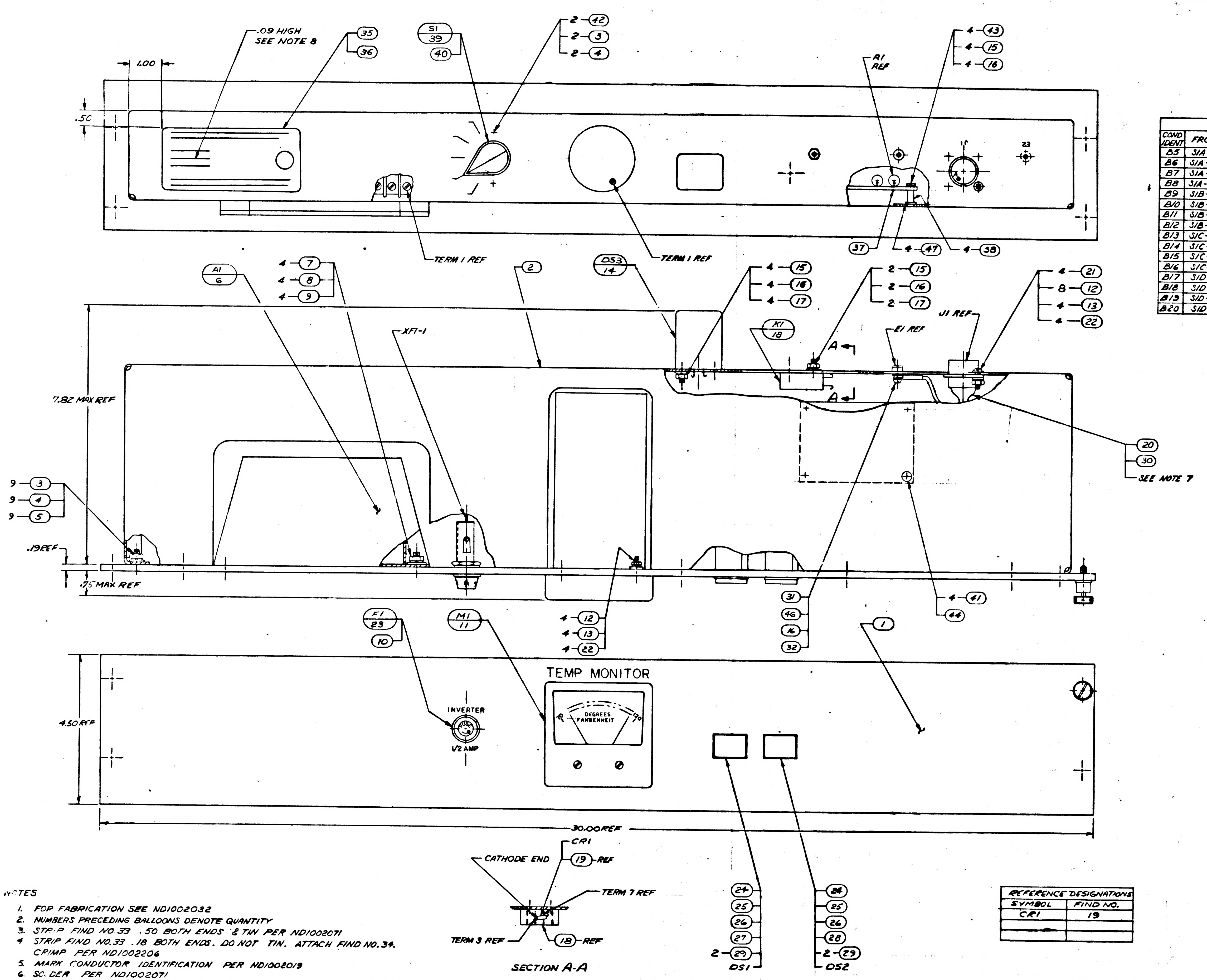
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014313 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25164		
1	CHANGE PER CCA R25317 DR W. Kelly CHK APPD		
–	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25560 DR CHK APPD		
B	CHANGED PER CCA R25756 AND CLASS A RELEASED PER TDRR 25476		
C	CHANGED PER TDRR 26465 DR CHK APPD		

JUMPER CHART (CONT.)

COND IDENT	FROM	TO	FIND NO.	AWG	LENGTH	REMARKS
B5	S1A-1	S1A-2	45	22	1.00	
B6	S1A-3	S1A-4	45	22	1.00	
B7	S1A-5	S1A-6	45	22	1.00	
B8	S1A-7	S1A-8	45	22	1.00	
B9	S1B-1	S1B-2	45	22	1.00	
B10	S1B-3	S1B-4	45	22	1.00	
B11	S1B-5	S1B-6	45	22	1.00	
B12	S1B-7	S1B-8	45	22	1.00	
B13	S1C-1	S1C-2	45	22	1.00	
B14	S1C-3	S1C-4	45	22	1.00	
B15	S1C-5	S1C-6	45	22	1.00	
B16	S1C-7	S1C-8	45	22	1.00	
B17	S1D-1	S1D-2	45	22	1.00	
B18	S1D-3	S1D-4	45	22	1.00	
B19	S1D-5	S1D-6	45	22	1.00	
B20	S1D-7	S1D-8	45	22	1.00	


.09 HIGH
SEE NOTE 8
35
36
1.00
.50
S1
39
40
2 – 42
2 – 3
2 – 4
R1
REF
4 – 43
4 – 15
4 – 16
23
TERM 1 REF
TERM 1 REF
37
4 – 47
4 – 38
A1
6
4 – 7
4 – 8
4 – 9
2
DS3
14
4 – 15
4 – 16
4 – 17
2 – 15
2 – 16
2 – 17
4 – 21
8 – 12
4 – 13
4 – 22
K1
18
E1 REF
J1 REF
A
A
XF1-1
7.82 MAX REF
20
30
SEE NOTE 7
9 – 3
9 – 4
9 – 5
.19 REF
.75 MAX REF
31
46
16
32
4 – 41
44
1
F1
23
10
M1
11
4 – 12
4 – 13
4 – 22
TEMP MONITOR
DEGREES FAHRENHEIT
INVERTER
1/2 AMP
4.50 REF
30.00 REF
CR1
CATHODE END
19 – REF
TERM 7 REF
TERM 3 REF
18 – REF
SECTION A-A
24
25
26
27
2 – 29
DS1
24
25
26
28
2 – 29
DS2

REFERENCE DESIGNATIONS

SYMBOL	FIND NO.
CR1	19

NOTES

1. FOR FABRICATION SEE ND1002032
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. STRIP FIND NO. 33 .50 BOTH ENDS & TIN PER ND1002071
4. STRIP FIND NO. 33 .18 BOTH ENDS. DO NOT TIN. ATTACH FIND NO. 34. CRIMP PER ND1002206
5. MARK CONDUCTOR IDENTIFICATION PER ND1002019
6. SOLDER PER ND1002071
7. SPOT TIE HARNESS TO RETAINING STRAPS USING FIND NO. 30, 5 PLACES
8. SERIALIZE PER ND1002023
9. QQ-W-343, TYPE S, SOFT COATED (a) AWG SIZE 22

JUMPER CHART

COND IDENT	FROM	TO	FIND NO.	AWG	LENGTH	REMARKS
B1	K1-6	K1-7	33	22	3.00	SEE NOTE 3
B2	M1-8	M1-12	33	22	3.00	SEE NOTE 4
B3	DS1-A	DS1-B	33	22	3.00	SEE NOTE 4
B4	DS2-A	DS2-B	33	22	3.00	SEE NOTE 4

☒	2014152	SCHEMATIC, ELECTRICAL	REF
4	MS15795-808	WASHER, FLAT	47
1	MS15795-805	WASHER, FLAT	46
* 1.4	SEE NOTE 9	WIRE, BUS	45
AR	MIL-S-22473, GR HV	SEALING AND RETAINING COMPOUND	44
4	MS51957-27	SCREW, PAN HD	43
2	MS51957-43	SCREW, PAN HD	42
4	MS51959-27	SCREW, FLAT CSK HEAD	41
1	MS91528-2K2B	KNOB, POINTER	40
1	1006257-004	SWITCH, ROTARY	39
4	1006480-005	POST, ELECTRICAL	38
1	2016339-011	COMPONENT BD ASSY A2	37
AR	MIL-A-5092 TYPE II	ADHESIVE	36
1	1004260-249	PLATE, IDENT	35
6	MS25036-1	TERMINAL LUG	34
* 1.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHITE	33
1	MS51957-29	SCREW, PAN HD, CROSS RECESSED	32
1	MS35333-71	WASHER, LOCK INT TOOTH	31
AR	1006458-004	TAPE, LACING	30
4	1006407-004	LAMP INCANDESCENT	29
1	1006404-038	FRONT LENS	28
1	1006404-036	FRONT LENS	27
2	1006404-004	DISPLAY SCREEN, FULL	26
2	1006404-002	COLOR FILTER, WHITE	25
2	1006404-001	LIGHT INDICATOR, BASIC UNIT	24
1	F02A250V1/2A	FUSE (MIL-F-15160/02)	23
8	MS35649-44	NUT, PLAIN, HEX	22
4	MS51957-15	SCREW, PAN HD, CROSS-RECESSED	21
1	2014491-011	HARNESS	20
1	1006751-000	SEMICOND DEVICE, DIODE	19
1	1006492-001	RELAY COIL	18
6	MS35649-64	NUT, PLAIN, HEX	17
11	MS35338-79	WASHER, LOCK	16
10	MS15795-806	WASHER, FLAT	15
1	1006485	FLASHER	14
8	MS35338-78	WASHER, LOCK	13
12	MS15795-804	WASHER, FLAT	12
1	1006469-001	INDICATOR, TEMP CONTROL	11
1	MS26572-1	FUSEHOLDER	10
4	MS35649-104	NUT, PLAIN, HEX	9
4	MS35338-81	WASHER, LOCK	8
4	MS15795-809	WASHER, FLAT	7
1	1006469-003	CONTROL MODULE	6
9	MS35649-84	NUT, PLAIN, HEX	5
11	MS35338-80	WASHER, LOCK	4
11	MS15795-807	WASHER, FLAT	3
1	2014312	CHASSIS	2
1	2014311	PANEL	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

2014313 C

* DENOTES LENGTH IN FEET

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 15 JUN 65
CHECKED 23 AUG 65
APPROVAL 9/10/65
APPROVAL
APPROVAL 9/14/65
NASA APPROVAL A.C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TEMP MONITOR ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014313
SCALE 1/1 WT SHEET 1 OF 1

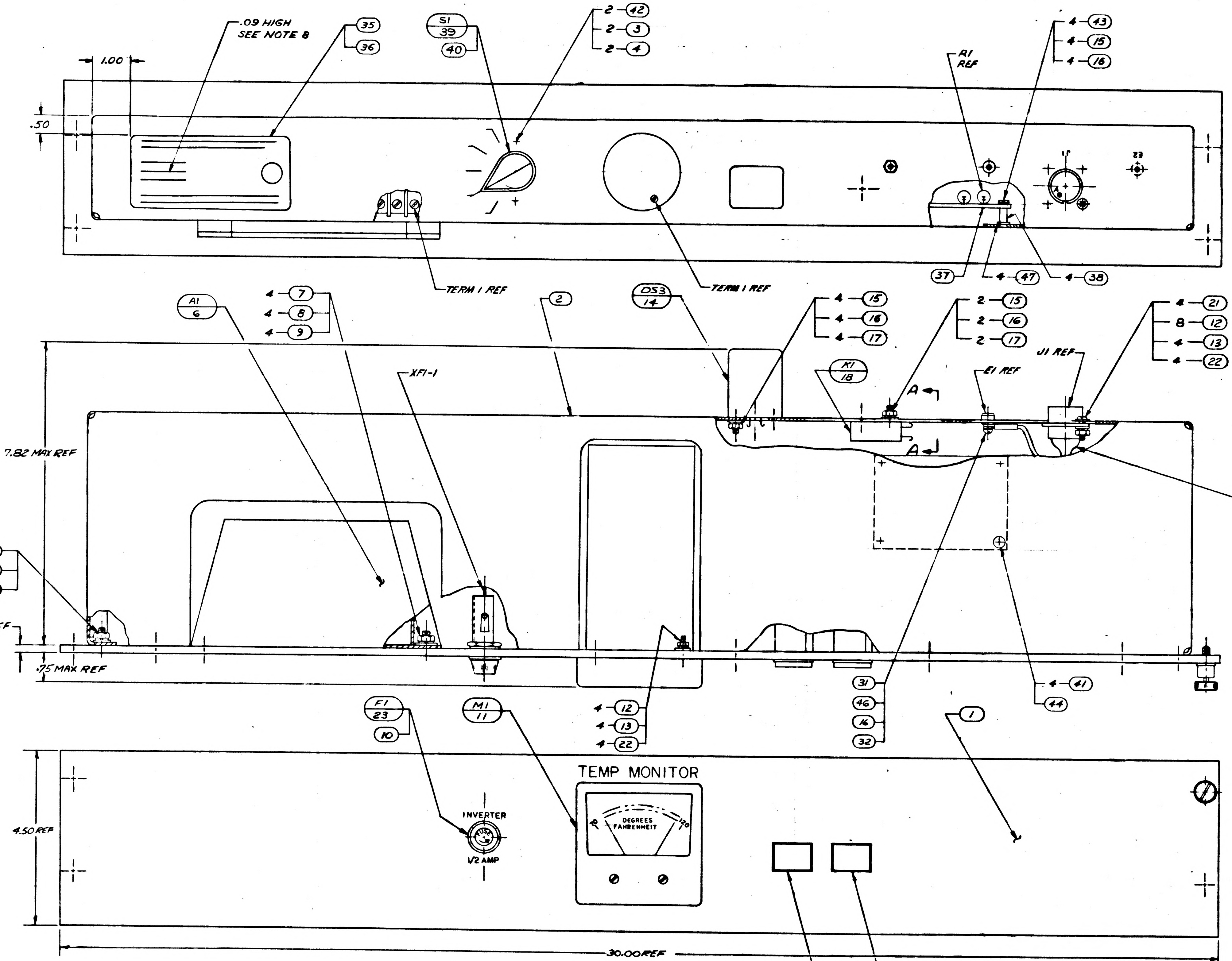
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

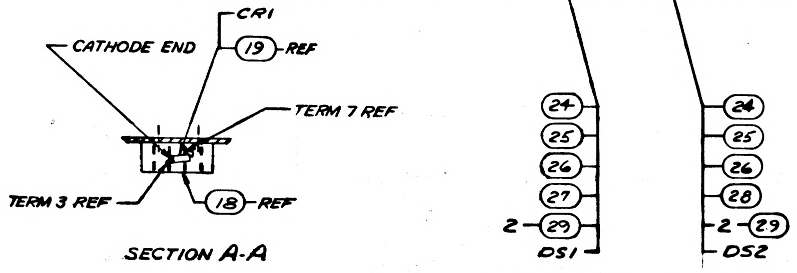
2014313 D

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R2544		
1	CHANGE PER CCA R25317 DR W. Kelly CHK APPD	11/17	
–	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25560 DR CHK APPD	1/2/66	
B	CHANGED PER CCA R25756 AND CLASS A RELEASED PER TDRR 25476	1/7/66	
C	CHANGED PER TDRR 26465 DR CHK APPD	2/24/66	
D	CHANGED PER TDRR 26462 DR CHK APPD	3/14/66	

JUMPER CHART (CONT.)

COND IDENT	FROM	TO	FIND NO.	AWG	LENGTH	REMARKS
B5	S1A-1	S1A-2	45	22	1.00	
B6	S1A-3	S1A-4	45	22	1.00	
B7	S1A-5	S1A-6	45	22	1.00	
B8	S1A-7	S1A-8	45	22	1.00	
B9	S1B-1	S1B-2	45	22	1.00	
B10	S1B-3	S1B-4	45	22	1.00	
B11	S1B-5	S1B-6	45	22	1.00	
B12	S1B-7	S1B-8	45	22	1.00	
B13	S1C-1	S1C-2	45	22	1.00	
B14	S1C-3	S1C-4	45	22	1.00	
B15	S1C-5	S1C-6	45	22	1.00	
B16	S1C-7	S1C-8	45	22	1.00	
B17	S1D-1	S1D-2	45	22	1.00	
B18	S1D-3	S1D-4	45	22	1.00	
B19	S1D-5	S1D-6	45	22	1.00	
B20	S1D-7	S1D-8	45	22	1.00	


.09 HIGH
SEE NOTE 8
35
36
1.00
.50
S1
39
40
2-42
2-3
2-4
TERM 1 REF
TERM 1 REF
R1
REF
4-43
4-15
4-16
37
4-47
4-38
A1
6
4-7
4-8
4-9
XF1-1
2
DS3
14
4-15
4-16
4-17
K1
18
2-15
2-16
2-17
E1 REF
J1 REF
4-21
8-12
4-13
4-22
A
A
7.82 MAX REF
20
30
SEE NOTE 7
9-3
9-4
9-5
.19 REF
.75 MAX REF
31
46
16
32
4-41
44
4-12
4-13
4-22
F1
23
10
M1
11
1
TEMP MONITOR
INVERTER
1/2 AMP
DEGREES FAHRENHEIT
4.50 REF
30.00 REF


CR1
CATHODE END
19 -REF
TERM 7 REF
TERM 3 REF
18 -REF
SECTION A-A
24
25
26
27
2-29
DS1
24
25
26
28
2-29
DS2

NOTES

1. FOR FABRICATION SEE ND1002032
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. STRIP FIND NO.33 .50 BOTH ENDS & TIN PER ND1002071
4. STRIP FIND NO.33 .18±.03 BOTH ENDS. DO NOT TIN. ATTACH FIND NO.34. CRIMP PER ND1002206
5. MARK CONDUCTOR IDENTIFICATION PER ND1002019
6. SOLDER PER ND1002071
7. SPOT TIE HARNESS TO RETAINING STRAPS USING FIND NO.30, 5 PLACES
8. SERIALIZE PER ND1002023
9. QQ-W-343, TYPE 3, SOFT COATED (A) AWG SIZE 22

JUMPER CHART

COND IDENT	FROM	TO	FIND NO.	AWG	LENGTH	REMARKS
B1	K1-6	K1-7	33	22	3.00	SEE NOTE 3
B2	M1-8	M1-12	33	22	3.00	SEE NOTE 4
B3	DS1-A	DS1-B	33	22	3.00	SEE NOTE 4
B4	DS2-A	DS2-B	33	22	3.00	SEE NOTE 4

REFERENCE DESIGNATIONS

SYMBOL	FIND NO.
CR1	19

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014152	SCHEMATIC, ELECTRICAL	REF
4	MS15795-808	WASHER, FLAT	47
1	MS15795-805	WASHER, FLAT	46
* 1.4	SEE NOTE 9	WIRE, BUS	45
AR	MIL-S-22473, GR HV	SEALING AND RETAINING COMPOUND	44
4	MS51957-27	SCREW, PAN HD	43
2	MS51957-43	SCREW, PAN HD	42
4	MS51959-27	SCREW, FLAT CSK HEAD	41
1	MS91528-2K2B	KNOB, POINTER	40
1	1006257-004	SWITCH, ROTARY	39
4	1006480-005	POST, ELECTRICAL	38
1	2016339-011	COMPONENT BD ASSY A2	37
AR	MIL-A-5092 TYPE II	ADHESIVE	36
1	1004260-249	PLATE, IDENT	35
6	MS25036-1	TERMINAL LUG	34
* 1.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHITE	33
1	MS51957-29	SCREW, PAN HD, CROSS RECESSED	32
1	MS35333-71	WASHER, LOCK INT TOOTH	31
AR	1006458-004	TAPE, LACING	30
4	1006407-004	LAMP INCANDESCENT	29
1	1006404-038	FRONT LENS	28
1	1006404-036	FRONT LENS	27
2	1006404-004	DISPLAY SCREEN, FULL	26
2	1006404-002	COLOR FILTER, WHITE	25
2	1006404-001	LIGHT INDICATOR, BASIC UNIT	24
1	F02A250V1/2A	FUSE (MIL-F-15160/02)	23
8	MS35649-44	NUT, PLAIN, HEX	22
4	MS51957-15	SCREW, PAN HD, CROSS-RECESSED	21
1	2014491-011	HARNESS	20
1	1006751-000	SEMICOND DEVICE, DIODE	19
1	1006492-001	RELAY COIL	18
6	MS35649-64	NUT, PLAIN, HEX	17
11	MS35338-79	WASHER, LOCK	16
10	MS15795-806	WASHER, FLAT	15
1	1006485	FLASHER	14
8	MS35338-78	WASHER, LOCK	13
12	MS15795-804	WASHER, FLAT	12
1	1006469-001	INDICATOR, TEMP CONTROL	11
1	MS26572-1	FUSEHOLDER	10
4	MS35649-104	NUT, PLAIN, HEX	9
4	MS35338-81	WASHER, LOCK	8
4	MS15795-809	WASHER, FLAT	7
1	1006469-003	CONTROL MODULE	6
9	MS35649-84	NUT, PLAIN, HEX	5
11	MS35338-80	WASHER, LOCK	4
11	MS15795-807	WASHER, FLAT	3
1	2014312	CHASSIS	2
1	2014311	PANEL	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 15 JUNE 65
CHECKED 23 AUG 65
APPROVAL 9/10/6
APPROVAL
APPROVAL 9/10/65
NASA APPROVAL A.C. METZGER
MIT APPROVAL
MIT APPROVAL

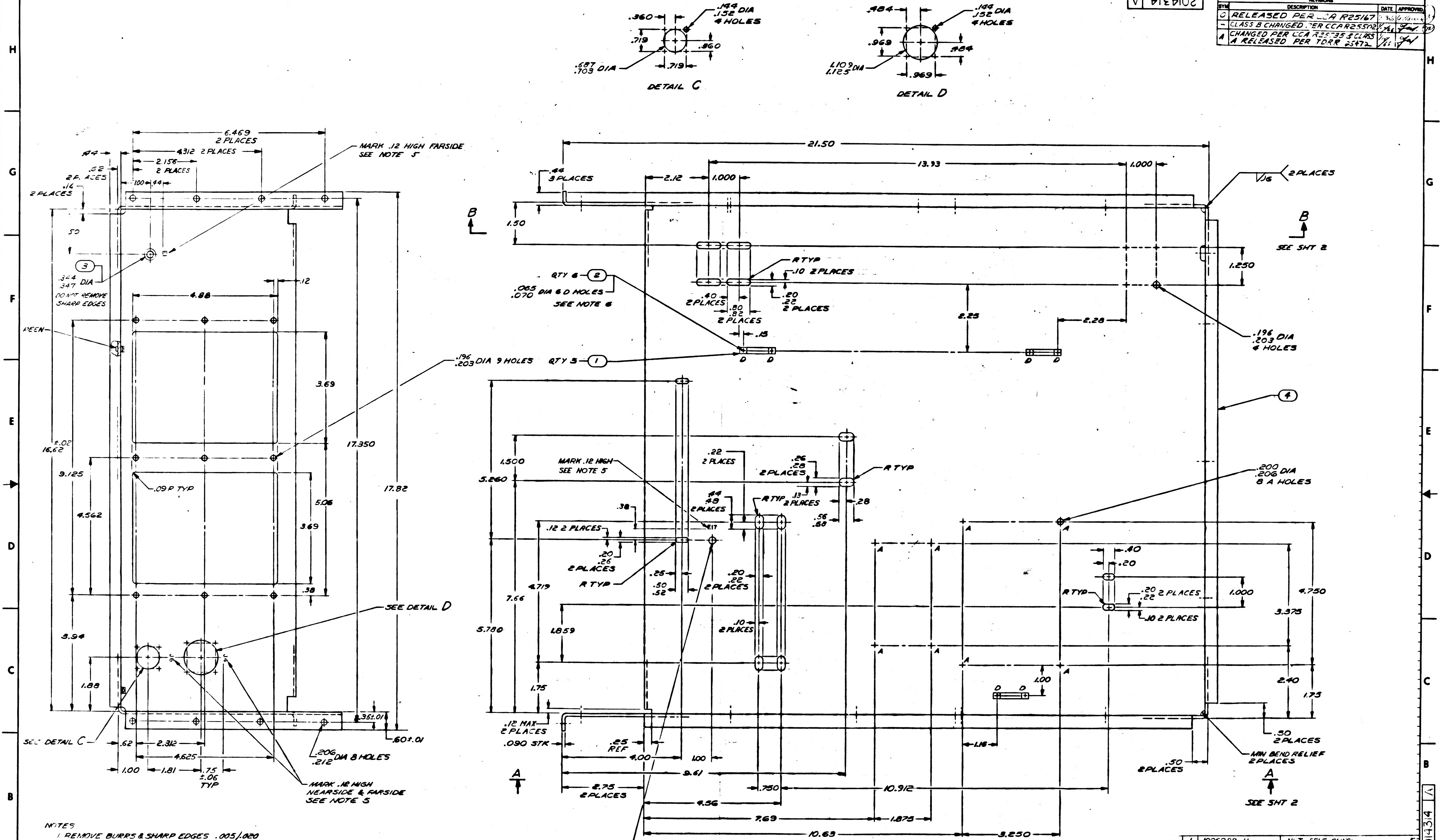
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TEMP MONITOR ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014313
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014313 D


DETAIL C
.360
.719
.144 .152 DIA 4 HOLES
.687 .703 DIA
DETAIL D
.484
.969
.144 .152 DIA 4 HOLES
1.109 1.125 DIA
6.469 2 PLACES
4.312 2 PLACES
2.156 2 PLACES
MARK .12 HIGH FARSIDE SEE NOTE 5
③ .344 .347 DIA DO NOT REMOVE SHARP EDGES
PEEN
4.88
.196 .203 DIA 9 HOLES QTY 3 ①
3.69
5.06
17.350
17.82
16.62 ±.02
9.125
4.562
.09 R TYP
3.94
1.88
SEE DETAIL C
SEE DETAIL D
.206 .212 DIA 8 HOLES
MARK .12 HIGH NEARSIDE & FARSIDE SEE NOTE 5
.62
2.312
4.625
1.00
1.81
.75 ±.06 TYP
.35±.01
.60±.01
21.50
13.93
1.000
2.12
.44 3 PLACES
1/16 2 PLACES
B
SEE SHT 2
1.50
QTY 6 ② .065 .070 DIA 6 D HOLES SEE NOTE 6
R TYP
.10 2 PLACES
.40 2 PLACES
.80 .82 2 PLACES
.20 .22 2 PLACES
.15
2.25
2.28
1.250
.196 .203 DIA 4 HOLES
④
MARK .12 HIGH SEE NOTE 5
.200 .206 DIA 8 A HOLES
1.500
5.260
7.66
5.780
4.719
1.859
1.75
R TYP
.40
.20
.20 .22 2 PLACES
.10 2 PLACES
1.000
4.750
3.375
2.40
1.75
1.00
.12 MAX 2 PLACES
.090 STK
.25 REF
4.00
1.00
9.61
2.75 2 PLACES
4.56
.750
7.69
10.63
10.912
1.875
3.250
1.16
.50 2 PLACES
MIN BEND RELIEF 2 PLACES
A
SEE SHT 2
⑤ FARSIDE .210 .216 DIA DO NOT BREAK SHARP EDGES

2014314	A

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167	9-3-65	[illegible]
–	CLASS B CHANGED PER CCA R25502	1-?-66	[illegible]
A	CHANGED PER CCA R25535 & CLASS A RELEASED PER TDRR 25472	1/4/66	[illegible]

NOTES
1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. WELD PER MIL-W-8604
4. ALL BEND RADII TO BE .06/.09
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK PER 1006871-10
6. LOCATE ② HOLES USING FIND NO.1 AS TEMPLATE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006989-11	NUT, SELF CLINCH	5
1	2014314-001	CHASSIS	4
1	1006989-25	NUT, SELF CLINCH	3
6	MS20470AD2-4	RIVET SOLID UNIV HD	2
3	1004844-003	STRAP, RETAINING	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014345	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±.016
ANGLES ±0°30'
DO NOT SCALE DRAWING
MATERIAL
AL 5052-H32
QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 8 JUNE 65
CHECKED [illegible]
APPROVAL R.E. [illegible] 9/1/65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CHASSIS
RDC INTERFACE
COMPUTER TEST SET

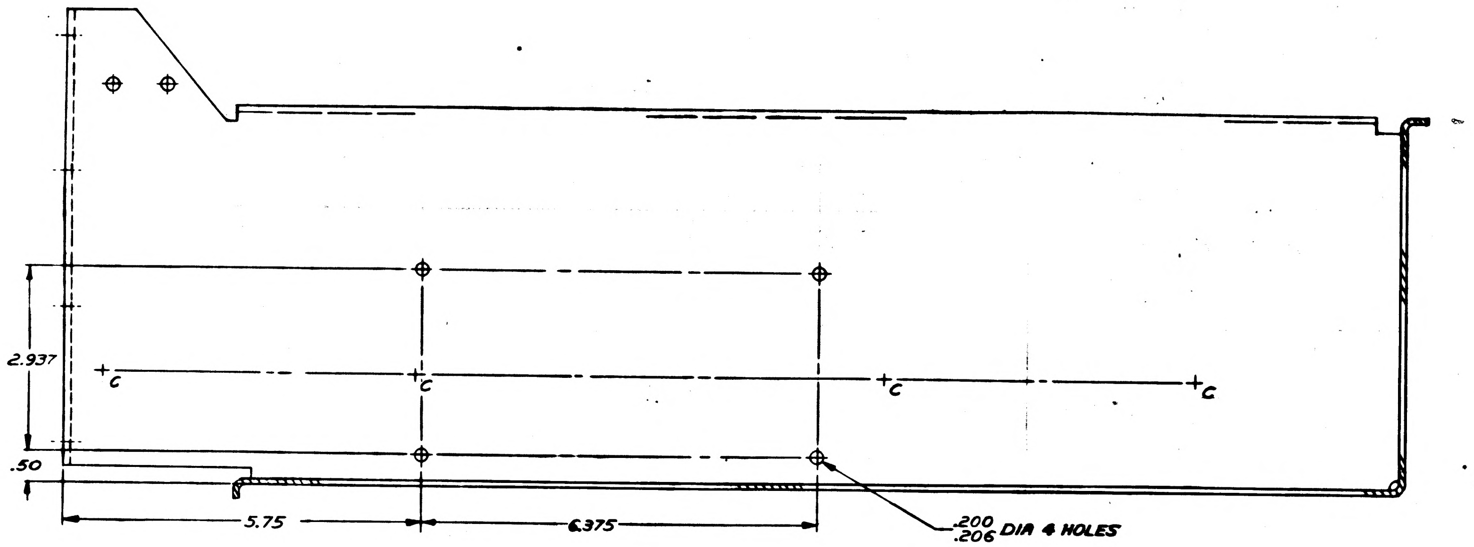
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014314
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014314	A

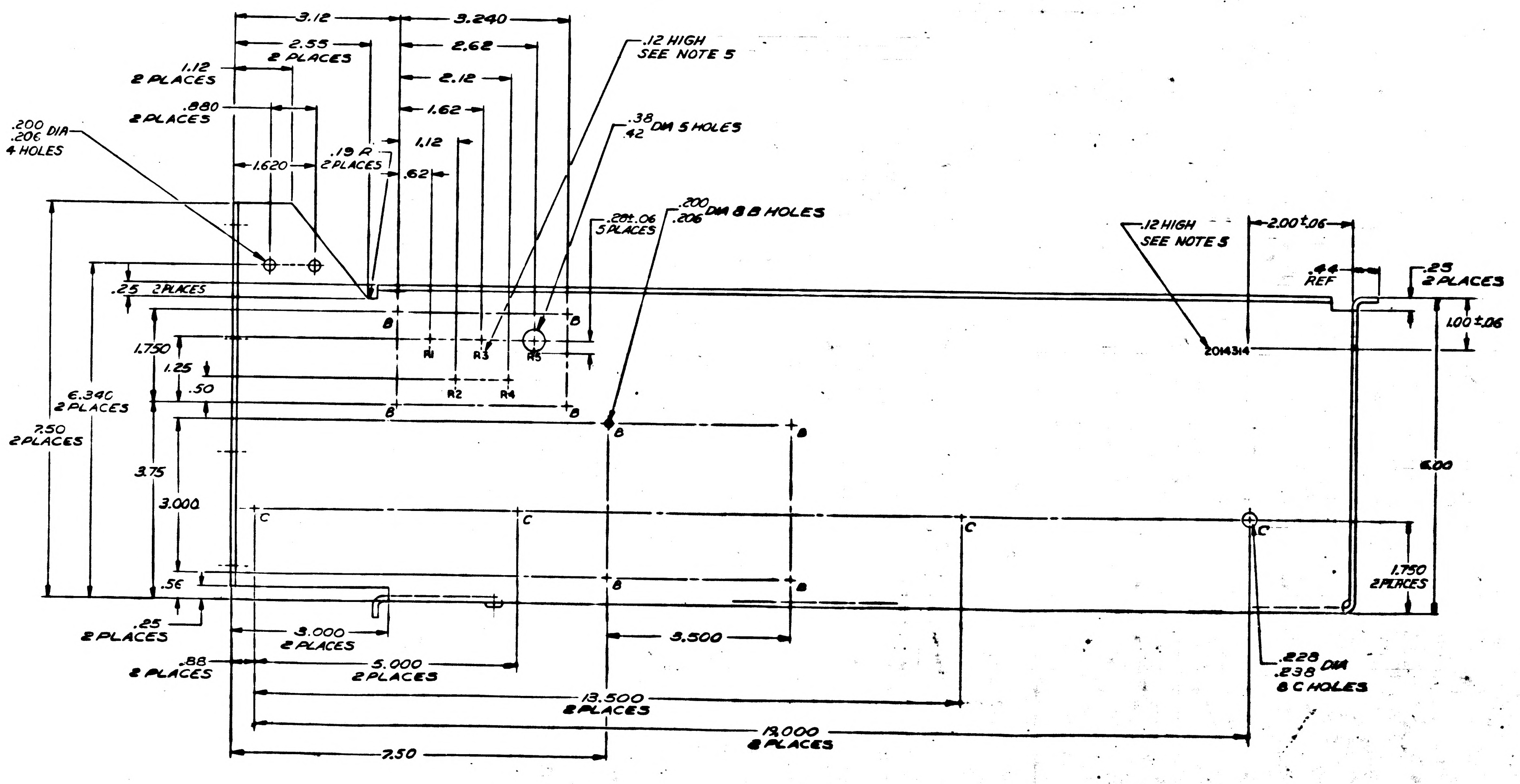
2014314 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167		
–	CLASS 3 CHANGED PER CCA R25502		
A	CHANGED PER CCA R25-5 & CLASS A RELEASED PER TCR 25472	1/15/66	



2.937
.50
5.75
6.375
C
C
C
C
.200 .206 DIA 4 HOLES

SECTION B-B
SEE SHEET 1



3.12
3.240
2.55 2 PLACES
2.62
1.12 2 PLACES
2.12
.880 2 PLACES
1.62
.200 .206 DIA 4 HOLES
1.620
.19 R 2 PLACES
1.12
.62
.12 HIGH SEE NOTE 5
.38 .42 DIA 5 HOLES
.28±.06 5 PLACES
.200 .206 DIA 8 B HOLES
.25 2 PLACES
B
R1
R3
R5
R2
R4
1.750
1.25
.50
6.340 2 PLACES
7.50 2 PLACES
3.75
3.000
.56
.25 2 PLACES
.88 2 PLACES
3.000 2 PLACES
5.000 2 PLACES
3.500
13.500 2 PLACES
12.000 2 PLACES
7.50
C
.12 HIGH SEE NOTE 5
2014314
2.00±.06
.44 REF
.25 2 PLACES
1.00±.06
6.00
1.750 2 PLACES
.228 .238 DIA 8 C HOLES

VIEW A-A
SEE SHEET 1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±   DECIMALS .XXX ±   ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 8 JUN 65
CHECKED
APPROVAL 9/10/65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1966

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CHASSIS
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014314
SCALE 1/1
WT
SHEET 2 OF 2

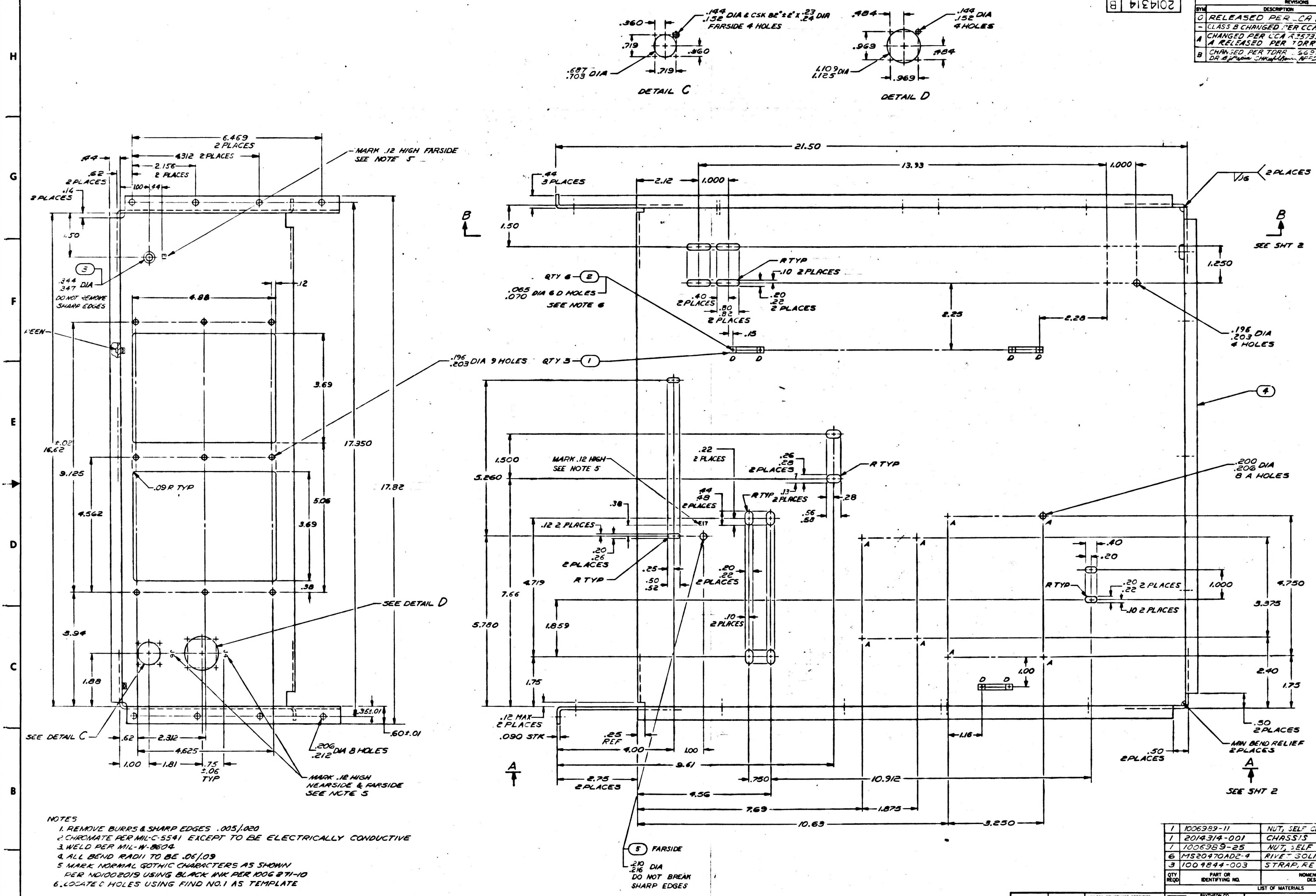
INTERPRET DRAWINGS IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014314 A

2014314 A

2014314 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CA R25167	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25502	1/11/66	
A	CHANGED PER CCA R25735 & CLASS A RELEASED PER TDRR 25472	1/18/66	
B	CHANGED PER TDRR 26691 DR [illegible] CHK [illegible] APPD [illegible]	3/15/66	



.144 .152 DIA & CSK 82° ± 2° X .23 .24 DIA
FARSIDE 4 HOLES
.360
.719
.687 .703 DIA
.719
.360
DETAIL C
.484
.144 .152 DIA
4 HOLES
.969
.484
1.109 1.125 DIA
.969
DETAIL D
6.469
2 PLACES
4.312 2 PLACES
2.156
2 PLACES
MARK .12 HIGH FARSIDE
SEE NOTE 5
.44
.62
2 PLACES
.14
2 PLACES
1.00
.44
1.50
③
.344 .347 DIA
DO NOT REMOVE SHARP EDGES
4.88
.12
PEEN
.196 .203 DIA 9 HOLES
QTY 3
①
3.69
±.02
16.62
17.350
17.82
9.125
.09 R TYP
4.562
5.06
3.69
.38
3.94
SEE DETAIL D
1.88
SEE DETAIL C
.62
2.312
4.625
1.00
1.81
.75 ±.06 TYP
.35±.01
.206 .212 DIA 8 HOLES
.60±.01
MARK .12 HIGH
NEARSIDE & FARSIDE
SEE NOTE 5
21.50
13.93
1.000
.44
3 PLACES
2.12
1.000
2 PLACES
B
1.50
SEE SHT 2
1.250
R TYP
.10 2 PLACES
QTY 6
②
.065 .070 DIA 6 D HOLES
SEE NOTE 6
.40
2 PLACES
.20 .22
2 PLACES
.80 .82
2 PLACES
.15
2.25
2.28
D
.196 .203 DIA
4 HOLES
④
1.500
5.260
MARK .12 HIGH
SEE NOTE 5
.22
2 PLACES
.26 .28
2 PLACES
R TYP
.13
.28
.44 .48
2 PLACES
R TYP
2 PLACES
.56 .58
.38
.12 2 PLACES
.20 .26
2 PLACES
R TYP
.25
.50 .52
.20 .22
2 PLACES
.10
2 PLACES
.200 .206 DIA
8 A HOLES
A
.40
.20
R TYP
.20 .22 2 PLACES
.10 2 PLACES
1.000
4.750
3.375
7.66
4.719
5.780
1.859
1.75
2.40
1.75
1.00
.12 MAX
2 PLACES
.090 STK
.25
REF
4.00
1.00
9.61
2.75
2 PLACES
.750
10.912
4.56
7.69
1.875
10.63
3.250
1.16
.30
2 PLACES
.50
2 PLACES
MIN BEND RELIEF
2 PLACES
SEE SHT 2
⑤ FARSIDE
.210 .216 DIA
DO NOT BREAK SHARP EDGES

NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. WELD PER MIL-W-8604
4. ALL BEND RADII TO BE .06/.09
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK PER 1006271-10
6. LOCATE C HOLES USING FIND NO.1 AS TEMPLATE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006989-11	NUT, SELF CLINCH	5
1	2014314-001	CHASSIS	4
1	1006989-25	NUT, SELF CLINCH	3
6	MS20470AD2-4	RIVET SOLID UNIV HD	2
3	1004844-003	STRAP, RETAINING	1

LIST OF MATERIALS

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ±.016 ANGLES ±0°30'
DO NOT SCALE DRAWING
MATERIAL
AL 5052-H32
QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 8 JUNE 65
CHECKED [illegible]
APPROVAL [illegible] 9/1/65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CHASSIS
RDC INTERFACE
COMPUTER TEST SET

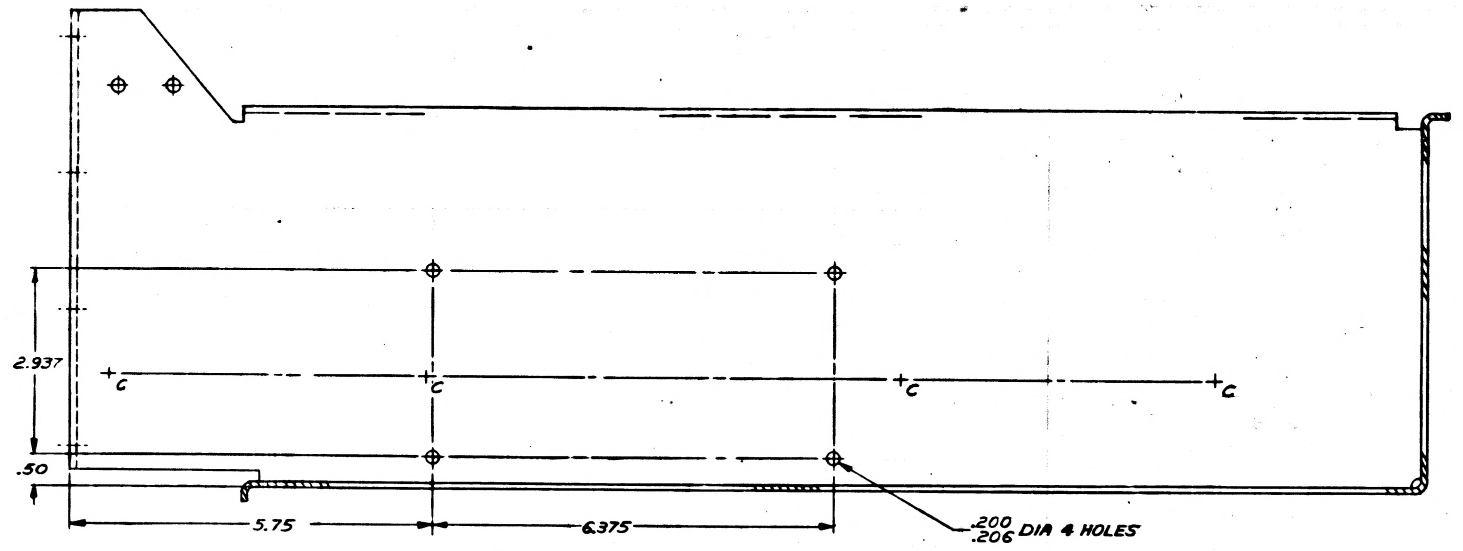
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014314
SCALE 1/1
WT
SHEET 1 OF 2

2014314 H

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

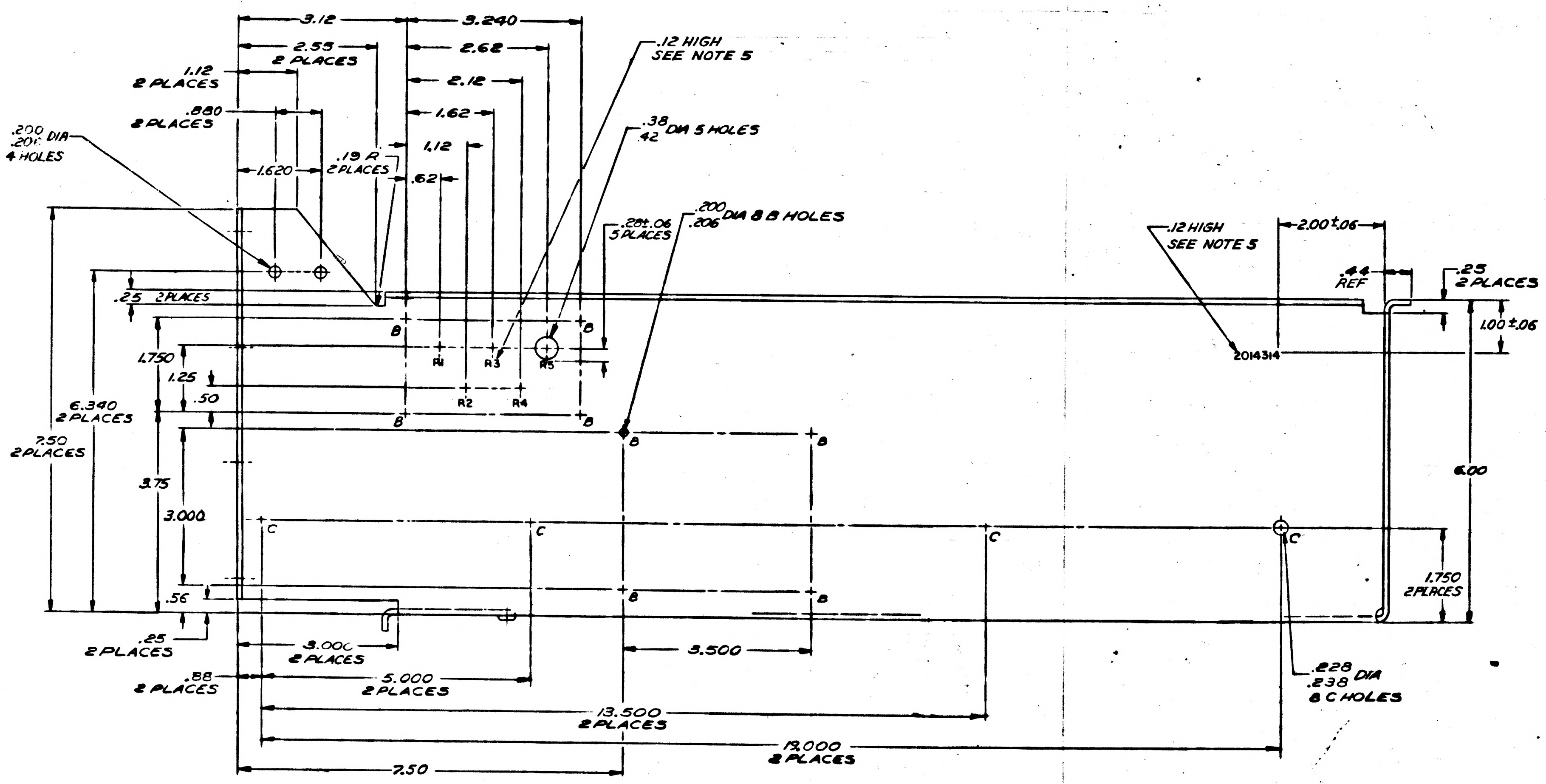
2014314 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167	9/13/65	[illegible]
–	CLASS B ~~CHANGED~~ CHANGED PER CCAR25502	9/?/66	[illegible]
A	CHANGED PER CCA R25735 & CLASS A RELEASED PER CRR 25472	1/13/66	[illegible]
B	CHANGED PER TDRR 23691 DR [illegible] CHK [illegible] APPD [illegible]	3/19/66	[illegible]



2.937
.50
5.75
6.375
C
C
C
C
.200 .206 DIA 4 HOLES

SECTION B-B
SEE SHEET I



3.12
3.240
2.55 2 PLACES
2.62
1.12 2 PLACES
2.12
.880 2 PLACES
1.62
.19 R 2 PLACES
1.12
1.620
.62
.12 HIGH SEE NOTE 5
.38 .42 DIA 5 HOLES
.200 .201 DIA 4 HOLES
.28±.06 5 PLACES
.200 .206 DIA 8 B HOLES
.12 HIGH SEE NOTE 5
2.00±.06
.44 REF
.25 2 PLACES
1.00±.06
.25 2 PLACES
2014314
1.750
1.25
.50
6.340 2 PLACES
7.50 2 PLACES
3.75
3.000
.56
.25 2 PLACES
.88 2 PLACES
R1
R2
R3
R4
R5
B
C
6.00
1.750 2 PLACES
3.000 2 PLACES
5.000 2 PLACES
3.500
13.500 2 PLACES
17.000 2 PLACES
7.50
.228 .238 DIA 8 C HOLES

VIEW A-A
SEE SHEET I

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 8 JUN 65
CHECKED [illegible]
APPROVAL [illegible] 9/10/65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/1966

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

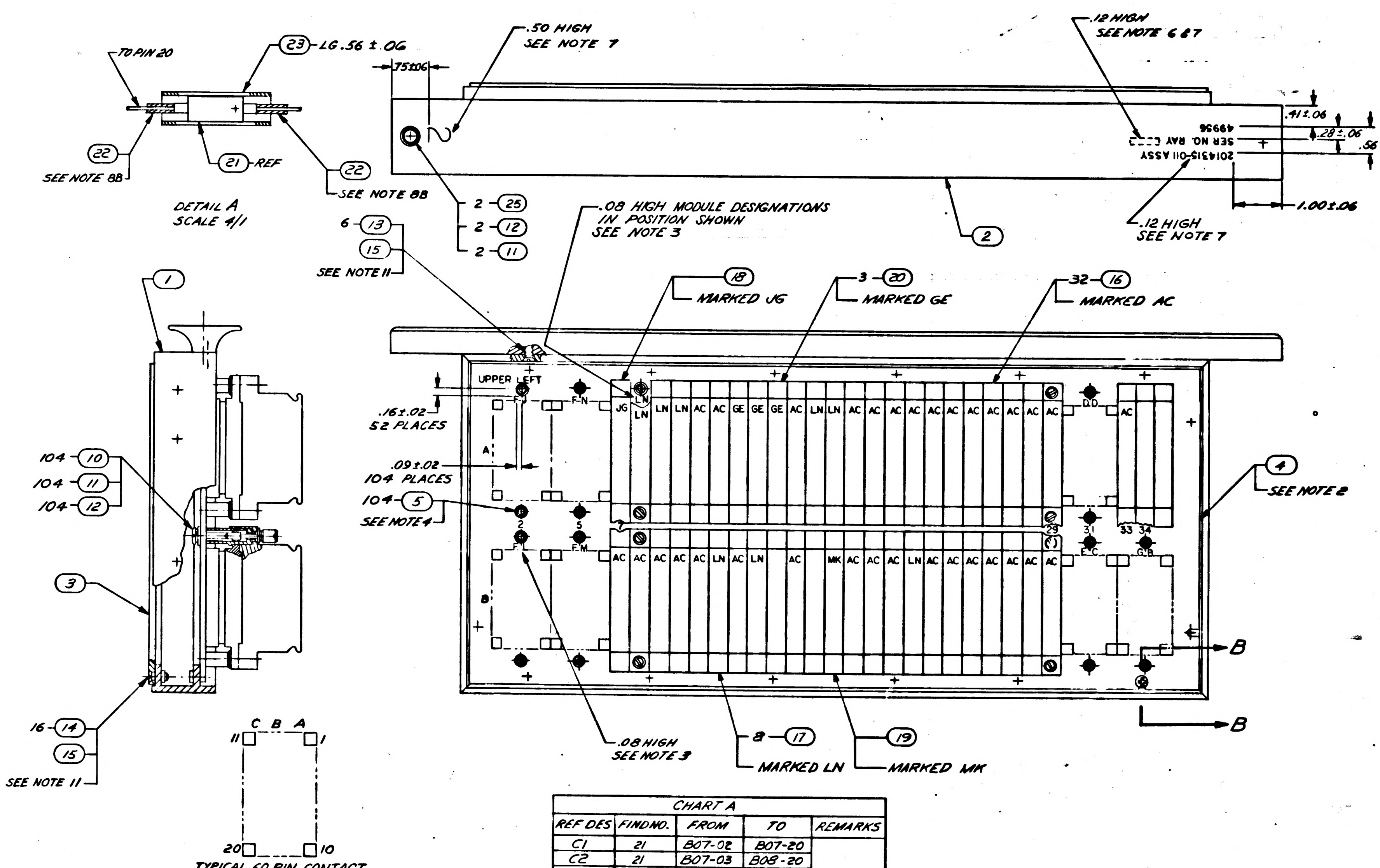
CHASSIS
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014314
SCALE 1/1
WT
SHEET 2 OF 2

2014314 B

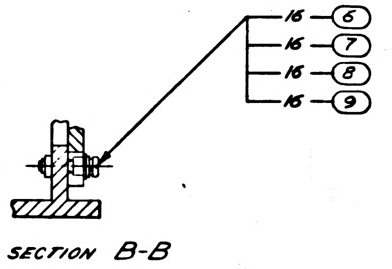
2014315 B

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25076		
1	CHANGED PER CCA R25485 DR CHK APPD	4/13/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR CHK APPD	1/6/66	
B	CHANGED PER CCAR25711 AND CLASS A RELEASED PER TDRR 25472	1/7/66	


TO PIN 20
23 - LG .56 ± .06
22
SEE NOTE 8B
21 - REF
22
SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
2 - 25
2 - 12
2 - 11
2014315-011 ASSY
SER NO. RAY
49956
.12 HIGH
SEE NOTE 6 & 7
.41±.06
.28±.06
.56±.06
1.00±.06
.12 HIGH
SEE NOTE 7
2
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
6 - 13
15
SEE NOTE 11
18
MARKED JG
3 - 20
MARKED GE
32 - 16
MARKED AC
1
UPPER LEFT
.16±.02
52 PLACES
.09±.02
104 PLACES
104 - 5
SEE NOTE 4
104 - 10
104 - 11
104 - 12
3
4
SEE NOTE 2
JG LN LN LN AC AC GE GE GE AC LN LN AC AC AC AC AC AC AC AC AC AC AC
AC
AC AC AC AC AC LN AC LN AC MK AC AC AC LN AC AC AC AC AC AC AC
F-J F-N D-D F-M E-C G-B
A
B
2 5 29 31 33 34
B
B
16 - 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
8 - 17
MARKED LN
19
MARKED MK
C B A
11 1
20 10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	21	B07-02	B07-20	
C2	21	B07-03	B08-20	
C3	21	B07-06	B06-20	
C4	21	B12-15	B12-20	
C5	21	B14-08	B15-20	
C6	21	A19-06	A20-20	
C7	21	B34-04	B35-20	
C8	21	A18-03	A19-20	


16 - 6
16 - 7
16 - 8
16 - 9

SECTION B-B
SCALE 2/1

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO.24 PER 2014098 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.21 PER CHART A & DETAIL A
    - 8A. SOLDER PER ND1002071
    - 8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
9. ~~MIL-I-631 TYPE F FORM U2 GRADE 2 CLASS 1 CATEGORY 1 COLOR BLUE AWG SIZE NO.24 FOR FIND NO.22~~
10. MIL-I-631 TYPE F FORM U2 GRADE 2 CLASS I CATEGORY 1 COLOR CLEAR AWG SIZE NO.8 FOR FIND NO. 23
11. ASSEMBLE FIND NO.13 & FIND NO.14 USING FIND NO.15

☒	2014144	LOGIC DIAGRAM	REF
☒	2014098	WIREWRAP MACH. CARD	REF
2	1006998-1	SCREW, CAPTIVE	25
AR	1006945-1	WIRE, ELECTRICAL	24
* 1.0	SEE NOTE 10	SLEEVING	23
AR	1006776-197	SLEEVING, INSULATION	22
8	CS13AF010K	CAPACITOR, 1μf 35V	21
3	1014230	MODULE, INTERFACE RECEIVER	20
1	1014096	MODULE, DRIVER	19
1	1014065-3	MODULE, RESISTOR 510Ω	18
8	2014000-011	MODULE, BUFFERED FLIP-FLOP	17
32	1014034	MODULE, NOR	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
106	MS35338-79	WASHER, LOCK	12
106	1006997	WASHER, FLAT	11
104	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
104	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014258	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014041	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 437
DRAWN J. Roper DATE 18 JUNE 65
CHECKED W.
APPROVAL 6 JULY 65
APPROVAL 7/15/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

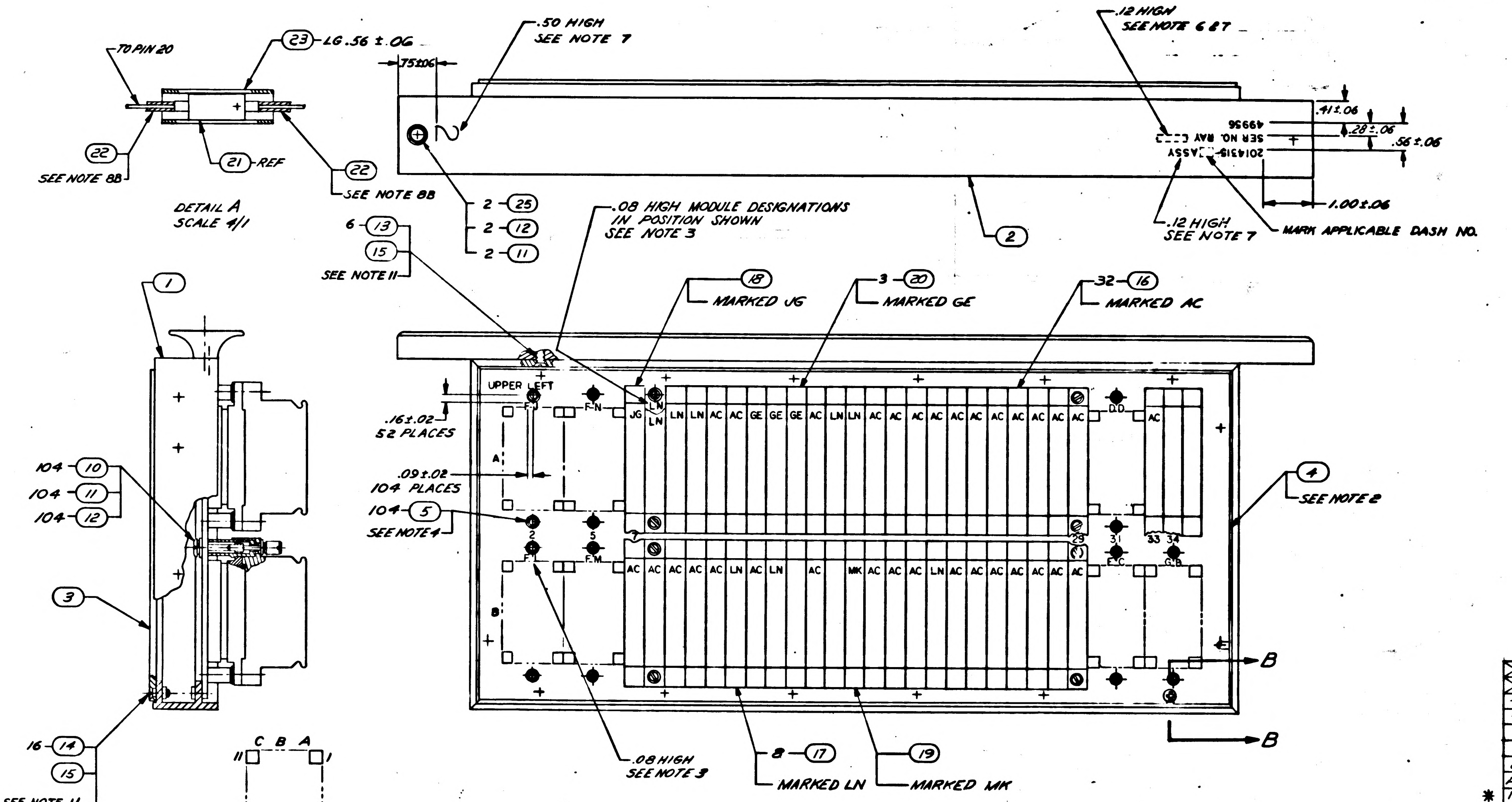
LOGIC PLATE ASSY NO.2
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014315
SCALE 1/1
WT
SHEET 1 OF 1

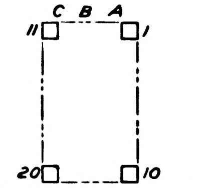
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014315 C

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA 25076		
1	CHANGED PER CCA R25485 DR CHK APPD		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR CHK APPD		
B	CHANGED PER CCAR25711 AND CLASS A RELEASED PER TDRR 25472		
C	CHANGED PER TDRR 28097 DR CHK APPD		



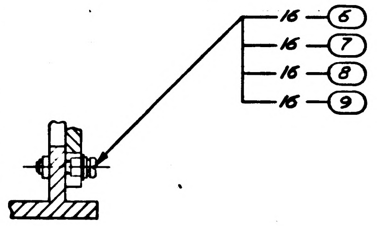
TO PIN 20
(23)-LG .56 ± .06
(22)
SEE NOTE 8B
(21)-REF
(22)
SEE NOTE 8B
DETAIL A
SCALE 4/1
.75±.06
.50 HIGH
SEE NOTE 7
2-(25)
2-(12)
2-(11)
6-(13)
(15)
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
(2)
.12 HIGH
SEE NOTE 6 & 7
49956
SER NO. RAY
2014315-ASSY
.41±.06
.28±.06
.56±.06
1.00±.06
.12 HIGH
SEE NOTE 7
MARK APPLICABLE DASH NO.
(1)
(18)
MARKED JG
3-(20)
MARKED GE
32-(16)
MARKED AC
UPPER LEFT
.16±.02
52 PLACES
.09±.02
104 PLACES
104-(5)
SEE NOTE 4
104-(10)
104-(11)
104-(12)
(3)
16-(14)
(15)
SEE NOTE 11
F-J
F-N
F-M
JG LN LN LN AC AC GE GE GE AC LN LN AC AC AC AC AC AC AC AC AC AC AC
AC AC AC AC AC LN AC LN AC MK AC AC AC LN AC AC AC AC AC AC AC
D-D
E-C
G-B
2
5
29
31
33
34
A
B
(4)
SEE NOTE 2
B
B
.08 HIGH
SEE NOTE 3
8-(17)
MARKED LN
(19)
MARKED MK



C
B
A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	21	B07-02	B07-20	
C2	21	B07-03	B08-20	
C3	21	B07-06	B06-20	
C4	21	B12-15	B12-20	
C5	21	B14-08	B15-20	
C6	21	A19-06	A20-20	
C7	21	B34-04	B35-20	
C8	21	A18-03	A19-20	
C9	21	A06-04	A06-20	FOR-021



16-(6)
16-(7)
16-(8)
16-(9)

SECTION B-B
SCALE 2/1

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 24 PER 2014098 OR 2016376 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 21 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U2 GRADE 2 CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 23~~
10. MIL-I-631 TYPE F FORM U2 GRADE 2 CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 23
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	-	2016389	LOGIC DIAGRAM	REF
☒	-	2016376	WIREWRAP MACH CARD	REF
—	☒	2014144	LOGIC DIAGRAM	REF
—	☒	2014098	WIREWRAP MACH. CARD	REF
2	2	1006998-1	SCREW, CAPTIVE	25
AR	AR	1006945-1	WIRE, ELECTRICAL	24
* 1.0	1.0	SEE NOTE 10	SLEEVING	23
AR	AR	1006776-197	SLEEVING, INSULATION	22
9	8	CS13AF010K	CAPACITOR, 1μf 35V	21
3	3	1014230	MODULE, INTERFACE RECEIVER	20
1	1	1014096	MODULE, DRIVER	19
1	1	1014065-3	MODULE, RESISTOR 510Ω	18
8	8	2014000-011	MODULE, BUFFERED FLIP-FLOP	17
32	32	1014034	MODULE, NOR	16
AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	MS51959-15	SCREW, FLAT HD	14
6	6	MS51959-27	SCREW, FLAT HD	13
106	106	MS35338-79	WASHER, LOCK	12
106	106	1006997	WASHER, FLAT	11
104	104	MS51957-29	SCREW, PAN HD	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	MS35338-78	WASHER, LOCK	8
16	16	MS15795-803	WASHER, FLAT	7
16	16	MS51957-17	SCREW, PAN HD	6
104	104	1014212	STAND-OFF, PROGRAM	5
1	1	1006495-001	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
1	1	1014258	SUPPORT, FRAME	2
1	1	1014014-2	FRAME	1
-021	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014041	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 437
DRAWN J. Roper DATE 8 JUNE 65
CHECKED W.
APPROVAL 6 JULY 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

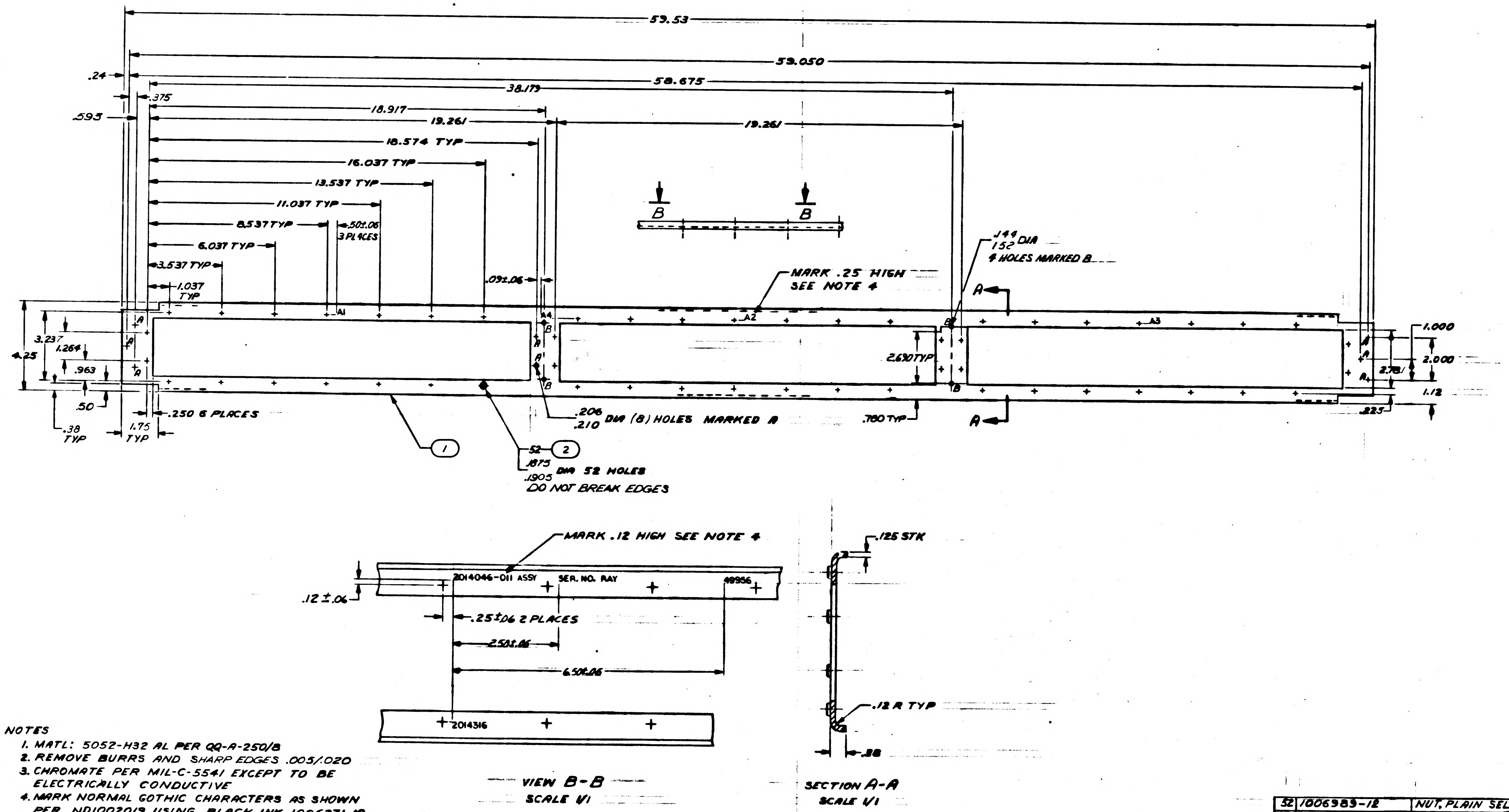
LOGIC PLATE ASSY NO.2
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014315
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014316 | –

SYM	DESCRIPTION	DATE	APPROVED
	REVISIONS		
O	RELEASED PER CCA R25064	7/30/65	
1	CHANGED PER CCA R25120 DR. CHK. R. Martin APPD.	9 Sept 65	
–	CLASS A RELEASED PER TDRR 25472		



59.53
59.050
58.675
38.173
18.917
19.261
19.261
18.574 TYP
16.037 TYP
13.537 TYP
11.037 TYP
8.537 TYP
6.037 TYP
3.537 TYP
1.037 TYP
.50±.06 3 PLACES
.09±.06
.24
.375
.595
B
B
.144 .152 DIA 4 HOLES MARKED B
MARK .25 HIGH SEE NOTE 4
A
A1
A2
A3
4.25
3.237
1.264
.963
.50
.38 TYP
1.75 TYP
.250 6 PLACES
2.630 TYP
.780 TYP
1.000
2.000
2.781
1.12
.225
.206 .210 DIA (8) HOLES MARKED A
1
52 2
.1875 .1905 DIA 52 HOLES DO NOT BREAK EDGES
MARK .12 HIGH SEE NOTE 4
2014046-011 ASSY
SER. NO. RAY
49956
.12±.06
.25±.06 2 PLACES
2.50±.06
6.50±.06
2014316
.125 STK
.12 R TYP
.38
VIEW B-B SCALE 1/1
SECTION A-A SCALE 1/1

NOTES
1. MATL: 5052-H32 AL PER QQ-A-250/8
2. REMOVE BURRS AND SHARP EDGES .005/.020
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
52	1006989-12	NUT, PLAIN SELF-CLINCHING	2
1	2014316-001	FRAME	1

LIST OF MATERIALS

2014046	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±
DO NOT SCALE DRAWING
MATERIAL SEE NOTE

RAYTHEON CO. LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. B. DATE 17 JUN 65
CHECKED 24 JUN 65
APPROVAL H. W. 29 JUN 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME, MOUNTING
A18 INTERCONNECTION
COMPUTER TEST SET

CODE IDENT NO. 49956 | SIZE F | NASA DRAWING NO. 2014316
SCALE 1/2 | WT | SHEET 1 OF 1

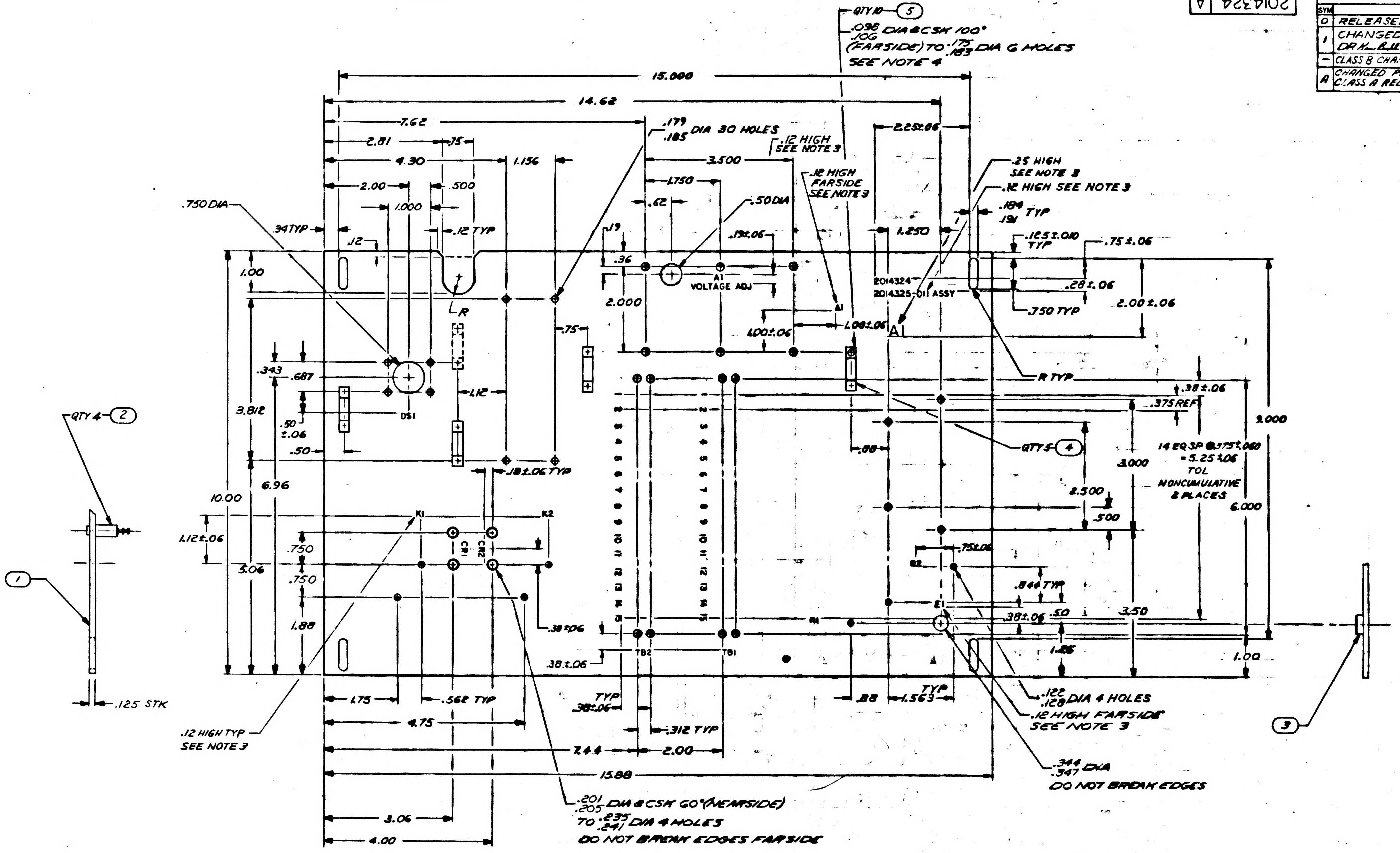
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014316 –

2014324 A

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA 25138	10/3/65	
1	CHANGED PER CCA R25237 DR Ken Bull CHK APPD		
–	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25587 AND CLASS A RELEASED PER TDRR 25476		



QTY 10 (5)
.098 DIA & CSK 100° JOG (FARSIDE) TO .175/.183 DIA 6 HOLES SEE NOTE 4
15.000
14.62
7.62
2.81
.75
4.30
1.156
2.00
.500
1.000
.12 TYP
.750 DIA
.34 TYP
.12
1.00
R
.179/.185 DIA 30 HOLES
.12 HIGH SEE NOTE 3
3.500
1.750
.62
.50 DIA
.19
.36
.19±.06
A1 VOLTAGE ADJ
2.000
1.00±.06
.12 HIGH FARSIDE SEE NOTE 3
A1
2.25±.06
1.250
2014324 2014325-011 ASSY
1.00±.06
A1
.25 HIGH SEE NOTE 3
.12 HIGH SEE NOTE 3
.184/.191 TYP
.125±.010 TYP
.75±.06
.28±.06
.750 TYP
2.00±.06
R TYP
.38±.06
.375 REF
9.000
QTY 4 (2)
.343
.687
DS1
1.12
3.812
.50±.06
.50
.75
.18±.06 TYP
6.96
10.00
.88
QTY 5 (4)
14 EQ SP @.375±.010 = 5.25±.06 TOL NONCUMULATIVE 2 PLACES
3.000
6.000
2.500
.500
K1
K2
CR1
CR2
1.12±.06
.750
.750
5.06
1.88
.38±.06
R1
R2
.75±.06
E1
.844 TYP
.38±.06
.50
3.50
1.85
1.00
TB2
TB1
.38±.06
(1)
.125 STK
1.75
.562 TYP
4.75
TYP .38±.06
.312 TYP
7.44
2.00
15.88
3.06
4.00
.88
1.563
TYP
.122/.129 DIA 4 HOLES
.12 HIGH FARSIDE SEE NOTE 3
.344/.347 DIA DO NOT BREAK EDGES
(3)
.12 HIGH TYP SEE NOTE 3
.201/.205 DIA & CSK 60° (NEARSIDE) TO .235/.241 DIA 4 HOLES DO NOT BREAK EDGES FARSIDE

NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE HOLES USING FIND 4 AS TEMPLATE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
10	MS20426AD3-5	RIVET, CSK HD	5
5	1004844-007	STRAP, RETAINING	4
1	1006989-27	NUT, PLAIN, SELF-CLINCHING	3
4	1006689-6	TERMINAL, INSULATED	2
1	2014324-001	BOARD	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014325	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±2°

DO NOT SCALE DRAWING

MATERIAL AL 5052-H32 PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO. NAS 9-497
DRAWN B. Katsch DATE 18 JUN 65
CHECKED 20 JUL 65
APPROVAL N. 28 Jul 65
APPROVAL 7/28/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C. S. 4/4/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD A1
115VAC 400~ POWER SUPPLY
OPERATION CONSOLE

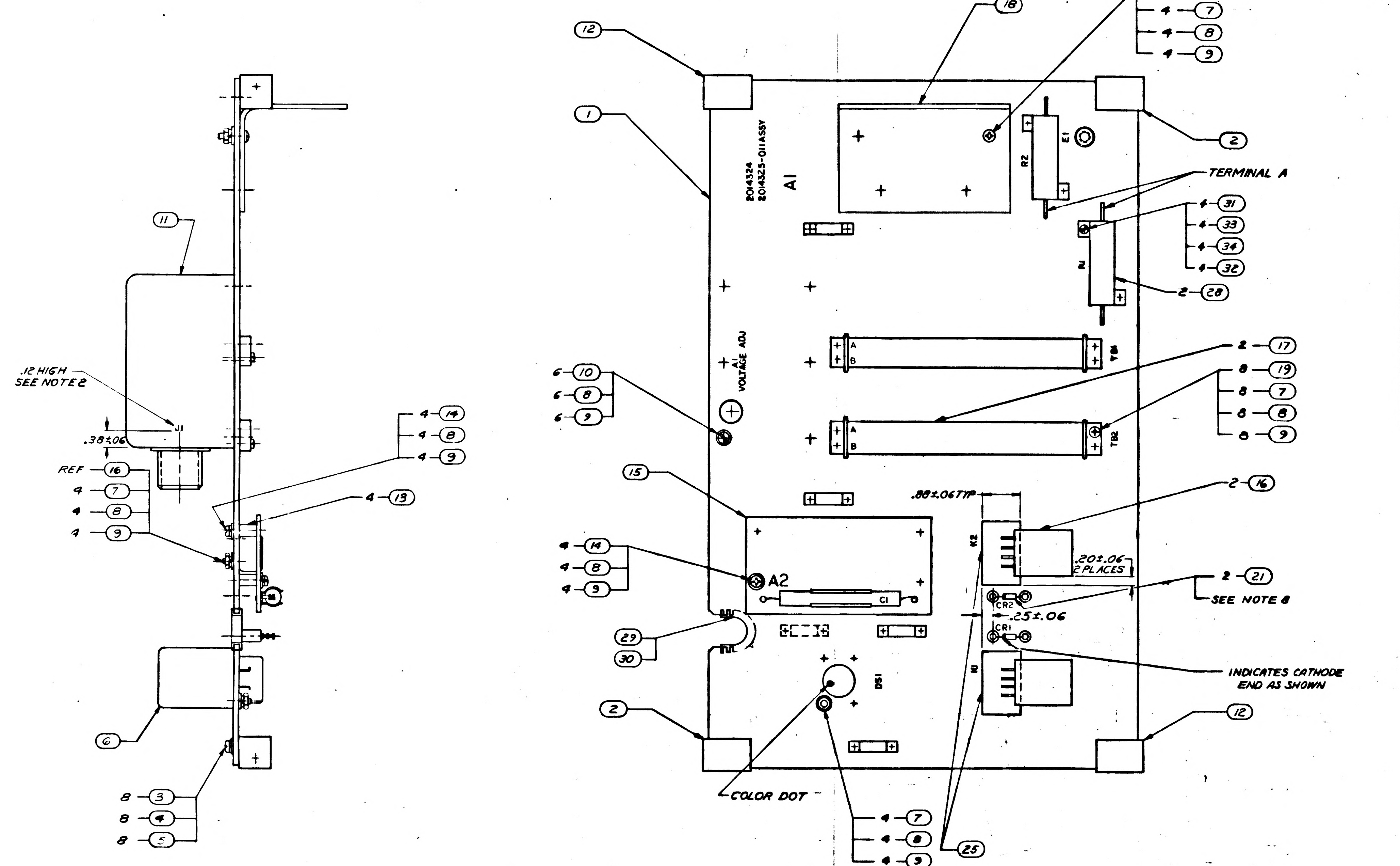
CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014324
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014324 A

2014325 | B

SYM	DESCRIPTION	DATE	APPROVED
—	RELEASED PER CCA 25138	9/3/65	
1	CHANGED PER CCA R25240A DR. CHKD APPD	22 oct 65	
2	CHANGED PER CCA R25337 DR Ken Bull CHK APPD	11/17/65	
—	CLASS B CHANGED PER CCA R25509	11/15/65	
A	CHANGED PER CCA R25587 DR. CHK Miles APPD R.P.Chadwn	12/27/65	
B	CHANGED PER CCA R25676 & CLASS A RELEASED PER TDRR 25476	1/15/66	



12
18
4 20
4 7
4 8
4 9
1
2
2014324
2014325-011 ASSY
A1
R2
E1
TERMINAL A
4 31
4 33
4 34
4 32
R1
2 28
2 17
8 19
8 7
8 8
8 9
TB1
TB2
A1 VOLTAGE ADJ
6 10
6 8
6 9
11
.12 HIGH SEE NOTE 2
J1
.38±.06
REF 16
4 7
4 8
4 9
4 14
4 8
4 9
4 13
15
4 14
4 8
4 9
A2
C1
.88±.06 TYP
K2
2 16
.20±.06 2 PLACES
2 21
SEE NOTE 8
CR2
CR1
.25±.06
K1
29
30
INDICATES CATHODE END AS SHOWN
DS1
2
12
6
COLOR DOT
8 3
8 4
8 5
4 7
4 8
4 9
25

JUMPER CHART					
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
~~D1~~	~~E1~~	~~K1-8~~	~~23~~	~~16~~	~~SEE NOTE 6~~
~~D2~~	~~E2~~	~~K1-7~~	~~23~~	~~16~~	~~SEE NOTE 6~~
~~D3~~	~~E3~~	~~K2-8~~	~~23~~	~~16~~	~~SEE NOTE 6~~
~~D4~~	~~E4~~	~~K2-7~~	~~23~~	~~16~~	~~SEE NOTE 6~~
D5	TB1-1	TB1-2	27	16	ATTACH FIND 26
~~D6~~	~~TB1-2~~	~~TB1-3~~	~~27~~	~~16~~	
~~D7~~	~~TB1-3~~	~~TB1-4~~	~~27~~	~~16~~	
D8	TB1-4	TB1-5	27	16	
~~D9~~	~~TB1-5~~	~~TB1-6~~	~~27~~	~~16~~	
~~D10~~	~~TB1-6~~	~~TB1-7~~	~~27~~	~~16~~	~~ATTACH FIND 26~~
D11	R1-A	R2-B	35	18	
D12	R2-A	R1-B	35	18	
D13	TB2-1A	TB2-2A	27	16	ATTACH FIND 26
D14	TB1-12B	TB1-13B	27	16	ATTACH FIND 26

SEE NOTE 7

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	0.8	MIL-W-16878/4, E18	WIRE, ELECTRICAL, WHITE	35
	4	MS35337-78	WASHER, LOCK	34
	4	MS15795-804	WASHER, FLAT	33
	4	MS35649-44	NUT, HEX	32
	4	MS51957-16	SCREW, PAN HD	31
	AR	1006981	ADHESIVE	30
	1	1006980-3	GROMMET, NYLON	29
	2	RE75N40R0H	RESISTOR (MIL-R-18546/1)	28
	☒	2014151	SCHEMATIC	REF
*	0.8	MIL-W-16878/4 E16	WIRE, ELECTRICAL WHITE	27
	8	MS25036-6	LUG, TERMINAL	26
	AR	1006692-3	TAPE, PRESSURE SENSITIVE ADHESIVE	25
~~*~~	~~0.7~~	~~1006776-15~~	~~SLEEVING~~	~~24~~
~~*~~	~~0.7~~	~~SEE NOTE 4~~	~~WIRE, ELECTRICAL~~	~~23~~
	~~1~~	~~MS35489-36~~	~~GROMMET~~	~~22~~
	2	1006751	SEMICONDUCTOR DEVICE, DIODE	21
	4	MS51957-30	SCREW, PAN HD	20
	8	MS51957-32	SCREW, PAN HD	19
	1	2014355	CONNECTOR BRACKET	18
	2	1006678-2	TERMINAL BOARD	17
	2	1006492-001	RELAY, ARMATURE	16
	1	2014323-011	COMPONENT BD	15
	8	MS51957-28	SCREW, PAN HD	14
	4	1006480-003	POST	13
	2	2014227	BLOCK, MTG, LH	12
	1	1006470	STATIC INVERTER	11
	6	MS51957-29	SCREW, PAN HD	10
	34	MS15795-806	WASHER, FLAT	9
	34	MS35338-79	WASHER, LOCK	8
	20	MS35649-64	NUT, HEX	7
	1	1006485	FLASHER	6
	8	MS15795-807	WASHER, FLAT	5
	8	MS35338-80	WASHER, LOCK	4
	8	MS51957-44	SCREW, PAN HD	3
	2	2014321	BLOCK, MTG, RH	2
	1	2014324	COMPONENT BD	
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
3. FABRICATE PER ND1002032
~~4. QQ-W-343, TYPE S, SOFT COATED (B) AWG 16~~
~~5. MIL-I-631, TYPE F, FORM U2, GRADE 2, CLASS 1, CATEGORY 1, COLOR WHT, AWG 16~~
~~6. SLEEVE USING FIND NO. 24~~
7. CRIMP PER ND1002206
8. SOLDER PER ND1002071
9. MARK CONDUCTOR IDENTIFICATION PER ND1002019
10. AR DENOTES AS REQUIRED

2014207	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN 3Catal DATE 21 JUN 65
CHECKED 20 JUL 65
APPROVAL 28 Jul 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD ASSY, A
115VAC 400~ POWER SUPPLY
OPERATION CONSOLE

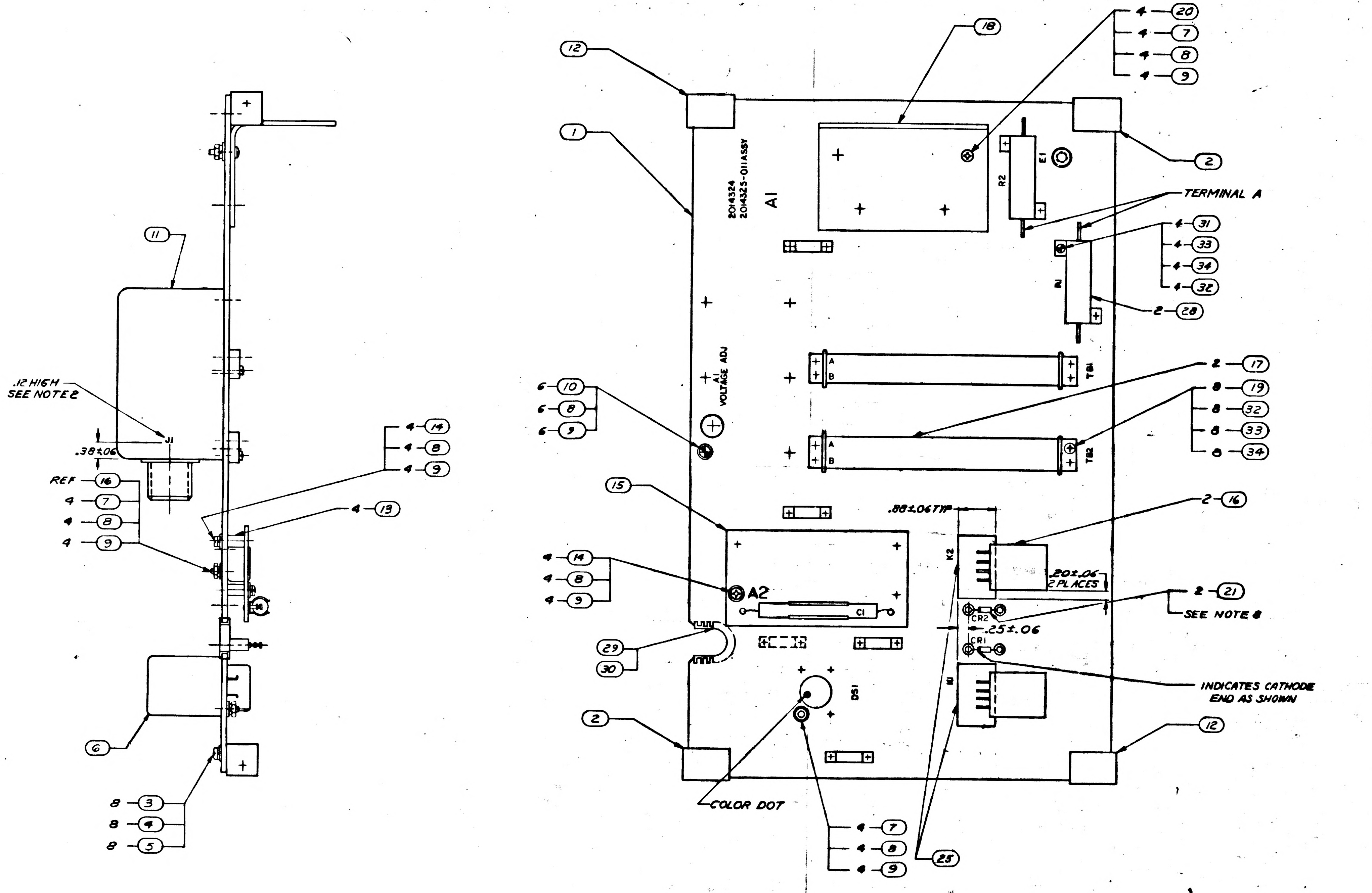
CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014325
SCALE 1/1 | WT | SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014325 | B

2014325 | B

SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER CCA 5158	9-?-65	[illegible]
1	CHANGED PER CCA R25?10A DR. [illegible] CHKD J Galbraith APP D [illegible]	[illegible] 65	[illegible]
2	CHANGED PER CCA R2?237 DR Ken Bull CHK [illegible] APP D [illegible]	11/17/65	[illegible]
—	CLASS B CHANGED PER CCAR 5509	[illegible]	[illegible]
A	CHANGED PER CCA R2558? DR. [illegible] CHK J Miller APP [illegible]	12/?/65	[illegible]
B	CHANGED PER CCA R256?6 & CLASS A RELEASED PER TDRR 25476	?/15/66	[illegible]
C	CHANGED PER TDRR 25??7 DR BK [illegible] CHK [illegible] APP [illegible]	?/26/66	[illegible]



12
1
2
18
4 20
4 7
4 8
4 9
2014324
2014325-011 ASSY
A1
R2
E1
TERMINAL A
4 31
4 33
4 34
4 32
R1
2 28
T1 VOLTAGE ADJ
TB1
A
B
2 17
8 19
8 32
8 33
8 34
TB2
6 10
6 8
6 9
15
.88±.06TYP
2 16
K2
.20±.06 2 PLACES
4 14
4 8
4 9
A2
C1
2 21
SEE NOTE 8
CR2
.25±.06
CR1
K1
INDICATES CATHODE END AS SHOWN
29
30
DS1
2
12
COLOR DOT
4 7
4 8
4 9
25
11
.12 HIGH SEE NOTE 2
J1
.38±.06
REF 16
4 7
4 8
4 9
4 14
4 8
4 9
4 13
6
8 3
8 4
8 5

JUMPER CHART					
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
~~D1~~	~~E1~~	~~K1-3~~	~~23~~	~~16~~	~~SEE NOTE 6~~
~~D2~~	~~E2~~	~~K1-7~~	~~23~~	~~16~~	~~SEE NOTE 6~~
~~D3~~	~~E3~~	~~K2-3~~	~~23~~	~~16~~	~~SEE NOTE 6~~
~~D4~~	~~E4~~	~~K2-7~~	~~23~~	~~16~~	~~SEE NOTE 6~~
D5	TB1-1	TB1-2	27	16	ATTACH FIND 26
~~D6~~	~~TB1-2~~	~~TB1-3~~	~~27~~	~~16~~	
~~D7~~	~~TB1-3~~	~~TB1-4~~	~~27~~	~~16~~	
D8	TB1-4	TB1-5	27	16	
~~D9~~	~~TB1-5~~	~~TB1-6~~	~~27~~	~~16~~	
~~D10~~	~~TB1-6~~	~~TB1-7~~	~~27~~	~~16~~	~~ATTACH FIND 26~~
D11	R1-A	R2-B	35	18	
D12	R2-A	R1-B	35	18	
D13	TB2-1A	TB2-2A	27	16	ATTACH FIND 26
D14	TB1-12B	TB1-13B	27	16	ATTACH FIND 26

SEE NOTE 7

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	0.8	MIL-W-16878/4,E18	WIRE, ELECTRICAL, WHITE	35
	12	MS35337-78	WASHER, LOCK	34
	12	MS15795-804	WASHER, FLAT	33
	12	MS35649-44	NUT, HEX	32
	4	MS51957-16	SCREW, PAN HD	31
	AR	1006981	ADHESIVE	30
	AR	MS21266-3N	GROMMET, NYLON	29
	2	RE75N40R0H	RESISTOR (MIL-R-18546/1)	28
	☒	2014151	SCHEMATIC	REF
*	0.8	MIL-W-16878/4 E16	WIRE, ELECTRICAL WHITE	27
	8	MS25036-6	LUG, TERMINAL	26
	AR	1006692-3	TAPE, PRESSURE SENSITIVE ADHESIVE	25
~~*~~	~~0.7~~	~~1006776-15~~	~~SLEEVING~~	~~24~~
*	~~0.7~~	~~SEE NOTE 4~~	~~WIRE, ELECTRICAL~~	~~23~~
	~~1~~	~~MS35489-35~~	~~GROMMET~~	~~22~~
	2	1006751	SEMICONDUCTOR DEVICE, DIODE	21
	4	MS51957-30	SCREW, PAN HD	20
	8	MS51957-18	SCREW, PAN HD	19
	1	2014355	CONNECTOR BRACKET	18
	2	1006678-2	TERMINAL BOARD	17
	2	1006492-001	RELAY, ARMATURE	16
	1	2014323-011	COMPONENT BD	15
	8	MS51957-28	SCREW, PAN HD	14
	4	1006480-003	POST	13
	2	2014227	BLOCK, MTG, LH	12
	1	1006470	STATIC INVERTER	11
	6	MS51957-29	SCREW, PAN HD	10
	26	MS15795-806	WASHER, FLAT	9
	26	MS35338-79	WASHER, LOCK	8
	12	MS35649-64	NUT, HEX	7
	1	1006485	FLASHER	6
	8	MS15795-807	WASHER, FLAT	5
	8	MS35338-80	WASHER, LOCK	4
	8	MS51957-44	SCREW, PAN HD	3
	2	2014321	BLOCK, MTG, PH	2
	1	2014324	COMPONENT BD	
	-011	LIST OF MATERIALS		

2014325 C

* DENOTES LENGTH IN FEET

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
3. FABRICATE PER ND1002032
~~4. QQ-W-343, TYPE S, SOFT COATED (2) AWG 16~~
~~5. MIL-I-631, TYPE F, FORM U2, GRADE 2, CLASS 1, CATEGORY 1, COLOR WHT, AWG 16~~
~~6. SLEEVE USING FIND NO. 24~~
7. CRIMP PER ND1002206
8. SOLDER PER ND1002071
9. MARK CONDUCTOR IDENTIFICATION PER ND1002019
10. AR DENOTES AS REQUIRED

2014207	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-437
DRAWN B Kat[illegible] DATE 21 June 65
CHECKED [illegible] 20 JUL 65
APPROVAL H [illegible] 20 [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. E. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

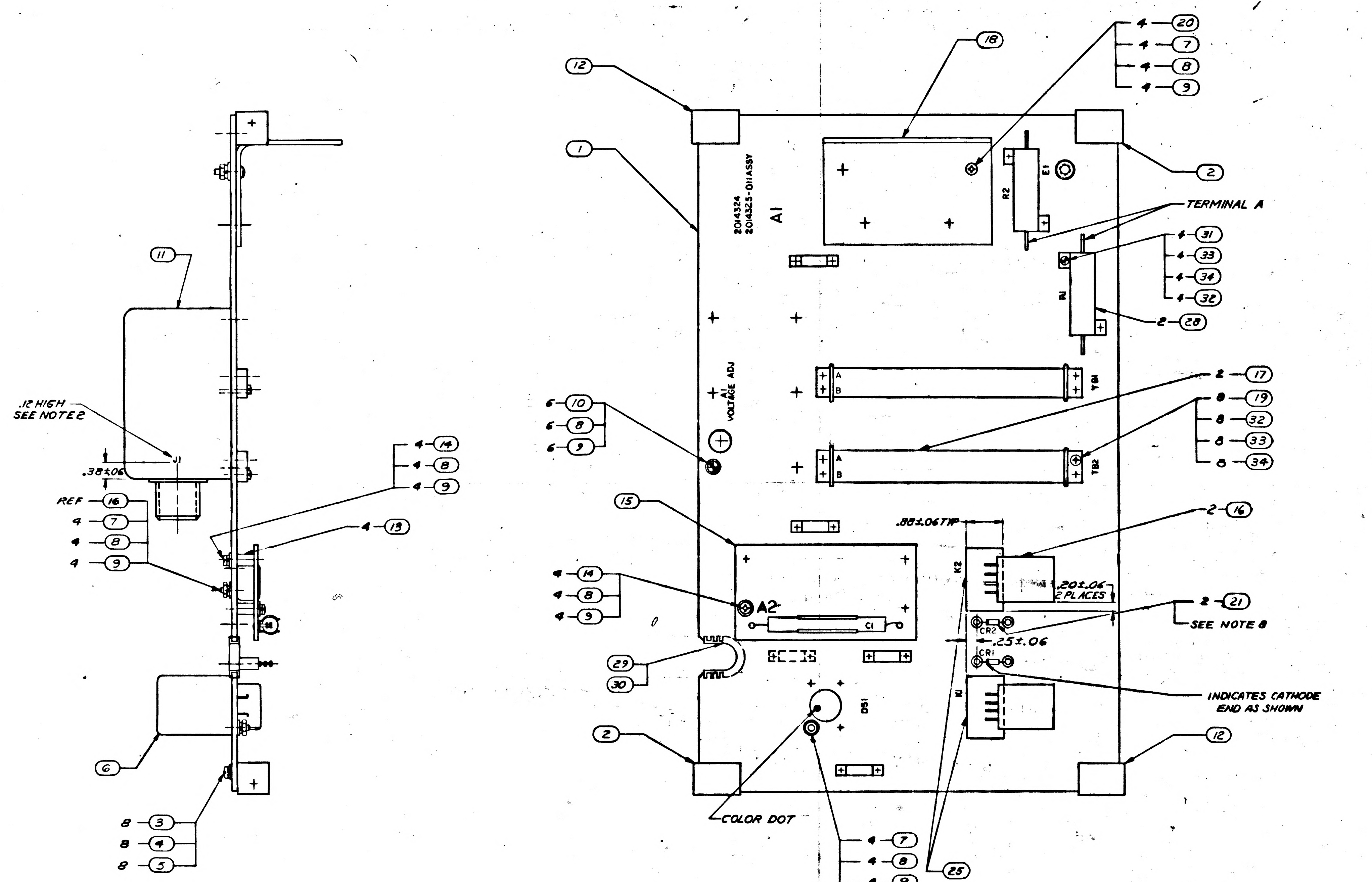
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD ASSY, A1
115VAC 400~ POWER SUPPLY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014325
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25138	9/?/65	[illegible]
1	CHANGED PER CCA R25240A DR. [illegible] CHKD [illegible] APPD [illegible]	[illegible]/65	[illegible]
2	CHANGED PER CCA R25337 DR Ken Buell CHK [illegible] APPD [illegible]	11/17/65	[illegible]
–	CLASS B CHANGED PER CCA R25509	[illegible]	[illegible]
A	CHANGED PER CCA R25587 DR. [illegible] CHK [illegible] APPD [illegible]	12/?/65	[illegible]
B	CHANGED PER CCA R25656 & CLASS A RELEASED PER TDRR 25476	1/15/66	[illegible]
C	CHANGED PER TDRR 25457 DR [illegible] CHK [illegible] APPD [illegible]	2/24/66	[illegible]
D	CHANGED PER TDRR 26455 DR G.J. [illegible] CHK [illegible] APPD [illegible]	3/17/66	[illegible]



JUMPER CHART					
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
~~D1~~	~~E1~~	~~K1-3~~	~~23~~	~~16~~	~~SEE NOTE 6~~
~~D2~~	~~E2~~	~~K1-7~~	~~23~~	~~16~~	~~SEE NOTE 6~~
~~D3~~	~~E3~~	~~K2-3~~	~~23~~	~~16~~	~~SEE NOTE 6~~
~~D4~~	~~E4~~	~~K2-7~~	~~23~~	~~16~~	~~SEE NOTE 6~~
D5	TB1-1	TB1-2	27	16	ATTACH FIND 26
~~D6~~	~~TB1-2~~	~~TB1-3~~	~~27~~	~~16~~	
~~D7~~	~~TB1-3~~	~~TB1-4~~	~~27~~	~~16~~	
D8	TB1-4	TB1-5	27	16	
~~D9~~	~~TB1-5~~	~~TB1-6~~	~~27~~	~~16~~	
~~D10~~	~~TB1-6~~	~~TB1-7~~	~~27~~	~~16~~	~~ATTACH FIND 26~~
D11	R1-A	R2-B	35	18	
D12	R2-A	R1-B	35	18	
D13	TB2-1A	TB2-2A	27	16	ATTACH FIND 26
D14	TB1-12B	TB1-13B	27	16	ATTACH FIND 26

SEE NOTE 7

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	0.8	MIL-W-16878/4, E18	WIRE ELECTRICAL, WHITE	35
	12	MS35337-78	WASHER, LOCK	34
	12	MS15795-804	WASHER, FLAT	33
	12	MS35649-44	NUT, HEX	32
	4	MS51957-16	SCREW, PAN HD	31
	AR	1006981	ADHESIVE	30
	AR	MS21266-3N	GROMMET, NYLON	29
	2	RE75N50R0H	RESISTOR (MIL-R-18546/1)	28
	☒	2014151	SCHEMATIC	REF
*	0.8	MIL-W-16878/4 E16	WIRE, ELECTRICAL WHITE	27
	8	MS25036-6	LUG, TERMINAL	26
	AR	1006692-3	TAPE, PRESSURE SENSITIVE ADHESIVE	25
~~*~~	~~0.7~~	~~1006776-15~~	~~SLEEVING~~	~~24~~
~~*~~	~~0.7~~	~~SEE NOTE 4~~	~~WIRE, ELECTRICAL~~	~~23~~
	~~1~~	~~MS35489-35~~	~~GROMMET~~	~~22~~
	2	1006751	SEMICONDUCTOR DEVICE, DIODE	21
	4	MS51957-30	SCREW, PAN HD	20
	8	MS51957-18	SCREW, PAN HD	19
	1	2014355	CONNECTOR BRACKET	18
	2	1006678-2	TERMINAL BOARD	17
	2	1006492-001	RELAY, ARMATURE	16
	1	2014323-011	COMPONENT BD	15
	8	MS51957-28	SCREW, PAN HD	14
	4	1006480-003	POST	13
	2	2014227	BLOCK, MTG, LH	12
	1	1006470	STATIC INVERTER	11
	6	MS51957-29	SCREW, PAN HD	10
	26	MS15795-806	WASHER, FLAT	9
	26	MS35338-79	WASHER, LOCK	8
	12	MS35649-64	NUT, HEX	7
	1	1006485	FLASHER	6
	8	MS15795-307	WASHER, FLAT	5
	8	MS35338-80	WASHER, LOCK	4
	8	MS51957-44	SCREW, PAN HD	3
	2	2014321	BLOCK, MTG, RH	2
	1	2014324	COMPONENT BD	
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
3. FABRICATE PER ND1002032
~~4. QQ-W-343, TYPE S, SOFT COATED (B) AWG 16~~
~~5. MIL-I-631, TYPE F, FORM U2, GRADE 2, CLASS 1, CATEGORY 1, COLOR WHT, AWG 16~~
~~6. SLEEVE USING FIND NO. 24~~
7. CRIMP PER ND1002206
8. SOLDER PER ND1002071
9. MARK CONDUCTOR IDENTIFICATION PER ND1002019
10. AR DENOTES AS REQUIRED

2014207		
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 21 JUN 65
CHECKED [illegible] 20 JUL 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

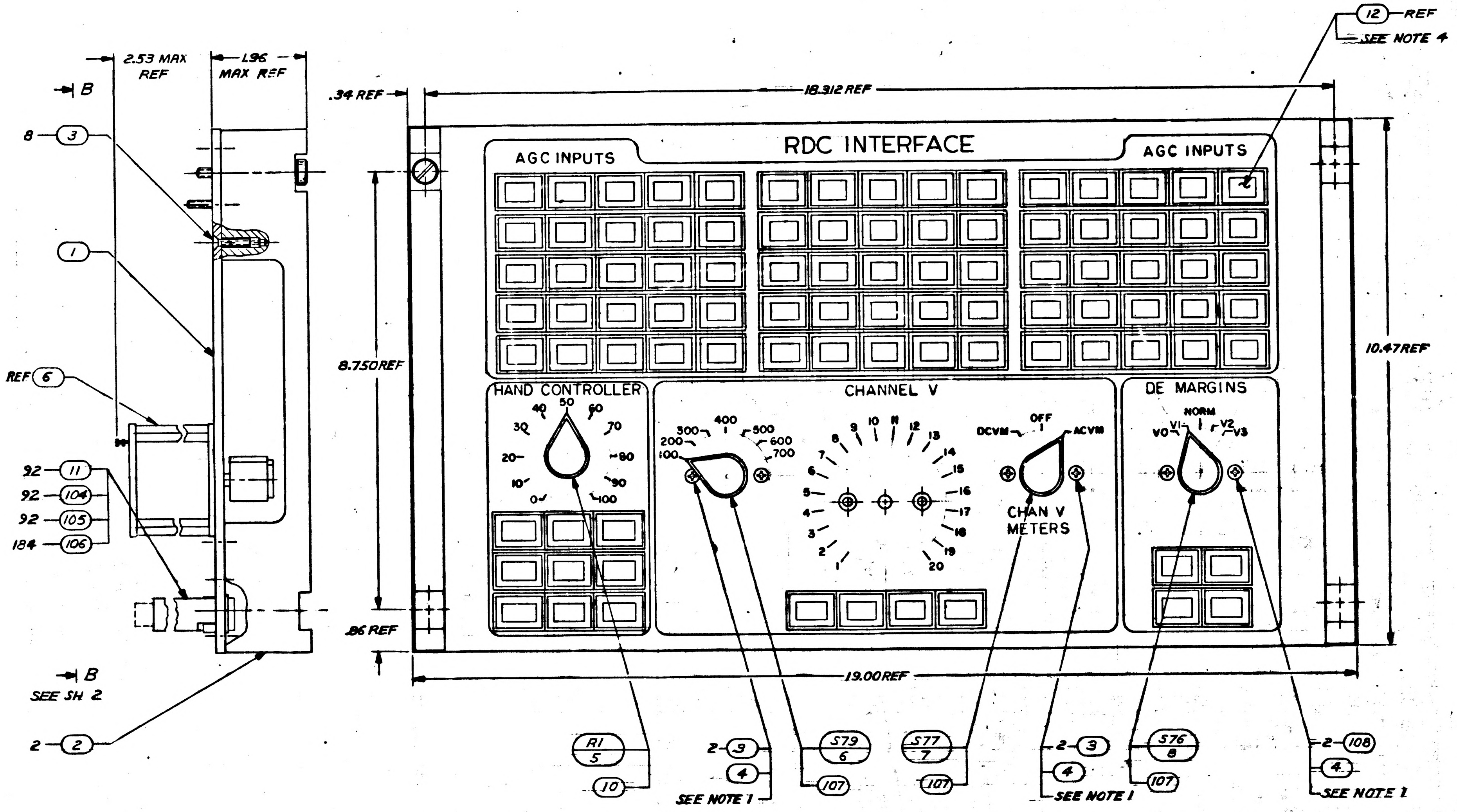
COMPONENT BOARD ASSY, A1
115VAC 400~ POWER SUPPLY
OPERATION CONSOLE

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014325
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014327 B

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25174	9/14/65	
—	CLASS B CHANGED PER CCA A25502		
A	CHANGED PER CCA A25907 DR CHK BCA APPR	3/4/66	
B	CHANGED PER CCA 25687 AND CLASS A RELEASED PER TDRR 26218	3/10/66	



12 REF
SEE NOTE 4
2.53 MAX REF
1.96 MAX REF
B
8 3
1
REF 6
92 11
92 104
92 105
184 106
B
SEE SH 2
2 2
.34 REF
18.312 REF
RDC INTERFACE
AGC INPUTS
AGC INPUTS
8.750 REF
10.47 REF
HAND CONTROLLER
0 10 20 30 40 50 60 70 80 90 100
CHANNEL V
100 200 300 400 500 600 700
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
DCVM OFF ACVM
CHAN V METERS
DE MARGINS
V0 V1 NORM V2 V3
.86 REF
19.00 REF
R1 5
10
2 3
4
SEE NOTE 1
S79 6
107
S77 7
107
2 3
4
SEE NOTE 1
S76 8
107
2 108
4
SEE NOTE 1

NOTES
1. ASSEMBLE FIND NO. 9 USING FIND NO. 4
2. AR DENOTES AS REQUIRED
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. SEE LENS INSTALLATION CHART, SHEET 2, FOR INSTALLATION OF FIND NUMBERS 12 THRU 103
5. MARK CONDUCTOR IDENTIFICATION PER ND1002019

CONTINUED ON SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006405-096	LENS, MARKED	50
1	-095		49
1	-094		48
1	-093		47
1	-092		46
1	-091		45
1	-090		44
1	-089		43
1	-088		42
1	-087		41
1	-086		40
1	-085		39
1	-084		38
1	-083		37
1	-082		36
1	-081		35
1	-080		34
1	-079		33
1	-078		32
1	-077		31
1	-076		30
1	-075		29
1	-074		28
1	-073		27
1	-072		26
1	-071		25
1	-070		24
1	-069		23
1	-068		22
1	-067		21
1	-066		20
1	-065		19
1	-064		18
1	-063		17
1	-062		16
1	-061		15
1	-060		14
1	-059		13
1	-058	LENS, MARKED	12
92	1006405-001	SWITCH, PUSH, LT BASIC UNIT	11
1	MS91528-2P2B	KNOB-CONTROL, POINTER	10
~~4~~	~~MS51960-30~~	~~SCREW, MACH.-FLAT CSK HD~~	~~9~~
1	1006463-001	SWITCH, ROTARY	8
1	1006257-001	SWITCH, ROTARY	7
1	1006461-002	SWITCH, ROTARY	6
1	RV4NAYSD502A	POTENTIOMETER	5
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMP	4
12	MS51959-43	SCREW, MACH.-FLAT CSK HD	3
2	1014215-5	HANDLE ASSY	2
1	2014310	PANEL, FRONT	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
2014045	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 17 JUN 65
CHECKED
APPROVAL H Mone 18AUG65
APPROVAL 18AUG65
APPROVAL 9-14-65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSEMBLY
RDC INTERFACE
COMPUTER TEST SET

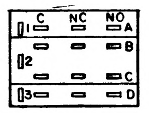
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014327
SCALE 1/1
WT
SHEET 1 OF 2

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014327 B

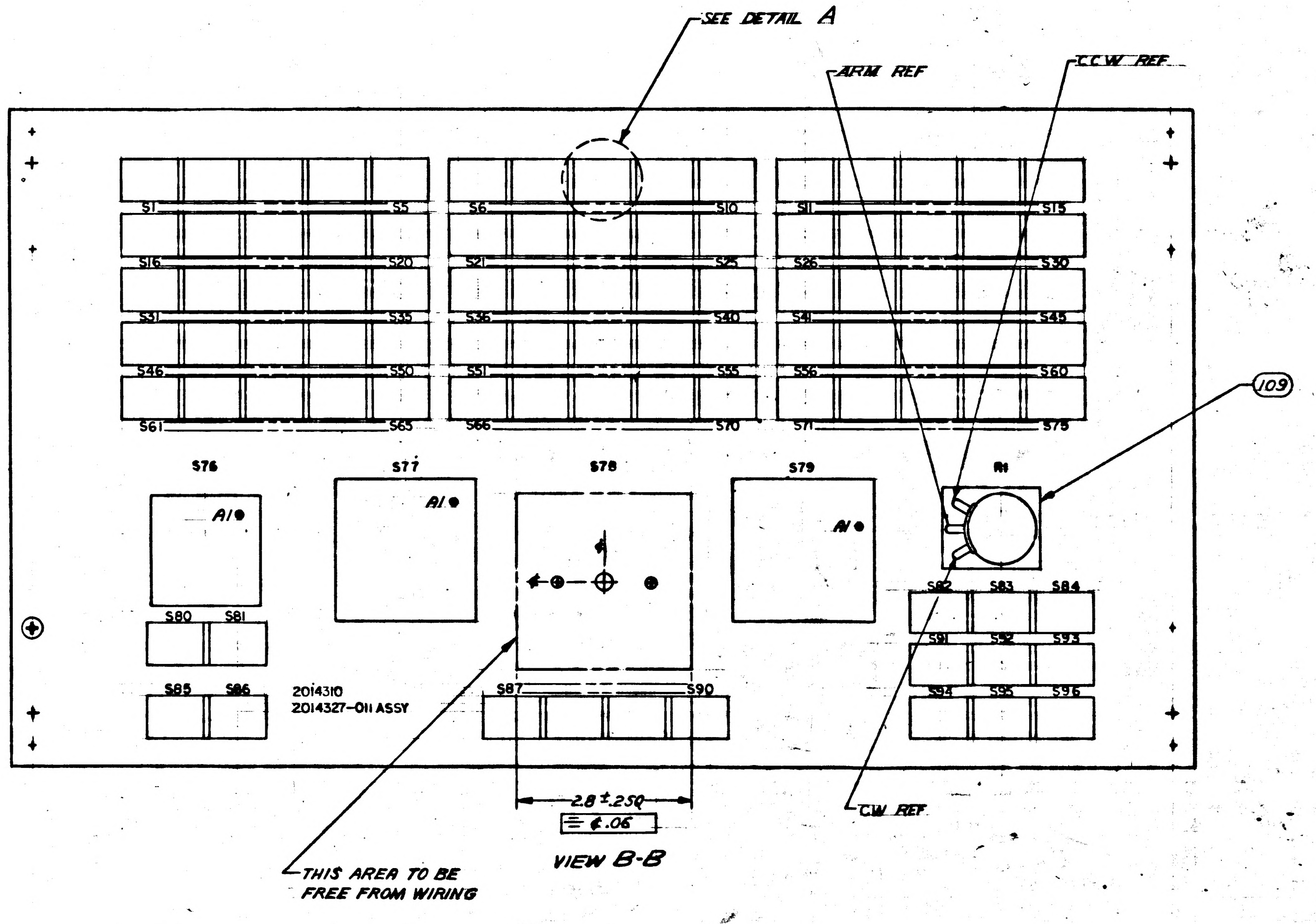
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25177	9/14/65	
–	CLASS B CHANGED PER CCA R25503		
A	CHANGED PER CCA R25907 DR CHK BCA APPR RPC	3/1/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	3/10/66	



C
NC
NO
1
2
3
A
B
C
D

DETAIL A
92 PLACES
SCALE/NONE

LENS INSTALLATION			
FIND NO.	REF DES	FIND NO.	REF DES
12	S1	58	S47
13	S2	59	S48
14	S3	60	S49
15	S4	61	S50
16	S5	62	S51
17	S6	63	S52
18	S7	64	S53
19	S8	65	S54
20	S9	66	S55
21	S10	67	S56
22	S11	68	S57
23	S12	69	S58
24	S13	70	S59
25	S14	71	S60
26	S15	72	S61
27	S16	73	S62
28	S17	74	S63
29	S18	75	S64
30	S19	76	S65
31	S20	77	S66
32	S21	78	S67
33	S22	79	S68
34	S23	80	S69
35	S24	81	S70
36	S25	82	S71
37	S26	83	S72
38	S27	84	S73
39	S28	85	S74
40	S29	86	S75
41	S30	87	S80
42	S31	88	S81
43	S32	89	S82
44	S33	90	S83
45	S34	91	S84
46	S35	92	S85
47	S36	93	S86
48	S37	94	S87
49	S38	95	S88
50	S39	96	S89
51	S40	97	S90
52	S41	98	S91
53	S42	99	S92
54	S43	100	S93
55	S44	101	S94
56	S45	102	S95
57	S46	103	S96



SEE DETAIL A
ARM REF
CCW REF
S1
S5
S6
S10
S11
S15
S16
S20
S21
S25
S26
S30
S31
S35
S36
S40
S41
S45
S46
S50
S51
S55
S56
S60
S61
S65
S66
S70
S71
S75
109
S76
S77
S78
S79
R1
A1
A1
A1
S80
S81
S82
S83
S84
S85
S86
S87
S90
S91
S92
S93
S94
S95
S96
2014310
2014327-011 ASSY
2.8 ± .25 SQ
≡ ¢ .06
CW REF
THIS AREA TO BE FREE FROM WIRING

VIEW B-B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014125	SCHEMATIC	REF
☒	2014492	LEAD ELECTRICAL	REF
1	2014411	PLATE, BACKING	109
2	MS51959-28	SCREW, MACH.-FLAT CSK HD	108
3	MS91528-2P4B	KNOB, POINTER	107
-011	LIST OF MATERIALS		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
184	1006407-002	LAMP, INCANDESCENT	106
92	1006405 -003	DISPLAY SCREEN	105
92	-002	COLOR FILTER, WHITE	104
1	-049	LENS, MARKED	103
1	-048		102
1	-047		101
1	-128		100
1	-129		99
1	-130		98
1	-131		97
1	-132		96
1	-133		95
1	-046		94
1	-045		93
1	-044		92
1	-125		91
1	-126		90
1	-127		89
1	-043		88
1	-134		87
1	-042		86
1	-041		85
1	-040		84
1	-039		83
1	-038		82
1	-194		81
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1	-195		79
1	-124		78
1	-123		77
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1	-119		73
1	-118		72
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1	-115		69
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1	-113		67
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1	-110		64
1	-109		63
1	-108		62
1	-107		61
1	-106		60
1	-105		59
1	-104		58
1	-103		57
1	-102		56
1	-101		55
1	-100		54
1	-099		53
1	-098		52
1	1006405 -097	LENS, MARKED	51
-011	LIST OF MATERIALS		

2014327 C

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 18 JUN 65
CHECKED
APPROVAL H. Moe 18 AUG 65
APPROVAL 18 AUG 65
APPROVAL 9-14-65
NASA APPROVAL E. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSEMBLY
RDC INTERFACE
COMPUTER TEST SET

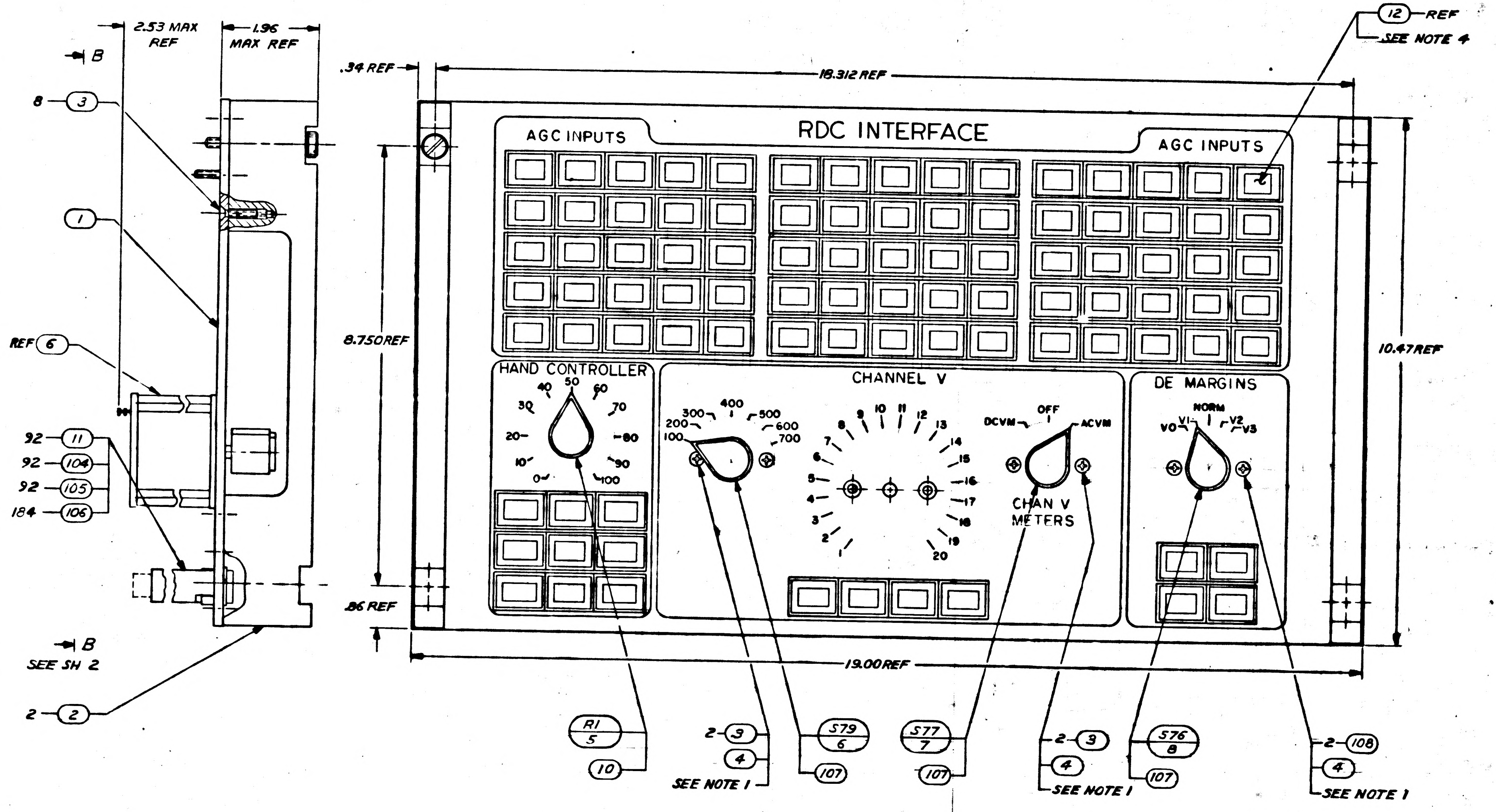
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014327
SCALE 1/1
WT
SHEET 2 OF 2

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014327 C

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25174	9 NOV 65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25907 DR CHK BCA APPR	3/4/66	
B	CHANGED PER CCA R25957 AND CLASS A RELEASED PER TDRR 26218	3/14/66	
C	CHANGED PER TDRR 26701 DRE. CHK APPD	3/12/66	



2.53 MAX REF
1.96 MAX REF
B
8 (3)
(1)
REF (6)
92 (11)
92 (104)
92 (105)
184 (106)
B
SEE SH 2
2 (2)
.34 REF
18.312 REF
(12) REF
SEE NOTE 4
RDC INTERFACE
AGC INPUTS
AGC INPUTS
8.750 REF
10.47 REF
.86 REF
19.00 REF
HAND CONTROLLER
0 10 20 30 40 50 60 70 80 90 100
CHANNEL V
100 200 300 400 500 600 700
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
DCVM OFF ACVM
CHAN V METERS
DE MARGINS
NORM V0 V1 V2 V3
R1 5
(10)
2 (3)
(4)
SEE NOTE 1
S79 6
(107)
S77 7
(107)
2 (3)
(4)
SEE NOTE 1
S76 8
(107)
2 (108)
(4)
SEE NOTE 1

NOTES

1. ASSEMBLE FIND NO. 9 USING FIND NO. 4
2. AR DENOTES AS REQUIRED
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. SEE LENS INSTALLATION CHART, SHEET 2, FOR INSTALLATION OF FIND NUMBERS 12 THRU 103
5. MARK CONDUCTOR IDENTIFICATION PER ND1002019

CONTINUED ON SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006405-096	LENS, MARKED	50
1	-095		49
1	-094		48
1	-093		47
1	-092		46
1	-091		45
1	-090		44
1	-089		43
1	-088		42
1	-087		41
1	-086		40
1	-085		39
1	-084		38
1	-083		37
1	-082		36
1	-081		35
1	-080		34
1	-079		33
1	-078		32
1	-077		31
1	-076		30
1	-075		29
1	-074		28
1	-073		27
1	-072		26
1	-071		25
1	-070		24
1	-069		23
1	-068		22
1	-067		21
1	-066		20
1	-065		19
1	-064		18
1	-063		17
1	-062		16
1	-061		15
1	-060		14
1	-059		13
1	-058	LENS, MARKED	12
92	1006405-001	SWITCH, PUSH, LT, BASIC UNIT	11
1	MS91528-2P2B	KNOB-CONTROL, POINTER	10
~~4~~	~~MS51960-30~~	~~SCREW, MACH.-FLAT CSK HD~~	~~9~~
1	1006463-001	SWITCH, ROTARY	8
1	1006257-001	SWITCH, ROTARY	7
1	1006461-002	SWITCH, ROTARY	6
1	RV4NAYSD502A	POTENTIOMETER	5
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMP	4
12	MS51959-43	SCREW, MACH.-FLAT CSK HD	3
2	1014215-5	HANDLE ASSY	2
1	2014310	PANEL, FRONT	1

-011 LIST OF MATERIALS

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 17 JUN 65
CHECKED
APPROVAL H. Mone 18 AUG 65
APPROVAL 18 NOV 65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSEMBLY
RDC INTERFACE
COMPUTER TEST SET

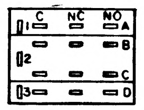
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014327
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014327 C

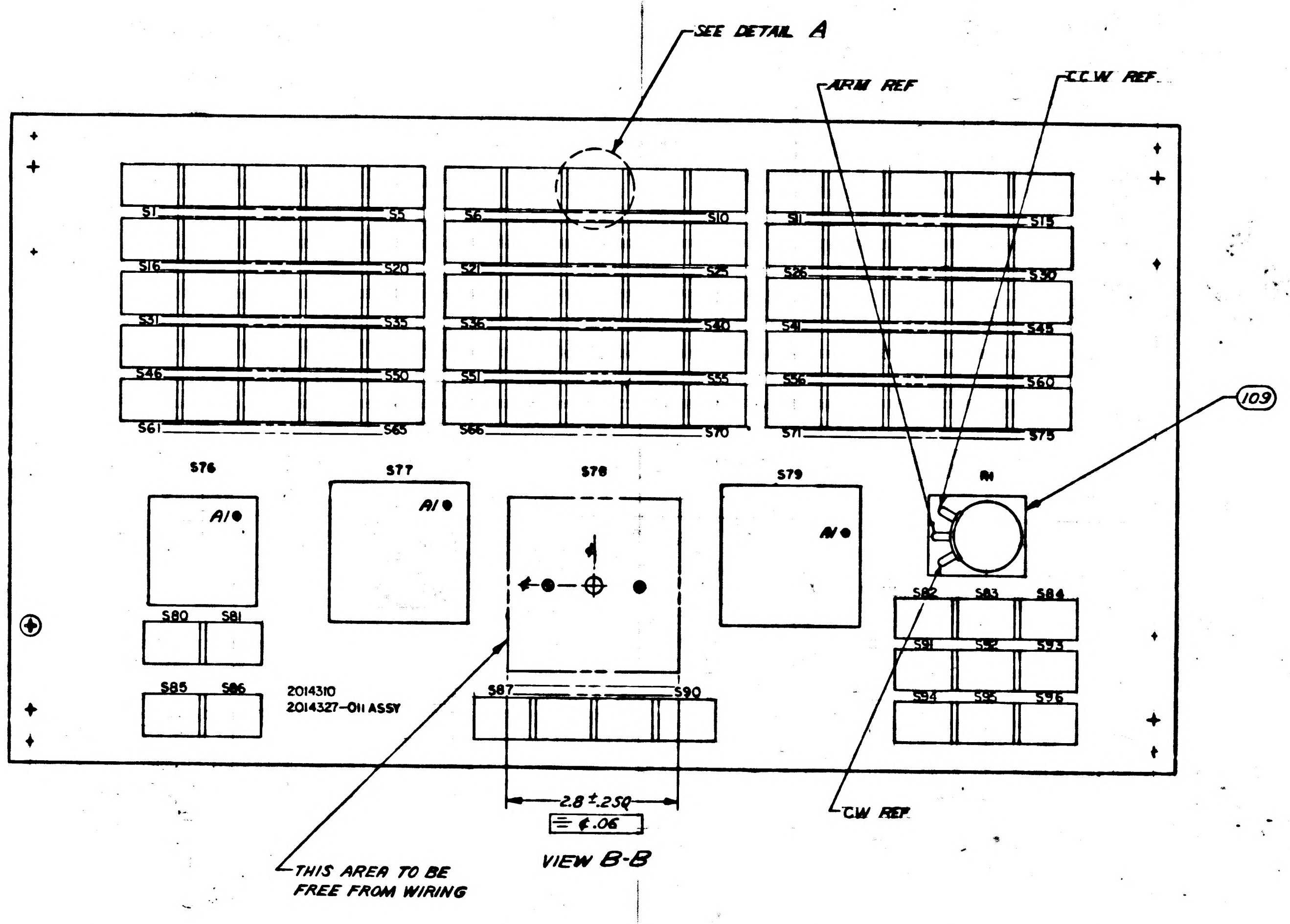
2014327 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 26724		
—	CLASS B CHANGED PER CCA R85502		
A	CHANGED PER CCA R28907 DR [illegible] CHK BCA APPR RPC		
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	3/10/66	
C	CHANGED PER TDRR 26701 DR E. Uftring CHK C. DeGroene APPD [illegible]	3/17/66	


C
NC
NO
1
2
3
A
B
C
D

DETAIL A
92 PLACES
SCALE/NONE

LENS INSTALLATION			
FIND NO.	REF DES	FIND NO.	REF DES
12	S1	58	S47
13	S2	59	S48
14	S3	60	S49
15	S4	61	S50
16	S5	62	S51
17	S6	63	S52
18	S7	64	S53
19	S8	65	S54
20	S9	66	S55
21	S10	67	S56
22	S11	68	S57
23	S12	69	S58
24	S13	70	S59
25	S14	71	S60
26	S15	72	S61
27	S16	73	S62
28	S17	74	S63
29	S18	75	S64
30	S19	76	S65
31	S20	77	S66
32	S21	78	S67
33	S22	79	S68
34	S23	80	S69
35	S24	81	S70
36	S25	82	S71
37	S26	83	S72
38	S27	84	S73
39	S28	85	S74
40	S29	86	S75
41	S30	87	S80
42	S31	88	S81
43	S32	89	S82
44	S33	90	S83
45	S34	91	S84
46	S35	92	S85
47	S36	93	S86
48	S37	94	S87
49	S38	95	S88
50	S39	96	S89
51	S40	97	S90
52	S41	98	S91
53	S42	99	S92
54	S43	100	S93
55	S44	101	S94
56	S45	102	S95
57	S46	103	S96


SEE DETAIL A
ARM REF
CCW REF
S1
S5
S6
S10
S11
S15
S16
S20
S21
S25
S26
S30
S31
S35
S36
S40
S41
S45
S46
S50
S51
S55
S56
S60
S61
S65
S66
S70
S71
S75
109
S76
S77
S78
S79
A1
A1
A1
A1
S80
S81
S82
S83
S84
S85
S86
S87
S90
S91
S92
S93
S94
S95
S96
2014310
2014327-011 ASSY
2.8 ±.25Q
≡ ¢.06
CW REF
THIS AREA TO BE FREE FROM WIRING

VIEW B-B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014125	SCHEMATIC	REF
☒	2014492	LEAD ELECTRICAL	REF
1	2014411	PLATE, BACKING	109
2	MS51959-28	SCREW, MACH.-FLAT CSK HD	108
3	MS91528-2P4B	KNOB, POINTER	107
-011	LIST OF MATERIALS		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
184	1006407-003	LAMP, INCANDESCENT	106
92	1006405 -003	DISPLAY SCREEN	105
92	-002	COLOR FILTER, WHITE	104
1	-049	LENS, MARKED	103
1	-048		102
1	-047		101
1	-128		100
1	-129		99
1	-130		98
1	-131		97
1	-132		96
1	-198		95
1	-046		94
1	-045		93
1	-044		92
1	-125		91
1	-126		90
1	-127		89
1	-043		88
1	-134		87
1	-042		86
1	-041		85
1	-040		84
1	-039		83
1	-038		82
1	-194		81
1	-193		80
1	-195		79
1	-124		78
1	-123		77
1	-122		76
1	-121		75
1	-120		74
1	-119		73
1	-118		72
1	-117		71
1	-116		70
1	-115		69
1	-114		68
1	-113		67
1	-112		66
1	-111		65
1	-110		64
1	-109		63
1	-108		62
1	-107		61
1	-106		60
1	-105		59
1	-104		58
1	-103		57
1	-102		56
1	-101		55
1	-100		54
1	-099		53
1	-098		52
1	1006405 -097	LENS, MARKED	51
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 18 JUN 65
CHECKED [illegible]
APPROVAL [illegible] 18 AUG 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL E. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSEMBLY
RDC INTERFACE
COMPUTER TEST SET

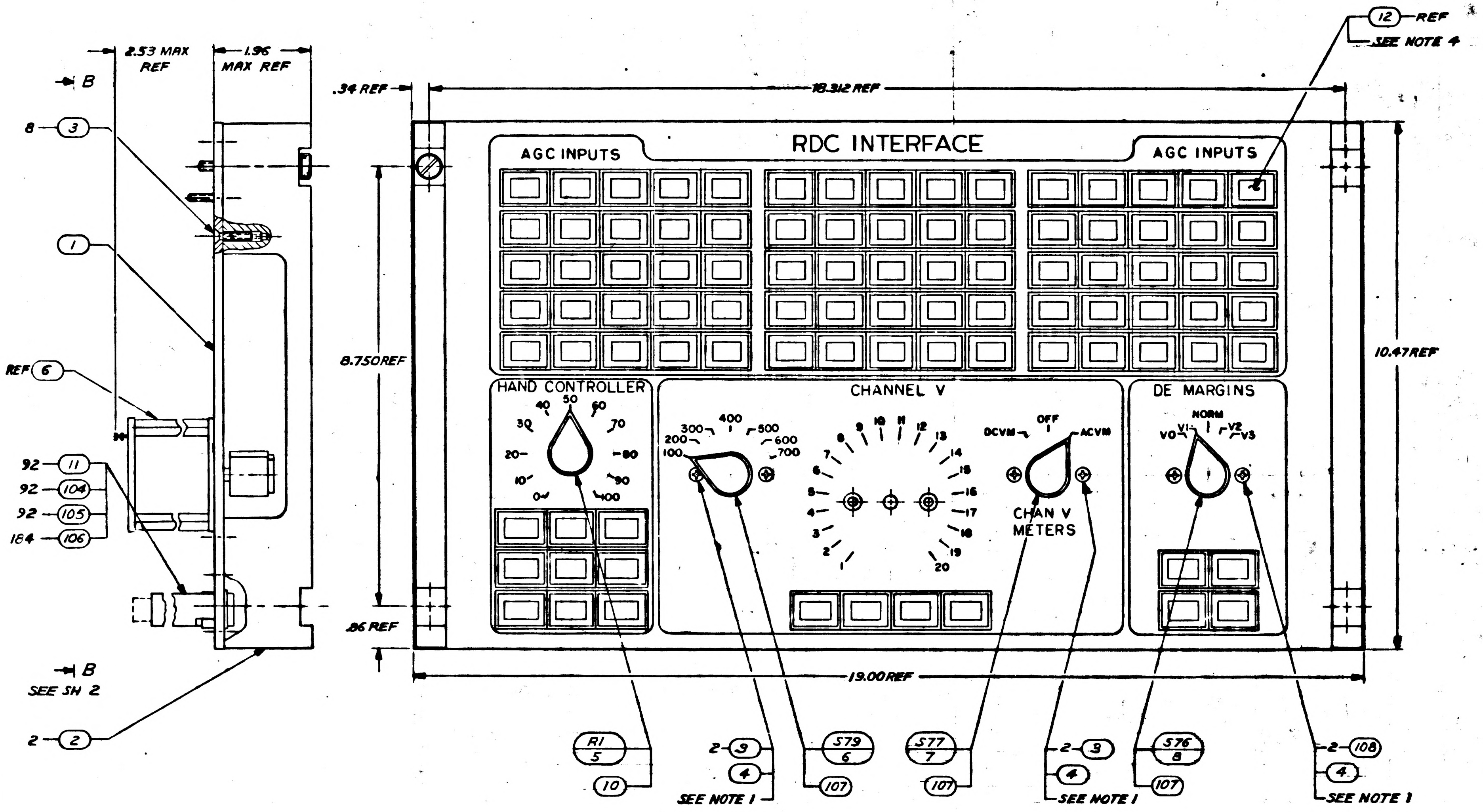
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014327
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014327 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25174	3/14/65	
–	CLASS B CHANGED PER CCA R26502		
A	CHANGED PER CCA R25327 DR CHK BCA APP	9/-/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	-/-/66	
C	CHANGED PER TDRR 26701 DR E. Ufting CHK C. DeYrenia APPD	3/14/66	
D	CHANGED PER TDRR 28112 DR. CHK C. DeYrenia APPD PED	5/18/66	



2.53 MAX REF
1.96 MAX REF
B
8 – 3
1
REF 6
92 – 11
92 – 104
92 – 105
184 – 106
B
SEE SH 2
2 – 2
.34 REF
18.312 REF
12 REF
SEE NOTE 4
RDC INTERFACE
AGC INPUTS
AGC INPUTS
8.750REF
10.47REF
HAND CONTROLLER
0 10 20 30 40 50 60 70 80 90 100
CHANNEL V
100 200 300 400 500 600 700
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
DCVM OFF ACVM
CHAN V METERS
DE MARGINS
V0 V1 NORM V2 V3
.86 REF
19.00REF
R1/5
10
2 – 9
4
SEE NOTE 1
S79/6
107
S77/7
107
2 – 9
4
SEE NOTE 1
S76/8
107
2 – 108
4
SEE NOTE 1

NOTES
1. ASSEMBLE FIND NO. 9 USING FIND NO. 4
2. AR DENOTES AS REQUIRED
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. SEE LENS INSTALLATION CHART, SHEET 2, FOR INSTALLATION OF FIND NUMBERS 12 THRU 103
5. MARK CONDUCTOR IDENTIFICATION PER ND1002019

CONTINUED ON SHEET 2

1	1	1006405-096	LENS, MARKED	50
1	1	-095		49
1	1	-094		48
1	1	-093		47
1	1	-092		46
1	1	-091		45
1	1	-090		44
1	1	-089		43
1	1	-088		42
1	1	-087		41
1	1	-086		40
1	1	-085		39
1	1	-084		38
1	1	-083		37
1	1	-082		36
1	1	-081		35
1	1	-080		34
1	1	-079		33
1	1	-078		32
1	1	-077		31
1	1	-076		30
1	1	-075		29
1	1	-074		28
1	1	-073		27
1	1	-072		26
1	1	-071		25
1	1	-070		24
1	1	-069		23
1	1	-068		22
1	1	-067		21
1	1	-066		20
1	1	-065		19
1	1	-064		18
1	1	-063		17
1	1	-062		16
1	1	-061		15
1	1	-060		14
1	1	-059		13
1	1	-058	LENS, MARKED	12
92	92	1006405-001	SWITCH, PUSH, LT. BASIC UNIT	11
1	1	MS91528-2P2B	KNOB-CONTROL, POINTER	10
	~~4~~	~~MS51950-30~~	~~SCREW, MACH-FLAT CSK HD~~	~~9~~
1	1	1006463-001	SWITCH, ROTARY	8
1	1	1006257-001	SWITCH, ROTARY	7
1	1	1006461-002	SWITCH, ROTARY	6
1	1	RV4NAYSD502A	POTENTIOMETER	5
AR	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMP	4
12	12	MS51959-43	SCREW, MACH-FLAT CSK HD	3
2	2	1014215-5	HANDLE ASSY	2
1	1	2014310	PANEL, FRONT	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-021	-011	LIST OF MATERIALS		

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 17 JUN 65
CHECKED
APPROVAL H Moore 18 AUG 65
APPROVAL 18 AUG 65
APPROVAL 9-14-65
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSEMBLY
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	F	2014327

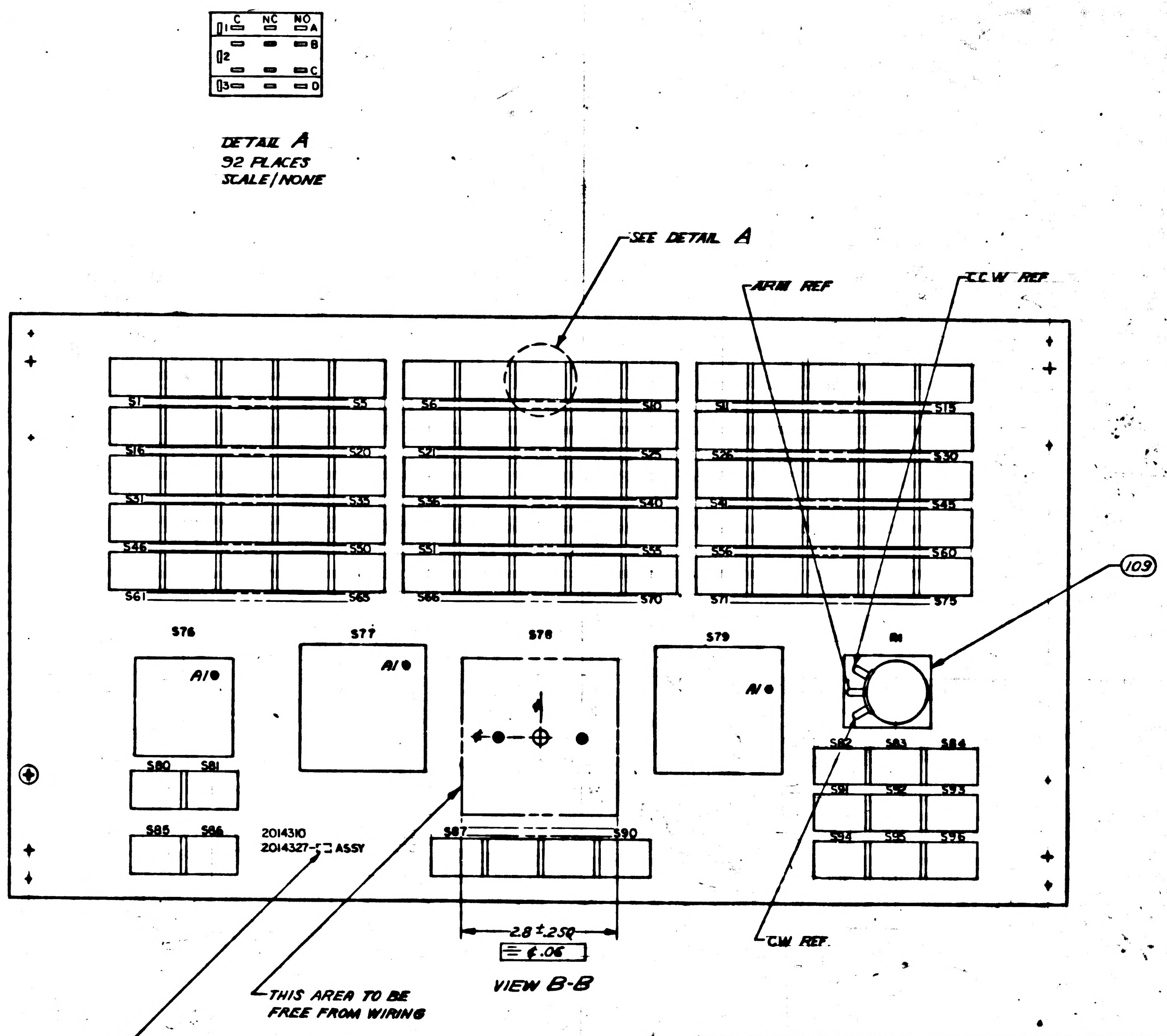
SCALE 1/1 WT SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014327 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA [illegible]174	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R28907 DR [illegible] CHK [illegible] APPR [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	3/10/66	[illegible]
C	CHANGED PER TDRR 26701 DR E. Uftring CHK C. DeGraaw APPD [illegible]	3/17/66	[illegible]
D	CHANGED PER TDRR 28112 DR [illegible] CHK C. DeGraaw APPD PE.D	3/18/66	[illegible]

LENS INSTALLATION			
FIND NO.	REF DES	FIND NO.	REF DES
12	S1	58	S47
13	S2	59	S48
14	S3	60	S49
15	S4	61	S50
16	S5	62	S51
17	S6	63	S52
18	S7	64	S53
19	S8	65	S54
20	S9	66	S55
21	S10	67	S56
22	S11	68	S57
23	S12	69	S58
24	S13	70	S59
25	S14	71	S60
26	S15	72	S61
27	S16	73	S62
28	S17	74	S63
29	S18	75	S64
30	S19	76	S65
31	S20	77	S66
32	S21	78	S67
33	S22	79	S68
34	S23	80	S69
35	S24	81	S70
36	S25	82	S71
37	S26	83	S72
38	S27	84	S73
39	S28	85	S74
40	S29	86	S75
41	S30	87	S80
42	S31	88	S81
43	S32	89	S82
44	S33	90	S83
45	S34	91	S84
46	S35	92	S85
47	S36	93	S86
48	S37	94	S87
49	S38	95	S88
50	S39	96	S89
51	S40	97	S90
52	S41	98	S91
53	S42	99	S92
54	S43	100	S93
55	S44	101	S94
56	S45	102	S95
57	S46	103	S96


C NC NO
1 2 3
A B C D
DETAIL A
92 PLACES
SCALE/NONE
SEE DETAIL A
ARM REF
C.C.W. REF
S1 S5 S6 S10 S11 S15
S16 S20 S21 S25 S26 S30
S31 S35 S36 S40 S41 S45
S46 S50 S51 S55 S56 S60
S61 S65 S66 S70 S71 S75
S76 S77 S78 S79 R1
A1
109
S80 S81 S82 S83 S84
S85 S86 S87 S90 S91 S92 S93 S94 S95 S96
2014310
2014327-☐ ASSY
2.8 ±.250
= ¢.06
VIEW B-B
CW REF.
THIS AREA TO BE FREE FROM WIRING
APPLICABLE DASH NO.

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	–	2016385	SCHEMATIC	REF
–	☒	2014125	SCHEMATIC	REF
–	☒	2014492	LEAD ELECTRICAL	REF
☒	–	2016407	LEAD, ELECTRICAL	REF
1	1	2014411	PLATE, BACKING	109
2	2	MS51959-28	SCREW, MACH.-FLAT CSK HD	108
3	3	MS91528-2P4B	KNOB, POINTER	107

LIST OF MATERIALS

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
184	184	1006407-003	LAMP, INCANDESCENT	106
92	92	1006405-003	DISPLAY SCREEN	105
92	92	-002	COLOR FILTER, WHITE	104
1	1	-049	LENS, MARKED	103
1	1	-048		102
1	1	-047		101
1	1	-128		100
1	1	-129		99
1	1	-130		98
1	1	-131		97
1	1	-132		96
1	1	-198		95
1	1	-046		94
1	1	-045		93
1	1	-044		92
1	1	-125		91
1	1	-126		90
1	1	-127		89
1	1	-043		88
1	1	-134		87
1	1	-042		86
1	1	-041		85
1	1	-040		84
1	1	-039		83
1	1	-038		82
1	1	-194		81
1	1	-193		80
1	1	-195		79
1	1	-124		78
1	1	-123		77
1	1	-122		76
1	1	-121		75
1	1	-120		74
1	1	-119		73
1	1	-118		72
1	1	-117		71
1	1	-116		70
1	1	-115		69
1	1	-114		68
1	1	-113		67
1	1	-112		66
1	1	-111		65
1	1	-110		64
1	1	-109		63
1	1	-108		62
1	1	-107		61
1	1	-106		60
1	1	-105		59
1	1	-104		58
1	1	-103		57
1	1	-102		56
1	1	-101		55
1	1	-100		54
1	1	-099		53
1	1	-098		52
1	1	1006405-097	LENS, MARKED	51

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 18 JUN 65
CHECKED [illegible]
APPROVAL H. Moore 18 AUG 65
APPROVAL [illegible]
APPROVAL [illegible] 9-14-[illegible]
NASA APPROVAL E. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

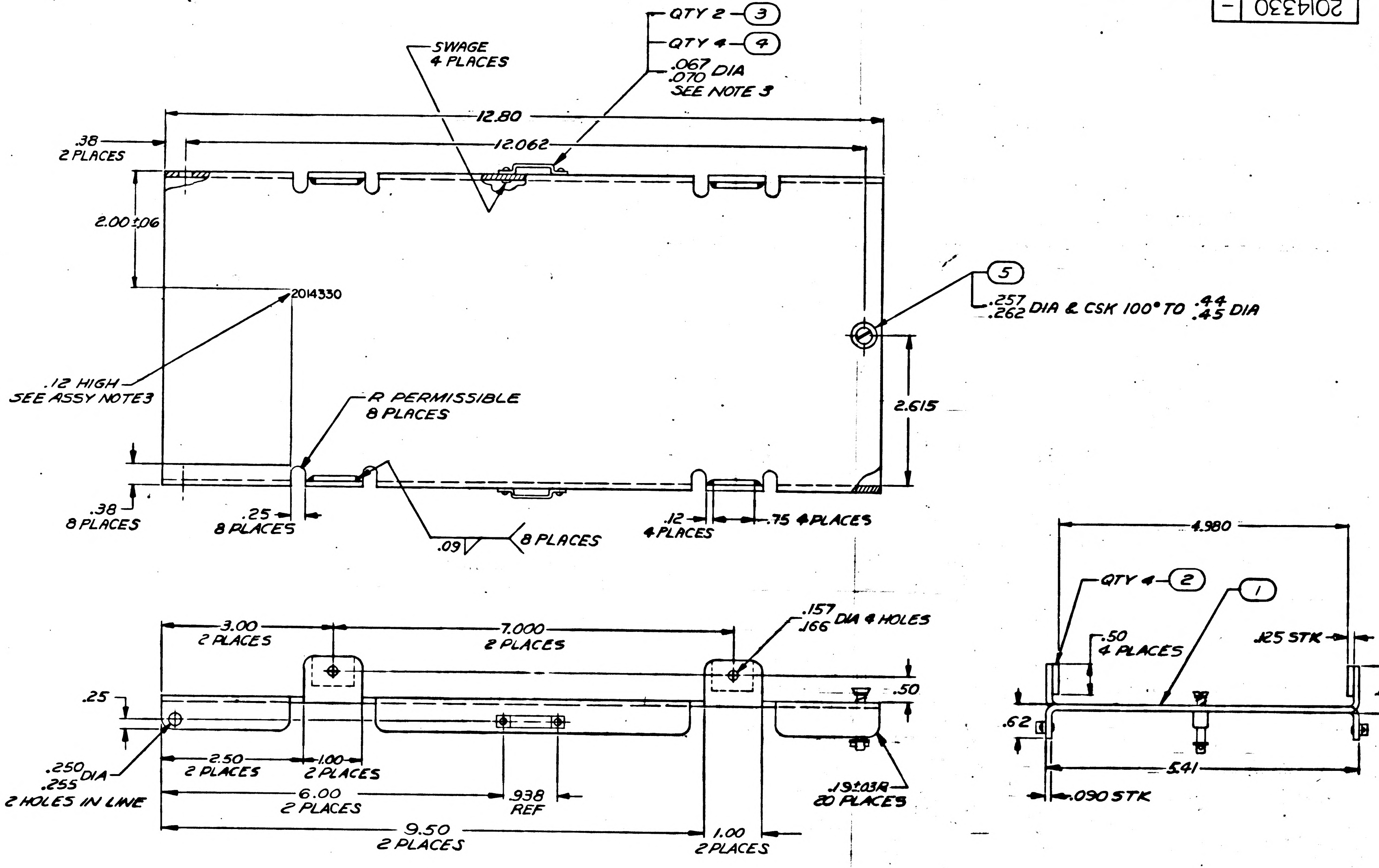
FRONT PANEL ASSEMBLY
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014327
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014327 D

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/13/65	[illegible]
-	CLASS A RELEASED PER TDRR 25472		



QTY 2 ③
QTY 4 ④
.067 .070 DIA SEE NOTE 3
SWAGE 4 PLACES
12.80
12.062
.38 2 PLACES
2.00±.06
2014330
.12 HIGH SEE ASSY NOTE 3
R PERMISSIBLE 8 PLACES
⑤
.257 .262 DIA & CSK 100° TO .44 .45 DIA
2.615
.38 8 PLACES
.25 8 PLACES
.09 8 PLACES
.12 4 PLACES
.75 4 PLACES
3.00 2 PLACES
7.000 2 PLACES
.157 .166 DIA 4 HOLES
.25
.50
.250 .255 DIA 2 HOLES IN LINE
2.50 2 PLACES
1.00 2 PLACES
6.00 2 PLACES
.938 REF
.19±.03R 20 PLACES
9.50 2 PLACES
1.00 2 PLACES
4.980
QTY 4 ②
①
.50 4 PLACES
.125 STK
.88
.62
5.41
.090 STK

(1)(2) NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. ALL BEND RADII TO BE .06/.09
3. LOCATE HOLES USING FIND NO.3 AS TEMPLATE

ASSY NOTES

1. WELD PER MIL-W-8604
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006992	FASTENER, QUARTER TURN	5
4	MS20470AD2-4	RIVET, SOLID UNIVERSAL HEAD	4
2	1004844-003	STRAP, RETAINING	3
4	2014330-002	BLOCK	2
1	2014330-001	BRACKET	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014045	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING

MATERIAL
AL 5052-H32
PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 21 JUN 65
CHECKED [illegible]
APPROVAL [illegible] 9/13/65
APPROVAL [illegible] 9/13/65
APPROVAL [illegible] 9/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. [illegible] 1/4/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BRACKET, AMPLIFIER
RDC INTERFACE
COMPUTER TEST SET

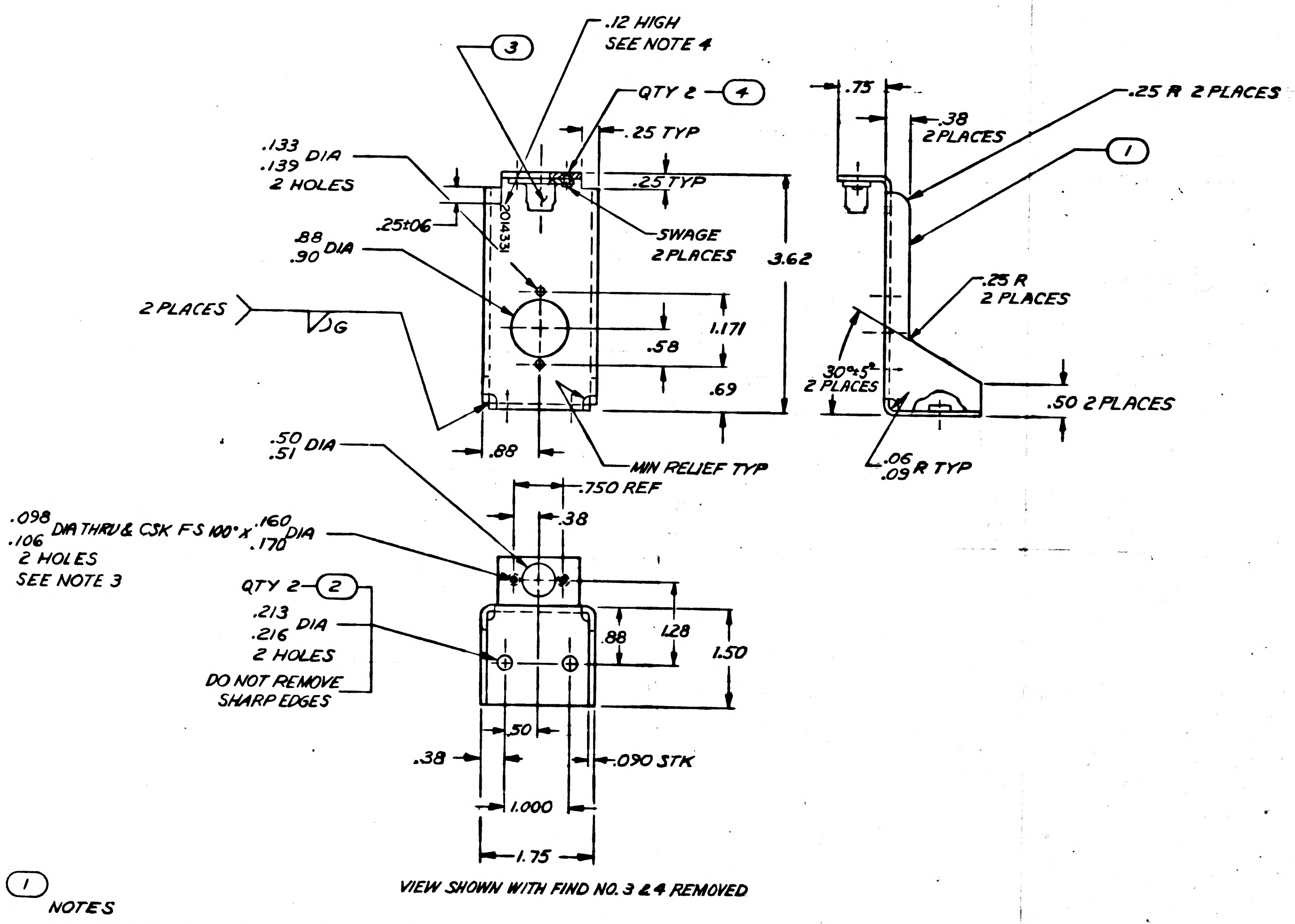
CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014330
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014330 -

2014331 -

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCAR25167	9/13/65	G. Haram
-	CLASS A RELEASED PER TDRR 25472		


③
.12 HIGH
SEE NOTE 4
QTY 2 — ④
.25 TYP
.25 TYP
.133
.139 DIA
2 HOLES
.25±.06
.88
.90 DIA
2014331
SWAGE
2 PLACES
3.62
2 PLACES
G
1.171
.58
.69
.88
MIN RELIEF TYP
.75
.38
2 PLACES
.25 R 2 PLACES
①
.25 R
2 PLACES
30°±5°
2 PLACES
.50 2 PLACES
.06
.09 R TYP
.50
.51 DIA
.750 REF
.38
.098
.106 DIA THRU & CSK F.S 100° X .160
.170 DIA
2 HOLES
SEE NOTE 3
QTY 2 — ②
.213
.216 DIA
2 HOLES
DO NOT REMOVE
SHARP EDGES
.88
1.28
1.50
.50
.38
.090 STK
1.000
1.75

VIEW SHOWN WITH FIND NO. 3 & 4 REMOVED

①

NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELEC COND
3. LOCATE USING FIND NO. 3 AS TEMPLATE
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	MS20426A3-5	RIVET, CSK FLAT HD	4
1	1006993	FASTENER, RECEPTACLE	3
2	1006989-15	NUT, PLAIN, SELF-CLINCHING	2
1	2014331-001	BRACKET	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014045	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

DECIMALS .XX	DECIMALS .XXX	ANGLES
±.02	±.005	±0°30′

DO NOT SCALE DRAWING

MATERIAL
AL 5052 - H32
PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO.	NAS 9-497
DRAWN	DATE 22 Jun 65
CHECKED	
APPROVAL	8/13/65
APPROVAL	8/13/65
APPROVAL	9/14/65
NASA APPROVAL	A. C. METZGER
MIT APPROVAL	
MIT APPROVAL	C. 1/29/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

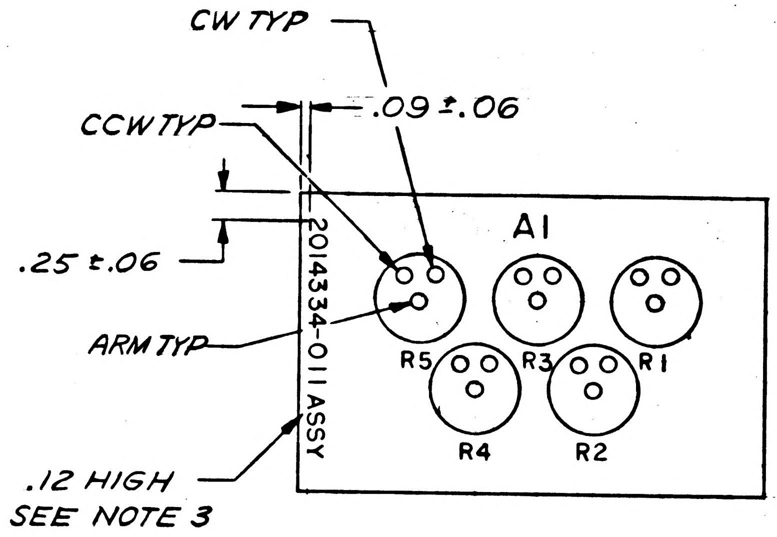
BRACKET, TRANSFORMER
RDC INTERFACE
COMPUTER TEST SET

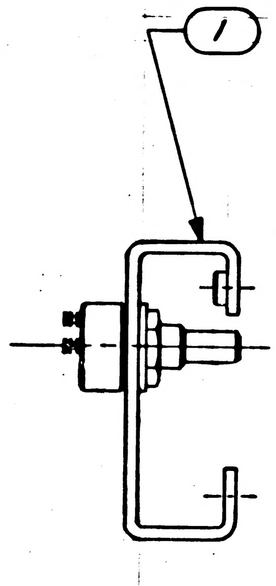
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	D	2014331
SCALE 1/1	WT	SHEET OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014334 -

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/13/65	A. Harano
1	CHANGED PER CCA R25330 DR [illegible] CHK J. Augustin APPD P. E. Dale 11-13-65	11/13/65	SFS
-	CLASS A RELEASED PER TDRR 25472		





REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
R1	2
R2, R5	3
R3, R4	4

JUMPER LIST

COND IDENT	FROM	TO	FIND NO. 5	FIND NO. 6
A1	R1 - CW	R1 - ARM	.60	
A2	R2 - CW	R2 - ARM	↕	
A3	R3 - CW	R3 - ARM	↕	
A4	R4 - CW	R4 - ARM	↕	
A5	R5 - CW	R5 - ARM	.60	
A6	R1 - CW	R2 - CW	1.50	1.00
A7	R2 - CW	R3 - CW	↕	↕
A8	R3 - CW	R4 - CW	↕	↕
A9	R4 - CW	R5 - CW	1.50	1.00

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014125	SCHEMATIC	REF
* 0.4	SEE NOTE 4	SLEEVING	6
* 0.9	SEE NOTE 5	WIRE, ELECTRICAL	5
2	1006468-010	RESISTOR, VARIABLE	4
2	1006468-009	RESISTOR, VARIABLE	3
1	1006468-008	RESISTOR, VARIABLE	2
1	2014333	BRACKET, POTENTIOMETER	1
-011	LIST OF MATERIALS		

NOTES
1. SOLDER PER ND1002071.
2. FABRICATE PER ND1002032
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. MIL-I-631, TYPE F, FORM U. GRADE A ~~CLASS 1, CATERGORY 1~~, COLOR WHT, AWG 22
5. QQ-W-343 TYPE S, AWG 22, SOFT COATED & FOR FIND NO. 5

* DENOTES LENGTH IN FEET

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 19 Jun 65
CHECKED W. Lyons 10 AUG 65
APPROVAL H. Moss 18 AUG 65
APPROVAL J. Yakish 18 AUG 65
APPROVAL [illegible] 9-13-65
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL A. Harano 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POTENTIOMETER BRKT ASSY, A1
RDC INTERFACE
COMPUTER TEST SET

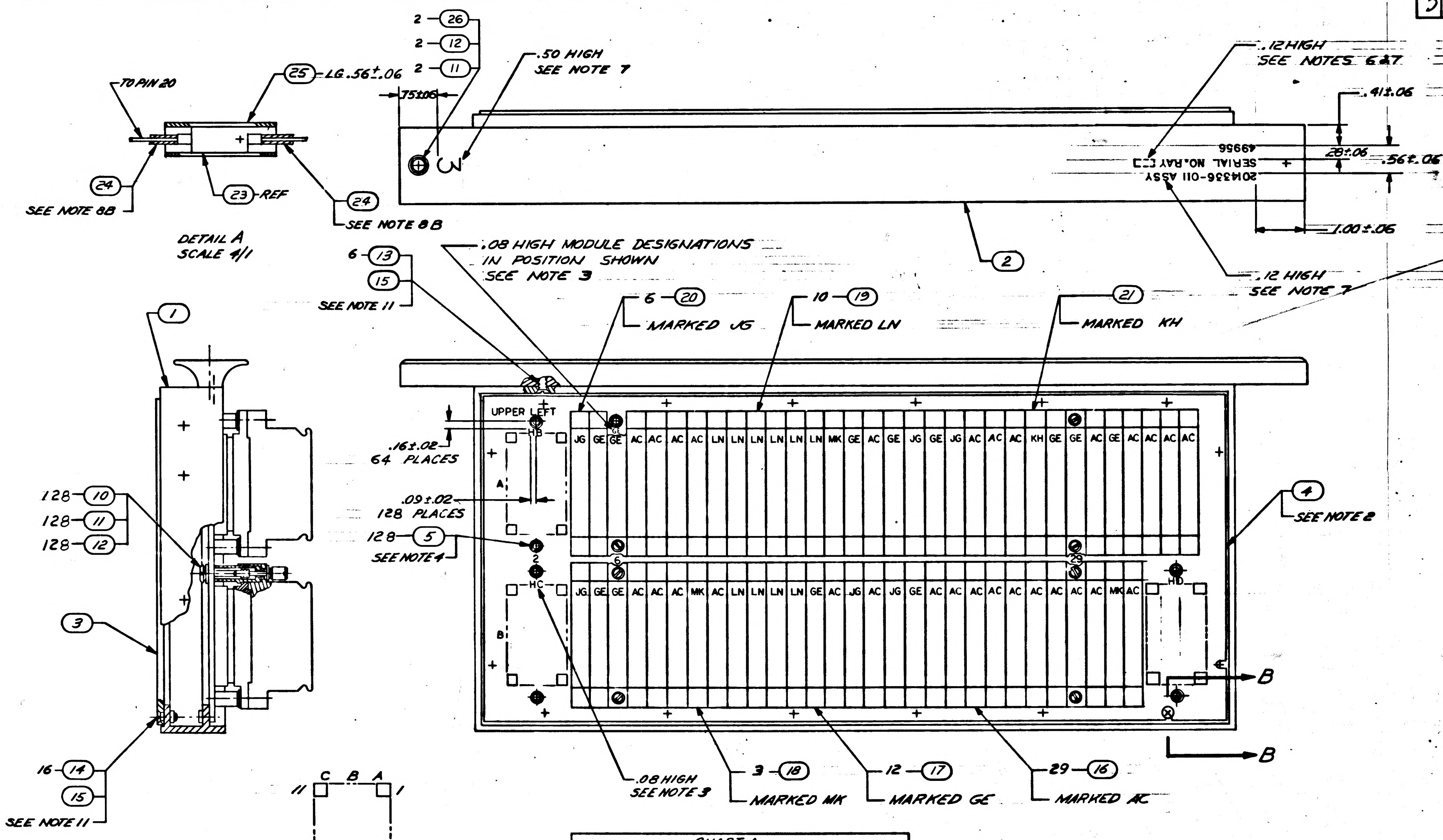
CODE IDENT NO. 49956
SIZE C
NASA DRAWING NO. 2014334
SCALE 1/1
WT
SHEET 1 OF 1

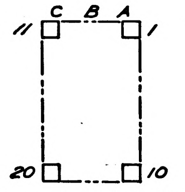
2014334 -

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014336 C

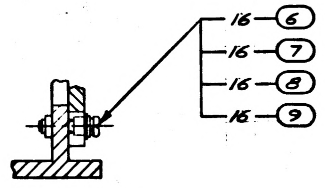
SYM	REVISIONS DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25076	[illegible]	[illegible]
1	CHANGED PER CCA R25485 DR P. Milard CHK E. Urban APPD P. E. Dale 11-13-65	11/12/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	JKL
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD P.E.D	1/6/66	[illegible]
B	CHANGED PER CCA R25711 DR [illegible] CHK GEQ APPD RK	1/14/66	[illegible]
C	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	[illegible]


TO PIN 20
25 - LG .56±.06
+
24
SEE NOTE 8B
23 - REF
24
SEE NOTE 8B
DETAIL A
SCALE 4/1
2 - 26
2 - 12
2 - 11
.75±.06
.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTES 6&7
.41±.06
.28±.06
.56±.06
1.00±.06
2014336-011 ASSY
SERIAL NO. RAY
49956
2
.12 HIGH
SEE NOTE 7
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
6 - 13
15
SEE NOTE 11
1
6 - 20 MARKED JG
10 - 19 MARKED LN
21 MARKED KH
UPPER LEFT
HB
.16±.02
64 PLACES
A
.09±.02
128 PLACES
128 - 5
SEE NOTE 4
2
HC
B
HD
6
29
JG GE GE AC AC AC AC LN LN LN LN LN LN MK GE AC GE JG GE JG AC AC AC KH GE GE AC GE AC AC AC AC
JG GE GE AC AC AC MK AC LN LN LN LN GE AC JG AC JG GE AC AC AC AC AC AC AC AC AC MK AC
4
SEE NOTE 2
B
B
128 - 10
128 - 11
128 - 12
3
16 - 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
3 - 18 MARKED MK
12 - 17 MARKED GE
29 - 16 MARKED AC


C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	23	A34-02	A34-20	
C2	↑	A34-13	A33-20	
C3		A32-13	A32-20	
C4		A34-15	A35-20	
C5		B35-01	B35-20	
C6		A09-15	A08-20	
C7		A19-06	A20-20	
C8		A07-05	A06-20	
C9		A07-02	A07-20	
C10		A01-13	A01-20	
C11		B11-06	B12-20	
C12		B34-08	B35-20	
C13		B23-17	B22-20	
C14		B25-03	B24-20	
C15		B32-12	B32-20	
C16		B13-03	B13-20	
C17		A30-03	A30-20	
C18	↓	A30-05	A31-20	
C19	23	B25-02	B25-20	


16 - 6
16 - 7
16 - 8
16 - 9

SECTION B-B
SCALE 2/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 22 PER 2014099 AND ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 23 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE A CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 24~~
10. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 25
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014145	LOGIC DIAGRAM	REF
☒	2014099	WIREWRAP MACH. CARD	REF
2	1006998-1	SCREW, CAPTIVE	26
.9 *	SEE NOTE 10	SLEEVING	25
AR	1006776-197	SLEEVING, INSULATION	24
19	CS13AF010K	CAPACITOR, 1μf, 35V	23
AR	1006945-1	WIRE, ELEC, INSUL NO. 24 AWG SOLID	22
1	1014079	MODULE, GATED FLIP-FLOP	21
6	1014065-3	MODULE, RESISTOR 510Ω	20
10	2014000-011	MODULE, BUFFERED FLIP-FLOP	19
3	1014096	MODULE, DRIVER	18
12	1014230	MODULE, INTERFACE RECEIVER	17
29	1014034	MODULE, NOR	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
130	MS35338-79	WASHER, LOCK	12
130	1006997	WASHER, FLAT	11
128	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
128	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014258	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014041	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. Roger DATE 21 JUNE 65
CHECKED [illegible] 1 Jul 65
APPROVAL P E Dale 16 JUL 65
APPROVAL [illegible] 7/15/65
APPROVAL [illegible] 4 Aug 65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 15 Feb 66
MIT APPROVAL [illegible] 7/11/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

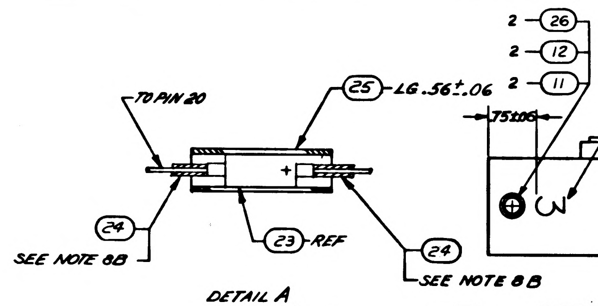
LOGIC PLATE ASSY NO. 3
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014336
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

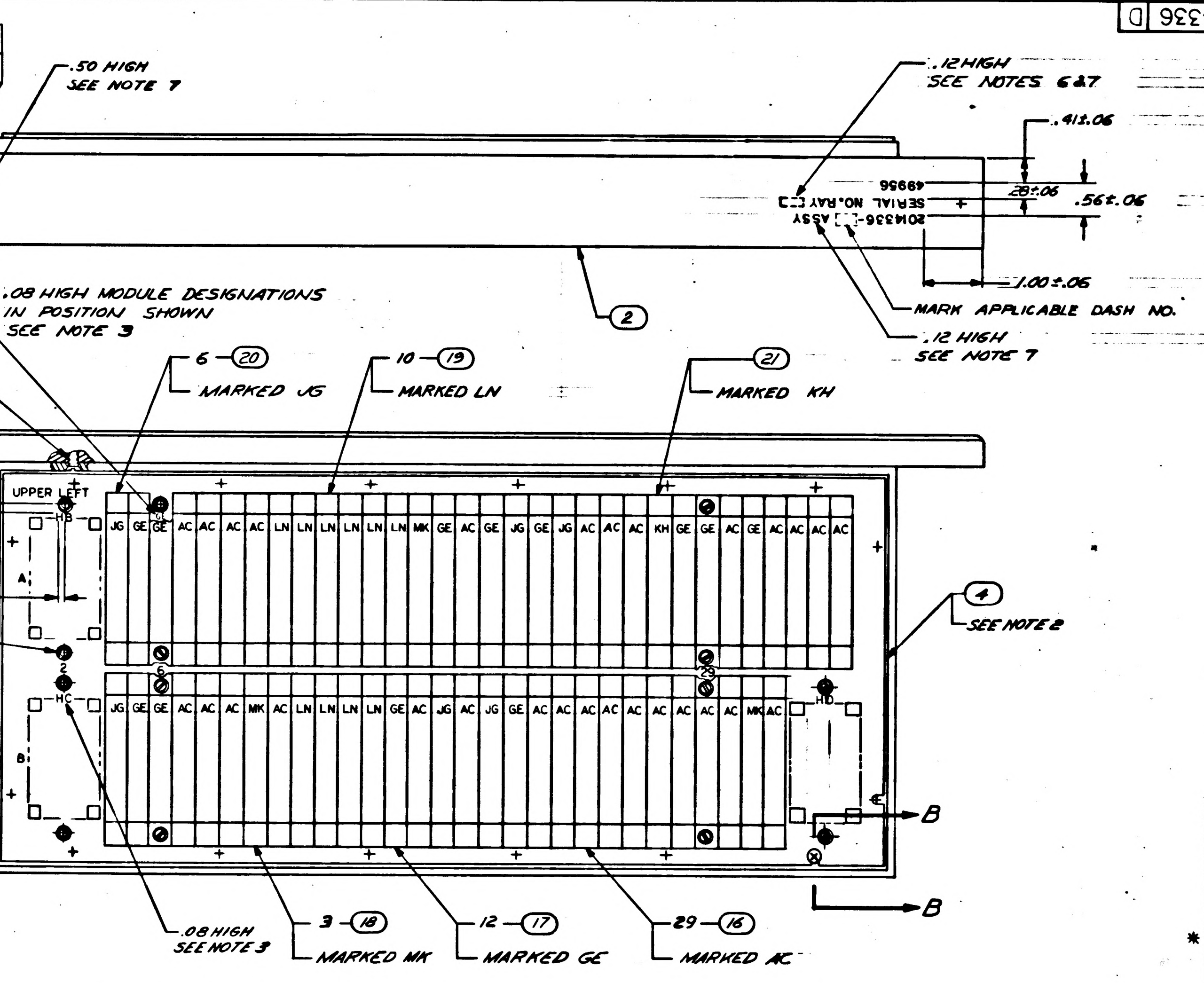
2014336 D

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25076		
1	CHANGED PER CCA R25485 DR P. Milan CHK E. Urban APPD		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR CHK APPD		
B	CHANGED PER CCA R25711 DR CHK APPD		
C	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218		
D	CHANGED PER TDRR 28097 DR CHK APPD		

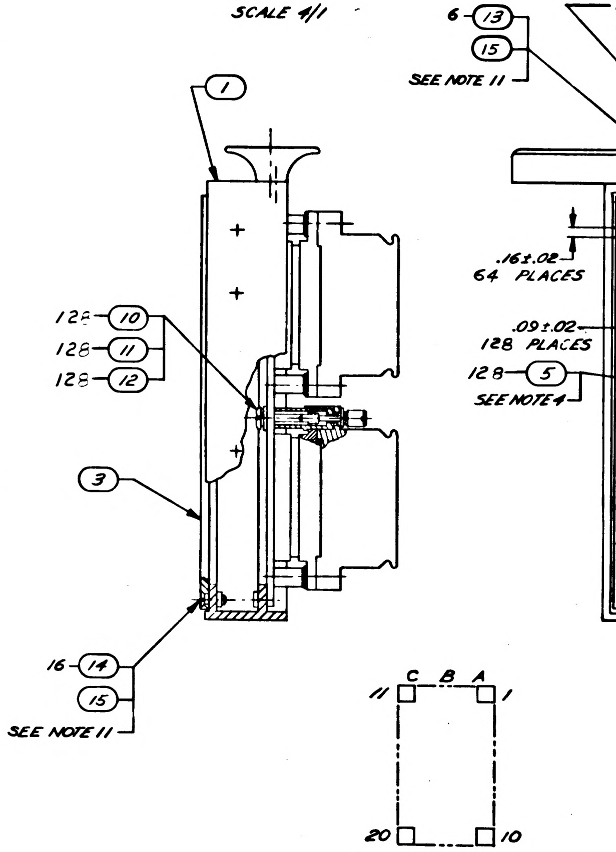


TO PIN 20
25 - LG .56±.06
2 - 26
2 - 12
2 - 11
.75±.06
24
SEE NOTE 8B
23 - REF
24
SEE NOTE 8B

DETAIL A
SCALE 4/1



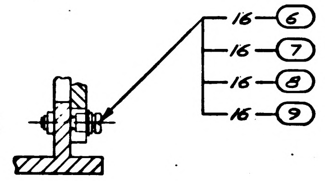
.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTES 6&7
.41±.06
49956
SERIAL NO. RAY [ ]
2014336-[ ] ASSY
.28±.06
.56±.06
1.00±.06
2
MARK APPLICABLE DASH NO.
.12 HIGH
SEE NOTE 7
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
6 - 20
MARKED JG
10 - 19
MARKED LN
21
MARKED KH
UPPER LEFT
HB
A
HC
B
HD
2
6
29
JG GE GE AC AC AC AC LN LN LN LN LN LN MK GE AC GE JG GE JG AC AC AC KH GE GE AC GE AC AC AC AC
JG GE GE AC AC AC MK AC LN LN LN LN GE AC JG AC JG GE AC AC AC AC AC AC AC AC AC MK AC
4
SEE NOTE 2
B
B
.08 HIGH
SEE NOTE 3
3 - 18
MARKED MK
12 - 17
MARKED GE
29 - 16
MARKED AC



6 - 13
15
SEE NOTE 11
1
.16±.02
64 PLACES
.09±.02
128 PLACES
128 - 5
SEE NOTE 4
128 - 10
128 - 11
128 - 12
3
16 - 14
15
SEE NOTE 11
C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	23	A34-02	A34-20	
C2		A34-13	A33-20	
C3		A32-13	A32-20	
C4		A34-15	A35-20	
C5		B35-01	B35-20	
C6		A09-15	A08-20	
C7		A19-06	A20-20	
C8		A07-05	A06-20	
C9		A07-02	A07-20	
C10		A01-13	A01-20	
C11		B11-06	B12-20	
C12		B34-08	B35-20	
C13		B23-17	B22-20	
C14		B25-03	B24-20	
C15		B32-12	B32-20	
C16		B13-03	B13-20	
C17		A30-03	A30-20	
C18		A30-05	A31-20	
C19	23	B25-02	B25-20	



16 - 6
16 - 7
16 - 8
16 - 9

SECTION B-B
SCALE 2/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO. 22 PER 2014099 OR 2016377 AND ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.23 PER CHART A & DETAIL A
8A. SOLDER PER ND1002071
8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR BLUE AWG SIZE NO.24 FOR FIND NO. 24~~
10. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 25
11. ASSEMBLE FIND NO.13 & FIND NO. 14 USING FIND NO. 15

MASTER

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	-	2016390	LOGIC DIAGRAM	REF
☒	-	2016377	WIREWRAP MACH CARD	REF
-	☒	2014145	LOGIC DIAGRAM	REF
-	☒	2014099	WIREWRAP MACH. CARD	REF
2	2	1006998-1	SCREW, CAPTIVE	26
* .9	.9	SEE NOTE 10	SLEEVING	25
AR	AR	1006776-197	SLEEVING, INSULATION	24
19	19	CS13AF010K	CAPACITOR, 1uf, 35V	23
AR	AR	1006945-1	WIRE, ELEC, INSUL NO.24 AWG SOLID	22
1	1	1014079	MODULE, GATED FLIP-FLOP	21
6	6	1014065-3	MODULE, RESISTOR 510Ω	20
10	10	2014000-011	MODULE, BUFFERED FLIP-FLOP	19
3	3	1014096	MODULE, DRIVER	18
12	12	1014230	MODULE, INTERFACE RECEIVER	17
29	29	1014034	MODULE, NOR	16
AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	MS51959-15	SCREW, FLAT HD	14
6	6	MS51959-27	SCREW, FLAT HD	13
130	130	MS35338-79	WASHER, LOCK	12
130	130	1006997	WASHER, FLAT	11
128	128	MS51957-29	SCREW, PAN HD	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	MS35338-78	WASHER, LOCK	8
16	16	MS15795-803	WASHER, FLAT	7
16	16	MS51957-17	SCREW, PAN HD	6
128	128	1014212	STAND-OFF, PROGRAM	5
1	1	1006495-001	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
1	1	1014258	SUPPORT, FRAME	2
1	1	1014014-2	FRAME	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014041	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. Rogers DATE 21 JUNE 65
CHECKED
APPROVAL 16 MAY 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL 15 Feb 66
MIT APPROVAL 4/1/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

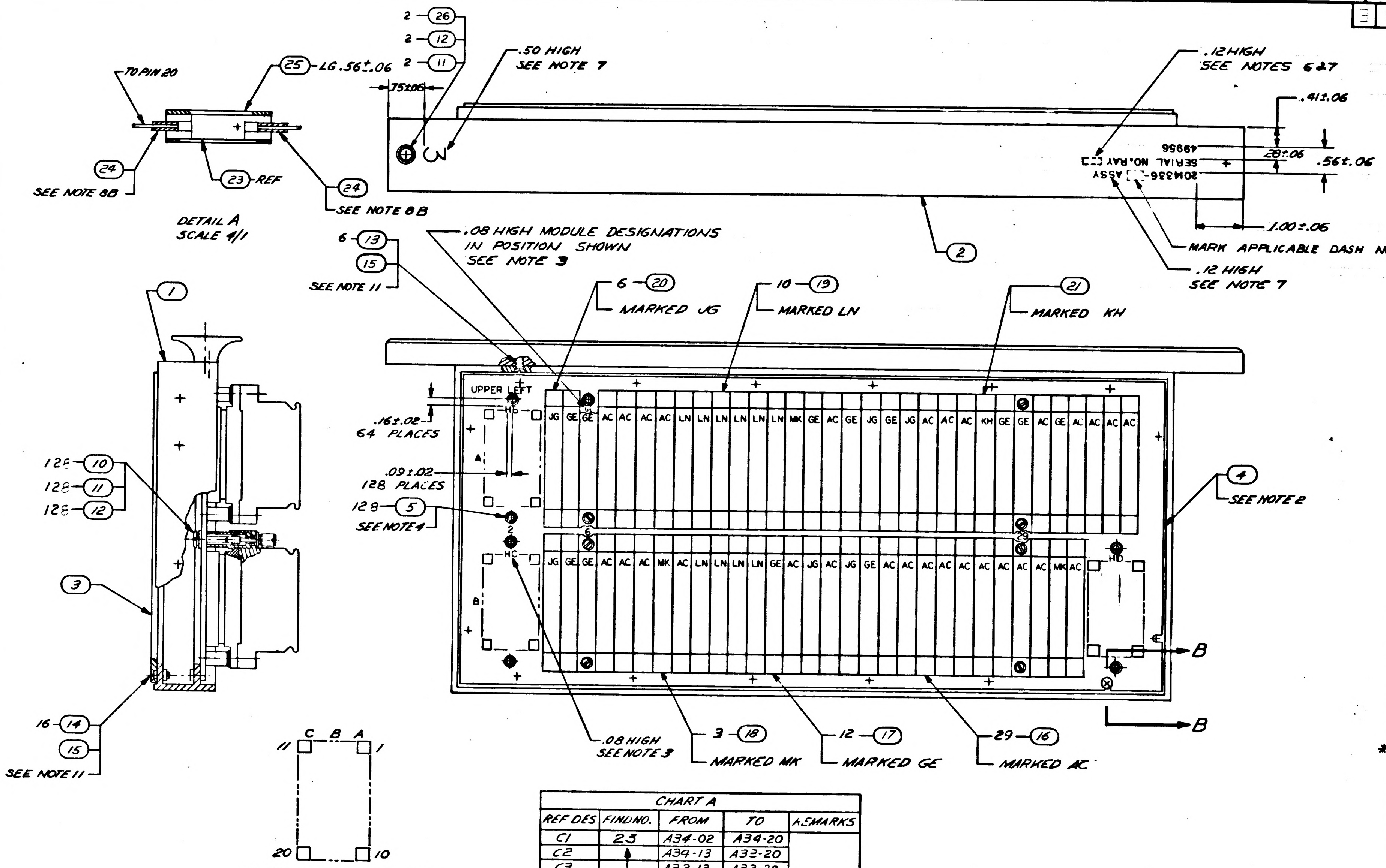
LOGIC PLATE ASSY NO. 3
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014336
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

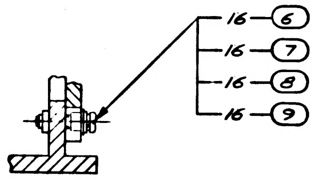
2014336 E

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25076	[illegible]	[illegible]
1	CHANGED PER CCA R25485 DR P. Milano CHK E Urban APPD R E Dalk 11-19-65	11/12/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	12/4/65	[illegible]
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD P.C.O	4/6/65	[illegible]
B	CHANGED PER CCA R25711 DR [illegible] CHK GEQ APPD RA	11/14/65	[illegible]
C	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	[illegible]
D	CHANGED PER TDRR 28097 DR R [illegible] CHK [illegible] APPD [illegible]	5/3/66	[illegible]
E	CHANGED PER TDRR 29321 DR [illegible] CHK R.L. [illegible] APPD P.C.O.	6/7/66	[illegible]


2 — 26
2 — 12
2 — 11
.50 HIGH SEE NOTE 7
.75±.06
TO PIN 20
25 — LG. .56±.06
24
SEE NOTE 8B
23 — REF
24
SEE NOTE 8B
DETAIL A SCALE 4/1
.12 HIGH SEE NOTES 6&7
.41±.06
.28±.06
.56±.06
2014336-□ ASSY
SERIAL NO. RAY □
49956
1.00±.06
MARK APPLICABLE DASH NO.
.12 HIGH SEE NOTE 7
2
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN SEE NOTE 3
6 — 13
15
SEE NOTE 11
6 — 20 MARKED JG
10 — 19 MARKED LN
21 MARKED KH
1
UPPER LEFT
HB
.16±.02 64 PLACES
.09±.02 128 PLACES
128 — 5 SEE NOTE 4
A
B
HC
HD
JG GE GE AC AC AC AC LN LN LN LN LN LN MK GE AC GE JG GE JG AC AC AC KH GE GE AC GE AC AC AC AC
JG GE GE AC AC AC MK AC LN LN LN LN GE AC JG AC JG GE AC AC AC AC AC AC AC AC AC MK AC
6
29
4 SEE NOTE 2
B
B
128 — 10
128 — 11
128 — 12
3
16 — 14
15
SEE NOTE 11
.08 HIGH SEE NOTE 3
3 — 18 MARKED MK
12 — 17 MARKED GE
29 — 16 MARKED AC
C B A
11
1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	23	A34-02	A34-20	
C2	↑	A34-13	A33-20	
C3		A32-13	A32-20	
C4		A34-15	A35-20	
C5		B35-01	B35-20	
C6		A09-15	A08-20	
C7		A19-06	A20-20	
C8		A07-05	A06-20	
C9		A07-02	A07-20	
C10		A01-13	A01-20	
C11		B11-06	B12-20	
C12		B34-08	B35-20	
C13		SEE NOTE 12	B22-20	
C14		B25-03	B24-20	
C15		B32-12	B32-20	
C16		B13-03	B13-20	
C17		A30-03	A30-20	
C18	↓	A30-05	A31-20	
C19	23	B25-02	B25-20	


16 — 6
16 — 7
16 — 8
16 — 9

SECTION B-B
SCALE 2/1

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY.
2. WIREWRAP FIND NO.4 USING FIND NO.22 PER 2014099 OR 2016377 OR 2016439 AND ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.23 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
9. ~~MIL-I-631 TYPE F FORM U GRADE A CLASS I CATEGORY I COLOR BLUE AWG SIZE NO.24 FOR FIND NO. 24~~
10. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 25
11. ASSEMBLE FIND NO.13 & FIND NO. 14 USING FIND NO. 15
12. FOR-011 & -021 CONFIGURATION, CAPACITOR LEAD ATTACHED TO B23-17 & FOR-031 CONFIGURATION, CAPACITOR LEAD ATTACHED TC B23-05

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
X	—	—	2016438	LOGIC DIAGRAM	REF
X	—	—	2016439	WIREWRAP MACH CARD	REF
—	X	—	2016390	LOGIC DIAGRAM	REF
—	X	—	2016377	WIREWRAP MACH CARD	REF
—	—	X	2019145	LOGIC DIAGRAM	REF
—	—	X	2014099	WIREWRAP MACH. CARD	REF
2	2	2	1006998-1	SCREW, CAPTIVE	26
* .9	.9	.9	SEE NOTE 10	SLEEVING	25
AR	AR	AR	1006776-197	SLEEVING, INSULATION	24
19	19	19	CS13AF010K	CAPACITOR, 1μf, 35V	23
AR	AR	AR	1006945-1	WIRE, ELEC, INSUL NO.24 AWG SOLID	22
1	1	1	1014079	MODULE, GATED FLIP-FLOP	21
6	6	6	1014065-3	MODULE, RESISTOR 510Ω	20
10	10	10	2014000-011	MODULE, BUFFERED FLIP-FLOP	19
3	3	3	1014096	MODULE, DRIVER	18
12	12	12	1014230	MODULE, INTERFACE RECEIVER	17
29	29	29	1014034	MODULE, NOR	16
AR	AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	16	MS51959-15	SCREW, FLAT HD	14
6	6	6	MS51959-27	SCREW, FLAT HD	13
130	130	130	MS35338-79	WASHER, LOCK	12
130	130	130	1006997	WASHER, FLAT	11
128	128	128	MS51957-29	SCREW, PAN HD	10
16	16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	16	MS35338-78	WASHER, LOCK	8
16	16	16	MS15795-803	WASHER, FLAT	7
16	16	16	MS51957-17	SCREW, PAN HD	6
128	128	128	1014212	STAND-OFF, PROGRAM	5
1	1	1	1006495-001	PLATE ASSY	4
1	1	1	1014026	COVER, CONN PLATE	3
1	1	1	1014258	SUPPORT, FRAME	2
1	1	1	1014014-2	FRAME	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014041	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4[illegible]
DRAWN J. Roper DATE 21 JUNE 65
CHECKED [illegible]
APPROVAL R E Dalk 11 MAY 65
APPROVAL D.D.B. [illegible] 7/15/65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL W. Coyle 15 Feb 66
MIT APPROVAL [illegible]

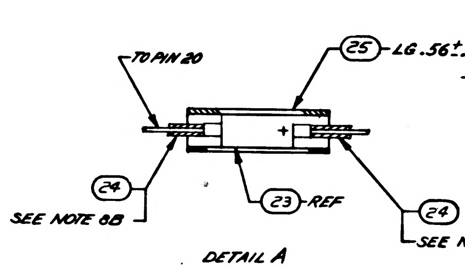
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO. 3
PROGRAMMER & MONITOR
COMPUTER TEST SET

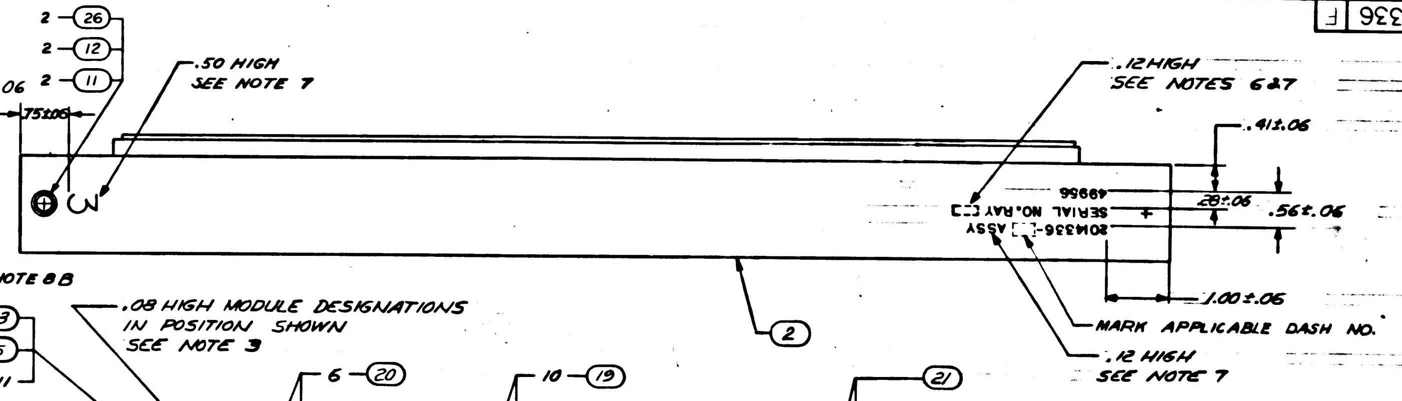
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014336
SCALE 1/1
WT
SHEET 1 OF 1

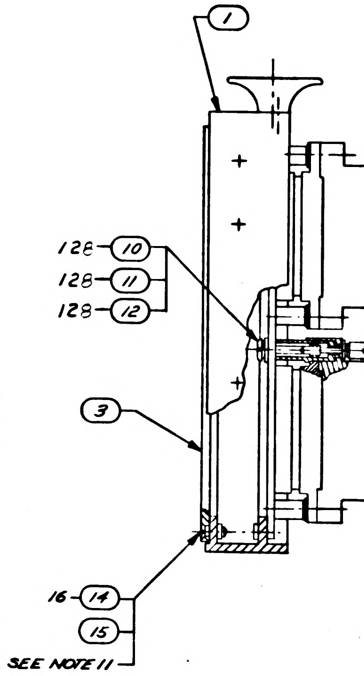
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

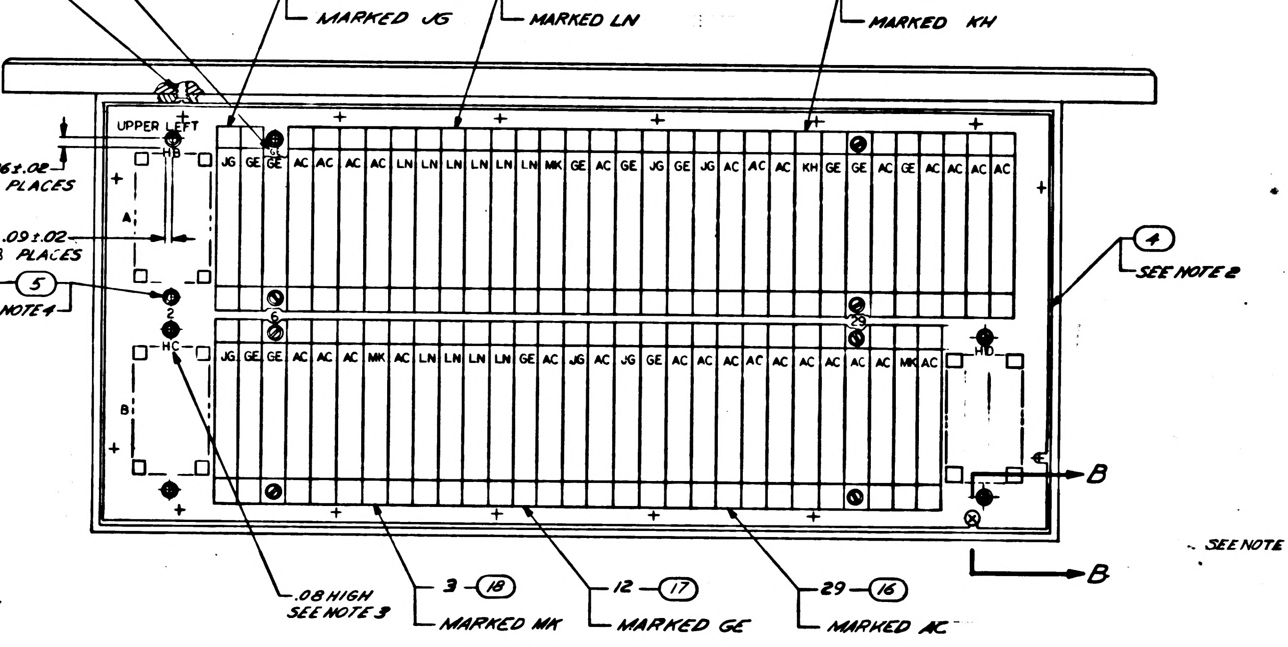
2014336 F

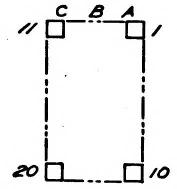

TO PIN 20
25 - LG .56±.06
+
24
SEE NOTE 8B
23 - REF
24
SEE NOTE 8B

DETAIL A
SCALE 4/1


2 - 26
2 - 12
2 - 11
.75±.06
.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTES 6&7
.41±.06
49956
SERIAL NO. RAY [ ]
2014336-[ ] ASSY
.28±.06
.56±.06
1.00±.06
2
MARK APPLICABLE DASH NO.
.12 HIGH
SEE NOTE 7


1
128 - 10
128 - 11
128 - 12
3
16 - 14
15
SEE NOTE 11


6 - 13
15
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
6 - 20
MARKED JG
10 - 19
MARKED LN
21
MARKED KH
UPPER LEFT
HB
.16±.02
64 PLACES
.09±.02
128 PLACES
128 - 5
SEE NOTE 4
A
B
HC
HD
JG GE GE AC AC AC AC LN LN LN LN LN LN MK GE AC GE JG GE JG AC AC AC KH GE GE AC GE AC AC AC AC
JG GE GE AC AC AC MK AC LN LN LN LN GE AC AC JG GE AC GE AC AC AC AC AC AC AC AC MK AC
4
SEE NOTE 2
B
B
.08 HIGH
SEE NOTE 3
3 - 18
MARKED MK
12 - 17
MARKED GE
29 - 16
MARKED AC

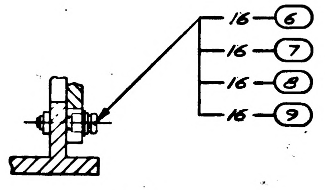

11
C
B
A
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.22 PER 2014099 OR 2016377 OR 2016439 AND ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.23 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE A CLASS I CATEGORY I COLOR BLUE AWG SIZE NO.24 FOR FIND NO. 24~~
10. MIL-I-631 TYPE F FORM Ua GRADE A CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 25
11. ASSEMBLE FIND NO.13 & FIND NO.14 USING FIND NO.15
12. FOR -011 & -021 CONFIGURATION, CAPACITOR LEAD ATTACHED TO B23-17 & FOR -031 & -041 CONFIGURATION, CAPACITOR LEAD ATTACHED TO B23-05

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	23	A34-02	A34-20	
C2	↑	A34-13	A33-20	
C3		A32-13	A32-20	
C4		A34-15	A35-20	
C5		B35-01	B35-20	
C6		A09-15	A08-20	
C7		A19-06	A20-20	
C8		A07-05	A06-20	
C9		A07-02	A07-20	
C10		A01-13	A01-20	
C11		B11-06	B12-20	
C12		B34-08	B35-20	
C13		SEE NOTE 12	B22-20	
C14		B25-03	B24-20	
C15		B32-12	B32-20	
C16		B13-03	B13-20	
C17		A30-03	A30-20	
C18	↓	A30-05	A31-20	
C19	23	B25-02	B25-20	
C20	27	B27-19	B23-20	SEE NOTE 13

NOTE
13. SLEEVE LEADS OF FIND NO. 27 USING FIND NO. 28.


16 - 6
16 - 7
16 - 8
16 - 9

SECTION B-B
SCALE 2/1

* DENOTES LENGTH IN FEET

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25076	[illegible]	
1	CHANGED PER CCA R25485 DR P. Milan CHK E. Urban APPD R. E. Dark 11-17-65	11/12/65	
—	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD P.C.D.	1/6/66	
B	CHANGED PER CCA R25711 DR [illegible] CHK [illegible] APPD RK	1/17/66	
C	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	
D	CHANGED PER TDRR 28097 DR [illegible] CHK [illegible] APPD [illegible]	5/3/66	
E	CHANGED PER TDRR 29321 DR [illegible] CHK [illegible] APPD P.C.D.	6/17/66	
F	CHANGED PER TDRR 30172 DR S. Roberts CHK C. DeHaven APPD [illegible]	8/2/66	

SEE NOTE 13

QTY REQD -041	QTY REQD [illegible]	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
X	—	—	—	2016452	LOGIC DIAGRAM	REF
—	X	—	—	2016438	LOGIC DIAGRAM	REF
X	X	—	—	2016439	WIREWRAP MACH CARD	REF
—	—	X	—	2016390	LOGIC DIAGRAM	REF
—	—	X	—	2016377	WIREWRAP MACH CARD	REF
—	—	—	X	2014145	LOGIC DIAGRAM	REF
—	—	—	X	2014099	WIREWRAP MACH. CARD	REF
AR	—	—	—	1006776-195	SLEEVING, INSULATION	28
1	—	—	—	CYFM20C472J	CAPACITOR, 4700 PF 300V	27
2	2	2	2	1006998-1	SCREW, CAPTIVE	26
*.9	.9	.9	.9	SEE NOTE 10	SLEEVING	25
AR	AR	AR	AR	1006776-197	SLEEVING, INSULATION	24
19	19	19	19	CS13AF010K	CAPACITOR, 1µF, 35V	23
AR	AR	AR	AR	1006945-1	WIRE, ELEC, INSUL NO.24 AWG SOLID	22
1	1	1	1	1014079	MODULE, GATED FLIP-FLOP	21
6	6	6	6	1014065-3	MODULE, RESISTOR 510Ω	20
10	10	10	10	2014000-011	MODULE, BUFFERED FLIP-FLOP	19
3	3	3	3	1014096	MODULE, DRIVER	18
12	12	12	12	1014230	MODULE, INTERFACE RECEIVER	17
29	29	29	29	1014034	MODULE, NOR	16
AR	AR	AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	16	16	MS51959-15	SCREW, FLAT HD	14
6	6	6	6	MS51959-27	SCREW, FLAT HD	13
130	130	130	130	MS35338-79	WASHER, LOCK	12
130	130	130	130	1006997	WASHER, FLAT	11
128	128	128	128	MS51957-29	SCREW, PAN HD	10
16	16	16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	16	16	MS35338-78	WASHER, LOCK	8
16	16	16	16	MS15795-803	WASHER, FLAT	7
16	16	16	16	MS51957-17	SCREW, PAN HD	6
128	128	128	128	1014212	STAND-OFF, PROGRAM	5
1	1	1	1	1006495-001	PLATE ASSY	4
1	1	1	1	1014026	COVER, CONN PLATE	3
1	1	1	1	1014258	SUPPORT, FRAME	2
1	1	1	1	1014014-2	FRAME	1

LIST OF MATERIALS

2014041	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. Rogers DATE 21 JUNE 65
CHECKED [illegible]
APPROVAL R. E. Dark 16 MAY 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 15 Feb 66
MIT APPROVAL [illegible]

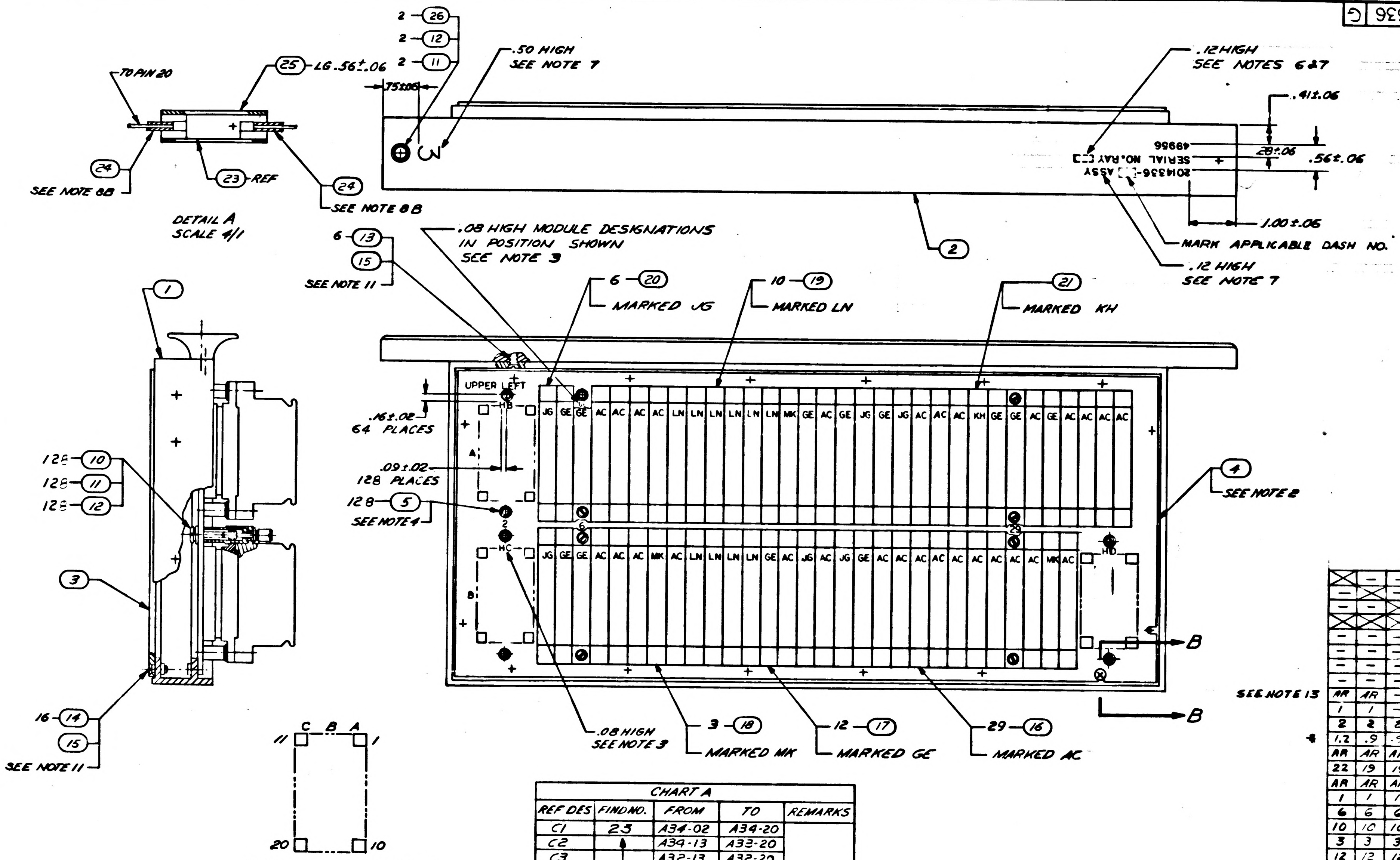
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO. 3
PROGRAMMER & MONITOR
COMPUTER TEST SET

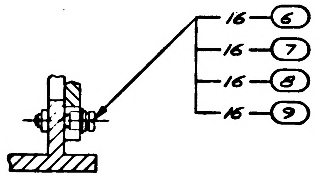
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014336
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25076		
1	CHANGED PER CCA R25485 DR P. Milward CHK E. Urban APPD [illegible]	11/12/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD P.C.D.	1/6/66	
B	CHANGED PER CCA R25711 DR [illegible] CHK [illegible] APPD [illegible]	1/17/66	
C	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	
D	CHANGED PER TDRR 28097 DR [illegible] CHK [illegible] APPD [illegible]	5/3/66	
E	CHANGED PER TDRR 29321 DR [illegible] CHK [illegible] APPD P.C.D.	6/1/66	
F	CHANGED PER TDRR 30172 DR [illegible] CHK C. DeHaven APPD [illegible]	7/2/66	
G	CHANGED PER TDRR 33449 DR [illegible] CHK [illegible] APPD [illegible]	9/14/66	


2014336 G
2 — 26
2 — 12
2 — 11
.50 HIGH
SEE NOTE 7
25 — LG .56±.06
TO PIN 20
.75±.06
24
SEE NOTE 8B
23 — REF
24
SEE NOTE 8B
DETAIL A
SCALE 4/1
.12 HIGH
SEE NOTES 6 & 7
.41±.06
49956
SERIAL NO. RAY [ ]
2014336-[ ] ASSY
.28±.06
.56±.06
1.00±.06
MARK APPLICABLE DASH NO.
.12 HIGH
SEE NOTE 7
2
6 — 13
15
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
6 — 20
MARKED JG
10 — 19
MARKED LN
21
MARKED KH
1
UPPER LEFT
HB
.16±.02
64 PLACES
A
.09±.02
128 PLACES
128 — 5
SEE NOTE 4
JG GE GE AC AC AC AC LN LN LN LN LN LN MK GE AC GE JG GE JG AC AC AC KH GE GE AC GE AC AC AC AC
2
6
29
HC
B
JG GE GE AC AC AC MK AC LN LN LN LN GE AC JG AC JG GE AC AC AC AC AC AC AC AC AC MK AC
HD
4
SEE NOTE 2
B
B
128 — 10
128 — 11
128 — 12
3
16 — 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
3 — 18
MARKED MK
12 — 17
MARKED GE
29 — 16
MARKED AC
C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)


16 — 6
16 — 7
16 — 8
16 — 9

SECTION B-B
SCALE 2/1

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	23	A34-02	A34-20	
C2		A34-13	A33-20	
C3		A32-13	A32-20	
C4		A34-15	A35-20	
C5		B35-01	B35-20	
C6		A09-15	A08-20	
C7		A19-06	A20-20	
C8		A07-05	A06-20	
C9		A07-02	A07-20	
C10		A01-13	A01-20	
C11		B11-06	B12-20	
C12		B34-08	B35-20	
C13		SEE NOTE 12	B22-20	
C14		B25-03	B24-20	
C15		B32-12	B32-20	
C16		B13-03	B13-20	
C17		A30-03	A30-20	
C18		A30-05	A31-20	
C19	23	B25-02	B25-20	
C20	27	B27-19	B23-20	SEE NOTE 13
C21	23	A17-13	A17-20	
C22	23	B34-10	B31-20	
C23	23	A17-1	A18-20	

NOTE
13. SLEEVE LEADS OF FIND NO. 27, USING FIND NO. 28

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 22 PER 2014099 OR 2016377 OR 2016439 AND ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 23 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE A CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 24~~
10. MIL-I-631 TYPE F FORM Ua GRADE A CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 25
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15
12. FOR -011 & -021 CONFIGURATION, CAPACITOR LEAD ATTACHED TO B23-17 & FOR -031, 041 & 051 CONFIGURATION, CAPACITOR LEAD ATTACHED TO B23-05

SEE NOTE 13

* DENOTES LENGTH IN FEET

QTY REQD -051	QTY REQD -041	QTY REQD	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
X	—	—	—	—	2016462	LOGIC DIAGRAM	REF
—	X	—	—	—	2016452	LOGIC DIAGRAM	REF
—	—	X	—	—	2016438	LOGIC DIAGRAM	REF
X	X	X	—	—	2016439	WIREWRAP MACH CARD	REF
—	—	—	X	—	2016390	LOGIC DIAGRAM	REF
—	—	—	X	—	2016377	WIREWRAP MACH CARD	REF
—	—	—	—	X	2014195	LOGIC DIAGRAM	REF
—	—	—	—	X	2014099	WIREWRAP MACH. CARD	REF
AR	AR	—	—	—	1006776-195	SLEEVING, INSULATION	28
1	1	—	—	—	CYFM[illegible]0C472J	CAPACITOR, 4700 PF 300V	27
2	2	2	2	2	1006998-1	SCREW, CAPTIVE	26
1.2 *	.9	.9	.9	.9	SEE NOTE 10	SLEEVING	25
AR	AR	AR	AR	AR	1006776-197	SLEEVING, INSULATION	24
22	19	19	19	19	CS13AF010K	CAPACITOR, 1UF, 35V	23
AR	AR	AR	AR	AR	1006945-1	WIRE, ELEC, INSUL NO. 24 AWG SOLID	22
1	1	1	1	1	1014079	MODULE, GATED FLIP-FLOP	21
6	6	6	6	6	1014065-3	MODULE, RESISTOR 510Ω	20
10	10	10	10	10	2014000-011	MODULE, BUFFERED FLIP-FLOP	19
3	3	3	3	3	1014096	MODULE, DRIVER	18
12	12	12	12	12	1014230	MODULE, INTERFACE RECEIVER	17
29	29	29	29	29	1014034	MODULE, NOR	16
AR	AR	AR	AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	16	16	16	MS51959-15	SCREW, FLAT HD	14
6	6	6	6	6	MS51959-27	SCREW, FLAT HD	13
130	130	130	130	130	MS35338-79	WASHER, LOCK	12
130	130	130	130	130	1006997	WASHER, FLAT	11
128	128	128	128	128	MS51957-29	SCREW, PAN HD	10
16	16	16	16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	16	16	16	MS35338-78	WASHER, LOCK	8
16	16	16	16	16	MS15795-803	WASHER, FLAT	7
16	16	16	16	16	MS51957-17	SCREW, PAN HD	6
128	128	128	128	128	1014212	STAND-OFF, PROGRAM	5
1	1	1	1	1	1006495-001	PLATE ASSY	4
1	1	1	1	1	1014026	COVER, CONN PLATE	3
1	1	1	1	1	1014258	SUPPORT, FRAME	2
1	1	1	1	1	1014014-2	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014041	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. [illegible]
DRAWN [illegible] DATE 21 JUNE 65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

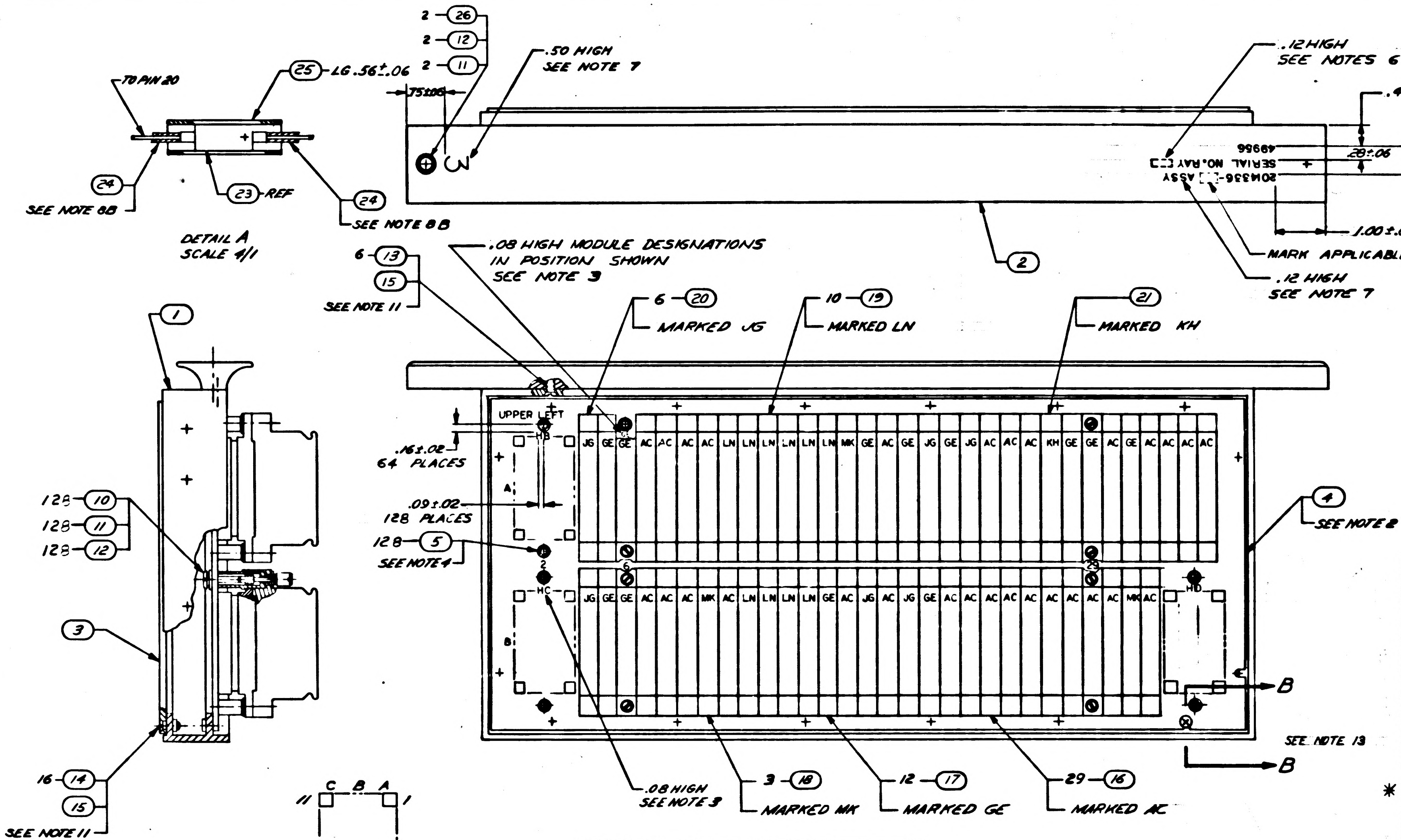
LOGIC PLATE ASSY NO. 3
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014336
SCALE 1/1
WT
SHEET 1 OF 1

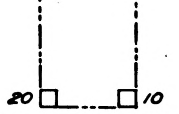
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

- 2014336

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA 25076		
1	CHANGED PER CCA R25485 DR P. Milant CHK E Urban APPD	11/12/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR CHK APPD P.C.D.	4/8/65	
B	CHANGED PER CCA R25711 DR CHK APPD ER	11/17/65	
C	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	
D	CHANGED PER TDRR 28097 DR CHK APPD	5/3/66	
E	CHANGED PER TDRR 29321 DR CHK APPD P.C.D.	6/1/66	
F	CHANGED PER TDRR 30172 DR CHK C. DiVeena APPD	7/2/66	
G	CHANGED PER TDRR 33449 DR CHK APPD	10/14/66	
H	CHANGED PER TDRR 35533 DR CHK APPD TER	12/22/66	



TO PIN 20
25 - LG .56±.06
23 - REF
24
SEE NOTE 8B
DETAIL A
SCALE 4/1
2 - 26
2 - 12
2 - 11
.75±.06
.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTES 6&7
.41±.06
.28±.06
.56±.06
1.00±.06
2
MARK APPLICABLE DASH NO.
.12 HIGH
SEE NOTE 7
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
6 - 13
15
SEE NOTE 11
1
6 - 20
MARKED JG
10 - 19
MARKED LN
21
MARKED KH
UPPER LEFT
.16±.02
64 PLACES
.09±.02
128 PLACES
128 - 5
SEE NOTE 4
128 - 10
128 - 11
128 - 12
3
4
SEE NOTE 2
B
B
SEE NOTE 13
16 - 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
3 - 18
MARKED MK
12 - 17
MARKED GE
29 - 16
MARKED AC
C B A
11 1

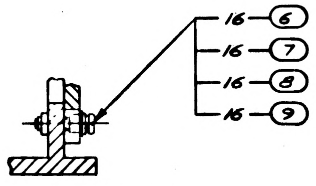


TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	23	A34-02	A34-20	
C2		A34-13	A33-20	
C3		A32-13	A32-20	
C4		A34-15	A35-20	
C5		B35-01	B35-20	
C6		A09-15	A08-20	
C7		A19-06	A20-20	
C8		A07-05	A06-20	
C9		A07-02	A07-20	
C10		A01-13	A01-20	
C11		B11-06	B12-20	
C12		B34-08	B35-20	
C13		SEE NOTE 12	B22-20	
C14		B25-03	B24-20	
C15		B32-12	B32-20	
C16		B13-03	B13-20	
C17		A30-03	A30-20	
C18		A30-05	A31-20	
C19	23	B25-02	B25-20	
C20	27	B27-19	B23-20	SEE NOTE 13
C21	23	A17-13	A17-20	
C22	23	B34-10	B31-20	
C23	23	A17-1	A18-20	
C24	29	A05-02	A05-20	FOR -061
C25	23	B34-13	B34-20	FOR -061

NOTE

13 SLEEVE LEADS OF FIND NO. 27, USING FIND NO. 28



16 - 6
16 - 7
16 - 8
16 - 9

SECTION B-B
SCALE 2/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.22 PER 2014099 OR 2016377 OR 2016439 OR 2016476 AND ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.23 PER CHART A & DETAIL A
8A. SOLDER PER ND1002071
8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE A CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 24~~
10. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 25
11. ASSEMBLE FIND NO.13 & FIND NO. 14 USING FIND NO. 15
12. FOR -011 & -021 CONFIGURATION, CAPACITOR LEAD ATTACHED TO B23-17 & FOR -031,-041,-051 & -061 CONFIGURATION, CAPACITOR LEAD ATTACHED TO B23-05

1	—	—	—	—	—	CY15C471J	CAPACITOR, 470 PF, 500V	29
X	—	—	—	—	—	2016474	LOGIC DIAGRAM	REF
X	—	—	—	—	—	2016476	WIREWRAP MACH CARD	REF
—	X	—	—	—	—	2016462	LOGIC DIAGRAM	REF
—	—	X	—	—	—	2016452	LOGIC DIAGRAM	REF
—	—	—	X	—	—	2016438	LOGIC DIAGRAM	REF
—	X	X	X	—	—	2016439	WIREWRAP MACH CARD	REF
—	—	—	—	X	—	2016390	LOGIC DIAGRAM	REF
—	—	—	—	X	—	2016377	WIREWRAP MACH CARD	REF
—	—	—	—	—	X	2014145	LOGIC DIAGRAM	REF
	—	—	—	—	X	2014099	WIREWRAP MACH. CARD	REF
AR	AR	AR	—	—	—	1006776-195	SLEEVING, INSULATION	28
1	1	1	—	—	—	CYFM20C472J	CAPACITOR, 4700 PF 300V	27
2	2	2	2	2	2	1006998-1	SCREW, CAPTIVE	26
* 1.2	1.2	.9	.9	.9	.9	SEE NOTE 10	SLEEVING	25
AR	AR	AR	AR	AR	AR	1006776-197	SLEEVING, INSULATION	24
23	22	19	19	19	19	CS13AF010K	CAPACITOR, 1UF, 35V	23
AR	AR	AR	AR	AR	AR	1006945-1	WIRE, ELEC, INSUL NO.24 AWG SOLID	22
1	1	1	1	1	1	1014079	MODULE, GATED FLIP-FLOP	21
6	6	6	6	6	6	1014065-3	MODULE, RESISTOR 510Ω	20
10	10	10	10	10	10	2014000-011	MODULE, BUFFERED FLIP-FLOP	19
3	3	3	3	3	3	1014096	MODULE, DRIVER	18
12	12	12	12	12	12	1014230	MODULE, INTERFACE RECEIVER	17
29	29	29	29	29	29	1014034	MODULE, NOR	16
AR	AR	AR	AR	AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	16	16	16	16	MS51959-15	SCREW, FLAT HD	14
6	6	6	6	6	6	MS51959-27	SCREW, FLAT HD	13
130	130	130	130	130	130	MS35338-79	WASHER, LOCK	12
130	130	130	130	130	130	1006997	WASHER, FLAT	11
128	128	128	128	128	128	MS51957-29	SCREW, PAN HD	10
16	16	16	16	16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	16	16	16	16	MS35338-78	WASHER, LOCK	8
16	16	16	16	16	16	MS15795-803	WASHER, FLAT	7
16	16	16	16	16	16	MS51957-17	SCREW, PAN HD	6
128	128	128	128	128	128	1014212	STAND-OFF, PROGRAM	5
1	1	1	1	1	1	1006495-001	PLATE ASSY	4
1	1	1	1	1	1	1014026	COVER, CONN PLATE	3
1	1	1	1	1	1	1014258	SUPPORT, FRAME	2
1	1	1	1	1	1	1014014-2	FRAME	1
QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-061	-051	-041		-021	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014041	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. [illegible]
DRAWN J. Roper DATE 21 JUNE 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. [illegible]
MIT APPROVAL
MIT APPROVAL

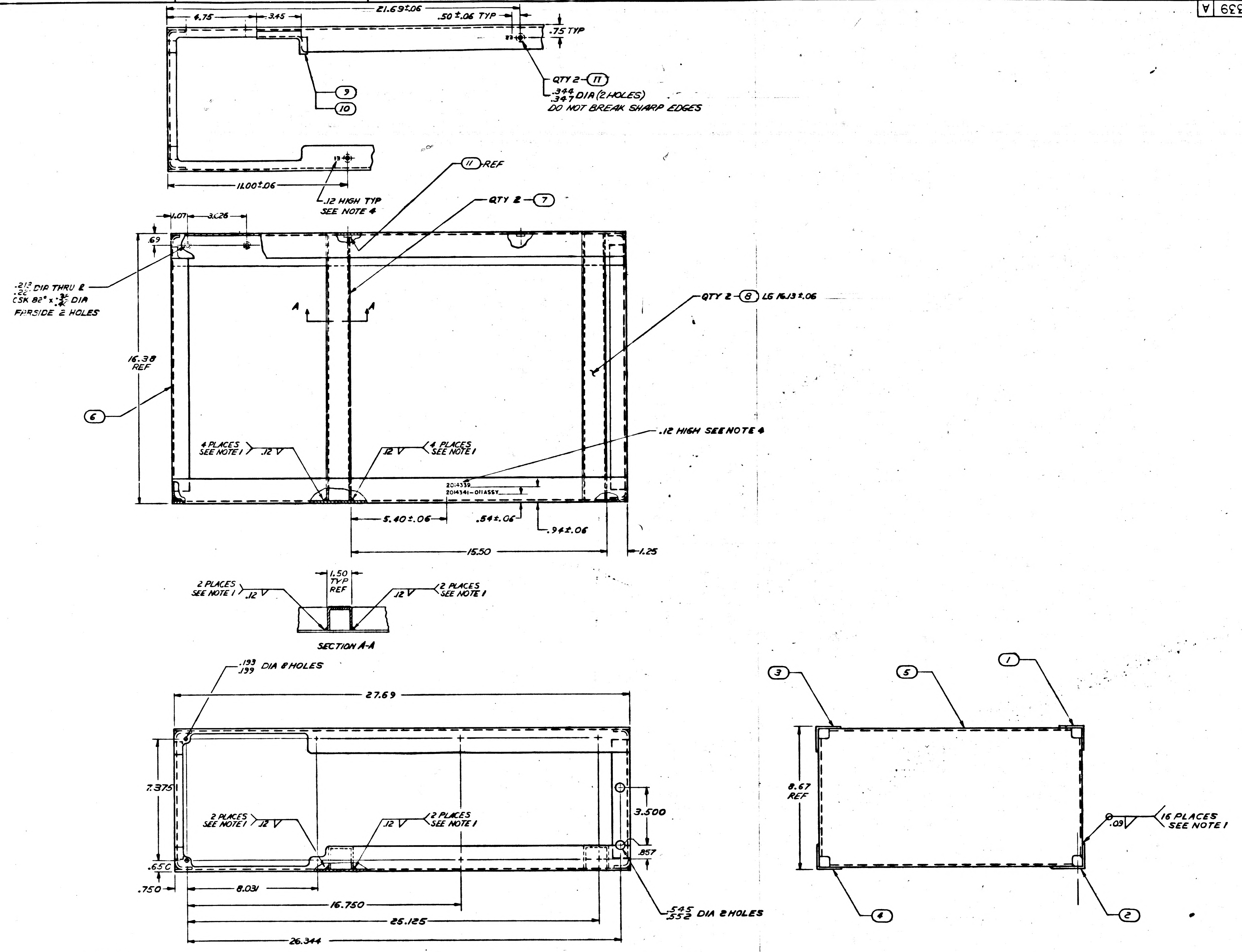
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO. 3
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014336
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25193	9/17/65	
1	CHANGED PER CCA R-25251 DR CHK K.L.Chase APPD	22 Oct 65	
2	CHANGED PER CCA R25517 DR R CHK APPD	11/16/65	
—	CLASS A RELEASED PER TDRR 25476		
A	CHANGED PER TDRR 26259 DR CHK APPD	3/10/66	



4.75
3.45
21.69±.06
.50±.06 TYP
.75 TYP
QTY 2 — 11
.344/.347 DIA (2 HOLES)
DO NOT BREAK SHARP EDGES
9
10
11.00±.06
.12 HIGH TYP SEE NOTE 4
11 REF
QTY 2 — 7
1.07
3.026
.69
.213/.221 DIA THRU 2
CSK 82° x .34/.36 DIA
FARSIDE 2 HOLES
A
A
QTY 2 — 8 LG 16.13±.06
16.38 REF
6
4 PLACES SEE NOTE 1
.12
4 PLACES SEE NOTE 1
.12 HIGH SEE NOTE 4
2014339
2014341-011 ASSY
5.40±.06
.54±.06
.94±.06
15.50
1.25
1.50 TYP REF
2 PLACES SEE NOTE 1
.12
2 PLACES SEE NOTE 1
SECTION A-A
.193/.199 DIA 8 HOLES
27.69
7.375
2 PLACES SEE NOTE 1
.12
2 PLACES SEE NOTE 1
3.500
.857
.650
.750
8.031
16.750
25.125
26.344
.545/.552 DIA 2 HOLES
3
5
1
8.67 REF
.09
16 PLACES SEE NOTE 1
4
2

NOTES
1. WELD PER MIL-W-8604
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. AR DENOTES AS REQUIRED

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	2	1006989-27	NUT, SELF CLINCHING	11
	AR	MIL-A-5092 TYPE I	ADHESIVE, RUBBER	10
✱	.4	1006242	RUBBER CHANNEL	9
✱	2.9	1006692-3	TAPE, ADHESIVE	8
	2	2014339-007	CHANNEL, SUPPORT	7
	1	2014339-006	PLATE, LEFT SIDE	6
	1	2014339-005	PLATE, RIGHT SIDE	5
	1	2014339-004	ANGLE, SUPPORT, FRONT	4
	1	2014339-003	ANGLE, SUPPORT, FRONT	3
	1	2014339-002	ANGLE, SUPPORT, REAR	2
	1	2014339-001	ANGLE, SUPPORT, REAR	1

LIST OF MATERIALS

2014339 A

✱ DENOTES LENGTH IN FEET

2014341	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL SEE NOTE

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 2 SEP 65
CHECKED 2 Sep 65
APPROVAL P. Corcoran 9-10-65
APPROVAL 9/10/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

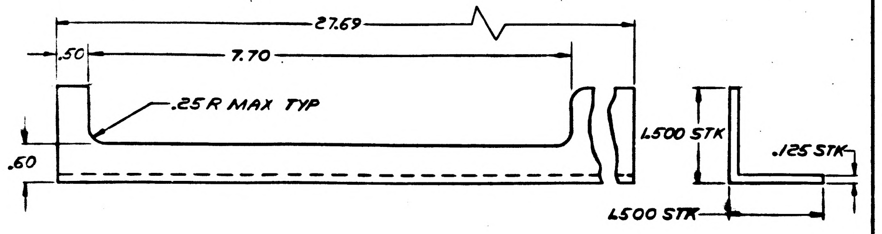
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014339
SCALE 1/2
WT
SHEET 1 OF 2

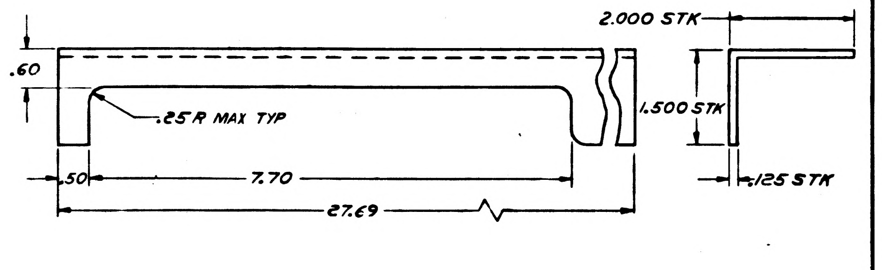
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25193	9/1/65	[illegible]
1	CHANGED PER CCA R 25251 DR [illegible] CHK K. A. Chasen APPD [illegible]	22 Oct 65	[illegible]
2	CHANGED PER CCA R25517 DR P. Milsten CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS 4 RELEASED PER TDRR [illegible]		
A	CHANGED PER TDRR 26453 DR [illegible] CHKD [illegible] APPD [illegible]	[illegible]	[illegible]


27.69
.50
7.70
.25 R MAX TYP
.60
1.500 STK
.125 STK
1.500 STK

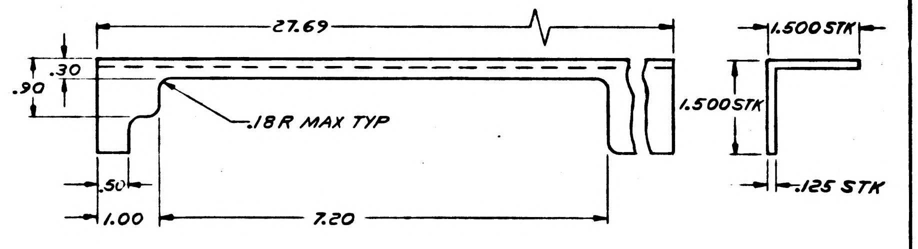
NOTES
1. MATL: AL6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02, .XXX±.005

2014339-001


2.000 STK
.60
.25 R MAX TYP
1.500 STK
.50
7.70
.125 STK
27.69

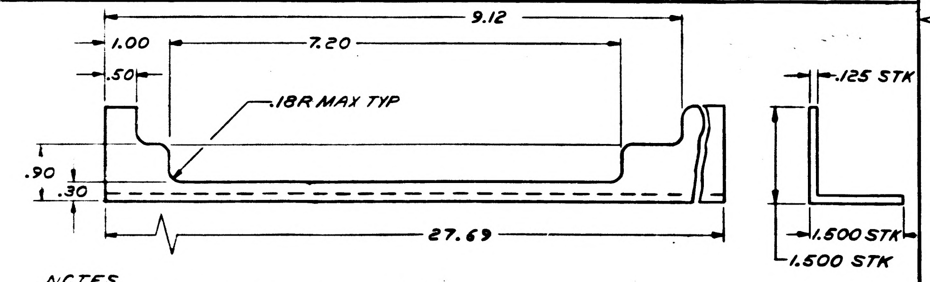
NOTES
1. MATL: AL 6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02 .XXX±.005

2014339-002


27.69
1.500 STK
.30
.90
.18 R MAX TYP
1.500 STK
.50
1.00
7.20
.125 STK

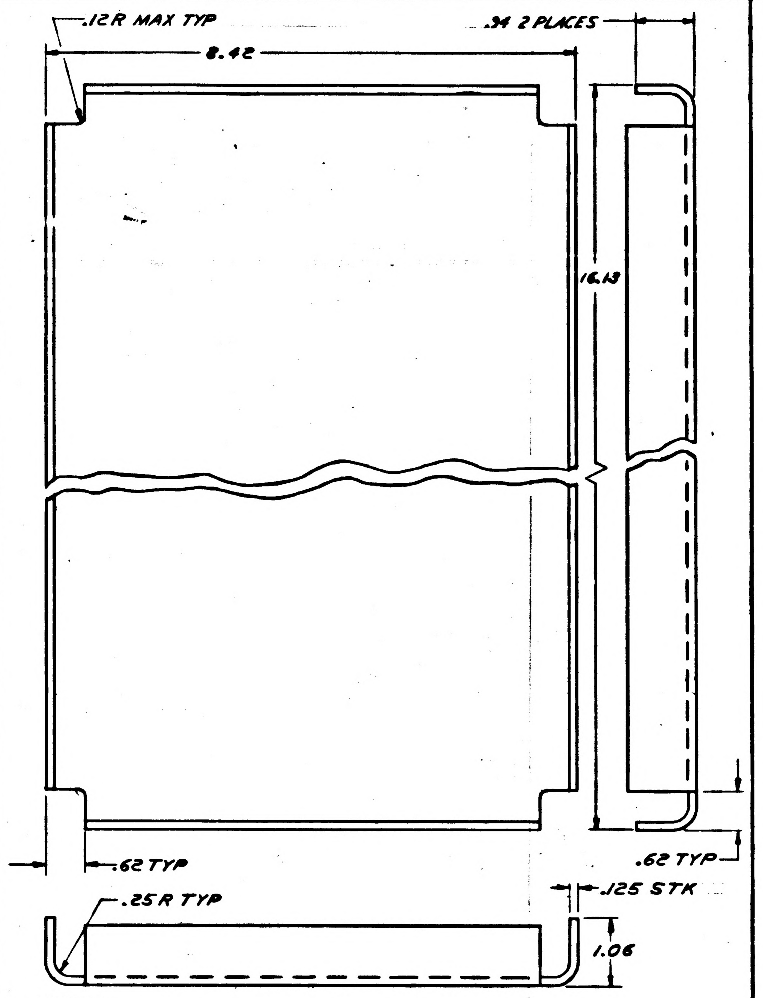
NOTES
1. MATL: AL6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02, .XXX ±.005

2014339-003


9.12
1.00
7.20
.50
.18R MAX TYP
.125 STK
.90
.30
27.69
1.500 STK
1.500 STK

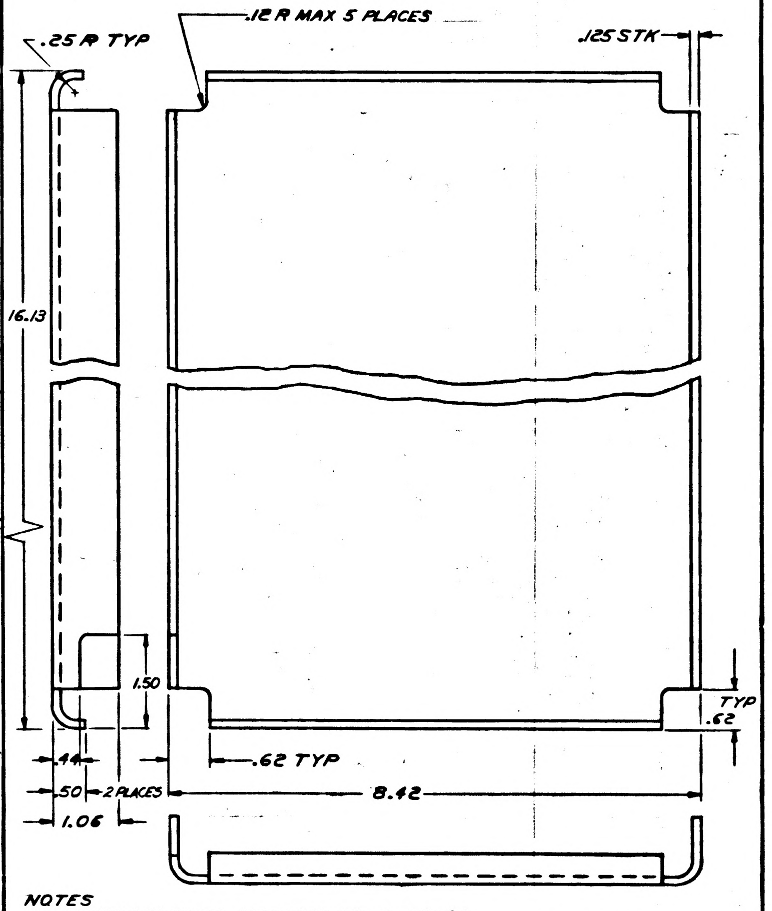
NOTES
1. MATL: AL6063-T5 PER QQ-A-200/9
2. TOL: XX±.02, .XXX±.005

2014339-004


.12 R MAX TYP
.34 2 PLACES
8.42
16.13
.62 TYP
.62 TYP
.25 R TYP
.125 STK
1.06

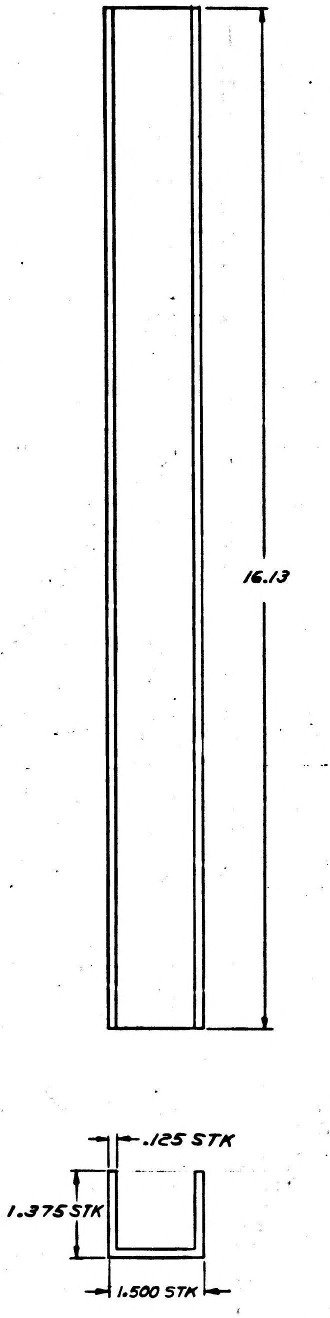
NOTES
1. MATL: AL5052-H32 PER QQ-A-250/8
2. TOL: .XX±.02, .XXX±.005

2014339-005


.12 R MAX 5 PLACES
.25 R TYP
.125 STK
16.13
1.50
TYP
.62
.44
.62 TYP
.50
2 PLACES
8.42
1.06

NOTES
1. MATL: AL5052-H32 PER QQ-A-250/8
2. TOL: .XX±.02, .XXX±.005

2014339-006


16.13
.125 STK
1.375 STK
1.500 STK

NOTES
1. MATL: AL6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02, .XXX±.005

2014339-007

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL
SEE NOTE

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 22 JUN 65
CHECKED [illegible]
APPROVAL [illegible] 9-14-65
APPROVAL D. O'Bryant 9/14/65
APPROVAL [illegible]
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

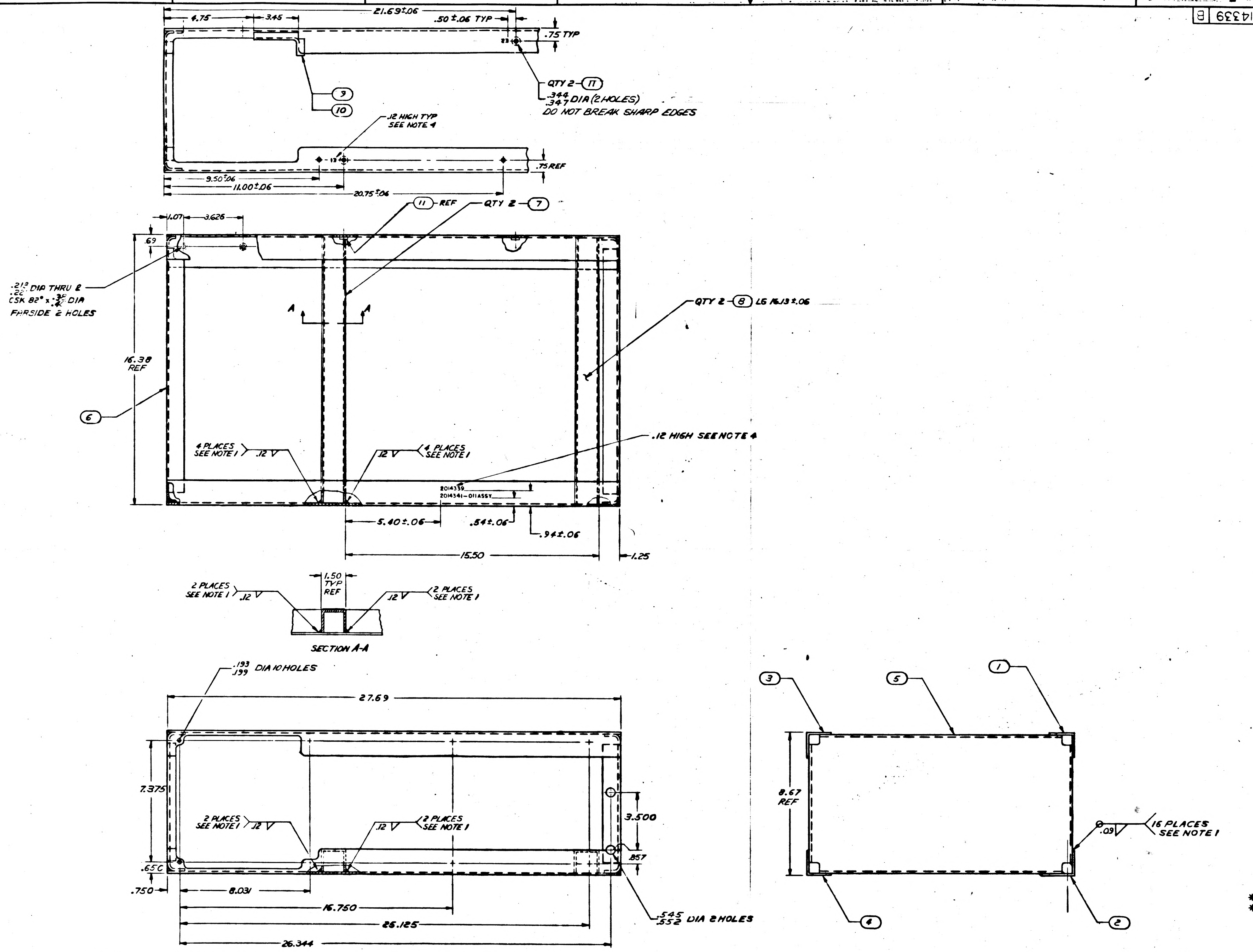
FRAME ASSEMBLY
AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014339
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014339 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25193	9/1/65	
1	CHANGED PER CCA R-25251 DR CHK APPD	22 Oct 65	
2	CHANGED PER CCA R25517 DR CHK APPD	11/16/65	
—	CLASS A RELEASED PER TDRR 25476		
A	CHANGED PER TDRR 26459 DR CHK APPD	3/10/66	
B	CHANGED PER TDRR 26520 DR CHK APPD	3/27/66	



21.69±.06
4.75
3.45
.50±.06 TYP
.75 TYP
9
10
QTY 2 - 11
.344/.347 DIA (2 HOLES)
DO NOT BREAK SHARP EDGES
.12 HIGH TYP SEE NOTE 4
.75 REF
9.50±.06
11.00±.06
20.75±.06
11 REF
QTY 2 - 7
1.07
3.625
.69
.213/.221 DIA THRU 2
CSK 82° x .35/.36 DIA
FARSIDE 2 HOLES
A
A
QTY 2 - 8 LG 16.13±.06
16.38 REF
6
4 PLACES SEE NOTE 1
.12
.12 HIGH SEE NOTE 4
2014339
2014341-011 ASSY
5.40±.06
.54±.06
.94±.06
15.50
1.25
1.50 TYP REF
2 PLACES SEE NOTE 1
SECTION A-A
.193/.199 DIA 10 HOLES
27.69
7.375
3.500
.857
.650
.750
8.031
16.750
25.125
26.344
.545/.552 DIA 2 HOLES
3
5
1
8.67 REF
.09
16 PLACES SEE NOTE 1
4
2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	1006989-27	NUT, SELF CLINCHING	11
AR	MIL-A-5092 TYPE I	ADHESIVE, RUBBER	10
* .4	1006242	RUBBER CHANNEL	9
* 2.9	1006692-3	TAPE, ADHESIVE	8
2	2014339-007	CHANNEL, SUPPORT	7
1	2014339-006	PLATE, LEFT SIDE	6
1	2014339-005	PLATE, RIGHT SIDE	5
1	2014339-004	ANGLE, SUPPORT, FRONT	4
1	2014339-003	ANGLE, SUPPORT, FRONT	3
1	2014339-002	ANGLE, SUPPORT, REAR	2
1	2014339-001	ANGLE, SUPPORT, REAR	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NOTES
1. WELD PER MIL-W-8604
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. AR DENOTES AS REQUIRED

NEXT ASSY	USED ON
2014341	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL SEE NOTE

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 2 Sep 65
CHECKED 2 Sep 65
APPROVAL 9-10-65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

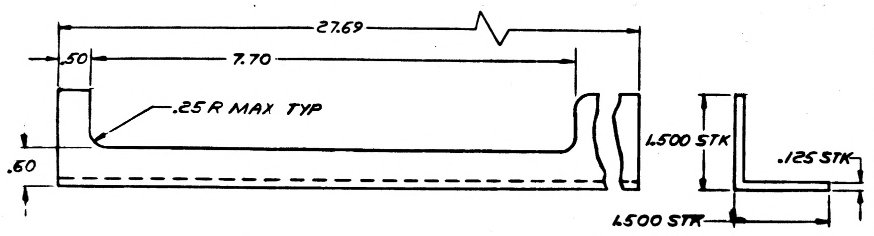
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014339
SCALE 1/2
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

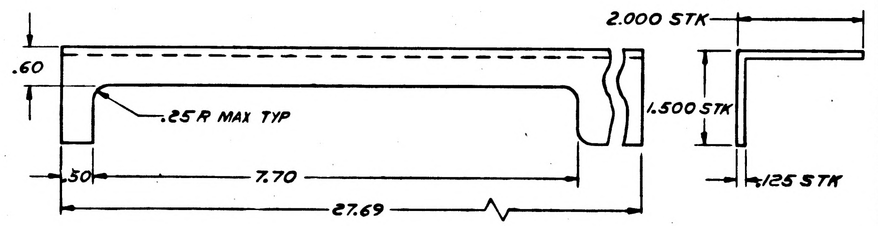
2014339 B



27.69
.50
7.70
.25 R MAX TYP
.60
1.500 STK
.125 STK
1.500 STK

NOTES
1. MATL: AL6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02, .XXX±.005

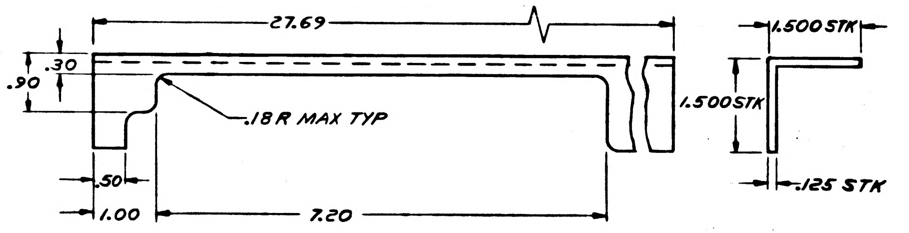
2014339-001



2.000 STK
.60
.25 R MAX TYP
1.500 STK
.50
7.70
.125 STK
27.69

NOTES
1. MATL: AL 6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02 .XXX±.005

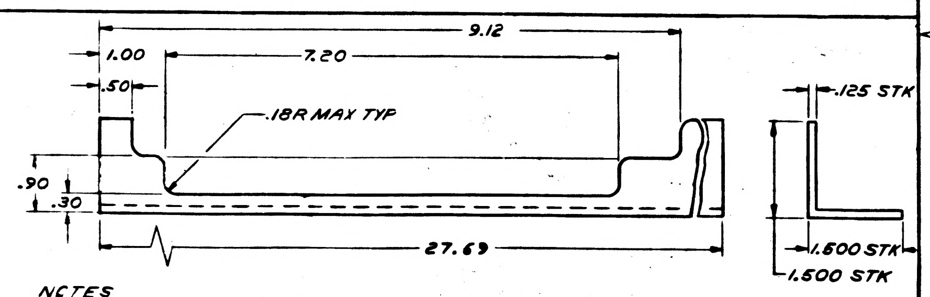
2014339-002



27.69
1.500 STK
.30
.90
.18 R MAX TYP
1.500 STK
.50
.125 STK
1.00
7.20

NOTES
1. MATL: AL6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02, .XXX ±.005

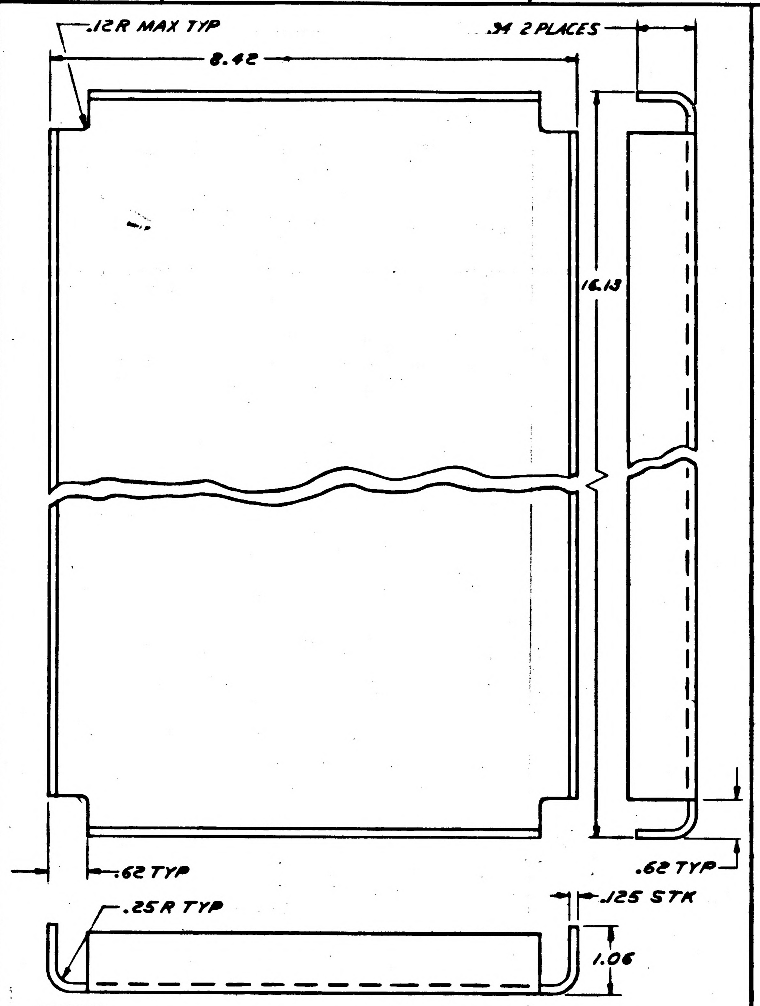
2014339-003



9.12
1.00
7.20
.125 STK
.50
.18 R MAX TYP
.90
.30
27.69
1.500 STK
1.500 STK

NOTES
1. MATL: AL6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02, .XXX±.005

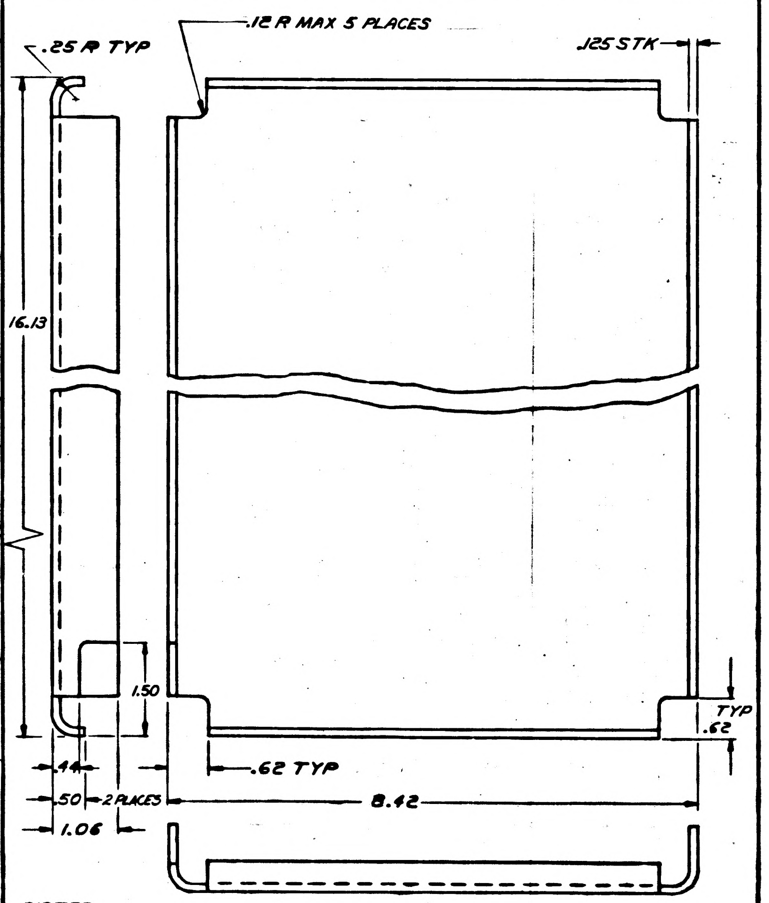
2014339-004



.12 R MAX TYP
.34 2 PLACES
8.42
16.13
.62 TYP
.62 TYP
.25 R TYP
.125 STK
1.06

NOTES
1. MATL: AL5052-H32 PER QQ-A-250/8
2. TOL: .XX±.02, .XXX±.005

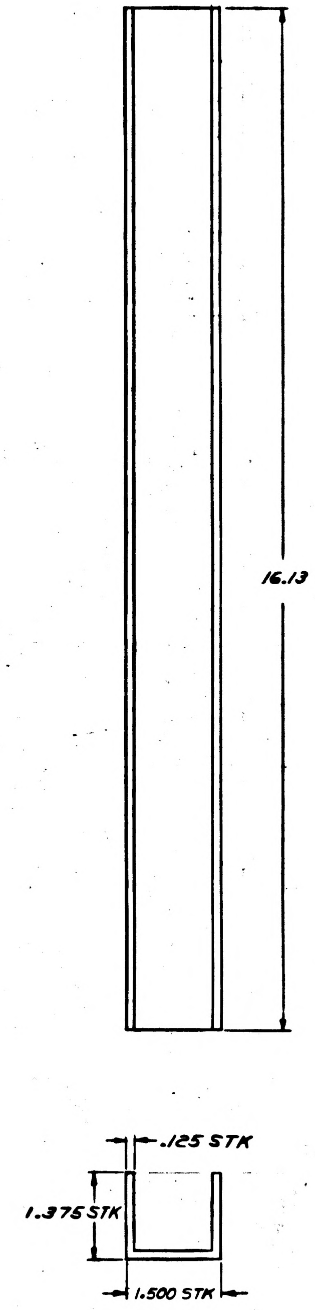
2014339-005



.12 R MAX 5 PLACES
.25 R TYP
.125 STK
16.13
1.50
TYP
.62
.44
.62 TYP
.50 2 PLACES
8.42
1.06

NOTES
1. MATL: AL5052-H32 PER QQ-A-250/8
2. TOL: .XX±.02, .XXX±.005

2014339-006



16.13
.125 STK
1.375 STK
1.500 STK

NOTES
1. MATL: AL6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02, .XXX±.005

2014339-007

2014339 B

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25193	9/17/65	[illegible]
1	CHANGED PER CCA R 25251 DR [illegible] CHK K. L. Chasin APPD J. Conley	22 Oct 65	[illegible]
2	CHANGED PER CCA R25517 DR P. Milan CHK [illegible] APPD J. Conley	11/10/65	[illegible]
–	CLASS 4 RELEASED PER TDRR 2533		
A	CHANGED PER TDRR 26459 DR [illegible] CHK [illegible] APPD J. Conley	3/10/66	[illegible]
B	CHANGED PER TDRR 26520 DR Tom Albon CHK [illegible] APPD AED	3/21/66	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL
SEE NOTE

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 23 JUN 65
CHECKED [illegible] 20 Aug 65
APPROVAL [illegible]
APPROVAL [illegible] 9/14/65
APPROVAL [illegible]
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014339
SCALE 1/1
WT
SHEET 2 OF 2

MASTER

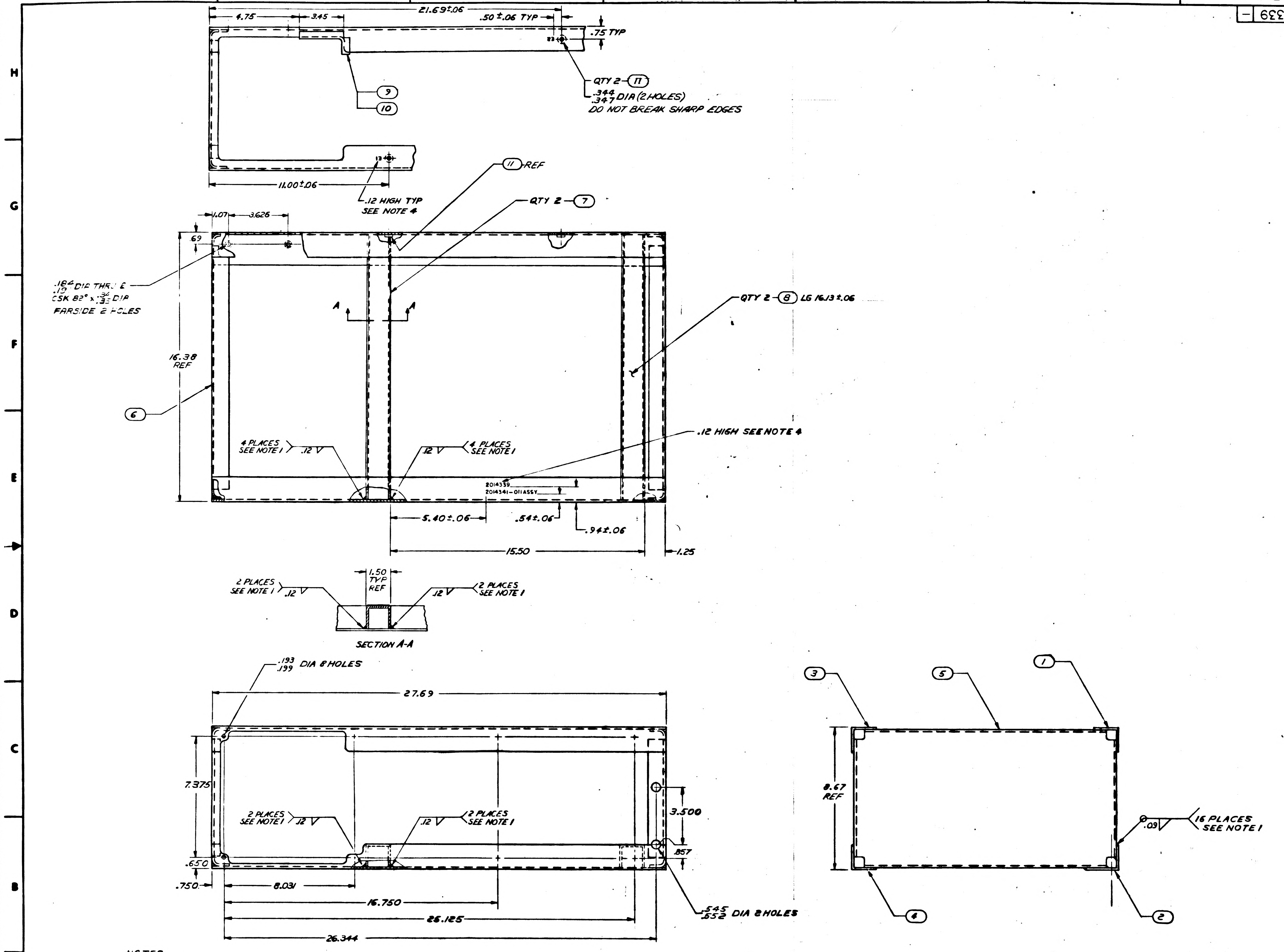
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014339 B

2014339 B

2014339 –

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25193	9/17/65	
1	CHANGED PER CCA R-25251 DR CHK APPD	22 Oct 65	
2	CHANGED PER CCA R25517 DR CHK APPD	4/10/66	
–	CLASS A RELEASED PER TDRR 25476		



21.69±.06
4.75
3.45
.50±.06 TYP
.75 TYP
9
10
QTY 2 – 11
.344/.347 DIA (2 HOLES)
DO NOT BREAK SHARP EDGES
11.00±.06
.12 HIGH TYP
SEE NOTE 4
11 REF
QTY 2 – 7
1.07
3.626
.69
.184/.191 DIA THRU &
CSK 82° x .34/.35 DIA
FARSIDE 2 HOLES
A
A
QTY 2 – 8 LG 16.13±.06
16.38 REF
6
4 PLACES SEE NOTE 1 .12
.12 4 PLACES SEE NOTE 1
.12 HIGH SEE NOTE 4
2014339
2014341-011 ASSY
5.40±.06
.54±.06
.94±.06
15.50
1.25
1.50 TYP REF
2 PLACES SEE NOTE 1 .12
.12 2 PLACES SEE NOTE 1
SECTION A-A
.193/.199 DIA 8 HOLES
27.69
7.375
3.500
.857
.650
.750
2 PLACES SEE NOTE 1 .12
.12 2 PLACES SEE NOTE 1
8.031
16.750
26.125
26.344
.545/.552 DIA 2 HOLES
3
5
1
8.67 REF
.09
16 PLACES SEE NOTE 1
4
2

NOTES
1. WELD PER MIL-W-8604
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. AR DENOTES AS REQUIRED

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	2	1006989-27	NUT, SELF CLINCHING	11
	AR	MIL-A-5092 TYPE I	ADHESIVE, RUBBER	10
✱	.4	1006242	RUBBER CHANNEL	9
✱	2.9	1006692-3	TAPE, ADHESIVE	8
	2	2014339-007	CHANNEL, SUPPORT	7
	1	2014339-006	PLATE, LEFT SIDE	6
	1	2014339-005	PLATE, RIGHT SIDE	5
	1	2014339-004	ANGLE, SUPPORT, FRONT	4
	1	2014339-003	ANGLE, SUPPORT, FRONT	3
	1	2014339-002	ANGLE SUPPORT, REAR	2
	1	2014339-001	ANGLE, SUPPORT, REAR	1

LIST OF MATERIALS

✱ DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014341	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL
SEE NOTE

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 2 Sep 65
CHECKED 2 Sep 65
APPROVAL 9-10-65
APPROVAL 9/10/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014339

SCALE 1/2 WT SHEET 1 OF 2

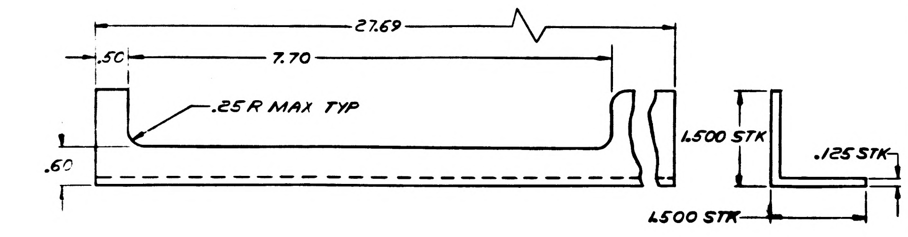
2014339

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014339 –

2014339 -

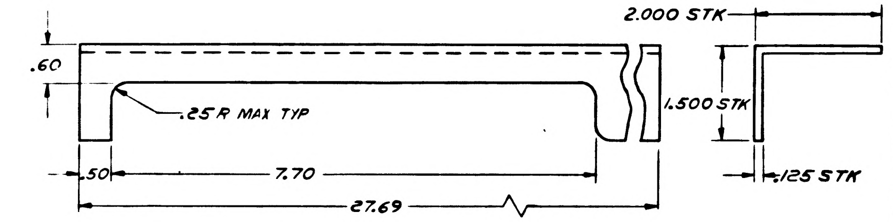
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25193	[illegible]	[illegible]
1	CHANGED PER CCA R 25251 DR [illegible] CHK K. [illegible] APPD [illegible]	22 Oct 65	[illegible]
2	CHANGED PER CCA R25517 DR P. [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
-	CLASS 3 RELEASED PER [illegible]		



27.69
.50
7.70
.25 R MAX TYP
.60
1.500 STK
.125 STK
1.500 STK

NOTES
1. MATL: AL6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02, .XXX±.005

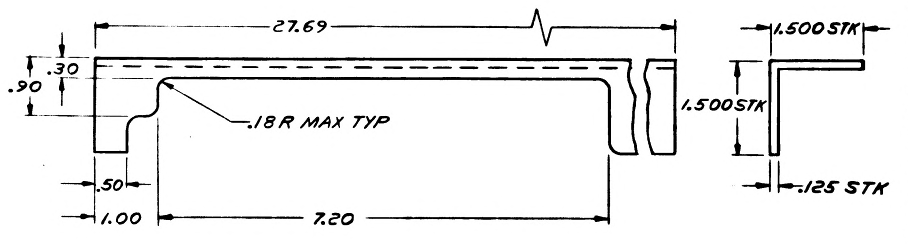
2014339-001



2.000 STK
.60
.25 R MAX TYP
1.500 STK
.50
7.70
27.69
.125 STK

NOTES
1. MATL: AL 6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02 .XXX±.005

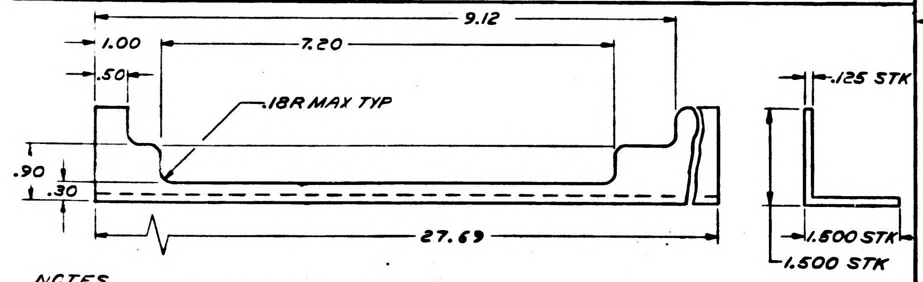
2014339-002



27.69
1.500 STK
.30
.90
.18 R MAX TYP
1.500 STK
.50
.125 STK
1.00
7.20

NOTES
1. MATL: AL6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02, .XXX±.005

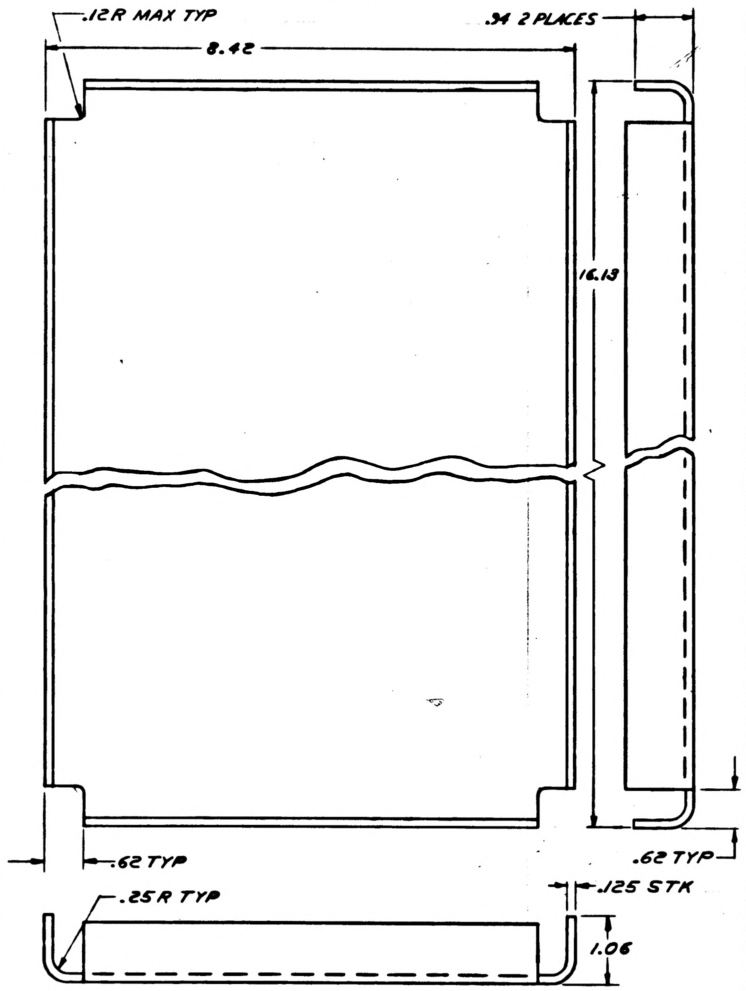
2014339-003



9.12
1.00
7.20
.50
.125 STK
.18 R MAX TYP
.90
.30
27.69
1.500 STK
1.500 STK

NOTES
1. MATL: AL6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02, .XXX±.005

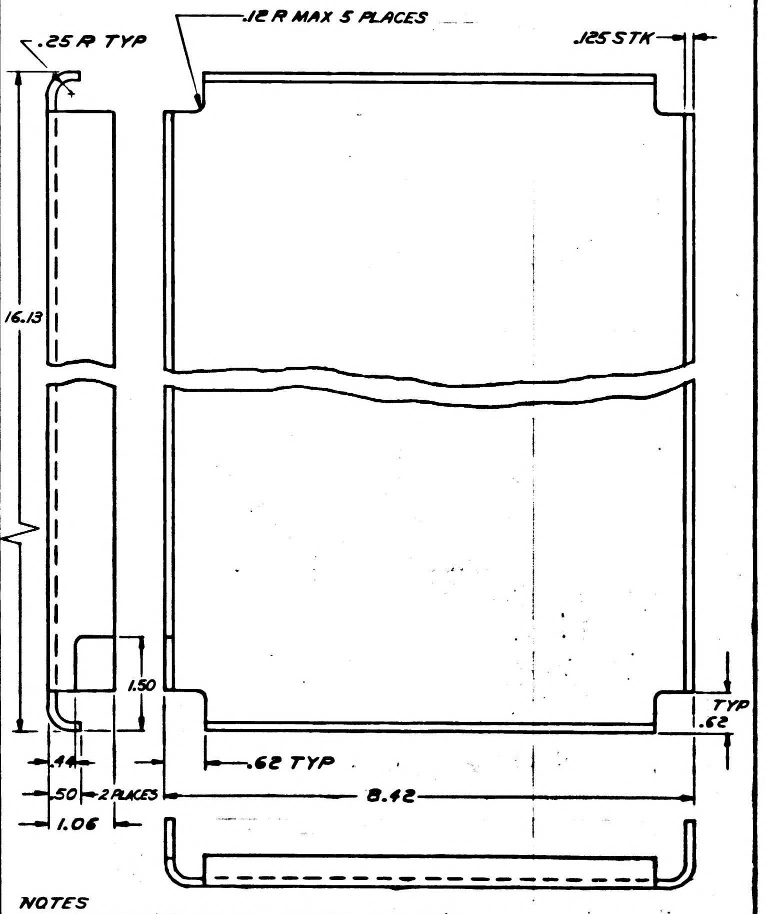
2014339-004



.12 R MAX TYP
.34 2 PLACES
8.42
16.13
.62 TYP
.62 TYP
.25 R TYP
.125 STK
1.06

NOTES
1. MATL: AL5052-H32 PER QQ-A-250/8
2. TOL: .XX±.02, .XXX±.005

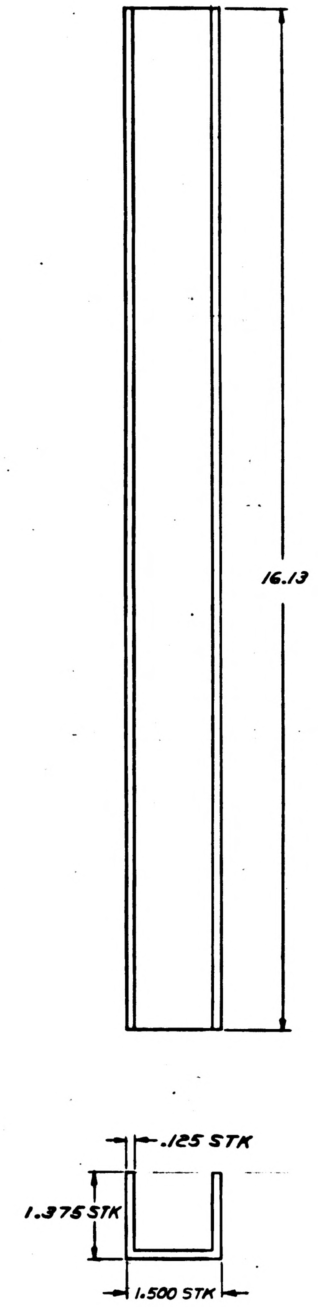
2014339-005



.25 R TYP
.12 R MAX 5 PLACES
.125 STK
16.13
1.50
TYP
.62
.44
.62 TYP
.50
2 PLACES
8.42
1.06

NOTES
1. MATL: AL5052-H32 PER QQ-A-250/8
2. TOL: .XX±.02, .XXX±.005

2014339-006



16.13
.125 STK
1.375 STK
1.500 STK

NOTES
1. MATL: AL6063-T5 PER QQ-A-200/9
2. TOL: .XX±.02, .XXX±.005

2014339-007

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL
SEE NOTE

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 22 JUN 65
CHECKED [illegible]
APPROVAL [illegible] 7-14-65
APPROVAL D. [illegible] 9/14/65
APPROVAL [illegible] 9/14/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
AGC JUNCTION ASSY
OPERATION CONSOLE

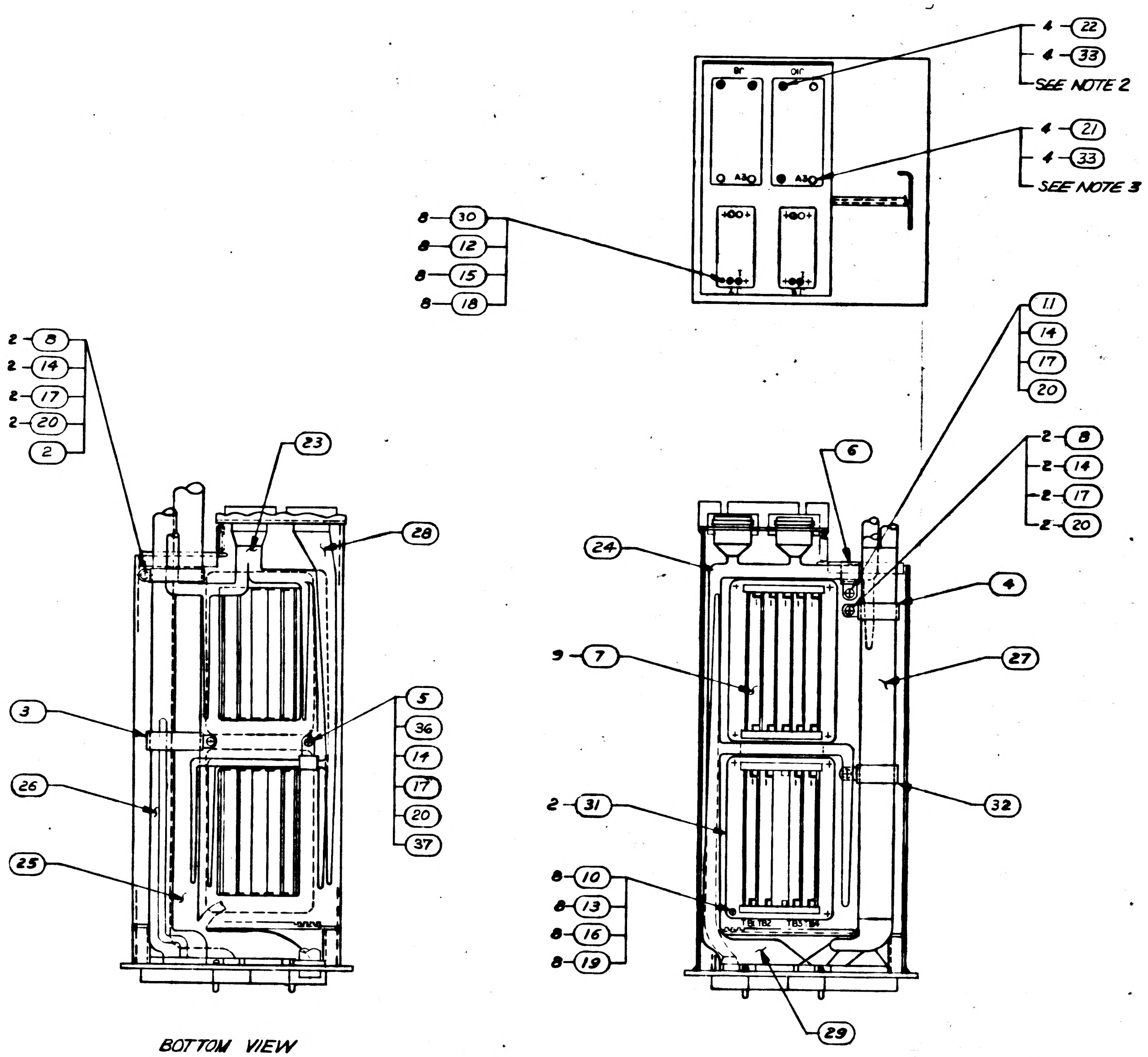
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014339
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014339 -

2014339 -

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER [illegible] R22593	[illegible]	[illegible]
—	CLASS A RELEASED PER TDRR 25476		
A	CHANGED PER TDRR 26452 DR [illegible] CHK [illegible] APPD	[illegible]	[illegible]

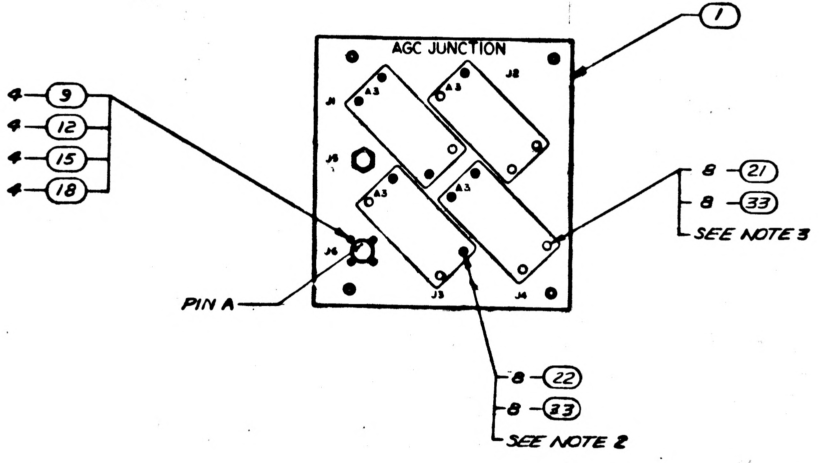


BOTTOM VIEW

TOP VIEW

COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
JUMPER CHART					
H1	TB7A-30	TB7A-13	35	22	⚠
H2	TB7B-28	TB7B-11	↕	↕	↕
H3	TB7A-32	TB7A-15	↕	↕	↕
H4	TB7A-33	TB7A-16	35	22	⚠

⚠ ATTACH FIND 34 BOTH ENDS



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. ● INDICATES GUIDE PIN
3. ○ INDICATES GUIDE SOCKET
4. FABRICATE PER ND1002032
5. STRIP .25 DO NOT TIN
6. CRIMP PER ND1002206

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014136	SCHEMATIC	REF
1	1006430-097	SPACER, SLEEVE	37
1	MS51957-48	SCREW, MACH, PAN HD	36
.5	MIL-W-16878/4 E22	WIRE, ELEC WHT	35
8	1006488-004	TAPER PIN	34
24	1006671-003	STOP NUT, CONNECTOR	33
1	MS21919DG16	CLAMP, SUPPOPT	32
2	1006487-001	FRAME, MOUNTING	31
8	MS16995-10	SCREW, CAP SOC HEAD	30
1	2014170	WIRING HARNESS A	29
1	2014171	↕ B	28
1	2014178	↕ C	27
1	2014180	↕ D	26
1	2014181	↕ E	25
1	2014183	↕ F	24
1	2014184	WIRING HARNESS G	23
12	1006671-002	GUIDE PIN, CONNECTOR	22
12	1006671-004	GUIDE SOCKET, CONNECTOR	21
6	MS35649-84	NUT, PLAIN	20
8	MS35649-64	NUT, PLAIN	19
12	MS35649-44	NUT, PLAIN	18
6	MS15795-807	WASHER, FLAT	17
8	MS15795-805	WASHER, FLAT	16
12	MS15795-803	WASHER, FLAT	15
6	MS35338-80	WASHER, LOCK	14
8	MS35338-79	WASHER, LOCK	13
12	MS35338-78	WASHER, LOCK	12
1	MS51957-45	SCREW, MACH, PAN HEAD	11
8	MS51957-32	SCREW, MACH, PAN HEAD	10
4	MS51957-16	SCREW, MACH, PAN HEAD	9
4	MS51957-46	SCREW, MACH, PAN HEAD	8
9	1006486-001	INSERT, CONNECTOR	7
1	MS21919DG10	CLAMP, SUPPORT	6
1	MS21919DG7	CLAMP, SUPPORT	5
1	MS21919DG18	CLAMP, SUPPORT	4
1	MS21919DG27	CLAMP, SUPPORT	3
1	MS21919DG28	CLAMP, SUPPORT	2
1	2014351	BRACKET, CONNECTOR	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014341	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± .03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. [illegible]
DRAWN [illegible] DATE 6/26/65
CHECKED [illegible] 2 Sep 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METCALF
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

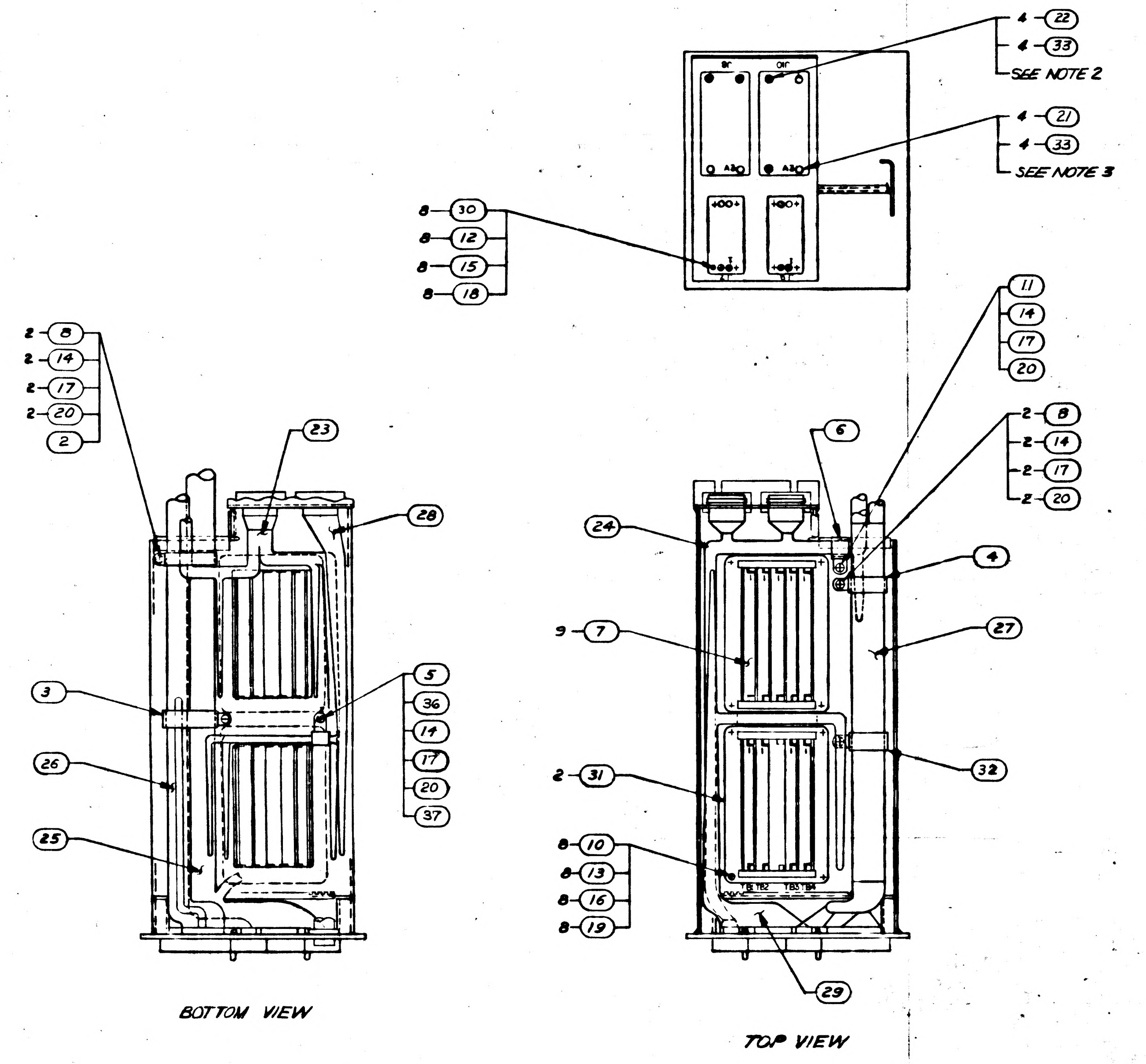
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

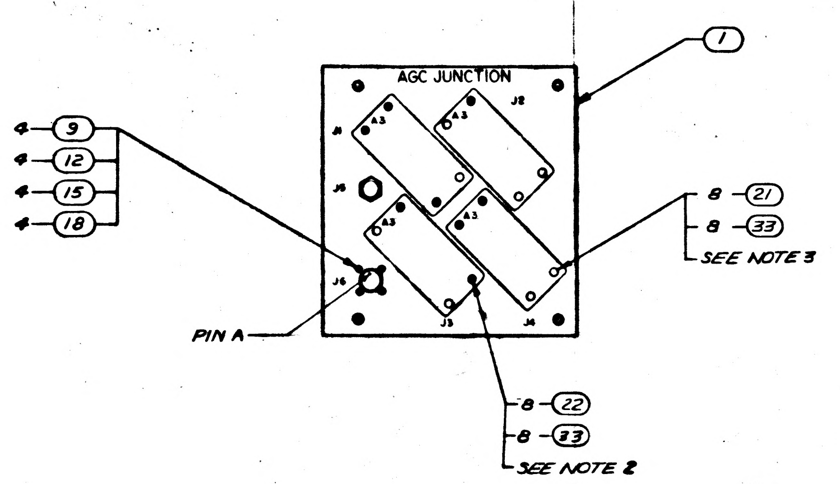
BRACKET, CONNECTOR ASSY
AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014340
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCR R25193	7-1-65	
—	CLASS A RELEASED PER TDRR 25476		
A	CHANGED PER TDRR 26452 DR Q. J. Green CHK APPD		
B	CHANGED PER TDRR 26541 DR E. CHK APPD		





NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. ● INDICATES GUIDE PIN
3. ○ INDICATES GUIDE SOCKET
4. FABRICATE PER ND1002032
5. STRIP .25 DO NOT TIN
6. CRIMP PER ND1002206

JUMPER CHART					
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
H1	TB7A-30	TB7A-13	35	22	⚠
H2	TB7B-28	TB7B-11			
H3	TB7A-32	TB7A-15			
H4	TB7A-33	TB7A-16	35	22	⚠

⚠ ATTACH FIND 34 BOTH ENDS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014136	SCHEMATIC	REF
1	1006430-097	SPACER, SLEEVE	37
1	MS51957-48	SCREW, MACH, PAN HD	36
.5	MIL-W-16878/4 E22	WIRE, ELEC WHT	35
8	1006488-004	TAPER PIN	34
24	1006671-003	STOP NUT, CONNECTOR	33
1	MS21919DG16	CLAMP, SUPPOPT	32
2	1006487-001	FRAME, MOUNTING	31
8	MS16995-10	SCREW, CAP SOC HEAD	30
1	2014170-011	WIRING HARNESS A	29
1	2014171-011	B	28
1	2014178-011	C	27
1	2014180-011	D	26
1	2014181-011	E	25
1	2014183-011	F	24
1	2014184-011	WIRING HARNESS G	23
12	1006671-002	GUIDE PIN, CONNECTOR	22
12	1006671-004	GUIDE SOCKET, CONNECTOR	21
6	MS35649-84	NUT, PLAIN	20
8	MS35649-64	NUT, PLAIN	19
12	MS35649-44	NUT, PLAIN	18
6	MS15795-807	WASHER, FLAT	17
8	MS15795-805	WASHER, FLAT	16
12	MS15795-803	WASHER, FLAT	15
6	MS35338-80	WASHER, LOCK	14
8	MS35338-79	WASHER, LOCK	13
12	MS35338-78	WASHER, LOCK	12
1	MS51957-45	SCREW, MACH, PAN HEAD	11
8	MS51957-32	SCREW, MACH, PAN HEAD	10
4	MS51957-16	SCREW, MACH, PAN HEAD	9
4	MS51957-46	SCREW, MACH, PAN HEAD	8
9	1006486-001	INSERT, CONNECTOR	7
1	MS21919DG10	CLAMP, SUPPORT	6
1	MS21919DG7	CLAMP, SUPPORT	5
1	MS21919DG18	CLAMP, SUPPORT	4
1	MS21919DG27	CLAMP, SUPPORT	3
1	MS21919DG28	CLAMP, SUPPORT	2
1	2014351	BRACKET, CONNECTOR	
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014341	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN DATE 6-26/65
CHECKED 3 Sep 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BRACKET, CONNECTOR ASSY
AGC JUNCTION ASSY
OPERATION CONSOLE

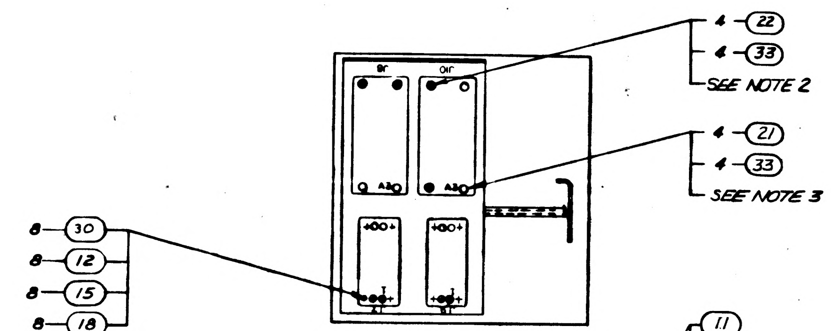
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014340
SCALE 1/2
WT
SHEET 1 OF 1

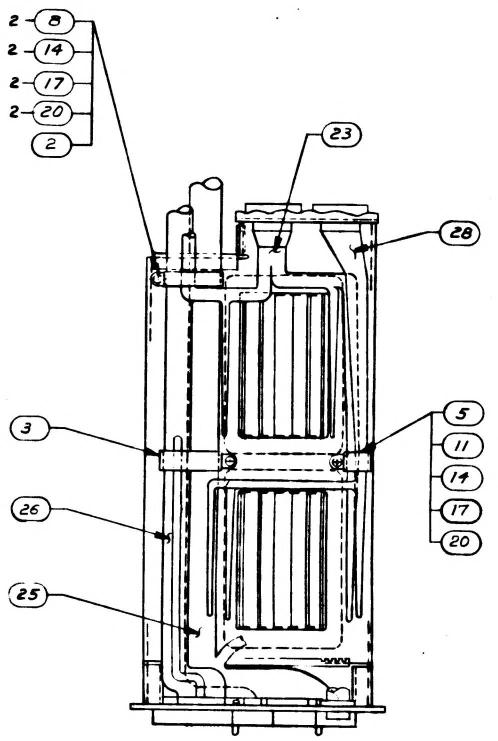
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

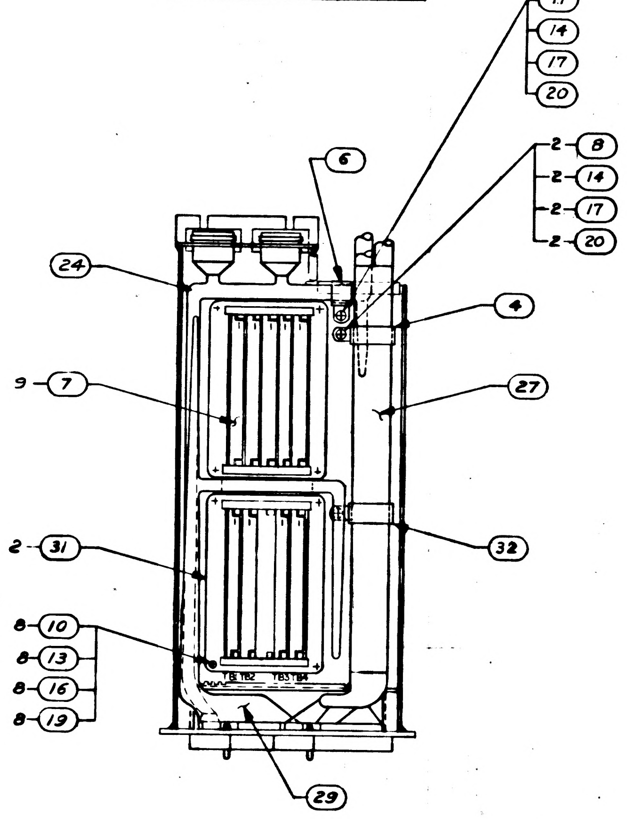
2014340	—

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 22593	71-Nov5	J. [illegible]
—	CLASS A RELEASED PER TDRR 25476		





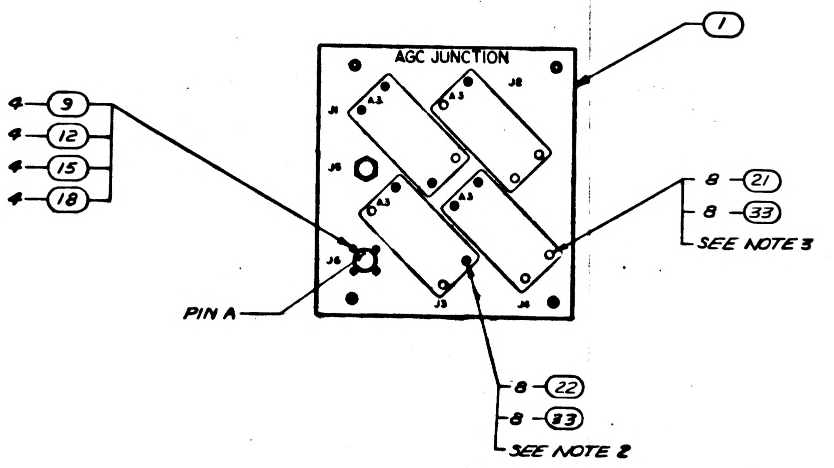
BOTTOM VIEW



TOP VIEW

JUMPER CHART					
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
H1	TB7A-30	TB7A-13	35	22	⚠
H2	TB7B-28	TB7B-11	↕	↕	↕
H3	TB7A-32	TB7A-15	↕	↕	↕
H4	TB7A-33	TB7A-16	35	22	⚠

⚠ ATTACH FIND 34 BOTH ENDS



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. ● INDICATES GUIDE PIN
3. ○ INDICATES GUIDE SOCKET
4. FABRICATE PER ND1002032
5. STRIP .25 DO NOT TIN
6. CRIMP PER ND1002206

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014136	SCHEMATIC	REF
.5	MIL-W-16878/4 E22	WIRE, ELEC WHT	35
8	1006488-004	TAPER PIN	34
24	1006671-003	STOP NUT, CONNECTOR	33
1	MS21919DG16	CLAMP, SUPPOPT	32
2	1006487-001	FRAME, MOUNTING	31
8	MS16995-10	SCREW, CAP SOC HEAD	30
1	2014170	WIRING HARNESS A	29
1	2014171	↕ B	28
1	2014178	↕ C	27
1	2014180	↕ D	26
1	2014181	↕ E	25
1	2014183	↕ F	24
1	2014184	WIRING HARNESS G	23
12	1006671-002	GUIDE PIN, CONNECTOR	22
12	1006671-004	GUIDE SOCKET, CONNECTOR	21
6	MS35649-84	NUT, PLAIN	20
8	MS35649-64	NUT, PLAIN	19
12	MS35649-44	NUT, PLAIN	18
6	MS15795-807	WASHER, FLAT	17
8	MS15795-805	WASHER, FLAT	16
12	MS15795-803	WASHER, FLAT	15
6	MS35338-80	WASHER, LOCK	14
8	MS35338-79	WASHER, LOCK	3
12	MS35338-78	WASHER, LOCK	2
2	MS51957-45	SCREW, MACH, PAN HEAD	11
8	MS51957-32	SCREW, MACH, PAN HEAD	10
4	MS51957-16	SCREW, MACH, PAN HEAD	9
4	MS51957-46	SCREW, MACH, PAN HEAD	8
9	1006486-001	INSERT, CONNECTOR	7
1	MS21919DG8	CLAMP, SUPPORT	6
1	MS21919DG11	CLAMP, SUPPORT	5
1	MS21919DG18	CLAMP, SUPPORT	4
1	MS21919DG27	CLAMP, SUPPORT	3
1	MS21919DG28	CLAMP, SUPPORT	2
1	2014351	BRACKET, CONNECTOR	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014341	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. [illegible]
DRAWN [illegible] DATE 6/26/65
CHECKED [illegible] 2 Sep 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible] 9/10/65
NASA APPROVAL A. C. METCALF
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BRACKET, CONNECTOR ASSY
AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014340
SCALE 1/2
WT
SHEET 1 OF 1

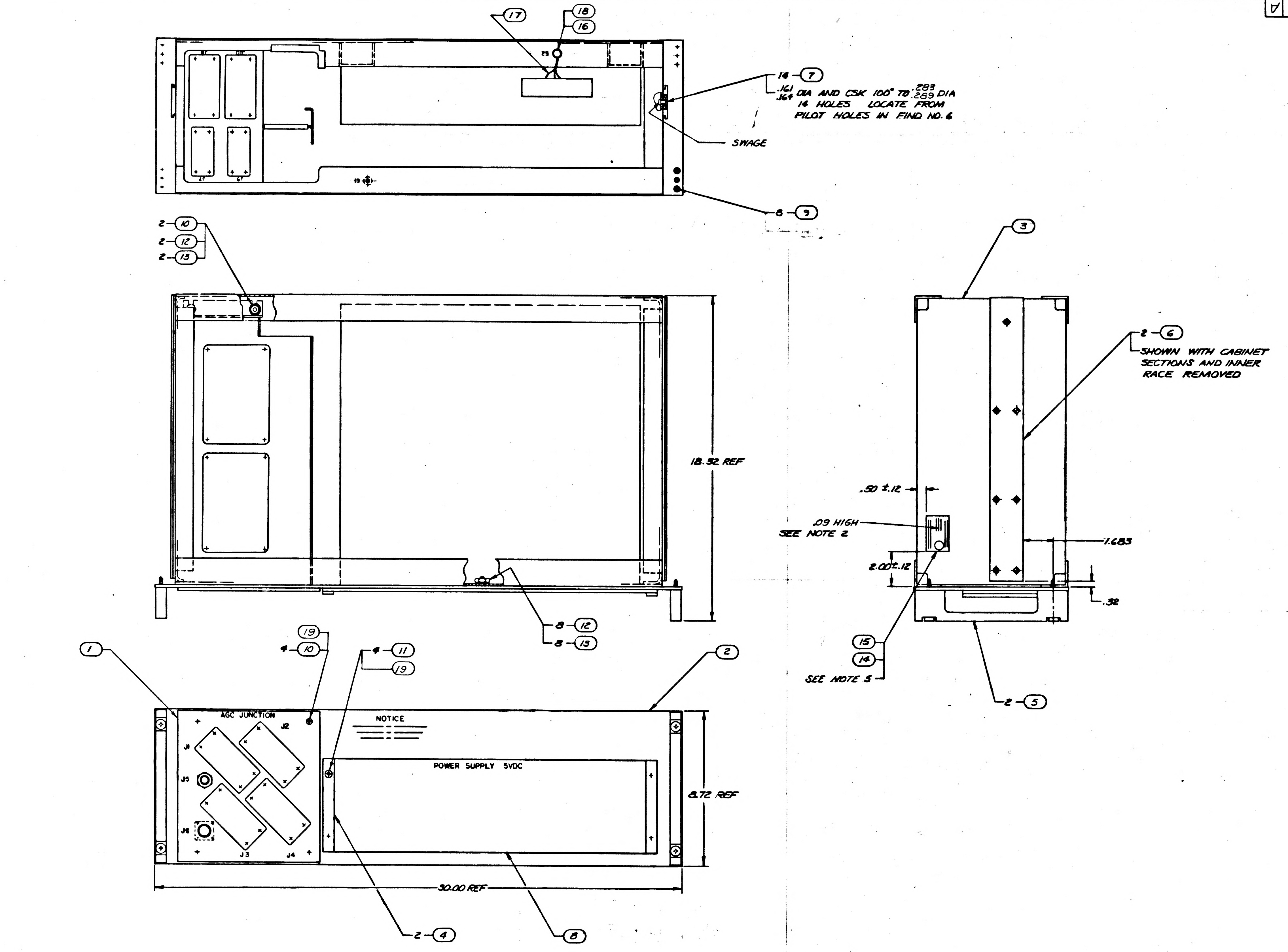
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014340	—

2014340

2014341 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 1225193		
1	CHANGED PER CCA R 25339 DR CHK C.D. APPD		
–	CLASS A RELEASED PER TDRR 25475		
A	CHANGED PER TDRR 26285 DR CHK APPD		



17
18
16
14-7
.161/.164 DIA AND CSK 100° TO .283/.289 DIA
14 HOLES LOCATE FROM
PILOT HOLES IN FIND NO. 6
SWAGE
8-9
2-10
2-12
2-13
18.52 REF
8-12
8-13
3
2-6
SHOWN WITH CABINET
SECTIONS AND INNER
RACE REMOVED
.50 ±.12
.09 HIGH
SEE NOTE 2
1.683
2.00 ±.12
.32
15
14
SEE NOTE 5
2-5
1
19
4-10
4-11
19
2
AGC JUNCTION
J1
J2
J5
J6
J3
J4
NOTICE
POWER SUPPLY 5VDC
8.72 REF
30.00 REF
2-4
8

NCTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. AR DENOTES AS REQUIRED
4. REMOVE BURRS AND SHARP EDGES .005/.020
5. BOND FIND NO. 15 TO FIND NO. 3 USING FIND NO. 14
~~6. FABRICATE PER ND 1002032~~
7. REMOVE EXISTING JUMPERS FROM TERMINAL BOARD
ON FIND NO. 8

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	19
1	MS35307-302	SCREW, CAP, HEX HD	18
1	2014459-011	GROUND STRAP	17
1	MS35333-74	WASHER, LOCK	16
1	1004260-248	PLATE, IDENT	15
AR	MIL-A-5092 TYPE II	ADHESIVE	14
10	MS21044-C08	NUT, SELF-LOCKING	13
10	MS15795-807	WASHER, FLAT	12
4	MS51959-64	SCREW, FLAT HD.	11
6	MS51959-46	SCREW, FLAT HD.	10
8	MS51959-45	SCREW, FLAT HD.	9
1	1006432	POWER SUPPLY	8
14	MS20426AD5-9	RIVET, FLAT HD.	7
2	1006660	SLIDE, CHASSIS	6
2	1014215-4	HANDLE ASSY	5
2	2014337	SPACER	4
1	2014339	FRAME ASSY	3
1	2014338	FRONT PANEL	2
1	2014340-011	BRACKET CONNECTOR ASSY	1

011 LIST OF MATERIALS

2014341 A

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ± 1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 26 June 65
CHECKED 27 Aug
APPROVAL 9-16-65
APPROVAL 9/16/65
APPROVAL 9/17/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014341
SCALE 1/2
WT
SHEET 1 OF 1

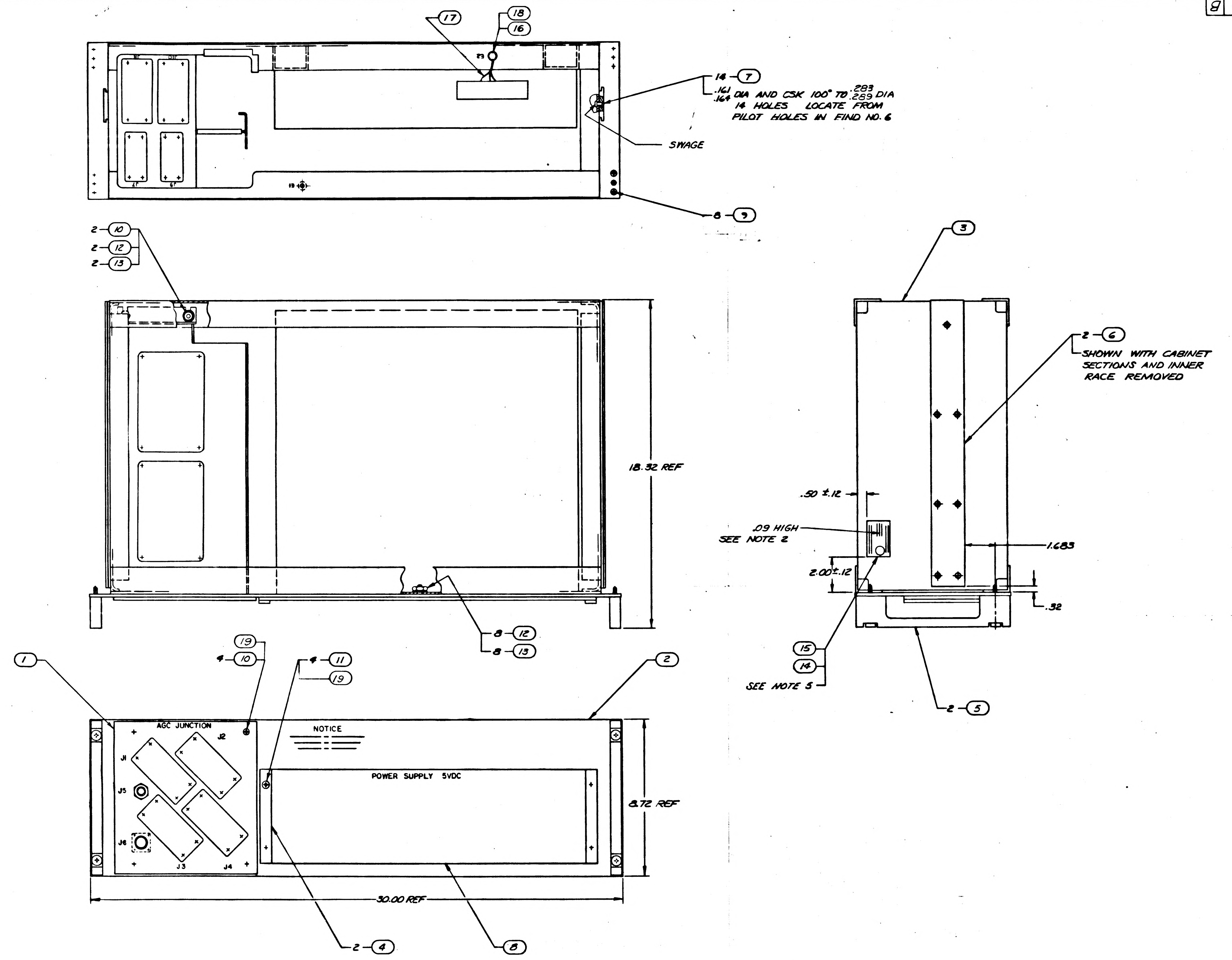
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014341 A

2014341 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R 22593	[illegible]	[illegible]
1	CHANGED PER CCA R 25339 DR Wiens CHK C.D. APPD	[illegible] 65	[illegible]
–	CLASS A RELEASED PER TDRR 25475	1/10/66	[illegible]
A	CHANGED PER TDRR 26285 DR [illegible] CHK C [illegible] APPD	2/14/66	[illegible]
B	CHANGED PER TDRR 26458 DR [illegible] CHK [illegible] APPD [illegible]	3/5/66	[illegible]


17
18
16
14 – 7
.161/.164 DIA AND CSK 100° TO .283/.289 DIA
14 HOLES LOCATE FROM
PILOT HOLES IN FIND NO. 6
SWAGE
8 – 9
2 – 10
2 – 12
2 – 13
18.32 REF
8 – 12
8 – 13
3
2 – 6
SHOWN WITH CABINET
SECTIONS AND INNER
RACE REMOVED
.50 ±.12
.09 HIGH
SEE NOTE 2
1.683
2.00 ±.12
.32
15
14
SEE NOTE 5
2 – 5
19
4 – 10
4 – 11
19
1
2
AGC JUNCTION
J1
J2
J5
J6
J3
J4
NOTICE
POWER SUPPLY 5VDC
8.72 REF
30.00 REF
2 – 4
8

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	19
1	MS35307-302	SCREW, CAP, HEX HD	18
1	2014459-011	GROUND STRAP	17
1	MS35333-74	WASHER, LOCK	16
1	1004260-248	PLATE, IDENT	15
AR	MIL-A-5032 TYPE II	ADHESIVE	14
10	MS21044-C08	NUT, SELF-LOCKING	13
10	MS15795-807	WASHER, FLAT	12
4	MS51959-65	SCREW, FLAT HD.	11
6	MS51959-46	SCREW, FLAT HD.	10
8	MS51959-45	SCREW, FLAT HD.	9
1	1006432	POWER SUPPLY	8
14	MS20426AD5-9	RIVET, FLAT HD.	7
2	1006660	SLIDE, CHASSIS	6
2	1014215-4	HANDLE ASSY	5
2	2014337	SPACER	4
1	2014339	FRAME ASSY	3
1	2014338	FRONT PANEL	2
1	2014340-011	BRACKET CONNECTOR ASSY	1

011 LIST OF MATERIALS

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. AR DENOTES AS REQUIRED
4. REMOVE BURRS AND SHARP EDGES .005/.020
5. BOND FIND NO. 15 TO FIND NO. 3 USING FIND NO. 14
~~6. FABRICATE PER ND 1002032~~
7. REMOVE EXISTING JUMPERS FROM TERMINAL BOARD ON FIND NO. 8

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 26 JUN 65
CHECKED [illegible] 27 Aug 65
APPROVAL [illegible] 9/1/65
APPROVAL [illegible] 9/1/65
APPROVAL [illegible] 9/1/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC JUNCTION ASSY
OPERATION CONSOLE

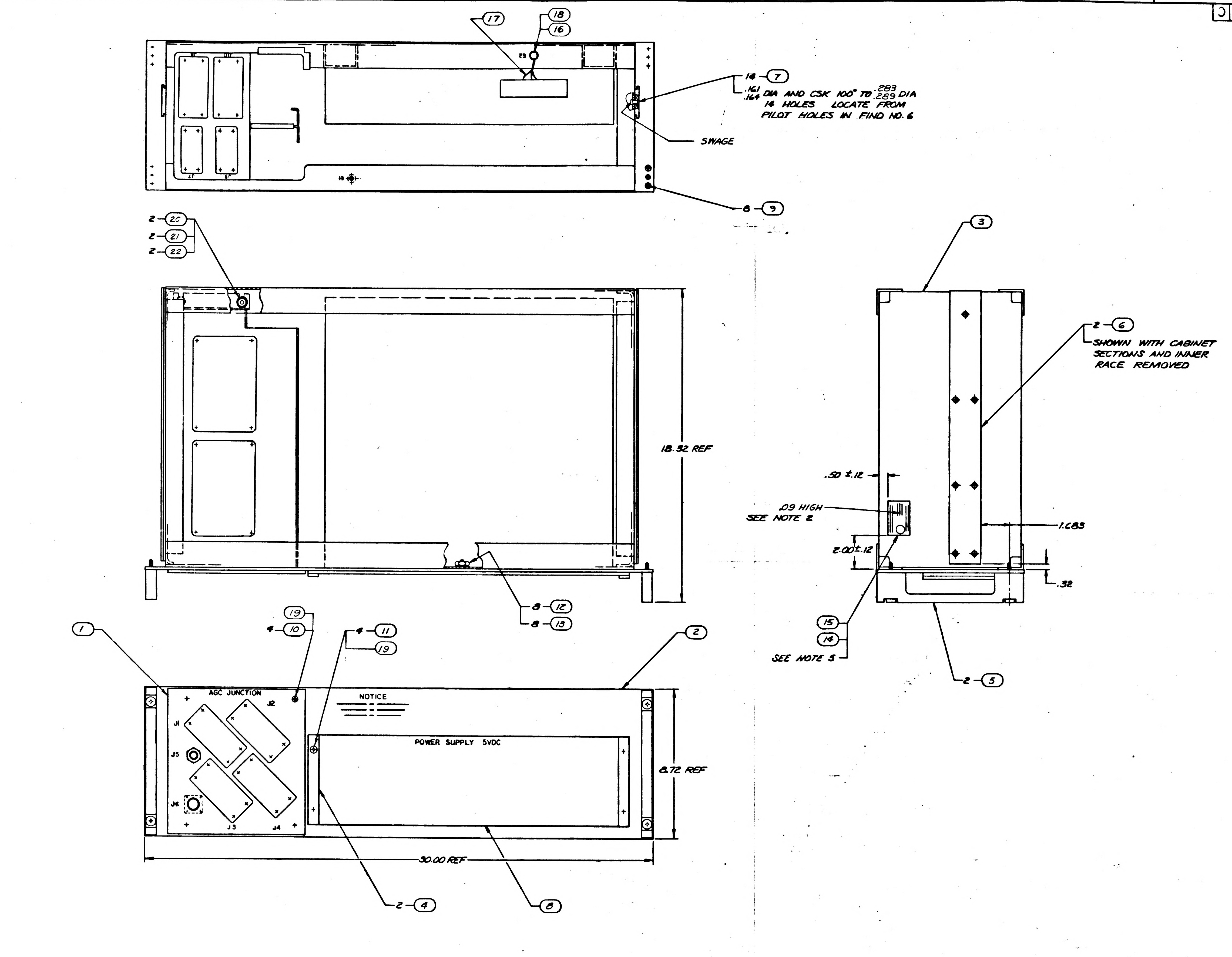
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014341
SCALE 1/2 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014341 B

2014341 B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25193		
1	CHANGED PER CCA R 25339 DR CHK C.D. APPD		
–	CLASS A RELEASED PER TDRR 25476		
A	CHANGED PER TDRR 26285 DR CHK APPD		
B	CHANGED PER TDRR 26458 DR CHK APPD	3/8/66	
C	CHANGED PER TDRR 26459 DR CHK APPD	/66	



17
18
16
14-7
.161/.164 DIA AND CSK 100° TO .283/.289 DIA
14 HOLES LOCATE FROM PILOT HOLES IN FIND NO. 6
SWAGE
8-9
2-20
2-21
2-22
18.32 REF
3
2-6
SHOWN WITH CABINET SECTIONS AND INNER RACE REMOVED
.50 ±.12
.09 HIGH SEE NOTE 2
1.683
2.00 ±.12
.32
15
14
SEE NOTE 5
2-5
8-12
8-13
19
4-10
4-11
19
1
2
AGC JUNCTION
J1
J2
J5
J6
J3
J4
NOTICE
POWER SUPPLY 5VDC
8.72 REF
30.00 REF
2-4
8

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. AR DENOTES AS REQUIRED
4. REMOVE BURRS AND SHARP EDGES .005/.020
5. BOND FIND NO. 15 TO FIND NO. 3 USING FIND NO. 14
~~6. FABRICATE PER ND 1002032~~
7. REMOVE EXISTING JUMPERS FROM TERMINAL BOARD ON FIND NO. 8

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	MS21044-C3	NUT, SELF-LOCKING	22
2	MS15795-809	WASHER, FLAT	21
2	MS51960-66	SCREW, FLAT HD	20
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	19
1	MS35307-302	SCREW, CAP, HEX HD	18
1	2014459-011	GROUND STRAP	17
1	MS35333-74	WASHER, LOCK	16
1	1004260-248	PLATE, IDENT	15
AR	MIL-A-5092 TYPE II	ADHESIVE	14
8	MS21044-C08	NUT, SELF-LOCKING	13
8	MS15795-807	WASHER, FLAT	12
4	MS51959-65	SCREW, FLAT HD.	11
4	MS51959-46	SCREW, FLAT HD.	10
8	MS51959-45	SCREW, FLAT HD.	9
1	1006432	POWER SUPPLY	8
14	MS20426AD5-9	RIVET, FLAT HD.	7
2	1006660	SLIDE, CHASSIS	6
2	1014215-4	HANDLE ASSY	5
2	2014337	SPACER	4
1	2014339	FRAME ASSY	3
1	2014338	FRONT PANEL	2
1	2014340-011	BRACKET CONNECTOR ASSY	1
011	LIST OF MATERIALS		

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS
DRAWN DATE 26 JUN 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

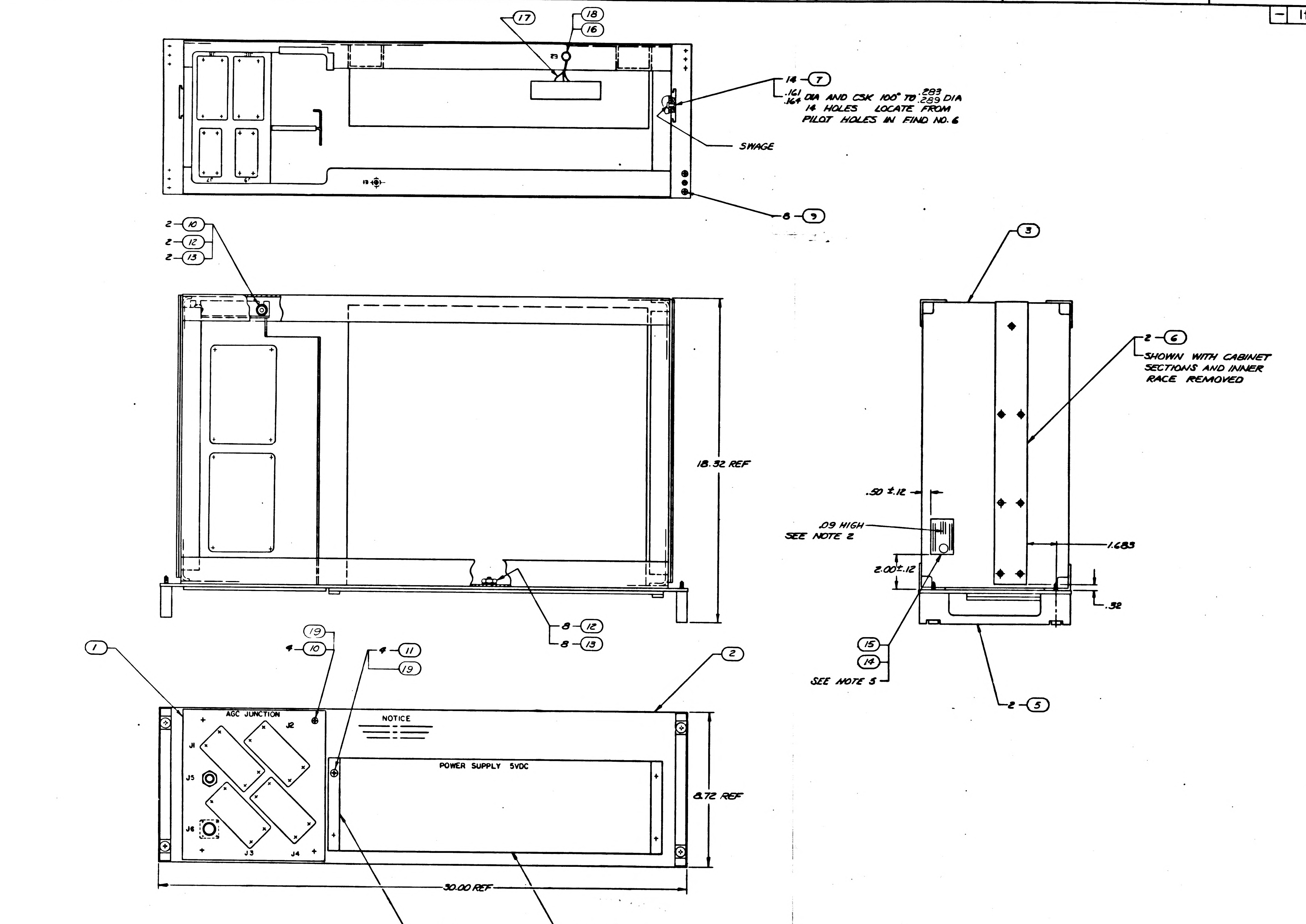
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014341
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R22593		
1	CHANGED PER CCA R 25339 DR H Jones CHK C.D. APPD		
–	CLASS A RELEASED PER DRR 25476		



17
18
16
14 – 7
.161/.164 DIA AND CSK 100° TO .283/.289 DIA
14 HOLES LOCATE FROM PILOT HOLES IN FIND NO. 6
SWAGE
8 – 9
2 – 10
2 – 12
2 – 13
18.32 REF
8 – 12
8 – 13
3
2 – 6
SHOWN WITH CABINET SECTIONS AND INNER RACE REMOVED
.50 ±.12
.09 HIGH SEE NOTE 2
2.00 ±.12
1.683
.32
15
14
SEE NOTE 5
2 – 5
1
19
4 – 10
4 – 11
19
2
AGC JUNCTION
J1
J2
J3
J4
J5
J6
NOTICE
POWER SUPPLY 5VDC
8.72 REF
30.00 REF
2 – 4
8

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SERIALIZE PER ND1002023
3. AR DENOTES AS REQUIRED
4. REMOVE BURRS AND SHARP EDGES .005/.020
5. BOND FIND NO. 15 TO FIND NO. 3 USING FIND NO. 14
~~6. FABRICATE PER ND 1002032~~

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	19
1	MS35307-302	SCREW, CAP, HEX HD	18
1	2014459-011	GROUND STRAP	17
1	MS35333-74	WASHER, LOCK	16
1	1004260-248	PLATE, IDENT	15
AR	MIL-A-5092 TYPE II	ADHESIVE	14
10	MS21044-C08	NUT, SELF-LOCKING	13
10	MS15795-807	WASHER, FLAT	12
4	MS51959-64	SCREW, FLAT HD.	11
6	MS51959-46	SCREW, FLAT HD.	10
8	MS51959-45	SCREW, FLAT HD.	9
1	1006432	POWER SUPPLY	8
14	MS20426AD5-3	RIVET, FLAT HD.	7
2	1006660	SLIDE, CHASSIS	6
2	1014215-4	HANDLE ASSY	5
2	2014337	SPACER	4
1	2014339	FRAME ASSY	3
1	2014338	FRONT PANEL	2
1	2014340-011	BRACKET CONNECTOR ASSY	
011	LIST OF MATERIALS		

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 26 June 63
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC JUNCTION ASSY
OPERATION CONSOLE

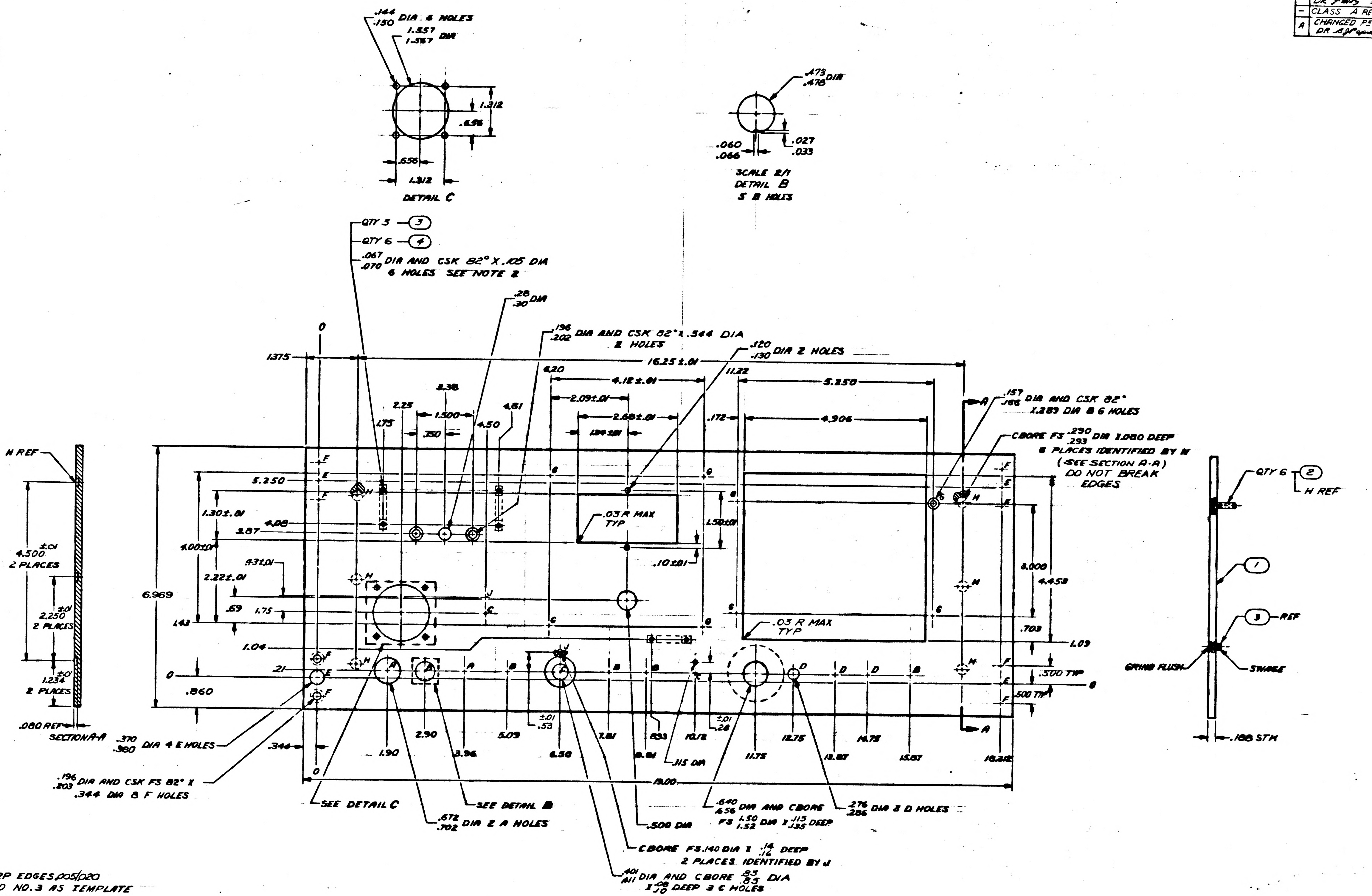
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014341
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014341 –

2014342 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASD PER CCA 25140	7/2/65	
1	CHANGED PER CCA R25477 DR CHK G.D. APPD	11/17/65	
–	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26238 DR CHK APPD	2/21/66	



.144 / .150 DIA 6 HOLES
1.557 / 1.567 DIA
1.312
.656
.656
1.312
DETAIL C
.473 / .478 DIA
.060 / .066
.027 / .033
SCALE 2/1
DETAIL B
5 B HOLES
QTY 5 ③
QTY 6 ④
.067 / .070 DIA AND CSK 82° X .105 DIA 6 HOLES SEE NOTE 2
.28 / .30 DIA
.196 / .202 DIA AND CSK 82° X .344 DIA 2 HOLES
.120 / .130 DIA 2 HOLES
1.375
16.25 ±.01
6.20
4.12 ±.01
11.22
5.250
2.09 ±.01
2.68 ±.01
1.34 ±.01
.172
4.906
3.38
2.25
1.500
1.75
.750
4.50
4.81
.157 / .166 DIA AND CSK 82° X .289 DIA 8 G HOLES
CBORE FS .290 / .293 DIA X .080 DEEP 6 PLACES IDENTIFIED BY H (SEE SECTION A-A) DO NOT BREAK EDGES
H REF
5.250
1.30 ±.01
4.08
3.87
4.00 ±.01
.43 ±.01
2.22 ±.01
.69
1.75
1.43
1.04
.21
0
.860
6.969
.03 R MAX TYP
1.50 ±.01
.10 ±.01
.03 R MAX TYP
3.000
4.453
.703
1.09
.500 TYP
.500 TYP
4.500 ±.01 2 PLACES
2.250 ±.01 2 PLACES
1.234 ±.01 2 PLACES
.080 REF
SECTION A-A
.370 / .380 DIA 4 E HOLES
.344
.196 / .203 DIA AND CSK FS 82° X .344 DIA 8 F HOLES
0
1.90
2.90
3.96
5.09
±.01 .53
6.50
7.81
8.81
8.93
10.12
±.01 .28
.115 DIA
11.75
12.75
13.87
14.75
15.87
18.312
19.00
SEE DETAIL C
.672 / .702 DIA 2 A HOLES
SEE DETAIL B
.500 DIA
.640 / .656 DIA AND CBORE FS 1.50 / 1.52 DIA X .115 / .135 DEEP
.276 / .286 DIA 3 D HOLES
CBORE FS .140 DIA X .14 / .16 DEEP 2 PLACES IDENTIFIED BY J
.401 / .411 DIA AND CBORE .83 / .85 DIA X .08 / .10 DEEP 3 C HOLES
A
A
QTY 6 ②
H REF
①
③ REF
GRIND FLUSH
SWAGE
.188 STK

NOTES

1. REMOVE BURRS AND SHARP EDGES .005/.020
2. LOCATE HOLE USING FIND NO.3 AS TEMPLATE
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. PAINT FRONT AND EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
5. PAINT INDICATED AREAS TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26251 PER MIL-F-14072 P513 TYPE I
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
8. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
6	MS20426A2-6	RIVET, SOLID FLAT HD	4
3	1004844-003	STRAP RETAINING	3
6	1006951-007	STUD, CAPTIVE	2
1	2014342-001	PANEL	1

LIST OF MATERIALS

2014044	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ±1°

DO NOT SCALE DRAWING

MATERIAL
6061-T6 AL PER QQ-A-250/11

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P.E. DATE 28 JUN 65
CHECKED 27 JUL 65
APPROVAL 9 AUG 65
APPROVAL 9 AUG 65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, FRONT
POWER CONTROL
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014342

SCALE 1/1 WT SHEET 1 OF 2

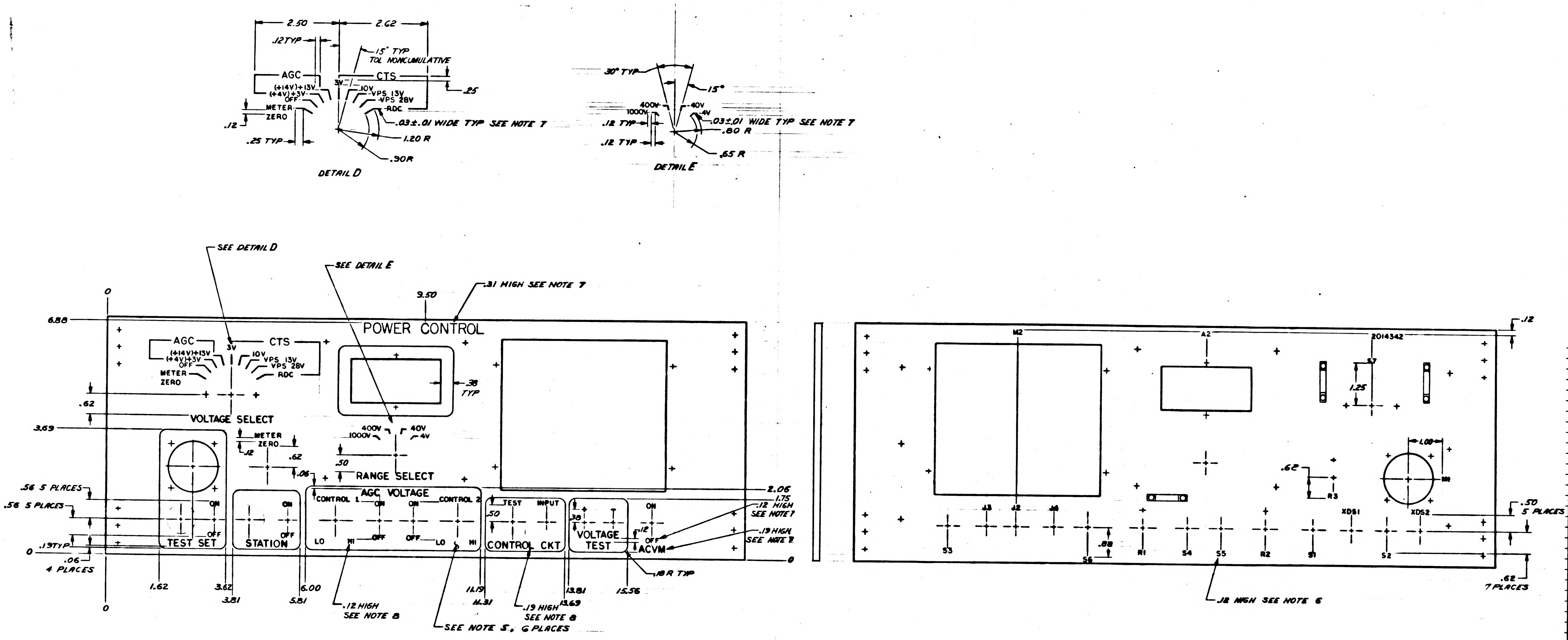
2014342 A

2014342 A

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014342 A

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25140	9/3/65	[illegible]
1	CHANGED PER CCA R25477 DR [illegible] CHKD C.O. APPD [illegible]	9/17/65	[illegible]
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26238 DR B.J. Papin CHK [illegible] APPD [illegible]	3/2/66	[illegible]



2.50
2.62
.12 TYP
15° TYP
TOL NONCUMULATIVE
AGC
CTS
(+14V) +13V
(+4V) +3V
OFF
METER
ZERO
3V
10V
VPS 13V
VPS 28V
RDC
.25
.12
.25 TYP
.03±.01 WIDE TYP SEE NOTE 7
1.20 R
.90R
DETAIL D
30° TYP
15°
400V
1000V
40V
4V
.12 TYP
.12 TYP
.03±.01 WIDE TYP SEE NOTE 7
.80 R
.65 R
DETAIL E
SEE DETAIL D
SEE DETAIL E
3.50
.31 HIGH SEE NOTE 7
POWER CONTROL
6.88
.38 TYP
.62
VOLTAGE SELECT
3.69
.12
.62
.06
.50
RANGE SELECT
AGC VOLTAGE
CONTROL 1
CONTROL 2
ON
OFF
LO
HI
TEST
INPUT
CONTROL CKT
VOLTAGE TEST
ACVM
TEST SET
STATION
.56 5 PLACES
.56 5 PLACES
.19 TYP
.06
4 PLACES
0
1.62
3.62
3.81
5.81
6.00
11.19
11.31
13.81
13.69
15.56
2.06
1.75
.12 HIGH SEE NOTE 7
.19 HIGH SEE NOTE 7
.18 R TYP
.12 HIGH SEE NOTE 8
.19 HIGH SEE NOTE 8
SEE NOTE 5, 6 PLACES
2014342
M2
A2
S7
1.25
1.00
.62
R3
XDS1
XDS2
J3
J2
J4
S3
S6
R1
S4
S5
R2
S1
S2
.88
.12
.50 5 PLACES
.62 7 PLACES
.12 HIGH SEE NOTE 6

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ± 2°

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 28 JUN 65
CHECKED [illegible] 27 JUL 65
APPROVAL [illegible] 9 AUG 65
APPROVAL [illegible] 9 AUG 65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. Sheard [illegible]/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, FRONT
POWER CONTROL
COMPUTER TEST SET

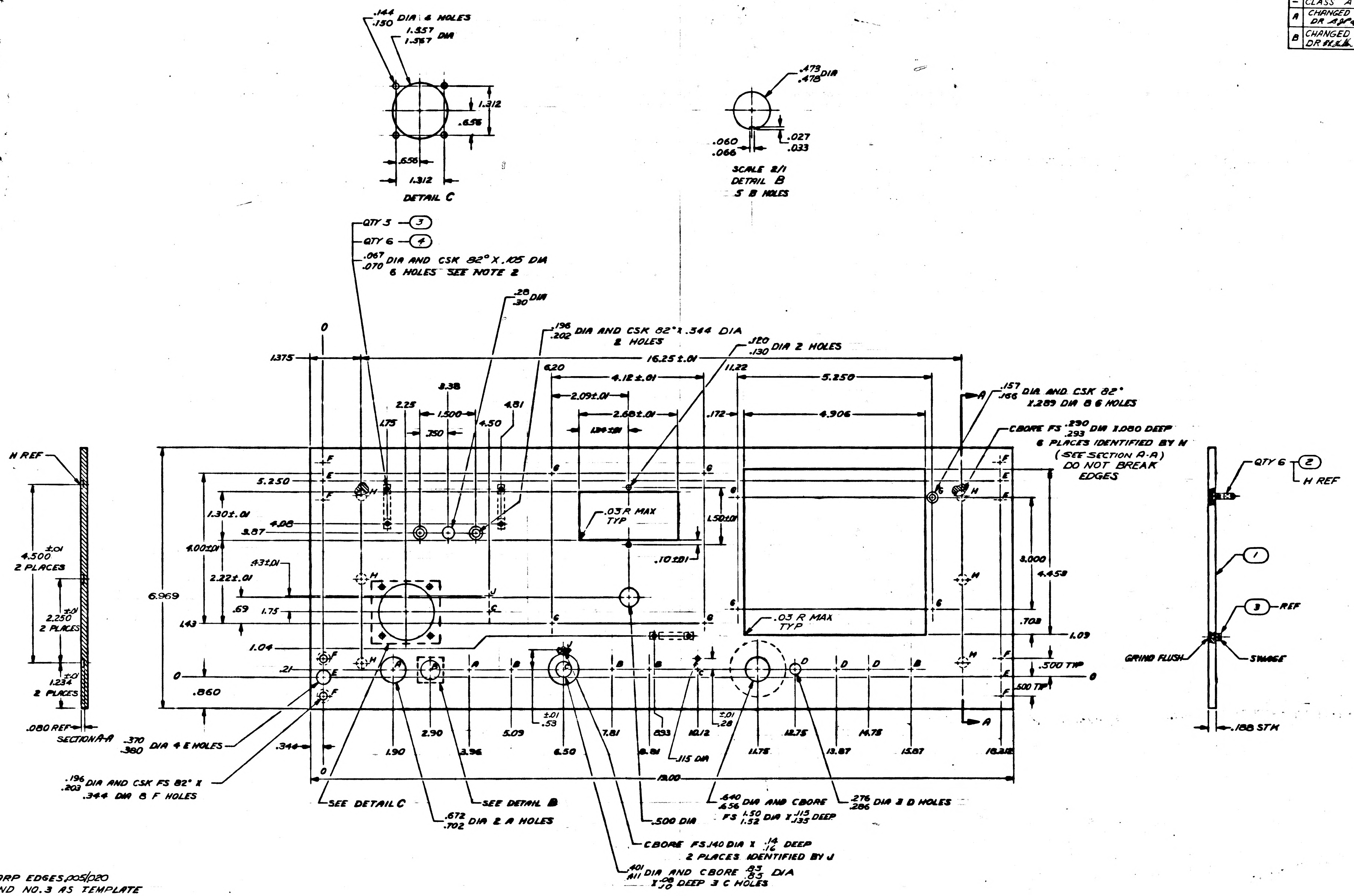
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014342
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014342 A

2014342 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASD PER CCA 25140	[illegible]	
1	CHANGED PER CCA R25477 DR CHK C.D. APPD	[illegible]	
–	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26238 DR CHK APPD	[illegible]	
B	CHANGED PER TDRR 26505 DR CHK APPD	3/5/66	


.144 / .150 DIA 4 HOLES
1.557 / 1.567 DIA
1.312
.656
.656
1.312
DETAIL C
.473 / .478 DIA
.060 / .066
.027 / .033
SCALE 2/1
DETAIL B
5 B HOLES
QTY 3 — 3
QTY 6 — 4
.067 / .070 DIA AND CSK 82° X .105 DIA 6 HOLES SEE NOTE 2
.28 / .30 DIA
.196 / .202 DIA AND CSK 82° X .344 DIA 2 HOLES
.120 / .130 DIA 2 HOLES
1.375
16.25 ±.01
6.20
4.12 ±.01
11.22
5.250
2.09 ±.01
2.68 ±.01
.172
4.906
1.34 ±.01
2.25
3.38
1.500
1.75
.750
4.50
4.81
.157 / .166 DIA AND CSK 82° X .289 DIA 8 6 HOLES
CBORE FS .290 / .293 DIA X .080 DEEP 6 PLACES IDENTIFIED BY H (SEE SECTION A-A) DO NOT BREAK EDGES
H REF
5.250
1.30 ±.01
4.08
3.87
4.00 ±.01
.03 R MAX TYP
1.50 ±.01
.10 ±.01
.43 ±.01
2.22 ±.01
.69
1.75
1.43
6.969
.03 R MAX TYP
3.000
4.458
.708
1.09
.500 TYP
.500 TYP
1.04
.21
.860
4.500 ±.01 2 PLACES
2.250 ±.01 2 PLACES
1.234 ±.01 2 PLACES
.080 REF
SECTION A-A
.370 / .380 DIA 4 E HOLES
.344
.196 / .203 DIA AND CSK FS 82° X .344 DIA 8 F HOLES
1.90
2.90
3.96
5.09
.53 ±.01
6.50
7.81
8.81
8.93
10.12
.28 ±.01
11.75
12.75
13.87
14.75
15.87
18.12
19.00
.115 DIA
SEE DETAIL C
.672 / .702 DIA 2 A HOLES
SEE DETAIL B
.500 DIA
.640 / .656 DIA AND CBORE FS 1.50 / 1.52 DIA X .115 / .135 DEEP
.276 / .286 DIA 3 D HOLES
CBORE FS .140 DIA X .14 / .16 DEEP 2 PLACES IDENTIFIED BY J
.401 / .411 DIA AND CBORE .83 / .85 DIA X .08 / .10 DEEP 3 C HOLES
QTY 6 — 2
H REF
1
3 — REF
GRIND FLUSH
SWAGE
.188 STK

NOTES
1. REMOVE BURRS AND SHARP EDGES .005/.020
2. LOCATE HOLE USING FIND NO.3 AS TEMPLATE
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. PAINT FRONT AND EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
5. PAINT INDICATED AREAS TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26251 PER MIL-F-14072 P513 TYPE I
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
8. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
6	MS20426A2-6	RIVET, SOLID FLAT HD	4
3	1004844-003	STRAP RETAINING	3
6	1006951-007	STUD, CAPTIVE	2
1	2014342-001	PANEL	1

LIST OF MATERIALS

2014044		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°	RAYTHEON CO. LEXINGTON, MASS.
NEXT ASSY	USED ON	DO NOT SCALE DRAWING	CONTRACT NO. NAS 9-497
APPLICATION		MATERIAL 6061-T6 AL PER QQ-A-250/11	DRAWN DATE 28 JUN 65
			CHECKED 27 JUL 65
			APPROVAL 9 AUG 65
			APPROVAL 9 AUG 65
			APPROVAL
			NASA APPROVAL C. METZGER
			MIT APPROVAL
			MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, FRONT
POWER CONTROL
COMPUTER TEST SET

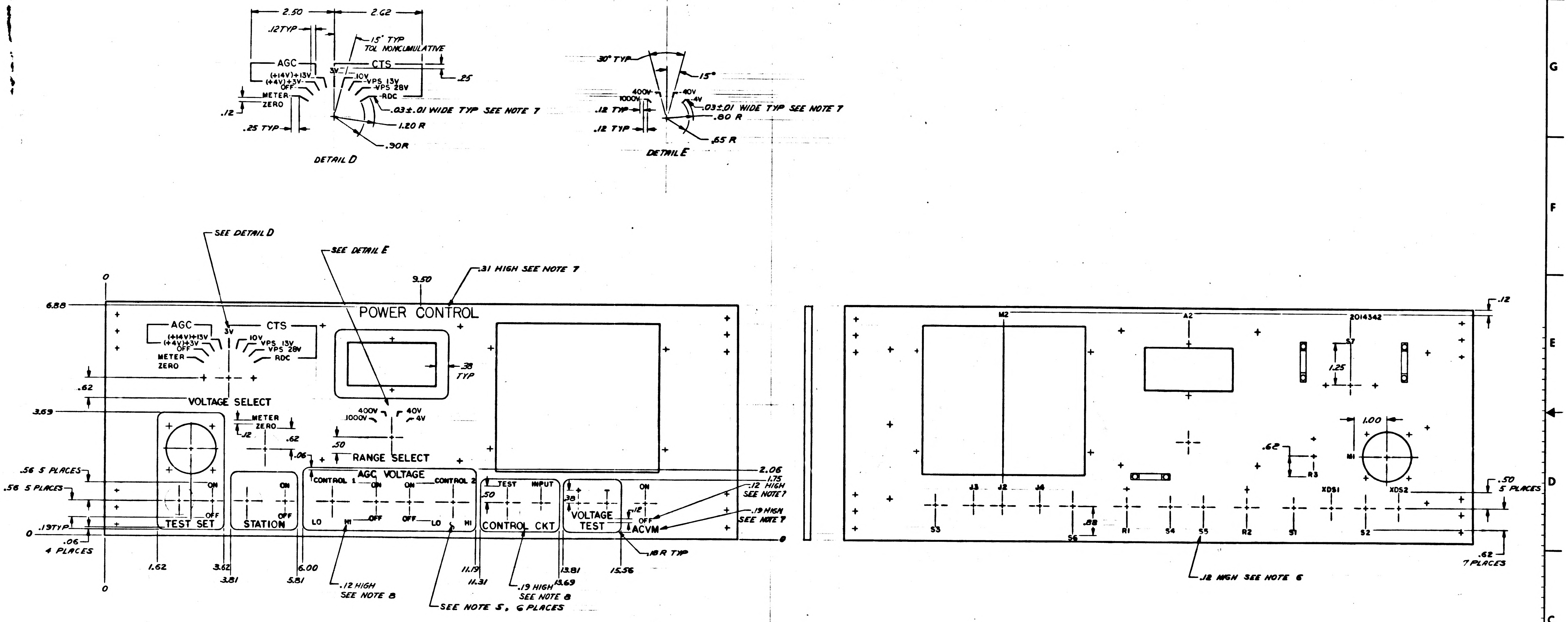
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014342
SCALE 1/1	WT	SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014342 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25190	1/3/65	[illegible]
1	CHANGED PER CCA R25477 DR [illegible] CHKD C.D. APPD [illegible]	9/17/65	[illegible]
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26238 DR B. Nagia CHK [illegible] APPD [illegible]	3/1/66	[illegible]
B	CHANGED PER TDRR 26505 DR B.R. Fuller CHK [illegible] APPD [illegible]	3/5/66	[illegible]



2.50
2.62
.12TYP
15° TYP TOL NONCUMULATIVE
AGC
CTS
(+14V)+13V
(+4V)+3V
OFF
METER ZERO
3V
10V
VPS 13V
VPS 28V
RDC
.25
.12
.25 TYP
.03±.01 WIDE TYP SEE NOTE 7
1.20 R
.90R
DETAIL D
30° TYP
15°
400V
1000V
40V
4V
.12 TYP
.03±.01 WIDE TYP SEE NOTE 7
.80 R
.65 R
DETAIL E
SEE DETAIL D
SEE DETAIL E
.31 HIGH SEE NOTE 7
9.50
POWER CONTROL
6.88
.38 TYP
VOLTAGE SELECT
.62
3.69
METER ZERO
.12
.62
.50
RANGE SELECT
.06
AGC VOLTAGE
CONTROL 1
CONTROL 2
ON
OFF
LO
HI
TEST
INPUT
CONTROL CKT
VOLTAGE TEST
ACVM
TEST SET
STATION
.56 5 PLACES
.19TYP
.06 4 PLACES
1.62
3.62
3.81
5.81
6.00
11.19
11.31
13.81
13.69
15.56
2.06
1.75
.12 HIGH SEE NOTE 7
.19 HIGH SEE NOTE 7
.18R TYP
.12 HIGH SEE NOTE 8
.19 HIGH SEE NOTE 8
SEE NOTE 5, 6 PLACES
M2
A2
2014342
S7
1.25
1.00
.62
R3
M1
XDS1
XDS2
J3
J2
J4
S3
S6
R1
S4
S5
R2
S1
S2
.88
.12
.50 5 PLACES
.62 7 PLACES
.12 HIGH SEE NOTE 6

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ± 2°

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 28 JUN 65
CHECKED [illegible] 27 JUL 65
APPROVAL [illegible] 9 AUG 65
APPROVAL [illegible] 7 AUG 65
APPROVAL [illegible] 3 Sept 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 4/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, FRONT
POWER CONTROL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014342
SCALE 1/1
WT
SHEET 2 OF 2

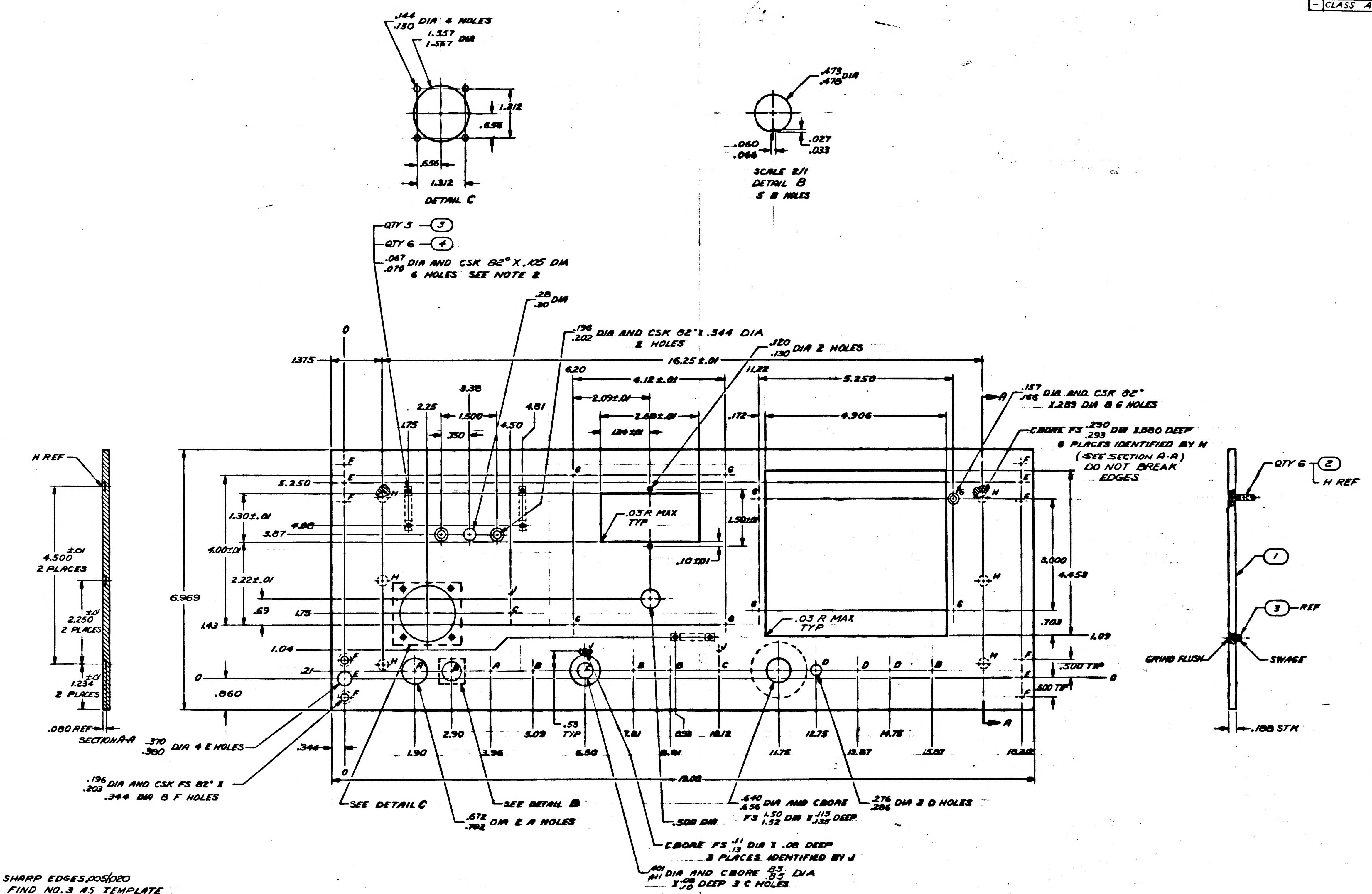
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014342 B

2014342 B

2014342 | –

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASD PER CCA 25140	7/13/65	
1	CHANGED PER CCA R25477 DR CHK C.D. APPD	4/27/65	
–	CLASS A RELEASED PER TDRR 25472		



.144 .150 DIA 4 HOLES
1.557 1.567 DIA
1.312
.656
.656
1.312
DETAIL C
.473 .478 DIA
.060 .066
.027 .033
SCALE 2/1
DETAIL B
5 B HOLES
QTY 3 – 3
QTY 6 – 4
.067 .070 DIA AND CSK 82° X .105 DIA 6 HOLES SEE NOTE 2
.28 .30 DIA
.196 .202 DIA AND CSK 82° X .344 DIA 2 HOLES
.120 .130 DIA 2 HOLES
.157 .166 DIA AND CSK 82° X .289 DIA 8 G HOLES
CBORE FS .290 .293 DIA X .080 DEEP 6 PLACES IDENTIFIED BY H (SEE SECTION A-A) DO NOT BREAK EDGES
1.375
16.25±.01
6.20
4.12±.01
11.22
5.250
2.09±.01
2.68±.01
1.34±.01
.172
4.906
3.38
2.25
1.500
4.81
1.75
.350
4.50
H REF
5.250
1.30±.01
4.08
3.87
4.00±.01
2.22±.01
.69
1.75
6.969
1.43
1.04
.21
0
.860
.03 R MAX TYP
1.50±.01
.10±.01
.03 R MAX TYP
3.000
4.453
.703
1.09
.500 TYP
.500 TYP
0
A
A
4.500 ±.01 2 PLACES
2.250 ±.01 2 PLACES
1.234 ±.01 2 PLACES
.080 REF
SECTION A-A
.370 .380 DIA 4 E HOLES
.344
.196 .203 DIA AND CSK FS 82° X .344 DIA 8 F HOLES
0
1.90
2.90
3.96
5.09
.53 TYP
6.50
7.81
8.81
8.98
10.12
11.75
12.75
13.87
14.75
15.87
16.312
19.00
SEE DETAIL C
.672 .702 DIA 2 A HOLES
SEE DETAIL B
.500 DIA
.640 .656 DIA AND CBORE FS 1.50 1.52 DIA X .115 .135 DEEP
.276 .286 DIA 3 D HOLES
CBORE FS .11 .13 DIA X .08 DEEP 3 PLACES IDENTIFIED BY J
.401 .411 DIA AND CBORE .83 .85 DIA X .08 .10 DEEP 3 C HOLES
QTY 6 – 2
H REF
1
3 – REF
GRIND FLUSH
SWAGE
.188 STK

NOTES

1. REMOVE BURRS AND SHARP EDGES .005/.020
2. LOCATE HOLE USING FIND NO.3 AS TEMPLATE
3. CHPOMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. PAINT FRONT AND EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
5. PAINT INDICATED AREAS TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26251 PER MIL-F-14072 P513 TYPE I
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
8. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
6	MS20426A2-6	RIVET, SOLID FLAT HD	4
3	1004844-003	STRAP RETAINING	3
6	1006951-007	STUD, CAPTIVE	2
1	2014342-001	PANEL	

LIST OF MATERIALS

2014044	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL 6061-T6 AL PER QQ-A-250/11

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN F.E. DATE 28 JUN 65
CHECKED 27 JUL 65
APPROVAL 9 AUG 65
APPROVAL 9 AUG 65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, FRONT
POWER CONTROL
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014342

SCALE 1/1 WT SHEET 1 OF 2

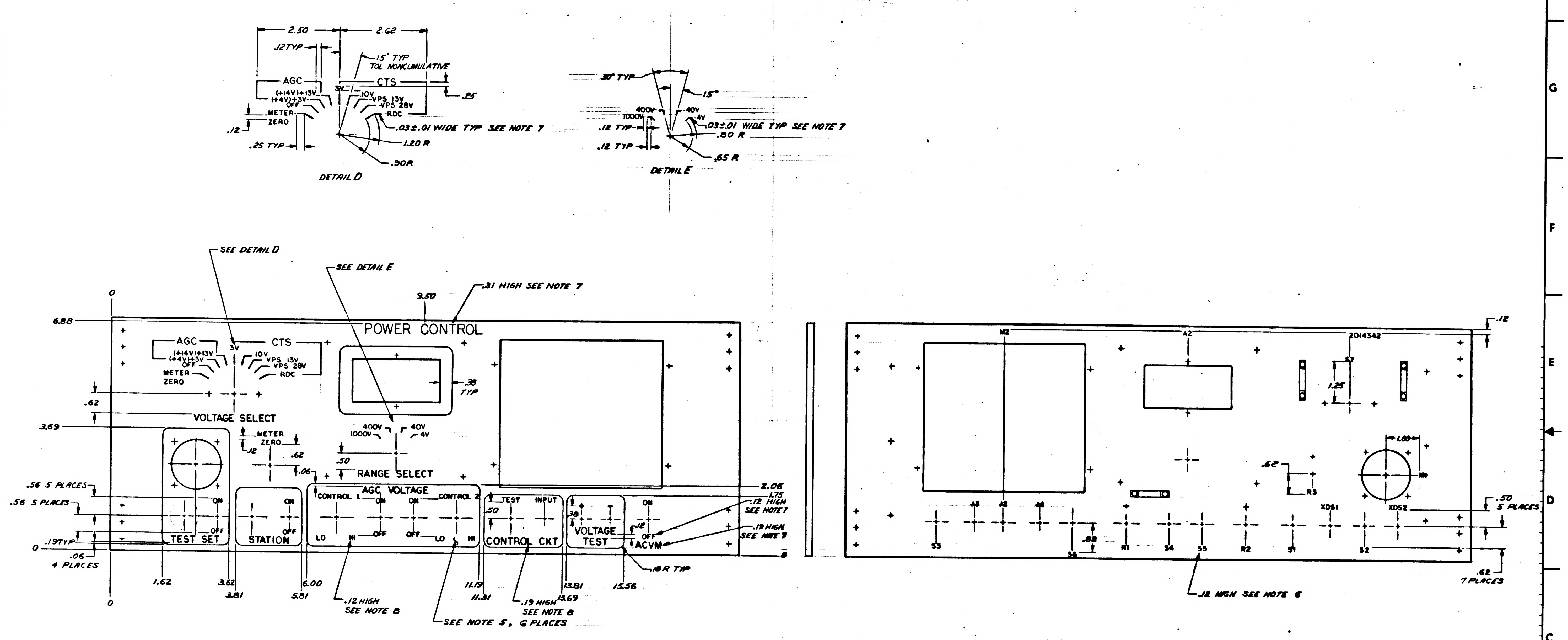
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014342

2014342 | –

2014342 —

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25140		
1	CHANGED PER CCA R25477 DR CHKD C.D. APPD		
—	CLASS A RELEASED PER TDRR 25472		



2.50
2.62
.12 TYP
15° TYP
TOL NONCUMULATIVE
AGC
CTS
3V
.25
(+14V)+13V
(+4V)+3V
OFF
10V
VPS 13V
VPS 28V
RDC
METER
ZERO
.12
.03±.01 WIDE TYP SEE NOTE 7
.25 TYP
1.20 R
.90R
DETAIL D
30° TYP
15°
400V
1000V
40V
4V
.12 TYP
.03±.01 WIDE TYP SEE NOTE 7
.80 R
.65 R
DETAIL E
SEE DETAIL D
SEE DETAIL E
9.50
.31 HIGH SEE NOTE 7
6.88
POWER CONTROL
.38 TYP
.62
VOLTAGE SELECT
3.69
RANGE SELECT
.50
.06
.56 5 PLACES
.19 TYP
.06 4 PLACES
TEST SET
ON
OFF
STATION
AGC VOLTAGE
CONTROL 1
CONTROL 2
LO
HI
TEST
INPUT
CONTROL CKT
VOLTAGE TEST
ACVM
2.06
1.75
.12 HIGH SEE NOTE 7
.19 HIGH SEE NOTE 8
.18 R TYP
1.62
3.62
3.81
5.81
6.00
11.19
11.31
13.81
13.69
15.56
.12 HIGH SEE NOTE 8
SEE NOTE 5, 6 PLACES
.19 HIGH SEE NOTE 8
M2
A2
2014342
.12
1.25
1.00
.62
R3
XDS1
XDS2
J3
J2
J4
S3
S6
R1
S4
S5
R2
S1
S2
.88
.50 5 PLACES
.62 7 PLACES
.12 HIGH SEE NOTE 6

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ± 2°
DO NOT SCALE DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28 JUN 65
CHECKED 27 JUL 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, FRONT
POWER CONTROL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014342
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

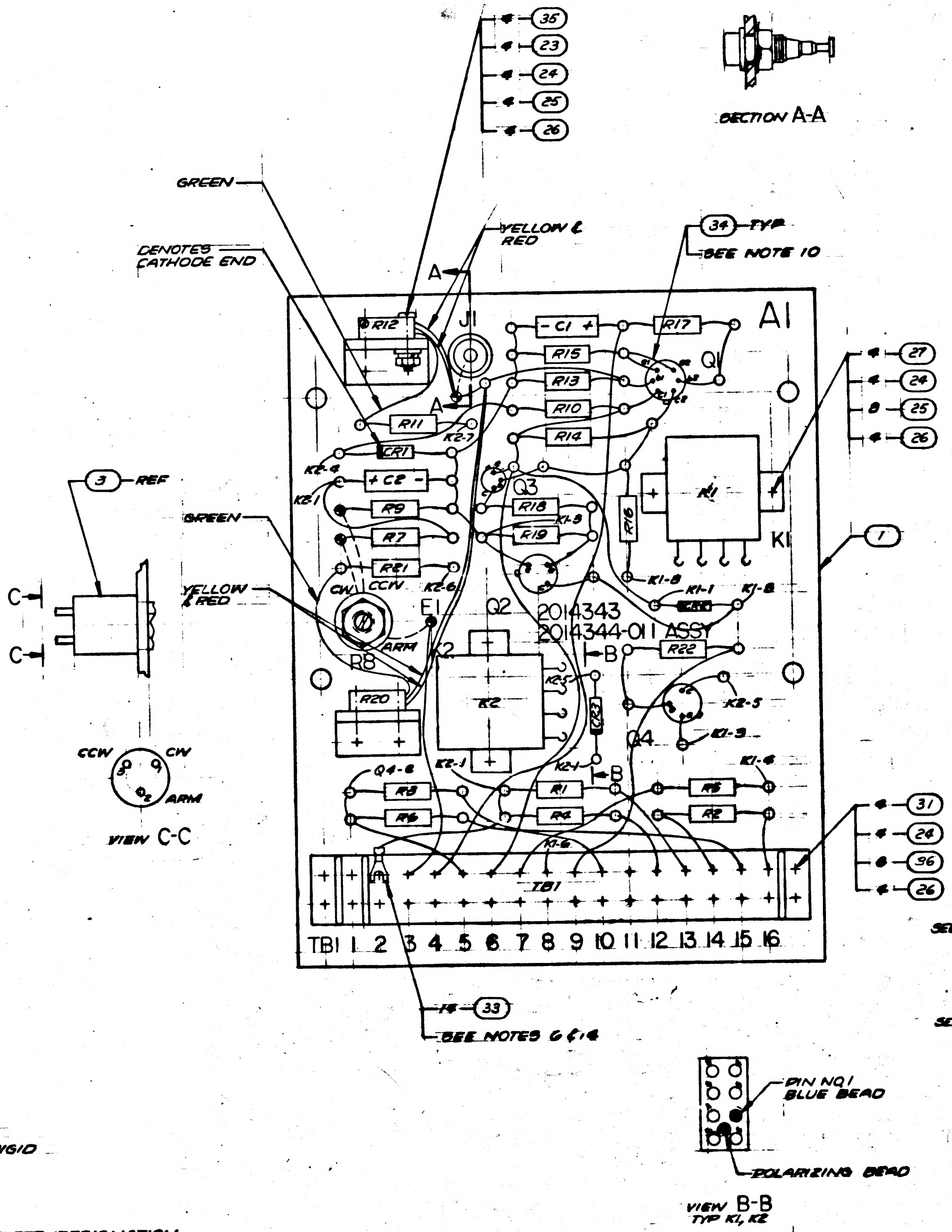
2014342 —

2014344 F

JUMPER LEGEND				
COND IDENT	FROM	TO	LENGTH	FIND NO
B1	C1 -	R15	1.00	32
B2	R15	R13	1.00	32
B3	R13	CR1-A	2.00	29
B4	CR1-A	C2 -	1.00	32
B5	C2 -	R9	1.00	32
B6	R9	R19	1.25	32
B7	R17	Q1-b2	1.25	32
B8	Q2-e	K1-3	3.25	29
B9	R13, Q1-b1	R20-RED/YEL	2.25	28
B10	R12-RED/YEL	J1	1.50	32
B11	R10, Q1-c1	R14	2.00	28
B12	R14	Q3-e	1.00	32
B13	Q3-c	CR2-K	8.00	28
B14	CR2-K	K1-1	2.00	28
B15	R14, Q1-c2	R16	1.25	32
B16	R16	Q3-b	1.50	32
B17	R16	K1-8	2.00	28
B18	R10	CR1 K	2.75	28
B19	R18	R19	1.00	32
B20	CR1-K	K2-4	6.00	28
B21	Q2-c	CR2-A	2.50	28
B22	CR2-A	K1-5	2.00	28
B23	C2 +	R7	2.50	28
B24	R8-3	R9	2.25	28
B25	R8-2	E1	2.00	28
B26	R8-1	R7	2.00	28
B27	R3	R6	1.00	32
B28	R1	R4	1.00	32
B29	R5	K1-4	3.50	28
B30	TB1-2	R4	2.25	
B31	TB1-3	E1	3.00	
B32	TB1-4	C1+, R17	6.50	28
B33	TB1-5	R6	2.25	29
B34	TB1-6	Q3-e	5.00	28
B35	TB1-7	R5	2.50	28
B36	TB1-8	K1-6	5.00	28
B37	TB1-9	R22	3.75	28
B38	TB1-10	R3	2.50	28
B39	TB1-12	R4	2.00	28
B40	TB1-13	R1	2.00	28
B41	TB1-14	R2	2.00	28
B42	TB1-15	R6	3.50	28
B43	TB1-16	R2	2.00	28
B44	C2 +	K2-1	5.00	28
B45	R21	K2-6	2.50	28
B46	R22	Q4-b	1.50	32
B47	Q4-c	K2-5	2.50	28
B48	Q4-e	R3	4.00	29
B49	R1	K2-1	2.00	28
B50	R11	K2-7	3.50	28
B51	Q4-e	K1-3	3.50	29
B52	R12-RED&YEL	R20-RED&YEL	1.25	32
B53	CR3-K	K2-1	2.00	28
B54	CR3-A	K2-5	2.00	28

REFERENCE DESIGNATIONS	
SYMBOL	FIND NO
R12, R20	2
R8	3
R9, R11, R15, R16 R17, R18, R19	4
R13	6
R10, R21	7
R14	8
R1, R7	9
R2	10
R3, R22	11
R4	12
R5	13
R6	14
CR1	15
CR2, CR3	16
C1, C2	17
Q1	18
Q2, Q4	19
Q3	20
J1	21
K1, K2	22
TB1	30

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
C	REPLACES REV B WITH CHANGE PER CCA R25796	1/11/66	
D	CHANGED PER CCA R25906 DR. CHK M.G. APPD LPC	3/7/66	
E	CHANGED PER CCA R25993 DR. W. Brown CHK APPD. LPC	3/7/66	
F	CHANGED PER CCA R 25922 & CLASS A RELEASED PER TDRR26218	2/14/66	



35
23
24
25
26
SECTION A-A
GREEN
DENOTES CATHODE END
YELLOW & RED
A
A
J1
R12
34 TYP
SEE NOTE 10
A1
C1
R17
R15
R13
R10
R14
Q1
R11
K2-7
CR1
K2-4
C2
K2-1
R9
R7
R21
CW
CCW
K2-6
Q3
R18
R19
K1-5
R16
K1
K1-8
K1-1
K1-8
CR2
27
24
25
26
1
3 REF
GREEN
YELLOW & RED
C
C
E1
Q2
ARM
R8
K2
2014343
2014344-011 ASSY
B
R22
R20
K2
K2-5
CR3
K2-5
K1-3
Q4
K2-1
K2-1
B
K1-4
Q4-e
R3
R6
R1
R4
R5
R2
K1-6
TB1
31
24
56
26
TB1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
14 33
SEE NOTES 6 & 14
CCW
CW
ARM
VIEW C-C
PIN NO 1 BLUE BEAD
POLARIZING BEAD
VIEW B-B
TYP K1, K2

Ⓒ REPLACES REV B WITH CHANGE

SEE NOTE 12 (find no. 17)

SEE NOTE 11 (find nos. 9 thru 14)

☒	2014116	SCHEMATIC	REF
8	NAS620C2	WASHER, FLAT	36
4	1006982-2	WASHER, NYLON	35
* 0.7	1006776-22	SLEEVING	34
14	1006431-001	LUG, TERMINAL	33
* 1.5	SEE NOTE 5	WIRE, ELECTRICAL	32
4	MS51957-7	SCREW, PAN HD	31
1	1017485-15	BOARD, TERMINAL	30
* 0.8	MIL-W-16878/4 E22 BLK	WIRE, ELECTRICAL	29
* 9.6	MIL-W-16878/4 E22 WHT	WIRE, ELECTRICAL	28
4	MS51957-4	SCREW, PAN HD	27
12	MS35649-24	NUT	26
12	MS15795-802	WASHER, FLAT	25
12	MS35338-77	WASHER, LOCK	24
4	MS51957-6	SCREW, PAN HD	23
2	1015832-12	RELAY	22
1	MS16108-2A	JACK, TIP	21
1	1006753	TRANSISTOR	20
2	1006759	TRANSISTOR	19
1	1010376-1	TRANSISTOR	18
2	CS13BF685K	CAPACITOR	17
2	1006751-000	DIODE	16
1	1010372-13	DIODE	15
1	RC20GF511J	RESISTOR	14
1	RC20GF102J		13
1	RC20GF202J		12
2	RC20GF331J		11
1	RC20GF512J		10
2	RC20GF152J		9
1	1006760-30		8
2	1006760-25		7
1	1006760-43	RESISTOR	6
~~1~~	~~1006760-33~~	~~RESISTOR~~	~~5~~
7	1006760-82	RESISTOR	4
1	1015951-003	RESISTOR	3
2	1018812-007	RESISTOR	2
1	2014843	COMPONENT BOARD	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NOTES

1. SOLDER PER ND1002071
2. STRIP ALL LEADS .25±.03 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. STAKE FIND NO. 18, 19 & 20 PER ND1002004, TYPE II, RIGID
5. QQ-W-343 TYPE S, NO. 24 AWG, SOFT COATED (S)
6. CRIMP PER ND1002206
7. MARKING E1 FOR WIRING ONLY
8. MARK CONDUCTOR IDENT PER ND1002019
9. PARTIAL REF DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB ASSY DESIGNATION
10. SLEEVE ALL TRANSISTOR LEADS WITH FIND NO. 34
11. FIND NO. 9 THRU 14 PER MIL-R-11
12. FIND NO. 17 PER MIL-C-26655
13. FABRICATE PER ND1002032
14. STRIP .19±.03 DO NOT TIN, ATTACH FIND NO. 33 ONE END

MASTER

2014044	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN L. Dubois DATE 30DEC64
CHECKED 3 JAN 66
APPROVAL 4 Jan 66
APPROVAL 1/4/66
APPROVAL 1/6/66
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

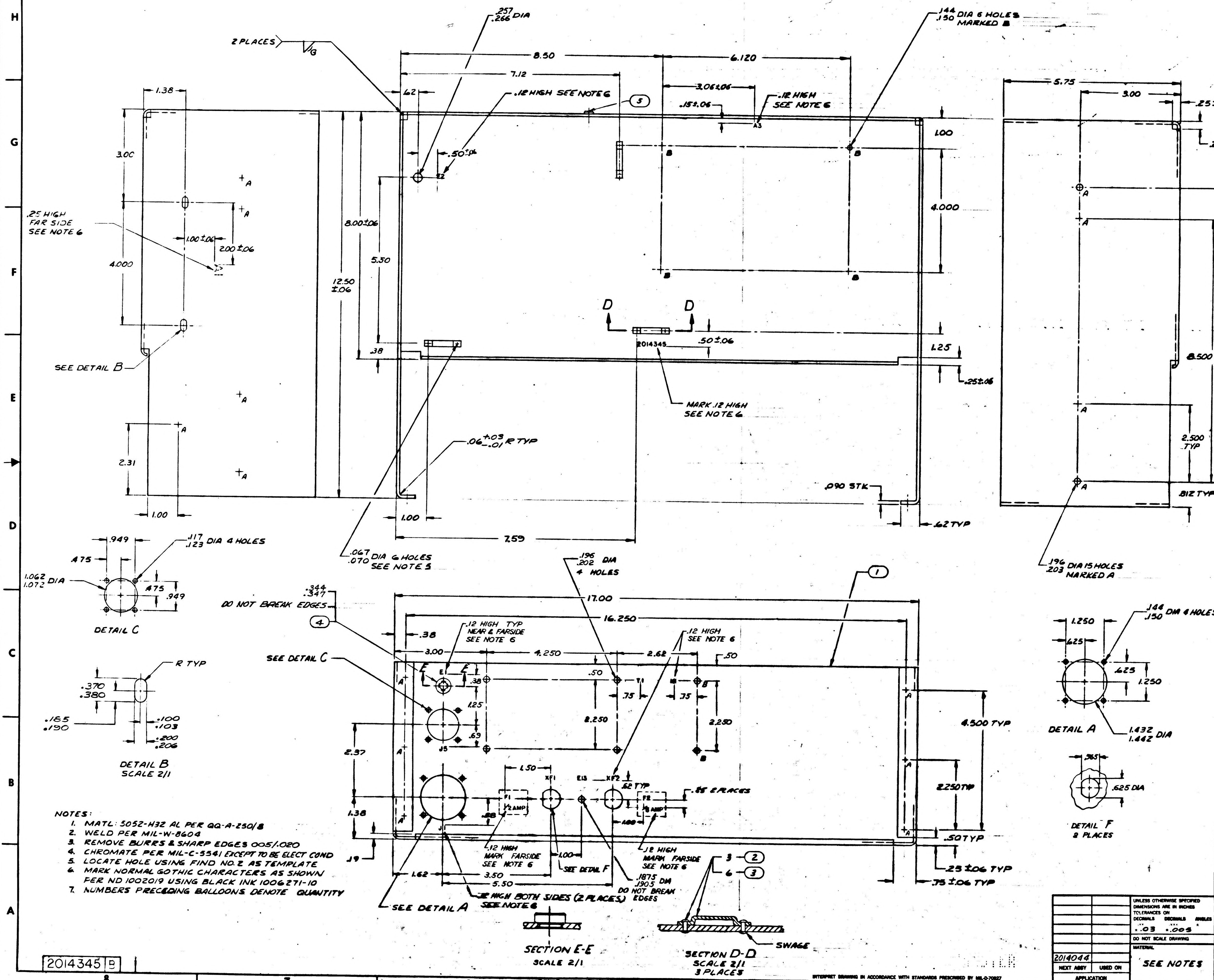
COMPONENT BOARD ASSY A1
POWER CONTROL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014344
SCALE 2/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014345 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25139	7/13/65	
1	CHANGED PER CCA R25209 DR CHK APPD	22 oct 65	
2	CHANGED PER CCA R25477 DR CHK APPD		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25569 DR CHK APPD		
B	CHANGED PER CCA R25767 AND CLASS A RELEASED PER TDRR 25472	1/9/66	


2 PLACES
.257
.266 DIA
8.50
7.12
.62
.12 HIGH SEE NOTE 6
⑤
6.120
3.06±.06
.15±.06
.12 HIGH
SEE NOTE 6
.144
.150 DIA 6 HOLES
MARKED B
1.38
3.00
.50
1.00
4.000
5.50
8.00±.06
12.50
±.06
.25 HIGH
FAR SIDE
SEE NOTE 6
1.00±.06
2.00±.06
4.000
SEE DETAIL B
D
D
2014345
.50±.06
1.25
.38
.25±.06
MARK .12 HIGH
SEE NOTE 6
2.31
.06 +.03 -.01 R TYP
.090 STK
1.00
1.00
7.59
.62 TYP
.067
.070 DIA 6 HOLES
SEE NOTE 5
5.75
3.00
.25±.06 TYP
.25±.06 TYP
9.500 TYP
8.500 TYP
2.500
TYP
.812 TYP
.196
.203 DIA 15 HOLES
MARKED A
.949
.475
.117
.123 DIA 4 HOLES
1.062
1.072 DIA
.475
.949
DETAIL C
.196
.202 DIA
4 HOLES
.344
.347
DO NOT BREAK EDGES
④
17.00
16.250
①
.38
.12 HIGH TYP
NEAR & FARSIDE
SEE NOTE 6
.12 HIGH
SEE NOTE 6
3.00
4.250
2.62
.50
SEE DETAIL C
E
E
J5
.38
1.25
.63
.75
.75
2.250
2.250
4.500 TYP
2.37
1.38
.19
R TYP
.370
.380
.165
.190
.100
.103
.200
.206
DETAIL B
SCALE 2/1
1.50
F1
1/2 AMP
XF1
E13
XF2
F2
.62 TYP
.88 2 PLACES
.88
1.00
2.250 TYP
.50 TYP
.25±.06 TYP
.75±.06 TYP
.12 HIGH
MARK FARSIDE
SEE NOTE 6
SEE DETAIL F
.12 HIGH
MARK FARSIDE
SEE NOTE 6
1.62
3.50
5.50
.1875
.1905 DIA
DO NOT BREAK EDGES
.12 HIGH BOTH SIDES (2 PLACES)
SEE NOTE 6
SEE DETAIL A
3 – ②
6 – ③
SWAGE
SECTION E-E
SCALE 2/1
SECTION D-D
SCALE 2/1
3 PLACES
1.250
.625
.144
.150 DIA 4 HOLES
.625
1.250
DETAIL A
1.432
1.442 DIA
.365
.625 DIA
DETAIL F
2 PLACES

NOTES:

1. MATL: 5052-H32 AL PER QQ-A-250/8
2. WELD PER MIL-W-8604
3. REMOVE BURRS & SHARP EDGES 005/.020
4. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECT COND
5. LOCATE HOLE USING FIND NO. 2 AS TEMPLATE
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006271-10
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY

2014345 B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006989-12	NUT, PLAIN SELF-CLINCHING	5
1	1006989-26	NUT, PLAIN, SELF CLINCHING	4
6	MS20426 AD2-4	RIVET, SOLID	3
3	1004844-003	STRAP, RETAINING	2
1	2014345-001	CHASSIS	1

LIST OF MATERIALS

2014044	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ±.005 ANGLES ±
DO NOT SCALE DRAWING
MATERIAL SEE NOTES

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 23 JUN 65
CHECKED 27 JUN 65
APPROVAL 9 AUG 65
APPROVAL 9 AUG 65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

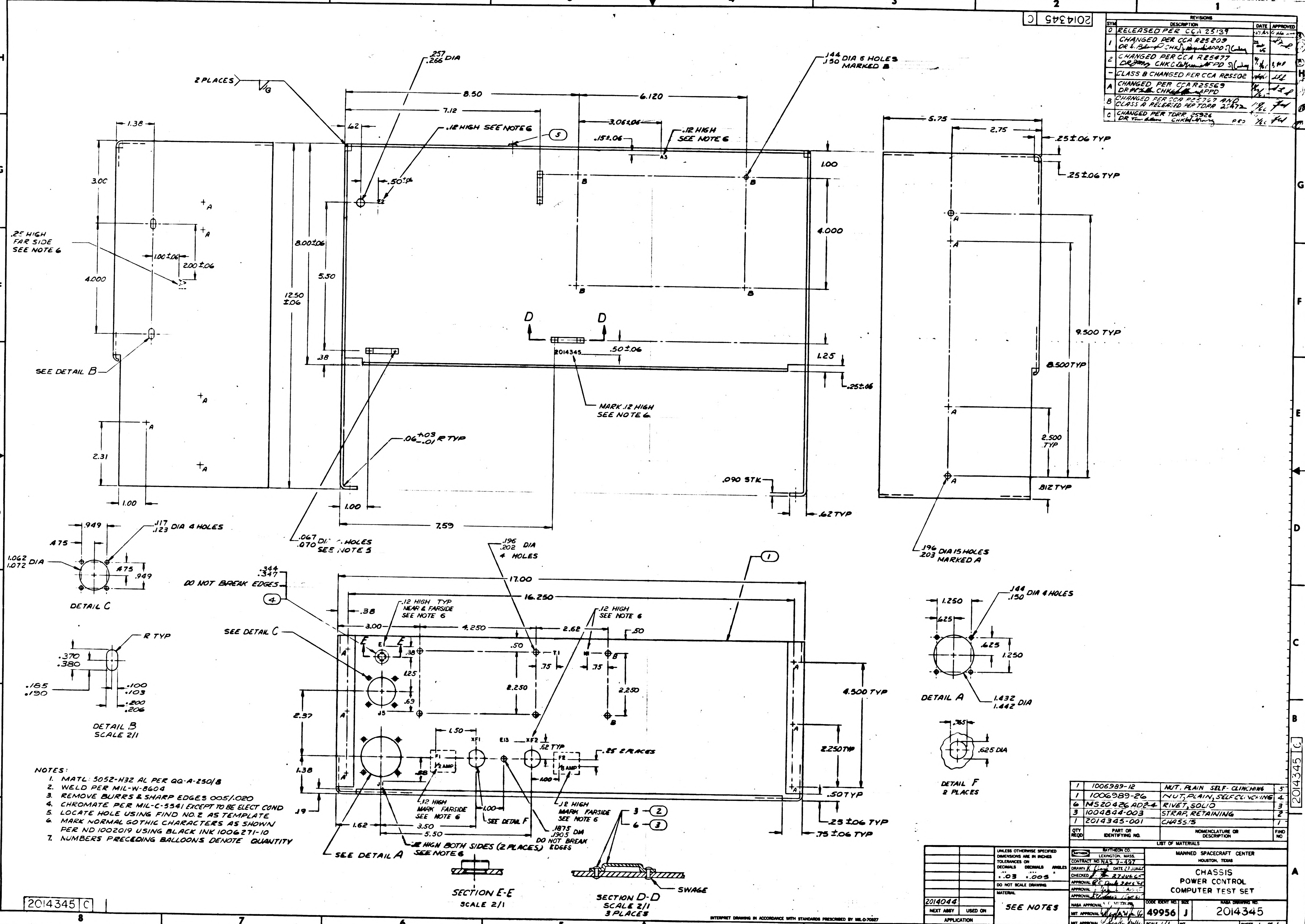
CHASSIS
POWER CONTROL
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014345

SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014345 B


2 PLACES
.257
.266 DIA
8.50
7.12
6.120
.62
.12 HIGH SEE NOTE 6
5
3.06±.06
.15±.06
.12 HIGH
SEE NOTE 6
A3
.144
.150 DIA 6 HOLES
MARKED B
1.00
4.000
.50±.06
8.00±.06
5.50
12.50
±.06
.38
1.25
.25±.06
D
D
2014345
.50±.06
MARK .12 HIGH
SEE NOTE 6
1.38
3.00
.25 HIGH
FAR SIDE
SEE NOTE 6
1.00±.06
2.00±.06
4.000
SEE DETAIL B
2.31
1.00
.06 +.03 -.01 R TYP
.090 STK
.62 TYP
1.00
7.59
.067
.070 DIA 4 HOLES
SEE NOTE 5
5.75
2.75
.25±.06 TYP
.25±.06 TYP
9.500 TYP
8.500 TYP
2.500
TYP
.812 TYP
.196
.203 DIA 15 HOLES
MARKED A
.949
.475
.117
.123 DIA 4 HOLES
1.062
1.072 DIA
.475
.949
DETAIL C
R TYP
.370
.380
.185
.190
.100
.103
.200
.206
DETAIL B
SCALE 2/1
.344
.347
DO NOT BREAK EDGES
4
.196
.202 DIA
4 HOLES
17.00
16.250
1
.38
.12 HIGH TYP
NEAR & FARSIDE
SEE NOTE 6
.12 HIGH
SEE NOTE 6
3.00
4.250
2.62
.50
SEE DETAIL C
E
E1
E
.38
.50
T1
B
.75
.75
1.25
.69
J5
2.250
2.250
4.500 TYP
2.37
1.50
XF1
E13
XF2
.62 TYP
.25 2 PLACES
F1
1/2 AMP
F2
3 AMP
1.00
2.250 TYP
1.38
.19
.88
J1
.12 HIGH
MARK FARSIDE
SEE NOTE 6
1.00
SEE DETAIL F
.12 HIGH
MARK FARSIDE
SEE NOTE 6
.1875
.1905 DIA
DO NOT BREAK EDGES
.50 TYP
.25±.06 TYP
.75±.06 TYP
1.62
3.50
5.50
.12 HIGH BOTH SIDES (2 PLACES)
SEE NOTE 6
SEE DETAIL A
3
2
6
3
SECTION E-E
SCALE 2/1
SECTION D-D
SCALE 2/1
3 PLACES
SWAGE
1.250
.625
.144
.150 DIA 4 HOLES
.625
1.250
DETAIL A
1.432
1.442 DIA
.365
.625 DIA
DETAIL F
2 PLACES

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25139	7/13/65	[illegible]
1	CHANGED PER CCA R25209 DR [illegible] CHK [illegible] APPD [illegible]	22 Oct 65	[illegible]
2	CHANGED PER CCA R25477 DR [illegible] CHK [illegible] APPD [illegible]	11/1/65	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25569 DR [illegible] CHK [illegible] APPD	[illegible]	[illegible]
B	CHANGED PER CCA R25767 AND CLASS A RELEASED PER TDRR 25472	1/19/66	[illegible]
C	CHANGED PER TDRR 25926 DR [illegible] CHK [illegible] APPD	3/66	[illegible]

NOTES:

1. MATL: 5052-H32 AL PER QQ-A-250/8
2. WELD PER MIL-W-8604
3. REMOVE BURRS & SHARP EDGES 005/.020
4. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECT COND
5. LOCATE HOLE USING FIND NO. 2 AS TEMPLATE
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006271-10
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1006989-12	NUT, PLAIN SELF-CLINCHING	5
1	1006989-26	NUT, PLAIN, SELF CLINCHING	4
6	MS20426 AD2-4	RIVET, SOLID	3
3	1004844-003	STRAP, RETAINING	2
1	2014345-001	CHASSIS	1

LIST OF MATERIALS

2014044	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ±.005 ANGLES ±
DO NOT SCALE DRAWING
MATERIAL
SEE NOTES

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R [illegible] DATE 23 JUN 65
CHECKED [illegible] 27 JUL 65
APPROVAL R E [illegible] 2 AUG 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A C METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

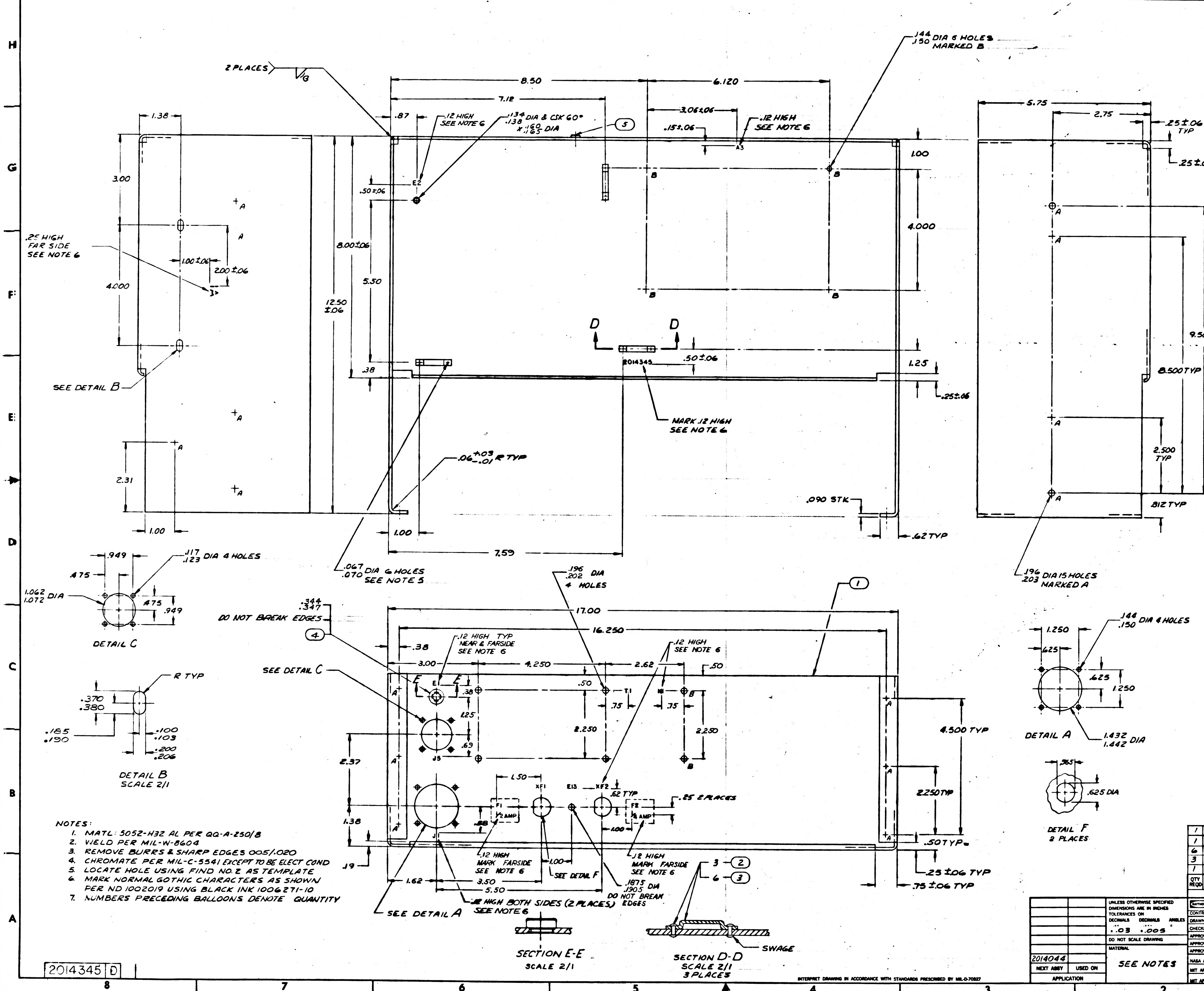
CHASSIS
POWER CONTROL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014345
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014345 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25139	2/3/65	
1	CHANGED PER CCA R25209 DR L. Belanger CHK APPD	22 Oct 65	
2	CHANGED PER CCA R25477 DR CHK C APPD	9/1/65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25569 DR CHK APPD		
B	CHANGED PER CCA R25767 AND CLASS A RELEASED PER TDRR 25472	1/9/66	
C	CHANGED PER TDRR 25926 DR CHK APPD	2/5/66	
D	CHANGED PER TDRR 26228 DR CHK APPD	3/19/66	


2 PLACES
8.50
6.120
7.12
.87
.12 HIGH SEE NOTE 6
.134 .138 DIA & CSK 60° X .160 .165 DIA
5
3.06±.06
.15±.06
.12 HIGH SEE NOTE 6
A3
.144 .150 DIA 6 HOLES MARKED B
E2
.50±.06
B
1.00
4.000
8.00±.06
5.50
12.50 ±.06
D
D
2014345
.50±.06
1.25
.38
.25±.06
MARK .12 HIGH SEE NOTE 6
.06 +.03 -.01 R TYP
.090 STK
1.00
.62 TYP
7.59
.067 .070 DIA 6 HOLES SEE NOTE 5
1.38
3.00
A
.25 HIGH FAR SIDE SEE NOTE 6
1.00±.06
2.00±.06
4.000
SEE DETAIL B
2.31
1.00
5.75
2.75
.25±.06 TYP
.25±.06 TYP
9.500 TYP
8.500 TYP
2.500 TYP
.812 TYP
.196 .203 DIA 15 HOLES MARKED A
.949
.475
.117 .123 DIA 4 HOLES
1.062 1.072 DIA
.475
.949
DETAIL C
R TYP
.370 .380
.165 .190
.100 .103
.200 .206
DETAIL B
SCALE 2/1
.344 .347
DO NOT BREAK EDGES
4
.196 .202 DIA 4 HOLES
17.00
16.250
1
.38
.12 HIGH TYP NEAR & FARSIDE SEE NOTE 6
.12 HIGH SEE NOTE 6
3.00
4.250
2.62
.50
SEE DETAIL C
E
E1
E
.38
.50
T1
N1
.75
.75
1.25
2.250
2.250
J5
.69
2.37
4.500 TYP
2.250 TYP
1.50
XF1
E13
XF2
.62 TYP
F1 1/2 AMP
F2 1/8 AMP
.25 2 PLACES
1.38
.88
1.00
.50 TYP
J
.19
.12 HIGH MARK FARSIDE SEE NOTE 6
SEE DETAIL F
.12 HIGH MARK FARSIDE SEE NOTE 6
.1875 .1905 DIA DO NOT BREAK EDGES
.25±.06 TYP
.75±.06 TYP
1.62
3.50
5.50
SEE DETAIL A
.12 HIGH BOTH SIDES (2 PLACES) SEE NOTE 6
SECTION E-E
SCALE 2/1
3 – 2
6 – 3
SWAGE
SECTION D-D
SCALE 2/1
3 PLACES
1.250
.625
.144 .150 DIA 4 HOLES
.625
1.250
DETAIL A
1.432 1.442 DIA
.365
.625 DIA
DETAIL F
2 PLACES

NOTES:
1. MATL: 5052-H32 AL PER QQ-A-250/8
2. WELD PER MIL-W-8604
3. REMOVE BURRS & SHARP EDGES 005/.020
4. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECT COND
5. LOCATE HOLE USING FIND NO. 2 AS TEMPLATE
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006271-10
7. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006989-12	NUT, PLAIN SELF-CLINCHING	5
1	1006989-26	NUT, PLAIN, SELF CLINCHING	4
6	MS20426 AD2-4	RIVET, SOLID	3
3	1004844-003	STRAP, RETAINING	2
1	2014345-001	CHASSIS	1

LIST OF MATERIALS

2014044	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ±.005 ANGLES ±
DO NOT SCALE DRAWING
MATERIAL
SEE NOTES

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN R. DATE 23 JUN 65
CHECKED 27 JUL 65
APPROVAL 3 AUG 65
APPROVAL 1 AUG 65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CHASSIS
POWER CONTROL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014345
SCALE 1/1
WT
SHEET 1 OF 1

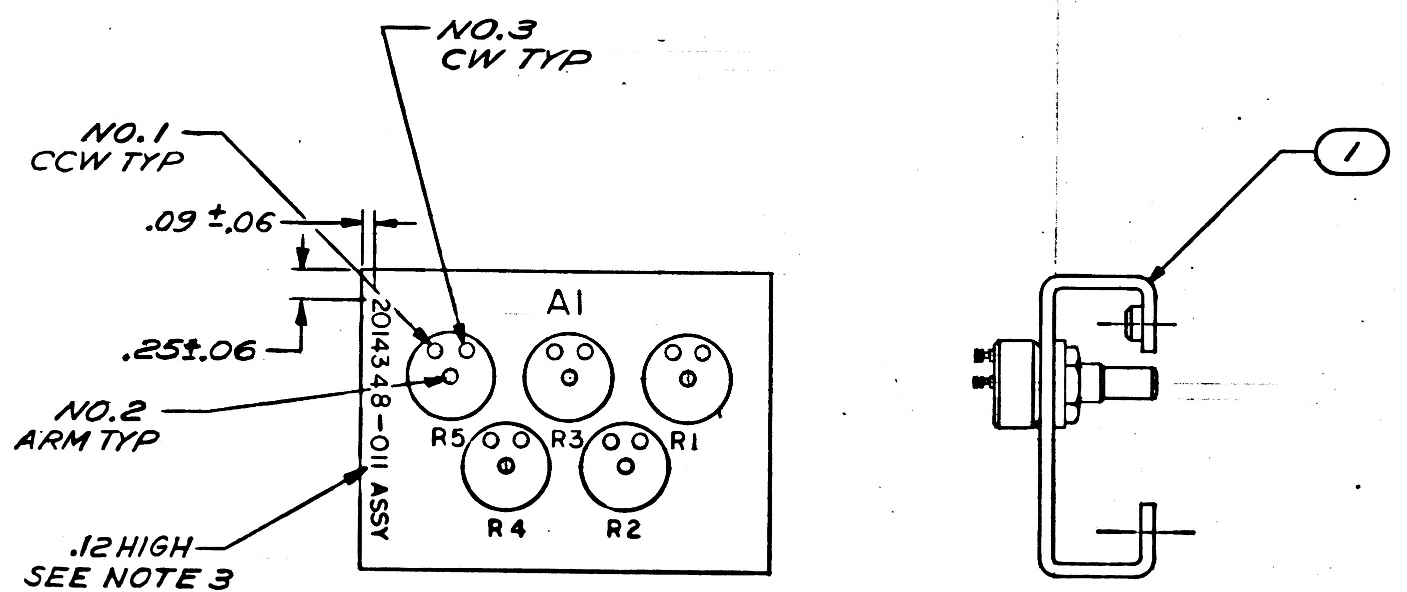
2014345 D

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014345 D

2014348 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167	9/13/65	G. Haram
—	CLASS B CHANGED PER CCAR25502		
A	CHANGED PER CCA R25632 AND CLASS A RELEASED PER TDRR 25472	1/19/66	



REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
R1, R4	2
R2, R3, R5	5

JUMPER LEGEND			
FROM	TO	LENGTH	
		FIND NO.3	FIND NO.4
R1-CW	R1-ARM	.60	—
R2-CW	R2-ARM	.60	—
R3-CW	R3-ARM	.60	—
R4-CW	R4-ARM	.60	—
R5-CW	R5-ARM	.60	—
R2-CCW	R1-CCW	1.20	.80
R3-CCW	R2-CCW	1.20	.80
R4-CCW	R3-CCW	1.20	.80
R5-CCW	R4-CCW	1.20	.80

* DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014179	SCHEMATIC	REF
3	1006468-008	RESISTOR, VARIABLE	5
* 0.3	1006776-22	SLEEVING, INSULATION	4
* 0.7	SEE NOTE 4	WIRE, ELEC	3
2	1006468-006	RESISTOR, VARIABLE	2
1	2014333	BRACKET, POTENTIOMETER	1
-011	LIST OF MATERIALS		

NOTES

1. SOLDER PER ND1002071
2. FOR FABRICATION SEE ND1002032
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. QQ-W-343, TYPE S, SOFT COATED (2), AWG 24
5. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
~~6. WIRE PER ND1002069~~
~~7. MIL-I-631, TYPE F, FORM U2, GRADE 2, CLASS 1, CATEGORY 1, I.D. .022 (AWG 24), COLOR WHITE~~

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014040	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R.M. Donahue DATE 23 AUG 65
CHECKED C. Kessler 12 Aug 65
APPROVAL H. Morse 21 AUG 65
APPROVAL 21 AUG 65
APPROVAL 9/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL G. Haram 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

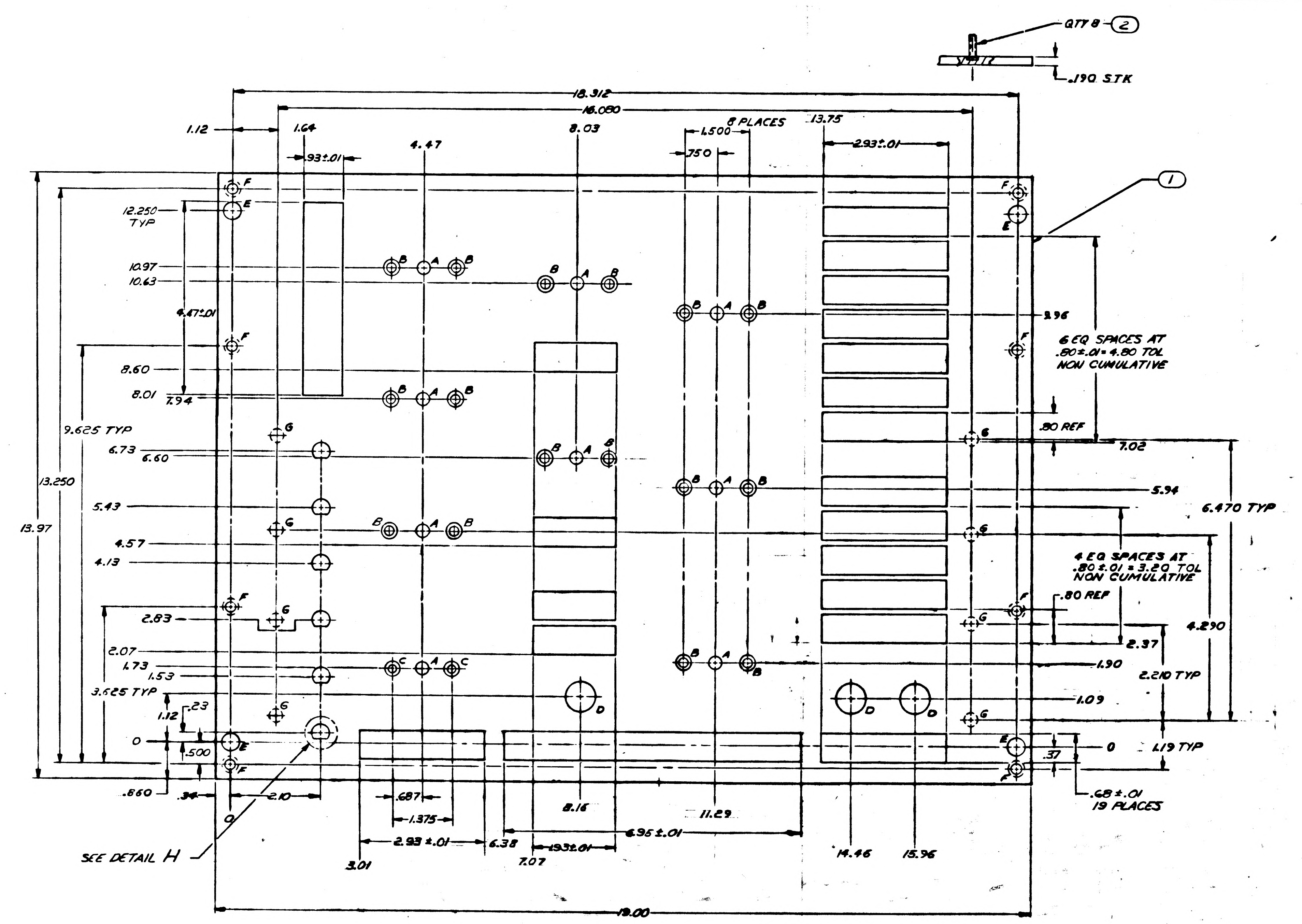
POTENTIOMETER BRKT ASSY A1
XY INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE C
NASA DRAWING NO. 2014348
SCALE 1/1
WT
SHEET 1 OF 1

2014348 A

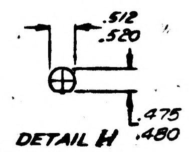
2014350 | -

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25167	9/13/65	
-	CLASS A RELEASED PER TDRR 25472		



QTY 8 ②
.190 STK
①
18.312
16.080
13.75
8 PLACES
1.500
.750
2.93±.01
1.12
1.64
.93±.01
4.47
8.03
12.250 TYP
10.97
10.63
4.47±.01
8.60
8.01
7.94
9.625 TYP
6.73
6.60
13.250
13.97
5.43
4.57
4.13
2.83
2.07
1.73
1.53
3.625 TYP
1.12
.23
0
.500
.860
.34
2.10
0
.687
1.375
2.93±.01
3.01
6.38
7.07
1.93±.01
6.95±.01
8.16
11.29
14.46
15.96
19.00
SEE DETAIL H
3.96
6 EQ SPACES AT .80±.01=4.80 TOL NON CUMULATIVE
.80 REF
7.02
5.94
6.470 TYP
4 EQ SPACES AT .80±.01=3.20 TOL NON CUMULATIVE
.80 REF
4.290
2.37
1.90
2.210 TYP
1.09
0
1.19 TYP
.37
.68±.01 19 PLACES
A
B
C
D
E
F
G

NOTES
1. REMOVE BURRS & SHARP EDGES .005/.020
2. LOCATE HOLES USING FIND NO.3 AS TEMPLATE
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. PAINT SURFACE A & EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
5. PAINT TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26251 PER MIL-F-14072 P513 TYPE I SURFACES MKD B
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
8. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1



.512
.520
.475
.480

DETAIL H
TYP 6 PLACES

HOLE	DESCRIPTION	QTY
A	.273/.282 DIA	9
B	.196/.202 DIA & CSK 82° X .34/.35 DIA	16
C	.169/.175 DIA & CSK 82° X .29/.30 DIA	2
D	.64/.65 DIA	3
E	.375 DIA	4
F	.196/.202 DIA & CSK 82° X .34/.35 DIA FARSIDE	8
G	.290/.293 DIA C BORE X .075/.085 DP	8
H	.067/.070 DIA & CSK 100° X .100/.110 DIA FARSIDE SEE NOTE 2	20

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
20	MS20426A2-6	RIVET, CSK FLAT HD	4
10	1004844-003	STRAP, RETAINING	3
8	1006951-007	STUD	2
1	2014350-001	PANEL	1

LIST OF MATERIALS

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

NEXT ASSY	USED ON
2014375	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ±1°
DO NOT SCALE DRAWING

MATERIAL
AL 6061-T6
PER QQ-A-250/11

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 25 JUN 65
CHECKED [illegible] 16 AUG 65
APPROVAL [illegible] 31 AUG 65
APPROVAL [illegible] 8/31/65
APPROVAL [illegible] 9/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, FRONT
XY INTERFACE
COMPUTER TEST SET

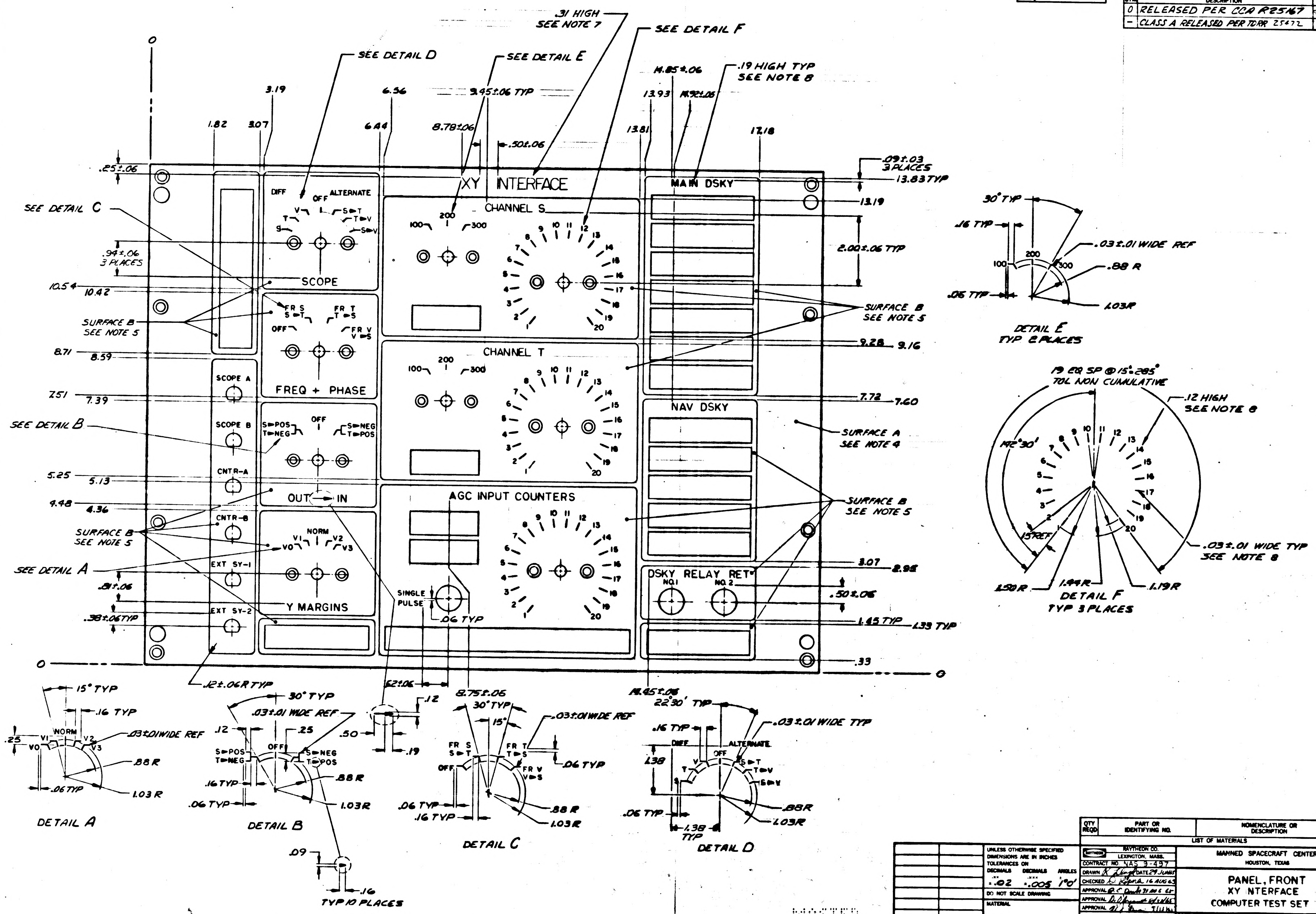
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	F	2014350

SCALE 1/1
WT
SHEET 1 OF 3

2014350 | -

2014350 | –

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/1/65	
–	CLASS A RELEASED PER TORR 25472		



XY INTERFACE
CHANNEL S
CHANNEL T
AGC INPUT COUNTERS
MAIN DSKY
NAV DSKY
DSKY RELAY RET
NO.1
NO.2
SCOPE
FREQ + PHASE
Y MARGINS
SCOPE A
SCOPE B
CNTR-A
CNTR-B
EXT SY-1
EXT SY-2
OUT
IN
SINGLE PULSE
DIFF
OFF
ALTERNATE
FR S S►T
FR T T►S
FR V V►S
S►POS T►NEG
S►NEG T►POS
NORM
V0
V1
V2
V3
100
200
300
.31 HIGH SEE NOTE 7
SEE DETAIL F
SEE DETAIL D
SEE DETAIL E
SEE DETAIL C
SEE DETAIL B
SEE DETAIL A
.19 HIGH TYP SEE NOTE 8
SURFACE B SEE NOTE 5
SURFACE A SEE NOTE 4
.09±.03 3 PLACES
.94±.06 3 PLACES
2.00±.06 TYP
.12±.06R TYP
DETAIL A
DETAIL B
DETAIL C
DETAIL D
DETAIL E TYP 2 PLACES
DETAIL F TYP 3 PLACES
19 EQ SP @ 15° = 285° TOL NON CUMULATIVE
.12 HIGH SEE NOTE 8
.03±.01 WIDE TYP SEE NOTE 8
.03±.01 WIDE REF
.88 R
1.03 R
1.19 R
1.44 R
1.50 R
192°30'
15° REF
30° TYP
15° TYP
22°30' TYP
.16 TYP
.06 TYP
TYP 10 PLACES
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°0'
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. [illegible] DATE 29 JUN 65
CHECKED D. Lopna 16 AUG 65
APPROVAL R. E. Dunk 31 AUG 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

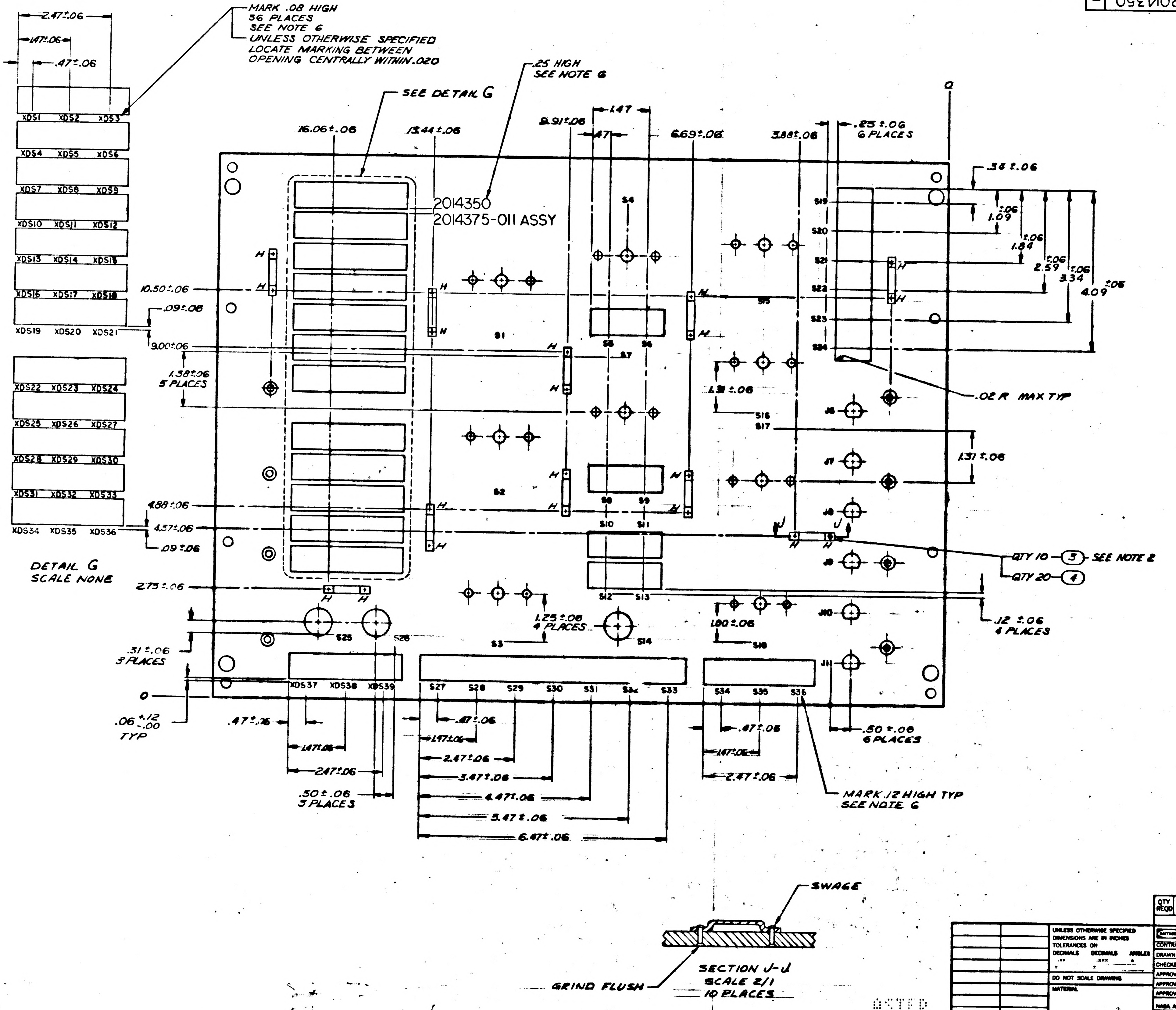
PANEL, FRONT
XY NTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014350
SCALE 1/1
WT
SHEET 2 OF 3

2014350 | –

2014350 | -

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167		
-	CLASS A RELEASED PER TDRR 25472		



MARK .08 HIGH
56 PLACES
SEE NOTE 6
UNLESS OTHERWISE SPECIFIED
LOCATE MARKING BETWEEN
OPENING CENTRALLY WITHIN .020
2.47±.06
1.47±.06
.47±.06
XDS1 XDS2 XDS3
XDS4 XDS5 XDS6
XDS7 XDS8 XDS9
XDS10 XDS11 XDS12
XDS13 XDS14 XDS15
XDS16 XDS17 XDS18
XDS19 XDS20 XDS21
XDS22 XDS23 XDS24
XDS25 XDS26 XDS27
XDS28 XDS29 XDS30
XDS31 XDS32 XDS33
XDS34 XDS35 XDS36
DETAIL G
SCALE NONE
SEE DETAIL G
.25 HIGH
SEE NOTE 6
16.06±.06
13.44±.06
2014350
2014375-011 ASSY
8.91±.06
1.47
.47
6.69±.06
3.88±.06
.25±.06
6 PLACES
.34±.06
1.09±.06
1.84±.06
2.59±.06
3.34±.06
4.09±.06
10.50±.06
.09±.06
9.00±.06
1.38±.06
5 PLACES
1.31±.06
1.31±.06
4.88±.06
4.37±.06
.09±.06
2.75±.06
.31±.06
3 PLACES
0
.06 +.12 -.00
TYP
.02 R MAX TYP
QTY 10 (3) SEE NOTE 2
QTY 20 (4)
.12±.06
4 PLACES
1.25±.06
4 PLACES
1.80±.06
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S16 S17 S18
S19 S20 S21 S22 S23 S24 S25 S26
S27 S28 S29 S30 S31 S32 S33 S34 S35 S36
J6 J7 J8 J9 J10 J11
XDS37 XDS38 XDS39
H
J
.47±.06
1.47±.06
2.47±.06
.50±.06
3 PLACES
.47±.06
1.47±.06
2.47±.06
3.47±.06
4.47±.06
5.47±.06
6.47±.06
.47±.06
1.47±.06
2.47±.06
.50±.06
6 PLACES
MARK .12 HIGH TYP
SEE NOTE 6
SWAGE
GRIND FLUSH
SECTION J-J
SCALE 2/1
10 PLACES

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. Kluge DATE 1 AUG 65
CHECKED D. Lepak 16 AUG 65
APPROVAL G. C. Duck 31 AUG 65
APPROVAL D. C. Bryant 8/31/65
APPROVAL 9/13/65
NASA APPROVAL A. A. METZGER
MIT APPROVAL
MIT APPROVAL C. Sterling

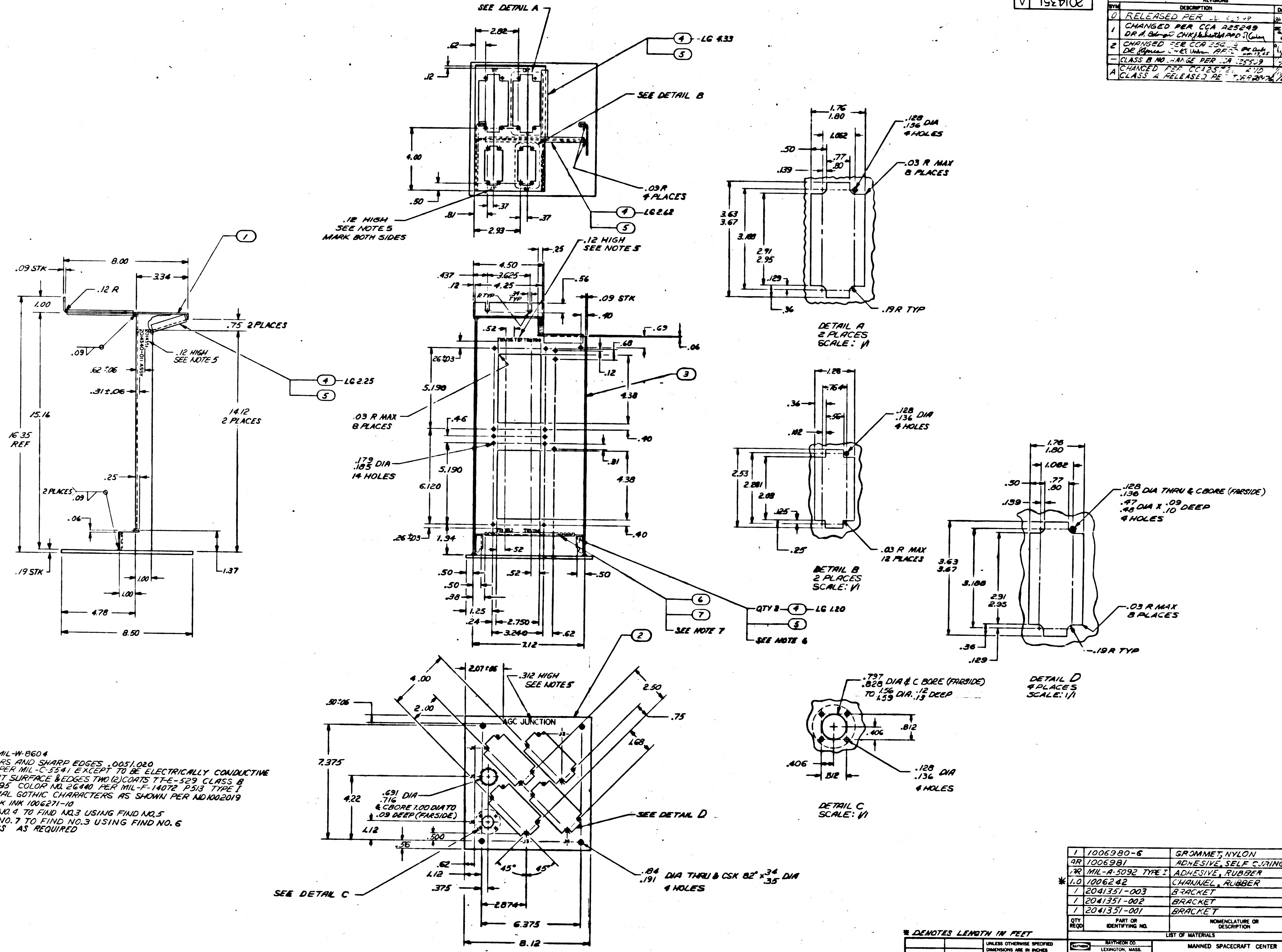
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, FRONT
XY INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014350
SCALE 1/1
WT
SHEET 3 OF 3

2014350 | -

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER [illegible]	9/11/65	[illegible]
1	CHANGED PER CCA A25249 DR A. Belanger CHK [illegible] APPD [illegible]	[illegible] 65	[illegible]
2	CHANGED PER CCA 250[illegible] DR [illegible] CHK E Urban APPD [illegible] Nov 13, 65	[illegible]/65	[illegible]
—	CLASS B NO CHANGE PER CCA 255[illegible]9	[illegible]/66	[illegible]
A	CHANGED PER CCA257[illegible] AND CLASS A RELEASED PER TYER 2476	[illegible]/66	[illegible]


SEE DETAIL A
SEE DETAIL B
4 - LG 4.33
5
.09 R 4 PLACES
4 - LG 2.62
5
.12 HIGH SEE NOTE 5 MARK BOTH SIDES
2.82
2.93
4.00
.50
.81
.37
.12 HIGH SEE NOTE 5
.09 STK
8.00
3.34
.12 R
1
.75 2 PLACES
.12 HIGH SEE NOTE 5
4 - LG 2.25
5
15.16
16.35 REF
14.12 2 PLACES
.19 STK
4.78
8.50
1.37
4.50
3.625
4.25
.56
.09 STK
3
.03 R MAX 8 PLACES
.179 .185 DIA 14 HOLES
5.190
6.120
4.38
7.12
3.240
2.750
6
7
SEE NOTE 7
QTY 2 - 4 - LG 1.20
5
SEE NOTE 6
DETAIL A 2 PLACES SCALE: 1/1
.128 .136 DIA 4 HOLES
.03 R MAX 8 PLACES
.19 R TYP
DETAIL B 2 PLACES SCALE: 1/1
.128 .136 DIA 4 HOLES
.03 R MAX 12 PLACES
.128 .136 DIA THRU & CBORE (FARSIDE)
.47 .48 DIA X .09 .10 DEEP 4 HOLES
.03 R MAX 8 PLACES
.19 R TYP
DETAIL D 4 PLACES SCALE: 1/1
.797 .828 DIA & C BORE (FARSIDE) TO 1.56 1.59 DIA. .12 .13 DEEP
.128 .136 DIA 4 HOLES
DETAIL C SCALE: 1/1
2
.312 HIGH SEE NOTE 5
AGC JUNCTION
7.375
.691 .716 DIA & CBORE 1.00 DIA TO .09 DEEP (FARSIDE)
SEE DETAIL D
.184 .191 DIA THRU & CSK 82° x .34 .35 DIA 4 HOLES
SEE DETAIL C
45°
2.874
6.375
8.12

NOTES

1. WELD PER MIL-W-8604
2. REMOVE BURRS AND SHARP EDGES .005/.020
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. PAINT FRONT SURFACE & EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
6. BOND FIND NO. 4 TO FIND NO. 3 USING FIND NO. 5
7. BOND FIND NO. 7 TO FIND NO. 3 USING FIND NO. 6
8. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006980-6	GROMMET, NYLON	7
AR	1006981	ADHESIVE, SELF CURING	6
AR	MIL-A-5092 TYPE I	ADHESIVE, RUBBER	5
✱ 1.0	1006242	CHANNEL, RUBBER	4
1	2041351-003	BRACKET	3
1	2041351-002	BRACKET	2
1	2041351-001	BRACKET	1

LIST OF MATERIALS

✱ DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014340	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±0°30'
DO NOT SCALE DRAWING
MATERIAL AL 5052-H22 PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible] 65
CHECKED [illegible] Sep 65
APPROVAL VP [illegible] 9-14
APPROVAL [illegible] 9/10/65
APPROVAL [illegible] 9/11/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

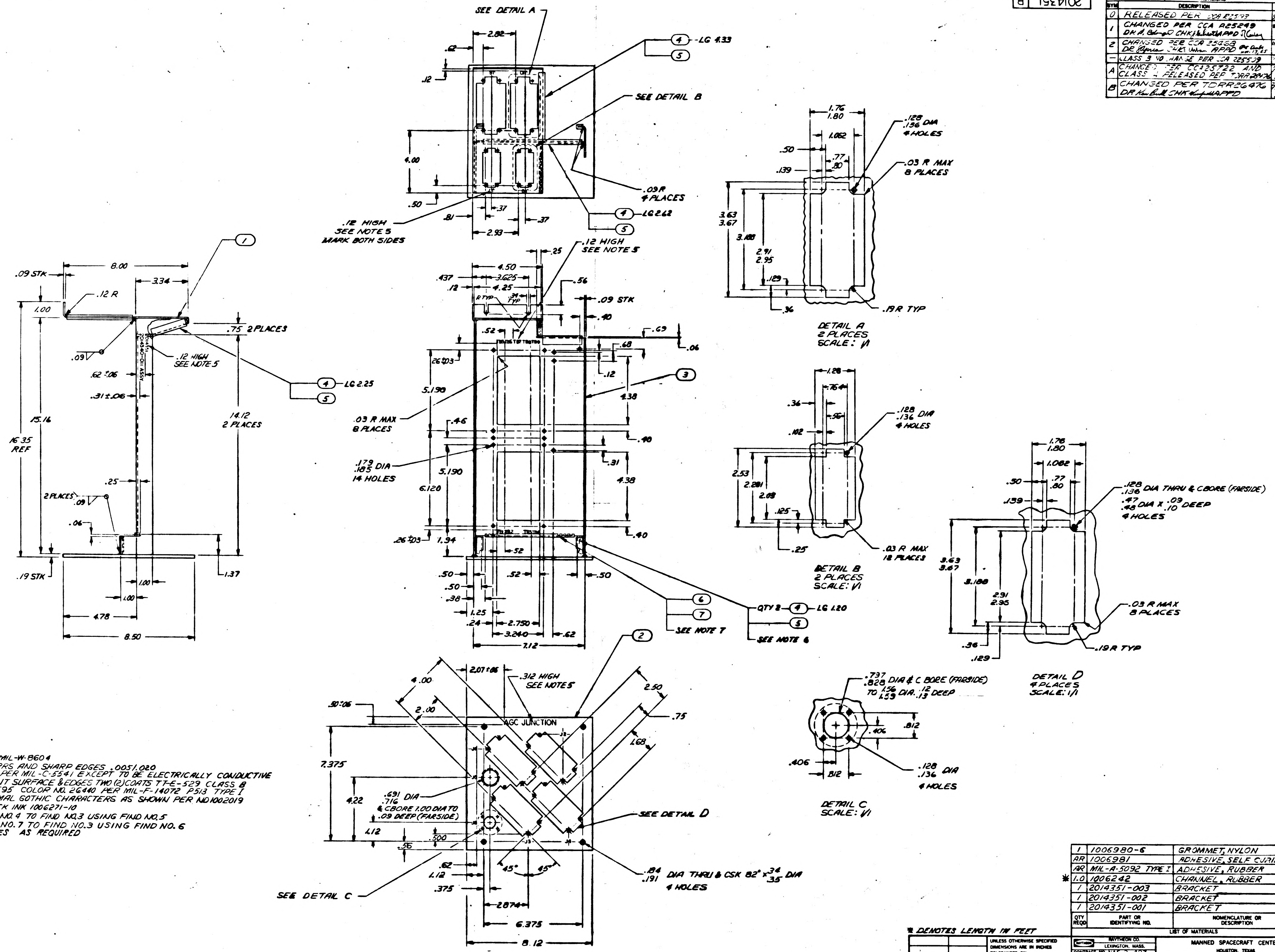
BRACKET, CONNECTOR
AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014351

SCALE 1/2 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25193	9/17/65	[illegible]
1	CHANGED PER CCA R25249 DR A. Belanger CHK [illegible] APPD R Conley	[illegible] 65	[illegible]
2	CHANGED PER CCA 25268 DR [illegible] CHK Ullman APPD [illegible] nov. 13, 65	[illegible]/65	[illegible]
—	CLASS 3 NO CHANGE PER CCA 225509	[illegible]/66	[illegible]
A	CHANGED PER CCA25722 AND CLASS 1 RELEASED PER TDRR26476	[illegible]/66	[illegible]
B	CHANGED PER TDRR26476 DR Ken Bull CHK [illegible] APPD	[illegible]	[illegible]


SEE DETAIL A
SEE DETAIL B
SEE DETAIL C
SEE DETAIL D
4 - LG 4.33
4 - LG 2.62
4 - LG 2.25
QTY 2 - 4 - LG 1.20
.12 HIGH SEE NOTE 5 MARK BOTH SIDES
.12 HIGH SEE NOTE 5
.312 HIGH SEE NOTE 5
SEE NOTE 6
SEE NOTE 7
.09 R 4 PLACES
.03 R MAX 8 PLACES
.179 .185 DIA 14 HOLES
.09 STK
.19 STK
16.35 REF
AGC JUNCTION
.691 .716 DIA - & CBORE 1.00 DIA TO .09 DEEP (FARSIDE)
.184 .191 DIA THRU & CSK 82° x .34 .35 DIA 4 HOLES
DETAIL A 2 PLACES SCALE: 1/1
.128 .136 DIA 4 HOLES
.19 R TYP
DETAIL B 2 PLACES SCALE: 1/1
.03 R MAX 18 PLACES
DETAIL C SCALE: 1/1
.737 .828 DIA & C BORE (FARSIDE) TO .156 .159 DIA .12 .13 DEEP
DETAIL D 4 PLACES SCALE: 1/1
.128 .136 DIA THRU & CBORE (FARSIDE) .47 .48 DIA x .09 .10 DEEP 4 HOLES

NOTES

1. WELD PER MIL-W-8604
2. REMOVE BURRS AND SHARP EDGES .005/.020
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. PAINT FRONT SURFACE & EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
6. BOND FIND NO. 4 TO FIND NO. 3 USING FIND NO. 5
7. BOND FIND NO. 7 TO FIND NO. 3 USING FIND NO. 6
8. AR DENOTES AS REQUIRED

LIST OF MATERIALS

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	1	1006980-6	GROMMET, NYLON	7
	AR	1006981	ADHESIVE, SELF CURING	6
	AR	MIL-A-5092 TYPE I	ADHESIVE, RUBBER	5
*	1.0	1006242	CHANNEL, RUBBER	4
	1	2014351-003	BRACKET	3
	1	2014351-002	BRACKET	2
	1	2014351-001	BRACKET	1

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014340	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±0°30'
DO NOT SCALE DRAWING
MATERIAL AL 5052-H22 PER QQ-A-250/8

RAYTHEON CO. LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible] 65
CHECKED [illegible]
APPROVAL VP [illegible] 9-14
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

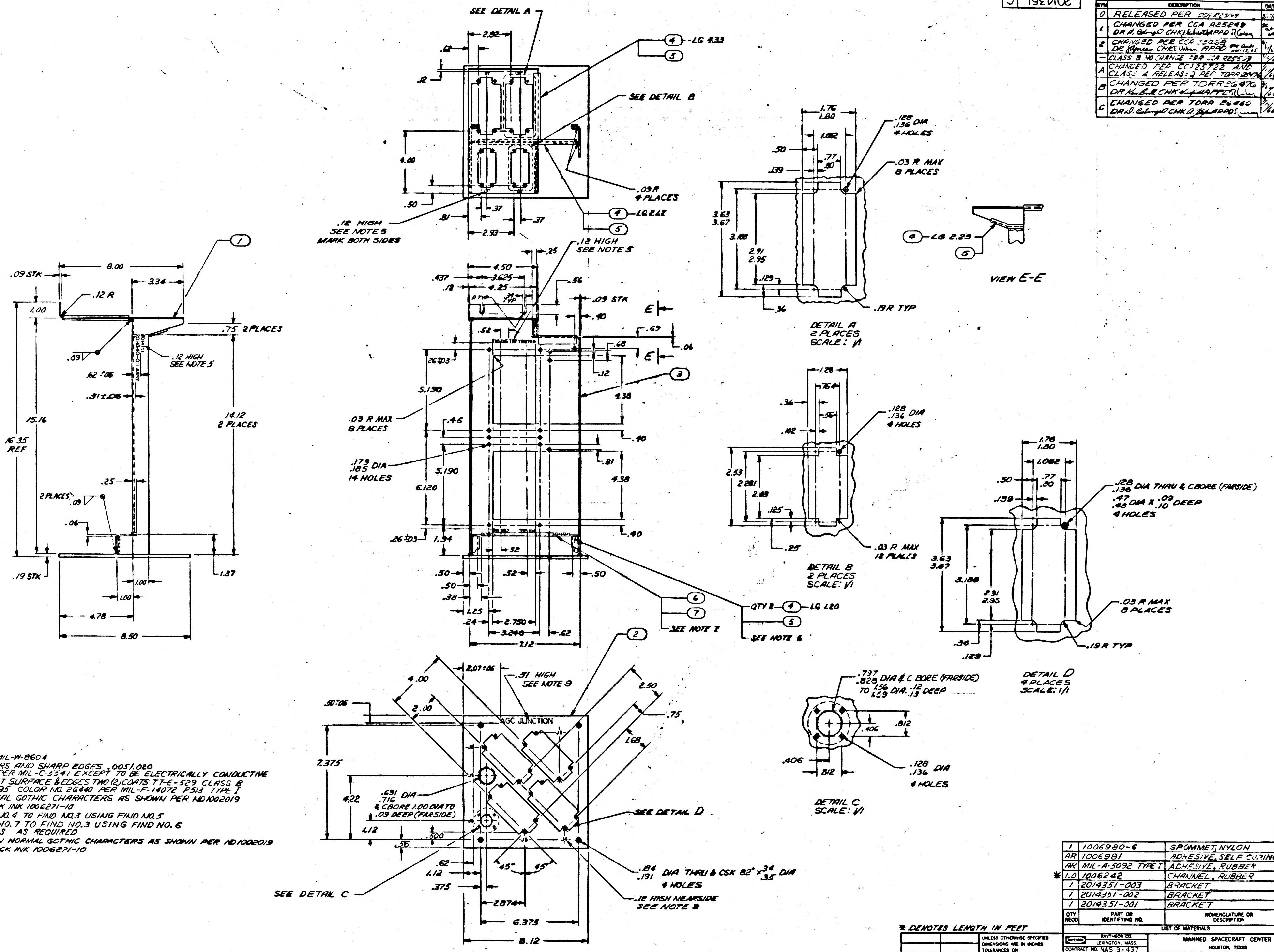
BRACKET, CONNECTOR
AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014351
SCALE 1/2 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014351 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25143	9/17/65	[illegible]
1	CHANGED PER CCA R25249 DR A. Belanger CHK [illegible] APPD [illegible]	[illegible]	[illegible]
2	CHANGED PER CCA 25468 DR [illegible] CHK E. Urban APPD [illegible] Nov. 13, 65	[illegible]/65	[illegible]
—	CLASS B NO CHANGE PER CCA R25509	[illegible]/66	[illegible]
A	CHANGED PER CCA 25722 AND CLASS A RELEASED PER TDRR 26476	[illegible]/66	[illegible]
B	CHANGED PER TDRR 26476 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
C	CHANGED PER TDRR 26460 DR D. Belanger CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]



SEE DETAIL A
SEE DETAIL B
SEE DETAIL C
SEE DETAIL D
4 -LG 4.33
4 -LG 2.62
.09 R 4 PLACES
.12 HIGH SEE NOTE 5 MARK BOTH SIDES
.12 HIGH SEE NOTE 5
.12 HIGH SEE NOTE 5
.31 HIGH SEE NOTE 9
.12 HIGH NEARSIDE SEE NOTE 9
.09 STK
.19 STK
16.35 REF
15.16
14.12 2 PLACES
.75 2 PLACES
8.00
3.34
8.50
4.78
.03 R MAX 8 PLACES
.179 .185 DIA 14 HOLES
QTY 2 4 - LG 1.20
SEE NOTE 7
SEE NOTE 6
E E
AGC JUNCTION
.691 .716 DIA & CBORE 1.00 DIA TO .09 DEEP (FARSIDE)
.184 .191 DIA THRU & CSK 82° x .34 .35 DIA 4 HOLES
45° 45°
6.375
8.12
7.375
DETAIL A 2 PLACES SCALE: 1/1
.128 .136 DIA 4 HOLES
.03 R MAX 8 PLACES
.19 R TYP
4 -LG 2.25
VIEW E-E
DETAIL B 2 PLACES SCALE: 1/1
.03 R MAX 12 PLACES
.128 .136 DIA THRU & CBORE (FARSIDE) .47 .48 DIA x .09 .10 DEEP 4 HOLES
DETAIL D 4 PLACES SCALE: 1/1
.737 .828 DIA & C BORE (FARSIDE) TO 1.56 1.59 DIA. .12 .13 DEEP
.128 .136 DIA 4 HOLES
DETAIL C SCALE: 1/1

NOTES

1. WELD PER MIL-W-8604
2. REMOVE BURRS AND SHARP EDGES .005/.020
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. PAINT FRONT SURFACE & EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
6. BOND FIND NO. 4 TO FIND NO. 3 USING FIND NO. 5
7. BOND FIND NO. 7 TO FIND NO. 3 USING FIND NO. 6
8. AR DENOTES AS REQUIRED
9. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006980-6	GROMMET, NYLON	7
AR	1006981	ADHESIVE, SELF CURING	6
AR	MIL-A-5092 TYPE I	ADHESIVE, RUBBER	5
✱ 1.0	1006242	CHANNEL, RUBBER	4
1	2014351-003	BRACKET	3
1	2014351-002	BRACKET	2
1	2014351-001	BRACKET	1

LIST OF MATERIALS

✱ DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014340	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±0°30'
DO NOT SCALE DRAWING
MATERIAL AL 5052-H22 PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible] 65
CHECKED [illegible] Sep 65
APPROVAL VP [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BRACKET, CONNECTOR
AGC JUNCTION ASSY
OPERATION CONSOLE

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014351
SCALE 1/2 WT SHEET 1 OF 1

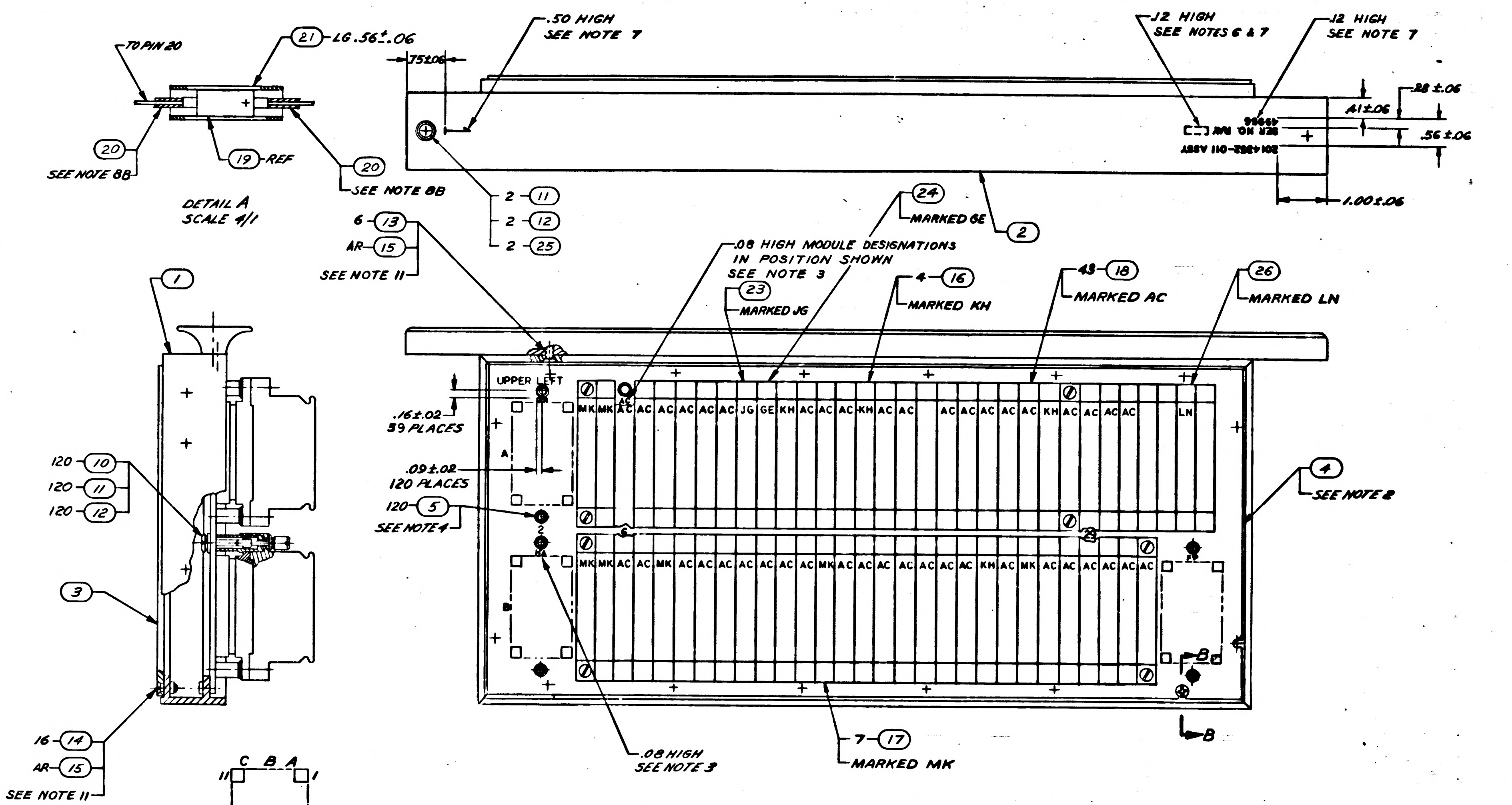
2014351 C

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

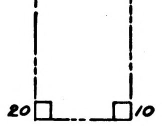
2014351 C

2014352 C

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA25076	8/6/65	
1	CHANGED PER CCA R25485 DR CHK APPD 11-13-65	11/12/65	
—	CLASS B CHANGED PER CCAR25502		
A	CHANGED PER CCA R25621 DR CHK APPD	1/5/66	
B	CHANGED PER CCA R25693 DR CHK APPD	1/10/66	
C	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	

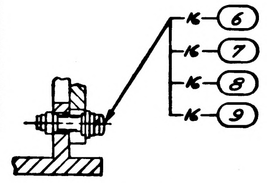


TO PIN 20
21 LG .56±.06
20
SEE NOTE 8B
19 REF
20
SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
2 - 11
2 - 12
2 - 25
6 - 13
AR - 15
SEE NOTE 11
.12 HIGH
SEE NOTES 6 & 7
.12 HIGH
SEE NOTE 7
.28±.06
.41±.06
.56±.06
1.00±.06
24
MARKED GE
2
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
23
MARKED JG
4 - 16
MARKED KH
43 - 18
MARKED AC
26
MARKED LN
1
UPPER LEFT
.16±.02
39 PLACES
.09±.02
120 PLACES
120 - 5
SEE NOTE 4
120 - 10
120 - 11
120 - 12
3
4
SEE NOTE 2
MK MK AC AC AC AC AC AC JG GE KH AC AC AC KH AC AC AC AC AC AC AC KH AC AC AC AC LN
MK MK AC AC MK AC AC AC AC AC AC AC MK AC AC AC AC AC AC AC KH AC MK AC AC AC AC AC AC
A
B
B
16 - 14
AR - 15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
7 - 17
MARKED MK
C B A
11 1



TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	19	A23-13	A23-20	
C2		B32-02	B32-20	
C3		A15-13	A15-20	
C4		A11-08	A12-20	
C5		B34-08	B33-20	
C6		A11-19	A10-20	
C7		B04-02	B04-20	
C8		B05-02	B05-20	
C9		B08-18	B07-20	
C10		A04-02	A04-20	
C11		A05-02	A05-20	
C12		B24-14	B23-20	
C13		A15-02	A16-20	
C14		A25-02	A25-20	
C15		A19-19	A18-20	
C16		A25-04	A24-20	
C17		B09-05	B10-20	
C18		B35-06	B35-20	
C19		A22-09	A20-20	
C20		A17-04	A17-20	
C21		B27-02	B27-20	
C22		B20-17	B19-20	
C23		B20-16	B21-20	
C24	19	B28-12	B28-20	



SECTION B-B
SCALE 2/1

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND 22 PER 2014097 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 19 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM Ua GRADE 2 CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO 20~~
10. MIL-I-631 TYPE F FORM Ua GRADE 2 CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 21
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING NO. 15

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014097	WIREWRAP MACH CARD	REF
☒	2014143	LOGIC DIAGRAM	REF
1	2014000-011	MODULE, BUFFERED FLIP-FLOP	26
2	1006998-1	SCREW, CAPTIVE	25
1	1014230	MODULE, INTERFACE RECEIVER	24
1	1014065-3	MODULE, RESISTOR	23
AR	1006945-1	WIRE, ELECTRICAL	22
* 1.2	SEE NOTE 10	SLEEVING	21
AR	1006776-197	SLEEVING, INSULATION	20
24	CS13AF010K	CAPACITOR 1μf 35V	19
43	1014034	MODULE, NOR	18
7	1014096	MODULE, DRIVER	17
4	1014079	MODULE, GATED FLIP-FLOP	16
AR	MIL-S-22473 GR, HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
122	MS35338-79	WASHER, LOCK	12
122	1006997	WASHER, FLAT	11
120	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
120	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	WIRE WRAP PLATE	4
1	1014026	COVER, CONN PLATE	3
1	1014258	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014041	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS-9-4497
DRAWN DATE 25 JUN 65
CHECKED 6 Jul '65
APPROVAL
APPROVAL 7/15/65
APPROVAL 4 Aug 65
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL 1/20

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

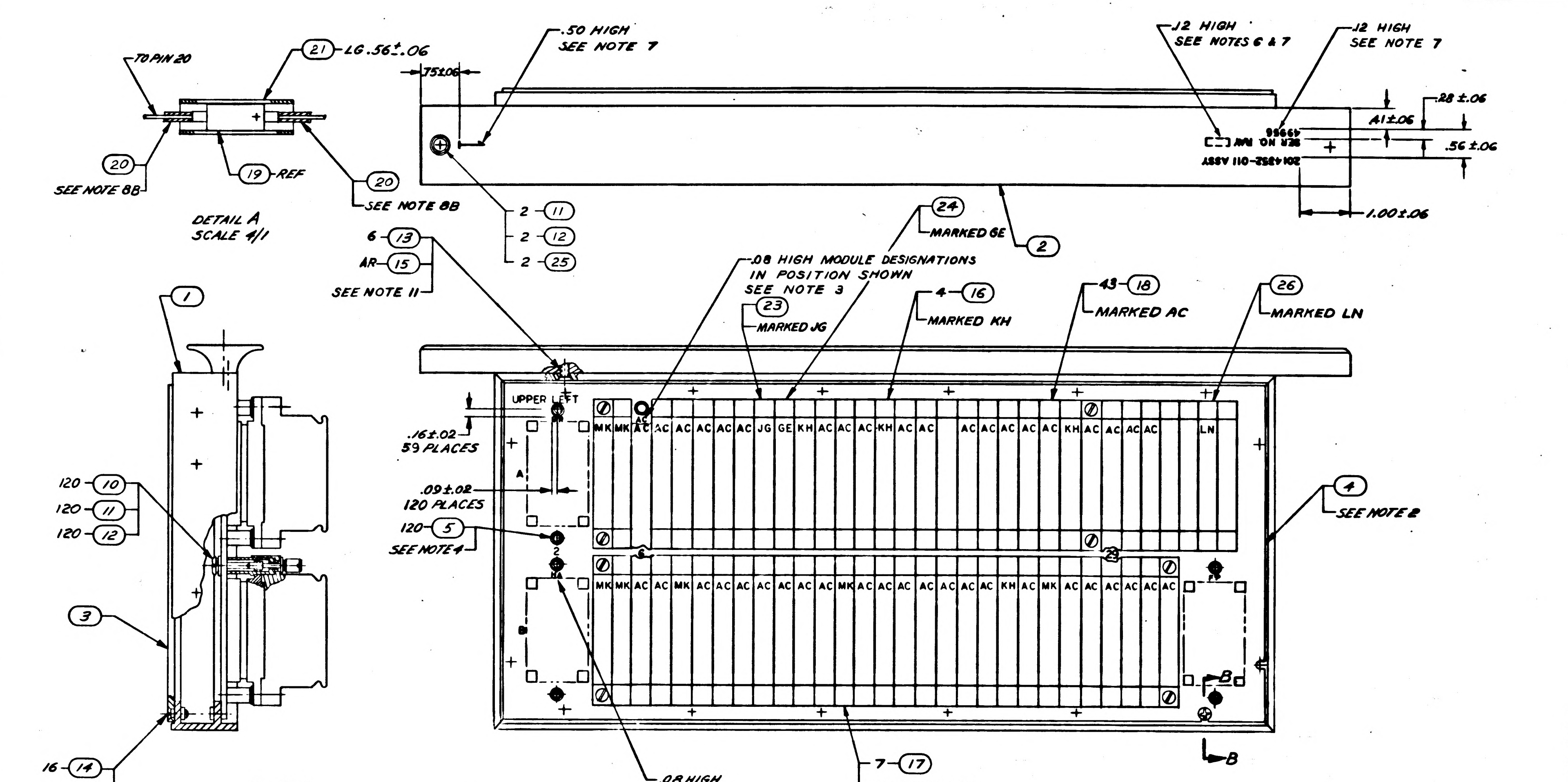
LOGIC PLATE ASSY NO. 1
PROGRAMMER & MONITOR
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014352
SCALE 1/1
WT
SHEET 1 OF 1

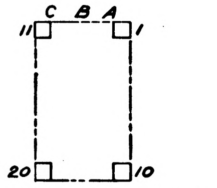
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014352 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25076	[illegible]	[illegible]
1	CHANGED PER CCA R25485 DR V [illegible] CHK [illegible] APPD [illegible] 11-13-65	11/12/65	[illegible]
—	CLASS B CHANGED PER CCAR25502	12/1/65	[illegible]
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD [illegible]	1/4/66	[illegible]
B	CHANGED PER CCA R25693 DR [illegible] CHK [illegible] APPD [illegible]	1/10/66	[illegible]
C	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]
D	CHANGED PER TDRR 27070 DR D. A. Clement CHK [illegible] APPD [illegible]	3/24/66	[illegible]



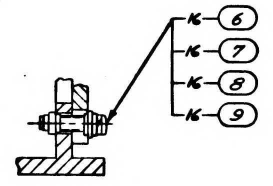
TO PIN 20
21 -LG .56±.06
20
SEE NOTE 8B
19 -REF
20
SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
2 -11
2 -12
2 -25
24
MARKED GE
2
.12 HIGH
SEE NOTES 6 & 7
.12 HIGH
SEE NOTE 7
49956
SER NO
2014352-011 ASSY
.28±.06
.41±.06
.56±.06
1.00±.06
6 -13
AR -15
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
23
MARKED JG
4 -16
MARKED KH
43 -18
MARKED AC
26
MARKED LN
1
UPPER LEFT
.16±.02
59 PLACES
.09±.02
120 PLACES
120 -5
SEE NOTE 4
A
B
MK MK AC AC AC AC AC AC JG GE KH AC AC AC KH AC AC AC AC AC AC AC KH AC AC AC AC LN
MK MK AC AC MK AC AC AC AC AC AC AC MK AC AC AC AC AC AC AC KH AC MK AC AC AC AC AC AC
6
29
4
SEE NOTE 2
120 -10
120 -11
120 -12
3
B
B
16 -14
AR -15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
7 -17
MARKED MK



C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	19	A23-13	A23-20	
C2		B32-02	B32-20	
C3		A15-13	A15-20	
C4		A11-08	A12-20	
C5		B34-08	B33-20	
C6		A11-19	A10-20	
C7		B04-02	B04-20	
C8		B05-02	B05-20	
C9		B08-18	B07-20	
C10		A04-02	A04-20	
C11		A05-02	A05-20	
C12		B24-14	B23-20	
C13		A15-02	A16-20	
C14		A25-02	A25-20	
C15		A19-19	A18-20	
C16		A25-04	A24-20	
C17		B09-05	B10-20	
C18		B35-06	B35-20	
C19		A22-09	A20-20	
C20		A17-04	A17-20	
C21		B27-02	B27-20	
~~C22~~		~~B20-17~~	~~B19-20~~	
C23		B20-16	B21-20	
C24	19	B28-12	B28-20	



16 -6
16 -7
16 -8
16 -9

SECTION B-B
SCALE 2/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND 22 PER 2014097 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 19 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U2 GRADE 2 CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO 20~~
10. MIL-I-631 TYPE F FORM U2 GRADE 2 CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 21
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING NO. 15

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014097	WIREWRAP MACH CARD	REF
☒	2014143	LOGIC DIAGRAM	REF
1	2014000-011	MODULE, BUFFERED FLIP-FLOP	26
2	1006998-1	SCREW, CAPTIVE	25
1	1014230	MODULE, INTERFACE RECEIVER	24
1	1014065-3	MODULE, RESISTOR	23
AR	1006945-1	WIRE, ELECTRICAL	22
* 1.2	SEE NOTE 10	SLEEVING	21
AR	1006776-197	SLEEVING, INSULATION	20
23	CS13AF010K	CAPACITOR 1uf 35V	19
43	1014034	MODULE, NOR	18
7	1014096	MODULE, DRIVER	17
4	1014079	MODULE, GATED FLIP-FLOP	16
AR	MIL-S-22473 GR, HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
122	MS35338-79	WASHER, LOCK	12
122	1006997	WASHER, FLAT	11
120	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
120	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	WIRE WRAP PLATE	4
1	1014026	COVER, CONN PLATE	3
1	1014258	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014041	
NEXT ASSY	USED ON
APPLICATION	

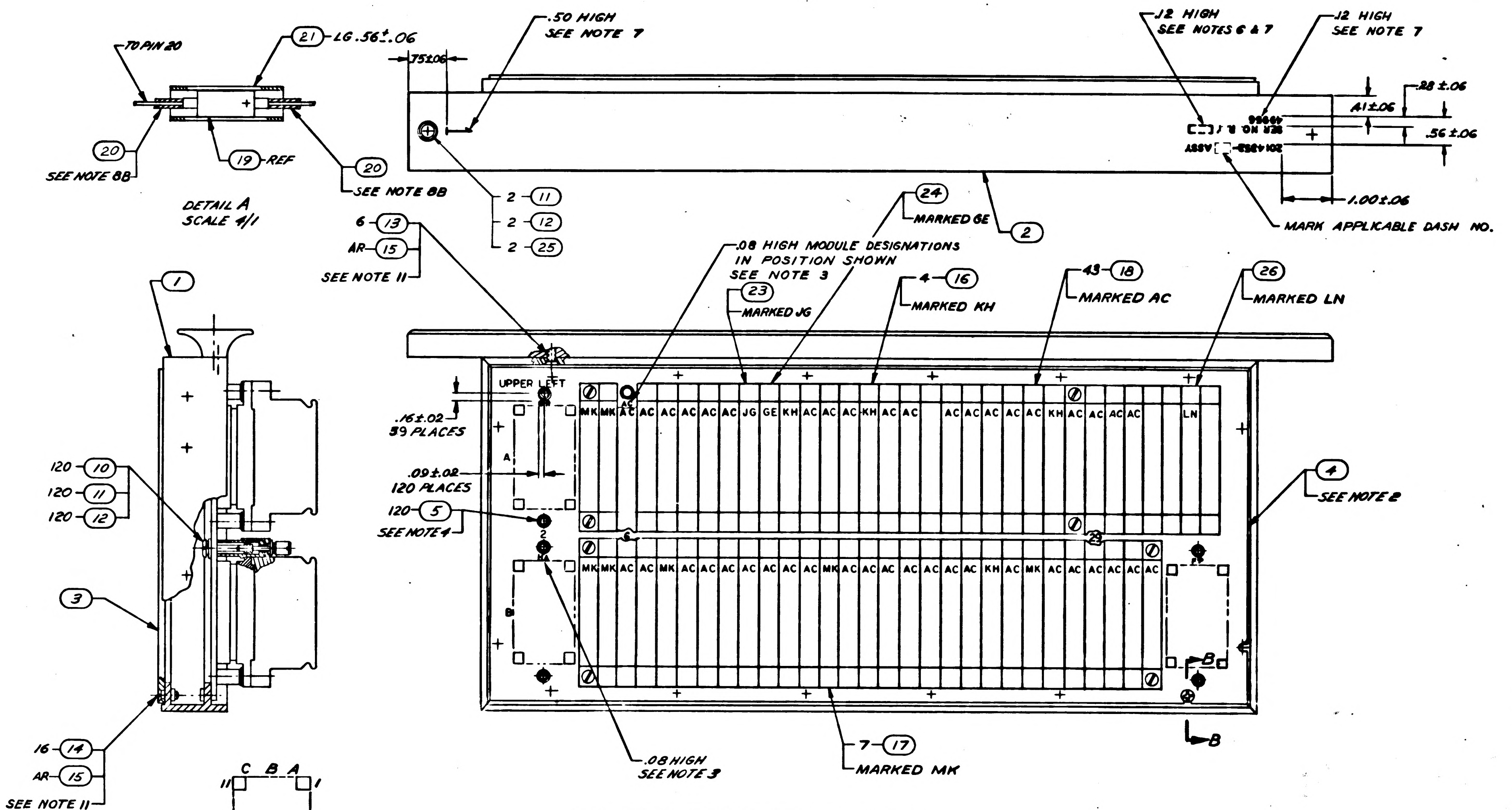
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO. LEXINGTON, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
CONTRACT NO [illegible]	
DRAWN [illegible] DATE 25 JUN 65	LOGIC PLATE ASSY NO. I PROGRAMMER & MONITOR COMPUTER TEST SET
CHECKED B Kessler 6 Jul '65	
APPROVAL [illegible]	
APPROVAL [illegible] 7/15/65	
APPROVAL [illegible]	
NASA APPROVAL [illegible]	CODE IDENT NO. 49956 / SIZE F / NASA DRAWING NO. 2014352
MIT APPROVAL [illegible]	
MIT APPROVAL [illegible]	SCALE 1/1 / WT / SHEET 1 OF 1

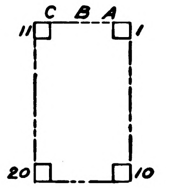
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014352 E

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA25076		
1	CHANGED PER CCA R25485 DR CHK APPD 11-13-65		
—	CLASS B CHANGED PER CCAR25502		
A	CHANGED PER CCA R25621 DR CHK APPD	1/4/66	
B	CHANGED PER CCA R25693 DR CHK APPD	1/10/66	
C	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
D	CHANGED PER TDRR 27070 DR S.Q. Clement CHK APPD	3/2/66	
E	CHANGED PER TDRR 28097 DR CHK APPD	5/3/66	



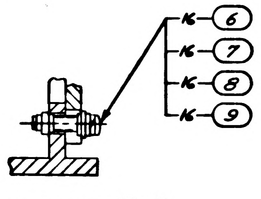
8
7
6
5
4
3
2
1
H
G
F
E
D
TO PIN 20
21 LG .56±.06
20
SEE NOTE 8B
19 REF
20
SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
2-11
2-12
2-25
6-13
AR-15
SEE NOTE 11
.12 HIGH
SEE NOTES 6 & 7
.12 HIGH
SEE NOTE 7
.41±.06
.28±.06
.56±.06
1.00±.06
ASSY 2014352-
SER NO
MARK APPLICABLE DASH NO.
24
MARKED GE
2
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
23
MARKED JG
4-16
MARKED KH
43-18
MARKED AC
26
MARKED LN
1
UPPER LEFT
.16±.02
59 PLACES
.09±.02
120 PLACES
120-5
SEE NOTE 4
A
B
4
SEE NOTE 2
120-10
120-11
120-12
3
16-14
AR-15
SEE NOTE 11
MK MK AC AC AC AC AC AC JG GE KH AC AC AC KH AC AC AC AC AC AC AC KH AC AC AC AC LN
MK AC AC MK AC AC AC AC AC AC AC MK AC AC AC AC AC AC AC KH AC MK AC AC AC AC AC
B
.08 HIGH
SEE NOTE 3
7-17
MARKED MK



C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	19	A23-13	A23-20	
C2		B32-02	B32-20	
C3		A15-13	A15-20	
C4		A11-08	A12-20	
C5		B34-08	B33-20	
C6		A11-19	A10-20	
C7		B04-02	B04-20	
C8		B05-02	B05-20	
C9		B08-18	B07-20	
C10		A04-02	A04-20	
C11		A05-02	A05-20	
C12		B24-14	B23-20	
C13		A15-02	A16-20	
C14		A25-02	A25-20	
C15		A19-19	A18-20	
C16		A25-04	A24-20	
C17		B09-05	B10-20	
C18		B35-C6	B35-20	
C19		A22-09	A20-20	
C20		A17-04	A17-20	
C21		B27-02	B27-20	
~~C22~~		~~B20-17~~	~~B19-20~~	
C23		B20-16	B21-20	
C24	19	B28-12	B28-20	



SECTION B-B
SCALE 2/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIRE WRAP FIND NO. 4 USING FIND 22 PER 2014097 OR 2016375 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 19 PER CHART A & DETAIL A
8A. SOLDER PER ND1002071
8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE 2 CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO 20~~
10. MIL-I-631 TYPE F FORM U GRADE 2 CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 21
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING NO. 15

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	-	2016375	WIREWRAP MACH CARD	REF
☒	-	2016388	LOGIC DIAGRAM	REF
-	☒	2014097	WIREWRAP MACH CARD	REF
-	☒	2014143	LOGIC DIAGRAM	REF
1	1	2014000-011	MODULE, BUFFERED FLIP-FLOP	26
2	2	1006998-1	SCREW, CAPTIVE	25
1	1	1014230	MODULE, INTERFACE RECEIVER	24
1	1	1014065-3	MODULE, RESISTOR	23
AR	AR	1006945-1	WIRE, ELECTRICAL	22
* 1.2	1.2	SEE NOTE 10	SLEEVING	21
AR	AR	1006776-197	SLEEVING, INSULATION	20
23	23	CS13AF010K	CAPACITOR 1uf 35V	19
43	43	1014034	MODULE, NOR	18
7	7	1014096	MODULE, DRIVER	17
4	4	1014079	MODULE, GATED FLIP-FLOP	16
AR	AR	MIL-S-22473 GR, HV	SEALING & RETAINING COMPOUND	15
16	16	MS51959-15	SCREW, FLAT HD	14
6	6	MS51959-27	SCREW, FLAT HD	13
122	122	MS35338-79	WASHER, LOCK	12
122	122	1006997	WASHER, FLAT	11
120	120	MS51957-29	SCREW, PAN HD	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	MS35338-78	WASHER, LOCK	8
16	16	MS15795-803	WASHER, FLAT	7
16	16	MS51957-17	SCREW, PAN HD	6
120	120	1014212	STAND-OFF, PROGRAM	5
1	1	1006495-001	WIRE WRAP PLATE	4
1	1	1014026	COVER, CONN PLATE	3
1	1	1014258	SUPPORT, FRAME	2
1	1	1014014-2	FRAME	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014041	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .xx ± DECIMALS .xxx ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO [illegible]
DRAWN DATE 25 JUNE 65
CHECKED 6 Jul '65
APPROVAL
APPROVAL 7/15/65
APPROVAL 4 Aug 65
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY NO. 1
PROGRAMMER & MONITOR
COMPUTER TEST SET

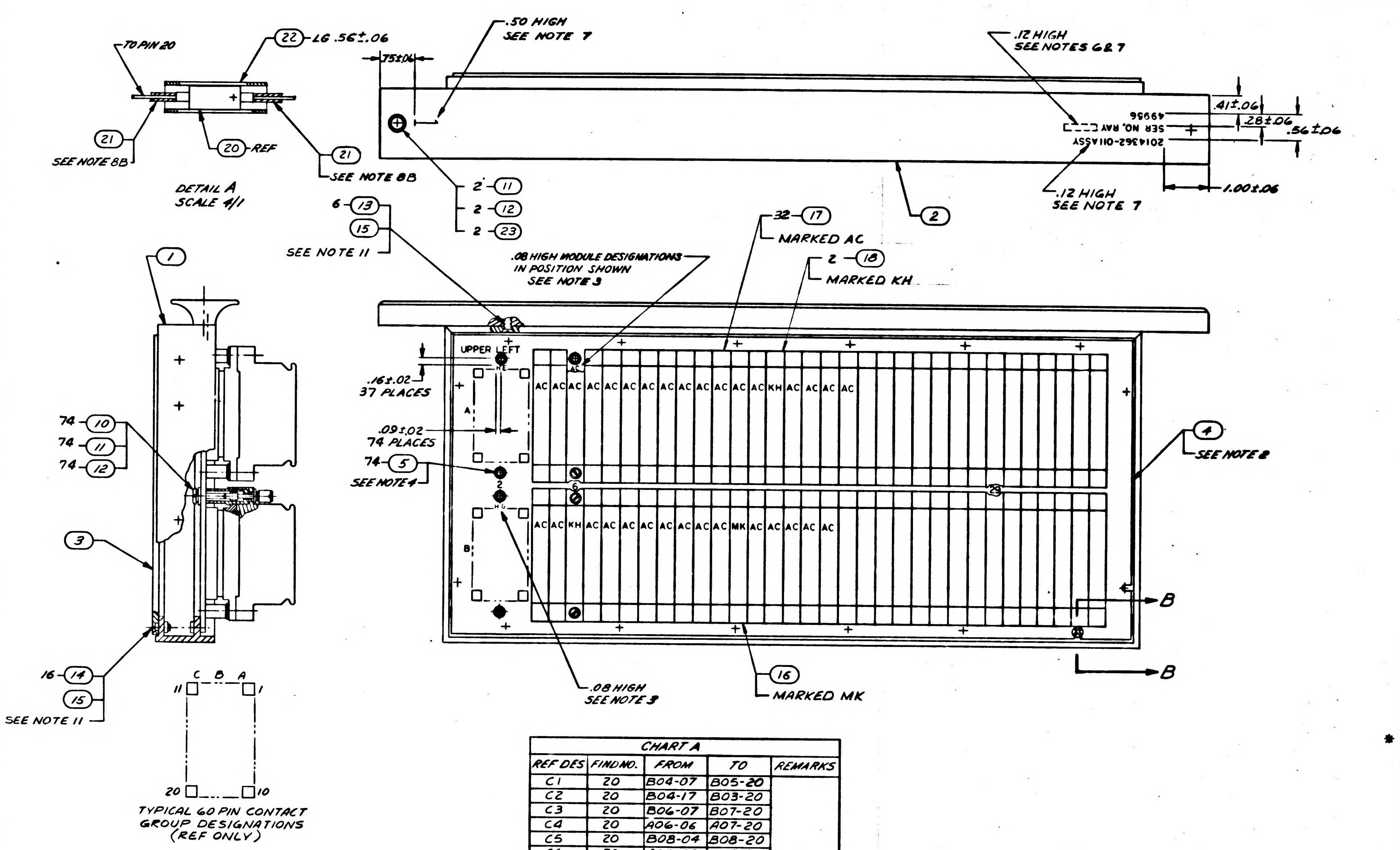
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014352
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014352 F

2014362 B

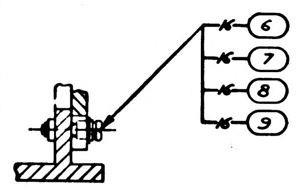
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25076		
1	CHANGED PER CCA R25485 DR V. CHKG. APPD P. G. Duda 8-13-65	8/13/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR CHK APPD P&D	1/6/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	



TO PIN 20
22 — LG .56±.06
21
SEE NOTE 8B
20 — REF
21
SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
2 — 11
2 — 12
2 — 23
2
.12 HIGH
SEE NOTES 6&7
2014362-011ASSY
SER NO. RAY
49956
.41±.06
.28±.06
.56±.06
1.00±.06
.12 HIGH
SEE NOTE 7
6 — 13
15
SEE NOTE 11
32 — 17
MARKED AC
2 — 18
MARKED KH
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN
SEE NOTE 3
1
UPPER LEFT
.16±.02
37 PLACES
.09±.02
74 PLACES
74 — 10
74 — 11
74 — 12
74 — 5
SEE NOTE 4
3
AC AC AC AC AC AC AC AC AC AC AC AC AC AC KH AC AC AC AC
AC AC KH AC AC AC AC AC AC AC AC MK AC AC AC AC AC AC AC
A
B
4
SEE NOTE 2
B
B
16 — 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
16
MARKED MK
C B A
11 1
20 10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	B04-07	B05-20	
C2	20	B04-17	B03-20	
C3	20	B06-07	B07-20	
C4	20	A06-06	A07-20	
C5	20	B08-04	B08-20	
C6	20	A06-08	A04-20	
C7	20	A06-04	A06-20	
C8	20	A10-06	A11-20	
C9	20	A04-04	A03-20	
C10	20	A11-17	A10-20	
C11	20	B05-17	B06-20	
C12	20	B13-13	B13-20	
C13	20	A05-13	A05-20	
C14	20	A16-19	A15-20	
C15	20	A16-17	A17-20	
C16	20	B01-09	B02-20	
C17	20	B02-02	B01-20	



SECTION B-B
SCALE 2/1

NOTES:
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.19 PER 2014025 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO.5 PER KEY CODE MARKING USING DWG NO.1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.20 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY

~~9. MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR BLUE AWG SIZE NO.24 FOR FIND NO.21~~

10. MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO.8 FOR FIND NO. 22
11. ASSEMBLE FIND NO.13 & FIND NO.14 USING FIND NO.15

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014169	LOGIC DIAGRAM	REF
☒	2014025	WIREWRAP CARD	REF
2	1006998-1	SCREW, CAPTIVE	23
* 1.5	SEE NOTE 10	SLEEVING	22
AR	1006776-197	SLEEVING, INSULATION	21
17	CS13AF010K	CAPACITOR, 1uf 35V	20
AR	1006945-1	WIRE, ELEC, INSUL., NO.24 AWG, SOLID	19
2	1014079	MODULE, GATED FLIP-FLOP	18
32	1014034	MODULE, NOR	17
1	1014096	MODULE, DRIVER	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
76	MS35338-79	WASHER, LOCK	12
76	1006997	WASHER, FLAT	11
74	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
74	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014258	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. [illegible]
DRAWN R. DATE 7 JUL 65
CHECKED W. 9 July 65
APPROVAL P. E. Duda 15 JULY 65
APPROVAL 7/15/65
APPROVAL 4 Aug 65
NASA APPROVAL A. SCHLEGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY
SELF TEST
COMPUTER TEST SET

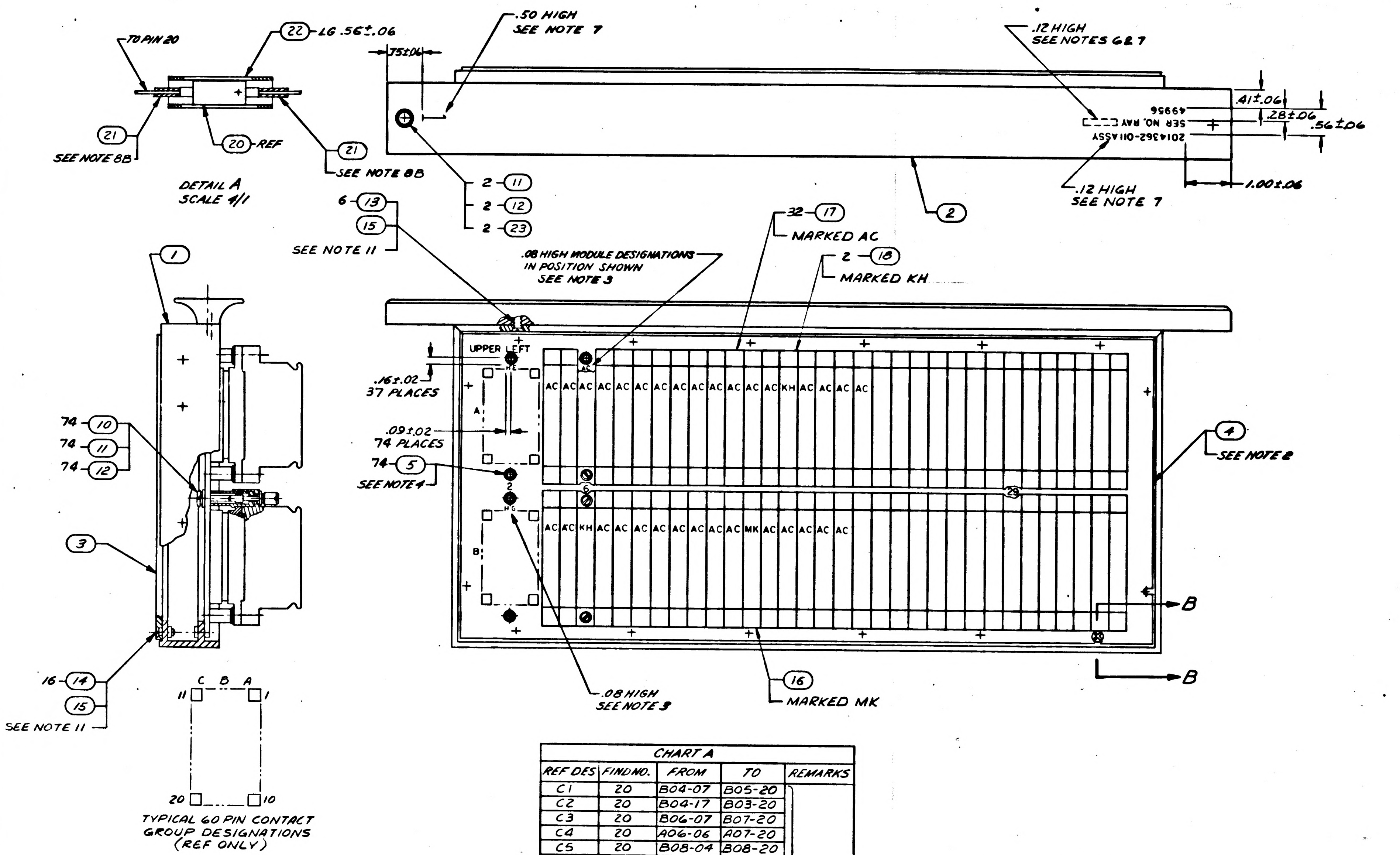
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014362
SCALE 1/1 WT
SHEET 1 OF 1

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

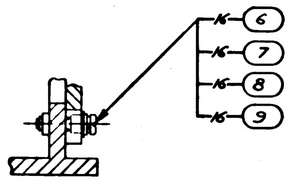
2014362 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25076		
1	CHANGED PER CCA R25485 DR V. Bruno CHKG. APPD P. E. Dale 1-13-65	1/13/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR CHK APPD PED	1/6/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 26467 DR E. Uftring CHK APPD	2/24/66	



TO PIN 20
22 -LG .56±.06
21
SEE NOTE 8B
20 -REF
21
SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
2 - 11
2 - 12
2 - 23
.12 HIGH
SEE NOTES 6 & 7
2014362-011 ASSY
SER NO. RAY
49956
.41±.06
.28±.06
.56±.06
1.00±.06
.12 HIGH
SEE NOTE 7
2
6 - 13
15
SEE NOTE 11
1
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN
SEE NOTE 3
32 - 17
MARKED AC
2 - 18
MARKED KH
UPPER LEFT
.16±.02
37 PLACES
.09±.02
74 PLACES
74 - 5
SEE NOTE 4
A
B
AC AC AC AC AC AC AC AC AC AC AC AC AC AC KH AC AC AC AC
AC AC KH AC AC AC AC AC AC AC AC MK AC AC AC AC AC
4
SEE NOTE 2
23
B
B
74 - 10
74 - 11
74 - 12
3
16 - 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
16
MARKED MK
C B A
11
1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)



SECTION B-B
SCALE 2/1

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	B04-07	B05-20	SEE DETAIL A
C2	20	B04-17	B03-20	
C3	20	B06-07	B07-20	
C4	20	A06-06	A07-20	
C5	20	B08-04	B08-20	
C6	20	A06-08	A04-20	
C7	20	A06-04	A06-20	
C8	20	A10-06	A11-20	
C9	20	A04-04	A03-20	
C10	20	A11-17	A10-20	
C11	20	B05-17	B06-20	
C12	20	B13-13	B13-20	
C13	20	A05-13	A05-20	
C14	20	A16-19	A15-20	
C15	20	A16-17	A17-20	
C16	20	B01-09	B02-20	
C17	20	B02-02	B01-20	
C18	24	A11-12	A12-20	SEE NOTES 8A & 8B

NOTES:
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.19 PER 2014025 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO.5 PER KEY CODE MARKING USING DWG NO.1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.20 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM Ua GRADE A CLASS I CATEGORY I COLOR BLUE AWG SIZE NO.24 FOR FIND NO.21~~
10. MIL-I-631 TYPE F FORM Ua GRADE A CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO.8 FOR FIND NO.22
11. ASSEMBLE FIND NO.13 & FIND NO.14 USING FIND NO.15

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014169	LOGIC DIAGRAM	REF
☒	2014025	WIREWRAP CARD	REF
1	CYFM15C430J	CAPACITOR, 430 PF 300V	24
2	1006998-1	SCREW, CAPTIVE	23
* 2.0	SEE NOTE 10	SLEEVING	22
AR	1006776-197	SLEEVING, INSULATION	21
17	CS13BF105K	CAPACITOR, 1uf 35V	20
AR	1006945-1	WIRE, ELEC, INSUL., NO.24 AWG, SOLID	19
2	1014079	MODULE, GATED FLIP-FLOP	18
32	1014034	MODULE, NOR	17
1	1014096	MODULE, DRIVER	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
76	MS35338-79	WASHER, LOCK	12
76	1006997	WASHER, FLAT	11
74	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
74	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014258	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN R. DATE 7 JUL 65
CHECKED W. 9 JULY 65
APPROVAL P. E. Dale 15 JULY 65
APPROVAL 7/15/65
APPROVAL Aug 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

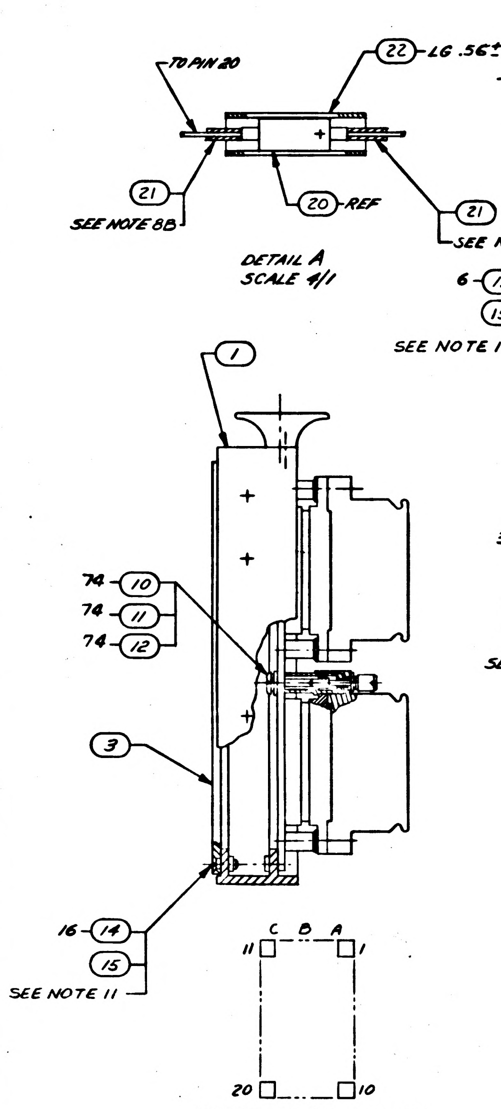
LOGIC PLATE ASSY
SELF TEST
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014362
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014362 D

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA 25076	[illegible]	[illegible]
1	CHANGED PER CCA R25485 DR V. [illegible] CHK [illegible] APPD P.E. Dunk 1-13-65	1/13/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD [illegible]	1/6/66	[illegible]
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]
C	CHANGED PER TDRR 26467 DR E. Uftring CHK [illegible] APPD [illegible]	2/24/66	[illegible]
D	CHANGED PER TDRR 26671 DR Q.J. [illegible] CHK [illegible] APPD [illegible]	3/3/66	[illegible]


TO PIN 20
22 - LG .56±.06
21
SEE NOTE 8B
20 - REF
21
SEE NOTE 8B
1
74-10
74-11
74-12
3
16-14
15
SEE NOTE 11
C B A
11
1
20
10

DETAIL A
SCALE 4/1

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

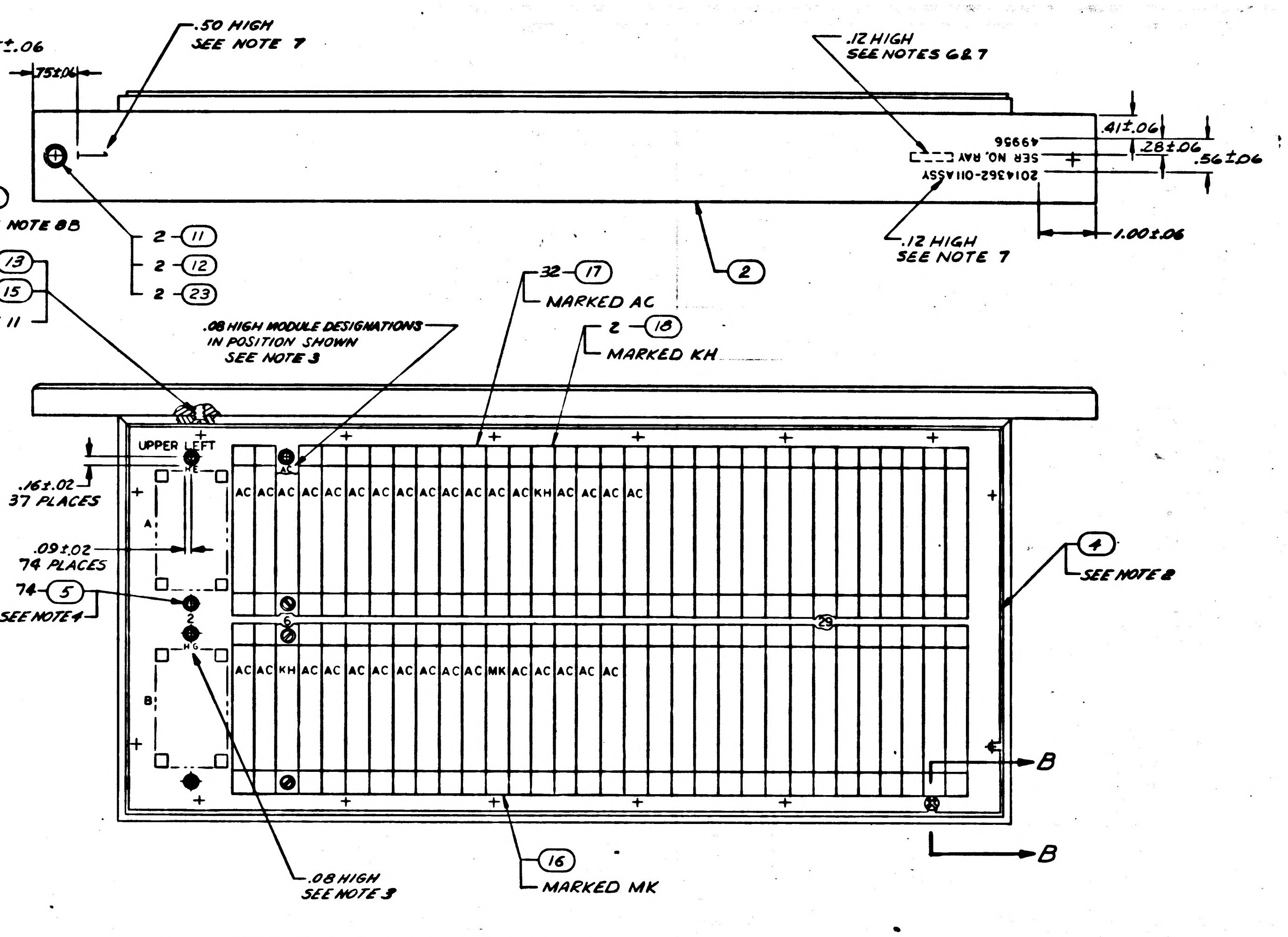
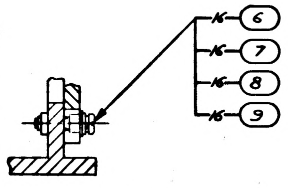

.50 HIGH
SEE NOTE 7
.75±.06
2-11
2-12
2-23
.12 HIGH
SEE NOTES 6 & 7
49956
SER NO. RAY
2014362-011 ASSY
.41±.06
.28±.06
.56±.06
1.00±.06
.12 HIGH
SEE NOTE 7
2
6-13
15
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
32-17
MARKED AC
2-18
MARKED KH
UPPER LEFT
HE
AC
A
B
HG
.16±.02
37 PLACES
.09±.02
74 PLACES
74-5
SEE NOTE 4
2
6
29
AC AC AC AC AC AC AC AC AC AC AC AC AC AC KH AC AC AC AC
AC AC KH AC AC AC AC AC AC AC AC MK AC AC AC AC AC
4
SEE NOTE 2
B
B
16
MARKED MK
.08 HIGH
SEE NOTE 3

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	B04-07	B05-20	SEE DETAIL A
C2	20	B04-17	B03-20	
C3	20	B06-07	B07-20	
C4	20	A06-06	A07-20	
C5	20	B08-04	B08-20	
C6	20	A06-08	A04-20	
C7	20	A06-04	A06-20	
C8	20	A10-06	A11-20	
C9	20	A04-04	A03-20	
C10	20	A11-17	A10-20	
C11	20	B05-17	B06-20	
C12	20	B13-13	B13-20	
C13	20	A05-13	A05-20	
C14	20	A16-19	A15-20	
C15	20	A16-17	A17-20	
C16	20	B01-09	B02-20	
C17	20	B02-02	B01-20	
C18	24	A11-12	A12-20	SEE NOTES 8A & 8B

NOTES:
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.19 PER 2014025 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO.5 PER KEY CODE MARKING USING DWG NO.1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.20 PER CHART A & DETAIL A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR BLUE AWG SIZE NO.24 FOR FIND NO. 21~~
10. MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO.8 FOR FIND NO. 22
11. ASSEMBLE FIND NO.13 & FIND NO. 14 USING FIND NO.15


16-6
16-7
16-8
16-9

SECTION B-B
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014169	LOGIC DIAGRAM	REF
☒	2014025	WIREWRAP CARD	REF
1	CYFM15C431J	CAPACITOR, 430 PF 300V	24
2	1006998-1	SCREW, CAPTIVE	23
* 2.0	SEE NOTE 10	SLEEVING	22
AR	1006776-197	SLEEVING, INSULATION	21
17	CS13BF105K	CAPACITOR, 1uf 35V	20
AR	1006945-1	WIRE, ELEC, INSUL., NO.24 AWG, SOLID	19
2	1014079	MODULE, GATED FLIP-FLOP	18
32	1014034	MODULE, NOR	17
1	1014096	MODULE, DRIVER	16
AR	~~MIL-S-22473, GR-HV~~	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
76	MS35338-79	WASHER, LOCK	12
76	1006997	WASHER, FLAT	11
74	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
74	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014258	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN R. F. [illegible] DATE 7 JUL 65
CHECKED W. [illegible] 9 July 65
APPROVAL P. E. Dunk 15 July 65
APPROVAL [illegible] 7/15/65
APPROVAL [illegible] 4 Aug 65
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/20

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY
SELF TEST
COMPUTER TEST SET

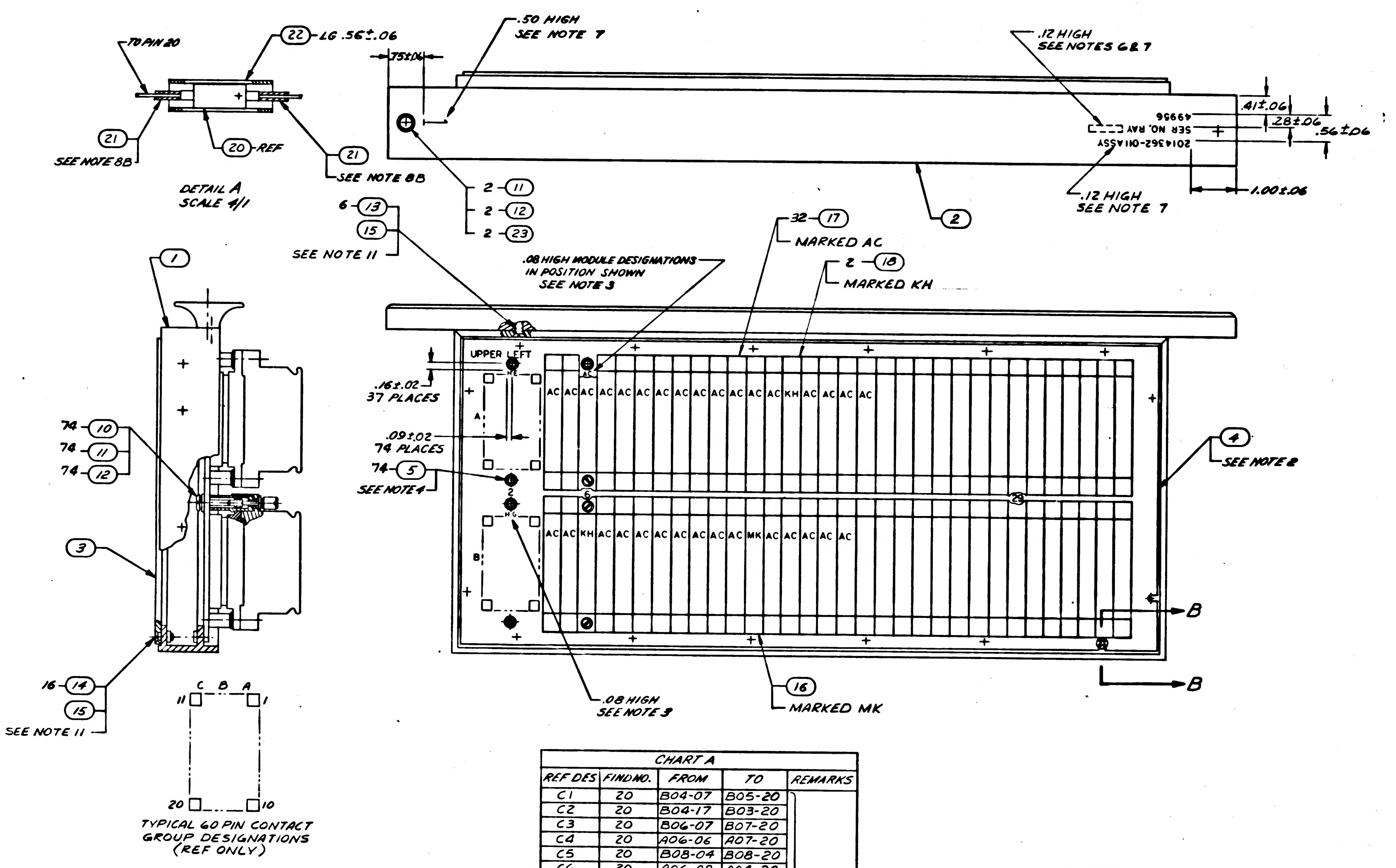
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014362
SCALE 1/1
WT
SHEET 1 OF 1

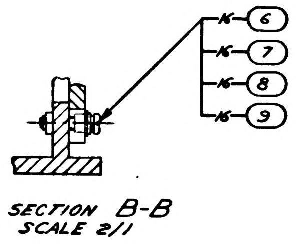
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014362 E

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25076		
1	CHANGED PER CCA R25485 DR V. [illegible] CHK [illegible] APPD P. E. Duke 1-17-65	11/12/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD PED	1/6/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 26467 DR E. Uftring CHK [illegible] APPD [illegible]	2/24/66	
D	CHANGED PER TDRR 26671 DR O. J. Green CHK [illegible] APPD [illegible]	3/12/66	
E	CHANGED PER TDRR 26710 DR [illegible] CHK O. Han APPD [illegible]		(JSC)


TO PIN 20
22 -LG .56±.06
21
SEE NOTE 8B
20 -REF
21
SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
2-11
2-12
2-23
2
.12 HIGH
SEE NOTES 6 & 7
2014362-011ASSY
SER NO. RAY
49956
.41±.06
.28±.06
.56±.06
1.00±.06
.12 HIGH
SEE NOTE 7
6-13
15
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN
SEE NOTE 3
32-17
MARKED AC
2-18
MARKED KH
1
UPPER LEFT
.16±.02
37 PLACES
.09±.02
74 PLACES
74-5
SEE NOTE 4
A
B
AC AC AC AC AC AC AC AC AC AC AC AC AC KH AC AC AC AC
AC AC KH AC AC AC AC AC AC AC AC MK AC AC AC AC AC AC
4
SEE NOTE 2
74-10
74-11
74-12
3
16-14
15
SEE NOTE 11
B
B
.08 HIGH
SEE NOTE 3
16
MARKED MK
C B A
11 1
20 10
TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)


16-6
16-7
16-8
16-9

SECTION B-B
SCALE 2/1

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	B04-07	B05-20	SEE DETAIL A
C2	20	B04-17	B03-20	
C3	20	B06-07	B07-20	
C4	20	A06-06	A07-20	
C5	20	B08-04	B08-20	
C6	20	A06-08	A04-20	
C7	20	A06-04	A06-20	
C8	20	A10-06	A11-20	
C9	20	A04-04	A03-20	
C10	20	A11-17	A10-20	
C11	20	B05-17	B06-20	
C12	20	B13-13	B13-20	
C13	20	A05-13	A05-20	
C14	20	A16-19	A15-20	
C15	20	A16-17	A17-20	
C16	20	B01-09	B02-20	
C17	20	B02-02	B01-20	
C18	24	A11-12	A12-20	SEE NOTES 8A & 8B

NOTES:
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.19 PER 2014025 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO.5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.20 PER CHART A & DETAIL A AND FIND 24 PER CHART A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 21~~
10. MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 22
11. ASSEMBLE FIND NO.13 & FIND NO. 14 USING FIND NO.15

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014169	LOGIC DIAGRAM	REF
☒	2014025	WIREWRAP CARD	REF
1	CYFM20C242J	CAPACITOR, 2400 PF 300V	24
2	1006998-1	SCREW, CAPTIVE	23
* 2.0	SEE NOTE 10	SLEEVING	22
AR	1006776-197	SLEEVING, INSULATION	21
17	CS13BF105K	CAPACITOR, 1uf 35V	20
AR	1006945-1	WIRE, ELEC, INSUL., NO.24 AWG, SOLID	19
2	1014079	MODULE, GATED FLIP-FLOP	18
32	1014034	MODULE, NOR	17
1	1014096	MODULE, DRIVER	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
76	MS35338-79	WASHER, LOCK	12
76	1006997	WASHER, FLAT	11
74	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
74	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014258	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

MASTER

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN R. R. [illegible] DATE 7 JUL 65
CHECKED W. [illegible] 9 JULY 65
APPROVAL P. E. Duke 15 JULY 65
APPROVAL [illegible] 7/15/65
APPROVAL [illegible] 4 Aug 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

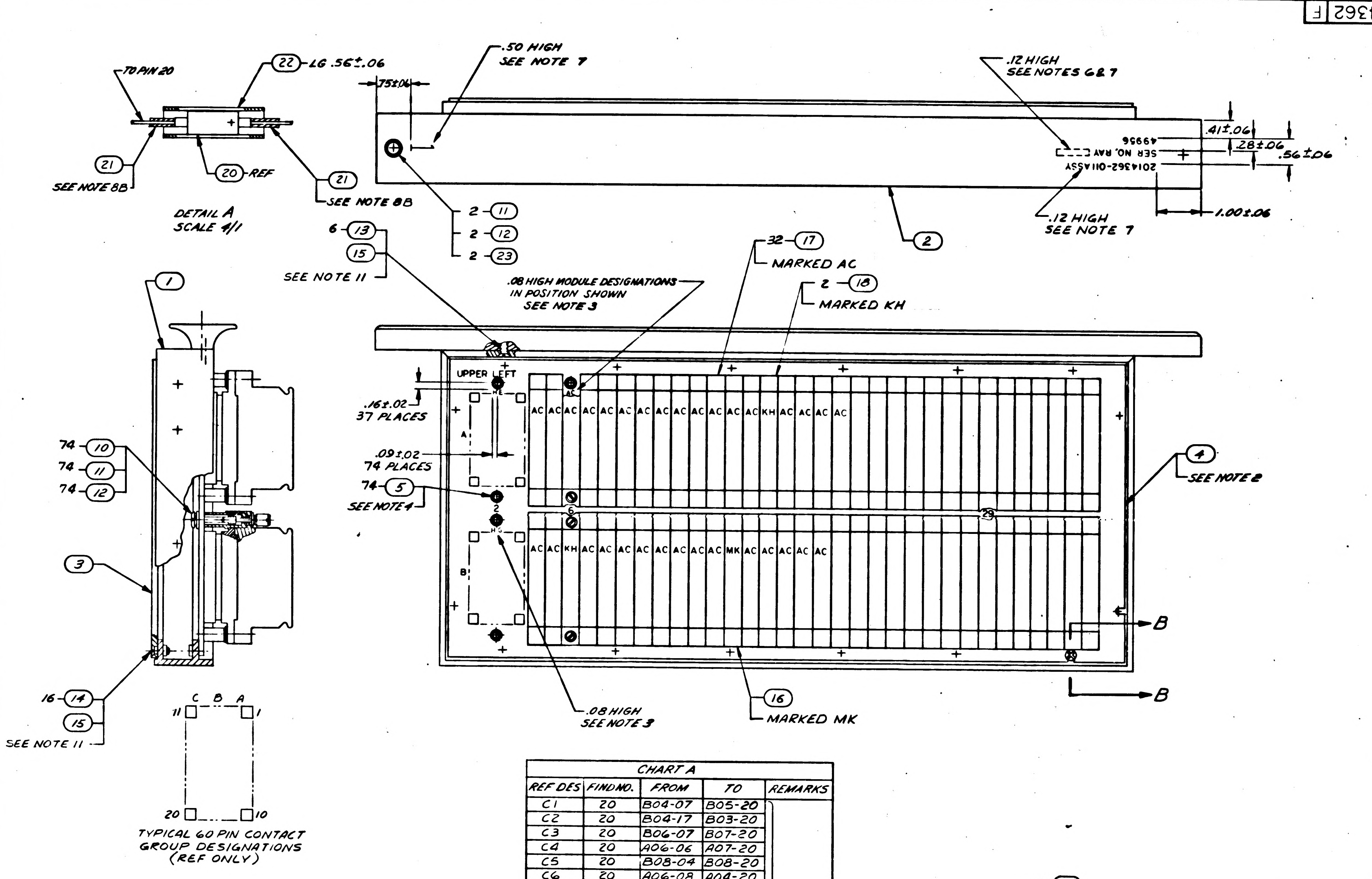
LOGIC PLATE ASSY
SELF TEST
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014362
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014362 F

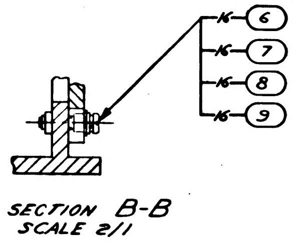
SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA 25076		
1	CHANGED PER CCA R25485 DR V. Evans CHK APPD 1-13-65	1/13/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR CHK APPD	1/6/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 26467 DR E. Uffring CHK APPD	2/24/66	
D	CHANGED PER TDRR 26671 DR A.J. Brown CHK APPD	8/3/66	
E	CHANGED PER TDRR 26710 DR CHK A. APPD		(DSC)
F	CHANGED PER TDRR 26713 DR. CHK APPD	/24/66	



TO PIN 20
22 - LG .56±.06
21
SEE NOTE 8B
20 - REF
21
SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
.12 HIGH
SEE NOTES 6&7
49956
SER NO. RAV
2014362-011ASSY
.41±.06
.28±.06
.56±.06
1.00±.06
2 - 11
2 - 12
2 - 23
2
.12 HIGH
SEE NOTE 7
6 - 13
15
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
32 - 17
MARKED AC
2 - 18
MARKED KH
1
UPPER LEFT
.16±.02
37 PLACES
.09±.02
74 PLACES
A
74 - 5
SEE NOTE 4
AC AC AC AC AC AC AC AC AC AC AC AC AC KH AC AC AC AC
4
SEE NOTE 2
74 - 10
74 - 11
74 - 12
3
B
AC AC KH AC AC AC AC AC AC AC MK AC AC AC AC AC AC
B
B
.08 HIGH
SEE NOTE 3
16
MARKED MK
16 - 14
15
SEE NOTE 11
C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	B04-07	B05-20	SEE DETAIL A
C2	20	B04-17	B03-20	
C3	20	B06-07	B07-20	
C4	20	A06-06	A07-20	
C5	20	B08-04	B08-20	
C6	20	A06-08	A04-20	
C7	20	A06-04	A06-20	
C8	20	A10-06	A11-20	
C9	20	A04-04	A03-20	
C10	20	A11-17	A10-20	
C11	20	B05-17	B06-20	
C12	20	B13-13	B13-20	
C13	20	A05-13	A05-20	
C14	20	A16-19	A15-20	
C15	20	A16-17	A17-20	
C16	20	B01-09	B02-20	
C17	20	B02-02	B01-20	
C18	24	A11-12	A12-20	SEE NOTES 8A & 8B
C19	24	B03-11	A01-20	SEE NOTES 8A & 8B



16 - 6
16 - 7
16 - 8
16 - 9

SECTION B-B
SCALE 2/1

NOTES:
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.19 PER 2014025 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO.5 PER KEY CODE MARKING USING DWG NO.1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.20 PER CHART A & DETAIL A AND FIND 24 PER CHART A
   8A SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE A CLASS I CATEGORY I COLOR BLUE AWG SIZE NO.24 FOR FIND NO.21~~
10. MIL-I-631 TYPE F FORM U GRADE A CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO.8 FOR FIND NO. 22
11. ASSEMBLE FIND NO.13 & FIND NO. 14 USING FIND NO.15

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014169	LOGIC DIAGRAM	REF
☒	2014025	WIREWRAP CARD	REF
2	CYFM20C242J	CAPACITOR, 2400 PF 300V	24
2	1006998-1	SCREW, CAPTIVE	23
* 2.0	SEE NOTE 10	SLEEVING	22
AR	1006776-197	SLEEVING, INSULATION	21
17	CS13BF105K	CAPACITOR, 1uf 35V	20
AR	1006945-1	WIRE, ELEC, INSUL., NO.24 AWG, SOLID	19
2	1014079	MODULE, GATED FLIP-FLOP	18
32	1014034	MODULE, NOR	17
1	1014096	MODULE, DRIVER	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
76	MS35338-79	WASHER, LOCK	12
76	1006997	WASHER, FLAT	11
74	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
74	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014258	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN R. F. DATE 7 JUL 65
CHECKED W. 9 JULY 65
APPROVAL E. Dube 15 JULY 65
APPROVAL 7/15/65
APPROVAL 4 Aug 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

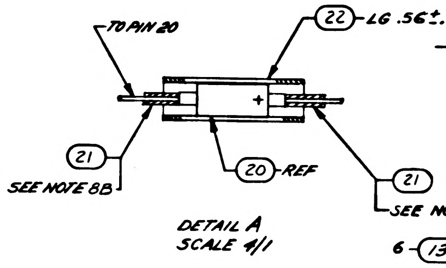
LOGIC PLATE ASSY
SELF TEST
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014362
SCALE 1/1 WT SHEET 1 OF 1

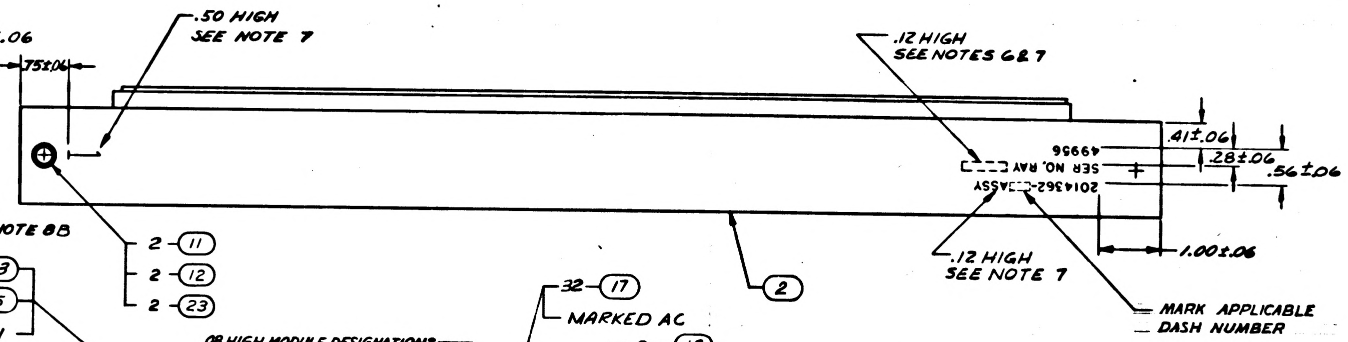
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

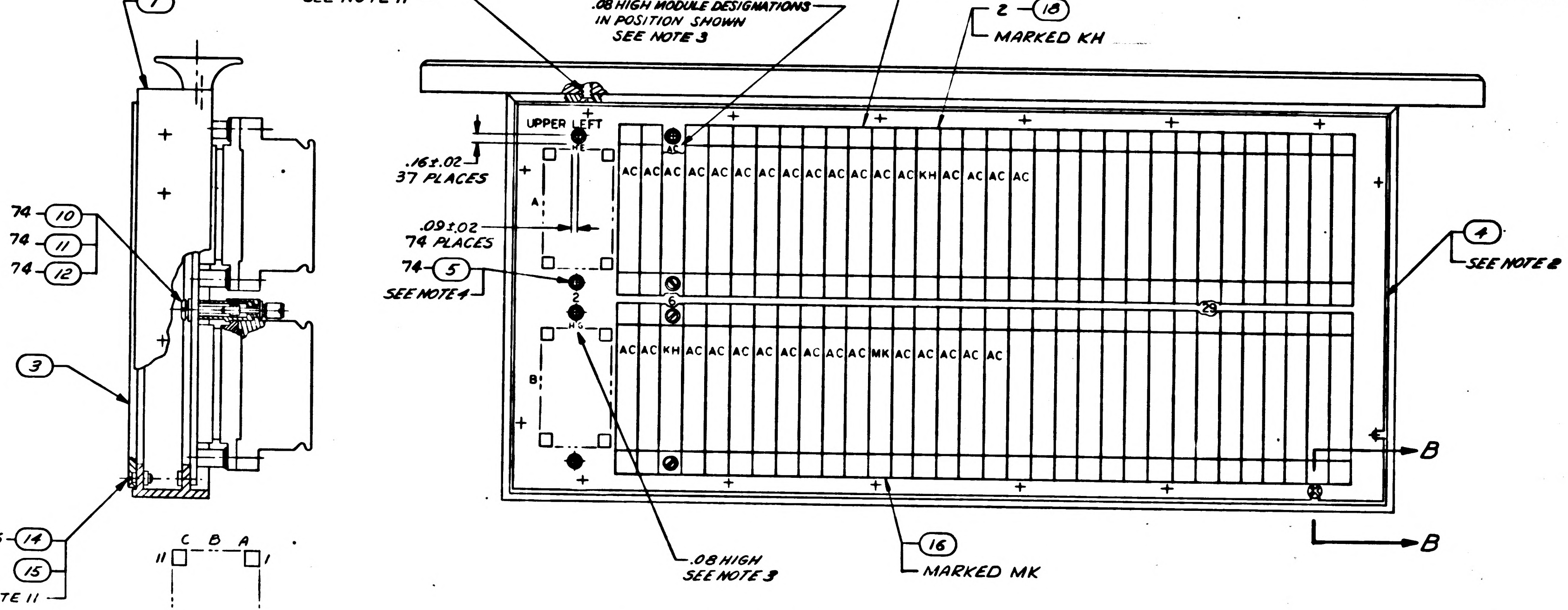
2014362 G

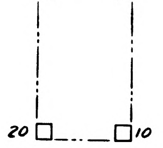
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25076	8/6/65	
1	CHANGED PER CCA R25485 DR V. Zuno CHK W. Lyons APPD R.E. Dale 1-19-65	1/12/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR CHK APPD RED	1/6/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 26467 DR E. Uftring CHK APPD	2/24/66	
D	CHANGED PER TDRR 26671 DR CHK APPD	3/11/66	
E	CHANGED PER TDRR 26710 DR CHK APPD		(DSC)
F	CHANGED PER TDRR 26713 DR. P. Battick CHK APPD RED	3/24/66	
G	CHANGED PER TDRR 28094 DR. P. Battick CHK APPD	7/22/66	


TO PIN 20
22 - LG .56±.06
21
SEE NOTE 8B
20 - REF
21
SEE NOTE 8B

DETAIL A
SCALE 4/1


.50 HIGH
SEE NOTE 7
.75±.06
2 - 11
2 - 12
2 - 23
2
.12 HIGH
SEE NOTES 6&7
49956
SER NO. RAY
2014362-ASSY
.41±.06
.28±.06
.56±.06
1.00±.06
.12 HIGH
SEE NOTE 7
MARK APPLICABLE
DASH NUMBER

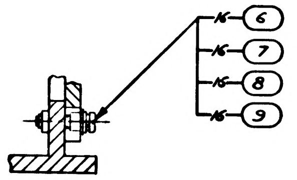

1
6 - 13
15
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
32 - 17
MARKED AC
2 - 18
MARKED KH
74 - 10
74 - 11
74 - 12
3
16 - 14
15
SEE NOTE 11
UPPER LEFT
HE
.16±.02
37 PLACES
A
.09±.02
74 PLACES
74 - 5
SEE NOTE 4
2
HG
6
B
AC AC AC AC AC AC AC AC AC AC AC AC AC KH AC AC AC AC
AC AC KH AC AC AC AC AC AC AC AC MK AC AC AC AC AC
4
SEE NOTE 8
B
B
.08 HIGH
SEE NOTE 3
16
MARKED MK


11
C
B
A
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A

REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	B04-07	B05-20	SEE DETAIL A
C2	20	B04-17	B03-20	
C3	20	B06-07	B07-20	
C4	20	A06-06	A07-20	
C5	20	B08-04	B08-20	
C6	20	A06-08	A04-20	
C7	20	A06-04	A06-20	
C8	20	A10-06	A11-20	
C9	20	A04-04	A03-20	
C10	20	A11-17	A10-20	
C11	20	B05-17	B06-20	
C12	20	B13-13	B13-20	
C13	20	A05-13	A05-20	
C14	20	A16-19	A15-20	
C15	20	A16-17	A17-20	
C16	20	B01-09	B02-20	
C17	20	B02-02	B01-20	
C18	24	A11-12	A12-20	SEE NOTES 8A & 8B
C19	24	B03-11	A01-20	SEE NOTES 8A & 8B



SECTION B-B
SCALE 2/1

NOTES:

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.19 PER 2014025 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO.5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.20 PER CHART A & DETAIL A AND FIND 24 PER CHART A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
9. ~~MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 21~~
10. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 22
11. ASSEMBLE FIND NO.13 & FIND NO. 14 USING FIND NO.15

* DENOTES LENGTH IN FEET

MASTER

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2016395	LOGIC DIAGRAM	REF
☒	—	2016369	WIREWRAP CARD	REF
—	☒	2014169	LOGIC DIAGRAM	REF
—	☒	2014025	WIREWRAP CARD	REF
2	2	CYFM20C242J	CAPACITOR, 2400 PF 300V	24
2	2	1006998-1	SCREW, CAPTIVE	23
2.0	2.0	SEE NOTE 10	SLEEVING	22
AR	AR	1006776-197	SLEEVING, INSULATION	21
17	17	CS13BF105K	CAPACITOR, 1uf 35V	20
AR	AR	1006945-1	WIRE, ELEC, INSUL., NO.24 AWG, SOLID	19
2	2	1014079	MODULE, GATED FLIP-FLOP	18
32	32	1014034	MODULE, NOR	17
1	1	1014096	MODULE, DRIVER	16
AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	MS51959-15	SCREW, FLAT HD	14
6	6	MS51959-27	SCREW, FLAT HD	13
80	76	MS35338-79	WASHER, LOCK	12
80	76	1006997	WASHER, FLAT	11
78	74	MS51957-29	SCREW, PAN HD	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	MS35338-78	WASHER, LOCK	8
16	16	MS15795-803	WASHER, FLAT	7
16	16	MS51957-17	SCREW, PAN HD	6
78	74	1014212	STAND-OFF, PROGRAM	5
1	1	1006495-001	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
1	1	1014258	SUPPORT, FRAME	2
1	1	1014014-2	FRAME	1

LIST OF MATERIALS

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN R. F. DATE 7 JUL 65
CHECKED W. Lyons 9 July 65
APPROVAL R. E. Dale 15 JULY 65
APPROVAL 7/15/65
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC PLATE ASSY
SELF TEST
COMPUTER TEST SET

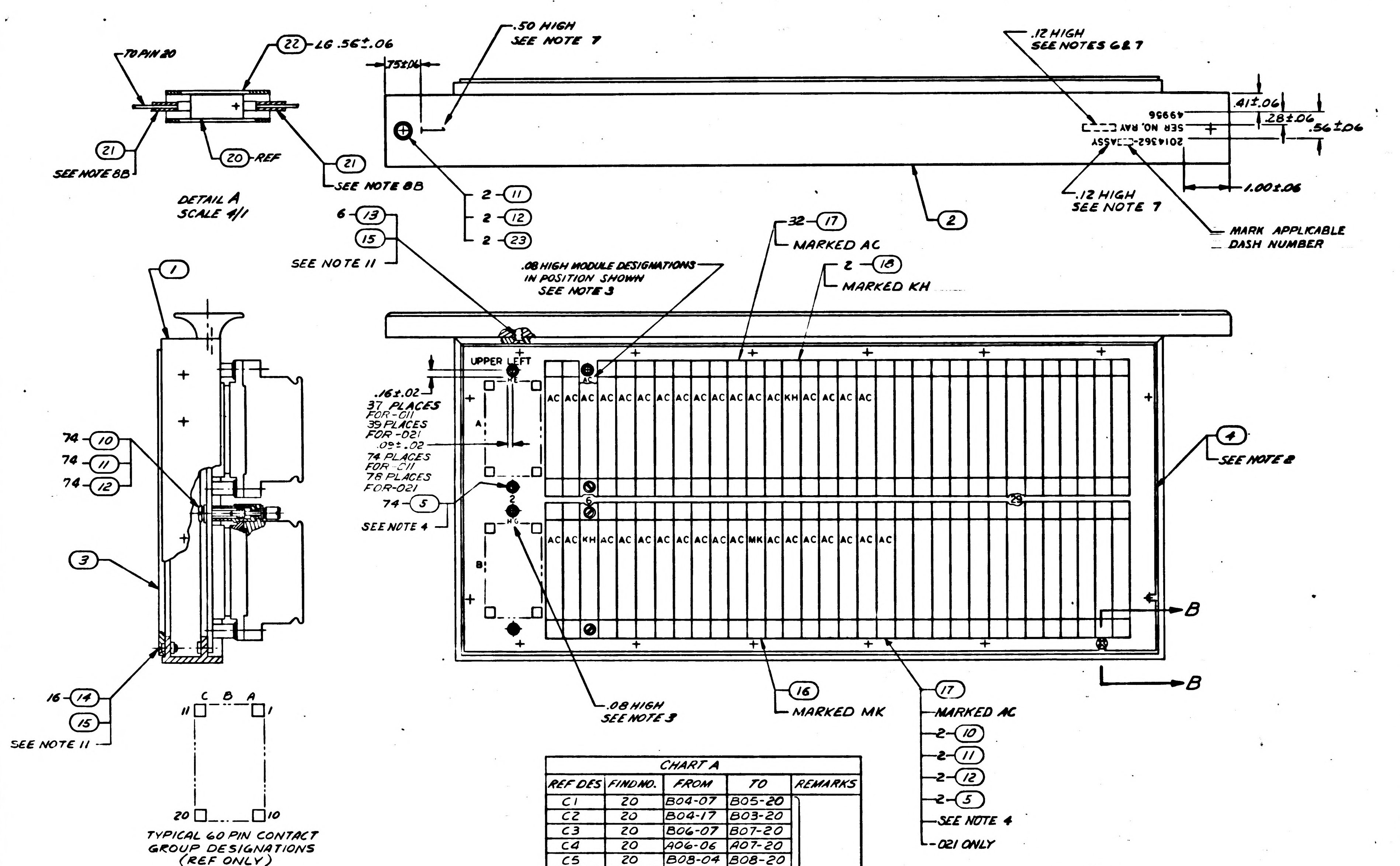
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014362
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

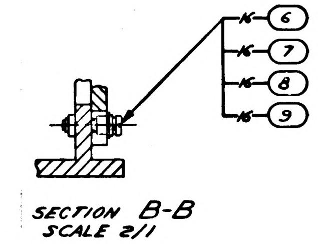
2014362 G

2014362 H

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA 25076		
1	CHANGED PER CCA R25485 DR V. Zuno CHK APPD		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR CHK APPD	1/6/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 26467 DR E. Uftring CHK APPD	2/24/66	
D	CHANGED PER TDRR 26671 DR CHK APPD	3/17/66	
E	CHANGED PER TDRR 26710 DR CHK APPD		(DSC)
F	CHANGED PER TDRR 26713 DR. P. Battist CHK. APPD	3/24/66	
G	CHANGED PER TDRR 28094 DR. P. Battist CHK APPD	7/22/66	
H	CHANGED PER TDRR 29064 DR CHK APPD	8/4/66	



8
7
6
5
4
3
2
1
H
G
F
E
D
TO PIN 20
22 -LG .56±.06
21
SEE NOTE 8B
20 -REF
21
SEE NOTE 8B
DETAIL A
SCALE 4/1
.75±.06
.50 HIGH
SEE NOTE 7
2 - 11
2 - 12
2 - 23
.12 HIGH
SEE NOTES 6 & 7
49956
SER NO. RAY
2014362-ASSY
.41±.06
.28±.06
.56±.06
1.00±.06
2
.12 HIGH
SEE NOTE 7
MARK APPLICABLE
DASH NUMBER
6 - 13
15
SEE NOTE 11
1
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
32 - 17
MARKED AC
2 - 18
MARKED KH
UPPER LEFT
.16±.02
37 PLACES
FOR -011
39 PLACES
FOR -021
.09±.02
74 PLACES
FOR -011
78 PLACES
FOR -021
74 - 5
SEE NOTE 4
74 - 10
74 - 11
74 - 12
3
A
B
AC AC AC AC AC AC AC AC AC AC AC AC KH AC AC AC AC
AC AC KH AC AC AC AC AC AC AC AC MK AC AC AC AC AC AC AC
4
SEE NOTE 2
B
B
16 - 14
15
SEE NOTE 11
C B A
11 1
20 10
TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)
.08 HIGH
SEE NOTE 3
16
MARKED MK
17
MARKED AC
2 - 10
2 - 11
2 - 12
2 - 5
SEE NOTE 4
-021 ONLY



SECTION B-B
SCALE 2/1

CHART A					
REF DES	FIND NO.	FROM	TO	REMARKS	
C1	20	B04-07	B05-20	SEE DETAIL A	
C2	20	B04-17	B03-20		
C3	20	B06-07	B07-20		
C4	20	A06-06	A07-20		
C5	20	B08-04	B08-20		
C6	20	A06-08	A04-20		
C7	20	A06-04	A06-20		
C8	20	A10-06	A11-20		
C9	20	A04-04	A03-20		
C10	20	A11-17	A10-20		
C11	20	B05-17	B06-20		
C12	20	B13-13	B13-20		
C13	20	A05-13	A05-20		
C14	20	A16-19	A15-20		
C15	20	A16-17	A17-20		
C16	20	B01-09	B02-20		
C17	20	B02-02	B01-20		
C18	24	A11-12	A12-20	SEE NOTES 8A & 8B	
C19	24	B03-11	A01-20	SEE NOTES 8A & 8B	-011 ONLY

NOTES:

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.19 PER 2014025 OR 2016369 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO.5 PER KEY CODE MARKING USING DWG NO.1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.20 PER CHART A & DETAIL A AND FIND 24 PER CHART A
   - 8A. SOLDER PER ND1002071
   - 8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
9. ~~MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR BLUE AWG SIZE NO.24 FOR FIND NO.21~~
10. MIL-I-631 TYPE F FORM Ua GRADE a CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO.8 FOR FIND NO.22
11. ASSEMBLE FIND NO.13 & FIND NO.14 USING FIND NO.15

☒	—	2016395	LOGIC DIAGRAM	REF
☒	—	2016369	WIREWRAP CARD	REF
—	☒	2014169	LOGIC DIAGRAM	REF
—	☒	2014025	WIREWRAP CARD	REF
2	2	CYFM20C242J	CAPACITOR, 2400 PF 300V	24
2	2	1006998-1	SCREW, CAPTIVE	23
2.0	2.0	SEE NOTE 10	SLEEVING	22
AR	AR	1006776-197	SLEEVING, INSULATION	21
17	17	CS13BF105K	CAPACITOR, 1uf 35V	20
AR	AR	1006945-1	WIRE, ELEC, INSUL., NO.24 AWG, SOLID	19
2	2	1014079	MODULE, GATED FLIP-FLOP	18
32	32	1014034	MODULE, NOR	17
1	1	1014096	MODULE, DRIVER	16
AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	MS51959-15	SCREW, FLAT HD	14
6	6	MS51959-27	SCREW, FLAT HD	13
80	76	MS35338-79	WASHER, LOCK	12
80	76	1006997	WASHER, FLAT	11
78	74	MS51957-29	SCREW, PAN HD	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	MS35338-78	WASHER, LOCK	8
16	16	MS15795-803	WASHER, FLAT	7
16	16	MS51957-17	SCREW, PAN HD	6
78	74	1014212	STAND-OFF, PROGRAM	5
1	1	1006495-001	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
1	1	1014258	SUPPORT, FRAME	2
1	1	1014014-2	FRAME	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-021	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014366	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN R. K. DATE 7 JUL 65
CHECKED 9 JULY 65
APPROVAL P. E. Dark 15 JULY 65
APPROVAL 7/15/65
APPROVAL 4 Aug 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

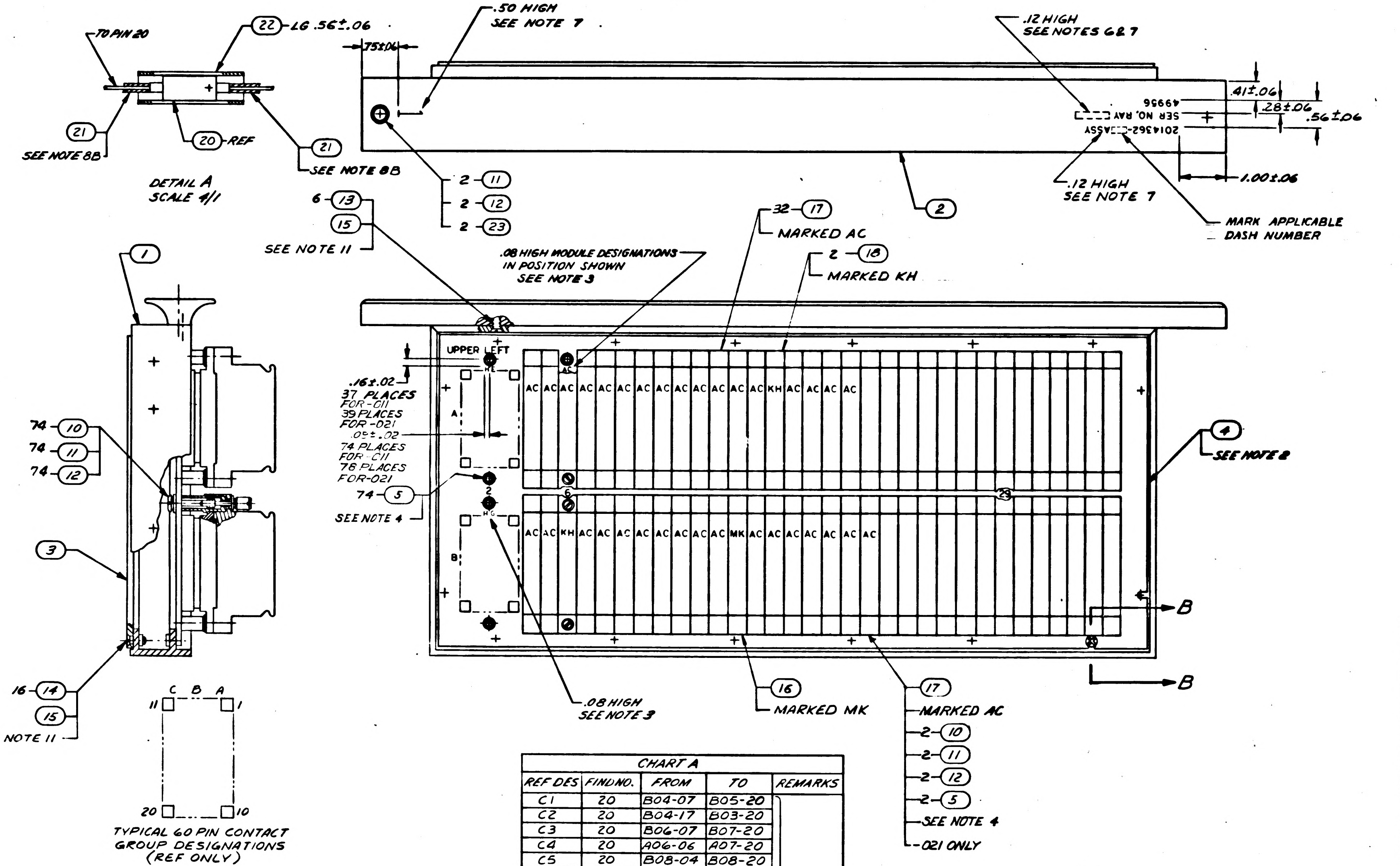
LOGIC PLATE ASSY
SELF TEST
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014362
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014362 J

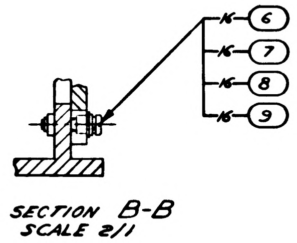
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25076	[illegible]	[illegible]
1	CHANGED PER CCA R25485 DR V. [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD [illegible]	1/6/66	[illegible]
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]
C	CHANGED PER TDRR 26467 DR E. [illegible] CHK [illegible] APPD [illegible]	2/24/66	[illegible]
D	CHANGED PER TDRR 26671 DR O.J. Green CHK [illegible] APPD [illegible]	3/3/66	[illegible]
E	CHANGED PER TDRR 26710 DR [illegible] CHK O. [illegible] APPD [illegible]	[illegible]	[illegible]
F	CHANGED PER TDRR 26713 DR. P. Bottick CHK [illegible] APPD [illegible]	[illegible]/66	[illegible]
G	CHANGED PER TDRR 28094 DR. P. Bottick CHK [illegible] APPD [illegible]	7/22/66	[illegible]
H	CHANGED PER TDRR 29064 DR [illegible] CHK G. [illegible] APPD [illegible]	[illegible]/66	[illegible]
J	CHANGED PER TDRR 29196 DR [illegible] CHK C. [illegible] APPD [illegible]	[illegible]/66	[illegible]



TO PIN 20
22 - LG .56±.06
21
SEE NOTE 8B
20 - REF
21
SEE NOTE 8B
DETAIL A
SCALE 4/1
.75±.06
.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTES 6 & 7
2014362-□□ASSY
SER NO. RAY □□□□
49956
.41±.06
.28±.06
.56±.06
1.00±.06
.12 HIGH
SEE NOTE 7
MARK APPLICABLE DASH NUMBER
2 - 11
2 - 12
2 - 23
2
6 - 13
15
SEE NOTE 11
32 - 17
MARKED AC
2 - 18
MARKED KH
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN
SEE NOTE 3
1
UPPER LEFT
.16±.02
37 PLACES FOR -011
39 PLACES FOR -021
.05±.02
74 PLACES FOR -011
78 PLACES FOR -021
74 - 5
SEE NOTE 4
74 - 10
74 - 11
74 - 12
3
4
SEE NOTE 8
A
B
23
AC AC AC AC AC AC AC AC AC AC AC AC AC KH AC AC AC AC
AC AC KH AC AC AC AC AC AC AC AC MK AC AC AC AC AC AC AC
B
B
16 - 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
16
MARKED MK
17
MARKED AC
2 - 10
2 - 11
2 - 12
2 - 5
SEE NOTE 4
-021 ONLY
C B A
11
1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	B04-07	B05-20	SEE DETAIL A
C2	20	B04-17	B03-20	
C3	20	B06-07	B07-20	
C4	20	A06-06	A07-20	
C5	20	B08-04	B08-20	
C6	20	A06-08	A04-20	
C7	20	A06-04	A06-20	
C8	20	A10-06	A11-20	
C9	20	A04-04	A03-20	
C10	20	A11-17	A10-20	
C11	20	B05-17	B06-20	
C12	20	B13-13	B13-20	
C13	20	A05-13	A05-20	
C14	20	A16-19	A15-20	
C15	20	A16-17	A17-20	
C16	20	B01-09	B02-20	
C17	20	B02-02	B01-20	
C18	24	A11-12	A12-20	SEE NOTES 8A & 8B
C19	24	B03-11	A01-20	SEE NOTES 8A & 8B — -011 ONLY



16 - 6
16 - 7
16 - 8
16 - 9

SECTION B-B
SCALE 2/1

NOTES:

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.19 PER 2014025 OR 2016369 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO.5 PER KEY CODE MARKING USING DWG NO.1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.20 PER CHART A & DETAIL A AND FIND 24 PER CHART A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM Ua GRADE & CLASS I CATEGORY I COLOR BLUE AWG SI. E NO. 24 FOR FIND NO. 21~~
10. MIL-I-631 TYPE F FORM Ua GRADE & CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 22
11. ASSEMBLE FIND NO.13 & FIND NO. 14 USING FIND NO.15

* DENOTES LENGTH IN FEET

☒	—	2016395	LOGIC DIAGRAM	REF
☒	—	2016369	WIREWRAP CARD	REF
—	☒	2014169	LOGIC DIAGRAM	REF
—	☒	2014025	WIREWRAP CARD	REF
2	2	CYFM20C242J	CAPACITOR, 2400 PF 300V	24
2	2	1006998-1	SCREW, CAPTIVE	23
2.0	2.0	SEE NOTE 10	SLEEVING	22
AR	AR	1006776-197	SLEEVING, INSULATION	21
17	17	CS13BF105K	CAPACITOR, 1uf 35v	20
AR	AR	1006945-1	WIRE, ELEC, INSUL., NO.24 AWG, SOLID	19
2	2	1014079	MODULE, GATED FLIP-FLOP	18
34	32	1014034	MODULE, NOR	17
1	1	1014096	MODULE, DRIVER	16
AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	MS51959-15	SCREW, FLAT HD	14
6	6	MS51959-27	SCREW, FLAT HD	13
80	76	MS35338-79	WASHER, LOCK	12
80	76	1006997	WASHER, FLAT	11
78	74	MS51957-29	SCREW, PAN HD	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	MS35338-78	WASHER, LOCK	8
16	16	MS15795-803	WASHER, FLAT	7
16	16	MS51957-17	SCREW, PAN HD	6
78	74	1014212	STAND-OFF, PROGRAM	5
1	1	1006495-001	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
1	1	1014258	SUPPORT, FRAME	2
1	1	1014014-2	FRAME	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-021	-011	LIST OF MATERIALS		

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN K. F. [illegible] DATE 7 JUL 65
CHECKED W. [illegible] 9 JULY 65
APPROVAL P. E. [illegible] 15 JULY 65
APPROVAL [illegible] 7/15/65
APPROVAL [illegible] Aug 65
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

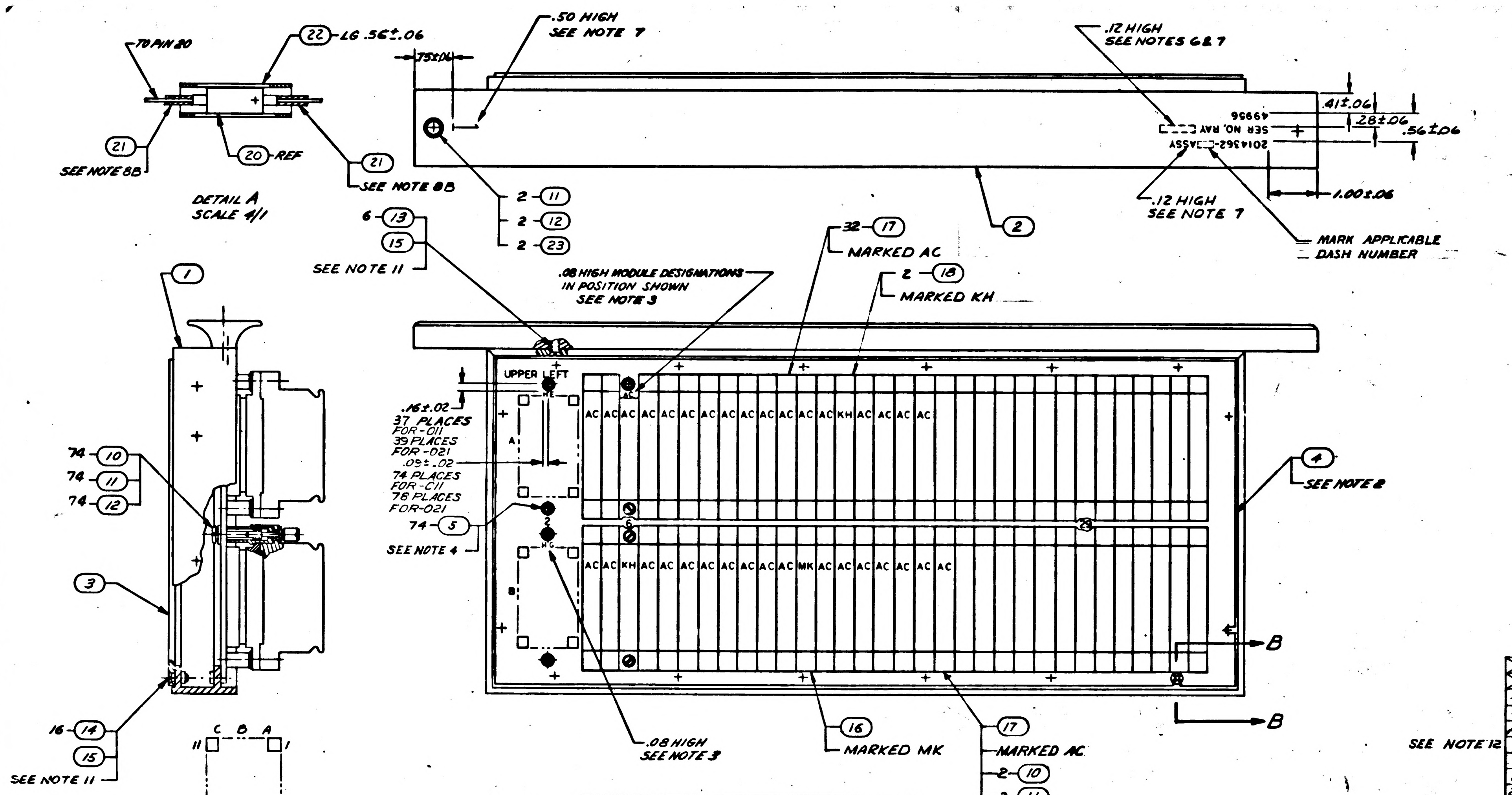
LOGIC PLATE ASSY
SELF TEST
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014362
SCALE 1/1
WT
SHEET 1 OF 1

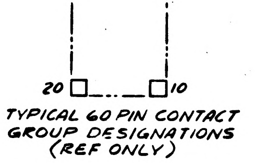
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014362 K

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25076		
1	CHANGED PER CCA R25485 DR [illegible] CHK [illegible] APPD [illegible]		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD	1/6/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 26467 DR E. [illegible] CHK [illegible] APPD	2/24/66	
D	CHANGED PER TDRR 26671 DR A.J. [illegible] CHK [illegible] APPD	3/4/66	
E	CHANGED PER TDRR 26710 DR [illegible] CHK A. [illegible] APPD		(DSC)
F	CHANGED PER TDRR 26713 DR. P. [illegible] CHK [illegible] APPD	3/24/66	
G	CHANGED PER TDRR 28094 DR. P. [illegible] CHK [illegible] APPD	7/12/66	
H	CHANGED PER TDRR 29064 DR [illegible] CHK G. [illegible] APPD	9/66	
J	CHANGED PER TDRR 29196 DR [illegible] CHK C. [illegible] APPD	9/27/66	
K	CHANGED PER TDRR 29268 DR [illegible] CHK C. [illegible] APPD	11/14/66	

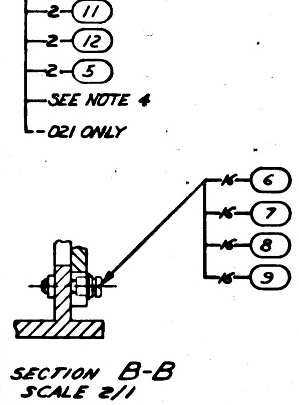


TO PIN 20
22 - LG .56±.06
21
SEE NOTE 8B
20 - REF
21
SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
2 - 11
2 - 12
2 - 23
2
.12 HIGH
SEE NOTES 6 & 7
49956
SER NO. RAY
2014362-□□ASSY
.12 HIGH
SEE NOTE 7
.41±.06
.28±.06
.56±.06
1.00±.06
MARK APPLICABLE
DASH NUMBER
6 - 13
15
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
32 - 17
MARKED AC
2 - 18
MARKED KH
1
UPPER LEFT
.16±.02
37 PLACES
FOR -011
39 PLACES
FOR -021
.09±.02
74 PLACES
FOR -011
78 PLACES
FOR -021
74 - 5
SEE NOTE 4
74 - 10
74 - 11
74 - 12
3
A
B
AC AC AC AC AC AC AC AC AC AC AC AC AC AC KH AC AC AC AC
AC AC KH AC AC AC AC AC AC AC AC MK AC AC AC AC AC AC AC
4
SEE NOTE 2
B
B
16 - 14
15
SEE NOTE 11
11 C B A 1
.08 HIGH
SEE NOTE 3
16
MARKED MK
17



TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	B04-07	B05-20	SEE DETAIL A
C2	20	B04-17	B03-20	
C3	20	B06-07	B07-20	
C4	20	A06-06	A07-20	
C5	20	B08-04	B08-20	
C6	20	A06-08	A04-20	
C7	20	A06-04	A06-20	
C8	20	A10-06	A11-20	
C9	20	A04-04	A03-20	
C10	20	A11-17	A10-20	
C11	20	B05-17	B06-20	
C12	20	B13-13	B13-20	
C13	20	A05-13	A05-20	
C14	20	A16-19	A15-20	
C15	20	A16-17	A17-20	
C16	20	B01-09	B02-20	
C17	20	B02-02	B01-20	
C18	24	A11-12	A12-20	SEE NOTES 8A & 8B
C19	24	B03-11	A01-20	SEE NOTES 8A & 8B
C20	25	B03-11	A08-20	SEE NOTES 8A & 8B



MARKED AC
2 - 10
2 - 11
2 - 12
2 - 5
SEE NOTE 4
-021 ONLY
K - 6
K - 7
K - 8
K - 9

SECTION B-B
SCALE 2/1

NOTES:

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.19 PER 2014025 OR 2016369 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO.5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 20 PER CHART A & DETAIL A AND FIND 24 & 25 PER CHART A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 21~~
10. MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 22
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15
12. SLEEVE LEADS OF FIND NO. 25 USING FIND 26 (-021 ONLY)

MASTER

SEE NOTE 12

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2016395	LOGIC DIAGRAM	REF
☒	—	2016369	WIREWRAP CARD	REF
—	☒	2014169	LOGIC DIAGRAM	REF
—	☒	2014025	WIREWRAP CARD	REF
AR	—	1006776-195	SLEEVING	26
1	—	CYFM20C472J	CAPACITOR, 4700 PF 300V	25
—	2	CYFM20C242J	CAPACITOR, 2400 PF 300V	24
2	2	1006998-1	SCREW, CAPTIVE	23
2.0	2.0	SEE NOTE 10	SLEEVING	22
—	AR	1006776-197	SLEEVING, INSULATION	21
17	17	CS13BF105K	CAPACITOR, 1uf 35V	20
AR	AR	1006945-1	WIRE, ELEC, INSUL, NO.24 AWG, SOLID	19
2	2	1014079	MODULE, GATED FLIP-FLOP	18
34	32	1014034	MODULE, NOR	17
1	1	1014096	MODULE, DRIVER	16
AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	MS51959-15	SCREW, FLAT HD	14
6	6	MS51959-27	SCREW, FLAT HD	13
80	76	MS35338-79	WASHER, LOCK	12
80	76	1006997	WASHER, FLAT	11
78	74	MS51957-29	SCREW, PAN HD	10
16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	MS35338-78	WASHER, LOCK	8
16	16	MS15795-803	WASHER, FLAT	7
16	16	MS51957-17	SCREW, PAN HD	6
78	74	1014212	STAND-OFF, PROGRAM	5
1	1	1006495-001	PLATE ASSY	4
1	1	1014026	COVER, CONN PLATE	3
1	1	1014258	SUPPORT, FRAME	2
1	1	1014014-2	FRAME	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. [illegible]
DRAWN R. [illegible] DATE 7 JUL 65
CHECKED W. [illegible] 9 JULY 65
APPROVAL P. E. [illegible] 15 JULY 65
APPROVAL [illegible] 7/15/65
APPROVAL [illegible] 4 Aug 65
NASA APPROVAL A. [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C. [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

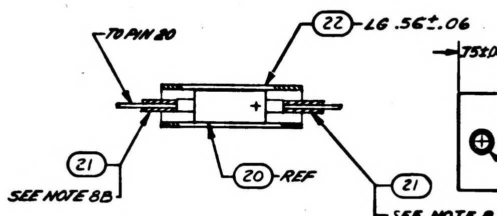
LOGIC PLATE ASSY
SELF TEST
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014362
SCALE 1/1
WT
SHEET 1 OF 1

2014362 L

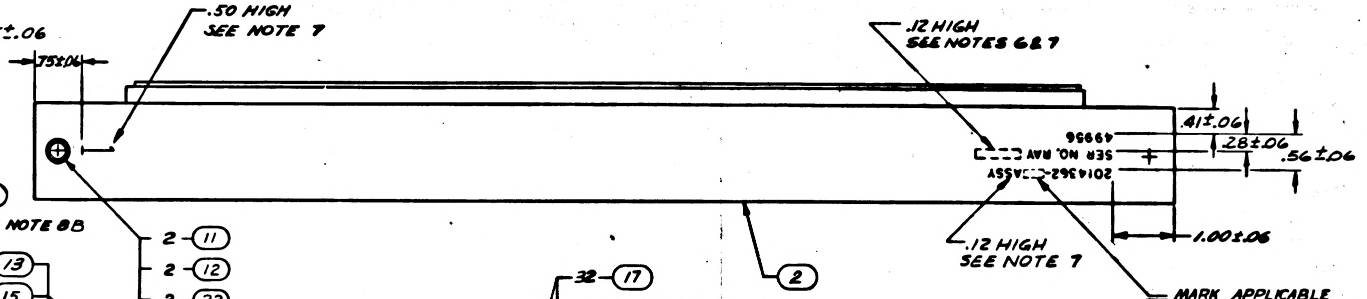
REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25076		
1	CHANGED PER CCA R25485 DR V. Basso CHK G. Kupfer APPD	11/17/65	
—	CLASS B CHANGED PER CCA R25502	12/15/65	
A	CHANGED PER CCA R25621 DR CHK APPD	1/6/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 26467 DR E. Uftring CHK APPD	2/24/66	
D	CHANGED PER TDRR 26671 DR A. J. Green CHK APPD	3/7/66	
E	CHANGED PER TDRR 26710 DR CHK G. Horn APPD		(DSC)
F	CHANGED PER TDRR 26713 DR. P. Battist CHK APPD	3/24/66	
G	CHANGED PER TDRR 28094 DR. P. Battist CHK APPD	7/22/66	
H	CHANGED PER TDRR 29064 DR CHK G. Kupfer APPD	9/?/66	
J	CHANGED PER TDRR 29196 DR CHK C. DiFronzo APPD	9/23/66	
K	CHANGED PER TDRR 29268 DR CHK G. Kupfer APPD	9/14/66	
L	CHANGED PER TDRR 29342 DR CHK G. Kupfer APPD	10/4/66	

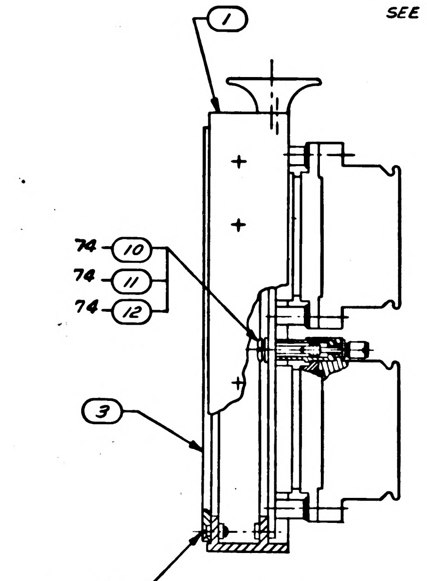


22 - LG .56±.06
TO PIN 20
21
SEE NOTE 8B
20 - REF
21
SEE NOTE 8B

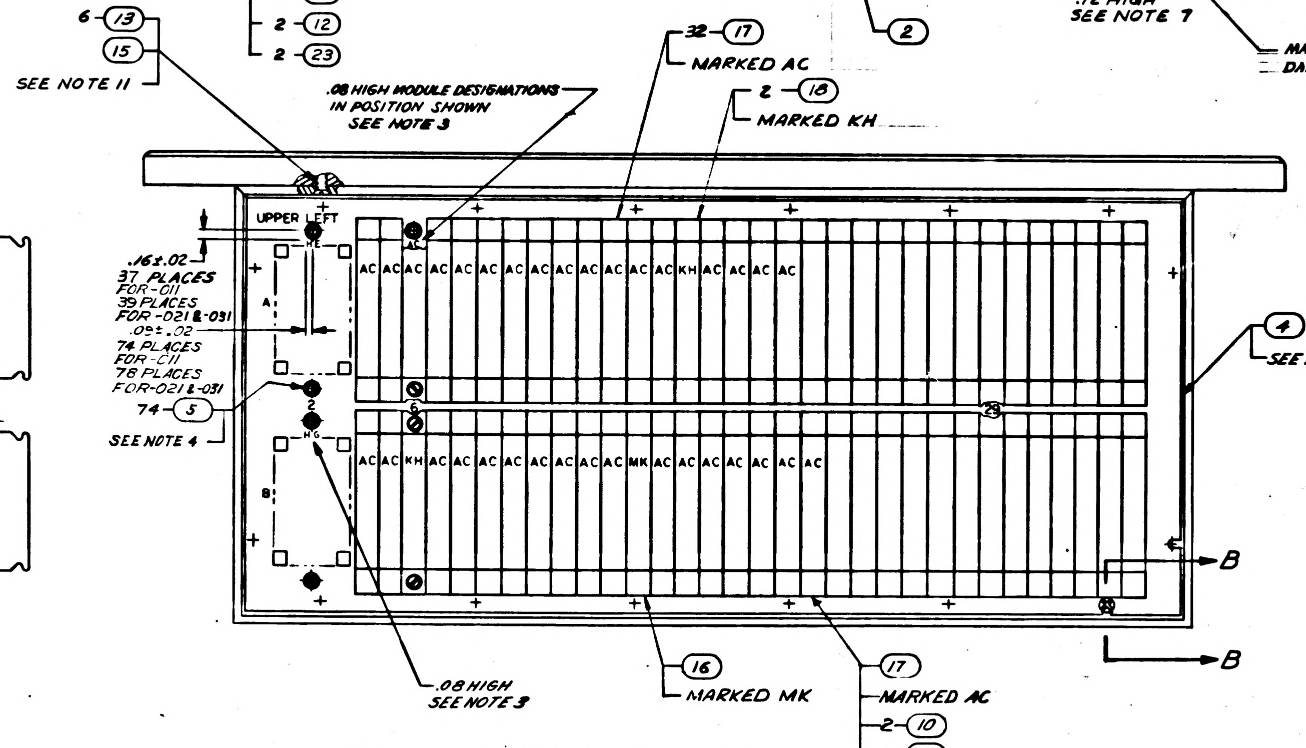
DETAIL A
SCALE 4/1



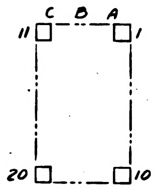
.50 HIGH
SEE NOTE 7
.75±.06
2 - 11
2 - 12
2 - 23
2
.12 HIGH
SEE NOTES 6 & 7
49956
SER NO. RAY
2014362-ASSY
.41±.06
.28±.06
.56±.06
.12 HIGH
SEE NOTE 7
1.00±.06
MARK APPLICABLE
DASH NUMBER



1
74 - 10
74 - 11
74 - 12
3
16 - 14
15
SEE NOTE 11



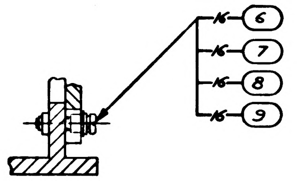
6 - 13
15
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
32 - 17
MARKED AC
2 - 18
MARKED KH
UPPER LEFT
HE
A
.16±.02
37 PLACES
FOR -011
39 PLACES
FOR -021 & -031
.09±.02
74 PLACES
FOR -011
78 PLACES
FOR -021 & -031
74 - 5
SEE NOTE 4
HG
B
AC AC AC AC AC AC AC AC AC AC AC AC AC KH AC AC AC AC
AC AC KH AC AC AC AC AC AC AC AC MK AC AC AC AC AC AC AC
4
SEE NOTE 8
B
B
.08 HIGH
SEE NOTE 3
16
MARKED MK
17
MARKED AC
2 - 10
2 - 11
2 - 12
2 - 5
SEE NOTE 4
-021 & -031 ONLY



C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	B04-07	B05-20	SEE DETAIL A
C2	20	B04-17	B03-20	
C3	20	B06-07	B07-20	
C4	20	A06-06	A07-20	
C5	20	B08-04	B08-20	
C6	20	A06-08	A04-20	
C7	20	A06-04	A06-20	
C8	20	A10-06	A11-20	
C9	20	A04-04	A03-20	
C10	20	A11-17	A10-20	
C11	20	B05-17	B06-20	
C12	20	B13-13	B13-20	
C13	20	A05-13	A05-20	
C14	20	A16-19	A15-20	
C15	20	A16-17	A17-20	
C16	20	B01-09	B02-20	
C17	20	B02-02	B01-20	
C18	24	A11-12	A12-20	SEE NOTES 8A & 8B
C19	24	B03-11	A01-20	SEE NOTES 8A & 8B
C20	25	B03-11	A08-20	SEE NOTES 8A & 8B
C21	27	B22-12	A26-20	SEE NOTES 8A & 8B



16 - 6
16 - 7
16 - 8
16 - 9

SECTION B-B
SCALE 2/1

NOTES:
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.19 PER 2014025 OR 2016369 OR 2016448 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO.5 PER KEY CODE MARKING USING DWG NO.1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.20 PER CHART A & DETAIL A AND FIND 24, 25 & 27 PER CHART A
   - 8A. SOLDER PER ND1002071
   - 8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
9. ~~MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR BLUE AWG SIZE NO.24 FOR FIND NO. 21~~
10. MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO.8 FOR FIND NO. 22
11. ASSEMBLE FIND NO.13 & FIND NO.14 USING FIND NO.15
12. SLEEVE LEADS OF FIND NO.25 & 27 USING FIND NO. 26 (-021 & -031 ONLY)

SEE NOTE 12

☒	—	—	2016447	LOGIC DIAGRAM	REF
☒	—	—	2016448	WIREWRAP CARD	REF
1	—	—	CYFM30C822J	CAPACITOR, 8200PF, 300 V	27
—	☒	—	2016395	LOGIC DIAGRAM	REF
—	☒	—	2016369	WIREWRAP CARD	REF
—	—	☒	2014169	LOGIC DIAGRAM	REF
—	—	☒	2014025	WIREWRAP CARD	REF
AR	AR	—	1006776-195	SLEEVING	26
1	1	—	CYFM20C472J	CAPACITOR, 4700 PF 300V	25
—	—	2	CYFM20C242J	CAPACITOR, 2400 PF 300V	24
2	2	2	1006998-1	SCREW, CAPTIVE	23
2.0	2.0	2.0	SEE NOTE 10	SLEEVING	22
—	—	AR	1006776-197	SLEEVING, INSULATION	21
17	17	17	CS13BF105K	CAPACITOR, 1uf 35V	20
AR	AR	AR	1006945-1	WIRE, ELEC, INSUL., NO.24 AWG, SOLID	19
2	2	2	1014079	MODULE, GATED FLIP-FLOP	18
34	34	32	1014034	MODULE, NOR	17
1	1	1	1014096	MODULE, DRIVER	16
AR	AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	16	MS51959-15	SCREW, FLAT HD	14
6	6	6	MS51959-27	SCREW, FLAT HD	13
80	80	76	MS35338-79	WASHER, LOCK	12
80	80	76	1006997	WASHER, FLAT	11
78	78	74	MS51957-29	SCREW, PAN HD	10
16	16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	16	MS35338-78	WASHER, LOCK	8
16	16	16	MS15795-803	WASHER, FLAT	7
16	16	16	MS51957-17	SCREW, PAN HD	6
78	78	74	1014212	STAND-OFF, PROGRAM	5
1	1	1	1006495-001	PLATE ASSY	4
1	1	1	1014026	COVER, CONN PLATE	3
1	1	1	1014258	SUPPORT, FRAME	2
1	1	1	1014014-2	FRAME	1
QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-031	-021	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

MASTER

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO.
DRAWN R. F. DATE 7 JUL 65
CHECKED 9 JULY 65
APPROVAL P. E. 15 JULY 65
APPROVAL 7/15/65
APPROVAL 4 Aug 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

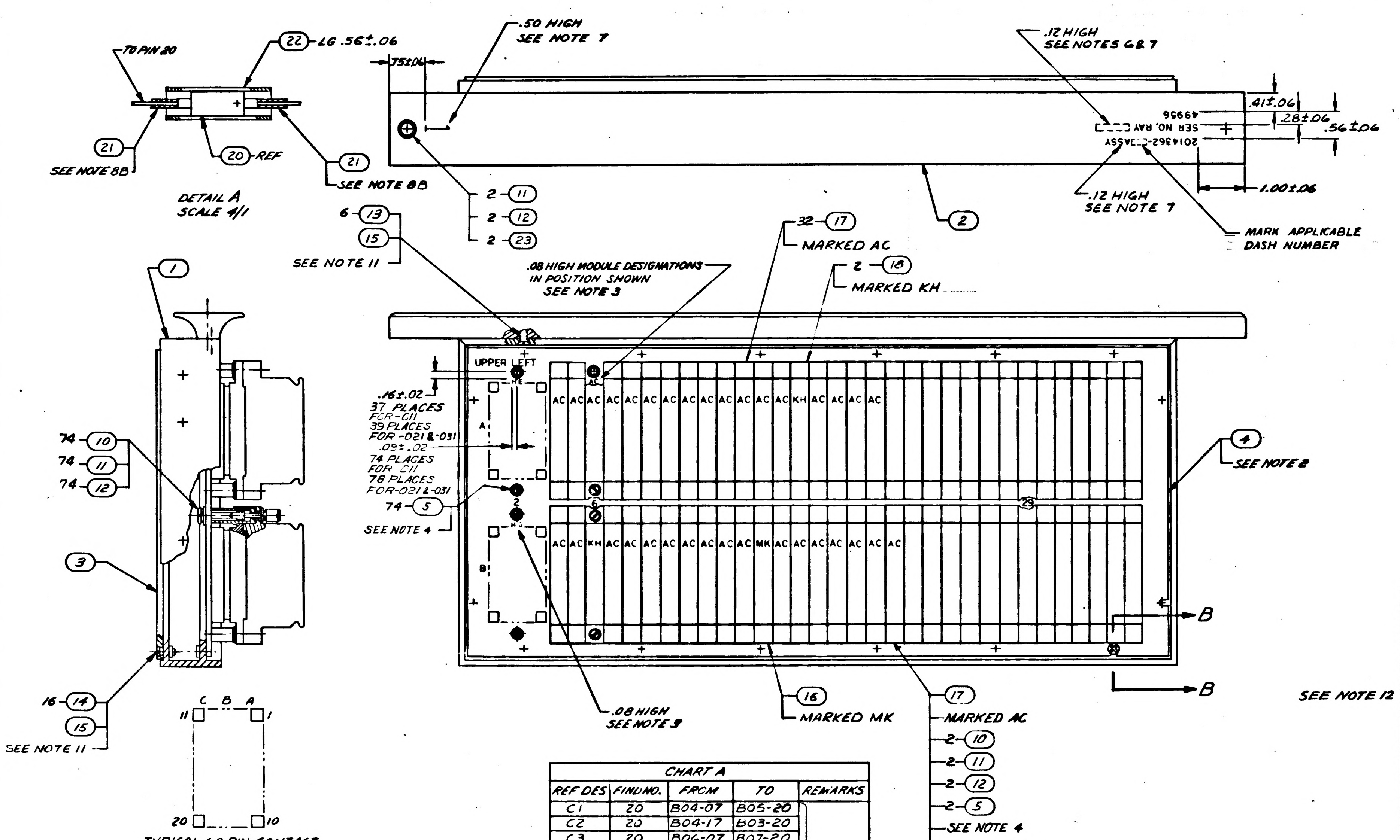
LOGIC PLATE ASSY
SELF TEST
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014362
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014362 M

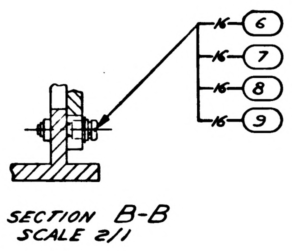
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25076	8/6/65	
1	CHANGED PER CCA R25485 DR V. Zano CHK [illegible] APPD	11/17/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR [illegible] CHK [illegible] APPD	1/6/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 26467 DR E. Uffring CHK [illegible] APPD	2/24/66	
D	CHANGED PER TDRR 26671 DR Q. J. Green CHK [illegible] APPD	3/17/66	
E	CHANGED PER TDRR 26710 DR [illegible] CHK Q. Han APPD		
F	CHANGED PER TDRR 26713 DR. P. Battist CHK. Chapman APPD	5/26/66	
G	CHANGED PER TDRR 28094 DR. P. Battist CHK [illegible] APPD.	7/22/66	
H	CHANGED PER TDRR 29064 DR [illegible] CHK G. Kupfer APPD	8/1/66	
J	CHANGED PER TDRR 29196 DR [illegible] CHK C. DeFreni APPD	8/23/66	
K	CHANGED PER TDRR 29268 DR [illegible] CHK G. Kupfer APPD	9/14/66	
L	CHANGED PER TDRR 29342 DR I Gindano CHK G. Kupfer APPD	10/8/66	
M	CHANGED PER TDRR 29736 DR. P. Battist CHK CAP APPD	10/26/66	



TO PIN 20
22 - LG .56±.06
21
SEE NOTE 8B
20 - REF
21
SEE NOTE 8B
DETAIL A
SCALE 4/1
.50 HIGH
SEE NOTE 7
.75±.06
2 - 11
2 - 12
2 - 23
6 - 13
15
SEE NOTE 11
.12 HIGH
SEE NOTES 6 & 7
49956
SER NO. RAY
2014362-ASSY
.41±.06
.28±.06
.56±.06
.12 HIGH
SEE NOTE 7
1.00±.06
2
MARK APPLICABLE
DASH NUMBER
1
32 - 17
MARKED AC
2 - 18
MARKED KH
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
UPPER LEFT
.16±.02
37 PLACES
FOR -011
39 PLACES
FOR -021 & -031
.09±.02
74 PLACES
FOR -011
78 PLACES
FOR -021 & -031
A
B
74 - 5
SEE NOTE 4
AC AC AC AC AC AC AC AC AC AC AC AC AC KH AC AC AC AC
AC AC KH AC AC AC AC AC AC AC AC MK AC AC AC AC AC AC AC
23
4
SEE NOTE 2
B
B
74 - 10
74 - 11
74 - 12
3
16 - 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
16
MARKED MK
17
MARKED AC
2 - 10
2 - 11
2 - 12
2 - 5
SEE NOTE 4
-021 & -031 ONLY
C B A
11
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	B04-07	B05-20	SEE DETAIL A
C2	20	B04-17	B03-20	
C3	20	B06-07	B07-20	
C4	20	A06-06	A07-20	
C5	20	B08-04	B08-20	
C6	20	A06-08	A04-20	
C7	20	A06-04	A06-20	
C8	20	A10-06	A11-20	
C9	20	A04-04	A03-20	
C10	20	A11-17	A10-20	
C11	20	B05-17	B06-20	
C12	20	B13-13	B13-20	
C13	20	A05-13	A05-20	
C14	20	A16-19	A15-20	
C15	20	A16-17	A17-20	
C16	20	B01-09	B02-20	
C17	20	B02-02	B01-20	
C18	24	A11-12	A12-20	SEE NOTES 8A & 8B
C19	24	B03-11	A01-20	SEE NOTES 8A & 8B
C20	25	B03-11	A08-20	SEE NOTES 8A & 8B
C21	27	B22-12	A26-20	SEE NOTES 8A & 8B



16 - 6
16 - 7
16 - 8
16 - 9

SECTION B-B
SCALE 2/1

NOTES:
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.19 PER 2014025 OR 2016369 OR 2016448 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO.5 PER KEY CODE MARKING USING DWG NO.1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.20 PER CHART A & DETAIL A AND FIND 24, 25 & 27 PER CHART A
    8A. SOLDER PER ND1002071
    8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR BLUE AWG SIZE NO.24 FOR FIND NO.21~~
10. MIL-I-631 TYPE F FORM U GRADE & CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO.8 FOR FIND NO.22
11. ASSEMBLE FIND NO.13 & FIND NO.14 USING FIND NO.15
12. SLEEVE LEADS OF FIND NO.25 & 27 USING FIND NO. 26 (-021 & -031 ONLY)

SEE NOTE 12

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	—	2016447	LOGIC DIAGRAM	REF
☒	—	—	2016448	WIREWRAP CARD	REF
1	—	—	CYFM30C822J	CAPACITOR, 8200PF, 300 V	27
—	☒	—	2016395	LOGIC DIAGRAM	REF
—	☒	—	2016369	WIREWRAP CARD	REF
—	—	☒	2014169	LOGIC DIAGRAM	REF
—	—	☒	2014025	WIREWRAP CARD	REF
AR	AR	—	1006776-195	SLEEVING	26
1	1	—	CYFM20C472J	CAPACITOR, 4700 PF 300V	25
—	—	2	CYFM20C242J	CAPACITOR, 2400 PF 300V	24
2	2	2	1006998-1	SCREW, CAPTIVE	23
2.0	2.0	2.0	SEE NOTE 10	SLEEVING	22
AR	AR	AR	1006776-197	SLEEVING, INSULATION	21
17	17	17	CS13BF105K	CAPACITOR, 1uf 35 V	20
AR	AR	AR	1006945-1	WIRE, ELEC, INSUL., NO.24 AWG, SOLID	19
2	2	2	1014079	MODULE, GATED FLIP-FLOP	18
34	34	32	1014034	MODULE, NOR	17
1	1	1	1014096	MODULE, DRIVER	16
AR	AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	16	MS51959-15	SCREW, FLAT HD	14
6	6	6	MS51959-27	SCREW, FLAT HD	13
80	80	76	MS35338-79	WASHER, LOCK	12
80	80	76	1006997	WASHER, FLAT	11
78	78	74	MS51957-29	SCREW, PAN HD	10
16	16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	16	MS35338-78	WASHER, LOCK	8
16	16	16	MS15795-803	WASHER, FLAT	7
16	16	16	MS51957-17	SCREW, PAN HD	6
78	78	74	1014212	STAND-OFF, PROGRAM	5
1	1	1	1006495-001	PLATE ASSY	4
1	1	1	1014026	COVER, CONN PLATE	3
1	1	1	1014258	SUPPORT, FRAME	2
1	1	1	1014014-2	FRAME	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

MASTER

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN R. F. [illegible] DATE 7 JUL 65
CHECKED W. [illegible] 9 JULY 65
APPROVAL P. E. Dale 15 JULY 65
APPROVAL [illegible] 7/15/65
APPROVAL [illegible] Aug 65
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

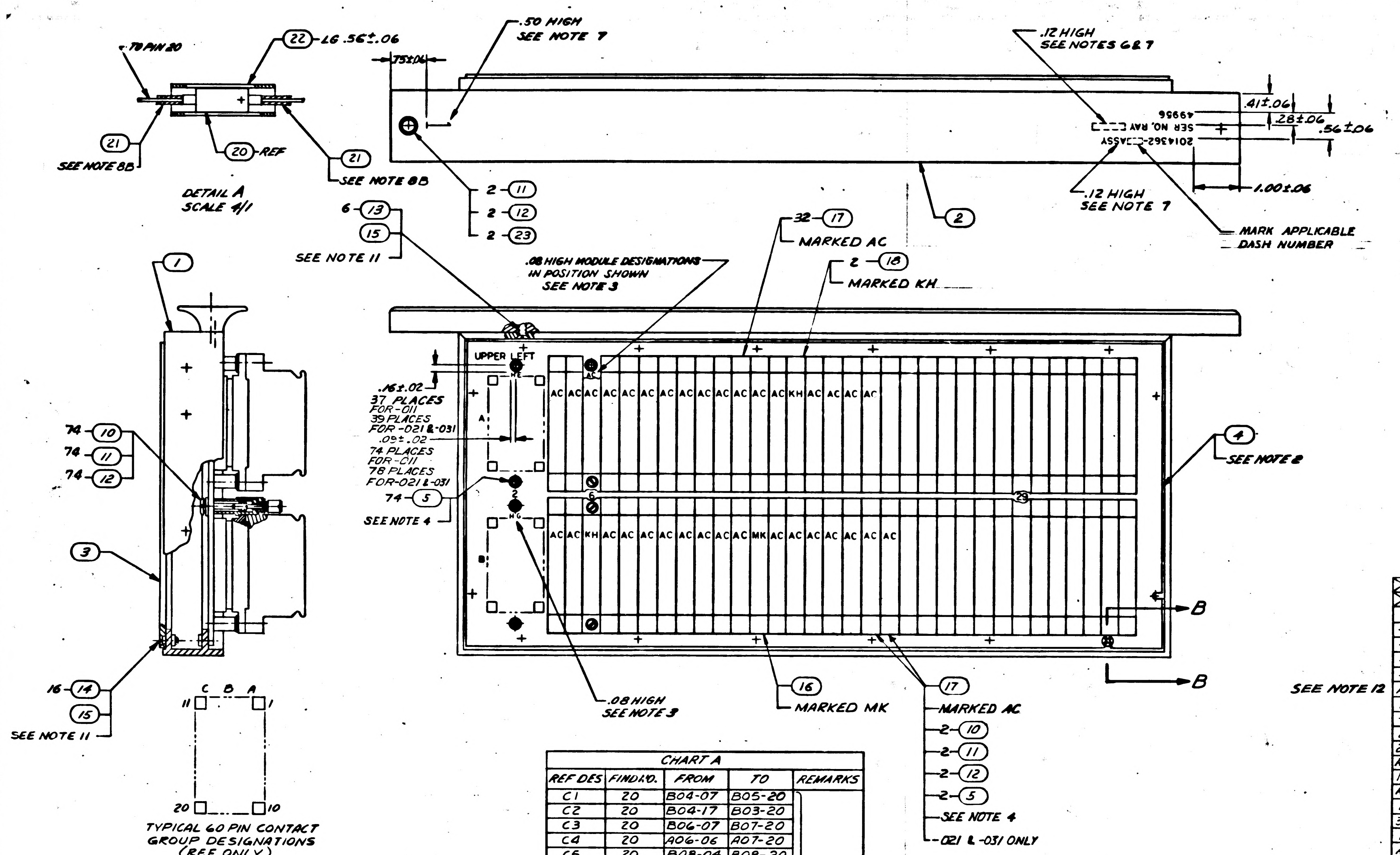
LOGIC PLATE ASSY
SELF TEST
COMPUTER TEST SET

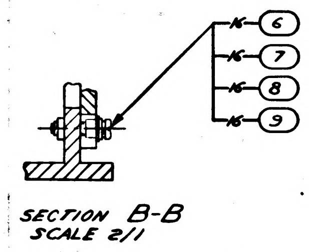
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014362
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014362 N

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25076	8/6/65	
1	CHANGED PER CCA R25485 DR V. Bruno CHK APPD	11/12/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR CHK APPD	1/6/66	
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
C	CHANGED PER TDRR 26467 DR E. Uftring CHK APPD	2/24/66	
D	CHANGED PER TDRR 26671 DR CHK APPD		
E	CHANGED PER TDRR 26710 DR CHK APPD		
F	CHANGED PER TDRR 26713 DR. P. Battist CHK APPD		
G	CHANGED PER TDRR 28094 DR. P. Battist CHK APPD	3/22/66	
H	CHANGED PER TDRR 29064 DR CHK APPD		
J	CHANGED PER TDRR 29196 DR CHK APPD		
K	CHANGED PER TDRR 29268 DR CHK APPD		
L	CHANGED PER TDRR 29342 DR CHK APPD		
M	CHANGED PER TDRR 29736 DR. P. Battist CHK CAP APPD	10/26/66	
N	CHANGED PER TDRR 29889 DR CHK APPD		


.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTES 6 & 7
.12 HIGH
SEE NOTE 7
MARK APPLICABLE DASH NUMBER
2014362-□□ASSY
SER NO. RAY
49956
.41±.06
.28±.06
.56±.06
1.00±.06
.75±.06
78 PIN 20
22 - LG .56±.06
20 - REF
21 SEE NOTE 8B
21 SEE NOTE 8B
DETAIL A
SCALE 4/1
2 - 11
2 - 12
2 - 23
2
6 - 13
15
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN
SEE NOTE 3
32 - 17
MARKED AC
2 - 18
MARKED KH
1
UPPER LEFT
.16±.02
37 PLACES FOR -011
39 PLACES FOR -021 & -031
.09±.02
74 PLACES FOR -011
78 PLACES FOR -021 & -031
74 - 5
SEE NOTE 4
74 - 10
74 - 11
74 - 12
3
16 - 14
15
SEE NOTE 11
4
SEE NOTE 2
B
B
16
MARKED MK
17
MARKED AC
2 - 10
2 - 11
2 - 12
2 - 5
SEE NOTE 4
-021 & -031 ONLY
.08 HIGH
SEE NOTE 3
11 C B A 1
20 10
TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)


16 - 6
16 - 7
16 - 8
16 - 9

SECTION B-B
SCALE 2/1

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	20	B04-07	B05-20	SEE DETAIL A
C2	20	B04-17	B03-20	
C3	20	B06-07	B07-20	
C4	20	A06-06	A07-20	
C5	20	B08-04	B08-20	
C6	20	A06-08	A04-20	
C7	20	A06-04	A06-20	
C8	20	A10-06	A11-20	
C9	20	A04-04	A03-20	
C10	20	A11-17	A10-20	
C11	20	B05-17	B06-20	
C12	20	B13-13	B13-20	
C13	20	A05-13	A05-20	
C14	20	A16-19	A15-20	
C15	20	A16-17	A17-20	
C16	20	B01-09	B02-20	
C17	20	B02-02	B01-20	
C18	24	A11-12	A12-20	SEE NOTES 8A & 8B
C19	24	B03-11	A01-20	SEE NOTES 8A & 8B
C20	25	B03-11	A08-20	SEE NOTES 8A & 8B
C21	27	B22-12	A26-20	SEE NOTES 8A & 8B

NOTES:
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO.4 USING FIND NO.19 PER 2014025 OR 2016369 OR 2016448 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO.5 PER KEY CODE MARKING USING DWG NO.1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO.20 PER CHART A & DETAIL A AND FIND 24, 25 & 27 PER CHART A
   8A. SOLDER PER ND1002071
   8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
9. ~~MIL-I-631 TYPE F FORM UL GRADE & CLASS I CATEGORY I COLOR BLUE AWG SIZE NO.24 FOR FIND NO.21~~
10. MIL-I-631 TYPE F FORM UL GRADE & CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO.8 FOR FIND NO.22
11. ASSEMBLE FIND NO.13 & FIND NO.14 USING FIND NO.15
12. SLEEVE LEADS OF FIND NO.25 & 27 USING FIND NO. 26 (-021 & -031 ONLY)

SEE NOTE 12

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	—	2016447	LOGIC DIAGRAM	REF
☒	—	—	2016448	WIREWRAP CARD	REF
1	—	—	CYFM30C822J	CAPACITOR, 8200PF, 300 V	27
—	☒	—	2016395	LOGIC DIAGRAM	REF
—	☒	—	2016369	WIREWRAP CARD	REF
—	—	☒	2014169	LOGIC DIAGRAM	REF
—	—	☒	2014025	WIREWRAP CARD	REF
AR	AR	—	1006776-195	SLEEVING	26
1	1	—	CYFM20C472J	CAPACITOR, 4700 PF 300V	25
—	—	2	CYFM20C242J	CAPACITOR, 2400 PF 300V	24
2	2	2	1006998-1	SCREW, CAPTIVE	23
2.0	2.0	2.0	SEE NOTE 10	SLEEVING	22
AR	AR	AR	1006776-197	SLEEVING, INSULATION	21
17	17	17	CS13BF105K	CAPACITOR, 1uf 35 v	20
AR	AR	AR	1006945-1	WIRE, ELEC, INSUL., NO.24 AWG, SOLID	19
2	2	2	1014079	MODULE, GATED FLIP-FLOP	18
34	34	32	1014034	MODULE, NOR	17
1	1	1	1014096	MODULE, DRIVER	16
AR	AR	AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	16	16	MS51959-15	SCREW, FLAT HD	14
6	6	6	MS51959-27	SCREW, FLAT HD	13
80	80	76	MS35338-79	WASHER, LOCK	12
80	80	76	1006997	WASHER, FLAT	11
78	78	74	MS51957-29	SCREW, PAN HD	10
16	16	16	1006986	WASHER, SHOULDERED, NYLON	9
16	16	16	MS35338-78	WASHER, LOCK	8
16	16	16	MS15795-803	WASHER, FLAT	7
16	16	16	MS51957-17	SCREW, PAN HD	6
78	78	74	1014212	STAND-OFF, PROGRAM	5
1	1	1	1006495-001	PLATE ASSY	4
1	1	1	1014026	COVER, CONN PLATE	3
1	1	1	1014258	SUPPORT, FRAME	2
1	1	1	1014014-2	FRAME	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

MASTER

NEXT ASSY	USED ON
2014366	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN R. K. DATE 7 JUL 65
CHECKED 9 JULY 65
APPROVAL P. E. Duke 15 JULY 65
APPROVAL 7/15/65
APPROVAL 4 Aug 65
NASA APPROVAL A. S. METZGER
MIT APPROVAL
MIT APPROVAL

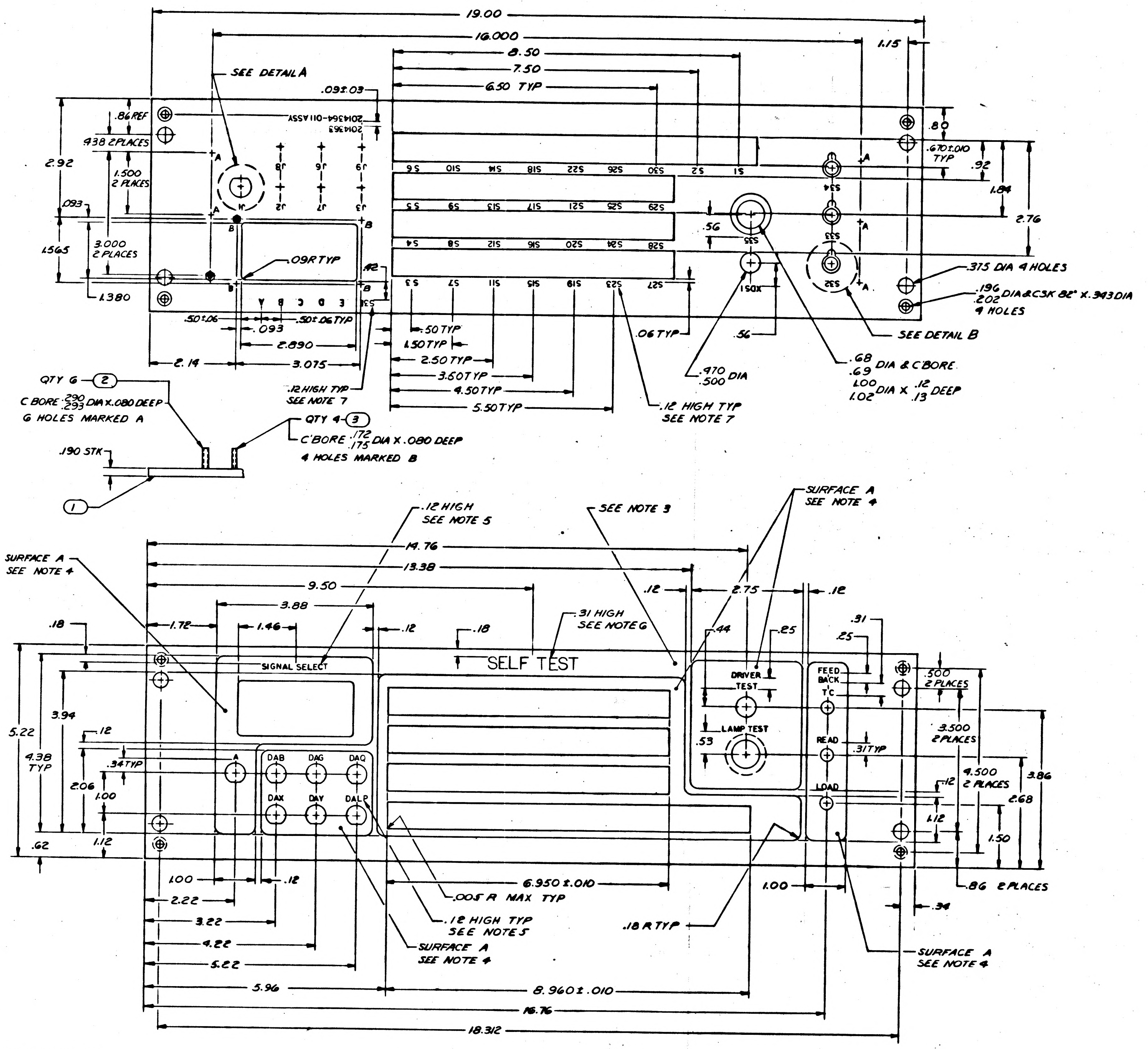
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

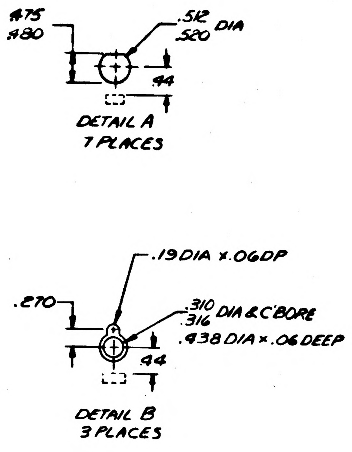
LOGIC PLATE ASSY
SELF TEST
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014362
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25167	[illegible]	
-	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26664 DR Q. J. Green CHK: Q APPD PED	3/24/66	


19.00
16.000
8.50
7.50
6.50 TYP
1.15
SEE DETAIL A
.09±.03
2014364-011 ASSY
2014363
.86 REF
.438 2 PLACES
2.92
1.500 2 PLACES
.093
1.565
3.000 2 PLACES
1.380
.09 R TYP
.12
J1 J2 J3 J4 J5 J6 J7 J8 J9
A B C D E
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22 S23 S24 S25 S26 S27 S28 S29 S30 S31 S32 S33 S34 S35
DS1X
.50±.06
.093
.50±.06 TYP
2.890
2.14
3.075
.12 HIGH TYP SEE NOTE 7
.50 TYP
1.50 TYP
2.50 TYP
3.50 TYP
4.50 TYP
5.50 TYP
.06 TYP
.56
.56
.470 .500 DIA
.68 .69 DIA & C'BORE 1.00 1.02 DIA X .12 .13 DEEP
.12 HIGH TYP SEE NOTE 7
SEE DETAIL B
.80
.670±.010 TYP
.92
1.84
2.76
.375 DIA 4 HOLES
.196 .202 DIA & CSK 82° X .343 DIA 4 HOLES
QTY 6 ②
C BORE .290 .293 DIA X .080 DEEP 6 HOLES MARKED A
QTY 4 ③
C'BORE .172 .175 DIA X .080 DEEP 4 HOLES MARKED B
.190 STK
①
.12 HIGH SEE NOTE 5
SEE NOTE 3
SURFACE A SEE NOTE 4
14.76
13.38
9.50
3.88
1.72
1.46
.12
.18
.18
.31 HIGH SEE NOTE 6
.12
2.75
.12
.44
.25
.31
.25
SIGNAL SELECT
SELF TEST
DRIVER TEST
LAMP TEST
FEED BACK
TC
READ
LOAD
A
DAB DAG DAQ
DAX DAY DALP
5.22
4.38 TYP
3.94
.12
.34 TYP
2.06
1.00
.62
1.12
.53
.31 TYP
.500 2 PLACES
3.500 2 PLACES
4.500 2 PLACES
.12
1.12
3.86
2.68
1.50
.86 2 PLACES
.34
1.00
.12
2.22
3.22
4.22
5.22
5.96
6.950±.010
.005 R MAX TYP
.12 HIGH TYP SEE NOTE 5
SURFACE A SEE NOTE 4
.18 R TYP
8.960±.010
1.00
16.76
18.312
SURFACE A SEE NOTE 4


.475 .480
.512 .520 DIA
.44
.19 DIA X .06 DP
.270
.310 .316 DIA & C'BORE
.438 DIA X .06 DEEP
.44

DETAIL A
7 PLACES

DETAIL B
3 PLACES

NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. PAINT FRONT & EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
4. PAINT TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26251 PER MIL-F-14072 P513 TYPE I SURFACE A
5. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. MARK (REAR OF PANEL) NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006271-10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	1006951-002	STUD	3
6	1006951-007	STUD	2
1	2014363-001	PANEL, FRONT	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014364	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING

MATERIAL
AL 6061-T6 PER QQ-A-250/11

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 13 JUL 65
CHECKED 3 AUG 65
APPROVAL 8/13/65
APPROVAL 24 AUG 65
APPROVAL 9/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1/24/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

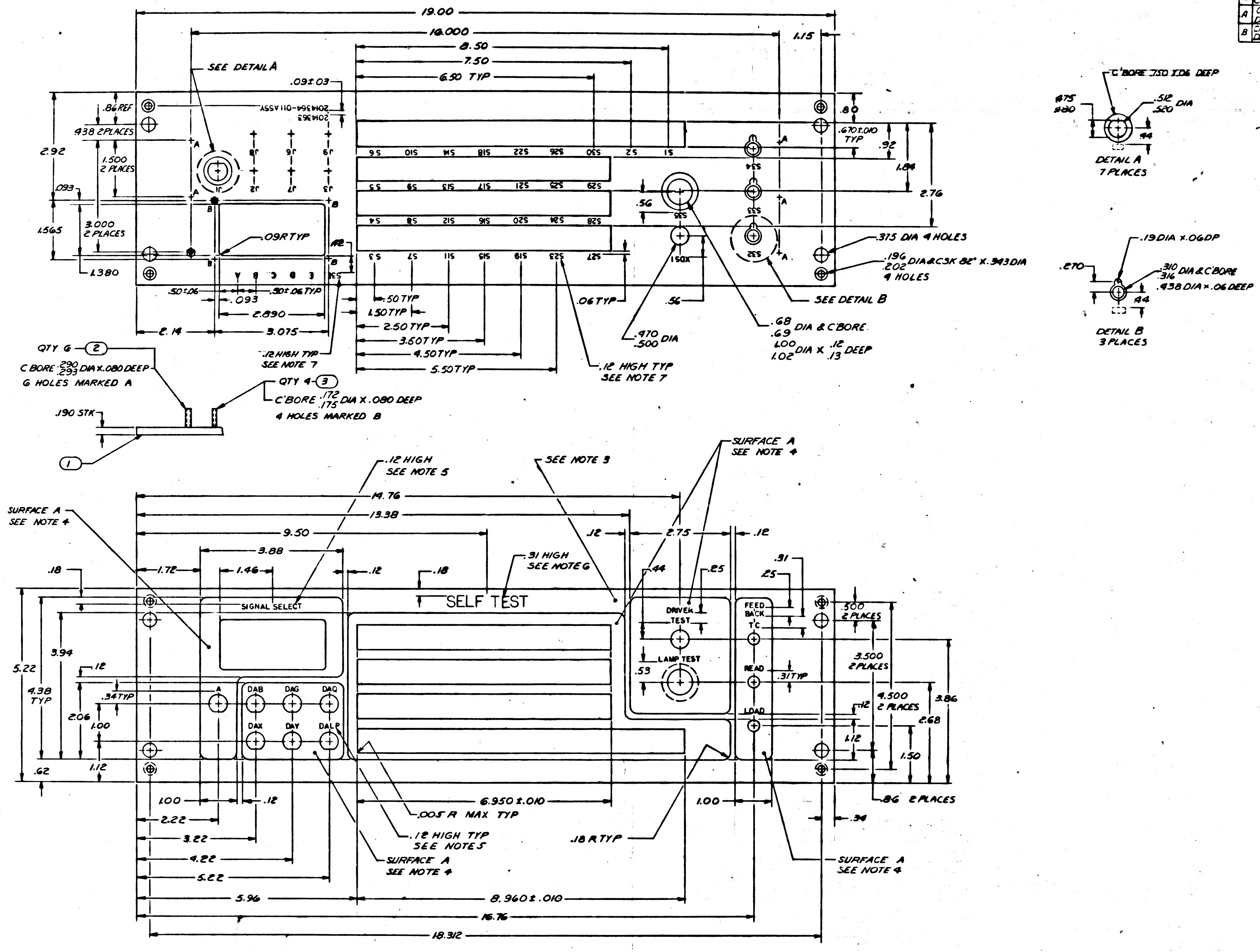
FRONT PANEL, SELF TEST
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014363

SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167	9/3/65	[illegible]
-	CLASS A RELEASED PER TDRR 25172		
A	CHANGED PER TDRR 26664 DR A. J. Green CHK C.D. APPD PED	3/24/66	[illegible]
B	CHANGED PER TDRR 26669 DR [illegible] CHK [illegible] APPD PED	4/9/66	[illegible]



19.00
16.000
8.50
7.50
6.50 TYP
1.15
SEE DETAIL A
.093±.03
2014364-011ASSY
2014363
.86 REF
.438 2 PLACES
2.92
1.500 2 PLACES
.093
3.000 2 PLACES
1.565
1.380
.09R TYP
.12
.80
.670±.010 TYP
.92
1.84
2.76
.56
150X
.315 DIA 4 HOLES
.196/.202 DIA & CSK 82° X .343 DIA 4 HOLES
SEE DETAIL B
.50±.06
.093
.50±.06 TYP
2.890
2.14
3.075
.50 TYP
1.50 TYP
2.50 TYP
3.60 TYP
4.50 TYP
5.50 TYP
.06 TYP
.12 HIGH TYP SEE NOTE 7
.470/.500 DIA
.68/.69 DIA & C'BORE
1.00/1.02 DIA X .12/.13 DEEP
.12 HIGH TYP SEE NOTE 7
QTY 6 – 2
C BORE .290/.293 DIA X .080 DEEP 6 HOLES MARKED A
QTY 4 – 3
C'BORE .172/.175 DIA X .080 DEEP 4 HOLES MARKED B
.190 STK
1
C'BORE .750 X .06 DEEP
.475/.480
.512/.520 DIA
.44
DETAIL A 7 PLACES
.19 DIA X .06 DP
.270
.310/.316 DIA & C'BORE
.438 DIA X .06 DEEP
.44
DETAIL B 3 PLACES
.12 HIGH SEE NOTE 5
SEE NOTE 3
SURFACE A SEE NOTE 4
SURFACE A SEE NOTE 4
14.76
13.38
9.50
3.88
1.72
1.46
.12
.18
.18
.31 HIGH SEE NOTE 6
.12
2.75
.12
.44
.25
.31
.25
.500 2 PLACES
SIGNAL SELECT
SELF TEST
DRIVER TEST
LAMP TEST
FEED BACK
T/C
READ
LOAD
A
DAB
DAG
DAQ
DAX
DAY
DALP
5.22
4.38 TYP
3.94
.12
.34 TYP
2.06
1.00
1.12
.62
.53
.31 TYP
3.500 2 PLACES
4.500 2 PLACES
.12
3.86
2.68
1.12
1.50
.86 2 PLACES
.34
1.00
.12
2.22
3.22
4.22
5.22
5.96
6.950±.010
.005 R MAX TYP
.12 HIGH TYP SEE NOTE 5
SURFACE A SEE NOTE 4
.18 R TYP
1.00
SURFACE A SEE NOTE 4
8.960±.010
16.76
18.312

NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. PAINT FRONT & EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
4. PAINT TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26251 PER MIL-F-14072 P513 TYPE I SURFACE A
5. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. MARK (REAR OF PANEL) NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006271-10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	1006951-002	STUD	3
6	1006951-007	STUD	2
1	2014363-001	PANEL, FRONT	1

LIST OF MATERIALS

2014364	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL AL 6061-T6 PER QQ-A-250/11

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 13 JUL 65
CHECKED [illegible] 3 AUG 65
APPROVAL [illegible] 8/13/65
APPROVAL [illegible] 21 AUG 65
APPROVAL [illegible] 9/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/3/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

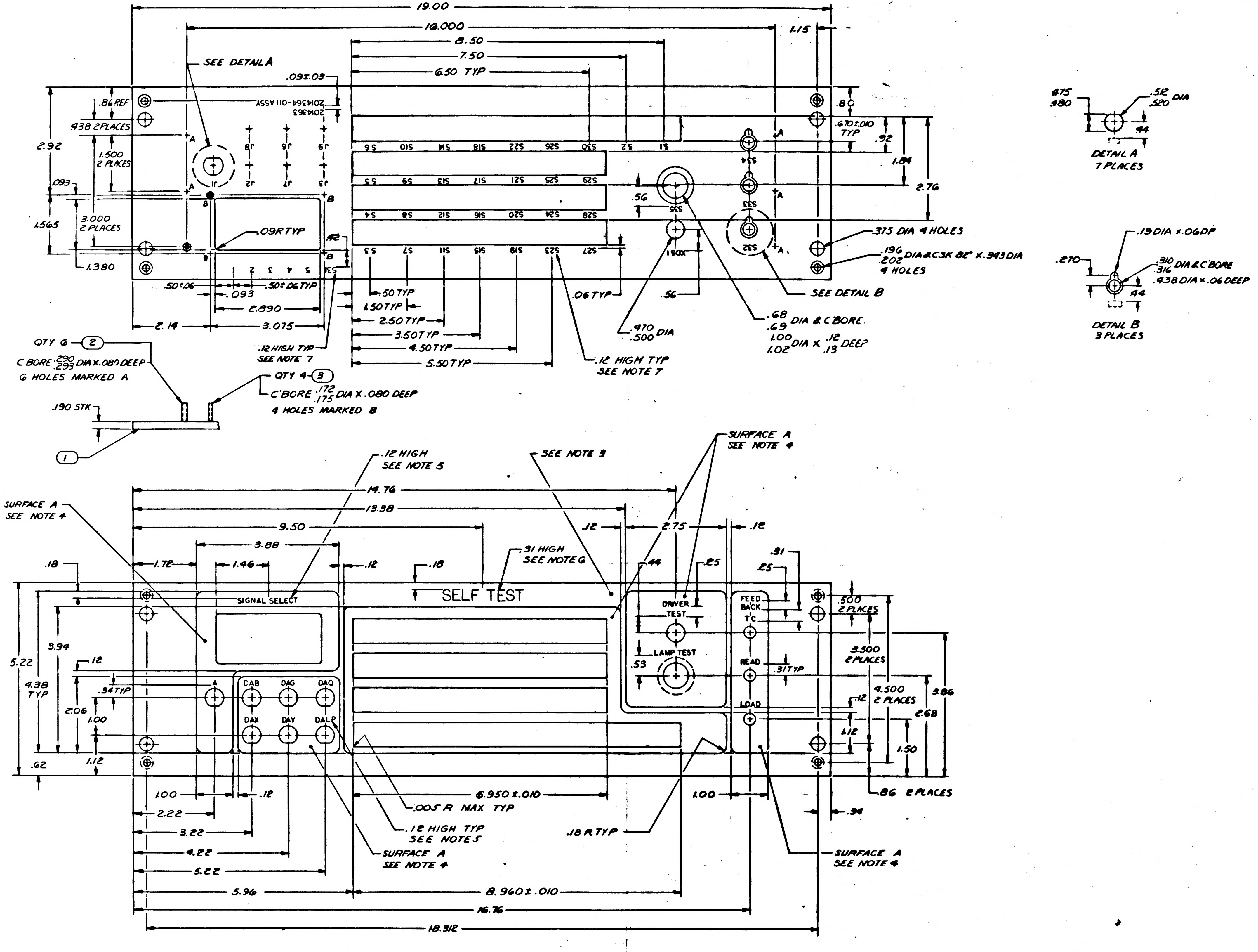
FRONT PANEL, SELF TEST
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014363
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014363 | –

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167	9/65	
–	CLASS A RELEASED PER TDRR 25473		



19.00
16.000
8.50
7.50
6.50 TYP
1.15
SEE DETAIL A
.093±.03
2014364-011 ASSY
2014363
.86 REF
.438 2 PLACES
2.92
1.500 2 PLACES
.093
3.000 2 PLACES
1.565
1.380
.09R TYP
.42
.50±.06
.093
.50±.06 TYP
2.890
2.14
3.075
.12 HIGH TYP SEE NOTE 7
.50 TYP
1.50 TYP
2.50 TYP
3.50 TYP
4.50 TYP
5.50 TYP
.06 TYP
.12 HIGH TYP SEE NOTE 7
.56
.470 .500 DIA
.68 .69 DIA & C'BORE
1.00 1.02 DIA x .12 .13 DEEP
SEE DETAIL B
.375 DIA 4 HOLES
.196 .202 DIA & CSK 82° x .343 DIA 4 HOLES
.670±.010 TYP
.92
1.84
2.76
.80
QTY 6 ②
C BORE .290 .293 DIA x .080 DEEP 6 HOLES MARKED A
QTY 4 ③
C'BORE .172 .175 DIA x .080 DEEP 4 HOLES MARKED B
.190 STK
①
.475 .480
.512 .520 DIA
.44
DETAIL A 7 PLACES
.19 DIA x .06 DP
.270
.310 .316 DIA & C'BORE
.438 DIA x .06 DEEP
.44
DETAIL B 3 PLACES
.12 HIGH SEE NOTE 5
SEE NOTE 3
SURFACE A SEE NOTE 4
14.76
13.38
9.50
3.88
1.72
1.46
.12
.18
.18
.31 HIGH SEE NOTE 6
SELF TEST
SIGNAL SELECT
DRIVER TEST
LAMP TEST
FEED BACK
T/C
READ
LOAD
A
DAB
DAG
DAQ
DAX
DAY
DALP
.12
2.75
.12
.44
.25
.91
.25
.500 2 PLACES
3.500 2 PLACES
4.500 2 PLACES
3.86
2.68
1.50
1.12
.12
.31 TYP
.53
5.22
4.38 TYP
3.94
2.06
1.00
.34 TYP
.12
.62
1.12
1.00
.12
2.22
3.22
4.22
5.22
5.96
6.950±.010
.005 R MAX TYP
.12 HIGH TYP SEE NOTE 5
SURFACE A SEE NOTE 4
.18 R TYP
8.960±.010
16.76
18.312
1.00
.34
.86 2 PLACES
SURFACE A SEE NOTE 4

NOTES
1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. PAINT FRONT & EDGES TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26440 PER MIL-F-14072 P513 TYPE I
4. PAINT TWO (2) COATS TT-E-529 CLASS B FED-STD-595 COLOR NO. 26251 PER MIL-F-14072 P513 TYPE I SURFACE A
5. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. SILK SCREEN NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
7. MARK (REAR OF PANEL) NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006271-10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	1006951-002	STUD	3
6	1006951-007	STUD	2
1	2014363-001	PANEL, FRONT	1

LIST OF MATERIALS

2014364	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ± 1°
DO NOT SCALE DRAWING
MATERIAL
AL 6061-T6 PER QQ-A-250/11

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 3 AUG 65
CHECKED 3 AUG 65
APPROVAL 8/13/65
APPROVAL 21 AUG 65
APPROVAL 9/1/65
NASA APPROVAL C METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

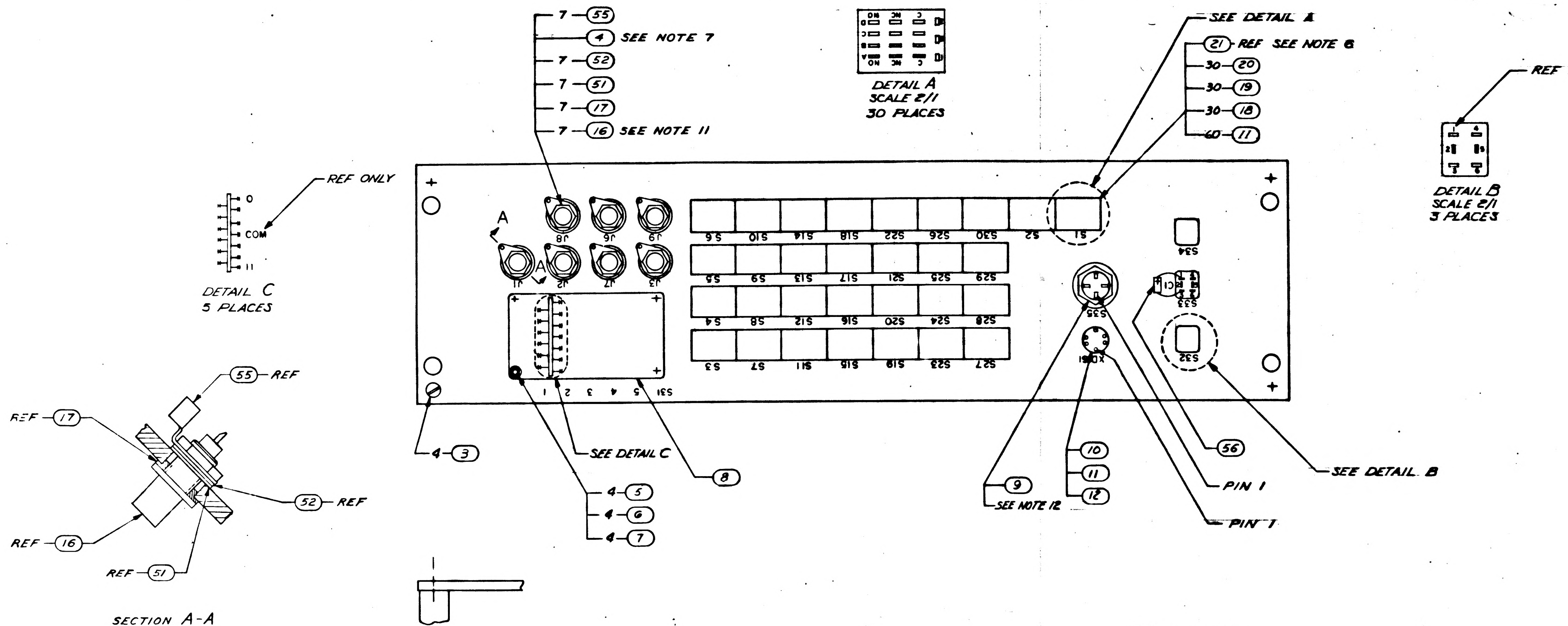
FRONT PANEL, SELF TEST
COMPUTER TEST SET

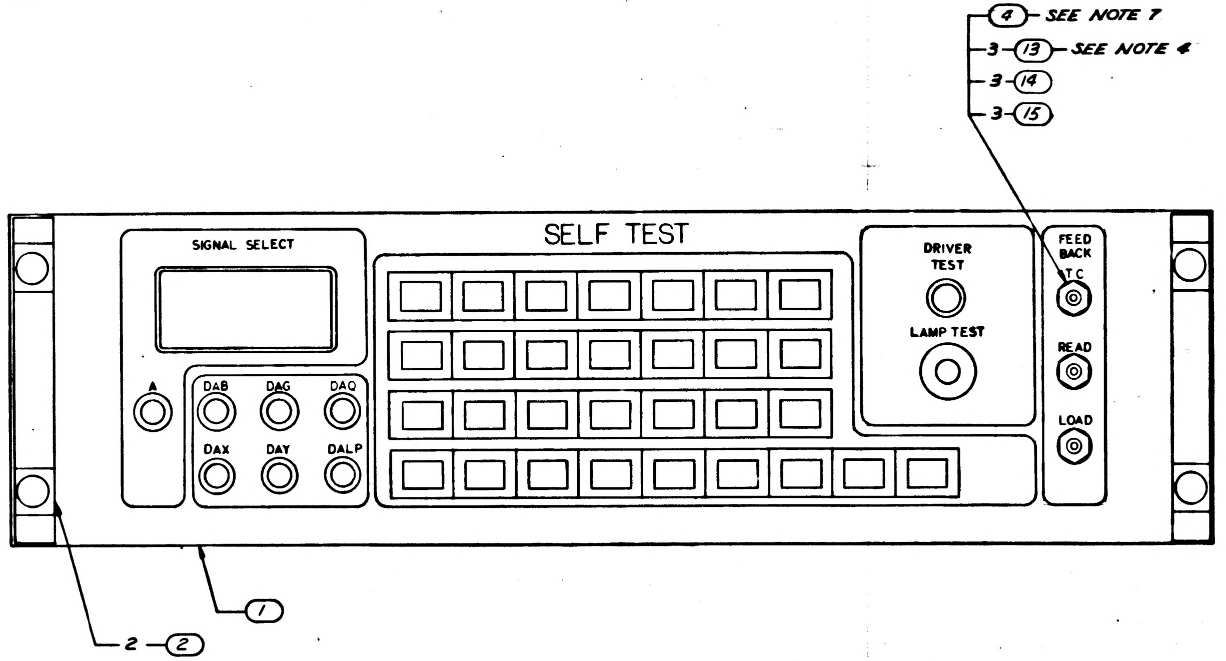
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014363
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014363 | –

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	[illegible]	
1	CHANGED PER CCA R25391 DR CHK APPD	[illegible]	
-	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25630 DR CHK APPD	[illegible]	
B	CHANGED PER CCA R25791 AND CLASS A RELEASED PER DRR 25472	[illegible]	


7 (55)
4 (4) SEE NOTE 7
7 (52)
7 (51)
7 (17)
7 (16) SEE NOTE 11
DETAIL A
SCALE 2/1
30 PLACES
NO NC C
SEE DETAIL A
(21) REF SEE NOTE 6
30 (20)
30 (19)
30 (18)
60 (11)
REF ONLY
DETAIL B
SCALE 2/1
3 PLACES
REF ONLY
O
COM
11
DETAIL C
5 PLACES
A
J1 J2 J3 J4 J5 J6 J7 J8 J9
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22 S23 S24 S25 S26 S27 S28 S29 S30 S31 S32 S33 S34 S35
C1
XDS1
1 2 3 4 5
(55) REF
REF (17)
(52) REF
REF (16)
REF (51)
SECTION A-A
SCALE 2/1
4 (3)
SEE DETAIL C
(8)
4 (5)
4 (6)
4 (7)
(9)
SEE NOTE 12
(10)
(11)
(12)
PIN 1
PIN 1
(56)
SEE DETAIL B


(4) SEE NOTE 7
3 (13) SEE NOTE 4
3 (14)
3 (15)
SELF TEST
SIGNAL SELECT
A
DAB
DAG
DAQ
DAX
DAY
DALP
DRIVER TEST
LAMP TEST
FEED BACK
T C
READ
LOAD
(1)
2 (2)

LENS INSTALLATION			
FIND NO.	REF DES	FIND NO.	REF DES
21	S1	36	S16
22	S2	37	S17
23	S3	38	S18
24	S4	39	S19
25	S5	40	S20
26	S6	41	S21
27	S7	42	S22
28	S8	43	S23
29	S9	44	S24
30	S10	45	S25
31	S11	46	S26
32	S12	47	S27
33	S13	48	S28
34	S14	49	S29
35	S15	50	S30

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	2014157	SCHEMATIC	REF
	2014494	LEAD ELECTRICAL	REF
1	CS13AF010K	CAPACITOR (MIL-C-26655/2)	56
7	1006950-1	TERMINAL	55
AR	1006776-21	SLEEVING	54
* 20.0	SEE NOTE 9	WIRE, ELECTRICAL	53
7	AN960 C616L	WASHER, FLAT	52
7	1006982-10	WASHER, NYLON	51
1	1006405-191	SW, PUSH, LIGHTED LENS, MARKED	50
1	-176		49
1	-169		48
1	-162		47
1	-175		46
1	-168		45
1	-182		44
1	-161		43
1	-181		42
1	-174		41
1	-167		40
1	-160		39
1	-180		38
1	-173		37
1	-166		36
1	-159		35
1	-179		34
1	-172		33
1	-165		32
1	-158		31
1	-178		30
1	-171		29
1	-164		28
1	-157		27
1	-177		26
1	-170		25
1	-163		24
1	-156		23
1	-155		22
1	-154	LENS, MARKED	21
30	-003	DISPLAY SCREEN	20
30	-002	COLOR FILTER	19
30	1006405-001	SW, PUSH, LIGHTED, BASIC UNIT	18
7	1020376	INSULATING WASHER	17
7	MS35179-1094A	CONNECTOR, RECPT ELEC	16
3	1006917-3	NUT, ADAPTER	15
3	AN960-C516L	WASHER, FLAT	14
3	MS24656-23	SWITCH, TOGGLE	13
1	1006401-003	LENS	12
61	1006407-002	LAMP	11
1	1006481	LAMPHOLDER	10
1	MS25089-3C	SWITCH	9
1	1006428-002	SWITCH	8
4	MS35649-44	NUT, HEX	7
4	MS35337-78	WASHER, LOCK	6
4	MS15795-803	WASHER, FLAT	5
AR	MIL-S-22473 GRADE HV	SEALING COMPOUND	4
4	MS51959-45	SCREW, FLAT HD	3
2	1014215-2	HANDLE ASSY	2
1	2014363	PANEL, FRONT	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SOLDER PER ND1002071
3. AR DENOTES AS REQUIRED
4. LOCK WASHER AND NUT OF FIND NO. 13 ARE NOT USED
5. FABRICATE PER ND1002032
6. SEE LENS INSTALLATION CHART FOR INSTALLATION OF FIND NUMBERS 21 THRU 50
7. ASSEMBLE FIND NUMBERS 3, 13, 14, 15, & 16 USING FIND NO. 4
8. MARK IDENTIFICATION PER ND 1002019
9. QQ-W-343, TYPE S, AWG NO. 22, SOFT, COATED & FOR FIND NO. 53
~~10. MIL-I-631 TYPE F, FORM U, GRADE A, CLASS 1, CATEGORY 2, COLOR CLEAR, AWG SIZE NO. 22 FOR FIND NO. 54~~
11. LOCKWASHER OF FIND NO. 16 IS NOT USED
12. APPLY FIND 4 TO INTERNAL THREADS OF FIND 9

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-[illegible]
DRAWN DATE 1 [illegible] 65
CHECKED EU 6AUG65
APPROVAL 21 AUG 65
APPROVAL 21 AUG 65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

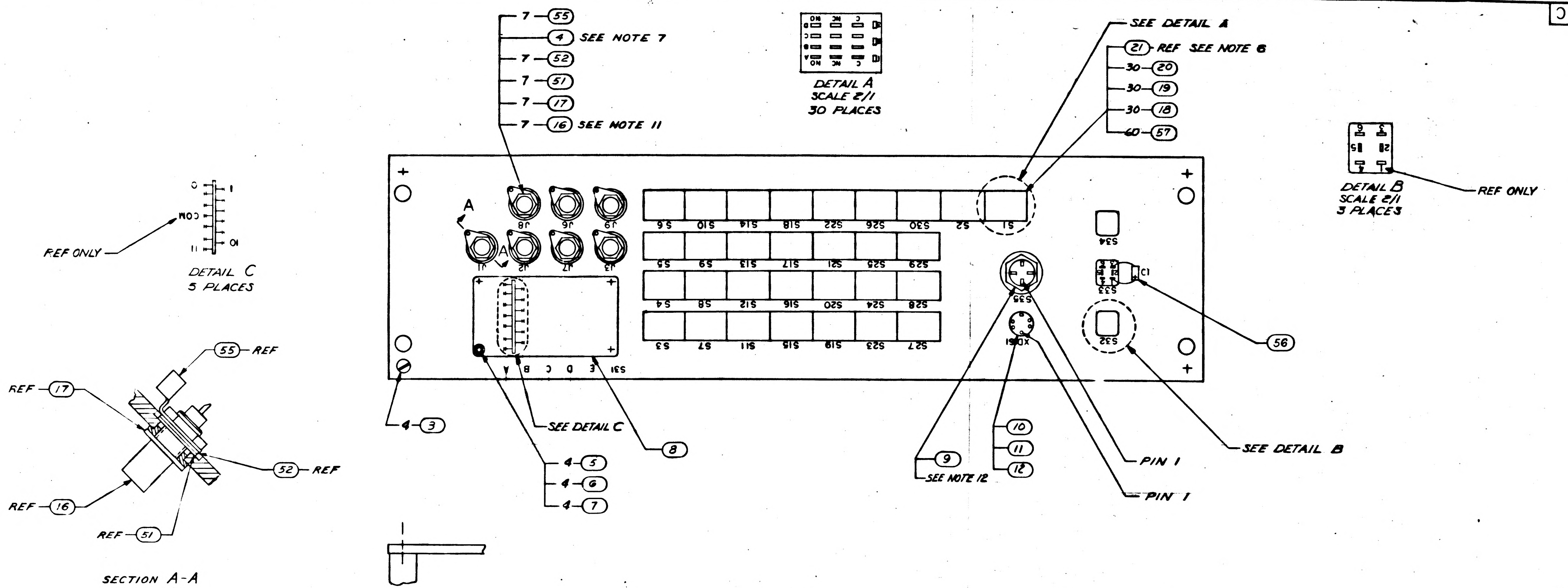
FRONT PANEL ASSY
SELF TEST
COMPUTER TEST SET

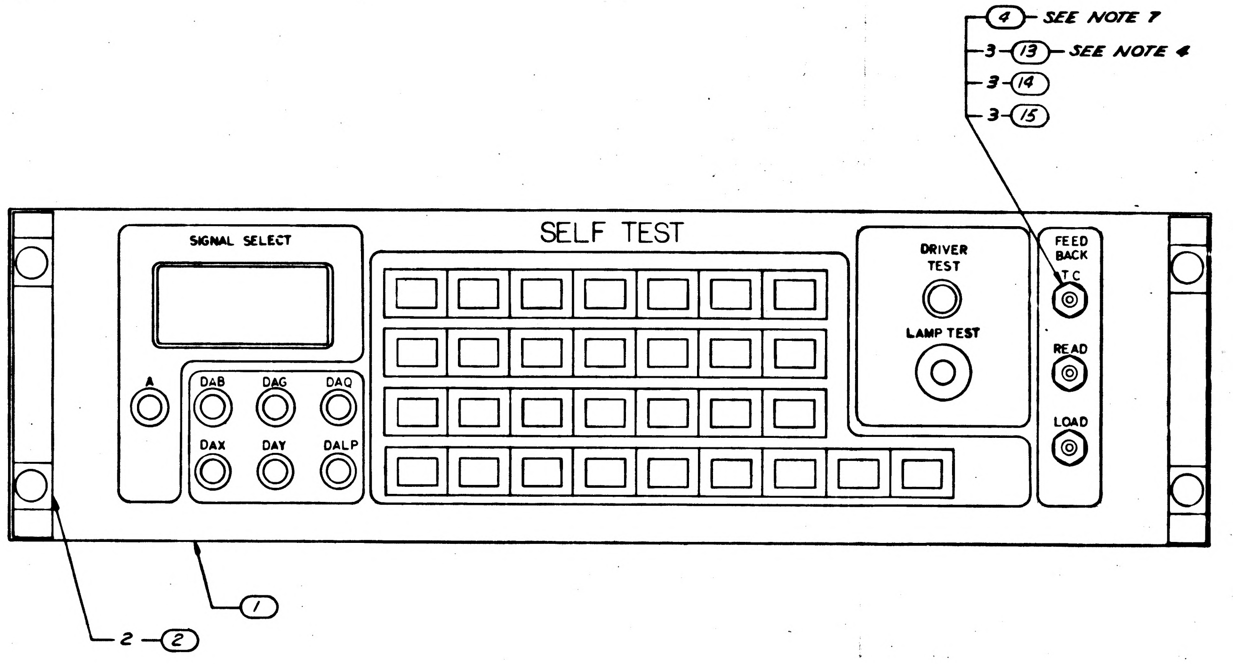
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014364
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014364

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167		
1	CHANGED PER CCA R25331 DR [illegible] CHK [illegible] APPD [illegible]		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25620 DR [illegible] CHK [illegible] APPD [illegible]		
3	CHANGED PER CCA R25761 AND CLASS A RELEASED PER TDRR 25472		
C	CHANGED PER TDRR 26664 DR [illegible] CHK [illegible] APPD [illegible]		


7 — 55
4 SEE NOTE 7
7 — 52
7 — 51
7 — 17
7 — 16 SEE NOTE 11
DETAIL A
SCALE 2/1
30 PLACES
SEE DETAIL A
21 REF SEE NOTE 6
30 — 20
30 — 19
30 — 18
60 — 57
DETAIL B
SCALE 2/1
3 PLACES
REF ONLY
REF ONLY
DETAIL C
5 PLACES
COM
A
A
J8
J6
J9
J1
J2
J7
J3
S6 S10 S14 S18 S22 S26 S30 S2 S1
S5 S9 S13 S17 S21 S25 S29
S4 S8 S12 S16 S20 S24 S28
S3 S7 S11 S15 S19 S23 S27
S34
S35
S33
C1
XDS1
S32
A B C D E S31
4 — 3
SEE DETAIL C
8
4 — 5
4 — 6
4 — 7
9
SEE NOTE 12
10
11
12
PIN 1
PIN 1
SEE DETAIL B
56
55 REF
REF 17
52 REF
REF 16
REF 51
SECTION A-A
SCALE 2/1


4 SEE NOTE 7
3 — 13 SEE NOTE 4
3 — 14
3 — 15
SELF TEST
SIGNAL SELECT
DRIVER TEST
LAMP TEST
FEED BACK
T.C
READ
LOAD
A
DAB
DAG
DAQ
DAX
DAY
DALP
2 — 2
1

LENS INSTALLATION			
FIND NO.	REF DES	FIND NO.	REF DES
21	S1	36	S16
22	S2	37	S17
23	S3	38	S18
24	S4	39	S19
25	S5	40	S20
26	S6	41	S21
27	S7	42	S22
28	S8	43	S23
29	S9	44	S24
30	S10	45	S25
31	S11	46	S26
32	S12	47	S27
33	S13	48	S28
34	S14	49	S29
35	S15	50	S30

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	.5	MIL-W-16878/4 E22	WIRE, ELEC, 22 AWG WHT	58
	☒	2014157	SCHEMATIC	REF
	☒	2014494	LEAD ELECTRICAL	REF
	60	1006407-003	LAMP	57
	1	CS13AF010K	CAPACITOR (MIL-C-26655/2)	56
	7	1006950-1	TERMINAL	55
	AR	1006776-21	SLEEVING	54
*	20.0	SEE NOTE 9	WIRE, ELECTRICAL	53
	7	AN960 C616L	WASHER, FLAT	52
	7	1006982-10	WASHER, NYLON	51
	1	1006405-191	SW, PUSH, LIGHTED LENS, MARKED	50
	1	-176		49
	1	-169		48
	1	-162		47
	1	-175		46
	1	-168		45
	1	-182		44
	1	-161		43
	1	-181		42
	1	-174		41
	1	-167		40
	1	-160		39
	1	-180		38
	1	-173		37
	1	-166		36
	1	-159		35
	1	-179		34
	1	-172		33
	1	-165		32
	1	-158		31
	1	-178		30
	1	-171		29
	1	-164		28
	1	-157		27
	1	-177		26
	1	-170		25
	1	-163		24
	1	-156		23
	1	-155		22
	1	-154	LENS, MARKED	21
	30	-003	DISPLAY SCREEN	20
	30	-002	COLOR FILTER	19
	30	1006405-001	SW, PUSH, LIGHTED, BASIC UNIT	18
	7	1020376	INSULATING WASHER	17
	7	MS35179-1094A	CONNECTOR RECPT ELEC	16
	3	1006917-3	NUT, ADAPTER	15
	3	AN960-C516L	WASHER, FLAT	14
	3	MS24656-23	SWITCH, TOGGLE	13
	1	1006401-003	LENS	12
	1	1006407-002	LAMP	11
	1	1006481	LAMPHOLDER	10
	1	MS25089-3C	SWITCH	9
	1	1006428-002	SWITCH	8
	4	MS35649-44	NUT, HEX	7
	4	MS35337-78	WASHER, LOCK	6
	4	MS15795-803	WASHER, FLAT	5
	AR	MIL-S-22473 GRADE HV	SEALING COMPOUND	4
	4	MS51959-45	SCREW, FLAT HD	3
	2	1014215-2	HANDLE ASSY	2
	1	2014363	PANEL, FRONT	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SOLDER PER ND1002071
3. AR DENOTES AS REQUIRED
4. LOCK WASHER AND NUT OF FIND NO. 13 ARE NOT USED
~~5. FABRICATE PER ND1002032~~
6. SEE LENS INSTALLATION CHART FOR INSTALLATION OF FIND NUMBERS 21 THRU 50
7. ASSEMBLE FIND NUMBERS 3, 13, 14, 15, & 16 USING FIND NO. 4
~~8. MARK IDENTIFICATION PER ND 1002019~~
9. QQ-W-343, TYPE S, AWG NO. 22, SOFT, COATED & FOR FIND NO. 53
~~10. MIL-I-631 TYPE F, FORM U, GRADE A, CLASS 1, CATAGORY 1, COLOR CLEAR, AWG SIZE NO. 22 FOR FIND NO. 54~~
11. LOCKWASHER OF FIND NO. 16 IS NOT USED
12. APPLY FIND 4 TO INTERNAL THREADS OF FIND 9

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN [illegible] DATE 11 Jul 65
CHECKED EU 6 AUG 65
APPROVAL [illegible] 21 AUG 65
APPROVAL [illegible] 21 AUG 65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

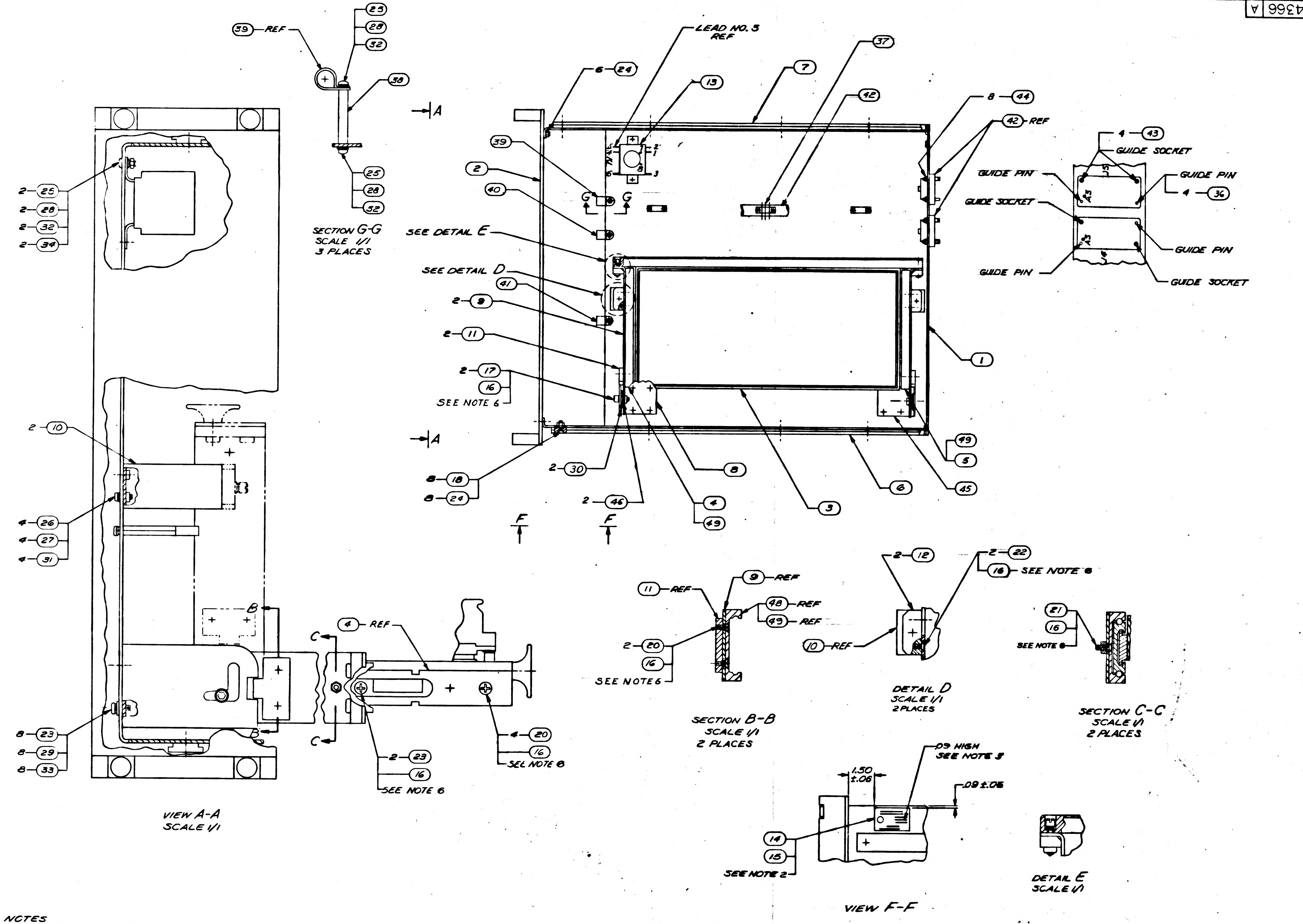
FRONT PANEL ASSY
SELF TEST
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014364
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014366 A

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/13/65	
1	CHANGED PER CCA R25534 DR CHK APPD	15 Nov 65	
-	CLASS 3 CHANGED PER CCA R25562		
A	CHANGED PER CCA R25594 AND CLASS A RELEASED PER TDRR 25472	1/ /66	



59 REF
23
28
32
38
25
28
32
SECTION G-G
SCALE 1/1
3 PLACES
A
A
6 24
LEAD NO. 5 REF
13
7
37
42
8 44
42 REF
39
2
40
G
G
SEE DETAIL E
SEE DETAIL D
41
2 9
2 11
2 17
16
SEE NOTE 6
1
8 18
8 24
2 30
2 46
8
4
49
3
6
49
5
45
F
F
4 43
GUIDE SOCKET
GUIDE PIN
4 36
GUIDE PIN
GUIDE SOCKET
GUIDE PIN
GUIDE PIN
GUIDE SOCKET
2 25
2 28
2 32
2 34
2 10
4 26
4 27
4 31
B
B
8 23
8 29
8 33
4 REF
C
C
2 23
16
SEE NOTE 6
4 20
16
SEE NOTE 6
VIEW A-A
SCALE 1/1
11 REF
9 REF
48 REF
49 REF
2 20
16
SEE NOTE 6
SECTION B-B
SCALE 1/1
2 PLACES
2 12
2 22
16 SEE NOTE 6
10 REF
DETAIL D
SCALE 1/1
2 PLACES
21
16
SEE NOTE 6
SECTION C-C
SCALE 1/1
2 PLACES
.09 HIGH
SEE NOTE 3
1.50 ±.06
.09 ±.06
14
15
SEE NOTE 2
VIEW F-F
DETAIL E
SCALE 1/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. BOND FIND NO. 14 TO FIND NO. 1 USING FIND NO. 15
3. SERIALIZE PER ND1002023
4. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 37
5. SOLDER PER ND1002071
6. ASSEMBLE FIND NO 17, 20, 21, 22, 23 USING FIND NO. 16
7. STRIP .50±.06 & TIN PER ND 1002071

JUMPER CHART

COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
C1	K1-4	K1-8	47	22	

● DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014157	SCHEMATIC	REF
1	1006988-4	SLIDE	49
1	1006988-3	SLIDE	48
* 0.4	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHT	47
2	MS15795-809	WASHER, FLAT	46
1	2016340	BRACKET, R.H.	45
8	1006671-003	NUT, STOP	44
4	1006671-004	GUIDE SOCKET	43
1	2014495-011	HARNESS	42
1	MS21333-69	CLAMP	41
1	MS21333-70	CLAMP	40
1	MS21333-71	CLAMP	39
3	1006480-011	POST	38
AR	1006458-004	LACING	37
4	1006671-002	GUIDE PIN	36
~~4~~	[illegible]	~~NUT, HEX~~	~~35~~
2	MS35649-64	NUT, HEX	34
8	MS15795-807	WASHER, FLAT	33
8	MS15795-806	WASHER, FLAT	32
4	MS15795-804	WASHER, FLAT	31
2	1006982-9	WASHER, FLAT, NYLON	30
8	MS35338-80	WASHER, LOCK SPLIT	29
8	MS35338-79	WASHER, LOCK SPLIT	28
4	MS35338-78	WASHER, LOCK SPLIT	27
4	MS51957-15	SCREW, PAN HD, CROSS RECESSED	26
3	MS51957-29	SCREW, PAN HD, CROSS RECESSED	25
14	MS21045-C08	NUT, SELF LOCKING	24
10	MS51957-45	SCREW, PAN HD, CROSS RECESSED	23
4	MS51959-13	SCREW, FLAT HD, CROSS RECESSED	22
2	MS51959-43	SCREW, FLAT HD, CROSS RECESSED	21
8	MS51959-45	SCREW, FLAT HD, CROSS RECESSED	20
~~4~~	~~MS51959-47~~	~~SCREW, FLAT HD, CROSS RECESSED~~	~~19~~
8	MS51959-46	SCREW, FLAT HD, CROSS RECESSED	18
2	2016303	SCREW, SHOULDER	17
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	16
AR	MIL-A-5092 TYPE II	CEMENT	15
1	1004260-240	NAMEPLATE	14
1	1006234	RELAY, ARMATURE DPDT	13
2	1014013	RETAINER, CAPTIVE SCREW	12
2	2016342	BLOCK FASTENER ASSY	11
2	2014368	BRACKET, SUPPORT	10
2	2014370	BRACKET ASSY	9
1	2016341	BRACKET, LH	8
1	1006930-16	SLIDE	7
1	1006930-15	SLIDE	6
1	1006988-1	SLIDE	5
1	1006988-2	SLIDE	4
1	2014362-011	LOGIC PLATE ASSY	3
1	2014364-011	FRONT PANEL ASSY	2
1	2014365	CHASSIS	1
-011	LIST OF MATERIALS		

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 15 Jul 65
CHECKED E. Urban 6 AUG 65
APPROVAL 8/13/65
APPROVAL 8/13/65
APPROVAL 9/13/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SELF TEST ASSEMBLY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014366
SCALE 1/2
WT
SHEET 1 OF 1

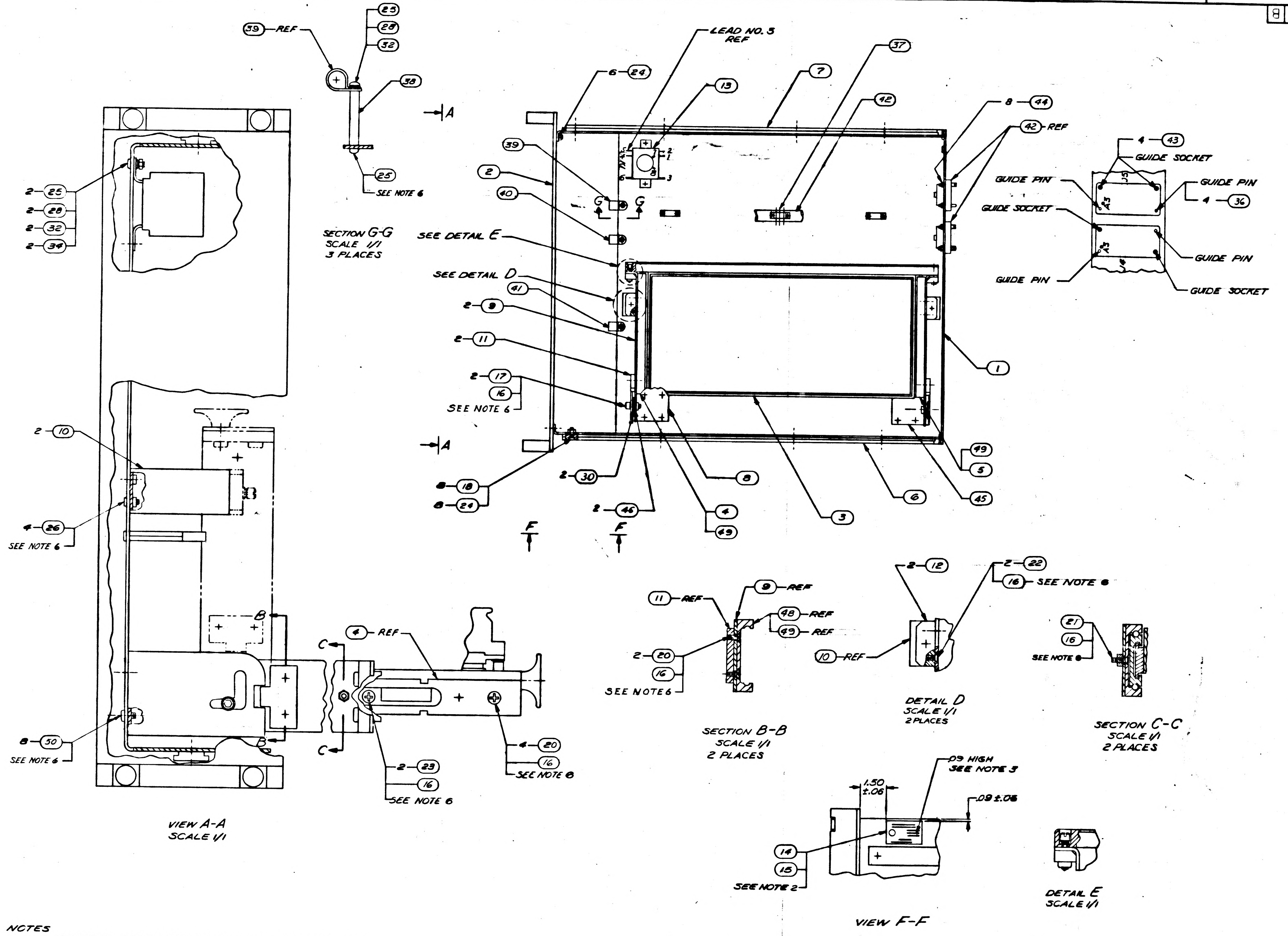
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014366 A

2014366 A

2014366 B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25167	9/13/65	
1	CHANGED PER CCA R25534 DR [illegible] CHK [illegible] APPD [illegible]	15 Nov 65	
-	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25544 AND CLASS A RELEASED PER TDRR 25472	11/9/66	
B	CHANGED PER TDRR 26906 DR J.P. Bonand CHK [illegible] APPD P R D	7/2/66	



39 REF
25
28
32
25
SEE NOTE 6
38
A
SECTION G-G
SCALE 1/1
3 PLACES
2 25
2 28
2 32
2 34
LEAD NO. 3 REF
6 24
13
7
37
42
8 44
42 REF
4 43
GUIDE SOCKET
GUIDE PIN
GUIDE PIN
4 36
GUIDE SOCKET
GUIDE PIN
GUIDE PIN
GUIDE SOCKET
39
2
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SEE DETAIL E
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SEE NOTE 6
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SEE NOTE 6
B
C
4 REF
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8 50
SEE NOTE 6
B
2 23
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SEE NOTE 6
4 20
16
SEE NOTE 6
VIEW A-A
SCALE 1/1
11 REF
9 REF
48 REF
49 REF
2 20
16
SEE NOTE 6
SECTION B-B
SCALE 1/1
2 PLACES
2 12
10 REF
DETAIL D
SCALE 1/1
2 PLACES
2 22
16 SEE NOTE 6
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16
SEE NOTE 6
SECTION C-C
SCALE 1/1
2 PLACES
1.50 ±.06
.09 HIGH
SEE NOTE 5
.09 ±.06
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15
SEE NOTE 2
VIEW F-F
DETAIL E
SCALE 1/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. BOND FIND NO. 14 TO FIND NO. 1 USING FIND NO. 15
3. SERIALIZE PER ND1002023
4. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 37
5. SOLDER PER ND1002071
6. ASSEMBLE FIND NOS. 17, 20, 21, 22, 23, 25, 26 & 50 USING FIND NO. 16
7. STRIP .50 ±.06 & TIN PER ND 1002071

JUMPER CHART					
COND IDENT	FROM	TO	FIND NO.	AWG	REMARKS
C1	K1-4	K1-8	47	22	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014157	SCHEMATIC	REF
8	MS51957-42	SCREW, PAN HD, CROSS RECESSED	50
1	1006988-4	SLIDE	49
1	1006988-3	SLIDE	48
* 0.4	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHT	47
2	MS15795-809	WASHER, FLAT	46
1	2016340	BRACKET, R.H.	45
8	1006671-003	NUT, STOP	44
4	1006671-004	GUIDE SOCKET	43
1	2014495-011	HARNESS	42
1	MS21333-69	CLAMP	41
1	MS21333-70	CLAMP	40
1	MS21333-71	CLAMP	39
3	1006480-011	POST	38
AR	1006458-004	LACING	37
4	1006671-002	GUIDE PIN	36
~~4~~	[illegible]	~~NUT, HEX~~	~~35~~
2	MS35649-64	NUT, HEX	34
~~8~~	~~MS15795-807~~	~~WASHER, FLAT~~	~~33~~
5	MS15795-806	WASHER, FLAT	32
~~4~~	[illegible]	~~WASHER, FLAT~~	~~31~~
2	1006982-9	WASHER, FLAT, NYLON	30
~~8~~	~~MS35338-80~~	~~WASHER, LOCK SPLIT~~	~~29~~
5	MS35338-79	WASHER, LOCK SPLIT	28
~~4~~	~~MS35338-78~~	~~WASHER, LOCK SPLIT~~	~~27~~
4	MS51957-15	SCREW, PAN HD, CROSS RECESSED	26
3	MS51957-29	SCREW, PAN HD, CROSS RECESSED	25
14	MS21045-C08	NUT, SELF LOCKING	24
2	MS51957-45	SCREW, PAN HD, CROSS RECESSED	23
4	MS51959-13	SCREW, FLAT HD, CROSS RECESSED	22
2	MS51959-43	SCREW, FLAT HD, CROSS RECESSED	21
8	MS51959-45	SCREW, FLAT HD, CROSS RECESSED	20
~~4~~	~~MS51959-47~~	~~SCREW, FLAT HD, CROSS RECESSED~~	~~19~~
8	MS51959-46	SCREW, FLAT HD, CROSS RECESSED	18
2	2016303	SCREW, SHOULDER	17
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	16
AR	MIL-A-5092 TYPE II	CEMENT	15
1	1004260-240	NAMEPLATE	14
1	1006234	RELAY, ARMATURE DPDT	13
2	1014013	RETAINER, CAPTIVE SCREW	12
2	2016342	BLOCK FASTENER ASSY	11
2	2014368	BRACKET, SUPPORT	10
2	2014370	BRACKET ASSY	9
1	2016341	BRACKET, LH	8
1	1006930-16	SLIDE	7
1	1006930-15	SLIDE	6
1	1006988-1	SLIDE	5
1	1006988-2	SLIDE	4
1	2014362-011	LOGIC PLATE ASSY	3
1	2014364-011	FRONT PANEL ASSY	2
1	2014365	CHASSIS	1
-011	LIST OF MATERIALS		

2014366 D

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014042	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 15 Jul 65
CHECKED [illegible] 6 AUG 65
APPROVAL [illegible] 8/13/65
APPROVAL [illegible] 9/13/65
APPROVAL [illegible] 9/13/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SELF TEST ASSEMBLY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014366
SCALE 1/2
WT
SHEET 1 OF 1

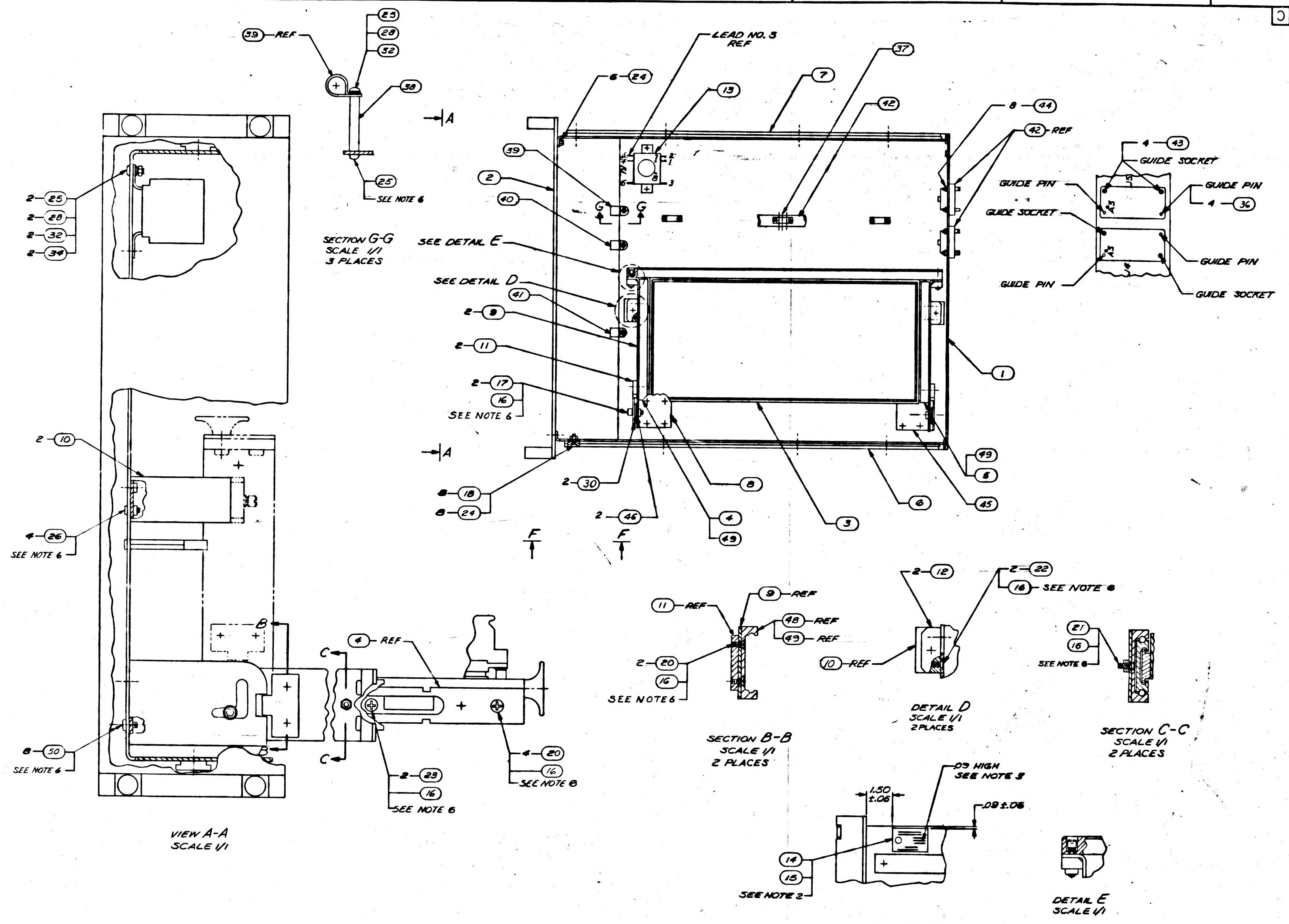
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014366 B

2014366 C

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25167	9/13/65	
1	CHANGED PER CCA R25534 DR CHK APPD	15 Nov 65	
-	CLASS 3 CHANGED PER CCA R25502		
A	CHANGED PER CCA R25544 AND CLASS A RELEASED PER TDRR 25872	1/4/66	
B	CHANGED PER TDRR 26304 DR J.P. CHK APPD	3/19/66	
C	CHANGED PER TDRR 26305 DR CHK APPD	3/7/66	



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. BOND FIND NO. 14 TO FIND NO. 1 USING FIND NO. 15
3. SERIALIZE PER ND1002023
4. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 37
5. SOLDER PER ND1002071
6. ASSEMBLE FIND NOS. 17, 20, 21, 22, 23, 25, 26 & 50 USING FIND NO. 16
~~7. STRIP .50 ± .06 & TIN PER ND1002071~~

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014157	SCHEMATIC	REF
8	MS51957-42	SCREW, PAN HD, CROSS RECESSED	50
1	1006988-4	SLIDE	49
1	1006988-3	SLIDE	48
~~0.4~~	~~MIL-W-16878/4 E22~~	~~WIRE, ELECTRICAL WHT~~	~~47~~
2	MS15795-809	WASHER, FLAT	46
1	2016340	BRACKET, RH.	45
8	1006671-003	NUT, STOP	44
4	1006671-004	GUIDE SOCKET	43
1	2014495-011	HARNESS	42
1	MS21333-69	CLAMP	41
1	MS21333-70	CLAMP	40
1	MS21333-71	CLAMP	39
3	1006480-011	POST	38
AR	1006458-004	LACING	37
4	1006671-002	GUIDE PIN	36
~~4~~	~~[illegible]~~	~~NUT, HEX~~	~~35~~
2	MS35649-64	NUT, HEX	34
~~8~~	~~MS15795-807~~	~~WASHER, FLAT~~	~~33~~
5	MS15795-806	WASHER, FLAT	32
~~4~~	~~MS15795-804~~	~~WASHER, FLAT~~	~~31~~
2	1006982-9	WASHER, FLAT, NYLON	30
~~8~~	~~MS35338-80~~	~~WASHER, LOCK SPLIT~~	~~29~~
5	MS35338-79	WASHER, LOCK SPLIT	28
~~4~~	~~MS35338-78~~	~~WASHER, LOCK SPLIT~~	~~27~~
4	MS51957-15	SCREW, PAN HD, CROSS RECESSED	26
3	MS51957-29	SCREW, PAN HD, CROSS RECESSED	25
14	MS21045-C08	NUT, SELF LOCKING	24
2	MS51957-45	SCREW, PAN HD, CROSS RECESSED	23
4	MS51959-13	SCREW, FLAT HD, CROSS RECESSED	22
2	MS51959-43	SCREW, FLAT HD, CROSS RECESSED	21
8	MS51959-45	SCREW, FLAT HD, CROSS RECESSED	20
~~4~~	~~MS51959-47~~	~~SCREW, FLAT HD, CROSS RECESSED~~	~~19~~
8	MS51959-46	SCREW, FLAT HD, CROSS RECESSED	18
2	2016303	SCREW, SHOULDER	17
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	16
AR	MIL-A-5092 TYPE II	CEMENT	15
1	1004260-240	NAMEPLATE	14
1	1006234	RELAY, ARMATURE DPDT	13
2	1014013	RETAINER, CAPTIVE SCREW	12
2	2016342	BLOCK FASTENER ASSY	11
2	2014368	BRACKET, SUPPORT	10
2	2014370	BRACKET ASSY	9
1	2016341	BRACKET, LH	8
1	1006930-16	SLIDE	7
1	1006930-15	SLIDE	6
1	1006988-1	SLIDE	5
1	1006988-2	SLIDE	4
1	2014362-011	LOGIC PLATE ASSY	3
1	2014364-011	FRONT PANEL ASSY	2
1	2014365	CHASSIS	1
-011	LIST OF MATERIALS		

2014366 C

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN D. Belanger DATE 15 Jun 65
CHECKED 6 AUG 65
APPROVAL 8/13/65
APPROVAL 8/13/65
APPROVAL 9/13/65
NASA APPROVAL C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SELF TEST ASSEMBLY
COMPUTER TEST SET

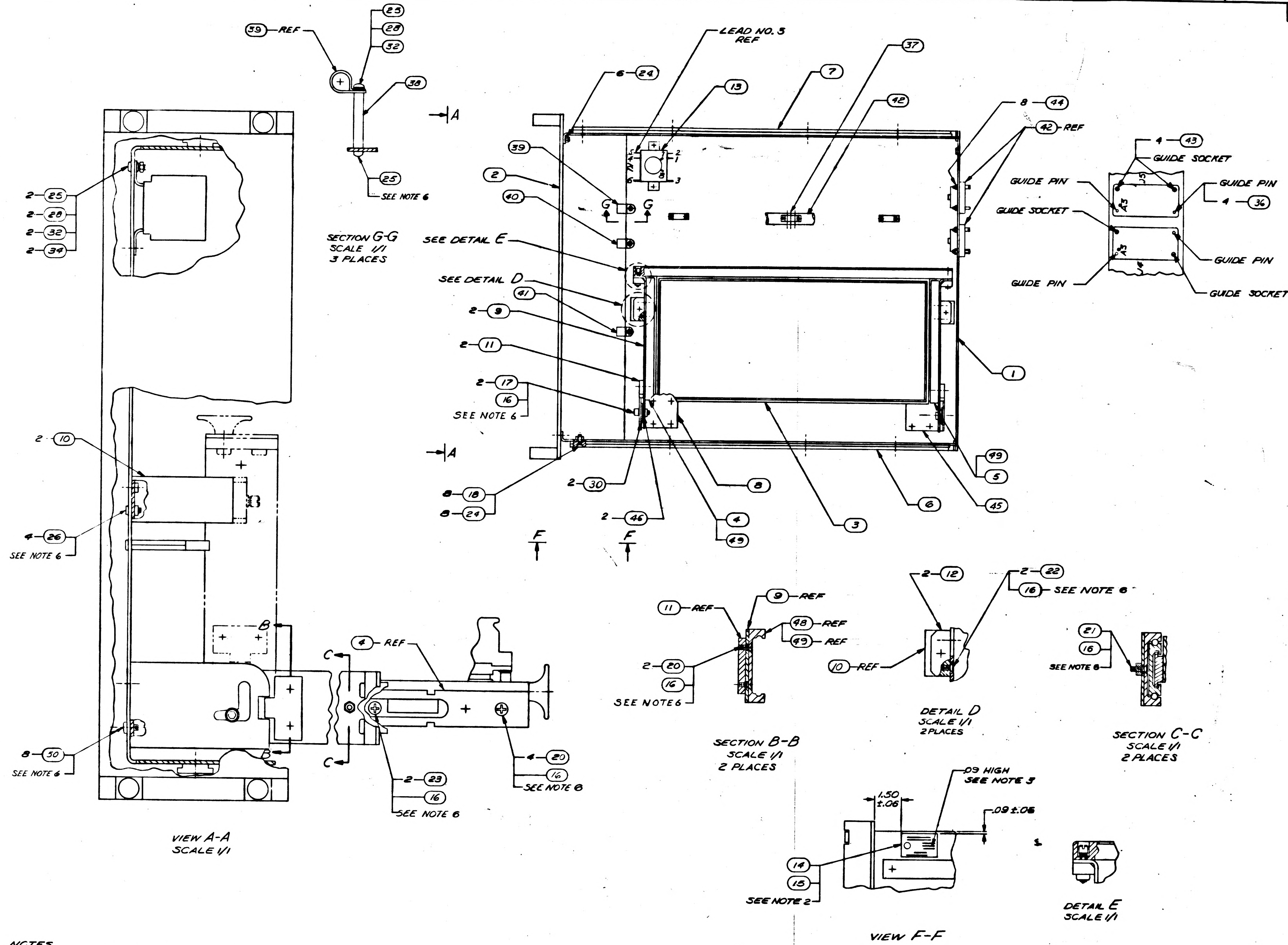
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014366
SCALE 1/2 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014366 D

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/13/65	[illegible]
1	CHANGED PER CCA R25534 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
-	CLASS 3 CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25544 AND CLASS A RELEASED PER TDRR 25472	1/4/66	[illegible]
B	CHANGED PER TDRR 26304 DR J.P. Leonard CHK [illegible] APPD P.C.D	3/9/66	[illegible]
C	CHANGED PER TDRR 26305 DR [illegible] CHK [illegible] APPD [illegible]	3/7/66	[illegible]
D	CHANGED PER TDRR 26666 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]



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SEE NOTE 6
SECTION G-G
SCALE 1/1
3 PLACES
A
A
2 25
2 28
2 32
2 34
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4 26
SEE NOTE 6
8 50
SEE NOTE 6
B
C
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4 REF
2 23
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SEE NOTE 6
4 20
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SEE NOTE 6
VIEW A-A
SCALE 1/1
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LEAD NO. 5 REF
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SEE DETAIL E
SEE DETAIL D
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SEE NOTE 6
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42 REF
4 43
GUIDE SOCKET
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4 36
GUIDE SOCKET
GUIDE PIN
GUIDE PIN
GUIDE SOCKET
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9 REF
48 REF
49 REF
2 20
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SEE NOTE 6
SECTION B-B
SCALE 1/1
2 PLACES
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DETAIL D
SCALE 1/1
2 PLACES
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16 SEE NOTE 6
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SEE NOTE 6
SECTION C-C
SCALE 1/1
2 PLACES
1.50 ±.06
.09 HIGH
SEE NOTE 3
.09 ±.06
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SEE NOTE 2
VIEW F-F
DETAIL E
SCALE 1/1

NCTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. BOND FIND NO. 14 TO FIND NO. 1 USING FIND NO. 15
3. SERIALIZE PER ND1002023
4 FABRICATE PER ND1002032 EXCEPT USE FIND NO 37
5. SOLDER PER ND1002071
6. ASSEMBLE FIND NOS. 17, 20, 21, 22, 23, 25, 26 & 50 USING FIND NO. 16
~~7. STRIP .50 ± .06 & TIN PER ND1002071~~

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014157	SCHEMATIC	REF
8	MS51957-42	SCREW, PAN HD, CROSS RECESSED	50
1	1006988-4	SLIDE	49
1	1006988-3	SLIDE	48
~~0.4~~	~~MIL-W-16878/4 E22~~	~~WIRE, ELECTRICAL WHT~~	~~47~~
2	MS15795-809	WASHER, FLAT	46
1	2016340-001	BRACKET, R.H.	45
8	1006671-003	NUT, STOP	44
4	1006671-004	GUIDE SOCKET	43
1	2014495-011	HARNESS	42
1	MS21333-69	CLAMP	41
1	MS21333-70	CLAMP	40
1	MS21333-71	CLAMP	39
3	1006480-011	POST	38
AR	1006458-004	LACING	37
4	1006671-002	GUIDE PIN	36
~~4~~	~~MS35649-84~~	~~NUT, HEX~~	~~35~~
2	MS35649-64	NUT, HEX	34
~~8~~	~~MS15795-807~~	~~WASHER, FLAT~~	~~33~~
5	MS15795-806	WASHER, FLAT	32
~~4~~	~~MS15795-804~~	~~WASHER, FLAT~~	~~31~~
2	1006982-9	WASHER, FLAT, NYLON	30
~~8~~	~~MS35338-80~~	~~WASHER, LOCK SPLIT~~	~~29~~
5	MS35338-79	WASHER, LOCK SPLIT	28
~~4~~	~~MS35338-78~~	~~WASHER, LOCK SPLIT~~	~~27~~
4	MS51957-15	SCREW, PAN HD, CROSS RECESSED	26
8	MS51957-29	SCREW, PAN HD, CROSS RECESSED	25
14	MS21045-C08	NUT, SELF LOCKING	24
2	MS51957-45	SCREW, PAN HD, CROSS RECESSED	23
4	MS51959-13	SCREW, FLAT HD, CROSS RECESSED	22
2	MS51959-43	SCREW, FLAT HD, CROSS RECESSED	21
8	MS51959-45	SCREW, FLAT HD, CROSS RECESSED	20
~~4~~	~~MS51959-47~~	~~SCREW, FLAT HD, CROSS RECESSED~~	~~19~~
8	MS51959-46	SCREW, FLAT HD, CROSS RECESSED	18
2	2016303	SCREW, SHOULDER	17
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	16
AR	MIL-A-5092 TYPE II	CEMENT	15
1	1004260-240	NAMEPLATE	14
1	1006234	RELAY, ARMATURE DPDT	13
2	1014013	RETAINER, CAPTIVE SCREW	12
2	2016342	BLOCK FASTENER ASSY	11
2	2016357	BRACKET, SUPPORT	10
2	2014370	BRACKET ASSY	9
1	2016341-001	BRACKET, LH	8
1	1006930-16	SLIDE	7
1	1006930-15	SLIDE	6
1	1006988-1	SLIDE	5
1	1006988-2	SLIDE	4
1	2014362-011	LOGIC PLATE ASSY	3
1	2014364-011	FRONT PANEL ASSY	2
1	2014365	CHASSIS	1
-011	LIST OF MATERIALS		

2014366 J

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-4337
DRAWN [illegible] DATE 5 Jul 65
CHECKED [illegible] 6 AUG 65
APPROVAL [illegible] 8/13/65
APPROVAL [illegible] 8/13/65
APPROVAL [illegible] 9/13/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SELF TEST ASSEMBLY
COMPUTER TEST SET

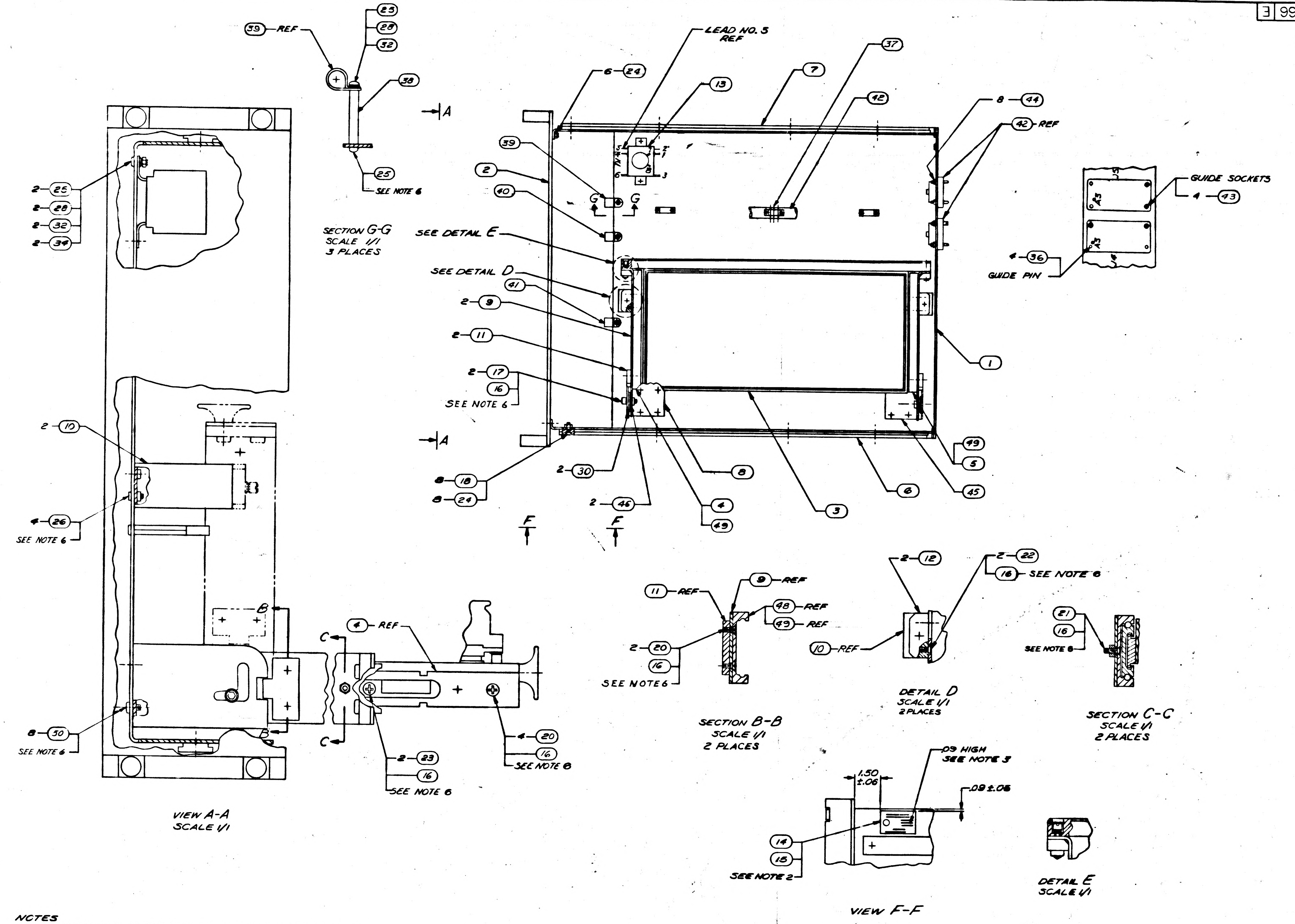
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014366
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014366 D

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25157		
1	CHANGED PER CCA R25534 DR CHK APPD		
-	CLASS 3 CHANGED PER CCA R25502		
A	CHANGED PER CCA R25544 AND CLASS A RELEASED PER TDRR 25472	/66	
B	CHANGED PER TDRR 26304 DR J.P. CHK APPD	/66	
C	CHANGED PER TDRR 26305 DR CHK APPD	/66	
D	CHANGED PER TDRR 26666 DR CHK APPD	/66	
E	CHANGED PER TDRR 27975 DR CHK C. APPD	/66	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SEE NOTE 6
SECTION G-G
SCALE 1/1
3 PLACES
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SEE DETAIL E
SEE DETAIL D
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GUIDE SOCKETS
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GUIDE PIN
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SEE NOTE 6
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SEE NOTE 6
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SCALE 1/1
11 — REF
9 — REF
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49 — REF
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SEE NOTE 6
SECTION B-B
SCALE 1/1
2 PLACES
2 — 12
10 — REF
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16 — SEE NOTE 6
DETAIL D
SCALE 1/1
2 PLACES
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SEE NOTE 6
SECTION C-C
SCALE 1/1
2 PLACES
1.50 ±.06
.09 HIGH
SEE NOTE 3
.09 ±.06
14
15
SEE NOTE 2
VIEW F-F
DETAIL E
SCALE 1/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. BOND FIND NO. 14 TO FIND NO. 1 USING FIND NO. 15
3. SERIALIZE PER ND1002023
4. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 37
5. SOLDER PER ND1002071
6. ASSEMBLE FIND NOS. 17, 20, 21, 22, 23, 25, 26 & 50 USING FIND NO. 16
~~7. STRIP .50 ±.06 & TIN PER ND1002071~~

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014157	SCHEMATIC	REF
8	MS51957-42	SCREW, PAN HD, CROSS RECESSED	50
1	1006988-4	SLIDE	49
1	1006988-3	SLIDE	48
~~0.4~~	~~MIL-W-16878/4 EEE~~	~~WIRE, ELECTRICAL WHT~~	~~47~~
2	MS15795-809	WASHER, FLAT	46
1	2016340-001	BRACKET, R.H.	45
8	1006671-003	NUT, STOP	44
4	1006671-004	GUIDE SOCKET	43
1	2014495-011	HARNESS	42
1	MS21333-69	CLAMP	41
1	MS21333-70	CLAMP	40
1	MS21333-71	CLAMP	39
3	1006480-011	POST	38
AR	1006458-004	LACING	37
4	1006671-002	GUIDE PIN	36
~~4~~	[illegible]	~~NUT, HEX~~	~~35~~
2	MS35649-64	NUT, HEX	34
~~8~~	~~MS15795-807~~	~~WASHER, FLAT~~	~~33~~
5	MS15795 OF	WASHER, FLAT	32
~~4~~	[illegible]	~~WASHER, FLAT~~	~~31~~
2	1006982-9	WASHER, FLAT, NYLON	30
~~8~~	~~MS35338-80~~	~~WASHER, LOCK SPLIT~~	~~29~~
5	MS35338-79	WASHER, LOCK SPLIT	28
~~4~~	~~MS35338-78~~	~~WASHER, LOCK SPLIT~~	~~27~~
4	MS51957-15	SCREW, PAN HD, CROSS RECESSED	26
8	MS51957-29	SCREW, PAN HD, CROSS RECESSED	25
14	MS21045-C08	NUT, SELF LOCKING	24
2	MS51957-45	SCREW, PAN HD, CROSS RECESSED	23
4	MS51959-13	SCREW, FLAT HD, CROSS RECESSED	22
2	MS51959-43	SCREW, FLAT HD, CROSS RECESSED	21
8	MS51959-45	SCREW, FLAT HD, CROSS RECESSED	20
~~4~~	~~MS51959-47~~	~~SCREW, FLAT HD, CROSS RECESSED~~	~~19~~
8	MS51959-46	SCREW, FLAT HD, CROSS RECESSED	18
2	2016303	SCREW, SHOULDER	17
AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	16
AR	MIL-A-5092 TYPE II	CEMENT	15
1	1004260-240	NAMEPLATE	14
1	1006234	RELAY, ARMATURE DPDT	13
2	1014013	RETAINER, CAPTIVE SCREW	12
2	2016342	BLOCK FASTENER ASSY	11
2	2016357	BRACKET, SUPPORT	10
2	2014370	BRACKET ASSY	9
1	2016341-001	BRACKET, LH	8
1	1006930-16	SLIDE	7
1	1006930-15	SLIDE	6
1	1006988-1	SLIDE	5
1	1006988-2	SLIDE	4
1	2014362-011	LOGIC PLATE ASSY	3
1	2014364-011	FRONT PANEL ASSY	2
1	2014365	CHASSIS	1
-011	LIST OF MATERIALS		

2014366 L

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 15 Jul 65
CHECKED 6 AUG 65
APPROVAL
APPROVAL
APPROVAL 9/13/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

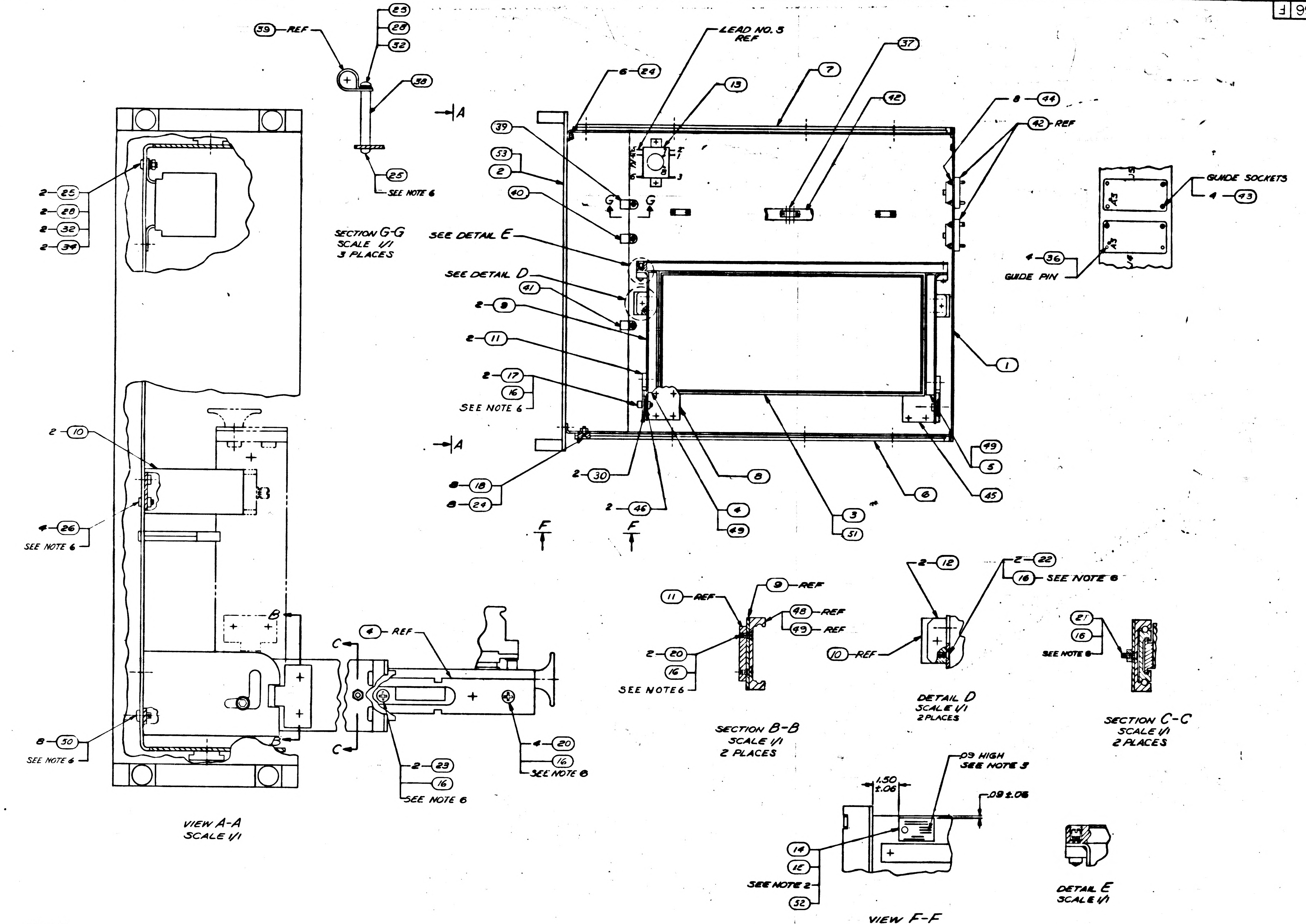
SELF TEST ASSEMBLY
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014366

SCALE 1/2 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25167		
1	CHANGED PER CCA R25534 DR CHK C. DeGreene APPD		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25544 AND CLASS A RELEASED PER TDRR 25472	11/19/66	
B	CHANGED PER TDRR 26304 DR J.P. CHK APPD P.C.D.	1/19/66	
C	CHANGED PER TDRR 26305 DR CHK APPD	1/7/66	
D	CHANGED PER TDRR 26666 DR CHK APPD	/66	
E	CHANGED PER TDRR 27875 DR CHK C. DeGreene APPD P.E.D.	1/3/66	
F	CHANGED PER TDRR 28094 DR. CHK APPD P.E.B.	/66	


59 REF
25
28
32
38
25
SEE NOTE 6
SECTION G-G
SCALE 1/1
3 PLACES
→A
→A
6-24
LEAD NO. 5
REF
13
7
37
42
8-44
42 REF
39
53
2
40
SEE DETAIL E
SEE DETAIL D
41
2-9
2-11
2-17
16
SEE NOTE 6
1
8-18
8-24
2-30
2-46
8
4
49
3
51
6
49
5
45
F
F
G
G
GUIDE SOCKETS
4-43
4-36
GUIDE PIN
2-25
2-28
2-32
2-34
2-10
4-26
SEE NOTE 6
8-50
SEE NOTE 6
B
B
C
C
4 REF
2-23
16
SEE NOTE 6
4-20
SEE NOTE 6
VIEW A-A
SCALE 1/1
11 REF
9 REF
48 REF
49 REF
2-20
16
SEE NOTE 6
SECTION B-B
SCALE 1/1
2 PLACES
2-12
10 REF
DETAIL D
SCALE 1/1
2 PLACES
2-22
16 SEE NOTE 6
21
16
SEE NOTE 6
SECTION C-C
SCALE 1/1
2 PLACES
1.50
1.06
.09 HIGH
SEE NOTE 3
.09 ±.06
14
15
SEE NOTE 2
52
VIEW F-F
DETAIL E
SCALE 1/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. BOND FIND NO. 14 OR FIND NO. 52 TO FIND NO. 1 USING FIND NO. 15
3. SERIALIZE PER ND1002023
4 FABRICATE PER ND1002032 EXCEPT USE FIND NO. 37
5. SOLDER PER ND1002071
6. ASSEMBLE FIND NOS. 17, 20, 21, 22, 23, 25, 26 & 50 USING FIND NO. 16
~~7. STRIP .30 ±.06 & TIN PER ND1002071~~

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	☒	2014157	SCHEMATIC	REF
1	—	2014364-021	FRONT PANEL ASSY	53
1	—	1004260-268	NAMEPLATE	52
1	—	2014362-021	LOGIC PLATE ASSY	51
8	8	MS51957-42	SCREW, PAN HD, CROSS RECESSED	50
1	1	1006988-4	SLIDE	49
1	1	1006988-3	SLIDE	48
	~~0.4~~	~~MIL-W-16878/4 EEE~~	~~WIRE, ELECTRICAL WHT~~	~~47~~
2	2	MS15795-809	WASHER, FLAT	46
1	1	2016340-001	BRACKET, R.H.	45
8	8	1006671-003	NUT, STOP	44
4	4	1006671-004	GUIDE SOCKET	43
1	1	2014495-011	HARNESS	42
1	1	MS21333-69	CLAMP	41
1	1	MS21333-70	CLAMP	40
1	1	MS21333-71	CLAMP	39
3	3	1006480-011	POST	38
AR	AR	1006458-004	LACING	37
4	4	1006671-002	GUIDE PIN	36
—	~~4~~	~~MS35649-84~~	~~NUT, HEX~~	~~35~~
2	2	MS35649-64	NUT, HEX	34
—	~~8~~	~~MS15795-807~~	~~WASHER, FLAT~~	~~33~~
5	5	MS15795-806	WASHER, FLAT	32
—	~~4~~	~~MS15795-804~~	~~WASHER, FLAT~~	~~31~~
2	2	1006982-9	WASHER, FLAT, NYLON	30
—	~~8~~	~~MS35338-80~~	~~WASHER, LOCK SPLIT~~	~~29~~
5	5	MS35338-79	WASHER, LOCK SPLIT	28
—	~~4~~	~~MS35338-78~~	~~WASHER, LOCK SPLIT~~	~~27~~
4	4	MS51957-15	SCREW, PAN HD, CROSS RECESSED	26
8	8	MS51957-29	SCREW, PAN HD, CROSS RECESSED	25
14	14	MS21045-C08	NUT, SELF LOCKING	24
2	2	MS51957-45	SCREW, PAN HD, CROSS RECESSED	23
4	4	MS51959-13	SCREW, FLAT HD, CROSS RECESSED	22
2	2	MS51959-43	SCREW, FLAT HD, CROSS RECESSED	21
8	8	MS51959-45	SCREW, FLAT HD, CROSS RECESSED	20
—	~~4~~	~~MS51959-47~~	~~SCREW, FLAT HD, CROSS RECESSED~~	~~19~~
8	8	MS51959-46	SCREW, FLAT HD, CROSS RECESSED	18
2	2	2016303	SCREW, SHOULDER	17
AR	AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	16
AR	AR	MIL-A-5092 TYPE II	CEMENT	15
—	1	1004260-240	NAMEPLATE	14
1	1	1006234	RELAY, ARMATURE DPDT	13
2	2	1014013	RETAINER, CAPTIVE SCREW	12
2	2	2016342	BLOCK FASTENER ASSY	11
2	2	2016357	BRACKET, SUPPORT	10
2	2	2014370	BRACKET ASSY	9
1	1	2016341-001	BRACKET, LH	8
1	1	1006930-16	SLIDE	7
1	1	1006930-15	SLIDE	6
1	1	1006988-1	SLIDE	5
1	1	1006988-2	SLIDE	4
—	1	2014362-011	LOGIC PLATE ASSY	3
—	1	2014364-011	FRONT PANEL ASSY	2
1	1	2014365	CHASSIS	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN W. Hedberg DATE 15 Jul 65
CHECKED 6 Aug 65
APPROVAL 8/13/65
APPROVAL 8/13/65
APPROVAL 9.13.6
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

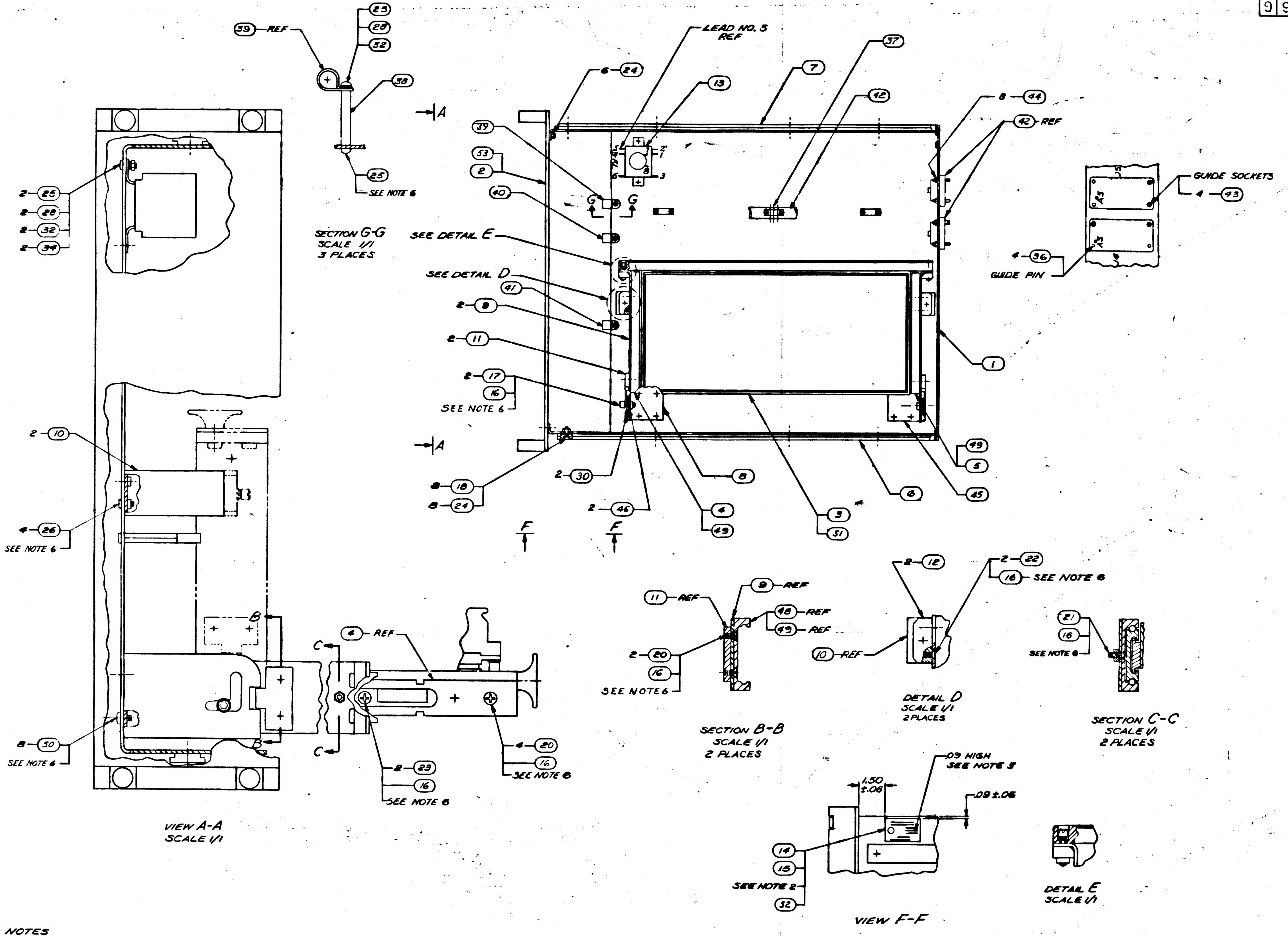
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SELF TEST ASSEMBLY
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014366
SCALE 1/2 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	4/13/65	
1	CHANGED PER CCA R25534 DR CHK C. DeFreece APPD		
-	CLASS 3 CHANGED PER CCA R25502		
A	CHANGED PER CCA R25544 AND CLASS A RELEASED PER TDRR 25972	1/14/66	
B	CHANGED PER TDRR 26304 DR J.P. CHK APPD P.E.D	3/17/66	
C	CHANGED PER TDRR 26305 DR CHK APPD	3/7/66	
D	CHANGED PER TDRR 26666 DR CHK APPD	3/31/66	
E	CHANGED PER TDRR 27875 DR CHK C. DeFreece APPD P.E.D	4/22/66	
F	CHANGED PER TDRR 28C94 DR. P. CHK APPD P.E.D	4/20/66	
G	CHANGED PER TDRR 29136 DR CHK APPD	7/23/66	



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. BOND FIND NO. 14 OR FIND NO. 52 TO FIND NO. 1 USING FIND NO. 15
3. SERIALIZE PER ND1002023
4. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 37
5. SOLDER PER ND1002071
6. ASSEMBLE FIND NOS. 17, 20, 21, 22, 23, 25, 26 & 50 USING FIND NO. 16
~~7. STRIP .30±.06 & TIN PER ND1002071~~

		2014157	SCHEMATIC	REF.
1	—	2014364-021	FRONT PANEL ASSY	53
1	—	1004260-268	NAMEPLATE	52
1	—	2014362-021	LOGIC PLATE ASSY	51
8	8	MS51957-42	SCREW, PAN HD, CROSS RECESSED	50
1	1	1006988-4	SLIDE	49
1	1	1006988-3	SLIDE	48
	~~0 4~~	~~[illegible]~~	~~WIRE, ELECTRICAL WHT~~	~~47~~
2	2	MS15795-809	WASHER, FLAT	46
1	1	2016340-001	BRACKET, R.H.	45
8	8	1006671-003	NUT, STOP	44
4	4	1006671-004	GUIDE SOCKET	43
1	1	2014495-011	HARNESS	42
1	1	MS21333-69	CLAMP	41
1	1	MS21333-70	CLAMP	40
1	1	MS21333-71	CLAMP	39
3	3	1006480-011	POST	38
AR	AR	1006458-004	LACING	37
4	4	1006671-002	GUIDE PIN	36
—	~~4~~	~~MS35649-84~~	~~NUT, HEX~~	~~35~~
2	2	MS35649-64	NUT, HEX	34
—	~~8~~	~~MS15795-807~~	~~WASHER, FLAT~~	~~33~~
5	5	MS15795-806	WASHER, FLAT	32
—	~~4~~	~~MS15795-804~~	~~WASHER, FLAT~~	~~31~~
2	2	1006982-9	WASHER, FLAT, NYLON	30
—	~~8~~	~~MS35338-80~~	~~WASHER, LOCK SPLIT~~	~~29~~
5	5	MS35338-79	WASHER, LOCK SPLIT	28
—	~~4~~	~~MS35338-78~~	~~WASHER, LOCK SPLIT~~	~~27~~
4	4	MS51957-15	SCREW, PAN HD, CROSS RECESSED	26
8	8	MS51957-29	SCREW, PAN HD, CROSS RECESSED	25
14	14	MS21045-C08	NUT, SELF LOCKING	24
2	2	MS51957-45	SCREW, PAN HD, CROSS RECESSED	23
4	4	MS51959-13	SCREW, FLAT HD, CROSS RECESSED	22
2	2	MS51959-43	SCREW, FLAT HD, CROSS RECESSED	21
8	8	MS51959-45	SCREW, FLAT HD, CROSS RECESSED	20
—	~~4~~	~~MS51959-47~~	~~SCREW, FLAT HD, CROSS RECESSED~~	~~19~~
8	8	MS51959-46	SCREW, FLAT HD, CROSS RECESSED	18
2	2	2016303	SCREW, SHOULDER	17
AR	AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	16
AR	AR	MIL-A-5092 TYPE II	CEMENT	15
—	1	1004260-240	NAMEPLATE	14
1	1	1006234	RELAY, ARMATURE DPDT	13
2	2	1014013	RETAINER, CAPTIVE SCREW	12
2	2	2016342	BLOCK FASTENER ASSY	11
2	2	2016357	BRACKET, SUPPORT	10
2	2	2014370	BRACKET ASSY	9
1	1	2016341-001	BRACKET, LH	8
1	1	1006930-16	SLIDE	7
1	1	1006930-15	SLIDE	6
1	1	1006988-1	SLIDE	5
1	1	1006988-2	SLIDE	4
—	1	2014362-011	LOGIC PLATE ASSY	3
—	1	2014364-011	FRONT PANEL ASSY	2
1	1	2014365	CHASSIS	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-021	-011	LIST OF MATERIALS		

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN W. Belanger DATE 15 Jul 65
CHECKED 6 AUG 65
APPROVAL 8/13/65
APPROVAL
APPROVAL 9/13/6
NASA APPROVAL V. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

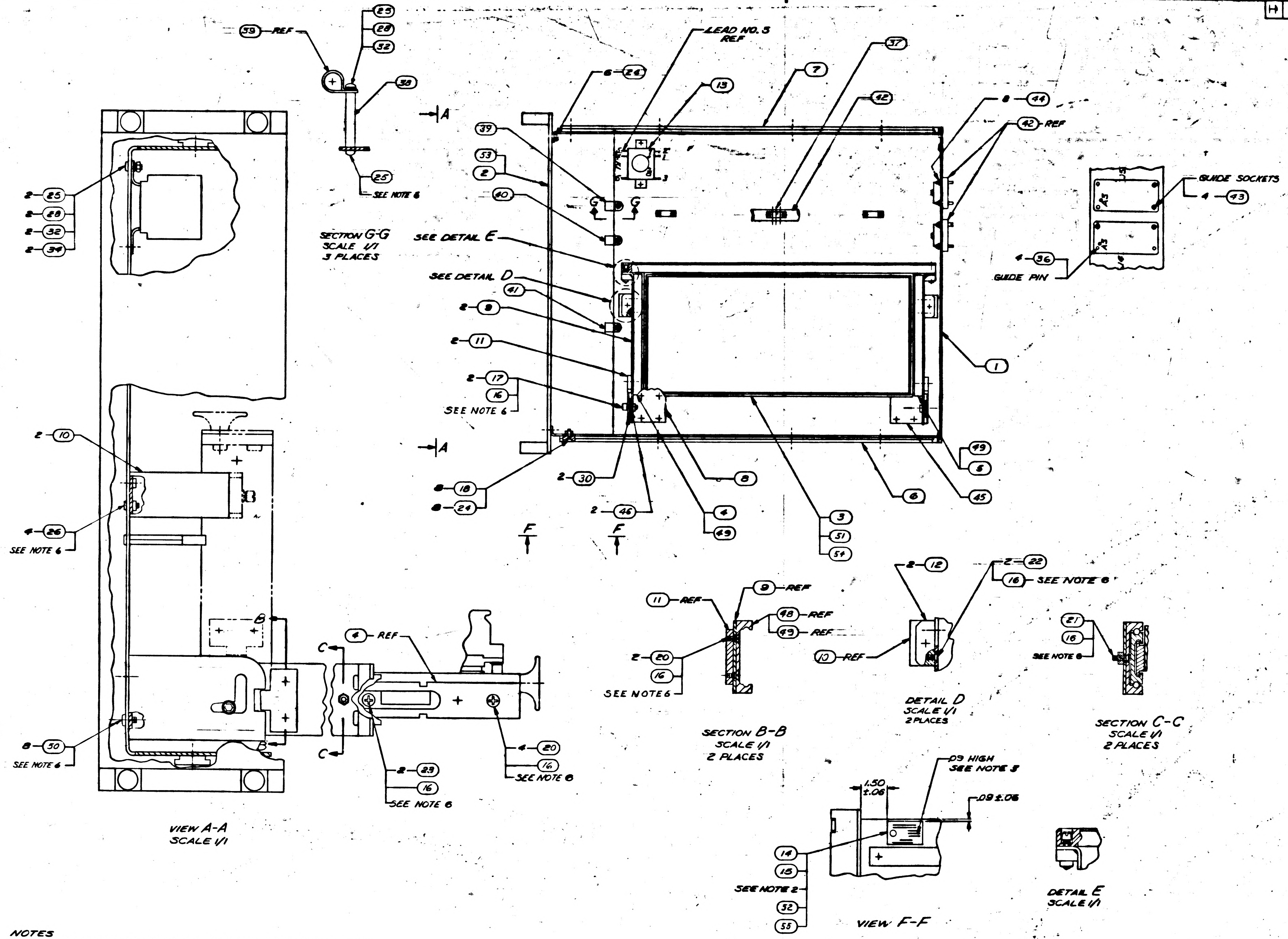
SELF TEST ASSEMBLY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014366
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014366 H

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25167	9/13/65	
1	CHANGED PER CCA R25534 DR CHK C.DeFreenia APPD		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25544 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
B	CHANGED PER TDRR 26304 DR J.P. CHK APPD P.E.O	3/12/66	
C	CHANGED PER TDRR 26305 DR CHK APPD	3/7/66	
D	CHANGED PER TDRR 26666 DR CHK APPD	3/1/66	
E	CHANGED PER TDRR 27875 DR CHK C.DeFreenia APPD P.E.D	4/26/66	
F	CHANGED PER TDRR 28094 DR. CHK APPD P.E.D	4/2/66	
G	CHANGED PER TDRR 29136 DR CHK C.DeFreenia APPD	7/27/66	
H	CHANGED PER TDRR 29342 DR CHK APPD	9/8/66	


59 REF
25
28
32
38
25
SEE NOTE 6
SECTION G-G
SCALE 1/1
3 PLACES
2-25
2-28
2-32
2-34
A
A
LEAD NO. 3 REF
8-24
13
7
37
42
8-44
42 REF
39
53
2
60
G
G
SEE DETAIL E
SEE DETAIL D
41
2-9
2-11
2-17
16
SEE NOTE 6
8-18
8-24
2-30
2-46
4
49
8
3
51
54
6
1
49
5
45
F
F
GUIDE SOCKETS
4-43
4-36
GUIDE PIN
2-10
4-26
SEE NOTE 6
B
C
C
4 REF
8-50
SEE NOTE 6
2-23
16
SEE NOTE 6
4-20
16
SEE NOTE 6
VIEW A-A
SCALE 1/1
11 REF
9 REF
48 REF
49 REF
2-20
16
SEE NOTE 6
SECTION B-B
SCALE 1/1
2 PLACES
2-12
10 REF
DETAIL D
SCALE 1/1
2 PLACES
2-22
16 SEE NOTE 6
21
16
SEE NOTE 6
SECTION C-C
SCALE 1/1
2 PLACES
1.50 ±.06
.09 HIGH
SEE NOTE 3
.09±.06
14
15
SEE NOTE 2
52
55
VIEW F-F
DETAIL E
SCALE 1/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. BOND FIND NO. 14, FIND NO. 52 AND EIND NO. 55 TO FIND NO. 1 USING FIND NO. 15 AS APPLICABLE
3. SERIALIZE PER ND1002023
4 FABRICATE PER ND1002032 EXCEPT USE FIND NO 37
5. SOLDER PER ND1002071
6. ASSEMBLE FIND NOS. 17, 20, 21, 22, 23, 25, 26 & 50 USING FIND NO. 16
~~7. STRIP .50 ± .06 & TIN PER ND1002071~~

☒	☒	☒	2014157	SCHEMATIC	REF
1	—	—	1004260-274	NAMEPLATE	55
1	—	—	2014362-031	LOGIC PLATE ASSY	54
1	1	—	2014364-021	FRONT PANEL ASSY	53
—	1	—	1004260-268	NAMEPLATE	52
—	1	—	2014362-021	LOGIC PLATE ASSY	51
8	8	8	MS51957-42	SCREW, PAN HD, CROSS RECESSED	50
1	1	1	1006988-4	SLIDE	49
1	1	1	1006988-3	SLIDE	48
—	—	~~84~~	~~MIL-W-16878/4 EEE~~	~~WIRE, ELECTRICAL WHT~~	~~47~~
2	2	2	MS15795-809	WASHER, FLAT	46
1	1	1	2016340-001	BRACKET, RH.	45
8	8	8	1006671-003	NUT, STOP	44
4	4	4	1006671-004	GUIDE SOCKET	43
1	1	1	2014495-011	HARNESS	42
1	1	1	MS21333-69	CLAMP	41
1	1	1	MS21333-70	CLAMP	40
1	1	1	MS21333-71	CLAMP	39
3	3	3	1006480-011	POST	38
AR	AR	AR	1006458-004	LACING	37
4	4	4	1006671-002	GUIDE PIN	36
—	—	~~4~~	~~MS35649-84~~	~~NUT, HEX~~	~~35~~
2	2	2	MS35649-64	NUT, HEX	34
—	—	~~8~~	~~MS15795-807~~	~~WASHER, FLAT~~	~~33~~
5	5	5	MS15795-806	WASHER, FLAT	32
—	—	~~4~~	~~MS15795-804~~	~~WASHER, FLAT~~	~~31~~
2	2	2	1006982-9	WASHER, FLAT, NYLON	30
—	—	~~8~~	~~MS35338-80~~	~~WASHER, LOCK SPLIT~~	~~29~~
5	5	5	MS35338-79	WASHER, LOCK SPLIT	28
—	—	~~4~~	~~MS35338-78~~	~~WASHER, LOCK SPLIT~~	~~27~~
4	4	4	MS51957-15	SCREW, PAN HD, CROSS RECESSED	26
8	8	8	MS51957-29	SCREW, PAN HD, CROSS RECESSED	25
14	14	14	MS21045-C08	NUT, SELF LOCKING	24
2	2	2	MS51957-45	SCREW, PAN HD, CROSS RECESSED	23
4	4	4	MS51959-13	SCREW, FLAT HD, CROSS RECESSED	22
2	2	2	MS51959-43	SCREW, FLAT HD, CROSS RECESSED	21
8	8	8	MS51959-45	SCREW, FLAT HD, CROSS RECESSED	20
—	—	~~4~~	~~MS51959-47~~	~~SCREW, FLAT HD, CROSS RECESSED~~	~~19~~
8	8	8	MS51959-46	SCREW, FLAT HD, CROSS RECESSED	18
2	2	2	2016303	SCREW, SHOULDER	17
AR	AR	AR	MIL-S-22473 GRADE HV	SEALING & RETAINING COMPOUND	16
AR	AR	AR	MIL-A-5092 TYPE II	CEMENT	15
—	—	1	1004260-240	NAMEPLATE	14
1	1	1	1006234	RELAY, ARMATURE DPDT	13
2	2	2	1014013	RETAINER, CAPTIVE SCREW	12
2	2	2	2016342	BLOCK FASTENER ASSY	11
2	2	2	2016357	BRACKET, SUPPORT	10
2	2	2	2014370	BRACKET ASSY	9
1	1	1	2016341-001	BRACKET, LH	8
1	1	1	1006930-16	SLIDE	7
1	1	1	1006930-15	SLIDE	6
1	1	1	1006988-1	SLIDE	5
1	1	1	1006988-2	SLIDE	4
—	—	1	2014362-011	LOGIC PLATE ASSY	3
1	—	1	2014364-011	FRONT PANEL ASSY	2
1	1	1	2014365	CHASSIS	1
QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-031	-021	-011	LIST OF MATERIALS		

2014366 H

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 15 Jul 65
CHECKED 6 AUG 65
APPROVAL 8/13/65
APPROVAL
APPROVAL 9/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SELF TEST ASSEMBLY
COMPUTER TEST SET

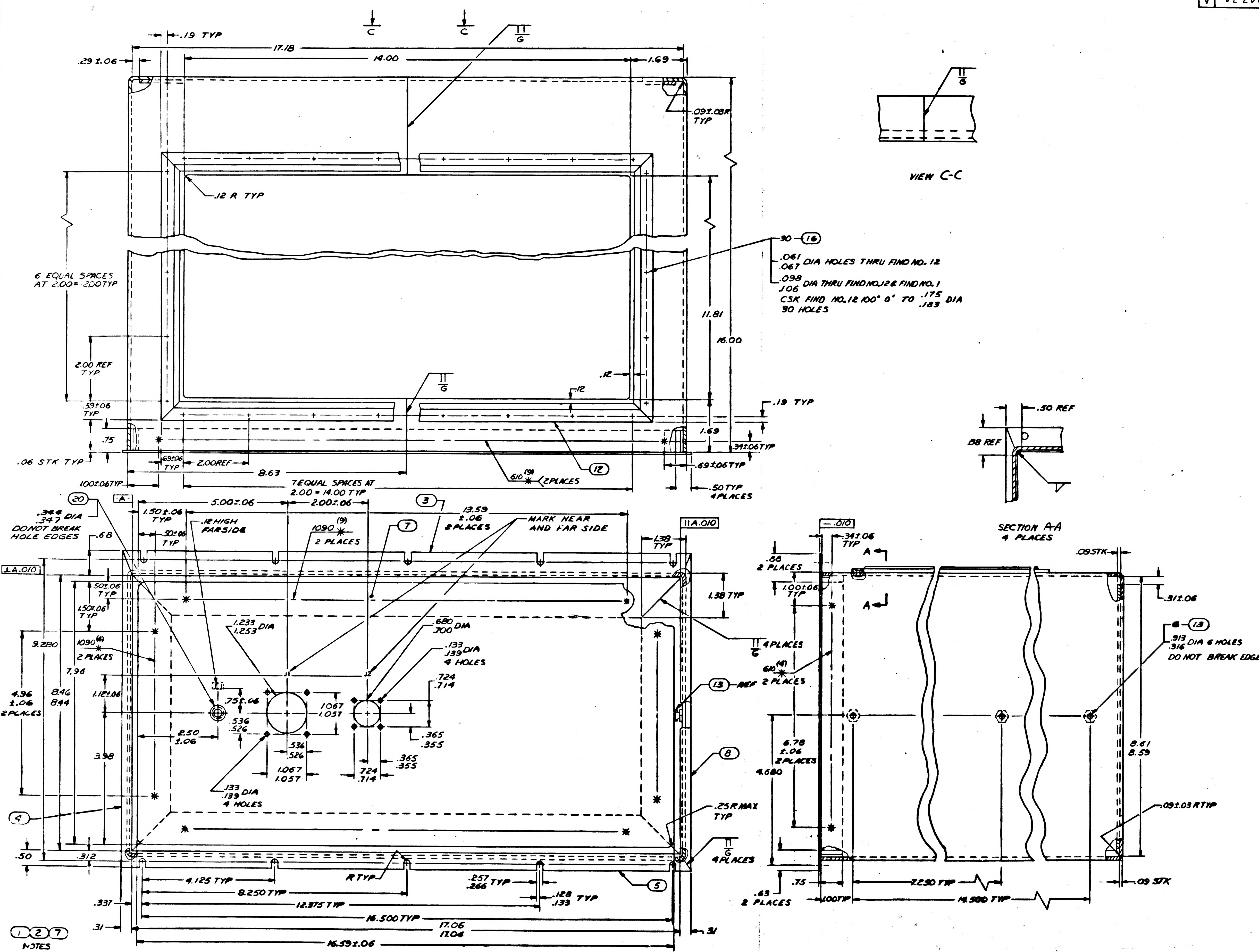
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014366
SCALE 1/2	WT	SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014366 H

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25293	10/15/65	[illegible]
–	CLASS B CHANGED PER CCA R25502	11/15/65	[illegible]
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	1/25/66	[illegible]

2014374 A



.19 TYP
17.18
14.00
1.69
.29 ±.06
.09 ±.03R TYP
.12 R TYP
6 EQUAL SPACES AT 2.00 = 12.00 TYP
2.00 REF TYP
.59 ±.06 TYP
.75
.06 STK TYP
.69 ±.06 TYP
2.00 REF
8.63
1.00 ±.06 TYP
7 EQUAL SPACES AT 2.00 = 14.00 TYP
11.81
16.00
.12
1.69
.34 ±.06 TYP
.69 ±.06 TYP
.50 TYP 4 PLACES
.19 TYP
610 (9) 2 PLACES
12
30 16
.061 .067 DIA HOLES THRU FIND NO. 12
.098 .106 DIA THRU FIND NO. 12 & FIND NO. 1
CSK FIND NO. 12 100° 0° TO .175 .183 DIA
30 HOLES
VIEW C-C
C
G
.50 REF
.88 REF
SECTION A-A 4 PLACES
20
A
.344 .347 DIA DO NOT BREAK HOLE EDGES
.68
1.50 ±.06 TYP
.50 ±.06 TYP
.12 HIGH FARSIDE
5.00 ±.06
2.00 ±.06
3
13.59 ±.06 2 PLACES
MARK NEAR AND FAR SIDE
1090 (9) 2 PLACES
7
11A.010
1.38 TYP
⊥A.010
.50 ±.06 TYP
1.50 ±.06 TYP
9.280
1090 (4) 2 PLACES
7.96
4.96 ±.06 2 PLACES
8.46 8.44
1.12 ±.06
3.98
1.233 1.253 DIA
.680 .700 DIA
.133 .139 DIA 4 HOLES
.724 .714
.75 ±.06
.536 .526
1.067 1.057
.365 .355
2.50 ±.06
.133 .139 DIA 4 HOLES
1.38 TYP
4 PLACES
13 REF
8
.25 R MAX TYP
4 PLACES
4
.50
.312
R TYP
.257 .266 TYP
.128 .133 TYP
4.125 TYP
8.250 TYP
12.375 TYP
16.500 TYP
17.06 17.04
16.59 ±.06
.337
.31
5
–.010
.34 ±.06 TYP
.88 2 PLACES
1.00 ±.06 TYP
610 (4) 2 PLACES
6.78 ±.06 2 PLACES
4.680
.75
.63 2 PLACES
1.00 TYP
7.250 TYP
14.500 TYP
.09 STK
.31 ±.06
6 13
.313 .316 DIA 6 HOLES DO NOT BREAK EDGES
8.61 8.59
.09 ±.03 R TYP
.09 STK

① ② ⑦

NOTES

1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

③ ④ ⑤ ⑥ ⑧

NOTES

1. MATL: AL 6063-T6 PER QQ-A-200/9
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

ASSY NOTES

1. WELD PER MIL-W-8604
2. SPOT WELD PER MIL-W-6858 (CLASS B)
3. REMOVE HINGE PIN OF FIND 14 BEFORE CHROMATING
4. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
5. AFTER CHROMATE INSTALL HINGE PIN & CRIMP LOOPS OF FIND 14 ONE HALF CLOSED
6. HINGE SHALL NOT BIND
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
7	1006988-25	NUT, PLAIN SELF CLINCHING	20
4	MS35649-64	NUT PLAIN HEX	19
4	MS35337-79	WASHER, LOCK SPLIT	18
4	MS15795-805	WASHER, FLAT	17
30	MS20426AD3-6	RIVET, FLAT HD SOLID	16
4	1006426-001	FASTENER, PANEL	15
1	MS35825-2A	HINGE	14
6	1006896-10	NUT, SELF LOCKING	13
1	1006666	GASKET	12
4	1006874	RECEPTACLE, SEALED	11
8	MS20470A-3-5	RIVET, UNIVERSAL HD	10
4	MS51957-30	SCREW, PAN HD	9
1	2014374-008	ANGLE, RIGHT	8
1	2014374-007	PANEL, REAR	7
1	2014374-006	SHIM	6
1	2014374-005	ANGLE BOTTOM	5
1	2014374-004	ANGLE, LEFT	4
1	2014374-003	ANGLE, TOP	3
1	2014374-002	DOOR	2
1	2014374-001	COVER, TAPE READER	1

LIST OF MATERIALS

2014374 A

NEXT ASSY	USED ON
2014038	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.015 ANGLES 0° 30'
DO NOT SCALE DRAWING
MATERIAL
SEE NOTE

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN B K[illegible] DATE 11 SEP 65
CHECKED E [illegible] C.C. 28 SEP 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

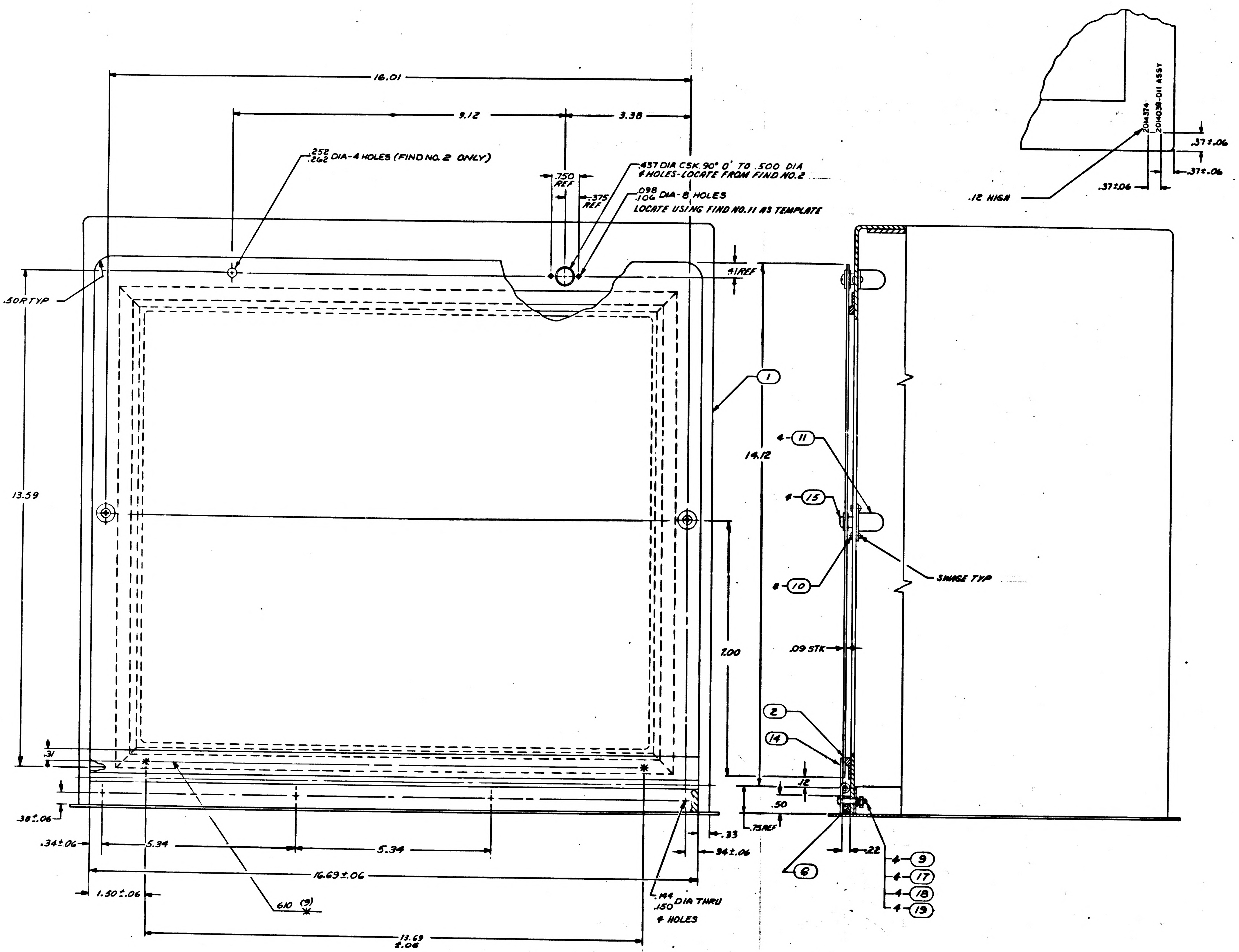
COVER, ASSEMBLY
RF SHIELD

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014374
SCALE 1/1
WT
SHEET 1 OF 2

2014374 A

ANY USE OF THIS DOCUMENT FOR OTHER THAN GOVERNMENTAL PURPOSES IS SUBJECT TO PRIOR WRITTEN CONSENT OF RAYTHEON CO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25297		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25573 AND CLASS A RELEASED PER TDRR 25472	1/7/66	



16.01
9.12
3.38
.252 / .262 DIA-4 HOLES (FIND NO. 2 ONLY)
.750 REF
.375 REF
.437 DIA CSK. 90° 0' TO .500 DIA 4 HOLES-LOCATE FROM FIND NO. 2
.098 / .106 DIA-8 HOLES LOCATE USING FIND NO. 11 AS TEMPLATE
.41 REF
.50R TYP
13.59
14.12
7.00
1
4-11
4-15
8-10
SWAGE TYP
.09 STK
2
14
.31
.12
.50
.75 REF
.22
.38±.06
.34±.06
5.34
5.34
.33
.34±.06
16.69±.06
1.50±.06
610 (9)
.144 / .150 DIA THRU 4 HOLES
13.69 ±.06
6
4-9
4-17
4-18
4-19
2014374-2014038-011 ASSY
.37±.06
.37±.06
.37±.06
.12 HIGH

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 .005 ANGLES ±0°30'
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-437
DRAWN J. J. Busen DATE 8 JUL 65
CHECKED E. Urban C.C. 29 SEP 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER ASSEMBLY
RF SHIELD

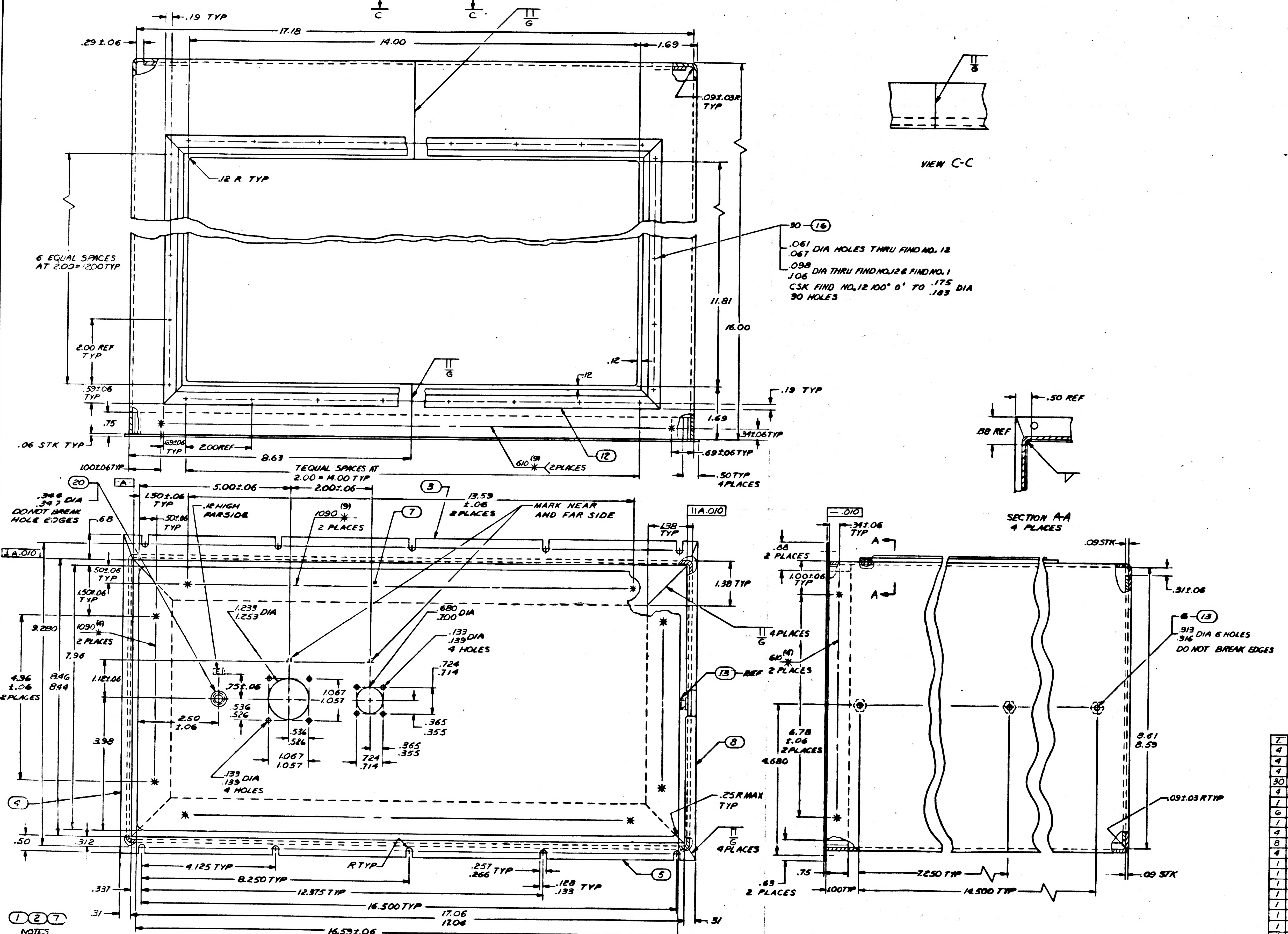
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO 2014374
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014374 A

2014374 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25293	10.	O Havens
–	CLASS B CHANGED PER CCA R25502	12/15/65	
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	1/25/66	
B	CHANGED PER TDRR 26500 DR G.J. Green CHK APPD	2/28/66	


C
C
G
.19 TYP
17.18
14.00
1.69
.29±.06
.09±.03R TYP
.12 R TYP
6 EQUAL SPACES AT 2.00=12.00 TYP
2.00 REF TYP
.59±.06 TYP
.75
.06 STK TYP
.69±.06 TYP
2.00 REF
8.63
1.00±.06 TYP
7 EQUAL SPACES AT 2.00 = 14.00 TYP
610 (9) 2 PLACES
12
.12
.12
G
11.81
16.00
1.69
.19 TYP
.34±.06 TYP
.69±.06 TYP
.50 TYP 4 PLACES
30 16
.061 .067 DIA HOLES THRU FIND NO. 12
.098 .106 DIA THRU FIND NO. 12 & FIND NO. 1
CSK FIND NO. 12 100° 0' TO .175 .183 DIA
30 HOLES
VIEW C-C
.50 REF
.88 REF
SECTION A-A
4 PLACES
20
A
.346 .347 DIA
DO NOT BREAK HOLE EDGES
.68
1.50±.06 TYP
.50±.06 TYP
.12 HIGH FARSIDE
5.00±.06
2.00±.06
1090 (9) 2 PLACES
7
3
13.59 ±.06 2 PLACES
MARK NEAR AND FAR SIDE
11A.010
1.38 TYP
A.010
.50±.06 TYP
1.50±.06 TYP
9.280
1090 (4) 2 PLACES
7.96
4.96 ±.06 2 PLACES
8.46 8.44
1.12±.06
1.233 1.253 DIA
.680 .700 DIA
.133 .139 DIA 4 HOLES
.724 .714
J1
J2
.75±.06
.536 .526
1.067 1.057
.365 .355
2.50 ±.06
3.98
.536 .526
1.067 1.057
.724 .714
.365 .355
.133 .139 DIA 4 HOLES
1.38 TYP
G 4 PLACES
610 (4) 2 PLACES
13 REF
8
4
.25 R MAX TYP
G 4 PLACES
.50
.312
4.125 TYP
R TYP
8.250 TYP
.257 .266 TYP
.128 .133 TYP
12.375 TYP
5
.337
16.500 TYP
.31
17.06 17.04
.31
16.59±.06
.010
.34±.06 TYP
.88 2 PLACES
1.00±.06 TYP
A
A
.09 STK
.31±.06
6 13
.313 .316 DIA 6 HOLES
DO NOT BREAK EDGES
6.78 ±.06 2 PLACES
4.680
8.61 8.59
.09±.03 R TYP
.75
.63 2 PLACES
1.00 TYP
7.250 TYP
14.500 TYP
.09 STK

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006988-25	NUT, PLAIN SELF CLINCHING	20
4	MS35649-64	NUT, PLAIN HEX	19
4	MS35337-79	WASHER, LOCK SPLIT	18
4	MS15795-805	WASHER, FLAT	17
30	MS20426AD3-6	RIVET, FLAT HD SOLID	16
4	1006426-001	FASTENER, PANEL	15
1	MS35825-2A	HINGE	14
6	1006896-10	NUT, SELF LOCKING	13
1	1006666	GASKET	12
4	1006874	RECEPTACLE, SEALED	11
8	MS20470A-3-5	RIVET, UNIVERSAL HD	10
4	MS51957-30	SCREW, PAN HD	9
1	2014374-008	ANGLE, RIGHT	8
1	2014374-007	PANEL, REAR	7
1	2014374-006	SHIM	6
1	2014374-005	ANGLE BOTTOM	5
1	2014374-004	ANGLE, LEFT	4
1	2014374-003	ANGLE, TOP	3
1	2014374-002	DOOR	2
1	2014374-001	COVER, TAPE READER	1

LIST OF MATERIALS

2014374 B

(1)(2)(7)

NOTES

1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

(3)(4)(5)(6)(8)

NOTES

1. MATL AL 6063-T6 PER QQ-A-200/9
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

ASSY NOTES

1. WELD PER MIL-W-8604
2. SPOT WELD PER MIL-W-6858 (CLASS B)
3. REMOVE HINGE PIN OF FIND 14 BEFORE CHROMATING
4. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
5. AFTER CHROMATE INSTALL HINGE PIN & CRIMP LOOPS OF FIND 14 ONE HALF CLOSED
6. HINGE SHALL NOT BIND
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014374 B

NEXT ASSY	USED ON
2014038	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.015 ANGLES ±0° 30'
DO NOT SCALE DRAWING

MATERIAL SEE NOTE

RAYTHEON CO
LEXINGTON MASS
CONTRACT NO NAS 9-497
DRAWN B KyTsuky DATE 11 SEP 65
CHECKED E Urban C.C. 28 SEP 65
APPROVAL
APPROVAL D. O'Bryant
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

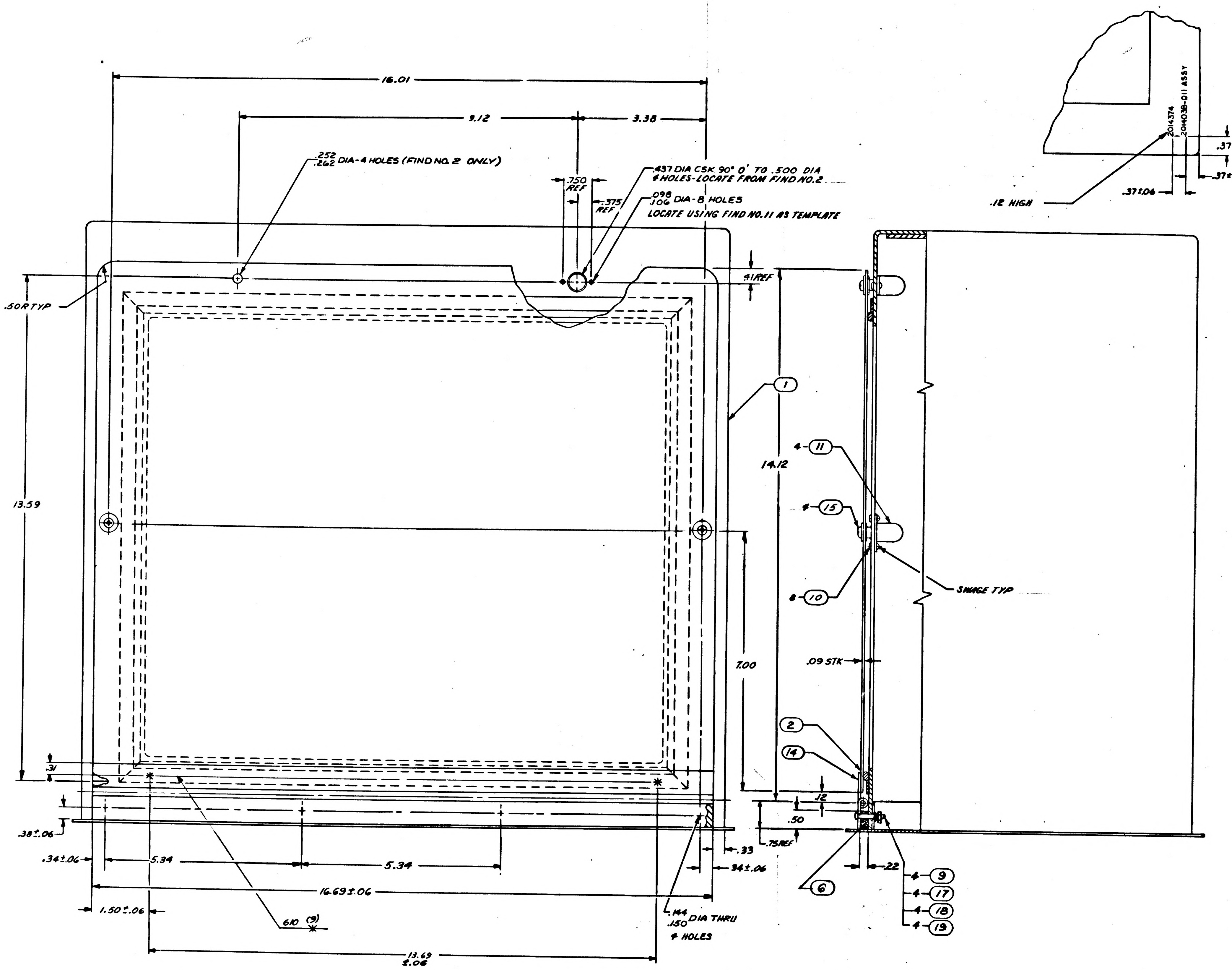
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, ASSEMBLY
RF SHIELD

SIZE J CODE IDENT NO. 49956 NASA DRAWING NO. 2014374
SCALE 1/1 WT SHEET 1 OF 2

ANY USE OF THIS DOCUMENT FOR OTHER THAN GOVERNMENTAL PURPOSES IS SUBJECT TO PRIOR WRITTEN CONSENT OF RAYTHEON CO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
C	RELEASED PER CCA R25297		
-	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25573 AND CLASS A RELEASED PER TDRR 25472		
B	CHANGED PER TDRR 26500 DR a. J. Green CHK P.E. APPD		



16.01
9.12
3.38
.252 / .262 DIA-4 HOLES (FIND NO. 2 ONLY)
.750 REF
.375 REF
.437 DIA CSK 90° 0' TO .500 DIA 4 HOLES-LOCATE FROM FIND NO. 2
.098 / .106 DIA-8 HOLES LOCATE USING FIND NO. 11 AS TEMPLATE
.41 REF
.50R TYP
13.59
14.12
1
7.00
.31
.38±.06
.34±.06
5.34
5.34
16.69±.06
1.50±.06
610 (9)
13.69 ±.06
.144 / .150 DIA THRU 4 HOLES
.33
.34±.06
2014374
2014038-011 ASSY
.37±.06
.37±.06
.37±.06
.12 HIGH
4-11
4-15
8-10
SWAGE TYP
.09 STK
2
14
.12
.50
.75 REF
6
.22
4-9
4-17
4-18
4-19

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 .005 ANGLES ±0°30'
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-437
DRAWN J. J. Green DATE 8 JUL 65
CHECKED E. Urban C.C. 28 SEP 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

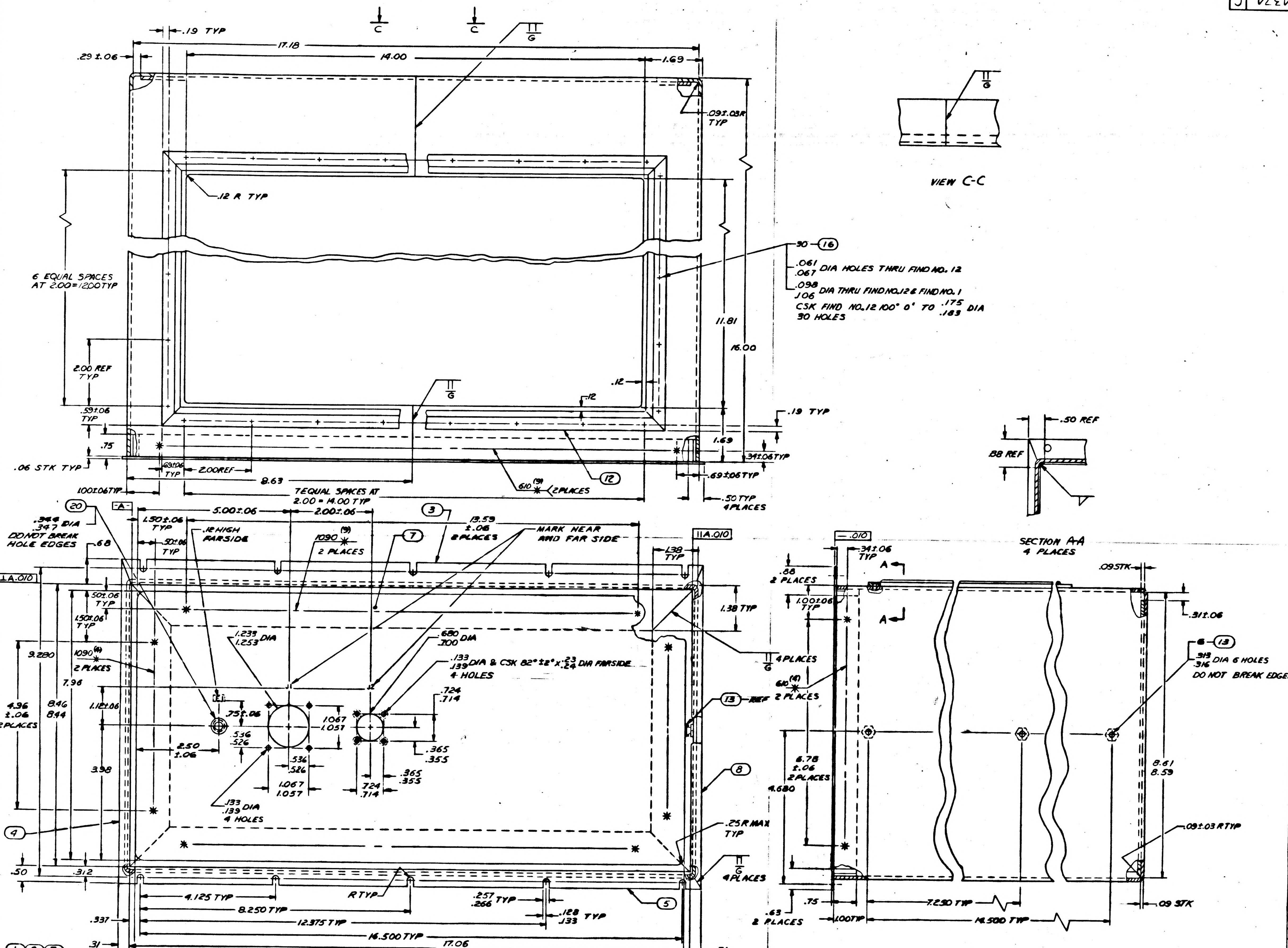
COVER ASSEMBLY
RF SHIELD

CODE IDENT NO 49956 | SIZE J | NASA DRAWING NO 2014374
SCALE 1/1 | WT | SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014374 C

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R26293	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	1/25/66	[illegible]
B	CHANGED PER TDRR 26500 DR [illegible] CHK [illegible] APPD	2/28/66	[illegible]
C	CHANGED PER TDRR 26679 DR [illegible] CHK [illegible] APPD PE.D	4/4/66	[illegible]



.19 TYP
.29 ±.06
17.18
14.00
1.69
.09±.03R TYP
.12 R TYP
6 EQUAL SPACES AT 2.00=12.00 TYP
30 (16)
.061 .067 DIA HOLES THRU FIND NO. 12
.098 .106 DIA THRU FIND NO. 12 & FIND NO. 1 CSK FIND NO. 12 100° 0° TO .175 .183 DIA 30 HOLES
11.81
16.00
2.00 REF TYP
.59±.06 TYP
.12
.75
.06 STK TYP
.69±.06 TYP
2.00 REF
8.63
1.00±.06 TYP
7 EQUAL SPACES AT 2.00 = 14.00 TYP
610 (9) 2 PLACES
(12)
.34±.06 TYP
.69±.06 TYP
.50 TYP 4 PLACES
.19 TYP
VIEW C-C
SECTION A-A 4 PLACES
.50 REF
.88 REF
(20)
.366 .347 DIA DO NOT BREAK HOLE EDGES
A
1.50±.06 TYP
5.00±.06
2.00±.06
.50±.06 TYP
.12 HIGH FARSIDE
1090 (9) 2 PLACES
(3)
13.59 ±.06 2 PLACES
(7)
MARK NEAR AND FAR SIDE
.68
1.38 TYP
⊥ A .010
∥ A .010
.50±.06 TYP
1.50±.06 TYP
9.280
1090 (4) 2 PLACES
7.96
4.96 ±.06 2 PLACES
8.46 8.44
1.12±.06
3.98
1.239 1.253 DIA
.680 .700 DIA
.133 .139 DIA & CSK 82°±2° x .23 .24 DIA FARSIDE 4 HOLES
.724 .714
.75±.06
.536 .526
1.067 1.057
.365 .355
2.50 ±.06
.133 .139 DIA 4 HOLES
(4)
.50
.312
.25R MAX TYP
(13) REF
(8)
4 PLACES
RTYP
.257 .266 TYP
.128 .133 TYP
(5)
4.125 TYP
8.250 TYP
12.375 TYP
16.500 TYP
17.06 17.04
16.59±.06
.337
.31
.010
.34±.06 TYP
.88 2 PLACES
1.00±.06 TYP
610 (4) 2 PLACES
.09 STK
.31±.06
6 (13)
.313 .316 DIA 6 HOLES DO NOT BREAK EDGES
6.78 ±.06 2 PLACES
4.680
8.61 8.59
.09±.03 R TYP
.75
.63 2 PLACES
1.00 TYP
7.250 TYP
14.500 TYP
.09 STK

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006988-25	NUT, PLAIN SELF CLINCHING	20
4	MS35649-64	NUT, PLAIN HEX	9
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4	MS15795-805	WASHER, FLAT	17
30	MS20426AD3-6	RIVET, FLAT HD SOLID	16
4	1006426-001	FASTENER, PANEL	15
1	MS35825-2A	HINGE	14
6	1006896-10	NUT, SELF LOCKING	13
1	1006666	GASKET	12
4	1006874	RECEPTACLE, SEALED	11
8	MS20470A-3-5	RIVET, UNIVERSAL HD	10
4	MS51957-30	SCREW, PAN HD	9
1	2014374-008	ANGLE, RIGHT	8
1	2014374-007	PANEL, REAR	7
1	2014374-006	SHIM	6
1	2014374-005	ANGLE, BOTTOM	5
1	2014374-004	ANGLE, LEFT	4
1	2014374-003	ANGLE, TOP	3
1	2014374-002	DOOR	2
1	2014374-001	COVER, TAPE READER	1

LIST OF MATERIALS

2014374

(1)(2)(7)

NOTES

1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

(3)(4)(5)(6)(8)

NOTES

1. MATL AL 6063-T6 PER QQ-A-200/9
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

ASSY NOTES

1. WELD PER MIL-W-8604
2. SPOT WELD PER MIL-W-6858 (CLASS B)
3. REMOVE HINGE PIN OF FIND 14 BEFORE CHROMATING
4. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
5. AFTER CHROMATE INSTALL HINGE PIN & CRIMP LOOPS OF FIND 14 ONE HALF CLOSED
6. HINGE SHALL NOT BIND
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER MD1002019 USING BLACK INK 1006271-10
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014038	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.015 ANGLES ±0°30'
DO NOT SCALE DRAWING
MATERIAL
SEE NOTE

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN B [illegible] DATE 11 SEP 65
CHECKED E [illegible] C.C. 28 SEP 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, ASSEMBLY
RF SHIELD

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014374
SCALE 1/1
WT
SHEET 1 OF 2

2014374 C 8

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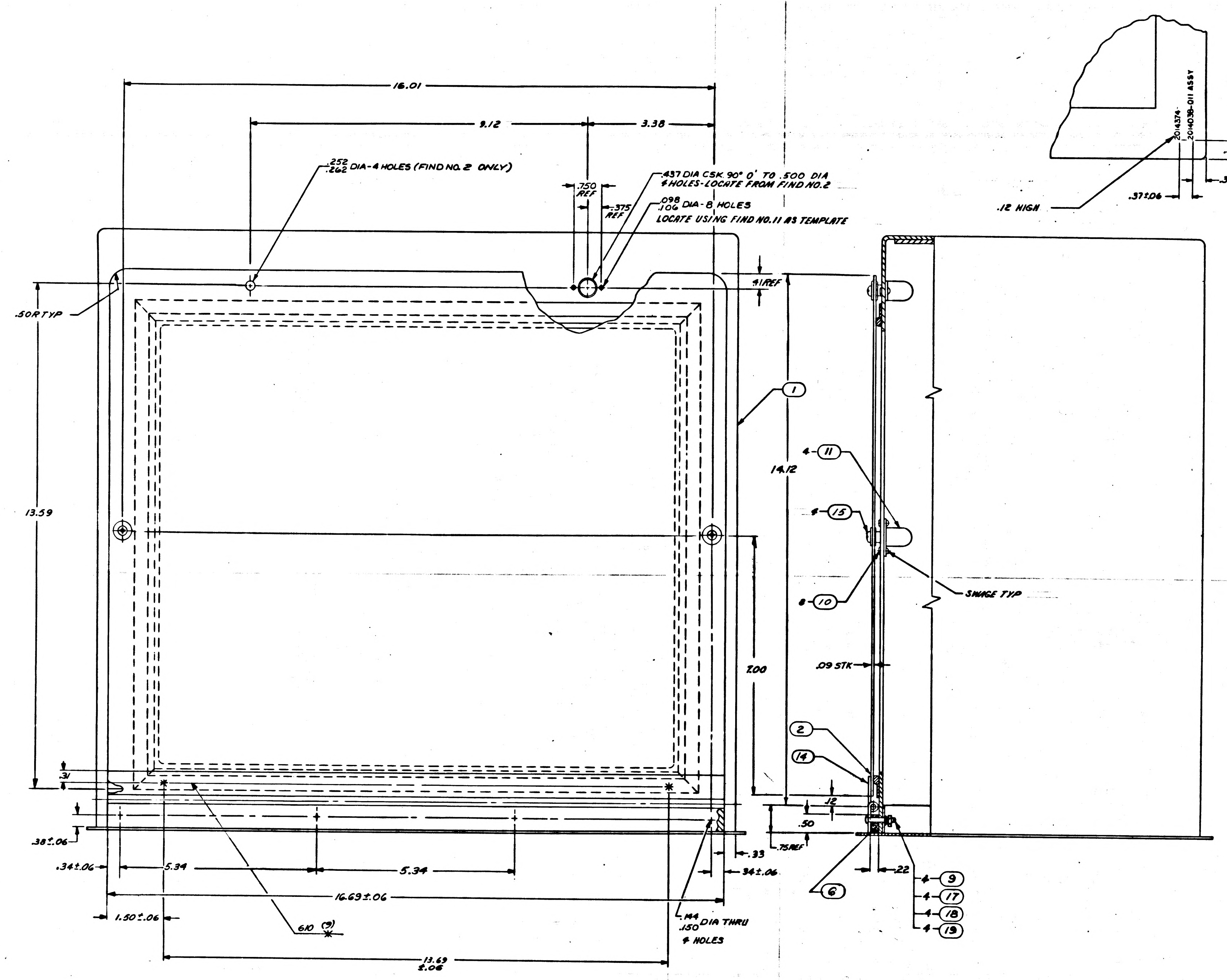
ANY USE OF THIS DOCUMENT FOR OTHER THAN GOVERNMENTAL PURPOSES IS SUBJECT TO PRIOR WRITTEN CONSENT OF RAYTHEON CO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
C	RELEASED PER CCA R25297		
–	~~CLASS B CHANGED PER CCA R2550~~		
A	CHANGED PER CCA R25573 AND CLASS A RELEASED PER TORR 25472	1/7/66	
B	CHANGED PER TORR 26500 DR A. J. Green CHK APPD		
C	CHANGED PER TORR 26679 DR CHK APPD		


16.01
9.12
3.38
.252 .262 DIA-4 HOLES (FIND NO. 2 ONLY)
.750 REF
.375 REF
.437 DIA CSK 90° 0' TO .500 DIA 4 HOLES-LOCATE FROM FIND NO.2
.098 .106 DIA-8 HOLES LOCATE USING FIND NO.11 AS TEMPLATE
.41 REF
.50R TYP
13.59
14.12
7.00
.31
.38±.06
.34±.06
5.34
5.34
16.69±.06
1.50±.06
610 (9)
13.69 ±.06
.144 .150 DIA THRU 4 HOLES
.33
.34±.06
.12
.50
.75 REF
.22
.09 STK
SWAGE TYP
1
2
14
6
4-11
4-15
8-10
4-9
4-17
4-18
4-19
.12 HIGH
.37±.06
.37±.06
.37±.06
2014374-
2014038-011 ASSY

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 .005 ANGLES ±0°30'
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-4?37
DRAWN DATE 8 JUL 65
CHECKED E. Urban CC 29 SEP 65
APPROVAL
APPROVAL D. O'Bryant 10/6/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1/7/66

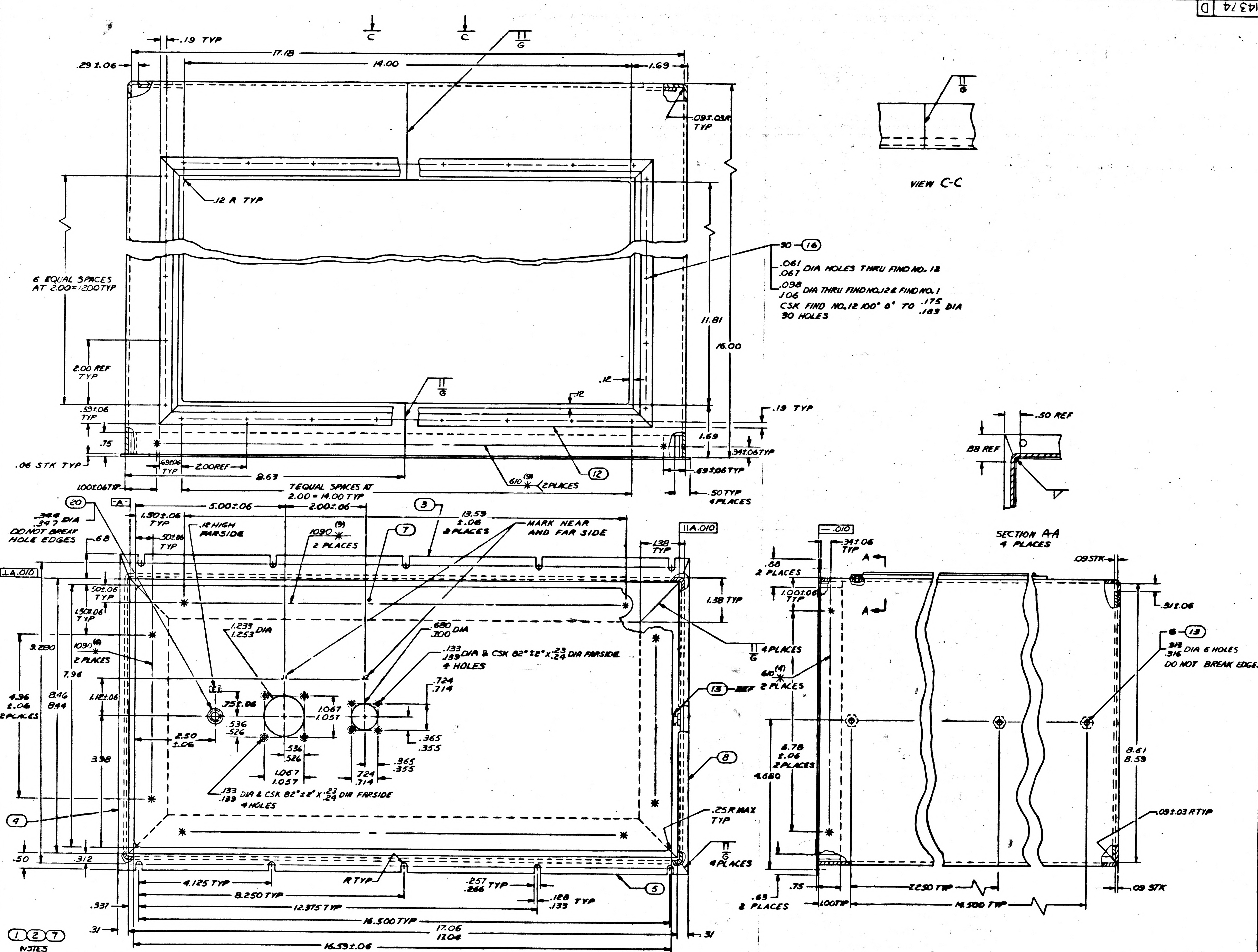
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER ASSEMBLY
RF SHIELD

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014374
SCALE 1/1
WT
SHEET 2 OF 2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25293	10/15/65	[illegible]
-	CLASS B CHANGED PER CCA R25502	11/15/65	[illegible]
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	1/25/66	[illegible]
B	CHANGED PER TDRR 26500 DR Q. J. [illegible] CHK [illegible] APPD	2/[illegible]/66	[illegible]
C	CHANGED PER TDRR 26679 DR [illegible] CHK [illegible] APPD P.E.D	[illegible]	[illegible]
D	CHANGED PER TDRR 26695 DR [illegible] CHK [illegible] APPD P.E.D	[illegible]/66	[illegible]

2014374 D



C
C
G
.19 TYP
17.18
14.00
1.69
.29 ± .06
.09 ± .03R TYP
.12 R TYP
6 EQUAL SPACES AT 2.00 = 12.00 TYP
2.00 REF TYP
.59 ± .06 TYP
.75
.06 STK TYP
.69 ± .06 TYP
2.00 REF
8.63
100 ± .06 TYP
7 EQUAL SPACES AT 2.00 = 14.00 TYP
610 (9) 2 PLACES
12
16
.061 .067 DIA HOLES THRU FIND NO. 12
.098 .106 DIA THRU FIND NO. 12 & FIND NO. 1
CSK FIND NO. 12 100° 0° TO .175 .163 DIA
30 HOLES
11.81
16.00
.12
.19 TYP
1.69
.34 ± .06 TYP
.69 ± .06 TYP
.50 TYP 4 PLACES
VIEW C-C
.50 REF
.88 REF
SECTION A-A
4 PLACES
A
20
.344 .347 DIA
DO NOT BREAK HOLE EDGES
.68
1.50 ± .06 TYP
.50 ± .06 TYP
.12 HIGH FARSIDE
5.00 ± .06
2.00 ± .06
1090 (9) 2 PLACES
3
7
13.59 ± .06 2 PLACES
MARK NEAR AND FAR SIDE
1.38 TYP
A .010
.50 ± .06 TYP
1.50 ± .06 TYP
1.38 TYP
1.233 1.253 DIA
.680 .700 DIA
.133 .139 DIA & CSK 82° ± 2° X .23 .24 DIA FARSIDE 4 HOLES
9.280
1090 (9) 2 PLACES
7.96
4.96 ± .06 2 PLACES
8.46 8.44
1.12 ± .06
.75 ± .06
.536 .526
2.50 ± .06
.724 .714
1.067 1.057
.365 .355
3.98
13 REF
8
4 PLACES
G
4
.133 .139 DIA & CSK 82° ± 2° X .23 .24 DIA FARSIDE 4 HOLES
.25 R MAX TYP
4 PLACES
.50
.312
R TYP
4.125 TYP
8.250 TYP
12.375 TYP
16.500 TYP
.257 .266 TYP
.128 .133 TYP
5
.337
.31
17.06 17.04
16.59 ± .06
.31
.010
.34 ± .06 TYP
.88 2 PLACES
1.00 ± .06 TYP
610 (4) 2 PLACES
.09 STK
.31 ± .06
13
.313 .316 DIA 6 HOLES
DO NOT BREAK EDGES
6.78 ± .06 2 PLACES
4.680
8.61 8.59
.09 ± .03 R TYP
.75
.63 2 PLACES
1.00 TYP
2.250 TYP
14.500 TYP
.09 STK

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
7	1006988-25	NUT, PLAIN SELF CLINCHING	20
4	MS35649-64	NUT, PLAIN HEX	19
4	MS35337-79	WASHER, LOCK SPLIT	18
4	MS15795-805	WASHER, FLAT	17
30	MS20426AD3-6	RIVET, FLAT HD SOLID	16
4	1006426-001	FASTENER, PANEL	15
1	MS35825-2A	HINGE	14
6	1006896-10	NUT, SELF LOCKING	13
1	1006666	GASKET	12
4	1006874	RECEPTACLE, SEALED	11
8	MS20470A-3-5	RIVET, UNIVERSAL HD	10
4	MS51957-30	SCREW, PAN HD	9
1	2014374-008	ANGLE, RIGHT	8
1	2014374-007	PANEL, REAR	7
1	2014374-006	SHIM	6
1	2014374-005	ANGLE, BOTTOM	5
1	2014374-004	ANGLE, LEFT	4
1	2014374-003	ANGLE, TOP	3
1	2014374-002	DOOR	2
1	2014374-001	COVER, TAPE READER	1

LIST OF MATERIALS

2014374 D

① ② ⑦
NOTES
1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020
UNLESS OTHERWISE SPECIFIED

③ ④ ⑤ ⑥ ⑧
NOTES
1. MATL AL 6063-T6 PER QQ-A-200/9
2. REMOVE BURRS & SHARP EDGES .005/.020
UNLESS OTHERWISE SPECIFIED

ASSY NOTES
1. WELD PER MIL-W-8604
2. SPOT WELD PER MIL-W-6858 (CLASS B)
3. REMOVE HINGE PIN OF FIND 14 BEFORE CHROMATING
4. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
5. AFTER CHROMATE INSTALL HINGE PIN & CRIMP LOOPS OF FIND 14 ONE HALF CLOSED
6. HINGE SHALL NOT BIND
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014038		
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.015 ANGLES ± 0° 30'
DO NOT SCALE DRAWING
MATERIAL
SEE NOTE

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN B Katsuba DATE 11 SEP 65
CHECKED E Urban C.C. 28 SEP 65
APPROVAL [illegible]
APPROVAL A. O'[illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, ASSEMBLY
RF SHIELD

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014374
SCALE 1/1 | WT | SHEET 1 OF 2

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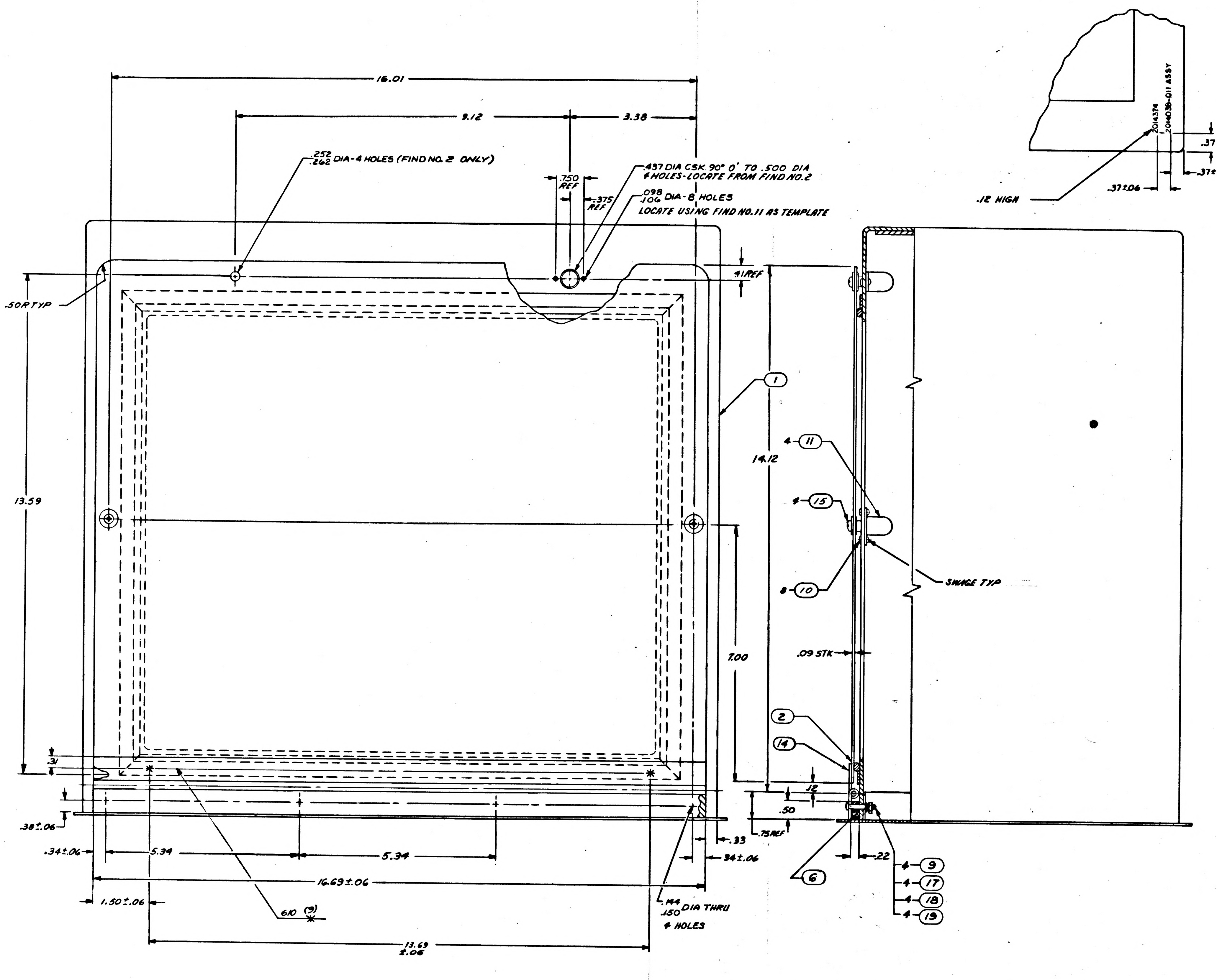
ANY USE OF THIS DOCUMENT FOR OTHER THAN GOVERNMENTAL PURPOSES IS SUBJECT TO PRIOR WRITTEN CONSENT OF RAYTHEON CO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER CCA R25293		
–	CLASS B CHANGED PER CCA 5502		
A	CHANGED PER CCA R25573 AND CLASS A RELEASED PER TDRR 25472	1/?/66	
B	CHANGED PER TDRR 26500 DR A. J. Breen CHK APPD	3/?/66	
C	CHANGED PER TDRR 26679 DR CHK APPD PED	4/4/66	
D	CHANGED PER TDRR 26695 DR CHK APPD PED	4/20/66	


16.01
9.12
3.38
.252 .262 DIA-4 HOLES (FIND NO. 2 ONLY)
.750 REF
.375 REF
.437 DIA CSK 90° 0' TO .500 DIA 4 HOLES-LOCATE FROM FIND NO.2
.098 .106 DIA-8 HOLES LOCATE USING FIND NO.11 AS TEMPLATE
.41 REF
.50R TYP
13.59
14.12
7.00
1
.31
.38±.06
.34±.06
5.34
5.34
16.69±.06
1.50±.06
13.69 ±.06
610 (9)
.33
.34±.06
.144 .150 DIA THRU 4 HOLES
.75 REF
.50
.12
.22
.09 STK
4-11
4-15
8-10
SWAGE TYP
2
14
6
4-9
4-17
4-18
4-19
2014374
2014038-011 ASSY
.12 HIGH
.37±.06
.37±.06
.37±.06

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 .005 ANGLES ±0°30'
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 8 JUL 65
CHECKED E. Urban C.C. 29 SEP 65
APPROVAL
APPROVAL D O 10/6/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1/?/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

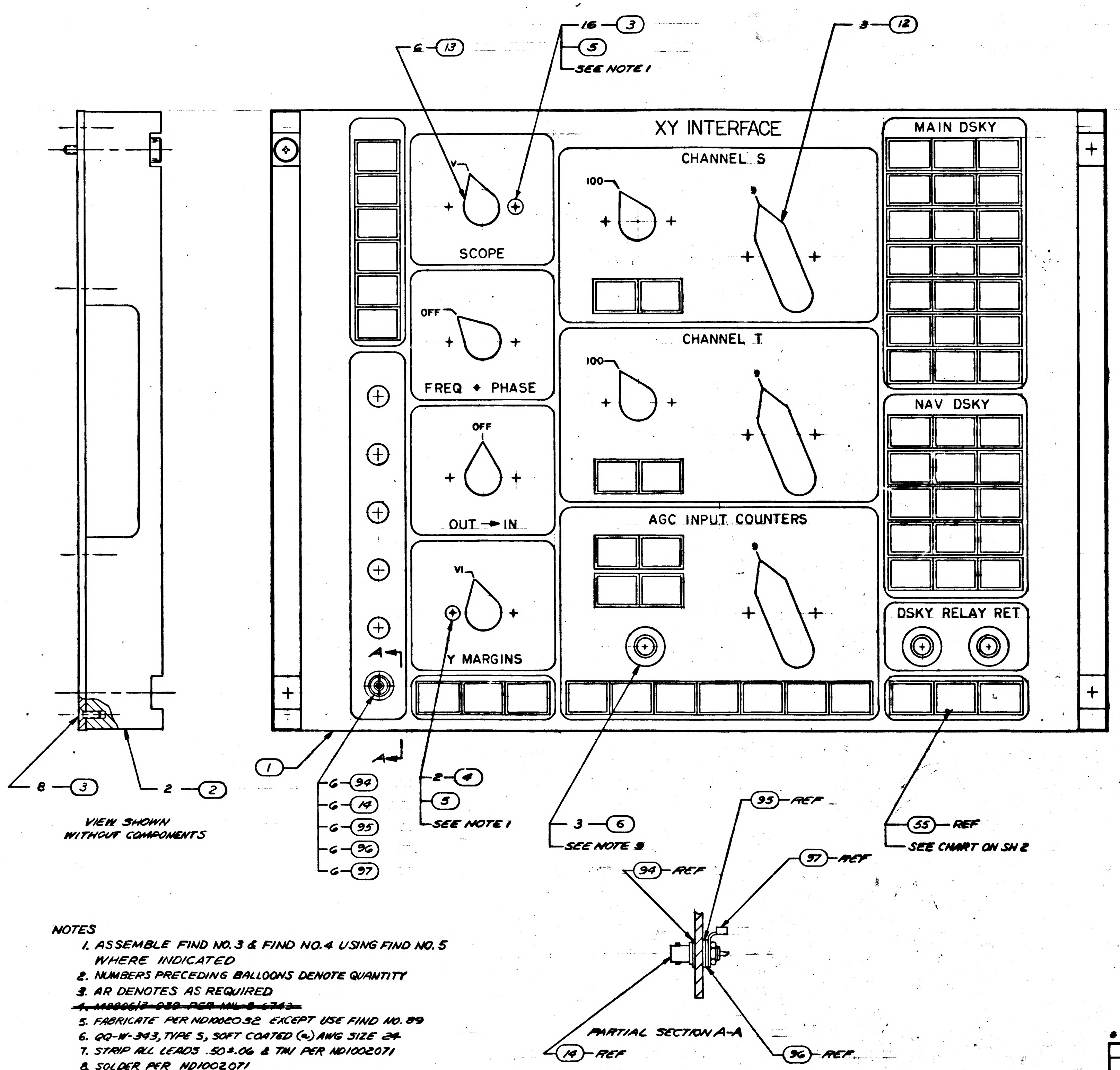
COVER ASSEMBLY
RF SHIELD

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO 2014374
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014375 B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25167		
1	CHANGED PER CCA R25318 DR W. Kelly CHK APPD		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25752 DR CHK BEQ APPL	1/15/66	
B	CHANGES PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218		


XY INTERFACE
SCOPE
V
FREQ + PHASE
OFF
OUT → IN
VI
Y MARGINS
CHANNEL S
CHANNEL T
AGC INPUT COUNTERS
100
MAIN DSKY
NAV DSKY
DSKY RELAY RET
6 — 13
16 — 3
5
SEE NOTE 1
3 — 12
8 — 3
2 — 2
1
6 — 94
6 — 14
6 — 95
6 — 96
6 — 97
2 — 4
5
SEE NOTE 1
3 — 6
SEE NOTE 9
55 — REF
SEE CHART ON SH 2
A
VIEW SHOWN WITHOUT COMPONENTS
95 — REF
97 — REF
94 — REF
14 — REF
96 — REF
PARTIAL SECTION A-A

NOTES

1. ASSEMBLE FIND NO. 3 & FIND NO. 4 USING FIND NO. 5 WHERE INDICATED
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. AR DENOTES AS REQUIRED
~~4. M8805/3-039 PER MIL-S-6743~~
5. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 89
6. QQ-W-343, TYPE S, SOFT COATED (a) AWG SIZE 24
7. STRIP ALL LEADS .50±.06 & TIN PER ND1002071
8. SOLDER PER ND1002071
9. APPLY FIND 5 TO INTERNAL THREADS OF FIND 6

PARTS LIST CONTINUED ON SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006404-067	LIGHT, INDICATOR-LENS	45
1	-062		44
1	-063		43
1	-064		42
1	-006		41
1	-060		40
1	-061		39
1	-057		38
1	-058		37
1	-059		36
1	-054		35
1	-055		34
1	-056		33
1	-051		32
1	-052		31
1	-053		30
1	-048		29
1	-049		28
1	-050		27
1	-045		26
1	-046		25
1	-047		24
1	-042		23
1	-043		22
1	-044		21
1	-039		20
1	-040		19
1	-041	-LENS	18
39	-005	-DIS SCRN	17
39	-002	-COLOR FLTR	16
39	1006404-001	LIGHT, INDICATOR-BSC UNIT	15
6	MS35179-1094A	CONNECTOR, ELECTRICAL	14
6	MS91528-2K2B	KNOB, CONTROL, POINTER	13
3	1006928	KNOB, BAR	12
1	1006462-001	SWITCH, ROTARY	11
1	1006257-000	SWITCH, ROTARY	10
1	1006461-001	SWITCH, ROTARY	9
2	1006257-002	SWITCH, ROTARY	8
3	1006892-3	SWITCH, ROTARY	7
3	MS25089-3C	SWITCH, PUSH	6
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMP	5
2	MS51959-29	SCREW, MACH, FLAT HD	4
24	MS51959-44	SCREW, MACH, FLAT HD	3
2	1014215-7	HANDLE ASSY	2
1	2014350	PANEL, FRONT	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014040	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±   DECIMALS .XXX ±   ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 Jun 65
CHECKED 16 AUG 65
APPROVAL 31 AUG 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
X Y INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014375
SCALE 1/1
WT
SHEET 1 OF 2

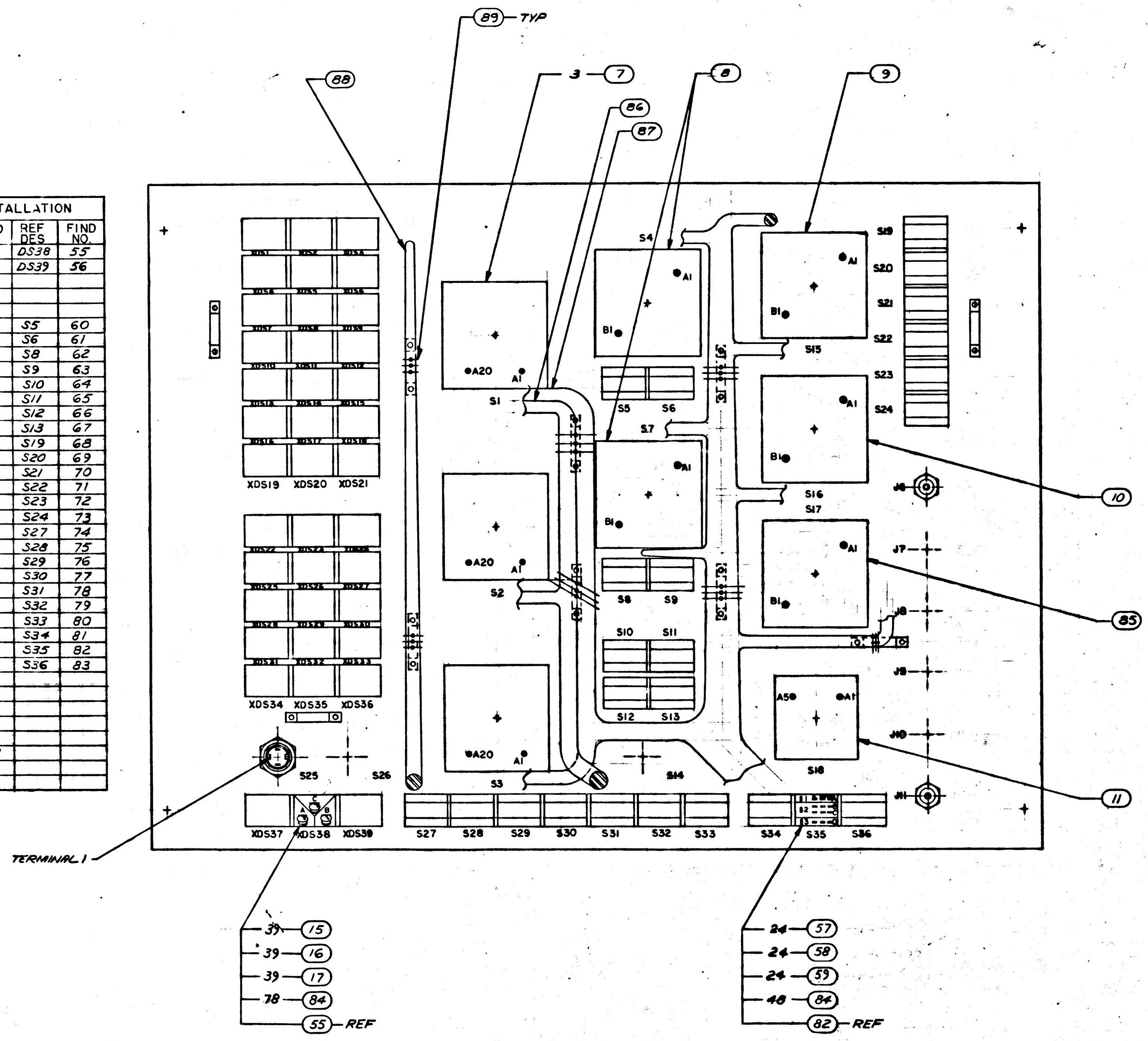
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014375 B

2014375 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCAR25167	9/1/65	
1	CHANGED PER CCA R25318 DR W. Kelly CHK APPD	Nov 65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCAR 25752 DR CHK BGQ APPD RK	7/15/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDAR 26218	2/10/66	



89 TYP
88
3
7
86
87
8
9
S4
S19
S20
S21
S22
S23
S24
S15
S16
S17
S18
S1
S2
S3
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
A1
B1
A20
A5
10
85
11
J6
J7
J8
J9
J10
J11
XDS19
XDS20
XDS21
XDS34
XDS35
XDS36
XDS37
XDS38
XDS39
S25
S26
S27
S28
S29
S30
S31
S32
S33
S34
S35
S36
TERMINAL 1
39 15
39 16
39 17
78 84
55 REF
24 57
24 58
24 59
48 84
82 REF

LENS INSTALLATION			
REF DES	FIND NO.	REF DES	FIND NO.
DS1	18	DS38	55
DS2	19	DS39	56
DS3	20		
DS4	21		
DS5	22		
DS6	23	S5	60
DS7	24	S6	61
DS8	25	S8	62
DS9	26	S9	63
DS10	27	S10	64
DS11	28	S11	65
DS12	29	S12	66
DS13	30	S13	67
DS14	31	S19	68
DS15	32	S20	69
DS16	33	S21	70
DS17	34	S22	71
DS18	35	S23	72
DS19	36	S24	73
DS20	37	S27	74
DS21	38	S28	75
DS22	39	S29	76
DS23	40	S30	77
DS24	41	S31	78
DS25	42	S32	79
DS26	43	S33	80
DS27	44	S34	81
DS28	45	S35	82
DS29	46	S36	83
DS30	47		
DS31	48		
DS32	49		
DS33	50		
DS34	51		
DS35	52		
DS36	53		
DS37	54		

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014179	SCHEMATIC	REF
	☒	2014464	LEAD ELEC	REF
	6	1006950-1	TERMINAL	97
	6	AN960C6L	WASHER, FLAT	96
	6	1006982-10	WASHER, NYLON	95
	6	1020376	WASHER, INSULATING	94
NOT SHOWN *	24.0	1006776-21	SLEEVING, INSULATION	93
NOT SHOWN *	10.3	SEE NOTE 6	WIRE, ELEC	92
NOT SHOWN *	60.0	MIL-W-16878/4E24 WHT	WIRE, ELEC	91
NOT SHOWN *	0.3	MIL-W-16878/4E24BLK	WIRE, ELEC	90
	AR	1006458-004	TAPE, LACING	89
	1	2014465-011	WIRING HARNESS, E	88
	1	2014467-011	WIRING HARNESS, D	87
	1	2014468-011	WIRING HARNESS, C	86
	1	1006257-001	SWITCH, ROTARY	85
	126	1006407-002	LAMP, BULB	84
	1	1006405-038	SWITCH, PUSH-LENS	83
	1	-037		82
	1	-036		81
	1	-139		80
	1	-135		79
	1	-136		78
	1	-137		77
	1	-138		76
	1	-140		75
	1	-035		74
	1	-039		73
	1	-149		72
	1	-148		71
	1	-147		70
	1	-146		69
	1	-145		68
	1	-192		67
	1	-143		66
	1	-141		65
	1	-142		64
	1	-152		63
	1	-153		62
	1	-150		61
	1	-151	-LENS	60
	24	-003	-DIS SCRN	59
	24	-002	-COLOR FILTER	58
	24	1006405-001	SWITCH, PUSH-BASIC UNIT	57
	1	1006404-007	LIGHT, INDICATOR-LENS	56
	1	-034		55
	1	-035		54
	1	-071		53
	1	-072		52
	1	-073		5
	1	-068		50
	1	-069		4
	1	-070		48
	1	-065		47
	1	1006404-066	LIGHT, INDICATOR-LENS	46

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 JUN 65
CHECKED D. Lapenta 16AUG65
APPROVAL 31 AUG 65
APPROVAL 9/1/65
APPROVAL 9/12/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
X Y INTERFACE
COMPUTER TEST SET

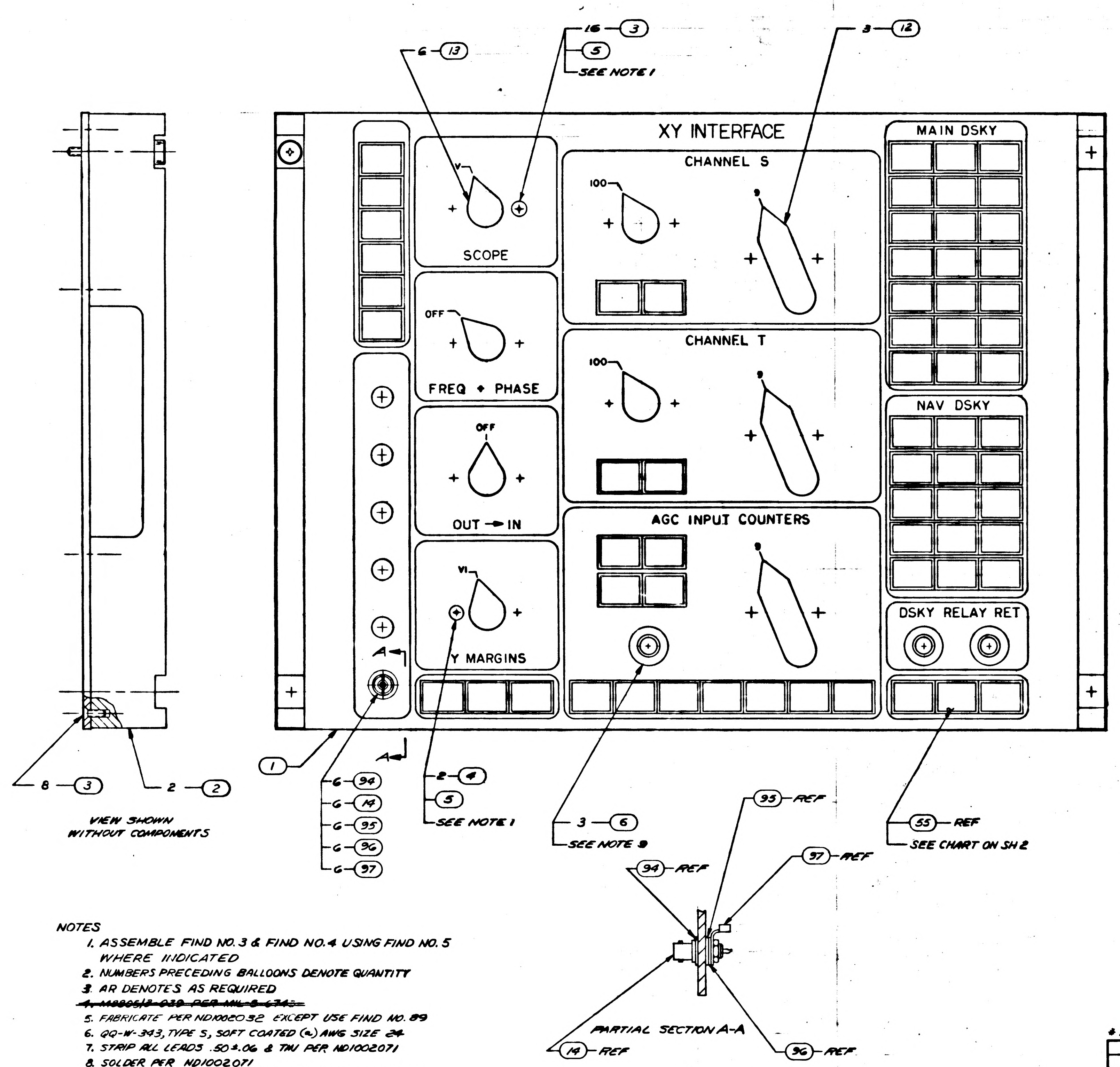
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014375
SCALE 1/1
WT
SHEET 2 OF 2

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014375 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25187	[illegible]	G. Naran
1	CHANGED PER CCA R25318 DR W. Kelley CHK [illegible] APPD [illegible]	1 June 65	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25782 DR [illegible] CHK BEQ APPD [illegible]	1/17/66	[illegible]
B	CHANGES PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	3/10/66	[illegible]
C	CHANGED PER TDRR 26701 DR E. Uftring CHK C. DeThomas APPD [illegible]	7/2/66	[illegible]


6 — 13
16 — 3
5
SEE NOTE 1
3 — 12
XY INTERFACE
SCOPE
V
FREQ + PHASE
OFF
OUT → IN
Y MARGINS
VI
CHANNEL S
100
9
CHANNEL T
AGC INPUT COUNTERS
MAIN DSKY
NAV DSKY
DSKY RELAY RET
A
8 — 3
2 — 2
1
6 — 94
6 — 14
6 — 95
6 — 96
6 — 97
2 — 4
5
SEE NOTE 1
3 — 6
SEE NOTE 9
55 — REF
SEE CHART ON SH 2
95 — REF
97 — REF
94 — REF
14 — REF
96 — REF

VIEW SHOWN WITHOUT COMPONENTS

PARTIAL SECTION A-A

NOTES
1. ASSEMBLE FIND NO. 3 & FIND NO. 4 USING FIND NO. 5 WHERE INDICATED
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. AR DENOTES AS REQUIRED
~~4. M8805/2-039 PER MIL-S-6745~~
5. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 89
6. QQ-W-343, TYPE S, SOFT COATED (a) AWG SIZE 24
7. STRIP ALL LEADS .50 ± .06 & TIN PER ND1002071
8. SOLDER PER ND1002071
9. APPLY FIND 5 TO INTERNAL THREADS OF FIND 6

PARTS LIST CONTINUED ON SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006404-067	LIGHT, INDICATOR-LENS	45
1	-062		44
1	-063		43
1	-064		42
1	-006		41
1	-060		40
1	-061		39
1	-057		38
1	-058		37
1	-059		36
1	-054		35
1	-055		34
1	-056		33
1	-051		32
1	-052		31
1	-053		30
1	-048		29
1	-049		28
1	-050		27
1	-045		26
1	-046		25
1	-047		24
1	-042		23
1	-043		22
1	-044		21
1	-039		20
1	-040		19
1	-041	-LENS	18
39	-005	-DIS SCRN	17
39	-002	-COLOR FLTR	16
39	1006404-001	LIGHT, INDICATOR-BSC UNIT	15
6	MS35179-1094A	CONNECTOR, ELECTRICAL	14
6	MS91528-2K2B	KNOB, CONTROL, POINTER	13
3	1006928	KNOB, BAR	12
1	1006462-001	SWITCH, ROTARY	11
1	1006257-000	SWITCH, ROTARY	10
1	1006461-001	SWITCH, ROTARY	9
2	1006257-002	SWITCH, ROTARY	8
3	1006892-3	SWITCH, ROTARY	7
3	MS25089-3C	SWITCH, PUSH	6
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMP	5
2	MS51959-29	SCREW, MACH, FLAT HD	4
24	MS51959-44	SCREW, MACH, FLAT HD	3
2	1014215-7	HANDLE ASSY	2
1	2014350	PANEL, FRONT	1

-011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014040	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 30 Jun 65
CHECKED [illegible] 16 AUG 65
APPROVAL [illegible] 31 AUG 65
APPROVAL [illegible] 31/1/65
APPROVAL [illegible] 9/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W. Kupfer 15 Feb 66
MIT APPROVAL G. Harano [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
X Y INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014375
SCALE 1/1
WT
SHEET 1 OF 2

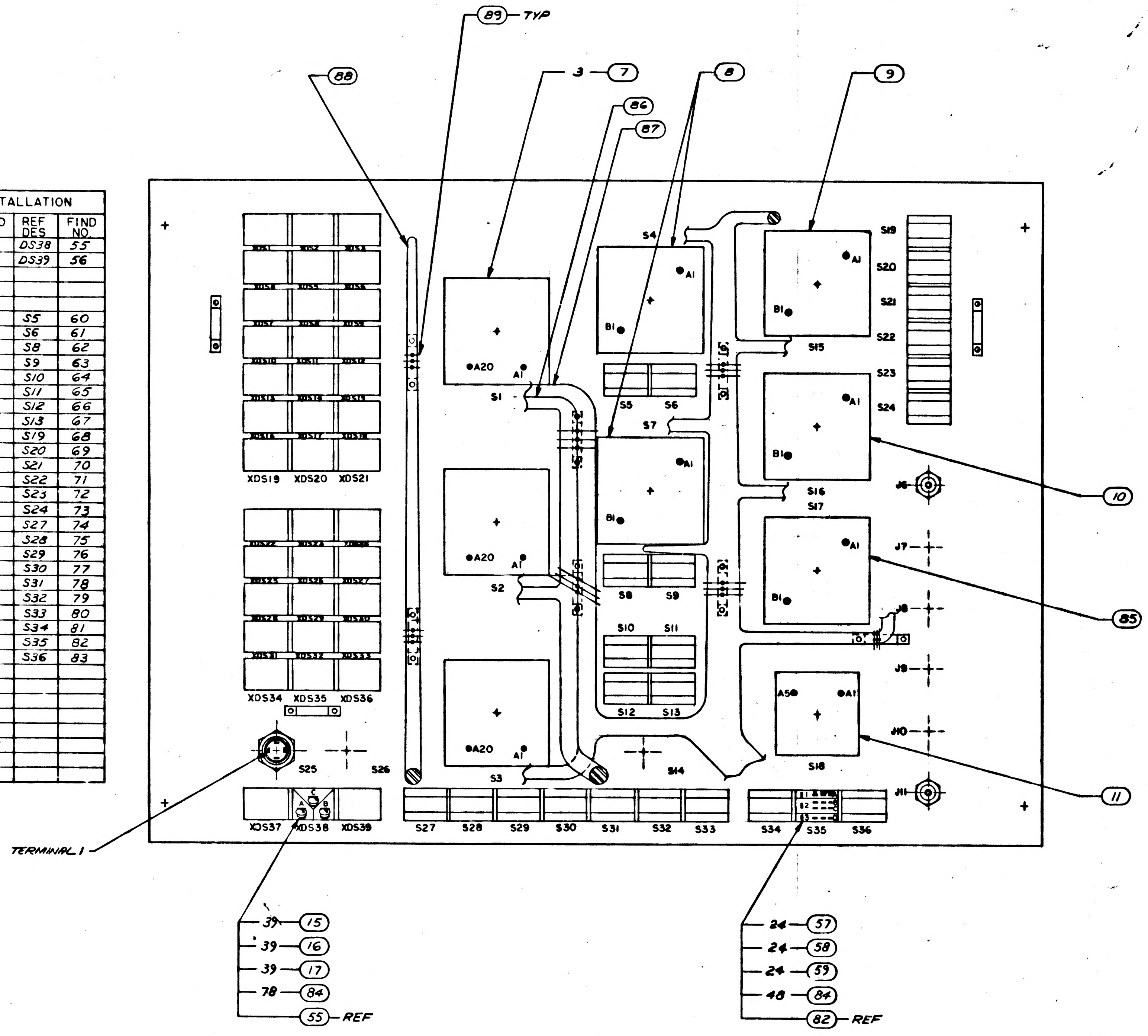
MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014375C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCAR25167	9/1/65	
1	CHANGED PER CCA R25318 DR W. Kelly CHK APPD	65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCAR 25752 DR CHK BGQ APPD	7/15/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	/66	
C	CHANGED PER TDRR 26701 DR E. Uftring CHK APPD	/66	

LENS INSTALLATION			
REF DES	FIND NO.	REF DES	FIND NO.
DS1	18	DS38	55
DS2	19	DS39	56
DS3	20		
DS4	21		
DS5	22		
DS6	23	S5	60
DS7	24	S6	61
DS8	25	S8	62
DS9	26	S9	63
DS10	27	S10	64
DS11	28	S11	65
DS12	29	S12	66
DS13	30	S13	67
DS14	31	S19	68
DS15	32	S20	69
DS16	33	S21	70
DS17	34	S22	71
DS18	35	S23	72
DS19	36	S24	73
DS20	37	S27	74
DS21	38	S28	75
DS22	39	S29	76
DS23	40	S30	77
DS24	41	S31	78
DS25	42	S32	79
DS26	43	S33	80
DS27	44	S34	81
DS28	45	S35	82
DS29	46	S36	83
DS30	47		
DS31	48		
DS32	49		
DS33	50		
DS34	51		
DS35	52		
DS36	53		
DS37	54		



89 TYP
88
3 — 7
86
87
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9
+
XDS19 XDS20 XDS21
XDS34 XDS35 XDS36
XDS37 XDS38 XDS39
A20
A1
A5
B1
S1
S2
S3
S4
S5 S6
S7
S8 S9
S10 S11
S12 S13
S14
S15
S16
S17
S18
S19
S20
S21
S22
S23
S24
S25
S26
S27 S28 S29 S30 S31 S32 S33
S34 S35 S36
J6
J7
J8
J9
J10
J11
10
85
11
TERMINAL 1
39 — 15
39 — 16
39 — 17
78 — 84
55 — REF
24 — 57
24 — 58
24 — 59
48 — 84
82 — REF

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014179	SCHEMATIC	REF
	☒	2014464	LEAD ELEC	REF
NOT SHOWN *	0.6	MIL-W-16878/4 E22 BLK	WIRE, ELEC	98
	6	1006950-1	TERMINAL	97
	6	AN960C6I6L	WASHER, FLAT	96
	6	1006982-10	WASHER, NYLON	95
	6	1020376	WASHER, INSULATING	94
NOT SHOWN *	24.0	1006776-21	SLEEVING, INSULATION	93
NOT SHOWN *	10.3	SEE NOTE 6	WIRE, ELEC	92
NOT SHOWN *	60.0	MIL-W-16878/4 E24 WHT	WIRE, ELEC	91
NOT SHOWN *	0.3	MIL-W-16878/4E24BLK	WIRE, ELEC	90
	AR	1006458-004	TAPE, LACING	89
	1	2014465-011	WIRING HARNESS, E	88
	1	2014467-011	WIRING HARNESS, D	87
	1	2014468-011	WIRING HARNESS, C	86
	1	1006257-001	SWITCH, ROTARY	85
	126	1006407-003	LAMP, BULB	84
	1	1006405-038	SWITCH, PUSH-LENS	83
	1	-037		82
	1	-036		81
	1	-139		80
	1	-135		79
	1	-185		78
	1	-137		77
	1	-138		76
	1	-140		75
	1	-035		74
	1	-039		73
	1	-149		72
	1	-148		71
	1	-147		70
	1	-146		69
	1	-145		68
	1	-192		67
	1	-143		66
	1	-141		65
	1	-142		64
	1	-152		63
	1	-153		62
	1	-150		61
	1	-151	-LENS	60
	24	-003	-DIS SCRN	59
	24	-002	-COLOR FILTER	58
	24	1006405-001	SWITCH, PUSH-BASIC UNIT	57
	1	1006404-007	LIGHT, INDICATOR-LENS	56
	1	-034		55
	1	-035		54
	1	-071		53
	1	-072		52
	1	-073		51
	1	-068		50
	1	-069		49
	1	-070		48
	1	-065		47
	1	1006404-066	LIGHT, INDICATOR-LENS	46
	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 Jun 65
CHECKED E. Lazuk 16AUG 65
APPROVAL 31 AUG 65
APPROVAL
APPROVAL
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
X Y INTERFACE
COMPUTER TEST SET

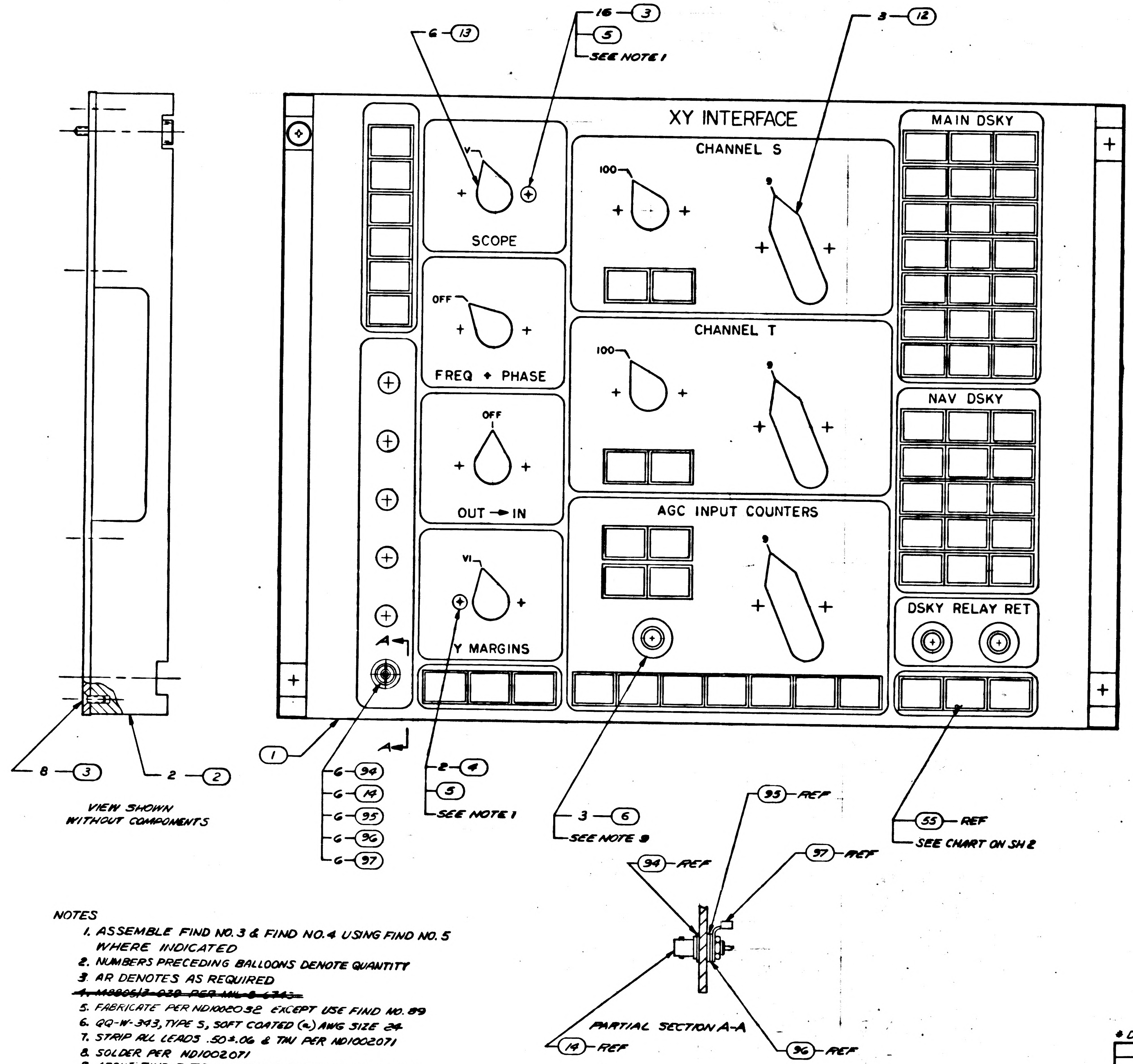
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	F	2014375
SCALE 1/1	WT	SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014375C

2014375 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25787		
1	CHANGED PER CCA R25318 DR W. Kelly CHK APPD J Conley		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25752 DR CHK APPD		
B	CHANGES PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218		
C	CHANGED PER TDRR 26701 DR E. Young CHK APPD Conley		
D	CHANGED PER TDRR 26694 DR C Hayward CHK APPD Conley		


6-13
16-3
5
SEE NOTE 1
3-12
XY INTERFACE
CHANNEL S
CHANNEL T
AGC INPUT COUNTERS
MAIN DSKY
NAV DSKY
DSKY RELAY RET
SCOPE
V
OFF
FREQ + PHASE
OFF
OUT → IN
VI
Y MARGINS
100
100
A
A
8-3
2-2
VIEW SHOWN WITHOUT COMPONENTS
1
6-94
6-14
6-95
6-96
6-97
2-4
5
SEE NOTE 1
3-6
SEE NOTE 9
55-REF
SEE CHART ON SH 2
95-REF
94-REF
97-REF
PARTIAL SECTION A-A
14-REF
96-REF

NOTES

1. ASSEMBLE FIND NO. 3 & FIND NO. 4 USING FIND NO. 5 WHERE INDICATED
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. AR DENOTES AS REQUIRED
~~4. MS90513-039 PER MIL-S-6743~~
5. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 89
6. QQ-W-343, TYPE S, SOFT COATED (a) AWG SIZE 24
7. STRIP ALL LEADS .50±.06 & TIN PER ND1002071
8. SOLDER PER ND1002071
9. APPLY FIND 5 TO INTERNAL THREADS OF FIND 6
10. SPOT TIE LEGS TO WAFER SPACERS OF S1, S2 & S3 SO THAT WIRES ARE HELD AS CLOSE AS POSSIBLE TO SWITCHES

PARTS LIST CONTINUED ON SHEET 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006404-067	LIGHT, INDICATOR-LENS	45
1	-062		44
1	-063		43
1	-064		42
1	-006		41
1	-060		40
1	-061		39
1	-057		38
1	-058		37
1	-059		36
1	-054		35
1	-055		34
1	-056		33
1	-051		32
1	-052		31
1	-053		30
1	-048		29
1	-049		28
1	-050		27
1	-045		26
1	-046		25
1	-047		24
1	-042		23
1	-043		22
1	-044		21
1	-039		20
1	-040		19
1	-041	-LENS	18
39	-005	-DIS SCAN	17
39	-079	-COLOR FLTR	16
39	1006404-001	LIGHT, INDICATOR-BSC UNIT	15
6	MS35179-1094A	CONNECTOR, ELECTRICAL	14
6	MS91528-2K2B	KNOB, CONTROL, POINTER	13
3	1006928	KNOB, BAR	12
1	1006462-001	SWITCH, ROTARY	11
1	1006257-000	SWITCH, ROTARY	10
1	1006461-001	SWITCH, ROTARY	9
2	1006257-008	SWITCH, ROTARY	8
3	1006892-3	SWITCH, ROTARY	7
3	MS25089-3C	SWITCH, PUSH	6
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMP	5
2	MS51959-29	SCREW, MACH, FLAT HD	4
24	MS51959-44	SCREW, MACH, FLAT HD	3
2	1014215-7	HANDLE ASSY	2
1	2014350	PANEL, FRONT	1

-011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014040	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 Jun 65
CHECKED 16 AUG 65
APPROVAL 31 AUG 65
APPROVAL 9/1/65
APPROVAL 9/1/65
NASA APPROVAL M. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
X Y INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014375
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

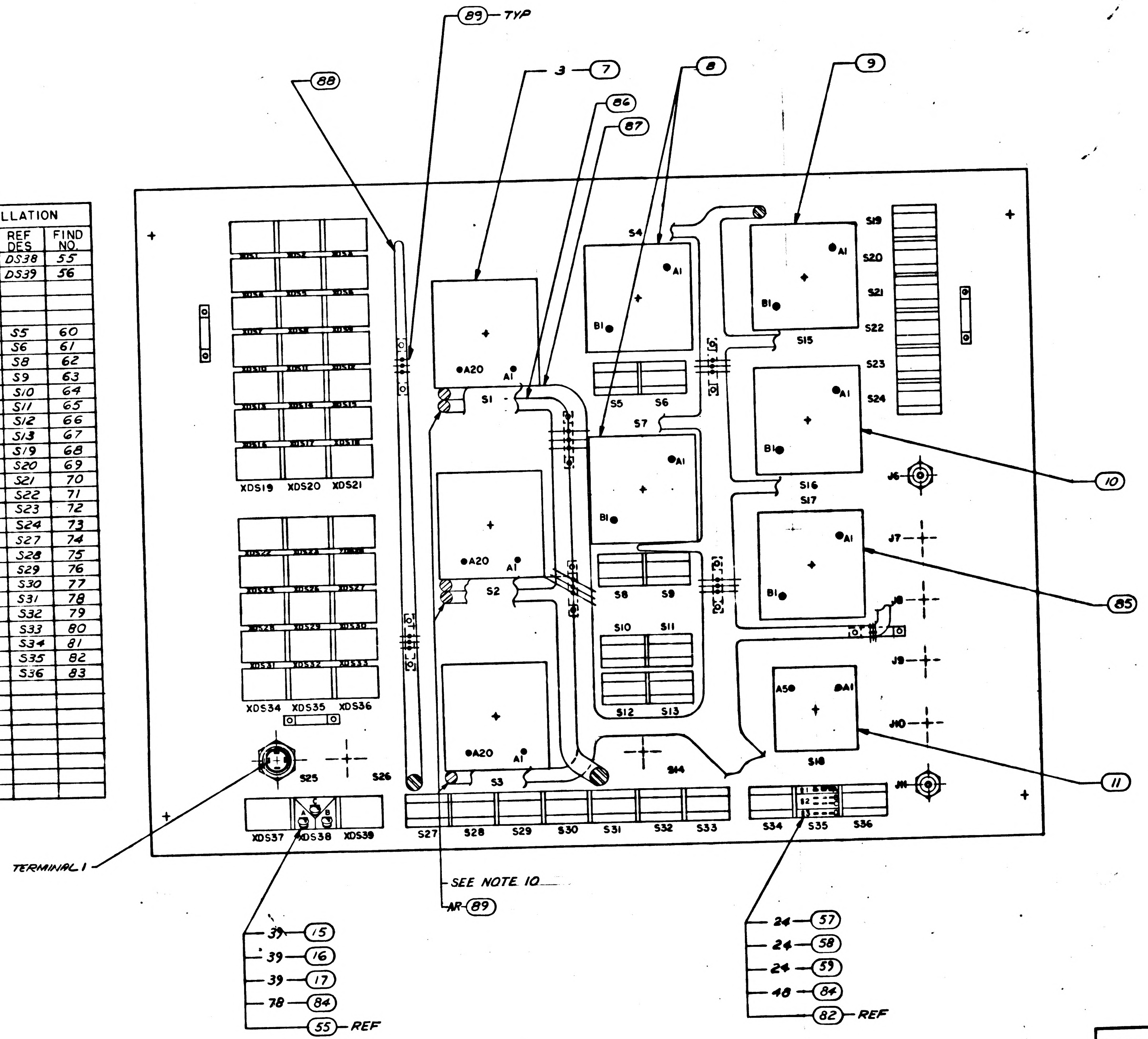
2014375 D

2014375 D

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCAR25167	9/13/65	
1	CHANGED PER CCA R25318 DR W. Kelly CHK APPD	Nov 65	
–	CLASS B CHANGED PER CCAR25502		
A	CHANGED PER CCAR 25762 DR CHK BGQ APPD	1/15/66	
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/ /66	
C	CHANGED PER TDRR 26701 DR E. Uffring CHK APPD	3/ /66	
D	CHANGED PER TDRR 26694 DR C Hayward CHK APPD		

LENS INSTALLATION

REF DES	FIND NO.	REF DES	FIND NO.
DS1	18	DS38	55
DS2	19	DS39	56
DS3	20		
DS4	21		
DS5	22		
DS6	23	S5	60
DS7	24	S6	61
DS8	25	S8	62
DS9	26	S9	63
DS10	27	S10	64
DS11	28	S11	65
DS12	29	S12	66
DS13	30	S13	67
DS14	31	S19	68
DS15	32	S20	69
DS16	33	S21	70
DS17	34	S22	71
DS18	35	S23	72
DS19	36	S24	73
DS20	37	S27	74
DS21	38	S28	75
DS22	39	S29	76
DS23	40	S30	77
DS24	41	S31	78
DS25	42	S32	79
DS26	43	S33	80
DS27	44	S34	81
DS28	45	S35	82
DS29	46	S36	83
DS30	47		
DS31	48		
DS32	49		
DS33	50		
DS34	51		
DS35	52		
DS36	53		
DS37	54		


89 — TYP
88
3 — 7
86
87
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9
10
85
11
S1
S2
S3
S4
S5
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S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
S17
S18
S19
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S22
S23
S24
S25
S26
S27
S28
S29
S30
S31
S32
S33
S34
S35
S36
A20
A1
B1
A5
J6
J7
J8
J9
J10
J11
XDS19
XDS20
XDS21
XDS34
XDS35
XDS36
XDS37
XDS38
XDS39
A
B
C
TERMINAL 1
SEE NOTE 10
AR — 89
39 — 15
39 — 16
39 — 17
78 — 84
55 — REF
24 — 57
24 — 58
24 — 59
48 — 84
82 — REF

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014179	SCHEMATIC	REF
	☒	2014464	LEAD ELEC	REF
NOT SHOWN *	0.6	MIL-W-16878/4 E22 BLK	WIRE, ELEC	98
	6	1006950-1	TERMINAL	97
	6	AN960C6L	WASHER, FLAT	96
	6	1006982-10	WASHER, NYLON	95
	6	1020376	WASHER, INSULATING	94
NOT SHOWN *	24.0	1006776-21	SLEEVING, INSULATION	93
NOT SHOWN *	10.3	SEE NOTE 6	WIRE, ELEC	92
NOT SHOWN *	60.0	MIL-W-16878/4E24 WHT	WIRE, ELEC	91
NOT SHOWN *	0.3	MIL-W-16878/4E24BLK	WIRE, ELEC	90
	AR	1006458-004	TAPE, LACING	89
	1	2014465-011	WIRING HARNESS, E	88
	1	2014467-011	WIRING HARNESS, D	87
	1	2014468-011	WIRING HARNESS, C	86
	1	1006257-001	SWITCH, ROTARY	85
	126	1006407-003	LAMP, BULB	84
	1	1006405-038	SWITCH, PUSH-LENS	83
	1	-037		82
	1	-036		81
	1	-139		80
	1	-135		79
	1	-185		78
	1	-137		77
	1	-138		76
	1	-140		75
	1	-035		74
	1	-039		73
	1	-149		72
	1	-148		71
	1	-147		70
	1	-146		69
	1	-145		68
	1	-192		67
	1	-143		66
	1	-141		65
	1	-142		64
	1	-152		63
	1	-153		62
	1	-150		61
	1	-151	-LENS	60
	24	-003	-DIS SCRN	59
	24	-002	-COLOR FILTER	58
	24	1006405-001	SWITCH, PUSH-BASIC UNIT	57
	1	1006404-007	LIGHT, INDICATOR-LENS	56
	1	-034		55
	1	-035		54
	1	-071		53
	1	-072		52
	1	-073		51
	1	-068		50
	1	-069		49
	1	-070		48
	1	-065		47
	1	1006404-066	LIGHT, INDICATOR-LENS	46
	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 JUN 65
CHECKED E. 16 AUG 65
APPROVAL 31 AUG 65
APPROVAL D. O'
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
X Y INTERFACE
COMPUTER TEST SET

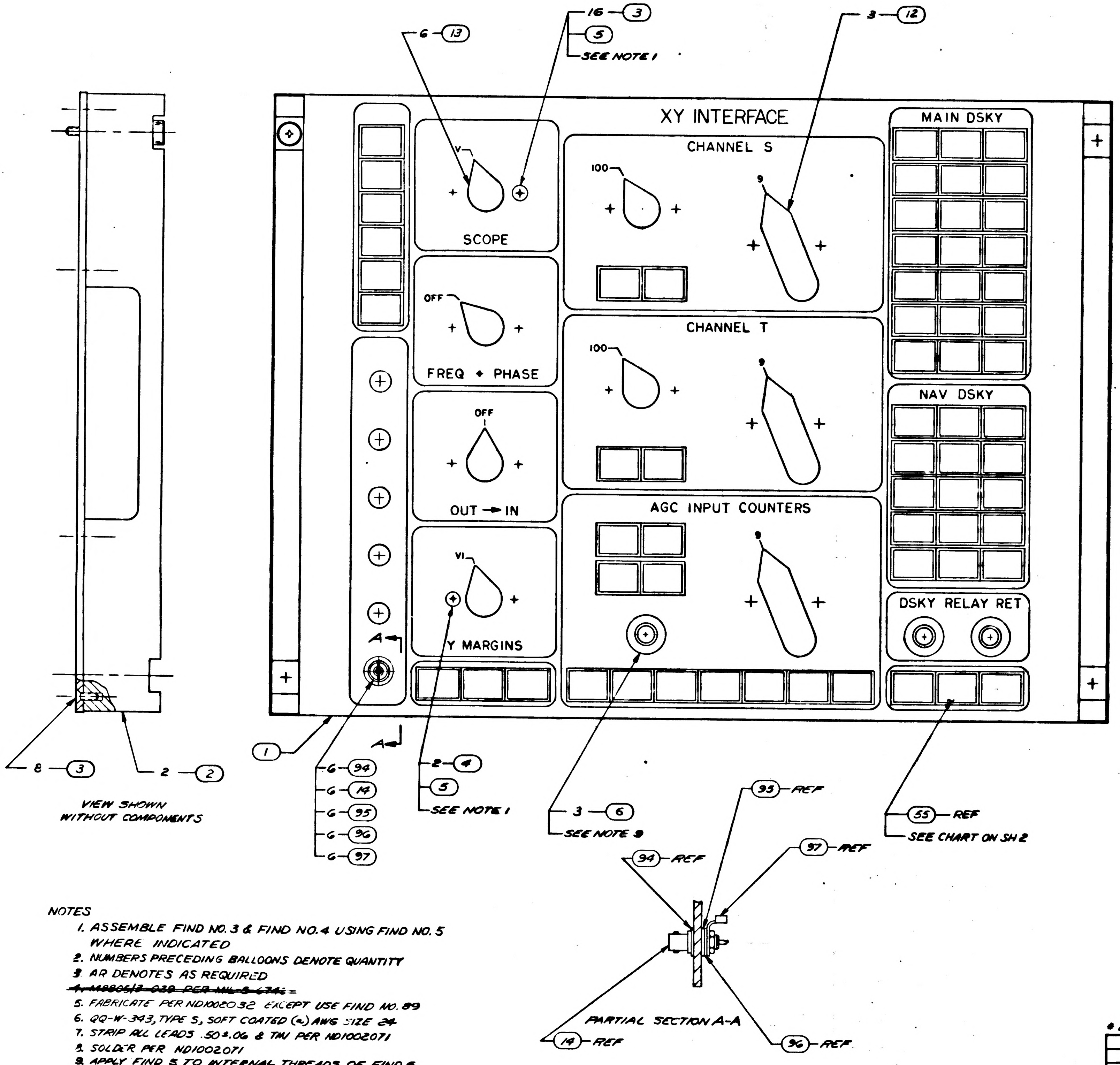
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014375
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014375 D

2014375 E

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25167		
1	CHANGED PER CCA R25318 DR W. Kelly CHK APPD		
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25752 DR CHK APPD	1/13/66	
B	CHANGES PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218		
C	CHANGED PER TDRR 26701 DR E. CHK APPD		
D	CHANGED PER TDRR 26694 DR C. CHK APPD		
E	CHANGED PER TDRR 28118 DR CHK APPD	7/5/66	


XY INTERFACE
SCOPE
V
FREQ + PHASE
OFF
OFF
OUT → IN
VI
Y MARGINS
CHANNEL S
100
9
CHANNEL T
100
9
AGC INPUT COUNTERS
MAIN DSKY
NAV DSKY
DSKY RELAY RET
A
A
6 — 13
16 — 3
5
SEE NOTE 1
3 — 12
1
8 — 3
2 — 2
VIEW SHOWN WITHOUT COMPONENTS
6 — 94
6 — 14
6 — 95
6 — 96
6 — 97
2 — 4
5
SEE NOTE 1
3 — 6
SEE NOTE 9
55 — REF
SEE CHART ON SH 2
95 — REF
94 — REF
97 — REF
14 — REF
96 — REF
PARTIAL SECTION A-A

NOTES

1. ASSEMBLE FIND NO. 3 & FIND NO. 4 USING FIND NO. 5 WHERE INDICATED
2. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
3. AR DENOTES AS REQUIRED
4. ~~M8805/3-039 PER MIL-S-674~~
5. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 89
6. QQ-W-343, TYPE S, SOFT COATED (*) AWG SIZE 24
7. STRIP ALL LEADS .50±.06 & TIN PER ND1002071
8. SOLDER PER ND1002071
9. APPLY FIND 5 TO INTERNAL THREADS OF FIND 6
10. SPOT TIE LEGS TO WAFER SPACERS OF S1, S2 & S3 SO THAT WIRES ARE HELD AS CLOSE AS POSSIBLE TO SWITCHES

PARTS LIST CONTINUED ON SHEET 2

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1	1006404-067	LIGHT, INDICATOR-LENS	45
1	1	-062		44
1	1	-063		43
1	1	-064		42
1	1	-006		41
1	1	-060		40
1	1	-061		39
1	1	-057		38
1	1	-058		37
1	1	-059		36
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1	1	-056		33
1	1	-051		32
1	1	-052		31
1	1	-053		30
1	1	-048		29
1	1	-049		28
1	1	-050		27
1	1	-045		26
1	1	-046		25
1	1	-047		24
1	1	-042		23
1	1	-043		22
1	1	-044		21
1	1	-039		20
1	1	-040		19
1	1	-041	-LENS	18
39	39	-005	-DIS SCRN	17
39	39	-079	-COLOR FLTR	16
39	39	1006404-001	LIGHT, INDICATOR-BSC UNIT	15
6	6	MS35179-1094A	CONNECTOR, ELECTRICAL	14
6	6	MS91528-2K2B	KNOB, CONTROL, POINTER	13
3	3	1006928	KNOB, BAR	12
1	1	1006462-001	SWITCH, ROTARY	11
1	1	1006257-000	SWITCH, ROTARY	10
1	1	1006461-001	SWITCH, ROTARY	9
2	2	1006257-008	SWITCH, ROTARY	8
3	3	1006892-3	SWITCH, ROTARY	7
3	3	MS25089-3C	SWITCH, PUSH	6
AR	AR	MIL-S-22473, GR HV	SEALING & RETAINING COMP	5
2	2	MS51959-29	SCREW, MACH, FLAT HD	4
24	24	MS51959-44	SCREW, MACH, FLAT HD	3
2	2	1014215-7	HANDLE ASSY	2
1	1	2014350	PANEL, FRONT	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014040 | NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 Jun 65
CHECKED 16 AUG 65
APPROVAL 31 AUG 65
APPROVAL 9/1/65
APPROVAL
NASA APPROVAL L. C. METZLER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
X Y INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956 | SIZE F | NASA DRAWING NO. 2014375
SCALE 1/1 | WT | SHEET 1 OF 2

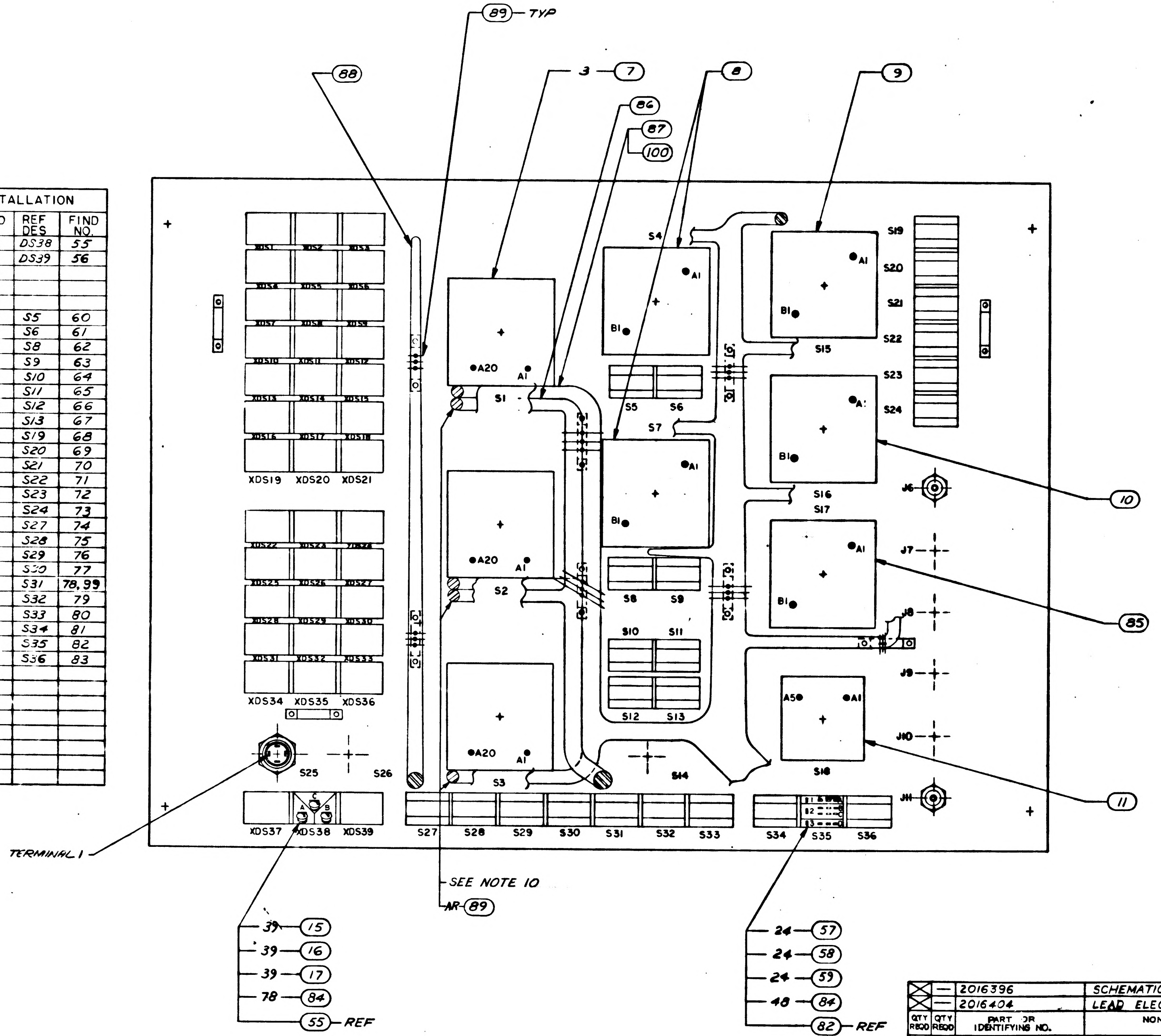
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014375 E

2014375 E

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCAR25167	9/1965	[illegible]
1	CHANGED PER CCA R25318 DR W. Kelly CHK APPD	Nov 65	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCAR 25752 DR CHK BGQ APPD	[illegible]	[illegible]
B	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 2628	[illegible]/66	[illegible]
C	CHANGED PER TDRR 26701 DR E. Uftring CHK APPD	[illegible]	[illegible]
D	CHANGED PER TDRR 26694 DR C Hayward CHK APPD	[illegible]	[illegible]
E	CHANGED PER TDRR 28118 DR W. Harper CHK APPD	[illegible]	[illegible]



LENS INSTALLATION			
REF DES	FIND NO.	REF DES	FIND NO.
DS1	18	DS38	55
DS2	19	DS39	56
DS3	20		
DS4	21		
DS5	22		
DS6	23	S5	60
DS7	24	S6	61
DS8	25	S8	62
DS9	26	S9	63
DS10	27	S10	64
DS11	28	S11	65
DS12	29	S12	66
DS13	30	S13	67
DS14	31	S19	68
DS15	32	S20	69
DS16	33	S21	70
DS17	34	S22	71
DS18	35	S23	72
DS19	36	S24	73
DS20	37	S27	74
DS21	38	S28	75
DS22	39	S29	76
DS23	40	S30	77
DS24	41	S31	78, 99
DS25	42	S32	79
DS26	43	S33	80
DS27	44	S34	81
DS28	45	S35	82
DS29	46	S36	83
DS30	47		
DS31	48		
DS32	49		
DS33	50		
DS34	51		
DS35	52		
DS36	53		
DS37	54		

	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	—	☒	2014179	SCHEMATIC	REF
	—	☒	2014464	LEAD ELEC	REF
	1	—	2016416-011	WIRING HARNESS D	100
	1	—	1006405-198	SWITCH, PUSH-LENS	99
NOT SHOWN *	0.6	0.6	MIL-W-16878/4 E22 BLK	WIRE, ELEC	98
	6	6	1006950-1	TERMINAL	97
	6	6	AN960C6 16L	WASHER, FLAT	96
	6	6	1006982-10	WASHER, NYLON	95
	6	6	1020376	WASHER, INSULATING	94
NOT SHOWN *	24.0	24.0	1006776-21	SLEEVING, INSULATION	93
NOT SHOWN *	10.3	10.3	SEE NOTE 6	WIRE, ELEC	92
NOT SHOWN *	60.0	60.0	MIL-W-16878/4 E24 WHT	WIRE, ELEC	91
NOT SHOWN *	0.6	0.3	MIL-W-16878/4 E24 BLK	WIRE, ELEC	90
	AR	AR	1006458-004	TAPE, LACING	89
	1	1	2014465-011	WIRING HARNESS, E	88
	—	1	2014467-011	WIRING HARNESS, D	87
	1	1	2014468-011	WIRING HARNESS, C	86
	1	1	1006257-001	SWITCH, ROTARY	85
	126	126	1006407-003	LAMP, BULB	84
	1	1	1006405-038	SWITCH, PUSH-LENS	83
	1	1	-037		82
	1	1	-036		81
	1	1	-139		80
	1	1	-135		79
	—	1	-185		78
	1	1	-137		77
	1	1	-138		76
	1	1	-140		75
	1	1	-035		74
	1	1	-039		73
	1	1	-149		72
	1	1	-148		71
	1	1	-147		70
	1	1	-146		69
	1	1	-145		68
	1	1	-192		67
	1	1	-143		66
	1	1	-141		65
	1	1	-142		64
	1	1	-152		63
	1	1	-153		62
	1	1	-150		61
	1	1	-151	-LENS	60
	24	24	-003	-DIS SCRN	59
	24	24	-002	-COLOR FILTER	58
	24	24	1006405-001	SWITCH, PUSH-BASIC UNIT	57
	1	1	1006404-007	LIGHT, INDICATOR-LENS	56
	1	1	-034		55
	1	1	-035		54
	1	1	-071		53
	1	1	-072		52
	1	1	-073		51
	1	1	-068		50
	1	1	-069		49
	1	1	-070		48
	1	1	-065		47
	1	1	1006404-066	LIGHT, INDICATOR-LENS	46

LIST OF MATERIALS

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2016396	SCHEMATIC	REF
☒	—	2016404	LEAD ELEC	REF

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 Jun 65
CHECKED 16 AUG 65
APPROVAL 31 AUG 65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT PANEL ASSY
X Y INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014375
SCALE 1/1
WT
SHEET 2 OF 2

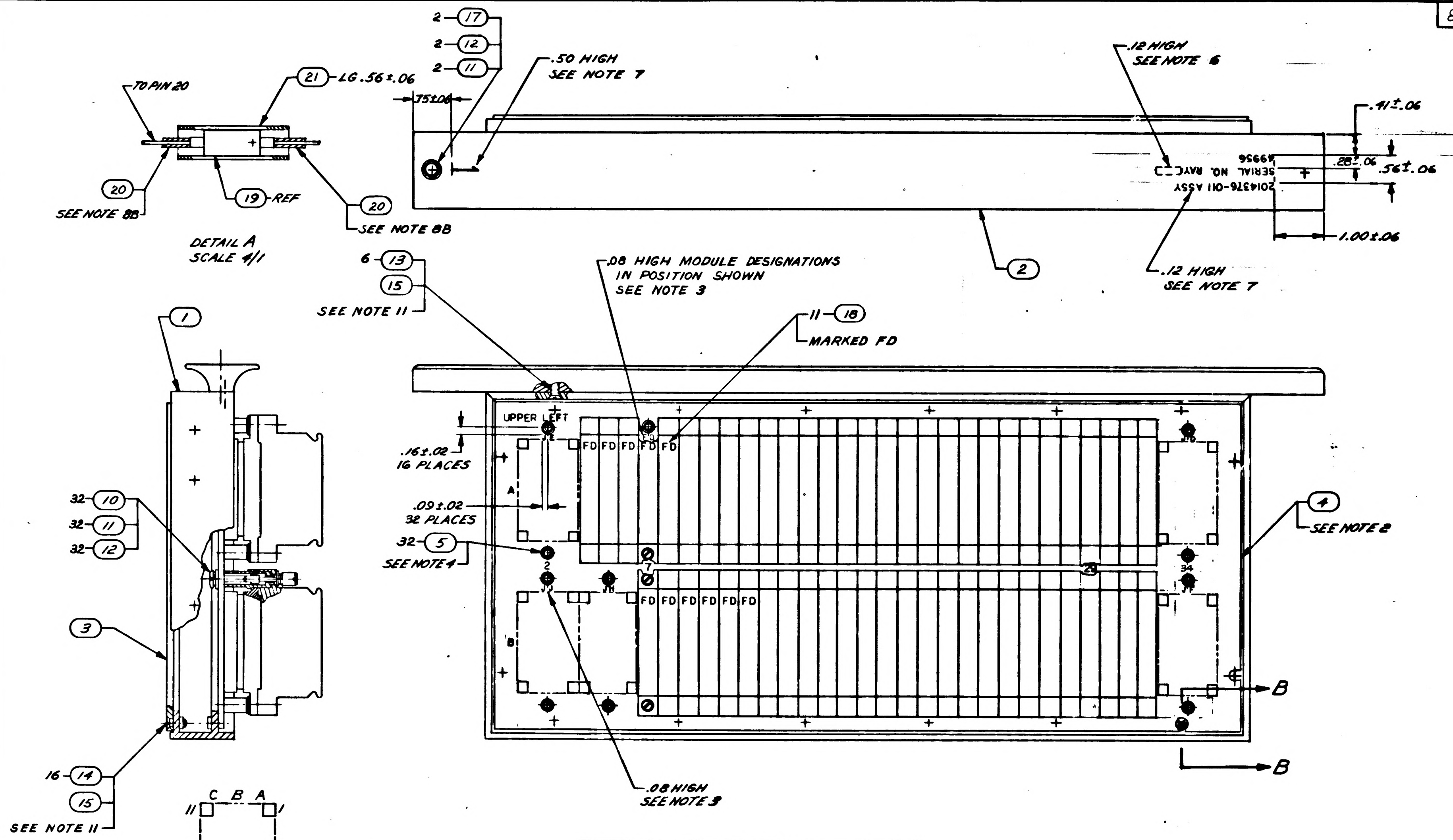
MASTER

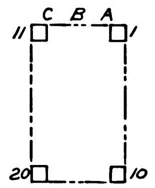
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014375 E

2014376 B

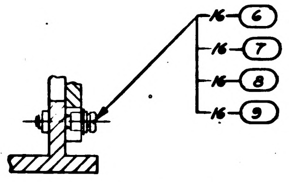
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25121	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25621 DR CHK APPD	1/6/66	[illegible]
B	CHANGED PER CCA R25711 AND CLASS A RELEASED PER TDRR 25472	1/14/66	[illegible]


TO PIN 20
21 – LG .56±.06
20
SEE NOTE 8B
19 – REF
20
SEE NOTE 8B
DETAIL A
SCALE 4/1
2 – 17
2 – 12
2 – 11
.50 HIGH
SEE NOTE 7
.75±.06
.12 HIGH
SEE NOTE 6
2014376-011 ASSY
SERIAL NO. RAYC
49956
.41±.06
.28±.06
.56±.06
1.00±.06
2
.12 HIGH
SEE NOTE 7
6 – 13
15
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN
SEE NOTE 3
11 – 18
MARKED FD
1
UPPER LEFT
.16±.02
16 PLACES
.09±.02
32 PLACES
A
32 – 5
SEE NOTE 4
FD FD FD FD FD
FD FD FD FD FD FD
2
7
34
B
4
SEE NOTE 2
32 – 10
32 – 11
32 – 12
3
16 – 14
15
SEE NOTE 11
.08 HIGH
SEE NOTE 3
B
B


C B A
11
1
20
10

TYPICAL 60 PIN CONTACT
GROUP DESIGNATION
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	19	B11-13	B11-20	
C2	19	B12-14	B12-20	
C3	19	A35-03	A35-20	


16 – 6
16 – 7
16 – 8
16 – 9

SECTION B-B
SCALE 2/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 16 PER 2014102 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 19 PER CHART A & DETAIL A
8A. SOLDER PER ND1002071
8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U GRADE A CLASS 1 CATEGORY 1 COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 20~~
10. MIL-I-631 TYPE F FORM Ua GRADE A CLASS 1 CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 21
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014148	LOGIC DIAGRAM	REF
☒	2014102	WIREWRAP MACH. CARD	REF
* .3	SEE NOTE 10	SLEEVING	21
AR	1006776-197	SLEEVING, INSULATION	20
3	CS13AF010K	CAPACITOR 1 uf 35 V	19
11	1014065-1	MODULE, RESISTOR	18
2	1006998-1	SCREW, CAPTIVE	17
AR	1006945-1	WIRE, ELECTRICAL	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
34	MS35338-79	WASHER, LOCK	12
34	1006997	WASHER, FLAT	11
32	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
32	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014258	SUPPORT, FRAME	2
1	1014014-2	FRAME	1

-011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN W. Ellenberg DATE 14 JUL 65
CHECKED W. Lynch 21 JUL 65
APPROVAL P. E. Dulaze
APPROVAL
APPROVAL
NASA APPROVAL A. C. [illegible]
MIT APPROVAL
MIT APPROVAL C

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

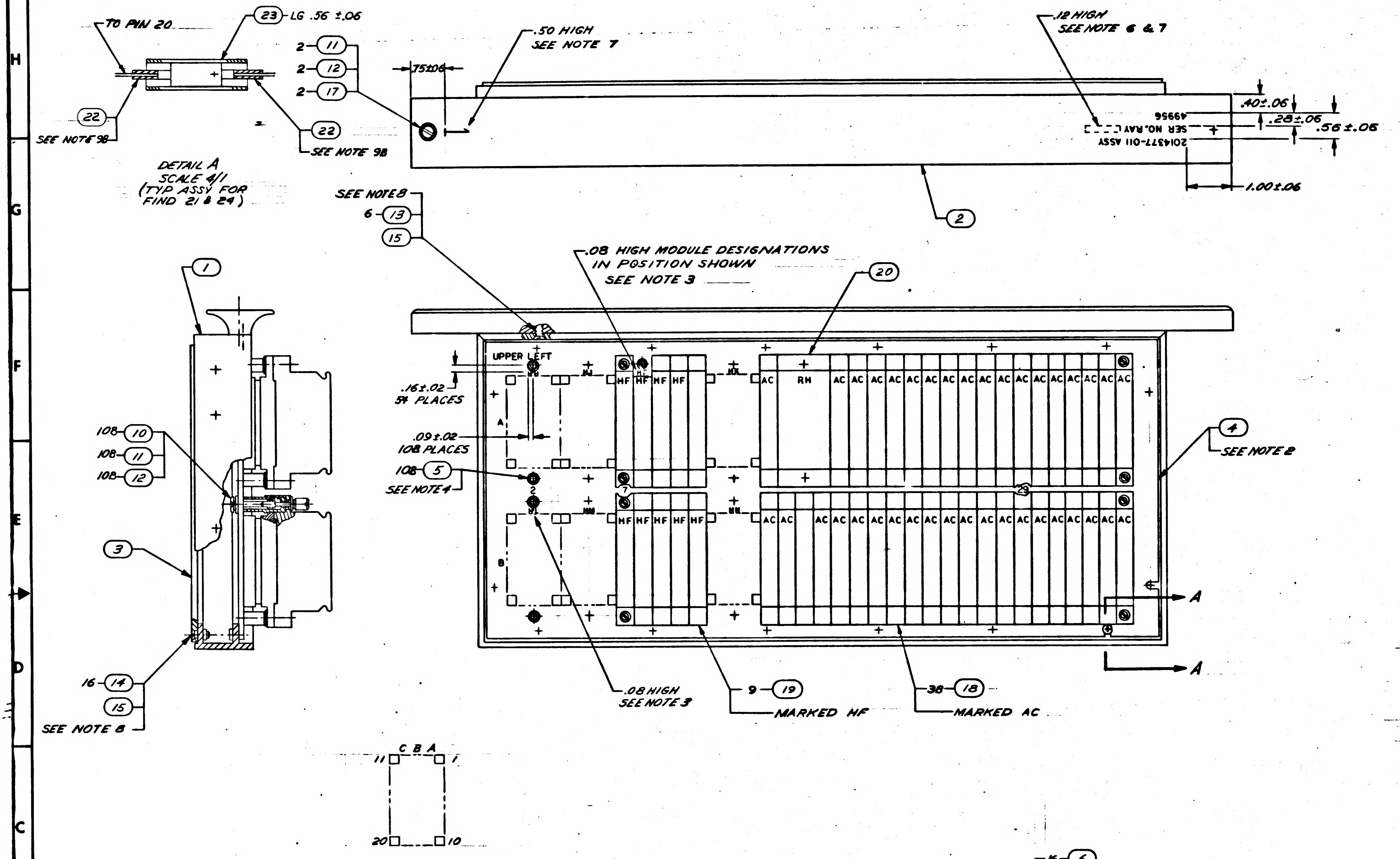
LOGIC PLATE ASSY NO. 1
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE F NASA DRAWING NO. 2014376
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014377 C

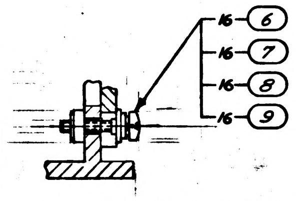
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25085	8/	
1	CHANGED PER CCA R25485 DR CHK APPD 11-13-65	11/13/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25621 DR CHK APPD	4/6/66	
B	CHANGED PER CCA R25711 DR CHK BCA APPD		
C	CHANGED PER CCA R25887 & CLASS A RELEASED PER TDRR 26218	2/ /66	


TO PIN 20
23 LG .56 ±.06
22
SEE NOTE 9B
22
SEE NOTE 9B
2-11
2-12
2-17
.50 HIGH SEE NOTE 7
.75±.06
.12 HIGH SEE NOTE 6 & 7
2014377-011 ASSY
SER NO. RAY
49956
.40±.06
.28±.06
.56±.06
1.00±.06
2
SEE NOTE 8
6-13
15
.08 HIGH MODULE DESIGNATIONS IN POSITION SHOWN SEE NOTE 3
20
1
UPPER LEFT
.16±.02 54 PLACES
.09±.02 108 PLACES
108-5
SEE NOTE 4
108-10
108-11
108-12
3
4
SEE NOTE 2
HF
RH
AC
A
B
16-14
15
SEE NOTE 8
.08 HIGH SEE NOTE 3
9-19 MARKED HF
38-18 MARKED AC
A
A
11 C B A 1
20 10

DETAIL A
SCALE 4/1
(TYP ASSY FOR FIND 21 & 24)

TYPICAL 60 PIN CONTACT
GROUP DESIGNATIONS
(REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	21	B14-01	A15-20	
C2		B14-03	B15-20	
C3		B14-05	B14-20	
C4		B14-09	B13-20	
C5	21	A13-15	A13-20	
C6	24	A15-16	A16-20	
C7	24	A15-6	A14-20	


16-6
16-7
16-8
16-9

SECTION A-A

SCALE 2/1

NOTES

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 16 PER 2014100 & ND 1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15
9. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 21 PER CHART A & DETAIL A
   - 9A. SOLDER PER ND1002071
   - 9B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
10. ~~MIL-I-631 TYPE F FORM U GRADE A CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 22~~
11. MIL-I-631 TYPE F FORM U GRADE A CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 23

* DENOTES LENGTH IN FEET

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014146	LOGIC DIAGRAM	REF
☒	2014100	WIRE WRAP MACH CARD	REF
2	CS13AF153K	CAPACITOR .015 UF ±10% 35 V	24
* .6	SEE NOTE 11	SLEEVING	23
AR	1006776-197	SLEEVING, INSULATION	22
5	CS13AF010K	CAPACITOR 1 uf 35V	21
1	2014004-011	MODULE, CLOCK	20
9	1014064	MODULE, DIODE	19
38	1014034	MODULE, NOR	18
2	1006998-1	SCREW, CAPTIVE	17
AR	1006945-1	WIRE, ELECTRICAL	16
AR	MIL-S-22473, GR-HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
110	MS35338-79	WASHER, LOCK	12
110	1006997	WASHER, FLAT	11
108	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
108	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014258	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

2014040	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN C.B. DATE 7JUL65
CHECKED 17JUL65
APPROVAL P. E. Dubozo
APPROVAL 7/20/65
APPROVAL 8/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

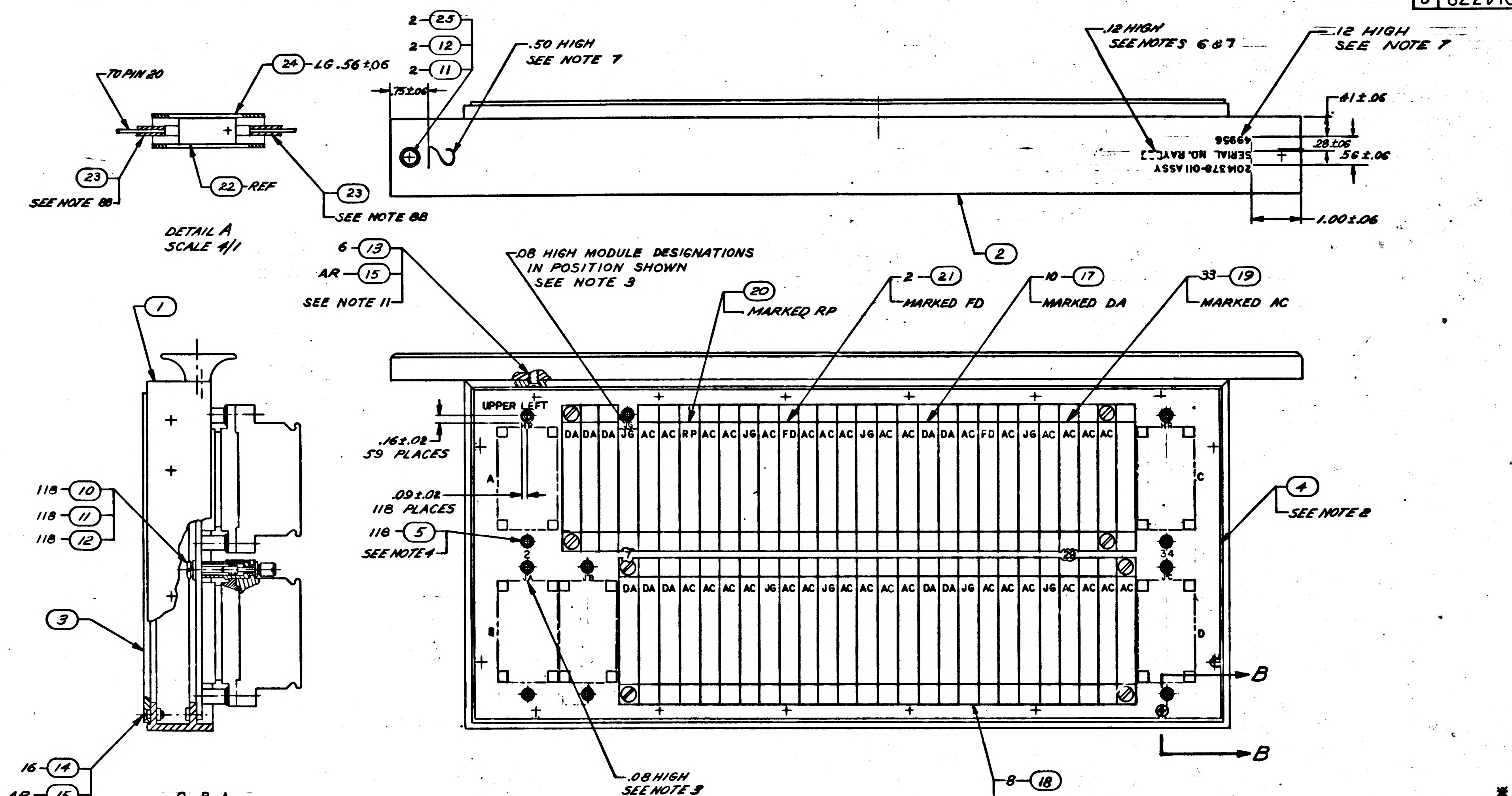
LOGIC PLATE ASSY NO. 1
XY INTERFACE
COMPUTER TEST SET

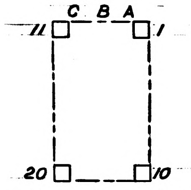
CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014377
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014378 C

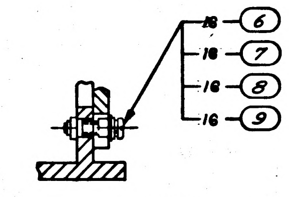
SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA 25076		
1	REVISED PER CCA R25129 DR CHK APPD	16 Sept 65	
2	CHANGED PER CCA R25485 DR P. Milant CHK E. Urban APPD 11-19-65	11/22/65	
–	CLASS B CHANGED PER CCA R25502	12/16/65	
A	CHANGED PER CCA R25621 DR CHK APPD	1/6/66	
B	CHANGED PER CCA R25711 DR CHK BGQ APPD	1/14/66	
C	CHANGED PER CCA R25887 AND CLASS A RELEASED PER TDRR 26218	2/10/66	


TO PIN 20
24 LG .56±.06
23
SEE NOTE 8B
22 REF
23
SEE NOTE 8B
DETAIL A
SCALE 4/1
2 25
2 12
2 11
.75±.06
.50 HIGH
SEE NOTE 7
.12 HIGH
SEE NOTES 6 & 7
.12 HIGH
SEE NOTE 7
49956
SERIAL NO. RAY
2014378-011 ASSY
.41±.06
.28±.06
.56±.06
1.00±.06
2
6 13
AR 15
SEE NOTE 11
.08 HIGH MODULE DESIGNATIONS
IN POSITION SHOWN
SEE NOTE 3
20
MARKED RP
2 21
MARKED FD
10 17
MARKED DA
33 19
MARKED AC
1
UPPER LEFT
.16±.02
59 PLACES
.09±.02
118 PLACES
118 5
SEE NOTE 4
118 10
118 11
118 12
3
16 14
AR 15
SEE NOTE 11
A
B
C
D
2
7
29
34
DA DA DA JG AC AC RP AC AC JG AC FD AC AC AC JG AC AC DA DA AC FD AC JG AC AC AC AC
DA DA DA AC AC AC AC JG AC AC JG AC AC AC AC DA DA JG AC AC AC JG AC AC AC AC
4
SEE NOTE 2
B
B
.08 HIGH
SEE NOTE 3
8 18
MARKED JG


11 C B A 1
20
10

TYPICAL 60 PIN CONTACT GROUP DESIGNATIONS (REF ONLY)

CHART A				
REF DES	FIND NO.	FROM	TO	REMARKS
C1	22	B28-12	B28-20	
C2		B32-08	B32-20	
C3		B31-13	B31-20	
C4		B28-16	B28-20	
C5		A25-13	A25-20	
C6		B30-02	B30-20	
C7		A29-04	A29-20	
C8		A15-18	A15-20	
C9		A07-12	A07-20	
C10		A11-08	A11-20	
C11		A13-17	A13-20	
C12		A33-06	A33-20	
C13		A31-01	A31-20	
C14		B33-07	B33-20	
C15		B05-19	B06-20	
C16	22	A34-10	A34-20	


18 6
18 7
16 8
16 9

SECTION B-B
SCALE 2/1

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. WIREWRAP FIND NO. 4 USING FIND NO. 16 PER 2014101 & ND1002031
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. LOCATE & INSTALL FIND NO. 5 PER KEY CODE MARKING USING DWG NO. 1014047
5. AR DENOTES AS REQUIRED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. AFTER MACHINE WIRE WRAPPING PLATE, INSTALL FIND NO. 22 PER CHART A & DETAIL A
  8A. SOLDER PER ND1002071
  8B. LENGTH OF SLEEVING ON COMPONENT LEADS TO BE DETERMINED BY PIN LOCATION AT ASSY
~~9. MIL-I-631 TYPE F FORM U a GRADE a CLASS I CATEGORY I COLOR BLUE AWG SIZE NO. 24 FOR FIND NO. 23~~
10. MIL-I-631 TYPE F FORM U a GRADE a CLASS I CATEGORY I COLOR CLEAR AWG SIZE NO. 8 FOR FIND NO. 24
11. ASSEMBLE FIND NO. 13 & FIND NO. 14 USING FIND NO. 15

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014147	LOGIC FLOW DIAGRAM	REF
☒	2014101	WIREWRAP MACH. CARD	REF
2	1006998-1	SCREW, CAPTIVE	25
* 0.8	SEE NOTE 10	SLEEVING	24
AR	1006776-197	SLEEVING, INSULATION	23
16	CS13AF010K	CAPACITOR 1μf 35V	22
2	1014065-1	MODULE, RESISTOR 3.9K	21
1	1014065-2	MODULE, RESISTOR 220Ω	20
33	1014034	MODULE, NOR	19
8	1014065-3	MODULE, RESISTOR 510Ω	18
10	1014053	MODULE, XFMR DRIVER	17
AR	1006945-1	WIRE, ELECTRICAL	16
AR	MIL-S-22473, GR HV	SEALING & RETAINING COMPOUND	15
16	MS51959-15	SCREW, FLAT HD	14
6	MS51959-27	SCREW, FLAT HD	13
120	MS35338-79	WASHER, LOCK	12
120	1006997	WASHER, FLAT	11
118	MS51957-29	SCREW, PAN HD	10
16	1006986	WASHER, SHOULDERED, NYLON	9
16	MS35338-78	WASHER, LOCK	8
16	MS15795-803	WASHER, FLAT	7
16	MS51957-17	SCREW, PAN HD	6
118	1014212	STAND-OFF, PROGRAM	5
1	1006495-001	PLATE ASSY	4
1	1014026	COVER, CONN PLATE	3
1	1014258	SUPPORT, FRAME	2
1	1014014-2	FRAME	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014040	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±   DECIMALS .XXX ±   ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-[illegible]
DRAWN DATE
CHECKED 15 Jul '65
APPROVAL 16 Jul '65
APPROVAL 16 July 65
APPROVAL K. Brown Aug 65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

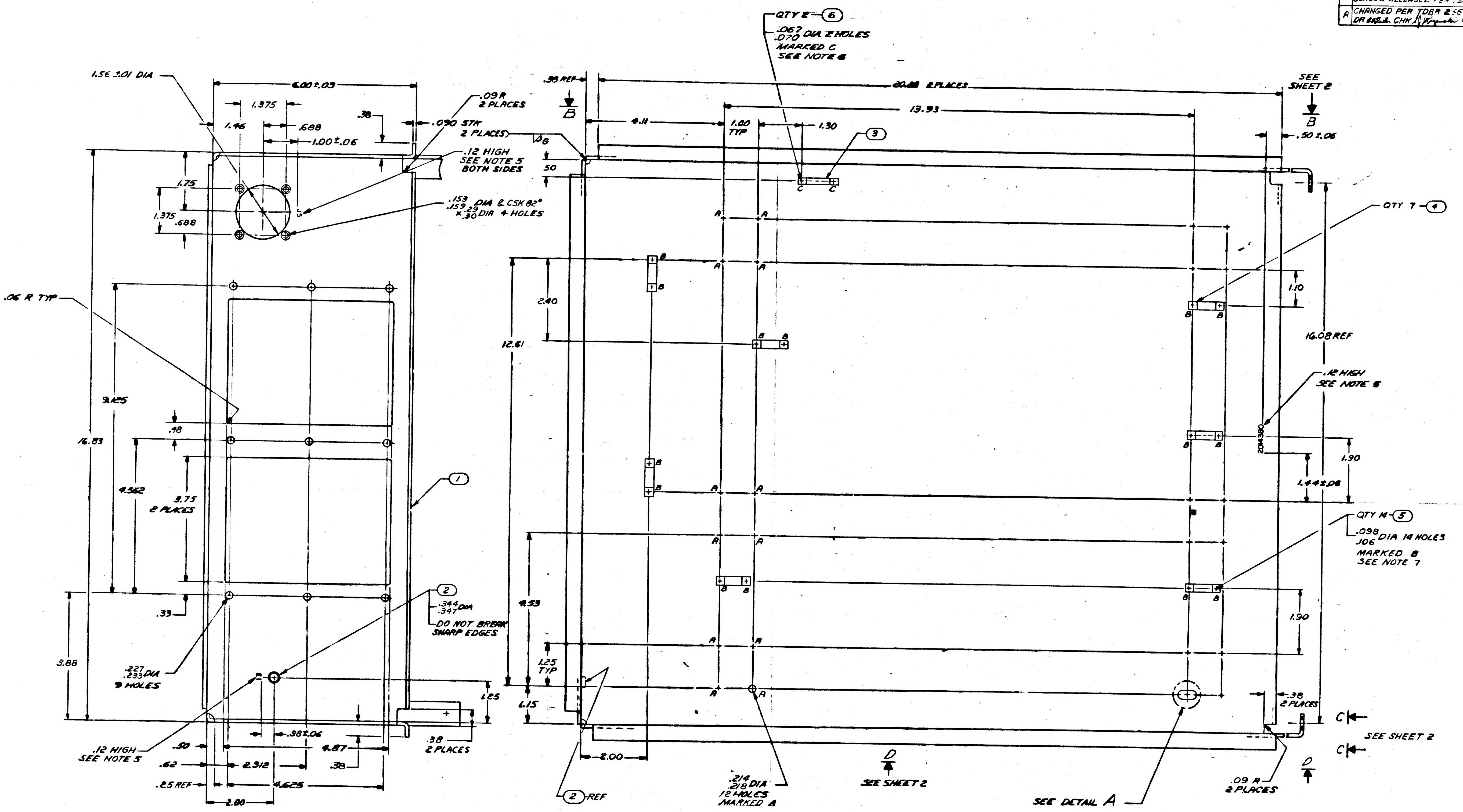
LOGIC PLATE ASSY NO. 2
XY INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014378
SCALE 1/1
WT
SHEET 1 OF 1

MASTER

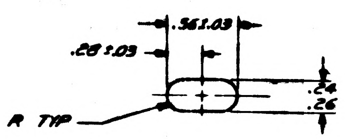
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25273	10/1/65	U. Marano
1	CHANGED PER CCA 25412 DR [illegible] CHKD [illegible] APPD [illegible]	11/16/65	[illegible]
–	CLASS A RELEASED PER TDRR 25972		
A	CHANGED PER TDRR 25579 DR [illegible] CHK [illegible] APPD P.E.D	7/4/66	[illegible]



QTY 2 ⑥
.067/.070 DIA 2 HOLES MARKED C SEE NOTE 6
1.56 ±.01 DIA
6.00 ±.03
1.375
1.46
.688
1.00 ±.06
.38
.09 R 2 PLACES
.090 STK 2 PLACES
.12 HIGH SEE NOTE 5 BOTH SIDES
.153/.159 DIA & CSK 82° X .29/.30 DIA 4 HOLES
1.75
1.375
.688
.06 R TYP
3.125
.48
16.83
4.562
3.75 2 PLACES
.33
3.88
.227/.233 DIA 9 HOLES
.344/.347 DIA DO NOT BREAK SHARP EDGES
1.25
.38 ±.06
4.87
.38 2 PLACES
.12 HIGH SEE NOTE 5
.50
.62
2.312
.38
.25 REF
4.625
2.00
.38 REF
B
4.11
20.28 2 PLACES
13.93
1.00 TYP
1.30
③
SEE SHEET 2
B
.50 ±.06
QTY 7 ④
2.40
12.61
1.10
16.08 REF
.12 HIGH SEE NOTE 5
1.90
1.44 ±.06
QTY 14 ⑤
.098/.106 DIA 14 HOLES MARKED B SEE NOTE 7
4.53
1.90
1.25 TYP
1.15
.38 2 PLACES
C
SEE SHEET 2
C
2.00
② REF
.214/.218 DIA 12 HOLES MARKED A
D
SEE SHEET 2
SEE DETAIL A
D
.09 R 2 PLACES
①
2014380

NOTES:
1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. WELD PER MIL-W-8604
4. ALL BEND RADII .06/.09
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
6. LOCATE HOLE USING FIND NO. 3 AS TEMPLATE
7. LOCATE HOLE USING FIND NO. 4 AS TEMPLATE



.56 ±.03
.28 ±.03
.24
.26
R TYP

DETAIL A
12 PLACES
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	MS20470-AD2-4	RIVET, SOLID-UNIV HD	6
14	MS20470-AD3-5	RIVET, SOLID-UNIV HD	5
7	1004844-007	STRAP, RETAINING	4
1	1004844-003	STRAP RETAINING	3
1	1006989-26	NUT, PLAIN, SELF-CLINCHING	2
1	2014380-001	CHASSIS	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014090	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±2°
DO NOT SCALE DRAWING
MATERIAL
AL 5052-H32
PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 8 Jun 65
CHECKED [illegible]
APPROVAL [illegible] 5 Oct 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL K. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

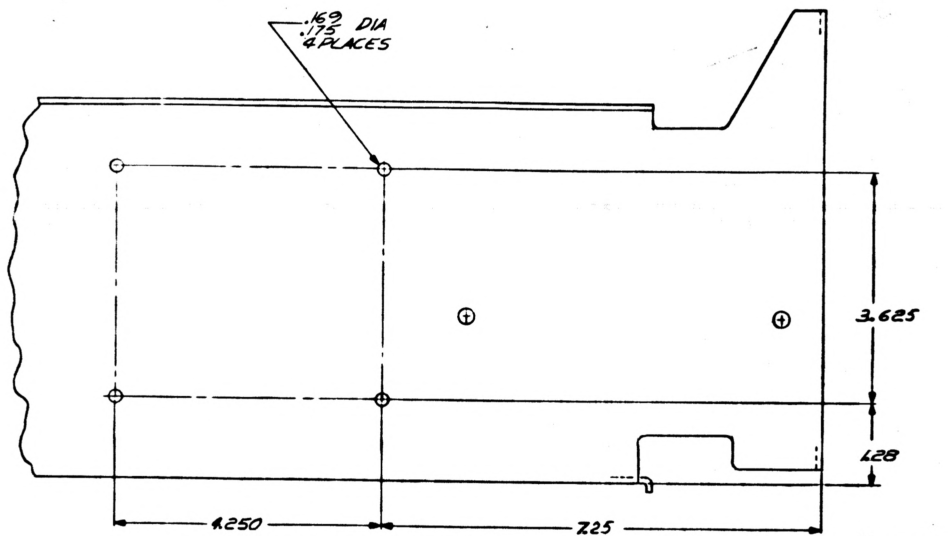
CHASSIS
XY INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014380
SCALE 1/1
WT
SHEET 1 OF 2

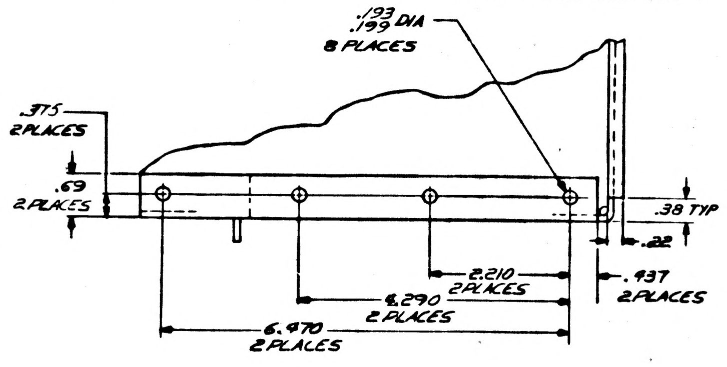
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014380 A

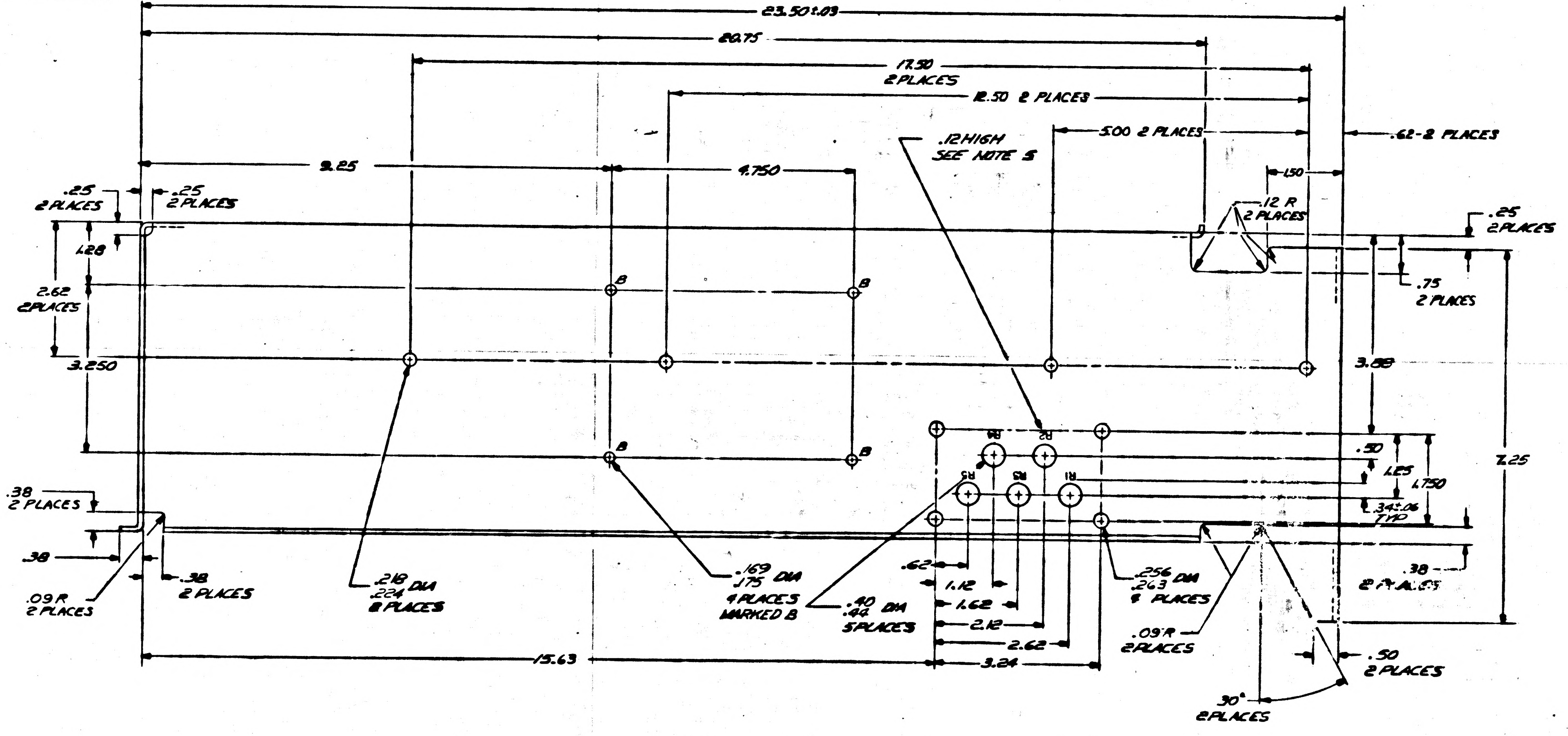
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25273		
1	CHANGED PER CCA 25412 DR CHKD APPD		
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26579 DR CHK APPD	4/7/66	


.169 DIA
.175
4 PLACES
3.625
1.28
4.250
7.25

VIEW D-D
SEE SHEET 1


.193 DIA
.199
8 PLACES
.375
2 PLACES
.69
2 PLACES
.38 TYP
.22
.437
2 PLACES
2.210
2 PLACES
4.290
2 PLACES
6.470
2 PLACES

VIEW C-C
SEE SHEET 1


23.50±.03
20.75
17.50
2 PLACES
12.50 2 PLACES
5.00 2 PLACES
.62-2 PLACES
.12 HIGH
SEE NOTE 5
9.25
4.750
1.50
.25
2 PLACES
.25
2 PLACES
.12 R
2 PLACES
.25
2 PLACES
.75
2 PLACES
1.28
2.62
2 PLACES
3.250
3.88
7.25
B
B
B
B
R4
R2
R5
R3
R1
.50
1.25
1.750
.34±.06
TYP
.38
2 PLACES
.38
.09 R
2 PLACES
.38
2 PLACES
.218 DIA
.224
8 PLACES
.169 DIA
.175
4 PLACES
MARKED B
.40 DIA
.44
5 PLACES
.62
1.12
1.62
2.12
2.62
3.24
.256 DIA
.263
4 PLACES
.09 R
2 PLACES
.38
2 PLACES
15.63
.50
2 PLACES
30°
2 PLACES

VIEW B-B
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9 Jul 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

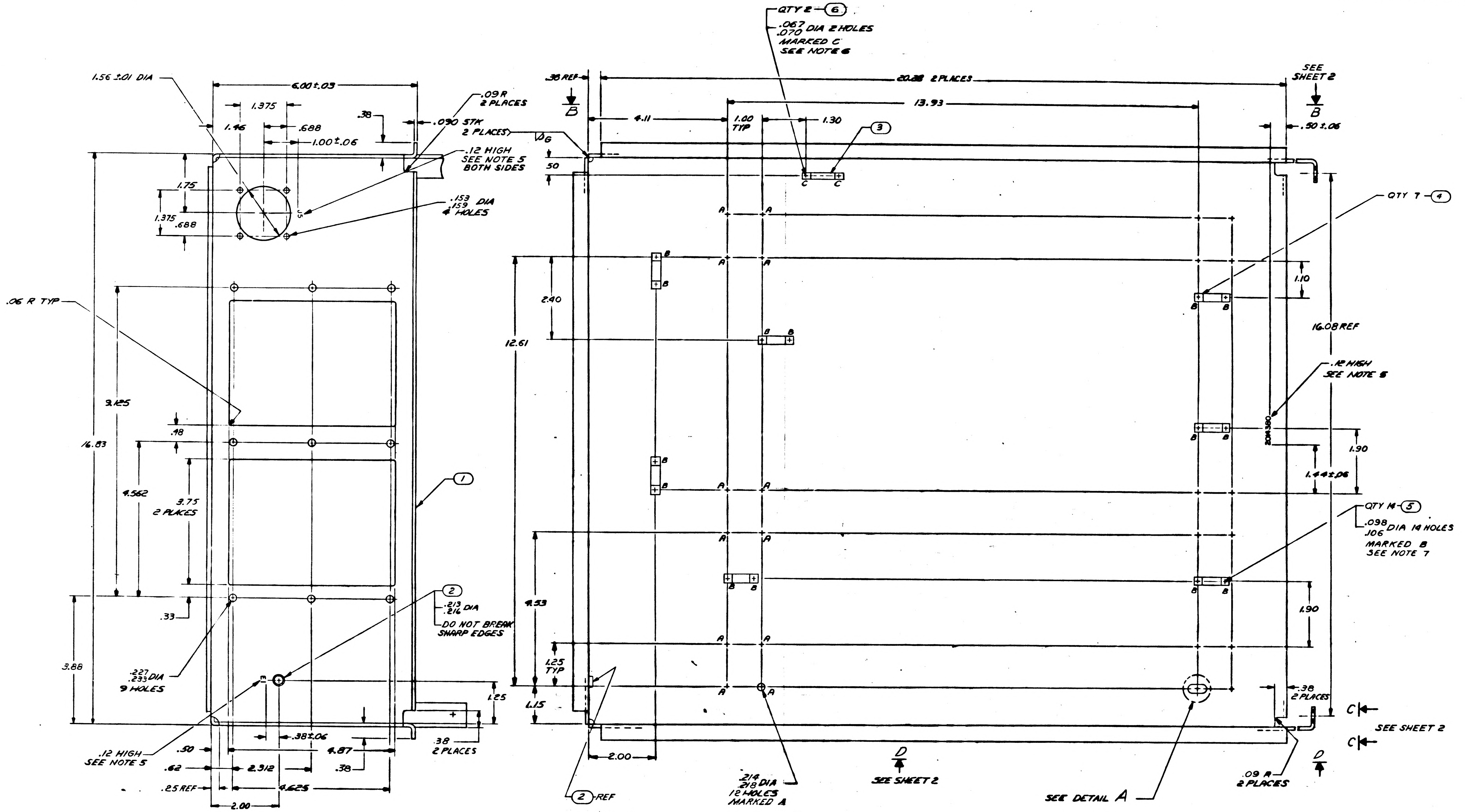
CHASSIS
XY INTERFACE
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014380
SCALE	WT	SHEET 2 OF 2

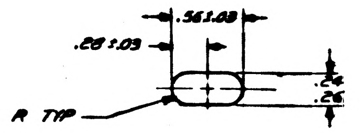
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014380 -

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25273	[illegible]	[illegible]
1	CHANGED PER CCA 25412 DR [illegible] CHKD [illegible] APPD [illegible]	4/14/65	[illegible]
-	CLASS A RELEASED PER TDRR 25472		



1.56 ±.01 DIA
6.00±.03
1.375
.688
1.46
1.00±.06
.38
.090 STK
.09R 2 PLACES
2 PLACES
.12 HIGH SEE NOTE 5 BOTH SIDES
.153 .159 DIA 4 HOLES
1.75
1.375
.688
J5
.06 R TYP
9.125
.48
16.83
4.562
3.75 2 PLACES
1
2
.213 .216 DIA
DO NOT BREAK SHARP EDGES
.33
3.88
.227 .233 DIA 9 HOLES
.12 HIGH SEE NOTE 5
.50
.62
.25 REF
2.312
2.00
.38±.06
4.87
.38
4.625
1.25
.38 2 PLACES
QTY 2 - 6
.067 .070 DIA 2 HOLES MARKED C SEE NOTE 6
.38 REF
B
20.28 2 PLACES
13.93
4.11
1.00 TYP
1.30
3
SEE SHEET 2
.50 ±.06
G
.50
QTY 7 - 4
1.10
2.40
12.61
16.08 REF
.12 HIGH SEE NOTE 5
2014380
1.90
1.44±.06
QTY 14 - 5
.098 .106 DIA 14 HOLES MARKED B SEE NOTE 7
4.53
1.90
1.25 TYP
1.15
.38 2 PLACES
C
SEE SHEET 2
2.00
2 REF
.214 .218 DIA 12 HOLES MARKED A
D
SEE SHEET 2
SEE DETAIL A
.09 R 2 PLACES
A
B



.56±.03
.28±.03
R TYP
.24
.26

DETAIL A
12 PLACES
SCALE 2/1

NOTES:
1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. WELD PER MIL-W-8604
4. ALL BEND RADII .06/.09
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
6. LOCATE HOLE USING FIND NO. 3 AS TEMPLATE
7. LOCATE HOLE USING FIND NO. 4 AS TEMPLATE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	MS20470-AD2-4	RIVET, SOLID-UNIV HD	6
14	MS20470-AD3-5	RIVET, SOLID-UNIV HD	5
7	1004844-007	STRAP, RETAINING	4
1	1004844-003	STRAP RETAINING	3
1	1006989-16	NUT, PLAIN, SELF-CLINCHING	2
1	2014380-001	CHASSIS	1

LIST OF MATERIALS

2014090	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ± 2°
DO NOT SCALE DRAWING
MATERIAL
AL 5052-H32
PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Joe Rogers DATE 8 Jun 65
CHECKED [illegible]
APPROVAL [illegible] 5 Oct 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL K. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

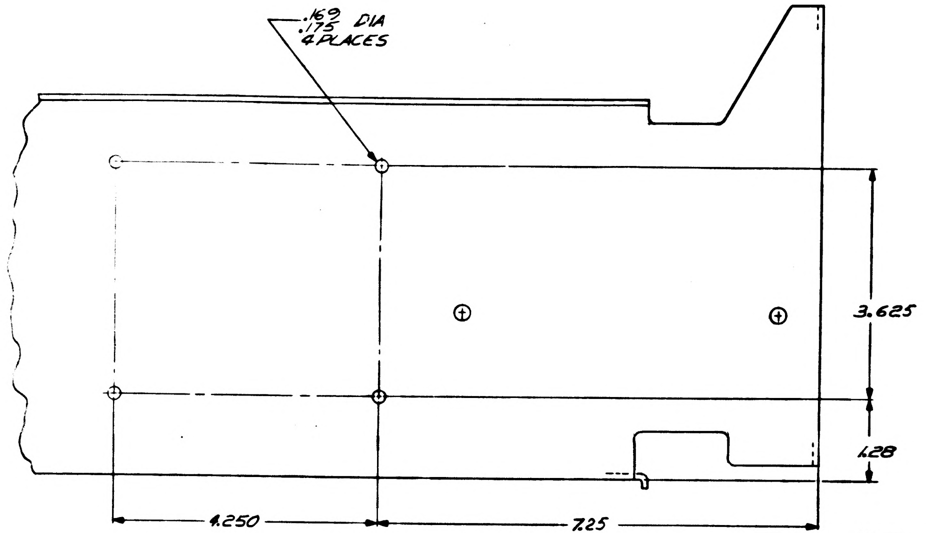
CHASSIS
XY INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014380
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

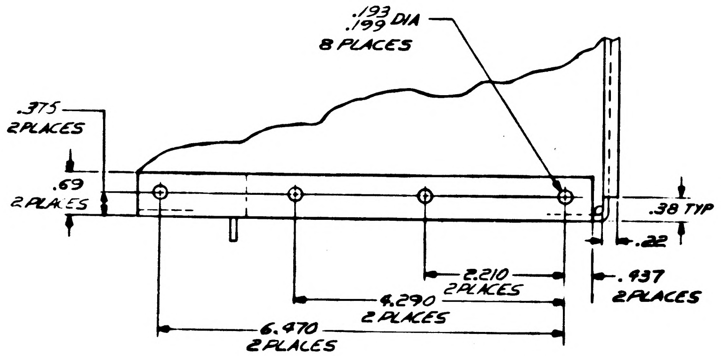
2014380 -

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25273	14-7-65	J. Haran
1	CHANGED PER CCA 25412 DR CHKD	9/16/65	
—	CLASS A RELEASED PER TDRR 25472		



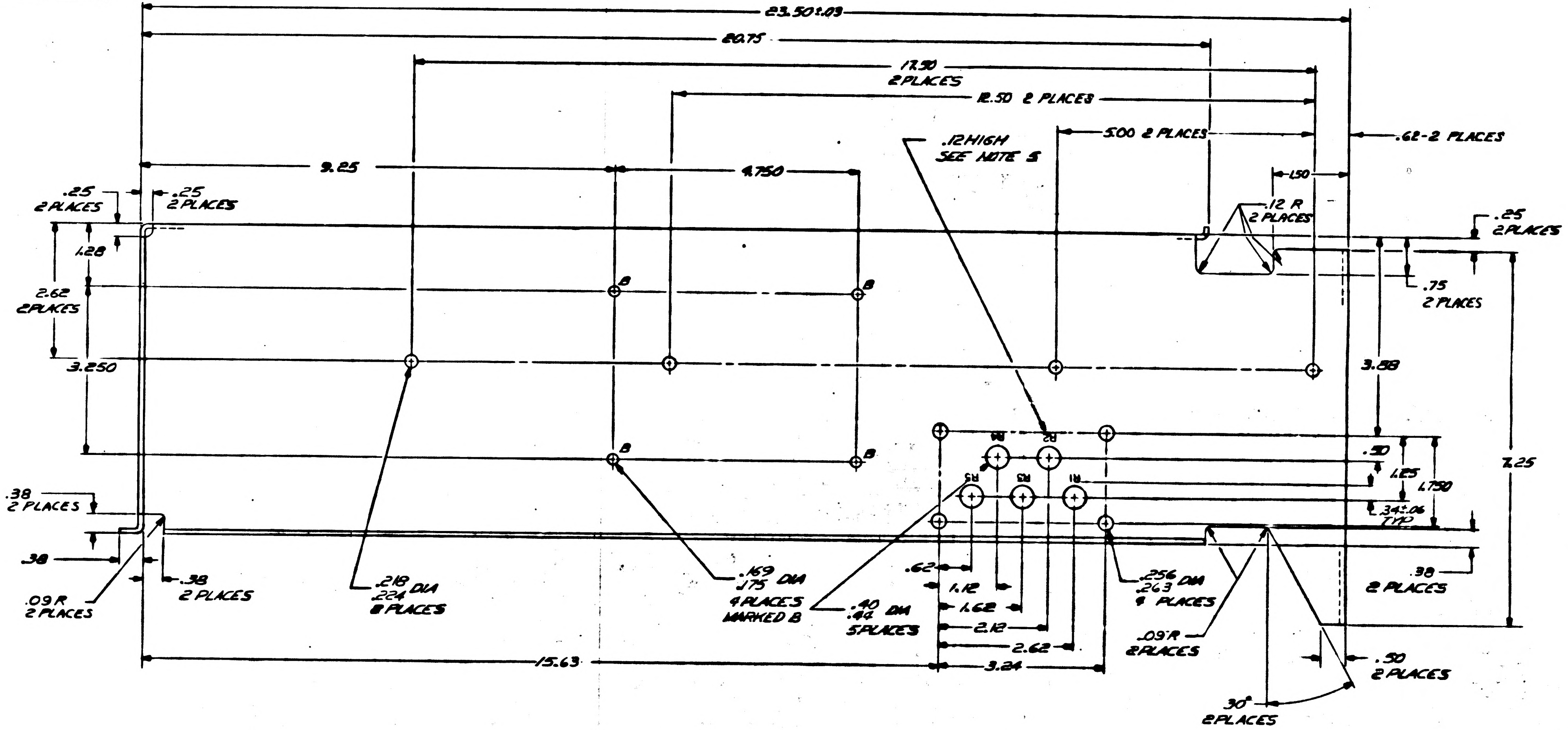
.169 DIA
.175
4 PLACES
3.625
.28
4.250
7.25

VIEW D-D
SEE SHEET 1



.193 DIA
.199
8 PLACES
.375
2 PLACES
.69
2 PLACES
.38 TYP
.22
.437
2 PLACES
2.210
2 PLACES
4.290
2 PLACES
6.470
2 PLACES

VIEW C-C
SEE SHEET 1



23.50±.03
20.75
17.50
2 PLACES
12.50 2 PLACES
5.00 2 PLACES
.62-2 PLACES
.12 HIGH
SEE NOTE 5
9.25
4.750
1.50
.25
2 PLACES
.25
2 PLACES
.12 R
2 PLACES
.25
2 PLACES
1.28
2.62
2 PLACES
3.250
.75
2 PLACES
3.88
7.25
B
B
B
B
R4
R2
R3
R5
R1
.50
1.25
1.750
.34±.06
TYP
.38
2 PLACES
.38
.09 R
2 PLACES
.38
2 PLACES
.218 DIA
.224
8 PLACES
.169 DIA
.175
4 PLACES
MARKED B
.40 DIA
.44
5 PLACES
.62
1.12
1.62
2.12
2.62
3.24
.256 DIA
.263
4 PLACES
.09 R
2 PLACES
.38
2 PLACES
.50
2 PLACES
30°
2 PLACES
15.63

VIEW B-B
SEE SHEET 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9 Jul 65
CHECKED
APPROVAL 5 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

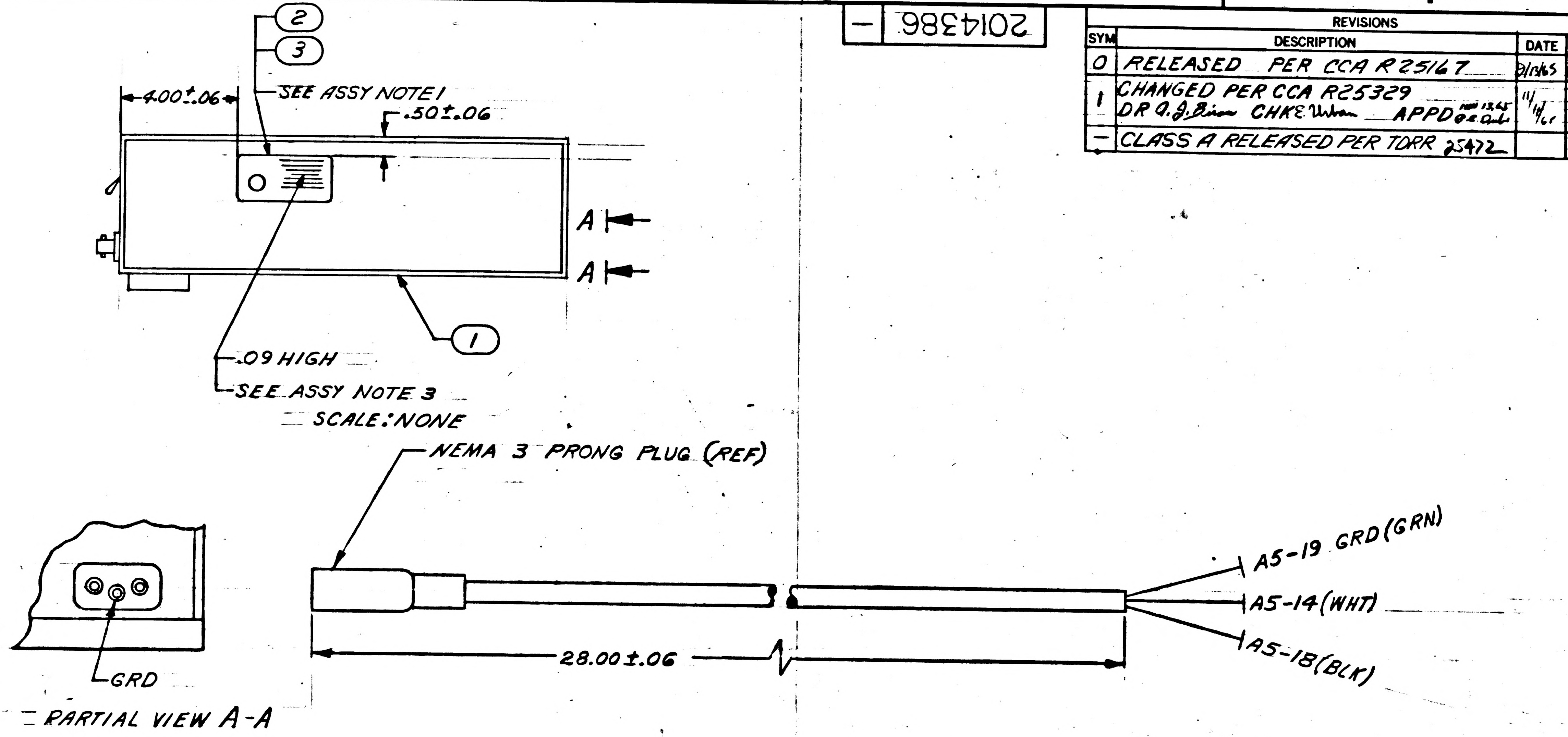
CHASSIS
XY INTERFACE
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014380
SCALE	WT	SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014386 -

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167	9/13/65	A. Harano
1	CHANGED PER CCA R25329 DR A. J. Biron CHK E. Urban APPD NOV 13, 65 R. E. Dub	11/14/65	
—	CLASS A RELEASED PER TDRR 25472		



②
③
4.00±.06
SEE ASSY NOTE 1
.50±.06
A
A
①
.09 HIGH
SEE ASSY NOTE 3
SCALE: NONE
NEMA 3 PRONG PLUG (REF)
A5-19 GRD (GRN)
A5-14 (WHT)
A5-18 (BLK)
28.00±.06
GRD
PARTIAL VIEW A-A

NOTES
1. MAT'L : MAKE FROM 1006460
2. STRIP LEADS .50 & TIN PER ND1002071
~~3. IDENTIFY CONDUCTORS PER ND1002019~~

ASSY NOTES
1. ASSEMBLE FIND 2 USING FIND 3
2. AR DENOTES AS REQUIRED
3. SERIALIZE PER ND1002023

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	MIL-A-5092, TYPE II	ADHESIVE	3
1	1009260-250	NAMEPLATE	2
1	2014386-001	AMPLIFIER	1

LIST OF MATERIALS

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL
SEE NOTE

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN S. J. Baran DATE 9 JULY 65
CHECKED
APPROVAL D. O'Bryant 8/13/65
APPROVAL R. E. Dub 8/13/65
APPROVAL 9/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C. Sterling 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

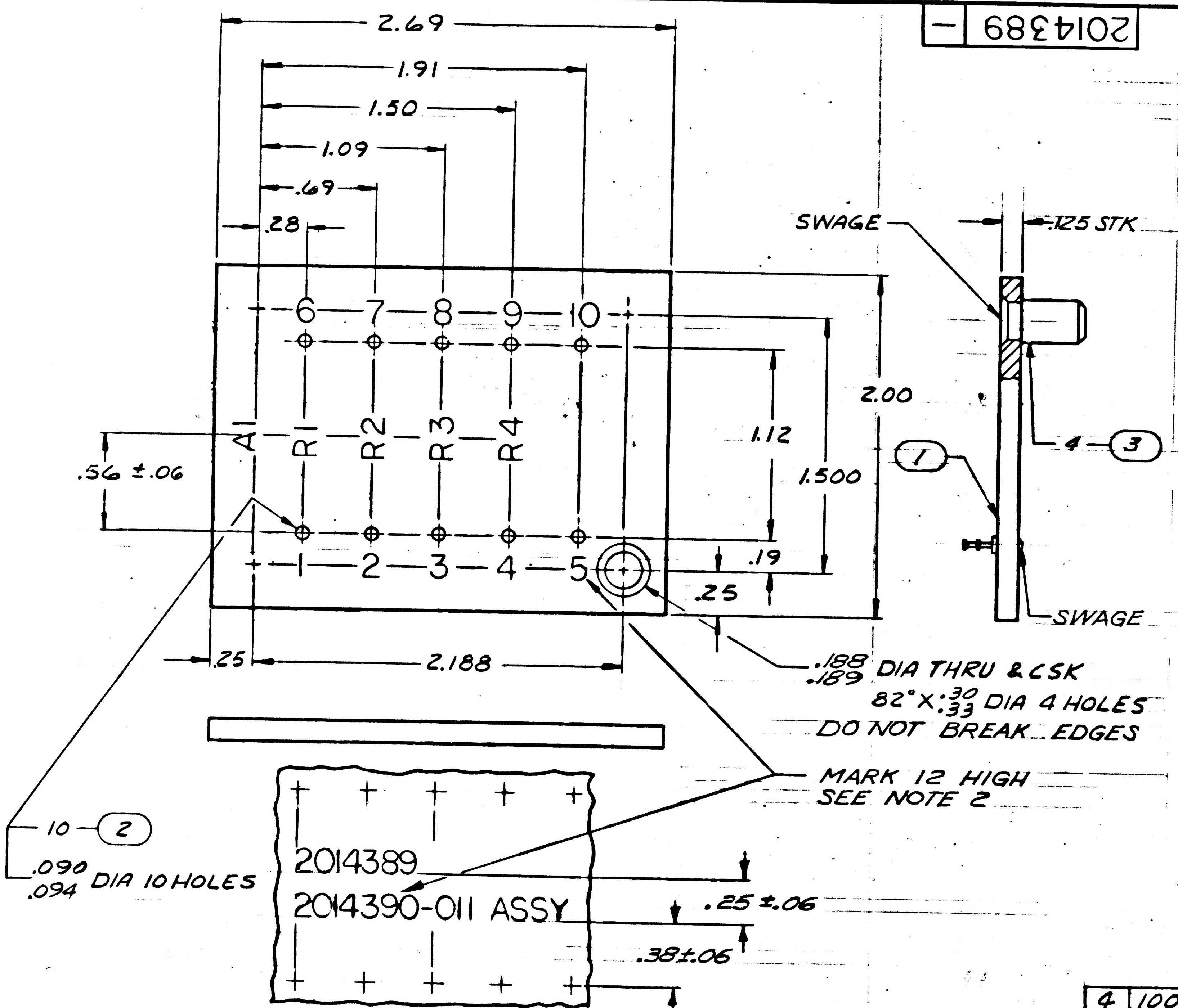
AMPLIFIER MODIFICATION, A6
RDC INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956 SIZE C NASA DRAWING NO. 2014386
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014386 1

2014389 | —



2.69
1.91
1.50
1.09
.69
.28
6
7
8
9
10
A1
R1
R2
R3
R4
1
2
3
4
5
2.00
1.12
1.500
.56 ±.06
.19
.25
.25
2.188
SWAGE
.125 STK
4 (3)
(1)
SWAGE
.188
.189 DIA THRU & CSK
82° X :30/:33 DIA 4 HOLES
DO NOT BREAK EDGES
MARK 12 HIGH
SEE NOTE 2
10 (2)
.090
.094 DIA 10 HOLES
2014389
2014390-011 ASSY
.25 ±.06
.38±.06

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25139	9/3/65	G Harano
1	CHANGED PER CCA R25327 DR 4 Jones CHK C.D. APPD R Conley	11/18/65	B.H.S.
—	CLASS A RELEASED PER TDRR 25472		

NOTES
1. REMOVE SHARP EDGES UNLESS OTHERWISE SPECIFIED
2. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	1006261	NUT, CLINCH	3
10	SE12XC06(MIL-T-55155/12)	TERMINAL	2
1	2014389-001	BOARD, COMPONENT	1

LIST OF MATERIALS

2014390	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON

DECIMALS .XX	DECIMALS .XXX	ANGLES
±.02	±.010	±1°

DO NOT SCALE DRAWING

MATERIAL
PLASTIC, SHEET PER MIL-P-18177 TYPE GEE

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. Lloyd DATE 12 JUL 65
CHECKED K. CHARIN 2 AUG 65
APPROVAL P.E. Dunk 8 AUG '65
APPROVAL [illegible] 9 AUG '65
APPROVAL [illegible] 1 Sept 65
NASA APPROVAL A. CAMETZGER
MIT APPROVAL [illegible]
MIT APPROVAL C Sperling 1/28/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD A1
AC INPUT PANEL
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	C	2014389

SCALE 2/1 WT SHEET 1 OF 1

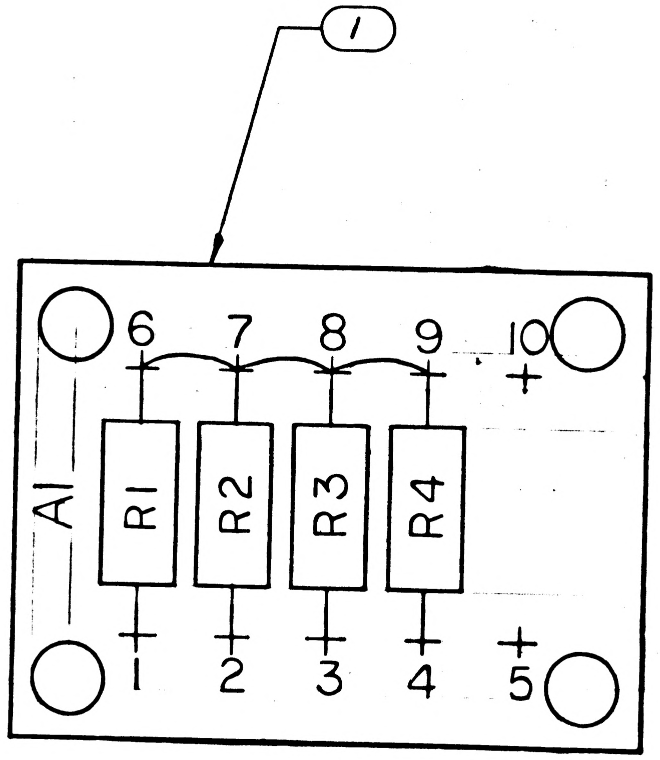
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014389 —

2014390 | -

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25139	9/3/65	
1	CHANGED PER CCA R25257 DR CHK K.A.Chascin APPD	22 Oct 65	
-	CLASS A RELEASED PER TDRR 25472		



REFERENCE DESIGNATIONS	
SYMBOL	FIND NO.
R1, R2, R3, R4	2

JUMPER CHART

FROM	TO	FIND NO.	AWG
R1-6	R2-7	3	22
R2-7	R3-8	3	22
R3-8	R4-9	3	22

NOTES
1. SOLDER PER ND1002071
~~2. FOR FABRICATION, SEE ND 1002032~~
2. FABRICATE PER ND1002032
3. QQ-W-343, TYPE S, SOFT, COATED (a) AWG 22

✱ DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
✱ .25	SEE NOTE 3	WIRE, ELECTRICAL 22 AWG	3
4	RC42GF473K	RESISTOR	2
1	2014389	COMPONENT BOARD A1	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2014093	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. DATE 12 JUL 65
CHECKED K. CHASCIN 2 AUG 1965
APPROVAL B. E. 9 AUG 65
APPROVAL 9 AUG 65
APPROVAL 1 Sept 65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD A1 ASSY
AC INPUT PANEL
COMPUTER TEST SET

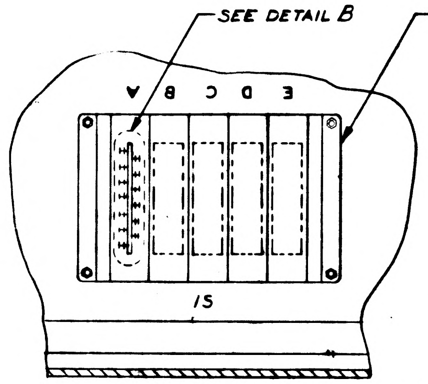
CODE IDENT NO. 49956
SIZE C
NASA DRAWING NO. 2014390
SCALE 2/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

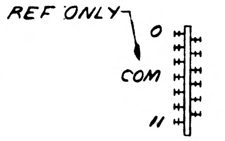
2014390 | -

2014392 A

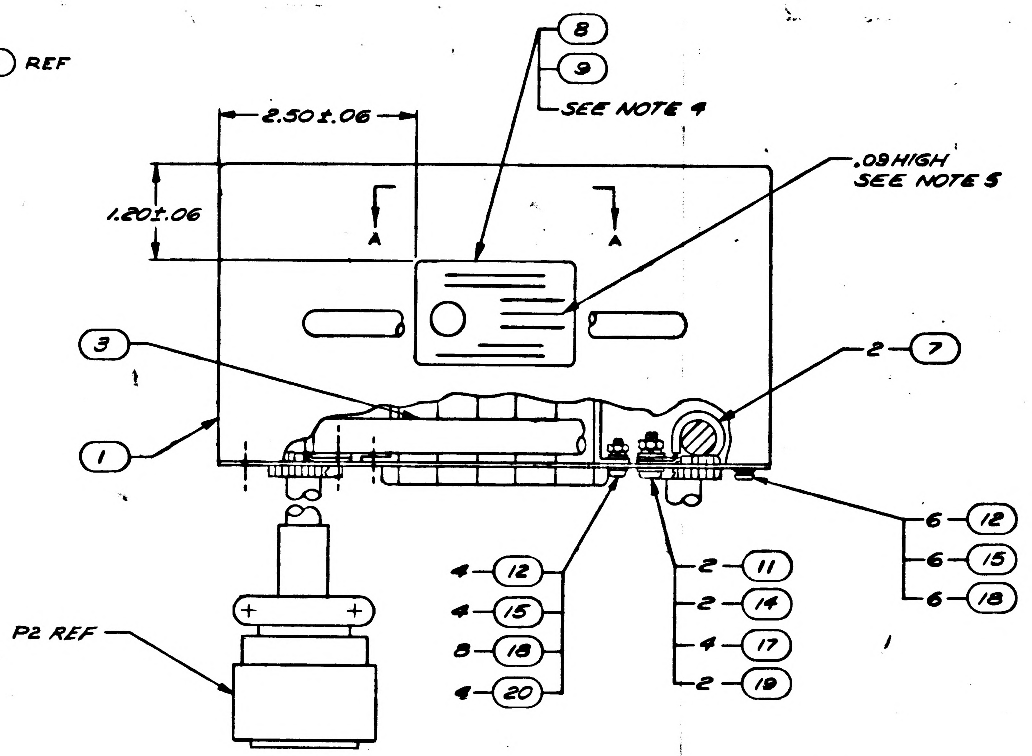
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25166	9/14/65	C. Haran
1	CHANGED PER CCA R25328 DR P. Howard CHK S. J. [illegible] APPD G. E. Dale Nov. 13, 65	11/12/65	[illegible]
–	CLASS A RELEASED PER TDRR 25478		
A	CHANGED PER TDRR 26231 DR. W. Barna CHK. B Jensen APPD. P.E.R.	3/24/66	[illegible]



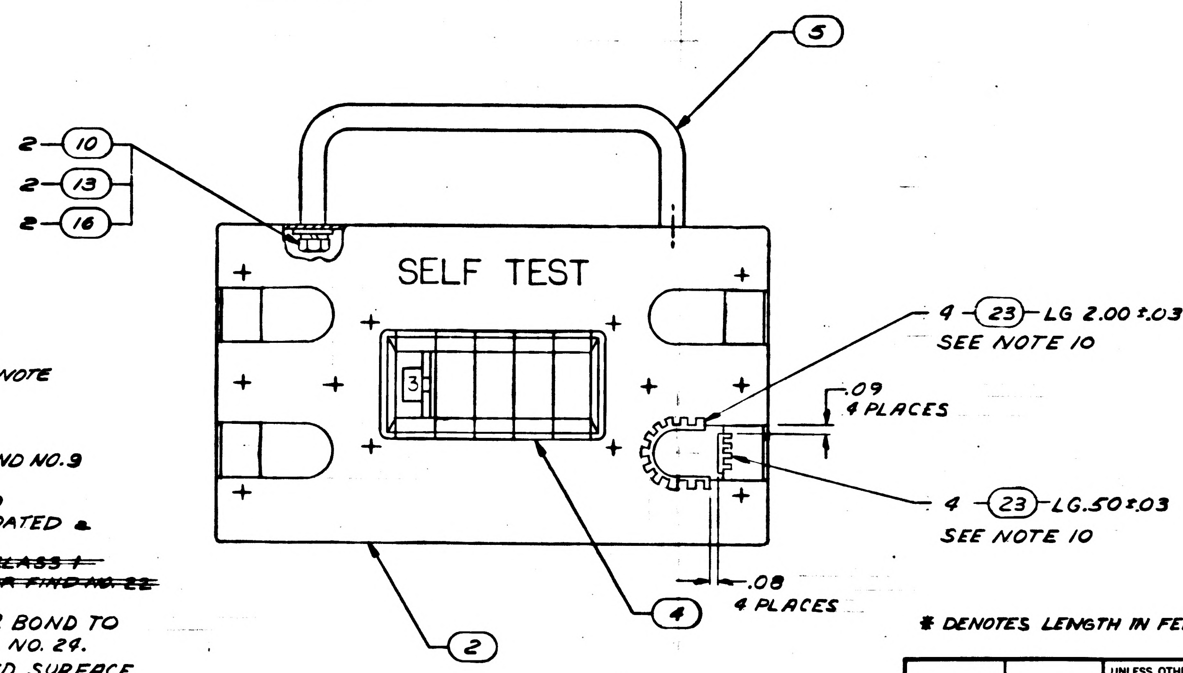
SECTION A-A



DETAIL B
5 PLACES



	JUMPER CHART			
COND IDENT	FROM	TO	FIND NO.	AWG
B1	S1B-C	S1C-C	21	22
B2	S1C-C	S1D-C	21	22
B3	S1D-C	S1E-C	21	22



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SOLDER PER ND1002071
3. FABRICATE PER ND1002032
4. BOND FIND NO. 8 TO FIND NO. 1 USING FIND NO. 9
5. SERIALIZE PER ND1002023
6. MARK IDENTIFICATION PER ND1002019
7. QQ-W-343 TYPE S, AWG NO. 22 SOFT COATED & FOR FIND NO. 21
~~8. MIL-I-631 TYPE F, FORM U, GRADE A CLASS 1 CATAGORY 1 COLOR CLEAR, AWG NO 22 FOR FIND NO. 22~~
9. AR DENOTES AS REQUIRED
10. CUT FIND NO. 23 TO LENGTHS SHOWN & BOND TO FIND NO. 1 & FIND NO. 2 USING FIND NO. 24. DO NOT APPLY ADHESIVE TO PAINTED SURFACE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014191	SCHEMATIC	REF
AR	1006981	ADHESIVE, SELFCURING	24
1	MS21266-2N	GROMMET, PLASTIC EDGING	23
AR	1006776-21	SLEEVING	22
* 0.5	SEE NOTE 7	WIRE, ELEC.	21
4	MS35649-44	NUT, HEX	20
2	MS35649-84	NUT, HEX	19
14	MS15795-803	WASHER, FLAT	18
4	MS15795-807	WASHER, FLAT	17
2	MS15795-808	WASHER, FLAT	16
10	MS35338-78	WASHER, LOCK SPLIT	15
2	MS35338-80	WASHER, LOCK SPLIT	14
2	MS35338-81	WASHER, LOCK SPLIT	13
10	MS51957-15	SCREW, PAN HD	12
2	MS51957-44	SCREW, PAN HD	11
2	MS20033-1	SCREW, HEX HD	10
AR	MIL-A-5092 TYPE II	CEMENT	9
1	1004260-246	NAMEPLATE	8
2	MS21919DG7	CLAMP	7
~~4~~	~~MS35489-135~~	~~GROMMET~~	~~6~~
1	MS39087-3	HANDLE	5
1	1006428-002	SWITCH	4
1	2014190-011	WIRING HARNESS	3
1	2014414	COVER	2
1	2014413	HOUSING	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014268 | NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN D. Belanger DATE 3 Aug 65
CHECKED E. Urban 21 AUG 65
APPROVAL G. E. Dale 8 SEP '65
APPROVAL [illegible] 9/8/65
APPROVAL [illegible] 9/14/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. [illegible] 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SELF TEST ASSEMBLY

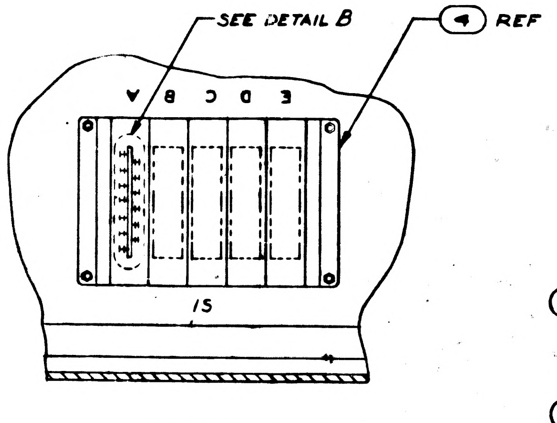
CODE IDENT NO. 49956 | SIZE D | NASA DRAWING NO. 2014392
SCALE 1/1 | WT | SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

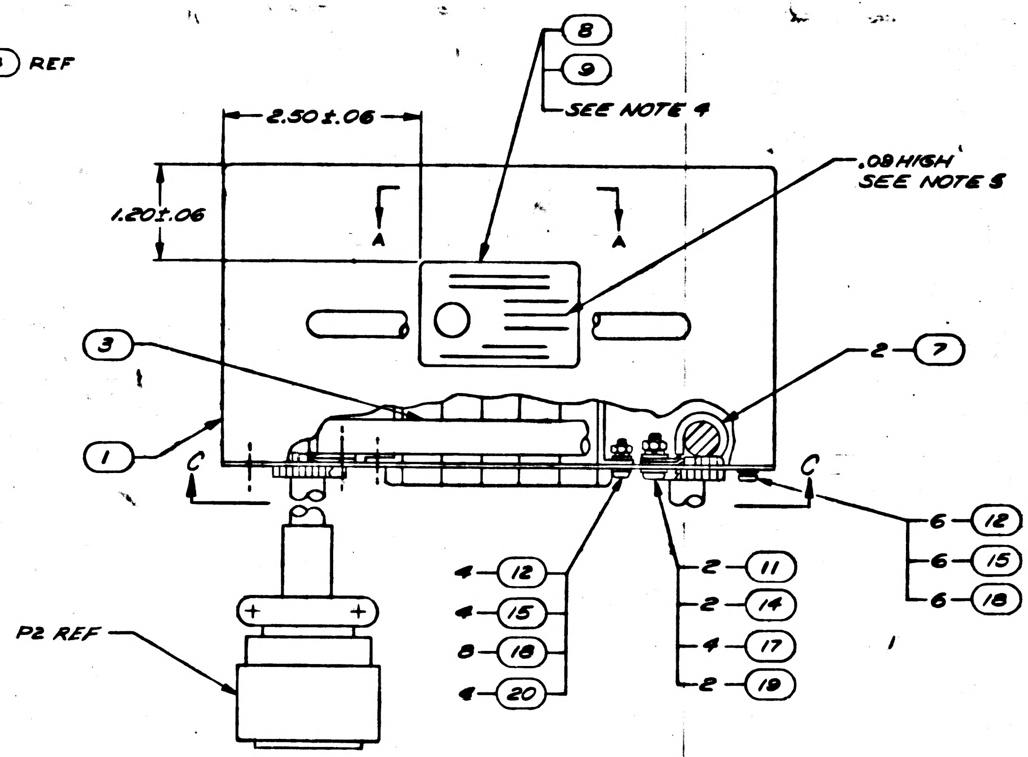
2014392 A

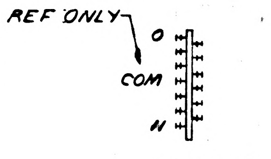
2014392 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25166	9-1-65	J. Haran
1	CHANGED PER CCA R25328 DR P. Moore CHK S. J. Raymond APPD P. E. Dale Nov. 13. 65	11/12/65	
–	CLASS A RELEASED PER TDRR 25478		
A	CHANGED PER TDRR 26231 DR. W. Barna CHK. B. Jensen APPD. P.E.D.	2/24/66	
B	CHANGED PER TDRR 26232 DR P. Winfield CHK A. APPD	3/17/66	



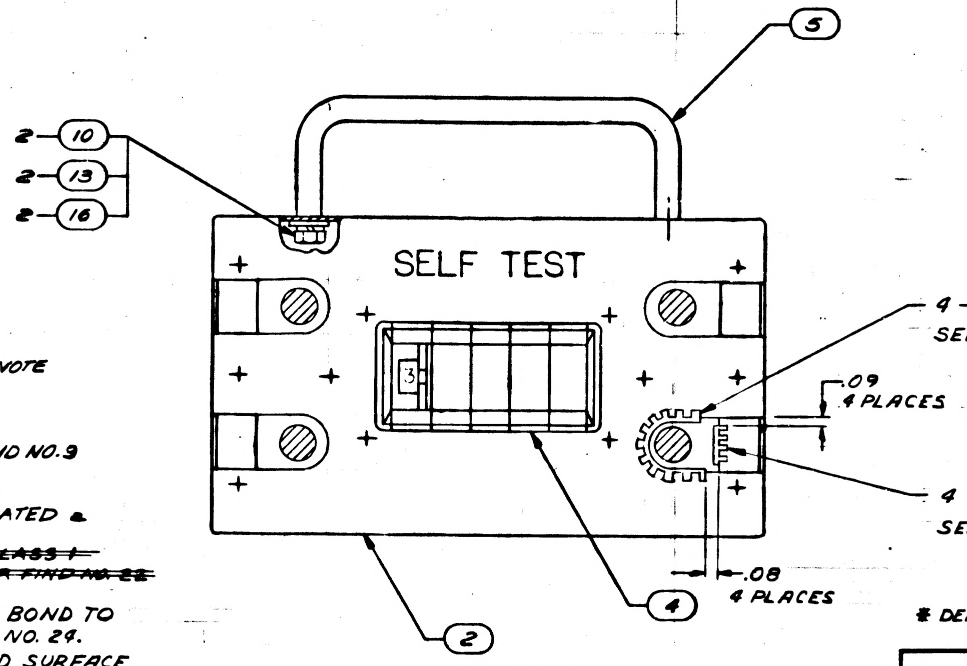
SECTION A-A





DETAIL B
5 PLACES

	JUMPER CHART			
COND IDENT	FROM	TO	FIND NO.	AWG
B1	S1B-C	S1C-C	21	22
B2	S1C-C	S1D-C	21	22
B3	S1D-C	S1E-C	21	22



VIEW C-C

NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SOLDER PER ND1002071
3. FABRICATE PER ND1002032
4. BOND FIND NO. 8 TO FIND NO. 1 USING FIND NO. 9
5. SERIALIZE PER ND1002023
6. MARK IDENTIFICATION PER ND1002019
7. QQ-W-343 TYPE S, AWG NO. 22 SOFT COATED & FOR FIND NO. 21
~~8. MIL-I-631 TYPE F, FORM U, GRADE & CLASS 1 CATAGORY 1 COLOR CLEAR, AWG NO. 22 FOR FIND NO. 22~~
9. AR DENOTES AS REQUIRED
10. CUT FIND NO. 23 TO LENGTHS SHOWN & BOND TO FIND NO. 1 & FIND NO. 2 USING FIND NO. 24. DO NOT APPLY ADHESIVE TO PAINTED SURFACE

* DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014191	SCHEMATIC	REF
AR	1006981	ADHESIVE, SELFCURING	24
1	MS21266-2N	GROMMET, PLASTIC EDGING	23
AR	1006776-21	SLEEVING	22
* 0.5	SEE NOTE 7	WIRE, ELEC.	21
4	MS35649-44	NUT, HEX	20
2	MS35649-84	NUT, HEX	19
14	MS15795-803	WASHER, FLAT	18
4	MS15795-807	WASHER, FLAT	17
2	MS15795-808	WASHER, FLAT	16
10	MS35338-78	WASHER, LOCK SPLIT	15
2	MS35338-80	WASHER, LOCK SPLIT	14
2	MS35338-81	WASHER, LOCK SPLIT	13
10	MS51957-15	SCREW, PAN HD	12
2	MS51957-44	SCREW, PAN HD	11
2	MS20033-1	SCREW, HEX HD	10
AR	MIL-A-5092 TYPE II	CEMENT	9
1	1004260-246	NAMEPLATE	8
2	MS21919DG7	CLAMP	7
~~4~~	~~MS35489-133~~	~~GROMMET~~	~~6~~
1	MS39087-3	HANDLE	5
1	1006428-002	SWITCH	4
1	2014190-011	WIRING HARNESS	3
1	2014414	COVER	2
1	2014413	HOUSING	1
-011	LIST OF MATERIALS		

2014255	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN D. Belanger DATE 3 Aug 65
CHECKED E. Urban 31 AUG 65
APPROVAL P. E. Dale 8 SEP 65
APPROVAL R. O'Rourke 9/8/65
APPROVAL 9/14/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SELF TEST ASSEMBLY

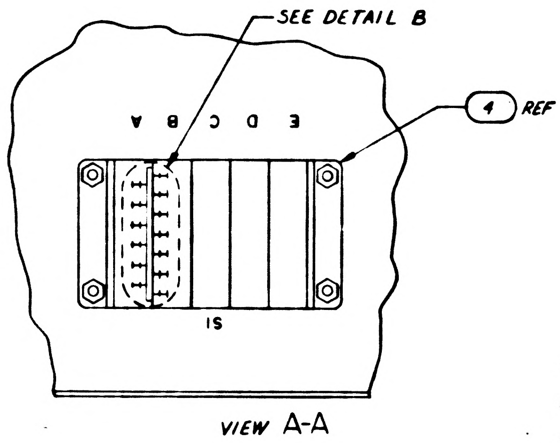
CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014392
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

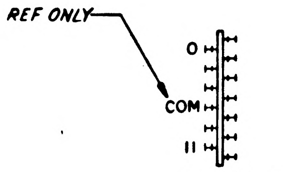
2014392 B

2014392 C

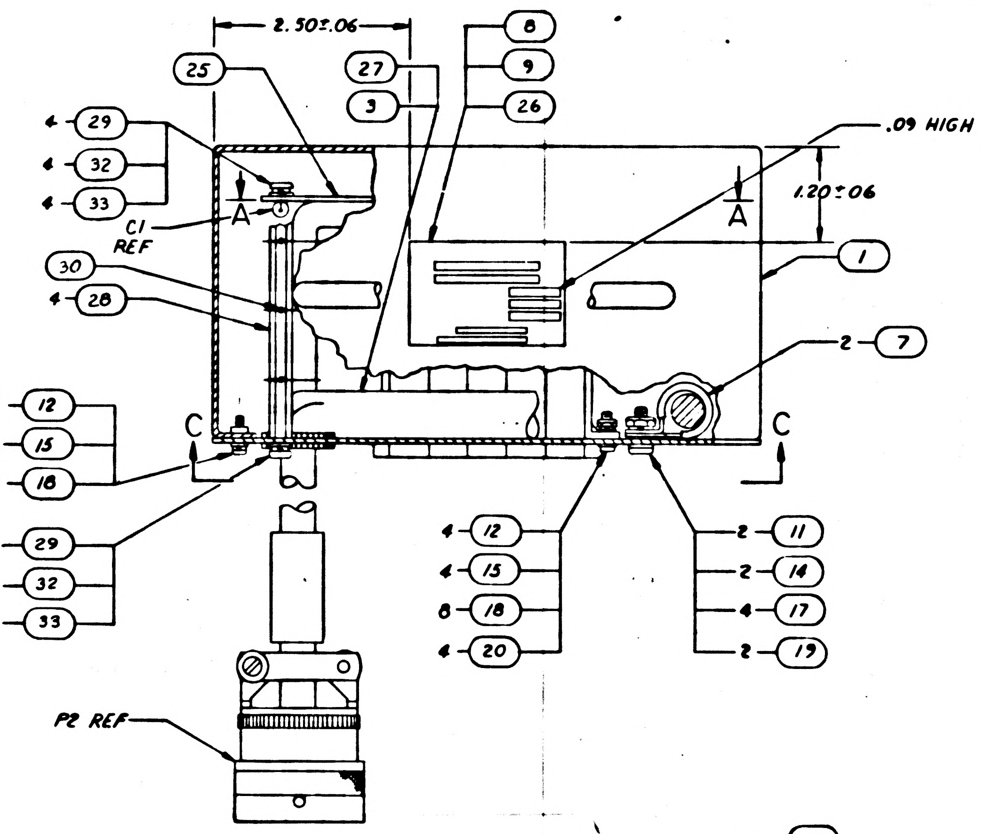
SYM	REVISIONS DESCRIPTION	DATE	APPROVED
C	REPLACES REV B WITH CHANGES PER TDRR 35532	31 Jan 68	



VIEW A-A

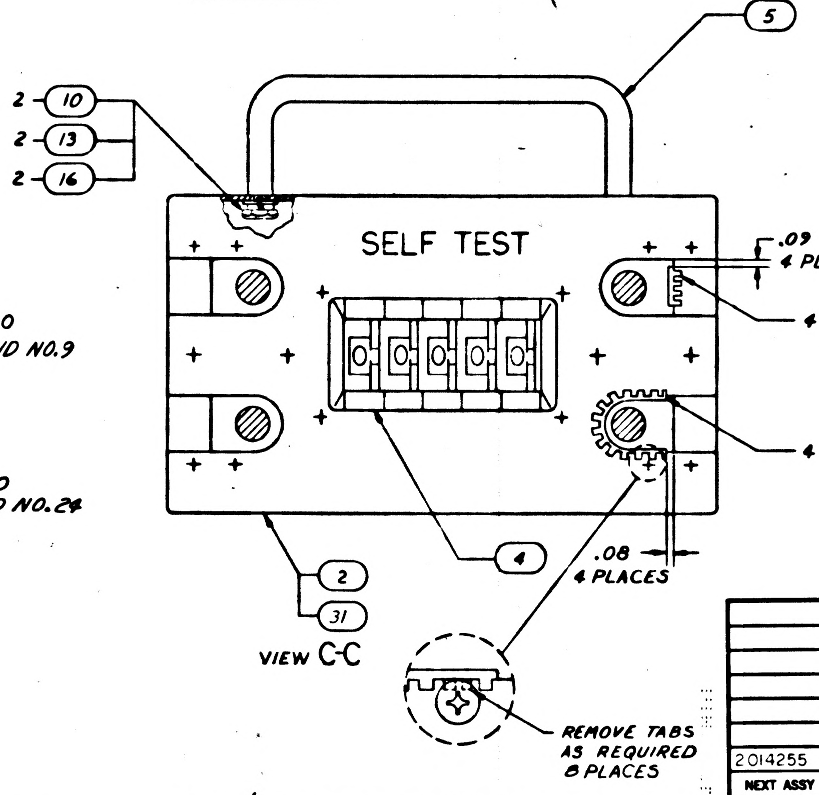


DETAIL B
5 PLACES



JUMPER CHART				
COND IDENT	FROM	TO	FIND NO.	AWG
B1	S/B-C	S/C-C	21	22
B2	S/C-C	S/D-C	21	22
B3	S/D-C	S/E-C	21	22
B4	S/E-5	S/E-8	21	22
B5	S/E-10	S/B-1	21	22

FOR -021 ONLY



VIEW C-C

NOTES:

1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SOLDER PER ND1002071
3. FABRICATE PER ND1002032 EXCEPT USE FIND NO.30
4. BOND FIND NO.8 OR FIND NO.26 TO FIND NO.1 USING FIND NO.9
5. SERIALIZE PER ND1002023
6. MARK IDENTIFICATION PER ND1002019
7. QQ-W-343 TYPE S, AWG NO. 22 SOFT COATED a FOR FIND NO.21
8. AR DENOTES AS REQUIRED
9. CUT FIND NO.23 TO LENGTHS SHOWN AND BOND TO FIND NO.1 AND FIND NO.2 OR FIND NO.31 USING FIND NO.24 DO NOT APPLY ADHESIVE TO PAINTED SURFACE
10. [A] DENOTES LENGTH IN FEET

Ⓒ REPLACES REV B WITH CHANGES

	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	-	2016486	SCHEMATIC	REF
	-	☒	2014191	SCHEMATIC	REF
	8	-	MS15795-805	WASHER, FLAT	33
	8	-	MS35338-136	WASHER, LOCK	32
	1	-	2016495	COVER	31
	AR	-	1006458-004	TAPE, LACING	30
	8	-	MS51957-29	SCREW, PAN HD	29
	4	-	1015981-009	STANDOFF	28
	1	-	2016497-011	WIRING HARNESS	27
	1	-	1004260-289	NAMEPLATE	26
	1	-	2016499-011	COMP BOARD ASSY	25
	AR	AR	1006981	ADHESIVE, SELF CURING	24
A	1.0	1.0	MS21266-2N	GROMMET, PLASTIC EDGING	23
	AR	AR	1006776-21	SLEEVING	22
A	1.0	0.5	SEE NOTE 7	WIRE ELEC.	21
	4	4	MS35649-44	NUT, HEX	20
	2	2	MS35649-84	NUT, HEX	19
	14	14	MS15795-803	WASHER, FLAT	18
	4	4	MS15795-807	WASHER, FLAT	17
	2	2	MS15795-808	WASHER, FLAT	16
	10	10	MS35338-135	WASHER, LOCK SPLIT	15
	2	2	MS35338-137	WASHER, LOCK SPLIT	14
	2	2	MS35338-138	WASHER, LOCK SPLIT	13
	10	10	MS51957-15	SCREW, PAN HD	12
	2	2	MS51957-44	SCREW, PAN HD	11
	2	2	MS20033-1	SCREW, HEX HD	10
	AR	AR	MIL-A-5092 TYPE II	CEMENT	9
	-	1	1004260-246	NAMEPLATE	8
	2	2	MS21919DG7	CLAMP	7
					6
	1	1	MS39087-3	HANDLE	5
	1	1	1006428-002	SWITCH	4
	-	1	2014190-011	WIRING HARNESS	3
	-	1	2014414	COVER	2
	1	1	2014413	HOUSING	1

LIST OF MATERIALS

2014392 C

2014255	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS-9-497
DRAWN G. Lemny DATE 10 Oct 67
CHECKED C. DiVenna 10 OCT 67
APPROVAL P.G. Quellette 19 OCT 67
APPROVAL 19 Oct 67
APPROVAL
NASA APPROVAL
APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

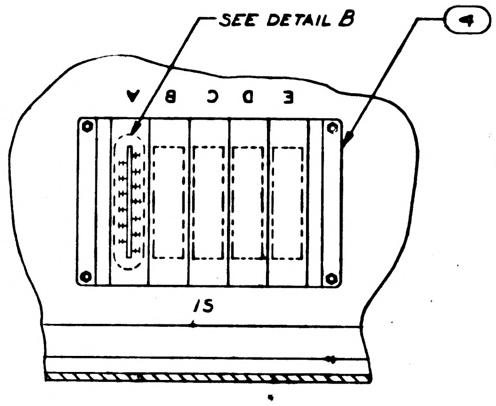
SELF TEST ASSEMBLY

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014392
SCALE 1/1
WT
SHEET 1 OF 1

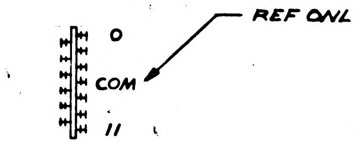
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014392 —

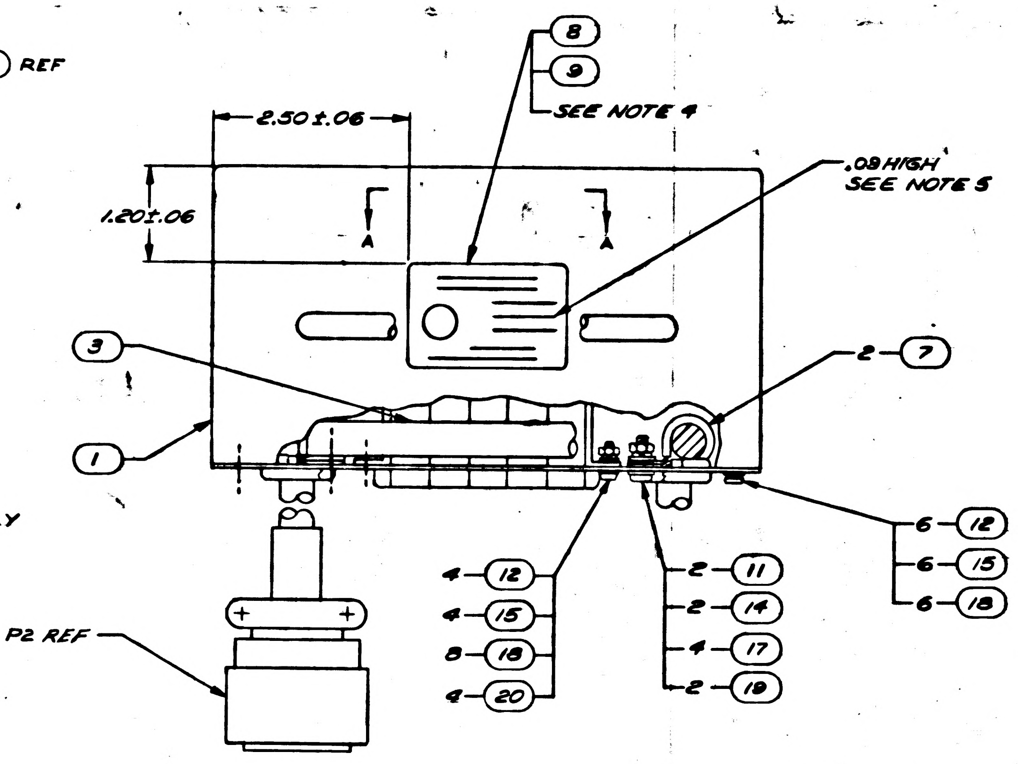
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25166	9/14/65	
1	CHANGED PER CCA R25328 DR P. CHK S.J. APPD G.E. Nov. 13, 65	11/12/65	
—	CLASS A RELEASED PER TDRR 25478		



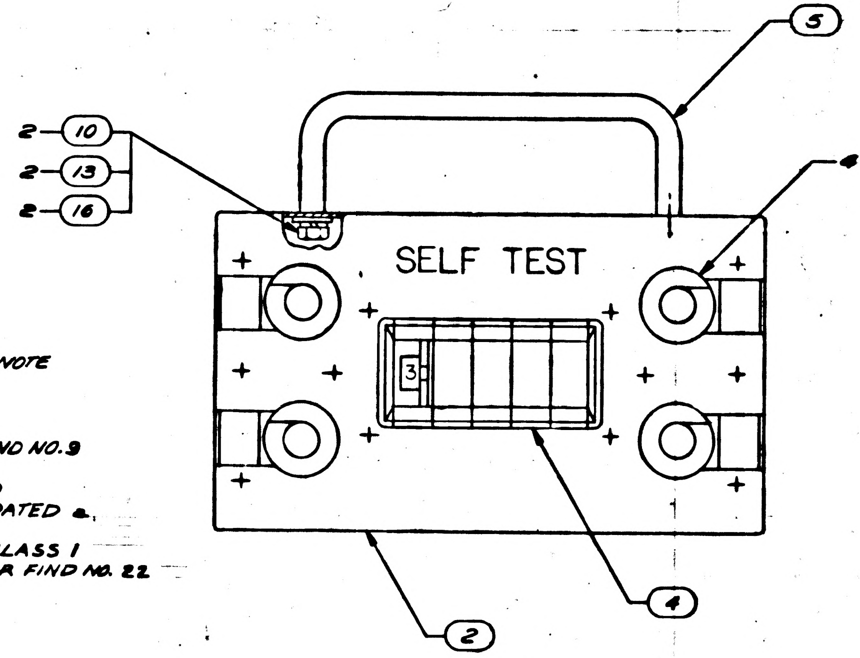
SECTION A-A



DETAIL B
5 PLACES



	JUNPER CHART			
COND IDENT	FROM	TO	FIND NO.	AWG
B1	S1B-C	S1C-C	21	22
B2	S1C-C	S1D-C	21	22
B3	S1D-C	S1E-C	21	22



NOTES
1. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
2. SOLDER PER ND1002071
3. FABRICATE PER ND1002032
4. BOND FIND NO. 8 TO FIND NO. 1 USING FIND NO. 9
5. SERIALIZE PER ND1002023
6. MARK IDENTIFICATION PER ND1002019
7. QQ-W-343 TYPE S, AWG NO. 22 SOFT COATED & FOR FIND NO. 21
8. MIL-I-631 TYPE F, FORM U, GRADE A CLASS 1 CATAGORY 1 COLOR CLEAR, AWG NO. 22 FOR FIND NO. 22
9. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014191	SCHEMATIC	REF
AR	SEE NOTE 8	SLEEVING	22
* 0.5	SEE NOTE 7	WIRE, ELEC.	21
4	MS35649-44	NUT, HEX	20
2	MS35649-84	NUT, HEX	19
14	MS15795-803	WASHER, FLAT	18
4	MS15795-807	WASHER, FLAT	17
8	MS15795-808	WASHER, FLAT	16
10	MS35338-78	WASHER, LOCK SPLIT	15
2	MS35338-80	WASHER, LOCK SPLIT	14
2	MS35338-81	WASHER, LOCK SPLIT	13
10	MS51957-18	SCREW, PAN HD	12
2	MS51957-44	SCREW, PAN HD	11
2	MS20033-1	SCREW, HEX HD	10
AR	MIL-A-5092 TYPE II	CEMENT	9
1	1004260-246	NAMEPLATE	8
2	MS21919 DG7	CLAMP	7
4	MS35489-135	GROMMET	6
1	MS39087-3	HANDLE	5
1	1006428-002	SWITCH	4
1	2014190-011	WIRING HARNESS	3
1	2014414	COVER	2
1	2014413	HOUSING	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014255	
2014268	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 3 Aug 65
CHECKED 21 AUG 65
APPROVAL G.E. 8 SEP '65
APPROVAL 9/13/65
APPROVAL 9/14/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL C 1/10/66

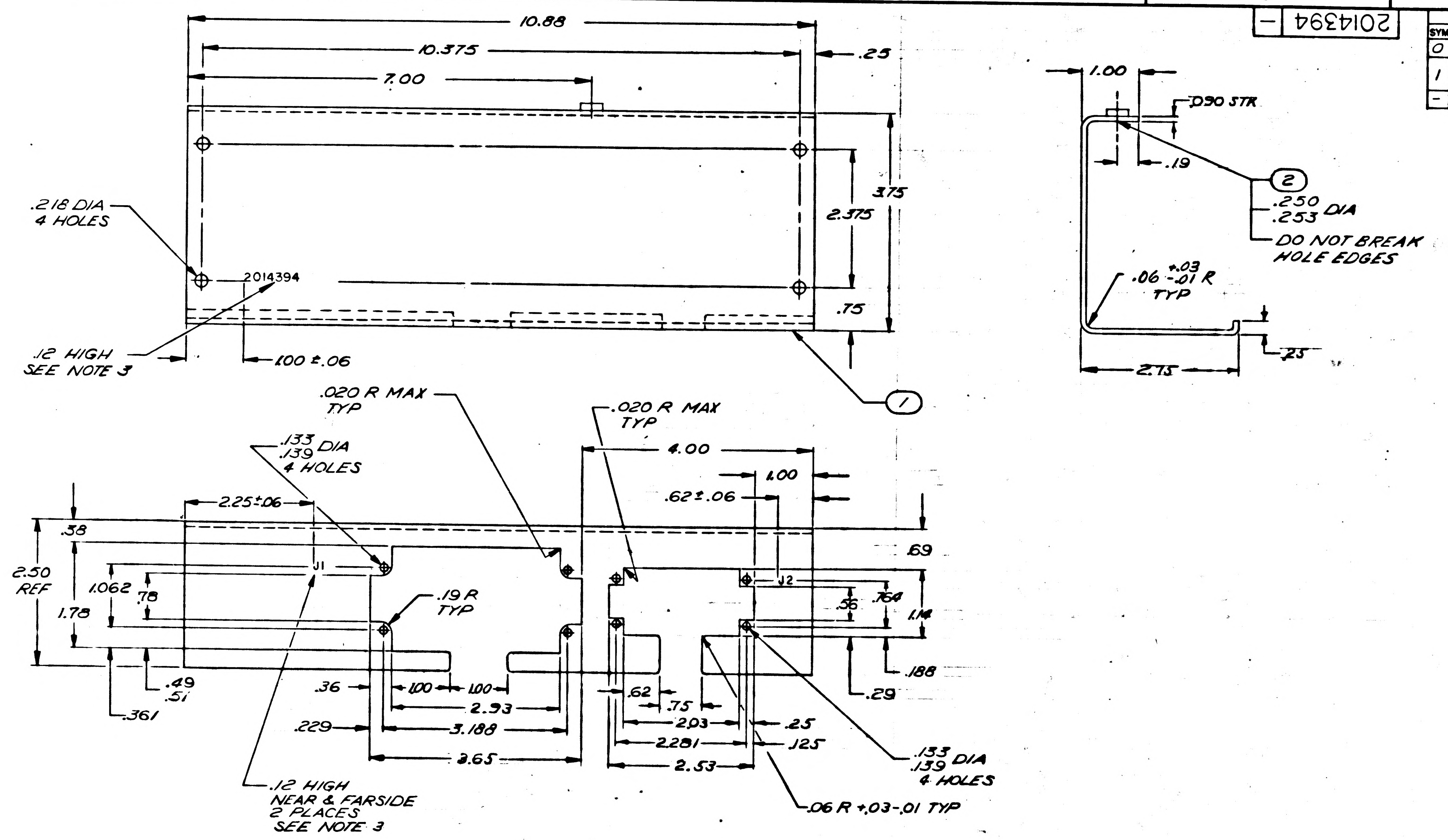
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SELF TEST ASSEMBLY

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014392
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014392 —


10.88
10.375
7.00
.25
.218 DIA
4 HOLES
2014394
2.375
3.75
.75
.12 HIGH
SEE NOTE 3
1.00 ±.06
①
1.00
.090 STR
.19
②
.250
.253 DIA
DO NOT BREAK
HOLE EDGES
.06 +.03 -.01 R
TYP
.25
2.75
.020 R MAX
TYP
.133
.139 DIA
4 HOLES
2.25±.06
.38
2.50
REF
1.062
.78
1.78
J1
.19 R
TYP
.49
.51
.361
.36
1.00
1.00
2.93
.229
3.188
3.65
.12 HIGH
NEAR & FARSIDE
2 PLACES
SEE NOTE 3
.020 R MAX
TYP
4.00
1.00
.62±.06
.69
J2
.56
.764
1.14
.188
.29
.62
.75
2.03
.25
2.281
.125
2.53
.133
.139 DIA
4 HOLES
.06 R +.03-.01 TYP
2014394 —

NOTES
1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25119	8/27/65	
1	CHANGED PER CCA 25523 DR P. Milner CHK APPD	11/4/65	
–	CLASS A RELEASED PER TDRR 25476		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006989-23	NUT, CLINCH	2
1	2014394-001	BRACKET, CONNECTOR	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014024	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ±
DO NOT SCALE DRAWING

MATERIAL
5052-H-32 AL
PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. M. Douglas DATE 15 JUL 65
CHECKED 21 JUL 65
APPROVAL 28 JUL 65
APPROVAL 7/28/65
APPROVAL 24 Aug 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BRACKET, CONNECTOR, J1 & J2
OPERATION CONSOLE

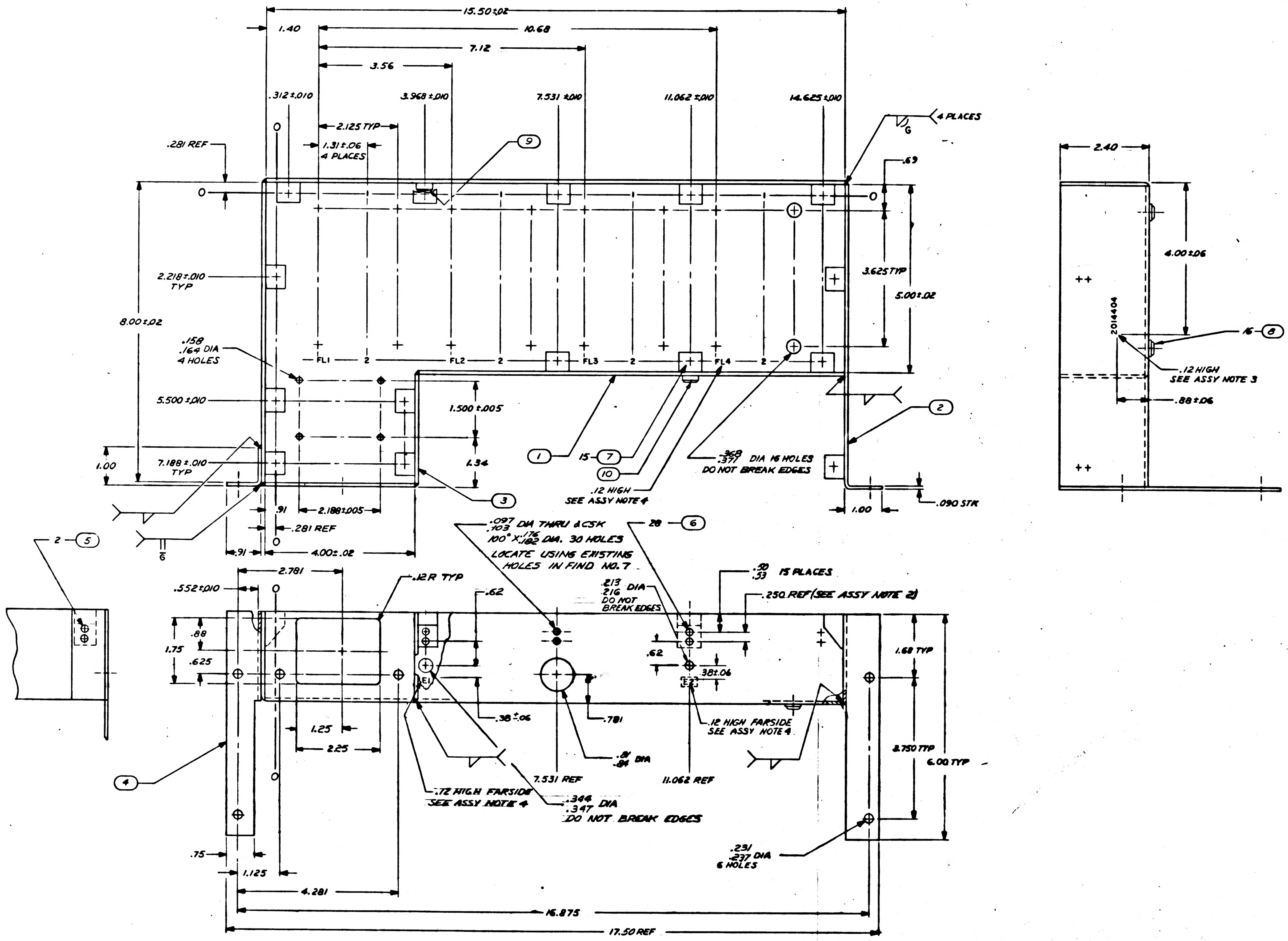
CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	D	2014394

SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014394 —

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCAR25167	9/13/65	
1	CHANGE PER CCA R25248 DR CHK APPD		
2	CHANGED PER CCA R25456 DR B CHK APPD		
-	CLASS A RELEASED PER TDRR 25472		


15.50±.02
10.68
7.12
3.56
1.40
.312±.010
3.968±.010
7.531±.010
11.062±.010
14.625±.010
2.125 TYP
1.31±.06 4 PLACES
4 PLACES
.281 REF
.69
9
0
2.218±.010 TYP
3.625 TYP
5.00±.02
8.00±.02
.158 .164 DIA 4 HOLES
FL1
FL2
FL3
FL4
5.500±.010
1.500±.005
7.188±.010 TYP
1.00
1.34
1
15-7
10
.368 .377 DIA 16 HOLES DO NOT BREAK EDGES
.12 HIGH SEE ASSY NOTE 4
2
3
.090 STK
1.00
.91
2.188±.005
.281 REF
4.00±.02
2.40
4.00±.06
2014404
16-8
.12 HIGH SEE ASSY NOTE 3
.88±.06
2-5
.097 .103 DIA THRU & CSK 100° X .176 .182 DIA. 30 HOLES LOCATE USING EXISTING HOLES IN FIND NO.7
28-6
.30 .33 15 PLACES
.250 REF (SEE ASSY NOTE 2)
2.781
.552±.010
.12R TYP
.62
.213 .216 DIA DO NOT BREAK EDGES
.88
1.75
.625
.62
.38±.06
1.68 TYP
E1
.38±.06
.781
1.25
2.25
.12 HIGH FARSIDE SEE ASSY NOTE 4
8.750 TYP
6.00 TYP
4
.81 .84 DIA
7.531 REF
11.062 REF
.12 HIGH FARSIDE SEE ASSY NOTE 4
.344 .347 DIA DO NOT BREAK EDGES
.231 .237 DIA 6 HOLES
.75
1.125
4.281
16.875
17.50 REF

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006989-15	NUT PLAIN, SELF-CLINCHING	10
1	1006939-26	NUT, PLAIN, SELF-CLINCHING	9
16	1006999-8	NUT, CLINCH, FLOATING	8
15	NAS1033C08	NUT, SELF-LOCKING PLATE	7
28	MS20426AD3-5	RIVET, SOLID, CSK FLAT HD	6
2	MS20426AD3-7	RIVET, SOLID, CSK FLAT HD	5
1	2014404-004	BRACKET, MTG, LH	4
1	2014404-003	PLATE, SIDE	3
1	2014404-002	BRACKET, MTG, RH	2
1	2014404-001	HOUSING	1

LIST OF MATERIALS

NOTES
1. BEND RADII TO BE .05/.09
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

ASSY. NOTES
1. WELD PER MIL-W-8604
2. ASSEMBLE FIND NO.7 TO FIND NO.1 USING FIND NO.6
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014043	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ±.016 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL
AL 5052-H32
PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 21 Jul 65
CHECKED 2 AUG 65
APPROVAL
APPROVAL 9 AUG 65
APPROVAL
NASA APPROVAL C. METZGER
MIT APPROVAL
MIT APPROVAL

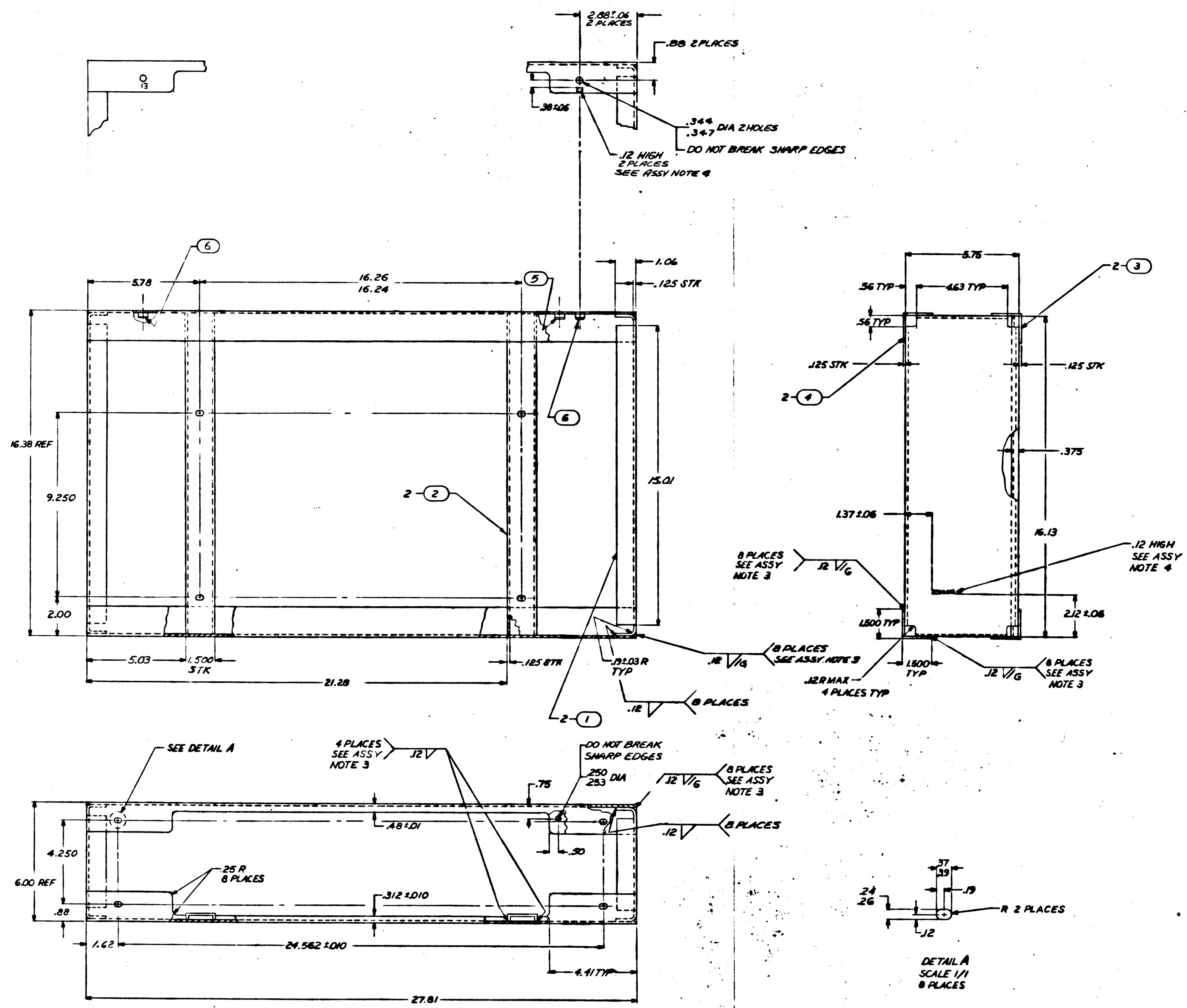
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING, FILTER
AC INPUT PANEL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO 2014404
SCALE 1/1
WT
SHEET 1 OF 1

2014415 | -

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
2	RELEASED PER CCA R 25164	[illegible]	[illegible]
1	CHANGED PER CCA R 25336 DR [illegible] CHK E [illegible] APPD [illegible]	[illegible]	[illegible]
-	CLASS A RELEASED PER TDRR 25476		



2.88±.06
2 PLACES
.88 2 PLACES
.38±.06
.344
.347 DIA 2 HOLES
DO NOT BREAK SHARP EDGES
.12 HIGH
2 PLACES
SEE ASSY NOTE 4
13
6
5.78
16.26
16.24
5
1.06
.125 STK
16.38 REF
9.250
2.00
15.01
2-2
6
5.03
1.500
STK
21.28
.125 STK
.19±.03 R
TYP
.12 8 PLACES
SEE ASSY NOTE 3
.12 8 PLACES
2-1
5.75
.56 TYP
4.63 TYP
.56 TYP
2-3
.125 STK
.125 STK
2-4
.375
1.37±.06
16.13
8 PLACES
SEE ASSY
NOTE 3
.12
.12 HIGH
SEE ASSY
NOTE 4
1.500 TYP
2.12±.06
1.500
TYP
.12 R MAX
4 PLACES TYP
.12
8 PLACES
SEE ASSY
NOTE 3
SEE DETAIL A
4 PLACES
SEE ASSY
NOTE 3
.12
DO NOT BREAK
SHARP EDGES
.250
.253 DIA
.75
.12
8 PLACES
SEE ASSY
NOTE 3
.12 8 PLACES
4.250
6.00 REF
.48±.01
.50
.25 R
8 PLACES
.312±.010
.88
1.62
24.562±.010
4.41 TYP
27.81
.37
.39
.19
.24
.26
R 2 PLACES
.12
DETAIL A
SCALE 1/1
8 PLACES

① NOTES

1. MATL AL 5052-H32 PER QQ-A-250/8

② ③ ④ NOTES

1. MATL AL 6063-T5 PER QQ-A-200/9 SHARP CORNERS INSIDE & OUTSIDE

ASSY NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELEC CONDUCTIVE
3. WELD PER MIL-W-8604.
4. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
5. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	1006989-27	NUT PLAIN, SELF-CLINCHING	6
1	1006989-20	NUT, PLAIN, SELF-CLINCHING	5
2	2014415-004	ANGLE, SUPPORT, TOP	4
2	2014415-003	ANGLE, SUPPORT, BOTTOM	3
2	2014415-002	CHANNEL, SUPPORT	2
2	2014415-001	PLATE, SIDE	1

LIST OF MATERIALS

2014279	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON

DECIMALS .XX	DECIMALS .XXX	ANGLES
±.02	±.005	±

DO NOT SCALE DRAWING

MATERIAL

SEE NOTES

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 6 Jul 65
CHECKED [illegible] 17 Aug 65
APPROVAL [illegible] 31 AUG. 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. L. ALTZCER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

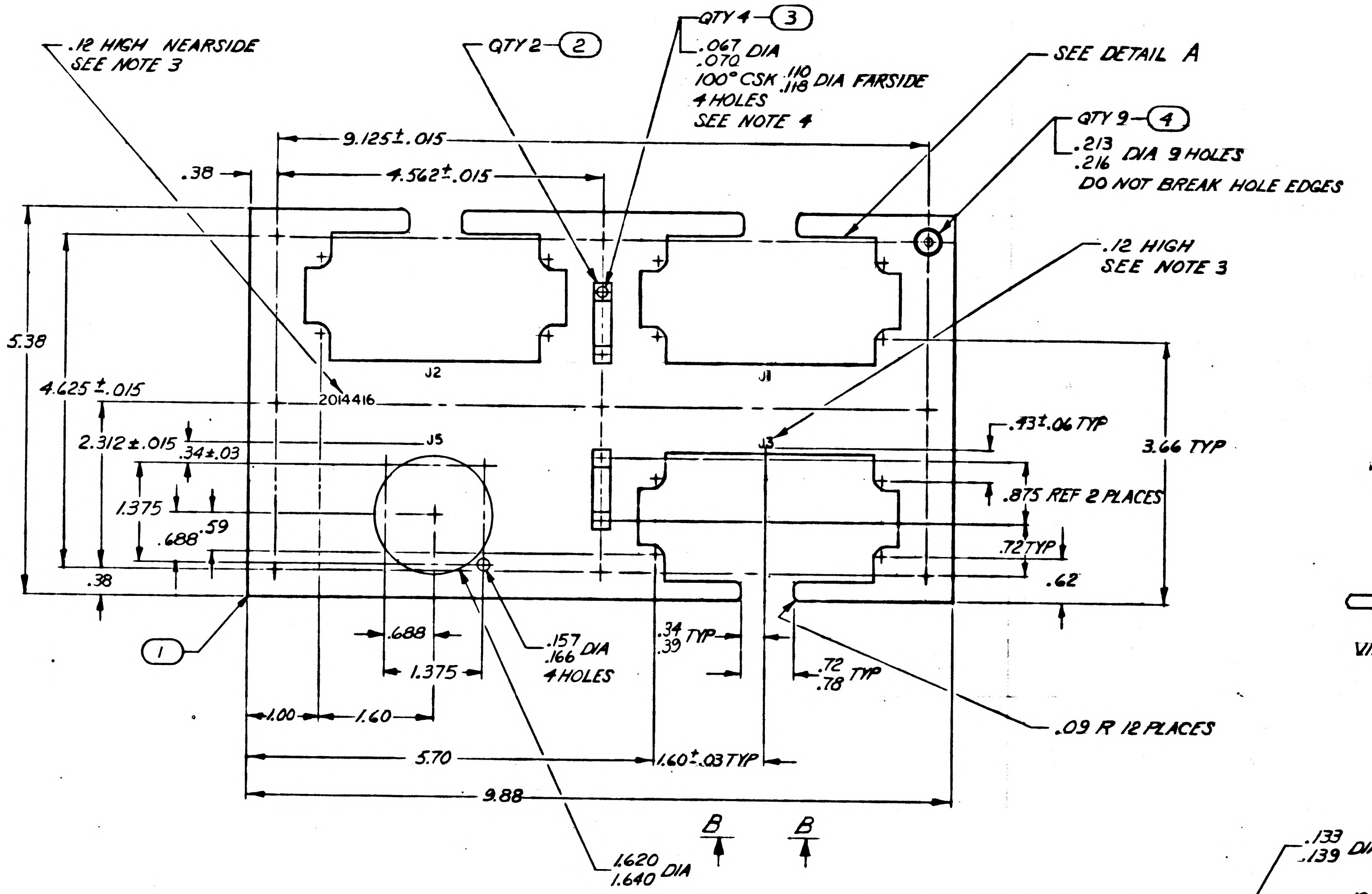
CHASSIS
POWER SUPPLY ASSY
OPERATION CONSOLE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014415
SCALE 1/2	WT	SHEET 1 OF 1

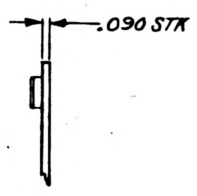
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

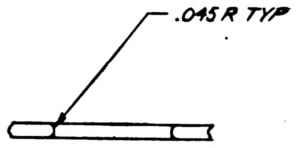
2014415 | -

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167	9/13/6	G. Haran
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26490 DR E. Uftring CHK R.H.E. APPD	3/24/66	

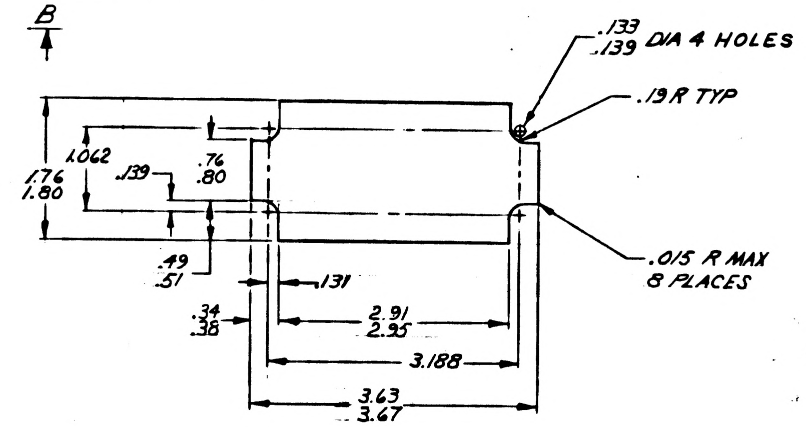


.12 HIGH NEARSIDE
SEE NOTE 3
QTY 2 ②
QTY 4 ③
.067 .070 DIA
100° CSK .110 .118 DIA FARSIDE
4 HOLES
SEE NOTE 4
SEE DETAIL A
QTY 9 ④
.213 .216 DIA 9 HOLES
DO NOT BREAK HOLE EDGES
.12 HIGH
SEE NOTE 3
9.125±.015
4.562±.015
.38
5.38
4.625±.015
2.312±.015
.34±.03
1.375
.59
.688
.38
2014416
J2
J1
J5
J3
.43±.06 TYP
3.66 TYP
.875 REF 2 PLACES
.72 TYP
.62
①
.688
1.375
.157 .166 DIA
4 HOLES
.34 .39 TYP
.72 .78 TYP
.09 R 12 PLACES
1.00
1.60
5.70
1.60±.03 TYP
9.88
1.620 1.640 DIA
B
B





VIEW B-B 3 PLACES
SCALE 2/1



.133 .139 DIA 4 HOLES
.19 R TYP
1.76 1.80
1.062
.139
.76 .80
.49 .51
.015 R MAX
8 PLACES
.131
.34 .38
2.91 2.95
3.188
3.63 3.67

DETAIL A
3 PLACES

NOTES
1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN (BOTH SIDES EXCEPT AS NOTED) PER ND1002019 USING BLACK INK 1006271-10
4. USE FIND NO. 2 AS TEMPLATE TO LOCATE HOLES FOR FIND NO. 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
9	1006989-16	NUT, SELF CLINCHING	4
4	MS20426A2-4	RIVET, CSK HEAD	3
2	1006906-3	BRACKET, CABLE SUPPORT	2
1	2014416-001	PLATE, CONNECTOR	1

LIST OF MATERIALS

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL
AL 5052-H32
PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN S. J. Baran DATE 14 AUG 65
CHECKED C. DeGrazia 17 AUG 65
APPROVAL G. E. Dork 31 AUG 65
APPROVAL D. O'Bryant 8/31/65
APPROVAL 9/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 21 Jul 66
MIT APPROVAL C. S. 1/ /66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE CONNECTOR
RDC INTERFACE

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014416
SCALE 1/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

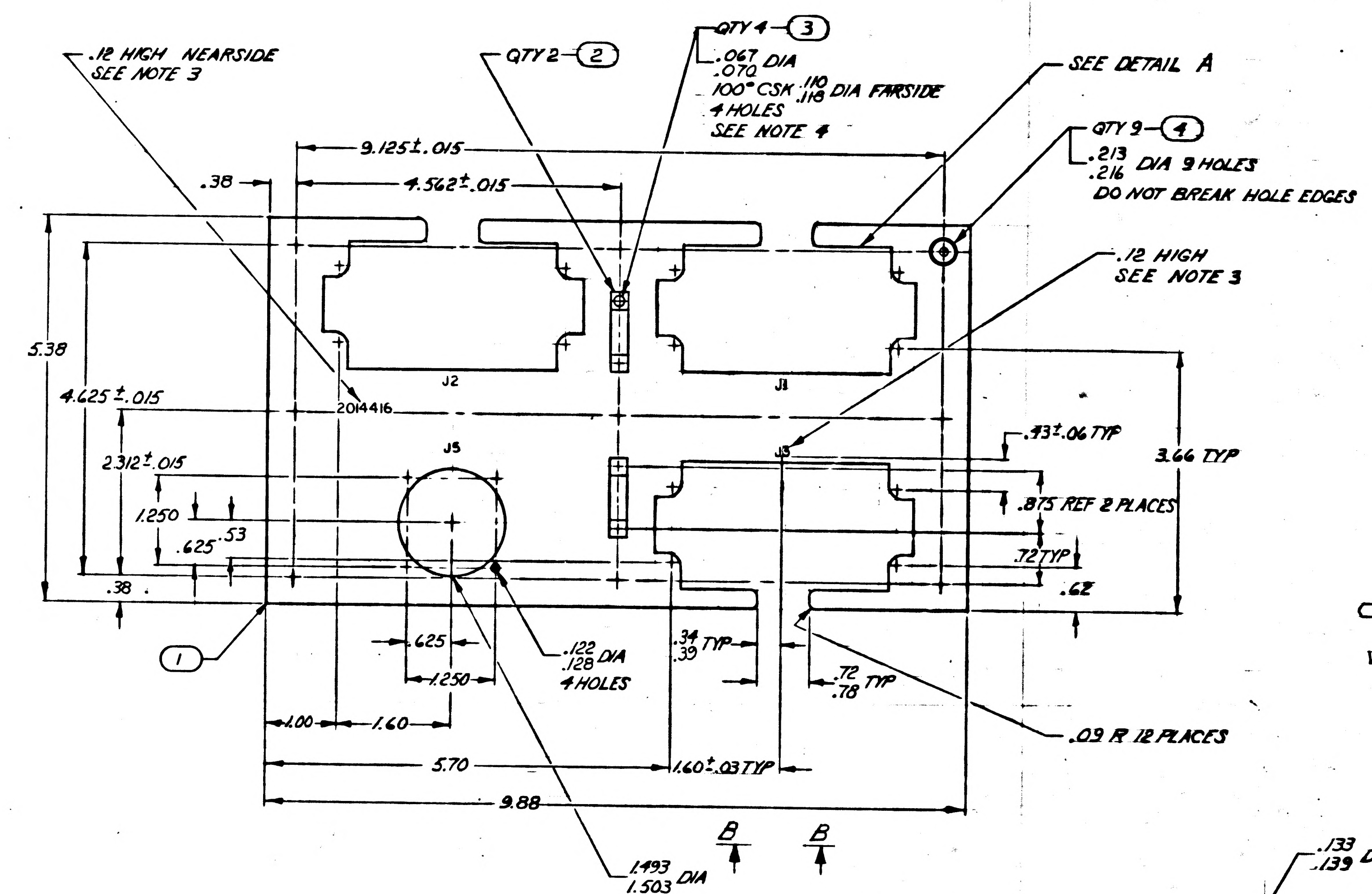
2014416 A

2014416 A

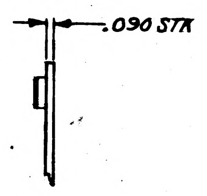
2014416 | –

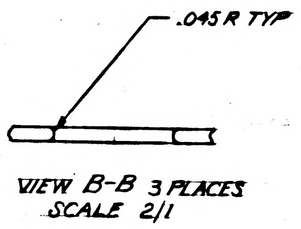
REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25167	9/13/6[illegible]	G Harand
–	CLASS A RELEASED PER TDRR 25472		

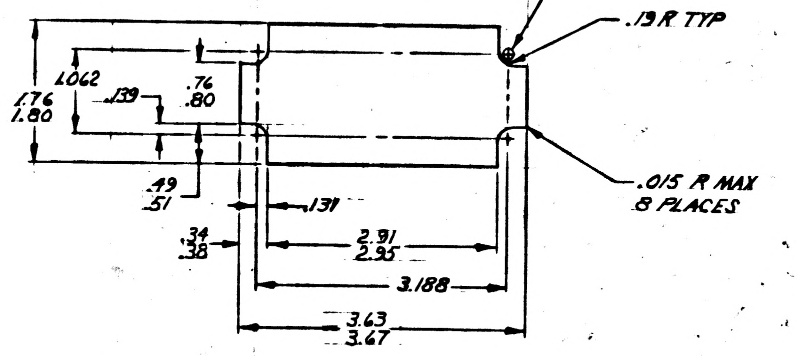


.12 HIGH NEARSIDE SEE NOTE 3
QTY 2 – ②
QTY 4 – ③
.067/.070 DIA
100° CSK .110/.118 DIA FARSIDE
4 HOLES
SEE NOTE 4
SEE DETAIL A
QTY 9 – ④
.213/.216 DIA 9 HOLES
DO NOT BREAK HOLE EDGES
.12 HIGH SEE NOTE 3
9.125±.015
4.562±.015
.38
5.38
4.625±.015
2.312±.015
1.250
.625
.53
.38
2014416
J2
J1
J3
J5
.43±.06 TYP
3.66 TYP
.875 REF 2 PLACES
.72 TYP
.62
①
.625
1.250
.122/.128 DIA
4 HOLES
.34/.39 TYP
.72/.78 TYP
.09 R 12 PLACES
1.00
1.60
5.70
1.60±.03 TYP
9.88
B
B
1.493/1.503 DIA





VIEW B-B 3 PLACES
SCALE 2/1



.133/.139 DIA 4 HOLES
.13 R TYP
.015 R MAX
8 PLACES
1.76/1.80
1.062
.139
.76/.80
.49/.51
.34/.38
.131
2.91/2.95
3.188
3.63/3.67

DETAIL A
3 PLACES

NOTES
1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN (BOTH SIDES EXCEPT AS NOTED) PER ND1002019 USING BLACK INK 1006271-10
4. USE FIND NO. 2 AS TEMPLATE TO LOCATE HOLES FOR FIND NO. 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
9	1006989-16	NUT, SELF CLINCHING	4
4	MS20426A2-4	RIVET, CSK HEAD	3
2	1006906-3	BRACKET, CABLE SUPPORT	2
1	2014416-001	PLATE, CONNECTOR	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2014045	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ±1°
DO NOT SCALE DRAWING

MATERIAL
AL 5052-H32
PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN S. J. Baran DATE 14 AUG 65
CHECKED C. DeGrazia 17 AUG 65
APPROVAL G. E. Dunk 31 AUG 65
APPROVAL D. D. [illegible] 8/31/65
APPROVAL [illegible] 9/1/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. S[illegible] 1/[illegible]/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE CONNECTOR
RDC INTERFACE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	D	2014416

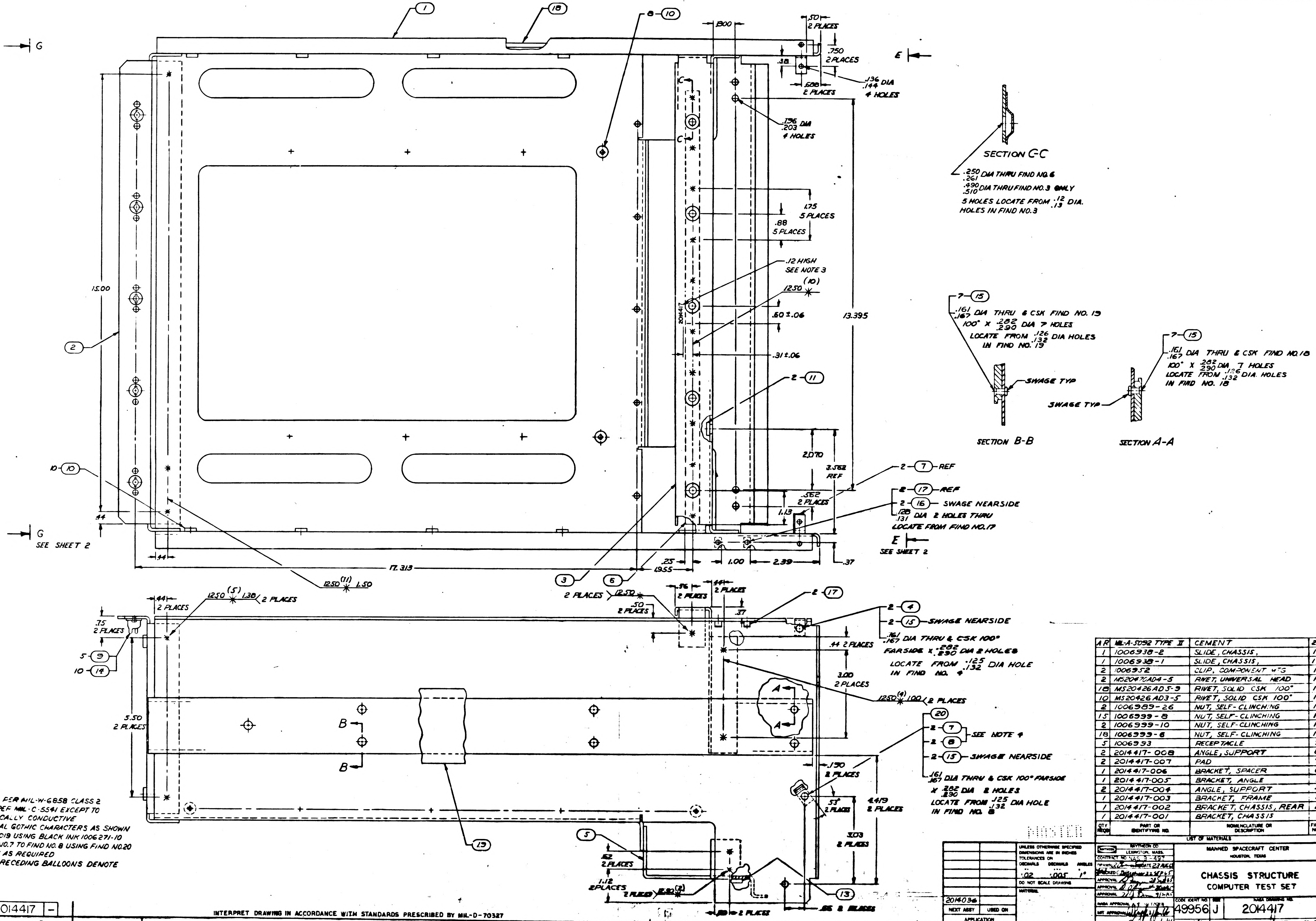
SCALE 1/1 WT SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014416 | –

2014417	-

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25223	9/30/65	A Hansen
-	CLASS A RELEASED PER TDRR 25472		



G
SEE SHEET 2
E
SEE SHEET 2
1
18
8-10
.50 2 PLACES
.750 2 PLACES
.38
.688 2 PLACES
1.800
.136 .144 DIA 4 HOLES
.196 .203 DIA 4 HOLES
1.75 5 PLACES
.88 5 PLACES
.12 HIGH SEE NOTE 3
1250 (10)
.50 ± .06
.31 ± .06
13.395
2-11
2.070
3.562 REF
.562 2 PLACES
1.13
2-7-REF
2-17-REF
2-16 SWAGE NEARSIDE
.128 .131 DIA 2 HOLES THRU LOCATE FROM FIND NO.17
15.00
2
10-10
.44
17.313
1250 (11) 1.50
.25
19.55
1.00
2.39
.37
3
6
C
2014417
SECTION C-C
.250 .261 DIA THRU FIND NO.6
.490 .510 DIA THRU FIND NO.3 ONLY
5 HOLES LOCATE FROM .12 .13 DIA. HOLES IN FIND NO.3
7-15
.161 .167 DIA THRU & CSK FIND NO. 19
100° X .282 .290 DIA 7 HOLES
LOCATE FROM .126 .132 DIA HOLES IN FIND NO. 19
SWAGE TYP
SECTION B-B
7-15
.161 .167 DIA THRU & CSK FIND NO.18
100° X .282 .290 DIA 7 HOLES
LOCATE FROM .126 .132 DIA. HOLES IN FIND NO. 18
SWAGE TYP
SECTION A-A
.44 2 PLACES
1250 (5) 1.38 2 PLACES
.75 2 PLACES
5-9
10-14
5.50 2 PLACES
B
A
2 PLACES 1250
.56 2 PLACES
.50 2 PLACES
.44 2 PLACES
.37
2-17
2-4
2-15 SWAGE NEARSIDE
.161 .167 DIA THRU & CSK 100° FARSIDE X .282 .290 DIA 2 HOLES
LOCATE FROM .125 .132 DIA HOLE IN FIND NO. 4
.44 2 PLACES
3.00 2 PLACES
1250 (4) 100 2 PLACES
20
2-7
2-8
SEE NOTE 4
2-15 SWAGE NEARSIDE
.161 .167 DIA THRU & CSK 100° FARSIDE X .282 .290 DIA 2 HOLES
LOCATE FROM .125 .132 DIA HOLE IN FIND NO. 8
.150 2 PLACES
53° 2 PLACES
4.419 2 PLACES
3.03 2 PLACES
19
5
.62 2 PLACES
1.12 2 PLACES
2 PLACES 1250 (2)
13
.56 2 PLACES

NOTES
1. SPOT WELD PER MIL-W-6858 CLASS 2
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER NC 002019 USING BLACK INK 1006271-10
4. BOND FIND NO.7 TO FIND NO.8 USING FIND NO.20
5. AR DENOTES AS REQUIRED
6. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	MIL-A-5092 TYPE II	CEMENT	20
1	1006938-2	SLIDE, CHASSIS,	19
1	1006938-1	SLIDE, CHASSIS,	18
2	1006952	CLIP, COMPONENT MTG	17
2	MS20470AD4-5	RIVET, UNIVERSAL HEAD	16
18	MS20426AD5-9	RIVET, SOLID CSK 100°	15
10	MS20426AD3-5	RIVET, SOLID CSK 100°	14
2	1006989-26	NUT, SELF-CLINCHING	13
15	1006999-8	NUT, SELF-CLINCHING	12
2	1006999-10	NUT, SELF-CLINCHING	11
18	1006999-6	NUT, SELF-CLINCHING	10
5	1006993	RECEPTACLE	9
2	2014417-008	ANGLE, SUPPORT	8
2	2014417-007	PAD	7
1	2014417-006	BRACKET, SPACER	6
1	2014417-005	BRACKET, ANGLE	5
2	2014417-004	ANGLE, SUPPORT	4
1	2014417-003	BRACKET, FRAME	3
1	2014417-002	BRACKET, CHASSIS, REAR	2
1	2014417-001	BRACKET, CHASSIS	1

LIST OF MATERIALS

MASTER

2014036	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 23 AUG 65
CHECKED C 22 SEP 65
APPROVAL 21 Sep 65
APPROVAL
APPROVAL 9/1/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CHASSIS STRUCTURE
COMPUTER TEST SET

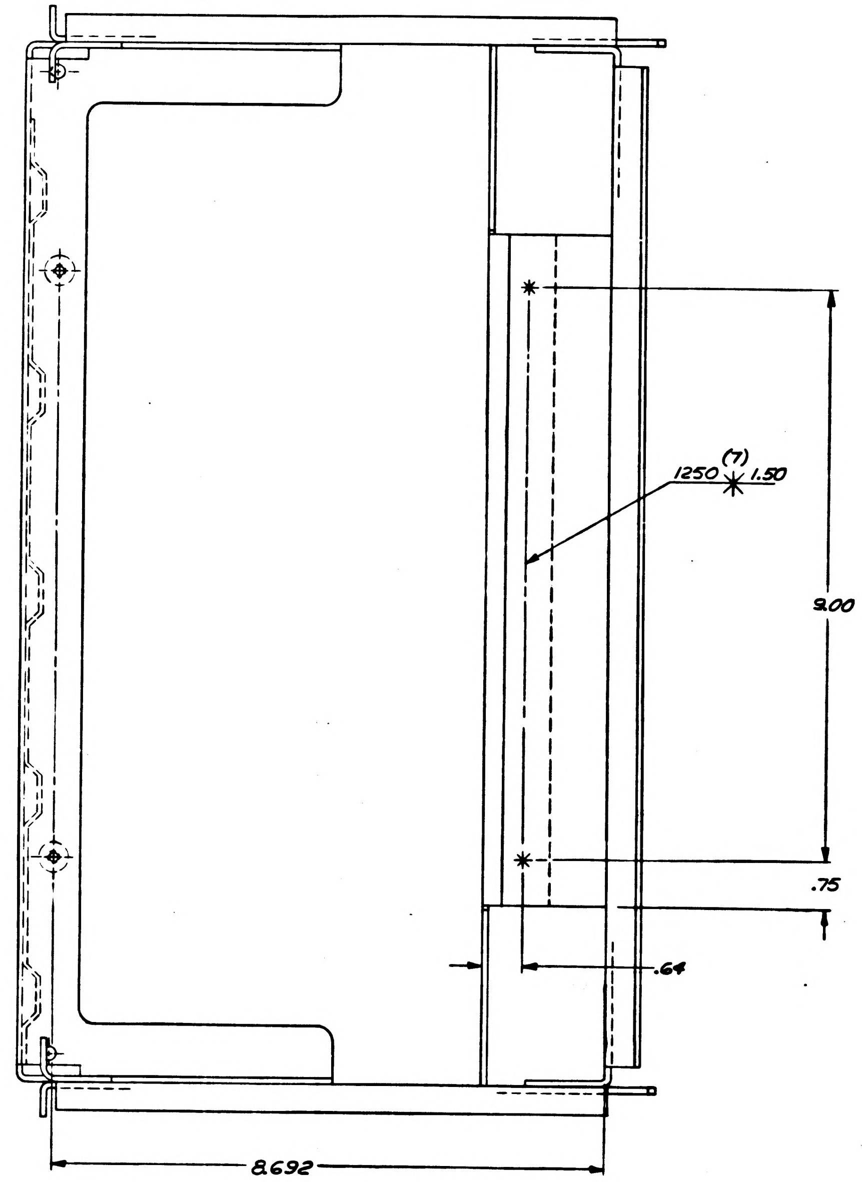
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014417
SCALE 1/1
WT
SHEET 1 OF 2

2014417	-

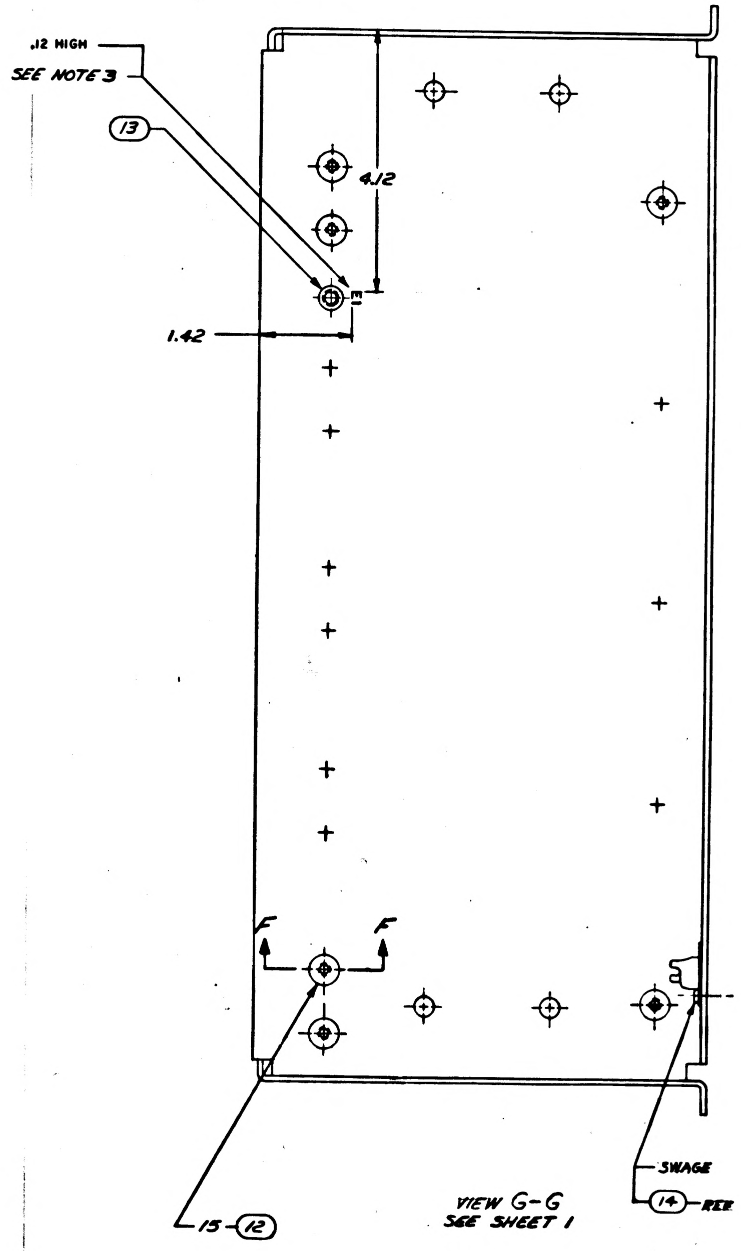
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014417 -

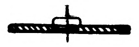
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA C25223	7-30-69	U. Harand
-	CLASS A RELEASED PER TDRR 25472		



VIEW E-E
SEE SHEET 1



VIEW G-G
SEE SHEET 1



SECTION F-F

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ±.005 ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 19 AUG 65
CHECKED 22 SEP 65
APPROVAL Sept 65
APPROVAL 9/20/65
APPROVAL 9/2/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/14/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

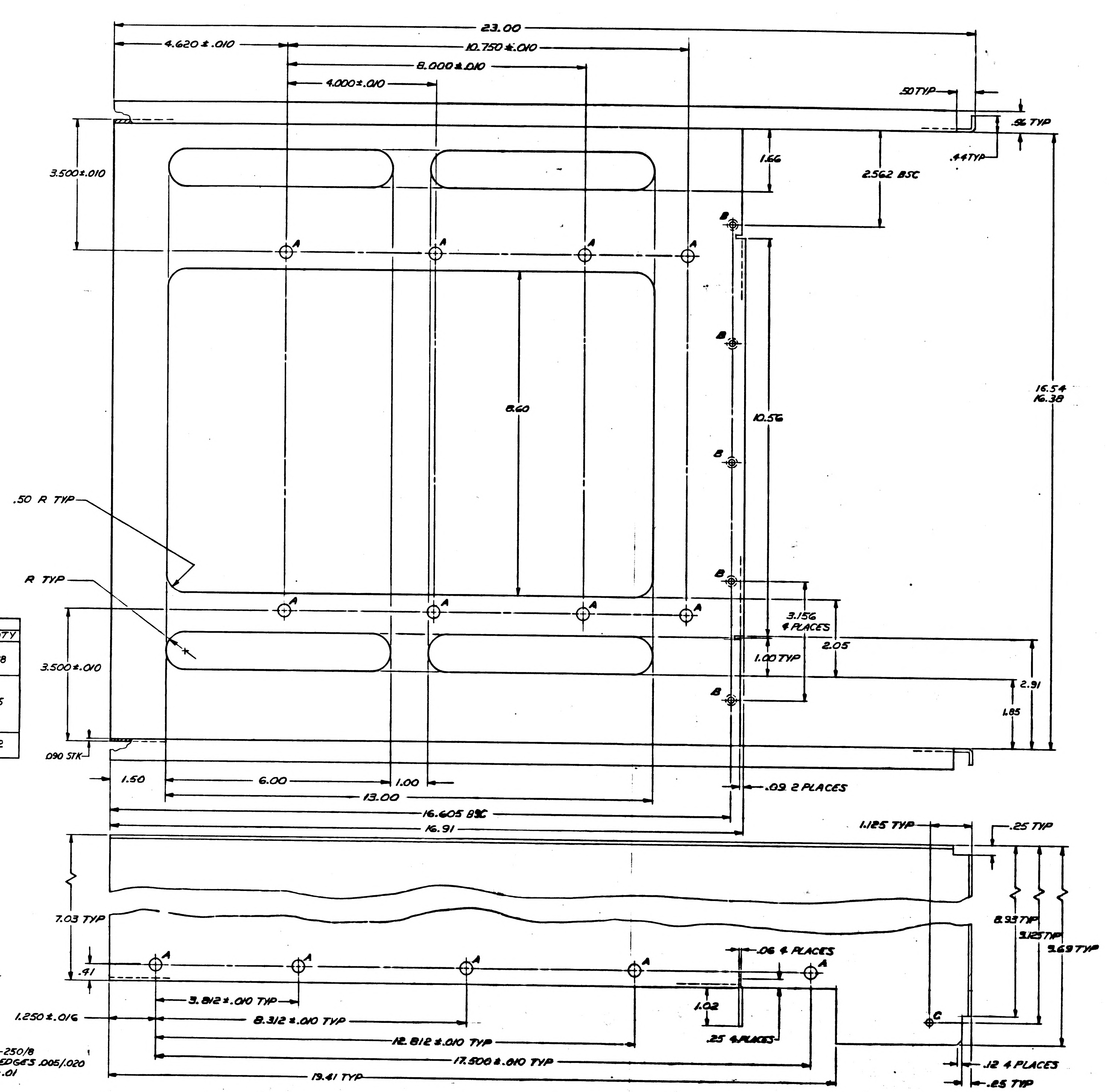
CHASSIS STRUCTURE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014417
SCALE 1/1
WT
SHEET 2 OF 5

2014417 -

2014417 —

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CO9 C25223	9/30/65	G Haran
—	CLASS A RELEASED PER TDRR 24572		



23.00
4.620 ±.010
10.750 ±.010
8.000 ±.010
4.000 ±.010
.50 TYP
.56 TYP
.44 TYP
1.66
2.562 BSC
3.500 ±.010
A
B
8.60
10.56
16.54
16.38
.50 R TYP
R TYP
3.156 4 PLACES
2.05
1.00 TYP
2.91
1.85
3.500 ±.010
.090 STK
1.50
6.00
1.00
13.00
.09 2 PLACES
16.605 BSC
16.91
1.125 TYP
.25 TYP
7.03 TYP
8.93 TYP
9.125 TYP
9.69 TYP
.06 4 PLACES
.91
C
1.250 ±.016
3.812 ±.010 TYP
8.312 ±.010 TYP
1.02
12.812 ±.010 TYP
.25 4 PLACES
17.506 ±.010 TYP
.12 4 PLACES
19.41 TYP
.25 TYP

HOLE CHART		
HOLE	DESCRIPTION	QTY
A	.328 .331 DIA DO NOT BREAK SHARP EDGES	18
B	.157 .166 DIA & CSK 82° ± 2° X .29 .30 DIA FARSIDE ⊕ .010 DIA	5
C	.185 .193 DIA	2

NOTES
1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS AND SHARP EDGES .005/.020
3. INSIDE BEND RADII .06 +.03,-.01

BRACKET, CHASSIS
2014417-001

2014417 —

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL D 70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± .02 DECIMALS .XXX ± .005 ANGLES ±
DO NOT SCALE DRAWING
MATERIAL
SEE NOTES

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Hovori DATE
CHECKED C. DeThomas 3 Sept 65
APPROVAL P. Fanning 28 Sept 65
APPROVAL 9/22/65
APPROVAL 9/22/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C. Sperling

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

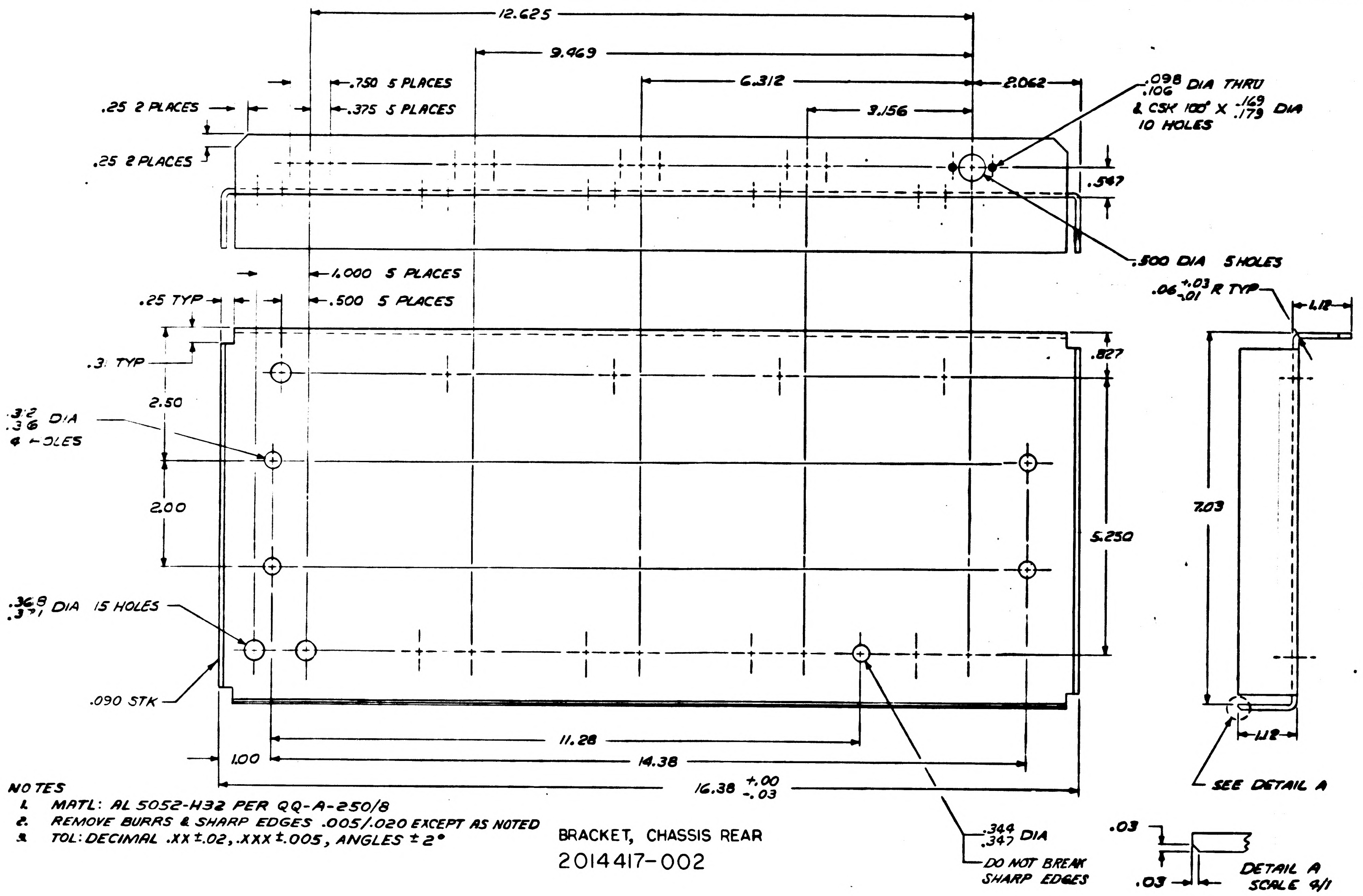
CHASSIS STRUCTURE
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014417

SCALE 1/1 WT SHEET 3 OF 5

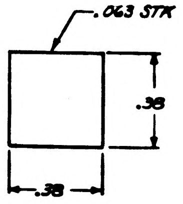
2014417 —

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25223	9-30-65	G. Hanna
–	CLASS A RELEASED PER TDRR 25472		


12.625
9.469
6.312
3.156
2.062
.750 5 PLACES
.375 5 PLACES
.25 2 PLACES
.25 2 PLACES
.098/.106 DIA THRU & CSK 100° X .169/.179 DIA 10 HOLES
.547
.500 DIA 5 HOLES
1.000 5 PLACES
.500 5 PLACES
.25 TYP
.3 TYP
.827
.312/.316 DIA 4 HOLES
2.50
2.00
5.250
.368/.371 DIA 15 HOLES
.090 STK
1.00
11.28
14.38
16.38 +.00 -.03
.344/.347 DIA
DO NOT BREAK SHARP EDGES
.06 +.03 -.01 R TYP
1.12
7.03
1.12
SEE DETAIL A
.03
.03
DETAIL A
SCALE 4/1

NOTES
1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020 EXCEPT AS NOTED
3. TOL: DECIMAL .XX ±.02, .XXX ±.005, ANGLES ± 2°

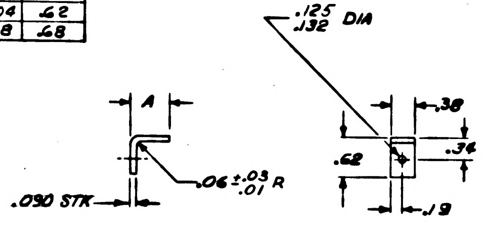
BRACKET, CHASSIS REAR
2014417-002


.063 STK
.38
.38

NOTES
1. MATL: RUBBER, SOLID PER MIL-R-3065
CLASS SC, GRADE 415
2. TOL: DECIMALS .XX ± .02
3. SCALE 4/1

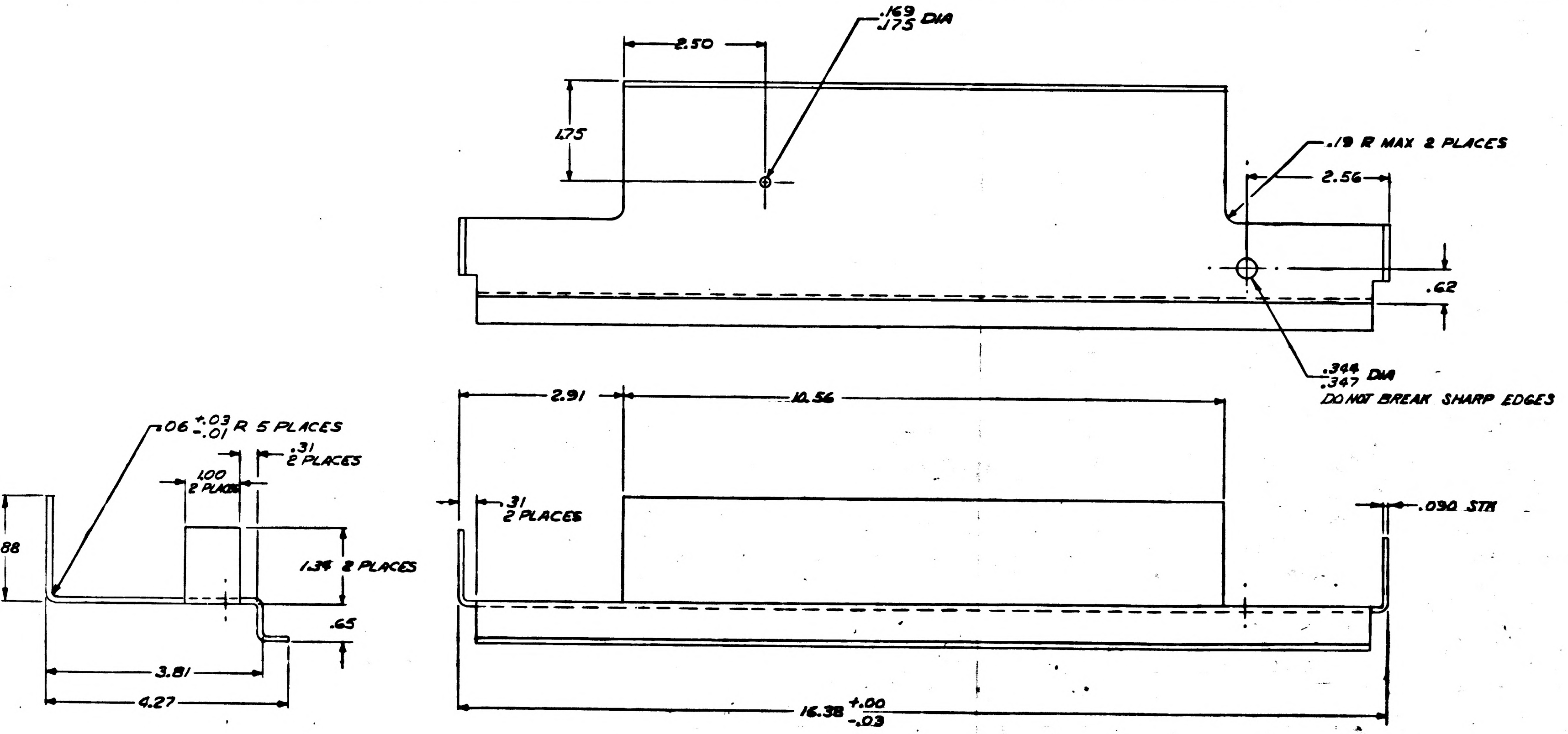
PAD
2014417-007

PART NO.	DIM. A
2014417-004	.62
2014417-008	.68


.125/.132 DIA
A
.38
.62
.34
.19
.090 STK
.06 +.03 -.01 R

ANGLE, SUPPORT
2014417-004 & 2014417-008

NOTES
1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020
3. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
4. TOL: DECIMALS .XX ± .02


.169/.175 DIA
2.50
1.75
.19 R MAX 2 PLACES
2.56
.62
.344/.347 DIA
DO NOT BREAK SHARP EDGES
2.91
10.56
.31 2 PLACES
.030 STK
16.38 +.00 -.03
.06 +.03 -.01 R 5 PLACES
.31 2 PLACES
1.00 2 PLACES
1.88
1.34 2 PLACES
.65
3.81
4.27

NOTES
1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020
3. TOL: DECIMAL .XX ±.02

BRACKET, ANGLE
2014417-005

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL
SEE NOTES

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN 2 Day DATE 19 AUG 65
CHECKED C. D. Harris 20 AUG 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

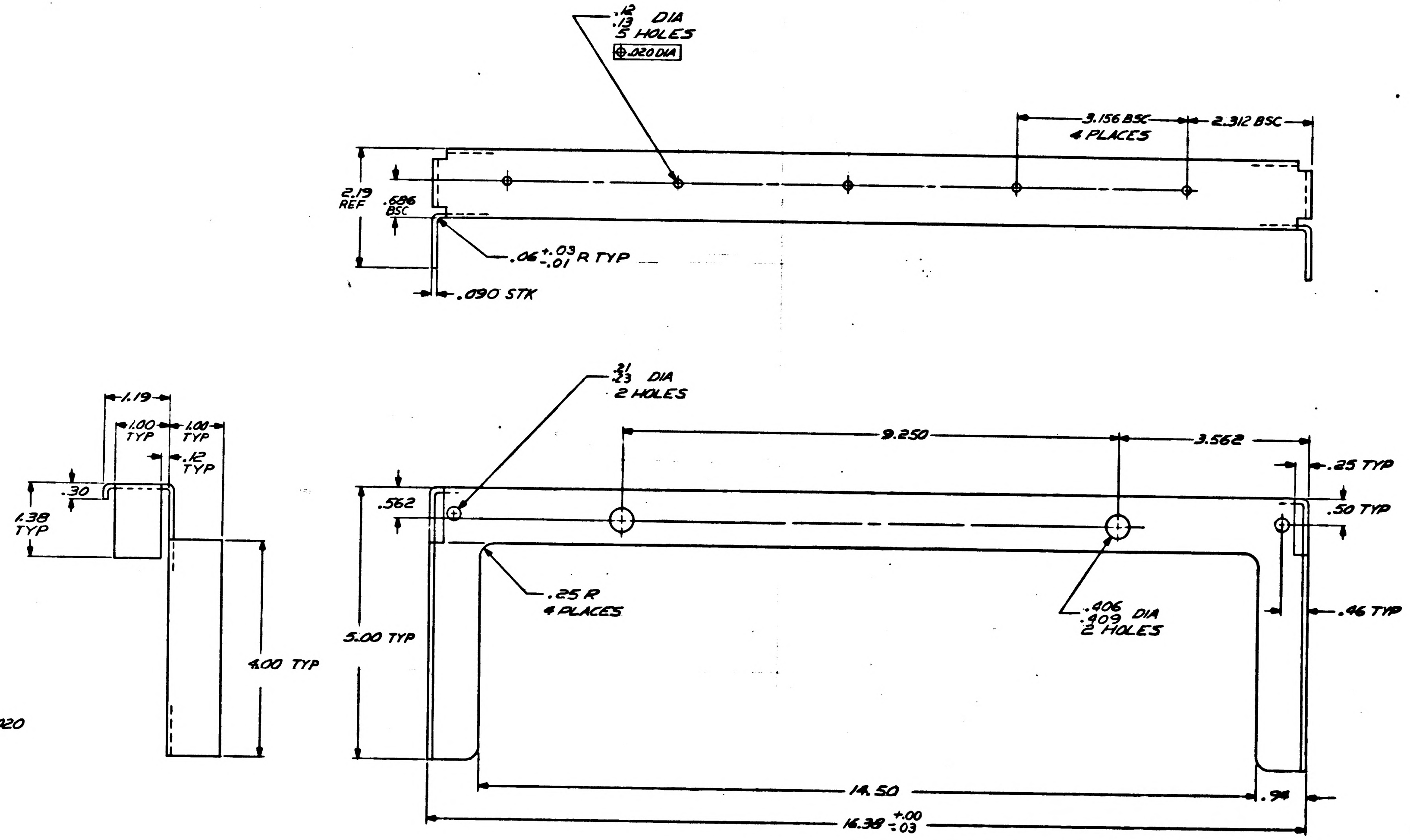
CHASSIS STRUCTURE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014417
SCALE 1/1
WT
SHEET 4 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25223	9.30.65	U. Hammond
–	CLASS A RELEASED PER TDRR 25472		

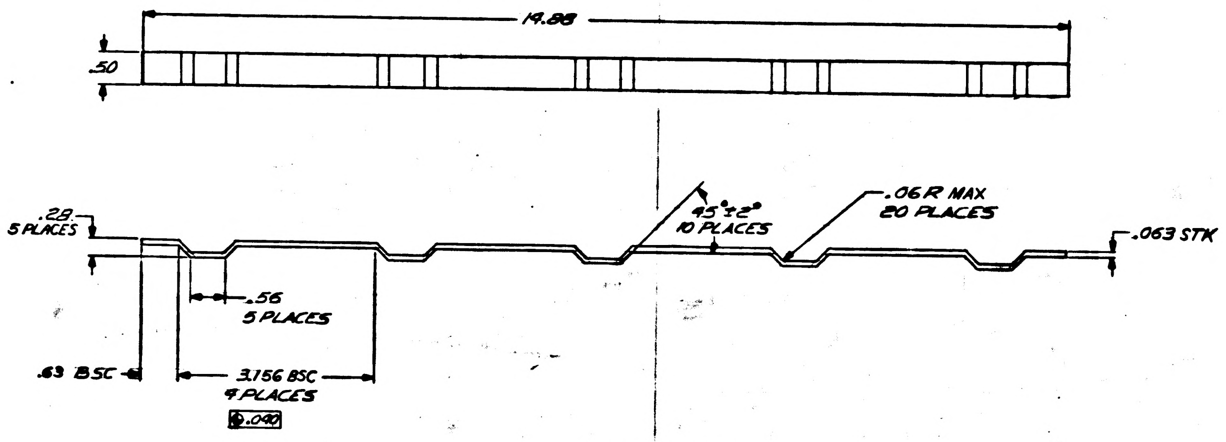
2014417 –



.12/.13 DIA
5 HOLES
⌖ .020 DIA
3.156 BSC
4 PLACES
2.312 BSC
2.19 REF
.686 BSC
.06 +.03/−.01 R TYP
.090 STK
.21/.23 DIA
2 HOLES
9.250
3.562
.25 TYP
.50 TYP
1.19
1.00 TYP
1.00 TYP
.12 TYP
.30
1.38 TYP
.562
.25 R
4 PLACES
.406/.409 DIA
2 HOLES
.46 TYP
5.00 TYP
4.00 TYP
14.50
.94
16.38 +.00/−.03

NOTES
1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020
3. TOL: DECIMALS .XXX±.005, .XX±.02

BRACKET, FRAME
2014417-003



19.88
.50
.28
5 PLACES
45°±2°
10 PLACES
.06 R MAX
20 PLACES
.063 STK
.56
5 PLACES
.63 BSC
3.156 BSC
4 PLACES
⌖ .040

NOTES
1. MATL: AL 5052-H32 PER QQ-A 250/8
2. REMOVE BURRS & SHARP EDGES .005/.010
3. TOL: DECIMALS .XX ±.02

BRACKET, SPACER
2014417-006

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL
SEE NOTES

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 19AUG65
CHECKED C. [illegible] 22SEP65
APPROVAL D. J. [illegible]
APPROVAL D. O'[illegible] 2/20/66
APPROVAL [illegible]
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CHASSIS STRUCTURE
COMPUTER TEST SET

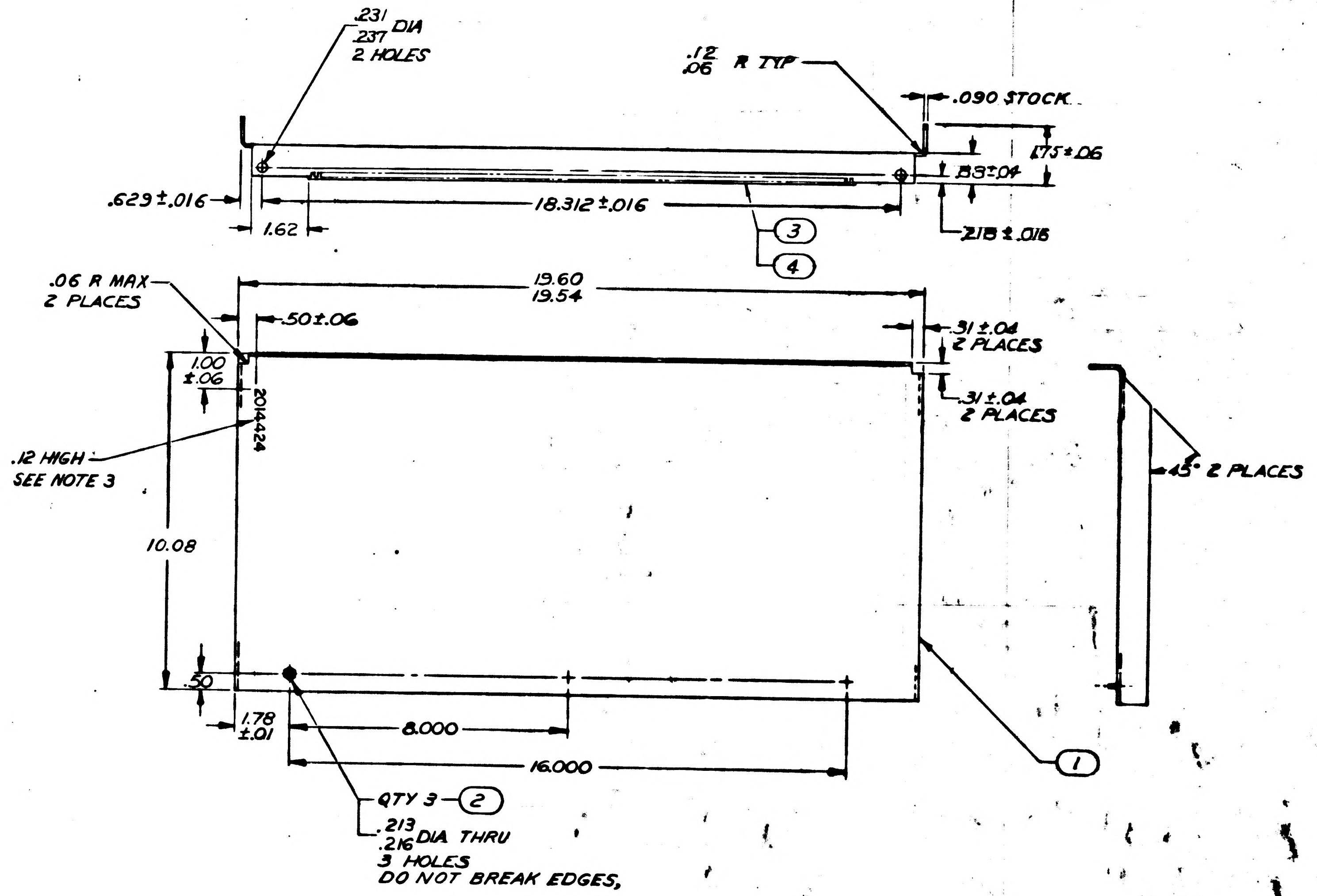
CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014417
SCALE 1/1 | WT | SHEET 5 OF 5

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014417 –

2014424	—

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R 25207	9/24	G. Harana
1	CHANGED PER CCA R 25465 DR. V. Zucco CHK. APPD.	11/10/65	
—	CLASS A RELEASED PER TDRR 25472		



.231 / .237 DIA
2 HOLES
.12 / .06 R TYP
.090 STOCK
.75±.06
.38±.04
.218±.018
.629±.016
18.312±.016
1.62
3
4
.06 R MAX
2 PLACES
19.60 / 19.54
.50±.06
.31±.04
2 PLACES
.31±.04
2 PLACES
1.00 ±.06
2014424
.12 HIGH
SEE NOTE 3
45° 2 PLACES
10.08
.50
1.78 ±.01
8.000
16.000
1
QTY 3 — 2
.213 / .216 DIA THRU
3 HOLES
DO NOT BREAK EDGES,

NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE FILM PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10.
4. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006981	ADHESIVE	4
1	1006980-2	GROMMET, NYLON	3
3	1006951-004	STUD, CAPTIVE, SELF-CLINCHING	2
1	2014424-001	PLATE, BAFFLE	1

LIST OF MATERIALS

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL
AL 5052-H32 PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS-9-497
DRAWN V. Catania DATE 23 AUG 65
CHECKED G. V. English 16 SEP 65
APPROVAL 21 Sept 65
APPROVAL D. D'Amand 9/21/65
APPROVAL 9/27/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C. Sterling 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, BAFFLE
COMPUTER TEST SET

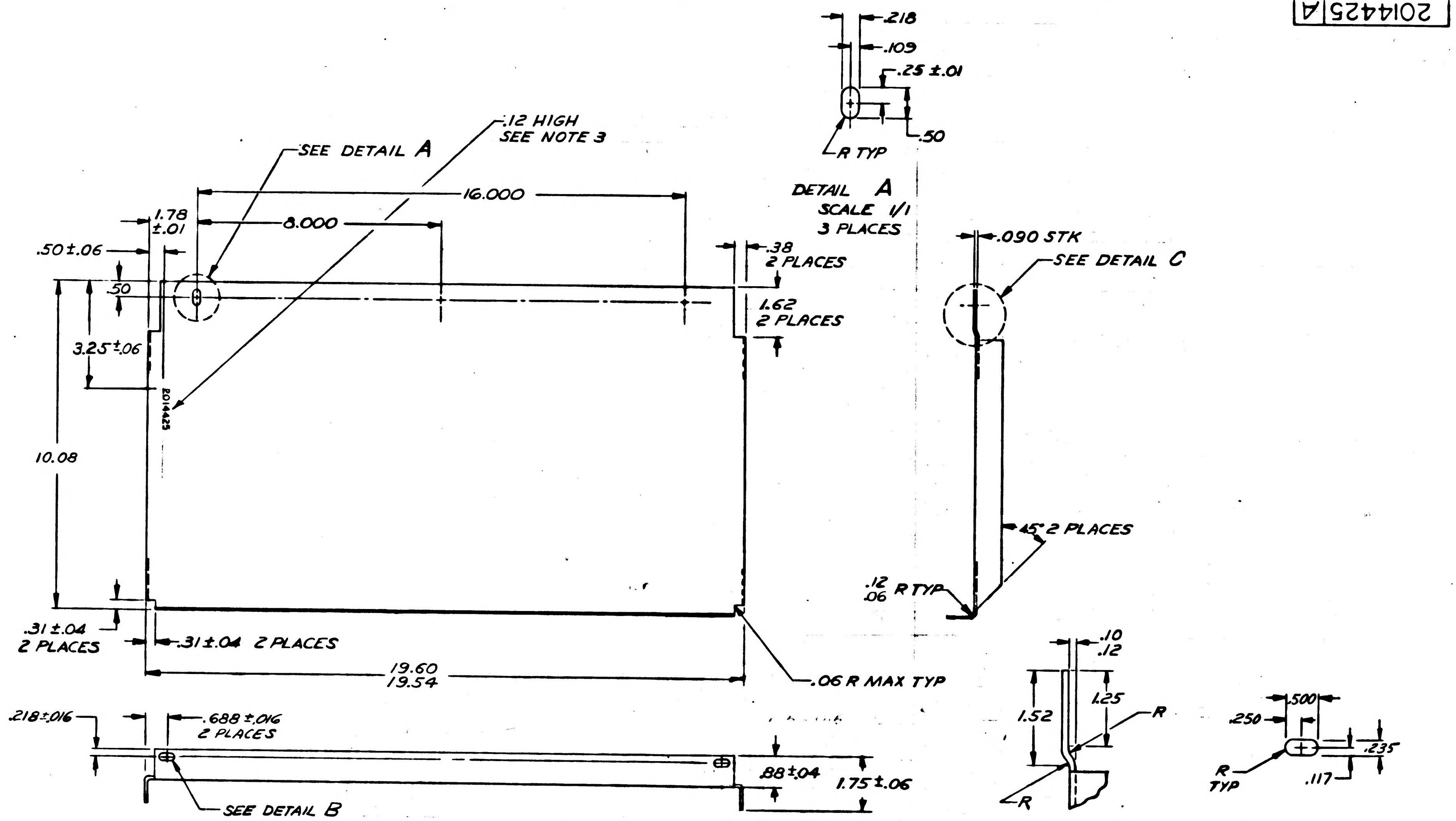
CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014424
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014424	1

2014425 A

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25207	9/23/65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26229 DR CHK APPD	2/9/66	



.218
.109
.25 ±.01
.50
R TYP
DETAIL A
SCALE 1/1
3 PLACES
.12 HIGH
SEE NOTE 3
SEE DETAIL A
16.000
8.000
1.78 ±.01
.50±.06
.50
.38
2 PLACES
1.62
2 PLACES
3.25±.06
2014425
10.08
.31±.04
2 PLACES
.31±.04 2 PLACES
19.60
19.54
.06 R MAX TYP
.090 STK
SEE DETAIL C
45° 2 PLACES
.12
.06 R TYP
.218±.016
.688±.016
2 PLACES
SEE DETAIL B
.88±.04
1.75±.06
.10
.12
1.52
1.25
R
R
.250
.500
.235
.117
R TYP

DETAIL B
SCALE 1/1

DETAIL B
2 PLACES
SCALE 1/1

NOTES
1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE FILM PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL
AL 5052-H32 PER QQ-A-250/8

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 31 AUG 65
CHECKED 16 SEP 65
APPROVAL 21 Sept 65
APPROVAL
APPROVAL
NASA APPROVAL C. METZGER
MIT APPROVAL
MIT APPROVAL C

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, BAFFLE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014425
SCALE 1/2
WT
SHEET 1 OF 1

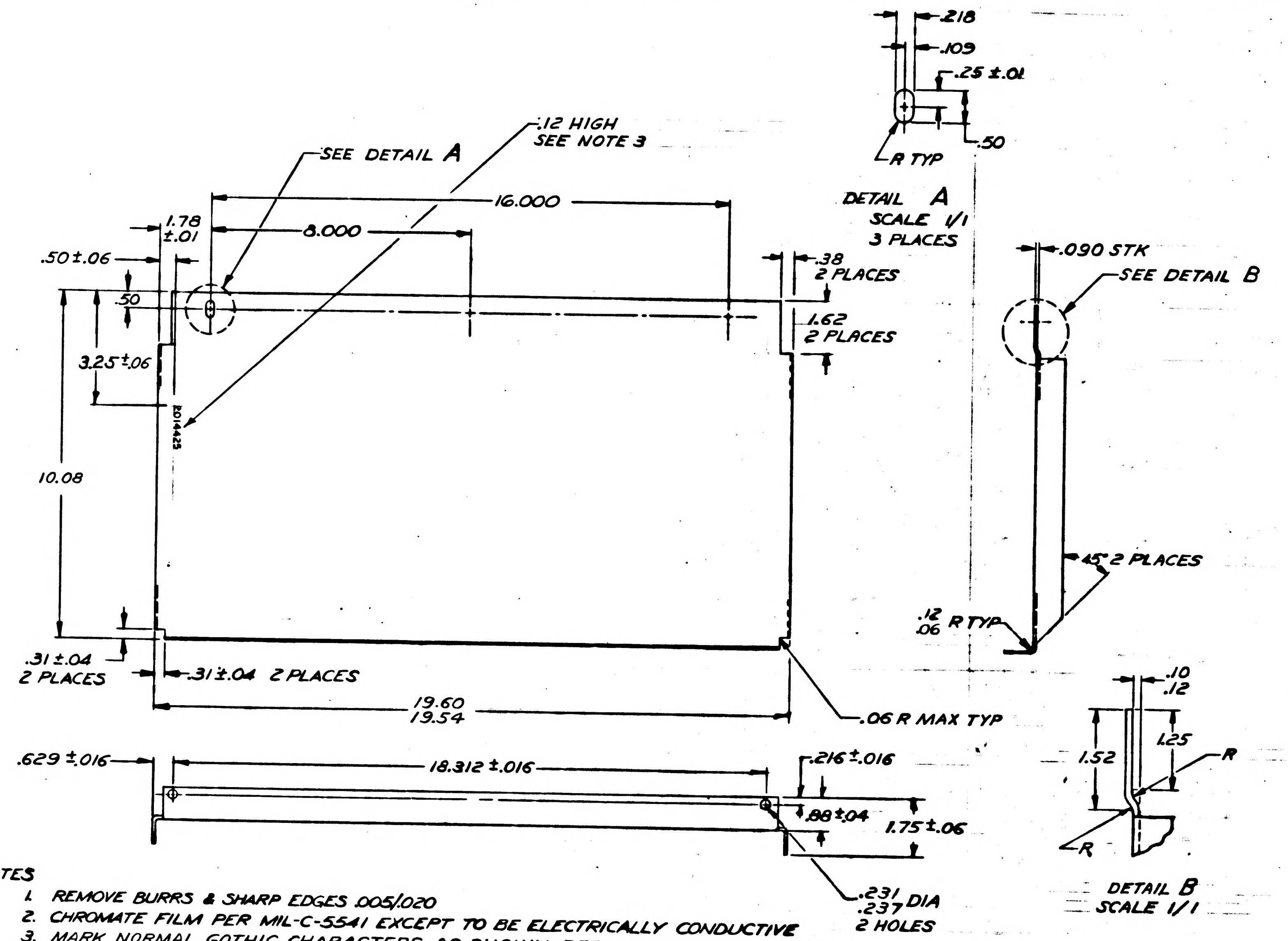
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014425 A

—	2014425

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25207	9/23/65	G. Brown
—	CLASS A RELEASED PER TDRR 25472		



.218
.109
.25 ±.01
.50
R TYP
DETAIL A
SCALE 1/1
3 PLACES
SEE DETAIL A
.12 HIGH
SEE NOTE 3
16.000
8.000
1.78 ±.01
.50 ±.06
.50
3.25 ±.06
2014425
10.08
.38
2 PLACES
1.62
2 PLACES
.31 ±.04
2 PLACES
.31 ±.04 2 PLACES
19.60
19.54
.06 R MAX TYP
.090 STK
SEE DETAIL B
45° 2 PLACES
.12
.06 R TYP
.629 ±.016
18.312 ±.016
.216 ±.016
.88 ±.04
1.75 ±.06
.231
.237 DIA
2 HOLES
.10
.12
1.52
1.25
R
R
DETAIL B
SCALE 1/1

NOTES

1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE FILM PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.005
ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL AL 5052-H32 PER QQ-A-250/8

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN E. Catania DATE 31 AUG 65
CHECKED B. V. Pamphil 16 SEP 65
APPROVAL 21 Sept 65
APPROVAL D. O'Bryant 9/24/65
APPROVAL 9/24/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 7 Jan 66
MIT APPROVAL 1/12/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, BAFFLE
COMPUTER TEST SET

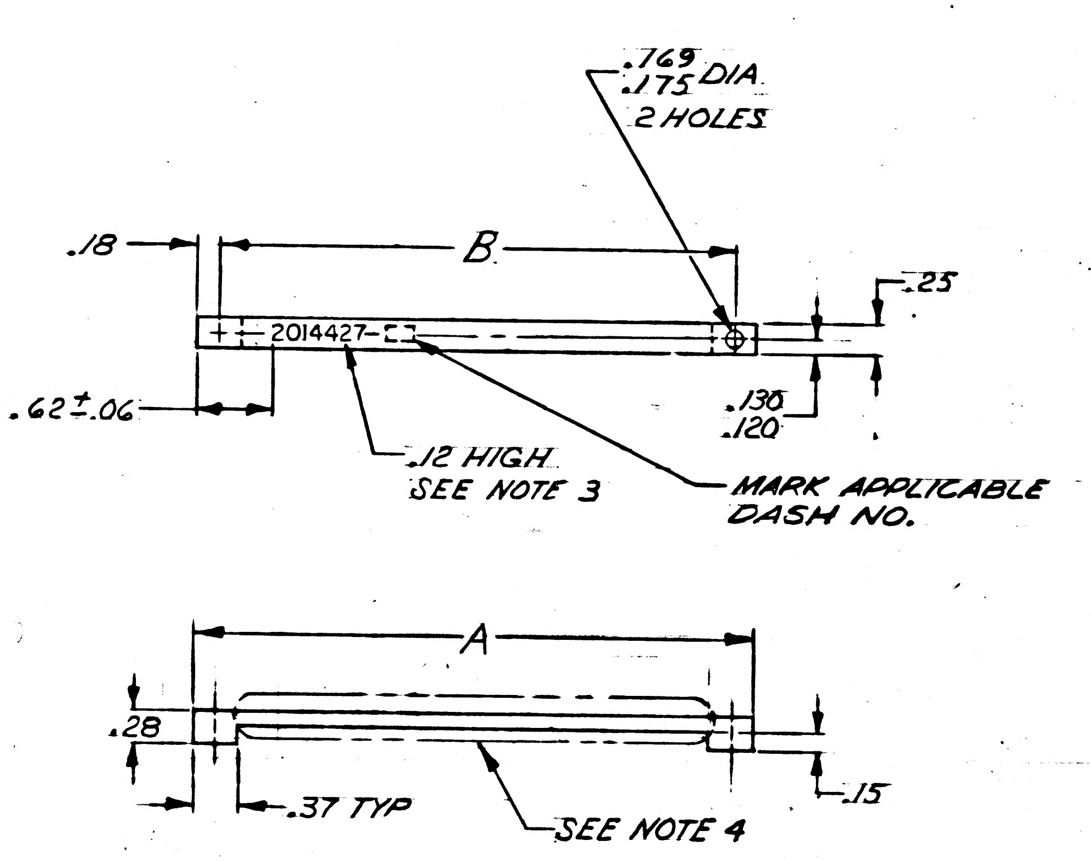
CODE IDENT NO. 49956
SIZE D
NASA DRAWING NO. 2014425
SCALE 1/2
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014425	—

2014427 —

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25/66	9/14/65	A. Marano
—	CLASS A RELEASED PER TDRR 25480		



TABULATION		
DASH NO.	A DIM.	B DIM.
-001	2.00	1.625
-002	4.75	4.375

NOTES
1. REMOVE BURRS & SHARP EDGES .005/.020
2. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006271-10
4. FOUR (4) EDGES IN THIS AREA TO BE CHAMFERED $^{.04}_{.02}$ X 45°

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014137	
2014199	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.015 ANGLES ±2°
DO NOT SCALE DRAWING
MATERIAL
AL 6061-T6
PER QQ-A-250/11

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN S.J. Baran DATE 31 AUG 65
CHECKED D. Laperle 3 SEP 65
APPROVAL 9/9/65
APPROVAL D. O'Bryant 9/8/65
APPROVAL 9/14/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C. Sperling

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BRACKET, STRAIN RELIEF

SUB SYSTEM TEST

SIZE C CODE IDENT NO. 49956 NASA DRAWING NO. 2014427
SCALE 1/1 WT SHEET 1 OF 1

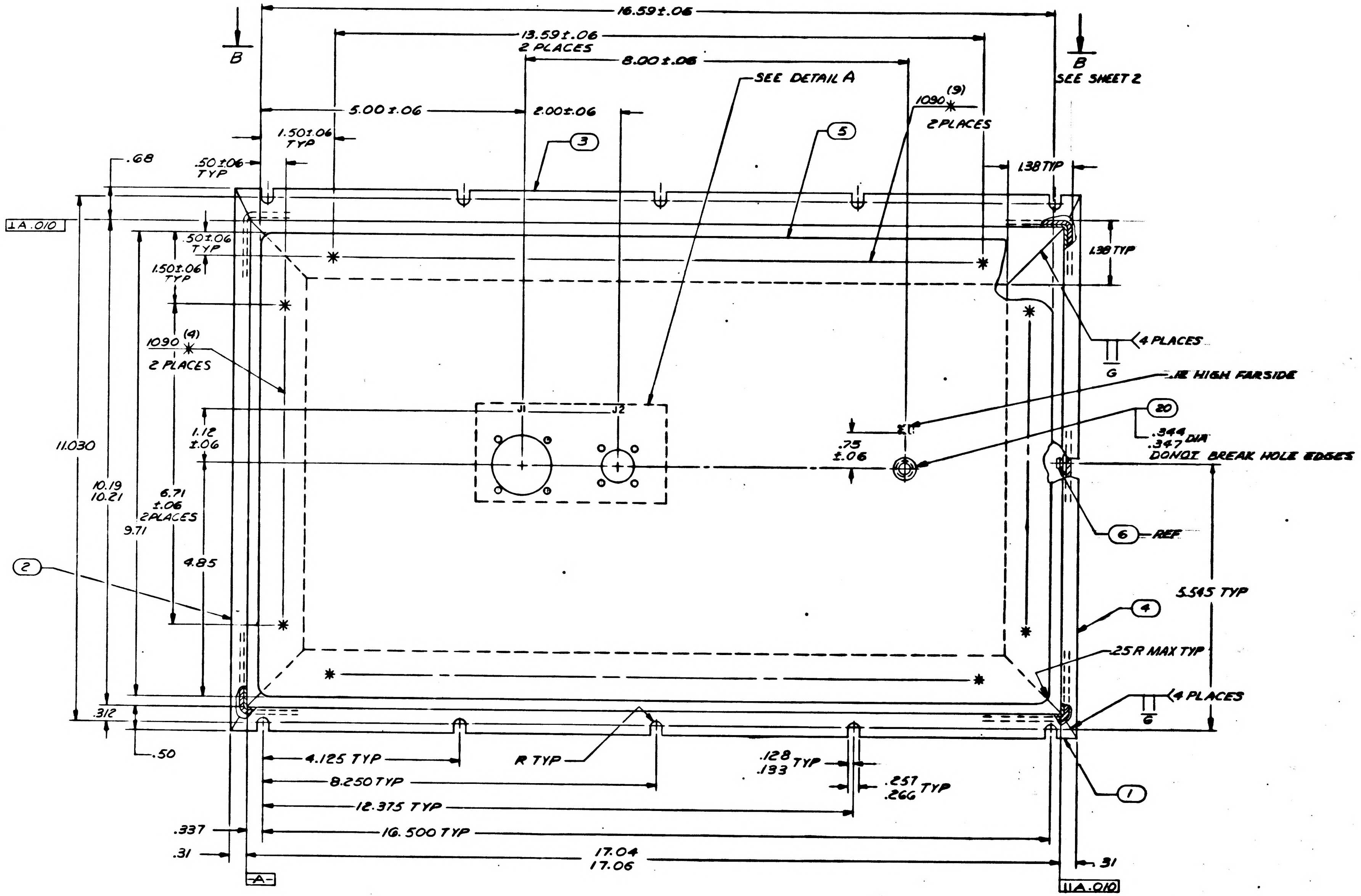
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MODERN BLUE PRINT CO., INC. 02089

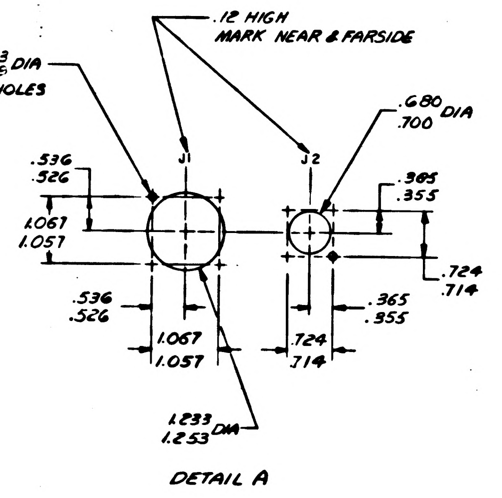
2014427 —

2014431 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25293	10/13/65	
–	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	1/5/66	



B
16.59±.06
13.59±.06
2 PLACES
8.00±.06
SEE DETAIL A
B
SEE SHEET 2
5.00±.06
2.00±.06
1090 (9)
2 PLACES
1.50±.06
TYP
.50±.06
TYP
.68
3
5
1.38 TYP
⊥ A .010
.50±.06
TYP
1.50±.06
TYP
1.38 TYP
1090 (4)
2 PLACES
4 PLACES
G
.12 HIGH FARSIDE
20
.75
±.06
.344
.347 DIA
DO NOT BREAK HOLE EDGES
11.030
10.19
10.21
9.71
6.71
±.06
2 PLACES
1.12
±.06
J1
J2
6 REF
2
4.85
4
5.545 TYP
.25 R MAX TYP
4 PLACES
G
.312
.50
4.125 TYP
R TYP
.128
.133 TYP
.257
.266 TYP
1
8.250 TYP
12.375 TYP
16.500 TYP
.337
.31
17.04
17.06
.31
-A-
⊥ A .010



.12 HIGH
MARK NEAR & FARSIDE
.133
.135 DIA
8 HOLES
J1
J2
.680
.700 DIA
.536
.526
1.067
1.057
.365
.355
.724
.714
.536
.526
1.067
1.057
.724
.714
.365
.355
1.233
1.253 DIA

DETAIL A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
I	1006989-25	NUT, PLAIN SELF CLINCHING	20
4	MS35649-64	NUT, PLAIN HEX	19
4	MS35337-79	WASHER, LOCK SPLIT	18
4	MS15795-805	WASHER, FLAT	17
4	MS51957-30	SCREW, PAN HD	16
4	1006874	RECEPTACLE, SEALED	15
4	1006426-001	FASTENER, PANEL	14
8	MS20470A3-5	RIVET, UNIVERSAL HD	13
1	2014431-008	DOOR	12
1	2014431-007	SHIM	11
1	MS35825-2A	HINGE	10
1	2014431-006	COVER, TAPE PUNCH	9
30	MS20426AD3-6	RIVET FLAT HD SOLID	8
1	1006666	GASKET	7
6	1006896-10	NUT SELF LOCKING	6
1	2014431-005	PANEL, REAR	5
1	2014431-004	ANGLE, RIGHT	4
1	2014431-003	ANGLE, TOP	3
1	2014431-002	ANGLE, LEFT	2
1	2014431-001	ANGLE, BOTTOM	

LIST OF MATERIALS

(5)(9)(12)
NOTES:
1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

(1)(2)(3)(4)(11)
NOTES:
1. MATL: AL 6063-T6 PER QQ-A-200/9
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

ASSY NOTES
1. WELD PER MIL-W-8604
2. SPOT WELD PER MIL-W-6858 (CLASS B)
3. REMOVE HINGE PIN OF FIND NO. 10 BEFORE CHROMATING
4. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
5. AFTER CHROMATE INSTALL HINGE PIN & CRIMP END LOOPS OF FIND NO. 10 ONE HALF CLOSED
6. HINGE SHALL NOT BIND
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006271-10
8. NUMBER PRECEDING BALLOONS DENOTES QUANTITY

2014431 A

2014039		
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.015 ANGLES ±
DO NOT SCALE DRAWING
MATERIAL
SEE NOTES

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Katsky DATE 8SEP65
CHECKED E Urban C.C. 28SEP65
APPROVAL 6Oct65
APPROVAL
APPROVAL 10/13/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 1/10/66

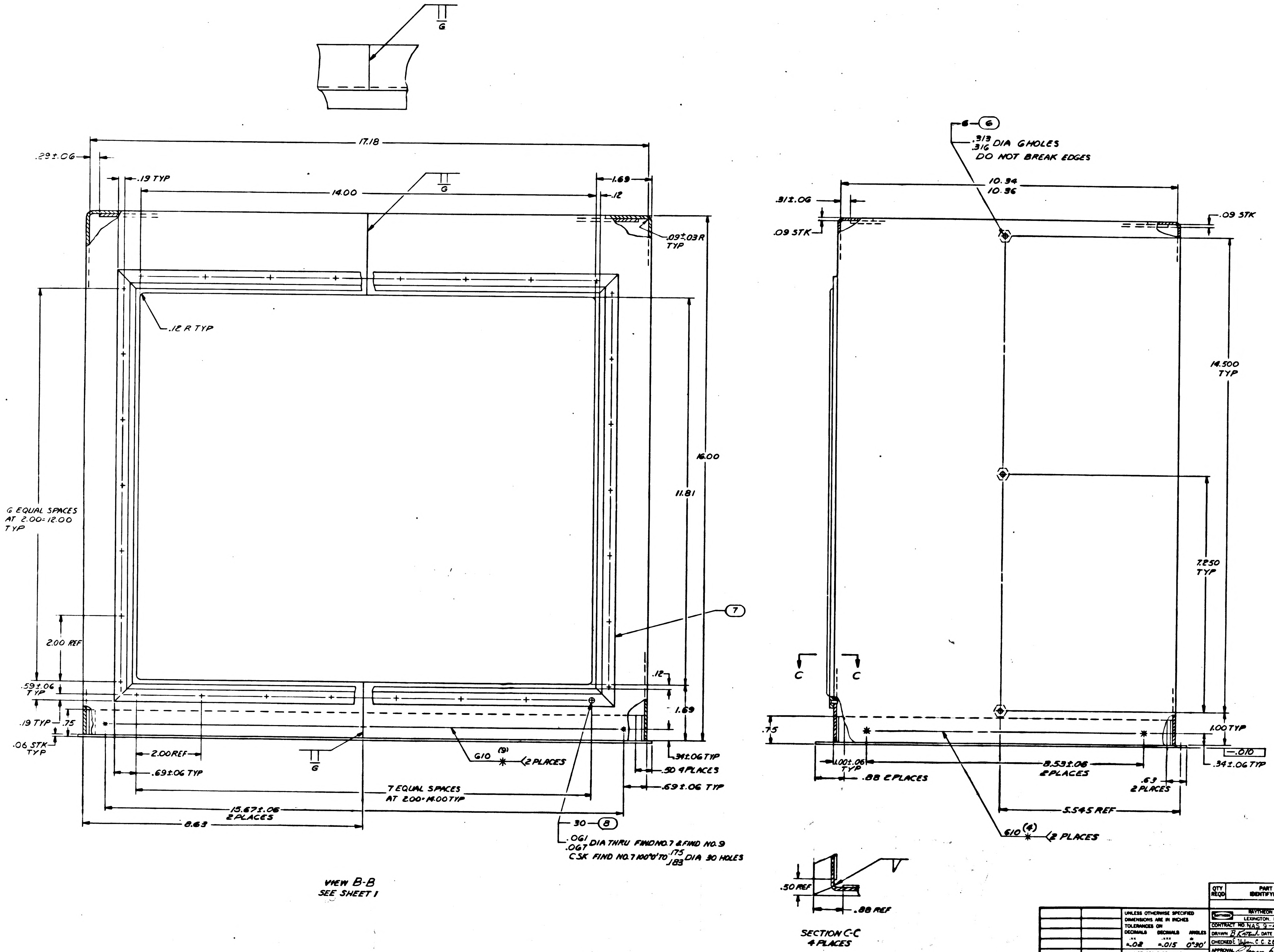
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, ASSEMBLY
RF SHIELD

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014431
SCALE 1/1
WT
SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
C	RELEASED PER CCA R25293	[illegible]	
–	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 15472	1/10/66	


G
17.18
.29±.06
.19 TYP
14.00
1.69
.12
.09±.03R TYP
.12 R TYP
6 EQUAL SPACES AT 2.00=12.00 TYP
11.81
16.00
7
2.00 REF
.59±.06 TYP
.12
1.69
.19 TYP
.75
.06 STK TYP
2.00REF
.69±.06 TYP
G10 (9) 2 PLACES
.34±.06 TYP
.50 4 PLACES
.69±.06 TYP
7 EQUAL SPACES AT 2.00=14.00 TYP
15.67±.06 2 PLACES
8.63
30 8
.061/.067 DIA THRU FIND NO.7 & FIND NO.9
CSK FIND NO.7 100°0' TO .175/.183 DIA 30 HOLES
VIEW B-B
SEE SHEET 1
6 6
.313/.316 DIA 6 HOLES
DO NOT BREAK EDGES
10.34/10.36
.31±.06
.09 STK
.09 STK
14.500 TYP
7.250 TYP
C C
.75
1.00 TYP
–.010
.34±.06 TYP
1.00±.06 TYP
.88 2 PLACES
8.59±.06 2 PLACES
.63 2 PLACES
5.545 REF
G10 (4) 2 PLACES
.50 REF
.88 REF
SECTION C-C
4 PLACES

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.015 ANGLES ± 0°30'
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Kateuk DATE 9SEP65
CHECKED E. C. C. 28SEP65
APPROVAL 6OCT65
APPROVAL D.
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

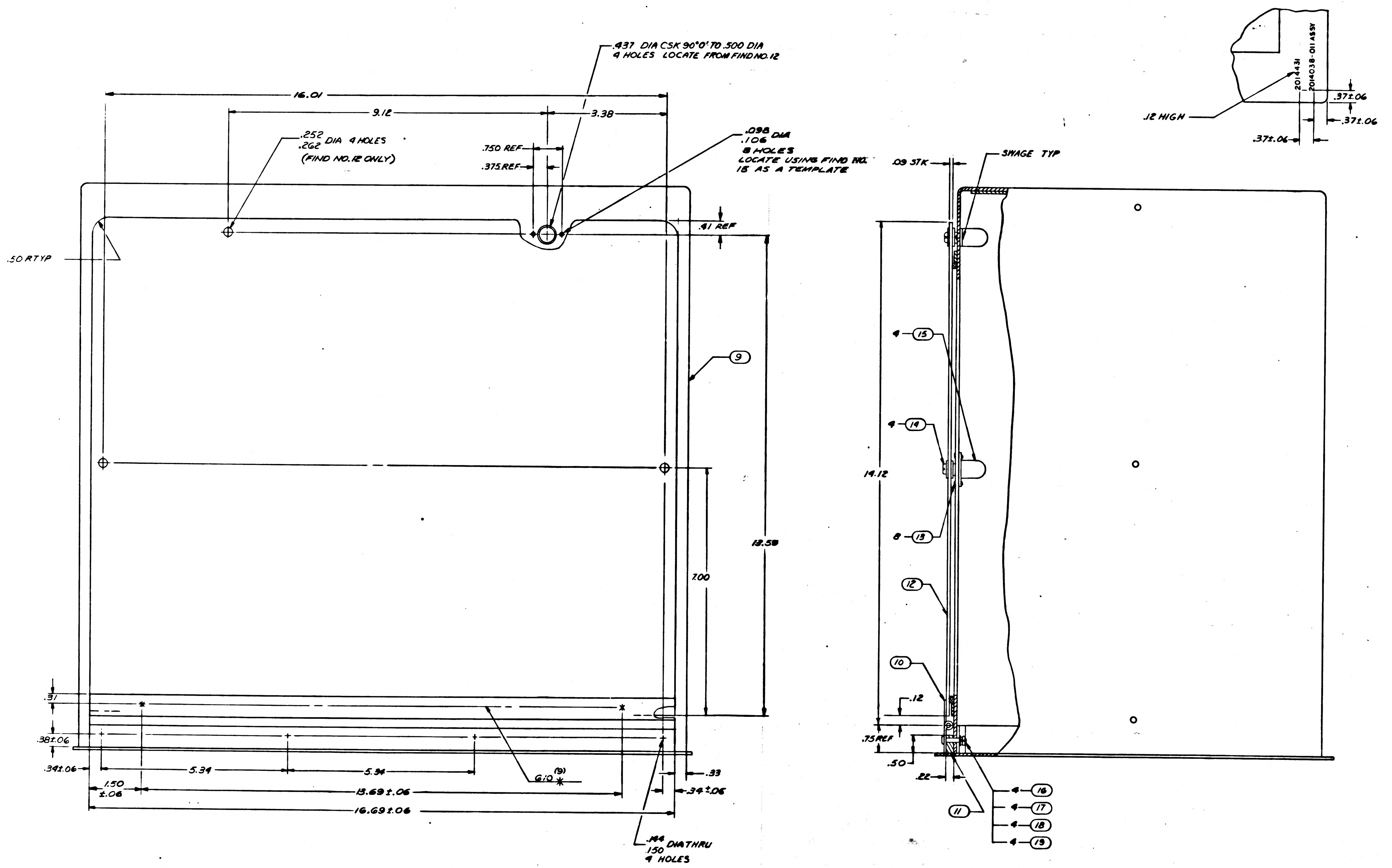
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, ASSEMBLY
RF SHIELD

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014431
SCALE 1/1
WT
SHEET 2 OF 3

2014431 A

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25293	14.3.65	J. Harano
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	1/15/66	[illegible]



.437 DIA CSK 90°0' TO .500 DIA
4 HOLES LOCATE FROM FIND NO. 12
16.01
9.12
3.38
.252
.262 DIA 4 HOLES
(FIND NO. 12 ONLY)
.750 REF
.375 REF
.098
.106 DIA
8 HOLES
LOCATE USING FIND NO. 15 AS A TEMPLATE
.41 REF
.50 R TYP
9
13.59
7.00
.31
.38±.06
.34±.06
5.34
5.34
G10 (9)
.33
1.50
±.06
13.69±.06
.34±.06
16.69±.06
.144
.150 DIA THRU
4 HOLES
2014431
2014038-011 ASSY
.12 HIGH
.37±.06
.37±.06
.37±.06
.09 STK
SWAGE TYP
14.12
4 — 15
4 — 14
8 — 13
12
10
.12
.75 REF
.50
.22
11
4 — 16
4 — 17
4 — 18
4 — 19

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ± ±0°30'
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B. Katsuki DATE 16 SEP 65
CHECKED E. Wilson C.C. 28 SEP 65
APPROVAL [illegible]
APPROVAL D. O'[illegible] 10/6/65
APPROVAL [illegible] 10/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, ASSEMBLY
RF SHIELD

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014431
SCALE 1/1
WT
SHEET 3 OF 3

MASTER

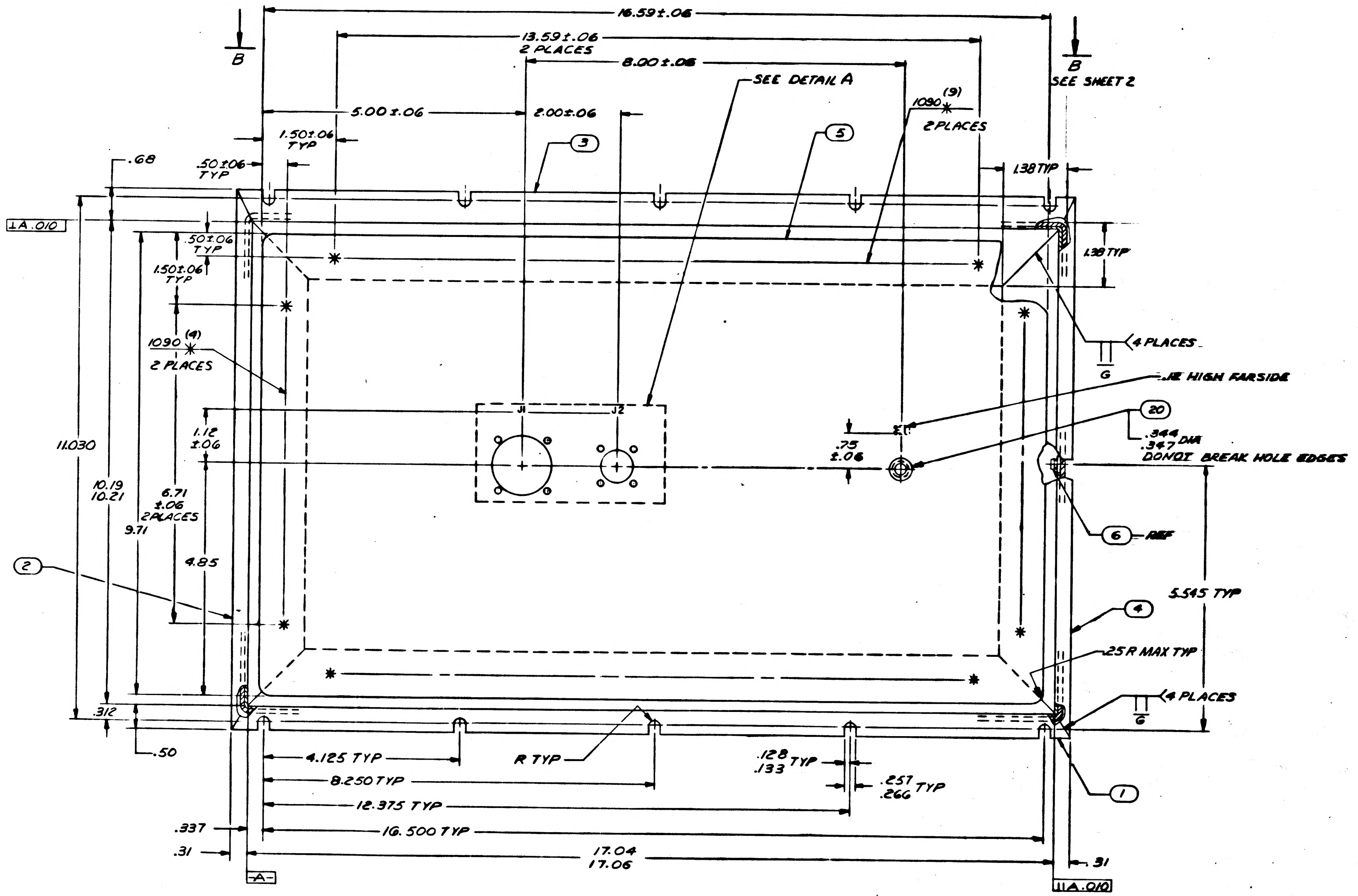
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

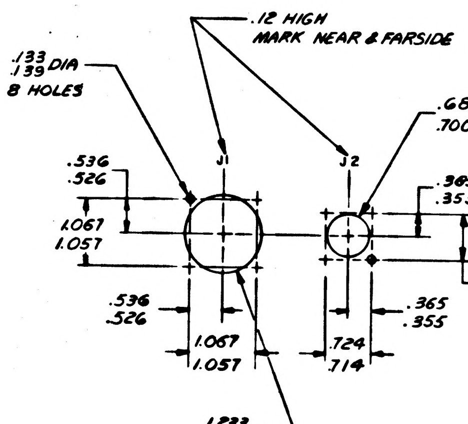
2014431 A

2014431 A

2014431 B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25293	10/13/65	[illegible]
-	CLASS B CHANGES PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	4/15/66	
B	CHANGED PER TDRR 26500 DR A.J. Sosser CHK R.E. APPD	7/29/66	


16.59±.06
13.59±.06 2 PLACES
8.00±.06
5.00±.06
2.00±.06
1.50±.06 TYP
.50±.06 TYP
.68
B
B
SEE SHEET 2
SEE DETAIL A
1090 (9) 2 PLACES
1090 (4) 2 PLACES
3
5
1.38 TYP
1.38 TYP
⊥A.010
.50±.06 TYP
1.50±.06 TYP
4 PLACES
G
.12 HIGH FARSIDE
20
.344 .347 DIA
DO NOT BREAK HOLE EDGES
.75 ±.06
J1
J2
1.12 ±.06
11.030
10.19 10.21
9.71
6.71 ±.06 2 PLACES
4.85
2
6 REF
5.545 TYP
4
.25 R MAX TYP
4 PLACES
G
.312
.50
4.125 TYP
8.250 TYP
12.375 TYP
16.500 TYP
R TYP
.128 .133 TYP
.257 .266 TYP
.337
.31
17.04 17.06
.31
-A-
∥A.010
1


.12 HIGH
MARK NEAR & FARSIDE
.133 .139 DIA
8 HOLES
.680 .700 DIA
J1
J2
.536 .526
1.067 1.057
.365 .355
.724 .714
.536 .526
1.067 1.057
.724 .714
.365 .355
1.233 1.253 DIA

DETAIL A

⑤⑨⑫
NOTES:
1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

①②③④⑪
NOTES:
1. MATL: AL 6063-T6 PER QQ-A-200/9
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

ASSY NOTES
1. WELD PER MIL-W-8604
2. SPOT WELD PER MIL-W-6858 (CLASS B)
3. REMOVE HINGE PIN OF FIND NO. 10 BEFORE CHROMATING
4. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
5. AFTER CHROMATE INSTALL HINGE PIN & CRIMP END LOOPS OF FIND NO. 10 ONE HALF CLOSED
6. HINGE SHALL NOT BIND
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006271-10
8. NUMBER PRECEDING BALLOONS DENOTES QUANTITY

2014431 B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
I	1006989-25	NUT, PLAIN SELF CLINCHING	20
4	MS35649-64	NUT, PLAIN HEX	19
4	MS35337-79	WASHER, LOCK SPLIT	18
4	MS15795-805	WASHER, FLAT	17
4	MS51957-30	SCREW, PAN HD	16
4	1006874	RECEPTACLE, SEALED	15
4	1006426-001	FASTENER, PANEL	14
8	MS20470A3-5	RIVET, UNIVERSAL HD	13
1	2014431-008	DOOR	12
1	2014431-007	SHIM	11
1	MS35825-2A	HINGE	10
1	2014431-006	COVER, TAPE PUNCH	9
30	MS20426AD3-6	RIVET FLAT HD SOLID	8
1	1006666	GASKET	7
6	1006896-10	NUT SELF LOCKING	6
1	2014431-005	PANEL, REAR	5
1	2014431-004	ANGLE, RIGHT	4
1	2014431-003	ANGLE, TOP	3
1	2014431-002	ANGLE, LEFT	2
1	2014431-001	ANGLE, BOTTOM	1

LIST OF MATERIALS

2014431 B

2014039	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.015
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL
SEE NOTES

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Katzenberg DATE SEP65
CHECKED E Urban C.C. 28SEP65
APPROVAL
APPROVAL D.A.
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

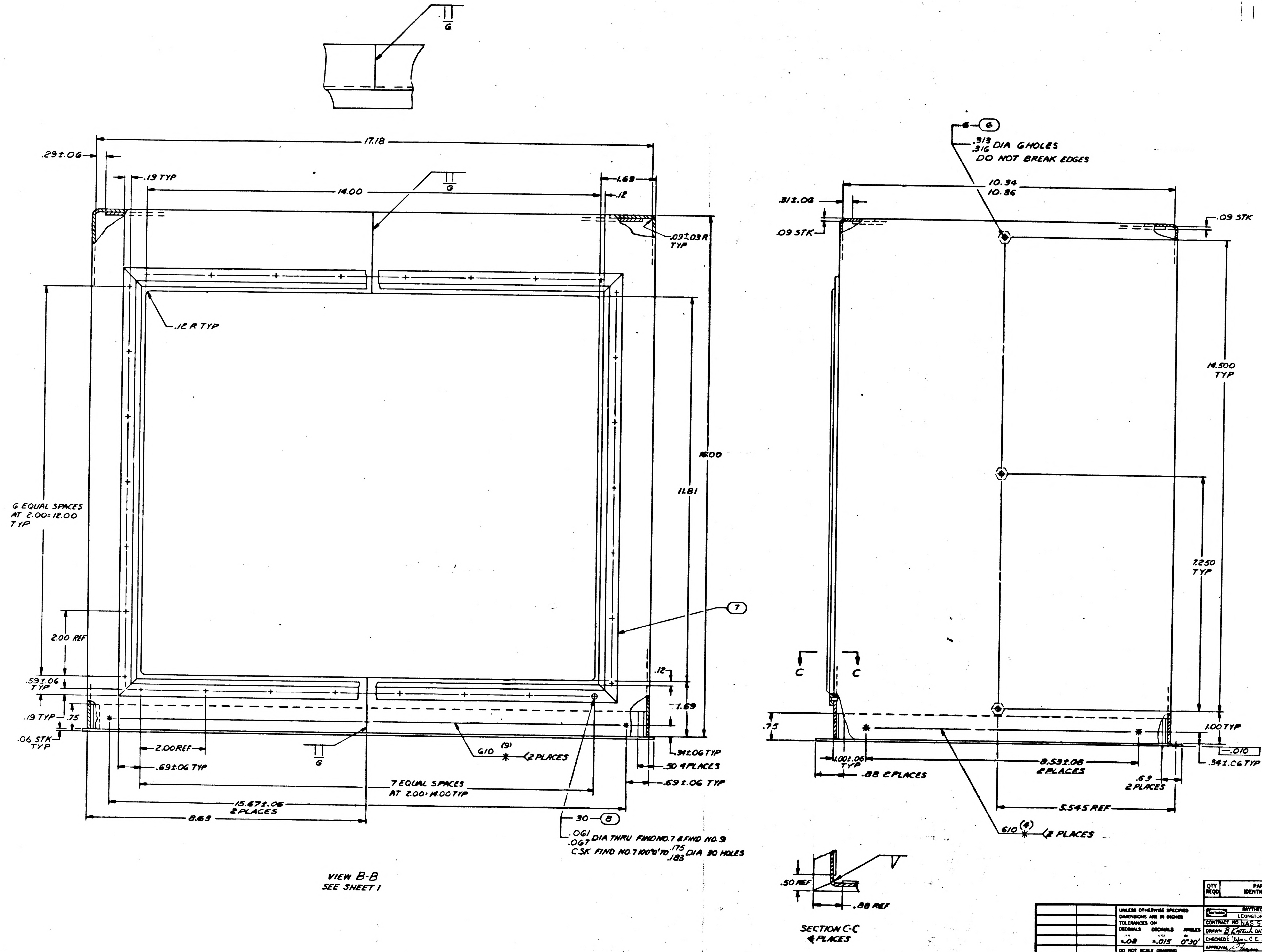
COVER, ASSEMBLY
RF SHIELD

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014431
SCALE 1/1
WT
SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25293	10/13/65	
-	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA 925579 AND CLASS A RELEASED PER TDRR 25472	1/15/66	
B	CHANGED PER TDRR 26500 DR O. J. Green CHK H.S. APPD	2/28/66	


G
17.18
.29±.06
.19 TYP
14.00
1.69
.12
.09±.03 R TYP
.12 R TYP
6 EQUAL SPACES AT 2.00=12.00 TYP
15.00
11.81
2.00 REF
.59±.06 TYP
.19 TYP
.75
.06 STK TYP
.12
1.69
.34±.06 TYP
.50 4 PLACES
.69±.06 TYP
2.00 REF
.69±.06 TYP
7 EQUAL SPACES AT 2.00=14.00 TYP
15.67±.06 2 PLACES
8.63
610 (9) 2 PLACES
7
30 — 8
.061/.067 DIA THRU FIND NO. 7 & FIND NO. 9
CSK FIND NO. 7 100°⌀ TO .175/.183 DIA 30 HOLES
6 — 6
.313/.316 DIA 6 HOLES
DO NOT BREAK EDGES
10.34/10.36
.31±.06
.09 STK
.09 STK
14.500 TYP
7.250 TYP
C
C
.75
1.00 TYP
.010
.34±.06 TYP
1.00±.06 TYP
.88 2 PLACES
8.59±.06 2 PLACES
.63 2 PLACES
5.545 REF
610 (4) 2 PLACES
.50 REF
.88 REF

VIEW B-B
SEE SHEET 1

SECTION C-C
4 PLACES

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.015 ANGLES ± 0°30'
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Kotch DATE 9SEP65
CHECKED E. Upton C.C. 28SEP65
APPROVAL P. Fagan 6OCT65
APPROVAL D. O'Connor 10/6/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

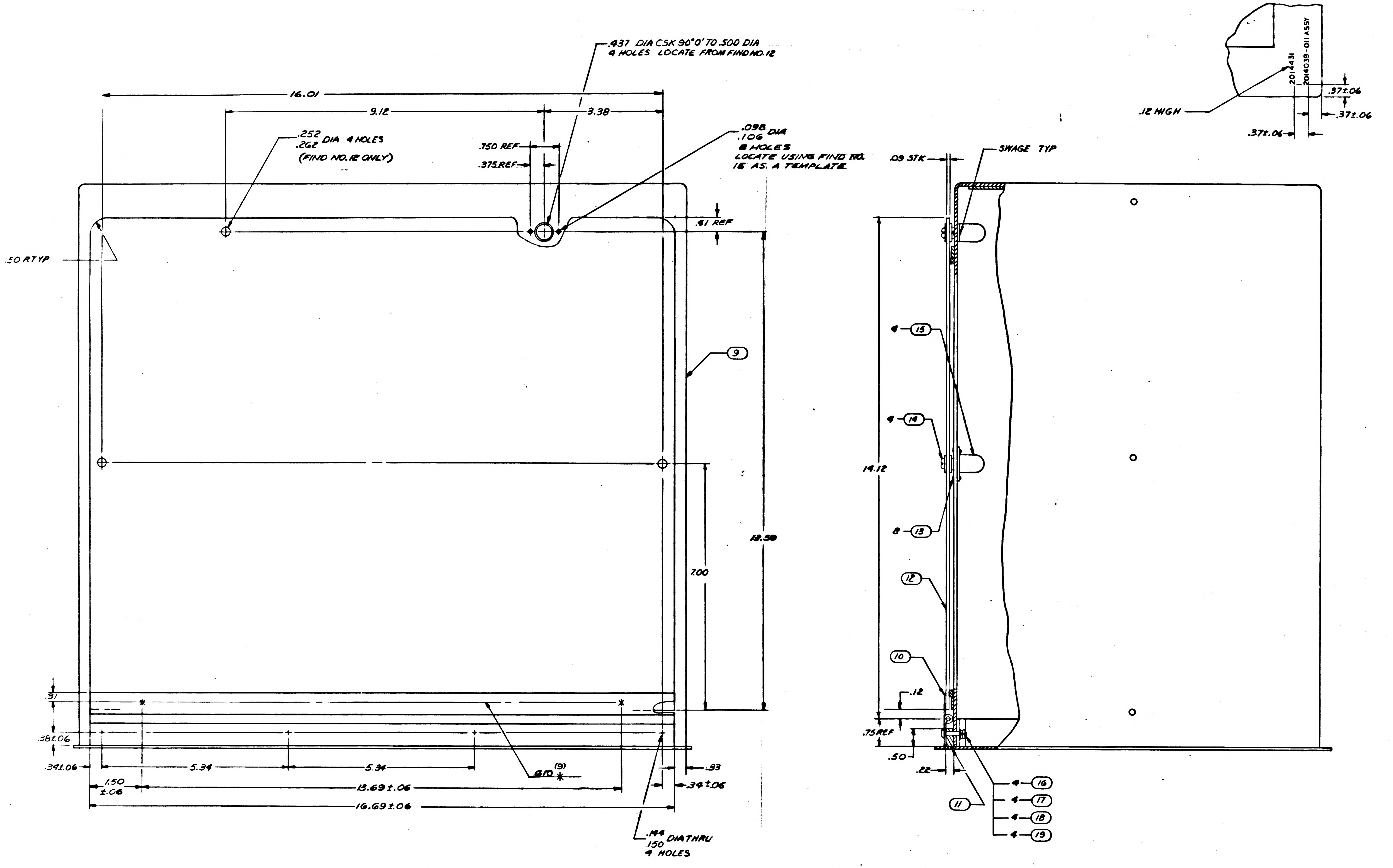
COVER, ASSEMBLY
RF SHIELD

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014431

SCALE 1/1 WT SHEET 2 OF 3

2014431 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25293		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	1/15/66	
B	CHANGED PER TDRR 26500 DR A.J. Garner CHK APPD		



.437 DIA CSK 90°0' TO .500 DIA
4 HOLES LOCATE FROM FIND NO. 12
16.01
9.12
3.38
.252
.262 DIA 4 HOLES
(FIND NO. 12 ONLY)
.750 REF
.375 REF
.098
.106 DIA
8 HOLES
LOCATE USING FIND NO. 15 AS A TEMPLATE
.41 REF
.50 R TYP
9
7.00
18.50
.31
.38±.06
.39±.06
5.34
5.34
1.50
±.06
13.69±.06
16.69±.06
.33
.34±.06
Ø.10 (9)
.144
.150 DIA THRU
4 HOLES
.09 STK
SWAGE TYP
14.12
4 — 15
4 — 14
8 — 13
12
10
.12
.75 REF
.50
.22
11
4 — 16
4 — 17
4 — 18
4 — 19
.12 HIGH
2014431
2014039-011 ASSY
.37±.06
.37±.06
.37±.06

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±0°30'
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Katsuba DATE SEP65
CHECKED E. Nolan C.C. 28SEP65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, ASSEMBLY
RF SHIELD

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014431
SCALE 1/1 WT SHEET OF 3

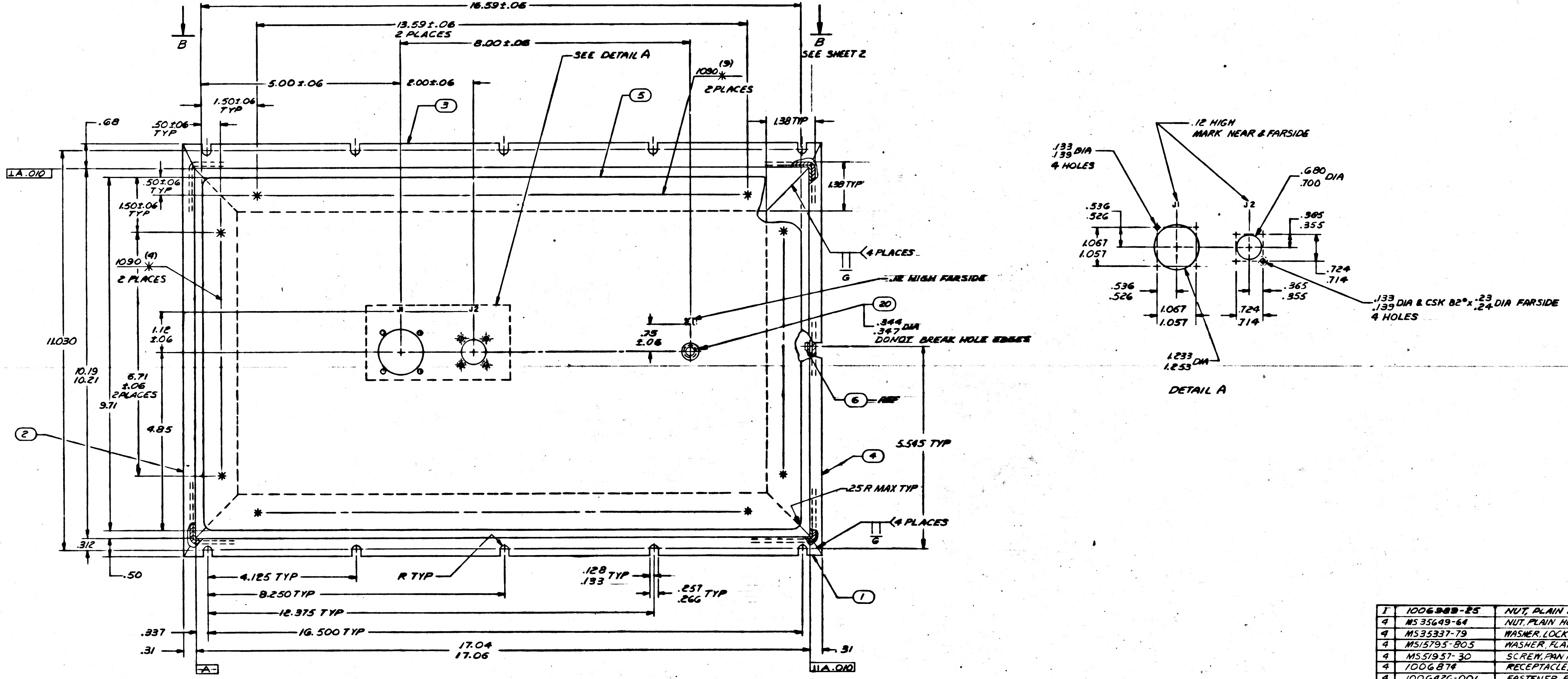
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014431 B

2014431 B

2014431 C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25293	10/13/65	
-	CLASS B CHANGED PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	1/15/66	
B	CHANGED PER TDRR 26500 DR A.J. Larsen CHK [illegible] APPD	3/24/66	
C	CHANGED PER TDRR 26679 DR [illegible] CHK [illegible] APPD RED	4/7/66	



16.59±.06
13.59±.06
2 PLACES
8.00±.06
SEE DETAIL A
B
B
SEE SHEET 2
5.00±.06
2.00±.06
1.090 (9)
2 PLACES
1.50±.06
TYP
.50±.06
TYP
.68
1.38 TYP
A .010
.50±.06
TYP
1.50±.06
TYP
1.090 (4)
2 PLACES
11.030
10.19
10.21
9.71
6.71
±.06
2 PLACES
1.12
±.06
4.85
.312
.50
.35
±.06
.12 HIGH FARSIDE
.344
.347 DIA
DO NOT BREAK HOLE EDGES
4 PLACES
G
5.545 TYP
.25 R MAX TYP
4 PLACES
G
4.125 TYP
R TYP
8.250 TYP
12.375 TYP
16.500 TYP
.128
.133 TYP
.257
.266 TYP
.337
.31
17.04
17.06
.31
-A-
A .010
J1
J2
1
2
3
4
5
6 REF
20
.12 HIGH
MARK NEAR & FARSIDE
.133
.139 DIA
4 HOLES
.680
.700 DIA
.536
.526
1.067
1.057
.365
.355
.724
.714
.536
.526
1.067
1.057
.724
.714
.365
.355
.133
.139 DIA & CSK 82° x .23
.24 DIA FARSIDE
4 HOLES
1.233
1.253 DIA
DETAIL A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006989-25	NUT, PLAIN SELF CLINCHING	20
4	MS35649-64	NUT, PLAIN HEX	19
4	MS35337-79	WASHER, LOCK SPLIT	18
4	MS15795-805	WASHER, FLAT	17
4	MS51957-30	SCREW, PAN HD	16
4	1006874	RECEPTACLE, SEALED	15
4	1006426-001	FASTENER, PANEL	14
8	MS20470A3-5	RIVET, UNIVERSAL HD	13
1	2014431-008	DOOR	12
1	2014431-007	SHIM	11
1	MS35825-2A	HINGE	10
1	2014431-006	COVER, TAPE PUNCH	9
30	MS20426AD3-6	RIVET, FLAT HD SOLID	8
1	1006666	GASKET	7
6	1006896-10	NUT SELF LOCKING	6
1	2014431-005	PANEL, REAR	5
1	2014431-004	ANGLE, RIGHT	4
1	2014431-003	ANGLE, TOP	3
1	2014431-002	ANGLE, LEFT	2
1	2014431-001	ANGLE, BOTTOM	1

LIST OF MATERIALS

2014431 C

(5)(9)(12)
NOTES:
1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

(1)(2)(3)(4)(11)
NOTES:
1. MATL: AL 6063-T6 PER QQ-A-200/9
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

ASSY NOTES
1. WELD PER MIL-W-8604
2. SPOT WELD PER MIL-W-6858 (CLASS B)
3. REMOVE HINGE PIN OF FIND NO. 10 BEFORE CHROMATING
4. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
5. AFTER CHROMATE INSTALL HINGE PIN & CRIMP END LOOPS OF FIND NO. 10 ONE HALF CLOSED
6. HINGE SHALL NOT BIND
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006271-10
8. NUMBER PRECEDING BALLOONS DENOTES QUANTITY

NEXT ASSY	USED ON
2014039	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.015 ANGLES ±2°
DO NOT SCALE DRAWING
MATERIAL SEE NOTES

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Katsuko DATE 8SEP65
CHECKED E Urban C.C. 28SEP65
APPROVAL [illegible] 6Oct65
APPROVAL D. [illegible]
APPROVAL [illegible] 1/13/66
NASA APPROVAL C. METZGER
MIT APPROVAL [illegible] /66
MIT APPROVAL C [illegible] 1/10/66

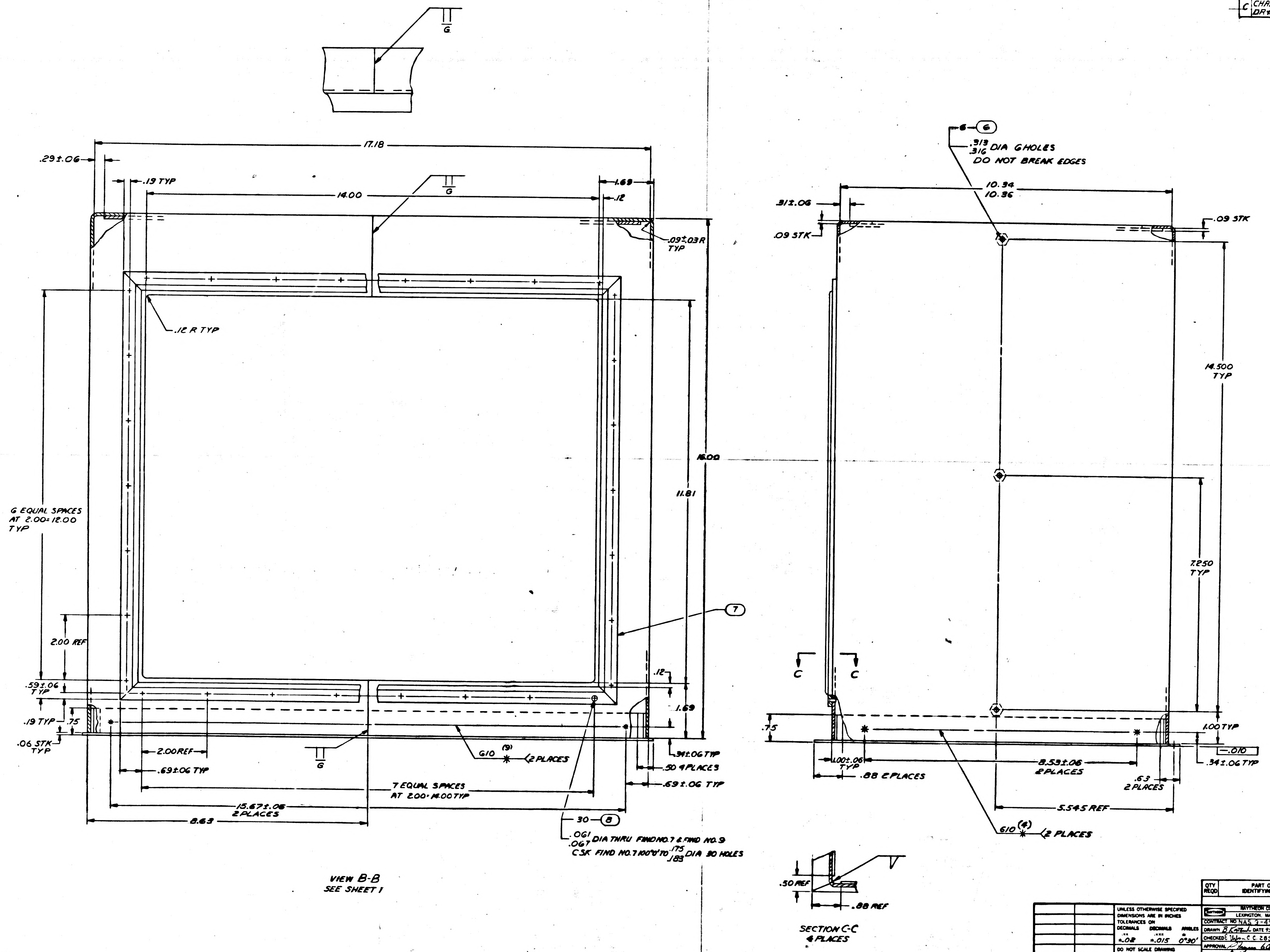
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, ASSEMBLY
RF SHIELD

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014431
SCALE 1/1
WT
SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25293	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	1/15/66	[illegible]
B	CHANGED PER TDRR 26500 DR [illegible] CHK [illegible], APPD	3/30/66	[illegible]
C	CHANGED PER TDRR 26679 DR [illegible] CHK [illegible] APPD FED	4/4/66	[illegible]


G
17.18
.29±.06
.19 TYP
14.00
1.69
.12
.09±.03R TYP
.12 R TYP
6 EQUAL SPACES AT 2.00=12.00 TYP
16.00
11.81
7
2.00 REF
.59±.06 TYP
.19 TYP
.75
.06 STK TYP
.12
1.69
.34±.06 TYP
.50 4 PLACES
.69±.06 TYP
2.00 REF
.69±.06 TYP
G10 (9) 2 PLACES
7 EQUAL SPACES AT 2.00=14.00 TYP
15.67±.06 2 PLACES
8.63
30 – 8
.061 .067 DIA THRU FIND NO.7 & FIND NO.9
CSK FIND NO.7 100°0' TO .175 .183 DIA 30 HOLES
VIEW B-B
SEE SHEET 1
6 – 6
.313 .316 DIA 6 HOLES
DO NOT BREAK EDGES
10.34 10.36
.31±.06
.09 STK
.09 STK
14.500 TYP
7.250 TYP
C
C
.75
1.00 TYP
—.010
.34±.06 TYP
1.00±.06 TYP
.88 2 PLACES
8.53±.06 2 PLACES
.63 2 PLACES
5.545 REF
G10 (4) 2 PLACES
.50 REF
.88 REF
SECTION C-C
4 PLACES

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON

DECIMALS .XX	DECIMALS .XXX	ANGLES ±
±.02	±.015	0°30'

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B. Katz... DATE 9SEP65
CHECKED E. [illegible] C.C. 28SEP65
APPROVAL [illegible] 6 Oct 65
APPROVAL D. [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

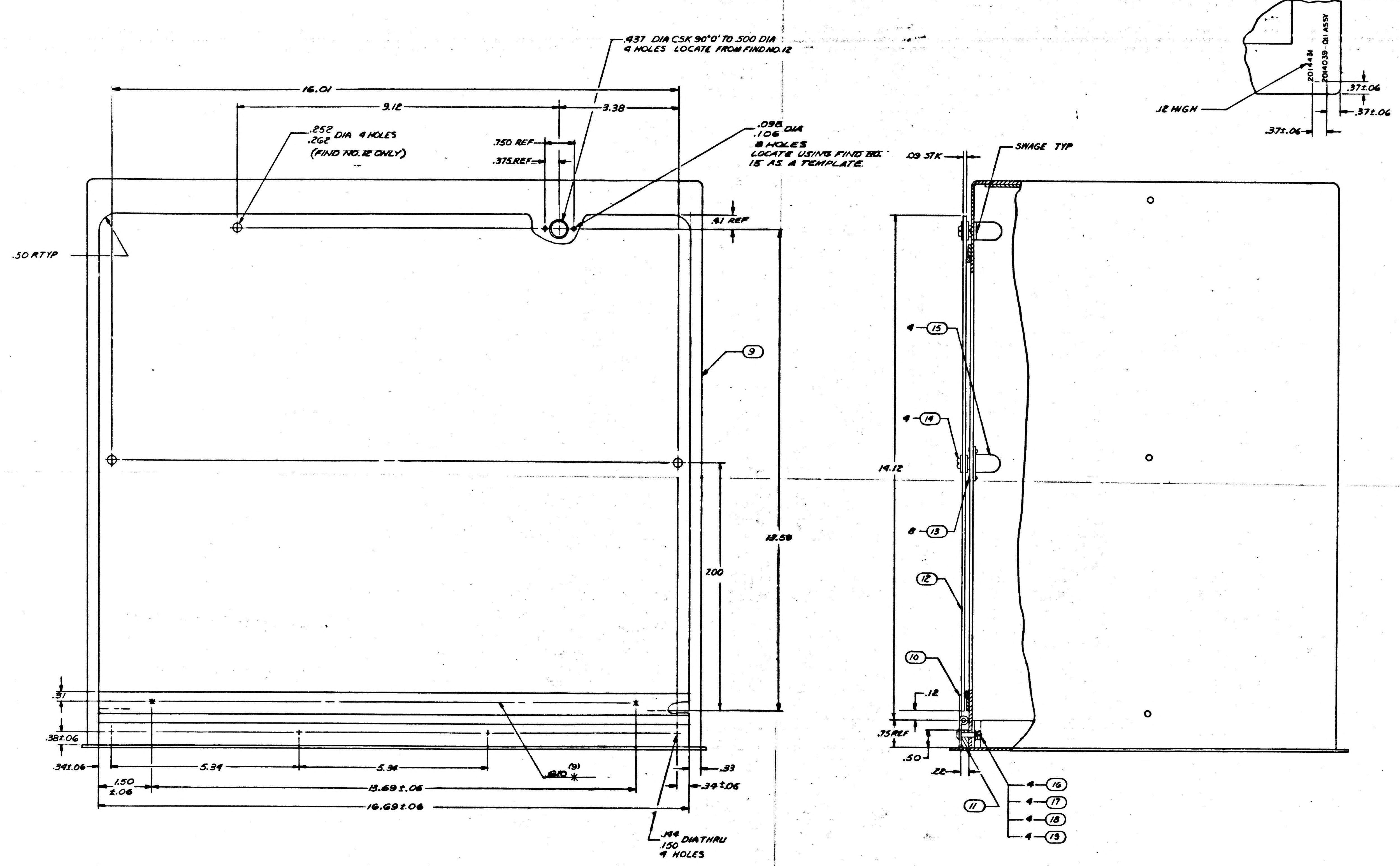
COVER, ASSEMBLY
RF SHIELD

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014431

SCALE 1/1 WT SHEET 2 OF 3

2014431 C

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25293	19 3/65	J Hanson
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	1/15/66	[illegible]
B	CHANGED PER TDRR 26500 DR A. J. [illegible] CHK [illegible] APPD	2/24/66	[illegible]
C	CHANGED PER TDRR 26679 DR [illegible] CHK [illegible] APPD PED	3/4/66	[illegible]



.437 DIA CSK 90°0' TO .500 DIA
4 HOLES LOCATE FROM FIND NO. 12
16.01
9.12
3.38
.252
.262 DIA 4 HOLES
(FIND NO. 12 ONLY)
.750 REF
.375 REF
.098
.106 DIA
8 HOLES
LOCATE USING FIND NO.
15 AS A TEMPLATE
.41 REF
.50 R TYP
9
7.00
13.58
.51
.38±.06
.34±.06
5.34
5.34
1.50
±.06
13.69±.06
16.69±.06
.33
.34±.06
(9)
.144
.150 DIA THRU
4 HOLES
2014431
2014039-011 ASSY
.12 HIGH
.37±.06
.37±.06
.37±.06
.09 STK
SWAGE TYP
14.12
4 15
4 14
8 13
12
10
.12
.75 REF
.50
.22
11
4 16
4 17
4 18
4 19

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ± ±0°30'
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Matsuda DATE 10 SEP 65
CHECKED E. [illegible] C.C. 28 SEP 65
APPROVAL [illegible]
APPROVAL D. O'[illegible]
APPROVAL [illegible] 1.13.65
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, ASSEMBLY
RF SHIELD

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014431
SCALE 1/1 WT
SHEET 3 OF 3

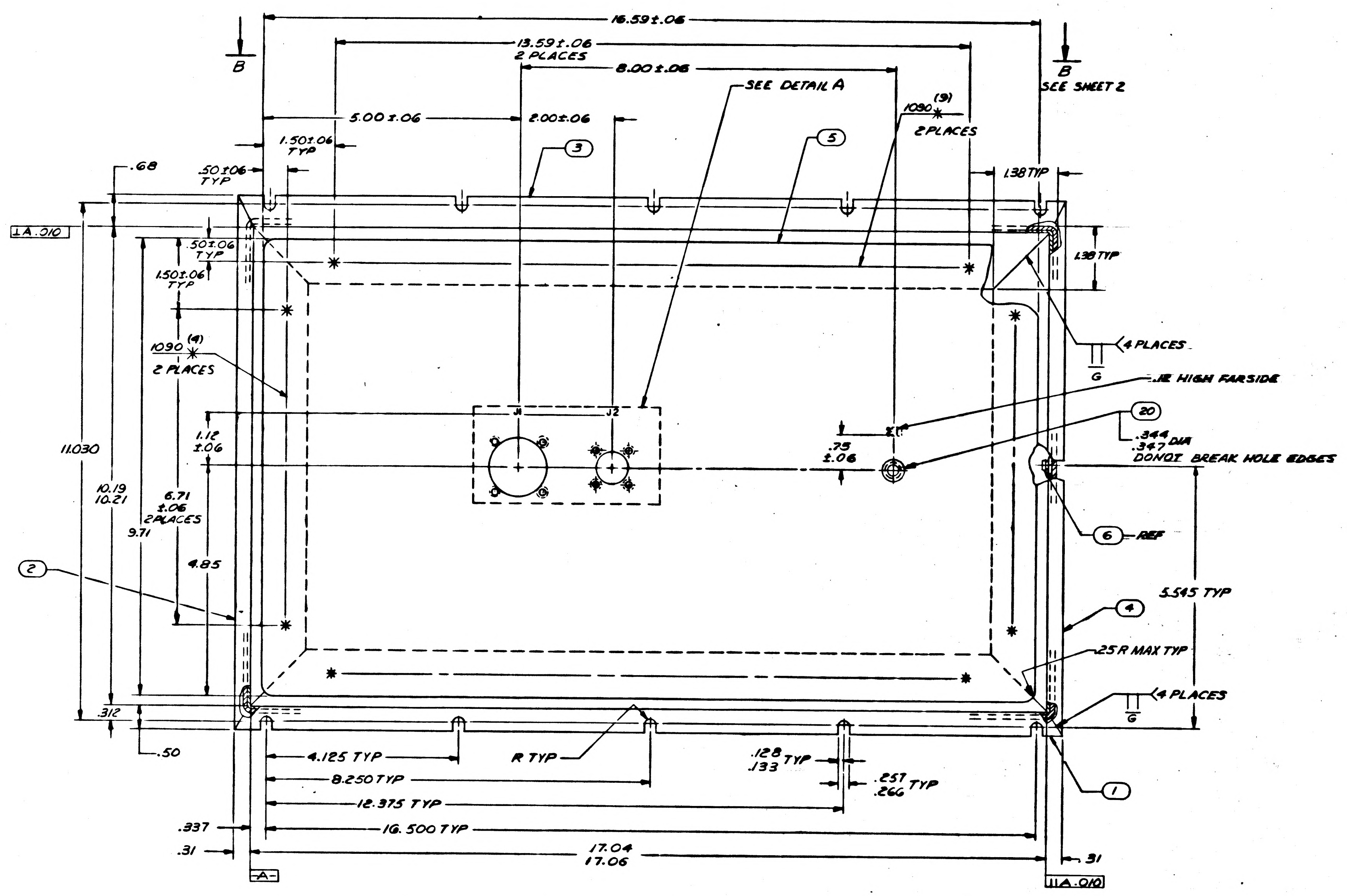
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

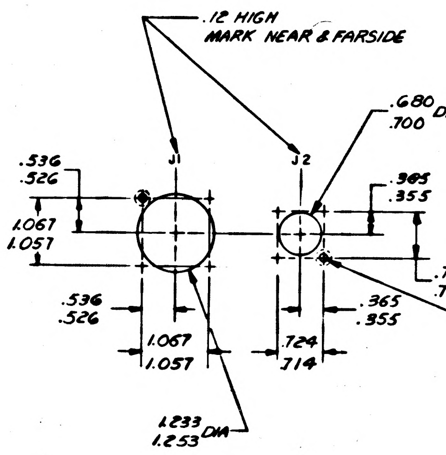
2014431 C

2014431

2014431 D

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25293	10/13/65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	1/15/66	
B	CHANGED PER TDRR 26500 DR A.J. Green CHK I.M.S. APPD	4/26/66	
C	CHANGED PER TDRR 26679 DR [illegible] CHK [illegible] APPD PED	9/7/66	
D	CHANGED PER TDRR 26695 DR [illegible] CHK [illegible] APPD PED	9/20/66	


16.59±.06
13.59±.06
2 PLACES
8.00±.06
SEE DETAIL A
B
B
SEE SHEET 2
5.00±.06
2.00±.06
1090 (9)
2 PLACES
1.50±.06
TYP
.50±.06
TYP
.68
3
5
1.38 TYP
⊥ A .010
.50±.06
TYP
1.50±.06
TYP
1.38 TYP
1090 (4)
2 PLACES
4 PLACES
G
.12 HIGH FARSIDE
J1
J2
20
.75
±.06
.344
.347 DIA
DONOT BREAK HOLE EDGES
11.030
10.19
10.21
9.71
1.12
±.06
6.71
±.06
2 PLACES
4.85
6
REF
2
5.545 TYP
4
.25 R MAX TYP
4 PLACES
G
.312
.50
4.125 TYP
R TYP
8.250 TYP
12.375 TYP
16.500 TYP
.128
.133 TYP
.257
.266 TYP
1
.337
.31
17.04
17.06
.31
-A-
⊥ A .010


.12 HIGH
MARK NEAR & FARSIDE
J1
J2
.680
.700 DIA
.536
.526
1.067
1.057
.365
.355
.724
.714
.536
.526
1.067
1.057
.724
.714
.365
.355
.133
.139 DIA & CSK 82° x .23
.24 DIA FARSIDE
8 HOLES
1.233
1.253 DIA

DETAIL A

⑤ ⑨ ⑫
NOTES:
1. MATL: AL 5052-H32 PER QQ-A-250/8
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

① ② ③ ④ ⑪
NOTES:
1. MATL: AL 6063-T6 PER QQ-A-200/9
2. REMOVE BURRS & SHARP EDGES .005/.020 UNLESS OTHERWISE SPECIFIED

ASSY NOTES
1. WELD PER MIL-W-8604
2. SPOT WELD PER MIL-W-6858 (CLASS B)
3. REMOVE HINGE PIN OF FIND NO. 10 BEFORE CHROMATING
4. CHROMATE PER MIL-C-5541 EXCEPT TO BE ELECTRICALLY CONDUCTIVE
5. AFTER CHROMATE INSTALL HINGE PIN & CRIMP END LOOPS OF FIND NO. 10 ONE HALF CLOSED
6. HINGE SHALL NOT BIND
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006271-10
8. NUMBER PRECEDING BALLOONS DENOTES QUANTITY

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006989-25	NUT, PLAIN SELF CLINCHING	20
4	MS35649-64	NUT, PLAIN HEX	19
4	MS35337-79	WASHER, LOCK SPLIT	18
4	MS15795-805	WASHER, FLAT	17
4	MS51957-30	SCREW, PAN HD	16
4	1006874	RECEPTACLE, SEALED	15
4	1006426-001	FASTENER, PANEL	14
8	MS20470A3-5	RIVET, UNIVERSAL HD	13
1	2014431-008	DOOR	12
1	2014431-007	SHIM	11
1	MS35825-2A	HINGE	10
1	2014431-006	COVER, TAPE PUNCH	9
30	MS20426AD3-6	RIVET FLAT HD SOLID	8
1	1006666	GASKET	7
6	1006896-10	NUT SELF LOCKING	6
1	2014431-005	PANEL, REAR	5
1	2014431-004	ANGLE, RIGHT	4
1	2014431-003	ANGLE, TOP	3
1	2014431-002	ANGLE, LEFT	2
1	2014431-001	ANGLE BOTTOM	1

LIST OF MATERIALS

2014431 D

NEXT ASSY	USED ON
2014039	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02
DECIMALS .XXX ±.015
ANGLES ±2°
DO NOT SCALE DRAWING

MATERIAL
SEE NOTES

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Katsaros DATE 8SEP65
CHECKED E Urban C.C. 28SEP65
APPROVAL [illegible] 6Oct65
APPROVAL D.A. [illegible]
APPROVAL [illegible] 10/13/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/12/66

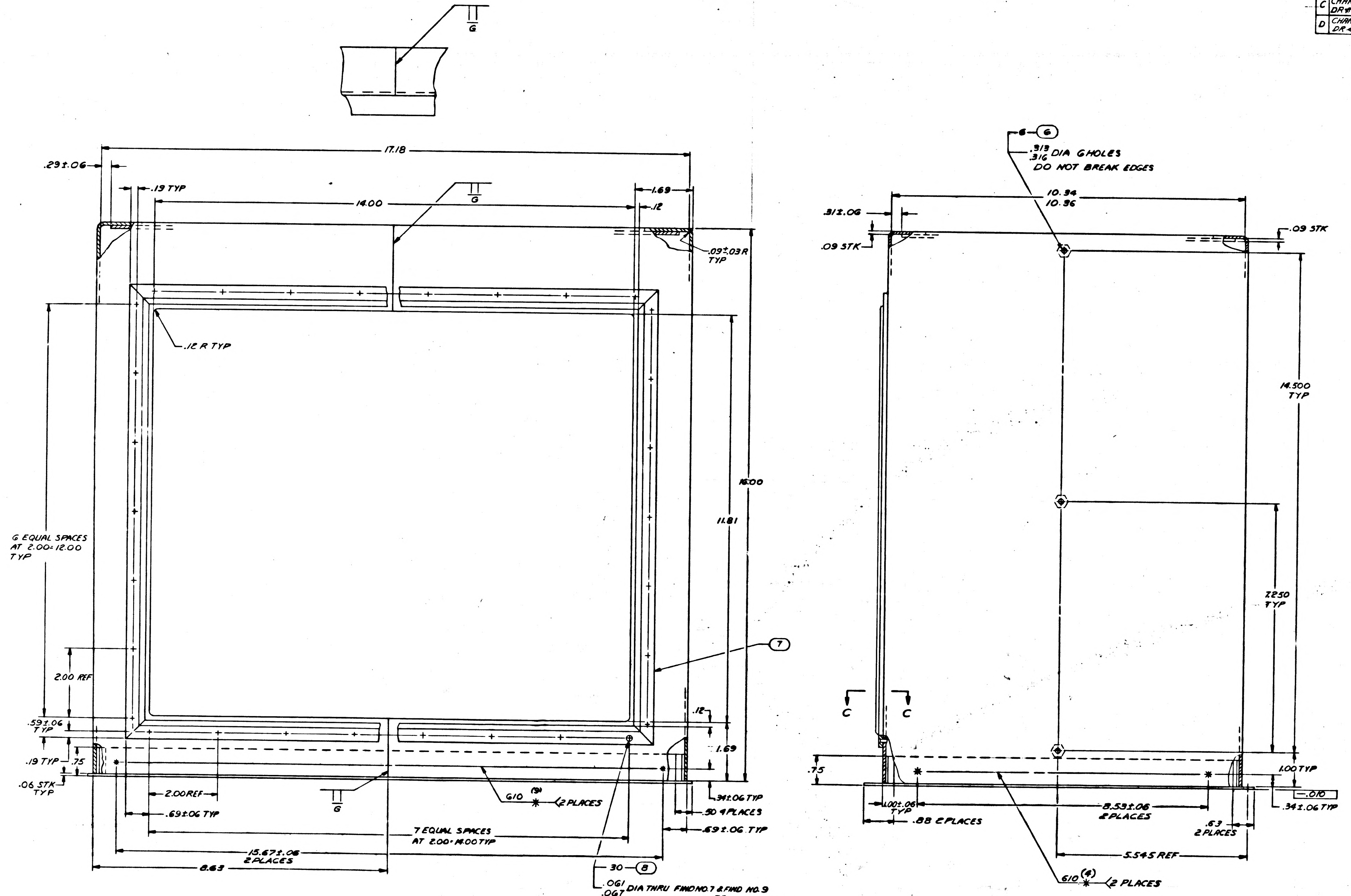
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, ASSEMBLY
RF SHIELD

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014431
SCALE 1/1
WT
SHEET 1 OF 3

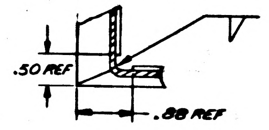
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25293	10/13/65	
-	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	1/11/66	
B	CHANGED PER TDRR 26500 DR A. J. Green CHK ___ APPD	3/28/66	
C	CHANGED PER TDRR 26679 DR ___ CHK ___ APPD FED	4/4/66	
D	CHANGED PER TDRR 26695 DR ___ CHK ___ APPD FED	4/20/66	



G
17.18
.29±.06
.19 TYP
14.00
1.69
.12
.09±.03 R TYP
.12 R TYP
6 EQUAL SPACES AT 2.00=12.00 TYP
2.00 REF
.59±.06 TYP
.19 TYP
.75
.06 STK TYP
2.00 REF
.69±.06 TYP
7 EQUAL SPACES AT 2.00=14.00 TYP
15.67±.06 2 PLACES
8.63
11.81
15.00
1.69
.12
.34±.06 TYP
.50 4 PLACES
.69±.06 TYP
7
610 (9) 2 PLACES
30 — 8
.061/.067 DIA THRU FIND NO.7 & FIND NO.9
CSK FIND NO.7 100°0' TO .175/.183 DIA 30 HOLES
6 — 6
.313/.316 DIA 6 HOLES
DO NOT BREAK EDGES
10.34/10.36
.31±.06
.09 STK
.09 STK
14.500 TYP
7.250 TYP
1.00 TYP
.010
.34±.06 TYP
C C
.75
1.00±.06 TYP
.88 2 PLACES
8.53±.06 2 PLACES
.63 2 PLACES
5.545 REF
610 (4) 2 PLACES

VIEW B-B
SEE SHEET 1



.50 REF
.88 REF

SECTION C-C
4 PLACES

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.015 ANGLES ± 0°30'
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Katz DATE 9SEP65
CHECKED C C 28SEP65
APPROVAL 6OCT65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

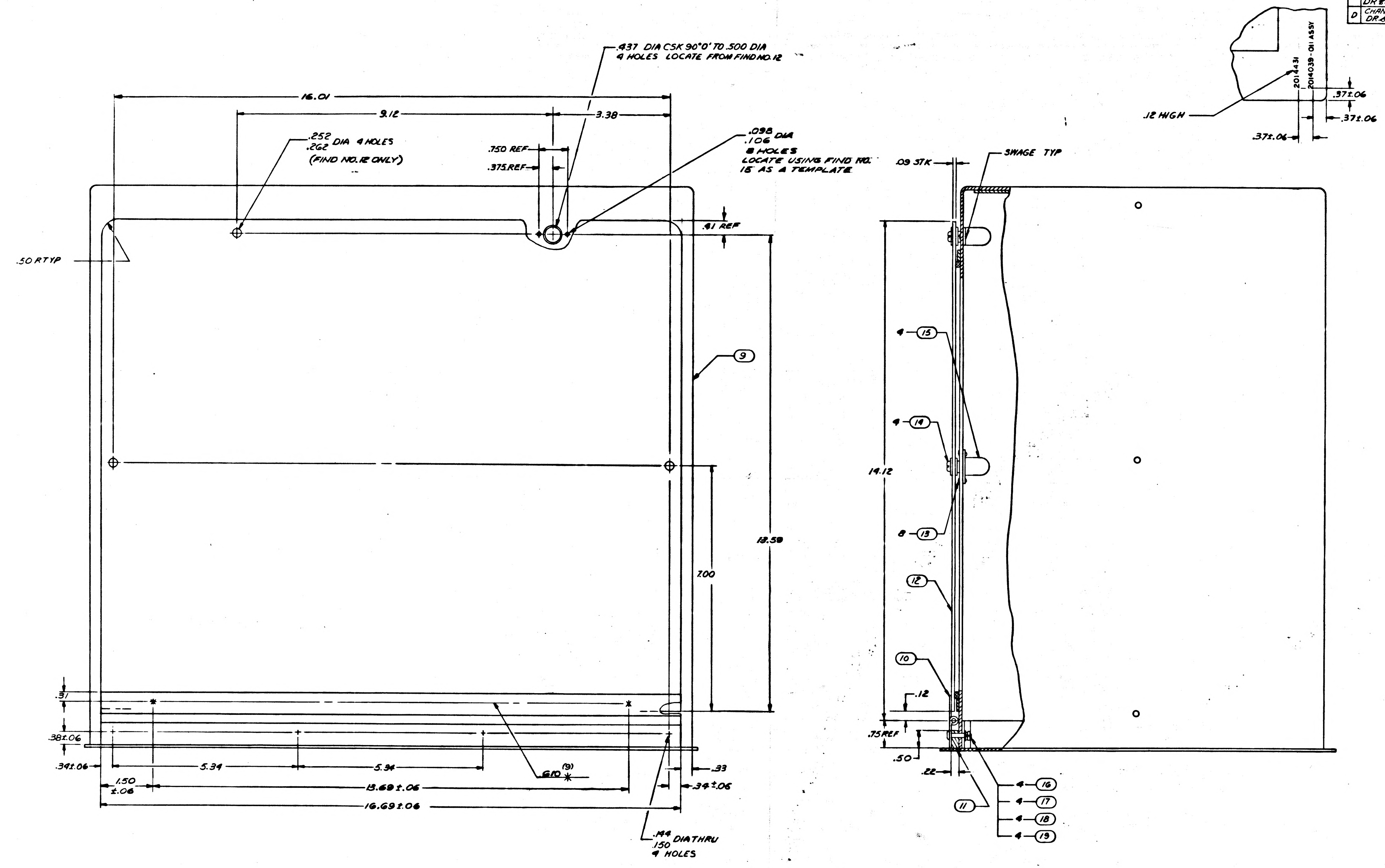
COVER, ASSEMBLY
RF SHIELD

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014431

SCALE 1/1 WT SHEET 2 OF 3

2014431 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25293	10/13/65	[illegible]
—	CLASS B CHANGED PER CCA R255C2	[illegible]	[illegible]
A	CHANGED PER CCA R25579 AND CLASS A RELEASED PER TDRR 25472	1/15/66	[illegible]
B	CHANGED PER TDRR 26500 DR a.j. Green CHK [illegible] APPD	2/24/66	[illegible]
C	CHANGED PER TDRR 26679 DR [illegible] CHK [illegible] APPD PSD	4/4/66	[illegible]
D	CHANGED PER TDRR 26695 DR [illegible] CHK [illegible] APPD PSD	[illegible]/66	[illegible]


.437 DIA CSK 90°0' TO .500 DIA
4 HOLES LOCATE FROM FIND NO. 12
16.01
9.12
3.38
.750 REF
.375 REF
.252 / .262 DIA 4 HOLES
(FIND NO. 12 ONLY)
.098 / .106 DIA
8 HOLES
LOCATE USING FIND NO. 15 AS A TEMPLATE
.41 REF
.50 R TYP
9
7.00
13.59
.31
.38±.06
.34±.06
5.34
5.34
G10 (9)
1.50 ±.06
13.69±.06
16.69±.06
.33
.34±.06
.144 / .150 DIA THRU
4 HOLES
.09 STK
SWAGE TYP
4 — 15
4 — 14
8 — 13
12
10
14.12
.12
.75 REF
.50
.22
11
4 — 16
4 — 17
4 — 18
4 — 19
.12 HIGH
2014431
2014039-011 ASSY
.37±.06
.37±.06
.37±.06

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.02 DECIMALS .XXX ±.005 ANGLES ±0°30'
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN B Katsuko DATE 10 SEP 65
CHECKED E. Wilson C.C. 28 SEP 65
APPROVAL [illegible] 6 Oct 65
APPROVAL D. O'Brient 10/6/65
APPROVAL [illegible] 10/13/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 4/2/66
MIT APPROVAL [illegible] 4/6/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, ASSEMBLY
RF SHIELD

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014431
SCALE 1/1 WT SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

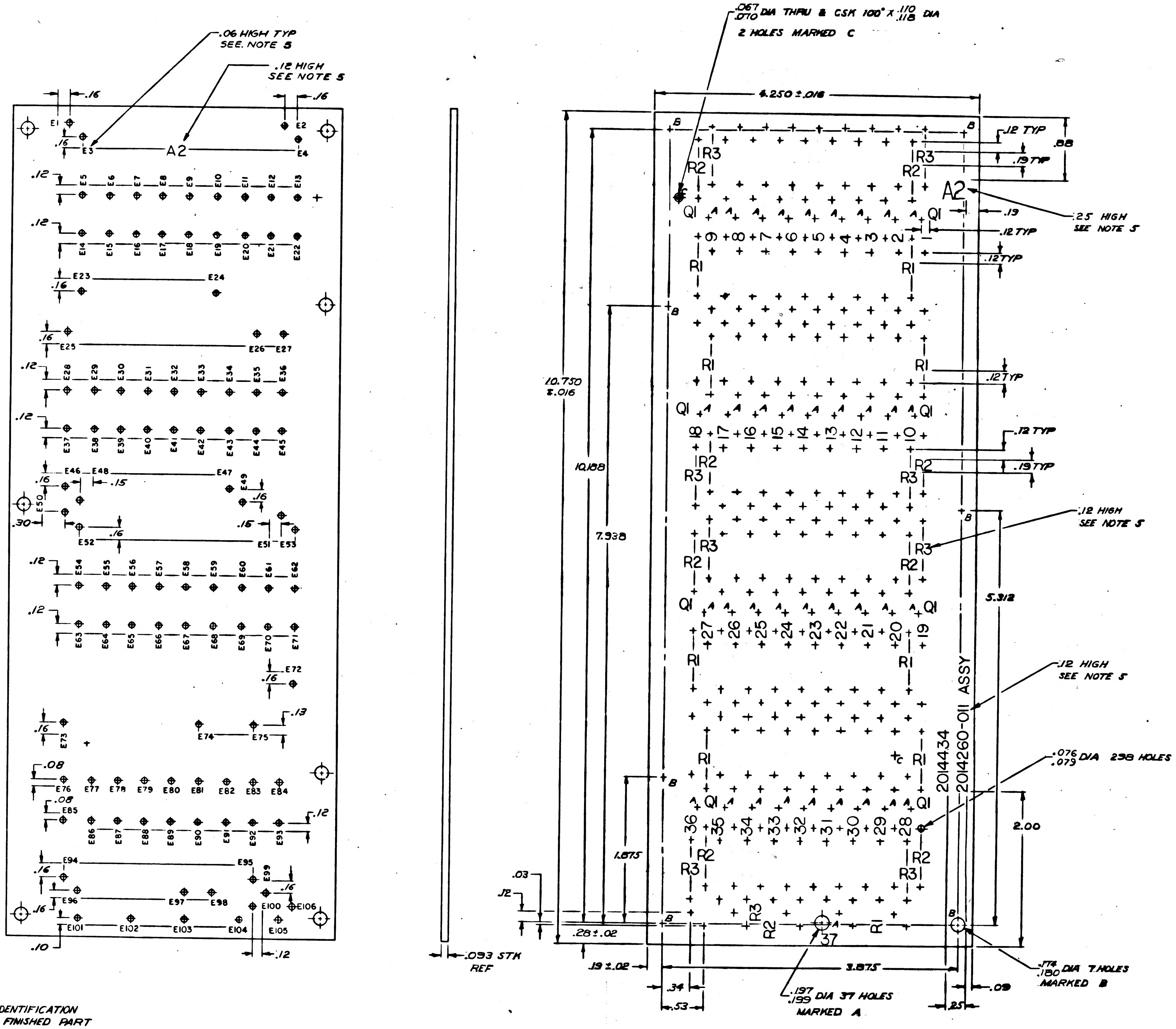
MASTER

2014431 D

2014431

2014434 A

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER .. R2519		
–	CLASS B NO CHANGE PER CCA R25500		
A	CHANGED PER CCA R25666 AND CLASS A RELEASED PER TDRR 25478		


.06 HIGH TYP SEE NOTE 5
.12 HIGH SEE NOTE 5
A2
E1 E2 E3 E4
E5 E6 E7 E8 E9 E10 E11 E12 E13
E14 E15 E16 E17 E18 E19 E20 E21 E22
E23 E24
E25 E26 E27
E28 E29 E30 E31 E32 E33 E34 E35 E36
E37 E38 E39 E40 E41 E42 E43 E44 E45
E46 E48 E47 E49 E50
E52 E51 E53
E54 E55 E56 E57 E58 E59 E60 E61 E62
E63 E64 E65 E66 E67 E68 E69 E70 E71
E72
E73 E74 E75
E76 E77 E78 E79 E80 E81 E82 E83 E84
E85
E86 E87 E88 E89 E90 E91 E92 E93
E94 E95 E99
E96 E97 E98 E100 E106
E101 E102 E103 E104 E105
.16
.12
.15
.30
.13
.08
.10
.093 STK REF
.067/.070 DIA THRU & CSK 100° X .110/.118 DIA
2 HOLES MARKED C
4.250 ±.016
.12 TYP
.19 TYP
.88
.25 HIGH SEE NOTE 5
.19
10.750 ±.016
10.188
7.938
1.875
5.312
2.00
.12 HIGH SEE NOTE 5
.076/.079 DIA 238 HOLES
R1 R2 R3 Q1
1 2 3 4 5 6 7 8 9
10 11 12 13 14 15 16 17 18
19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36
37
2014434
2014260-011 ASSY
.03
.12
.28 ±.02
.19 ±.02
3.875
.34
.53
.25
.09
.197/.199 DIA 37 HOLES MARKED A
.178/.180 DIA 7 HOLES MARKED B

NOTES

1. FOR MASTER DRAWING SEE 1020243
2. HOLE SYMBOL LETTERS ARE FOR IDENTIFICATION ONLY AND DO NOT APPEAR ON THE FINISHED PART
3. UNDIMENSIONED HOLES ARE LOCATED ON .025 GRIDS & TO BE WITHIN ⊕ .028 DIA OF CENTERS INDICATED ON MASTER PATTERN
4. TIN PLATE & FABRICATE PER MSFC-STD-154
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
6. REMOVE BURRS AND SHARP EDGES .005/.020

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014260	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ±.005 ANGLES ±1°
DO NOT SCALE DRAWING
MATERIAL
FL-GE 093C2
CLASS II PER
MIL-P-13949

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-437
DRAWN DATE 7 SEP 65
CHECKED 10 SEP 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT. APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BOARD A2
BUFFER CIRCUIT

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014434
SCALE 2/1
WT
SHEET OF

MASTER

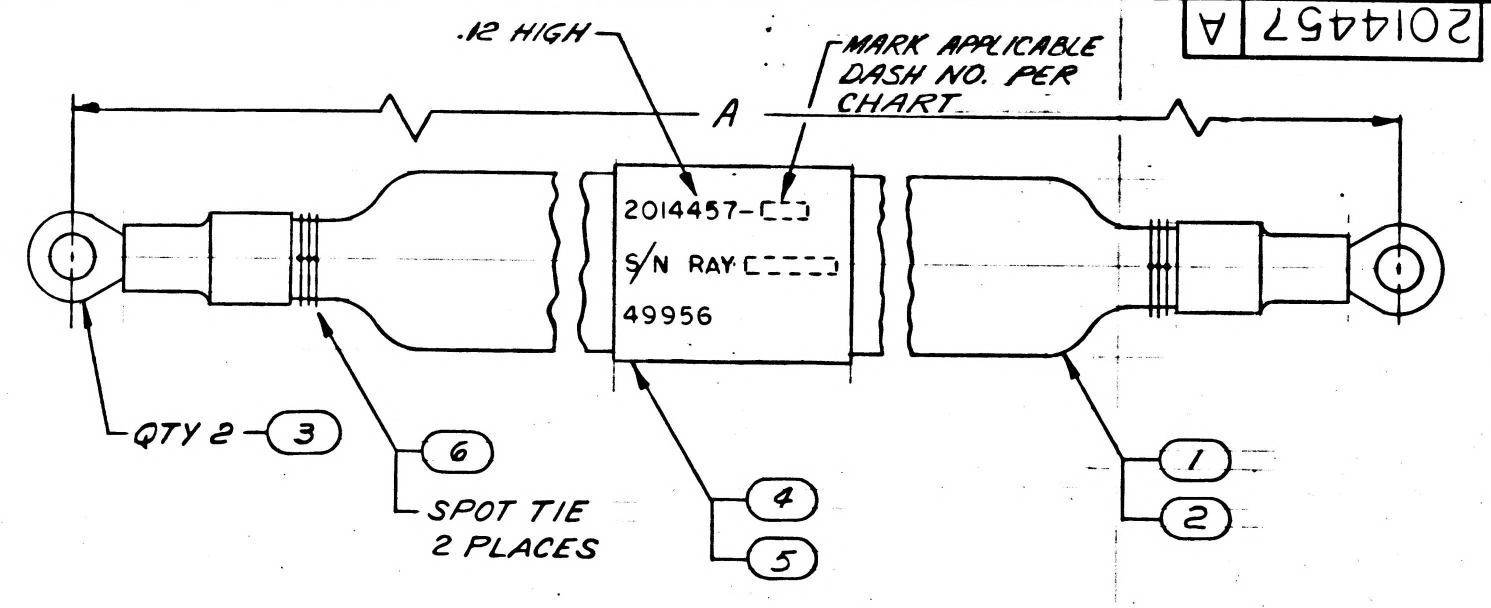
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014434 A

2014434 A

2014457 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25272	10/7/65	
1	CHANGE PER CCA R25372 DR BKatsulis CHK JGalbreath APPD	11 NOV 65	
—	CLASS B CHANGED PER CCA R25593	12/15/65	
A	CHANGED PER CCA R25568 AND CLASS A RELEASED PER TDRR 2548	1/14/66	



PART NO.	DIM A
2014457-011	18.00±.25
2014457-021	36.00±.50
2014457-031	24.00±.25
2014457-041	30.00±.50
2014457-051	8.00±.25
2014457-061	60.00±.50

NOTES

1. MIL-I-631 TYPE F, FORM U_a, GRADE A, CLASS 1 CATEGORY 1, I.D. 1.00, COLOR BLACK
2. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
3. SERIALIZE PER ND 1002023
4. CRIMP PER ND1002206
5. FABRICATE PER ND 1002032, EXCEPT USE FIND 6
6. CUT BRAID AND SLEEVING AS SHOWN

	QTY REQD -061	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	AR	AR	AR	AR	AR	AR	1006458-004	TAPE, LACING	6
	AR	AR	AR	AR	AR	AR	1006253	ADHESIVE	5
	1	1	1	1	1	1	1006415-137	BAND MARKER	4
	2	2	2	2	2	2	MS25036-26	TERMINAL, LUG	3
*	4.7	0.4	2.2	1.8	2.7	1.2	SEE NOTE 1	SLEEVING, INSULATION	2
*	5.0	0.6	2.5	2.0	3.0	1.5	1006442-002	BRAID, WIRE	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014024	
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06
DECIMALS .XXX ±
ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN Ray Coombs DATE 11 SEPT 65
CHECKED J Galbreath 29 SEPT 65
APPROVAL 5 Oct 65
APPROVAL D. O'Bryant 10/6/65
APPROVAL 10/7/65
NASA APPROVAL 1/21/66
MIT APPROVAL
MIT APPROVAL C S 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSY,
GROUND

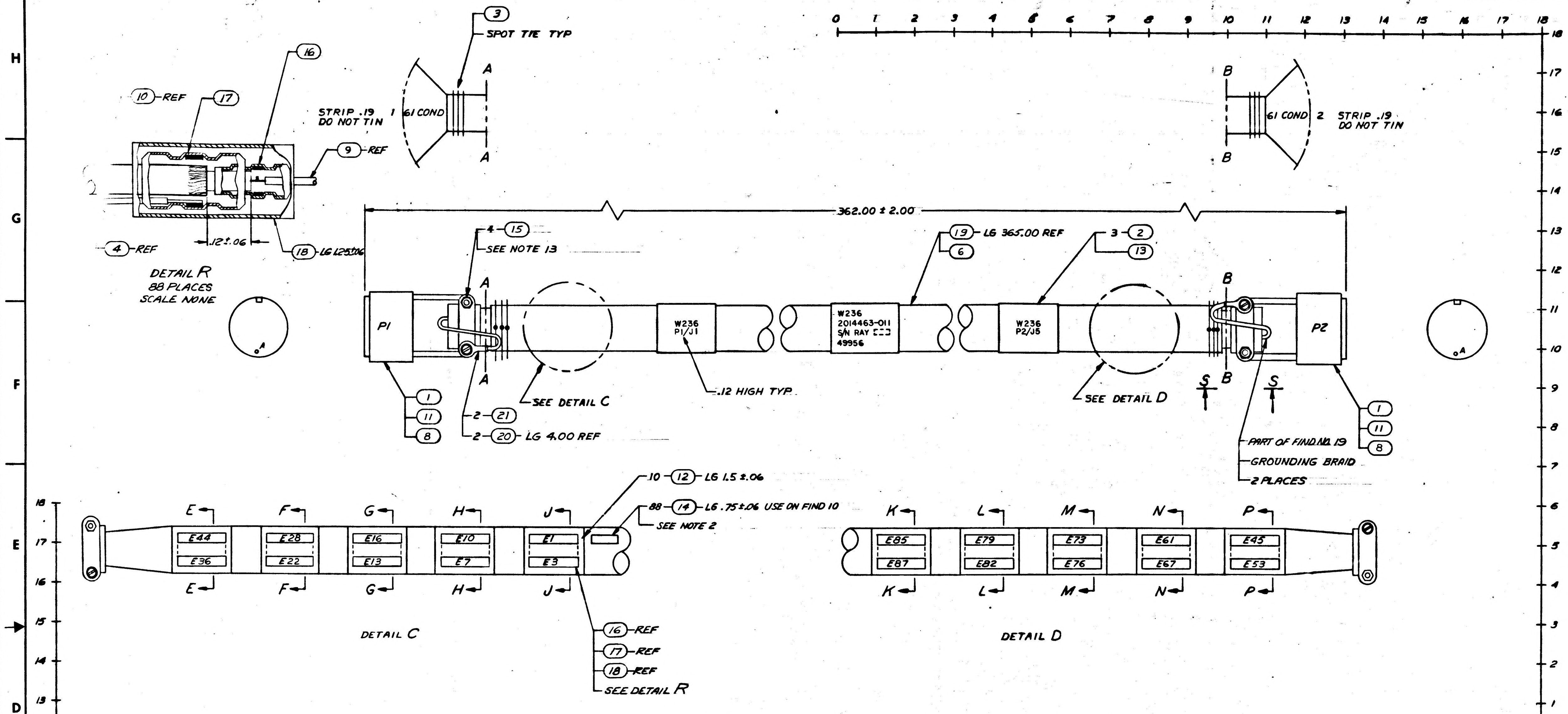
SIZE C
CODE IDENT NO. 49956
NASA DRAWING NO. 2014457
SCALE 1/1
WT
SHEET 1 OF 1

2014457 A

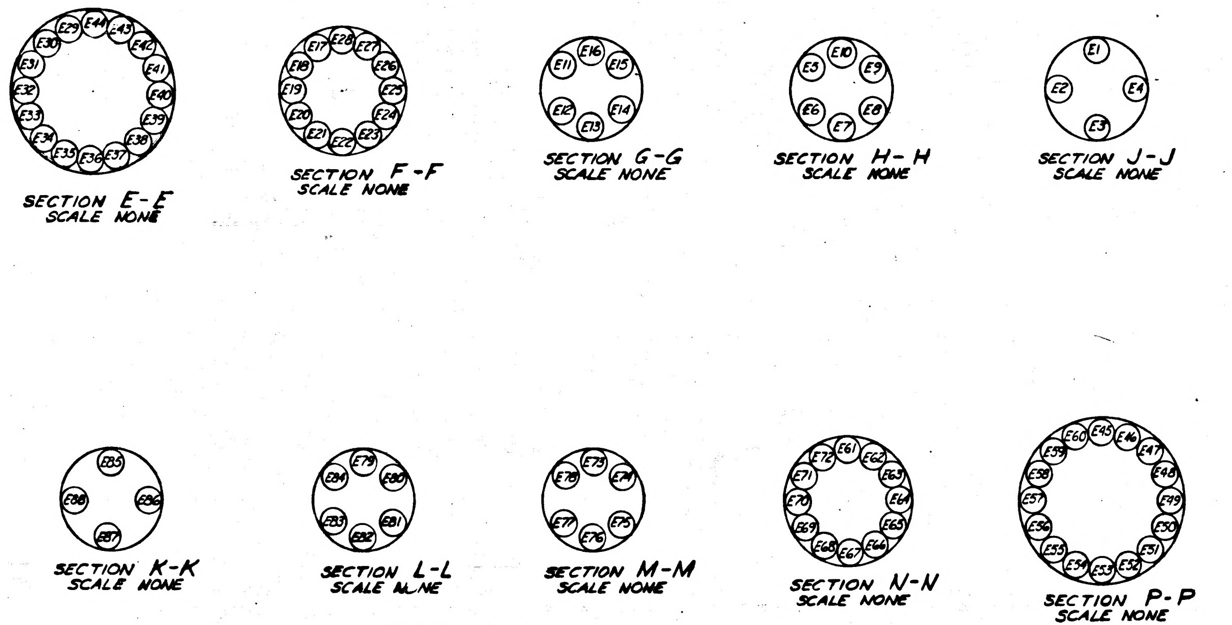
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MODERN BLUE PRINT CO., INC. 02069

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27696	-66	



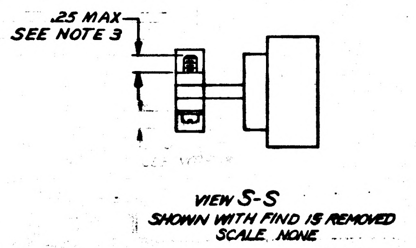
3
SPOT TIE TYP
16
10-REF
17
STRIP .19 DO NOT TIN
61 COND
1
2
9-REF
4-REF
.12 ±.06
18-LG 1.25±.06
DETAIL R
88 PLACES
SCALE NONE
A
B
362.00 ± 2.00
4-15
SEE NOTE 13
19-LG 365.00 REF
6
3-2
13
P1
W236 P1/J1
W236 2014463-011 S/N RAY 49956
W236 P2/J5
P2
1
11
8
2-21
2-20-LG 4.00 REF
SEE DETAIL C
.12 HIGH TYP
SEE DETAIL D
S
PART OF FIND NO. 19
GROUNDING BRAID
2 PLACES
10-12-LG 1.5 ±.06
88-14-LG .75±.06 USE ON FIND 10
SEE NOTE 2
E44 E36 E28 E22 E16 E13 E10 E7 E1 E3
E85 E87 E79 E82 E73 E76 E61 E67 E45 E53
E F G H J K L M N P
16-REF
17-REF
18-REF
SEE DETAIL R
DETAIL C
DETAIL D
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18



SECTION E-E SCALE NONE
SECTION F-F SCALE NONE
SECTION G-G SCALE NONE
SECTION H-H SCALE NONE
SECTION J-J SCALE NONE
SECTION K-K SCALE NONE
SECTION L-L SCALE NONE
SECTION M-M SCALE NONE
SECTION N-N SCALE NONE
SECTION P-P SCALE NONE

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 3
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. CRIMP PER ND1002206
4. SERIALIZE PER ND1002023
5. MARK NORMAL GOTHIC CHARACTERS PER ND1002019 USING BLACK INK 1006256-001
6. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
7. MIL-I-23053, CLASS I, BLACK, FOR FIND 12, SIZE 2.00 ID, FOR FIND 18 SIZE .250 ID
8. CUT SLEEVING LENGTH AS SHOWN
9. AR DENOTES AS REQUIRED
10. STRIP ALL LEADS .50 ±.06 & DO NOT TIN UNLESS OTHERWISE SPECIFIED
11. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
12. MIL-I-23053 CLASS I COLOR WHITE ID .187 FOR FIND 14
13. SCREWS SUPPLIED WITH FIND 1 TO BE CUT TO INDICATED LENGTH AFTER ASSY-INSTALL FIND 15
14. SOLDER PER ND1002071
15. ND-1002155, TYPE III WITH Z TYPE TRACK & .003±.001 ALUMINUM FOIL, ID 1 1/2
16. MIL-I-631 TYPE F, FORM U2, GRADE 2, CLASS I CATEGORY I, COLOR BLACK, AWG SIZE NO. 4
17. FIND 19 MUST BE CUT TO PROVIDE A SUFFICIENT GROUNDING BRAID AT EACH END



.25 MAX
SEE NOTE 3

VIEW S-S
SHOWN WITH FIND 15 REMOVED
SCALE NONE

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	2	MS25036-53	TERMINAL, LUG	21
*	0.7	SEE NOTE 16	INSULATION, ELECTRICAL	20
*	30.5	SEE NOTE 15	ZIPPER TUBING, PLASTIC	19
*	9.2	SEE NOTE 7	SLEEVING, SHRINK	18
	88	1010402-2	SLEEVE, SOLDER	17
	88	1010402-1	SLEEVE, SOLDER	16
	4	MS24679-22	NUT, PLAIN, CAP	15
*	5.5	SEE NOTE 12	SLEEVING, SHRINK	14
	AR	1006253	ADHESIVE	13
*	1.4	SEE NOTE 7	SLEEVING	12
	2	1020370-23	BUSHING	11
*	1300	RG 180 B/U	WIRE, COAX	10
*	400	MIL-W-16878/4 E22	WIRE, ELEC WHT	9
	2	1020370-19	BUSHING	8
	~~88~~	~~1006406~~	~~FERRULE, COAX~~	~~7~~
	AR	1006699	SOLVENT	6
~~*~~	~~30~~	~~1006698-9~~	~~INSULATION SLEEVING~~	~~5~~
*	36	MIL-W-16878/4 E22	WIRE, ELEC BLK	4
	AR	1006458-004	TAPE, LACING	3
	3	1006415-141	BAND MARKER, CABLE	2
	2	MS3126F-24-61PX	CONNECTOR, PLUG	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2014064	
2014255	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Milott DATE 10 MAR 66
CHECKED 10 MAR 66
APPROVAL 10 MAR 66
APPROVAL D. D'Arcy 12 MAR 66
APPROVAL 11 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 4-1-66
MIT APPROVAL 4/21/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W236

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014463

SCALE 1/1 WT SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2H

2014463 G

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27696	1-1-66	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	1	P1-R	WHT	22	9	2	P2-R	
	A2	↑	P1-P	↑	↑	↑	↑	P2-P	
	A3		P1-N					P2-N	
	A4		P1-m					P2-m	
	A5		P1-k					P2-k	
	A6		P1-L					P2-L	
	A7		P1-J					P2-J	
	A8		P1-h					P2-h	
	A9		P1-F					P2-F	
	A10		P1-G				↓	P2-G	
	A11		P1-H				2	P2-H	
	A12		P1-X				⚠	E1	
	A13		P1-W				↑	E2	
	A14		P1-s					E3	
	A15		P1-r					E4	
	A16		P1-V					E5	
	A17		P1-q					E6	
	A18		P1-U					E7	
	A19		P1-T					E8	
	A20		P1-S					E9	
	A21		P1-t					E10	
	A22		P1-FF					E11	
	A23		P1-EE					E12	
	A24		P1-DD					E13	
	A25		P1-p					E14	
	A26		P1-n					E15	
	A27		P1-M					E16	
	A28		P1-CC					E17	
	A29		P1-BB					E18	
	A30		P1-MM					E19	
	A31		P1-NN					E20	
	A32		P1-GG					E21	
	A33		P1-u					E22	
	A34		P1-v					E23	
	A35		P1-HH					E24	
	A36		P1-JJ					E25	
	A37		P1-PP					E26	
	A38		P1-KK					E27	
	A39		P1-LL					E28	
	A40		P1-AA					E29	
	A41		P1-j					E30	
	A42		P1-K					E31	
	A43		P1-i					E32	
	A44		P1-z					E33	
	A45		P1-y					E34	
	A46		P1-x					E35	
	A47		P1-w					E36	
	A48		P1-c					E37	
	A49		P1-d					E38	
	A50		P1-C					E39	
	A51		P1-e					E40	
	A52		P1-D					E41	
	A53		P1-f					E42	
	A54	↓	P1-E					E43	
	A55	1	P1-g					E44	
	A56	2	P2-X					E45	
	A57	↑	P2-W					E46	
	A58		P2-s					E47	
	A59		P2-r					E48	
	A60		P2-V					E49	
	A61		P2-q					E50	
	A62		P2-U					E51	
	A63		P2-T					E52	
	A64		P2-S					E53	
	A65		P2-t					E54	
	A66		P2-FF					E55	
	A67		P2-EE					E56	
	A68		P2-DD					E57	
	A69		P2-p					E58	
	A70		P2-n					E59	
	A71		P2-M					E60	
	A72		P2-CC					E61	
	A73		P2-BB					E62	
	A74		P2-MM					E63	
	A75		P2-NN					E64	
	A76		P2-GG					E65	
	A77		P2-u					E66	
	A78		P2-v					E67	
	A79		P2-HH					E68	
	A80		P2-JJ					E69	
	A81		P2-PP					E70	
	A82		P2-KK					E71	
	A83		P2-LL					E72	
	A84		P2-AA					E73	
	A85		P2-j					E74	
	A86		P2-K					E75	
	A87		P2-i					E76	
	A88		P2-z					E77	
	A89		P2-y					E78	
	A90		P2-x					E79	
	A91		P2-w					E80	
	A92		P2-c					E81	
	A93	↓	P2-d	↓	↓	↓	↓	E82	
	A94	2	P2-C	WHT	22	9	⚠	E83	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A95	2	P2-e	WHT	22	9	⚠	E84	
	A96	↑	P2-D	↑	↑	↑	↑	E85	
	A97		P2-f					E86	
	A98	↓	P2-E	↓	↓	↓		E87	
	A99	2	P2-g	WHT	22	9		E88	
	A100	⚠	E1	COAX SHLD	30	10		E45	
	A101	↑	E2	COAX SHLD	↑	↑		E46	
	A102		E3	COAX SHLD				E47	
	A103		E4	COAX SHLD				E48	
	A104		E5	COAX SHLD				E49	
	A105		E6	COAX SHLD				E50	
	A106		E7	COAX SHLD				E51	
	A107		E8	COAX SHLD				E52	
	A108		E9	COAX SHLD				E53	
	A109		E10	COAX SHLD				E54	
	A110		E11	COAX SHLD				E55	
	A111		E12	COAX SHLD				E56	
	A112		E13	COAX SHLD				E57	
	A113		E14	COAX SHLD				E58	
	A114		E15	COAX SHLD				E59	
	A115		E16	COAX SHLD				E60	
	A116		E17	COAX SHLD				E61	
	A117		E18	COAX SHLD				E62	
	A118		E19	COAX SHLD				E63	
	A119		E20	COAX SHLD				E64	
	A120		E21	COAX SHLD				E65	
	A121		E22	COAX SHLD				E66	
	A122		E23	COAX SHLD				E67	
	A123		E24	COAX SHLD				E68	
	A124		E25	COAX SHLD				E69	
	A125		E26	COAX SHLD				E70	
	A126		E27	COAX SHLD				E71	
	A127		E28	COAX SHLD				E72	
	A128		E29	COAX SHLD				E73	
	A129		E30	COAX SHLD				E74	
	A130		E31	COAX SHLD				E75	
	A131		E32	COAX SHLD				E76	
	A132		E33	COAX SHLD				E77	
	A133		E34	COAX SHLD				E78	
	A134		E35	COAX SHLD				E79	
	A135		E36	COAX SHLD				E80	
	A136		E37	COAX SHLD				E81	
	A137		E38	COAX SHLD				E82	
	A138		E39	COAX SHLD				E83	
	A139		E40	COAX SHLD				E84	
	A140		E41	COAX SHLD				E85	
	A141		E42	COAX SHLD				E86	
	A142		E43	COAX SHLD	↓	↓	↓	E87	
	A143	↓	E44	COAX SHLD	30	10	⚠	E88	
	A144	⚠	E1-SHLD	BLK	22	4	1	P1-Y	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A145	⚠	E1-SHLD	BLK	22	4	⚠	E2-SHLD	
	A146	↑	E2 ↑	↑	↑	↑	↑	E3 ↑	
	A147		E3					E4	
	A148		E4					E5	
	A149		E5					E6	
	A150		E6					E7	
	A151		E7				↓	E8 ↓	
	A152		E8				⚠	E9-SHLD	
	A153		E10				1	P1-Z	
	A154		E10				⚠	E11-SHLD	
	A155		E11				↑	E12 ↑	
	A156		E12					E13	
	A157		E13					E14	
	A158		E14					E15	
	A159		E16					E17	
	A160		E17					E18	
	A161		E18					E19	
	A162		E19					E20	
	A163		E20				↓	E21 ↓	
	A164		E21				⚠	E22-SHLD	
	A165		E22				1	P1-a	
	A166		E23				1	P1-b	
	A167		E23				⚠	E24-SHLD	
	A168		E24				↑	E25 ↑	
	A169		E25					E26	
	A170		E26					E27	
	A171		E27					E28	
	A172		E28					E29	
	A173		E29					E30	
	A174		E31					E32	
	A175		E32					E33	
	A176		E33					E34	
	A177		E34					E35	
	A178		E35				↓	E36 ↓	
	A179		E36				⚠	E37-SHLD	
	A180		E37				1	P1-A	
	A181		E38				1	P1-B	
	A182		E38				⚠	E39-SHLD	
	A183		E39				↑	E40 ↑	
	A184		E40					E41	
	A185		E41					E42	
	A186		E42				↓	E43 ↓	
	A187		E43				⚠	E44-SHLD	
	A188		E45				2	P2-Y	
	A189		E45				⚠	E46-SHLD	
	A190		E46				↑	E47 ↑	
	A191		E47					E48	
	A192		E48					E49	
	A193		E49					E50	
	A194		E50					E51	
	A195		E51				↓	E52 ↓	
	A196		E52				⚠	E53-SHLD	
	A197		E54				2	P2-Z	
	A198		E54				⚠	E55-SHLD	
	A199		E55				↑	E56 ↑	
	A200		E56					E57	
	A201		E57					E58	
	A202		E58					E59	
	A203		E60					E61	
	A204		E61					E62	
	A205		E62					E63	
	A206		E63					E64	
	A207		E64				↓	E65 ↓	
	A208		E65				⚠	E66-SHLD	
	A209		E66				2	P2-a	
	A210		E67				2	P2-b	
	A211		E67				⚠	E68-SHLD	
	A212		E68				↑	E69 ↑	
	A213		E69					E70	
	A214		E70					E71	
	A215		E71					E72	
	A216		E72					E73	
	A217		E73					E74	
	A218		E75					E76	
	A219		E76					E77	
	A220		E77					E78	
	A221		E78					E79	
	A222		E79				↓	E80 ↓	
	A223		E80				⚠	E81-SHLD	
	A224		E81				2	P2-A	
	A225		E82				2	P2-B	
	A226		E82				⚠	E83-SHLD	
	A227		E83				↑	E84 ↑	
	A228		E84					E85	
	A229		E85					E86	
	A230	↓	E86 ↓	↓	↓	↓	↓	E87 ↓	
	A231	⚠	E87-SHLD	BLK	22	4	⚠	E88-SHLD	

⚠ DENOTES INTERNAL CONNECTION

~~⚠ STRIP .31 & TIN .06~~

~~⚠ STRIP .44 & TIN .06~~

~~⚠ STRIP .25, DO NOT TIN~~

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Milne DATE 12 MAR 66
CHECKED 1 MAR 66
APPROVAL 12 MAR 66
APPROVAL D. O'Bryant 10 MAR 66
APPROVAL 10 MAR 66
NASA APPROVAL
MIT APPROVAL 4-4-66
MIT APPROVAL 3/25/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W236

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014463
SCALE NONE
WT
SHEET 2 OF 3

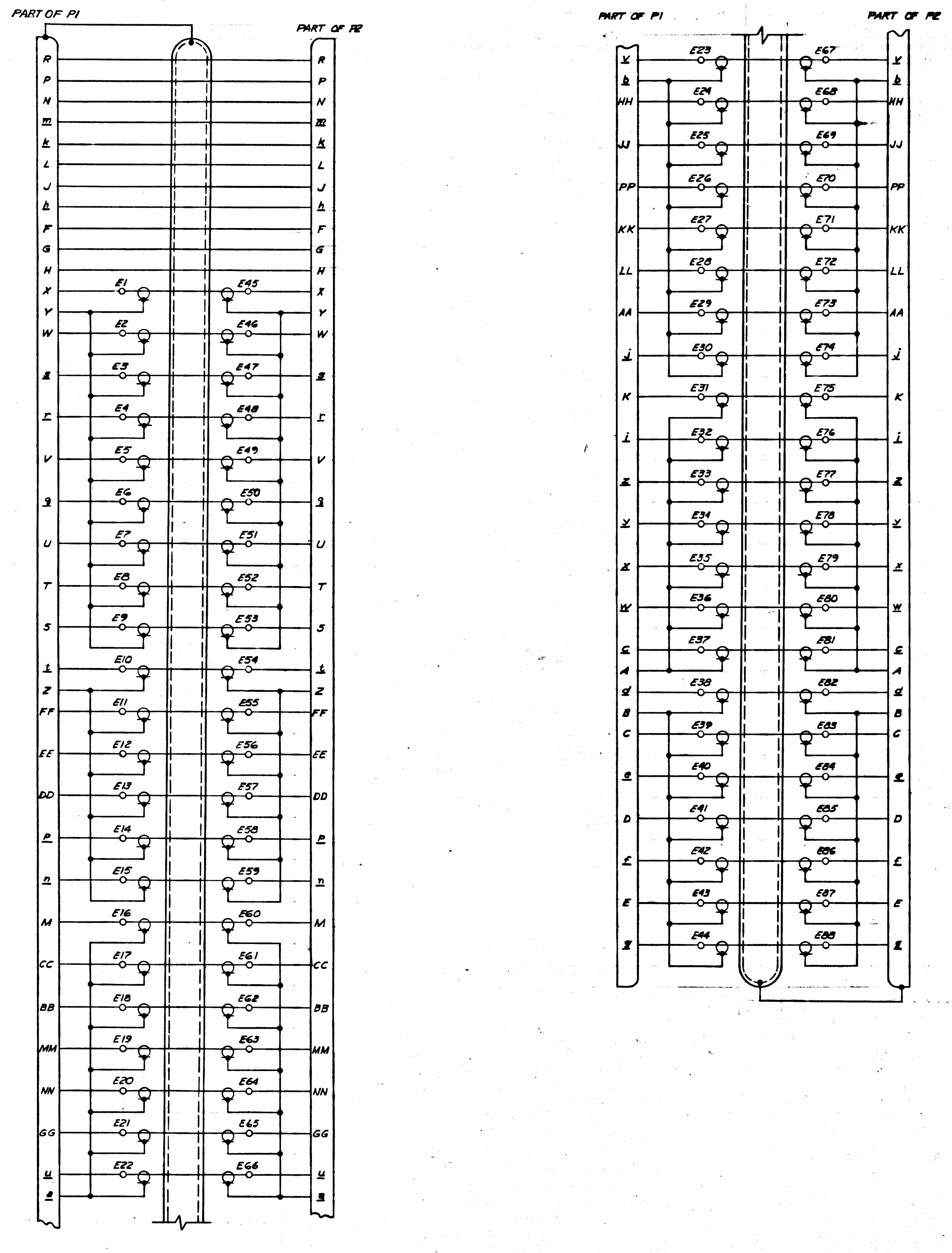
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014463 G

2014463 G

2014463 G

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27696	4-1-66	



PART OF P1
PART OF P2
R P N m k L J h F G H X Y W z r V g U T S t Z FF EE DD p n M CC BB MM NN GG u e
E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13 E14 E15 E16 E17 E18 E19 E20 E21 E22
E45 E46 E47 E48 E49 E50 E51 E52 E53 E54 E55 E56 E57 E58 E59 E60 E61 E62 E63 E64 E65 E66
PART OF P1
PART OF P2
V b HH JJ PP KK LL AA j K i z y x w c A d B C e D f E g
E23 E24 E25 E26 E27 E28 E29 E30 E31 E32 E33 E34 E35 E36 E37 E38 E39 E40 E41 E42 E43 E44
E67 E68 E69 E70 E71 E72 E73 E74 E75 E76 E77 E78 E79 E80 E81 E82 E83 E84 E85 E86 E87 E88

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Milot DATE 10 MAR 66
CHECKED 10 MAR 66
APPROVAL 10 MAR 66
APPROVAL D. O. 10 MAR 66
APPROVAL 10 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 4-1-66
MIT APPROVAL 3/29/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W236

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014463
SCALE NONE
WT
SHEET 3 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014463 G

2014463 G

2014464 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25314		
1	CHANGED PER CCA R25416 DR CHK APPD	11/16/65	
—	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26517 DR CHK APPD	3/28/66	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F1	S24-1	S24-3	BUS	24	
F2	S24-3	S23-1	WHT	↑	
F3	S23-1	S23-3	BUS		
F4	S23-3	S22-1	WHT		
F5	S22-1	S22-3	BUS		
F6	S22-3	S21-1	WHT		
F7	S21-1	S21-3	BUS		
F8	S21-3	S20-1	WHT		
F9	S20-1	S20-3	BUS		
F10	S20-3	S19-1	WHT		
F11	S19-1	S19-3	BUS		
F12	S12-1	S12-3	BUS		
F13	S12-3	S1C-1	WHT		
F14	S10-1	S10-3	BUS		
F15	S10-3	S11-1	WHT		
F16	S11-1	S11-3	BUS		
F17	S11-3	S13-1	WHT		
F18	S13-1	S13-3	BUS		
F19	S13D-NO	S11D-NO	WHT		
F20	S11D-NO	S12D-NO	↑		
F21	S19D-NO	S20D-NO			
F22	S20D-NO	S21D-NO			
F23	S21D-NO	S22D-NO			
F24	S22D-NO	S23D-NO			
F25	S23D-NO	S24D-NO			
F26	S36D-NO	S35D-NO			
F27	S35D-NO	S34D-NO			
F28	S34D-NO	S33D-NO			
F29	S33D-NO	S32D-NO			
F30	S32D-NO	S31D-NO			
F31	S31D-NO	S30D-NO			
F32	S30D-NO	S29D-NO			
F33	S29D-NO	S28D-NO			
F34	S28D-NO	S27D-NO			
F35	S27D-NC	S28D-NC			
F36	S28D-NC	S29D-NC			
F37	S29D-NC	S30D-NC			
F38	S30D-NC	S31D-NC			
F39	S31D-NC	S32D-NC			
F40	S32D-NC	S33D-NC			
F41	S33D-NC	S34D-NC			
F42	S34D-NC	S35D-NC			
F43	S35D-NC	S36D-NC			
F44	S24D-NC	S23D-NC			
F45	S23D-NC	S22D-NC			
F46	S22D-NC	S21D-NC			
F47	S21D-NC	S20D-NC			
F48	S20D-NC	S19D-NC			
F49	S12D-NC	S13D-NC			
F50	S13D-NC	S11D-NC	↓		
F51	S11D-NC	S10D-NC	WHT		
F52	S11-2	S11D-C	BUS		
F53	S10-2	S10D-C	↑		
F54	S12-2	S12D-C			
F55	S13-2	S13D-C			
F56	S19-2	S19D-C			
F57	S36-2	S36D-C			
F58	S35-2	S35D-C			
F59	S34-2	S34D-C			
F60	S33-2	S33D-C			
F61	S32-2	S32D-C			
F62	S31-2	S31D-C			
F63	S30-2	S30D-C			
F64	S29-2	S29D-C			
F65	S28-2	S28D-C			
F66	S27-2	S27D-C	↓		
F67	S20-2	S20D-C	BUS	↓	
F68	S10A-C	S11A-C	WHT	24	

⚠ DO NOT INSULATE WITH SLEEVING

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F69	S11A-C	S13A-C	WHT	24	
F70	S27A-C	S28A-C	↑	↑	
F71	S28A-C	S29A-C			
F72	S29A-C	S30A-C			
F73	S30A-C	S31A-C			
F74	S31A-C	S32A-C	↓		
F75	S32A-C	S33A-C	WHT		
F76	S27-1	S27-3	BUS		
F77	S27-3	S28-1	WHT		
F78	S28-1	S28-3	BUS		
F79	S28-3	S29-1	WHT		
F80	S29-1	S29-3	BUS		
F81	S29-3	S30-1	WHT		
F82	S30-1	S30-3	BUS		
F83	S30-3	S31-1	WHT		
F84	S31-1	S31-3	BUS		
F85	S31-3	S32-1	WHT		
F86	S32-1	S32-3	BUS		
F87	S33-3	S34-1	WHT		
F88	S34-1	S34-3	BUS		
F89	S34-3	S35-1	WHT		
F90	S35-1	S35-3	BUS		
F91	S35-3	S36-1	WHT		
F92	S36-1	S36-3	BUS		
F93	S17A-C1	S17A-A3	WHT		
F94	S17A-B1	S17A-D3	BUS		
F95	S8A-C	S9A-C	WHT		
F96	S8B-C	S9B-C	WHT		
F97	S15A-A2	S15A-A6	WHT		
F98	S15A-D5	S15A-C6	WHT		
F99	S15A-B2	S15A-C6	WHT		
F100	S9-1	S9-3	BUS		
F101	S9-3	S8-1	WHT		
F102	S8-1	S8-3	BUS		
F103	S9-2	S9D-C	BUS		
F104	S8-2	S8D-C	BUS		
F105	S9D-NC	S8D-NC	WHT		
F106	S9D-NO	S8D-NO	WHT		
F107	S5-3	S5-1	BUS		
F108	S5-1	S6-3	WHT		
F109	S6-3	S6-1	BUS		
F110	S5D-NO	S6D-NO	WHT		
F111	S5D-NC	S6D-NC	WHT		
F112	S17A-B3	S17A-D1	WHT		
F113	S17A-C3	S17A-A1	BUS		
F114	S6-2	S6D-C	BUS		
F115	S5-2	S5D-C	BUS		
F116	S5A-C	S6A-C	WHT		
F117	S5B-C	S6B-C	WHT		
F118	S15A-C5	S15A-C7	BUS		
F119	S15A-C7	S15A-B1	WHT		
F120	S15A-A1	S15A-A5	WHT		
F121	S15A-A5	S15A-A7	BUS		
F122	S15A-A6	S15A-B5	WHT		
F123	S15A-C-ARM	S15A-C-ARM	WHT		
F124	S15A-B7	S15A-B6	BUS		⚠
F125	S15A-A3	S15A-B6	WHT		
F126	S24-2	S24D-C	BUS		
F127	S23-2	S23D-C	↑		
F128	S22-2	S22D-C	↓		
F129	S21-2	S21D-C	BUS		
F130	S25-4	S26-4	WHT		
F131	XDS1-C	XDS2-C	↑		
F132	XDS2-C	XDS3-C			
F133	XDS3-C	XDS6-C			
F134	XDS4-C	XDS5-C			
F135	XDS5-C	XDS6-C	↓	↓	
F136	XDS6-C	XDS9-C	WHT	24	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F137	XDS7-C	XDS8-C	WHT	24	
F138	XDS8-C	XDS9-C	↑	↑	
F139	XDS9-C	XDS12-C			
F140	XDS10-C	XDS11-C			
F141	XDS11-C	XDS12-C			
F142	XDS12-C	XDS15-C			
F143	XDS13-C	XDS14-C			
F144	XDS14-C	XDS15-C			
F145	XDS15-C	XDS18-C			
F146	XDS16-C	XDS17-C			
F147	XDS17-C	XDS18-C			
F148	XDS18-C	XDS21-C			
F149	XDS19-C	XDS20-C			
F150	XDS20-C	XDS21-C			
F151	S32-3	S33-1			
F152	XDS22-C	XDS23-C			
F153	XDS23-C	XDS24-C			
F154	XDS24-C	XDS27-C			
F155	XDS25-C	XDS26-C			
F156	XDS26-C	XDS27-C			
F157	XDS27-C	XDS30-C			
F158	XDS28-C	XDS29-C			
F159	XDS29-C	XDS30-C			
F160	XDS30-C	XDS33-C			
F161	XDS31-C	XDS32-C			
F162	XDS32-C	XDS33-C			
F163	XDS33-C	XDS36-C			
F164	XDS34-C	XDS35-C	↓	↓	
F165	XDS35-C	XDS36-C	WHT	24	
~~F166~~	~~J6-SHELL~~	~~J7-SHELL~~	~~BLK~~	~~22~~	
F167	S17B-C1	S17B-C3	BUS	24	
~~F168~~	~~J8-SHELL~~	~~J9-SHELL~~	~~BLK~~	~~22~~	
F169	S17B-D1	S17B-D3	BUS	24	
F170	S14-2	S14-4	BLK	24	
F171	S33-1	S33-3	BUS	24	
F172	XDS37-C	XDS38-C	WHT	24	
F173	XDS38-C	XDS39-C	WHT	24	
F174	S17B-A1	S17B-A3	BUS	24	
F175	S17B-B1	S17B-B3	BUS	24	
F176	S10D-NO	S11D-NO	WHT	24	
F177	S16A-D4	S16A-C4	WHT	24	
F178	S15A-B3	S15A-D7	BUS	24	
F179	S15A-D7	S15A-D6	BUS	24	⚠
F180	S13A-C	S33A-C	WHT	24	
F181	S12-3	S31-3	WHT	24	

NOTE.
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATION
2. INSULATE ALL BUS WIRE WITH SLEEVING UNLESS OTHERWISE SPECIFIED

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014375	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 10 SEP 65
CHECKED 30 SEP 65
APPROVAL 10/12/65
APPROVAL 10/12/65
APPROVAL 10/14/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 21 Jan 66
MIT APPROVAL C S Sterling 1/20

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LEAD ELECTRICAL
XY INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014464
SCALE NONE
WT
SHEET 1 OF 1

2014464-

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25314	10/14/65	
1	CHANGED PER CCA R25416 DR CHK APPD	11/16/65	
—	CLASS A RELEASED PER TDRR 25472		

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F1	S24-1	S24-3	BUS	24	
F2	S24-3	S23-1	WHT		
F3	S23-1	S23-3	BUS		
F4	S23-3	S22-1	WHT		
F5	S22-1	S22-3	BUS		
F6	S22-3	S21-1	WHT		
F7	S21-1	S21-3	BUS		
F8	S21-3	S20-1	WHT		
F9	S20-1	S20-3	BUS		
F10	S20-3	S19-1	WHT		
F11	S19-1	S19-3	BUS		
F12	S12-1	S12-3	BUS		
F13	S12-3	S10-1	WHT		
F14	S10-1	S10-3	BUS		
F15	S10-3	S11-1	WHT		
F16	S11-1	S11-3	BUS		
F17	S11-3	S13-1	WHT		
F18	S13-1	S13-3	BUS		
F19	S13D-NO	S11D-NO	WHT		
F20	S11D-NO	S12D-NO			
F21	S19D-NO	S20D-NO			
F22	S20D-NO	S21D-NO			
F23	S21D-NO	S22D-NO			
F24	S22D-NO	S23D-NO			
F25	S23D-NO	S24D-NO			
F26	S36D-NO	S35D-NO			
F27	S35D-NO	S34D-NO			
F28	S34D-NO	S33D-NO			
F29	S33D-NO	S32D-NO			
F30	S32D-NO	S31D-NO			
F31	S31D-NO	S30D-NO			
F32	S30D-NO	S29D-NO			
F33	S29D-NO	S28D-NO			
F34	S28D-NO	S27D-NO			
F35	S27D-NC	S28D-NC			
F36	S28D-NC	S29D-NC			
F37	S29D-NC	S30D-NC			
F38	S30D-NC	S31D-NC			
F39	S31D-NC	S32D-NC			
F40	S32D-NC	S33D-NC			
F41	S33D-NC	S34D-NC			
F42	S34D-NC	S35D-NC			
F43	S35D-NC	S36D-NC			
F44	S24D-NC	S23D-NC			
F45	S23D-NC	S22D-NC			
F46	S22D-NC	S21D-NC			
F47	S21D-NC	S20D-NC			
F48	S20D-NC	S19D-NC			
F49	S12D-NC	S13D-NC			
F50	S13D-NC	S11D-NC			
F51	S11D-NC	S10D-NC	WHT		
F52	S11-2	S11D-C	BUS		
F53	S10-2	S10D-C			
F54	S12-2	S12D-C			
F55	S13-2	S13D-C			
F56	S19-2	S19D-C			
F57	S36-2	S36D-C			
F58	S35-2	S35D-C			
F59	S34-2	S34D-C			
F60	S33-2	S33D-C			
F61	S32-2	S32D-C			
F62	S31-2	S31D-C			
F63	S30-2	S30D-C			
F64	S29-2	S29D-C			
F65	S28-2	S28D-C			
F66	S27-2	S27D-C			
F67	S20-2	S20D-C	BUS		
F68	S10A-C	S11A-C	WHT	24	

△ DO NOT INSULATE WITH SLEEVING

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F69	S11A-C	S13A-C	WHT	24	
F70	S27A-C	S28A-C			
F71	S28A-C	S29A-C			
F72	S29A-C	S30A-C			
F73	S30A-C	S31A-C			
F74	S31A-C	S32A-C			
F75	S32A-C	S33A-C	WHT		
F76	S27-1	S27-3	BUS		
F77	S27-3	S28-1	WHT		
F78	S28-1	S28-3	BUS		
F79	S28-3	S29-1	WHT		
F80	S29-1	S29-3	BUS		
F81	S29-3	S30-1	WHT		
F82	S30-1	S30-3	BUS		
F83	S30-3	S31-1	WHT		
F84	S31-1	S31-3	BUS		
F85	S31-3	S32-1	WHT		
F86	S32-1	S32-3	WHT		
F87	S33-3	S34-1	WHT		
F88	S34-1	S34-3	BUS		
F89	S34-3	S35-1	WHT		
F90	S35-1	S35-3	BUS		
F91	S35-3	S36-1	WHT		
F92	S36-1	S36-3	BUS		
F93	S17A-C1	S17A-A3	WHT		
F94	S17A-B1	S17A-D3	BUS		
F95	S8A-C	S9A-C	WHT		
F96	S8B-C	S9B-C	WHT		
F97	S15A-A2	S15A-A6	WHT		
F98	S15A-D5	S15A-C6	WHT		
F99	S15A-B2	S15A-C6	WHT		
F100	S9-1	S9-3	BUS		
F101	S9-3	S8-1	WHT		
F102	S8-1	S8-3	BUS		
F103	S9-2	S9D-C	BUS		
F104	S8-2	S8D-C	BUS		
F105	S9D-NC	S8D-NC	WHT		
F106	S9D-NO	S8D-NO	WHT		
F107	S5-3	S5-1	BUS		
F108	S5-1	S6-3	WHT		
F109	S6-3	S6-1	BUS		
F110	S5D-NO	S6D-NO	WHT		
F111	S5D-NC	S6D-NC	WHT		
F112	S17A-B3	S17A-D1	WHT		
F113	S17A-C3	S17A-A1	BUS		
F114	S6-2	S6D-C	BUS		
F115	S5-2	S5D-C	BUS		
F116	S5A-C	S6A-C	WHT		
F117	S5B-C	S6B-C	WHT		
F118	S15A-C5	S15A-C7	BUS		
F119	S15A-C7	S15A-B1	WHT		
F120	S15A-A1	S15A-A5	WHT		
F121	S15A-A5	S15A-A7	BUS		
F122	S15A-A6	S15A-B5	WHT		
F123	S15A-D-ARM	S15A-C-ARM	WHT		
F124	S15A-B7	S15A-B6	BUS		△
F125	S15A-A3	S15A-B6	WHT		
F126	S24-2	S24D-C	BUS		
F127	S23-2	S23D-C			
F128	S22-2	S22D-C			
F129	S21-2	S21D-C	BUS		
F130	S25-4	S26-4	WHT		
F131	XDS1-C	XDS2-C			
F132	XDS2-C	XDS3-C			
F133	XDS3-C	XDS6-C			
F134	XDS4-C	XDS5-C			
F135	XDS5-C	XDS6-C			
F136	XDS6-C	XDS9-C	WHT	24	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F137	XDS7-C	XDS8-C	WHT	24	
F138	XDS8-C	XDS9-C			
F139	XDS9-C	XDS12-C			
F140	XDS10-C	XDS11-C			
F141	XDS11-C	XDS12-C			
F142	XDS12-C	XDS15-C			
F143	XDS13-C	XDS14-C			
F144	XDS14-C	XDS15-C			
F145	XDS15-C	XDS18-C			
F146	XDS16-C	XDS17-C			
F147	XDS17-C	XDS18-C			
F148	XDS18-C	XDS21-C			
F149	XDS19-C	XDS20-C			
F150	XDS20-C	XDS21-C			
F151	S32-3	S33-1			
F152	XDS22-C	XDS23-C			
F153	XDS23-C	XDS24-C			
F154	XDS24-C	XDS27-C			
F155	XDS25-C	XDS26-C			
F156	XDS26-C	XDS27-C			
F157	XDS27-C	XDS30-C			
F158	XDS28-C	XDS29-C			
F159	XDS29-C	XDS30-C			
F160	XDS30-C	XDS33-C			
F161	XDS31-C	XDS32-C			
F162	XDS32-C	XDS33-C			
F163	XDS33-C	XDS36-C			
F164	XDS34-C	XDS35-C			
F165	XDS35-C	XDS36-C	WHT	24	
~~F166~~	~~J6-SHELL~~	~~J7-SHELL~~	~~BLK~~	~~22~~	
F167	S17B-C1	S17B-C3	BUS	24	
~~F168~~	~~J8-SHELL~~	~~J9-SHELL~~	~~BLK~~	~~22~~	
F169	S17B-D1	S17B-D3	BUS	24	
F170	S14-2	S14-4	BLK	24	
F171	S33-1	S33-3	BUS	24	
F172	XDS37-C	XDS38-C	WHT	24	
F173	XDS38-C	XDS39-C	WHT	24	
F174	S17B-A1	S17B-A3	BUS	24	
F175	S17B-B1	S17B-B3	BUS	24	
F176	S10D-NO	S11D-NO	WHT	24	
F177	S16A-D4	S16A-C4	WHT	24	
F178	S15A-B3	S15A-D7	BUS	24	
F179	S15A-C7	S15A-D6	BUS	24	△
F180	S13A-C	S33A-C	WHT	24	
F181	S12-3	S31-3	WHT	24	

NOTE.
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATION
2. INSULATE ALL BUS WIRE WITH SLEEVING UNLESS OTHERWISE SPECIFIED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014375	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 10SEP65
CHECKED 30SEP65
APPROVAL 10/12/65
APPROVAL 10/12/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

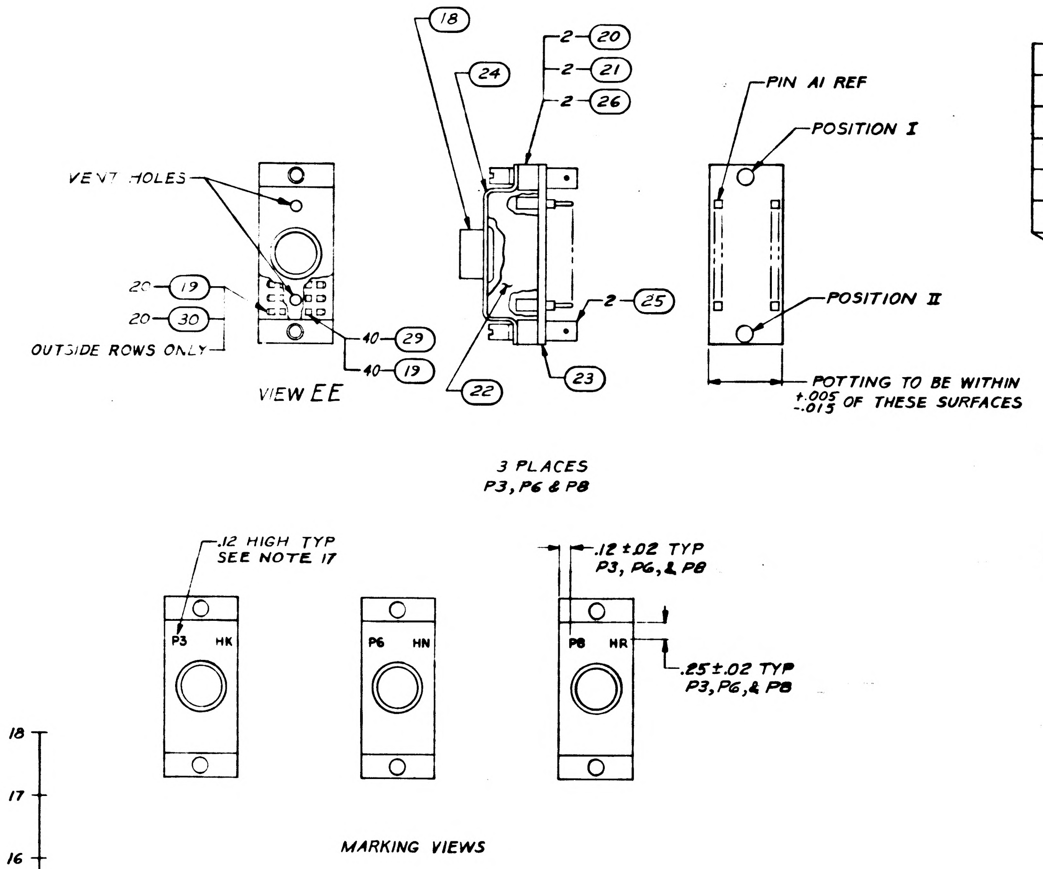
LEAD ELECTRICAL
XY INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE F
NASA DRAWING NO. 2014464
SCALE NONE
WT
SHEET 1 OF 1

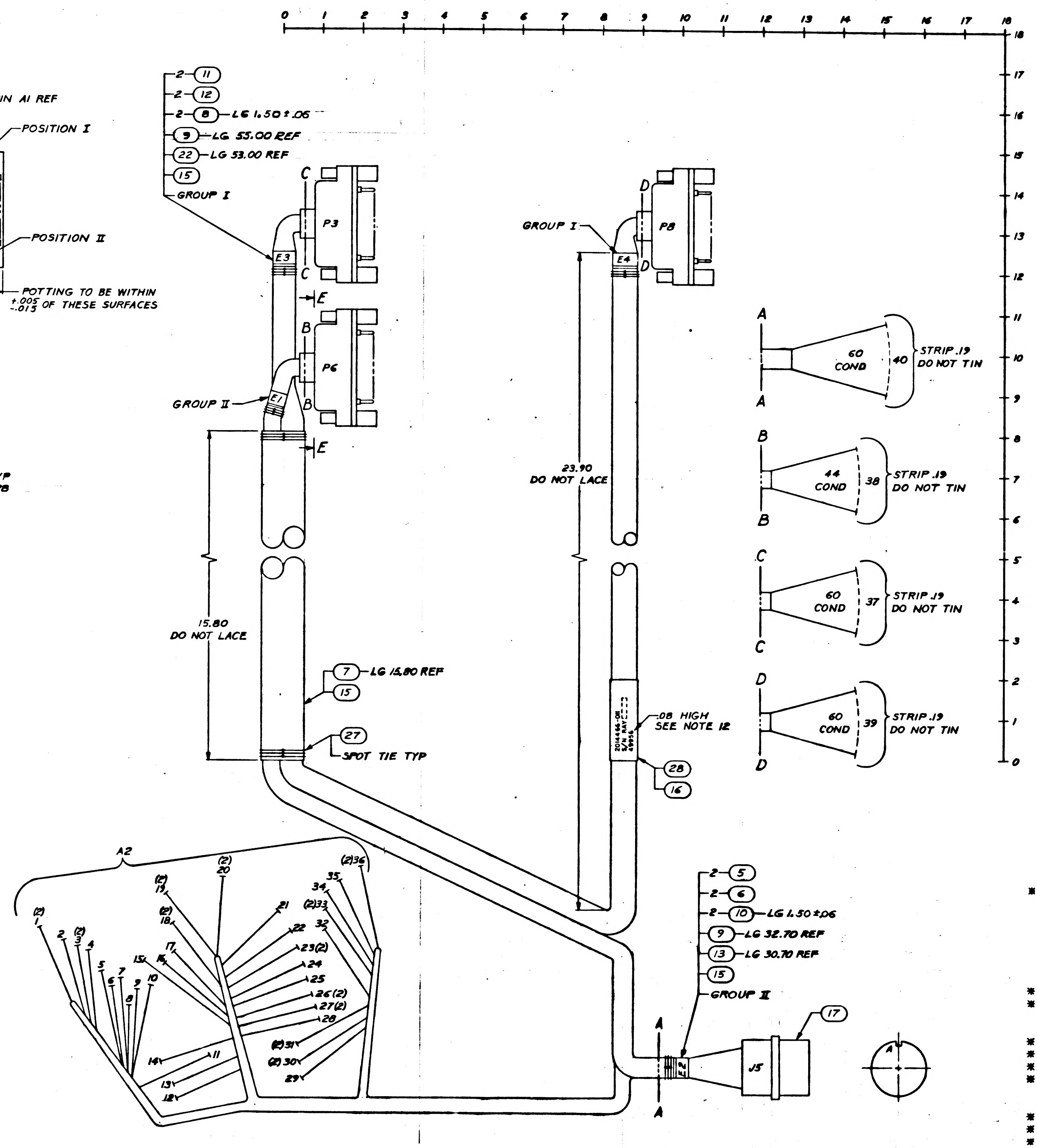
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014464-

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25283	13	[illegible]
1	CHANGED PER CCA R25448 DR R[illegible] CHK [illegible] APPD [illegible]	2 NOV 65	1/12/6
–	CLASS B NO CHANGE PER CCA R25502	[illegible]	
A	CHANGED PER CCA R25695 DR [illegible] CHK [illegible] APPD PED	1/14/66	[illegible]
B	CHANGED PER CCA R25799 AND CLASS A RELEASED PER TORR 25472	4/15/66	[illegible]



VENT HOLES
20-(19)
20-(30)
OUTSIDE ROWS ONLY
40-(29)
40-(19)
VIEW EE
(18)
(24)
2-(20)
2-(21)
2-(26)
2-(25)
(22)
(23)
PIN A1 REF
POSITION I
POSITION II
POTTING TO BE WITHIN +.005 -.015 OF THESE SURFACES
3 PLACES P3, P6 & P8
.12 HIGH TYP SEE NOTE 17
.12 ±.02 TYP P3, P6, & P8
.25 ±.02 TYP P3, P6, & P8
P3 HK
P6 HN
P8 HR
MARKING VIEWS



2-(11)
2-(12)
2-(8)-LG 1.50 ±.06
(9)-LG 55.00 REF
(22)-LG 53.00 REF
(15)
GROUP I
C
P3
E3
E
B
P6
GROUP II
E1
15.80 DO NOT LACE
(7)-LG 15.80 REF
(15)
(27)
SPOT TIE TYP
GROUP I
D
P8
E4
23.90 DO NOT LACE
.08 HIGH SEE NOTE 12
(28)
(16)
A
60 COND
40
STRIP .19 DO NOT TIN
B
44 COND
38
STRIP .19 DO NOT TIN
C
60 COND
37
STRIP .19 DO NOT TIN
D
60 COND
39
STRIP .19 DO NOT TIN
A2
2-(5)
2-(6)
2-(10)-LG 1.50 ±.06
(9)-LG 32.70 REF
(13)-LG 30.70 REF
(15)
GROUP II
(17)
J5
A

NOTES

1. FABRICATE PER ND 1002032 EXCEPT USE FIND 27
2. STRIP ALL LEADS .50 ±.06 AND TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. CRIMP PER ND 1002206
5. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
6. SERIALIZE PER ND 1002023
7. POTTING TO BE FLUSH TO .04 BELOW TOP OF VENT HOLES OF FIND 24
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. NUMBERS ENCLOSED IN PARENTHESES DENOTE NUMBER OF CONDUCTORS
10. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
11. AR DENOTES AS REQUIRED
12. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
13. POT PER ND 1002009 METHOD E & PRIME
14. MIL-I-23053 CLASS 1, COLOR BLACK, ID .750 FOR FIND 8 AND ID .500 FOR FIND 10
15. QQ-B-575 BRAID SIZE 3/8 ID, AWG 34 FOR FIND 9
16. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG 1014047
17. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHITE INK 1006271-01
18. ~~MIL-I-23053 CLASS 1, COLOR WHITE, ID .125 FOR FIND 14~~
19. SEAL INSULATORS AND TERMINALS PER ND1002004 TYPE VI

CONNECTOR	KEY CODING	
	POSITION	
REF	I	II
P3	H	K
P6	H	N
P8	H	R

✱ DENOTES LENGTH IN FEET

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014179	SCHEMATIC	REF
	60	1014310	INSULATOR, CONTACT ELEC (MALE)	30
	120	1006987	INSULATOR, CONTACT ELEC (MALE)	29
	1	1006415-133	BAND, MARKER	28
	AR	1006458-004	TAPE, LACING	27
	6	1006997	WASHER, PLAIN FLAT	26
	6	1014032	RECEPTACLE, INDEXING	25
	3	1014024-3	BRACKET, ANGLE	24
	3	1014021	PLATE, CONNECTOR	23
✱	4.5	1006696-4	INSULATION, SLEEVING ELEC	22
	6	MS35337-79	WASHER, LOCK	21
	6	1006998-1	SCREW, CAPTIVE	20
	180	1006995-000	CONTACT, ELEC, MALE, CRIMP	19
	3	1020370-23	BUSHING	18
	1	MS3120E-24-61S	CONNECTOR, ELEC	17
	AR	1006253	ADHESIVE	16
	AR	1006699	SOLVENT	15
✱	~~2.5~~	~~SEE NOTE 18~~	~~INSULATION, SLEEVING SHRINK~~	~~14~~
✱	2.6	1006696-3	INSULATION, SLEEVING ELEC	13
	2	1000243-37	FERRULE, ELEC COND	12
	2	1000242-33	FERRULE, ELEC COND	11
✱	0.3	SEE NOTE 14	INSULATION, SLEEVING SHRINK	10
✱	8.4	SEE NOTE 15	BRAID, SHIELD	9
✱	0.3	SEE NOTE 14	INSULATION, SLEEVING SHRINK	8
✱	1.4	1006696-6	INSULATION, SLEEVING ELEC	7
	2	1000242-30	FERRULE, ELEC	6
	2	1000243-34	FERRULE, ELEC	5
✱	8.0	MIL-W-16878/4E22	WIRE, ELEC BLK	4
✱	850	MIL-W-16878/4E24	WIRE, ELEC BLK	3
✱	~~450~~	~~1014341-022~~	~~WIRE, ELEC WHT BLK TW PR~~	~~2~~
✱	385	MIL-W-16878/4E24	WIRE, ELEC WHT	1
	-011	LIST OF MATERIALS		

2014040	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN C. [illegible] DATE 29 SEP 65
CHECKED [illegible] 30 [illegible]
APPROVAL [illegible]
APPROVAL A. [illegible]
APPROVAL [illegible]
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. S. [illegible] 1/5/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED
B
XY INTERFACE
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014466
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	B1	39	P8-A1	WHT	24	1	37	P3-A1	
	B2		-A2					-A2	
	B3		-A3					-A3	
	B4		-A4					-A4	
	B5		-A5					-A5	
	B6		-A6					-A6	
	B7		-A7					-A7	
	B8		-A8					-A8	
	B9		-A9					-A9	
	B10		-A10					-A10	
	B11		-A11					-A11	
	B12		-A12					-A12	
	B13		-A13					-A13	
	B14		-A14					-A14	
	B15		-A15					-A15	
	B16		-A16					-A16	
	B17		-A17					-A17	
	B18		-A18					-A18	
	B19		P8-A19					P3-A19	
	B20		P8-B1					P3-B1	
	B21		-B2					-B2	
	B22		-B3					-B3	
	B23		-B4					-B4	
	B24		-B5					-B5	
	B25		-B6					-B6	
	B26		-B7					-B7	
	B27		-B8					-B8	
	B28		-B9					-B9	
	B29		-B10					-B10	
	B30		-B11					-B11	
	B31		-B12					-B12	
	B32		-B13					-B13	
	B33		-B14					-B14	
GROUP I	B34		-B15					-B15	
	B35		-B16					-B16	
	B36		-B17					-B17	
	B37		-B18					-B18	
	B38		P8-B19					P3-B19	
	B39		P8-C1					P3-C1	
	B40		-C2					-C2	
	B41		-C3					-C3	
	B42		-C4					-C4	
	B43		-C5					-C5	
	B44		-C6					-C6	
	B45		-C7					-C7	
	B46		-C8					-C8	
	B47		-C9					-C9	
	B48		-C10					-C10	
	B49		-C11					-C11	
	B50		-C12					-C12	
	B51		-C13					-C13	
	B52		-C14					-C14	
	B53		-C15					-C15	
	B54		-C16					-C16	
	B55		-C17					-C17	
	B56		-C18					-C18	
	B57	39	P8-C19	WHT	24	1	37	P3-C19	
			E3	SHLD				E4	
	B58	39	P8-A20	BLK	22	4		E4	
	B59	△	E3				37	P3-A20	
	B60	39	P8-B20					E4	
	B61	△	E3				37	P3-B20	
	B62	39	P8-C20					E4	
	B63	△	E3	BLK	22	4	37	P3-C20	
	B64	38	P6-C2	WHT	24	1	40	J5-j	
	B65		-C3					k	
	B66		-C4					m	
GROUP II	B67		-C5					n	
	B68		-C6	WHT		1		p	
	B69		P6-C20	BLK		3		q	
	B70		P6-B20	BLK		3		r	
	B71	38	P6-A20	BLK	24	3	40	J5-s	

△ DENOTES INTERNAL CONNECTION

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	B72	38	P6-C7	WHT	24	1	40	J5-t	
	B73		-C8	WHT		1		u	
	B74		-C9	WHT		1		JJ	
	B75		-C10	BLK		3		w	
	B76		-C11	BLK		3		x	
	B77		-C12	BLK		3		y	
	B78		-C13	WHT		1		NN	
	B79		-C14					z	
	B80		-C15					AA	
	B81		-C16					BB	
	B82		-C17					CC	
	B83		-C18					DD	
GROUP II	B84		P6-C19					EE	
	B85		P6-B1					FF	
	B86		-B2					GG	
	B87		-B3					HH	
	B88		-B4					KK	
	B89		-B5					a	
	B90	38	P6-B6	WHT	24	1	40	J5-b	
			E1	SHLD				E2	
	B91	38	P6-B10	BLK	22	4		E1	
	B92	△	E2	BLK	22	4	40	J5-PP	
	B93	38	P6-A13	WHT	24	1	13	A2-35	
	B94		-A14	WHT		1	12	36	
	B95		-A15	WHT		1	7	46	
	B96	38	P6-A16	WHT	24	1	9	A2-47	
	~~B97~~		~~1~~	~~WHT~~		~~2~~	~~36~~	~~1~~	
			~~2~~	~~BLK~~			~~20~~	~~13~~	
	~~B98~~		~~3~~	~~WHT~~		~~2~~	~~33~~	~~4~~	
			~~4~~	~~BLK~~			~~23~~	~~16~~	
	~~B99~~		~~5~~	~~WHT~~		~~2~~	~~31~~	~~7~~	
			~~6~~	~~BLK~~			~~26~~	~~19~~	
	~~B100~~		~~9~~	~~WHT~~		~~2~~	~~19~~	~~25~~	
			~~10~~	~~BLK~~			~~1~~	~~37~~	
	~~B101~~		~~11~~	~~WHT~~		~~2~~	~~18~~	~~28~~	
			~~12~~	~~BLK~~			~~3~~	~~40~~	
	~~B102~~		~~7~~	~~WHT~~		~~2~~	~~30~~	~~8~~	
		~~38~~	~~P6-A8~~	~~BLK~~			~~27~~	~~20~~	
	B103	40	J5-S	BLK	24	3	28	A2-21	
	B104		LL	WHT		1	5	56	
	B105		i	BLK		3	8	57	
	B106		MM	WHT		1	10	58	
	B107		J				32	6	
	B108		K				24	17	
	B109		U				11	48	
GROUP III	B110		X	WHT		1	2	39	
	B111		A	BLK		3	21	14	
	B112		D				35	2	
	B113		E				34	3	
	B114		F	BLK		3	22	15	
	B115		L	WHT		1	25	18	
	B116		Y	BLK		3	29	9	
	B117		d	WHT		1	17	30	
	B118		e	WHT		1	16	31	
	B119		f	WHT		1	4	41	
	B120		a	BLK		3	6	45	
	B121		b	BLK		3	14	33	
	B122	40	J5-c	BLK	24	3	15	A2-32	
	~~B123~~		~~C~~	~~WHT~~		~~2~~	~~36~~	~~1~~	
			~~B~~	~~BLK~~			~~20~~	~~13~~	
	~~B124~~		~~G~~	~~WHT~~		~~2~~	~~33~~	~~4~~	
			~~H~~	~~BLK~~			~~23~~	~~16~~	
	~~B125~~		~~M~~	~~WHT~~		~~2~~	~~31~~	~~7~~	
			~~N~~	~~BLK~~			~~26~~	~~19~~	
	~~B126~~		~~V~~	~~WHT~~		~~2~~	~~19~~	~~25~~	
			~~W~~	~~BLK~~			~~1~~	~~37~~	
	~~B127~~		~~T~~	~~WHT~~		~~2~~	~~18~~	~~28~~	
			~~Z~~	~~BLK~~			~~3~~	~~40~~	
	~~B128~~		~~P~~	~~WHT~~		~~2~~	~~30~~	~~8~~	
		~~40~~	~~J5-R~~	~~BLK~~	~~24~~		~~27~~	~~A2-20~~	
	B129	38	P6-A1	WHT	24	1	36	A2-1	TWIST
	B130		-A2	BLK		3	20	-13	
	B131		-A3	WHT		1	33	-4	TWIST
	B132		-A4	BLK		3	23	-16	
	B133		-A5	WHT		1	31	-7	TWIST
	B134		-A6	BLK		3	26	-19	
	B135		-A9	WHT		1	19	-25	TWIST
	B136		-A10	BLK		3	1	-37	
	B137		-A11	WHT		1	18	-28	TWIST
	B138		-A12	BLK		3	3	-40	
	B139		-A7	WHT		1	30	-8	TWIST
	B140	38	P6-A8	BLK		3	27	-20	
	B141	40	J5-C	WHT		1	36	-1	TWIST
	B142		-B	BLK		3	20	-13	
	B143		-G	WHT		1	33	-4	TWIST
	B144		-H	BLK		3	23	-16	
	B145		-M	WHT		1	31	-7	TWIST
	B146		-N	BLK		3	26	-19	
	B147		-V	WHT		1	19	-25	TWIST
	B148		-W	BLK		3	1	-37	
	B149		-T	WHT		1	18	-28	TWIST
	B150		-Z	BLK		3	3	-40	
	B151		-P	WHT		1	30	-8	TWIST
	B152	40	J5-R	BLK	24	3	27	A2-20	

2014466 B

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25283	10/13/65	
1	CHANGED PER CCA R25448 DR R. CHK APPD	12 NOV 65	
–	CLASS B NO CHANGE PER CCA R25502		
A	CHANGED PER CCA R25695 DR CHK A. APPD P F D	1/10/66	
B	CHANGED PER CCAR 25744 AND CLASS A RELEASED PER TORR 25472	1/ /66	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO NAS 9-497
DRAWN DATE 26 AUG 65
CHECKED 24 SEP 65
APPROVAL 5 Oct 65
APPROVAL
APPROVAL 11/3/65
NASA APPROVAL C. Metzler
MIT APPROVAL
MIT APPROVAL 1/3/66

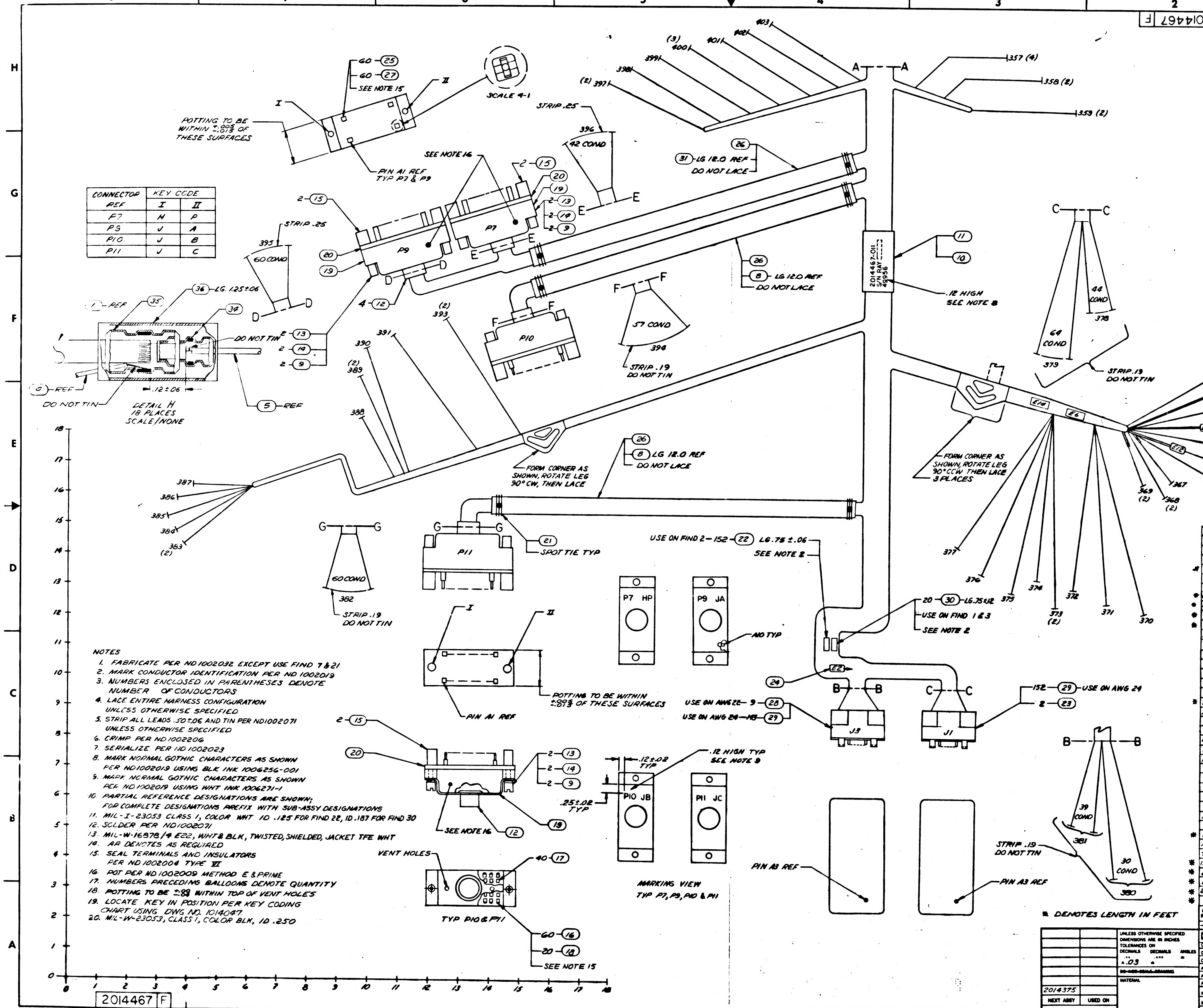
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED
B
XY INTERFACE
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014466
SCALE NONE
WT
SHEET 2 OF 2

2014466 B

2014466 B


2014467 F
POTTING TO BE WITHIN ±.005 / .013 OF THESE SURFACES
PIN A1 REF TYP P7 & P9
SCALE 4-1
SEE NOTE 15
SEE NOTE 16
STRIP .25
42 COND
60 COND
57 COND
60 COND
64 COND
44 COND
39 COND
30 COND
STRIP .19 DO NOT TIN
LG 12.0 REF
DO NOT LACE
2014467-011 S/N RAY 49956
.12 HIGH SEE NOTE 8
FORM CORNER AS SHOWN, ROTATE LEG 90° CW, THEN LACE
FORM CORNER AS SHOWN, ROTATE LEG 90° CCW THEN LACE 3 PLACES
DETAIL H 18 PLACES SCALE/NONE
LG 1.25±.06
DO NOT TIN
SEE DETAIL H
SPOT TIE TYP
USE ON FIND 2 — 152 — 22 LG .75 ±.06 SEE NOTE 2
20 — 30 — LG .75±.12 USE ON FIND 1 & 3 SEE NOTE 2
USE ON AWG 22 — 9 — 28
USE ON AWG 24 — 118 — 29
152 — 29 — USE ON AWG 24
2 — 23
P7 P9 P10 P11 J1 J3
P7 HP
P9 JA
P10 JB
P11 JC
.40 TYP
.12±.02 TYP
.25±.02 TYP
.12 HIGH TYP SEE NOTE 9
MARKING VIEW TYP P7, P9, P10 & P11
PIN A1 REF
POTTING TO BE WITHIN ±.013 OF THESE SURFACES
VENT HOLES
TYP P10 & P11
SEE NOTE 15
PIN A3 REF
2014467 F

CONNECTOR REF	KEY CODE I	KEY CODE II
F7	H	P
P9	J	A
P10	J	B
P11	J	C

NOTES

1. FABRICATE PER ND 1002032 EXCEPT USE FIND 7 & 21
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
3. NUMBERS ENCLOSED IN PARENTHESES DENOTE NUMBER OF CONDUCTORS
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. STRIP ALL LEADS .50±.06 AND TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. CRIMP PER ND 1002206
7. SERIALIZE PER ND 1002023
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLK INK 1006256-001
9. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHT INK 1006271-1
10. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSY DESIGNATIONS
11. MIL-I-23053 CLASS 1, COLOR WHT ID .125 FOR FIND 22, ID .187 FOR FIND 30
12. SOLDER PER ND1002071
13. MIL-W-16878/4 E22, WHT & BLK, TWISTED, SHIELDED, JACKET TFE WHT
14. AR DENOTES AS REQUIRED
15. SEAL TERMINALS AND INSULATORS PER ND 1002004 TYPE VI
16. POT PER ND 1002009 METHOD E & PRIME
17. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
18. POTTING TO BE ±.03 WITHIN TOP OF VENT HOLES
19. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG NO. 1014047.
20. MIL-W-23053, CLASS 1, COLOR BLK, ID .250

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R2534	9/14/65	
1	CHANGED PER CCA R2538 DR CHK J. Yon APPD	11/4/65	
—	CLASS B CHANGED PER CCA R2552		
A	CHANGED PER CCA R25583 DR CHK APPD	12/27/65	
B	CHANGED PER CCA R25654 DR D. CHK APPD	1/4/66	
C	CHANGED PER CCA R25737 DR CHK APPD	1/12/66	
D	CHANGED PER CCA R25730 DR CHK C. APPD	1/13/66	
E	CHANGED PER CCA R25779 DR CHK P APPD	1/16/66	
F	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRF 25472	1/20/66	

☒	2014179	SCHEMATIC	REF
* 2.0	SEE NOTE 20	SLEEVING, SHRINK	36
18	1010402-2	SLEEVE, SOLDER	35
18	1010402-1	SLEEVE, SOLDER	34
* 430	MIL-W-16878/4 E24	WIRE ELEC BLACK	33
* 430	MIL-W-16878/4 E24	WIRE ELEC WHT	32
* 1.0	1006696-5	SLEEVING, INSULATION	31
* 1.4	SEE NOTE 11	SLEEVING, SHRINK	30
295	1006491-009	CONTACT, ELEC	29
9	1006491-011	CONTACT, ELEC	28
120	1010380	BUSHING, INSULATOR,	27
AR	1006699	SOLVENT	26
120	1010379-1	CONTACT, ELEC, FEMALE	25
2	1010402-3	SLEEVE, SOLDER, ELEC	24
2	1006671-001	CONNECTOR, ELEC	23
* 9.8	SEE NOTE 11	SLEEVING, SHRINK	22
AR	1006458-004	TAPE, LACING	21
4	1014021	CONNECTOR, PLATE	20
4	1014024-3	BRACKET	19
40	1014310	INSULATOR, CONTACT	18
80	1006987	INSULATOR, CONTACT	17
120	1006995-000	CONTACT, MALE, CRIMP	16
8	1014032	PIN, RECEPTACLE, INDEX	15
8	MS35337-79	WASHER, LOCK	14
8	1006998-1	SCREW, CAPTIVE	13
4	1020370-23	BUSHING	12
1	1006415-136	BAND MARKER, CABLE	11
AR	1006253	ADHESIVE	10
8	1006997	WASHER, FLAT	9
* 1.0	1006696-4	SLEEVING, INSULATION	8
AR	1006458-002	TAPE, LACING	7
~~[illegible]~~	~~1006406~~	~~FERRULE, [illegible]~~	~~6~~
* 130	MIL-W-16878/4 E22	WIRE, ELEC, WHT	5
* 25	MIL-W-16878/4 E22	WIRE, ELEC, BLK	4
* 10	SEE NOTE - 13	WIRE, ELEC	3
* 210	1014341-12	WIRE, ELEC, BLK & WHT	2
* 8	RG180 B/U	WIRE, ELEC, COAX	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014467 F

2014375	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 15 AUG 65
CHECKED 20 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

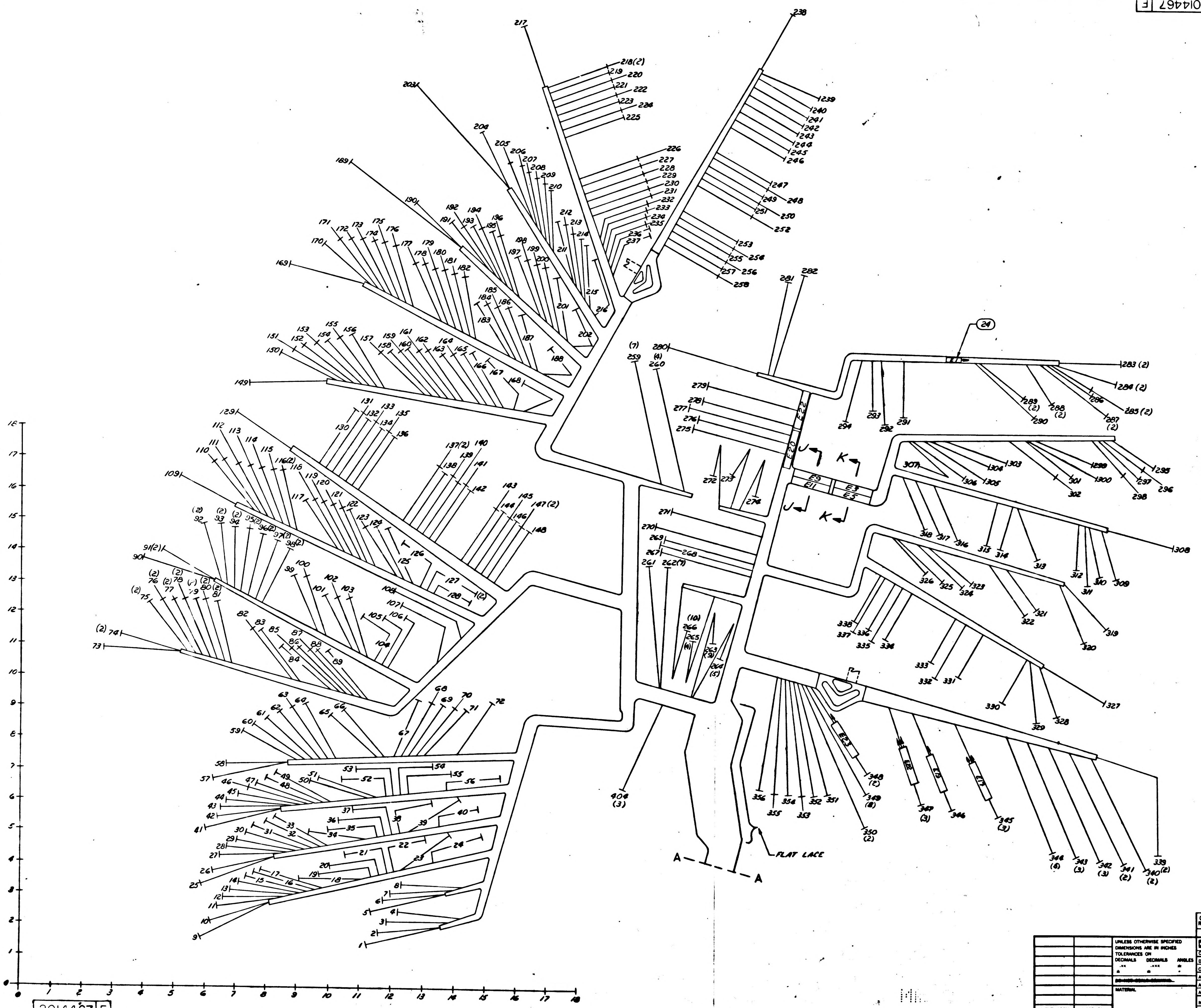
WIRING HARNESS BRANCHED-D
XY INTERFACE
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014467
SCALE 1/1 | WT | SHEET OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014467 F

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25314		
1	CHANGED PER CCA R25381 DR CHK APPD		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25583 DR CHK APPD	1/27/65	
B	CHANGED PER CCA R25654 DR CHK APPD P.C.D	1/4/66	
C	CHANGED PER CCA R25707 DR CHK APPD P.C.D		
D	CHANGED PER CCA R25730 DR CHK APPD P.C.D	1/15/66	
E	CHANGED PER CCA R25774 DR CHK APPD		
F	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25472		


1
9
73
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149
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189
203
217
218(2)
238
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(7)
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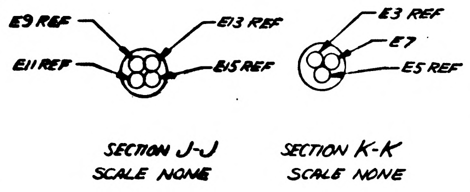
(4)
280
281
282
283(2)
308
327
339
(2)
344
(5)
356
404
(3)
E20
E22
E9
E11
E3
E5
J
K
E23
E26
E25
E27
24
FLAT LACE
A
A


E9 REF
E13 REF
E11 REF
E15 REF
E3 REF
E7
E5 REF

SECTION J-J
SCALE NONE

SECTION K-K
SCALE NONE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 29AUG65
CHECKED 7OCT65
APPROVAL 12Oct65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1/3/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
XY INTERFACE
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014467
SCALE 1/1
WT
SHEET 2 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014467 F

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D1	379	J1-A3	WHT	24	2	381	J3-N3	
			-A4	BLK				-N4	
	D2		-A5	WHT				-N5	
			-A6	BLK				-N6	
	D3		-B1	WHT				-N1	
			-B2	BLK			381	J3-N2	
	D4		-B3	WHT			396	P7-C5	
			-B4	BLK				-C6	
	D5		-B5	WHT				-C7	
			-B6	BLK				-C8	
	D6		-C7	WHT		2		-C3	
			-C8	BLK			396	P7-C4	
	D7		-D1	WHT		32	63	S3A-6	TWIST
	D8		-D2	BLK		33	47	S3B-6	
	D9		-D3	WHT		32	31	S3C-6	
	D10		-D4	BLK		33	15	S3D-6	
	D11		-D5	WHT		32	64	S3A-7	
	D12		-D6	BLK		33	48	S3B-7	
	D13		-D7	WHT		32	32	S3C-7	
	D14		-D8	BLK		33	16	S3D-7	
	D15		-E1	WHT		32	65	S3A-8	
	D16		-E2	BLK		33	49	S3B-8	
	D17		-E3	WHT		32	33	S3C-8	
	D18		-E4	BLK		33	17	S3D-8	
	D19		-E5	WHT		32	36	S3C-11	
	D20		-E6	BLK		33	20	S3D-11	
	D21		-E7	WHT		32	68	S3A-11	
	D22	379	-E8	BLK		33	52	S3B-11	
	D23	378	-F1	WHT		32	37	S3C-12	
	D24		-F2	BLK		33	21	S3D-12	
	D25		-F3	WHT		32	69	S3A-12	
	D26		-F4	BLK		33	53	S3B-12	
	D27		-F5	WHT		32	34	S3C-9	
	D28		-F6	BLK		33	18	S3D-9	
	D29		-F7	WHT		32	66	S3A-9	
	D30		-F8	BLK		33	50	S3B-9	
	D31		-G1	WHT		32	35	S3C-10	
	D32		-G2	BLK		33	19	S3D-10	
	D33		-G3	WHT		32	67	S3A-10	TWIST
	D34		-G4	BLK		33	51	S3B-10	
	D35		-G5	WHT		2	396	P7-C17	
			-G6	BLK				-C18	
	D36		-G7	WHT		2		-B1	
			-G8	BLK				-B2	
	D37		-H1	WHT		2		-B3	
			-H2	BLK			396	P7-B4	
	D38		-M7	WHT		32	71	S3A-14	TWIST
	D39		-M8	BLK		33	55	S3B-14	
	D40		-R1	WHT		32	38	S3C-13	
	D41		-R2	BLK		33	22	S3D-13	
	D42		-R3	WHT		32	39	S3C-14	
	D43		-R4	BLK		33	23	S3D-14	
	D44		-R5	WHT		32	40	S3C-15	
	D45		-R6	BLK		33	24	S3D-15	
	D46		-S7	WHT		32	72	S3A-15	TWIST
	D47		-S8	BLK		33	56	S3B-15	
	D48		-P1	WHT		2	396	P7-A1	
			-P2	BLK				-A2	
	D49		-P3	WHT		2		-A3	
			-P4	BLK				-A4	
	D50		-P5	WHT		2		-A5	
			-P6	BLK			396	P7-A6	
	D51		-R7	WHT		32	70	S3A-13	TWIST
	D52		-R8	BLK		33	54	S3B-13	
	D53		-S1	WHT		2	396	P7-B11	
			-S2	BLK				-B12	
	D54		-S3	WHT				-B13	
			-S4	BLK				-B14	
	D55		-S5	WHT				-B15	
			-S6	BLK				-B16	
	D56		-P7	WHT		2		-B17	
		378	-P8	BLK			396	P7-B18	
	D57	379	-T1	WHT		32	30	S3C-5	TWIST
	D58		-T2	BLK		33	14	S3D-5	
	D59		-T3	WHT		2	396	P7-B5	
			-T4	BLK				-B6	
	D60		-T5	WHT		2		-B7	
			-T6	BLK				-B8	
	D61		-T7	WHT		2		-B9	
			-T8	BLK			396	P7-B10	
	D62		-U1	WHT		32	28	S3C-3	TWIST
	D63		-U2	BLK		33	12	S3D-3	
	D64		-U3	WHT		32	61	S3A-4	TWIST
	D65		-U4	BLK		33	45	S3B-4	
	D66		-U5	WHT		32	29	S3C-4	TWIST
	D67	379	J1-U6	BLK	24	33	13	S3D-4	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D68	379	J1-U7	WHT	24	32	62	S3A-5	TWIST
	D69		-U8	BLK		33	46	S3B-5	
	D70		-V1	WHT		32	26	S3C-1	
	D71		-V2	BLK		33	10	S3D-1	
	D72		-V3	WHT		32	59	S3A-2	
	D73		-V4	BLK		33	43	S3B-2	
	D74		-V5	WHT		32	27	S3C-2	
	D75		-V6	BLK		33	11	S3D-2	
	D76		-V7	WHT		32	60	S3A-3	TWIST
	D77		-V8	BLK		33	44	S3B-3	
	D78		-W1	WHT		2	396	P7-C11	
			-W2	BLK				-C12	
	D79		-W3	WHT		2		-C13	
			-W4	BLK				-C14	
	D80		-W5	WHT		2		-C15	
			-W6	BLK			396	P7-C16	
	D81		-W7	WHT		32	58	S3A-1	TWIST
	D82		-W8	BLK		33	42	S3B-1	
	D83		-X3	WHT		2	396	P7-C9	
			-X4	BLK				P7-C10	
	D84		-X5	WHT				P7-C1	
		379	J1-X6	BLK			396	P7-C2	
	D85	381	J3-G1	WHT			382	P11-C5	
			-G2	BLK				-C6	
	D86		-G3	WHT				-C7	
			-G4	BLK				-C8	
	D87		-H1	WHT				-C13	
			-H2	BLK				-C14	
	D88		-H3	WHT				-C15	
			-H4	BLK				-C16	
	D89		-J1	WHT				-B1	
			-J2	BLK				-B2	
	D90		-J3	WHT				-B3	
			-J4	BLK				-B4	
	D91		-K1	WHT				-B7	
			-K2	BLK				-B8	
	D92		-K3	WHT				-B9	
			-K6	BLK				-B10	
	D93		-L1	WHT				-B13	
			-L2	BLK				-B14	
	D94		-M1	WHT				-B15	
			-M2	BLK				-B16	
	D95		-M3	WHT				-B17	
			-M6	BLK				-B18	
	D96		-N7	WHT				-B19	
		381	-N8	BLK				-B20	
	D97	380	-S1	WHT				-C9	
			-S2	BLK				-C10	
	D98		-S3	WHT				-C11	
			-S4	BLK				-C12	
	D99		-T1	WHT				-C17	
			-T2	BLK				-C18	
	D100		-T5	WHT				-C19	
		380	-T6	BLK				-C20	
	D101	381	-P5	WHT				-B11	
		381	-P6	BLK				-B12	
	D102	380	-V1	WHT				-A1	
			-V2	BLK				-A2	
	D103		-V3	WHT				-A3	
			-V4	BLK				-A4	
	D104		-V5	WHT				-A5	
			-V6	BLK				-A6	
	D105		-V7	WHT				-A7	
			-V8	BLK				-A8	
	D106		-W1	WHT				-A9	
			-W2	BLK				-A10	
	D107		-W3	WHT				-A11	
			-W4	BLK				-A12	
	D108		-W5	WHT				-A13	
			-W6	BLK				-A14	
	D109		-W7	WHT				-A15	
			-W8	BLK				-A16	
	D110		-X3	WHT				-C1	
			-X4	BLK				-C2	
	D111		-X5	WHT		2		-C3	
		380	-X6	BLK	24			-C4	
	D112	381	-P1	BLK	22	4		-A17	
	D113		-P2	WHT		5		-A18	
	D114		-P3					-A19	
	D115	381	-P4					-A20	
	D116	380	-T3					-B5	
	D117	380	J3-T4	WHT	22	5	382	P11-B6	
	D118	395	P9-A1	WHT	24	32	194	S1C-12	TWIST
	D119		-A2	BLK	24	33	208	S1D-12	
	D120		-A3	WHT	24	32	195	S1C-13	TWIST
	D121	395	P9-A4	BLK	24	33	209	S1D-13	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D122	395	P9-A5	WHT	24	32	196	S1C-14	TWIST
	D123		-A6	BLK		33	210	S1D-14	
	D124		-A7	WHT		32	190	S1C-8	
	D125		-A8	BLK		33	204	S1D-8	
	D126		-A9	WHT		32	198	S1C-16	
	D127		-A10	BLK		33	212	S1D-16	
	D128		-A11	WHT		32	57	S3A-ARM	
	D129		-A12	BLK		33	41	S3B-ARM	
	D130		-A13	WHT		32	25	S3C-ARM	
	D131		-A14	BLK		33	9	S3D-ARM	
	D132		-A15	WHT		32	5	S3E-ARM	
	D133		-A16	BLK		33	1	S3F-ARM	
	D134		-A17	WHT		32	197	S1C-15	
	D135		-A18	BLK		33	211	S1D-15	
	D136		-A19	WHT		32	8	S3E-20	
	D137		-A20	BLK		33	4	S3F-20	
	D138		-B1	WHT		32	228	S1E-11	
	D139		-B2	BLK		33	249	S1F-11	
	D140		-B3	WHT		32	229	S1E-12	
	D141		-B4	BLK		33	250	S1F-12	
	D142		-B5	WHT		32	201	S1C-19	
	D143		-B6	BLK		33	215	S1D-19	
	D144		-B7	WHT		32	199	S1C-17	
	D145		-B8	BLK		33	213	S1D-17	
	D146		-B9	WHT		32	200	S1C-18	
	D147		-B10	BLK		33	214	S1D-18	
	D148		-B11	WHT		32	202	S1C-20	
	D149		-B12	BLK		33	216	S1D-20	
	D150		-B13	WHT		32	191	S1C-9	
	D151		-B14	BLK		33	205	S1D-9	
	D152		-B15	WHT		32	192	S1C-10	
	D153		-B16	BLK		33	206	S1D-10	
	D154		-B17	WHT		32	193	S1C-11	
	D155		-B18	BLK		33	207	S1D-11	
	D156		-B19	WHT		32	7	S3E-19	
	D157		-B20	BLK		33	3	S3F-19	
	D158		-C1	WHT		32	92	S2E-2	
	D159		-C2	BLK		33	75	S2F-2	
	D160		-C3	WHT		32	93	S2E-3	
	D161		-C4	BLK		33	76	S2F-3	
	D162		-C5	WHT		32	94	S2E-4	
	D163		-C6	BLK		33	77	S2F-4	
	D164		-C7	WHT		32	95	S2E-5	
	D165		-C8	BLK		33	78	S2F-5	
	D166		-C9	WHT		32	96	S2E-6	
	D167		-C10	BLK		33	79	S2F-6	
	D168		-C11	WHT		32	97	S2E-7	
	D169		-C12	BLK		33	80	S2F-7	
	D170		-C13	WHT		32	98	S2E-8	
	D171		-C14	BLK		33	81	S2F-8	
	D172		-C15	WHT		32	226	S1E-9	
	D173		-C16	BLK		33	247	S1F-9	
	D174		-C17	WHT		32	227	S1E-10	
	D175		-C18	BLK		33	248	S1F-10	
	D176		-C19	WHT		32	6	S3E-18	TWIST
	D177	395	P9-C20	BLK		33	2	S3F-18	
	D178	394	P10-A1	WHT		2	341	S21A-C	
			-A2	BLK			341	S21A-NO	
	D179		-A7	WHT		2	344	S24A-C	
			-A8	BLK			344	S24A-NO	
	D180		-A9	WHT		32	329	S17A-D-A	TWIST
	D181		-A10	BLK		33	337	S17A-A-A	
	D182		-A11	WHT		2	332	S17A-B-A	
			-A12	BLK			335	S17A-C-A	
	D183		-A13	WHT			320	S17B-B1	
			-A14	BLK			322	S17B-C1	
	~~D184~~		~~-A15~~	~~WHT~~			~~323~~	~~S17B-A-A~~	
			~~-A16~~	~~BLK~~			~~319~~	~~S17B-D-A~~	
	D185		-A17	WHT			325	S17B-A1	
			-A18	BLK			326	S17B-D1	
	D186		-B1	WHT			357	S35A-C	
			-B2	BLK			357	S35A-NO	
	D187		-B3	WHT		2	358	S36A-C	
			-B4	BLK	24		358	S36A-NO	
	D188		-A3	WHT	22	5	342	S22A-C	
	D189		-A4				342	S22A-NO	
	D190		-A5				343	S23A-C	
	D191		-A6				343	S23A-NO	
	D192		-A19				343	S23A-NC	
	D193		-B5				404	S14-4	
	D194		-B6				264	S11A-NO	
	D195		-B7				404	S14-1	
	D196	394	P10-B8	WHT	22	5	261	S10A-NO	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
○	RELEASED PER CCA R2535		
1	CHANGED PER CCA R2538 DR CHK J. Yon APPD	11/17/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25503 DR CHK APPD	12/27/65	
B	CHANGED PER CCA R25654 DR L. Belanger CHK APPD RCD	1/4/66	
C	CHANGED PER CCA R25707 DR CHK APPD RCD	1/12/66	
D	CHANGED PER CCA R25730 DR CHK APPD RCD	1/15/66	
E	CHANGED PER CCA R25774 DR CHK P. APPD	1/18/66	
F	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 23012	1/20/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28 SEPT 66
CHECKED 7 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED-D
X Y INTERFACE
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014467

SCALE NONE | WT | SHEET 3 OF 4

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014467 F

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D197	394	P10-B9	BLK	24	2	340	S20A-C	
		↑	↑ B10	WHT	↑		340	S20A-NO	
	D198		B11	BLK		↑	339	S19A-C	
			B12	WHT			339	S19A-NO	
	D199		B15	WHT			262	S12A-C	
			B16	BLK			262	S12B-C	
	D200		C1	BLK			323	S17B-B-A	
			C2	WHT			321	S17B-C-A	
	D201		C3	WHT			349	J10	
			C4	BLK			349	J10-GRD	
	D202		C5	WHT			350	J11	
			C6	BLK			350	J11-GRD	
	D203		C15	WHT			357	S34A-C	
			C16	BLK		↓	357	S34A-NO	
	D204		C17	WHT	↓	2	263	S13C-NO	
			C18	BLK	24		263	S13B-NO	
	D205		B13	WHT	22	5	404	S14-3	
	D206		B14	↑	↑	↑	263	S13A-NO	
	D207		B17				262	S12C-C	
	D208		B18				262	S12C-NO	
	D209		B19				262	S12C-NC	
	D210		C7				397	S27A-NO	
	D211		C8				398	S28A-NO	
	D212		C9				399	S29A-NO	
	D213		C10				397	S27A-C	
	D214		C11				400	S30A-NO	
	D215		C12				401	S31A-NO	
	D216		C13				402	S32A-NO	
	D217	↓	↓ C14	↓	↓	↓	403	S33A-NO	
	D218	394	P10-C19	WHT	22	5	342	S22A-NC	
	D219	32	S2E-2	WHT	24	32	219	S1E-2	TWIST
	D220	75	S2F-2	BLK	↑	33	240	S1F-2	
	D221	93	S2E-3	WHT		32	220	S1E-3	↑
	D222	76	S2F-3	BLK		33	241	S1F-3	
	D223	94	S2E-4	WHT		32	221	S1E-4	
	D224	77	S2F-4	BLK		33	242	S1F-4	
	D225	95	S2E-5	WHT		32	222	S1E-5	
	D226	78	S2F-5	BLK		33	243	S1F-5	
	D227	96	S2E-6	WHT		32	223	S1E-6	
	D228	79	S2F-6	BLK		33	244	S1F-6	
	D229	97	S2E-7	WHT		32	224	S1E-7	
	D230	80	S2F-7	BLK		33	245	S1F-7	
	D231	98	S2E-8	WHT		32	225	S1E-8	
	D232	81	S2F-8	BLK		33	246	S1F-8	
	D233	99	S2E-13	WHT		32	230	S1E-13	
	D234	82	S2F-13	BLK		33	251	S1F-13	
	D235	100	S2E-14	WHT		32	231	S1E-14	
	D236	83	S2F-14	BLK		33	252	S1F-14	
	D237	101	S2E-15	WHT		32	232	S1E-15	
	D238	84	S2F-15	BLK		33	253	S1F-15	
	D239	102	S2E-16	WHT		32	233	S1E-16	
	D240	85	S2F-16	BLK		33	254	S1F-16	
	D241	103	S2E-17	WHT		32	234	S1E-17	
	D242	86	S2F-17	BLK		33	255	S1F-17	
	D243	104	S2E-18	WHT		32	235	S1E-18	
	D244	87	S2F-18	BLK		33	256	S1F-18	
	D245	105	S2E-19	WHT		32	236	S1E-19	
	D246	88	S2F-19	BLK		33	257	S1F-19	
	D247	106	S2E-20	WHT		32	237	S1E-20	
	D248	89	S2F-20	BLK		33	258	S1F-20	
	D249	130	S2A-2	WHT		32	150	S1A-2	
	D250	110	S2B-2	BLK		33	170	S1B-2	
	D251	131	S2A-3	WHT		32	151	S1A-3	
	D252	111	S2B-3	BLK		33	171	S1B-3	
	D253	132	S2A-4	WHT		32	152	S1A-4	
	D254	112	S2B-4	BLK		33	172	S1B-4	
	D255	133	S2A-5	WHT		32	153	S1A-5	
	D256	113	S2B-5	BLK		33	173	S1B-5	
	D257	134	S2A-6	WHT		32	154	S1A-6	
	D258	114	S2B-6	BLK		33	174	S1B-6	
	D259	135	S2A-7	WHT		32	155	S1A-7	
	D260	115	S2B-7	BLK		33	175	S1B-7	
	D261	136	S2A-8	WHT		32	156	S1A-8	
	D262	116	S2B-8	BLK		33	176	S1B-8	↓
	D263	137	S2A-9	WHT	↓	32	157	S1A-9	TWIST
	D264	117	S2B-9	BLK	24	33	177	S1B-9	
	D265	351	S18-1	WHT	22	5	383	R1-ARM	
	D266	352	↑ 2	↑	↑	↑	384	R2-ARM	
	D267	354	3				385	R3-ARM	
	D268	355	4				386	R4-ARM	
	D269	356	↓ 5				387	R5-ARM	
	D270	353	S18-ARM				390	A2-40	
	D271	391	A2-14				74	S2F-1	
	D272	74	S2F-1				91	S2E-1	
	D273	91	S2E-1	↓	↓	↓	218	S1E-1	
	D274	218	S1E-1	WHT	22	5	239	S1F-1	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D275	138	S2A-10	WHT	24	32	158	S1A-10	TWIST
	D276	118	S2B-10	BLK	↑	33	178	S1B-10	
	D277	139	S2A-11	WHT		32	159	S1A-11	↑
	D278	119	S2B-11	BLK		33	179	S1B-11	
	D279	140	S2A-12	WHT		32	160	S1A-12	
	D280	120	S2B-12	BLK		33	180	S1B-12	
	D281	137	S2A-9	WHT		32	262	S12A-NO	
	D282	116	S2B-8	BLK		33	262	S12B-NO	
	D283	141	S2A-13	WHT		32	161	S1A-13	
	D284	121	S2B-13	BLK		33	181	S1B-13	
	D285	142	S2A-14	WHT		32	162	S1A-14	
	D286	122	S2B-14	BLK		33	182	S1B-14	
	D287	143	S2A-15	WHT		32	163	S1A-15	
	D288	123	S2B-15	BLK		33	183	S1B-15	
	D289	144	S2A-16	WHT		32	164	S1A-16	
	D290	124	S2B-16	BLK		33	184	S1B-16	
	D291	145	S2A-17	WHT		32	165	S1A-17	
	D292	125	S2B-17	BLK		33	185	S1B-17	
	D293	146	S2A-18	WHT		32	166	S1A-18	
	D294	126	S2B-18	BLK		33	186	S1B-18	
	D295	147	S2A-19	WHT		32	167	S1A-19	
	D296	127	S2B-19	BLK		33	187	S1B-19	
	D297	148	S2A-20	WHT		32	168	S1A-20	
	D298	128	S2B-20	BLK		33	188	S1B-20	
	D299	149	S1A-ARM	WHT		32	279	S4-A1	
	D300	169	S1B-ARM	BLK		33	275	S4-C1	
	D301	129	S2A-ARM	WHT		32	271	S7-A1	
	D302	109	S2B-ARM	BLK		33	267	S7-C1	↓
	D303	282	S4-A-A	WHT		32	328	S17A-D1	TWIST
	D304	277	S4-C-A	BLK		33	338	S17A-A1	
	D305	333	S17A-B3	WHT		2	259	S5B-C	
		336	S17A-C3	BLK			259	S5A-C	
	D306	260	S6B-C	WHT		2	288	S15A-A7	
		260	S6A-C	BLK			283	S15A-B1	
	D307	288	S15A-A7	WHT		32	317	S16A-A-A	TWIST
	D308	283	S15A-B1	BLK		33	305	S16B-A-A	
	D309	274	S7A-A	WHT		32	331	S17A-B1	TWIST
	D310	269	S7C-A	BLK		33	334	S17A-C1	
	D311	330	S17A-D3	WHT		2	265	S8B-C	
		327	S17A-A3	BLK			265	S8A-C	
	D312	266	S9B-C	WHT		32	294	S15A-B5	TWIST
	D313	266	S9A-C	BLK		33	284	S15A-B2	
	D314	293	S15A-A6	WHT		32	313	S16A-B-A	↑
	D315	284	S15A-B2	BLK		33	300	S16B-B-A	
	D316	318	S16A-A2	WHT		32	360	A3-8	
	D317	306	S16B-A2	BLK		33	360	↑ 7	
	D318	308	S16A-A3	WHT		32	364	16	
	D319	307	S16B-A3	BLK		33	364	15	
	D320	309	S16A-A4	WHT		32	368	24	
	D321	295	S16B-A4	BLK		33	368	23	
	D322	314	S16A-B2	WHT		32	362	12	
	D323	301	S16B-B2	BLK		33	362	11	
	D324	315	S16A-B3	WHT		32	366	↓ 20	
	D325	302	S16B-B3	BLK		33	366	A3-19	↓
	D326	316	S16A-C-A	WHT		32	289	S15A-B6	TWIST
	D327	303	S16B-C-A	BLK		33	285	S15A-B3	
	~~D328~~	~~259~~	~~S5A-NC~~	~~WHT~~		~~2~~	~~372~~	~~A3-28~~	
		~~259~~	~~S5B-NO~~	~~BLK~~			~~376~~	~~↑ 38~~	
	~~D329~~	~~260~~	~~S6A-NO~~	~~WHT~~		~~2~~	~~373~~	~~29~~	
		~~260~~	~~S6B-NO~~	~~BLK~~			~~377~~	~~39~~	
	~~D330~~	~~265~~	~~S8A-NO~~	~~WHT~~		~~2~~	~~378~~	~~26~~	
		~~265~~	~~S8B-NO~~	~~BLK~~			~~374~~	~~36~~	
	~~D331~~	~~266~~	~~S9A-NO~~	~~WHT~~	~~↓~~	~~2~~	~~371~~	~~↓ 27~~	
		~~↓~~	~~S9B-NO~~	~~BLK~~	~~24~~		~~375~~	~~A3-37~~	
	D332	266	S9D-NO	BLK	22	4	259	S5D-NO	
	D333	266	S9-3	WHT	↑	5	259	S5-3	
	D334	266	S9D-NC	↑		↑	259	S5D-NC	
	D335	304	S16B-C4				348	J9-GRD	
	D336	373	A3-30	↓	↓	↓	347	J8-GRD	
	D337	292	S15A-D-A	WHT	22	5	345	J6-GRD	
△	D338	△	E3	COAX		1	△	E4	△
		↑	E3-SHLD	SHLD			△	E4-SHLD	SEE D392
△	D339		E4	WHT	22	5	361	A3-9	
△	D340		E3	WHT	22	5	310	S16A-D2	
△	D341		E5	COAX		1	△	E6	△
			E5-SHLD	SHLD			△	E6-SHLD	SEE D393
△	D342		E5	WHT	22	5	312	S16A-D3	
△	D343		E6	WHT	22	5	367	A3-21	
△	D344		E7	COAX		1	△	E22	△
			E7-SHLD	SHLD			△	E22-SHLD	SEE D390&394
△	D345	↓	E7	WHT	22	5	311	S16A-D-A	
△	D346	△	E22	WHT	22	5	347	J8	

△ DENOTES EXTERNAL CONNECTION

~~△ STRIP .31, TIN .06~~

~~△ STRIP .44, TIN .06~~

~~△ STRIP .25, DO NOT TIN~~

2014467 F

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
△	D347	△	E9	COAX		1	△	E10	△
		↑	E9-SHLD	SHLD			△	E10-SHLD	SEE D395
△	D348		E9	WHT	22	5	296	S16B-D2	
△	D349		E10	WHT	22	5	363	A3-13	
△	D350		E11	COAX		1	△	E12	△
			E11-SHLD	SHLD			△	E12-SHLD	SEE D396
△	D351		E12	WHT	22	5	365	A3-17	
△	D352		E11	WHT	22	5	298	S16B-D3	
△	D353		E13	COAX		1	△	E14	△
			E13-SHLD	SHLD			△	E14-SHLD	SEE D397
△	D354		E14	WHT	22	5	369	A3-25	
△	D355		E13	WHT	22	5	299	S16B-D4	
△	D356		E15	COAX		1	△	E23	△
			E15-SHLD	SHLD			△	E23-SHLD	SEE D390
△	D357		E15	WHT	22	5	297	S16B-D-A	
△	D358		E23	WHT	22	5	348	J9	
△	D359		E21	COAX		1	△	E17	△
			E21-SHLD	SHLD			△	E17-SHLD	SEE D391&D398
△	D360		E21	WHT	22	5	291	S15A-A-A	
△	D361		E17	WHT	22	5	345	J6	
△	D362		E20	COAX		1	△	E19	△
			E20-SHLD	SHLD			△	E19-SHLD	SEE D391
△	D363	↓	E20	WHT	22	5	286	S15A-B-A	
△	D364	△	E19	WHT	22	5	346	J7	
	D365	266	S9D-NO	WHT	24	2	264	S11D-NO	
		266	S9D-NC	BLK	24		264	S11D-NC	
	D366	389	A2-42	WHT	24	2	400	S30-1	
		389	A2-43	BLK	24		400	S30D-NO	
	D367	388	A2-48	WHT	22	5	383	A1R1-CCW	
	~~D368~~	~~392~~	~~A2-18~~				~~400~~	~~S30-NC~~	
	D369	393	A2-2	WHT	22	5	290	S15B-B7	
	D370	393	A2-3	WHT	22	5	287	S15B-B4	
	D371	238	S1F-ARM	WHT	24	32	278	S4-C3	TWIST
	D372	217	S1E-ARM	BLK	↑	33	280	S4-A3	
	D373	90	S2E-ARM	WHT		32	272	S7-A3	↑
	D374	73	S2F-ARM	BLK		33	270	S7-C3	
	D375	203	S1D-ARM	WHT		32	276	S4-C2	
	D376	189	S1C-ARM	BLK		33	281	S4-A2	
	D377	107	S2D-ARM	WHT		32	268	S7-C2	
	D378	108	S2C-ARM	BLK		33	273	S7-A2	
	D379	263	S13D-NO	WHT		32	344	S24D-NO	
	D380	263	S13D-NC	BLK		33	359	S36D-NC	↓
	D381	263	S13D-NO	WHT	↓	32	359	S36D-NO	TWIST
	D382	263	S13D-NC	BLK	24	33	344	S24D-NC	
	D383	266	S9-1	WHT	22	5	264	S11-1	
	D384	289	S15A-B6	WHT	22	3	381	J3-K8	
		285	S15A-B3	BLK	22		381	J3-L8	
		△	E1	SHLD			△	E2	
	D385	△	E2	BLK	22	4	381	J3-J8	
	D386	△	E1	BLK	22	4	287	S15B-B3	
	D387	344	S24-3	WHT	22	5	264	S13-1	
	D388	147	S2A-19	WHT	24	32	263	S13B-C	TWIST
	D389	127	S2B-19	BLK	24	33	263	S13C-C	
△	D390	△	E22-SHLD	BLK	22	4	△	E23-SHLD	△
↑	D391	↑	E17-SHLD	↑	↑	↑	△	E19-SHLD	△
	D392		E4-SHLD				360	A3-6	
	D393		E6-SHLD				366	A3-18	
	D394		E22-SHLD				347	J8-GRD	
	D395		E10-SHLD				363	A3-10	
	D396		E12-SHLD				365	A13-14	
↓	D397	↓	E14-SHLD	↓	↓	↓	369	A3-22	
△	D398	△	E17-SHLD	BLK	22	4	345	J6-GRD	
	D399	394	P10-A15	WHT	24	32	324	S17B-A-A	TWIST
	D400	394	P10-A16	BLK	↑	33	319	S17B-D-A	
	D401	259	S5A-NO	WHT		32	372	A3-28	TWIST
	D402	259	S5B-NO	BLK		33	376	↑ -38	
	D403	260	S6A-NO	WHT		32	373	-29	TWIST
	D404	260	S6B-NO	BLK		33	377	-39	
	D405	265	S8A-NO	WHT		32	370	-26	TWIST
	D406	265	S8B-NO	BLK		33	374	-36	
	D407	266	S9A-NO	WHT	↓	32	371	↓ -27	TWIST
	D408	266	S9B-NO	BLK	24	33	375	A3-37	

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25314		
1	CHANGED PER CCA R25381 DR [illegible] CHK [illegible] APPD [illegible]		
–	CLASS B CHANGED PER CCA R25[illegible]		
A	CHANGED PER CCA R25583 DR [illegible] CHK [illegible] APPD [illegible]	12/27/65	
B	CHANGED PER CCA R25654 DR [illegible] CHK [illegible] APPD	1/ /66	
C	CHANGED PER CCA R25707 DR [illegible] CHK [illegible] APPD		
D	CHANGED PER CCA R25730 DR [illegible] CHK [illegible] APPD	1/13/66	
E	CHANGED PER CCA R25771 DR [illegible] CHK [illegible] APPD	1/10/66	
F	CHANGED PER CCA R25772 CLASS A RELEASED PER TDRR [illegible]-72	1/20/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 20 OCT 65
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED-D
X Y INTERFACE
COMPUTER TEST SET

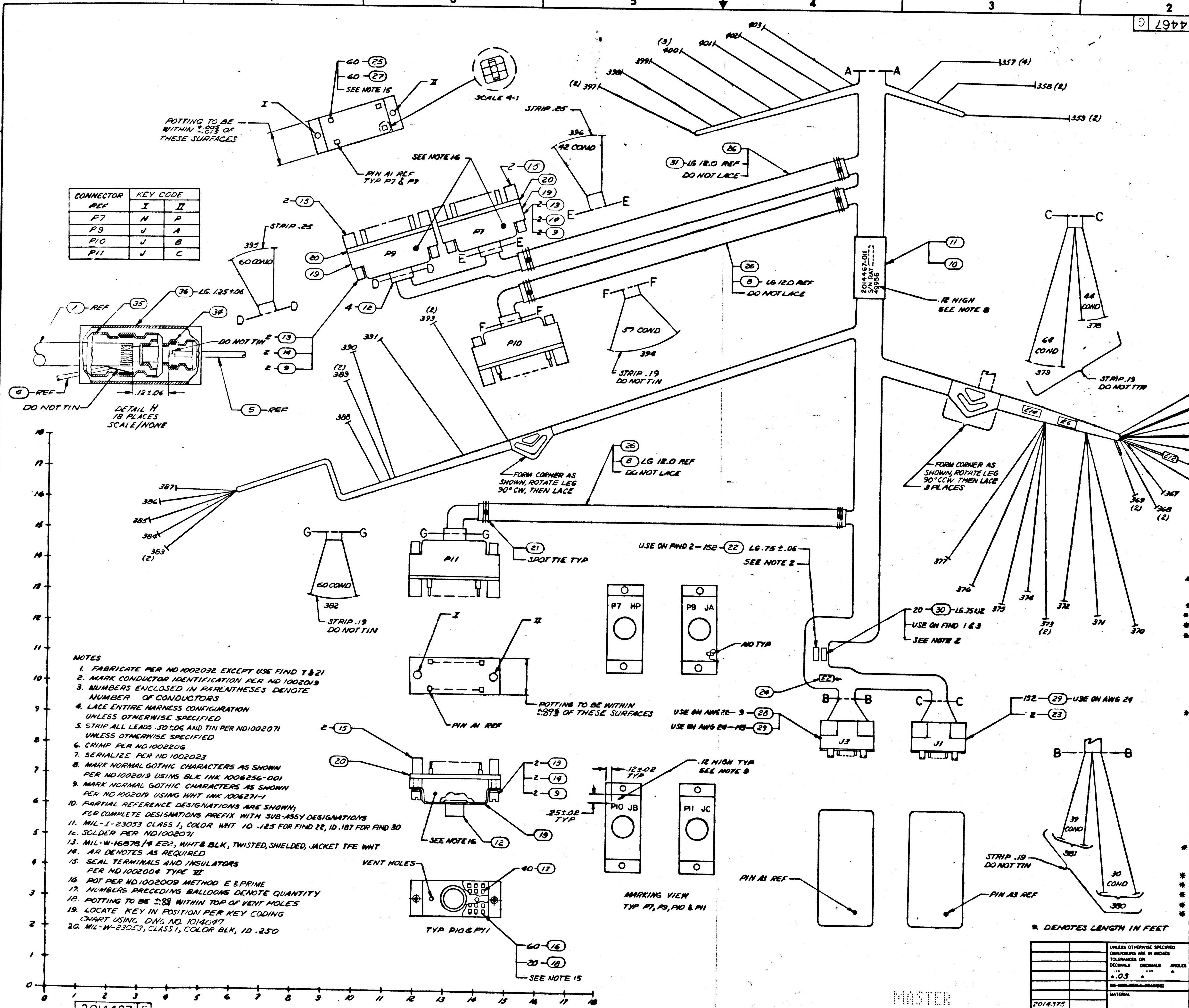
SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014467
SCALE NONE | WT | SHEET 4 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014467 F

2014467 F

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R2534	10/6/65	
1	CHANGED PER CCA R25381 DR CHK J. Yon APPD		
–	CLASS B CHANGED PER CCA R255C2	12/15/65	
A	CHANGED PER CCA R25583 DR CHK APPD	12/27/65	
B	CHANGED PER CCA R25654 DR CHK APPD P.C.D		
C	CHANGED PER CCA R25707 DR CHK APPD P.C.D	1/12/66	
D	CHANGED PER CCA R25730 DR CHK APPD	1/15/66	
E	CHANGED PER CCA R25779 DR CHK APPD	1/18/66	
F	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25472	1/20/66	
G	CHANGED PER TDRR 26303 DR. W. Dunn CHK APPD RPC	2/27/66	



I
II
SCALE 4-1
60 (25)
60 (27)
SEE NOTE 15
POTTING TO BE WITHIN ±.005 .015 OF THESE SURFACES
PIN A1 REF TYP P7 & P9
SEE NOTE 16
2-(15)
(20)
(19)
2-(13)
2-(14)
2-(9)
P7
P9
(20)
(19)
4-(12)
E
D
F
G
A
B
C
STRIP .25
396
42 COND
395
60 COND
(7)-REF
(35)
(36)-LG. 1.25±.06
(34)
DO NOT TIN
(4)-REF
DO NOT TIN
.12±.06
(5)-REF
DETAIL H
18 PLACES
SCALE/NONE
(3) 400
401
402
403
399
398
(2) 397
357 (4)
358 (2)
359 (2)
(31)-LG 12.0 REF
DO NOT LACE
(26)
(26)
(8)-LG 12.0 REF
DO NOT LACE
2014467-011
S/N RAY
49956
(11)
(10)
.12 HIGH
SEE NOTE 8
P10
57 COND
394
STRIP .19
DO NOT TIN
(2) 393
391
390
(2) 389
388
387
386
385
384
383 (2)
FORM CORNER AS SHOWN, ROTATE LEG 90° CW, THEN LACE
(26)
(8) LG 12.0 REF
DO NOT LACE
C
64 COND
44 COND
378
379
STRIP .19
DO NOT TIN
360 (3)
361
362 (2)
363 (2)
364 (2)
365 (2)
366 (3)
367
368 (2)
369 (2)
E4
E10
E12
E14
E6
(34)-REF
(35)-REF
(36)-REF
SEE DETAIL H
FORM CORNER AS SHOWN, ROTATE LEG 90° CCW THEN LACE 3 PLACES
377
376
375
374
373 (2)
372
371
370
P11
(21)
SPOT TIE TYP
60 COND
382
STRIP .19
DO NOT TIN
USE ON FIND 2-152-(22) LG.75±.06
SEE NOTE 8
20-(30)-LG.75±.12
USE ON FIND 1 & 3
SEE NOTE 2
(24)
E2
USE ON AWG 22-9 (28)
USE ON AWG 24-143 (29)
J3
J1
152-(29)-USE ON AWG 24
2-(23)
P7 HP
P9 JA
AID TYP
POTTING TO BE WITHIN ±.005 .015 OF THESE SURFACES
PIN A1 REF
2-(15)
(20)
2-(13)
2-(14)
2-(9)
SEE NOTE 16
(12)
(19)
.12±.02 TYP
.12 HIGH TYP SEE NOTE 9
.25±.02 TYP
P10 JB
P11 JC
VENT HOLES
40-(17)
60-(16)
20-(18)
SEE NOTE 15
TYP P10 & P11
MARKING VIEW
TYP P7, P9, P10 & P11
PIN A3 REF
PIN A3 REF
STRIP .19
DO NOT TIN
381
39 COND
30 COND
380

CONNECTOR REF	KEY CODE I	KEY CODE II
P7	H	P
P9	J	A
P10	J	B
P11	J	C

NOTES

1. FABRICATE PER ND 1002032 EXCEPT USE FIND 7 & 21
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
3. NUMBERS ENCLOSED IN PARENTHESES DENOTE NUMBER OF CONDUCTORS
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. STRIP ALL LEADS .50±.06 AND TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. CRIMP PER ND 1002206
7. SERIALIZE PER ND 1002023
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLK INK 1006256-001
9. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHT INK 1006271-1
10. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSY DESIGNATIONS
11. MIL-I-23053 CLASS 1, COLOR WHT ID .125 FOR FIND 22, ID .187 FOR FIND 30
12. SOLDER PER ND1002071
13. MIL-W-16878/4 E22, WHT & BLK, TWISTED, SHIELDED, JACKET TFE WHT
14. AR DENOTES AS REQUIRED
15. SEAL TERMINALS AND INSULATORS PER ND 1002004 TYPE VI
16. POT PER ND 1002009 METHOD E & PRIME
17. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
18. POTTING TO BE ±.09 WITHIN TOP OF VENT HOLES
19. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG NO. 1014047
20. MIL-W-23053, CLASS 1, COLOR BLK, ID .250

☒	2014179	SCHEMATIC	REF
* 2.0	SEE NOTE 20	SLEEVING, SHRINK	36
18	1010402-2	SLEEVE, SOLDER	35
18	1010402-1	SLEEVE, SOLDER	34
* 430	MIL-W-16878/4 E24	WIRE ELEC BLACK	33
* 430	MIL-W-16878/4 E24	WIRE ELEC WHT	32
* 1.0	1006696-5	SLEEVING, INSULATION	31
* 1.4	SEE NOTE 11	SLEEVING, SHRINK	30
295	1006491-009	CONTACT, ELEC	29
9	1006491-011	CONTACT, ELEC	28
120	1010380	BUSHING, INSULATOR,	27
AR	1006699	SOLVENT	26
120	1010379-1	CONTACT, ELEC, FEMALE	25
2	1010402-3	SLEEVE, SOLDER, ELEC	24
2	1006671-001	CONNECTOR, ELEC	23
* 9.8	SEE NOTE 11	SLEEVING, SHRINK	22
AR	1006458-004	TAPE, LACING	21
4	1014021	CONNECTOR, PLATE	20
4	1014024-3	BRACKET	19
40	1014310	INSULATOR, CONTACT	18
80	1006987	INSULATOR, CONTACT	17
120	1006995-000	CONTACT, MALE, CRIMP	16
8	1014032	PIN, RECEPTACLE, INDEX	15
8	MS35337-79	WASHER, LOCK	14
8	1006998-1	SCREW, CAPTIVE	13
4	1020370-23	BUSHING	12
1	1006415-136	BAND MARKER, CABLE	11
AR	1006253	ADHESIVE	10
8	1006997	WASHER, FLAT	9
* 1.0	1006696-4	SLEEVING, INSULATION	8
AR	1006458-002	TAPE, LACING	7
~~18~~	~~1006406~~	~~FERRULE, COAXIAL~~	~~6~~
* 130	MIL-W-16878/4 E22	WIRE, ELEC, WHT	5
* 25	MIL-W-16878/4 E22	WIRE, ELEC, BLK	4
* 10	SEE NOTE - 13	WIRE, ELEC	3
* 210	1014341-12	WIRE, ELEC, BLK & WHT	2
* 8	RG180B/U	WIRE, ELEC, COAX	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014375	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 15 AUG 65
CHECKED 7 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. Metzger
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED-D
XY INTERFACE
COMPUTER TEST SET

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014467

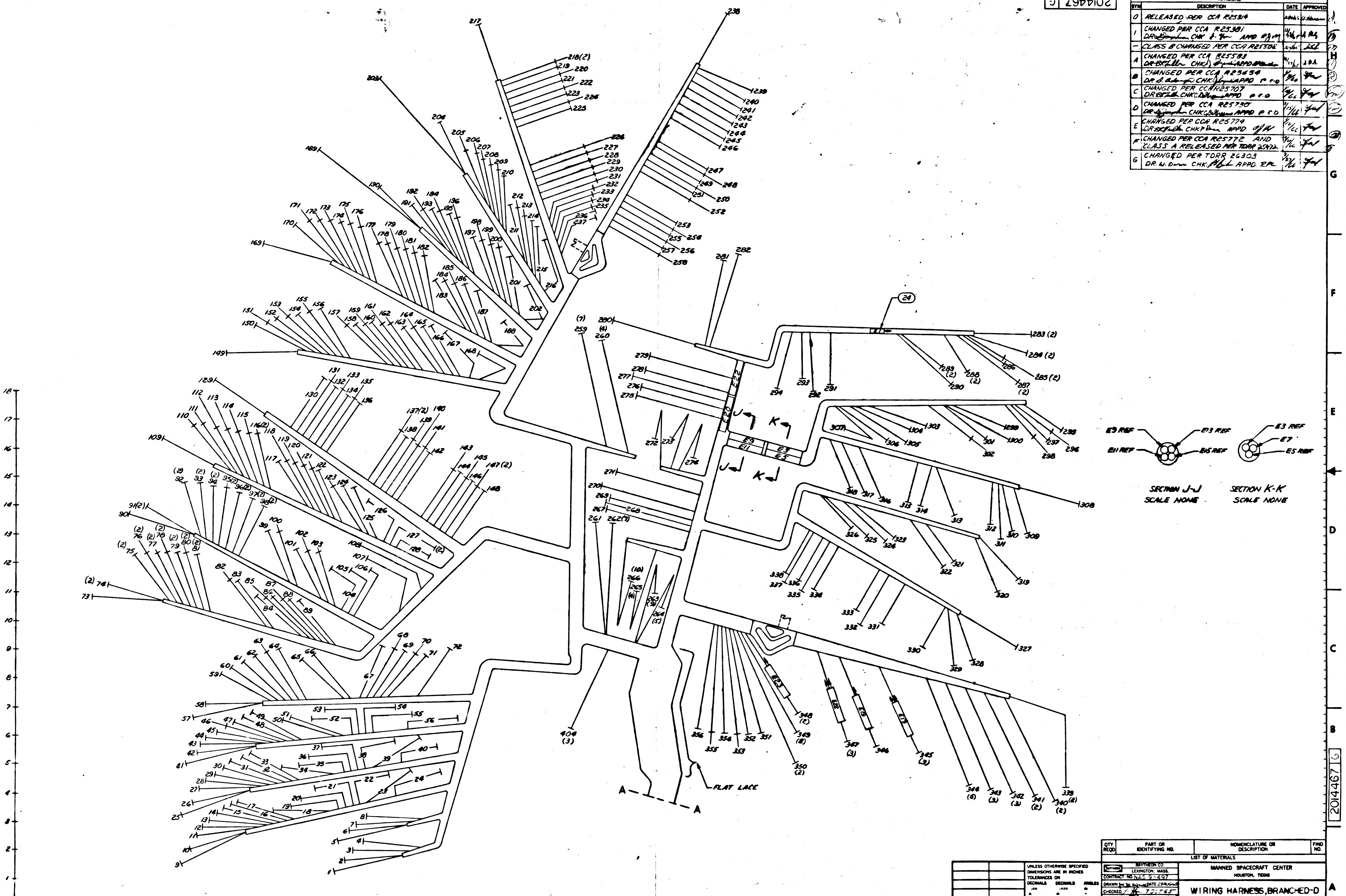
SCALE 1/1 WT SHEET 1 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014467 G

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25314	[illegible]	A. Harris
1	CHANGED PER CCA R25381 DR [illegible] CHK J. [illegible] APPD [illegible]	11/4/65	[illegible]
–	CLASS B CHANGED PER CCA R25302	[illegible]	[illegible]
A	CHANGED PER CCA R25583 DR B.K. Fuller CHK [illegible] APPD [illegible]	1/27/65	J.D.A.
B	CHANGED PER CCA R25654 DR D. [illegible] CHK [illegible] APPD P.C.D.	4/8/66	[illegible]
C	CHANGED PER CCA R25707 DR B.K. Fuller CHK C.D. [illegible] APPD P.C.D.	4/14/66	[illegible]
D	CHANGED PER CCA R25730 DR [illegible] CHK C. Bellegrano APPD P.C.D.	5/15/66	[illegible]
E	CHANGED PER CCA R25774 DR B.K. Fuller CHK P. [illegible] APPD [illegible]	6/16/66	[illegible]
F	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25472	7/4/66	[illegible]
G	CHANGED PER TDRR 26303 DR. W. Darwin CHK. [illegible] APPD. R.R.	9/27/66	[illegible]


SECTION J-J
SCALE NONE
SECTION K-K
SCALE NONE
E3 REF
E11 REF
E13 REF
E15 REF
E3 REF
E7
E5 REF
E9
E11
E3
E5
E20
E22
E23
E21
E19
E17
J
K
A
A
FLAT LACE
24
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

~~DO NOT SCALE DRAWING~~

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 29AUG65
CHECKED [illegible] 7OCT65
APPROVAL [illegible] 12Oct65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED-D
XY INTERFACE
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014467
SCALE 1/1
WT
SHEET 2 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014467 G

2014467 G

2014467 G

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R2534	[illegible]	G. Navarro
1	CHANGED PER CCA R25381 DR [illegible] CHK J. Yon APPD [illegible]	11/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25583 DR [illegible] CHK [illegible] APPD [illegible]	12/65	[illegible]
B	CHANGED PER CCA R25654 DR D. Belanger CHK [illegible] APPD RCD	1/4/66	[illegible]
C	CHANGED PER CCA R25707 DR [illegible] CHK [illegible] APPD RCD	1/12/66	[illegible]
D	CHANGED PER CCA R25730 DR [illegible] CHK C. [illegible] APPD RCD	1/15/66	[illegible]
E	CHANGED PER CCA R25779 DR [illegible] CHK R [illegible] APPD [illegible]	1/18/66	[illegible]
F	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR 25[illegible]	1/20/66	[illegible]
G	CHANGED PER TDRR 26303 DR. W. Brown CHK. [illegible] APPD. RR	2/22/66	[illegible]

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D1	379	J1-A3	WHT	24	2	381	J3-N3	
			-A4	BLK				-N4	
	D2		-A5	WHT				-N5	
			-A6	BLK				-N6	
	D3		-B1	WHT				-N1	
			-B2	BLK			381	J3-N2	
	D4		-B3	WHT			396	P7-C5	
			-B4	BLK				-C6	
	D5		-B5	WHT				-C7	
			-B6	BLK				-C8	
	D6		-C7	WHT		2		-C3	
			-C8	BLK			396	P7-C4	
	D7		-D1	WHT		32	63	S3A-6	TWIST
	D8		-D2	BLK		33	47	S3B-6	
	D9		-D3	WHT		32	31	S3C-6	
	D10		-D4	BLK		33	15	S3D-6	
	D11		-D5	WHT		32	64	S3A-7	
	D12		-D6	BLK		33	48	S3B-7	
	D13		-D7	WHT		32	32	S3C-7	
	D14		-D8	BLK		33	16	S3D-7	
	D15		-E1	WHT		32	65	S3A-8	
	D16		-E2	BLK		33	49	S3B-8	
	D17		-E3	WHT		32	33	S3C-8	
	D18		-E4	BLK		33	17	S3D-8	
	D19		-E5	WHT		32	36	S3C-11	
	D20		-E6	BLK		33	20	S3D-11	
	D21		-E7	WHT		32	68	S3A-11	
	D22	379	-E8	BLK		33	52	S3B-11	
	D23	378	-F1	WHT		32	37	S3C-12	
	D24		-F2	BLK		33	21	S3D-12	
	D25		-F3	WHT		32	69	S3A-12	
	D26		-F4	BLK		33	53	S3B-12	
	D27		-F5	WHT		32	34	S3C-9	
	D28		-F6	BLK		33	18	S3D-9	
	D29		-F7	WHT		32	66	S3A-9	
	D30		-F8	BLK		33	50	S3B-9	
	D31		-G1	WHT		32	35	S3C-10	
	D32		-G2	BLK		33	19	S3D-10	
	D33		-G3	WHT		32	67	S3A-10	TWIST
	D34		-G4	BLK		33	51	S3B-10	
	D35		-G5	WHT		2	396	P7-C17	
			-G6	BLK				-C18	
	D36		-G7	WHT		2		-B1	
			-G8	BLK				-B2	
	D37		-H1	WHT		2		-B3	
			-H2	BLK			396	P7-B4	
	D38		-M7	WHT		32	71	S3A-14	TWIST
	D39		-M8	BLK		33	55	S3B-14	
	D40		-R1	WHT		32	38	S3C-13	
	D41		-R2	BLK		33	22	S3D-13	
	D42		-R3	WHT		32	39	S3C-14	
	D43		-R4	BLK		33	23	S3D-14	
	D44		-R5	WHT		32	40	S3C-15	
	D45		-R6	BLK		33	24	S3D-15	
	D46		-P7	WHT		32	72	S3A-15	TWIST
	D47		-P8	BLK		33	56	S3B-15	
	D48		-P1	WHT		2	396	P7-A1	
			-P2	BLK				-A2	
	D49		-P3	WHT		2		-A3	
			-P4	BLK				-A4	
	D50		-P5	WHT		2		-A5	
			-P6	BLK			396	P7-A6	
	D51		-R7	WHT		32	70	S3A-13	TWIST
	D52		-R8	BLK		33	54	S3B-13	
	D53		-S1	WHT		2	396	P7-B11	
			-S2	BLK				-B12	
	D54		-S3	WHT				-B13	
			-S4	BLK				-B14	
	D55		-S5	WHT				-B15	
			-S6	BLK				-B16	
	D56		-S7	WHT		2		-B17	
		378	-S8	BLK			396	P7-B18	
	D57	379	-T1	WHT		32	30	S3C-5	TWIST
	D58		-T2	BLK		33	14	S3D-5	
	D59		-T3	WHT		2	396	P7-B5	
			-T4	BLK				-B6	
	D60		-T5	WHT		2		-B7	
			-T6	BLK				-B8	
	D61		-T7	WHT		2		-B9	
			-T8	BLK			396	P7-B10	
	D62		-U1	WHT		32	28	S3C-3	TWIST
	D63		-U2	BLK		33	12	S3D-3	
	D64		-U3	WHT		32	61	S3A-4	TWIST
	D65		-U4	BLK		33	45	S3B-4	
	D66		-U5	WHT		32	29	S3C-4	TWIST
	D67	379	J1-U6	BLK	24	33	13	S3D-4	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D68	379	J1-U7	WHT	24	32	62	S3A-5	TWIST
	D69		-U8	BLK		33	46	S3B-5	
	D70		-V1	WHT		32	26	S3C-1	
	D71		-V2	BLK		33	10	S3D-1	
	D72		-V3	WHT		32	59	S3A-2	
	D73		-V4	BLK		33	43	S3B-2	
	D74		-V5	WHT		32	27	S3C-2	
	D75		-V6	BLK		33	11	S3D-2	
	D76		-V7	WHT		32	60	S3A-3	TWIST
	D77		-V8	BLK		33	44	S3B-3	
	D78		-W1	WHT		2	396	P7-C11	
			-W2	BLK				-C12	
	D79		-W3	WHT		2		-C13	
			-W4	BLK				-C14	
	D80		-W5	WHT		2		-C15	
			-W6	BLK			396	P7-C16	
	D81		-W7	WHT		32	58	S3A-1	TWIST
	D82		-W8	BLK		33	42	S3B-1	
	D83		-X3	WHT		2	396	P7-C9	
			-X4	BLK				P7-C10	
	D84		-X5	WHT				P7-C1	
		379	J1-X6	BLK			396	P7-C2	
	D85	381	J3-G1	WHT			382	P11-C5	
			-G2	BLK				-C6	
	D86		-G3	WHT				-C7	
			-G4	BLK				-C8	
	D87		-H1	WHT				-C13	
			-H2	BLK				-C14	
	D88		-H3	WHT				-C15	
			-H4	BLK				-C16	
	D89		-J1	WHT				-B1	
			-J2	BLK				-B2	
	D90		-J3	WHT				-B3	
			-J4	BLK				-B4	
	D91		-K1	WHT				-B7	
			-K2	BLK				-B8	
	D92		-K3	WHT				-B9	
			-K6	BLK				-B10	
	D93		-L1	WHT				-B13	
			-L2	BLK				-B14	
	D94		-M1	WHT				-B15	
			-M2	BLK				-B16	
	D95		-M3	WHT				-B17	
			-M6	BLK				-B18	
	D96		-N7	WHT				-B19	
		381	-N8	BLK				-B20	
	D97	380	-S1	WHT				-C9	
			-S2	BLK				-C10	
	D98		-S3	WHT				-C11	
			-S4	BLK				-C12	
	D99		-T1	WHT				-C17	
			-T2	BLK				-C18	
	D100		-T5	WHT				-C19	
		380	-T6	BLK				-C20	
	D101	381	-P5	WHT				-B11	
		381	-P6	BLK				-B12	
	D102	380	-V1	WHT				-A1	
			-V2	BLK				-A2	
	D103		-V3	WHT				-A3	
			-V4	BLK				-A4	
	D104		-V5	WHT				-A5	
			-V6	BLK				-A6	
	D105		-V7	WHT				-A7	
			-V8	BLK				-A8	
	D106		-W1	WHT				-A9	
			-W2	BLK				-A10	
	D107		-W3	WHT				-A11	
			-W4	BLK				-A12	
	D108		-W5	WHT				-A13	
			-W6	BLK				-A14	
	D109		-W7	WHT				-A15	
			-W8	BLK				-A16	
	D110		-X3	WHT				-C1	
			-X4	BLK				-C2	
	D111		-X5	WHT		2		-C3	
		380	-X6	BLK	24			-C4	
	D112	381	-P1	BLK	22	4		-A17	
	D113		-P2	WHT		5		-A18	
	D114		-P3					-A19	
	D115	381	-P4					-A20	
	D116	380	-T3					-B5	
	D117	380	J3-T4	WHT	22	5	382	P11-B6	
	D118	395	P9-A1	WHT	24	32	194	S1C-12	TWIST
	D119		-A2	BLK	24	33	208	S1D-12	
	D120		-A3	WHT	24	32	195	S1C-13	TWIST
	D121	395	P9-A4	BLK	24	33	209	S1D-13	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D122	395	P9-A5	WHT	24	32	196	S1C-14	TWIST
	D123		-A6	BLK		33	210	S1D-14	
	D124		-A7	WHT		32	190	S1C-8	
	D125		-A8	BLK		33	204	S1D-8	
	D126		-A9	WHT		32	198	S1C-16	
	D127		-A10	BLK		33	212	S1D-16	
	D128		-A11	WHT		32	57	S3A-ARM	
	D129		-A12	BLK		33	41	S3B-ARM	
	D130		-A13	WHT		32	25	S3C-ARM	
	D131		-A14	BLK		33	9	S3D-ARM	
	D132		-A15	WHT		32	5	S3E-ARM	
	D133		-A16	BLK		33	1	S3F-ARM	
	D134		-A17	WHT		32	197	S1C-15	
	D135		-A18	BLK		33	211	S1D-15	
	D136		-A19	WHT		32	8	S3E-20	
	D137		-A20	BLK		33	4	S3F-20	
	D138		-B1	WHT		32	228	S1E-11	
	D139		-B2	BLK		33	249	S1F-11	
	D140		-B3	WHT		32	229	S1E-12	
	D141		-B4	BLK		33	250	S1F-12	
	D142		-B5	WHT		32	201	S1C-19	
	D143		-B6	BLK		33	215	S1D-19	
	D144		-B7	WHT		32	199	S1C-17	
	D145		-B8	BLK		33	213	S1D-17	
	D146		-B9	WHT		32	200	S1C-18	
	D147		-B10	BLK		33	214	S1D-18	
	D148		-B11	WHT		32	202	S1C-20	
	D149		-B12	BLK		33	216	S1D-20	
	D150		-B13	WHT		32	191	S1C-9	
	D151		-B14	BLK		33	205	S1D-9	
	D152		-B15	WHT		32	192	S1C-10	
	D153		-B16	BLK		33	206	S1D-10	
	D154		-B17	WHT		32	193	S1C-11	
	D155		-B18	BLK		33	207	S1D-11	
	D156		-B19	WHT		32	7	S3E-19	
	D157		-B20	BLK		33	3	S3F-19	
	D158		-C1	WHT		32	92	S2E-2	
	D159		-C2	BLK		33	75	S2F-2	
	D160		-C3	WHT		32	93	S2E-3	
	D161		-C4	BLK		33	76	S2F-3	
	D162		-C5	WHT		32	94	S2E-4	
	D163		-C6	BLK		33	77	S2F-4	
	D164		-C7	WHT		32	95	S2E-5	
	D165		-C8	BLK		33	78	S2F-5	
	D166		-C9	WHT		32	96	S2E-6	
	D167		-C10	BLK		33	79	S2F-6	
	D168		-C11	WHT		32	97	S2E-7	
	D169		-C12	BLK		33	80	S2F-7	
	D170		-C13	WHT		32	98	S2E-8	
	D171		-C14	BLK		33	81	S2F-8	
	D172		-C15	WHT		32	226	S1E-9	
	D173		-C16	BLK		33	247	S1F-9	
	D174		-C17	WHT		32	227	S1E-10	
	D175		-C18	BLK		33	248	S1F-10	
	D176		-C19	WHT		32	6	S3E-18	TWIST
	D177	395	P9-C20	BLK		33	2	S3F-18	
	D178	394	P10-A1	WHT		2	341	S21A-C	
			-A2	BLK			341	S21A-NO	
	D179		-A7	WHT		2	344	S24A-C	
			-A8	BLK			344	S24A-NO	
	D180		-A9	WHT		32	329	S17A-D-A	TWIST
	D181		-A10	BLK		33	337	S17A-A-A	
	D182		-A11	WHT		2	332	S17A-B-A	
			-A12	BLK			335	S17A-C-A	
	D183		-A13	WHT			320	S17B-B1	
			-A14	BLK			322	S17B-C1	
	~~D184~~		~~-A15~~	~~WHT~~			~~324~~	~~S17B-A-A~~	
			~~-A16~~	~~BLK~~			~~319~~	~~S17B-D-A~~	
	D185		-A17	WHT			325	S17B-A1	
			-A18	BLK			326	S17B-D1	
	D186		-B1	WHT			357	S35A-C	
			-B2	BLK			357	S35A-NO	
	D187		-B3	WHT		2	358	S36A-C	
			-B4	BLK	24		358	S36A-NO	
	D188		-A3	WHT	22	5	342	S22A-C	
	D189		-A4				342	S22A-NO	
	D190		-A5				343	S23A-C	
	D191		-A6				343	S23A-NO	
	D192		-A19				343	S23A-NC	
	D193		-B5				404	S14-4	
	D194		-B6				264	S11A-NO	
	D195		-B7				404	S14-1	
	D196	394	P10-B8	WHT	22	5	261	S10A-NO	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN H. [illegible] DATE 28 SEPT 65
CHECKED J. Yon 7 OCT 65
APPROVAL [illegible] 10-[illegible]-65
APPROVAL D. D. [illegible]
APPROVAL [illegible] 10/4/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. S. [illegible] 1/24/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED-D
X Y INTERFACE
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014467
SCALE NONE | WT | SHEET 3 OF 4

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014467 G

2014467 G

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D197	394	P10-B9	BLK	24	2	340	S20A-C	
			B10	WHT			340	S20A-NO	
	D198		B11	BLK			339	S19A-C	
			B12	WHT			339	S19A-NO	
	D199		B15	WHT			262	S12A-C	
			B16	BLK			262	S12B-C	
	D200		C1	BLK			323	S17B-B-A	
			C2	WHT			321	S17B-C-A	
	D201		C3	WHT			349	J10	
			C4	BLK			349	J10-GRD	
	D202		C5	WHT			350	J11	
			C6	BLK			350	J11-GRD	
	D203		C15	WHT			357	S34A-C	
			C16	BLK			357	S34A-NO	
	D204		C17	WHT		2	263	S13C-NO	
			C18	BLK	24		263	S13B-NO	
	D205		B13	WHT	22	5	404	S14-3	
	D206		B14				263	S13A-NO	
	D207		B17				262	S12C-C	
	D208		B18				262	S12C-NO	
	D209		B19				262	S12C-NC	
	D210		C7				397	S27A-NO	
	D211		C8				398	S28A-NO	
	D212		C9				399	S29A-NO	
	D213		C10				397	S27A-C	
	D214		C11				400	S30A-NO	
	D215		C12				401	S31A-NO	
	D216		C13				402	S32A-NO	
	D217		C14				403	S33A-NO	
	D218	394	P10-C19	WHT	22	5	342	S22A-NC	
	D219	92	S2E-2	WHT	24	32	219	S1E-2	TWIST
	D220	75	S2F-2	BLK		33	240	S1F-2	
	D221	93	S2E-3	WHT		32	220	S1E-3	
	D222	76	S2F-3	BLK		33	241	S1F-3	
	D223	94	S2E-4	WHT		32	221	S1E-4	
	D224	77	S2F-4	BLK		33	242	S1F-4	
	D225	95	S2E-5	WHT		32	222	S1E-5	
	D226	78	S2F-5	BLK		33	243	S1F-5	
	D227	96	S2E-6	WHT		32	223	S1E-6	
	D228	79	S2F-6	BLK		33	244	S1F-6	
	D229	97	S2E-7	WHT		32	224	S1E-7	
	D230	80	S2F-7	BLK		33	245	S1F-7	
	D231	98	S2E-8	WHT		32	225	S1E-8	
	D232	81	S2F-8	BLK		33	246	S1F-8	
	D233	99	S2E-13	WHT		32	230	S1E-13	
	D234	82	S2F-13	BLK		33	251	S1F-13	
	D235	100	S2E-14	WHT		32	231	S1E-14	
	D236	83	S2F-14	BLK		33	252	S1F-14	
	D237	101	S2E-15	WHT		32	232	S1E-15	
	D238	84	S2F-15	BLK		33	253	S1F-15	
	D239	102	S2E-16	WHT		32	233	S1E-16	
	D240	85	S2F-16	BLK		33	254	S1F-16	
	D241	103	S2E-17	WHT		32	234	S1E-17	
	D242	86	S2F-17	BLK		33	255	S1F-17	
	D243	104	S2E-18	WHT		32	235	S1E-18	
	D244	87	S2F-18	BLK		33	256	S1F-18	
	D245	105	S2E-19	WHT		32	236	S1E-19	
	D246	88	S2F-19	BLK		33	257	S1F-19	
	D247	106	S2E-20	WHT		32	237	S1E-20	
	D248	89	S2F-20	BLK		33	258	S1F-20	
	D249	130	S2A-2	WHT		32	150	S1A-2	
	D250	110	S2B-2	BLK		33	170	S1B-2	
	D251	131	S2A-3	WHT		32	151	S1A-3	
	D252	111	S2B-3	BLK		33	171	S1B-3	
	D253	132	S2A-4	WHT		32	152	S1A-4	
	D254	112	S2B-4	BLK		33	172	S1B-4	
	D255	133	S2A-5	WHT		32	153	S1A-5	
	D256	113	S2B-5	BLK		33	173	S1B-5	
	D257	134	S2A-6	WHT		32	154	S1A-6	
	D258	114	S2B-6	BLK		33	174	S1B-6	
	D259	135	S2A-7	WHT		32	155	S1A-7	
	D260	115	S2B-7	BLK		33	175	S1B-7	
	D261	136	S2A-8	WHT		32	156	S1A-8	
	D262	116	S2B-8	BLK		33	176	S1B-8	
	D263	137	S2A-9	WHT		32	157	S1A-9	TWIST
	D264	117	S2B-9	BLK	24	33	177	S1B-9	
	D265	351	S18-1	WHT	22	5	383	R1-ARM	
	D266	352	2				384	R2-ARM	
	D267	354	3				385	R3-ARM	
	D268	355	4				386	R4-ARM	
	D269	356	5				387	R5-ARM	
	D270	353	S18-ARM				390	A2-40	
	D271	391	A2-14				74	S2F-1	
	D272	74	S2F-1				91	S2E-1	
	D273	91	S2E-1				218	S1E-1	
	D274	218	S1E-1	WHT	22	5	239	S1F-1	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D275	138	S2A-10	WHT	24	32	158	S1A-10	TWIST
	D276	118	S2B-10	BLK		33	178	S1B-10	
	D277	139	S2A-11	WHT		32	159	S1A-11	
	D278	119	S2B-11	BLK		33	179	S1B-11	
	D279	140	S2A-12	WHT		32	160	S1A-12	
	D280	120	S2B-12	BLK		33	180	S1B-12	
	D281	137	S2A-9	WHT		32	262	S12A-NO	
	D282	116	S2B-8	BLK		33	262	S12B-NO	
	D283	141	S2A-13	WHT		32	161	S1A-13	
	D284	121	S2B-13	BLK		33	181	S1B-13	
	D285	142	S2A-14	WHT		32	162	S1A-14	
	D286	122	S2B-14	BLK		33	182	S1B-14	
	D287	143	S2A-15	WHT		32	163	S1A-15	
	D288	123	S2B-15	BLK		33	183	S1B-15	
	D289	144	S2A-16	WHT		32	164	S1A-16	
	D290	124	S2B-16	BLK		33	184	S1B-16	
	D291	145	S2A-17	WHT		32	165	S1A-17	
	D292	125	S2B-17	BLK		33	185	S1B-17	
	D293	146	S2A-18	WHT		32	166	S1A-18	
	D294	126	S2B-18	BLK		33	186	S1B-18	
	D295	147	S2A-19	WHT		32	167	S1A-19	
	D296	127	S2B-19	BLK		33	187	S1B-19	
	D297	148	S2A-20	WHT		32	168	S1A-20	
	D298	128	S2B-20	BLK		33	188	S1B-20	
	D299	149	S1A-ARM	WHT		32	279	S4-A1	
	D300	169	S1B-ARM	BLK		33	275	S4-C1	
	D301	129	S2A-ARM	WHT		32	271	S7-A1	
	D302	109	S2B-ARM	BLK		33	267	S7-C1	
	D303	282	S4-A-A	WHT		32	328	S17A-D1	TWIST
	D304	277	S4-C-A	BLK		33	338	S17A-A1	
	D305	333	S17A-B3	WHT		2	259	S5B-C	
		336	S17A-C3	BLK			259	S5A-C	
	D306	260	S6B-C	WHT		2	288	S15A-A7	
		260	S6A-C	BLK			283	S15A-B1	
	D307	288	S15A-A7	WHT		32	317	S16A-A-A	TWIST
	D308	283	S15A-B1	BLK		33	305	S16B-A-A	
	D309	274	S7A-A	WHT		32	331	S17A-B1	TWIST
	D310	269	S7C-A	BLK		33	334	S17A-C1	
	D311	330	S17A-D3	WHT		2	265	S8B-C	
		327	S17A-A3	BLK			265	S8A-C	
	D312	266	S9B-C	WHT		32	294	S15A-B5	TWIST
	D313	266	S9A-C	BLK		33	284	S15A-B2	
	D314	293	S15A-A6	WHT		32	313	S16A-B-A	
	D315	284	S15A-B2	BLK		33	300	S16B-B-A	
	D316	318	S16A-A2	WHT		32	360	A3-8	
	D317	306	S16B-A2	BLK		33	360	7	
	D318	308	S16A-A3	WHT		32	364	16	
	D319	307	S16B-A3	BLK		33	364	15	
	D320	309	S16A-A4	WHT		32	368	24	
	D321	295	S16B-A4	BLK		33	368	23	
	D322	314	S16A-B2	WHT		32	362	12	
	D323	301	S16B-B2	BLK		33	362	11	
	D324	315	S16A-B3	WHT		32	366	20	
	D325	302	S16B-B3	BLK		33	366	A3-19	
	D326	316	S16A-C-A	WHT		32	289	S15A-B6	TWIST
	D327	303	S16B-C-A	BLK		33	285	S15A-B3	
	~~D328~~	~~259~~	~~S5A-NO~~	~~WHT~~		~~2~~	~~372~~	~~A3-28~~	
		~~259~~	~~S5B-NO~~	~~BLK~~			~~376~~	~~38~~	
	~~D329~~	~~260~~	~~S6A-NO~~	~~WHT~~		~~2~~	~~373~~	~~29~~	
		~~260~~	~~S6B-NO~~	~~BLK~~			~~377~~	~~39~~	
	~~D330~~	~~265~~	~~S8A-NO~~	~~WHT~~		~~2~~	~~370~~	~~26~~	
		~~265~~	~~S8B-NO~~	~~BLK~~			~~374~~	~~36~~	
	~~D331~~	~~266~~	~~S9A-NO~~	~~WHT~~		~~2~~	~~371~~	~~27~~	
			~~S9B-NO~~	~~BLK~~	~~24~~		~~375~~	~~A3-37~~	
	D332	266	S9D-NO	BLK	22	4	259	S5D-NO	
	D333	266	S9-3	WHT		5	259	S5-3	
	D334	266	S9D-NC				259	S5D-NC	
	D335	304	S16B-C4				348	J9-GRD	
	D336	373	A3-30				347	J8-GRD	
	D337	292	S15A-D-A	WHT	22	5	345	J6-GRD	
	D338	△	E3	COAX		1	△	E4	
			E3-SHLD	SHLD			△	E4-SHLD	SEE D392
	D339		E4	WHT	22	5	361	A3-9	
	D340		E3	WHT	22	5	310	S16A-D2	
	D341		E5	COAX		1	△	E6	
			E5-SHLD	SHLD			△	E6-SHLD	SEE D393
	D342		E5	WHT	22	5	312	S16A-D3	
	D343		E6	WHT	22	5	367	A3-21	
	D344		E7	COAX		1	△	E22	
			E7-SHLD	SHLD			△	E22-SHLD	SEE D390 & 394
	D345		E7	WHT	22	5	311	S16A-D-A	
	D346	△	E22	WHT	22	5	347	J8	

△ DENOTES EXTERNAL CONNECTION

~~△ STRIP .31, TIN .06~~

~~△ STRIP .44, TIN .06~~

~~△ STRIP .25, DO NOT TIN~~

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D347	△	E9	COAX		1	△	E10	
			E9-SHLD	SHLD			△	E10-SHLD	SEE D395
	D348		E9	WHT	22	5	296	S16B-D2	
	D349		E10	WHT	22	5	363	A3-13	
	D350		E11	COAX		1	△	E12	
			E11-SHLD	SHLD			△	E12-SHLD	SEE D396
	D351		E12	WHT	22	5	365	A3-17	
	D352		E11	WHT	22	5	298	S16B-D3	
	D353		E13	COAX		1	△	E14	
			E13-SHLD	SHLD			△	E14-SHLD	SEE D397
	D354		E14	WHT	22	5	369	A3-25	
	D355		E13	WHT	22	5	299	S16B-D4	
	D356		E15	COAX		1	△	E23	
			E15-SHLD	SHLD			△	E23-SHLD	SEE D390
	D357		E15	WHT	22	5	297	S16B-D-A	
	D358		E23	WHT	22	5	348	J9	
	D359		E21	COAX		1	△	E17	
			E21-SHLD	SHLD			△	E17-SHLD	SEE D391 & D398
	D360		E21	WHT	22	5	291	S15A-A-A	
	D361		E17	WHT	22	5	345	J6	
	D362		E20	COAX		1	△	E19	
			E20-SHLD	SHLD			△	E19-SHLD	SEE D391
	D363		E20	WHT	22	5	286	S15A-B-A	
	D364	△	E19	WHT	22	5	346	J7	
	D365	266	S9D-NO	WHT	24	2	264	S11D-NO	
		266	S9D-NC	BLK	24		264	S11D-NC	
	D366	389	A2-42	WHT	24	2	400	S30-1	
		389	A2-43	BLK	24		400	S30D-NO	
	D367	388	A2-48	WHT	22	5	383	A1R1-CCW	
	~~D368~~	~~392~~	~~A2-18~~				~~400~~	~~S30-NC~~	
	D369	393	A2-2	WHT	22	5	290	S15B-B7	
	D370	393	A2-3	WHT	22	5	287	S15B-B4	
	D371	238	S1F-ARM	WHT	24	32	278	S4-C3	TWIST
	D372	217	S1E-ARM	BLK		33	280	S4-A3	
	D373	90	S2E-ARM	WHT		32	272	S7-A3	
	D374	73	S2F-ARM	BLK		33	270	S7-C3	
	D375	203	S1D-ARM	WHT		32	276	S4-C2	
	D376	189	S1C-ARM	BLK		33	281	S4-A2	
	D377	107	S2D-ARM	WHT		32	268	S7-C2	
	D378	108	S2C-ARM	BLK		33	273	S7-A2	
	D379	263	S13D-NO	WHT		32	344	S24D-NO	
	D380	263	S13D-NC	BLK		33	359	S36D-NC	
	D381	263	S13D-NO	WHT		32	359	S36D-NO	TWIST
	D382	263	S13D-NC	BLK	24	33	344	S24D-NC	
	D383	266	S9-1	WHT	22	5	264	S11-1	
	D384	289	S15A-B6	WHT	22	3	381	J3-K8	
		285	S15A-B3	BLK	22		381	J3-L8	
		△	E1	SHLD			△	E2	
	D385	△	E2	BLK	22	4	381	J3-J8	
	D386	△	E1	BLK	22	4	287	S15B-B3	
	D387	344	S24-3	WHT	22	5	264	S13-1	
	D388	147	S2A-19	WHT	24	32	263	S13B-C	TWIST
	D389	127	S2B-19	BLK	24	33	263	S13C-C	
	D390	△	E22-SHLD	BLK	22	4	△	E23-SHLD	
	D391		E17-SHLD				△	E19-SHLD	
	D392		E4-SHLD				360	A3-6	
	D393		E6-SHLD				366	A3-18	
	D394		E22-SHLD				347	J8-GRD	
	D395		E10-SHLD				363	A3-10	
	D396		E12-SHLD				365	A13-14	
	D397		E14-SHLD				369	A3-22	
	D398	△	E17-SHLD	BLK	22	4	345	J6-GRD	
	D399	394	P10-A15	WHT	24	32	324	S17B-A-A	TWIST
	D400	394	P10-A16	BLK		33	319	S17B-D-A	
	D401	259	S5A-NO	WHT		32	372	A3-28	TWIST
	D402	259	S5B-NO	BLK		33	376	-38	
	D403	260	S6A-NO	WHT		32	373	-29	TWIST
	D404	260	S6B-NO	BLK		33	377	-39	
	D405	265	S8A-NO	WHT		32	370	-26	TWIST
	D406	265	S8B-NO	BLK		33	374	-36	
	D407	266	S9A-NO	WHT		32	371	-27	TWIST
	D408	266	S9B-NO	BLK	24	33	375	A3-37	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25310	10/14/65	
1	CHANGED PER CCA R25381 DR CHK J. Yor APPD	11/1/65	
-	CLASS B CHANGED PER CCA R25552		
A	CHANGED PER CCA R25593 DR CHK APPD	12/27/65	
B	CHANGED PER CCA R25654 DR CHK APPD P.C.D.	1/4/66	
C	CHANGED PER CCA R25707 DR CHK APPD P.C.D.	2/66	
D	CHANGED PER CCA R25730 DR CHK APPD P.C.D.	1/13/66	
E	CHANGED PER CCA R25777 DR CHK APPD	1/10/66	
F	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25472	1/20/66	
G	CHANGED PER TDRR 26303 DR. W. Dunn CHK. APPD. RPC	2/27/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.

CONTRACT NO. NAS 9-497
DRAWN DATE 26 OCT 65
CHECKED 26 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1/24/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED-D
XY INTERFACE
COMPUTER TEST SET

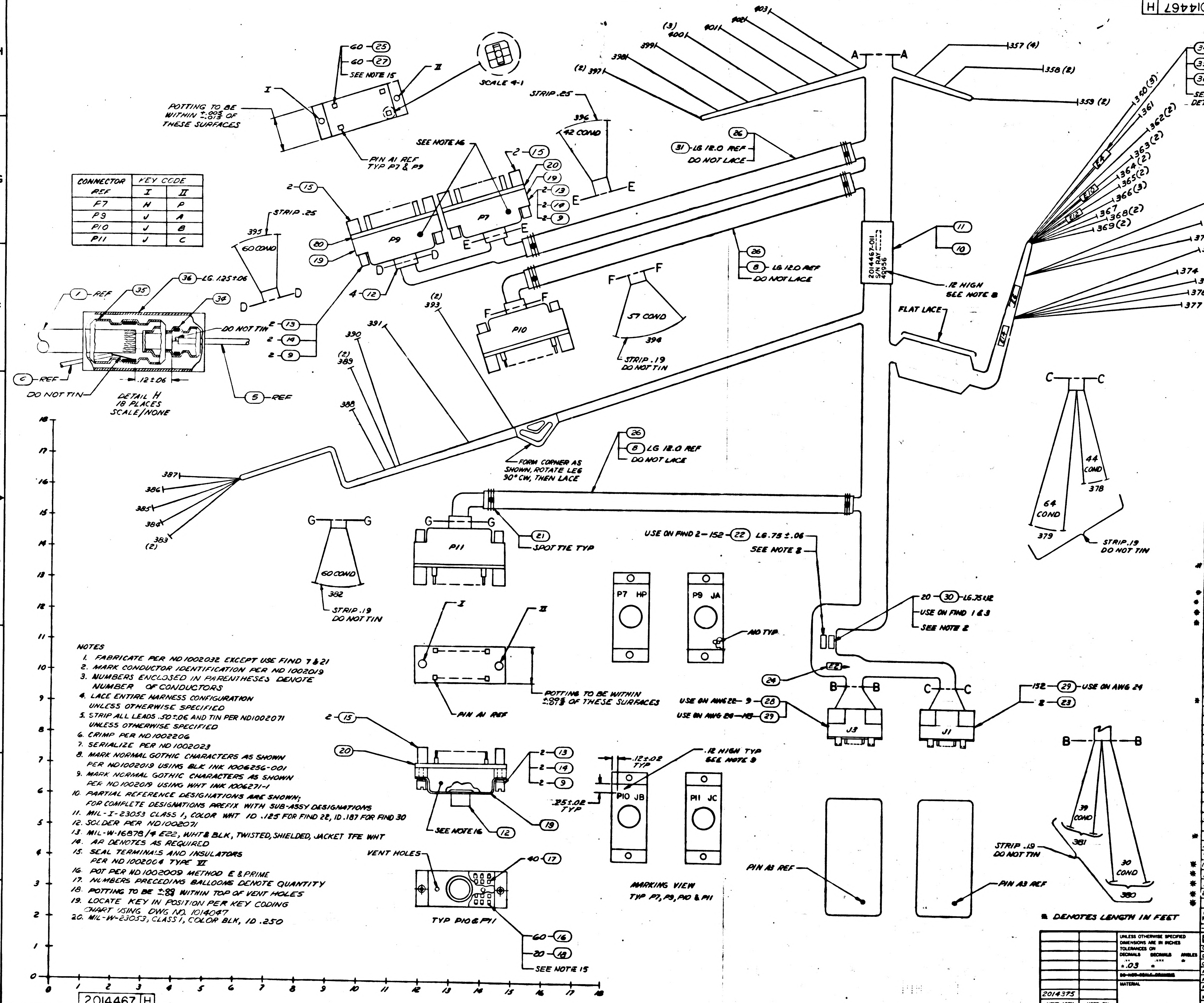
SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014467

SCALE NONE | WT | SHEET 4 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014467 H

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R2534	10/4/65	
1	CHANGED PER CCA R25381 DR CHK J. APPD	11/65	
–	CLASS B CHANGED PER CCA R 255C2	11/65	
A	CHANGED PER CCA R25583 DR CHK APPD	12/27/65	
B	CHANGED PER CCA R25654 DR D. CHK APPD R.C.D	1/66	
C	CHANGED PER CCA R25707 DR CHK APPD R.C.D	1/66	
D	CHANGED PER CCA R25730 DR CHK APPD	1/66	
E	CHANGED PER CCA R25779 DR CHK APPD	1/66	
F	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRP 25472	1/66	
G	CHANGED PER TDRR 26303 DR. W. Dunn CHK APPD RPC	2/66	
H	CHANGED PER TDRP 26488 DR CHK APPD RPC	3/66	



POTTING TO BE WITHIN ±.003 / .013 OF THESE SURFACES
I
II
60 (25)
60 (27)
SEE NOTE 15
SCALE 4-1
PIN A1 REF TYP P7 & P9
SEE NOTE 16
2-(15)
(20)
(19)
2-(13)
2-(14)
2-(9)
P9
P7
P10
P11
4-(12)
STRIP .25
60 COND
395
396
42 COND
(2) 397
398
399
(3) 400
401
402
403
357 (4)
358 (2)
359 (2)
(31) LG 12.0 REF DO NOT LACE
(26)
(8) LG 12.0 REF DO NOT LACE
2014467-011 S/N RAY 49956
(11)
(10)
.12 HIGH SEE NOTE 8
FLAT LACE
360 (3)
361
362 (2)
363 (2)
364 (2)
365 (2)
366 (3)
367
368 (2)
369 (2)
370
371
372
373 (2)
374
375
376
377
57 COND
394
STRIP .19 DO NOT TIN
(2) 393
391
390
(2) 389
388
387
386
385
384
383 (2)
FORM CORNER AS SHOWN, ROTATE LEG 90° CW, THEN LACE
(21) SPOT TIE TYP
382
DETAIL H 18 PLACES SCALE/NONE
(1)-REF
(35)
(36)-LG .125±.06
(34)
DO NOT TIN
(C)-REF
.12±.06
(5)-REF
(34)-REF
(35)-REF
(36)-REF
SEE DETAIL H
64 COND
379
44 COND
378
USE ON FIND 2-152-(22) LG .75±.06 SEE NOTE 8
20-(30)-LG .75±.12 USE ON FIND 1 & 3 SEE NOTE 2
(24)
USE ON AWG 22-9-(28)
USE ON AWG 24-143-(29)
J3
J1
-152-(29)-USE ON AWG 24
-2-(23)
P7 HP
P9 JA
P10 JB
P11 JC
.12±.02 TYP
.25±.02 TYP
.12 HIGH TYP SEE NOTE 9
AID TYP
PIN A1 REF
POTTING TO BE WITHIN ±.013 OF THESE SURFACES
SEE NOTE 16
VENT HOLES
40-(17)
60-(16)
20-(18)
SEE NOTE 15
TYP P10 & P11
MARKING VIEW TYP P7, P9, P10 & P11
PIN A3 REF
39 COND
381
30 COND
380
STRIP .19 DO NOT TIN

CONNECTOR REF	KEY CODE I	KEY CODE II
P7	H	P
P9	J	A
P10	J	B
P11	J	C

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND 7 & 21
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
3. NUMBERS ENCLOSED IN PARENTHESES DENOTE NUMBER OF CONDUCTORS
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. STRIP ALL LEADS .50±.06 AND TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. CRIMP PER ND 1002206
7. SERIALIZE PER ND 1002023
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLK INK 1006256-001
9. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHT INK 1006271-1
10. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSY DESIGNATIONS
11. MIL-I-23053 CLASS 1, COLOR WHT ID .125 FOR FIND 22, ID .187 FOR FIND 30
12. SOLDER PER ND1002071
13. MIL-W-16878/4 E22, WHT & BLK, TWISTED, SHIELDED, JACKET TFE WHT
14. AR DENOTES AS REQUIRED
15. SEAL TERMINALS AND INSULATORS PER ND 1002004 TYPE VI
16. POT PER ND 1002009 METHOD E & PRIME
17. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
18. POTTING TO BE ±.88 WITHIN TOP OF VENT HOLES
19. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG NO. 1014047
20. MIL-W-23053, CLASS 1, COLOR BLK, ID .250

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014179	SCHEMATIC	REF
*	2.0	SEE NOTE 20	SLEEVING, SHRINK	36
	18	1010402-2	SLEEVE, SOLDER	35
	18	1010402-1	SLEEVE, SOLDER	34
*	430	MIL-W-16878/4 E24	WIRE ELEC BLACK	33
*	430	MIL-W-16878/4 E24	WIRE ELEC WHT	32
*	1.0	1006696-5	SLEEVING, INSULATION	31
*	1.4	SEE NOTE 11	SLEEVING, SHRINK	30
	295	1006491-009	CONTACT, ELEC	29
	9	1006491-011	CONTACT, ELEC	28
	120	1010380	BUSHING, INSULATOR,	27
	AR	1006699	SOLVENT	26
	120	1010379-1	CONTACT, ELEC, FEMALE	25
	2	1010402-3	SLEEVE, SOLDER, ELEC	24
	2	1006671-001	CONNECTOR, ELEC	23
*	9.8	SEE NOTE 11	SLEEVING, SHRINK	22
	AR	1006458-004	TAPE, LACING	21
	4	1014021	CONNECTOR, PLATE	20
	4	1014024-3	BRACKET	19
	40	1014310	INSULATOR, CONTACT	18
	80	1006987	INSULATOR, CONTACT	17
	120	1006995-000	CONTACT, MALE, CRIMP	16
	8	1014032	PIN, RECEPTACLE, INDEX	15
	8	MS35337-79	WASHER, LOCK	14
	8	1006998-1	SCREW, CAPTIVE	13
	4	1020370-23	BUSHING	12
	1	1006615-136	BAND MARKER, CABLE	11
	AR	1006253	ADHESIVE	10
	8	1006997	WASHER, FLAT	9
*	1.0	1006696-4	SLEEVING, INSULATION	8
	AR	1006458-002	TAPE, LACING	7
	~~78~~	~~1006406~~	~~FERRULES, COAXIAL~~	6
*	130	MIL-W-16878/4 E22	WIRE, ELEC, WHT	5
*	25	MIL-W-16878/4 E22	WIRE, ELEC, BLK	4
*	10	SEE NOTE - 13	WIRE, ELEC	3
*	210	1014341-12	WIRE, ELEC, BLK & WHT	2
*	8	RG180B/U	WIRE, ELEC, COAX	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014467 11

2014375	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 15 AUG 65
CHECKED 10 JUL 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. Metzger
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED-D
XY INTERFACE
COMPUTER TEST SET

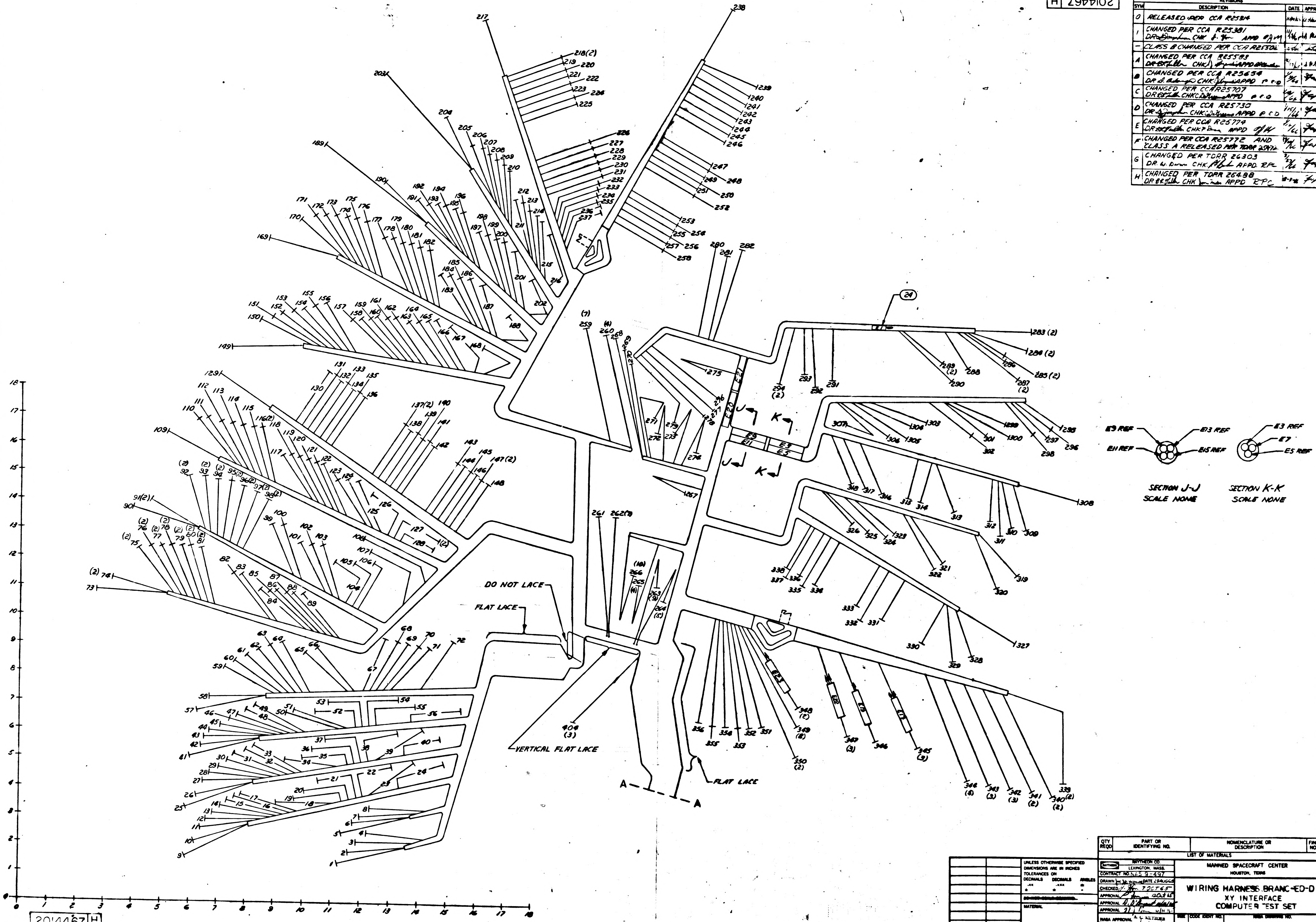
SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014467

SCALE 1/1 WT SHEET 1 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014467 H

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25314	10 Nov 65	[illegible]
1	CHANGED PER CCA R25381 DR [illegible] CHK J. [illegible] APPD [illegible]	11/4/65	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25583 DR B.K. Fuller CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25654 DR [illegible] CHK [illegible] APPD R.C.D.	[illegible]	[illegible]
C	CHANGED PER CCA R25707 DR B.K. Fuller CHK C. [illegible] APPD R.C.D.	[illegible]	[illegible]
D	CHANGED PER CCA R25730 DR [illegible] CHK [illegible] APPD R.C.D.	1/15/66	[illegible]
E	CHANGED PER CCA R25774 DR B.K. Fuller CHK P. [illegible] APPD [illegible]	[illegible]/66	[illegible]
F	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25474	[illegible]/66	[illegible]
G	CHANGED PER TDRR 26303 DR. W. Darwin CHK. [illegible] APPD. RPC	3/23/66	[illegible]
H	CHANGED PER TDRR 26488 DR B.K. Fuller CHK [illegible] APPD RPC	8-3-66	[illegible]



DO NOT LACE
FLAT LACE
VERTICAL FLAT LACE
FLAT LACE
A
A
J
K
J
K
E3
E5
E11
E13
E15
E7
E23
E19
E17
E21
24
404 (3)
E3 REF
E13 REF
E11 REF
E15 REF
E3 REF
E7
E5 REF
SECTION J-J
SCALE NONE
SECTION K-K
SCALE NONE
8
7
6
5
4
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2
1
H
G
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E
D
C
B
A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±
DECIMALS .XXX ±
ANGLES ±

~~DO NOT SCALE DRAWING~~

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 29AUG65
CHECKED J. [illegible] 7OCT65
APPROVAL [illegible] 12Oct 65
APPROVAL D. D'[illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 11/2/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED-D
XY INTERFACE
COMPUTER TEST SET

SIZE J CODE IDENT NO. 49956 NASA DRAWING NO. 2014467
SCALE 1/1 WT SHEET 2 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014467 H

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D1	379	J1-A3	WHT	24	2	381	J3-N3	
			-A4	BLK				-N4	
	D2		-A5	WHT				-N5	
			-A6	BLK				-N6	
	D3		-B1	WHT				-N1	
			-B2	BLK			381	J3-N2	
	D4		-B3	WHT			396	P7-C5	
			-B4	BLK				-C6	
	D5		-B5	WHT				-C7	
			-B6	BLK				-C8	
	D6		-C7	WHT		2		-C3	
			-C8	BLK			396	P7-C4	
	D7		-D1	WHT		32	63	S3A-6	TWIST
	D8		-D2	BLK		33	47	S3B-6	
	D9		-D3	WHT		32	31	S3C-6	
	D10		-D4	BLK		33	15	S3D-6	
	D11		-D5	WHT		32	64	S3A-7	
	D12		-D6	BLK		33	48	S3B-7	
	D13		-D7	WHT		32	32	S3C-7	
	D14		-D8	BLK		33	16	S3D-7	
	D15		-E1	WHT		32	65	S3A-8	
	D16		-E2	BLK		33	49	S3B-8	
	D17		-E3	WHT		32	33	S3C-8	
	D18		-E4	BLK		33	17	S3D-8	
	D19		-E5	WHT		32	36	S3C-11	
	D20		-E6	BLK		33	20	S3D-11	
	D21		-E7	WHT		32	68	S3A-11	
	D22	379	-E8	BLK		33	52	S3B-11	
	D23	378	-F1	WHT		32	37	S3C-12	
	D24		-F2	BLK		33	21	S3D-12	
	D25		-F3	WHT		32	69	S3A-12	
	D26		-F4	BLK		33	53	S3B-12	
	D27		-F5	WHT		32	34	S3C-9	
	D28		-F6	BLK		33	18	S3D-9	
	D29		-F7	WHT		32	66	S3A-9	
	D30		-F8	BLK		33	50	S3B-9	
	D31		-G1	WHT		32	35	S3C-10	
	D32		-G2	BLK		33	19	S3D-10	
	D33		-G3	WHT		32	67	S3A-10	TWIST
	D34		-G4	BLK		33	51	S3B-10	
	D35		-G5	WHT		2	396	P7-C17	
			-G6	BLK				-C18	
	D36		-G7	WHT		2		-B1	
			-G8	BLK				-B2	
	D37		-H1	WHT		2		-B3	
			-H2	BLK			396	P7-B4	
	D38		-M7	WHT		32	71	S3A-14	TWIST
	D39		-M8	BLK		33	55	S3B-14	
	D40		-R1	WHT		32	38	S3C-13	
	D41		-R2	BLK		33	22	S3D-13	
	D42		-R3	WHT		32	39	S3C-14	
	D43		-R4	BLK		33	23	S3D-14	
	D44		-P5	WHT		32	40	S3C-15	
	D45		-R6	BLK		33	24	S3D-15	
	D46		-P7	WHT		32	72	S3A-15	TWIST
	D47		-P8	BLK		33	56	S3B-15	
	D48		-P1	WHT		2	396	P7-A1	
			-P2	BLK				-A2	
	D49		-P3	WHT		2		-A3	
			-P4	BLK				-A4	
	D50		-P5	WHT		2		-A5	
			-P6	BLK			396	P7-A6	
	D51		-R7	WHT		32	70	S3A-13	TWIST
	D52		-R8	BLK		33	54	S3B-13	
	D53		-S1	WHT		2	396	P7-B11	
			-S2	BLK				-B12	
	D54		-S3	WHT				-B13	
			-S4	BLK				-B14	
	D55		-S5	WHT				-B15	
			-S6	BLK				-B16	
	D56		-S7	WHT		2		-B17	
		378	-S8	BLK			396	P7-B18	
	D57	379	-T1	WHT		32	30	S3C-5	TWIST
	D58		-T2	BLK		33	14	S3D-5	
	D59		-T3	WHT		2	396	P7-B5	
			-T4	BLK				-B6	
	D60		-T5	WHT		2		-B7	
			-T6	BLK				-B8	
	D61		-T7	WHT		2		-B9	
			-T8	BLK			396	P7-B10	
	D62		-U1	WHT		32	28	S3C-3	TWIST
	D63		-U2	BLK		33	12	S3D-3	
	D64		-U3	WHT		32	61	S3A-4	TWIST
	D65		-U4	BLK		33	45	S3B-4	
	D66		-U5	WHT		32	29	S3C-4	TWIST
	D67	379	J1-U6	BLK	24	33	13	S3D-4	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D68	379	J1-U7	WHT	24	32	62	S3A-5	TWIST
	D69		-U8	BLK		33	46	S3B-5	
	D70		-V1	WHT		32	26	S3C-1	
	D71		-V2	BLK		33	10	S3D-1	
	D72		-V3	WHT		32	59	S3A-2	
	D73		-V4	BLK		33	43	S3B-2	
	D74		-V5	WHT		32	27	S3C-2	
	D75		-V6	BLK		33	11	S3D-2	
	D76		-V7	WHT		32	60	S3A-3	TWIST
	D77		-V8	BLK		33	44	S3B-3	
	D78		-W1	WHT		2	396	P7-C11	
			-W2	BLK				-C12	
	D79		-W3	WHT		2		-C13	
			-W4	BLK				-C14	
	D80		-W5	WHT		2		-C15	
			-W6	BLK			396	P7-C16	
	D81		-W7	WHT		32	58	S3A-1	TWIST
	D82		-W8	BLK		33	42	S3B-1	
	D83		-X3	WHT		2	396	P7-C9	
			-X4	BLK				P7-C10	
	D84		-X5	WHT				P7-C1	
		379	J1-X6	BLK			396	P7-C2	
	D85	381	J3-G1	WHT			382	P11-C5	
			-G2	BLK				-C6	
	D86		-G3	WHT				-C7	
			-G4	BLK				-C8	
	D87		-H1	WHT				-C13	
			-H2	BLK				-C14	
	D88		-H3	WHT				-C15	
			-H4	BLK				-C16	
	D89		-J1	WHT				-B1	
			-J2	BLK				-B2	
	D90		-J3	WHT				-B3	
			-J4	BLK				-B4	
	D91		-K1	WHT				-B7	
			-K2	BLK				-B8	
	D92		-K3	WHT				-B9	
			-K6	BLK				-B10	
	D93		-L1	WHT				-B13	
			-L2	BLK				-B14	
	D94		-M1	WHT				-B15	
			-M2	BLK				-B16	
	D95		-M3	WHT				-B17	
			-M6	BLK				-B18	
	D96		-N7	WHT				-B19	
		381	-N8	BLK				-B20	
	D97	380	-S1	WHT				-C9	
			-S2	BLK				-C10	
	D98		-S3	WHT				-C11	
			-S4	BLK				-C12	
	D99		-T1	WHT				-C17	
			-T2	BLK				-C18	
	D100		-T5	WHT				-C19	
		380	-T6	BLK				-C20	
	D101	381	-P5	WHT				-B11	
		381	-P6	BLK				-B12	
	D102	380	-V1	WHT				-A1	
			-V2	BLK				-A2	
	D103		-V3	WHT				-A3	
			-V4	BLK				-A4	
	D104		-V5	WHT				-A5	
			-V6	BLK				-A6	
	D105		-V7	WHT				-A7	
			-V8	BLK				-A8	
	D106		-W1	WHT				-A9	
			-W2	BLK				-A10	
	D107		-W3	WHT				-A11	
			-W4	BLK				-A12	
	D108		-W5	WHT				-A13	
			-W6	BLK				-A14	
	D109		-W7	WHT				-A15	
			-W8	BLK				-A16	
	D110		-X3	WHT				-C1	
			-X4	BLK				-C2	
	D111		-X5	WHT		2		-C3	
		380	-X6	BLK	24			-C4	
	D112	381	-P1	BLK	22	4		-A17	
	D113		-P2	WHT		5		-A18	
	D114		-P3					-A19	
	D115	381	-P4					-A20	
	D116	380	-T3					-B5	
	D117	380	J3-T4	WHT	22	5	382	P11-B6	
	D118	395	P9-A1	WHT	24	32	194	S1C-12	TWIST
	D119		-A2	BLK	24	33	208	S1D-12	
	D120		-A3	WHT	24	32	195	S1C-13	TWIST
	D121	395	P9-A4	BLK	24	33	209	S1D-13	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D122	395	P9-A5	WHT	24	32	196	S1C-14	TWIST
	D123		-A6	BLK		33	210	S1D-14	
	D124		-A7	WHT		32	190	S1C-8	
	D125		-A8	BLK		33	204	S1D-8	
	D126		-A9	WHT		32	198	S1C-16	
	D127		-A10	BLK		33	212	S1D 16	
	D128		-A11	WHT		32	57	S3A-ARM	
	D129		-A12	BLK		33	41	S3B-ARM	
	D130		-A13	WHT		32	25	S3C-ARM	
	D131		-A14	BLK		33	9	S3D-ARM	
	D132		-A15	WHT		32	5	S3E-ARM	
	D133		-A16	BLK		33	1	S3F-ARM	
	D134		-A17	WHT		32	197	S1C-15	
	D135		-A18	BLK		33	211	S1D-15	
	D136		-A19	WHT		32	8	S3E-20	
	D137		-A20	BLK		33	4	S3F-20	
	D138		-B1	WHT		32	228	S1E-11	
	D139		-B2	BLK		33	249	S1F-11	
	D140		-B3	WHT		32	229	S1E-12	
	D141		-B4	BLK		33	250	S1F-12	
	D142		-B5	WHT		32	201	S1C-19	
	D143		-B6	BLK		33	215	S1D-19	
	D144		-B7	WHT		32	199	S1C-17	
	D145		-B8	BLK		33	213	S1D-17	
	D146		-B9	WHT		32	200	S1C-18	
	D147		-B10	BLK		33	214	S1D-18	
	D148		-B11	WHT		32	202	S1C-20	
	D149		-B12	BLK		33	216	S1D-20	
	D150		-B13	WHT		32	191	S1C-9	
	D151		-B14	BLK		33	205	S1D-9	
	D152		-B15	WHT		32	192	S1C-10	
	D153		-B16	BLK		33	206	S1D-10	
	D154		-B17	WHT		32	193	S1C-11	
	D155		-B18	BLK		33	207	S1D-11	
	D156		-B19	WHT		32	7	S3E-19	
	D157		-B20	BLK		33	3	S3F-19	
	D158		-C1	WHT		32	92	S2E-2	
	D159		-C2	BLK		33	75	S2F-2	
	D160		-C3	WHT		32	93	S2E-3	
	D161		-C4	BLK		33	76	S2F-3	
	D162		-C5	WHT		32	94	S2E-4	
	D163		-C6	BLK		33	77	S2F-4	
	D164		-C7	WHT		32	95	S2E-5	
	D165		-C8	BLK		33	78	S2F-5	
	D166		-C9	WHT		32	96	S2E-6	
	D167		-C10	BLK		33	79	S2F-6	
	D168		-C11	WHT		32	97	S2E-7	
	D169		-C12	BLK		33	80	S2F-7	
	D170		-C13	WHT		32	98	S2E-8	
	D171		-C14	BLK		33	81	S2F-8	
	D172		-C15	WHT		32	226	S1E-9	
	D173		-C16	BLK		33	247	S1F-9	
	D174		-C17	WHT		32	227	S1E-10	
	D175		-C18	BLK		33	248	S1F-10	
	D176		-C19	WHT		32	6	S3E-18	TWIST
	D177	395	P9-C20	BLK		33	2	S3F-18	
	D178	394	P10-A1	WHT		2	341	S21A-C	
			-A2	BLK			341	S21A-NO	
	D179		-A7	WHT		2	394	S24A-C	
			-A8	BLK			394	S24A-NO	
	D180		-A9	WHT		32	335	S17A-D-A	TWIST
	D181		-A10	BLK		33	337	S17A-A-A	
	D182		-A11	WHT		2	332	S17A-B-A	
			-A12	BLK			329	S17A-C-A	
	D183		-A13	WHT			321	S17B-B1	
			-A14	BLK			319	S17B-C1	
	~~D184~~		~~-A15~~	~~WHT~~			~~324~~	~~S17B-A-A~~	
			~~-A16~~	~~BLK~~			~~319~~	~~S17B-D-A~~	
	D185		-A17	WHT			326	S17B-A1	
			-A18	BLK			323	S17B-D1	
	D186		-B1	WHT			357	S35A-C	
			-B2	BLK			357	S35A-NO	
	D187		-B3	WHT		2	358	S36A-C	
			-B4	BLK	24		358	S36A-NO	
	D188		-A3	WHT	22	5	392	S22A-C	
	D189		-A4				392	S22A-NO	
	D190		-A5				343	S23A-C	
	D191		-A6				343	S23A-NO	
	D192		-A19				343	S23A-NC	
	D193		-B5				404	S14-4	
	D194		-B6				264	S11A-NO	
	D195		-B7				404	S14-1	
	D196	394	P10-B8	WHT	22	5	261	S10A-NO	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R2534		
1	CHANGED PER CCA R25381 DR CHK APPD	11/1/65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25503 DR CHK APPD	12/27/65	
B	CHANGED PER CCA R25654. DR D. Belanger CHK APPD RCD	1/4/66	
C	CHANGED PER CCA R25707 DR CHK APPD RCD	1/12/66	
D	CHANGED PER CCA R25730 DR CHK APPD RCD	1/15/66	
E	CHANGED PER CCA R25779 DR CHK APPD	1/14/66	
F	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25802	1/20/66	
6	CHANGED PER TDRR 26303 DR. W. Brown CHK APPD. RPC	2/23/66	
H	CHANGED PER TDPP 25488 DR CHK APPD RPC	8-3-66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28 SEPT 65
CHECKED 7 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED-D
X Y INTERFACE
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014467
SCALE NONE | WT | SHEET 3 OF 4

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014467 H

2014467 H

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D197	394	P10-B9	BLK	24	2	340	S20A-C	
			B10	WHT			340	S20A-NO	
	D198		B11	BLK			339	S19A-C	
			B12	WHT			339	S19A-NO	
	D199		B15	WHT			262	S12A-C	
			B16	BLK			262	S12B-C	
	D200		C1	BLK			322	S17B-B-A	
			C2	WHT			320	S17B-C-A	
	D201		C3	WHT			349	J10	
			C4	BLK			349	J10-GRD	
	D202		C5	WHT			350	J11	
			C6	BLK			350	J11-GRD	
	D203		C15	WHT			357	S34A-C	
			C16	BLK			357	S34A-NO	
	D204		C17	WHT		2	263	S13C-NO	
			C18	BLK	24		263	S13B-NO	
	D205		B13	WHT	22	5	404	S14-3	
	D206		B14				263	S13A-NO	
	D207		B17				262	S12C-C	
	D208		B18				262	S12C-NO	
	D209		B19				262	S12C-NC	
	D210		C7				397	S27A-NO	
	D211		C8				398	S28A-NO	
	D212		C9				399	S29A-NO	
	D213		C10				397	S27A-C	
	D214		C11				400	S30A-NO	
	D215		C12				401	S31A-NO	
	D216		C13				402	S32A-NO	
	D217		C14				403	S33A-NO	
	D218	394	P10-C19	WHT	22	5	342	S22A-NC	
	D219	92	S2E-2	WHT	24	32	219	S1E-2	TWIST
	D220	75	S2F-2	BLK		33	240	S1F-2	
	D221	93	S2E-3	WHT		32	220	S1E-3	
	D222	76	S2F-3	BLK		33	241	S1F-3	
	D223	94	S2E-4	WHT		32	221	S1E-4	
	D224	77	S2F-4	BLK		33	242	S1F-4	
	D225	95	S2E-5	WHT		32	222	S1E-5	
	D226	78	S2F-5	BLK		33	243	S1F-5	
	D227	96	S2E-6	WHT		32	223	S1E-6	
	D228	79	S2F-6	BLK		33	244	S1F-6	
	D229	97	S2E-7	WHT		32	224	S1E-7	
	D230	80	S2F-7	BLK		33	245	S1F-7	
	D231	98	S2E-8	WHT		32	225	S1E-8	
	D232	81	S2F-8	BLK		33	246	S1F-8	
	D233	99	S2E-13	WHT		32	230	S1E-13	
	D234	82	S2F-13	BLK		33	251	S1F-13	
	D235	100	S2E-14	WHT		32	231	S1E-14	
	D236	83	S2F-14	BLK		33	252	S1F-14	
	D237	101	S2E-15	WHT		32	232	S1E-15	
	D238	84	S2F-15	BLK		33	253	S1F-15	
	D239	102	S2E-16	WHT		32	233	S1E-16	
	D240	85	S2F-16	BLK		33	254	S1F-16	
	D241	103	S2E-17	WHT		32	234	S1E-17	
	D242	86	S2F-17	BLK		33	255	S1F-17	
	D243	104	S2E-18	WHT		32	235	S1E-18	
	D244	87	S2F-18	BLK		33	256	S1F-18	
	D245	105	S2E-19	WHT		32	236	S1E-19	
	D246	88	S2F-19	BLK		33	257	S1F-19	
	D247	106	S2E-20	WHT		32	237	S1E-20	
	D248	89	S2F-20	BLK		33	258	S1F-20	
	D249	130	S2A-2	WHT		32	150	S1A-2	
	D250	110	S2B-2	BLK		33	170	S1B-2	
	D251	131	S2A-3	WHT		32	151	S1A-3	
	D252	111	S2B-3	BLK		33	171	S1B-3	
	D253	132	S2A-4	WHT		32	152	S1A-4	
	D254	112	S2B-4	BLK		33	172	S1B-4	
	D255	133	S2A-5	WHT		32	153	S1A-5	
	D256	113	S2B-5	BLK		33	173	S1B-5	
	D257	134	S2A-6	WHT		32	154	S1A-6	
	D258	114	S2B-6	BLK		33	174	S1B-6	
	D259	135	S2A-7	WHT		32	155	S1A-7	
	D260	115	S2B-7	BLK		33	175	S1B-7	
	D261	136	S2A-8	WHT		32	156	S1A-8	
	D262	116	S2B-8	BLK		33	176	S1B-8	
	D263	137	S2A-9	WHT		32	157	S1A-9	TWIST
	D264	117	S2B-9	BLK	24	33	177	S1B-9	
	D265	351	S18-1	WHT	22	5	383	R1-ARM	
	D266	352	2				384	R2-ARM	
	D267	354	3				385	R3-ARM	
	D268	355	4				386	R4-ARM	
	D269	356	5				387	R5-ARM	
	D270	353	S18-ARM				390	A2-40	
	D271	391	A2-14				74	S2F-1	
	D272	74	S2F-1				91	S2E-1	
	D273	91	S2E-1				218	S1E-1	
	D274	218	S1E-1	WHT	22	5	239	S1F-1	

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D275	138	S2A-10	WHT	24	32	158	S1A-10	TWIST
	D276	118	S2B-10	BLK		33	178	S1B-10	
	D277	139	S2A-11	WHT		32	159	S1A-11	
	D278	119	S2B-11	BLK		33	179	S1B-11	
	D279	140	S2A-12	WHT		32	160	S1A-12	
	D280	120	S2B-12	BLK		33	180	S1B-12	
	D281	137	S2A-9	WHT		32	262	S12A-NO	
	D282	116	S2B-8	BLK		33	262	S12B-NO	
	D283	141	S2A-13	WHT		32	161	S1A-13	
	D284	121	S2B-13	BLK		33	181	S1B-13	
	D285	142	S2A-14	WHT		32	162	S1A-14	
	D286	122	S2B-14	BLK		33	182	S1B-14	
	D287	143	S2A-15	WHT		32	163	S1A-15	
	D288	123	S2B-15	BLK		33	183	S1B-15	
	D289	144	S2A-16	WHT		32	164	S1A-16	
	D290	124	S2B-16	BLK		33	184	S1B-16	
	D291	145	S2A-17	WHT		32	165	S1A-17	
	D292	125	S2B-17	BLK		33	185	S1B-17	
	D293	146	S2A-18	WHT		32	166	S1A-18	
	D294	126	S2B-18	BLK		33	186	S1B-18	
	D295	147	S2A-19	WHT		32	167	S1A-19	
	D296	127	S2B-19	BLK		33	187	S1B-19	
	D297	148	S2A-20	WHT		32	168	S1A-20	
	D298	128	S2B-20	BLK		33	188	S1B-20	
	D299	149	S1A-ARM	WHT		32	275	S4-A1	
	D300	169	S1B-ARM	BLK		33	276	S4-C1	
	D301	129	S2A-ARM	WHT		32	267	S7-A1	
	D302	109	S2B-ARM	BLK		33	270	S7-C1	
	D303	282	S4-A-A	WHT		32	334	S17A-D1	TWIST
	D304	277	S4-C-A	BLK		33	338	S17A-A1	
	D305	333	S17A-B3	WHT		2	259	S5B-C	
		330	S17A-C3	BLK			259	S5A-C	
	D306	260	S6B-C	WHT		2	294	S15A-A7	
		260	S6A-C	BLK			283	S15A-B1	
	D307	294	S15A-A7	WHT		32	317	S16A-A-A	TWIST
	D308	283	S15A-B1	BLK		33	305	S16B-A-A	
	D309	274	S7A-A	WHT		32	331	S17A-B1	TWIST
	D310	271	S7C-A	BLK		33	328	S17A-C1	
	D311	336	S17A-D3	WHT		2	265	S8B-C	
		327	S17A-A3	BLK			265	S8A-C	
	D312	266	S9B-C	WHT		32	288	S15A-B5	TWIST
	D313	266	S9A-C	BLK		33	284	S15A-B2	
	D314	293	S15A-A6	WHT		32	313	S16A-B-A	
	D315	284	S15A-B2	BLK		33	300	S16B-B-A	
	D316	318	S16A-A2	WHT		32	360	A3-8	
	D317	306	S16B-A2	BLK		33	360	7	
	D318	308	S16A-A3	WHT		32	364	16	
	D319	307	S16B-A3	BLK		33	364	15	
	D320	309	S16A-A4	WHT		32	368	24	
	D321	295	S16B-A4	BLK		33	368	23	
	D322	314	S16A-B2	WHT		32	362	12	
	D323	301	S16B-B2	BLK		33	362	11	
	D324	315	S16A-B3	WHT		32	366	20	
	D325	302	S16B-B3	BLK		33	366	A3-19	
	D326	316	S16A-C-A	WHT		32	289	S15A-B6	TWIST
	D327	303	S16B-C-A	BLK		33	285	S15A-B3	
	~~D328~~	~~259~~	~~S5A-NO~~	~~WHT~~		~~2~~	~~372~~	~~A3-20~~	
		~~259~~	~~S5B-NO~~	~~BLK~~			~~376~~	~~38~~	
	~~D329~~	~~260~~	~~S6A-NO~~	~~WHT~~		~~2~~	~~373~~	~~29~~	
		~~260~~	~~S6B-NO~~	~~BLK~~			~~377~~	~~39~~	
	~~D330~~	~~265~~	~~S8A-NO~~	~~WHT~~		~~2~~	~~370~~	~~26~~	
		~~265~~	~~S8B-NO~~	~~BLK~~			~~374~~	~~36~~	
	~~D331~~	~~266~~	~~S9A-NO~~	~~WHT~~		~~2~~	~~371~~	~~27~~	
			~~S9B-NO~~	~~BLK~~	~~24~~		~~375~~	~~A3-37~~	
	D332	266	S9D-NO	BLK	22	4	259	S5D-NO	
	D333	266	S9-3	WHT		5	259	S5-3	
	D334	266	S9D-NC				259	S5D-NC	
	D335	304	S16B-C4				348	J9-GRD	
	D336	373	A3-30				347	J8-GRD	
	D337	292	S15A-D-A	WHT	22	5	345	J6-GRD	
▲	D338	△1	E3	COAX		1	△1	E4	▲
			E3-SHLD	SHLD			△1	E4-SHLD	SEE D392
▲	D339		E4	WHT	22	5	361	A3-9	
▲	D340		E3	WHT	22	5	310	S16A-D2	
▲	D341		E5	COAX		1	△1	E6	▲
			E5-SHLD	SHLD			△1	E6-SHLD	SEE D393
▲	D342		E5	WHT	22	5	312	S16A-D3	
▲	D343		E6	WHT	22	5	367	A3-21	
▲	D344		E7	COAX		1	△1	E22	▲
			E7-SHLD	SHLD			△1	E22-SHLD	SEE D390 & 394
▲	D345		E7	WHT	22	5	311	S16A-D-A	
▲	D346	△1	E22	WHT	22	5	347	J8	

△1 DENOTES EXTERNAL CONNECTION

~~▲ STRIP .31, TIN .06~~

~~▲ STRIP .44, TIN .06~~

~~▲ STRIP .25, DO NOT TIN~~

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
▲	D347	△1	E9	COAX		1	△1	E10	▲
			E9-SHLD	SHLD			△1	E10-SHLD	SEE D395
▲	D348		E9	WHT	22	5	296	S16B-D2	
▲	D349		E10	WHT	22	5	363	A3-13	
▲	D350		E11	COAX		1	△1	E12	▲
			E11-SHLD	SHLD			△1	E12-SHLD	SEE D396
▲	D351		E12	WHT	22	5	365	A3-17	
▲	D352		E11	WHT	22	5	298	S16B-D3	
▲	D353		E13	COAX		1	△1	E14	▲
			E13-SHLD	SHLD			△1	E14-SHLD	SEE D397
▲	D354		E14	WHT	22	5	369	A3-25	
▲	D355		E13	WHT	22	5	299	S16B-D4	
▲	D356		E15	COAX		1	△1	E23	▲
			E15-SHLD	SHLD			△1	E23-SHLD	SEE D390
▲	D357		E15	WHT	22	5	297	S16B-D-A	
▲	D358		E23	WHT	22	5	348	J9	
▲	D359		E21	COAX		1	△1	E17	▲
			E21-SHLD	SHLD			△1	E17-SHLD	SEE D391 & D398
▲	D360		E21	WHT	22	5	291	S15A-A-A	
▲	D361		E17	WHT	22	5	345	J6	
▲	D362		E20	COAX		1	△1	E19	▲
			E20-SHLD	SHLD			△1	E19-SHLD	SEE D391
▲	D363		E20	WHT	22	5	286	S15A-B-A	
▲	D364	△1	E19	WHT	22	5	346	J7	
	D365	266	S9D-NO	WHT	24	2	264	S11D-NO	
		266	S9D-NC	BLK	24		264	S11D-NC	
	D366	389	A2-42	WHT	24	2	400	S30-1	
		389	A2-43	BLK	24		400	S30D-NO	
	D367	388	A2-48	WHT	22	5	383	A1R1-CCW	
	~~D368~~	~~392~~	~~A2-18~~				~~400~~	~~S30-NC~~	
	D369	393	A2-2	WHT	22	5	290	S15B-B7	
	D370	393	A2-3	WHT	22	5	287	S15B-B4	
	D371	238	S1F-ARM	WHT	24	32	279	S4-C3	TWIST
	D372	217	S1E-ARM	BLK		33	280	S4-A3	
	D373	90	S2E-ARM	WHT		32	272	S7-A3	
	D374	73	S2F-ARM	BLK		33	268	S7-C3	
	D375	203	S1D-ARM	WHT		32	278	S4-C2	
	D376	189	S1C-ARM	BLK		33	281	S4-A2	
	D377	107	S2D-ARM	WHT		32	269	S7-C2	
	D378	108	S2C-ARM	BLK		33	273	S7-A2	
	D379	263	S13D-NO	WHT		32	344	S24D-NO	
	D380	263	S13D-NC	BLK		33	359	S36D-NC	
	D381	263	S13D-NO	WHT		32	359	S36D-NO	TWIST
	D382	263	S13D-NC	BLK	24	33	344	S24D-NC	
	D383	266	S9-1	WHT	22	5	264	S11-1	
	D384	289	S15A-B6	WHT	22	3	381	J3-K8	
		285	S15A-B3	BLK	22		381	J3-L8	
		△1	E1	SHLD			△1	E2	
	D385	△1	E2	BLK	22	4	381	J3-J8	
	D386	△1	E1	BLK	22	4	287	S15B-B3	
	D387	344	S24-3	WHT	22	5	264	S13-1	
	D388	147	S2A-19	WHT	24	32	263	S13B-C	TWIST
	D389	127	S2B-19	BLK	24	33	263	S13C-C	
▲	D390	△1	E22-SHLD	BLK	22	4	△1	E23-SHLD	▲
	D391		E17-SHLD				△1	E19-SHLD	▲
	D392		E4-SHLD				360	A3-6	
	D393		E6-SHLD				366	A3-18	
	D394		E22-SHLD				347	J8-GRD	
	D395		E10-SHLD				363	A3-10	
	D396		E12-SHLD				365	A13-14	
	D397		E14-SHLD				369	A3-22	
▲	D398	△1	E17-SHLD	BLK	22	4	345	J6-GRD	
	D399	394	P10-A15	WHT	24	32	325	S17B-A-A	TWIST
	D400	394	P10-A16	BLK		33	324	S17B-D-A	
	D401	259	S5A-NO	WHT		32	372	A3-28	TWIST
	D402	259	S5B-NO	BLK		33	376	-38	
	D403	260	S6A-NO	WHT		32	373	-29	TWIST
	D404	260	S6B-NO	BLK		33	377	-39	
	D405	265	S8A-NO	WHT		32	370	-26	TWIST
	D406	265	S8B-NO	BLK		33	374	-36	
	D407	266	S9A-NO	WHT		32	371	-27	TWIST
	D408	266	S9B-NO	BLK	24	33	375	A3-37	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25318	10/14/65	
1	CHANGED PER CCA R25381 DR CHK APPD	11/1/65	
-	CLASS B CHANGED PER CCA R25502	11/65	
A	CHANGED PER CCA R25583 DR CHK APPD	12/27/65	A.S.S
B	CHANGED PER CCA R25654 DR CHK APPD P.C.D	1/4/66	
C	CHANGED PER CCA R25707 DR CHK APPD P.C.D	1/12/66	
D	CHANGED PER CCA R25730 DR CHK APPD P.C.D	1/15/66	
E	CHANGED PER CCA R25777 DR CHK APPD	1/16/66	
F	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25472	1/20/66	
G	CHANGED PER TDRR 26303 DR. W. Dawson CHK. APPD. RPC	2/2/66	
H	CHANGED PER TDRR 26488 DR CHK APPD RPC	3/7	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28 SEPT 65
CHECKED 7 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METCALF
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED-D
XY INTERFACE
COMPUTER TEST SET

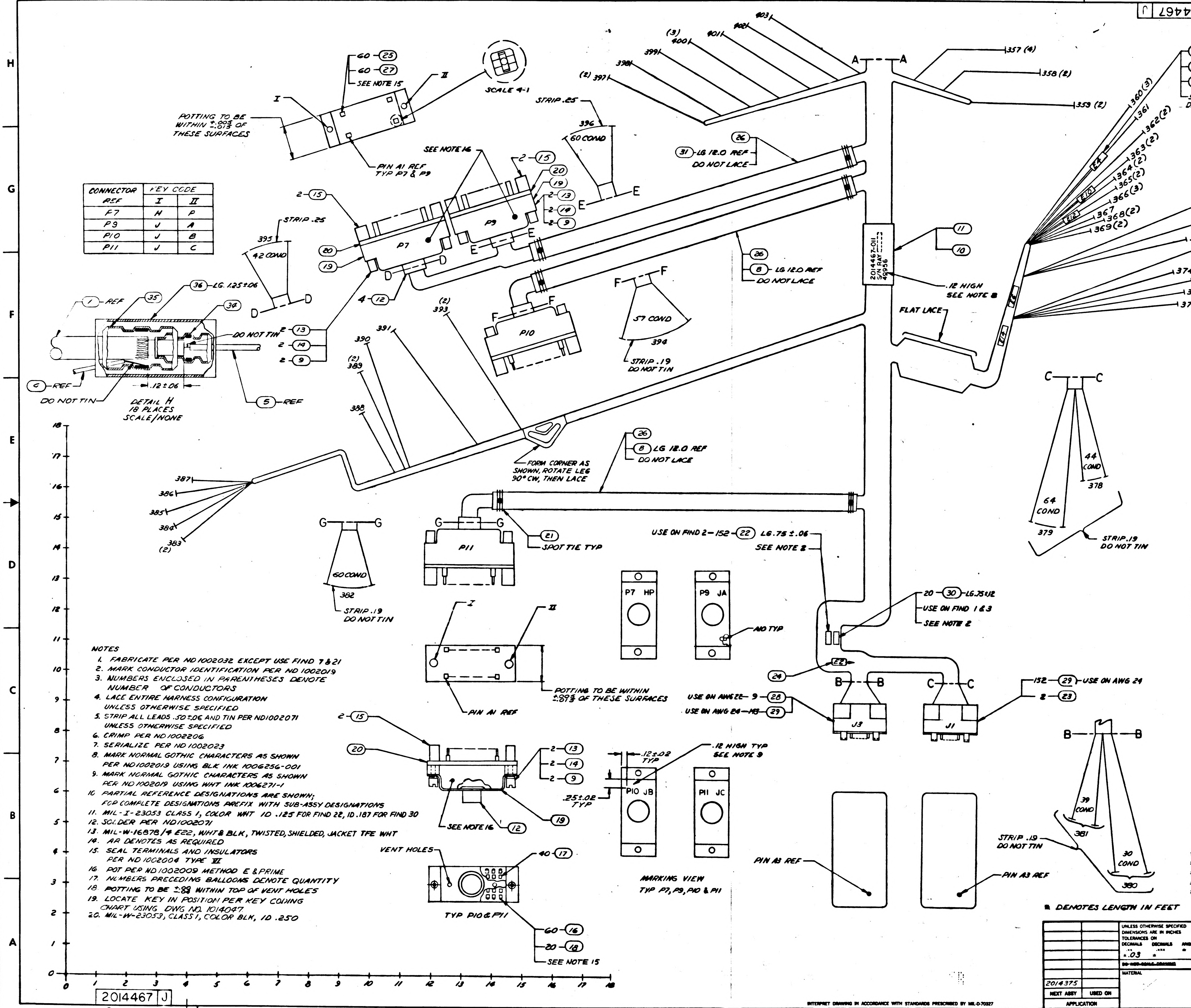
SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014467
SCALE NONE | WT | SHEET 4 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014467 H

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R2534	10/4/65	G. Harand
1	CHANGED PER CCA R25381 DR CHK APPD	11/4/65	
–	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25583 DR CHK APPD	12/27/65	
B	CHANGED PER CCA R25654 DR CHK APPD P.E.D.	1/ /66	
C	CHANGED PER CCA R25707 DR CHK APPD P.E.D.	1/13/66	
D	CHANGED PER CCA R25730 DR CHK APPD	1/13/66	
E	CHANGED PER CCA R25779 DR CHK APPD	1/ /66	
F	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25472	1/2 /66	
G	CHANGED PER TDRR 26303 DR. W. Dunn CHK APPD RPC	7/27/66	
H	CHANGED PER TDPP 26488 DR CHK APPD RPC		
J	CHANGED PER TDRP 26709 DR CHK APPD RPC		

CONNECTOR REF	KEY CODE I	KEY CODE II
P7	H	P
P9	J	A
P10	J	B
P11	J	C



8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
2014467-011
S/N RAY
49956
POTTING TO BE WITHIN +.093 -.015 OF THESE SURFACES
PIN A1 REF TYP P7 & P9
SEE NOTE 15
SCALE 4-1
I
II
60 (25)
60 (27)
SEE NOTE 16
2 (15)
(20)
(19)
2 (13)
2 (14)
2 (9)
P7
P9
P10
P11
J1
J3
4 (12)
STRIP .25
395
42 COND
396
60 COND
(31) LG 12.0 REF
DO NOT LACE
(26)
(8) LG 12.0 REF
(3) 400
401
402
403
398
399
(2) 397
A
357 (4)
358 (2)
359 (2)
360(3)
361
362(2)
363(2)
364(2)
365(2)
366(3)
367
368(2)
369(2)
370
371
372
373(2)
374
375
376
377
(34) REF
(35) REF
(36) REF
SEE DETAIL H
(11)
(10)
.12 HIGH SEE NOTE 8
FLAT LACE
57 COND
394
STRIP .19 DO NOT TIN
(2) 393
391
390
(2) 389
388
387
386
385
384
383 (2)
FORM CORNER AS SHOWN, ROTATE LEG 90° CW, THEN LACE
(1) REF
(35)
(36) LG. .125±.06
(36)
DO NOT TIN
(6) REF
DO NOT TIN
.12±.06
(5) REF
DETAIL H 18 PLACES SCALE/NONE
64 COND
44 COND
378
379
STRIP .19 DO NOT TIN
(21) SPOT TIE TYP
60 COND
382
USE ON FIND 2–152–(22) LG .75±.06
SEE NOTE 8
20–(30)–LG .75±.12
USE ON FIND 1 & 3
SEE NOTE 2
(24)
(22)
USE ON AWG 22–9–(28)
USE ON AWG 24–113–(29)
152–(29)–USE ON AWG 24
2–(23)
B
C
39 COND
381
30 COND
380
STRIP .19 DO NOT TIN
PIN A3 REF
P7 HP
P9 JA
P10 JB
P11 JC
.12±.02 TYP
.25±.02 TYP
.12 HIGH TYP SEE NOTE 9
NO TYP
MARKING VIEW TYP P7, P9, P10 & P11
PIN A1 REF
POTTING TO BE WITHIN +.093 OF THESE SURFACES
SEE NOTE 16
VENT HOLES
40 (17)
60 (16)
20 (18)
SEE NOTE 15
TYP P10 & P11
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND 7 & 21
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
3. NUMBERS ENCLOSED IN PARENTHESES DENOTE NUMBER OF CONDUCTORS
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. STRIP ALL LEADS .50±.06 AND TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. CRIMP PER ND 1002206
7. SERIALIZE PER ND 1002023
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLK INK 1006256-001
9. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING WHT INK 1006271-1
10. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSY DESIGNATIONS
11. MIL-I-23053 CLASS 1, COLOR WHT ID .125 FOR FIND 22, ID .187 FOR FIND 30
12. SOLDER PER ND1002071
13. MIL-W-16878/4 E22, WHT & BLK, TWISTED, SHIELDED, JACKET TFE WHT
14. AR DENOTES AS REQUIRED
15. SEAL TERMINALS AND INSULATORS PER ND 1002004 TYPE VI
16. POT PER ND 1002009 METHOD E & PRIME
17. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
18. POTTING TO BE ±.88 WITHIN TOP OF VENT HOLES
19. LOCATE KEY IN POSITION PER KEY CODING CHART USING DWG NO. 1014047
20. MIL-W-23053, CLASS 1, COLOR BLK, ID .250

☒	2014179	SCHEMATIC	REF
* 2.0	SEE NOTE 20	SLEEVING, SHRINK	36
18	1010402-2	SLEEVE, SOLDER	35
18	1010402-1	SLEEVE, SOLDER	34
* 430	MIL-W-16878/4 E24	WIRE ELEC BLACK	33
* 430	MIL-W-16878/4 E24	WIRE ELEC WHT	32
* 1.0	1006696-5	SLEEVING, INSULATION	31
* 1.4	SEE NOTE 11	SLEEVING, SHRINK	30
295	1006491-009	CONTACT, ELEC	29
9	1006491-011	CONTACT, ELEC	28
120	1010380	BUSHING, INSULATOR,	27
AR	1006699	SOLVENT	26
120	1010379-1	CONTACT, ELEC, FEMALE	25
2	1010402-3	SLEEVE, SOLDER, ELEC	24
2	1006671-001	CONNECTOR, ELEC	23
* 9.8	SEE NOTE 11	SLEEVING, SHRINK	22
AR	1006458-004	TAPE, LACING	21
4	1014021	CONNECTOR, PLATE	20
4	1014024-3	BRACKET	19
40	1014310	INSULATOR, CONTACT	18
80	1006987	INSULATOR, CONTACT	17
120	1006995-000	CONTACT, MALE, CRIMP	16
8	1014032	PIN, RECEPTACLE, INDEX	15
8	MS35337-79	WASHER, LOCK	14
8	1006998-1	SCREW, CAPTIVE	13
4	1020370-23	BUSHING	12
1	1006415-136	BAND MARKER, CABLE	11
AR	1006253	ADHESIVE	10
8	1006997	WASHER, FLAT	9
* 1.0	1006696-4	SLEEVING, INSULATION	8
AR	1006458-002	TAPE, LACING	7
~~16~~	~~1006406~~	~~FERRULE, CO-AXIAL~~	6
* 130	MIL-W-16878/4 E22	WIRE, ELEC, WHT	5
* 25	MIL-W-16878/4 E22	WIRE, ELEC, BLK	4
* 10	SEE NOTE - 13	WIRE, ELEC	3
* 210	1014341-12	WIRE, ELEC, BLK & WHT	2
* 8	RG180B/U	WIRE, ELEC, COAX	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014375	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 15 AUG 65
CHECKED 1 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

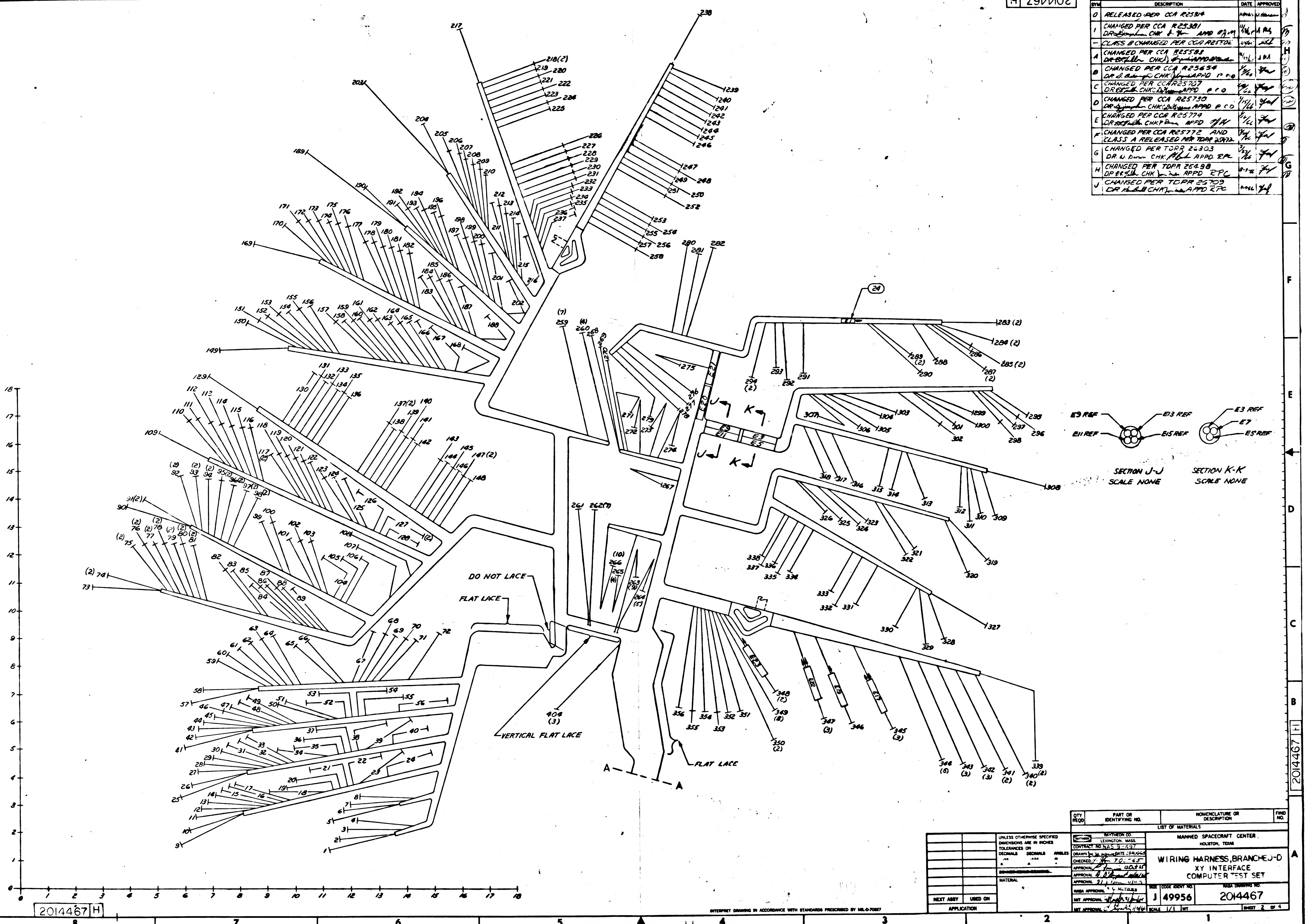
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED-D
XY INTERFACE
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014467
SCALE 1/1
WT
SHEET
OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25314	[illegible]	[illegible]
1	CHANGED PER CCA R25381 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
–	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R25583 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]
B	CHANGED PER CCA R25654 DR [illegible] CHK [illegible] APPD P C D	[illegible]	[illegible]
C	CHANGED PER CCA R25707 DR [illegible] CHK [illegible] APPD P C D	[illegible]	[illegible]
D	CHANGED PER CCA R25730 DR [illegible] CHK [illegible] APPD P C D	1/15/66	[illegible]
E	CHANGED PER CCA R25774 DR [illegible] CHK [illegible] APPD [illegible]	1/16/66	[illegible]
F	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDPR 25472	[illegible]	[illegible]
G	CHANGED PER TDPR 26303 DR. W. Darwin CHK. [illegible] APPD. RPC	3/27/66	[illegible]
H	CHANGED PER TDPR 26498 DR [illegible] CHK [illegible] APPD RPC	8-3-66	[illegible]
J	CHANGED PER TDPR 26709 DR [illegible] CHK [illegible] APPD RPC	[illegible]	[illegible]



DO NOT LACE
FLAT LACE
VERTICAL FLAT LACE
FLAT LACE
A
A
J
J
K
K
E9
E11
E3
E5
E7
E13
E15
E23
E21
E27
E19
E9 REF
E11 REF
E13 REF
E15 REF
E3 REF
E7
E5 REF
SECTION J-J
SCALE NONE
SECTION K-K
SCALE NONE
24
1
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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

~~DO NOT SCALE DRAWING~~

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 29AUG65
CHECKED [illegible] 7OCT65
APPROVAL [illegible] 12OCT65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/[illegible]/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED-D
XY INTERFACE
COMPUTER TEST SET

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014467

SCALE 1/1 WT SHEET 2 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D1	379	J1-A3	WHT	24	2	381	J3-N3	
			-A4	BLK				-N4	
	D2		-A5	WHT				-N5	
			-A6	BLK				-N6	
	D3		-B1	WHT				-N1	
			-B2	BLK			381	J3-N2	
	D4		-B3	WHT			395	P7-C5	
			-B4	BLK				-C6	
	D5		-B5	WHT				-C7	
			-B6	BLK				-C8	
	D6		-C7	WHT		2		-C3	
			-C8	BLK			395	P7-C4	
	D7		-D1	WHT		32	63	S3A-6	TWIST
	D8		-D2	BLK		33	47	S3B-6	
	D9		-D3	WHT		32	31	S3C-6	
	D10		-D4	BLK		33	15	S3D-6	
	D11		-D5	WHT		32	64	S3A-7	
	D12		-D6	BLK		33	48	S3B-7	
	D13		-D7	WHT		32	32	S3C-7	
	D14		-D8	BLK		33	16	S3D-7	
	D15		-E1	WHT		32	65	S3A-8	
	D16		-E2	BLK		33	49	S3B-8	
	D17		-E3	WHT		32	33	S3C-8	
	D18		-E4	BLK		33	17	S3D-8	
	D19		-E5	WHT		32	36	S3C-11	
	D20		-E6	BLK		33	20	S3D-11	
	D21		-E7	WHT		32	68	S3A-11	
	D22	379	-E8	BLK		33	52	S3B-11	
	D23	378	-F1	WHT		32	37	S3C-12	
	D24		-F2	BLK		33	21	S3D-12	
	D25		-F3	WHT		32	69	S3A-12	
	D26		-F4	BLK		33	53	S3B-12	
	D27		-F5	WHT		32	34	S3C-9	
	D28		-F6	BLK		33	18	S3D-9	
	D29		-F7	WHT		32	66	S3A-9	
	D30		-F8	BLK		33	50	S3B-9	
	D31		-G1	WHT		32	35	S3C-10	
	D32		-G2	BLK		33	19	S3D-10	
	D33		-G3	WHT		32	67	S3A-10	TWIST
	D34		-G4	BLK		33	51	S3B-10	
	D35		-G5	WHT		2	395	P7-C17	
			-G6	BLK				-C18	
	D36		-G7	WHT		2		-B1	
			-G8	BLK				-B2	
	D37		-H1	WHT		2		-B3	
			-H2	BLK			395	P7-B4	
	D38		-M7	WHT		32	71	S3A-14	TWIST
	D39		-M8	BLK		33	55	S3B-14	
	D40		-R1	WHT		32	38	S3C-13	
	D41		-R2	BLK		33	22	S3D-13	
	D42		-R3	WHT		32	39	S3C-14	
	D43		-R4	BLK		33	23	S3D-14	
	D44		-R5	WHT		32	40	S3C-15	
	D45		-R6	BLK		33	24	S3D-15	
	D46		-P7	WHT		32	72	S3A-15	TWIST
	D47		-P8	BLK		33	56	S3B-15	
	D48		-P1	WHT		2	39	P7-A1	
			-P2	BLK				-A2	
	D49		-P3	WHT		2		-A3	
			-P4	BLK				-A4	
	D50		-P5	WHT		2		-A5	
			-P6	BLK			395	P7-A6	
	D51		-R7	WHT		32	70	S3A-13	TWIST
	D52		-R8	BLK		33	54	S3B-13	
	D53		-S1	WHT		2	395	P7-B11	
			-S2	BLK				-B12	
	D54		-S3	WHT				-B13	
			-S4	BLK				-B14	
	D55		-S5	WHT				-B15	
			-S6	BLK				-B16	
	D56		-S7	WHT		2		-B17	
		378	-S8	BLK			395	P7-B18	
	D57	379	-T1	WHT		32	30	S3C-5	TWIST
	D58		-T2	BLK		33	14	S3D-5	
	D59		-T3	WHT		2	395	P7-B5	
			-T4	BLK				-B6	
	D60		-T5	WHT		2		-B7	
			-T6	BLK				-B8	
	D61		-T7	WHT		2		-B9	
			-T8	BLK			395	P7-B10	
	D62		-U1	WHT		32	28	S3C-3	TWIST
	D63		-U2	BLK		33	12	S3D-3	
	D64		-U3	WHT		32	61	S3A-4	TWIST
	D65		-U4	BLK		33	45	S3B-4	
	D66		-U5	WHT		32	29	S3C-4	TWIST
	D67	379	J1-U6	BLK	24	33	13	S3D-4	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D68	379	J1-U7	WHT	24	32	62	S3A-5	TWIST
	D69		-U8	BLK		33	46	S3B-5	
	D70		-V1	WHT		32	26	S3C-1	
	D71		-V2	BLK		33	10	S3D-1	
	D72		-V3	WHT		32	59	S3A-2	
	D73		-V4	BLK		33	43	S3B-2	
	D74		-V5	WHT		32	27	S3C-2	
	D75		-V6	BLK		33	11	S3D-2	
	D76		-V7	WHT		32	60	S3A-3	TWIST
	D77		-V8	BLK		33	44	S3B-3	
	D78		-W1	WHT		2	395	P7-C11	
			-W2	BLK				-C12	
	D79		-W3	WHT		2		-C13	
			-W4	BLK				-C14	
	D80		-W5	WHT		2		-C15	
			-W6	BLK			395	P7-C16	
	D81		-W7	WHT		32	58	S3A-1	TWIST
	D82		-W8	BLK		33	42	S3B-1	
	D83		-X3	WHT		2	396	P7-C9	
			-X4	BLK				P7-C10	
	D84		-X5	WHT				P7-C1	
		379	J1-X6	BLK			396	P7-C2	
	D85	381	J3-G1	WHT			382	P11-C5	
			-G2	BLK				-C6	
	D86		-G3	WHT				-C7	
			-G4	BLK				-C8	
	D87		-H1	WHT				-C13	
			-H2	BLK				-C14	
	D88		-H3	WHT				-C15	
			-H4	BLK				-C16	
	D89		-J1	WHT				-B1	
			-J2	BLK				-B2	
	D90		-J3	WHT				-B3	
			-J4	BLK				-B4	
	D91		-K1	WHT				-B7	
			-K2	BLK				-B8	
	D92		-K3	WHT				-B9	
			-K6	BLK				-B10	
	D93		-L1	WHT				-B13	
			-L2	BLK				-B14	
	D94		-M1	WHT				-B15	
			-M2	BLK				-B16	
	D95		-M3	WHT				-B17	
			-M6	BLK				-B18	
	D96		-N7	WHT				-B19	
		381	-N8	BLK				-B20	
	D97	380	-S1	WHT				-C9	
			-S2	BLK				-C10	
	D98		-S3	WHT				-C11	
			-S4	BLK				-C12	
	D99		-T1	WHT				-C17	
			-T2	BLK				-C18	
	D100		-T5	WHT				-C19	
		380	-T6	BLK				-C20	
	D101	381	-P5	WHT				-B11	
		381	-P6	BLK				-B12	
	D102	380	-V1	WHT				-A1	
			-V2	BLK				-A2	
	D103		-V3	WHT				-A3	
			-V4	BLK				-A4	
	D104		-V5	WHT				-A5	
			-V6	BLK				-A6	
	D105		-V7	WHT				-A7	
			-V8	BLK				-A8	
	D106		-W1	WHT				-A9	
			-W2	BLK				-A10	
	D107		-W3	WHT				-A11	
			-W4	BLK				-A12	
	D108		-W5	WHT				-A13	
			-W6	BLK				-A14	
	D109		-W7	WHT				-A15	
			-W8	BLK				-A16	
	D110		-X3	WHT				-C1	
			-X4	BLK				-C2	
	D111		-X5	WHT		2		-C3	
		380	-X6	BLK	24			-C4	
	D112	381	-P1	BLK	22	4		-A17	
	D113		-P2	WHT		5		-A18	
	D114		-P3					-A19	
	D115	381	-P4					-A20	
	D116	380	-T3					-B5	
	D117	380	J3-T4	WHT	22	5	382	P11-B6	
	D118	396	P9-A1	WHT	24	32	194	S1C-12	TWIST
	D119		-A2	BLK	24	33	208	S1D-12	
	D120		-A3	WHT	24	32	195	S1C-13	TWIST
	D121	396	P9-A4	BLK	24	33	209	S1D-13	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D122	396	P9-A5	WHT	24	32	196	S1C-14	TWIST
	D123		-A6	BLK		33	210	S1D-14	
	D124		-A7	WHT		32	190	S1C-8	
	D125		-A8	BLK		33	204	S1D-8	
	D126		-A9	WHT		32	198	S1C-16	
	D127		-A10	BLK		33	212	S1D-16	
	D128		-A11	WHT		32	57	S3A-ARM	
	D129		-A12	BLK		33	41	S3B-ARM	
	D130		-A13	WHT		32	25	S3C-ARM	
	D131		-A14	BLK		33	9	S3D-ARM	
	D132		-A15	WHT		32	5	S3E-ARM	
	D133		-A16	BLK		33	1	S3F-ARM	
	D134		-A17	WHT		32	197	S1C-15	
	D135		-A18	BLK		33	211	S1D-15	
	D136		-A19	WHT		32	8	S3E-20	
	D137		-A20	BLK		33	4	S3F-20	
	D138		-B1	WHT		32	228	S1E-11	
	D139		-B2	BLK		33	249	S1F-11	
	D140		-B3	WHT		32	229	S1E-12	
	D141		-B4	BLK		33	250	S1F-12	
	D142		-B5	WHT		32	201	S1C-19	
	D143		-B6	BLK		33	215	S1D-19	
	D144		-B7	WHT		32	199	S1C-17	
	D145		-B8	BLK		33	213	S1D-17	
	D146		-B9	WHT		32	200	S1C-18	
	D147		-B10	BLK		33	214	S1D-18	
	D148		-B11	WHT		32	202	S1C-20	
	D149		-B12	BLK		33	216	S1D-20	
	D150		-B13	WHT		32	191	S1C-9	
	D151		-B14	BLK		33	205	S1D-9	
	D152		-B15	WHT		32	192	S1C-10	
	D153		-B16	BLK		33	206	S1D-10	
	D154		-B17	WHT		32	193	S1C-11	
	D155		-B18	BLK		33	207	S1D-11	
	D156		-B19	WHT		32	7	S3E-19	
	D157		-B20	BLK		33	3	S3F-19	
	D158		-C1	WHT		32	92	S2E-2	
	D159		-C2	BLK		33	75	S2F-2	
	D160		-C3	WHT		32	93	S2E-3	
	D161		-C4	BLK		33	76	S2F-3	
	D162		-C5	WHT		32	94	S2E-4	
	D163		-C6	BLK		33	77	S2F-4	
	D164		-C7	WHT		32	95	S2E-5	
	D165		-C8	BLK		33	78	S2F-5	
	D166		-C9	WHT		32	96	S2E-6	
	D167		-C10	BLK		33	79	S2F-6	
	D168		-C11	WHT		32	97	S2E-7	
	D169		-C12	BLK		33	80	S2F-7	
	D170		-C13	WHT		32	98	S2E-8	
	D171		-C14	BLK		33	81	S2F-8	
	D172		-C15	WHT		32	226	S1E-9	
	D173		-C16	BLK		33	247	S1F-9	
	D174		-C17	WHT		32	227	S1E-10	
	D175		-C18	BLK		33	248	S1F-10	
	D176		-C19	WHT		32	6	S3E-18	TWIST
	D177	396	P9-C20	BLK		33	2	S3F-18	
	D178	394	P10-A1	WHT		2	341	S21A-C	
			-A2	BLK			341	S21A-NO	
	D179		-A7	WHT		2	344	S24A-C	
			-A8	BLK			344	S24A-NO	
	D180		-A9	WHT		32	335	S17A-D-A	TWIST
	D181		-A10	BLK		33	337	S17A-A-A	
	D182		-A11	WHT		2	332	S17A-B-A	
			-A12	BLK			329	S17A-C-A	
	D183		-A13	WHT			321	S17B-B1	
			-A14	BLK			319	S17B-C1	
	~~D184~~		~~-A15~~	~~WHT~~			[illegible]	[illegible]	
			~~-A16~~	~~BLK~~			~~319~~	[illegible]	
	D185		-A17	WHT			326	S17B-A1	
			-A18	BLK			323	S17B-D1	
	D186		-B1	WHT			357	S35A-C	
			-B2	BLK			357	S35A-NO	
	D187		-B3	WHT		2	358	S36A-C	
			-B4	BLK	24		358	S36A-NO	
	D188		-A3	WHT	22	5	342	S22A-C	
	D189		-A4				342	S22A-NO	
	D190		-A5				343	S23A-C	
	D191		-A6				343	S23A-NO	
	D192		-A19				343	S23A-NC	
	D193		-B5				404	S14-4	
	D194		-B6				264	S11A-NO	
	D195		-B7				404	S14-1	
	D196	394	P10-B8	WHT	22	5	261	S10A-NO	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R2531		
1	CHANGED PER CCA R25381 DR CHK J. Yon APPD		
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25503 DR CHK APPD		
B	CHANGED PER CCA R25654 DR D. Belanger CHK APPD R.E.D		
C	CHANGED PER CCA R25707 DR CHK APPD R.E.D		
D	CHANGED PER CCA R25730 DR CHK APPD R.E.D		
E	CHANGED PER CCA R25774 DR CHK APPD		
F	CHANGED PER CCAR25772 AND CLASS A RELEASED PER TDRR 25402		
G	CHANGED PER TDRR 26303 DR. W. Dawson CHK APPD. RPC		
H	CHANGED PER TDPP 26488 DR CHK APPD RPC	8-3-66	
J	CHANGED PER TDPP 26709 DR CHK APPD RPC		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN H. DATE 28 SEP 65
CHECKED J. 7 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED-D
X Y INTERFACE
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014467
SCALE NONE
WT
SHEET 3 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D197	394	P10-B9	BLK	24	2	340	S20A-C	
			B10	WHT			340	S20A-NO	
	D198		B11	BLK			339	S19A-C	
			B12	WHT			339	S19A-NO	
	D199		B15	WHT			262	S12A-C	
			B16	BLK			262	S12B-C	
	D200		C1	BLK			322	S17B-B-A	
			C2	WHT			320	S17B-C-A	
	D201		C3	WHT			349	J10	
			C4	BLK			349	J10-GRD	
	D202		C5	WHT			350	J11	
			C6	BLK			350	J11-GRD	
	D203		C15	WHT			357	S34A-C	
			C16	BLK			357	S34A-NO	
	D204		C17	WHT		2	263	S13C-NO	
			C18	BLK	24		263	S13B-NO	
	D205		B13	WHT	22	5	404	S14-3	
	D206		B14				263	S13A-NO	
	D207		B17				262	S12C-C	
	D208		B18				262	S12C-NO	
	D209		B19				262	S12C-NC	
	D210		C7				397	S27A-NO	
	D211		C8				398	S28A-NO	
	D212		C9				399	S29A-NO	
	D213		C10				397	S27A-C	
	D214		C11				400	S30A-NO	
	D215		C12				401	S31A-NO	
	D216		C13				402	S32A-NO	
	D217		C14				403	S33A-NO	
	D218	394	P10-C19	WHT	22	5	342	S22A-NC	
	D219	92	S2E-2	WHT	24	32	219	S1E-2	TWIST
	D220	75	S2F-2	BLK		33	240	S1F-2	
	D221	93	S2E-3	WHT		32	220	S1E-3	
	D222	76	S2F-3	BLK		33	241	S1F-3	
	D223	94	S2E-4	WHT		32	221	S1E-4	
	D224	77	S2F-4	BLK		33	242	S1F-4	
	D225	95	S2E-5	WHT		32	222	S1E-5	
	D226	78	S2F-5	BLK		33	243	S1F-5	
	D227	96	S2E-6	WHT		32	223	S1E-6	
	D228	79	S2F-6	BLK		33	244	S1F-6	
	D229	97	S2E-7	WHT		32	224	S1E-7	
	D230	80	S2F-7	BLK		33	245	S1F-7	
	D231	98	S2E-8	WHT		32	225	S1E-8	
	D232	81	S2F-8	BLK		33	246	S1F-8	
	D233	99	S2E-13	WHT		32	230	S1E-13	
	D234	82	S2F-13	BLK		33	251	S1F-13	
	D235	100	S2E-14	WHT		32	231	S1E-14	
	D236	83	S2F-14	BLK		33	252	S1F-14	
	D237	101	S2E-15	WHT		32	232	S1E-15	
	D238	84	S2F-15	BLK		33	253	S1F-15	
	D239	102	S2E-16	WHT		32	233	S1E-16	
	D240	85	S2F-16	BLK		33	254	S1F-16	
	D241	103	S2E-17	WHT		32	234	S1E-17	
	D242	86	S2F-17	BLK		33	255	S1F-17	
	D243	104	S2E-18	WHT		32	235	S1E-18	
	D244	87	S2F-18	BLK		33	256	S1F-18	
	D245	105	S2E-19	WHT		32	236	S1E-19	
	D246	88	S2F-19	BLK		33	257	S1F-19	
	D247	106	S2E-20	WHT		32	237	S1E-20	
	D248	89	S2F-20	BLK		33	258	S1F-20	
	D249	130	S2A-2	WHT		32	150	S1A-2	
	D250	110	S2B-2	BLK		33	170	S1B-2	
	D251	131	S2A-3	WHT		32	151	S1A-3	
	D252	111	S2B-3	BLK		33	171	S1B-3	
	D253	132	S2A-4	WHT		32	152	S1A-4	
	D254	112	S2B-4	BLK		33	172	S1B-4	
	D255	133	S2A-5	WHT		32	153	S1A-5	
	D256	113	S2B-5	BLK		33	173	S1B-5	
	D257	134	S2A-6	WHT		32	154	S1A-6	
	D258	114	S2B-6	BLK		33	174	S1B-6	
	D259	135	S2A-7	WHT		32	155	S1A-7	
	D260	115	S2B-7	BLK		33	175	S1B-7	
	D261	136	S2A-8	WHT		32	156	S1A-8	
	D262	116	S2B-8	BLK		33	176	S1B-8	
	D263	137	S2A-9	WHT		32	157	S1A-9	TWIST
	D264	117	S2B-9	BLK	24	33	177	S1B-9	
	D265	351	S18-1	WHT	22	5	383	R1-ARM	
	D266	352	2				384	R2-ARM	
	D267	354	3				385	R3-ARM	
	D268	355	4				386	R4-ARM	
	D269	356	5				387	R5-ARM	
	D270	353	S18-ARM				390	A2-40	
	D271	391	A2-14				74	S2F-1	
	D272	74	S2F-1				91	S2E-1	
	D273	91	S2E-1				218	S1E-1	
	D274	218	S1E-1	WHT	22	5	239	S1F-1	

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D275	138	S2A-10	WHT	24	32	158	S1A-10	TWIST
	D276	118	S2B-10	BLK		33	178	S1B-10	
	D277	139	S2A-11	WHT		32	159	S1A-11	
	D278	119	S2B-11	BLK		33	179	S1B-11	
	D279	140	S2A-12	WHT		32	160	S1A-12	
	D280	120	S2B-12	BLK		33	180	S1B-12	
	D281	137	S2A-9	WHT		32	262	S12A-NO	
	D282	117	S2B-9	BLK		33	262	S12B-NO	
	D283	141	S2A-13	WHT		32	161	S1A-13	
	D284	121	S2B-13	BLK		33	181	S1B-13	
	D285	142	S2A-14	WHT		32	162	S1A-14	
	D286	122	S2B-14	BLK		33	182	S1B-14	
	D287	143	S2A-15	WHT		32	163	S1A-15	
	D288	123	S2B-15	BLK		33	183	S1B-15	
	D289	144	S2A-16	WHT		32	164	S1A-16	
	D290	124	S2B-16	BLK		33	184	S1B-16	
	D291	145	S2A-17	WHT		32	165	S1A-17	
	D292	125	S2B-17	BLK		33	185	S1B-17	
	D293	146	S2A-18	WHT		32	166	S1A-18	
	D294	126	S2B-18	BLK		33	186	S1B-18	
	D295	147	S2A-19	WHT		32	167	S1A-19	
	D296	127	S2B-19	BLK		33	187	S1B-19	
	D297	148	S2A-20	WHT		32	168	S1A-20	
	D298	128	S2B-20	BLK		33	188	S1B-20	
	D299	149	S1A-ARM	WHT		32	275	S4-A1	
	D300	169	S1B-ARM	BLK		33	276	S4-C1	
	D301	129	S2A-ARM	WHT		32	267	S7-A1	
	D302	109	S2B-ARM	BLK		33	270	S7-C1	
	D303	282	S4-A-A	WHT		32	334	S17A-D1	TWIST
	D304	277	S4-C-A	BLK		33	338	S17A-A1	
	D305	333	S17A-B3	WHT		2	259	S5B-C	
		330	S17A-C3	BLK			259	S5A-C	
	D306	260	S6B-C	WHT		2	294	S15A-A7	
		260	S6A-C	BLK			283	S15A-B1	
	D307	294	S15A-A7	WHT		32	317	S16A-A-A	TWIST
	D308	283	S15A-B1	BLK		33	305	S16B-A-A	
	D309	274	S7A-A	WHT		32	331	S17A-B1	TWIST
	D310	271	S7C-A	BLK		33	328	S17A-C1	
	D311	336	S17A-D3	WHT		2	265	S8B-C	
		327	S17A-A3	BLK			265	S8A-C	
	D312	266	S9B-C	WHT		32	288	S15A-B5	TWIST
	D313	266	S9A-C	BLK		33	284	S15A-B2	
	D314	293	S15A-A6	WHT		32	313	S16A-B-A	
	D315	284	S15A-B2	BLK		33	300	S16B-B-A	
	D316	318	S16A-A2	WHT		32	360	A3-8	
	D317	306	S16B-A2	BLK		33	360	7	
	D318	308	S16A-A3	WHT		32	364	16	
	D319	307	S16B-A3	BLK		33	364	15	
	D320	309	S16A-A4	WHT		32	368	24	
	D321	295	S16B-A4	BLK		33	368	23	
	D322	314	S16A-B2	WHT		32	362	12	
	D323	301	S16B-B2	BLK		33	362	11	
	D324	315	S16A-B3	WHT		32	366	20	
	D325	302	S16B-B3	BLK		33	366	A3-19	
	D326	316	S16A-C-A	WHT		32	289	S15A-B6	TWIST
	D327	303	S16B-C-A	BLK		33	285	S15A-B3	
	~~D328~~	~~259~~	~~S9A-NO~~	~~WHT~~		~~2~~	~~372~~	~~A3-28~~	
		~~259~~	~~S5B-NO~~	~~BLK~~			~~376~~	~~38~~	
	~~D329~~	~~260~~	~~S6A-NO~~	~~WHT~~		~~2~~	~~373~~	~~29~~	
		~~260~~	~~S6B-NO~~	~~BLK~~			~~377~~	~~39~~	
	~~D330~~	~~265~~	~~S8A-NO~~	~~WHT~~		~~2~~	~~378~~	~~26~~	
		~~265~~	~~S8B-NO~~	~~BLK~~			~~374~~	~~36~~	
	~~D331~~	~~266~~	~~S9A-NO~~	~~WHT~~		~~2~~	~~371~~	~~27~~	
			~~S9B-NO~~	~~BLK~~	~~24~~		~~375~~	~~A3-37~~	
	D332	266	S9D-NO	BLK	22	4	259	S5D-NO	
	D333	266	S9-3	WHT		5	259	S5-3	
	D334	266	S9D-NC				259	S5D-NC	
	D335	304	S16B-C4				348	J9-GRD	
	D336	373	A3-30				347	J8-GRD	
	D337	292	S15A-D-A	WHT	22	5	345	J6-GRD	
	D338	△	E3	COAX		1	△	E4	
			E3-SHLD	SHLD			△	E4-SHLD	SEE D392
	D339		E4	WHT	22	5	361	A3-9	
	D340		E3	WHT	22	5	310	S16A-D2	
	D341		E5	COAX		1	△	E6	
			E5-SHLD	SHLD			△	E6-SHLD	SEE D393
	D342		E5	WHT	22	5	312	S16A-D3	
	D343		E6	WHT	22	5	367	A3-21	
	D344		E7	COAX		1	△	E22	
			E7-SHLD	SHLD			△	E22-SHLD	SEE D390 & 394
	D345		E7	WHT	22	5	311	S16A-D-A	
	D346	△	E22	WHT	22	5	347	J8	

△ DENOTES EXTERNAL CONNECTION

~~△ STRIP .31, TIN .06~~

~~△ STRIP .44, TIN .06~~

~~△ STRIP .25, DO NOT TIN~~

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	D347	△	E9	COAX		1	△	E10	
			E9-SHLD	SHLD			△	E10-SHLD	SEE D395
	D348		E9	WHT	22	5	296	S16B-D2	
	D349		E10	WHT	22	5	363	A3-13	
	D350		E11	COAX		1	△	E12	
			E11-SHLD	SHLD			△	E12-SHLD	SEE D396
	D351		E12	WHT	22	5	365	A3-17	
	D352		E11	WHT	22	5	298	S16B-D3	
	D353		E13	COAX		1	△	E14	
			E13-SHLD	SHLD			△	E14-SHLD	SEE D397
	D354		E14	WHT	22	5	369	A3-25	
	D355		E13	WHT	22	5	299	S16B-D4	
	D356		E15	COAX		1	△	E23	
			E15-SHLD	SHLD			△	E23-SHLD	SEE D390
	D357		E15	WHT	22	5	297	S16B-D-A	
	D358		E23	WHT	22	5	348	J9	
	D359		E21	COAX		1	△	E17	
			E21-SHLD	SHLD			△	E17-SHLD	SEE D391 & D398
	D360		E21	WHT	22	5	291	S15A-A-A	
	D361		E17	WHT	22	5	345	J6	
	D362		E20	COAX		1	△	E19	
			E20-SHLD	SHLD			△	E19-SHLD	SEE D391
	D363		E20	WHT	22	5	286	S15A-B-A	
	D364	△	E19	WHT	22	5	346	J7	
	D365	266	S9D-NO	WHT	24	2	264	S11D-NO	
		266	S9D-NC	BLK	24		264	S11D-NC	
	D366	389	A2-42	WHT	24	2	400	S30-1	
		389	A2-43	BLK	24		400	S30D-NO	
	D367	388	A2-48	WHT	22	5	383	AIR1-CCW	
	~~D368~~	~~392~~	~~A2-18~~				~~400~~	~~S30-NC~~	
	D369	393	A2-2	WHT	22	5	290	S15B-B7	
	D370	393	A2-3	WHT	22	5	287	S15B-B4	
	D371	238	S1F-ARM	WHT	24	32	279	S4-C3	TWIST
	D372	217	S1E-ARM	BLK		33	280	S4-A3	
	D373	90	S2E-ARM	WHT		32	272	S7-A3	
	D374	73	S2F-ARM	BLK		33	268	S7-C3	
	D375	203	S1D-ARM	WHT		32	278	S4-C2	
	D376	189	S1C-ARM	BLK		33	281	S4-A2	
	D377	107	S2D-ARM	WHT		32	269	S7-C2	
	D378	108	S2C-ARM	BLK		33	273	S7-A2	
	D379	263	S13D-NO	WHT		32	344	S24D-NO	
	D380	263	S13D-NC	BLK		33	359	S36D-NC	
	D381	263	S13D-NO	WHT		32	359	S36D-NO	TWIST
	D382	263	S13D-NC	BLK	24	33	344	S24D-NC	
	D383	266	S9-1	WHT	22	5	264	S11-1	
	D384	289	S15A-B6	WHT	22	3	381	J3-K8	
		285	S15A-B3	BLK	22		381	J3-L8	
		△	E1	SHLD			△	E2	
	D385	△	E2	BLK	22	4	381	J3-J8	
	D386	△	E1	BLK	22	4	287	S15B-B3	
	D387	344	S24-3	WHT	22	5	264	S13-1	
	D388	147	S2A-19	WHT	24	32	263	S13B-C	TWIST
	D389	127	S2B-19	BLK	24	33	263	S13C-C	
	D390	△	E22-SHLD	BLK	22	4	△	E23-SHLD	
	D391		E17-SHLD				△	E19-SHLD	
	D392		E4-SHLD				360	A3-6	
	D393		E6-SHLD				366	A3-18	
	D394		E22-SHLD				347	J8-GRD	
	D395		E10-SHLD				363	A3-10	
	D396		E12-SHLD				365	A13-14	
	D397		E14-SHLD				369	A3-22	
	D398	△	E17-SHLD	BLK	22	4	345	J6-GRD	
	D399	394	P10-A15	WHT	24	32	325	S17B-A-A	TWIST
	D400	394	P10-A16	BLK		33	324	S17B-D-A	
	D401	259	S5A-NO	WHT		32	372	A3-28	TWIST
	D402	259	S5B-NO	BLK		33	376	-38	
	D403	260	S6A-NO	WHT		32	373	-29	TWIST
	D404	260	S6B-NO	BLK		33	377	-39	
	D405	265	S8A-NO	WHT		32	370	-26	TWIST
	D406	265	S8B-NO	BLK		33	374	-36	
	D407	266	S9A-NO	WHT		32	371	-27	TWIST
	D408	266	S9B-NO	BLK	24	33	375	A3-37	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25314	[illegible]	
1	CHANGED PER CCA R25381 DR CHK APPD	[illegible]	
-	CLASS B CHANGED PER CCA R2555[illegible]	[illegible]	
A	CHANGED PER CCA R25583 DR CHK APPD	12/27/65	
B	CHANGED PER CCA R25654 DR CHK APPD RCD	[illegible]	
C	CHANGED PER CCA R25707 DR CHK APPD RCD	[illegible]	
D	CHANGED PER CCA R25730 DR CHK APPD RCD	[illegible]	
E	CHANGED PER CCA R25777 DR CHK APPD	[illegible]	
F	CHANGED PER CCA R25772 AND CLASS A RELEASED PER TDRR 25472	[illegible]	
G	CHANGED PER TDRR 26303 DR. W. Dawn CHK. APPD. RPC	[illegible]	
H	CHANGED PER TDRR 26488 DR CHK APPD RPC	[illegible]	
J	CHANGED PER TDRR 26709 DR CHK APPD RPC	[illegible]	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 28 SEPT 65
CHECKED 7 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED-D
X Y INTERFACE
COMPUTER TEST SET

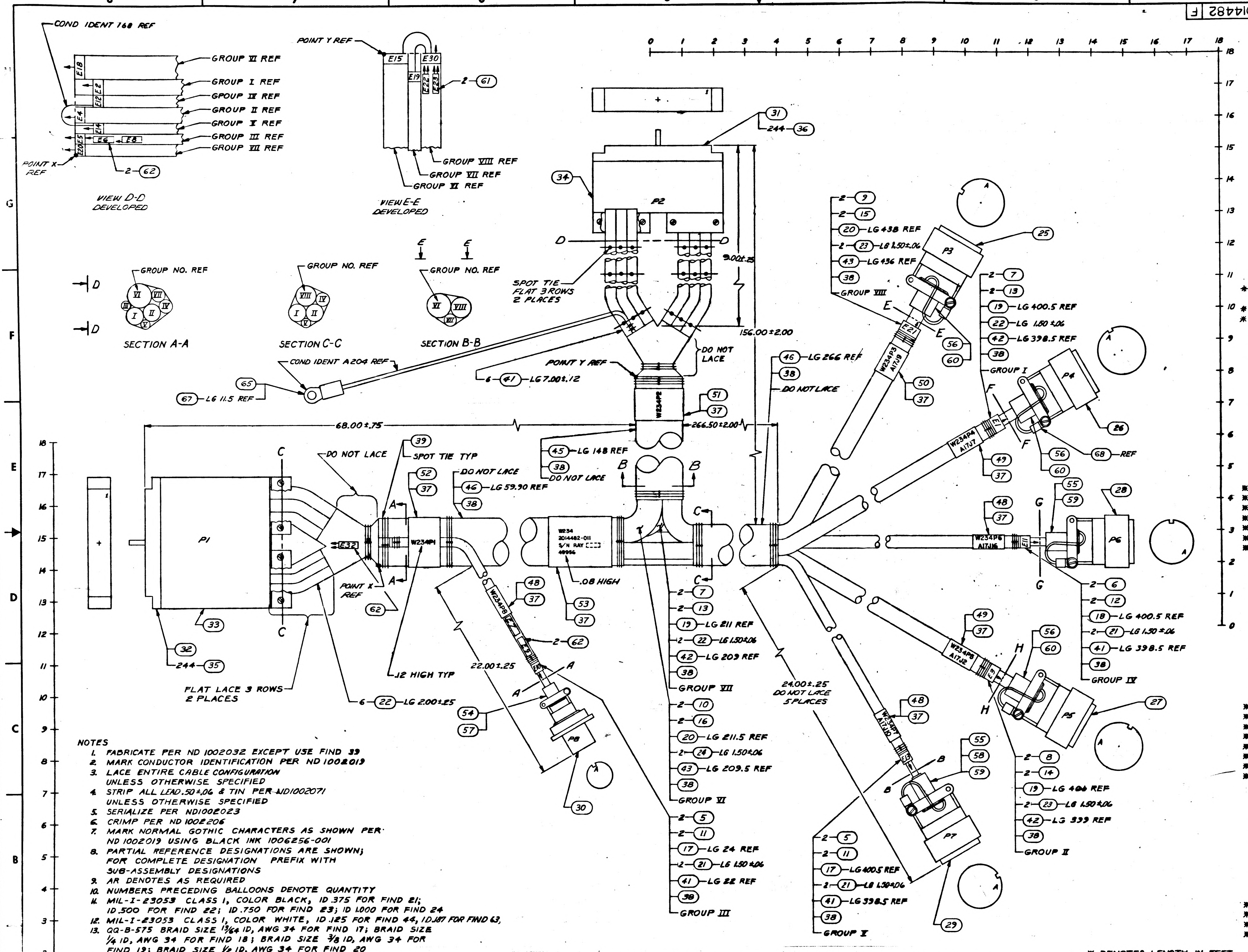
SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014467
SCALE NONE
WT
SHEET 4 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014467 J

2014482 | F

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
F	CLASS A RELEASED PER TDRR 27694		



COND IDENT 168 REF
GROUP VI REF
GROUP I REF
GROUP IV REF
GROUP II REF
GROUP V REF
GROUP III REF
GROUP VII REF
POINT X REF
2-62
VIEW D-D DEVELOPED
POINT Y REF
E15
E30
E19
E22
E23
2-61
GROUP VIII REF
GROUP VII REF
GROUP VI REF
VIEW E-E DEVELOPED
GROUP NO. REF
SECTION A-A
SECTION C-C
SECTION B-B
31
244-36
34
P2
D
E
SPOT TIE FLAT 3 ROWS 2 PLACES
9.00±.25
156.00±2.00
DO NOT LACE
POINT Y REF
6-41-LG 7.00±.12
COND IDENT A204 REF
65
67-LG 11.5 REF
W234P2
51
37
68.00±.75
266.50±2.00
45-LG 148 REF
38
DO NOT LACE
B
C
DO NOT LACE
SPOT TIE TYP
39
52
37
46-LG 59.90 REF
38
P1
E32
W234P1
POINT X REF
62
A
W234 2014482-011 S/N RAY 49956
.08 HIGH
53
37
33
32
244-35
FLAT LACE 3 ROWS 2 PLACES
6-22-LG 2.00±.25
.12 HIGH TYP
22.00±.25
W234P8
48
37
2-62
54
57
P8
30
2-7
2-13
19-LG 211 REF
2-22-LG 1.50±.06
42-LG 203 REF
38
GROUP VII
2-10
2-16
20-LG 211.5 REF
2-24-LG 1.50±.06
43-LG 209.5 REF
38
GROUP VI
2-5
2-11
17-LG 24 REF
2-21-LG 1.50±.06
41-LG 22 REF
38
GROUP III
2-9
2-15
20-LG 438 REF
2-23-LG 1.50±.06
43-LG 436 REF
38
GROUP VIII
25
P3
W234P3 A17J8
50
37
56
60
2-7
2-13
19-LG 400.5 REF
22-LG 1.50±.06
42-LG 398.5 REF
38
GROUP I
46-LG 266 REF
38
DO NOT LACE
24.00±.25 DO NOT LACE 5 PLACES
P4
W234P4 A17J7
49
37
26
56
60
68-REF
55
59
28
48
37
W234P6 A17J16
P6
G
2-6
2-12
18-LG 400.5 REF
2-21-LG 1.50±.06
41-LG 398.5 REF
38
GROUP IV
49
37
W234P5 A17J12
56
60
P5
27
H
48
37
W234P7 A17J10
55
58
59
P7
2-8
2-14
19-LG 404 REF
2-23-LG 1.50±.06
42-LG 399 REF
38
GROUP II
2-5
2-11
17-LG 400.5 REF
2-21-LG 1.50±.06
41-LG 398.5 REF
38
GROUP V
29

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND 39
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
3. LACE ENTIRE CABLE CONFIGURATION UNLESS OTHERWISE SPECIFIED
4. STRIP ALL LEAD .50±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
5. SERIALIZE PER ND1002023
6. CRIMP PER ND 1002206
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. AR DENOTES AS REQUIRED
10. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
11. MIL-I-23053 CLASS 1, COLOR BLACK, ID .375 FOR FIND 21; ID .500 FOR FIND 22; ID .750 FOR FIND 23; ID 1.000 FOR FIND 24
12. MIL-I-23053 CLASS 1, COLOR WHITE, ID .125 FOR FIND 44, ID.187 FOR FIND 63,
13. QQ-B-575 BRAID SIZE 13/64 ID, AWG 34 FOR FIND 17; BRAID SIZE 1/4 ID, AWG 34 FOR FIND 18; BRAID SIZE 3/8 ID, AWG 34 FOR FIND 19; BRAID SIZE 1/2 ID, AWG 34 FOR FIND 20
14. MIL-W-16878/4 E22 WHT & BLK, TWISTED SHIELDED, JACKET TFE WHITE
~~15. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS~~
16. SOLDER PER ND1002071
17. MIL-I-631, TYPE F FORM Ua, GRADE a, CLASS I, CATEGORY I, COLOR BLK, AWG SIZE NO. 4
18. MARK REFERENCE DESIGNATION AS SHOWN .12 HIGH BLK PER ND1002019

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	5	MS25036-49	LUG, TERMINAL	67
*	1.0	SEE NOTE 17	INSULATION ELEC	66
	1	MS25036-57	LUG, TERMINAL	65
*	5.0	MIL-W-16878/4 E22	WIRE, ELEC, BLK	64
*	.3	SEE NOTE 12	INSULATION SLEEVING, SHRINK	63
	11	1010402-2	SLEEVE, SOLDER, ELEC	62
	7	1010402-1	SLEEVE, SOLDER, ELEC	61
	3	1020371-13	BUSHING, SLEEVE	60
	2	1020371-8	BUSHING, SLEEVE	59
	1	1020371-5	BUSHING, SLEEVE	58
	1	1020371-4	BUSHING, SLEEVE	57
	3	1020370-23	BUSHING, SLEEVE, FLANGED	56
	2	1020370-16	BUSHING, SLEEVE, FLANGED	55
	1	1020370-11	BUSHING, SLEEVE, FLANGED	54
	1	1006415-142	BAND MARKER	53
	1	1006415-066	BAND MARKER	52
	1	1006415-064	BAND MARKER	51
	1	1006415-058	BAND MARKER	50
	2	1006415-057	BAND MARKER	49
	3	1006415-055	BAND MARKER	48
	~~1~~	~~1006415-053~~	~~BAND MARKER~~	~~47~~
*	27.5	1006696-9	INSULATION SLEEVING, ELEC	46
*	12.5	1006696-8	INSULATION SLEEVING, ELEC	45
*	7.7	SEE NOTE 12	INSULATION SLEEVING, SHRINK	44
*	53.9	1006696-4	INSULATION SLEEVING, ELEC	43
*	66.5	1006696-3	INSULATION SLEEVING, ELEC	42
*	90.0	1006696-2	INSULATION SLEEVING, ELEC	41
*	~~1.3~~	~~1006696-1~~	~~INSULATION SLEEVING, ELEC~~	~~40~~
	AR	1006458-004	TAPE, LACING	39
	AR	1006699	SOLVENT	38
	AR	1006253	ADHESIVE	37
	244	1010738-2	CONTACT, ELEC, SOCKET	36
	244	1010738-1	CONTACT, ELEC, PIN	35
	1	1006225-4	SHELL, ELEC CONNECTOR	34
	1	1006225-1	SHELL, ELEC CONNECTOR	33
	1	1010815-144	CONNECTOR	32
	1	1010818-1	CONNECTOR	31
	1	MS3124F-12-10S	CONNECTOR	30
	1	MS3126F-22-55PW	CONNECTOR	29
	1	MS3126F-22-55PX	CONNECTOR	28
	1	MS3126F-24-61SW	CONNECTOR	27
	1	MS3126F-24-61S	CONNECTOR	26
	1	MS3126F-24-61SY	CONNECTOR	25
*	0.3	SEE NOTE 11	INSULATION, SLEEVING SHRINK	24
*	0.5	SEE NOTE 11	INSULATION, SLEEVING SHRINK	23
*	1.5	SEE NOTE 11	INSULATION, SLEEVING SHRINK	22
*	0.8	SEE NOTE 11	INSULATION, SLEEVING SHRINK	21
*	54.3	SEE NOTE 13	BRAID, ELEC	20
*	66.8	SEE NOTE 13	BRAID, ELEC	19
*	52.0	SEE NOTE 13	BRAID, ELEC	18
*	35.4	SEE NOTE 13	BRAID, ELEC	17
	2	1000243-38	FERRULE, ELEC COND	16
	2	1000243-41	FERRULE, ELEC COND	15
	2	1000243-40	FERRULE, ELEC COND	14
	4	1000243-34	FERRULE, ELEC COND	13
	2	1000243-21	FERRULE, ELEC COND	12
	4	1000243-20	FERRULE, ELEC COND	11
	2	1000242-38	FERRULE, ELEC COND	10
	2	1000242-37	FERRULE, ELEC COND	9
	2	1000242-36	FERRULE, ELEC COND	8
	4	1000242-30	FERRULE, ELEC COND	7
	2	1000242-27	FERRULE, ELEC COND	6
	4	1000242-24	FERRULE, ELEC COND	5
*	6.0	SEE NOTE 14	WIRE, ELEC WHT/BLK	4
*	1300	1014341-11	WIRE, ELEC	3
*	10.0	MIL-W-16878/4 E20	WIRE, ELEC BLK	2
*	2800	MIL-W-16878/4 E22	WIRE, ELEC WHT	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014482 -

2014255	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN C Bunker DATE 12 MAR 66
CHECKED 15 MAR 66
APPROVAL 15 MAR 66
APPROVAL D. O'Brien 15 MAR 66
APPROVAL 15 MAR 66
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W234

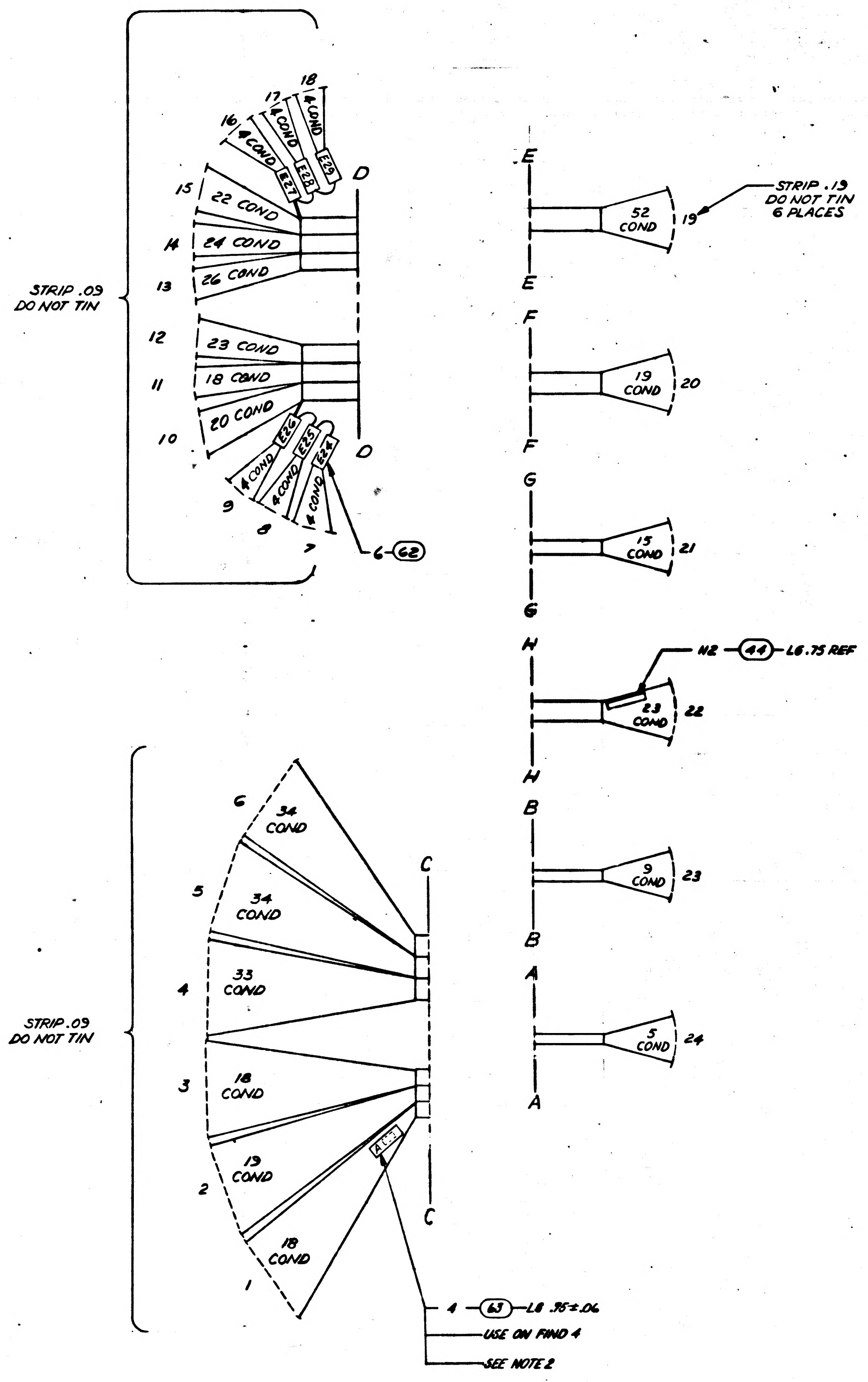
SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014482
SCALE 1/1 | WT | SHEET 1 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014482 | F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
F	CLASS A RELEASED PER TDRR 27694		


STRIP .09
DO NOT TIN
18
4 COND
E29
17
4 COND
E28
16
4 COND
E27
15
22 COND
14
24 COND
13
26 COND
12
23 COND
11
18 COND
10
20 COND
E26
E25
E24
9
4 COND
8
4 COND
7
4 COND
D
D
6-62
E
52 COND
19
STRIP .19
DO NOT TIN
6 PLACES
E
F
19 COND
20
F
G
15 COND
21
G
H
N2 — 44 — L6.75 REF
23 COND
22
H
B
9 COND
23
B
A
5 COND
24
A
STRIP .09
DO NOT TIN
6
34 COND
5
34 COND
4
33 COND
3
18 COND
2
19 COND
1
18 COND
C
C
A
4 — 63 — L8 .75±.06
USE ON FIND 4
SEE NOTE 2

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP I	A197	△1	E31	BLK	18	2	20A		△3
	A198	↑	E2	↑	↑	↑	△1		
GROUP II	A199		E33				20A		△3
	A200		E4				△1		
GROUP IV	A201		E34				21A		△3
GROUP V	A202		E35	↓	↓	↓	23A		△3
GROUP VIII	A203	↓	E36	BLK	18	2	19A		△3
	A204	△1	E30	SHLD		18	6A		

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MIT APPROVAL 4-1-66
MIT APPROVAL

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W234

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014482

SCALE 1/1 WT SHEET 2 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014482 F

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F	CLASS A RELEASED PER TDRR 27694	4-1-66	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP I	A1	3	P1-190	WHT	22	3	20	P4-CC	
		3	-191	BLK				-DD	
	A2	3	-192	WHT				-EE	
		2	-193	BLK				-FF	
	A3	2	-194	WHT				-GG	
		2	-195	BLK				-HH	
	A4	3	-123	WHT				-g	
		3	-124	BLK				-h	
	A5	3	-125	WHT				-s	
		3	-126	BLK				-t	
	A6	4	-222	WHT				-e	
		4	-223	BLK				-f	
	A7	3	-91	WHT				-c	
		3	-92	BLK				-d	
	A8	4	-152	WHT				-X	
		4	-153	BLK				-Y	
	A9	4	-154	WHT		3		-i	
		4	-155	BLK	22		20	P4-j	
	A10	2	P1-G1	BLK	22	64	△1	E32	
		△1	E2	SHLD			△1	E1	
	A11	△1	E1	BLK	20	2	△1	E31	
GROUP II	A12	1	P1-34	WHT	22	3	22	P5-g	
		1	-35	BLK				-h	
	A13	2	-98	WHT				-CC	
		1	-99	BLK				-DD	
	A14	2	-196	WHT				-E	
		2	-197	BLK				-F	
	A15	2	-198	WHT				-G	
		1	-199	BLK				-H	
	A16		-168	WHT				-u	
			-169	BLK				-v	
	A17		-102	WHT				-AA	
			-103	BLK				-BB	
	A18		-170	WHT				-w	
			-171	BLK				-x	
	A19		-166	WHT				-J	
			-167	BLK				-K	
	A20		-100	WHT				-LL	
		1	-101	BLK				-MM	
	A21	2	-96	WHT				-s	
		2	-97	BLK				-t	
	A22	1	-105	WHT		3		-n	
		1	-106	BLK	22		22	P5-p	
	A23	6	P1-140	BLK	22	64	△1	E4	
		△1	E4	SHLD			△1	E3	
	A24	△1	E3	BLK	20	2	△1	E33	
GROUP III	A25	4	P1-224	WHT	22	4	24	P8-E	
		3	P1-226	BLK	22		24	P8-F	
		△1	E8	SHLD			△1	E9	
	A26	2	P1-234	BLK	22	64	△1	E8	
	A27	1	P1-29	WHT	22	4	24	P8-H	
		1	P1-30	BLK	22		24	P8-K	
		△1	E6	SHLD			△1	E7	
	A28	△1	E6	BLK	22	64	△1	E32	
	A29	△1	E32	BLK	22	64	△1	E5	
		△1	E5	SHLD			△1	E10	
	A30	△1	E10	BLK	20	2	24	P8-G	
GROUP IV	A31	2	P1-60	WHT	22	1	21	P6-H	
	A32	2	-28					-G	
	A33	3	-20					-s	
	A34	3	-227					-Y	
	A35	3	-93					-X	
	A36	2	-24					-a	
	A37	4	-88					-b	
	A38	4	-121					-c	
	A39	2	-26					-h	
	A40	4	-17					-E	
	A41	4	-119					-F	
	A42	4	-188					-D	
	A43	3	-228					-g	
	A44	2	P1-162	WHT	22	1	21	P6-i	
△2		△1	E12	SHLD			△1	E11	
	A45	△1	E11	BLK	20	2	△1	E34	
GROUP V	A46	3	P1-90	WHT	22	1	23	P7-X	
	A47	2	-231					-d	
	A48	3	-22					-e	
	A49	3	-59					-a	
	A50	2	-232					-f	
	A51	2	-127					-Y	
	A52	4	-53					-b	
	A53	4	-54	WHT	22	1	23	P7-i	
	A54	3	P1-156	BLK	22	64	△1	E14	
△2		△1	E14	SHLD			△1	E13	
	A55	△1	E13	BLK	20	2	△1	E35	
PART OF GROUP VI	A56	6	P1-210	WHT	22	3	14	P2-215	
		6	P1-211	BLK	22		14	P2-216	
	A57	6	P1-175	WHT	22	3	14	P2-217	
		6	P1-176	BLK	22		14	P2-218	

△1 DENOTES INTERNAL CONNECTION

△2 SEE CONDUCTOR IDENT A168

△3 ATTACH FIND 67 & 1.00 OF FIND 44, SEE NOTE 18

△4 SEE CONDUCTOR IDENT A204

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
PART OF GROUP VI	A58	6	P1-142	WHT	22	3	13	P2-219	
			-143	BLK				-220	
	A59		-109	WHT				-221	
			-110	BLK				-222	
	A60		-76	WHT				-223	
			-77	BLK			13	-224	
	A61		-41	WHT			12	-225	
			-42	BLK				-226	
	A62		-4	WHT				-227	
			-5	BLK				-228	
	A63	6	-212	WHT				-229	
		5	-213	BLK			12	-230	
	A64	6	-177	WHT			11	-231	
		6	-178	BLK			11	-232	
	A65	6	-144	WHT			11	-233	
		5	-145	BLK			11	-234	
	A66	6	-111	WHT			10	-235	
		6	-112	BLK				-236	
	A67	6	-78	WHT				-237	
		5	-79	BLK				-238	
	A68	6	-43	WHT				-239	
		5	-44	BLK				-240	
	A69	6	-6	WHT				-241	
		5	-7	BLK			10	-242	
	A70		-214	WHT			15	-176	
			-215	BLK			15	-177	
	A71		-179	WHT			15	-178	
			-180	BLK			15	-179	
	A72		-146	WHT			14	-180	
			-147	BLK			14	-181	
	A73		-113	WHT			14	-182	
			-114	BLK			14	-183	
	A74		-80	WHT			13	-184	
			-81	BLK				-185	
	A75		-45	WHT				-186	
			-46	BLK				-187	
	A76		-8	WHT				-188	
			-9	BLK			13	-189	
	A77		-216	WHT			12	-190	
			-217	BLK			12	-191	
	A78		-181	WHT			12	-192	
			-182	BLK			12	-193	
	A79		-148	WHT			11	-194	
			-149	BLK			11	-195	
	A80		-115	WHT			11	-196	
			-116	BLK			11	-197	
	A81		-82	WHT			10	-198	
			-83	BLK			10	-199	
	A82		-47	WHT		3	10	-200	
		5	-48	BLK			10	-201	
	A83	6	-174	WHT		1	15	-1	
	A84		-75				10	-203	
	A85		-209				10	-202	
	A86		-173				15	-207	
	A87		-40				15	-73	
	A88	6	P1-141				14	P2-213	
	~~A89~~	△1	~~E17~~				~~13~~	~~P2-73~~	
	~~A90~~	△1	~~E17~~				~~12~~	~~P2-213~~	
	A91	6	P1-108				15	P2-139	
	A92	6	P1-3	WHT	22	1	15	P2-209	
	~~A93~~	△1	~~E16~~				~~13~~	~~P2-139~~	
	~~A94~~	△1	~~E16~~	~~WHT~~	~~22~~	~~1~~	~~13~~	~~P2-209~~	
	A95	6	P1-107	BLK	22	64	△1	E18	
		△1	E18	SHLD			△1	E15	
	A96	△1	E15	BLK	22	64	△1	E30	
GROUP VII	A97	4	P1-218	WHT	22	3	15	P2-6	
		4	-219	BLK			15	-7	
	A98	5	-183	WHT			14	-8	
		4	-184	BLK				-9	
	A99	4	-150	WHT				-10	
		4	-151	BLK				-11	
	A100	5	-117	WHT				-12	
		4	-118	BLK			14	-13	
	A101		-84	WHT			13	-14	
			-85	BLK				-15	
	A102		-49	WHT				-16	
			-50	BLK				-17	
	A103		-220	WHT				-18	
			-221	BLK			13	-19	
	A104		-185	WHT			12	-20	
			-186	BLK			12	-21	
	A105		-51	WHT		3	15	-4	
			-52	BLK			15	-5	
	A106	4	-86	WHT		1	12	23	
	A107	6	-39	WHT		1	15	-2	
	A108	5	-10	WHT		1	12	-22	
	A109	4	-11	WHT	22	1	12	P2-24	
	A110	4	P1-187	BLK	22	64	△1	E20	
		△1	E20	SHLD			△1	E19	
	A111	△1	E19	BLK	22	64	△1	E30	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP VIII	A112	19	P3-J	WHT	22	1	△1	E22	
	A113	△1	E22				15	P2-143	
	A114	△1	E22				12	P2-156	
	A115	19	P3-K				△1	E23	
	A116	△1	E23				15	P2-144	
	A117	△1	E23				12	-157	
	A118	19	P3-M				15	-145	
	A119		-L				12	-158	
	A120		-N				11	-160	
	A121		-P				11	-164	
	A122		-MM				10	-165	
	A123		-j				11	-162	
	A124		-k				15	-141	
	A125		-R				14	-149	
	A126		-S				14	-150	
	A127		-D				13	-151	
	A128		-e				13	P2-152	
	A129		-y				△1	E26	
	A130		-HH				△1	E26	
	A131		-C				△1	E27	
	A132		-E				△1	E27	
	A133		-T				10	P2-100	
	A134		-Y				14	-84	
	A135		-t				14	-114	
	A136		-w				15	-108	
	A137		-W				14	-117	
	A138		-X				15	-111	
	A139		-G				11	-97	
	A140		-FF				13	-88	
	A141		-V				13	-89	
	A142		-z				11	-98	
	A143		-a				14	-83	
	A144		-l				11	-130	
	A145		-n				12	-124	
	A146		-x				13	-85	
	A147		-KK				11	-94	
	A148		-h				11	-127	
	A149		-BB				10	-133	
	A150		-PP				10	-99	
	A151		-f				12	-90	
	A152		-r				12	-91	
	A153		-EE				15	-78	
	A154		-DD				10	-136	
	A155		-H				10	-103	
	A156		-U				15	-79	
	A157		-F				12	-92	
	A158		-y				12	-93	
	A159		-s				13	-120	
	A160		-LL				14	-80	
	A161		-q				11	-95	
	A162		-JJ				13	-86	
	A163		-NN				13	-87	
	A164		-g				11	-96	
	A165		-B				14	-81	
	A166	19	P3-b	WHT	22	1	14	P2-82	
	A167	△1	E36	BLK	20	2	△1	E21	
		△1	E21	SHLD			△1	E30	
	A168		E14	BLK	20	2	△1	E12	
	A169		E26	WHT	22	1	9	P2-131	
	A170						9	P2-134	
	A171						9	P2-137	
	A172						9	P2-104	
	A173		E26				8	E25	LG 2.50
	A174		E25				8	P2-121	
	A175						8	P2-125	
	A176						8	P2-128	
	A177						8	P2-161	
	A178		E25				△1	E24	LG 2.50
	A179		E24				7	P2-109	
	A180						7	-112	
	A181						7	-115	
	A182		E24				7	-118	
	A183		E27				16	-110	
	A184						16	-113	
	A185						16	-116	
	A186						16	P2-107	
	A187		E27				△1	E28	LG 2.50
	A188		E28				17	P2-126	
	A189						17	P2-119	
	A190						17	P2-123	
	A191						17	P2-159	
	A192		E28				△1	E29	LG 2.50
	A193		E29				18	P2-129	
	A194						18	P2-132	
	A195						18	P2-135	
	A196	△1	E29	WHT	22	1	18	P2-102	

2H

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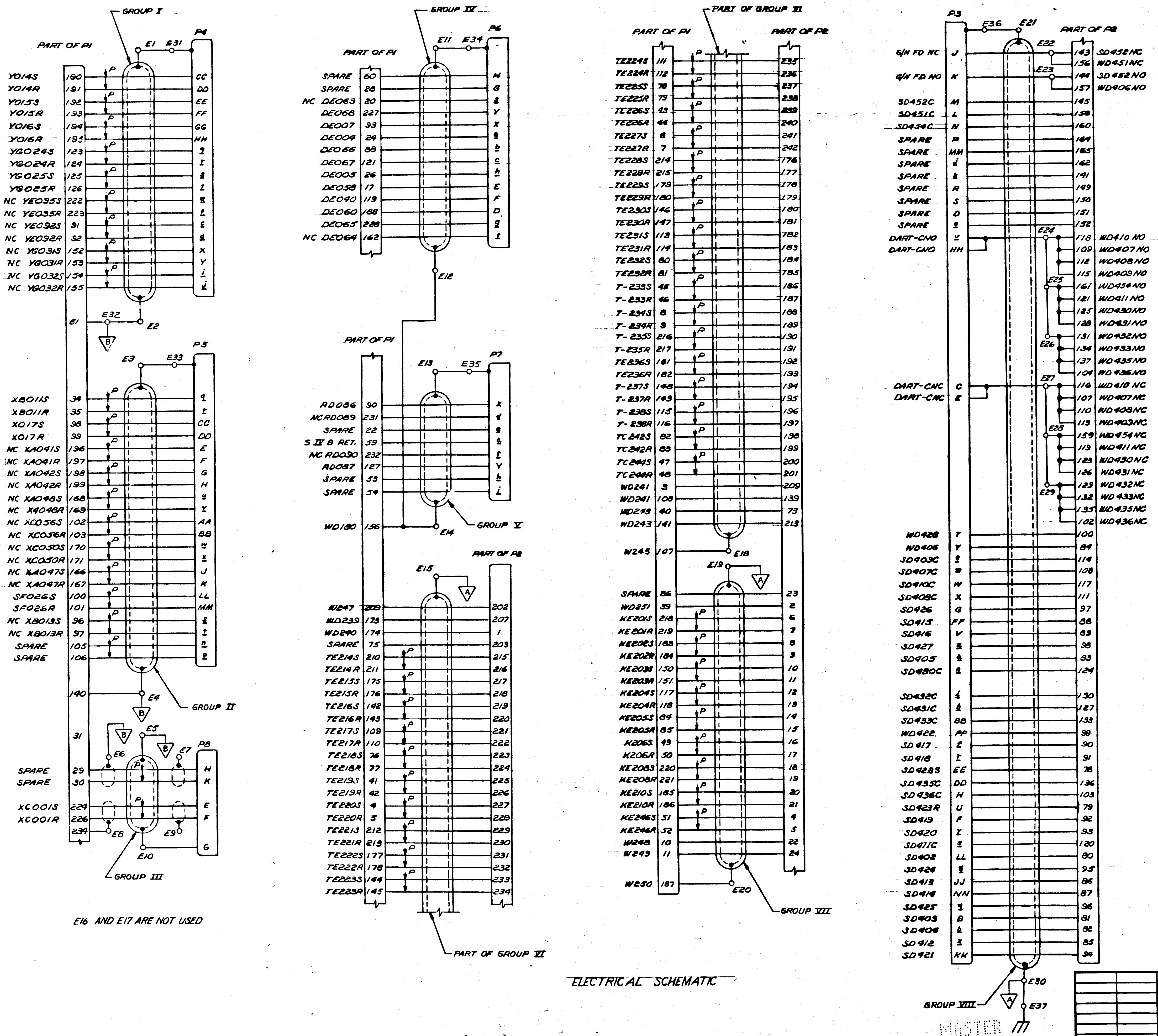
SYM	DESCRIPTION	DATE	APPROVED
F	CLASS A RELEASED PER TDRR 27694		


GROUP I
PART OF P1
P4
E1
E31
P
YO14S 190 CC
YO14R 191 DD
YO15S 192 EE
YO15R 193 FF
YO16S 194 GG
YO16R 195 HH
YG024S 123 q
YG024R 124 r
YG025S 125 s
YG025R 126 t
NC YE035S 222 e
NC YE035R 223 f
NC YE092S 91 c
NC YE092R 92 d
NC YG031S 152 X
NC YG031R 153 Y
NC YG032S 154 i
NC YG032R 155 j
61
E32
E2
B
P5
E3
E33
XB011S 34 q
XB011R 35 r
XO17S 98 CC
XO17R 99 DD
NC XA041S 196 E
NC XA041R 197 F
NC XA042S 198 G
NC XA042R 199 H
NC XA048S 168 u
NC XA048R 169 v
NC XC056S 102 AA
NC XC056R 103 BB
NC XC050S 170 w
NC XC050R 171 x
NC XA047S 166 J
NC XA047R 167 K
SF026S 100 LL
SF026R 101 MM
NC XB013S 96 s
NC XB013R 97 t
SPARE 105 n
SPARE 106 p
140
E4
GROUP II
31
E5
E6
E7
P8
SPARE 29 H
SPARE 30 K
XC001S 224 E
XC001R 226 F
234
E8
E9
E10
G
GROUP III
GROUP IV
P6
E11
E34
PART OF P1
SPARE 60 H
SPARE 28 G
NC DE063 20 s
DE068 227 Y
DE007 93 X
DE004 24 a
DE066 88 b
DE067 121 c
DE005 26 h
DE058 17 E
DE040 119 F
DE060 188 D
DE065 228 g
NC DE064 162 t
E12
PART OF P1
P7
E13
E35
RD086 90 x
NC RD089 231 d
SPARE 22 e
S IV B RET. 59 a
NC RD090 232 f
RD087 127 Y
SPARE 53 h
SPARE 54 i
WD180 156
E14
GROUP V
PART OF P2
E15
A
W247 209 202
WD239 173 207
WD240 174 1
SPARE 75 203
TE214S 210 215
TE214R 211 216
TE215S 175 217
TE215R 176 218
TE216S 142 219
TE216R 143 220
TE217S 109 221
TE217R 110 222
TE218S 76 223
TE218R 77 224
TE219S 41 225
TE219R 42 226
TE220S 4 227
TE220R 5 228
TE221S 212 229
TE221R 213 230
TE222S 177 231
TE222R 178 232
TE223S 144 233
TE223R 145 234
PART OF GROUP VI
PART OF GROUP VI
PART OF P1
PART OF P2
TE224S 111 235
TE224R 112 236
TE225S 78 237
TE225R 79 238
TE226S 43 239
TE226R 44 240
TE227S 6 241
TE227R 7 242
TE228S 214 176
TE228R 215 177
TE229S 179 178
TE229R 180 179
TE230S 146 180
TE230R 147 181
TE231S 113 182
TE231R 114 183
TE232S 80 184
TE232R 81 185
T-233S 45 186
T-233R 46 187
T-234S 8 188
T-234R 9 189
T-235S 216 190
T-235R 217 191
TE236S 181 192
TE236R 182 193
T-237S 148 194
T-237R 149 195
T-238S 115 196
T-238R 116 197
TC242S 82 198
TC242R 83 199
TC244S 47 200
TC244R 48 201
WD241 3 209
WD241 108 139
WD243 40 73
WD243 141 213
W245 107
E18
E19
A
SPARE 86 23
WD251 39 2
KE201S 218 6
KE201R 219 7
KE202S 183 8
KE202R 184 9
KE203S 150 10
KE203R 151 11
KE204S 117 12
KE204R 118 13
KE205S 84 14
KE205R 85 15
K206S 49 16
K206R 50 17
KE208S 220 18
KE208R 221 19
KE210S 185 20
KE210R 186 21
KE246S 51 4
KE246R 52 5
W248 10 22
W249 11 24
W250 187
E20
GROUP VII
P3
E36
E21
PART OF P2
E22
E23
G/N FD NC J 143 SD452NC
156 WD451NC
G/N FD NO K 144 SD452NO
157 WD406NO
SD452C M 145
SD451C L 158
SD454C N 160
SPARE P 164
SPARE MM 165
SPARE j 162
SPARE k 141
SPARE R 149
SPARE S 150
SPARE D 151
SPARE g 152
DART-CNO v
DART-CNO HH
E24
118 WD410 NO
109 WD407NO
112 WD408NO
115 WD409NO
E25
161 WD454NO
121 WD411 NO
125 WD430NO
128 WD431NO
E26
131 WD432NO
134 WD433NO
137 WD435NO
104 WD436NO
DART-CNC C
DART-CNC E
E27
116 WD410 NC
107 WD407NC
110 WD408NC
113 WD409NC
E28
159 WD454NC
119 WD411 NC
123 WD430NC
126 WD431NC
E29
129 WD432NC
132 WD433NC
135 WD435NC
102 WD436NC
WD428 T 100
WD406 Y 84
SD409C z 114
SD407C w 108
SD410C W 117
SD408C X 111
SD426 G 97
SD415 FF 88
SD416 V 89
SD427 z 98
SD405 a 83
SD430C n 124
SD432C k 130
SD431C h 127
SD433C BB 133
WD422 PP 99
SD417 f 90
SD418 r 91
SD428S EE 78
SD435C DD 136
SD436C H 103
SD423R U 79
SD419 F 92
SD420 r 93
SD411C s 120
SD402 LL 80
SD424 q 95
SD413 JJ 86
SD414 NN 87
SD425 y 96
SD403 B 81
SD404 b 82
SD412 x 85
SD421 KK 94
GROUP VIII
E30
E37
A

E16 AND E17 ARE NOT USED

ELECTRICAL SCHEMATIC

MASTER

2H

2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN P. Moriarty DATE 12 MAR 66
CHECKED R. Cassino 15 MAR 66
APPROVAL 15 MAR 66
APPROVAL D. O'Bryant 15 MAR 66
APPROVAL 15 MAR 66
NASA APPROVAL A. C. Metzger
MIT APPROVAL 4-1-66
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W234

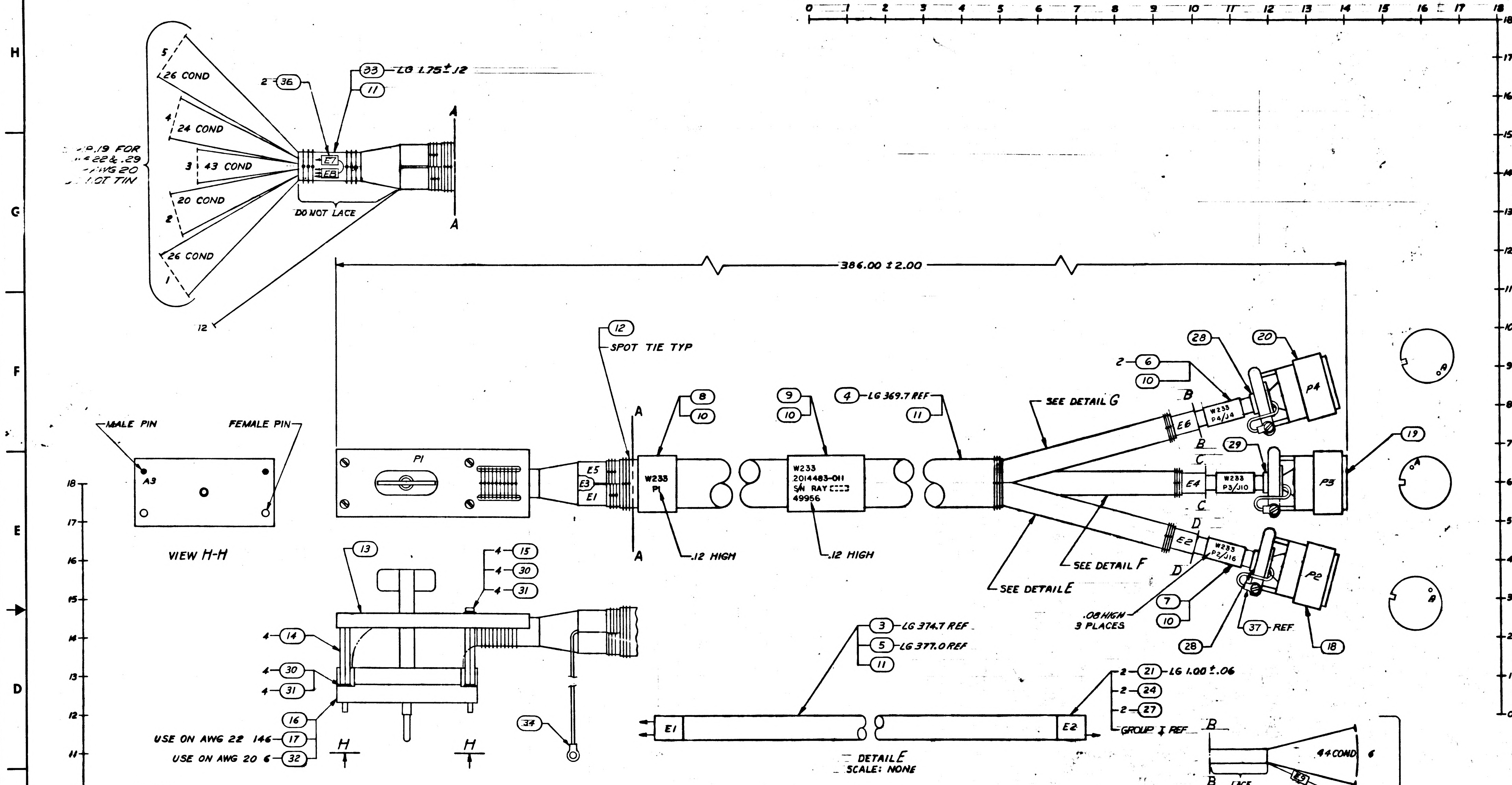
SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014482
SCALE 1/1 WT SHEET 4 OF 4

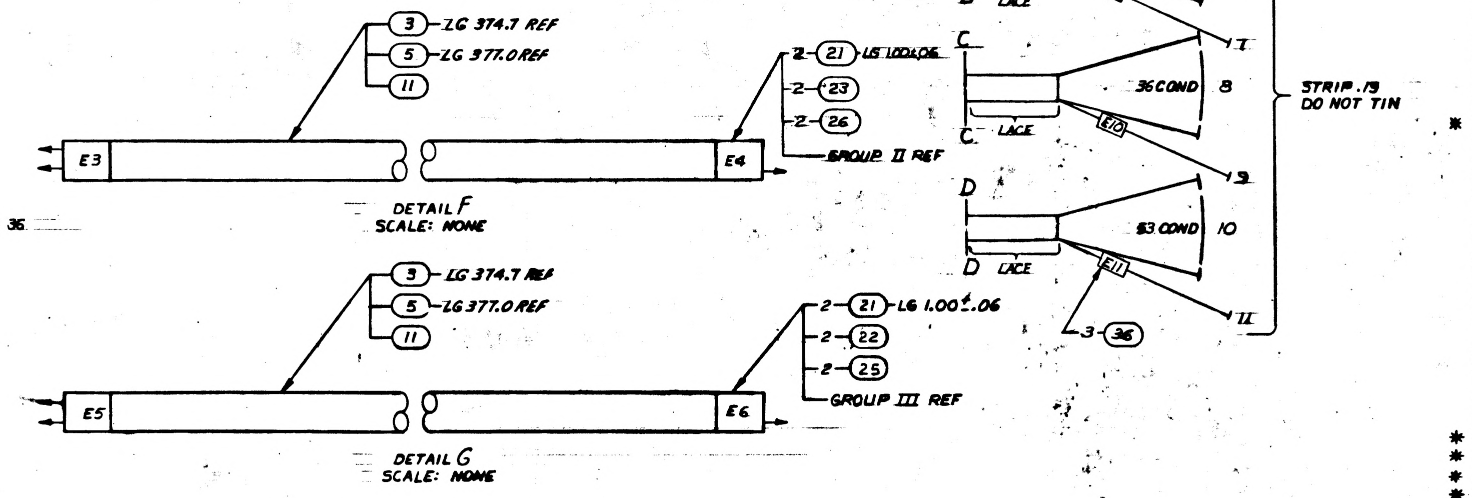
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014482 1

2014482 F

SYM	DESCRIPTION	DATE	APPROVED
E	CLASS A RELEASED PER TDRR 27699	4-1-66	


26 COND
24 COND
43 COND
20 COND
26 COND
STRIP .19 FOR AWG 22 & .29 FOR AWG 20 DO NOT TIN
DO NOT LACE
2-36
33 -LG 1.75±.12
11
E7
E8
A
A
12
386.00 ±2.00
12
SPOT TIE TYP
P1
E5
E3
E1
8
10
W233 P1
.12 HIGH
9
10
W233
2014483-011
S/N RAY
49956
.12 HIGH
4 -LG 369.7 REF
11
SEE DETAIL G
SEE DETAIL F
SEE DETAIL E
2-6
10
28
20
P4
W233 P4/J4
E6
B
29
19
P3
E4
W233 P3/J10
C
E2
W233 P2/J16
D
P2
.08 HIGH 3 PLACES
7
10
28
37 REF
18
MALE PIN
FEMALE PIN
A3
VIEW H-H
13
4-15
4-30
4-31
4-14
4-30
4-31
16
USE ON AWG 22 146-17
USE ON AWG 20 6-32
H
H
34


3 -LG 374.7 REF
5 -LG 377.0 REF
11
E1
E2
2-21 -LG 1.00±.06
2-24
2-27
GROUP I REF
DETAIL E
SCALE: NONE
B
B
LACE
44 COND
6
E9
I
3 -LG 374.7 REF
5 -LG 377.0 REF
11
E3
E4
2-21 LG 1.00±.06
2-23
2-26
GROUP II REF
DETAIL F
SCALE: NONE
C
C
LACE
36 COND
8
E10
9
STRIP .19 DO NOT TIN
3 -LG 374.7 REF
5 -LG 377.0 REF
11
E5
E6
2-21 -LG 1.00±.06
2-22
2-25
GROUP III REF
DETAIL G
SCALE: NONE
D
D
LACE
53 COND
10
E11
II
3-36

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 12
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. CRIMP PER ND1002206
4. SERIALIZE PER ND1002023
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
6. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
7. MIL-I-23053, CLASS I, COLOR BLACK, ID .750
8. QQ-B-575 FOR FIND 5, BRAID SIZE ½ AWG 34, FOR FIND 38 BRAID SIZE ¼ AWG 36
9. AR DENOTES AS REQUIRED
10. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
11. CUT SLEEVING & BRAID LENGTH AS SHOWN
12. STRIP ALL LEADS .50±.06 DO NOT TIN UNLESS OTHERWISE SPECIFIED
13. DISCARD NUTS SUPPLIED WITH FIND 16 & REPLACE WITH FIND 15, 30 & 31
14. MIL-I-631, TYPE F FORM Ua, GRADE a, CLASS 1, CATEGORY 1, COLOR BLK, AWG SIZE NO. 4
15. MIL-I-23053, CLASS I, COLOR WHT, ID .125
16. MARK SLEEVING WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH BLK PER ND1002019

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	0.3	SEE NOTE 15	SLEEVING, SHRINK	39
*	0.9	SEE NOTE 8	BRAID, SHIELD	38
	3	MS23036-49	LUG TERMINAL	37
	5	1010402-1	SLEEVE, SOLDER	36
*	0.5	SEE NOTE 14	SLEEVING, INSULATION	35
	1	MS25036-12	LUG TERMINAL	34
*	0.2	1006696-6	SLEEVING, INSULATION	33
	6	1006491-013	CONTACT, MALE	32
	8	MS35338-78	WASHER, LOCK	31
	8	MS15795-803	WASHER, FLAT	30
	1	1020370-15	BUSHING, SLEEVE, FLANGED	29
	2	1020370-19	BUSHING, SLEEVE, FLANGED	28
	2	1000242-37	FERRULE	27
	2	1000242-36	FERRULE	26
	2	1000242-33	FERRULE	25
	2	1000243-41	FERRULE	24
	2	1000243-40	FERRULE	23
	2	1000243-37	FERRULE	22
*	.5	SEE NOTE 7	SLEEVING, SHRINK	21
	1	MS3126F-22-55PY	CONNECTOR, PLUG, ELEC	20
	1	MS3126F-22-55PW	CONNECTOR, PLUG, ELEC	19
	1	MS3126F-22-55PX	CONNECTOR, PLUG, ELEC	18
	146	1006491-011	CONTACT, MALE	17
	1	1897336	CONNECTOR, PLUG	16
	4	MS51957-17	SCREW, PAN HD	15
	4	2016305	POST, SPACER	14
	1	2016304	SUPPORT, CONNECTOR	13
	AR	1006458-004	TAPE, LACING	12
	AR	1006699	SOLVENT	11
	AR	1006253	ADHESIVE	10
	1	1006415-137	BAND MARKER, CABLE	9
	1	1006415-061	BAND MARKER, CABLE	8
	1	1006415-054	BAND MARKER, CABLE	7
	2	1006415-053	BAND MARKER, CABLE	6
*	94.3	SEE NOTE 8	BRAID, SHIELD	5
*	30.9	1006696-8	SLEEVING, INSULATION	4
*	93.7	1006696-3	SLEEVING, INSULATION	3
*	4	MIL-W-16878/4 E20	WIRE, ELEC, BLACK	2
*	4268	MIL-W-16878/4 E22	WIRE, ELEC, WHITE	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NEXT ASSY	USED ON
2019255	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN R. Miller DATE 15 MAR 66
CHECKED 15 MAR 66
APPROVAL 15 MAR 66
APPROVAL 15 MAR 66
APPROVAL 15 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 4-4-66
MIT APPROVAL 3/4/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W233

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014483
SCALE 1/1
WT
SHEET 1 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014483 E

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
E	CLASS A RELEASED PER TDRR 276		

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO	DES	COLOR	AWG	FIND NO	STA NO	DES	REMARKS
	~~A1~~	~~1~~	~~P1-G2~~	~~BLK~~	~~20~~	~~2~~	~~△1~~	~~E1~~	
	~~A2~~	~~1~~	~~-G1~~	~~BLK~~	~~20~~	~~2~~	~~△1~~	~~E1~~	
	A3	5	P1-A6	WHT	22	1	10	P2-B	
	A4	5	↑ -C8	↑	↑	↑	↑	↑ -C	
	A5	5	-D8					-D	
	A6	1	-E1					-E	
	A7	5	-E8					-F	
	A8	4	-K7					-G	
	A9	1	-G3					-H	
	A10	4	-K6					-J	
	A11	1	-G4					-K	
	A12	4	-N8					-L	
	A13	4	-M7					-M	
	A14	5	-B7					-N	
	A15	5	-B8					-P	
	A16	4	-M8					-R	
	A17	5	-B6					-S	
	A18	1	-C1					-T	
	A19	1	-D1					-U	
	A20	1	-B1					-V	
	A21	1	-A3					-W	
	A22	1	-A4					-X	
	A23	5	-A5					-Y	
	A24	1	-E2					-a	
	A25	1	-E3					-b	
	A26	1	-F4					-c	
	A27	1	-F3					-d	GROUP I
	A28	1	-F2					-e	
	A29	1	-F1					-f	
	A30	5	-E7					-g	
	A31	1	-B3					-h	
	A32	5	-E6					-i	
	A33	1	-D2					-j	
	A34	1	-D3					-k	
	A35	5	-D7					-m	
	A36	5	-D6					-n	
	A37	5	-C7					-p	
	A38	5	-C6					-q	
	A39	1	-C2					-r	
	A40	1	-C3					-s	
	A41	4	-M6					-t	
	A42	4	-N6					-u	
	A43	1	-B2					-v	
	A44	5	-G7					-w	
	A45	4	-H7					-x	
	A46	5	-G5					-y	
	A47	4	-H5					-z	
	A48	2	-H4					-AA	
	A49	2	-J1					-BB	
	A50	2	-J2					-CC	
	A51	2	-J3					-DD	
	A52	2	-K3					-EE	
	A53	2	-K2					-FF	
	A54	2	↓ -K1	↓	↓	↓	↓	↓ -GG	
	A55	2	P1-H3	WHT	22	1	10	P2-HH	
SEE A152	A56	△1	E2	BLK	20	2	△1	E11	
		△1	E1	SHLD			△1	E2	
	A57	4	P1-L8	BLK	20	2	△1	E3	
SEE A149	A58	△1	E7	BLK	20	2	△1	E3	
	A59	5	P1-F6	WHT	22	1	8	P3-T	
	A60	5	↑ -F8	↑	↑	↑	↑	↑ -U	
	A61	1	-B4					-X	
	A62	5	-B5					-Y	
	A63	5	-G6					-a	
	A64	5	-E5					-b	
	A65	5	-F5					-c	
	A66	5	-G8					-f	
	A67	4	-H6					-g	
	A68	3	-S3					-h	
	A69	4	-P8					-i	
	A70	4	-P7					-j	
	A71	1	-D4					-k	
	A72	5	-D5					-m	GROUP II
	A73	5	-C5					-n	
	A74	1	-C4					-p	
	A75	4	-K8					-q	
	A76	3	-U1					-r	
	A77	1	-E4					-s	
	A78	4	-J5					-t	
	A79	2	-H2					-A	
	A80	4	-N7					-B	
	A81	4	-J6					-u	
	A82	2	↓ -J4	↓	↓	↓	↓	↓ -v	
	A83	4	P1-J7	WHT	22	1	8	P3-w	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A84	2	P1-L2	WHT	22	1	8	P3-x	
	A85	4	↑ -P6	↑	↑	↑	↑	↑ -y	
	A86	2	-H1					-z	
	A87	3	-U2					-AA	
	A88	4	-J8					-BB	
	A89	2	-L1					-HH	
	A90	2	-M1					-D	
	A91	2	-M2					-C	GROUP II
	A92	2	-M3					-F	
	A93	4	↓ -H8	↓	↓	↓	↓	↓ -R	
	A94	5	P1-F7	WHT	22	1	8	P3-S	
SEE A151	A95	△1	E4	BLK	20	2	△1	E10	
		△1	E3	SHLD			△1	E4	
	A96	3	P1-X4	BLK	20	2	△1	E5	
SEE A149	A97	△1	E7	BLK	20	2	△1	E5	
	A98	3	P1-S5	WHT	22	1	6	P4-GG	
	A99	↑	↑ -R6	↑	↑	↑	↑	↑ -EE	
	A100		-R7					-HH	
	A101		-S4					-A	
	A102		-R8					-B	
	A103		-S6					-C	
	A104		-S2					-D	
	A105		-V2					-E	
	A106		-W1					-F	
	A107		-S7					-G	
	A108		-S8					-H	
	A109	↓	-T1					-J	
	A110	3	-T2					-K	
	A111	4	-N5					-L	
	A112	4	-P5					-M	
	A113	3	-R5					-N	
	A114	3	-R3					-P	
	A115	2	-P3					-R	
	A116	2	-N3					-S	
	A117	2	-N1					-T	
	A118	2	-P1					-U	
	A119	3	-R1					-V	
	A120	↑	-V1					-W	GROUP III
	A121		-W7					-X	
	A122		-W8					-Y	
	A123		-V7					-a	
	A124		-V8					-b	
	A125		-U7					-c	
	A126		-U8					-d	
	A127		-T7					-e	
	A128		-T8					-f	
	A129		-U5					-g	
	A130		-T4					-h	
	A131		-U4					-i	
	A132		-T5					-j	
	A133		-W5					-k	
	A134		-V4					-m	
	A135		-W4					-n	
	A136		-V5					-p	
	A137		-S1					-q	
	A138		-T3					-r	
	A139		-T6					-s	
	A140	↓	↓ -W2	↓	↓	↓	↓	↓ -t	
	A141	3	P1-U3	WHT	22	1	6	P4-AA	
SEE A150	A142	△1	E6	BLK	20	2	△1	E9	
		△1	E6	SHLD			△1	E5	
	A143	12	GRD	BRAID		38	△1	E1	△3
	A144	△1	E1	BLK	20	2	↑	E8	
	A145	1	P1-G1	↑	↑	↑		E8	
	A146	1	P1-G2					E8	
	A147	4	P1-L7					E8	
	A148	△1	E7				↓	E8	
SEE A58 & A97	A149	3	P1-X3				△1	E7	
SEE A142	A150	△1	E9				7	P4-GRD	△2
SEE A95	A151	△1	E10	↓	↓	↓	9	P3-GRD	△2
SEE A56	A152	△1	E11	BLK	20	2	11	P2-GRD	△2

△1 DENOTES INTERNAL CONNECTION
△2 ATTACH 1 OF FIND NO. 37 & 1.00 OF FIND NO. 39 SEE NOTE 16
△3 ATTACH 5.50 OF FIND NO. 35

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN E. Siegel DATE 12 MAR 66
CHECKED 15 MAR 66
APPROVAL 15 MAR 66
APPROVAL 15 MAR 66
APPROVAL 15 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 4-1-66
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W233

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014483

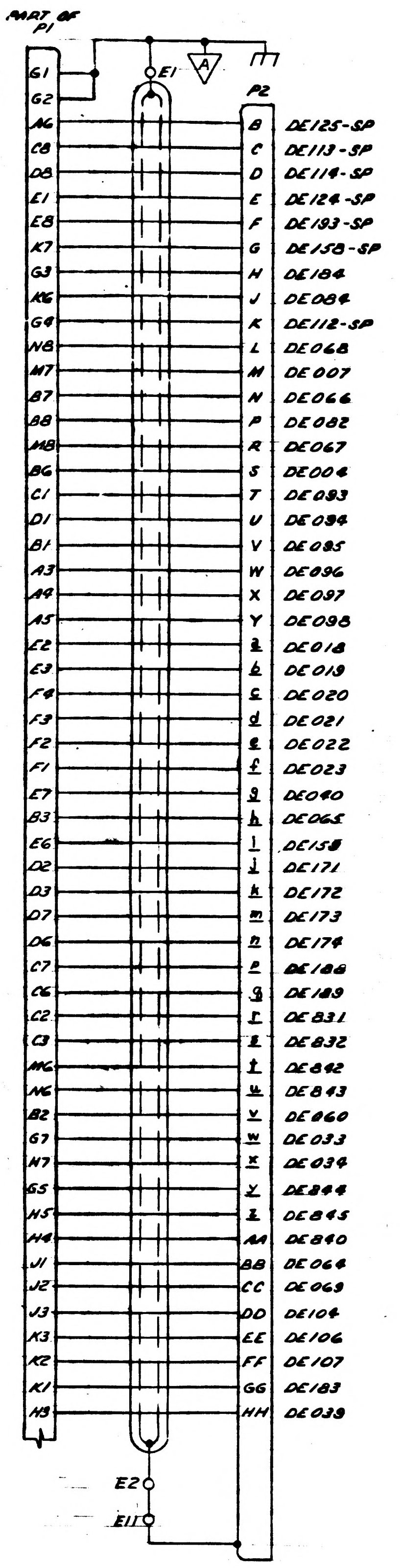
SCALE NONE WT SHEET 2 OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

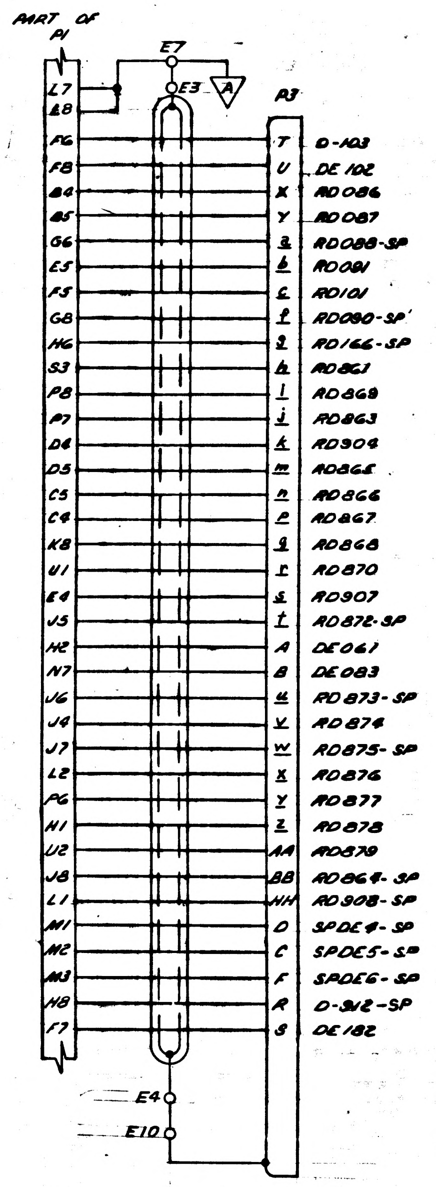
2014483 E

2014483 E

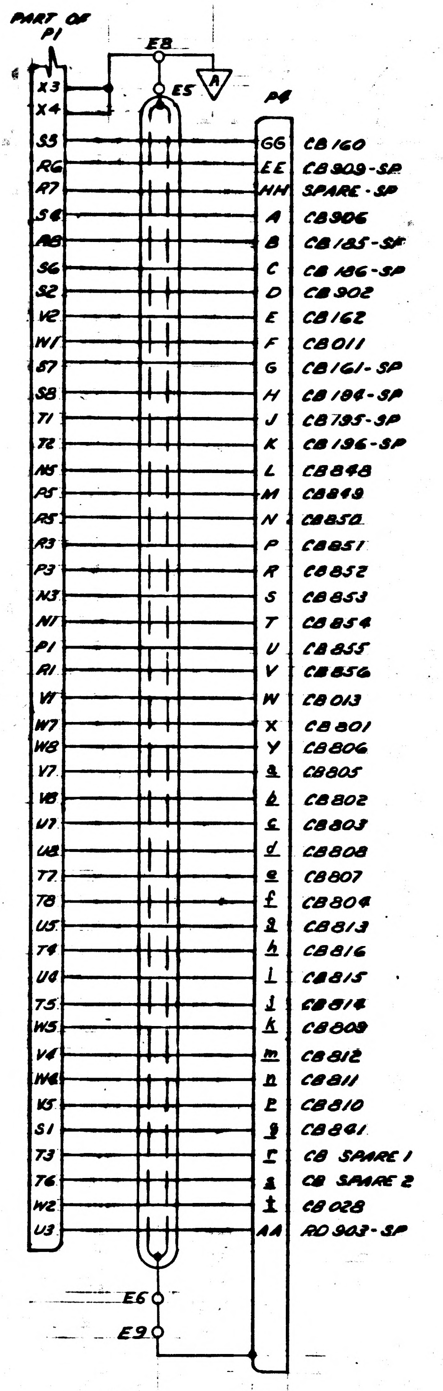
SYM	DESCRIPTION	DATE	APPROVED
E	CLASS A RELEASED PER TDRR 27699	7-1-66	



P1	P2	
G1		
G2		
A6	B	DE125-SP
C8	C	DE113-SP
D8	D	DE114-SP
E1	E	DE124-SP
E8	F	DE193-SP
K7	G	DE158-SP
G3	H	DE184
K6	J	DE084
G4	K	DE112-SP
N8	L	DE068
M7	M	DE007
B7	N	DE066
B8	P	DE082
M8	R	DE067
B6	S	DE004
C1	T	DE093
D1	U	DE094
B1	V	DE095
A3	W	DE096
A4	X	DE097
A5	Y	DE098
E2	a	DE018
E3	b	DE019
F4	c	DE020
F3	d	DE021
F2	e	DE022
F1	f	DE023
E7	g	DE040
B3	h	DE065
E6	i	DE158
D2	j	DE171
D3	k	DE172
D7	m	DE173
D6	n	DE174
C7	p	DE188
C6	q	DE189
C2	r	DE831
C3	s	DE832
M6	t	DE842
N6	u	DE843
B2	v	DE860
G7	w	DE033
H7	x	DE034
G5	y	DE844
H5	z	DE845
H4	AA	DE840
J1	BB	DE064
J2	CC	DE069
J3	DD	DE104
K3	EE	DE106
K2	FF	DE107
K1	GG	DE183
H3	HH	DE039



P1	P3	
L7		
L8		
F6	T	D-103
F8	U	DE 102
B4	X	RD086
B5	Y	RD087
G6	a	RD088-SP
E5	b	RD091
F5	c	RD101
G8	f	RD090-SP
H6	g	RD166-SP
S3	h	RD861
P8	i	RD869
P7	j	RD863
D4	k	RD904
D5	m	RD865
C5	n	RD866
C4	p	RD867
K8	q	RD868
U1	r	RD870
E4	s	RD907
J5	t	RD872-SP
H2	A	DE061
N7	B	DE083
J6	u	RD873-SP
J4	v	RD874
J7	w	RD875-SP
L2	x	RD876
P6	y	RD877
H1	z	RD878
U2	AA	RD879
J8	BB	RD864-SP
L1	HH	RD908-SP
M1	D	SPDE4-SP
M2	C	SPDE5-SP
M3	F	SPDE6-SP
H8	R	D-912-SP
F7	S	DE182



P1	P4	
X3		
X4		
S3	GG	CB160
R6	EE	CB909-SP
R7	HH	SPARE-SP
S4	A	CB906
R8	B	CB185-SP
S6	C	CB186-SP
S2	D	CB902
V2	E	CB162
W1	F	CB011
S7	G	CB161-SP
S8	H	CB194-SP
T1	J	CB195-SP
T2	K	CB196-SP
N5	L	CB848
P5	M	CB849
R5	N	CB850
R3	P	CB851
P3	R	CB852
N3	S	CB853
N1	T	CB854
P1	U	CB855
R1	V	CB856
V1	W	CB013
W7	X	CB801
W8	Y	CB806
V7	a	CB805
V8	b	CB802
U7	c	CB803
U8	d	CB808
T7	e	CB807
T8	f	CB804
U5	g	CB813
T4	h	CB816
U4	i	CB815
T5	j	CB814
W5	k	CB809
V4	m	CB812
W4	n	CB811
V5	p	CB810
S1	q	CB841
T3	r	CB SPARE 1
T6	s	CB SPARE 2
W2	t	CB028
U3	AA	RD903-SP

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 12 MAR 66
CHECKED 15 MAR 66
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

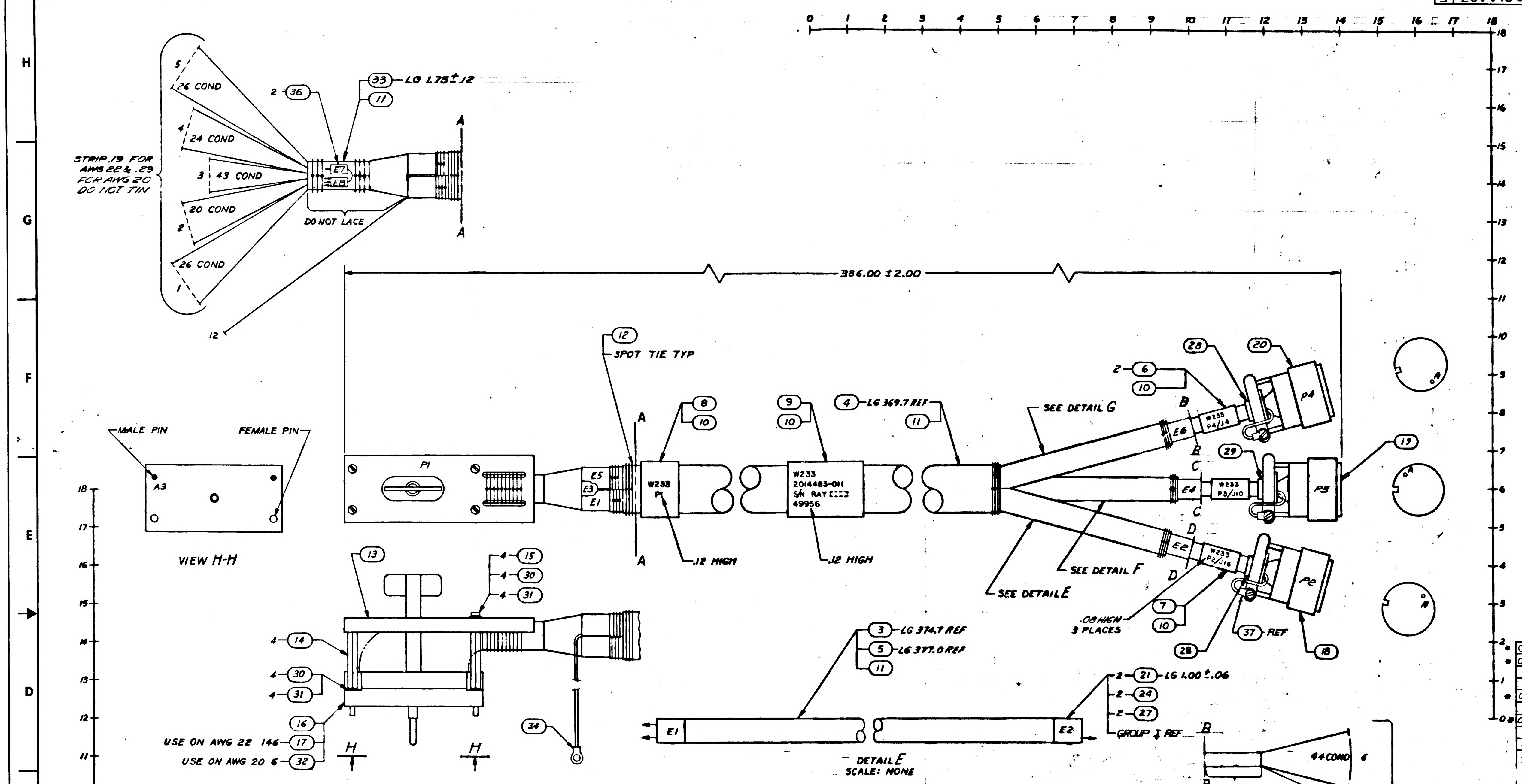
CABLE ASSEMBLY
W233

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014483

SCALE NONE | WT | SHEET 2 OF 3

2014483 F

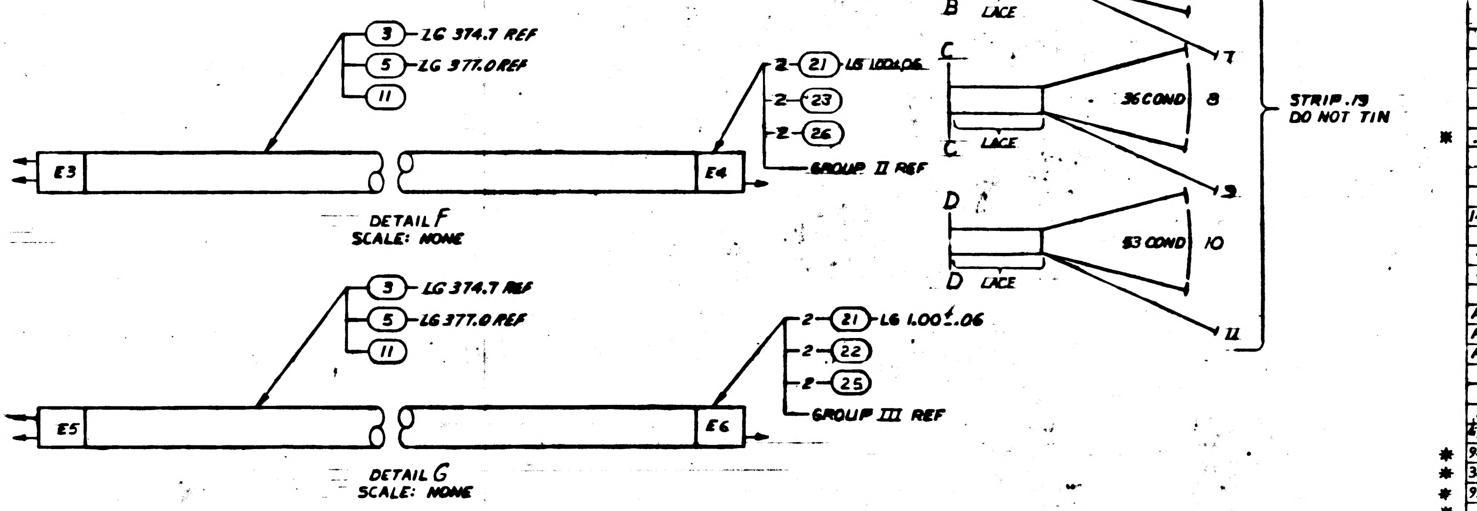
SYM	DESCRIPTION	DATE	APPROV
E	CLASS A RELEASED PER TDRR 27699		
F	CHANGED PER TDRR 28395 DR.	5/ /66	



STRIP .19 FOR AWG 22 & .29 FOR AWG 20 DO NOT TIN
5
26 COND
4
24 COND
3 43 COND
20 COND
2
26 COND
1
12
2 (36)
(33) LG 1.75 ±.12
(11)
E7
E8
DO NOT LACE
A
A
386.00 ±2.00
(12)
SPOT TIE TYP
P1
E5
E3
E1
W233 P1
(8)
(10)
.12 HIGH
(9)
(10)
W233
2014483-011
S/N RAY
49956
.12 HIGH
(4) LG 369.7 REF
(11)
SEE DETAIL G
SEE DETAIL F
SEE DETAIL E
2 (6)
(10)
(28)
(20)
B
W233 P4/J4
E6
P4
(29)
(19)
C
E4
W233 P3/J10
P3
D
E2
W233 P2/J6
P2
.08 HIGH 3 PLACES
(7)
(10)
(28)
(37) REF
(18)
MALE PIN
FEMALE PIN
A3
VIEW H-H
(13)
4 (15)
4 (30)
4 (31)
4 (14)
4 (30)
4 (31)
(16)
USE ON AWG 22 146 (17)
USE ON AWG 20 6 (32)
H
H
(34)
(3) LG 374.7 REF
(5) LG 377.0 REF
(11)
2 (21) LG 1.00 ±.06
2 (24)
2 (27)
GROUP I REF
E1
E2
DETAIL E
SCALE: NONE
B
44 COND
6
LACE
7

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 12
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. CRIMP PER ND1002206
4. SERIALIZE PER ND1002023
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
6. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
7. MIL-I-23053, CLASS I, COLOR BLACK, ID .750
8. QQ-B-575 FOR FIND 5, BRAID SIZE 1/2 AWG 34, FOR FIND 38 BRAID SIZE 1/4 AWG 36
9. AR DENOTES AS REQUIRED
10. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
11. CUT SLEEVING & BRAID LENGTH AS SHOWN
12. STRIP ALL LEADS .50±.06 DO NOT TIN UNLESS OTHERWISE SPECIFIED
13. DISCARD NUTS SUPPLIED WITH FIND 16 & REPLACE WITH FIND 15, 30 & 31
14. MIL-I-631, TYPE F FORM Ua, GRADE A, CLASS 1, CATEGORY 1, COLOR BLK, AWG SIZE NO. 4
15. MIL-I-23053, CLASS I, COLOR WHT, ID .125
16. MARK SLEEVING WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH BLK PER ND1002019



(3) LG 374.7 REF
(5) LG 377.0 REF
(11)
2 (21) LG 1.00 ±.06
2 (23)
2 (26)
GROUP II REF
E3
E4
DETAIL F
SCALE: NONE
(3) LG 374.7 REF
(5) LG 377.0 REF
(11)
2 (21) LG 1.00 ±.06
2 (22)
2 (25)
GROUP III REF
E5
E6
DETAIL G
SCALE: NONE
C
36 COND
8
C
LACE
9
D
53 COND
10
D
LACE
11
STRIP .19 DO NOT TIN

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	0.3	SEE NOTE 15	SLEEVING, SHRINK	39
*	0.9	SEE NOTE 8	BRAID, SHIELD	38
	3	MS23036-49	LUG TERMINAL	37
	2	1010402-1	SLEEVE, SOLDER	36
*	0.5	SEE NOTE 14	SLEEVING, INSULATION	35
	1	MS25036-12	LUG TERMINAL	34
*	0.2	1006696-6	SLEEVING, INSULATION	33
	6	1006491-013	CONTACT, MALE	32
	8	MS35338-78	WASHER, LOCK	31
	8	MS15795-803	WASHER, FLAT	30
	7	[illegible]70-15	BUSHING, SLEEVE, FLANGED	29
	[illegible]	[illegible]	BUSHING, SLEEVE, FLANGED	28
	2	100024[illegible]	FERRULE	27
	2	[illegible]	FERRULE	26
	2	[illegible]0242-38	FERRULE	25
	2	[illegible]243-41	FERRULE	24
	2	[illegible]0243-40	FERRULE	23
	2	1000243-37	FERRULE	22
*	.5	SEE NOTE 7	SLEEVING, SHRINK	21
	1	MS3126F-22-55PY	CONNECTOR, PLUG, ELEC	20
	1	MS3126F-22-55PW	CONNECTOR, PLUG, ELEC	19
	1	MS3126F-22-55PX	CONNECTOR, PLUG, ELEC	18
	146	1006491-011	CONTACT, MALE	17
	1	1897336	CONNECTOR, PLUG	16
	4	MS51957-17	SCREW, PAN HD	15
	4	2016305	POST, SPACER	14
	1	2016304	SUPPORT, CONNECTOR	13
	AR	1006458-004	TAPE, LACING	12
	AR	1006699	SOLVENT	11
	AR	1006253	ADHESIVE	10
	1	1006415-137	BAND MARKER, CABLE	9
	1	1006415-061	BAND MARKER, CABLE	8
	J	1006415-054	BAND MARKER, CABLE	7
	42	1006415-053	BAND MARKER, CABLE	6
*	94.3	SEE NOTE 8	BRAID, SHIELD	5
*	30.9	1006696-8	SLEEVING, INSULATION	4
*	93.7	1006696-3	SLEEVING, INSULATION	3
*	4	MIL-W-16878/4 E20	WIRE, ELEC, BLACK	2
*	1268	MIL-W-16878/4 E22	WIRE, ELEC, WHITE	
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014483 F

2014255	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN R. Miller DATE 15 MAR 66
CHECKED 15 MAR 66
APPROVAL 15 MAR 66
APPROVAL 15 MAR 66
APPROVAL 15 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 4-4-66
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W233

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014483
SCALE 1/1 WT SHEET 1 OF

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014483 F

2014483	F

SYM	DESCRIPTION	DATE	APPROVED
E	CLASS A RELEASED PER TDRR 276'9		
F	CHANGED PER TDRR 28395 DR. P. Bothast CHK C. DeGreene APPD	5/13/66	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO	DES	COLOR	AWG	FIND NO	STA NO.	DES	REMARKS
	~~A1~~	~~1~~	~~P1-G2~~	~~BLK~~	~~20~~	~~2~~	△1	~~E1~~	
	~~A2~~	~~1~~	~~-G1~~	~~BLK~~	~~20~~	~~2~~	△1	~~E1~~	
	A3	5	P1-A6	WHT	22	1	10	P2-B	
	A4	5	↑ -C8	↑	↑	↑	↑	↑ -C	
	A5	5	-D8					-D	
	A6	1	-E1					-E	
	A7	5	-E8					-F	
	A8	4	-K7					-G	
	A9	1	-G3					-H	
	A10	4	-K6					-J	
	A11	1	-G4					-K	
	A12	4	-N8					-L	
	A13	4	-M7					-M	
	A14	5	-B7					-N	
	A15	5	-B8					-P	
	A16	4	-M8					-R	
	A17	5	-B6					-S	
	A18	1	-C1					-T	
	A19	1	-D1					-U	
	A20	1	-B1					-V	
	A21	1	-A3					-W	
	A22	1	-A4					-X	
	A23	5	-A5					-Y	
	A24	1	-E2					-a	
	A25	1	-E3					-b	
	A26	1	-F4					-c	
	A27	1	-F3					-d	GROUP I
	A28	1	-F2					-e	
	A29	1	-F1					-f	
	A30	5	-E7					-g	
	A31	1	-B3					-h	
	A32	5	-E6					-i	
	A33	1	-D2					-j	
	A34	1	-D3					-k	
	A35	5	-D7					-m	
	A36	5	-D6					-n	
	A37	5	-C7					-p	
	A38	5	-C6					-q	
	A39	1	-C2					-r	
	A40	1	-C3					-s	
	A41	4	-M6					-t	
	A42	4	-N6					-u	
	A43	1	-B2					-v	
	A44	5	-G7					-w	
	A45	4	-H7					-x	
	A46	5	-G5					-y	
	A47	4	-H5					-z	
	A48	2	-H4					-AA	
	A49	2	-J1					-BB	
	A50	2	-J2					-CC	
	A51	2	-J3					-DD	
	A52	2	-K3					-EE	
	A53	2	-K2					-FF	
	A54	2	↓ -K1	↓	↓	↓	↓	↓ -GG	
		2	P1-H3	WHT	22	1	10	P2-HH	
~~SEE A152~~	A56	△1	E2	BLK	20	2	11	P2-GRD	△2
		△1	E1	SHLD			△1	E2	
	A57	4	P1-L8	BLK	20	2	△1	E3	
SEE A149	A58	△1	E7	BLK	20	2	△1	E3	
	A59	5	P1-F6	WHT	22	1	8	P3-T	
	A60	5	↑ -F8	↑	↑	↑	↑	↑ -U	
	A61	1	-B4					-X	
	A62	5	-B5					-Y	
	A63	5	-G6					-a	
	A64	5	-E5					-b	
	A65	5	-F5					-c	
	A66	5	-G8					-f	
	A67	4	-H6					-g	
	A68	3	-S3					-h	
	A69	4	-P8					-i	
	A70	4	-P7					-j	
	A71	1	-D4					-k	
	A72	5	-D5					-m	GROUP II
	A73	5	-C5					-n	
	A74	1	-C4					-p	
	A75	4	-K8					-q	
	A76	3	-U1					-r	
	A77	1	-E4					-s	
	A78	4	-J5					-t	
	A79	2	-H2					-A	
	A80	4	-N7					-B	
	A81	4	-J6					-u	
	A82	2	↓ -J4	↓	↓	↓	↓	↓ -v	
	A83	4	P1-J7	WHT	22	1	8	P3-w	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A84	2	P1-L2	WHT	22	1	8	P3-x	
	A85	4	↑ -P6	↑	↑	↑	↑	↑ -y	
	A86	2	-H1					-z	
	A87	3	-U2					-AA	
	A88	4	-J8					-BB	
	A89	2	-L1					-HH	
	A90	2	-M1					-D	
	A91	2	-M2					-C	GROUP II
	A92	2	-M3					-F	
	A93	4	↓ -H8	↓	↓	↓	↓	↓ -R	
	A94	5	P1-F7	WHT	22	1	8	P3-S	
~~SEE A151~~	A95	△1	E4	BLK	20	2	9	P3-GRD	△2
		△1	E3	SHLD			△1	E4	
	A96	3	P1-X4	BLK	20	2	△1	E5	
SEE A149	A97	△1	E7	BLK	20	2	△1	E5	
	A98	3	P1-S5	WHT	22	1	6	P4-GG	
	A99	↑	↑ -R6	↑	↑	↑	↑	↑ -EE	
	A100		-R7					-HH	
	A101		-S4					-A	
	A102		-R8					-B	
	A103		-S6					-C	
	A104		-S2					-D	
	A105		-V2					-E	
	A106		-W1					-F	
	A107		-S7					-G	
	A108		-S8					-H	
	A109	↓	-T1					-J	
	A110	3	-T2					-K	
	A111	4	-N5					-L	
	A112	4	-P5					-M	
	A113	3	-R5					-N	
	A114	3	-R3					-P	
	A115	2	-P3					-R	
	A116	2	-N3					-S	
	A117	2	-N1					-T	
	A118	2	-P1					-U	
	A119	3	-R1					-V	
	A120	↑	-V1					-W	GROUP III
	A121		-W7					-X	
	A122		-W8					-Y	
	A123		-V7					-a	
	A124		-V8					-b	
	A125		-U7					-c	
	A126		-U8					-d	
	A127		-T7					-e	
	A128		-T8					-f	
	A129		-U5					-g	
	A130		-T4					-h	
	A131		-U4					-i	
	A132		-T5					-j	
	A133		-W5					-k	
	A134		-V4					-m	
	A135		-W4					-n	
	A136		-V5					-p	
	A137		-S1					-q	
	A138		-T3					-r	
	A139		-T6					-s	
	A140	↓	↓ -W2	↓	↓	↓	↓	↓ -t	
	A141	3	P1-U3	WHT	22	1	6	P4-AA	
~~SEE A150~~	A142	△1	E6	BLK	20	2	7	P4-GRD	△2
		△1	E6	SHLD			△1	E5	
	A143	12	GRD	BRAID		38	△1	E1	△3
	A144	△1	E1	BLK	20	2	↑	E8	
	A145	1	P1-G1	↑	↑	↑		E8	
	A146	1	P1-G2					E8	
	A147	4	P1-L7					E8	
	A148	△1	E7	↓	↓	↓	↓	E8	
SEE A58 & A97	A149	3	P1-X3	BLK	20	2	△1	E7	
~~SEE A142~~	~~A150~~	△1	~~E8~~				~~7~~	~~P4-GRD~~	△2
~~SEE A95~~	~~A151~~	△1	~~E10~~	↓	↓	↓	~~9~~	~~P3-GRD~~	△2
~~SEE A56~~	~~A152~~	△1	~~E11~~	~~BLK~~	~~20~~	~~2~~	~~11~~	~~P2-GRD~~	△2

△1 DENOTES INTERNAL CONNECTION

△2 ATTACH 1 OF FIND NO. 37 & 1.00 OF FIND NO. 39 SEE NOTE 16

△3 ATTACH 5.50 OF FIND NO. 35

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN E. Siegel DATE 2 MAR 66
CHECKED 15 MAR 66
APPROVAL 15 MAR 66
APPROVAL 15 MAR 66
APPROVAL 15 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

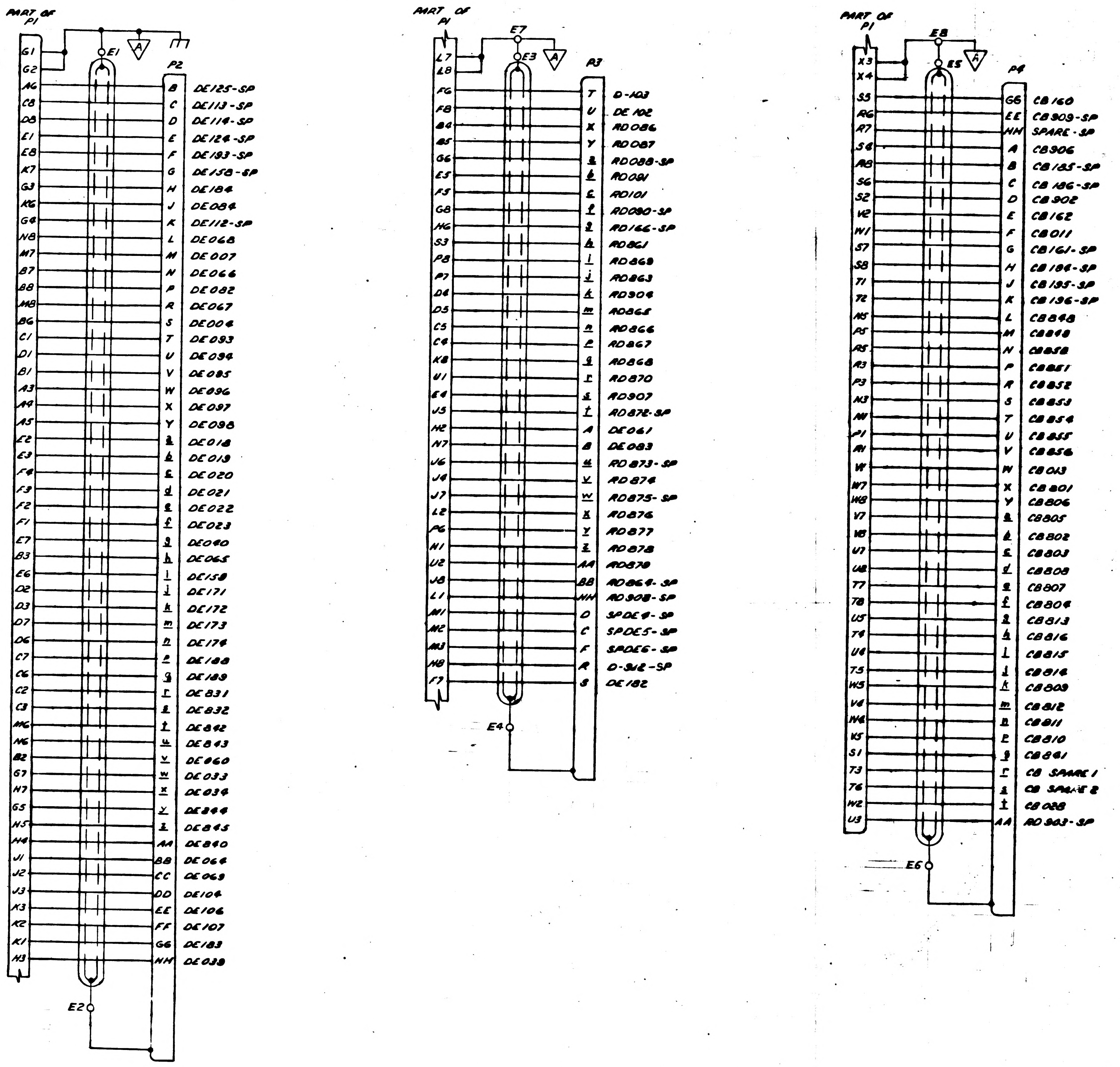
CABLE ASSEMBLY
W233

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 20 4483
SCALE NONE | WT | SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014483	F

SYM	DESCRIPTION	DATE	APPROVED
E	CLASS A RELEASED PER TDRR 27699	4-1-6	
F	CHANGED PER TDRR 28395 DR. P. Battist CHK C. APPD	5/3/66	


PART OF P1
G1
G2
E1
A
P2
A6 B DE125-SP
C8 C DE113-SP
D8 D DE114-SP
E1 E DE124-SP
E8 F DE193-SP
K7 G DE158-SP
G3 H DE184
K6 J DE084
G4 K DE112-SP
N8 L DE068
M7 M DE007
B7 N DE066
B8 P DE082
M8 R DE067
B6 S DE004
C1 T DE093
D1 U DE094
B1 V DE095
A3 W DE096
A4 X DE097
A5 Y DE098
E2 a DE018
E3 b DE019
F4 c DE020
F3 d DE021
F2 e DE022
F1 f DE023
E7 g DE040
B3 h DE065
E6 i DE159
D2 j DE171
D3 k DE172
D7 m DE173
D6 n DE174
C7 p DE188
C6 q DE189
C2 r DE831
C3 s DE832
M6 t DE842
N6 u DE843
B2 v DE860
G7 w DE033
H7 x DE034
G5 y DE844
H5 z DE845
H4 AA DE840
J1 BB DE064
J2 CC DE069
J3 DD DE104
K3 EE DE106
K2 FF DE107
K1 GG DE183
H3 HH DE039
E2
PART OF P1
E7
E3
A
P3
L7
L8
F6 T D-103
F8 U DE102
B4 X RD086
B5 Y RD087
G6 a RD088-SP
E5 b RD091
F5 c RD101
G8 f RD090-SP
H6 g RD166-SP
S3 h RD861
P8 i RD869
P7 j RD863
D4 k RD904
D5 m RD865
C5 n RD866
C4 p RD867
K8 q RD868
U1 r RD870
E4 s RD907
J5 t RD872-SP
H2 A DE061
N7 B DE083
J6 u RD873-SP
J4 v RD874
J7 w RD875-SP
L2 x RD876
P6 y RD877
N1 z RD878
U2 AA RD879
J8 BB RD864-SP
L1 HH RD908-SP
M1 D SPDE4-SP
M2 C SPDE5-SP
M3 F SPDE6-SP
H8 R D-312-SP
F7 S DE182
E4
PART OF P1
E8
E5
A
P4
X3
X4
S5 GG CB160
R6 EE CB909-SP
R7 HH SPARE-SP
S4 A CB906
R8 B CB185-SP
S6 C CB186-SP
S2 D CB902
V2 E CB162
W1 F CB011
S7 G CB161-SP
S8 H CB184-SP
T1 J CB195-SP
T2 K CB196-SP
N5 L CB848
P5 M CB849
R5 N CB850
R3 P CB851
P3 R CB852
N3 S CB853
N4 T CB854
P1 U CB855
R4 V CB856
V4 W CB013
W7 X CB801
W8 Y CB806
V7 a CB805
V8 b CB802
U7 c CB803
U8 d CB808
T7 e CB807
T8 f CB804
U5 g CB813
T4 h CB816
U6 i CB815
T5 j CB814
W5 k CB809
V6 m CB812
W6 n CB811
V5 p CB810
S1 q CB841
T3 r CB SPARE 1
T6 s CB SPARE 2
W2 t CB028
U3 AA RD903-SP
E6

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

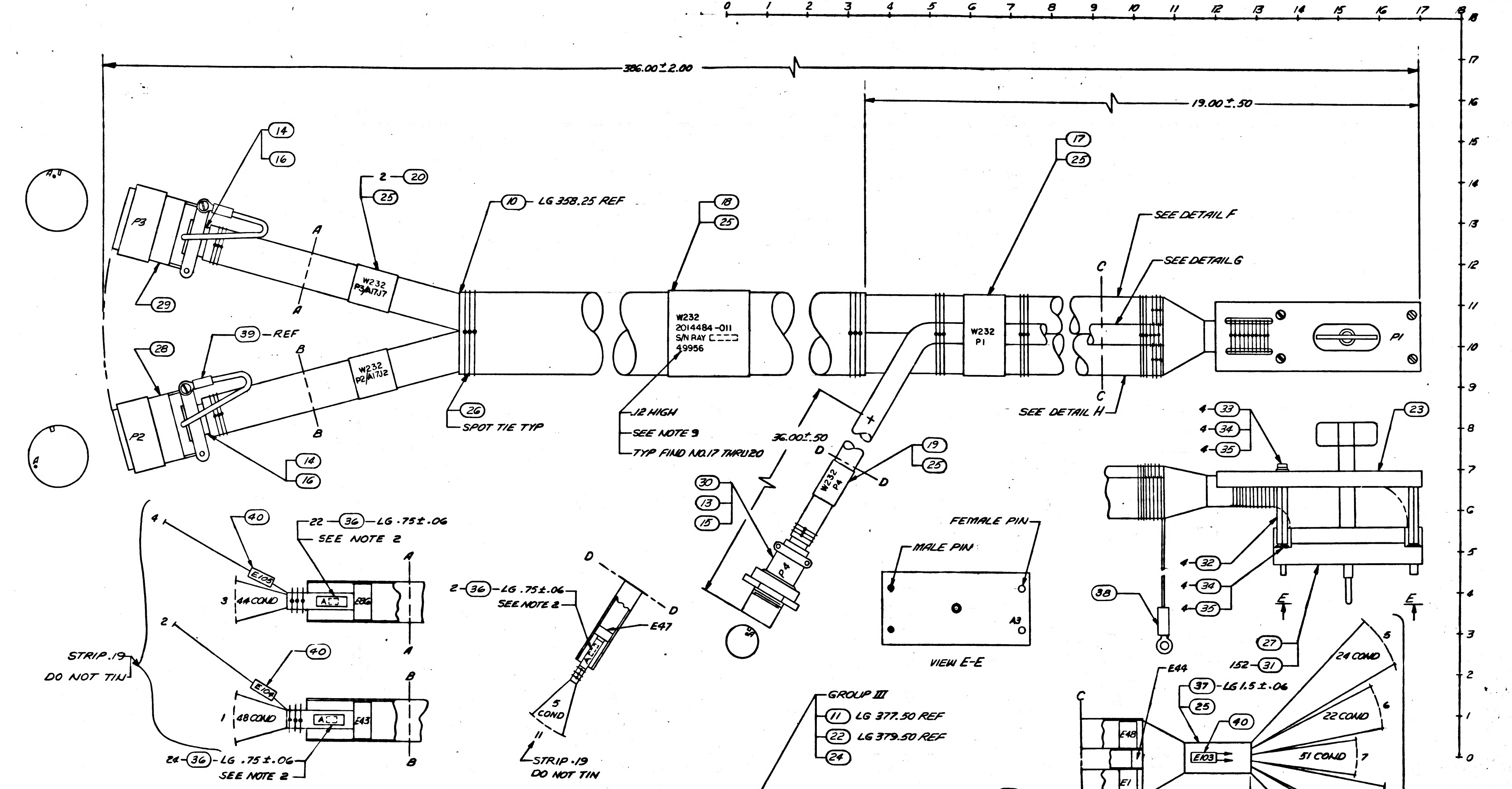
RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W233

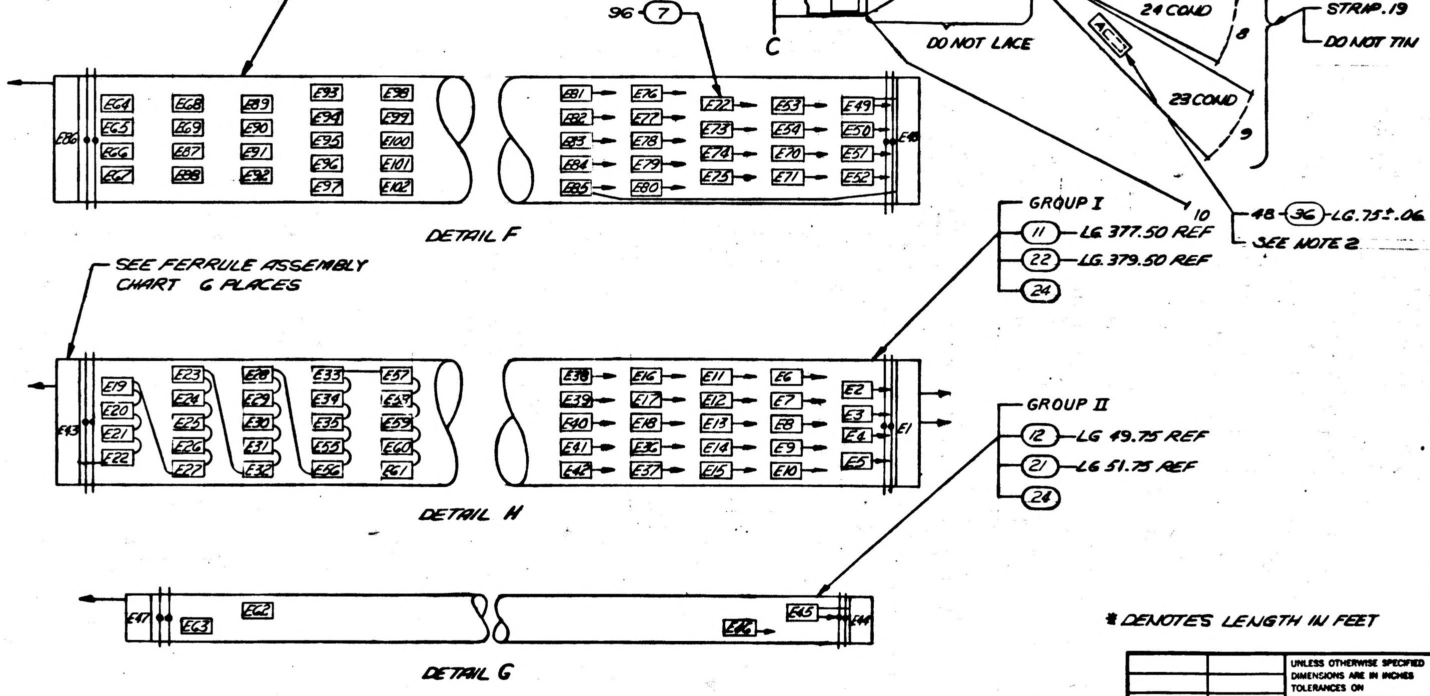
CODE IDENT NO. 49956 SIZE J NASA DRAWING NO. 2014483
SCALE NONE WT SHEET 2 OF 3

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27699	4-66	


386.00 ± 2.00
19.00 ± .50
14
16
2 - 20
25
10 - LG 358.25 REF
18
25
17
25
SEE DETAIL F
SEE DETAIL G
P3
A
29
W232 P3/A17J7
W232 2014484-011 S/N RAY 49956
W232 P1
P1
C
28
39 - REF
B
W232 P2/A17J2
P2
14
16
26
SPOT TIE TYP
.12 HIGH
SEE NOTE 9
TYP FIND NO.17 THRU 20
SEE DETAIL H
36.00 ± .50
D
W232 P4
19
25
30
13
15
P4
4-33
4-34
4-35
23
4-32
4-34
4-35
38
E
E
27
152-31
E44
37 - LG 1.5 ± .06
25
40
E103
E48
E1
24 COND
22 COND
51 COND
24 COND
23 COND
5
6
7
8
9
10
STRIP .19
DO NOT TIN
DO NOT LACE
48-36-LG .75 ± .06
SEE NOTE 2
FEMALE PIN
MALE PIN
A3
VIEW E-E
4
40
22-36-LG .75 ± .06
SEE NOTE 2
E105
3
44 COND
A
E86
2
E104
1
48 COND
E43
B
STRIP .19
DO NOT TIN
24-36-LG .75 ± .06
SEE NOTE 2
2-36-LG .75 ± .06
SEE NOTE 2
E47
5 COND
11
STRIP .19
DO NOT TIN
GROUP III
11 LG 377.50 REF
22 LG 379.50 REF
24
96-7

REF DES	FERRULE		SLEEVING	
	FIND NO. (INNER)	FIND NO. (OUTER)	FIND NO.	LENGTH ±.06
E44	6	4	9	1.50
E47	6	4	9	1.50
E43	5	3	8	1.50
E86	5	3	8	1.50
E1	5	3	8	1.50
E48	5	3	8	1.50

FERRULE ASSEMBLY CHART


E86
E64
E65
E66
E67
E68
E69
E87
E88
E89
E90
E91
E92
E93
E94
E95
E96
E97
E98
E99
E100
E101
E102
E81
E82
E83
E84
E85
E76
E77
E78
E79
E80
E72
E73
E74
E75
E53
E54
E70
E71
E49
E50
E51
E52
E48
DETAIL F
SEE FERRULE ASSEMBLY CHART 6 PLACES
E43
E19
E20
E21
E22
E23
E24
E25
E26
E27
E28
E29
E30
E31
E32
E33
E34
E35
E55
E56
E57
E58
E59
E60
E61
E38
E39
E40
E41
E42
E16
E17
E18
E36
E37
E11
E12
E13
E14
E15
E6
E7
E8
E9
E10
E2
E3
E4
E5
E1
DETAIL H
GROUP I
11 - LG 377.50 REF
22 - LG 379.50 REF
24
GROUP II
12 - LG 49.75 REF
21 - LG 51.75 REF
24
E47
E63
E62
E45
E46
E44
DETAIL G

NOTES

1. FABRICATE PER ND1002032, EXCEPT USING FIND NO. 26
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. STRIP ALL LEADS .50±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
5. CRIMP PER ND1002206
6. SERIALIZE PER ND1002023
7. CUT SLEEVING & BRAID LENGTH AS SHOWN
8. AR DENOTES AS REQUIRED
9. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
10. PARTIAL REFERENCE DESIGNATIONS ARE SHOW; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
11. MIL-I-23053 CLASS I, COLOR BLACK, I.D. .375 FOR FIND NO. 9 I.D. 1.00 FOR FIND NO. 8
12. QQ-B-575 FOR FIND NO. 22 BRAID SIZE 21/32 AWG 34 FOR FIND NO. 41 BRAID SIZE 1/4 AWG 36 FOR FIND NO. 21, BRAID SIZE 9/64 AWG 34
13. MIL-W-16878/4 E22 WHT & BLK TWISTED SHIELDED, JACKET TFE WHITE
14. DISCARD NUTS SUPPLIED WITH FIND 27 & REPLACE WITH FIND 32, 34 & 35
15. MIL-I-23053 CLASS I, COLOR WHITE, ID .125
16. MIL-I-631 TYPE F, FORM Ua, GRADE A, CLASS I, CATEGORY I, COLOR BLACK, AWG SIZE 4
17. MARK SLEEVING WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH BLACK PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
* 1.5	MIL-W-16878/4 E20	WIRE ELEC BLK	43
* 0.5	SEE NOTE 16	SLEEVING INSULATION	42
* 0.6	SEE NOTE 12	SHIELD, BRAID	41
3	1006402-1	SLEEVE, SOLDER	40
2	MS25036-49	LUG, TERMINAL	39
1	MS25036-12	LUG, TERMINAL	38
0.2	1006696-6	SLEEVING, INSULATION	37
* 9.2	SEE NOTE 15	SLEEVING, SHRINK	36
8	MS15795-803	WASHER, FLAT	35
8	MS35338-78	WASHER, LOCK	34
4	MS51957-17	SCREW, PAN HD	33
4	2016305	POST, SPACER	32
152	1006491-011	CONTACT, ELEC. CRIMP	31
1	MS3124F-12-10S	CONNECTOR, ELEC.	30
1	MS3126F-24-61S	CONNECTOR, ELEC.	29
1	MS3126F-24-61SW	CONNECTOR, ELEC.	28
1	1897336	CONNECTOR, ELEC. PLUG	27
AR	1006458-004	TAPE, LACING	26
AR	1006253	ADHESIVE	25
AR	1006699	SOLVENT	24
1	2016304	SUPPORT, CONNECTOR	23
* 63.3	SEE NOTE 12	SHIELD, BRAID	22
* 4.4	SEE NOTE 12	SHIELD, BRAID	21
2	1006415-060	BAND MARKER, CABLE	20
1	1006415-054	BAND MARKER, CABLE	19
1	1006415-144	BAND MARKER, CABLE	18
1	1006415-067	BAND MARKER, CABLE	17
2	1020371-14	BUSHING	16
1	1020371-5	BUSHING	15
2	1020370-24	BUSHING	14
1	1020370-12	BUSHING	13
* 4.2	1006696-3	SLEEVING, INSULATION	12
* 63.0	1006696-7	SLEEVING, INSULATION	11
* 29.9	1006696-10	SLEEVING, INSULATION	10
* .3	SEE NOTE 11	SLEEVING, SHRINK	9
* .5	SEE NOTE 11	SLEEVING, SHRINK	8
96	1010402-2	SLEEVE, SOLDER	7
2	1000243-20	FERRULE, INNER	6
4	1000243-38	FERRULE, INNER	5
2	1000242-24	FERRULE, OUTER	4
4	1000242-38	FERRULE, OUTER	3
* 37.6	MIL-W-16878/4-E22	WIRE, ELEC., BLACK	2
* 1494	SEE NOTE 13	WIRE, ELEC.	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014255	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9-497
DRAWN DATE 12 MAR 66
CHECKED 15 MAR 66
APPROVAL 15 MAR 66
APPROVAL D. O'Angel 15 MAR 66
APPROVAL 15 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 4-1-66
MIT APPROVAL 3/28/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W232

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014484
SCALE 1/1
WT
SHEET 1 OF 3

MASTER

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014484 G

ASSEMBLY INFORMATION CHART									
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	7	P1-U3	WHT	22	1	1	P2-s	GROUP I
		7	P1-U4	BLK	22		1	P2-t	
		△1	E2	SHLD			△1	E19	
	A2	7	P1-U6	BLK	22	2	△1	E2	
	A3	7	P1-V6	WHT	22	1	1	P2-A	
		7	P1-W6	BLK	22		1	P2-B	
		△1	E3	SHLD			△1	E20	
	A4	7	P1-X6	BLK	22	2	△1	E3	
	A5	7	P1-V5	WHT	22	1	1	P2-C	
		7	P1-W5	BLK	22		1	P2-D	
		△1	E4	SHLD			△1	E21	
	A6	7	P1-X5	BLK	22	2	△1	E4	
	A7	8	P1-K6	WHT	22	1	1	P2-E	
		8	P1-K7	BLK	22		1	P2-F	
		△1	E5	SHLD			△1	E22	
	A8	8	P1-K8	BLK	22	2	△1	E5	
	A9	8	P1-N8	WHT	22	1	1	P2-G	
		8	P1-M8	BLK	22		1	P2-H	
		△1	E6	SHLD			△1	E23	
	A10	8	P1-L8	BLK	22	2	△1	E6	
	A11	8	P1-P7	WHT	22	1	1	P2-J	
		7	P1-R7	BLK	22		1	P2-K	
		△1	E7	SHLD			△1	E24	
	A12	7	P1-S7	BLK	22	2	△1	E7	
	A13	8	P1-N7	WHT	22	1	1	P2-L	
		8	P1-M7	BLK	22		1	P2-M	
		△1	E8	SHLD			△1	E25	
	A14	8	P1-L7	BLK	22	2	△1	E8	
	A15	8	P1-N6	WHT	22	1	1	P2-N	
		8	P1-P6	BLK	22		1	P2-P	
		△1	E9	SHLD			△1	E26	
	A16	8	P1-M6	BLK	22	2	△1	E9	
	A17	8	P1-P5	WHT	22	1	1	P2-R	
		7	P1-R5	BLK	22		1	P2-S	
		△1	E10	SHLD			△1	E27	
	A18	8	P1-N5	BLK	22	2	△1	E10	
	A19	8	P1-P8	WHT	22	1	1	P2-T	
		7	P1-R8	BLK	22		1	P2-U	
		△1	E11	SHLD			△1	E28	
	A20	7	P1-S8	BLK	22	2	△1	E11	
	A21	6	P1-P4	WHT	22	1	1	P2-V	
		7	P1-R4	BLK	22		1	P2-W	
		△1	E12	SHLD			△1	E29	
	A22	6	P1-N4	BLK	22	2	△1	E12	
	A23	7	P1-R3	WHT	22	1	1	P2-X	
		7	P1-R2	BLK	22		1	P2-Y	
		△1	E13	SHLD			△1	E30	
	A24	7	P1-R1	BLK	22	2	△1	E13	
	A25	7	P1-S3	WHT	22	1	1	P2-a	
		7	P1-S2	BLK	22		1	P2-b	
		△1	E14	SHLD			△1	E31	
	A26	7	P1-S1	BLK	22	2	△1	E14	
	A27	7	P1-U8	WHT	22	1	1	P2-c	
		7	P1-V8	BLK	22		1	P2-d	
		△1	E15	SHLD			△1	E32	
	A28	7	P1-W8	BLK	22	2	△1	E15	
	A29	7	P1-U7	WHT	22	1	1	P2-e	
		7	P1-V7	BLK	22		1	P2-f	
		△1	E16	SHLD			△1	E33	
	A30	7	P1-W7	BLK	22	2	△1	E16	
	A31	7	P1-V4	WHT	22	1	1	P2-g	
		7	P1-W4	BLK	22		1	P2-h	
		△1	E17	SHLD			△1	E34	
	A32	7	P1-X4	BLK	22	2	△1	E17	
	A33	7	P1-V3	WHT	22	1	1	P2-i	
		7	P1-W3	BLK	22		1	P2-j	
		△1	E18	SHLD			△1	E35	
	A34	7	P1-X3	BLK	22	2	△1	E18	
	A35	7	P1-U2	WHT	22	1	1	P2-k	
		7	P1-V2	BLK	22		1	P2-m	
		△1	E36	SHLD			△1	E55	
	A36	7	P1-W2	BLK	22	2	△1	E36	
	A37	7	P1-U1	WHT	22	1	1	P2-n	
		7	P1-V1	BLK	22		1	P2-p	
		△1	E37	SHLD			△1	E56	
	A38	7	P1-W1	BLK	22	2	△1	E37	
	A39	7	P1-S6	WHT	22	1	1	P2-u	
		7	P1-R6	BLK	22		1	P2-v	
		△1	E38	SHLD			△1	E57	
	A40	7	P1-T6	BLK	22	2	△1	E38	
	A41	7	P1-T5	WHT	22	1	1	P2-y	
		7	P1-S5	BLK	22		1	P2-z	
		△1	E39	SHLD			△1	E58	
	A42	7	P1-U5	BLK	22	2	△1	E39	
	A43	6	P1-N3	WHT	22	1	1	P2-CC	
		6	P1-N2	BLK	22		1	P2-DD	
		△1	E40	SHLD			△1	E59	

ASSEMBLY INFORMATION CHART									
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A44	6	P1-N1	BLK	22	2	△1	E40	GROUP I
	A45	6	P1-P3	WHT	22	1	1	P2-GG	
		6	P1-P2	BLK	22		1	P2-HH	
		△1	E41	SHLD			△1	E60	
	A46	6	P1-P1	BLK	22	2	△1	E41	
	A47	7	P1-T3	WHT	22	1	1	P2-q	
		7	P1-T2	BLK	22		1	P2-r	
		△1	E42	SHLD			△1	E61	
	A48	7	P1-T1	BLK	22	2		E42	
	A49	△1	E57					E58	
	A50		E58					E59	
	A51		E59					E60	
	A52		E57					E33	
	A53		E56					E35	
	A54		E55					E35	
	A55		E35					E34	
	A56		E34					E33	
	A57		E56					E28	
	A58		E32					E31	
	A59		E31					E30	
	A60		E30					E29	
	A61		E29					E28	
	A62		E32					E23	
	A63		E27					E26	
	A64		E26					E25	
	A65		E25					E24	
	A66		E24					E23	
	A67		E27					E19	
	A68		E22					E21	
	A69		E21					E20	
	A70		E20					E19	
	A71		E60					E61	
SEE A130	A72		E43					E104	
SEE A127 & A128	A73		E43	BLK	22	2		E22	
		△1	E1	SHLD			△1	E43	
	A74	7	P1-T7	WHT	22	1	11	P4-J	GROUP II
		7	P1-T8	BLK	22		11	P4-D	
		△1	E45	SHLD			△1	E62	
	A75	7	P1-T4	BLK	22	2	△1	E45	
	A76	6	P1-M3	WHT	22	1	11	P4-E	
		6	P1-M2	BLK	22		11	P4-F	
		△1	E46	SHLD			△1	E63	
	A77	6	P1-M1	BLK	22	2	△1	E46	
	A78	△1	E45	BLK	22	2	△1	E44	
	A79	△1	E47	BLK	22	2	11	P4-G	
		△1	E44	SHLD			△1	E47	
	A80	5	P1-G4	WHT	22	1	3	P3-LL	GROUP III
		6	P1-H4	BLK	22		3	P3-MM	
		△1	E49	SHLD			△1	E64	
SEE A129	A81	△1	E103	BLK	22	2	△1	E49	
	A82	9	P1-B8	WHT	22	1	3	P3-A	
		9	P1-B7	BLK	22		3	P3-B	
		△1	E50	SHLD			△1	E65	
	A83	9	P1-B6	BLK	22	2	△1	E50	
	A84	9	P1-C8	WHT	22	1	3	P3-C	
		9	P1-C7	BLK	22		3	P3-D	
		△1	E51	SHLD			△1	E66	
	A85	9	P1-C6	BLK	22	2	△1	E51	
	A86	9	P1-D8	WHT	22	1	3	P3-E	
		9	P1-D7	BLK	22		3	P3-F	
		△1	E52	SHLD			△1	E67	
	A87	9	P1-D6	BLK	22	2	△1	E52	
	A88	5	P1-D3	WHT	22	1	3	P3-J	
		5	P1-D2	BLK	22		3	P3-K	
		△1	E53	SHLD			△1	E68	
	A89	5	P1-D1	BLK	22	2	△1	E53	
	A90	5	P1-C3	WHT	22	1	3	P3-L	
		5	P1-C2	BLK	22		3	P3-M	
		△1	E54	SHLD			△1	E69	
	A91	5	P1-C1	BLK	22	2	△1	E54	
	A92	5	P1-B3	WHT	22	1	3	P3-N	
		5	P1-B2	BLK	22		3	P3-P	
		△1	E70	SHLD			△1	E87	
	A93	5	P1-B1	BLK	22	2	△1	E70	
	A94	5	P1-A3	WHT	22	1	3	P3-R	
		5	P1-A4	BLK	22		3	P3-S	
		△1	E71	SHLD			△1	E88	
	A95	9	P1-A5	BLK	22	2	△1	E71	
	A96	5	P1-B4	WHT	22	1	3	P3-T	
		5	P1-C4	BLK	22		3	P3-U	
		△1	E72	SHLD			△1	E89	

ASSEMBLY INFORMATION CHART									
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A97	5	P1-D4	BLK	22	2	△1	E72	GROUP III
	A98	9	P1-B5	WHT	22	1	3	P3-V	
		9	P1-C5	BLK	22		3	P3-W	
		△1	E73	SHLD			△1	E90	
	A99	9	P1-D5	BLK	22	2	△1	E73	
	A100	9	P1-G5	WHT	22	1	3	P3-X	
		8	P1-H5	BLK	22		3	P3-Y	
		△1	E74	SHLD			△1	E91	
	A101	8	P1-J5	BLK	22	2	△1	E74	
	A102	8	P1-J6	WHT	22	1	3	P3-i	
		8	P1-J7	BLK	22		3	P3-j	
		△1	E75	SHLD			△1	E92	
	A103	8	P1-J8	BLK	22	2	△1	E75	
	A104	8	P1-H6	WHT	22	1	3	P3-k	
		8	P1-H7	BLK	22		3	P3-m	
		△1	E76	SHLD			△1	E93	
	A105	8	P1-H8	BLK	22	2	△1	E76	
	A106	9	P1-G6	WHT	22	1	3	P3-n	
		9	P1-G7	BLK	22		3	P3-p	
		△1	E77	SHLD			△1	E94	
	A107	9	P1-G8	BLK	22	2	△1	E77	
	A108	9	P1-E8	WHT	22	1	3	P3-q	
		9	P1-E7	BLK	22		3	P3-r	
		△1	E78	SHLD			△1	E95	
	A109	9	P1-E6	BLK	22	2	△1	E78	
	A110	9	P1-F8	WHT	22	1	3	P3-s	
		9	P1-F7	BLK	22		3	P3-t	
		△1	E79	SHLD			△1	E96	
	A111	9	P1-F6	BLK	22	2	△1	E79	
	A112	5	P1-G3	WHT	22	1	3	P3-u	
		5	P1-G2	BLK	22		3	P3-v	
		△1	E80	SHLD			△1	E97	
	A113	5	P1-G1	BLK	22	2	△1	E80	
	A114	5	P1-F3	WHT	22	1	3	P3-AA	
		5	P1-F2	BLK	22		3	P3-BB	
		△1	E81	SHLD			△1	E98	
	A115	5	P1-F1	BLK	22	2	△1	E81	
	A116	6	P1-K3	WHT	22	1	3	P3-CC	
		6	P1-K2	BLK	22		3	P3-DD	
		△1	E82	SHLD			△1	E99	
	A117	6	P1-K1	BLK	22	2	△1	E82	
	A118	6	P1-J3	WHT	22	1	3	P3-EE	
		6	P1-J2	BLK	22		3	P3-FF	
		△1	E83	SHLD			△1	E100	
	A119	6	P1-J1	BLK	22	2	△1	E83	
	A120	6	P1-H3	WHT	22	1	3	P3-GG	
		6	P1-H2	BLK	22		3	P3-HH	
		△1	E84	SHLD			△1	E101	
	A121	6	P1-H1	BLK	22	2	△1	E84	
	A122	5	P1-E3	WHT	22	1	3	P3-JJ	
		5	P1-E2	BLK	22		3	P3-KK	
		△1	E85	SHLD			△1	E102	
	A123	5	P1-E1	BLK	22	2	△1	E85	
	A124	△1	E49	BLK	22	2	△1	E48	
SEE A131	A125	△1	E86	BLK	22	2	△1	E105	
	A126	△1	E85	BLK	22	2	△1	E48	
		△1	E48	SHLD			△1	E86	
△2	A127	△1	E1	BRAID		41	10	GRD	
	A128	△1	E1	BLK	20	43	△1	E103	GROUP I
	A129	6	P1-J4	BLK			△1	E103	
	A130	△1	E104	BLK			2	P2-GRD	△3
	A131	△1	E105	BLK	20	43	4	P3-GRD	GROUP II

△1 DENOTES INTERNAL CONNECTION
△2 ATTACH FIND 42 LG 5.5 ± .12
△3 ATTACH 1 OF FIND 39 & 1.00 INCH
OF FIND 36 SEE NOTE 17

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASE … DRR 27699	4-1-66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9-497
DRAWN DATE 12 MAR 66
CHECKED 15 MAR 66
APPROVAL 15 MAR 66
APPROVAL D. O. 15 MAR 66
APPROVAL 15 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 4-1-66
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

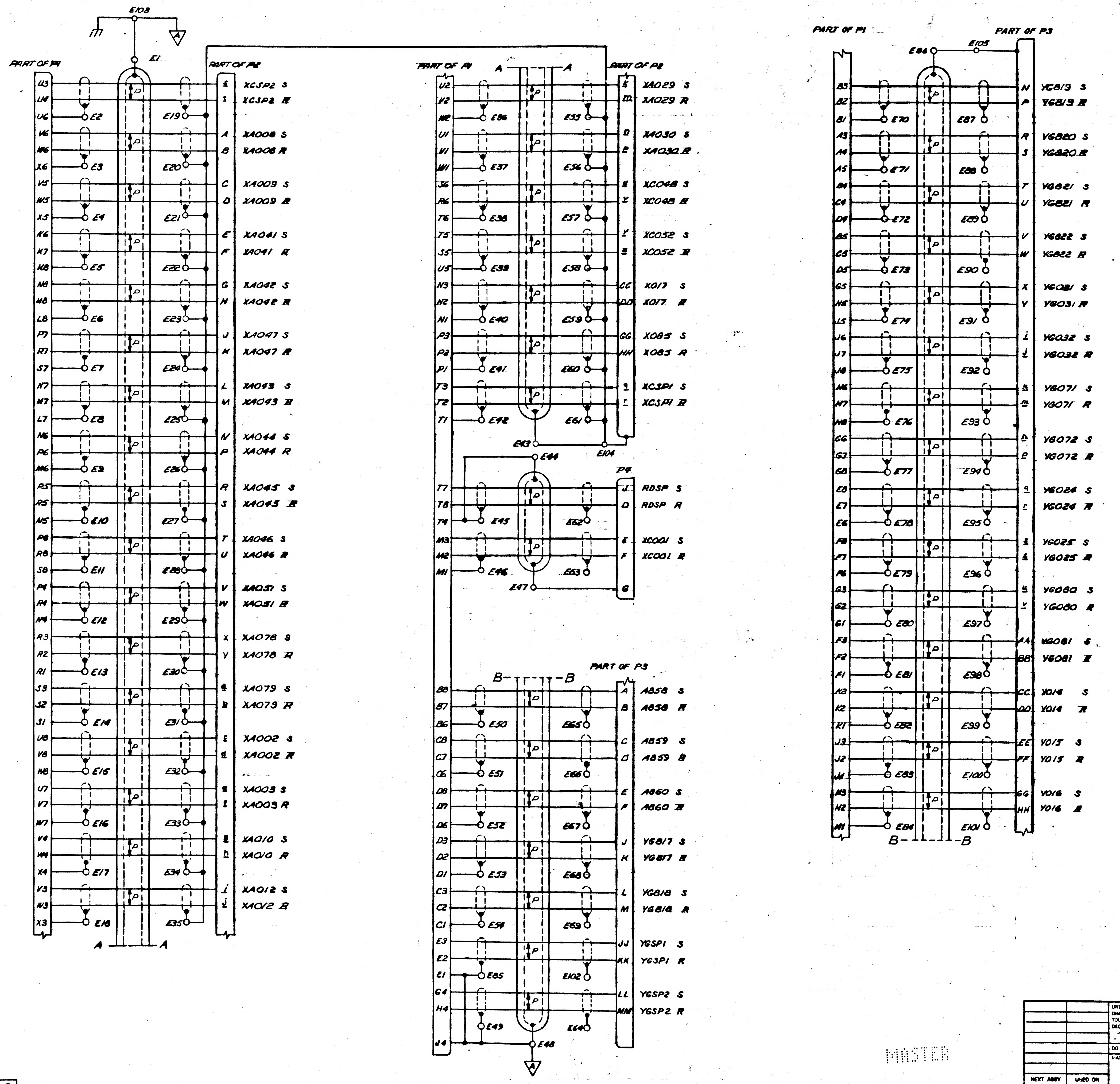
CABLE ASSEMBLY
W232

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014484
SCALE NONE | WT | SHEET 2 OF 3

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

SYM	DESCRIPTION	DATE	APPROVED
G	CLASS A RELEASED PER TDRR 27699	4-1-66	



E103
A
E1
PART OF P1
PART OF P2
U3 U4 U6 V6 W6 X6 V5 W5 X5 K6 K7 K8 N8 M8 L8 P7 R7 S7 N7 M7 L7 N6 P6 M6 P5 R5 N5 P8 R8 S8 P4 R4 N4 R3 R2 R1 S3 S2 S1 U8 V8 W8 U7 V7 W7 V4 W4 X4 V3 W3 X3
E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13 E14 E15 E16 E17 E18
E19 E20 E21 E22 E23 E24 E25 E26 E27 E28 E29 E30 E31 E32 E33 E34 E35
P
XCSP2 S
XCSP2 R
XA008 S
XA008 R
XA009 S
XA009 R
XA041 S
XA041 R
XA042 S
XA042 R
XA047 S
XA047 R
XA043 S
XA043 R
XA044 S
XA044 R
XA045 S
XA045 R
XA046 S
XA046 R
XA051 S
XA051 R
XA078 S
XA078 R
XA079 S
XA079 R
XA002 S
XA002 R
XA003 S
XA003 R
XA010 S
XA010 R
XA012 S
XA012 R
A—A
PART OF P1
PART OF P2
U2 V2 W2 U1 V1 W1 S6 R6 T6 T5 S5 U5 N3 N2 N1 P3 P2 P1 T3 T2 T1
E36 E37 E38 E39 E40 E41 E42
E55 E56 E57 E58 E59 E60 E61
XA029 S
XA029 R
XA030 S
XA030 R
XC048 S
XC048 R
XC052 S
XC052 R
X017 S
X017 R
X085 S
X085 R
XCSP1 S
XCSP1 R
E43 E104 E44
P4
T7 T8 T4 M3 M2 M1
E45 E46 E62 E63 E47
RDSP S
RDSP R
XC001 S
XC001 R
PART OF P3
B—B
B8 B7 B6 C8 C7 C6 D8 D7 D6 D3 D2 D1 C3 C2 C1 E3 E2 E1 G4 H4 J4
E50 E51 E52 E53 E54 E85 E49 E48
E65 E66 E67 E68 E69 E102 E64
A858 S
A858 R
A859 S
A859 R
A860 S
A860 R
YG817 S
YG817 R
YG818 S
YG818 R
YGSP1 S
YGSP1 R
YGSP2 S
YGSP2 R
PART OF P1
PART OF P3
E86 E105
B3 B2 B1 A3 A4 A5 B4 C4 D4 B5 C5 D5 G5 H5 J5 J6 J7 J8 H6 H7 H8 G6 G7 G8 E8 E7 E6 F8 F7 F6 G3 G2 G1 F3 F2 F1 K3 K2 K1 J3 J2 J1 H3 H2 H1
E70 E71 E72 E73 E74 E75 E76 E77 E78 E79 E80 E81 E82 E83 E84
E87 E88 E89 E90 E91 E92 E93 E94 E95 E96 E97 E98 E99 E100 E101
YG819 S
YG819 R
YG820 S
YG820 R
YG821 S
YG821 R
YG822 S
YG822 R
YG031 S
YG031 R
YG032 S
YG032 R
YG071 S
YG071 R
YG072 S
YG072 R
YG024 S
YG024 R
YG025 S
YG025 R
YG080 S
YG080 R
YG081 S
YG081 R
Y014 S
Y014 R
Y015 S
Y015 R
Y016 S
Y016 R

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS9-497
DRAWN P. [illegible] DATE 12 MAR 66
CHECKED [illegible] 15 MAR 66
APPROVAL [illegible] 15 MAR 66
APPROVAL D. [illegible] 15 MAR 66
APPROVAL [illegible] 15 MAR 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible] 4-1-66
MIT APPROVAL A. [illegible] 4/1/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

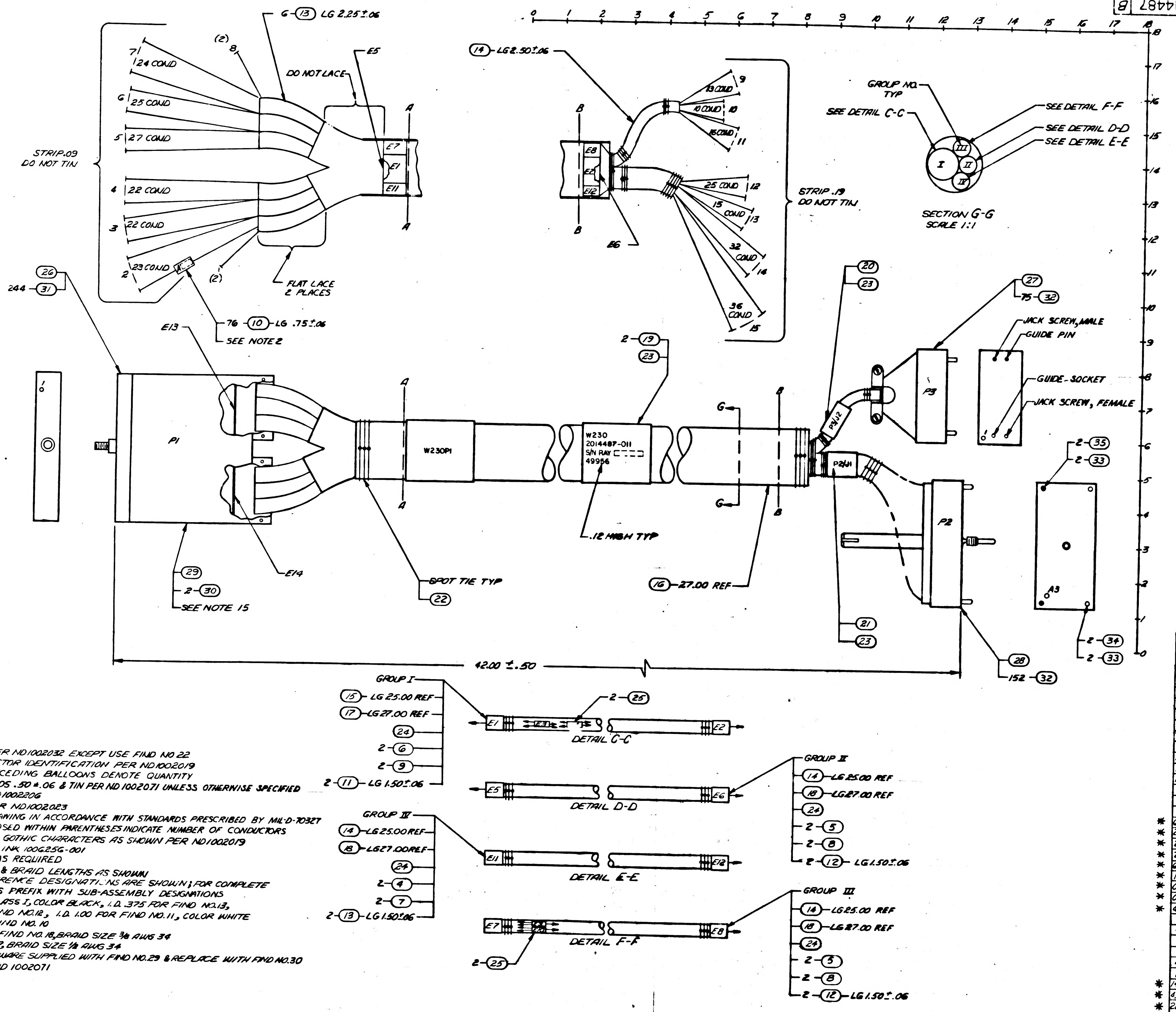
CABLE ASSEMBLY
W232

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014484
SCALE NONE
WT
SHEET 3 OF 3

2014484 G

2014487 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25427		
1	CHANGED PER CCA R25451 DR W Kelley CHK Urban APPD	11/15/65	
–	CLASS B CHANGED PER CCA R25501		
A	CHANGED PER CCA R25643 DR CHK APPD	1/7/66	
B	CHANGED PER CCA R25760 AND CLASS A RELEASED PER TDRR 25477	1/14/66	


G-(13) LG 2.25±.06
(2)
8
E5
7 (24 COND)
DO NOT LACE
6 25 COND
5 27 COND
STRIP .09
DO NOT TIN
A
E7
E1
E11
4 22 COND
3 22 COND
2 23 COND
(2)
FLAT LACE
2 PLACES
76-(10)-LG .75±.06
SEE NOTE 2
244-(31)
(26)
(14)-LG 2.50±.06
B
E8
E2
E12
E6
13 COND 9
10 COND 10
15 COND 11
25 COND 12
15 COND 13
32 COND 14
36 COND 15
STRIP .19
DO NOT TIN
GROUP NO. TYP
SEE DETAIL C-C
SEE DETAIL F-F
SEE DETAIL D-D
SEE DETAIL E-E
I
II
III
IV
SECTION G-G
SCALE 1:1
(20)
(23)
(27)
75-(32)
JACK SCREW, MALE
GUIDE PIN
GUIDE-SOCKET
JACK SCREW, FEMALE
E13
P1
W230P1
2-(19)
(23)
W230
2014487-011
S/N RAY
49956
G
P3
P3J2
P2J1
P2
2-(35)
2-(33)
A3
E14
SPOT TIE TYP
(22)
.12 HIGH TYP
(16)-27.00 REF
(21)
(23)
(29)
2-(30)
SEE NOTE 15
2-(34)
2-(33)
(28)
152-(32)
42.00 ±.50
GROUP I
(15)-LG 25.00 REF
(17)-LG 27.00 REF
(24)
2-(6)
2-(9)
2-(11)-LG 1.50±.06
2-(25)
E1
E2
DETAIL C-C
E5
E6
DETAIL D-D
GROUP II
(14)-LG 25.00 REF
(18)-LG 27.00 REF
(24)
2-(5)
2-(8)
2-(12)-LG 1.50±.06
GROUP IV
(14)-LG 25.00 REF
(18)-LG 27.00 REF
(24)
2-(4)
2-(7)
2-(13)-LG 1.50±.06
E11
E12
DETAIL E-E
E7
E8
DETAIL F-F
2-(25)
GROUP III
(14)-LG 25.00 REF
(18)-LG 27.00 REF
(24)
2-(5)
2-(8)
2-(12)-LG 1.50±.06

NOTE
1. FABRICATE PER ND1002032 EXCEPT USE FIND NO 22
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
4. STRIP ALL LEADS .50 ±.06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
5. CRIMP PER ND1002206
6. SERIALIZE PER ND1002023
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. NUMBERS ENCLOSED WITHIN PARENTHESES INDICATE NUMBER OF CONDUCTORS
9. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
10. AR DENOTES AS REQUIRED
11. CUT SLEEVING & BRAID LENGTHS AS SHOWN
12. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
13. MIL-I-23053 CLASS I, COLOR BLACK, I.D. .375 FOR FIND NO.13, I.D. .500 FOR FIND NO.12, I.D. 1.00 FOR FIND NO.11, COLOR WHITE I.D .125 FOR FIND NO. 10
14. QQ-B-575 FOR FIND NO.18, BRAID SIZE 3/8 AWG 34 FOR FIND NO.17, BRAID SIZE 1/2 AWG 34
15. REMOVE HARDWARE SUPPLIED WITH FIND NO.29 & REPLACE WITH FIND NO.30
16. SOLDER PER ND 1002071

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	2	1006672-002	GUIDE PIN	35
	2	1006672-006	GUIDE SOCKET	34
	4	1006672-005	NUT, STOP	33
	227	1006491-009	CONTACT, ELECTRICAL	32
	244	1010738-2	CONTACT, ELECTRICAL	31
	2	MS51957-18	SCREW, PAN HEAD	30
	1	1006225-3	SHELL, CONNECTOR	29
	1	1006672-001	CONNECTOR, PLUG	28
	1	1006490-016	CONNECTOR, PLUG	27
	1	1010818-1	CONNECTOR, PLUG	26
	4	1010402-1	SLEEVE, SOLDER	25
	AR	1006699	SOLVENT	24
	AR	1006253	ADHESIVE	23
	AR	1006458-004	TAPE, LACING	22
	1	1006415-058	BAND MARKER, CABLE	21
	1	1006415-054	BAND MARKER, CABLE	20
	2	1006415-141	BAND MARKER, CABLE	19
*	6.8	SEE NOTE 14	SHIELD, BRAIDED	18
*	2.3	SEE NOTE 14	SHIELD, BRAIDED	17
*	2.3	1006696-9	SLEEVING, INSULATION	16
*	2.1	1006696-5	SLEEVING, INSULATION	15
*	6.5	1006696-3	SLEEVING, INSULATION	14
*	1.4	SEE NOTE 13	SLEEVING, SHRINK	13
*	0.5	SEE NOTE 13	SLEEVING, SHRINK	12
*	0.3	SEE NOTE 13	SLEEVING, SHRINK	11
*	4.8	SEE NOTE 13	SLEEVING, SHRINK	10
	2	1000242-38	FERRULE, OUTER	9
	4	1000242-30	FERRULE, OUTER	8
	2	1000242-27	FERRULE, OUTER	7
	2	1000243-38	FERRULE, INNER	6
	4	1000243-34	FERRULE, INNER	5
	2	1000243-28	FERRULE, INNER	4
*	146	1014341-12	WIRE, ELEC. TW PR. BLK/WHT	3
*	450	MIL-W-16878/4 E24	WIRE, ELECTRICAL BLACK	2
*	225	MIL-W-16878/4 E24	WIRE, ELECTRICAL WHITE	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014487 B

NEXT ASSY	USED ON
2014268	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 65
CHECKED 23SEP65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W230

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014487
SCALE 1/1
WT
SHEET OF 3

2014487 B

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	7	P1-1	WHT	24	1	14	P2-J5	
	A2	△1	E4				14	J6	
	A3	△1	E3				13	S8	
	A4	2	P1-202				15	E6	
	A5	7	207				13	S6	
	A6	7	210				14	H7	
	A7	7	P1-212				14	H3	
	A8	△1	E4				14	G7	
	A9	△1	E3				15	C5	
	A10	7	P1-139				△1	E3	
	A11	7	209				△1	E3	
	A12	7	73				△1	E4	
	A13	6	213			1	△1	E4	
	A14	7	176	WHT		3	15	E2	
		7	177	BLK				E3	
	A15	6	178	WHT				E4	
		6	179	BLK				E5	
	A16	6	180	WHT				E7	
		6	181	BLK				E8	
	A17	3	235	WHT				D2	
		2	236	BLK				D3	
	A18	5	225	WHT				B7	
		4	226	BLK				B8	
	A19	6	217	WHT				A5	
		6	218	BLK				A6	
	A20	4	227	WHT				C1	
		4	228	BLK				C2	
	A21	2	237	WHT				D4	
		2	238	BLK			15	D5	
	A22	6	182	WHT			14	F1	
		6	183	BLK			14	F2	
	A23	3	196	WHT			14	G8	GROUP I
		3	197	BLK			14	H8	
	A24	2	239	WHT			15	D6	
		2	240	BLK				D7	
	A25	4	229	WHT				C3	
		4	230	BLK				C4	
	A26	6	219	WHT				B1	
		5	220	BLK				B2	
	A27	5	221	WHT				B3	
		5	222	BLK				B4	
	A28	3	231	WHT				C6	
		3	232	BLK				C7	
	A29	2	241	WHT				D1	
		2	242	BLK			15	E1	
	A30	3	198	WHT			14	H5	
		2	199	BLK				H6	
	A31	2	200	WHT				H1	
		2	201	BLK				H2	
	A32	3	194	WHT				G5	
		3	195	BLK				G6	
	A33	4	190	WHT				G1	
		4	191	BLK				G2	
	A34	5	184	WHT				F3	
		5	185	BLK				F4	
	A35	5	186	WHT				F5	
		5	187	BLK				F6	
	A36	4	192	WHT				G3	
		3	193	BLK				G4	
	A37	5	188	WHT				F7	
		5	189	BLK			14	F8	
	A38	6	215	WHT			15	A3	
		6	216	BLK			15	A4	
	A39	2	203	WHT			14	J3	
		2	204	BLK			14	J4	
	A40	5	223	WHT			15	B5	
		5	224	BLK			15	B6	
	A41	3	233	WHT		3	15	C8	
		3	234	BLK			15	P2-D8	
	A42	7	P1-173	BLK		2	△1	E1	
	A43	△1	E2	BLK	24	2	14	P2-J7	
		△1	E1	SHLD			△1	E2	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A44	7	P1-2	WHT	24	1	12	P2-V5	
	A45	4	22	WHT		1		T6	
	A46	4	24	WHT		1		T1	
	A47	3	26	WHT		1		U3	
	A48	4	23	WHT		3		T4	
		4	25	BLK				T5	
	A49	4	20	WHT				V8	
		4	21	BLK				U8	
	A50	5	18	WHT				V6	
		5	19	BLK				V7	GROUP II
	A51	5	16	WHT				W7	
		5	17	BLK				V2	
	A52	5	14	WHT				U7	
		5	15	BLK				U6	
	A53	6	12	WHT				X4	
		5	13	BLK				W4	
	A54	6	10	WHT				V1	
		6	11	BLK				W2	
	A55	7	8	WHT				W6	
		6	9	BLK				X6	
	A56	7	6	WHT				S1	
		7	7	BLK				T2	
	A57	7	4	WHT		3		U1	
		7	5	BLK			12	P2-U2	
	A58	3	P1-27	BLK		2	△1	E5	
	A59	△1	E6	BLK	24	2	12	P2-T7	
		△1	E5	SHIELD			△1	E6	
	A60	7	P1-80	WHT	24	1	9	P3-60	
	A61	6	81				11	2	
	A62	6	82				10	27	
	A63	6	83				10	26	
	A64	5	85				9	47	
	A65	5	86				9	58	
	A66	5	87				9	63	
	A67	5	88				9	55	
	A68	5	89				11	22	
	A69	4	90				10	30	
	A70	4	91				10	41	
	A71	4	92				11	7	
	A72	4	93				9	48	
	A73	3	94				9	59	
	A74	3	95				10	32	
	A75	3	96				10	40	
	A76	3	97				11	8	
	A77	2	99				9	64	
	A78	2	103				11	10	
	A79	7	111				11	24	
	A80	6	117				11	23	
	A81	5	120				10	42	GROUP III
	A82	4	124				10	38	
	A83	3	127				10	33	
	A84	2	130				10	34	
	A85	2	133				9	51	
	A86	2	136				9	53	
	A87	6	145				11	14	
	A88	4	158				11	13	
	A89	3	163				11	1	
	A90	2	164				11	4	
	A91	3	160				11	15	
	A92	3	162				11	16	
	A93	7	78				9	54	
	A94	7	79				11	21	
	A95	3	98	WHT		1	9	P3-49	
	A96	4	156	BLK		2	11	E9	
	A97	7	P1-143				△1	E9	
	A98	△1	E9				11	P3-11	
	A99	7	P1-144				△1	E10	
	A100	4	P1-157				△1	E10	
	A101	△1	E10				11	P3-12	
	A102	△1	E8	BLK	24	2	9	P3-65	
		△1	E7	SHLD			△1	E8	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A103	2	P1-100	WHT	24	1	13	P2-R6	
	A104	6	84				13	P3	
	A105	6	114				13	S4	
	A106	7	108				13	S3	
	A107	7	141				13	S5	
	A108	6	149				14	K2	
	A109	6	150				13	S7	GROUP IV
	A110	5	151				14	J1	
	A111	5	152				14	K3	
	A112	2	166				13	M1	
	A113	2	167				14	K1	
	A114	2	P1-168	WHT		1	13	L1	
	A115	8	E13	BLK		2	13	R4	
	A116	8	E13	BLK		2	13	R2	
	A117	1	E14	BLK		2	13	N6	
	A118	1	E14	BLK		2	13	P6	
	A119	△1	E12	BLK	24	2	13	P2-R8	
		△1	E11	SHIELD			△1	E12	
△3	A120		P1-109	BLK	24	2		E13	△2
	A121		112						
	A122		115						
	A123		118						
	A124		121						
	A125		125						
	A126		128						
	A127		131						
	A128		134						
	A129		137						
	A130		104					E13	
	A131		107					E14	
	A132		110						
	A133		113						
	A134		116						
	A135		119						
	A136		123						
	A137		126						
	A138		129						
	A139		132						
	A140		135						
	A141		102					E14	
	A142		161					E13	
△3	A143		P1-159	BLK	24	2		E14	△2

△1 DENOTES INTERNAL CONNECTION WITHIN CABLE ASSY
△2 DENOTES JUMPER WITHIN P1 CONNECTOR
△3 STRIP .09, DO NOT TIN, ATTACH FIND 31

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25427		
1	CHANGED PER CCA R25451 DR W. Kelley CHK E Urban APPD	11/15/65	
–	CLASS B CHANGED PER CCA R25501		
A	CHANGED PER CCA R25643. DR CHK C DeThomas APPD	1/14/66	
B	CHANGED PER CCA R25760 AND CLASS A RELEASED PER TDRR 25477	2/10/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9-18-65
CHECKED 23 SEP 65
APPROVAL 10-5-65
APPROVAL 10/20/65
APPROVAL 10/19/65
NASA APPROVAL A. L. METZGER
MIT APPROVAL
MIT APPROVAL

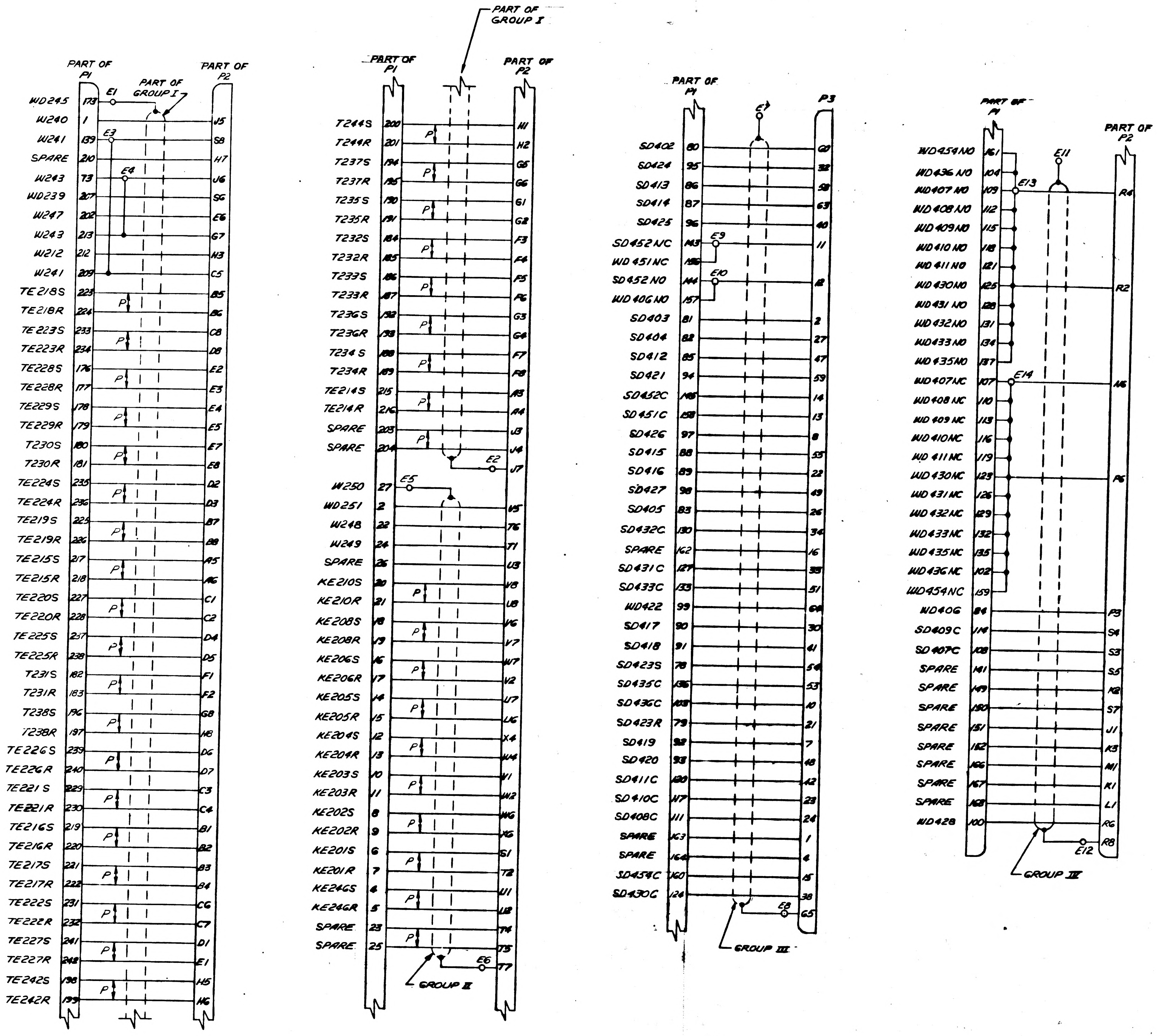
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W230

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014487
SCALE NONE
WT
SHEET 2 OF 3

2014487 B

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25427		
1	CHANGED PER CCA R25451 DR W. Kelley CHK E Urban APPD A J M	11/1/65	J.H.
–	CLASS B CHANGED PER CCA R25501	12/20/65	J.H.B.
A	CHANGED PER CCA R25643 DR L Jayplam CHK C Lathrama APPD R.C.D.	1/17/66	
B	CHANGED PER CCA R25760 AND CLASS A RELEASED PER TDRR 25477	4/66	


PART OF P1
PART OF GROUP I
PART OF P2
WD245 173 E1
W240 1 J5
W241 139 E3 S8
SPARE 210 H7
W243 73 E4 J6
WD239 207 S6
W247 202 E6
W243 213 G7
W212 212 H3
W241 209 C5
TE218S 223 B5
TE218R 224 B6
TE223S 233 C8
TE223R 234 D8
TE228S 176 E2
TE228R 177 E3
TE229S 178 E4
TE229R 179 E5
T230S 180 E7
T230R 181 E8
TE224S 235 D2
TE224R 236 D3
TE219S 225 B7
TE219R 226 B8
TE215S 217 A5
TE215R 218 A6
TE220S 227 C1
TE220R 228 C2
TE225S 237 D4
TE225R 238 D5
T231S 182 F1
T231R 183 F2
T238S 196 G8
T238R 197 H8
TE226S 239 D6
TE226R 240 D7
TE221S 229 C3
TE221R 230 C4
TE216S 219 B1
TE216R 220 B2
TE217S 221 B3
TE217R 222 B4
TE222S 231 C6
TE222R 232 C7
TE227S 241 D1
TE227R 242 E1
TE242S 198 H5
TE242R 199 H6
P
PART OF P1
PART OF GROUP I
PART OF P2
T244S 200 H1
T244R 201 H2
T237S 194 G5
T237R 195 G6
T235S 190 G1
T235R 191 G2
T232S 184 F3
T232R 185 F4
T233S 186 F5
T233R 187 F6
T236S 192 G3
T236R 193 G4
T234S 188 F7
T234R 189 F8
TE214S 215 A3
TE214R 216 A4
SPARE 203 J3
SPARE 204 J4
E2 J7
W250 27 E5
WD251 2 V5
W248 22 T6
W249 24 T1
SPARE 26 U3
KE210S 20 V8
KE210R 21 U8
KE208S 18 V6
KE208R 19 V7
KE206S 16 W7
KE206R 17 V2
KE205S 14 U7
KE205R 15 U6
KE204S 12 X4
KE204R 13 W4
KE203S 10 W1
KE203R 11 W2
KE202S 8 W6
KE202R 9 X6
KE201S 6 S1
KE201R 7 T2
KE246S 4 U1
KE246R 5 U2
SPARE 23 T4
SPARE 25 T5
E6 T7
GROUP II
PART OF P1
P3
E7
SD402 80 60
SD424 95 32
SD413 86 58
SD414 87 63
SD425 96 40
SD452NC 143 E9 11
WD451NC 156
SD452NO 144 E10 12
WD406NO 157
SD403 81 2
SD404 82 27
SD412 85 47
SD421 94 59
SD452C 145 14
SD451C 158 13
SD426 97 8
SD415 88 55
SD416 89 22
SD427 98 49
SD405 83 26
SD432C 130 34
SPARE 162 16
SD431C 127 35
SD433C 133 51
WD422 99 64
SD417 90 30
SD418 91 41
SD423S 78 54
SD435C 136 53
SD436C 103 10
SD423R 79 21
SD419 92 7
SD420 93 48
SD411C 120 42
SD410C 117 23
SD408C 111 24
SPARE 163 1
SPARE 164 4
SD454C 160 15
SD430C 124 38
E8 65
GROUP III
PART OF P1
PART OF P2
E11
WD454NO 161
WD436NO 104
WD407NO 109 E13 R4
WD408NO 112
WD409NO 115
WD410NO 118
WD411NO 121
WD430NO 125 R2
WD431NO 128
WD432NO 131
WD433NO 134
WD435NO 137
WD407NC 107 E14 M6
WD408NC 110
WD409NC 113
WD410NC 116
WD411NC 119
WD430NC 123 P6
WD431NC 126
WD432NC 129
WD433NC 132
WD435NC 135
WD436NC 102
WD454NC 159
WD406 84 P3
SD409C 114 S4
SD407C 108 S3
SPARE 141 S5
SPARE 149 K2
SPARE 150 S7
SPARE 151 J1
SPARE 152 K3
SPARE 166 M1
SPARE 167 K1
SPARE 168 L1
WD428 100 R6
E12 R8
GROUP IV

ELECTRICAL SCHEMATIC

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 2 SEP 65
CHECKED 23 SEP 65
APPROVAL
APPROVAL 10/24/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

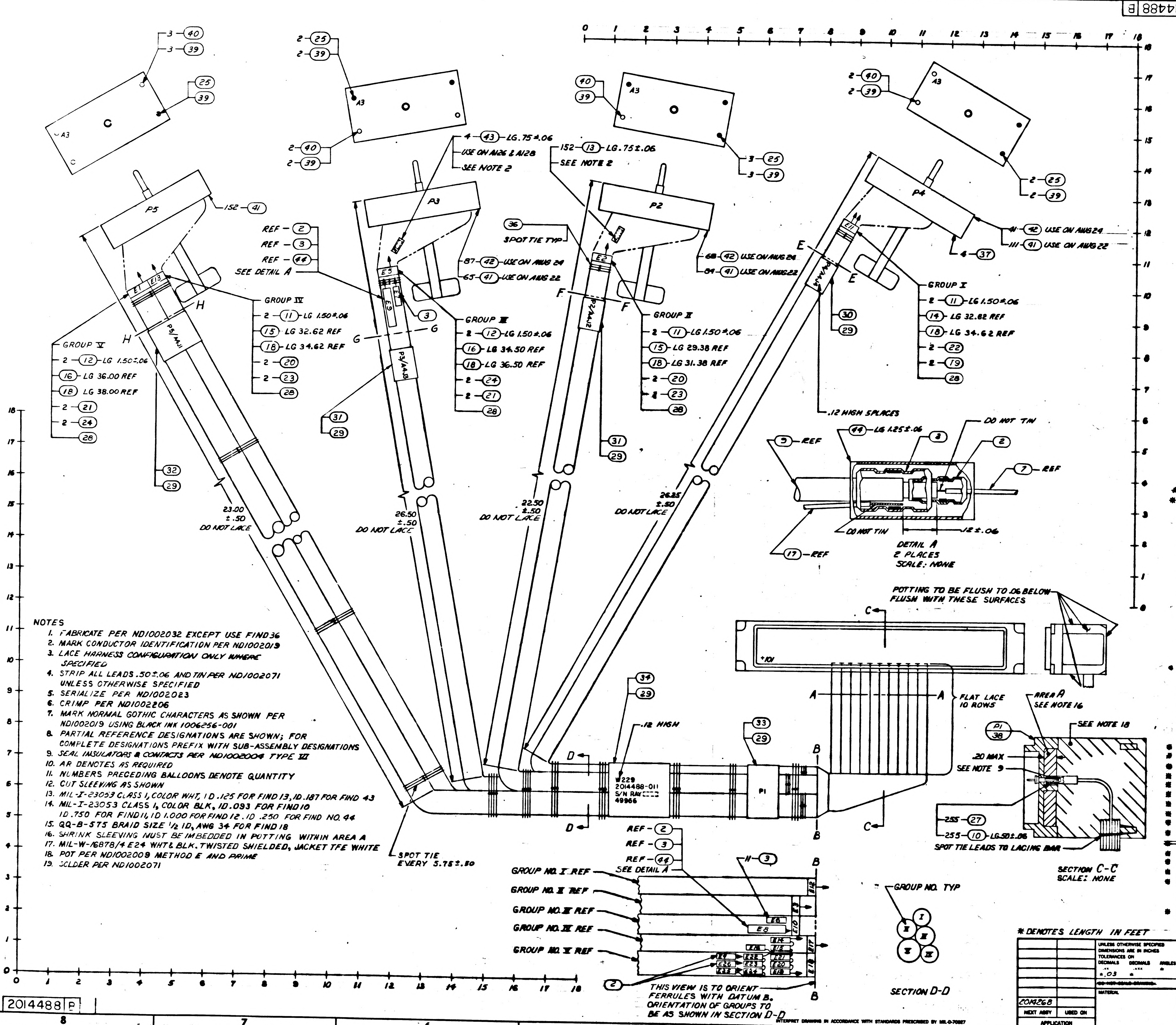
CABLE ASSEMBLY
W230

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014487
SCALE NONE	WT	SHEET 3 OF 3

2014487 B

2014488 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25291		
1	CHANGED PER CCA R25354 DR W. Kelly CHK APPD	11/13/65	
—	CLASS B CHANGED PER CCA R25501		
A	CHANGED PER CCA R25731 DR CHK APPD	17 Jan 66	
B	CHANGED PER CCA R25772 & CLASS A RELEASED PER TDRR 25477	1/20/66	



P5
P3
P2
P4
P1
A3
C
3-40
3-39
25
39
2-25
2-39
2-40
2-39
152-41
4-43-LG.75±.06
USE ON A126 & A128
SEE NOTE 2
152-13-LG.75±.06
SEE NOTE 2
40
39
3-25
3-39
2-40
2-39
2-25
2-39
41-42 USE ON AWG 24
111-41 USE ON AWG 22
4-37
REF-2
REF-3
REF-44
SEE DETAIL A
36 SPOT TIE TYP
87-42 USE ON AWG 24
65-41 USE ON AWG 22
68-42 USE ON AWG 24
84-41 USE ON AWG 22
E1
E13
E5
E9
E2
E11
E4
P5/A411
P3/A413
P2/A412
P4/A414
GROUP IV
2-11-LG 1.50±.06
15 LG 32.62 REF
18 LG 34.62 REF
2-20
2-23
28
GROUP III
2-12-LG 1.50±.06
16-LG 34.50 REF
18-LG 36.50 REF
2-24
2-21
28
GROUP II
2-11-LG 1.50±.06
15-LG 29.38 REF
18-LG 31.38 REF
2-20
2-23
28
GROUP I
2-11-LG 1.50±.06
14-LG 32.82 REF
18-LG 34.62 REF
2-22
2-19
28
GROUP V
2-12-LG 1.50±.06
16-LG 36.00 REF
18 LG 38.00 REF
2-21
2-24
28
3
30
29
31
29
32
29
E
F
G
H
.12 HIGH 5PLACES
23.00 ±.50 DO NOT LACE
26.50 ±.50 DO NOT LACE
22.50 ±.50 DO NOT LACE
26.25 ±.50 DO NOT LACE
9-REF
44-LG 1.25±.06
3
2
DO NOT TIN
7-REF
DO NOT TIN
.12±.06
17-REF
DETAIL A
2 PLACES
SCALE: NONE
POTTING TO BE FLUSH TO .06 BELOW FLUSH WITH THESE SURFACES
+101
FLAT LACE 10 ROWS
AREA A SEE NOTE 16
P1 38
SEE NOTE 18
.20 MAX
SEE NOTE 9
255-27
255-10-LG.50±.06
SPOT TIE LEADS TO LACING BAR
SECTION C-C
SCALE: NONE
34
29
.12 HIGH
W229
2014488-011
S/N RAY
49956
33
29
D
B
SPOT TIE EVERY 5.75±.50
REF-2
REF-3
REF-44
SEE DETAIL A
11-3
GROUP NO. I REF
GROUP NO. II REF
GROUP NO. III REF
GROUP NO. IV REF
GROUP NO. V REF
E12
E3
E10
E17
E18
E6
E8
E14
E15
E16
E21
E20
E19
E22
E23
E24
E25
E26
E27
2
THIS VIEW IS TO ORIENT FERRULES WITH DATUM B. ORIENTATION OF GROUPS TO BE AS SHOWN IN SECTION D-D
GROUP NO. TYP
I
II
III
IV
V
SECTION D-D

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 36
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. LACE HARNESS CONFIGURATION ONLY WHERE SPECIFIED
4. STRIP ALL LEADS .50±.06 AND TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
5. SERIALIZE PER ND1002023
6. CRIMP PER ND1002206
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. SEAL INSULATORS & CONTACTS PER ND1002004 TYPE VII
10. AR DENOTES AS REQUIRED
11. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
12. CUT SLEEVING AS SHOWN
13. MIL-I-23053 CLASS 1, COLOR WHT, ID .125 FOR FIND 13, ID .187 FOR FIND 43
14. MIL-I-23053 CLASS 1, COLOR BLK, ID .093 FOR FIND 10 ID .750 FOR FIND 11, ID 1.000 FOR FIND 12. ID .250 FOR FIND NO. 44
15. QQ-B-575 BRAID SIZE 1/2 ID, AWG 34 FOR FIND 18
16. SHRINK SLEEVING MUST BE IMBEDDED IN POTTING WITHIN AREA A
17. MIL-W-16878/4 E24 WHT & BLK. TWISTED SHIELDED, JACKET TFE WHITE
18. POT PER ND1002009 METHOD E AND PRIME
19. SOLDER PER ND1002071

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	0.3	SEE NOTE 14	SLEEVING	44
*	0.3	SEE NOTE 13	SLEEVING	43
	196	1006491-009	CONTACT ELEC	42
	412	1006491-011	CONTACT ELEC	41
	8	1006672-006	GUIDE, SOCKET	40
	16	1006672-005	NUT, STOP	39
	1	1020320	CONNECTOR ASSEMBLY	38
	4	1006672-001	CONNECTOR, PLUG	37
	AR	1006458-004	TAPE, LACING	36
	~~2~~	~~1006406~~	~~FERRULE, COAX~~	~~35~~
	1	1006415-141	BAND MARKER	34
	1	↕ -065	↕	33
	1	↕ -061	↕	32
	2	↕ -058	↕	31
	1	1006415 057	BAND MARKER	30
	AR	1006253	ADHESIVE	29
	AR	1006699	SOLVENT	28
	255	1006248	CONTACT, ELECTRICAL	27
*	138	MIL-W-16878/4 E20	WIRE ELECTRICAL WHT	26
	8	1006672-002	GUIDE PIN	25
	4	1000243-38	FERRULE, ELECTRICAL COND	24
	4	1000243-41	↕	23
	1	1000243-40	↕	22
	4	1000242-38	↕	21
	4	1000242-37	↕	20
	1	1000242-36	FERRULE, ELECTRICAL COND	19
*	14.6	SEE NOTE 15	BRAID, WIRE	18
*	3.1	MIL-W-16878/4 E22	WIRE, ELECTRICAL BLK	17
*	6.0	1006696-6	SLEEVING	16
*	5.1	1006696-5	↕	15
*	2.8	1006696-4	↕	14
*	9.8	SEE NOTE 13	↕	13
*	0.5	↕ ↕ 14	↕	12
*	0.8	↕ ↕ 14	↕	11
*	10.7	SEE NOTE 14	SLEEVING	10
*	3.2	RG 180 B/U	WIRE, COAX	9
~~*~~	~~1.4~~	~~MIL-W-16878/4 E22~~	~~WIRE, ELECTRICAL WHT BLK~~	~~8~~
*	1.4	MIL-W-16878/4 E22	↕ WHT	7
*	294	1014341-12	↕ WHT & BLK TWPR	6
*	4.4	SEE NOTE 17	↕ WHT & BLK TWSHLD PR	5
*	210	MIL-W-16878/4 E20	WIRE, ELECTRICAL BLK	4
	14	1010402-2	SLEEVE, SOLDER	3
	4	1010402-1	SLEEVE, SOLDER	2
*	172	MIL-W-16878/4 E24	WIRE, ELECTRICAL WHT	1

-011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014268	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 15 SEPT 65
CHECKED 2 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W229

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014488
SCALE 1/1 | WT | SHEET 1 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014488 B

2014488 P

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25291		
1	CHANGED PER CCA R25354 DR W. Kelly CHK APPD	11/65	
—	CLASS B CHANGED PER CCA R25501		
A	CHANGED PER CCA R25731 DR CHK APPD	17 JAN 66	
B	CHANGED PER CCA R25772 & CLASS A RELEASED PER TDRR 25477		

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	22	P1-126	WHT	24	1	17	P4-P7	
	A2		127				17	S8	
	A3		128				17	R7	
	A4		129				15	E4	
	A5		130				15	E5	
	A6		226				17	P6	
	A7		227				17	S6	
	A8		228				17	P1	
	A9		229				16	F8	
	A10		230				16	G1	
	A11		327				17	S7	
	A12		328				17	R5	
	A13		329				15	A4	
	A14		330				15	A3	
	A15		426				17	R3	
	A16		427				17	R4	
	A17		428				15	D1	
	A18		429				16	F3	
	A19		430				15	D4	
	A20		526				17	R2	
	A21		527				17	R8	
	A22		528				15	E2	
	A23		529				15	A6	
	A24		530				15	E1	
	A25		626				17	R1	
GROUP I	A26		627				17	R6	
	A27		628				15	D3	
	A28		629				15	B1	
	A29	22	630				16	F4	
	A30	23	131				15	E6	
	A31		132				16	F2	
	A32		133				16	F1	
	A33		231				16	F5	
	A34		232				15	E8	
	A35		331				16	F7	
	A36		332				15	E7	
	A37		431					B2	
	A38		531					D2	
	A39		532					D6	
	A40		533					D7	
	A41	23	P1-631	WHT	24	1	15	P4-D5	
		⚠	E12	SHLD			⚠	E11	
	A42	⚠	E11	BLK	22	17	16	P4-G3	
	A43	⚠	E11	BLK		17	16	P4-G4	
	A44	23	P1-333	BLK		17	16	E12	
	A45	23	P1-433	BLK	22	17	16	E12	
	A46	20	P1-116	WHT	24	6	14	P2-U5	
		20	117	BLK			14	U6	
	A47	20	118	WHT			13	T5	
		21	119	BLK				T6	
	A48		120	WHT				S5	
			121	BLK			13	S6	
	A49		122	WHT			14	X5	
			123	BLK				X6	
	A50	21	124	WHT				W3	
		22	125	BLK				W4	
	A51	20	216	WHT				U3	
		20	217	BLK			14	U4	
	A52	20	218	WHT			13	T3	
		21	219	BLK				T4	
	A53		220	WHT				S3	
			221	BLK			13	S4	
GROUP II	A54		222	WHT			14	W5	
			223	BLK				W6	
	A55	21	224	WHT				W1	
		22	225	BLK				W2	
	A56	20	316	WHT				U1	
		20	317	BLK			14	U2	
	A57	20	318	WHT			13	T1	
		21	319	BLK				T2	
	A58		320	WHT				S1	
			321	BLK			13	S2	
	A59		322	WHT			14	V1	
			323	BLK				V2	
	A60	21	324	WHT				V5	
		22	325	BLK				V6	
	A61	20	416	WHT				V7	
		20	417	BLK				V8	
	A62	20	418	WHT				U7	
		21	419	BLK			14	U8	
	A63		420	WHT			13	T7	
			421	BLK			13	T8	
	A64		422	WHT		6	14	W7	
		21	P1-423	BLK	24		14	P2-W8	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A65	21	P1-424	WHT	24	6	14	P2-V3	
		22	425	BLK			14	V4	
	A66	20	516	WHT			12	G7	
		20	517	BLK			12	G8	
	A67	20	518	WHT			11	B5	
		21	519	BLK			11	B6	
	A68		520	WHT			12	F7	
			521	BLK			12	F8	
	A69		522	WHT			11	E7	
			523	BLK			11	E8	
	A70	21	524	WHT			14	X3	
		22	525	BLK			14	X4	
	A71	25	546	WHT			12	F3	
		25	547	BLK				F4	
GROUP II	A72	20	616	WHT				G5	
		20	617	BLK				G6	
	A73	20	618	WHT				H1	
		21	619	BLK				H2	
	A74		620	WHT				F5	
			621	BLK			12	F6	
	A75		622	WHT			11	E5	
			623	BLK				E6	
	A76	21	624	WHT				B3	
		22	625	BLK				B4	
	A77	26	652	WHT				D1	
		26	653	BLK				D2	
	A78	26	654	WHT				D3	
		27	655	BLK			11	D4	
	A79	27	656	WHT		6	12	F1	
		27	P1-657	BLK	24		12	P2-F2	
		⚠	E3	SHLD			⚠	E2	
	A80	⚠	E2	BLK	22	17	11	P2-C7	
	A81	20	P1-215	BLK	22	17	⚠	E3	
	A82	23	P1-134	WHT	24	6	8	P3-L7	
		23	135	BLK				L8	
	A83	23	136	WHT				M3	
		24	137	BLK				M6	
	A84		138	WHT				N1	
			139	BLK			8	N2	
	A85		140	WHT			7	J1	
			141	BLK			7	J2	
	A86	24	142	WHT			9	P5	
		25	143	BLK				P6	
	A87	25	144	WHT				R7	
		25	145	BLK			9	R8	
	A88	23	234	WHT			8	L1	
		23	235	BLK				L2	
	A89	23	236	WHT				M1	
		24	237	BLK				M2	
	A90		238	WHT				M7	
			239	BLK			8	M8	
	A91		240	WHT			7	H7	
			241	BLK			7	H8	
	A92	24	242	WHT			9	P3	
		25	243	BLK				P4	
	A93		244	WHT				R3	
			245	BLK				R4	
	A94		246	WHT				S3	
GROUP III		25	247	BLK			9	S4	
	A95	23	334	WHT			7	J5	
		23	335	BLK			7	J6	
	A96	23	336	WHT			8	K1	
		24	337	BLK			8	K2	
	A97		338	WHT			7	H1	
			339	BLK				H2	
	A98		340	WHT				H5	
			341	BLK			7	H6	
	A99	24	342	WHT			9	P1	
		25	343	BLK				P2	
	A100		344	WHT				R1	
			345	BLK				R2	
	A101		346	WHT				S1	
		25	347	BLK			9	S2	
	A102	23	434	WHT			7	J3	
		23	435	BLK				J4	
	A103	23	436	WHT				J7	
		24	437	BLK				J8	
	A104		438	WHT				G7	
			439	BLK				G8	
	A105		440	WHT				H3	
			441	BLK			7	H4	
	A106	24	442	WHT		6	8	N7	
		25	P1-443	BLK	24		8	P3-N8	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A107	25	P1-444	WHT	24	6	9	P3-P7	
			445	BLK				P8	
	A108		446	WHT				S5	
		25	447	BLK			9	S6	
	A109	23	534	WHT			7	G5	
		23	535	BLK			7	G6	
	A110	23	536	WHT			6	B3	
		24	537	BLK			6	B4	
	A111		538	WHT			7	F5	
			539	BLK				F6	
	A112		540	WHT				G1	
			541	BLK			7	G2	
	A113	24	542	WHT			10	W1	
		25	543	BLK			10	W2	
	A114		544	WHT			6	E3	
			545	BLK				E4	
	A115	25	548	WHT				E5	
		26	549	BLK			6	E6	
	A116	23	634	WHT			7	F1	
GROUP II		23	635	BLK			7	F2	
	A117	23	636	WHT			6	B1	
		24	637	BLK				B2	
	A118		638	WHT				B5	
			639	BLK			6	B6	
	A119		640	WHT			10	V5	
			641	BLK			10	V6	
	A120	24	642	WHT			7	F3	
		25	643	BLK			7	F4	
	A121		646	WHT			8	N5	
			647	BLK				N6	
	A122	25	648	WHT		6		N3	
		26	649	BLK			8	N4	
	A123	25	146	WHT		1	9	S8	TWIST
	A124	25	147	WHT		1	9	T1	
	A125	25	148	WHT		1	9	S7	
	A126	26	149	WHT		5	10	X5	
		26	P1-150	BLK	24		10	P3-X6	
		⚠	E6	SHLD			⚠	E7	
⚠	A127	⚠	E7	BLK	22	17	10	P3-X4	
	A128	⚠	E8	COAX	30	9	⚠	E9	⚠
SEE COND A243		⚠	E8-SHLD	SHLD			⚠	E9-SHLD	SEE COND A244
	A129	25	P1-644	WHT	22	7	⚠	E8	⚠
⚠	A130	⚠	E9	WHT	22	7	10	P3-U7	
		⚠	E10	SHLD			⚠	E5	
	A131	⚠	E5	BLK	22	17	10	P3-X3	
	A132	19	P1-207	WHT	20	26	4	P5-T6	
	A133	19	208	WHT				S1	
	A134	18	604	WHT				T8	
	A135	19	508	WHT		26		T4	TWIST
	A136	19	509	BLK		4	4	T5	
	A137	18	P1-105	WHT		26	5	V3	TWIST
	A138	⚠	E14	BLK		4		V4	
	A139	19	P1-107	WHT		26		W7	TWIST
	A140	⚠	E14	BLK		4		W8	
	A141	18	P1-205	WHT		26		W5	TWIST
	A142	⚠	E14	BLK	20	4	5	P5-W6	
	A143	19	P1-209	BLK	22	17	⚠	E14	
	A144	⚠	E14	BLK	20	4	⚠	E15	
	A145	18	P1-305	WHT		26	5	P5-W3	TWIST
	A146	⚠	E15	BLK		4		W4	
	A147	19	P1-307	WHT		26		V6	TWIST
	A148	⚠	E15	BLK		4		V7	
	A149	18	P1-405	WHT		26		W1	TWIST
GROUP IV	A150	⚠	E15	BLK		4		W2	
	A151	19	P1-407	WHT		26		V8	TWIST
	A152	⚠	E15	BLK		4	5	P5-U8	
	A153	⚠	E15	BLK		4	⚠	E16	
	A154	18	P1-505	WHT		26	5	P5-X5	TWIST
	A155	⚠	E16	BLK		4		X6	
	A156	19	P1-507	WHT		26		U1	TWIST
	A157	⚠	E16	BLK		4		U2	
	A158	18	P1-605	WHT		26		X3	TWIST
	A159	⚠	E16	BLK		4		X4	
	A160	19	P1-607	WHT		26		V1	TWIST
	A161	⚠	E16	BLK	20	4	5	P5-V2	
		⚠	E17	SHLD			⚠	E13	
	A162	⚠	E13	BLK	22	17	4	P5-T7	
	A163	19	P1-609	BLK	22	17	⚠	E17	

⚠ DENOTES INTERNAL CONNECTION

~~⚠ STRIP 44 & TIN 06~~

~~⚠ STRIP 25, DO NOT TIN~~

~~⚠ STRIP 3 & TIN 06~~

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9SEPT65
CHECKED 20CT65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGAR
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W229

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014488

SCALE NONE | WT | SHEET 2 OF 4

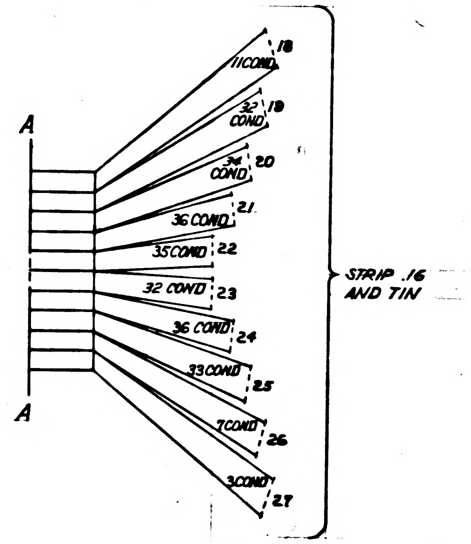
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25291		
1	CHANGED PER CCA R25354 DR W. Kelley CHK APPD	11/23/65	
–	CLASS B CHANGED PER CCA R25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCA R25772 & CLASS A RELEASED PER TDRR 25477		

2014488 B

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP V	A164	19	P1-109	WHT	20	26	3	P5-S5	
	A165	19	↑ 110	↑	↑	↑	1	↑ E6	
	A166	19	410				2	G7	
	A167	18	502				2	J5	
	A168	18	↓ 603				3	S8	
	A169	19	P1-610				1	C5	
	A170	△	E26				3	↓ S6	
	A171	△	E26				3	P5-S7	
	A172	18	P1-504				△	E26	
	A173	△	E4				2	P5-J2	
	A174	△	E4				2	P5-J6	
	A175	18	P1-503	↓		↓	△	E4	
	A176	19	↑ 309	WHT		26	2	P5-J3	TWIST
	A177	19	↓ 409	BLK		4	2	P5-J4	
	A178	19	P1-111	WHT		26	1	↑ C3	TWIST
	A179	△	E19	BLK		4	↑	C4	
	A180	19	P1-112	WHT		26	↓	D1	TWIST
	A181	△	E19	BLK		4	1	E1	
	A182	20	P1-113	WHT		26	2	F5	TWIST
	A183	△	E19	BLK		4	↑	F6	
	A184	20	P1-114	WHT	↓	26	↓	↓ H1	TWIST
	A185	△	E19	BLK	20	4	2	P5-H2	
	A186	20	P1-315	BLK	22	17	△	E19	
	A187	△	E19	BLK	20	4	△	E20	
	A188	19	P1-210	WHT	↑	26	1	P5-A5	TWIST
	A189	△	E20	BLK		4	↑	↑ A6	
	A190	19	P1-211	WHT		26		C1	TWIST
	A191	△	E20	BLK		4		C2	
	A192	19	P1-212	WHT		26	↓	D6	TWIST
	A193	△	E20	BLK		4	1	D7	
	A194	20	P1-213	WHT		26	2	↓ F3	TWIST
	A195	△	E20	BLK		4	2	P5-F4	
	A196	△	E20	BLK		4	△	E21	
	A197	20	P1-214	WHT		26	2	P5-G8	TWIST
	A198	△	E21	BLK		4	2	↑ H8	
	A199	19	P1-310	WHT		26	1	A3	TWIST
	A200	△	E21	BLK		4	↑	A4	
	A201	19	P1-311	WHT		26		B7	TWIST
	A202	△	E21	BLK		4		B8	
	A203	19	P1-312	WHT		26	↓	↓ D4	TWIST
	A204	△	E21	BLK		4	1	P5-D5	
	A205	△	E21	BLK		4	△	E22	
	A206	20	P1-313	WHT		26	2	P5-F1	TWIST
	A207	△	E22	BLK		4	↑	↑ F2	
	A208	20	P1-314	WHT		26	↓	G5	TWIST
	A209	△	E22	BLK		4	2	G6	
	A210	19	P1-411	WHT		26	1	B5	TWIST
	A211	△	E22	BLK		4	↑	B6	
	A212	19	P1-412	WHT		26	↓	↓ D2	TWIST
	A213	△	E22	BLK		4	1	P5-D3	
	A214	△	E22	BLK		4	△	E23	
	A215	20	P1-413	WHT		26	1	P5-E7	TWIST
	A216	△	E23	BLK		4	1	↑ E8	
	A217	20	P1-414	WHT		26	2	G3	TWIST
	A218	△	E23	BLK		4	↑	G4	
	A219	19	P1-510	WHT		26	↓	H3	TWIST
	A220	△	E23	BLK		4	2	H4	
	A221	19	P1-511	WHT		26	1	↓ B3	TWIST
	A222	△	E23	BLK		4	1	P5-B4	
	A223	△	E23	BLK		4	△	E24	
	A224	19	P1-512	WHT		26	1	P5-C8	TWIST
	A225	△	E24	BLK		4	↑	↑ D8	
	A226	20	P1-513	WHT		26	↓	E4	TWIST
	A227	△	E24	BLK		4	1	E5	
	A228	20	P1-514	WHT		26	2	G1	TWIST
	A229	△	E24	BLK		4	2	G2	
	A230	19	P1-611	WHT		26	1	↓ B1	TWIST
	A231	△	E24	BLK		4	1	P5-B2	
	A232	△	E24	BLK		4		E25	
	A233	19	P1-612	WHT		26	1	P5-C6	TWIST
	A234	△	E25	BLK		4	↑	↑ C7	
	A235	20	P1-613	WHT		26	↓	E2	TWIST
	A236	△	E25	BLK		4	1	E3	
	A237	20	P1-614	WHT		26	2	F7	TWIST
	A238	△	E25	BLK		4	↑	F8	
	A239	20	P1-615	WHT	↓	26	↓	↓ H5	TWIST
	A240	△	E25	BLK	20	4	2	P5-H6	
	A241	20	P1-415	BLK	22	17	△	E25	
		△	E18	SHLD			△	E1	
	A242	△	E1	BLK	22	17	2	P5-J7	
PART OF GROUP III △	A243	25	P1-645	BLK	22	17	△	E8-SHLD △	SEE COND 128
	A244	△	E9-SHLD	BLK	22	17	10	P3-U8	



A
A
11COND
18
32 COND
19
34 COND
20
36 COND
21
35COND
22
32 COND
23
36 COND
24
33COND
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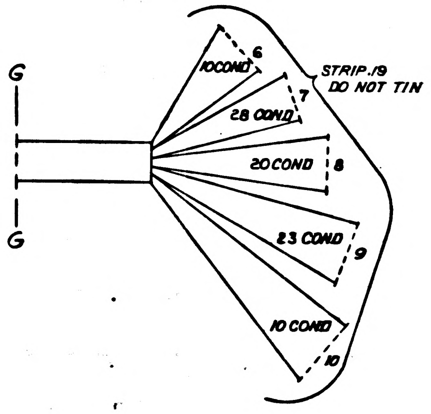
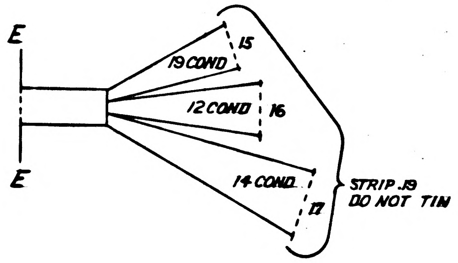
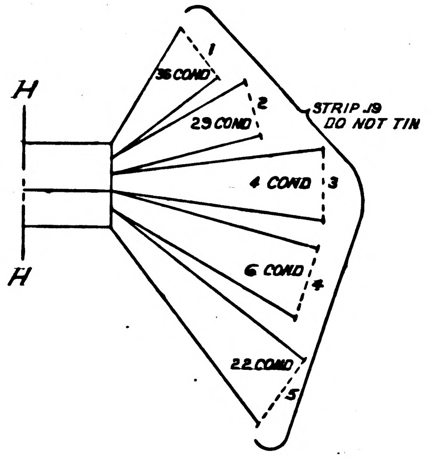
7COND
26
3COND
27
STRIP .16 AND TIN



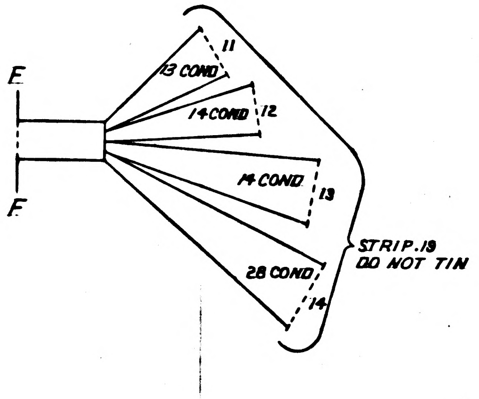
G
G
10COND
6
28 COND
7
STRIP .19 DO NOT TIN
20COND
8
23 COND
9
10 COND
10



E
E
19COND
15
12COND
16
14 COND
17
STRIP .19 DO NOT TIN



H
H
36COND
1
29COND
2
STRIP .19 DO NOT TIN
4 COND
3
6 COND
4
22COND
5



F
F
13 COND
11
14COND
12
14 COND
13
28 COND
14
STRIP .19 DO NOT TIN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 10SEP
CHECKED 2OCT65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. J. METZGER
MIT APPROVAL
MIT APPROVAL

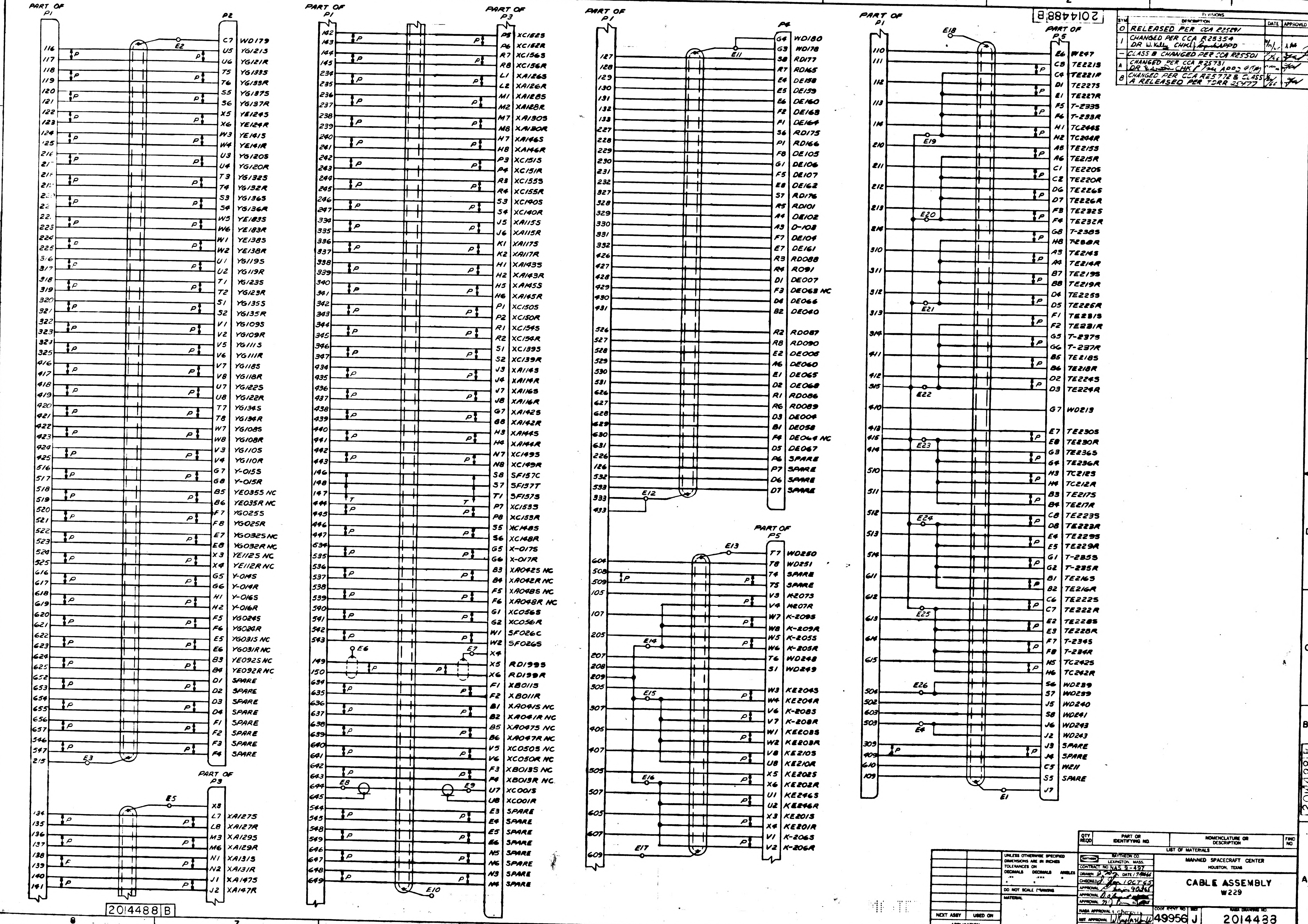
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W229

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014488
SCALE 1/1
WT
SHEET 3 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25291		
1	CHANGED PER CCA R25354 DR W. Kelly CHK APPD		
—	CLASS B CHANGED PER CCA R25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCA R25772 & CLASS A RELEASED PER TDRR 25477		



PART OF P1
P2
116 117 118 119 120 121 122 123 124 125 216 217 218 219 220 221 222 223 224 225 316 317 318 319 320 321 322 323 324 325 416 417 418 419 420 421 422 423 424 425 516 517 518 519 520 521 522 523 524 525 616 617 618 619 620 621 622 623 624 625 652 653 654 655 656 657 546 547 215
C7 WD179
U5 YG121S
U6 YG121R
T5 YG133S
T6 YG133R
S5 YG137S
S6 YG137R
X5 YE124S
X6 YE124R
W3 YE141S
W4 YE141R
U3 YG120S
U4 YG120R
T3 YG132S
T4 YG132R
S3 YG136S
S4 YG136R
W5 YE183S
W6 YE183R
W1 YE138S
W2 YE138R
U1 YG119S
U2 YG119R
T1 YG123S
T2 YG123R
S1 YG135S
S2 YG135R
V1 YG109S
V2 YG109R
V5 YG111S
V6 YG111R
V7 YG118S
V8 YG118R
U7 YG122S
U8 YG122R
T7 YG134S
T8 YG134R
W7 YG108S
W8 YG108R
V3 YG110S
V4 YG110R
G7 Y-015S
G8 Y-015R
B5 YE035S NC
B6 YE035R NC
F7 YG025S
F8 YG025R
E7 YG032S NC
E8 YG032R NC
X3 YE112S NC
X4 YE112R NC
G5 Y-014S
G6 Y-014R
H1 Y-016S
H2 Y-016R
F5 YG024S
F6 YG024R
E5 YG031S NC
E6 YG031R NC
B3 YE092S NC
B4 YE092R NC
D1 SPARE
D2 SPARE
D3 SPARE
D4 SPARE
F1 SPARE
F2 SPARE
F3 SPARE
F4 SPARE
E2
E3
PART OF P3
E5
134 135 136 137 138 139 140 141
X8
L7 XA127S
L8 XA127R
M3 XA129S
M6 XA129R
N1 XA131S
N2 XA131R
J1 XA147S
J2 XA147R
2014488 B
PART OF P1
PART OF P3
142 143 144 145 234 235 236 237 238 239 240 241 242 243 244 245 246 247 334 335 336 337 338 339 340 341 342 343 344 345 346 347 434 435 436 437 438 439 440 441 442 443 146 148 147 444 445 446 447 534 535 536 537 538 539 540 541 542 543 149 150 634 635 636 637 638 639 640 641 642 643 644 645 544 545 548 549 646 647 648 649
P5 XC152S
P6 XC152R
R7 XC156S
R8 XC156R
L1 XA126S
L2 XA126R
M1 XA128S
M2 XA128R
M7 XA130S
M8 XA130R
H7 XA146S
H8 XA146R
P3 XC151S
P4 XC151R
R3 XC155S
R4 XC155R
S3 XC140S
S4 XC140R
J5 XA115S
J6 XA115R
K1 XA117S
K2 XA117R
H1 XA143S
H2 XA143R
H5 XA145S
H6 XA145R
P1 XC150S
P2 XC150R
R1 XC154S
R2 XC154R
S1 XC139S
S2 XC139R
J3 XA114S
J4 XA114R
J7 XA116S
J8 XA116R
G7 XA142S
G8 XA142R
H3 XA144S
H4 XA144R
N7 XC149S
N8 XC149R
S8 SF157C
S7 SF157T
T1 SF157S
P7 XC153S
P8 XC153R
S5 XC148S
S6 XC148R
G5 X-017S
G6 X-017R
B3 XA042S NC
B4 XA042R NC
F5 XA048S NC
F6 XA048R NC
G1 XC056S
G2 XC056R
W1 SF026C
W2 SF026S
X4
X5 RD199S
X6 RD199R
F1 XB011S
F2 XB011R
B1 XA041S NC
B2 XA041R NC
B5 XA047S NC
B6 XA047R NC
V5 XC050S NC
V6 XC050R NC
F3 XB013S NC
F4 XB013R NC
U7 XC001S
U8 XC001R
E3 SPARE
E4 SPARE
E5 SPARE
E6 SPARE
N5 SPARE
N6 SPARE
N3 SPARE
M4 SPARE
T
E6
E7
E8
E9
E10
PART OF P1
P4
127 128 129 130 131 132 133 227 228 229 230 231 232 327 328 329 330 331 332 427 428 429 430 431 526 527 528 529 530 531 626 627 628 629 630 631 226 126 532 533 433
G4 WD180
G3 WD178
S8 RD177
R7 RD165
E4 DE158
E5 DE159
E6 DE160
F2 DE163
F1 DE164
S6 RD175
P1 RD166
F8 DE105
G1 DE106
F5 DE107
E8 DE162
S7 RD176
R5 RD101
A4 DE102
A3 D-108
F7 DE104
E7 DE161
R3 RD088
R4 RD091
D1 DE007
F3 DE063 NC
D4 DE066
B2 DE040
R2 RD087
R8 RD090
E2 DE008
A6 DE060
E1 DE065
D2 DE068
R1 RD086
R6 RD089
D3 DE004
B1 DE058
F4 DE064 NC
D5 DE067
P6 SPARE
P7 SPARE
D6 SPARE
D7 SPARE
E11
E12
PART OF P5
E13
606 508 509 105 107 205 207 208 209 305 307 405 407 505 507 605 607 609
T7 WD250
T8 WD251
T4 SPARE
T5 SPARE
V3 K207S
V4 K207R
W7 K-209S
W8 K-209R
W5 K-205S
W6 K-205R
T6 WD248
S1 WD249
W3 KE204S
W4 KE204R
V6 K-208S
V7 K-208R
W1 KE208S
W2 KE208R
V8 KE210S
U8 KE210R
X5 KE202S
X6 KE202R
U1 KE246S
U2 KE246R
X3 KE201S
X4 KE201R
V1 K-206S
V2 K-206R
E14
E15
E16
E17
PART OF P1
PART OF P5
2014488 B
110 111 112 113 114 210 211 212 213 214 310 311 312 313 314 411 412 315 410 413 415 414 510 511 512 513 514 611 612 613 614 615 504 502 603 503 309 409 610 109
E6 W247
C8 TE221S
C4 TE221R
D1 TE227S
E1 TE227R
F5 T-233S
F6 T-233R
H1 TC244S
H2 TC244R
A5 TE215S
A6 TE215R
C1 TE220S
C2 TE220R
D6 TE226S
D7 TE226R
F3 TE232S
F4 TE232R
G8 T-238S
H8 T238R
A3 TE214S
A4 TE214R
B7 TE219S
B8 TE219R
D4 TE225S
D5 TE225R
F1 TE231S
F2 TE231R
G5 T-237S
G6 T-237R
B5 TE218S
B6 TE218R
D2 TE224S
D3 TE224R
G7 WD213
E7 TE230S
E8 TE230R
G3 TE236S
G4 TE236R
H3 TC212S
H4 TC212R
B3 TE217S
B4 TE217R
C8 TE223S
D8 TE223R
E4 TE229S
E5 TE229R
G1 T-235S
G2 T-235R
B1 TE216S
B2 TE216R
C6 TE222S
C7 TE222R
E2 TE228S
E3 TE228R
F7 T-234S
F8 T-234R
H5 TC242S
H6 TC242R
S6 WD239
S7 WD239
J5 WD240
S8 WD241
J6 WD243
J2 WD243
J3 SPARE
J4 SPARE
C5 W211
S5 SPARE
J7
E18
E19
E20
E21
E22
E23
E24
E25
E26
E4
E1
P
2014488 B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 1/7/66
CHECKED 1 OCT 65
APPROVAL 9 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

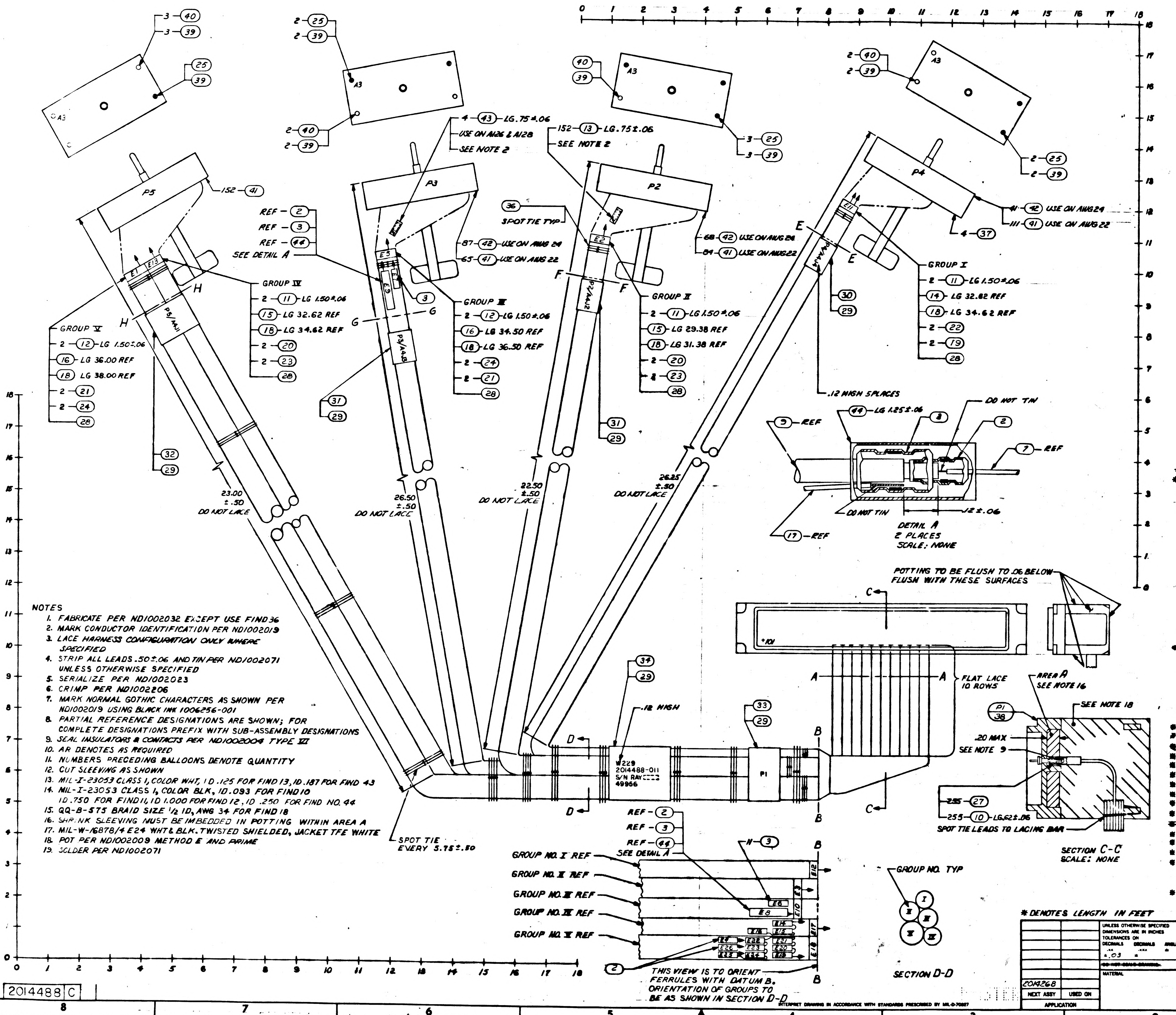
CABLE ASSEMBLY
W229

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014488
SCALE NONE
WT
SHEET 4 OF 4

2014488 C

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25291		
1	CHANGED PER CCA R25354 DR W. Kelly CHK APPD	11/13/65	
—	CLASS B CHANGED PER CCA R25501		
A	CHANGED PER CCA R25731 DR CHK APPD	17 JAN 66	
B	CHANGED PER CCA R25772 & CLASS A RELEASED PER TDRR 25477	1/20/66	
C	CHANGED PER TDRR 26450 DR APPD		


P5
P3
P2
P4
P1
A3
2-25
2-39
2-40
3-40
3-39
3-25
152-41
4-43-LG.75±.06
USE ON A126 & A128
SEE NOTE 2
152-13-LG.75±.06
SEE NOTE 2
REF-2
REF-3
REF-44
SEE DETAIL A
36 SPOT TIE TYP
87-42-USE ON AWG 24
65-41-USE ON AWG 22
68-42 USE ON AWG 24
84-41 USE ON AWG 22
41-42 USE ON AWG 24
111-41 USE ON AWG 22
4-37
GROUP I
2-11-LG 1.50±.06
14-LG 32.82 REF
18-LG 34.62 REF
2-22
2-19
28
GROUP II
2-11-LG 1.50±.06
15-LG 29.38 REF
18-LG 31.38 REF
2-20
2-23
28
GROUP III
2-12-LG 1.50±.06
16-LG 34.50 REF
18-LG 36.50 REF
2-24
2-21
28
GROUP IV
2-11-LG 1.50±.06
15-LG 32.62 REF
18-LG 34.62 REF
2-20
2-23
28
GROUP V
2-12-LG 1.50±.06
16-LG 36.00 REF
18-LG 38.00 REF
2-21
2-24
28
E1
E13
E5
E2
E11
P5/A4J1
P3/A4J8
P2/A4J2
P4/A4J3
30
29
31
29
32
29
37
29
.12 HIGH SPLACES
23.00 ±.50 DO NOT LACE
26.50 ±.50 DO NOT LACE
22.50 ±.50 DO NOT LACE
26.25 ±.50 DO NOT LACE
SPOT TIE EVERY 5.75±.50
34
29
.12 HIGH
W229
2014488-011
S/N RAY
49956
33
29
9-REF
44-LG 1.25±.06
8
DO NOT TIN
2
7-REF
DO NOT TIN
.12±.06
17-REF
DETAIL A
2 PLACES
SCALE: NONE
POTTING TO BE FLUSH TO .06 BELOW FLUSH WITH THESE SURFACES
C
+101
A
FLAT LACE 10 ROWS
AREA A
SEE NOTE 16
SEE NOTE 18
P1
38
.20 MAX
SEE NOTE 9
255-27
255-10-LG.62±.06
SPOT TIE LEADS TO LACING BAR
SECTION C-C
SCALE: NONE
GROUP NO. I REF
GROUP NO. II REF
GROUP NO. III REF
GROUP NO. IV REF
GROUP NO. V REF
REF-2
REF-3
REF-44
SEE DETAIL A
4-3
E6
E8
E12
E9
E10
E17
E18
E14
E15
E16
E19
E20
E21
E22
E23
E24
E25
THIS VIEW IS TO ORIENT FERRULES WITH DATUM B. ORIENTATION OF GROUPS TO BE AS SHOWN IN SECTION D-D
GROUP NO. TYP
I
II
III
IV
V
SECTION D-D
D
E
F
G
H
B

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND 36
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. LACE HARNESS CONFIGURATION ONLY WHERE SPECIFIED
4. STRIP ALL LEADS .50±.06 AND TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
5. SERIALIZE PER ND1002023
6. CRIMP PER ND1002206
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. SEAL INSULATORS & CONTACTS PER ND1002004 TYPE III
10. AR DENOTES AS REQUIRED
11. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
12. CUT SLEEVING AS SHOWN
13. MIL-I-23053 CLASS 1, COLOR WHT, ID .125 FOR FIND 13, ID .187 FOR FIND 43
14. MIL-I-23053 CLASS 1, COLOR BLK, ID .093 FOR FIND 10 ID .750 FOR FIND 11, ID 1.000 FOR FIND 12, ID .250 FOR FIND NO. 44
15. QQ-B-575 BRAID SIZE 1/2 ID, AWG 34 FOR FIND 18
16. SHRINK SLEEVING MUST BE IMBEDDED IN POTTING WITHIN AREA A
17. MIL-W-16878/4 E24 WHT & BLK. TWISTED SHIELDED, JACKET TFE WHITE
18. POT PER ND1002009 METHOD E AND PRIME
19. SOLDER PER ND1002071

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
* 0.3	SEE NOTE 14	SLEEVING	44
* 0.3	SEE NOTE 13	SLEEVING	43
196	1006491-009	CONTACT ELEC	42
412	1006491-011	CONTACT ELEC	41
8	1006672-006	GUIDE, SOCKET	40
16	1006672-005	NUT, STOP	39
1	1020320	CONNECTOR ASSEMBLY	38
4	1006672-001	CONNECTOR, PLUG	37
AR	1006458-004	TAPE, LACING	36
~~2~~	~~1006486~~	~~FERRULE, COAX~~	~~35~~
1	1006415-141	BAND MARKER	34
1	↕ -065	↕	33
1	↕ -061	↕	32
2	↕ -058	↕	31
1	1006415-057	BAND MARKER	30
AR	1006253	ADHESIVE	29
AR	1006699	SOLVENT	28
255	1006248	CONTACT, ELECTRICAL	27
* 138	MIL-W-16878/4 E20	WIRE ELECTRICAL WHT	26
8	1006672-002	GUIDE PIN	25
4	1000243-38	FERRULE, ELECTRICAL COND	24
4	1000243-41	↕	23
1	1000243-40	↕	22
4	1000242-38	↕	21
4	1000242-37	↕	20
1	1000242-36	FERRULE, ELECTRICAL COND	19
* 14.6	SEE NOTE 15	BRAID, WIRE	18
* 3.1	MIL-W-16878/4 E22	WIRE, ELECTRICAL BLK	17
* 6.0	1006696-6	SLEEVING	16
* 5.1	1006696-5	↕	15
* 2.8	1006696-4	↕	14
* 9.3	SEE NOTE 13	↕	13
* 0.5	↕ ↕ 14	↕	12
* 0.8	↕ ↕ 14	↕	11
* 132	SEE NOTE 14	SLEEVING	10
* 3.2	RG 180 B/U	WIRE, COAX	9
~~* 1.4~~	~~MIL-W-16878/4 E22~~	~~WIRE, ELECTRICAL WHT BLK~~	~~8~~
* 1.4	MIL-W-16878/4 E22	↕ ↕ WHT	7
* 294	1014341-12	↕ ↕ WHT & BLK TWPR	6
* 4.4	SEE NOTE 17	↕ ↕ WHT & BLK TWSHLD PR	5
* 210	MIL-W-16878/4 E20	WIRE, ELECTRICAL BLK	4
14	1010402-2	SLEEVE, SOLDER	3
4	1010402-1	SLEEVE, SOLDER	2
* 172	MIL-W-16878/4 E24	WIRE, ELECTRICAL WHT	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014268	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 8 SEPT 65
CHECKED 2 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
#229

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014488
SCALE 1/1
WT
SHEET 1 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014488 C

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP I	A1	22	P1-126	WHT	24	1	17	P4-P7	
	A2	↑	↑ 127	↑	↑	↑	17	↑ S8	
	A3		128				17	R7	
	A4		129				15	E4	
	A5		130				15	E5	
	A6		226				17	P6	
	A7		227				17	S6	
	A8		228				17	P1	
	A9		229				16	F8	
	A10		230				16	G1	
	A11		327				17	S7	
	A12		328				17	R5	
	A13		329				15	A4	
	A14		330				15	A3	
	A15		426				17	R3	
	A16		427				17	R4	
	A17		428				15	D1	
	A18		429				16	F3	
	A19		430				15	D4	
	A20		526				17	R2	
	A21		527				17	R8	
	A22		528				15	E2	
	A23		529				15	A6	
	A24		530				15	E1	
	A25		626				17	R1	
	A26		627				17	R6	
	A27		628				15	D3	
	A28	↓	629				15	B1	
	A29	22	630				16	F4	
	A30	23	131				15	E6	
	A31	↑	132				16	F2	
	A32		133				16	F1	
	A33		231				16	F5	
	A34		232				15	E8	
	A35		331				16	F7	
	A36		332				15	E7	
	A37		431				↑	B2	
	A38		531					D2	
	A39		532					D6	
	A40	↓	↓ 533	↓	↓	↓	↓	↓ D7	
	A41	23	P1-631	WHT	24	1	15	P4-D5	
		⚠	E12	SHLD			⚠	E11	
	A42	⚠	E11	BLK	22	17	16	P4-G3	
	A43	⚠	E11	BLK	↑	17	16	P4-G4	
	A44	23	P1-333	BLK	↓	17	16	E12	
	A45	23	P1-433	BLK	22	17	16	E12	
GROUP II	A46	20	P1-116	WHT	24	6	14	P2-U5	
		20	↑ 117	BLK	↑		14	↑ U6	
	A47	20	118	WHT		↑	13	T5	
		21	119	BLK			↑	T6	
	A48	↑	120	WHT			↓	S5	
			121	BLK			13	S6	
	A49		122	WHT			14	X5	
		↓	123	BLK			↑	X6	
	A50	21	124	WHT				W3	
		22	125	BLK				W4	
	A51	20	216	WHT			↓	U3	
		20	217	BLK			14	U4	
	A52	20	218	WHT			13	T3	
		21	219	BLK			↑	T4	
	A53	↑	220	WHT			↓	S3	
			221	BLK			13	S4	
	A54		222	WHT			14	W5	
		↓	223	BLK			↑	W6	
	A55	21	224	WHT				W1	
		22	225	BLK				W2	
	A56	20	316	WHT			↓	U1	
		20	317	BLK			14	U2	
	A57	20	318	WHT			13	T1	
		21	319	BLK			↑	T2	
	A58	↑	320	WHT			↓	S1	
			321	BLK			13	S2	
	A59		322	WHT			14	V1	
		↓	323	BLK			↑	V2	
	A60	21	324	WHT				V5	
		22	325	BLK				V6	
	A61	20	416	WHT				V7	
		20	417	BLK				V8	
	A62	20	418	WHT			↓	U7	
		21	419	BLK			14	U8	
	A63	↑	420	WHT			13	T7	
			421	BLK		↓	13	T8	
	A64	↓	↓ 422	WHT	↓	6	14	↓ W7	
		21	P1-423	BLK	24		14	P2-W8	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP II	A65	21	P1-424	WHT	24	6	14	P2-V3	
		22	↑ 425	BLK	↑		14	↑ V4	
	A66	20	516	WHT		↑	12	G7	
		20	517	BLK			12	G8	
	A67	20	518	WHT			11	B5	
		21	519	BLK			11	B6	
	A68	↑	520	WHT			12	F7	
			521	BLK			12	F8	
	A69		522	WHT			11	E7	
		↓	523	BLK			11	E8	
	A70	21	524	WHT			14	X3	
		22	525	BLK			14	X4	
	A71	25	546	WHT			12	F3	
		25	547	BLK			↑	F4	
	A72	20	616	WHT				G5	
		20	617	BLK				G6	
	A73	20	618	WHT				H1	
		21	619	BLK				H2	
	A74	↑	620	WHT			↓	F5	
			621	BLK			12	F6	
	A75		622	WHT			11	E5	
		↓	623	BLK			↑	E6	
	A76	21	624	WHT				B3	
		22	625	BLK				B4	
	A77	26	652	WHT				D1	
		26	653	BLK				D2	
	A78	26	654	WHT			↓	D3	
		27	655	BLK		↓	11	D4	
	A79	27	↓ 656	WHT	↓	6	12	↓ F1	
		27	P1-657	BLK	24		12	P2-F2	
		⚠	E3	SHLD			⚠	E2	
	A80	⚠	E2	BLK	22	17	11	P2-C7	
	A81	20	P1-215	BLK	22	17	⚠	E3	
GROUP III	A82	23	P1-134	WHT	24	6	8	P3-L7	
		23	↑ 135	BLK	↑		↑	↑ L8	
	A83	23	136	WHT		↑		M3	
		24	137	BLK				M6	
	A84	↑	138	WHT			↓	N1	
			139	BLK			8	N2	
	A85		140	WHT			7	J1	
		↓	141	BLK			7	J2	
	A86	24	142	WHT			9	P5	
		25	143	BLK			↑	P6	
	A87	25	144	WHT			↓	R7	
		25	145	BLK			9	R8	
	A88	23	234	WHT			8	L1	
		23	235	BLK			↑	L2	
	A89	23	236	WHT				M1	
		24	237	BLK				M2	
	A90	↑	238	WHT			↓	M7	
			239	BLK			8	M8	
	A91		240	WHT			7	H7	
		↓	241	BLK			7	H8	
	A92	24	242	WHT			9	P3	
		25	243	BLK			↑	P4	
	A93	↑	244	WHT				R3	
			245	BLK				R4	
	A94	↓	246	WHT			↓	S3	
		25	247	BLK			9	S4	
	A95	23	334	WHT			7	J5	
		23	335	BLK			7	J6	
	A96	23	336	WHT			8	K1	
		24	337	BLK			8	K2	
	A97	↑	338	WHT			7	H1	
			339	BLK			↑	H2	
	A98		340	WHT			↓	H5	
		↓	341	BLK			7	H6	
	A99	24	342	WHT			9	P1	
		25	343	BLK			↑	P2	
	A100	↑	344	WHT				R1	
			345	BLK				R2	
	A101	↓	346	WHT			↓	S1	
		25	347	BLK			9	S2	
	A102	23	434	WHT			7	J3	
		23	435	BLK			↑	J4	
	A103	23	436	WHT				J7	
		24	437	BLK				J8	
	A104	↑	438	WHT				G7	
			439	BLK				G8	
	A105		440	WHT			↓	H3	
		↓	441	BLK		↓	7	H4	
	A106	24	↓ 442	WHT	↓	6	8	↓ N7	
		25	P1-443	BLK	24		8	P3-N8	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP II	A107	25	P1-444	WHT	24	6	9	P3-P7	
		↑	↑ 445	BLK	↑		↑	↑ P8	
	A108	↓	446	WHT		↑	↓	S5	
		25	447	BLK			9	S6	
	A109	23	534	WHT			7	G5	
		23	535	BLK			7	G6	
	A110	23	536	WHT			6	B3	
		24	537	BLK			6	B4	
	A111	↑	538	WHT			7	F5	
			539	BLK			↑	F6	
	A112		540	WHT			↓	G1	
		↓	541	BLK			7	G2	
	A113	24	542	WHT			10	W1	
		25	543	BLK			10	W2	
	A114	↑	544	WHT			6	E3	
		↓	545	BLK			↑	E4	
	A115	25	548	WHT			↓	E5	
		26	549	BLK			6	E6	
	A116	23	634	WHT			7	F1	
		23	635	BLK			7	F2	
	A117	23	636	WHT			6	B1	
		24	637	BLK			↑	B2	
	A118	↑	638	WHT			↓	B5	
			639	BLK			6	B6	
	A119		640	WHT			10	V5	
		↓	641	BLK			10	V6	
	A120	24	642	WHT			7	F3	
		25	643	BLK			7	F4	
	A121	↑	646	WHT			8	N5	
		↓	647	BLK		↓	↑	N6	
	A122	25	648	WHT		6	↓	N3	
		26	649	BLK			8	N4	
	A123	25	146	WHT		1	9	S8	TWIST
	A124	25	147	WHT		1	9	T1	
	A125	25	148	WHT		1	9	S7	
	A126	26	↓ 149	WHT	↓	5	10	↓ X5	
		26	P1-150	BLK	24		10	P3-X6	
		⚠	E6	SHLD			⚠	E7	
	A127	⚠	E7	BLK	22	17	10	P3-X4	
⚠ SEE COND A243	A128	⚠	E8	COAX	30	9	⚠	E9	⚠ SEE COND A244
		⚠	E8-SHLD	SHLD			⚠	E9 SHLD	
	A129	25	P1-644	WHT	22	7	⚠	E8	⚠
⚠	A130	⚠	E9	WHT	22	7	10	P3-U7	
		⚠	E10	SHLD			⚠	E5	
	A131	⚠	E5	BLK	22	17	10	P3-X3	
GROUP IV	A132	19	P1-207	WHT	20	26	4	P5-T6	
	A133	19	↑ 208	WHT	↑	↑	↑	↑ S1	
	A134	18	604	WHT		↓		T8	
	A135	19	508	WHT		26	↓	T4	TWIST
	A136	19	↓ 508	BLK		4	4	T5	
	A137	18	P1-105	WHT		26	5	V3	TWIST
	A138	⚠	E14	BLK		4	↑	V4	
	A139	19	P1-107	WHT		26		W7	TWIST
	A140	⚠	E14	BLK		4		W8	
	A141	18	P1-205	WHT	↓	26	↓	↓ W5	TWIST
	A142	⚠	E14	BLK	20	4	5	P5-W6	
	A143	19	P1-209	BLK	22	17	⚠	E14	
	A144	⚠	E14	BLK	20	4	⚠	E15	
	A145	18	P1-305	WHT	↑	26	5	P5-W3	TWIST
	A146	⚠	E15	BLK		4	↑	↑ W4	
	A147	19	P1-307	WHT		26		V6	TWIST
	A148	⚠	E15	BLK		4		V7	
	A149	18	P1-405	WHT		26		W1	TWIST
	A150	⚠	E15	BLK		4		W2	
	A151	19	P1-407	WHT		26	↓	↓ V8	TWIST
	A152	⚠	E15	BLK		4	5	P5-U8	
	A153	⚠	E15	BLK		4	⚠	E16	
	A154	18	P1-505	WHT		26	5	P5-X5	TWIST
	A155	⚠	E16	BLK		4	↑	↑ X6	
	A156	19	P1-507	WHT		26		U1	TWIST
	A157	⚠	E16	BLK		4		U2	
	A158	18	P1-605	WHT		26		X3	TWIST
	A159	⚠	E16	BLK		4		X4	
	A160	19	P1-607	WHT	↓	26	↓	↓ V1	TWIST
	A161	⚠	E16	BLK	20	4	5	P5-V2	
		⚠	E17	SHLD			⚠	E13	
	A162	⚠	E13	BLK	22	17	4	P5-T7	
	A163	19	P1-608	BLK	22	17	⚠	E17	

⚠ DENOTES INTERNAL CONNECTION

~~⚠ STRIP [illegible] & TIN [illegible]~~

~~⚠ STRIP 25 DO NOT TIN~~

~~⚠ STRIP [illegible] & TIN [illegible]~~

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25294		
1	CHANGED PER CCA R25354 DR W. Kelly CHK APPD	[illegible]	
—	CLASS B CHANGED PER CA R25501	[illegible]	
A	CHANGED PER CCA R25731 DR CHK APPD	JAN 66	
B	CHANGED PER CCA R25772 & CLASS A RELEASED PER TDRR 25477	[illegible]	
C	CHANGED PER TDRR 26450 DR APPD	3/24/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN F. J. Corrie DATE 9 SEPT 65
CHECKED 20 OCT 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W229

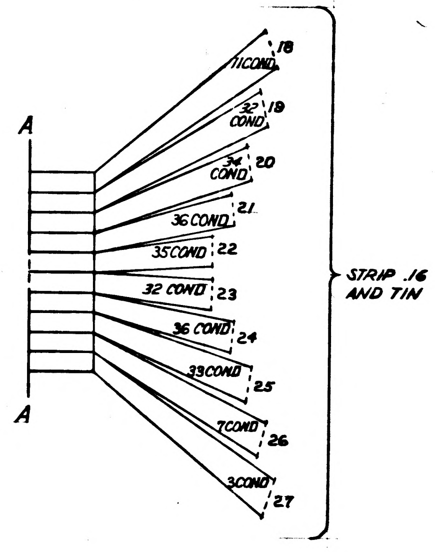
SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014488
SCALE NONE | WT | SHEET 2 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014488 C

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP V	A164	19	P1-109	WHT	20	26	3	P5-S5	
	A165	19	↑ 110	↑	↑	↑	1	↑ E6	
	A166	19	410				2	G7	
	A167	18	502				2	J5	
	A168	18	↓ 603				3	S8	
	A169	19	P1-610				1	C5	
	A170	△1	E26				3	↓ S6	
	A171	△1	E26				3	P5-S7	
	A172	18	P1-504				△1	E26	
	A173	△1	E4				2	P5-J2	
	A174	△1	E4				2	P5-J6	
	A175	18	P1-503	↓		↓	△1	E4	
	A176	19	↑ 309	WHT		26	2	P5-J3	TWIST
	A177	19	↓ 409	BLK		4	2	P5-J4	
	A178	19	P1-111	WHT		26	1	↑ C3	TWIST
	A179	△1	E19	BLK		4	↑	C4	
	A180	19	P1-112	WHT		26	↓	D1	TWIST
	A181	△1	E19	BLK		4	1	E1	
	A182	20	P1-113	WHT		26	2	F5	TWIST
	A183	△1	E19	BLK		4	↑	F6	
	A184	20	P1-114	WHT	↓	26	↓	↓ H1	TWIST
	A185	△1	E19	BLK	20	4	2	P5-H2	
	A186	20	P1-315	BLK	22	17	△1	E19	
	A187	△1	E19	BLK	20	4	△1	E20	
	A188	19	P1-210	WHT	↑	26	1	P5-A5	TWIST
	A189	△1	E20	BLK		4	↑	↑ A6	
	A190	19	P1-211	WHT		26		C1	TWIST
	A191	△1	E20	BLK		4		C2	
	A192	19	P1-212	WHT		26	↓	D6	TWIST
	A193	△1	E20	BLK		4	1	D7	
	A194	20	P1-213	WHT		26	2	↓ F3	TWIST
	A195	△1	E20	BLK		4	2	P5-F4	
	A196	△1	E20	BLK		4	△1	E21	
	A197	20	P1-214	WHT		26	2	P5-G3	TWIST
	A198	△1	E21	BLK		4	2	↑ H8	
	A199	19	P1-310	WHT		26	1	A3	TWIST
	A200	△1	E21	BLK		4	↑	A4	
	A201	19	P1-311	WHT		26		B7	TWIST
	A202	△1	E21	BLK		4		B8	
	A203	19	P1-312	WHT		26	↓	↓ D4	TWIST
	A204	△1	E21	BLK		4	1	P5-D5	
	A205	△1	E21	BLK		4	△1	E22	
	A206	20	P1-313	WHT		26	2	P5-F1	TWIST
	A207	△1	E22	BLK		4	↑	↑ F2	
	A208	20	P1-314	WHT		26	↓	G5	TWIST
	A209	△1	E22	BLK		4	2	G6	
	A210	19	P1-411	WHT		26	1	B5	TWI6T
	A211	△1	E22	BLK		4	↑	B6	
	A212	19	P1-412	WHT		26	↓	↓ D2	TWIST
	A213	△1	E22	BLK		4	1	P5-D3	
	A214	△1	E22	BLK		4	△1	E23	
	A215	20	P1-413	WHT		26	1	P5-E7	TWIST
	A216	△1	E23	BLK		4	1	↑ E8	
	A217	20	P1-414	WHT		26	2	G3	TWIST
	A218	△1	E23	BLK		4	↑	G4	
	A219	19	P1-510	WHT		26	↓	H3	TWIST
	A220	△1	E23	BLK		4	2	H4	
	A221	19	P1-511	WHT		26	1	↓ B3	TWIST
	A222	△1	E23	BLK		4	1	P5-B4	
	A223	△1	E23	BLK		4	△1	E24	
	A224	19	P1-512	WHT		26	1	P5-C8	TWIST
	A225	△1	E24	BLK		4	↑	↑ D8	
	A226	20	P1-513	WHT		26	↓	E4	TWIST
	A227	△1	E24	BLK		4	1	E5	
	A228	20	P1-514	WHT		26	2	G1	TWIST
	A229	△1	E24	BLK		4	2	G2	
	A230	19	P1-611	WHT		26	1	↓ B1	TWIST
	A231	△1	E24	BLK		4	1	P5-B2	
	A232	△1	E24	BLK		4		E25	
	A233	19	P1-612	WHT		26	1	P5-C6	TWIST
	A234	△1	E25	BLK		4	↑	↑ C7	
	A235	20	P1-613	WHT		26	↓	E2	TWIST
	A236	△1	E25	BLK		4	1	E3	
	A237	20	P1-614	WHT		26	2	F7	TWIST
	A238	△1	E25	BLK		4	↑	F8	
	A239	20	P1-615	WHT	↓	26	↓	↓ H5	TWIST
	A240	△1	E25	BLK	2C	4	2	P5-H6	
	A241	20	P1-415	BLK	22	17	△1	E25	
		△1	E18	SHLD			△1	E1	
	A242	△1	E1	BLK	22	17	2	P5-J7	
PART OF GROUP III △8	A243	25	P1-645	BLK	22	17	△1	E8-SHLD △8	SEE COND 128
	A244	△1	E9-SHLD	BLK	22	17	10	P3-U8	


A
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11COND 18
32 COND 19
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33COND 25
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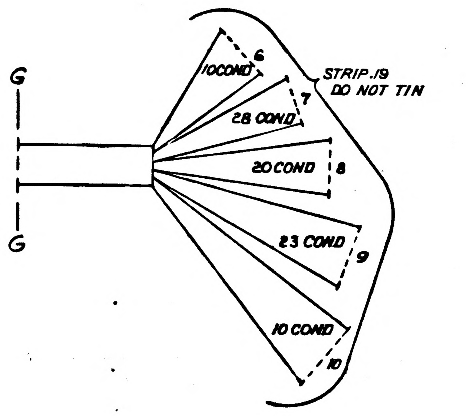
3COND 27
STRIP .16 AND TIN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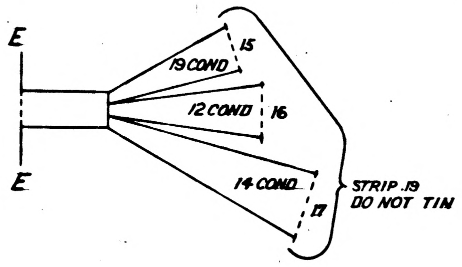
G
10COND 6
28 COND 7
20COND 8
23 COND 9
10 COND 10
STRIP .19 DO NOT TIN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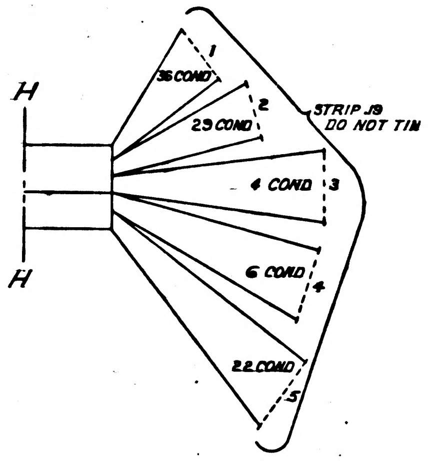
19COND 15
12COND 16
14 COND 17
STRIP .19 DO NOT TIN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36COND 1
29COND 2
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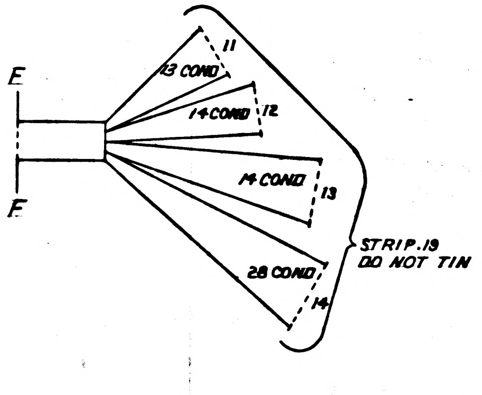
6 COND 4
22COND 5
STRIP .19 DO NOT TIN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13 COND 11
14COND 12
14 COND 13
28 COND 14
STRIP .19 DO NOT TIN

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25291		
1	CHANGED PER CCA R25354 DR W. Kelly CHK APPD	11/23/65	
—	CLASS B CHANGED PER CCA R25501	1/?/66	
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCA R25772 & CLASS A RELEASED PER TDRR 25477	1/20/66	
C	CHANGED PER TDRR 26450 DR CHK APPD	2/?/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN J. J. Carreia DATE 10 SEPT 65
CHECKED 20 OCT 65
APPROVAL 9 Oct 65
APPROVAL 10/19/65
APPROVAL 10/13/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 12/2/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
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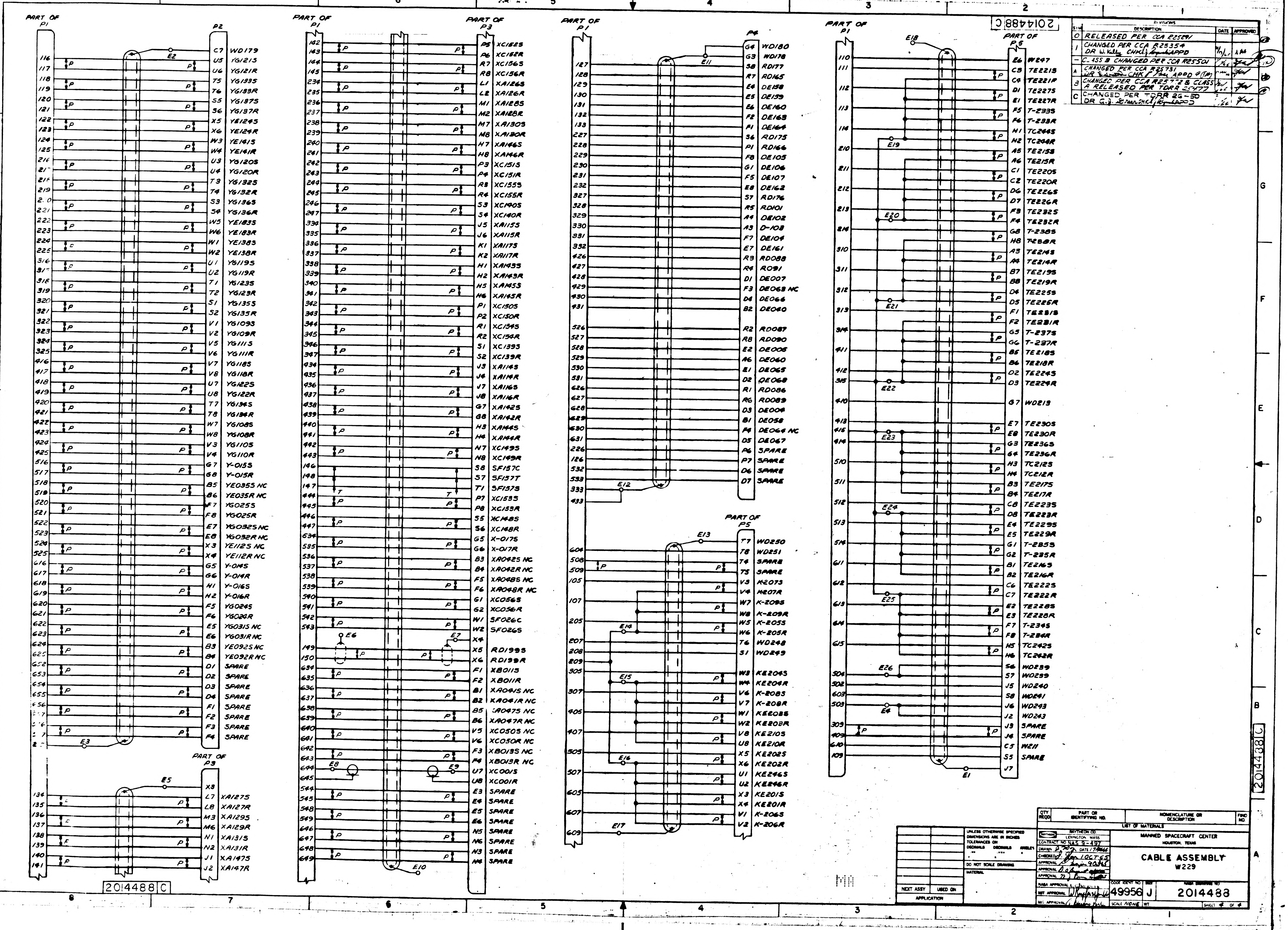
SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014488
SCALE 1/1 | WT | SHEET 3 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014488 C

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25291		
1	CHANGED PER CCA R25354 DR W. Kelly CHK APPD		
—	CLASS B CHANGED PER CCA R25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCA R25772 & CLASS A RELEASED PER TDRR 25477		
C	CHANGED PER TDRR 26-50 DR G.J. CHK APPD		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PART OF P1
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P
E2
E3
P2
C7 WD179
U5 YG121S
U6 YG121R
T5 YG133S
T6 YG133R
S5 YG137S
S6 YG137R
X5 YE124S
X6 YE124R
W3 YE141S
W4 YE141R
U3 YG120S
U4 YG120R
T3 YG132S
T4 YG132R
S3 YG136S
S4 YG136R
W5 YE183S
W6 YE183R
W1 YE138S
W2 YE138R
U1 YG119S
U2 YG119R
T1 YG123S
T2 YG123R
S1 YG135S
S2 YG135R
V1 YG109S
V2 YG109R
V5 YG111S
V6 YG111R
V7 YG118S
V8 YG118R
U7 YG122S
U8 YG122R
T7 YG134S
T8 YG134R
W7 YG108S
W8 YG108R
V3 YG110S
V4 YG110R
G7 Y-015S
G8 Y-015R
B5 YE035S NC
B6 YE035R NC
F7 YG025S
F8 YG025R
E7 YG032S NC
E8 YG032R NC
X3 YE112S NC
X4 YE112R NC
G5 Y-014S
G6 Y-014R
H1 Y-016S
H2 Y-016R
F5 YG024S
F6 YG024R
E5 YG031S NC
E6 YG031R NC
B3 YE092S NC
B4 YE092R NC
D1 SPARE
D2 SPARE
D3 SPARE
D4 SPARE
F1 SPARE
F2 SPARE
F3 SPARE
F4 SPARE
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141
E5
PART OF P3
X3
L7 XA127S
L8 XA127R
M3 XA129S
M6 XA129R
N1 XA131S
N2 XA131R
J1 XA147S
J2 XA147R
PART OF P1
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PART OF P3
P5 XC162S
P6 XC162R
R7 XC156S
R8 XC156R
L1 XA126S
L2 XA126R
M1 XA128S
M2 XA128R
M7 XA130S
M8 XA130R
H7 XA146S
H8 XA146R
P3 XC151S
P4 XC151R
R3 XC155S
R4 XC155R
S3 XC140S
S4 XC140R
J5 XA115S
J6 XA115R
K1 XA117S
K2 XA117R
H1 XA143S
H2 XA143R
H5 XA145S
H6 XA145R
P1 XC150S
P2 XC150R
R1 XC154S
R2 XC154R
S1 XC139S
S2 XC139R
J3 XA114S
J4 XA114R
J7 XA116S
J8 XA116R
G7 XA142S
G8 XA142R
H3 XA144S
H4 XA144R
N7 XC149S
N8 XC149R
S8 SF157C
S7 SF157T
T1 SF157S
P7 XC153S
P8 XC153R
S5 XC148S
S6 XC148R
G5 X-017S
G6 X-017R
B3 XA042S NC
B4 XA042R NC
F5 XA048S NC
F6 XA048R NC
G1 XC056S
G2 XC056R
W1 SF026C
W2 SF026S
X4
X5 RD199S
X6 RD199R
F1 XB011S
F2 XB011R
B1 XA041S NC
B2 XA041R NC
B5 XA047S NC
B6 XA047R NC
V5 XC050S NC
V6 XC050R NC
F3 XB013S NC
F4 XB013R NC
U7 XC001S
U8 XC001R
E3 SPARE
E4 SPARE
E5 SPARE
E6 SPARE
N5 SPARE
N6 SPARE
N3 SPARE
N4 SPARE
PART OF P1
127
128
129
130
131
132
133
227
228
229
230
231
232
327
328
329
330
331
332
426
427
428
429
430
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526
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529
530
531
626
627
628
629
630
631
226
126
532
533
333
433
E11
E12
P4
G4 WD180
G3 WD178
S8 RD177
R7 RD165
E4 DE158
E5 DE159
E6 DE160
F2 DE163
F1 DE164
S6 RD175
P1 RD166
F8 DE105
G1 DE106
F5 DE107
E8 DE162
R2 RD176
R5 RD101
A5 DE102
A3 D-103
F7 DE104
E7 DE161
R3 RD088
R4 RD091
D1 DE007
F3 DE063 NC
D4 DE066
B2 DE040
R2 RD087
R8 RD090
E2 DE005
A6 DE060
E1 DE065
D2 DE068
R1 RD086
R6 RD089
D3 DE004
B1 DE058
F4 DE064 NC
D5 DE067
P6 SPARE
P7 SPARE
D6 SPARE
D7 SPARE
604
508
509
105
107
205
207
208
209
305
307
405
407
505
507
605
607
609
E13
E14
E15
E16
E17
PART OF P5
T7 WD250
T8 WD251
T4 SPARE
T5 SPARE
V3 K2073
V4 K207R
W7 K-209S
W8 K-209R
W5 K-205S
W6 K-205R
T6 WD248
S1 WD249
W3 KE204S
W4 KE204R
V6 K-208S
V7 K-208R
W1 KE208S
W2 KE208R
V8 KE210S
U8 KE210R
X5 KE202S
X6 KE202R
U1 KE246S
U2 KE246R
X3 KE201S
X4 KE201R
V1 K-206S
V2 K-206R
PART OF P1
110
111
112
113
114
210
211
212
213
214
310
311
312
313
314
411
412
315
410
413
415
414
510
511
512
513
514
611
612
613
614
615
504
502
603
503
309
409
610
109
E18
E19
E20
E21
E22
E23
E24
E25
E26
E4
E1
PART OF P5
E6 W247
C3 TE221S
C4 TE221R
D1 TE227S
E1 TE227R
F5 T-233S
F6 T-233R
H1 TC244S
H2 TC244R
A5 TE215S
A6 TE215R
C1 TE220S
C2 TE220R
D6 TE226S
D7 TE226R
F3 TE232S
F4 TE232R
G8 T-238S
H8 T-238R
A3 TE214S
A4 TE214R
B7 TE219S
B8 TE219R
D4 TE225S
D5 TE225R
F1 TE231S
F2 TE231R
G5 T-237S
G6 T-237R
B5 TE218S
B6 TE218R
D2 TE224S
D3 TE224R
G7 WD213
E7 TE230S
E8 TE230R
G3 TE236S
G4 TE236R
H3 TC212S
H4 TC212R
B3 TE217S
B4 TE217R
C8 TE223S
D8 TE223R
E4 TE229S
E5 TE229R
G1 T-235S
G2 T-235R
B1 TE216S
B2 TE216R
C6 TE222S
C7 TE222R
E2 TE228S
E3 TE228R
F7 T-234S
F8 T-234R
H5 TC242S
H6 TC242R
S6 WD239
S7 WD239
S4 WD240
S8 WD241
J6 WD243
J2 WD243
J3 SPARE
J4 SPARE
C5 W211
S5 SPARE
J7

2014488 C

2014488 C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS

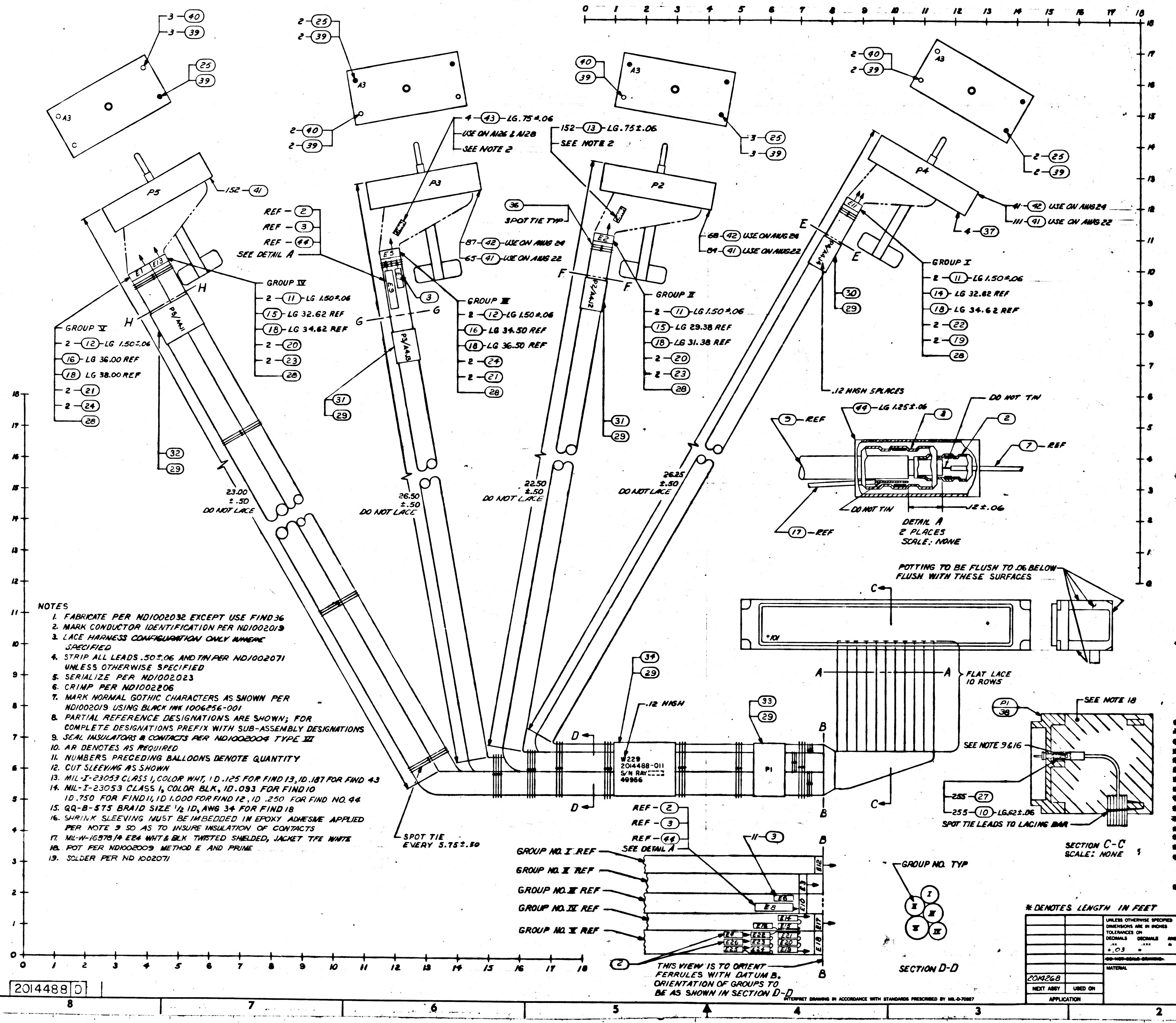
CONTRACT NO NAS 9-497
DRAWN DATE 1/7/66
CHECKED J. 1OCT65
APPROVAL 9Oct65
APPROVAL D. O'
APPROVAL
NASA APPROVAL A. C. MEZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W229

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO 2014488
SCALE NONE
WT
SHEET 4 OF 4

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25291		
1	CHANGED PER CCA R25354 DR W. Kelley CHK APPD	11/13/65	
—	CLASS B CHANGED PER CCA R25501		
A	CHANGED PER CCA R25731 DR CHK APPD	17 JAN 66	
B	CHANGED PER CCA R25772 & CLASS A RELEASED PER TDRR 25477	1/2/66	
C	CHANGED PER TDRR 26450 DR CHK APPD	2/24/66	
D	CHANGED PER TDRR 26532 DR CHK APPD		



3 – 40
3 – 39
25
39
A3
2 – 25
2 – 39
A3
2 – 40
2 – 39
40
39
A3
3 – 25
3 – 39
2 – 40
2 – 39
A3
2 – 25
2 – 39
P5
152 – 41
P3
4 – 43 – LG. .75 ±.06
USE ON A126 & A128
SEE NOTE 2
152 – 13 – LG. .75 ±.06
SEE NOTE 2
36
SPOT TIE TYP
P2
P4
41 – 42 USE ON AWG 24
111 – 41 USE ON AWG 22
4 – 37
REF – 2
REF – 3
REF – 44
SEE DETAIL A
E1
E13
H
H
P5/A4J1
GROUP IV
2 – 11 – LG 1.50 ±.06
15 – LG 32.62 REF
18 – LG 34.62 REF
2 – 20
2 – 23
28
GROUP V
2 – 12 – LG 1.50 ±.06
16 – LG 36.00 REF
18 LG 38.00 REF
2 – 21
2 – 24
28
32
29
23.00 ±.50 DO NOT LACE
E5
E9
E7
3
G
G
P3/A4J3
GROUP III
2 – 12 – LG 1.50 ±.06
16 – LG 34.50 REF
18 – LG 36.50 REF
2 – 24
2 – 21
28
31
29
26.50 ±.50 DO NOT LACE
87 – 42 – USE ON AWG 24
65 – 41 – USE ON AWG 22
E2
F
F
P2/A4J2
68 – 42 USE ON AWG 24
84 – 41 USE ON AWG 22
GROUP II
2 – 11 – LG 1.50 ±.06
15 – LG 29.38 REF
18 – LG 31.38 REF
2 – 20
2 – 23
28
31
29
22.50 ±.50 DO NOT LACE
E11
E
E
P4/A4J4
30
29
GROUP I
2 – 11 – LG 1.50 ±.06
14 – LG 32.82 REF
18 – LG 34.62 REF
2 – 22
2 – 19
28
.12 HIGH 5 PLACES
26.25 ±.50 DO NOT LACE
9 – REF
44 – LG 1.25 ±.06
8
DO NOT TIN
2
7 – REF
DO NOT TIN
.12 ±.06
17 – REF
DETAIL A
2 PLACES
SCALE: NONE
POTTING TO BE FLUSH TO .06 BELOW FLUSH WITH THESE SURFACES
C
C
+101
A
A
FLAT LACE 10 ROWS
34
29
.12 HIGH
D
D
W229
2014488-011
S/N RAY
49956
33
29
P1
B
B
P1 / 38
SEE NOTE 18
SEE NOTE 9 & 16
255 – 27
255 – 10 – LG .62 ±.06
SPOT TIE LEADS TO LACING BAR
SECTION C-C
SCALE: NONE
SPOT TIE EVERY 5.75 ±.50
REF – 2
REF – 3
REF – 44
SEE DETAIL A
11 – 3
GROUP NO. I REF
GROUP NO. II REF
GROUP NO. III REF
GROUP NO. IV REF
GROUP NO. V REF
E12
E3
E6
E8
E10
E14
E16
E15
E17
E7
E22
E21
E26
E23
E20
E25
E24
E19
E18
2
B
B
THIS VIEW IS TO ORIENT FERRULES WITH DATUM B. ORIENTATION OF GROUPS TO BE AS SHOWN IN SECTION D-D
GROUP NO. TYP
I
II
III
IV
V
SECTION D-D
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 36
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. LACE HARNESS CONFIGURATION ONLY WHERE SPECIFIED
4. STRIP ALL LEADS .50 ±.06 AND TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
5. SERIALIZE PER ND1002023
6. CRIMP PER ND1002206
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. SEAL INSULATORS & CONTACTS PER ND1002004 TYPE VI
10. AR DENOTES AS REQUIRED
11. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
12. CUT SLEEVING AS SHOWN
13. MIL-I-23053 CLASS I, COLOR WHT, ID .125 FOR FIND 13, ID .187 FOR FIND 43
14. MIL-I-23053 CLASS I, COLOR BLK, ID .093 FOR FIND 10 ID .750 FOR FIND 11, ID 1.000 FOR FIND 12, ID .250 FOR FIND NO. 44
15. QQ-B-575 BRAID SIZE 1/2 ID, AWG 34 FOR FIND 18
16. SHRINK SLEEVING MUST BE IMBEDDED IN EPOXY ADHESIVE APPLIED PER NOTE 9 SO AS TO INSURE INSULATION OF CONTACTS
17. MIL-W-16878/4 E24 WHT & BLK TWISTED SHIELDED, JACKET TFE WHITE
18. POT PER ND1002009 METHOD E AND PRIME
19. SOLDER PER ND 1002071

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	0.3	SEE NOTE 14	SLEEVING	44
*	0.3	SEE NOTE 13	SLEEVING	43
	196	1006491-009	CONTACT ELEC	42
	412	1006491-011	CONTACT ELEC	41
	8	1006672-006	GUIDE, SOCKET	40
	16	1006672-005	NUT, STOP	39
	1	1020320	CONNECTOR ASSEMBLY	38
	4	1006672-001	CONNECTOR, PLUG	37
	AR	1006458-004	TAPE, LACING	36
	~~2~~	~~1006406~~	~~FERRULE, COAX~~	~~35~~
	1	1006415-141	BAND MARKER	34
	1	↕ -065	↕ ↕	33
	1	↕ -061	↕ ↕	32
	2	↕ -058	↕ ↕	31
	1	1006415-057	BAND MARKER	30
	AR	1006253	ADHESIVE	29
	AR	1006699	SOLVENT	28
	255	1006246	CONTACT, ELECTRICAL	27
*	138	MIL-W-16878/4 E20	WIRE ELECTRICAL WHT	26
	8	1006672-002	GUIDE PIN	25
	4	1000243-38	FERRULE, ELECTRICAL COND	24
	4	1000243-41	↕ ↕ ↕	23
	1	1000243-40	↕ ↕ ↕	22
	4	1000242-38	↕ ↕ ↕	21
	4	1000242-37	↕ ↕ ↕	20
	1	1000242-36	FERRULE, ELECTRICAL COND	19
*	14.6	SEE NOTE 15	BRAID, WIRE	18
*	3.1	MIL-W-16878/4 E22	WIRE, ELECTRICAL BLK	17
*	6.0	1006696-6	SLEEVING	16
*	5.1	1006696-5	↕	15
*	2.8	1006696-4	↕	14
*	9.8	SEE NOTE 13	↕	13
*	0.5	↕ ↕ 14	↕	12
*	0.8	↕ ↕ 14	↕	11
*	13.2	SEE NOTE 14	SLEEVING	10
*	3.2	RG 180 B/U	WIRE, COAX	9
*	~~1.4~~	~~MIL-W-16878/4 E22~~	~~WIRE, ELECTRICAL WHT-BLK~~	~~8~~
*	1.4	MIL-W-16878/4 E22	↕ ↕ WHT	7
*	294	1014341-12	↕ ↕ WHT & BLK TWPR	6
*	4.4	SEE NOTE 17	↕ ↕ WHT & BLK TW SHLD PR	5
*	210	MIL-W-16878/4 E20	WIRE, ELECTRICAL BLK	4
	14	1010402-2	SLEEVE, SOLDER	3
	4	1010402-1	SLEEVE, SOLDER	2
*	172	MIL-W-16878/4 E24	WIRE, ELECTRICAL WHT	1

-011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014268	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 5 SEPT 65
CHECKED 20 OCT 65
APPROVAL 10-65
APPROVAL 10/8/65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W229

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014488
SCALE 1/1
WT
SHEET 1 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014488 D

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	22	P1-126	WHT	24	1	17	P4-P7	
	A2	↑	↑ 127	↑	↑	↑	17	↑ S8	
	A3		128				17	R7	
	A4		129				15	E4	
	A5		130				15	E5	
	A6		226				17	P6	
	A7		227				17	S6	
	A8		228				17	P1	
	A9		229				16	F8	
	A10		230				16	G1	
	A11		327				17	S7	
	A12		328				17	R5	
	A13		329				15	A4	
	A14		330				15	A3	
	A15		426				17	R3	
	A16		427				17	R4	
	A17		428				15	D1	
	A18		429				16	F3	
	A19		430				15	D4	
	A20		526				17	R2	
	A21		527				17	R8	
	A22		528				15	E2	
	A23		529				15	A6	
	A24		530				15	E1	
	A25		626				17	R1	
GROUP I	A26		627				17	R6	
	A27		628				15	D3	
	A28	↓	629				15	B1	
	A29	22	630				16	F4	
	A30	23	131				15	E6	
	A31	↑	132				16	F2	
	A32		133				16	F1	
	A33		231				16	F5	
	A34		232				15	E8	
	A35		331				16	F7	
	A36		332				15	E7	
	A37		431				↑	B2	
	A38		531					D2	
	A39		532					D6	
	A40	↓	↓ 533	↓	↓	↓	↓	↓ D7	
	A41	23	P1-631	WHT	24	1	15	P4-D5	
		⚠	E12	SHLD			⚠	E11	
	A42	⚠	E11	BLK	22	17	16	P4-G3	
	A43	⚠	E11	BLK	↑	17	16	P4-G4	
	A44	23	P1-333	BLK	↓	17	16	E12	
	A45	23	P1-433	BLK	22	17	16	E12	
	A46	20	P1-116	WHT	24	6	14	P2-U5	
		20	↑ 117	BLK	↑		14	↑ U6	
	A47	20	118	WHT		↑	13	T5	
		21	119	BLK			↑	T6	
	A48	↑	120	WHT			↓	S5	
			121	BLK			13	S6	
	A49		122	WHT			14	X5	
		↓	123	BLK			↑	X6	
	A50	21	124	WHT				W3	
		22	125	BLK				W4	
	A51	20	216	WHT			↓	U3	
		20	217	BLK			14	U4	
	A52	20	218	WHT			13	T3	
		21	219	BLK			↑	T4	
	A53	↑	220	WHT			↓	S3	
			221	BLK			13	S4	
GROUP II	A54		222	WHT			14	W5	
		↓	223	BLK			↑	W6	
	A55	21	224	WHT				W1	
		22	225	BLK				W2	
	A56	20	316	WHT			↓	U1	
		20	317	BLK			14	U2	
	A57	20	318	WHT			13	T1	
		21	319	BLK			↑	T2	
	A58	↑	320	WHT			↓	S1	
			321	BLK			13	S2	
	A59		322	WHT			14	V1	
		↓	323	BLK			↑	V2	
	A60	21	324	WHT				V5	
		22	325	BLK				V6	
	A61	20	416	WHT				V7	
		20	417	BLK				V8	
	A62	20	418	WHT			↓	U7	
		21	419	BLK			14	U8	
	A63	↑	420	WHT			13	T7	
			421	BLK		↓	13	T8	
	A64	↓	↓ 422	WHT	↓	6	14	↓ W7	
		21	P1-423	BLK	24		14	P2-W8	

⚠ DENOTES INTERNAL CONNECTION

~~STRIP 44 & TIN .06~~

~~STRIP 25, DO NOT TIN~~

~~STRIP 31 & TIN 06~~

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A65	21	P1-424	WHT	24	6	14	P2-V3	
		22	↑ 425	BLK	↑		14	↑ V4	
	A66	20	516	WHT		↑	12	G7	
		20	517	BLK			12	G8	
	A67	20	518	WHT			11	B5	
		21	519	BLK			11	B6	
	A68	↑	520	WHT			12	F7	
			521	BLK			12	F8	
	A69		522	WHT			11	E7	
		↓	523	BLK			11	E8	
	A70	21	524	WHT			14	X3	
		22	525	BLK			14	X4	
	A71	25	546	WHT			12	F3	
		25	547	BLK			↑	F4	
	A72	20	616	WHT				G5	
GROUP II		20	617	BLK				G6	
	A73	20	618	WHT				H1	
		21	619	BLK				H2	
	A74	↑	620	WHT			↓	F5	
			621	BLK			12	F6	
	A75		622	WHT			11	E5	
		↓	623	BLK			↑	E6	
	A76	21	624	WHT				B3	
		22	625	BLK				B4	
	A77	26	652	WHT				D1	
		26	653	BLK				D2	
	A78	26	654	WHT			↓	D3	
		27	655	BLK		↓	11	D4	
	A79	27	↓ 656	WHT	↓	6	12	↓ F1	
		27	P1-657	BLK	24		12	P2-F2	
		⚠	E3	SHLD			⚠	E2	
	A80	⚠	E2	BLK	22	17	11	P2-C7	
	A81	20	P1-215	BLK	22	17	⚠	E3	
	A82	23	P1-134	WHT	24	6	8	P3-L7	
		23	↑ 135	BLK	↑		↑	↑ L8	
	A83	23	136	WHT		↑		M3	
		24	137	BLK				N6	
	A84	↑	138	WHT			↓	N1	
			139	BLK			8	N2	
	A85		140	WHT			7	J1	
		↓	141	BLK			7	J2	
	A86	24	142	WHT			9	P5	
		25	143	BLK			↑	P6	
	A87	25	144	WHT			↓	R7	
		25	145	BLK			9	R8	
	A88	23	234	WHT			8	L1	
		23	235	BLK			↑	L2	
	A89	23	236	WHT				M1	
		24	237	BLK				M2	
	A90	↑	238	WHT			↓	M7	
			239	BLK			8	M8	
	A91		240	WHT			7	H7	
		↓	241	BLK			7	H8	
	A92	24	242	WHT			9	P3	
		25	243	BLK			↑	P4	
	A93	↑	244	WHT				R3	
			245	BLK				R4	
	A94	↓	246	WHT			↓	S3	
GROUP III		25	247	BLK			9	S4	
	A95	23	334	WHT			7	J5	
		23	335	BLK			7	J6	
	A96	23	336	WHT			8	K1	
		24	337	BLK			8	K2	
	A97	↑	338	WHT			7	H1	
			339	BLK			↑	H2	
	A98		340	WHT			↓	H5	
		↓	341	BLK			7	H6	
	A99	24	342	WHT			9	P1	
		25	343	BLK			↑	P2	
	A100	↑	344	WHT				R1	
			345	BLK				R2	
	A101	↓	346	WHT			↓	S1	
		25	347	BLK			9	S2	
	A102	23	434	WHT			7	J3	
		23	435	BLK			↑	J4	
	A103	23	436	WHT				J7	
		24	437	BLK				J8	
	A104	↑	438	WHT				G7	
			439	BLK				G8	
	A105		440	WHT			↓	H3	
		↓	441	BLK		↓	7	H4	
	A106	24	↓ 442	WHT	↓	6	8	↓ N7	
		25	P1-443	BLK	24		8	P3-N8	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A107	25	P1-444	WHT	24	6	9	P3-P7	
		↑	↑ 445	BLK	↑		↑	↑ P8	
	A108	↓	446	WHT		↑	↓	S5	
		25	447	BLK			9	S6	
	A109	23	534	WHT			7	G5	
		23	535	BLK			7	G6	
	A110	23	536	WHT			6	B3	
		24	537	BLK			6	B4	
	A111	↑	538	WHT			7	F5	
			539	BLK			↑	F6	
	A112		540	WHT			↓	G1	
		↓	541	BLK			7	G2	
	A113	24	542	WHT			10	W1	
		25	543	BLK			10	W2	
	A114	↑	544	WHT			6	E3	
		↓	545	BLK			↑	E4	
	A115	25	548	WHT			↓	E5	
		26	549	BLK			6	E6	
	A116	23	634	WHT			7	F1	
		23	635	BLK			7	F2	
GROUP III	A117	23	636	WHT			6	B1	
		24	637	BLK			↑	B2	
	A118	↑	638	WHT			↓	B5	
			639	BLK			6	B6	
	A119		640	WHT			10	V5	
		↓	641	BLK			10	V6	
	A120	24	642	WHT			7	F3	
		25	643	BLK			7	F4	
	A121	↑	646	WHT			8	N5	
		↓	647	BLK		↓	↑	N6	
	A122	25	648	WHT		6	↓	N3	
		26	649	BLK			8	N4	
	A123	25	146	WHT		1	9	S8	TWIST
	A124	25	147	WHT		1	9	T1	
	A125	25	148	WHT		1	9	S7	
	A126	26	↓ 149	WHT	↓	5	10	↓ X5	
		26	P1-150	BLK	24		10	P3-X6	
		⚠	E6	SHLD			⚠	E7	
	A127	⚠	E7	BLK	22	17	10	P3-X4	
⚠	A128	⚠	E8	COAX	30	9	⚠	E9	⚠
SEE COND A243		⚠	E8-SHLD	SHLD			⚠	E9-SHLD	SEE COND A244
	A129	25	P1-644	WHT	22	7	⚠	E8	⚠
⚠	A130	⚠	E9	WHT	22	7	10	P3-U7	
		⚠	E10	SHLD			⚠	E5	
	A131	⚠	E5	BLK	22	17	10	P3-X3	
	A132	19	P1-207	WHT	20	26	4	P5-T6	
	A133	19	↑ 208	WHT	↑	↑	↑	↑ S1	
	A134	18	604	WHT		↓		T8	
	A135	19	508	WHT		26	↓	T4	TWIST
	A136	19	↓ 508	BLK		4	4	T5	
	A137	18	P1-105	WHT		26	5	V3	TWIST
	A138	⚠	E14	BLK		4	↑	V4	
	A139	19	P1-107	WHT		26		W7	TWIST
	A140	⚠	E14	BLK		4		W8	
	A141	18	P1-205	WHT	↓	26	↓	↓ W5	TWIST
	A142	⚠	E14	BLK	20	4	5	P5-W6	
	A143	19	P1-209	BLK	22	17	⚠	E14	
	A144	⚠	E14	BLK	20	4	⚠	E15	
	A145	18	P1-305	WHT	↑	26	5	P5-W3	TWIST
	A146	⚠	E15	BLK		4	↑	↑ W4	
	A147	19	P1-307	WHT		26		V6	TWIST
	A148	⚠	E15	BLK		4		V7	
	A149	18	P1-405	WHT		26		W1	TWIST
GROUP IV	A150	⚠	E15	BLK		4		W2	
	A151	19	P1-407	WHT		26	↓	↓ V8	TWIST
	A152	⚠	E15	BLK		4	5	P5-U8	
	A153	⚠	E15	BLK		4	⚠	E16	
	A154	18	P1-505	WHT		26	5	P5-X5	TWIST
	A155	⚠	E16	BLK		4	↑	↑ X6	
	A156	19	P1-507	WHT		26		U1	TWIST
	A157	⚠	E16	BLK		4		U2	
	A158	18	P1-605	WHT		26		X3	TWIST
	A159	⚠	E16	BLK		4		X4	
	A160	19	P1-607	WHT	↓	26	↓	↓ V1	TWIST
	A161	⚠	E16	BLK	20	4	5	P5-V2	
		⚠	E17	SHLD			⚠	E13	
	A162	⚠	E13	BLK	22	17	4	P5-T7	
	A163	19	P1-608	BLK	22	17	⚠	E17	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25294		
1	CHANGED PER CCA R25354 DR W. Kelley CHK APPD		
—	CLASS B CHANGED PER CCA R25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCA R25772 & CLASS A RELEASED PER TDRR 25477		
C	CHANGED PER TDRR 26450 DR CHK APPD	/66	
D	CHANGED PER TDRR 26532 DR CHK APPD	/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 9 SEPT 65
CHECKED 20CT65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W229

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014488
SCALE NONE
WT
SHEET 2 OF 4

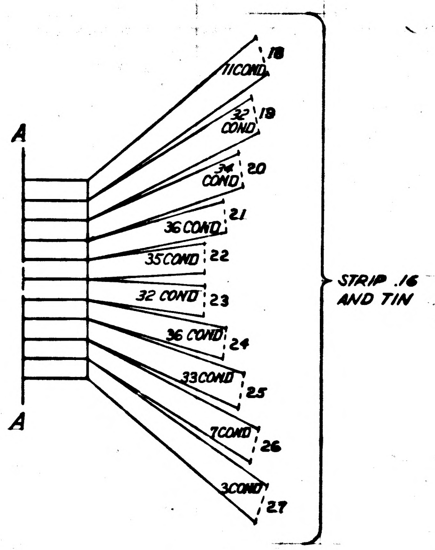
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014488 D

2014488 D

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A164	19	P1-109	WHT	20	26	3	P5-S5	
	A165	19	↑ 110	↑	↑	↑	1	↑ E6	
	A166	19	410				2	G7	
	A167	18	502				2	J5	
	A168	18	↓ 603				3	S8	
	A169	19	P1-610				1	C5	
	A170	△1	E26				3	↓ S6	
	A171	△1	E26				3	P5-S7	
	A172	18	P1-504				△1	E26	
	A173	△1	E4				2	P5-J2	
	A174	△1	E4				2	P5-J6	
	A175	18	P1-503	↓		↓	△1	E4	
	A176	19	↑ 309	WHT		26	2	P5-J3	TWIST
	A177	19	↓ 409	BLK		4	2	P5-J4	
	A178	19	P1-111	WHT		26	1	↑ C3	TWIST
	A179	△1	E19	BLK		4	↑	C4	
	A180	19	P1-112	WHT		26	↓	D1	TWIST
	A181	△1	E19	BLK		4	1	E1	
	A182	20	P1-113	WHT		26	2	F5	TWIST
	A183	△1	E19	BLK		4	↑	F6	
	A184	20	P1-114	WHT	↓	26	↓	↓ H1	TWIST
	A185	△1	E19	BLK	20	4	2	P5-H2	
	A186	20	P1-315	BLK	22	17	△1	E19	
	A187	△1	E19	BLK	20	4	△1	E20	
	A188	19	P1-210	WHT	↑	26	1	P5-A5	TWIST
	A189	△1	E20	BLK		4	↑	↑ A6	
	A190	19	P1-211	WHT		26		C1	TWIST
	A191	△1	E20	BLK		4		C2	
	A192	19	P1-212	WHT		26	↓	D6	TWIST
	A193	△1	E20	BLK		4	1	D7	
	A194	20	P1-213	WHT		26	2	↓ F3	TWIST
	A195	△1	E20	BLK		4	2	P5-F4	
	A196	△1	E20	BLK		4	△1	E21	
	A197	20	P1-214	WHT		26	2	P5-G8	TWIST
	A198	△1	E21	BLK		4	2	↑ H8	
GROUP V	A199	19	P1-310	WHT		26	1	A3	TWIST
	A200	△1	E21	BLK		4	↑	A4	
	A201	19	P1-311	WHT		26		B7	TWIST
	A202	△1	E21	BLK		4		B8	
	A203	19	P1-312	WHT		26	↓	↓ D4	TWIST
	A204	△1	E21	BLK		4	1	P5-D5	
	A205	△1	E21	BLK		4	△1	E22	
	A206	20	P1-313	WHT		26	2	P5-F1	TWIST
	A207	△1	E22	BLK		4	↑	↑ F2	
	A208	20	P1-314	WHT		26	↓	G5	TWIST
	A209	△1	E22	BLK		4	2	G6	
	A210	19	P1-411	WHT		26	1	B5	TWIST
	A211	△1	E22	BLK		4	↑	B6	
	A212	19	P1-412	WHT		26	↓	↓ D2	TWIST
	A213	△1	E22	BLK		4	1	P5-D3	
	A214	△1	E22	BLK		4	△1	E23	
	A215	20	P1-413	WHT		26	1	P5-E7	TWIST
	A216	△1	E23	BLK		4	1	↑ E8	
	A217	20	P1-414	WHT		26	2	G3	TWIST
	A218	△1	E23	BLK		4	↑	G4	
	A219	19	P1-510	WHT		26	↓	H3	TWIST
	A220	△1	E23	BLK		4	2	H4	
	A221	19	P1-511	WHT		26	1	↓ B3	TWIST
	A222	△1	E23	BLK		4	1	P5-B4	
	A223	△1	E23	BLK		4	△1	E24	
	A224	19	P1-512	WHT		26	1	P5-C8	TWIST
	A225	△1	E24	BLK		4	↑	↑ D8	
	A226	20	P1-513	WHT		26	↓	E4	TWIST
	A227	△1	E24	BLK		4	1	E5	
	A228	20	P1-514	WHT		26	2	G1	TWIST
	A229	△1	E24	BLK		4	2	G2	
	A230	19	P1-611	WHT		26	1	↓ B1	TWIST
	A231	△1	E24	BLK		4	1	P5-B2	
	A232	△1	E24	BLK		4		E25	
	A233	19	P1-612	WHT		26	1	P5-C6	TWIST
	A234	△1	E25	BLK		4	↑	↑ C7	
	A235	20	P1-613	WHT		26	↓	E2	TWIST
	A236	△1	E25	BLK		4	1	E3	
	A237	20	P1-614	WHT		26	2	F7	TWIST
	A238	△1	E25	BLK		4	↑	F8	
	A239	20	P1-615	WHT	↓	26	↓	↓ H5	TWIST
	A240	△1	E25	BLK	20	4	2	P5-H6	
	A241	20	P1-415	BLK	22	17	△1	E25	
		△1	E18	SHLD			△1	E1	
	A242	△1	E1	BLK	22	17	2	P5-J7	
PART OF GROUP III △	A243	25	P1-645	BLK	22	17	△1	E8-SHLD △	SEE COND 128
	A244	△1	E9-SHLD	BLK	22	17	10	P3-U8	



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A
11COND
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32 COND
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34 COND
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36 COND
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33COND
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7COND
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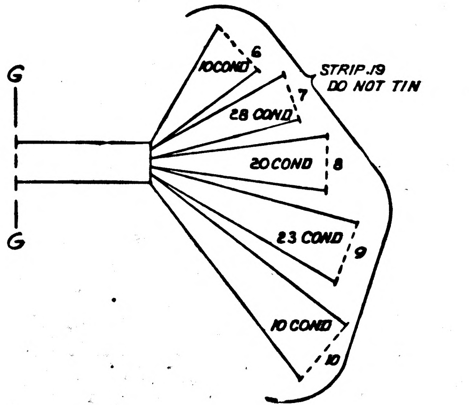
3COND
27
STRIP .16 AND TIN



G
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28 COND
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20COND
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23 COND
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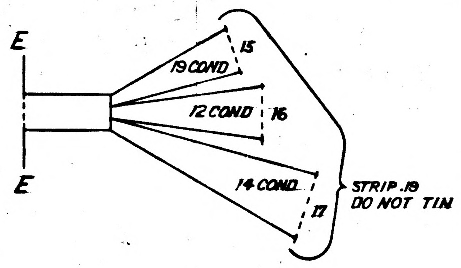
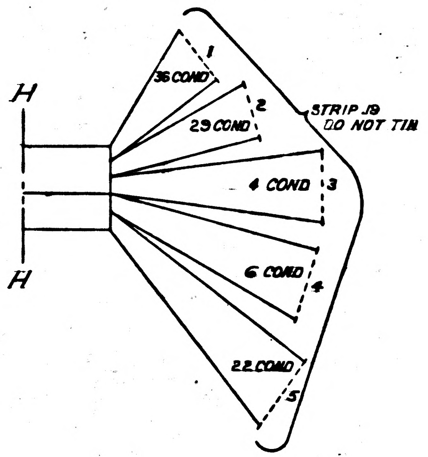
10 COND
10
STRIP .19 DO NOT TIN



E
E
19 COND
15
12 COND
16
14 COND
17
STRIP .19 DO NOT TIN



H
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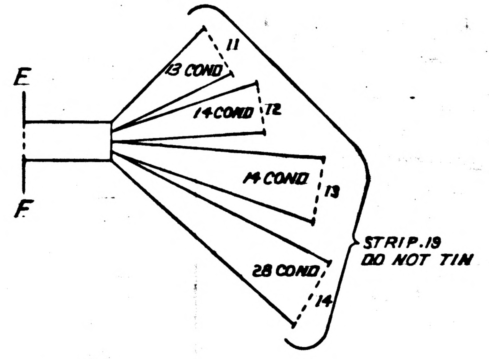
29 COND
2
4 COND
3
6 COND
4
22 COND
5
STRIP .19 DO NOT TIN



E
F
13 COND
11
14 COND
12
14 COND
13
28 COND
14
STRIP .19 DO NOT TIN

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25294		
1	CHANGED PER CCA R25354 DR W. Kelly CHK APPD		
–	CLASS B CHANGED PER CCA R25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCA R25772 & CLASS A RELEASED PER TDRR 25477	1/66	
C	CHANGED PER TDRR 26450 DR CHK APPD	/66	
D	CHANGED PER TDRR 26532 DR CHK APPD	/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 10SEPT65
CHECKED 2OCT65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W229

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014488
SCALE 1/1 | WT | SHEET 3 OF 4

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

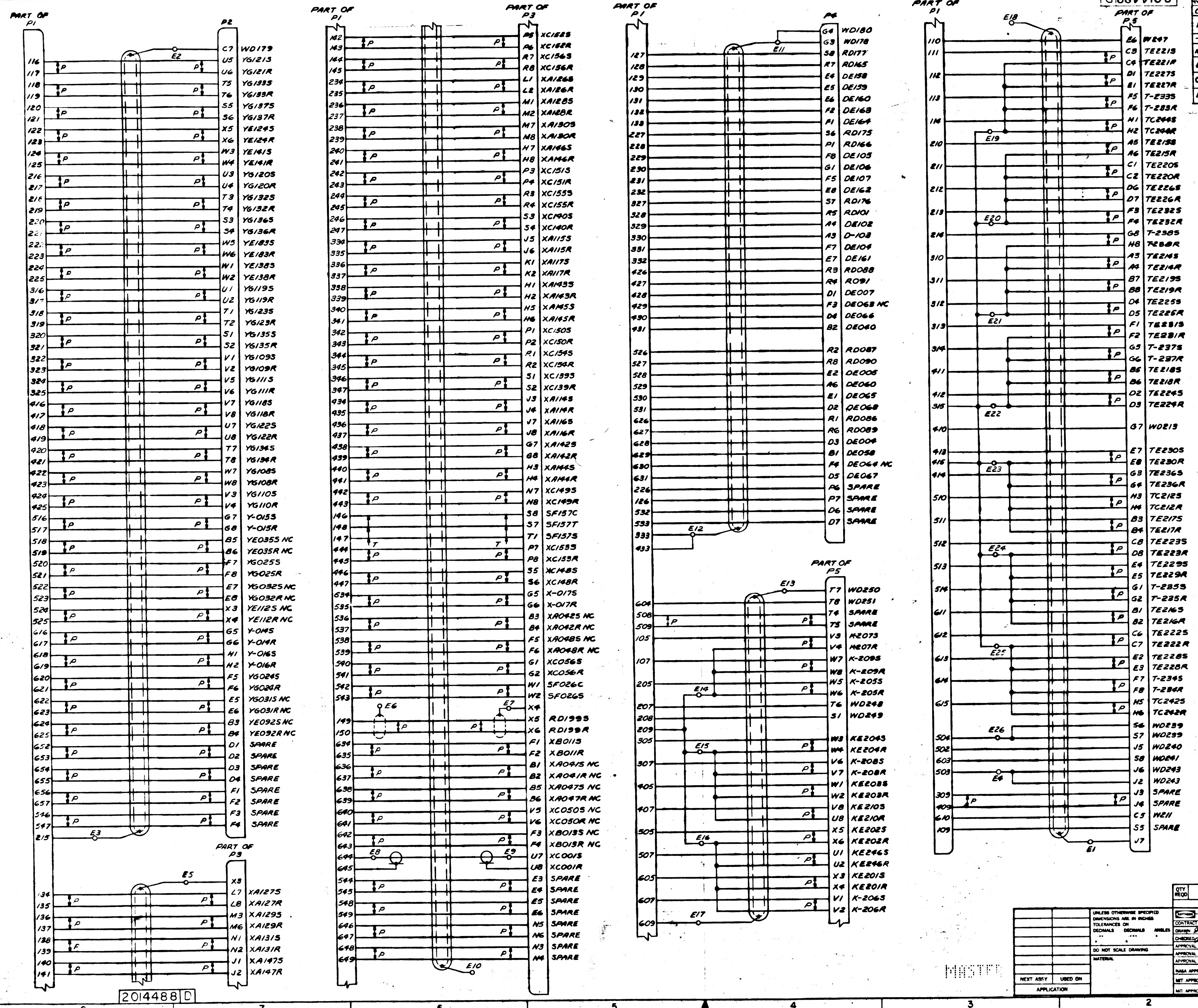
MASTER

2014488 D

2014488 D

2014488 D

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25291		
1	CHANGED PER CCA R25354 DR W. Kelly CHK APPD		
–	CLASS B CHANGED PER CCA R25501		
A	CHANGED PER CCA R25731 DR CHK APPD		
B	CHANGED PER CCA R25772 & CLASS A RELEASED PER TDRR 25477		
C	CHANGED PER TDRR 26450 DR CHK APPD		
D	CHANGED PER TDRR 26532 DR CHK APPD		



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C7 WD179
U5 YG121S
U6 YG121R
T5 YG133S
T6 YG133R
S5 YG137S
S6 YG137R
X5 YE124S
X6 YE124R
W3 YE141S
W4 YE141R
U3 YG120S
U4 YG120R
T3 YG132S
T4 YG132R
S3 YG136S
S4 YG136R
W5 YE183S
W6 YE183R
W1 YE138S
W2 YE138R
U1 YG119S
U2 YG119R
T1 YG123S
T2 YG123R
S1 YG135S
S2 YG135R
V1 YG109S
V2 YG109R
V5 YG111S
V6 YG111R
V7 YG118S
V8 YG118R
U7 YG122S
U8 YG122R
T7 YG134S
T8 YG134R
W7 YG108S
W8 YG108R
V3 YG110S
V4 YG110R
G7 Y-015S
G8 Y-015R
B5 YE035S NC
B6 YE035R NC
F7 YG025S
F8 YG025R
E7 YG032S NC
E8 YG032R NC
X3 YE112S NC
X4 YE112R NC
G5 Y-014S
G6 Y-014R
H1 Y-016S
H2 Y-016R
F5 YG024S
F6 YG024R
E5 YG031S NC
E6 YG031R NC
B3 YE092S NC
B4 YE092R NC
D1 SPARE
D2 SPARE
D3 SPARE
D4 SPARE
F1 SPARE
F2 SPARE
F3 SPARE
F4 SPARE
E2
E3
P
PART OF P3
134 135 136 137 138 139 140 141
X8
L7 XA127S
L8 XA127R
M3 XA129S
M6 XA129R
N1 XA131S
N2 XA131R
J1 XA147S
J2 XA147R
E5
PART OF P1
PART OF P3
142 143 144 145 234 235 236 237 238 239 240 241 242 243 244 245 246 247 334 335 336 337 338 339 340 341 342 343 344 345 346 347 434 435 436 437 438 439 440 441 442 443 146 148 147 444 445 446 447 634 535 536 537 538 539 540 541 542 543 149 150 634 635 636 637 638 639 640 641 642 643 644 645 544 545 548 549 646 647 648 649
P5 XC182S
P6 XC182R
R7 XC156S
R8 XC156R
L1 XA126S
L2 XA126R
M1 XA128S
M2 XA128R
M7 XA130S
M8 XA130R
H7 XA146S
H8 XA146R
P3 XC151S
P4 XC151R
R3 XC155S
R4 XC155R
S3 XC140S
S4 XC140R
J5 XA115S
J6 XA115R
K1 XA117S
K2 XA117R
H1 XA143S
H2 XA143R
H5 XA145S
H6 XA145R
P1 XC150S
P2 XC150R
R1 XC154S
R2 XC154R
S1 XC139S
S2 XC139R
J3 XA114S
J4 XA114R
J7 XA116S
J8 XA116R
G7 XA142S
G8 XA142R
H3 XA144S
H4 XA144R
N7 XC149S
N8 XC149R
S8 SF157C
S7 SF157T
T1 SF157S
P7 XC153S
P8 XC153R
S5 XC148S
S6 XC148R
G5 X-017S
G6 X-017R
B3 XA042S NC
B4 XA042R NC
F5 XA048S NC
F6 XA048R NC
G1 XC056S
G2 XC056R
W1 SF026C
W2 SF026S
X4
X5 RD199S
X6 RD199R
F1 XB011S
F2 XB011R
B1 XA041S NC
B2 XA041R NC
B5 XA047S NC
B6 XA047R NC
V5 XC050S NC
V6 XC050R NC
F3 XB013S NC
F4 XB013R NC
U7 XC001S
U8 XC001R
E3 SPARE
E4 SPARE
E5 SPARE
E6 SPARE
N5 SPARE
N6 SPARE
N3 SPARE
N4 SPARE
T
E6
E7
E8
E9
E10
PART OF P1
P4
127 128 129 130 131 132 133 227 228 229 230 231 232 327 328 329 330 331 332 426 427 428 429 430 431 526 527 528 529 530 531 626 627 628 629 630 631 226 126 532 533 333 433
G4 WD180
G3 WD178
S8 RD177
R7 RD165
E4 DE158
E5 DE159
E6 DE160
F2 DE163
F1 DE164
S6 RD175
P1 RD166
F8 DE105
G1 DE106
F5 DE107
E8 DE162
S7 RD176
R5 RD101
A4 DE102
A3 D-103
F7 DE104
E7 DE161
R3 RD088
R4 RD091
D1 DE007
F3 DE063 NC
D4 DE066
B2 DE040
R2 RD087
R8 RD090
E2 DE005
A6 DE060
E1 DE065
D2 DE068
R1 RD086
R6 RD089
D3 DE004
B1 DE058
F4 DE064 NC
D5 DE067
P6 SPARE
P7 SPARE
D6 SPARE
D7 SPARE
E11
E12
PART OF P5
604 508 509 105 107 205 207 208 209 305 307 405 407 505 507 605 607 609
T7 WD250
T8 WD251
T4 SPARE
T5 SPARE
V3 K207S
V4 K207R
W7 K-209S
W8 K-209R
W5 K-205S
W6 K-205R
T6 WD248
S1 WD249
W3 KE204S
W4 KE204R
V6 K-208S
V7 K-208R
W1 KE203S
W2 KE203R
V8 KE210S
U8 KE210R
X5 KE202S
X6 KE202R
U1 KE246S
U2 KE246R
X3 KE201S
X4 KE201R
V1 K-206S
V2 K-206R
E13
E14
E15
E16
E17
PART OF P1
PART OF P5
110 111 112 113 114 210 211 212 213 214 310 311 312 313 314 411 412 315 410 413 415 414 510 511 512 513 514 611 612 613 614 615 504 502 603 503 309 409 610 109
E6 W247
C3 TE221S
C4 TE221R
D1 TE227S
E1 TE227R
F5 T-233S
F6 T-233R
H1 TC244S
H2 TC244R
A5 TE215S
A6 TE215R
C1 TE220S
C2 TE220R
D6 TE226S
D7 TE226R
F3 TE232S
F4 TE232R
G8 T-238S
H8 TE238R
A3 TE214S
A4 TE214R
B7 TE219S
B8 TE219R
D4 TE225S
D5 TE225R
F1 TE231S
F2 TE231R
G5 T-237S
G6 T-237R
B5 TE218S
B6 TE218R
D2 TE224S
D3 TE224R
G7 WD213
E7 TE230S
E8 TE230R
G3 TE236S
G4 TE236R
H3 TC212S
H4 TC212R
B3 TE217S
B4 TE217R
C8 TE223S
D8 TE223R
E4 TE229S
E5 TE229R
G1 T-235S
G2 T-235R
B1 TE216S
B2 TE216R
C6 TE222S
C7 TE222R
E2 TE228S
E3 TE228R
F7 T-234S
F8 T-234R
H5 TC242S
H6 TC242R
S6 WD239
S7 WD239
J5 WD240
S8 WD241
J6 WD243
J2 WD243
J3 SPARE
J4 SPARE
C5 W211
S5 SPARE
J7
E18
E19
E20
E21
E22
E23
E24
E25
E26
E4
E1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS
CONTRACT NO NAS 9-497
DRAWN DATE
CHECKED 10CT65
APPROVAL 90CT65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W229

CODE IDENT NO 49956
SIZE J
NASA DRAWING NO 2014488
SCALE NONE
WT
SHEET 4 OF 4

MASTER

2014488 D

2014488 D

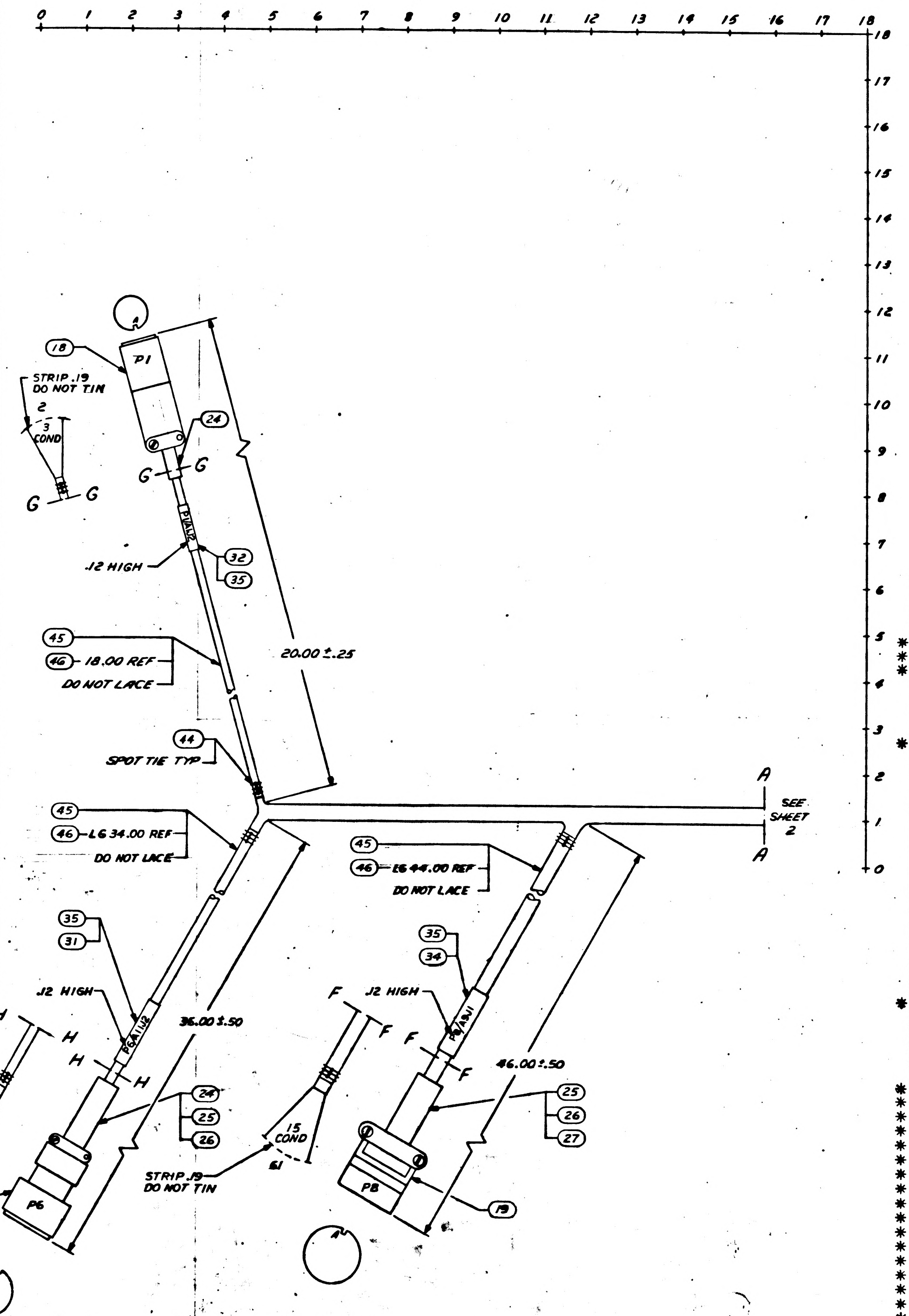
ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO.	STA NO.	DESTINATION	REMARKS
	A1	4	P4-P	BLK	20	4	56	P7-A	
	A2		-P	BLK		4	2	P1-A	
△	A3		-A	WHT/BRN/GY		11	61	P8-C	
	A4		-G	WHT/BRN/GY		11	2	P1-C	TWIST
	A5		-D	WHT/BLK/GY		7	2	P1-B	
	A6		-E	WHT/BLK/GY		7	56	P7-B	TWIST
△	A7		-U	WHT/BRN/GY		11	56	P7-C	
	A8		-B	WHT		1	61	P8-D	
	A9		-F	WHT		1	61	P8-B	
△	A10		-c	WHT/BRN/GY		11	61	P8-A	
	A11		-d	WHT		1	61	P8-J	
	A12		-e	WHT		1	61	P8-K	
	A13		-f	WHT		1	61	P8-L	
	A14		-J	WHT	20	1	61	P8-W	
△	A15		-C	WHT/BRN/GY	16	12	50	A16TB1-1	△
	A16		-O	WHT/ORN/GY		16	11	A22A3TB1-1	△
	A17		-R	WHT		2	38	A19TB4-7	△
△	A18		-W	WHT/RED/GY		13	3	P3-C	
	A19		-Z	WHT		2	15	A22A3TB1-6	△
△	A20		-a	WHT/ORN/GY		16	1	P6-A	
	A21		-b	WHT/RED/GY	16	13	58	A21TB1-3	△
	A22		-S	WHT/RED/GY	14	14	22	A5TB1-1	△
△	A23		-H	WHT/BLK/GY	12	10	27	A19TB5-6	△
	A24		-I	WHT		3	21	A22A2TB1-6	△
	A25		-K	WHT		3	44	A19TB1-6	△
	A26		-L	WHT		3	9	A22A1TB1-6	△
	A27		-M	WHT		3	30	A19TB5-2	△
	A28		-N	WHT		3	44	A19TB1-7	△
	A29		-T	WHT		3	41	A19TB3-3	△
△	A30		-V	WHT/ORN/GY		17	17	A22A2TB1-1	△
△	A31		-X	WHT/RED/GY		15	5	A22A1TB1-1	△
	A32	4	P4-Y	WHT	12	3	42	A19TB2-5	△
	A33	61	P8-b	WHT	20	1	57	P5-A	
△ △	A34	29	A19TB5-3	WHT/BLK/GY		7	61	P8-E	
	A35	39	A19TB4-8	WHT		1	61	P8-F	
	A36	39	A19TB3-8	WHT		1	61	P8-G	
	A37	49	A19TB1-1	BLK		4	61	P8-N	
	A38	40	A19TB3-7	WHT		1	61	P8-T	
	A39	43	A19TB1-8	WHT	20	1	61	P8-V	
	A40	37	A19TB4-6	BLK	16	5	3	P3-A	
△	A41	31	A19TB5-1	WHT/BLK/GY		8	3	P3-B	
	A42	37	A19TB4-6	BLK		5	57	P5-B	
△	A43	31	A19TB5-1	WHT/BLK/GY		8	57	P5-C	
	A44	35	A19TB4-4	BLK		5	1	P6-C	
△	A45	29	A19TB5-3	WHT/BLK/GY		8	1	P6-D	
	A46	37	A19TB4-6	BLK	16	5	24	A5TB1-3	△
△	A47	28	A19TB5-5	WHT/BLK/GY	14	9	23	A5TB1-2	
△	A48	30	A19TB5-2	WHT/BLK/GY	16	8	51	A16TB1-2	
	A49	39	A19TB4-3	BLK		5	53	A16TB1-5	
	A50	46	A19TB1-4	WHT		2	54	A16TB1-6	
	A51	46	A19TB1-4	WHT		2	55	A16TB1-7	
	A52	36	A19TB4-5	BLK		5	60	A21TB1-1	
△	A53	31	A19TB5-1	WHT/BLK/GY	16	8	59	A21TB1-2	△
	A54	45	A19TB1-5	WHT	20	1	10	A22A1TB1-10	△
	A55	48	A19TB1-2	BLK	16	5	7	A22A1TB1-4	
	A56	32	A19TB4-1	BLK	16	5	8	A22A1TB1-5	
△	A57	28	A19TB5-5	WHT/RED/GY	12	15	6	A22A1TB1-2	
	A58	33	A19TB4-2	BLK	16	5	20	A22A2TB1-5	
	A59	47	A19TB1-3	BLK	14	6	19	A22A2TB1-3	
△	A60	27	A19TB5-6	WHT/BLK/GY	12	10	18	A22A2TB1-2	
	A61	25	A19TB5-8	BLK	16	5	13	A22A3TB1-4	
	A62	33	A19TB4-2	BLK	16	5	14	A22A3TB1-5	
△	A63	27	A19TB5-6	WHT/BLK/GY	12	10	12	A22A3TB1-2	
	A64	26	A19TB5-7	WHT	12	3	16	A22A3TB1-11	△
	A65	52	A16TB1-4	WHT	12	3	44	A19TB1-6	△
△	A66	52	A16TB1-3	WHT	12	3	44	A19TB1-6	△

△1 ATTACH FIND 41 LG 1.25 ±.06 & SEE NOTE 3

△2 ATTACH FIND 41 LG 1.75 ±.06 & SEE NOTE 3

△3 ATTACH FIND 41 LG .75 ±.06 TO EACH END OF CONDUCTOR & SEE NOTE 2



NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 44
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. MARK SLEEVING WITH REFERENCE DESIGNATIONS AS SHOWN USING BLACK INK 1006256-001 .12 HIGH, PER ND1002019
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. STRIP ALL LEADS .38 ±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. CRIMP PER ND1002206
7. SERIALIZE PER ND1002023
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
10. MIL-I-23053 CLASS I, COLOR WHITE, ID .125
11. AR DENOTES AS REQUIRED
12. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. SOLDER PER ND1002071

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASE PER CCA R25314	10/14/65	
1	CHANGED PER CCA 25410 DR P. Milner CHK J. Yon APPD	11/12/65	
–	CLASS B CHANGED PER CCAR25502	3/1/65	
A	CHANGED PER CCA R 25619 DR CHK APPD RED	12/20/65	
B	CHANGED PER CCA R25678 DR CHK Yon APPD RED	1/14/66	
C	CHANGED PER CCA R25766 AND CLASS A RELEASED PER TDRR 8472	1/14/66	

☒	2014172	SCHEMATIC	REF
* 2.0	1006696-5	SLEEVING	48
* 7.4	1006696-4	SLEEVING	47
* 16.9	1006696-1	SLEEVING	46
AR	1006699	SOLVENT	45
AR	1006458-004	TAPE, LACING	44
1	MS3057-12A	CLAMP, CABLE	43
1	MS3057-24A	CLAMP, CABLE	42
* 9.6	SEE NOTE 10	SLEEVING	41
1	MS17143-21	LUG, TERMINAL	40
5	MS25036-52	LUG, TERMINAL	39
8	1006431-010	LUG, TERMINAL	38
8	1006431-006	LUG, TERMINAL	37
1	1006431-002	LUG, TERMINAL	36
AR	1006253	ADHESIVE	35
1	1006415-091	BAND MARKER, CABLE	34
1	1006415-133	BAND MARKER, CABLE	33
2	1006415-087	BAND MARKER, CABLE	32
3	1006415-089	BAND MARKER, CABLE	31
1	1006415-134	BAND MARKER, CABLE	30
1	MS39056-7	BUSHING	29
1	MS39056-6	BUSHING	28
1	MS39056-5	BUSHING	27
2	MS39056-4	BUSHING	26
3	MS39056-3	BUSHING	25
5	MS39056-2	BUSHING	24
* 3.4	1006696-2	SLEEVING	23
1	MS3106A-36-9P	CONN	22
1	MS3126F-16-8S	CONN	21
1	MS3106A-20-4S	CONN	20
1	MS3126F-22-55S	CONN	19
3	MS3126F-10-6S	CONN	18
* 7.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/ORN/GY	17
* 20.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/ORN/GY	16
* 14.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/RED/GY	15
* 7.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/RED/GY	14
* 12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/RED/GY	13
* 12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BRN/GY	12
* 50.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BRN/GY	11
* 17.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/BLK/GY	10
* 4.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/BLK/GY	9
* 60.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BLK/GY	8
* 36.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BLK/GY	7
* 7.0	MIL-W-16878/4 E14	WIRE, ELEC, BLK	6
* 110.0	MIL-W-16878/4 E16	WIRE, ELEC, BLK	5
* 34.0	MIL-W-16878/4 E20	WIRE, ELEC, BLK	4
* 50.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT	3
* 24.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT	2
* 156.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 SEPT 65
CHECKED 4 Oct 65
APPROVAL 12 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C Sk 1/24/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

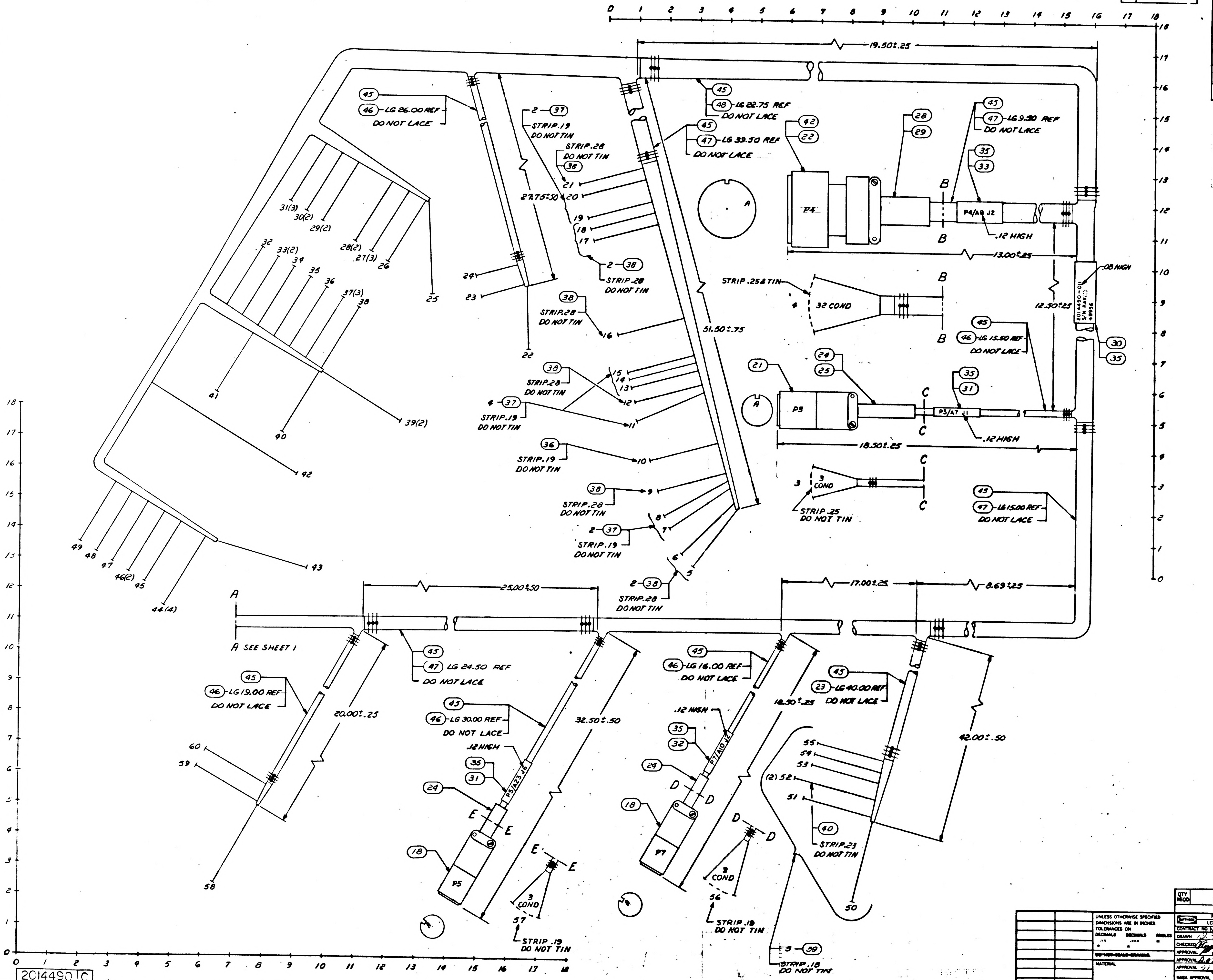
WIRING HARNESS, BRANCHED
POWER DISTRIBUTION
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014490
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014490 C

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25314		
1	CHANGED PER CCA 25410 DR P. CHK J. APPD	11/12/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25619 DR CHK APPD R.E.S.		
B	CHANGED PER CCA R25678 DR CHK APPD R.E.S.	1/ /66	
C	CHANGED PER CCA R25766 A CLASS A RELEASED PER TCRR		



19.50±.25
45
48 -LG 22.75 REF
DO NOT LACE
45
46 -LG 26.00 REF
DO NOT LACE
2 - 37
STRIP .19
DO NOT TIN
STRIP .28
DO NOT TIN
38
45
47 -LG 39.50 REF
DO NOT LACE
42
22
28
29
45
47 -LG 9.50 REF
DO NOT LACE
35
33
A
P4
B
B
P4/A8 J2
.12 HIGH
13.00±.25
.08 HIGH
2014490-011
S/N
RAY
49956
12.50±.25
30
35
27.75±.50
21
20
19
18
17
2 - 38
STRIP .28
DO NOT TIN
24
23
22
25
31(3)
30(2)
29(2)
28(2)
27(3)
26
32
33(2)
34
35
36
37(3)
38
41
40
39(2)
42
43
49
48
47
46(2)
45
44(4)
STRIP .25 & TIN
32 COND
B
B
38
STRIP .28
DO NOT TIN
16
51.50±.75
38
STRIP .28
DO NOT TIN
15
14
13
12
4 - 37
STRIP .19
DO NOT TIN
11
36
STRIP .19
DO NOT TIN
10
38
STRIP .28
DO NOT TIN
9
8
7
2 - 37
STRIP .19
DO NOT TIN
6
5
2 - 38
STRIP .28
DO NOT TIN
21
24
25
A
P3
C
C
P3/A7 J1
35
31
.12 HIGH
45
46 -LG 15.50 REF
DO NOT LACE
18.50±.25
3
3 COND
C
C
STRIP .25
DO NOT TIN
45
47 -LG 15.00 REF
DO NOT LACE
17.00±.25
8.69±.25
25.00±.50
A
A SEE SHEET 1
45
46 -LG 19.00 REF
DO NOT LACE
45
47 LG 24.50 REF
DO NOT LACE
20.00±.25
60
59
58
45
46 -LG 30.00 REF
DO NOT LACE
32.50±.50
.12 HIGH
35
31
P5/A23 J6
24
E
E
18
P5
E
E
3 COND
57
STRIP .19
DO NOT TIN
45
46 -LG 16.00 REF
DO NOT LACE
18.50±.25
.12 HIGH
35
32
P7/A10 J
24
D
D
18
P7
D
D
3 COND
56
STRIP .19
DO NOT TIN
45
23 -LG 40.00 REF
DO NOT LACE
42.00±.50
55
54
53
(2) 52
51
40
STRIP .23
DO NOT TIN
50
3 - 39
STRIP .18
DO NOT TIN

2014490 C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

~~DO NOT SCALE DRAWING~~

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 25SEP65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C Sterling 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER DISTRIBUTION
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014490
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014490 C

2014490 D

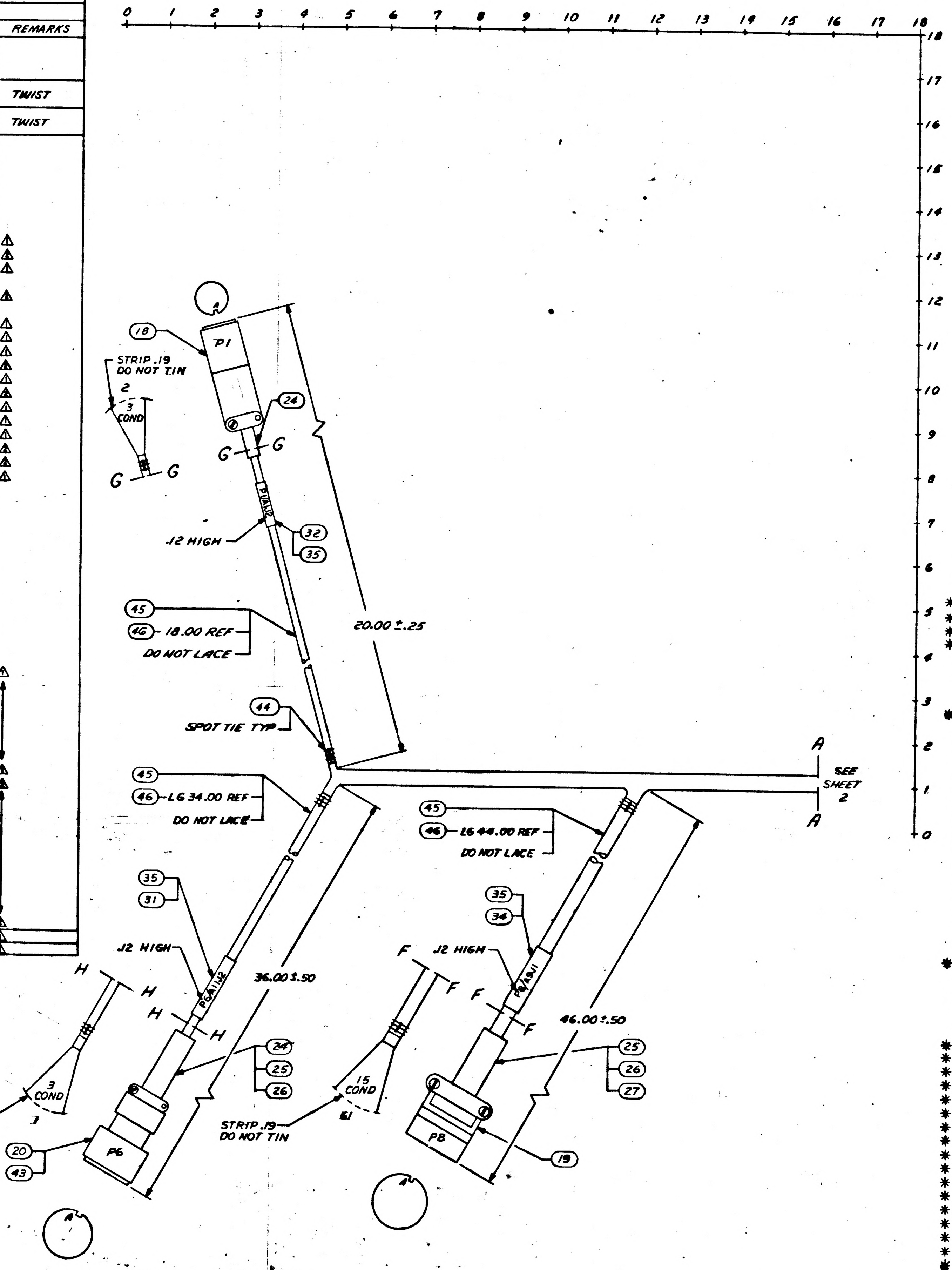
ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO.	STA NO.	DESTINATION	REMARKS
	A1	4	P4-P	BLK	20	4	56	P7-A	
	A2		-P	BLK		4	2	P1-A	
△	A3		-A	WHT/BRN/GY		11	61	P8-C	
	A4		-G	WHT/BRN/GY		11	2	P1-C	TWIST
	A5		-D	WHT/BLK/GY		7	2	P1-B	
	A6		-E	WHT/BLK/GY		7	56	P7-B	TWIST
△	A7		-U	WHT/BRN/GY		11	56	P7-C	
	A8		-B	WHT		1	61	P8-D	
	A9		-F	WHT		1	61	P8-B	
△	A10		-c	WHT/BRN/GY		11	61	P8-A	
	A11		-d	WHT		1	61	P8-J	
	A12		-e	WHT		1	61	P8-K	
	A13		-f	WHT		1	61	P8-L	
	A14		-J	WHT	20	1	61	P8-W	
△	A15		-C	WHT/BRN/GY	16	12	50	A16TB1-1	△
	A16		-O	WHT/ORN/GY		16	11	A22A3TB1-1	△
	A17		-R	WHT		2	38	A19TB4-7	△
△	A18		-W	WHT/RED/GY		13	3	P3-C	
	A19		-Z	WHT		2	15	A22A3TB1-6	△
△	A20		-a	WHT/ORN/GY		16	1	P6-A	
	A21		-b	WHT/RED/GY	16	13	58	A21TB1-3	△
	A22		-S	WHT/RED/GY	14	14	22	A5TB1-1	△
△	A23		-H	WHT/BLK/GY	12	10	27	A19TB5-6	△
	A24		-I	WHT		3	21	A22A2TB1-6	△
	A25		-K	WHT		3	44	A19TB1-6	△
	A26		-L	WHT		3	9	A22A1TB1-6	△
	A27		-M	WHT		3	30	A19TB5-2	△
	A28		-N	WHT		3	44	A19TB1-7	△
	A29		-T	WHT		3	41	A19TB3-3	△
△	A30		-V	WHT/ORN/GY		17	17	A22A2TB1-1	△
△	A31		-X	WHT/RED/GY		15	5	A22A1TB1-1	△
	A32	4	P4-Y	WHT	12	3	42	A19TB2-5	△
	A33	61	P8-b	WHT	20	1	57	P5-A	
△ △	A34	29	A19TB5-3	WHT/BLK/GY		7	61	P8-E	
	A35	39	A19TB4-8	WHT		1	61	P8-F	
	A36	39	A19TB3-8	WHT		1	61	P8-G	
	A37	49	A19TB1-1	BLK		4	61	P8-N	
	A38	40	A19TB3-7	WHT		1	61	P8-T	
	A39	43	A19TB1-8	WHT	20	1	61	P8-V	
	A40	37	A19TB4-6	BLK	16	5	3	P3-A	
△	A41	31	A19TB5-1	WHT/BLK/GY		8	3	P3-B	
	A42	37	A19TB4-6	BLK		5	57	P5-B	
△	A43	31	A19TB5-1	WHT/BLK/GY		8	57	P5-C	
	A44	35	A19TB4-4	BLK		5	1	P6-C	
△	A45	29	A19TB5-3	WHT/BLK/GY		8	1	P6-D	
	A46	37	A19TB4-6	BLK	16	5	24	A5TB1-3	△
△	A47	28	A19TB5-5	WHT/BLK/GY	14	9	23	A5TB1-2	
△	A48	30	A19TB5-2	WHT/BLK/GY	16	8	51	A16TB1-2	
	A49	34	A19TB4-3	BLK		5	53	A16TB1-5	
	A50	46	A19TB1-4	WHT		2	54	A16TB1-6	
	A51	46	A19TB1-4	WHT		2	55	A16TB1-7	
	A52	36	A19TB4-5	BLK		5	60	A21TB1-1	
△	A53	31	A19TB5-1	WHT/BLK/GY	16	8	59	A21TB1-2	△
	A54	45	A19TB1-5	WHT	20	1	10	A22A1TB1-10	△
	A55	48	A19TB1-2	BLK	16	5	7	A22A1TB1-[illegible]	
	A56	32	A19TB4-1	BLK	16	5	8	A22A1TB1-5	
△	A57	28	A19TB5-5	WHT/RED/GY	12	15	6	A22A1TB1-2	
	A58	33	A19TB4-2	BLK	16	5	20	A22A2TB1-5	
	A59	47	A19TB1-3	BLK	14	6	19	A22A2TB1-3	
△	A60	27	A19TB5-6	WHT/BLK/GY	12	10	18	A22A2TB1-2	
	A61	25	A19TB5-8	BLK	16	5	13	A22A3TB1-4	
	A62	33	A19TB4-2	BLK	16	5	14	A22A3TB1-5	
△	A63	27	A19TB5-6	WHT/BLK/GY	12	10	12	A22A3TB1-2	
	A64	26	A19TB5-7	WHT	12	3	16	A22A3TB1-11	△
	A65	52	A16TB1-4	WHT	12	3	44	A19TB1-6	△
△	A66	52	A16TB1-3	WHT	12	3	44	A19TB1-6	△

△1 ATTACH FIND 41 LG 1.25 ±.06 & SEE NOTE 3
△2 ATTACH FIND 41 LG 1.75 ±.06 & SEE NOTE 3
△3 ATTACH FIND 41 LG .75 ±.06 TO EACH END OF CONDUCTOR & SEE NOTE 2

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 44
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. MARK SLEEVING WITH REFERENCE DESIGNATIONS AS SHOWN USING BLACK INK 1006256-001 .12 HIGH, PER ND1002019
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. STRIP ALL LEADS .38 ±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. CRIMP PER ND1002206
7. SERIALIZE PER ND1002023
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
10. MIL-I-23053 CLASS I, COLOR WHITE, ID .125
11. AR DENOTES AS REQUIRED
12. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. SOLDER PER ND1002071



REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASE PER CCA R25314	10/14/65	[illegible]
1	CHANGED PER CCA 25410 DR P. Milner CHK J. [illegible] APPD [illegible]	11/12/65	[illegible]
-	CLASS B CHANGED PER CCA R25502	[illegible]	[illegible]
A	CHANGED PER CCA R 25619 DR [illegible] CHK [illegible] APPD [illegible]	12/20/65	[illegible]
B	CHANGED PER CCA R25678 DR [illegible] CHK [illegible] APPD [illegible]	1/14/66	[illegible]
C	CHANGED PER CCA R25766 AND CLASS A RELEASED PER TDRR 25872	1/14/66	[illegible]
D	CHANGED PER TDRR [illegible] DR [illegible] CHK R.W.E. APPD	2/24/66	[illegible]

LIST OF MATERIALS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014172	SCHEMATIC	REF
* 0.8	1006696-5	SLEEVING	49
* 2.0	1006696-7	SLEEVING	48
* 6.6	1006696-4	SLEEVING	47
* 16.9	1006696-1	SLEEVING	46
AR	1006699	SOLVENT	45
AR	1006458-004	TAPE, LACING	44
1	MS3057-12A	CLAMP, CABLE	43
1	MS3057-24A	CLAMP, CABLE	42
* 9.6	SEE NOTE 10	SLEEVING	41
1	MS17143-21	LUG, TERMINAL	40
5	MS25036-52	LUG, TERMINAL	39
8	1006431-010	LUG, TERMINAL	38
8	1006431-006	LUG, TERMINAL	37
1	1006431-002	LUG, TERMINAL	36
AR	1006253	ADHESIVE	35
1	1006415-091	BAND MARKER, CABLE	34
1	1006415-133	BAND MARKER, CABLE	33
2	1006415-087	BAND MARKER, CABLE	32
3	1006415-089	BAND MARKER, CABLE	31
1	1006415-134	BAND MARKER, CABLE	30
1	MS39056-7	BUSHING	29
1	MS39056-6	BUSHING	28
1	MS39056-5	BUSHING	27
2	MS39056-4	BUSHING	26
3	MS39056-3	BUSHING	25
5	MS39056-2	BUSHING	24
* 3.4	1006696-2	SLEEVING	23
1	MS3106A-36-9P	CONN	22
1	MS3126F-16-8S	CONN	21
1	MS3106A-20-4S	CONN	20
1	MS3126F-22-55S	CONN	19
3	MS3126F-10-6S	CONN	18
* 7.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/ORN/GY	17
* 20.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/ORN/GY	16
* 14.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/RED/GY	15
* 7.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/RED/GY	14
* 12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/RED/GY	13
* 12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BRN/GY	12
* 50.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BRN/GY	11
* 17.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/BLK/GY	10
* 4.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/BLK/GY	9
* 60.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BLK/GY	8
* 36.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BLK/GY	7
* 7.0	MIL-W-16878/4 E14	WIRE, ELEC, BLK	6
* 110.0	MIL-W-16878/4 E16	WIRE, ELEC, BLK	5
* 34.0	MIL-W-16878/4 E20	WIRE, ELEC, BLK	4
* 50.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT	3
* 24.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT	2
* 156.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 30 SEPT 65
CHECKED [illegible]
APPROVAL [illegible] 12-05-65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL C Starke 1/24/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER DISTRIBUTION
COMPUTER TEST SET

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014490

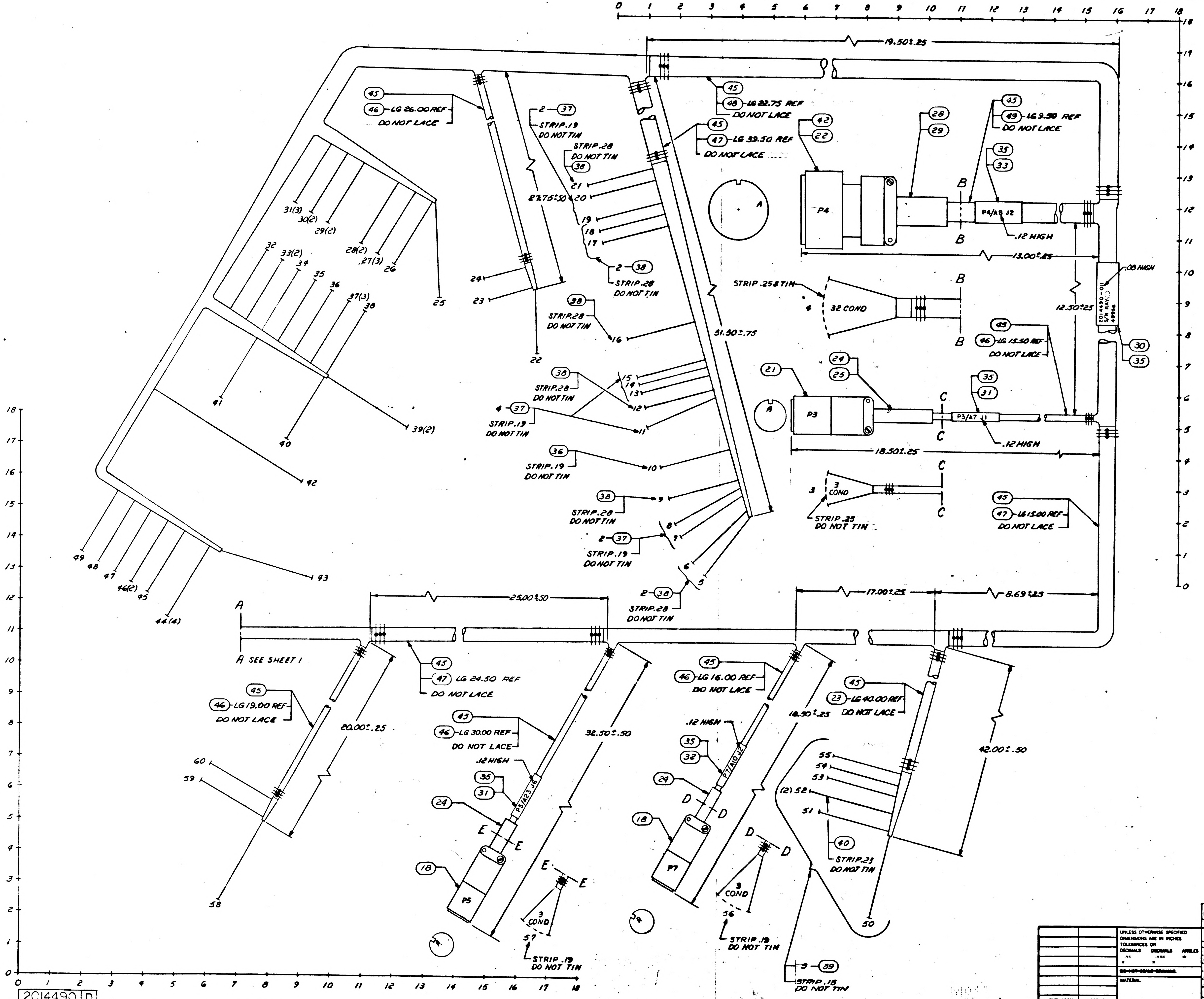
SCALE 1/1 WT SHEET 1 OF 2

2014490 D

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014490 D

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25314	[illegible]	[illegible]
1	CHANGED PER CCA 25410 DR R. [illegible] CHK J. [illegible] APPD [illegible]	11/12/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	12/[illegible]/65	[illegible]
A	CHANGED PER CCA R25619 DR [illegible] CHK [illegible] APPD P.E.R.	12/20/65	[illegible]
B	CHANGED PER CCA R25678 DR [illegible] CHK [illegible] APPD P.E.R.	1/17/66	[illegible]
C	CHANGED PER CCA R25766 AND CLASS A RELEASED PER TDRR 25472	1/18/66	[illegible]
D	CHANGED PER TDRR 25470 DR [illegible] CHK R.H.E. APPD	2/26/66	[illegible]


45
46 -LG 26.00 REF
DO NOT LACE
2 - 37
STRIP .19
DO NOT TIN
STRIP .28
DO NOT TIN
38
21
20
27.75±.50
19
18
17
2 - 38
STRIP .28
DO NOT TIN
24
23
22
25
38
STRIP .28
DO NOT TIN
16
45
48 -LG 22.75 REF
DO NOT LACE
45
47 -LG 39.50 REF
DO NOT LACE
51.50±.75
31(3)
30(2)
29(2)
32
33(2)
34
35
36
37(3)
38
28(2)
27(3)
26
41
40
39(2)
42
43
49
48
47
46(2)
45
44(4)
38
STRIP .28
DO NOT TIN
15
14
13
12
4 - 37
STRIP .19
DO NOT TIN
11
36
STRIP .19
DO NOT TIN
10
38
STRIP .28
DO NOT TIN
9
8
2 - 37
STRIP .19
DO NOT TIN
7
6
5
2 - 38
STRIP .28
DO NOT TIN
19.50±.25
42
22
28
29
45
49 -LG 9.50 REF
DO NOT LACE
35
33
A
P4
B
B
P4/A8 J2
.12 HIGH
13.00±.25
.08 HIGH
2014490-011
S/N RAY
49956
12.50±.25
STRIP .25 & TIN
4
32 COND
B
B
45
46 -LG 15.50 REF
DO NOT LACE
30
35
21
24
25
35
31
A
P3
C
C
P3/A7 J1
.12 HIGH
18.50±.25
3
3
COND
C
C
STRIP .25
DO NOT TIN
45
47 -LG 15.00 REF
DO NOT LACE
25.00±.50
17.00±.25
8.69±.25
A
A SEE SHEET 1
45
47 LG 24.50 REF
DO NOT LACE
45
46 -LG 19.00 REF
DO NOT LACE
20.00±.25
60
59
58
45
46 -LG 30.00 REF
DO NOT LACE
.12 HIGH
35
31
P5/A23 J6
24
E
E
18
P5
32.50±.50
E
E
3
COND
57
STRIP .19
DO NOT TIN
45
46 -LG 16.00 REF
DO NOT LACE
.12 HIGH
35
32
P7/A10 J2
24
D
D
18
P7
18.50±.25
D
D
3
COND
56
STRIP .19
DO NOT TIN
45
23 -LG 40.00 REF
DO NOT LACE
42.00±.50
55
54
53
(2) 52
51
40
STRIP .23
DO NOT TIN
50
3 - 39
STRIP .18
DO NOT TIN
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

~~DO NOT SCALE DRAWING~~

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 2 SEP 65
CHECKED [illegible] 4 Oct 65
APPROVAL [illegible] 4 Oct 65
APPROVAL D. O'[illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL C. Sterling 1/18/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER DISTRIBUTION
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014490
SCALE 1/1
WT
SHEET 2 OF 2

2014490 D

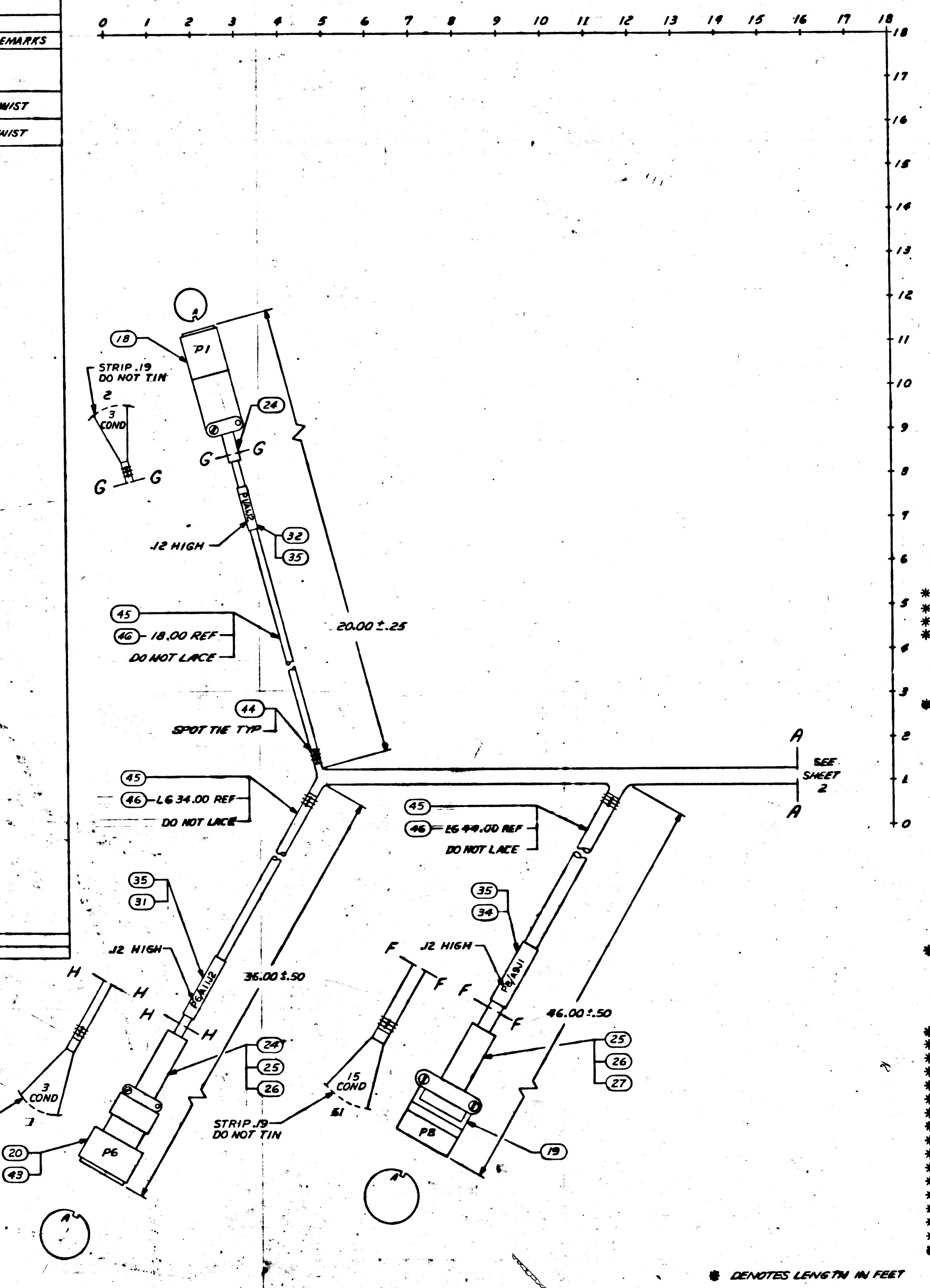
ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO.	STA NO.	DESTINATION	REMARKS
	A1	4	P4-P	BLK	20	4	56	P7-A	
	A2		-P	BLK		4	2	P1-A	
▲	A3		-A	WHT/BRN/GY		11	61	P8-C	
	A4		-G	WHT/BRN/GY		11	2	P1-C	TWIST
	A5		-D	WHT/BLK/GY		7	2	P1-B	
	A6		-E	WHT/BLK/GY		7	56	P7-B	TWIST
▲	A7		-U	WHT/BRN/GY		11	56	P7-C	
	A8		-B	WHT		1	61	P8-D	
	A9		-F	WHT		1	61	P8-B	
▲	A10		-c	WHT/BRN/GY		11	61	P8-A	
	A11		-d	WHT		1	61	P8-J	
	A12		-e	WHT		1	61	P8-K	
	A13		-f	WHT		1	61	P8-L	
	A14		-J	WHT	20	1	61	P8-W	
▲	A15		-C	WHT/BRN/GY	16	12	50	A16TB1-1	△
	A16		-O	WHT/ORN/GY		16	11	A22A3TB1-1	△
	A17		-R	WHT		2	38	A19TB4-7	△
▲	A18		-W	WHT/RED/GY		13	3	P3-C	
	A19		-Z	WHT		2	15	A22A3TB1-6	△
▲	A20		-a	WHT/ORN/GY		16	1	P6-A	
	A21		-b	WHT/RED/GY	16	13	58	A21TB1-3	△
	A22		-S	WHT/RED/GY	14	14	22	A5TB1-1	△
▲	A23		-H	WHT/BLK/GY	12	10	27	A19TB5-6	△
	A24		-I	WHT		3	21	A22A2TB1-6	△
	A25		-K	WHT		3	44	A19TB1-6	△
	A26		-L	WHT		3	9	A22A1TB1-6	△
	A27		-M	WHT		3	30	A19TB5-2	△
	A28		-N	WHT		3	44	A19TB1-7	△
	A29		-T	WHT		3	41	A19TB3-3	△
▲	A30		-V	WHT/ORN/GY		17	17	A22A2TB1-1	△
▲	A31		-X	WHT/RED/GY		15	5	A22A1TB1-1	△
	A32	4	P4-Y	WHT	12	3	42	A19TB2-5	△
	A33	61	P8-b	WHT	20	1	57	P5-A	
△ ▲	A34	29	A19TB5-3	WHT/BLK/GY		7	61	P8-E	
	A35	39	A19TB4-8	WHT		1	61	P8-F	
	A36	39	A19TB3-8	WHT		1	61	P8-G	
	A37	49	A19TB1-1	BLK		4	61	P8-N	
	A38	40	A19TB3-7	WHT		1	61	P8-T	
	A39	43	A19TB1-8	WHT	20	1	61	P8-V	
	A40	37	A19TB4-6	BLK	16	5	3	P3-A	
▲	A41	31	A19TB5-1	WHT/BLK/GY		8	3	P3-B	
	A42	37	A19TB4-6	BLK		5	57	P5-B	
▲	A43	31	A19TB5-1	WHT/BLK/GY		8	57	P5-C	
	A44	35	A19TB4-4	BLK		5	1	P6-C	
▲	A45	29	A19TB5-3	WHT/BLK/GY		8	1	P6-D	
	A46	37	A19TB4-6	BLK	16	5	24	A5TB1-3	△
▲	A47	28	A19TB5-5	WHT/BLK/GY	14	9	23	A5TB1-2	
▲	A48	30	A19TB5-2	WHT/BLK/GY	16	8	51	A16TB1-2	
	A49	39	A19TB4-3	BLK		5	53	A16TB1-5	
	A50	46	A19TB1-4	WHT		2	54	A16TB1-6	
	A51	46	A19TB1-4	WHT		2	55	A16TB1-7	
	A52	36	A19TB4-5	BLK		5	60	A21TB1-1	
▲	A53	31	A19TB5-1	WHT/BLK/GY	16	8	59	A21TB1-2	△
	A54	45	A19TB1-5	WHT	20	1	10	A22A1TB1-10	▲
	A55	48	A19TB1-2	BLK	16	5	7	A22A1TB1-4	
	A56	32	A19TB4-1	BLK	16	5	8	A22A1TB1-5	
▲	A57	28	A19TB5-5	WHT/RED/GY	12	15	6	A22A1TB1-2	
	A58	33	A19TB4-2	BLK	16	5	20	A22A2TB1-5	
	A59	47	A19TB1-3	BLK	14	6	19	A22A2TB1-3	
▲	A60	27	A19TB5-6	WHT/BLK/GY	12	10	18	A22A2TB1-2	
	A61	25	A19TB5-8	BLK	16	5	13	A22A3TB1-4	
	A62	33	A19TB4-2	BLK	16	5	14	A22A3TB1-5	
▲	A63	27	A19TB5-6	WHT/BLK/GY	12	10	12	A22A3TB1-2	
	A69	26	A19TB5-7	WHT	12	3	16	A22A3TB1-11	▲
	A65	52	A16TB1-4	WHT	12	3	44	A19TB1-6	△
△	A66	52	A16TB1-3	WHT	12	3	44	A19TB1-6	△

△ ATTACH FIND 41 LG 1.25 ±.06 & SEE NOTE 3

△ ATTACH FIND 41 LG 1.75 ±.06 & SEE NOTE 3

▲ ATTACH FIND 41 LG .75 ±.06 TO EACH END OF CONDUCTOR & SEE NOTE 2



REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASE PER CCA R25314		
1	CHANGED PER CCA 25410 DR P. Miller CHK J. APPD		
–	CLASS B CHANGED PER CCAR25502		
A	CHANGED PER CCA R 25619 DR CHK APPD		
B	CHANGED PER CCA R25678 DR CHK APPD	/66	
C	CHANGED PER CCA R25766 AND CLASS A RELEASED PER TDRR	/66	
D	CHANGED PER TDRR25470 DR CHK APPD	/24/66	
E	CHANGED PER TDRR 26471 DR CHK APPD	/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014172	SCHEMATIC	REF
* 0.8	1006696-5	SLEEVING	49
* 2.0	1006696-7	SLEEVING	48
* 6.6	1006696-4	SLEEVING	47
* 6.9	1006696-1	SLEEVING	46
AR	1006699	SOLVENT	45
AR	1006458-009	TAPE, LACING	44
1	MS3057-12A	CLAMP, CABLE	43
1	MS3057-24A	CLAMP, CABLE	42
* 9.6	SEE NOTE 10	SLEEVING	41
1	MS17143-21	LUG, TERMINAL	40
5	MS25036-52	LUG, TERMINAL	39
8	1006431-010	LUG, TERMINAL	38
8	MS25036-6	LUG, TERMINAL	37
1	MS25036-1	LUG, TERMINAL	36
AR	1006253	ADHESIVE	35
1	1006415-091	BAND MARKER, CABLE	34
1	1006415-133	BAND MARKER, CABLE	33
2	1006415-087	BAND MARKER, CABLE	32
3	1006415-089	BAND MARKER, CABLE	31
1	1006415-134	BAND MARKER, CABLE	30
1	MS39056-7	BUSHING	29
1	MS39056-6	BUSHING	28
1	MS39056-5	BUSHING	27
2	MS39056-4	BUSHING	26
3	MS39056-3	BUSHING	25
5	MS39056-2	BUSHING	24
* 3.4	1006696-2	SLEEVING	23
1	MS3106A-36-9P	CONN	22
1	MS3126F-16-8S	CONN	21
1	MS3106A-20-4S	CONN	20
1	MS3126F-22-55S	CONN	19
3	MS3126F-10-6S	CONN	18
* 7.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/ORN/GY	17
* 20.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/ORN/GY	16
* 14.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/RED/GY	15
* 7.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/RED/GY	14
* 12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/RED/GY	13
* 12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BRN/GY	12
* 50.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BRN/GY	11
* 17.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/BLK/GY	10
* 4.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/BLK/GY	9
* 60.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BLK/GY	8
* 36.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BLK/GY	7
* 7.0	MIL-W-16878/4 E14	WIRE, ELEC, BLK	6
* 110.0	MIL-W-16878/4 E16	WIRE, ELEC, BLK	5
* 34.0	MIL-W-16878/4 E20	WIRE, ELEC, BLK	4
* 50.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT	3
* 24.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT	2
* 156.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND 44
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. MARK SLEEVING WITH REFERENCE DESIGNATIONS AS SHOWN USING BLACK INK 1006256-001 .12 HIGH, PER ND1002019
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. STRIP ALL LEADS .38 ±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. CRIMP PER ND1002206
7. SERIALIZE PER ND1002023
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
10. MIL-I-23053 CLASS 1, COLOR WHITE, ID .125
11. AR DENOTES AS REQUIRED
12. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. SOLDER PER ND1002071

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 SEPT 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C S

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

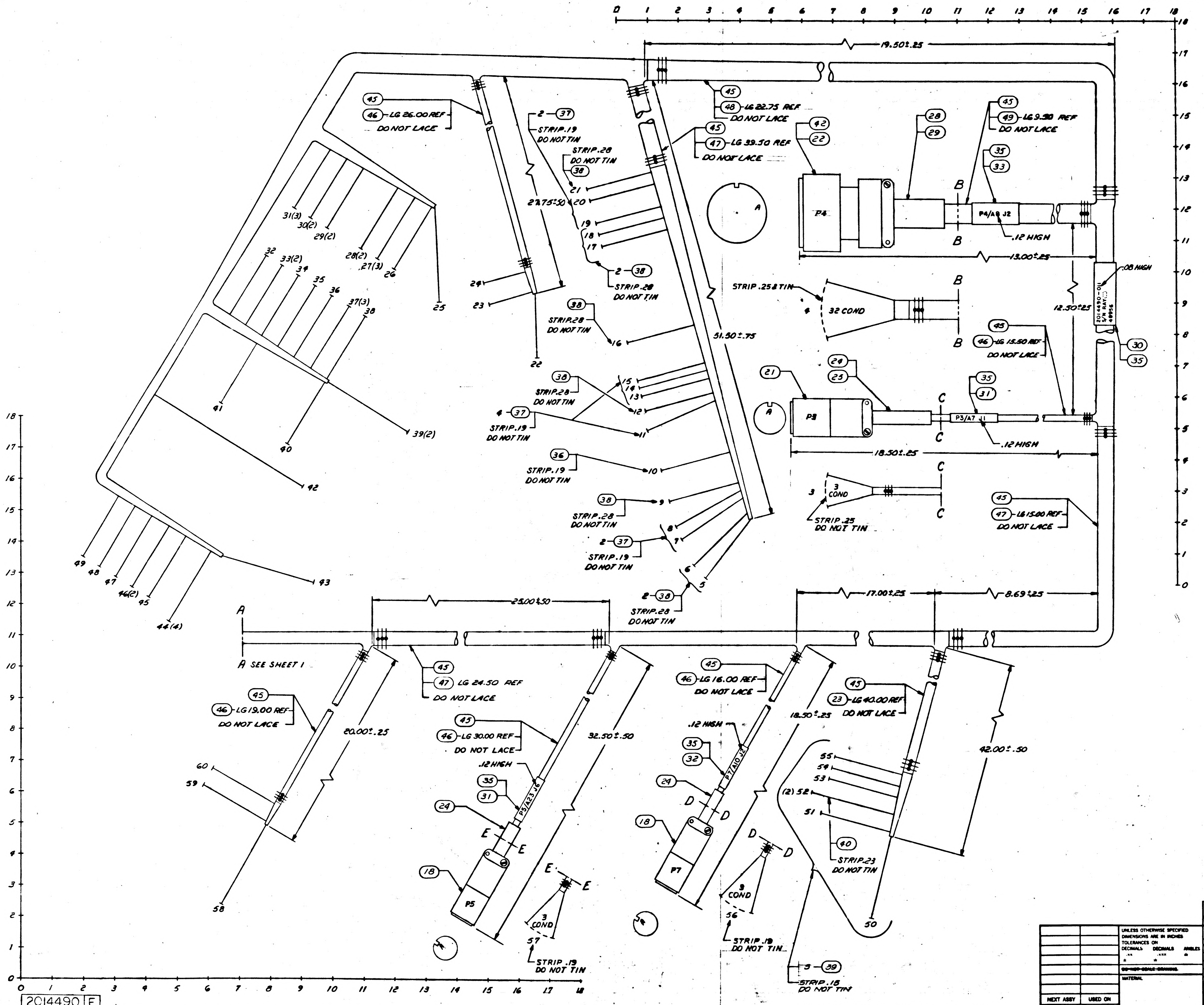
WIRING HARNESS, BRANCHED
POWER DISTRIBUTION
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014490
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014490 E

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25314		
1	CHANGED PER CCA 25410 DR R. [illegible] CHK J. [illegible] APPD [illegible]	11/12/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25619 DR [illegible] CHK [illegible] APPD P.C.D.	12/20/65	
B	CHANGED PER CCA R25678 DR [illegible] CHK [illegible] APPD P.C.D	1/11/66	
C	CHANGED PER CCA R25766 AND CLASS A RELEASED PER TDRR 25472	1/18/66	
D	CHANGED PER TDRR 25470 DR [illegible] CHK R.H.E APPD [illegible]	2/2/66	
E	CHANGED PER TDRR 36471 DR A.J. Brown CHK [illegible] APPD [illegible]	3/ /6	



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19.50±.25
45
46 LG 26.00 REF
DO NOT LACE
45
48 LG 22.75 REF
DO NOT LACE
45
47 LG 39.50 REF
DO NOT LACE
2 37
STRIP .19
DO NOT TIN
STRIP .28
DO NOT TIN
38
21
20
19
18
17
27.75±.50
2 38
STRIP .28
DO NOT TIN
42
22
28
29
45
49 LG 9.50 REF
DO NOT LACE
35
33
A
P4
B
B
P4/A8 J2
.12 HIGH
13.00±.25
31(3)
30(2)
29(2)
28(2)
27(3)
26
25
32
33(2)
34
35
36
37(3)
38
24
23
22
41
40
39(2)
42
43
49
48
47
46(2)
45
44(4)
38
STRIP .28
DO NOT TIN
16
STRIP .25 & TIN
32 COND
B
B
.08 HIGH
2014490-011 S/N RAY. 49956
12.50±.25
30
35
45
46 LG 15.50 REF
DO NOT LACE
38
STRIP .28
DO NOT TIN
15
14
13
12
4 37
STRIP .19
DO NOT TIN
11
36
STRIP .19
DO NOT TIN
10
38
STRIP .28
DO NOT TIN
9
8
7
2 37
STRIP .19
DO NOT TIN
6
5
2 38
STRIP .28
DO NOT TIN
51.50±.75
21
24
25
35
31
A
P3
C
C
P3/A7 J1
.12 HIGH
18.50±.25
3
3 COND
C
C
STRIP .25
DO NOT TIN
45
47 LG 15.00 REF
DO NOT LACE
25.00±.50
17.00±.25
8.69±.25
A
A SEE SHEET 1
45
47 LG 24.50 REF
DO NOT LACE
45
46 LG 19.00 REF
DO NOT LACE
20.00±.25
60
59
58
45
46 LG 30.00 REF
DO NOT LACE
.12 HIGH
35
31
P5/A23 J6
24
E
E
18
P5
32.50±.50
E
E
3 COND
57
STRIP .19
DO NOT TIN
45
46 LG 16.00 REF
DO NOT LACE
.12 HIGH
35
32
P7/A10 J2
24
D
D
18
P7
18.50±.25
D
D
3 COND
56
STRIP .19
DO NOT TIN
5 39
STRIP .18
DO NOT TIN
45
23 LG 40.00 REF
DO NOT LACE
55
54
53
(2) 52
51
40
STRIP .23
DO NOT TIN
50
42.00±.50

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

~~DO NOT SCALE DRAWING~~

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 25SEP65
CHECKED [illegible] 4 Oct 65
APPROVAL [illegible] 12 Oct 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL C. Sperling 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER DISTRIBUTION
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014490
SCALE 1/1
WT
SHEET 2 OF 2

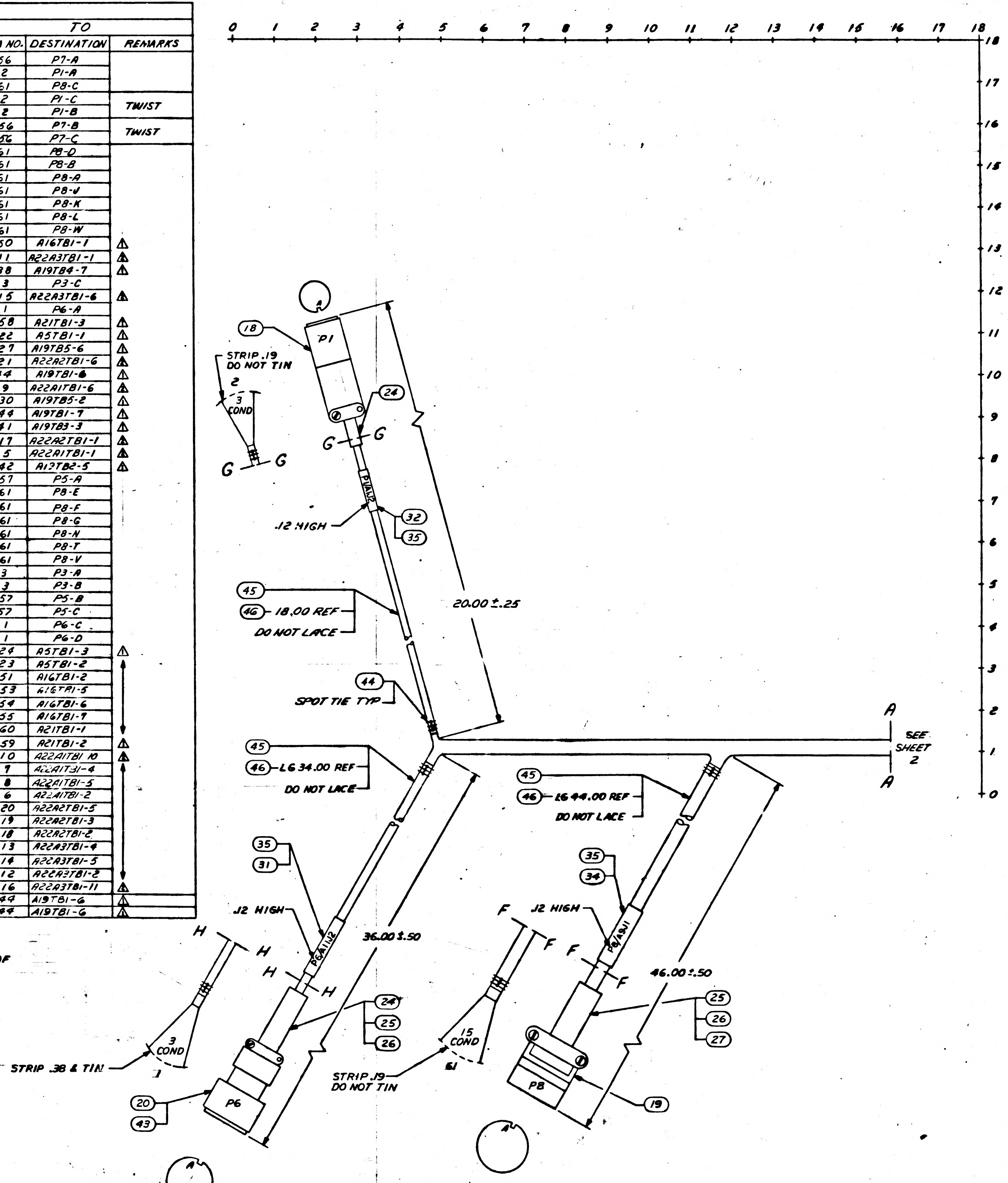
2014490 E

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO.	STA NO.	DESTINATION	REMARKS
	A1	4	P4-P	BLK	20	4	56	P7-A	
	A2		-P	BLK		4	2	P1-A	
△	A3		-A	WHT/BRN/GY		11	61	P8-C	
	A4		-G	WHT/BRN/GY		11	2	P1-C	TWIST
	A5		-D	WHT/BLK/GY		7	2	P1-B	
	A6		-E	WHT/BLK/GY		7	56	P7-B	TWIST
△	A7		-U	WHT/BRN/GY		11	56	P7-C	
	A8		-B	WHT		1	61	P8-D	
	A9		-F	WHT		1	61	P8-B	
△	A10		-c	WHT/BRN/GY		11	61	P8-A	
	A11		-d	WHT		1	61	P8-J	
	A12		-e	WHT		1	61	P8-K	
	A13		-f	WHT		1	61	P8-L	
	A14		-J	WHT	20	1	61	P8-W	
△	A15		-C	WHT/BRN/GY	16	12	50	A16TB1-1	△
	A16		-O	WHT/ORN/GY		16	11	A22A3TB1-1	△
	A17		-R	WHT		2	38	A19TB4-7	△
△	A18		-W	WHT/RED/GY		13	3	P3-C	
	A19		-Z	WHT		2	15	A22A3TB1-6	△
△	A20		-a	WHT/ORN/GY		16	1	P6-A	
	A21		-b	WHT/RED/GY	16	13	58	A21TB1-3	△
	A22		-S	WHT/RED/GY	14	14	22	A5TB1-1	△
△	A23		-H	WHT/BLK/GY	12	10	27	A19TB5-6	△
	A24		-I	WHT		3	21	A22A2TB1-6	△
	A25		-K	WHT		3	44	A19TB1-6	△
	A26		-L	WHT		3	9	A22A1TB1-6	△
	A27		-M	WHT		3	30	A19TB5-2	△
	A28		-N	WHT		3	44	A19TB1-7	△
	A29		-T	WHT		3	41	A19TB3-3	△
△	A30		-V	WHT/ORN/GY		17	17	A22A2TB1-1	△
△	A31		-X	WHT/RED/GY		15	5	A22A1TB1-1	△
	A32	4	P4-Y	WHT	12	3	42	A12TB2-5	△
	A33	61	P8-b	WHT	20	1	57	P5-A	
△ △	A34	29	A19TB5-3	WHT/BLK/GY		7	61	P8-E	
	A35	39	A19TB4-8	WHT		1	61	P8-F	
	A36	39	A19TB3-8	WHT		1	61	P8-G	
	A37	49	A19TB1-1	BLK		4	61	P8-N	
	A38	40	A19TB3-7	WHT		1	61	P8-T	
	A39	43	A19TB1-8	WHT	20	1	61	P8-V	
	A40	37	A19TB4-6	BLK	16	5	3	P3-A	
△	A41	31	A19TB5-1	WHT/BLK/GY	16	8	3	P3-B	
	A42	37	A19TB4-6	BLK	20	4	57	P5-B	
△	A43	31	A19TB5-1	WHT/BLK/GY	20	7	57	P5-C	
	A44	35	A19TB4-4	BLK	16	5	1	P6-C	
△	A45	29	A19TB5-3	WHT/BLK/GY	16	8	1	P6-D	
	A46	37	A19TB4-6	BLK	16	5	24	A5TB1-3	△
△	A47	28	A19TB5-5	WHT/BLK/GY	14	9	23	A5TB1-2	
△	A48	30	A19TB5-2	WHT/BLK/GY	16	8	51	A16TB1-2	
	A49	34	A19TB4-3	BLK		5	53	A16TB1-5	
	A50	46	A19TB1-4	WHT		2	54	A16TB1-6	
	A51	46	A19TB1-4	WHT		2	55	A16TB1-7	
	A52	36	A19TB4-5	BLK		5	60	A21TB1-1	
△	A53	31	A19TB5-1	WHT/BLK/GY	16	8	59	A21TB1-2	△
	A54	45	A19TB1-5	WHT	20	1	10	A22A1TB1-10	△
	A55	48	A19TB1-2	BLK	16	5	7	A22A1TB1-4	
	A56	32	A19TB4-1	BLK	16	5	8	A22A1TB1-5	
△	A57	28	A19TB5-5	WHT/RED/GY	12	15	6	A22A1TB1-2	
	A58	33	A19TB4-2	BLK	16	5	20	A22A2TB1-5	
	A59	47	A19TB1-3	BLK	14	6	19	A22A2TB1-3	
△	A60	27	A19TB5-6	WHT/BLK/GY	12	10	18	A22A2TB1-2	
	A61	25	A19TB5-8	BLK	16	5	13	A22A3TB1-4	
	A62	33	A19TB4-2	BLK	16	5	14	A22A3TB1-5	
△	A63	27	A19TB5-6	WHT/BLK/GY	12	10	12	A22A3TB1-2	
	A64	26	A19TB5-7	WHT	12	3	16	A22A3TB1-11	△
	A65	52	A16TB1-4	WHT	12	3	44	A19TB1-6	△
△	A66	52	A16TB1-3	WHT	12	3	44	A19TB1-6	△

△ ATTACH FIND 41 LG 1.25 ±.06 & SEE NOTE 3
△ ATTACH FIND 41 LG 1.75 ±.06 & SEE NOTE 3
△ ATTACH FIND 41 LG .75 ±.06 TO EACH END OF CONDUCTOR & SEE NOTE 2

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND 44
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. MARK SLEEVING WITH REFERENCE DESIGNATIONS AS SHOWN USING BLACK INK 1006256-001 .12 HIGH, PER ND1002019
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. STRIP ALL LEADS .38 ±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. CRIMP PER ND1002206
7. SERIALIZE PER ND1002023
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
10. MIL-I-23053 CLASS I, COLOR WHITE, ID .125
11. AR DENOTES AS REQUIRED
12. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. SOLDER PER ND1002071



✱ DENOTES LENGTH IN FEET

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASE PER CCA R25314	10 NOV 65	
1	CHANGED PER CCA 25410 DR P. Milan CHK J. [illegible] APPD [illegible]	11/12/65	
-	CLASS B CHANGED PER CCAR25502		
A	CHANGED PER CCA R 25619 DR [illegible] CHK [illegible] APPD RCD		
B	CHANGED PER CCA R25678 DR [illegible] CHK [illegible] APPD RCD	1/14/66	
C	CHANGED PER CCA R25766 AND CLASS A RELEASED PER TDRR 25872	1/14/66	
D	CHANGED PER TDRR 26470 DR [illegible] CHK R.W.E. APPD [illegible]	2/2/66	
E	CHANGED PER TDRR 26471 DR G.J. [illegible] CHK [illegible] APPD [illegible]	3/4/66	
F	CHANGED PER TDRR 26472 DR [illegible] CHK [illegible] APPD [illegible]	3/12/66	

LIST OF MATERIALS

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014172	SCHEMATIC	REF
✱	0.8	1006696-5	SLEEVING	49
✱	2.0	1006696-7	SLEEVING	48
✱	6.6	1006696-4	SLEEVING	47
✱	16.9	1006696-1	SLEEVING	46
	AR	1006699	SOLVENT	45
	AR	1006458-004	TAPE, LACING	44
	1	MS3057-12A	CLAMP, CABLE	43
	1	MS3057-24A	CLAMP, CABLE	42
✱	9.6	SEE NOTE 10	SLEEVING	41
	1	MS17143-21	LUG, TERMINAL	40
	5	MS25036-52	LUG, TERMINAL	39
	8	1006431-010	LUG, TERMINAL	38
	8	MS25036-6	LUG, TERMINAL	37
	1	MS25036-1	LUG, TERMINAL	36
	AR	1006253	ADHESIVE	35
	1	1006415-091	BAND MARKER, CABLE	34
	1	1006415-133	BAND MARKER, CABLE	33
	2	1006415-087	BAND MARKER, CABLE	32
	3	1006415-089	BAND MARKER, CABLE	31
	1	1006415-134	BAND MARKER, CABLE	30
	1	MS39056-7	BUSHING	29
	1	MS39056-6	BUSHING	28
	1	MS39056-5	BUSHING	27
	2	MS39056-4	BUSHING	26
	3	MS39056-3	BUSHING	25
	5	MS39056-2	BUSHING	24
✱	3.4	1006696-2	SLEEVING	23
	1	MS3106A-36-9P	CONN	22
	1	MS3126F-16-8S	CONN	21
	1	MS3106A-20-4S	CONN	20
	1	MS3126F-22-55S	CONN	19
	3	MS3126F-10-6S	CONN	18
✱	7.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/ORN/GY	17
✱	20.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/ORN/GY	16
✱	14.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/RED/GY	15
✱	7.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/RED/GY	14
✱	12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/RED/GY	13
✱	12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BRN/GY	12
✱	50.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BRN/GY	11
✱	17.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/BLK/GY	10
✱	4.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/BLK/GY	9
✱	50.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BLK/GY	8
✱	48.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BLK/GY	7
✱	7.0	MIL-W-16878/4 E14	WIRE, ELEC, BLK	6
✱	100.0	MIL-W-16878/4 E16	WIRE, ELEC, BLK	5
✱	45.0	MIL-W-16878/4 E20	WIRE, ELEC, BLK	4
✱	50.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT	3
✱	29.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT	2
✱	156.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
2014042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ± °
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 30 SEPT 65
CHECKED [illegible] 4 Oct 65
APPROVAL [illegible] 12 Oct 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. S[illegible] 11/4/65

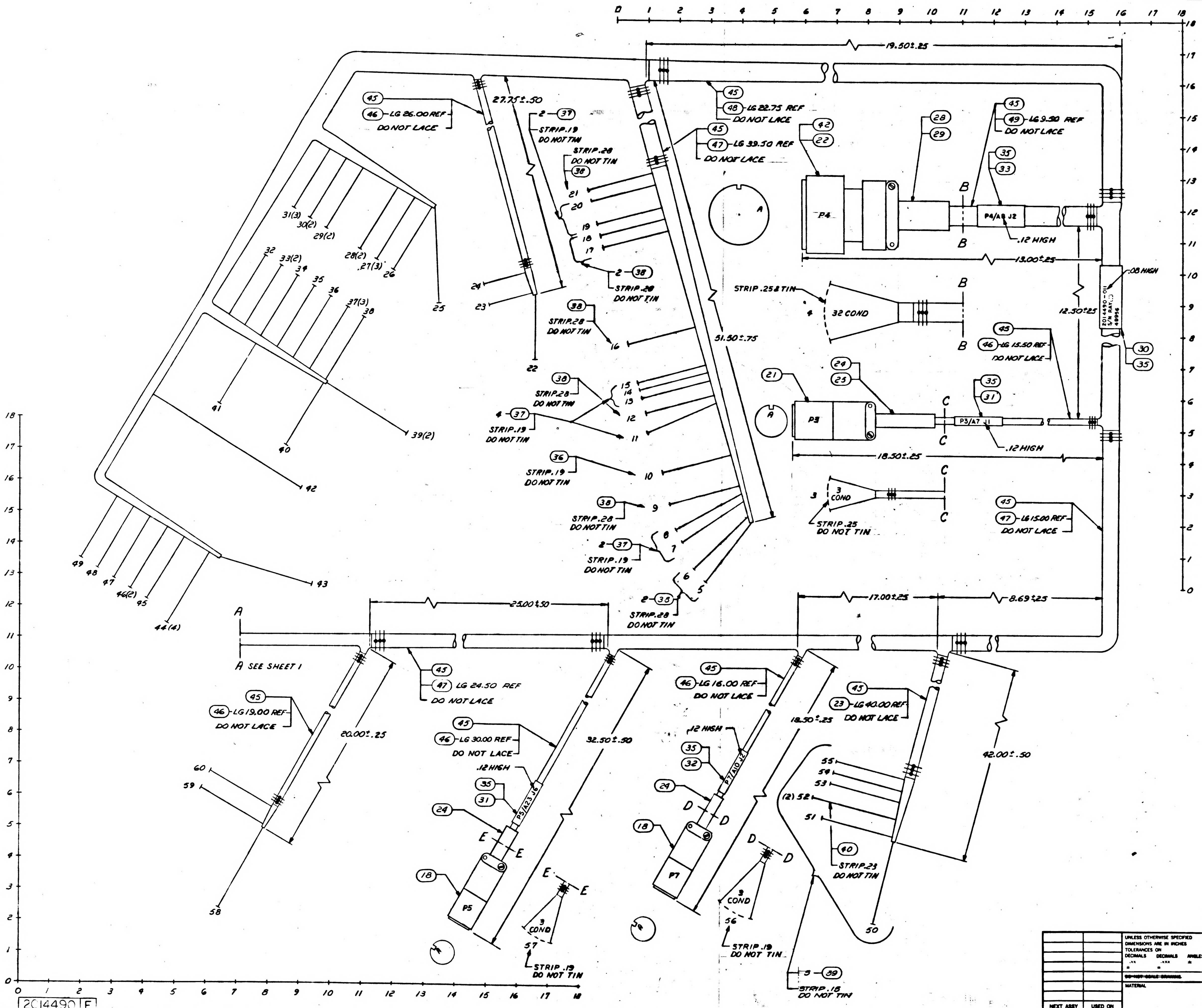
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED POWER DISTRIBUTION COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014490
SCALE 1/1
WT
SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25314	11/4/65	U. Hoover
1	CHANGED PER CCA 25410 DR R. Miller CHK J. Y APPD	11/12/65	
—	CLASS B CHANGED PER CCAR25502		
A	CHANGED PER CCA R25619 DR CHK APPD P.E.D.	1/4/66	
B	CHANGED PER CCA R25678 DR CHK APPD P.E.D.	1/13/66	
C	CHANGED PER CCA R25766 AND CLASS A RELEASED PER TDRR 25477	1/18/66	
D	CHANGED PER TDRR 26470 DR CHK RHE APPD	3/2/66	
E	CHANGED PER TDRR 26471 DR A.J. Brown CHK APPD	3/2/66	
F	CHANGED PER TDRR 26472 DR Thomas CHD APPD	3/19/66	



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19.50±.25
27.75±.50
45
46 -LG 26.00 REF
DO NOT LACE
2 - 37
STRIP.19
DO NOT TIN
STRIP.28
DO NOT TIN
38
45
48 -LG 22.75 REF
DO NOT LACE
45
47 -LG 39.50 REF
DO NOT LACE
42
22
28
29
45
49 -LG 9.50 REF
DO NOT LACE
35
33
P4
P4/A8 J2
.12 HIGH
B
13.00±.25
A
31(3)
30(2)
29(2)
28(2)
27(3)
26
25
32
33(2)
34
35
36
37(3)
38
24
23
22
21
20
19
18
17
16
2 - 38
STRIP.28
DO NOT TIN
38
STRIP.28
DO NOT TIN
STRIP .25 & TIN
4
32 COND
12.50±.25
2014490-011
S/N RAY
49956
.08 HIGH
30
35
51.50±.75
45
46 -LG 15.50 REF
DO NOT LACE
41
40
39(2)
42
43
49
48
47
46(2)
45
44(4)
38
STRIP.28
DO NOT TIN
15
14
13
12
11
4 - 37
STRIP.19
DO NOT TIN
36
STRIP.19
DO NOT TIN
10
38
STRIP.28
DO NOT TIN
9
8
7
2 - 37
STRIP.19
DO NOT TIN
6
5
2 - 38
STRIP.28
DO NOT TIN
21
24
25
P3
35
31
C
P3/A7 J1
.12 HIGH
18.50±.25
3
3 COND
STRIP.25
DO NOT TIN
45
47 -LG 15.00 REF
DO NOT LACE
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
25.00±.50
17.00±.25
8.69±.25
A
A SEE SHEET 1
45
47 LG 24.50 REF
DO NOT LACE
45
46 -LG 19.00 REF
DO NOT LACE
20.00±.25
60
59
58
45
46 -LG 30.00 REF
DO NOT LACE
.12 HIGH
35
31
P5/A23 J6
24
E
18
P5
32.50±.50
3 COND
57
STRIP .19
DO NOT TIN
45
46 -LG 16.00 REF
DO NOT LACE
.12 HIGH
35
32
P7/A10 J2
24
D
18
P7
18.50±.25
3 COND
56
STRIP .19
DO NOT TIN
45
23 -LG 40.00 REF
DO NOT LACE
42.00±.50
55
54
53
(2) 52
51
40
STRIP.23
DO NOT TIN
50
5 - 39
STRIP .18
DO NOT TIN

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

~~DO NOT SCALE DRAWING~~

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 25SEP65
CHECKED 4 Oct 65
APPROVAL 12 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL 1/21/66
MIT APPROVAL C. Snerly 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER DISTRIBUTION
COMPUTER TEST SET

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014490

SCALE 1/1 WT SHEET 2 OF 2

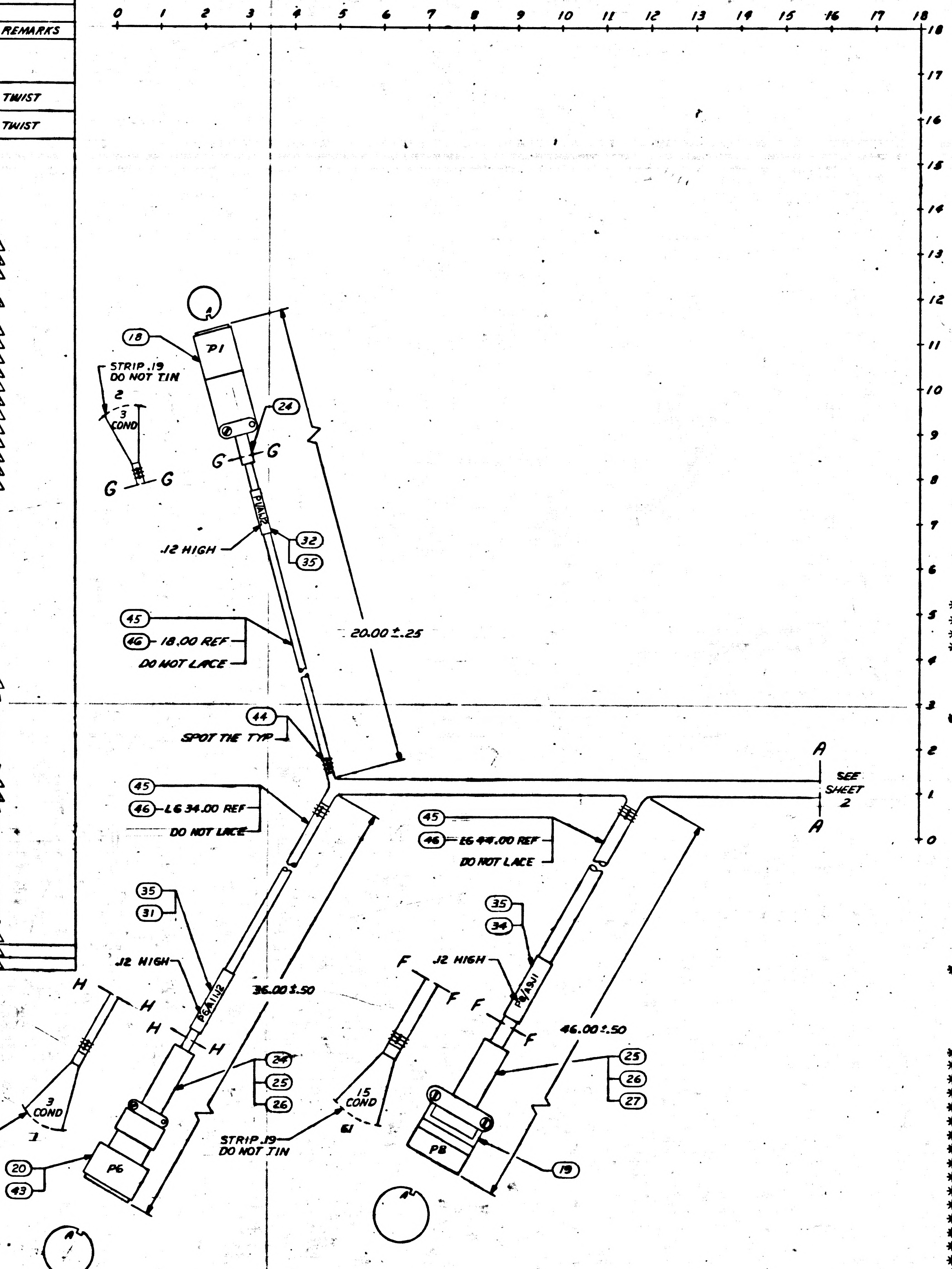
2014490 G

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASE PER CCA R25314	[illegible]	[illegible]
1	CHANGED PER CCA 25410 DR P. Milner CHK J. [illegible] APPD [illegible]	11/12/65	[illegible]
–	CLASS B CHANGED PER CCAR25502	[illegible]	[illegible]
A	CHANGED PER CCA R 25619 DR [illegible] CHK [illegible] APPD [illegible]	12/10/65	[illegible]
B	CHANGED PER CCA R25676 DR [illegible] CHK [illegible] APPD [illegible]	1/17/66	[illegible]
C	CHANGED PER CCA R25766 AND CLASS A RELEASED PER TDRR 26472	1/18/66	[illegible]
D	CHANGED PER TDRR 26470 DR [illegible] CHK R.W.E. APPD [illegible]	2/24/66	[illegible]
E	CHANGED PER TDRR 26471 DR G.J. [illegible] CHK [illegible] APPD [illegible]	3/7/66	[illegible]
F	CHANGED PER TDRR 26472 DR [illegible] CHK [illegible] APPD [illegible]	3/17/66	[illegible]
G	CHANGED PER TDRR 26473 DR [illegible] CHK [illegible] APPD [illegible]	4/4/66	[illegible]

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO.	STA NO.	DESTINATION	REMARKS
	A1	4	P4-P	BLK	20	4	56	P7-A	
	A2	↑	↑ -P	BLK	↑	4	2	P1-A	
▲	A3		-A	WHT/BRN/GY		11	61	P8-C	
↑	A4		-G	WHT/BRN/GY		11	2	P1-C	TWIST
	A5		-D	WHT/BLK/GY		7	2	P1-B	
↓	A6		-E	WHT/BLK/GY		7	56	P7-B	TWIST
▲	A7		-U	WHT/BRN/GY		11	56	P7-C	
	A8		-B	WHT		1	61	P8-D	
	A9		-F	WHT		1	61	P8-B	
▲	A10		-c	WHT/BRN/GY		11	61	P8-A	
	A11		-d	WHT		1	61	P8-J	
	A12		-e	WHT		1	61	P8-K	
	A13		-f	WHT	↓	1	61	P8-L	
	A14		-J	WHT	20	1	61	P8-W	
▲	A15		-C	WHT/BRN/GY	16	12	50	A16TB1-1	△
	A16		-O	WHT/ORN/GY	↑	16	11	A22A3TB1-1	▲
	A17		-R	WHT		2	38	A19TB4-7	▲
▲	A18		-W	WHT/RED/GY		13	3	P3-C	
	A19		-Z	WHT		2	15	A22A3TB1-6	▲
▲	A20		-a	WHT/ORN/GY	↓	16	1	P6-A	
↑	A21		-b	WHT/RED/GY	16	13	58	A21TB1-3	△
↓	A22		-S	WHT/RED/GY	14	14	22	A5TB1-1	△
▲	A23		-H	WHT/BLK/GY	12	10	27	A19TB5-6	△
	A24		-I	WHT	↑	3	21	A22A2TB1-6	▲
	A25		-K	WHT		3	44	A19TB1-6	△
	A26		-L	WHT		3	9	A22A1TB1-6	▲
	A27		-M	WHT		3	30	A19TB5-2	△
	A28		-N	WHT		3	44	A19TB1-7	△
	A29		-T	WHT		3	41	A19TB3-3	△
▲	A30		-V	WHT/ORN/GY		17	17	A22A2TB1-1	▲
▲	A31	↓	↓ -X	WHT/RED/GY	↓	15	5	A22A1TB1-1	▲
	A32	4	P4-Y	WHT	12	3	42	A19TB2-5	▲
	A33	61	P8-b	WHT	20	1	57	P5-A	
△ ▲	A34	29	A19TB5-3	WHT/BLK/GY	↑	7	61	P8-E	
↑	A35	39	A19TB4-8	WHT		1	61	P8-F	
	A36	39	A19TB3-8	WHT		1	61	P8-G	
	A37	49	A19TB1-1	BLK		4	61	P8-N	
	A38	40	A19TB3-7	WHT	↓	1	61	P8-T	
	A39	43	A19TB1-8	WHT	20	1	61	P8-V	
	A40	37	A19TB4-6	BLK	16	5	3	P3-A	
▲	A41	31	A19TB5-1	WHT/BLK/GY	16	8	3	P3-B	
	A42	37	A19TB4-6	BLK	20	4	57	P5-B	
▲	A43	31	A19TB5-1	WHT/BLK/GY	20	7	57	P5-C	
	A44	35	A19TB4-4	BLK	16	5	1	P6-C	
▲	A45	29	A19TB5-3	WHT/BLK/GY	16	8	1	P6-D	
	A46	37	A19TB4-6	BLK	16	5	24	A5TB1-3	△
▲	A47	28	A19TB5-5	WHT/BLK/GY	14	9	23	A5TB1-2	↑
▲	A48	30	A19TB5-2	WHT/BLK/GY	16	8	51	A16TB1-2	
	A49	34	A19TB4-3	BLK	↑	5	53	A16TB1-5	
	A50	46	A19TB1-4	WHT		2	54	A16TB1-6	
	A51	46	A19TB1-4	WHT		2	55	A16TB1-7	
	A52	36	A19TB4-5	BLK	↓	5	60	A21TB1-1	↓
▲	A53	31	A19TB5-1	WHT/BLK/GY	16	8	59	A21TB1-2	△
	A54	45	A19TB1-5	WHT	20	1	10	A22A1TB1-10	▲
	A55	48	A19TB1-2	BLK	16	5	7	A22A1TB1-4	↑
	A56	32	A19TB4-1	BLK	16	5	8	A22A1TB1-5	
▲	A57	28	A19TB5-5	WHT/RED/GY	12	15	6	A22A1TB1-2	
	A58	33	A19TB4-2	BLK	16	5	20	A22A2TB1-5	
	A59	47	A19TB1-3	BLK	14	6	19	A22A2TB1-3	
▲	A60	27	A19TB5-6	WHT/BLK/GY	12	10	18	A22A2TB1-2	
	A61	25	A19TB5-8	BLK	16	5	13	A22A3TB1-4	
	A62	33	A19TB4-2	BLK	16	5	14	A22A3TB1-5	
▲	A63	27	A19TB5-6	WHT/BLK/GY	12	10	12	A22A3TB1-2	↓
	A64	26	A19TB5-7	WHT	12	3	16	A22A3TB1-11	▲
↓	A65	52	A16TB1-4	WHT	12	3	44	A19TB1-6	△
△	A66	52	A16TB1-3	WHT	12	3	44	A19TB1-6	△

△ ATTACH FIND 41 LG 1.25 ±.06 & SEE NOTE 3
▲ ATTACH FIND 41 LG 1.75 ±.06 & SEE NOTE 3
▲ ATTACH FIND 41 LG .75 ±.06 TO EACH END OF CONDUCTOR & SEE NOTE 2



☒	2014172	SCHEMATIC	REF
✱ 0.8	1006696-5	SLEEVING	49
✱ 2.0	1006696-7	SLEEVING	48
✱ 6.6	1006696-4	SLEEVING	47
✱ 16.9	1006696-1	SLEEVING	46
AR	1006699	SOLVENT	45
AR	1006458-009	TAPE, LACING	44
1	MS3057-12A	CLAMP, CABLE	43
1	MS3057-24A	CLAMP, CABLE	42
✱ 9.6	SEE NOTE 10	SLEEVING	41
1	MS17143-21	LUG, TERMINAL	40
5	MS25036-52	LUG, TERMINAL	39
8	1006431-010	LUG, TERMINAL	38
8	MS25036-6	LUG, TERMINAL	37
1	MS25036-1	LUG, TERMINAL	36
AR	1006253	ADHESIVE	35
1	1006415-091	BAND MARKER, CABLE	34
1	1006415-133	BAND MARKER, CABLE	33
2	1006415-087	BAND MARKER, CABLE	32
3	1006415-089	BAND MARKER, CABLE	31
1	1006415-139	BAND MARKER, CABLE	30
1	MS39056-7	BUSHING	29
1	MS39056-6	BUSHING	28
1	MS39056-5	BUSHING	27
2	MS39056-4	BUSHING	26
3	MS39056-3	BUSHING	25
5	MS39056-2	BUSHING	24
✱ 3.4	1006696-2	SLEEVING	23
1	MS3106A-36-9P	CONN	22
1	MS3126F-16-8S	CONN	21
1	MS3106A-20-4S	CONN	20
1	MS3126F-22-55S	CONN	19
3	MS3126F-10-6S	CONN	18
✱ 7.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/ORN/GY	17
✱ 20.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/ORN/GY	16
✱ 14.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/RED/GY	15
✱ 7.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/RED/GY	14
✱ 12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/RED/GY	13
✱ 12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BRN/GY	12
✱ 50.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BRN/GY	11
✱ 17.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/BLK/GY	10
✱ 4.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/BLK/GY	9
✱ 50.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BLK/GY	8
✱ 48.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BLK/GY	7
✱ 7.0	MIL-W-16878/4 E14	WIRE, ELEC, BLK	6
✱ 100.0	MIL-W-16878/4 E16	WIRE, ELEC, BLK	5
✱ 45.0	MIL-W-16878/4 E20	WIRE, ELEC, BLK	4
✱ 50.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT	3
✱ 24.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT	2
✱ 156.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

✱ DENOTES LENGTH IN FEET

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 44
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. MARK SLEEVING WITH REFERENCE DESIGNATIONS AS SHOWN USING BLACK INK 1006256-001 .12 HIGH, PER ND1002019
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. STRIP ALL LEADS .38 ±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. CRIMP PER ND1002206
7. SERIALIZE PER ND1002023
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
10. MIL-I-23053 CLASS I, COLOR WHITE, ID .125
11. AR DENOTES AS REQUIRED
12. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. SOLDER PER ND1002071

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03
DECIMALS .XXX ±
ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 30 SEPT 65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. Stark 1/4/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER DISTRIBUTION
COMPUTER TEST SET

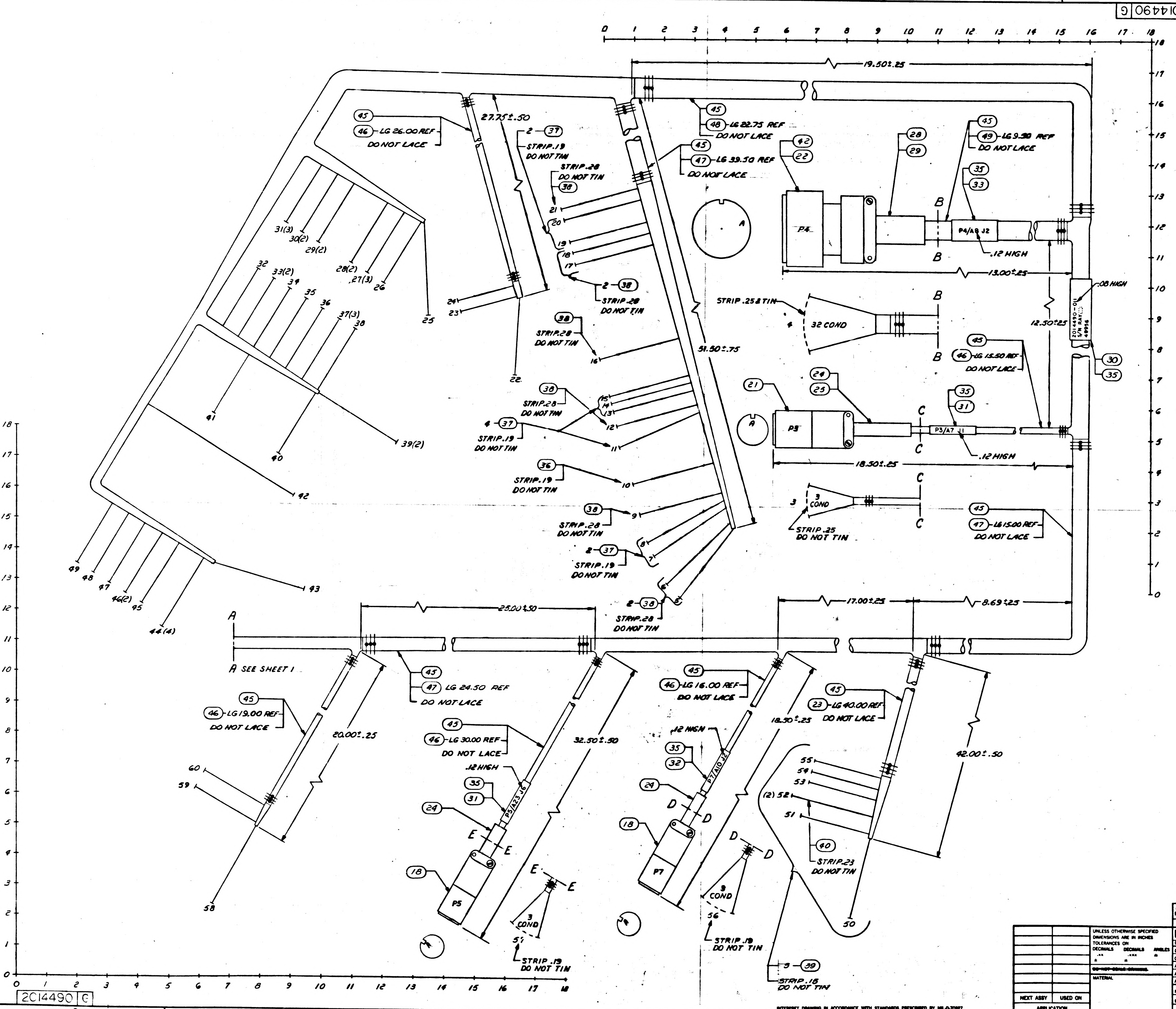
SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014490
SCALE 1/1	WT	SHEET 1 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014490 G

2014490 G

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25314		
1	CHANGED PER CCA 25410 DR R. Milster CHK J. Yon APPD	11/12/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25619 DR CHK APPD	12/20/65	
B	CHANGED PER CCA R25678 DR CHK APPD	1/17/66	
C	CHANGED PER CCA R25766 AND CLASS A RELEASED PER TDRR 25472	1/18/66	
D	CHANGED PER TDRR 25470 DR CHK APPD	3/24/66	
E	CHANGED PER TDRR 26471 DR A.J. Brown CHK APPD		
F	CHANGED PER TDRR 26472 DR CHK APPD	7/13/66	
G	CHANGED PER TDRR 26473 DR CHK APPD PED	7/7/66	



19.50±.25
27.75±.50
45
46 LG 26.00 REF
DO NOT LACE
2 37
STRIP .19
DO NOT TIN
STRIP .28
DO NOT TIN
38
45
48 LG 22.75 REF
DO NOT LACE
45
47 LG 33.50 REF
DO NOT LACE
42
22
28
29
45
49 LG 9.50 REF
DO NOT LACE
35
33
P4
B
P4/A8 J2
.12 HIGH
13.00±.25
A
31(3)
30(2)
29(2)
28(2)
27(3)
26
32
33(2)
34
35
36
37(3)
38
25
24
23
22
21
20
19
18
17
2 38
STRIP .28
DO NOT TIN
16
STRIP .25 & TIN
32 COND
4
B
.08 HIGH
2014490-011
S/N RAY
49956
12.50±.25
30
35
45
46 LG 15.50 REF
DO NOT LACE
51.50±.75
21
24
25
P3
C
35
31
P3/A7 J1
.12 HIGH
18.50±.25
41
40
39(2)
42
38
STRIP .28
DO NOT TIN
15
14
13
12
11
4 37
STRIP .19
DO NOT TIN
36
STRIP .19
DO NOT TIN
10
38
STRIP .28
DO NOT TIN
9
8
7
2 37
STRIP .19
DO NOT TIN
6
5
2 38
STRIP .28
DO NOT TIN
3
3 COND
STRIP .25
DO NOT TIN
C
45
47 LG 15.00 REF
DO NOT LACE
49
48
47
46(2)
95
44(4)
43
17.00±.25
8.69±.25
A
25.00±.50
A SEE SHEET 1
45
47 LG 24.50 REF
DO NOT LACE
45
46 LG 19.00 REF
DO NOT LACE
20.00±.25
60
59
58
45
46 LG 30.00 REF
DO NOT LACE
.12 HIGH
35
31
P5/A23 J6
32.50±.50
24
E
18
P5
3 COND
57
STRIP .19
DO NOT TIN
45
46 LG 16.00 REF
DO NOT LACE
.12 HIGH
35
32
P7/A10 J2
18.50±.25
24
D
18
P7
3 COND
56
STRIP .19
DO NOT TIN
45
23 LG 40.00 REF
DO NOT LACE
55
54
53
(2) 52
51
40
STRIP .23
DO NOT TIN
42.00±.50
50
3 39
STRIP .18
DO NOT TIN
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
8 7 6 5 4 3 2 1
H G F E D C B A

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

~~DO NOT SCALE DRAWING~~

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 25SEP65
CHECKED 9 Oct 65
APPROVAL 12 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C Sperling 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER DISTRIBUTION
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014490
SCALE 1/1
WT
SHEET 2 OF 2

2014490 G

2014490 H

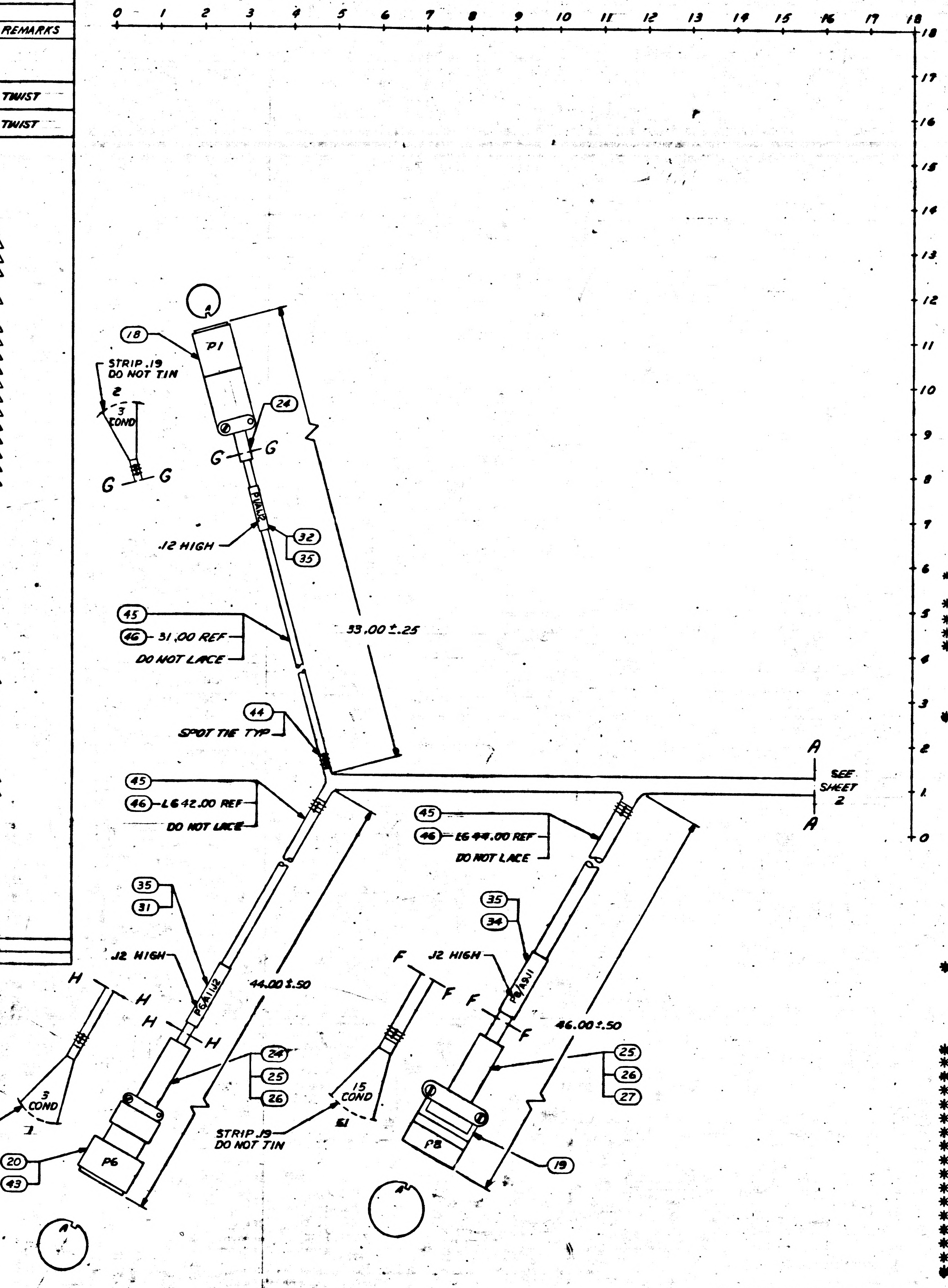
ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO.	STA NO.	DESTINATION	REMARKS
	A1	4	P4-P	BLK	20	4	56	P7-A	
	A2		-P	BLK		4	2	P1-A	
△	A3		-A	WHT/BRN/GY		11	61	P8-C	
	A4		-G	WHT/BRN/GY		11	2	P1-C	TWIST
	A5		-D	WHT/BLK/GY		7	2	P1-B	
	A6		-E	WHT/BLK/GY		7	56	P7-B	TWIST
△	A7		-U	WHT/BRN/GY		11	56	P7-C	
	A8		-B	WHT		1	61	P8-D	
	A9		-F	WHT		1	61	P8-B	
△	A10		-c	WHT/BRN/GY		11	61	P8-A	
	A11		-d	WHT		1	61	P8-J	
	A12		-g	WHT		1	61	P8-K	
	A13		-f	WHT		1	61	P8-L	
	A14		-J	WHT	20	1	61	P8-W	
△	A15		-C	WHT/BRN/GY	16	12	50	A16TB1-1	△
	A16		-O	WHT/ORN/GY		16	11	A22A3TB1-1	△
	A17		-R	WHT		2	38	A19TB4-7	△
△	A18		-W	WHT/RED/GY		13	3	P3-C	
	A19		-Z	WHT		2	15	A22A3TB1-6	△
△	A20		-a	WHT/ORN/GY		16	1	P6-A	
	A21		-b	WHT/RED/GY	16	13	58	A21TB1-3	△
	A22		-S	WHT/RED/GY	14	14	22	A5TB1-1	△
△	A23		-H	WHT/BLK/GY	12	10	27	A19TB5-6	△
	A24		-I	WHT	12	3	21	A22A2TB1-6	△
	A25		-K	WHT	12	3	44	A19TB1-6	△
	A26		-L	WHT	14	51	9	A22A1TB1-6	△
	A27		-M	WHT	12	3	30	A19TB5-2	△
	A28		-N	WHT	12	3	44	A19TB1-7	△
	A29		-T	WHT	12	3	41	A19TB3-3	△
△	A30		-V	WHT/ORN/GY	12	17	17	A22A2TB1-1	△
△	A31		-X	WHT/RED/GY	14	14	5	A22A1TB1-1	△
	A32	4	P4-Y	WHT	12	3	42	A19TB2-5	△
	A33	61	P8-b	WHT	20	1	57	P5-A	
△1 △	A34	29	A19TB5-3	WHT/BLK/GY		7	61	P8-E	
	A35	39	A19TB4-8	WHT		1	61	P8-F	
	A36	39	A19TB3-8	WHT		1	61	P8-G	
	A37	49	A19TB1-1	BLK		4	61	P8-N	
	A38	40	A19TB3-7	WHT		1	61	P8-T	
	A39	43	A19TB1-8	WHT	20	1	61	P8-V	
	A40	37	A19TB4-6	BLK	16	5	3	P3-A	
△	A41	31	A19TB5-1	WHT/BLK/GY	16	8	3	P3-B	
	A42	37	A19TB4-6	BLK	20	4	57	P5-B	
△	A43	31	A19TB5-1	WHT/BLK/GY	20	7	57	P5-C	
	A44	35	A19TB4-4	BLK	16	5	1	P6-C	
△	A45	29	A19TB5-3	WHT/BLK/GY	16	8	1	P6-D	
	A46	37	A19TB4-6	BLK	16	5	24	A5TB1-3	△1
△	A47	28	A19TB5-5	WHT/BLK/GY	14	9	23	A5TB1-2	
△	A48	30	A19TB5-2	WHT/BLK/GY	16	8	51	A16TB1-2	
	A49	34	A19TB4-3	BLK		5	53	A16TB1-5	
	A50	46	A19TB1-4	WHT		2	54	A16TB1-6	
	A51	46	A19TB1-4	WHT		2	55	A16TB1-7	
	A52	36	A19TB4-5	BLK		5	60	A21TB1-1	
△	A53	31	A19TB5-1	WHT/BLK/GY	16	8	59	A21TB1-2	△1
	A54	45	A19TB1-5	WHT	20	1	10	A22A1TB1-10	△
	A55	48	A19TB1-2	BLK	16	5	7	A22A1TB1-4	
	A56	32	A19TB4-1	BLK	16	5	8	A22A1TB1-5	
△	A57	28	A19TB5-5	WHT/RED/GY	14	14	6	A22A1TB1-2	
	A58	33	A19TB4-2	BLK	16	5	20	A22A2TB1-5	
	A59	47	A19TB1-3	BLK	14	6	19	A22A2TB1-3	
△	A60	27	A19TB5-6	WHT/BLK/GY	12	10	18	A22A2TB1-2	
	A61	25	A19TB5-8	BLK	16	5	13	A22A3TB1-4	
	A62	33	A19TB4-2	BLK	16	5	14	A22A3TB1-5	
△	A63	27	A19TB5-6	WHT/BLK/GY	14	9	12	A22A3TB1-2	
	A64	26	A19TB5-7	WHT	14	51	16	A22A3TB1-11	△
	A65	52	A16TB1-4	WHT	12	3	44	A19TB1-6	△1
△1	A66	52	A16TB1-3	WHT	12	3	44	A19TB1-6	△1

△1 ATTACH FIND 41 L6 1.25 ±.06 & SEE NOTE 3
△2 ATTACH FIND 41 L6 1.75 ±.06 & SEE NOTE 3
△3 ATTACH FIND 41 L6 .75 ±.06 TO EACH END OF CONDUCTOR & SEE NOTE 2

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASE PER CCA R25314	[illegible]	
1	CHANGED PER CCA 25410 DR P. Milner CHK J. APPD	[illegible]	
-	CLASS B CHANGED PER CCAR25502	[illegible]	
A	CHANGED PER CCA R 25619 DR CHK APPD RCD	[illegible]	
B	CHANGED PER CCA R25678 DR CHK APPD RCD	[illegible]	
C	CHANGED PER CCA R25766 AND CLASS A RELEASED PER TDRR25872	[illegible]	
D	CHANGED PER TDRR 25470 DR CHK APPD	[illegible]	
E	CHANGED PER TDRR 26471 DR CHK APPD	[illegible]	
F	CHANGED PER TDRR 26472 DR CHK APPD	[illegible]	
G	CHANGED PER TDRR 26473 DR CHK APPD RCD	[illegible]	
H	CHANGED PER TDRR 26543 DR CHK APPD RCD	[illegible]	



LIST OF MATERIALS

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014172	SCHEMATIC	REF
✱	15.0	MIL-W-16878/4 E14	WIRE, ELECTRICAL, WHT	51
	11	1006431-005	LUG, TERMINAL	50
✱	0.8	1006696-5	SLEEVING	49
✱	2.0	1006696-7	SLEEVING	48
✱	6.6	1006696-4	SLEEVING	47
✱	20.4	1006696-1	SLEEVING	46
	AR	1006698	SOLVENT	45
	AR	1006458-009	TAPE, LACING	44
	1	MS3057-12A	CLAMP, CABLE	43
	1	MS3057-24A	CLAMP, CABLE	42
✱	9.6	SEE NOTE 10	SLEEVING	41
	1	MS17143-21	LUG, TERMINAL	40
	5	MS25036-52	LUG, TERMINAL	39
	3	1006431-010	LUG, TERMINAL	38
	2	MS25036-6	LUG, TERMINAL	37
	1	1006431-001	LUG, TERMINAL	36
	AR	1006253	ADHESIVE	35
	1	1006415-091	BAND MARKER, CABLE	34
	1	1006415-133	BAND MARKER, CABLE	33
	2	1006415-087	BAND MARKER, CABLE	32
	3	1006415-089	BAND MARKER, CABLE	31
	1	1006415-139	BAND MARKER, CABLE	30
	1	MS39056-7	BUSHING	29
	1	MS39056-6	BUSHING	28
	1	MS39056-5	BUSHING	27
	2	MS39056-4	BUSHING	26
	3	MS39056-3	BUSHING	25
	5	MS39056-2	BUSHING	24
✱	4.3	1006696-2	SLEEVING	23
	1	MS3106A-36-9P	CONN	22
	1	MS3126F-16-8S	CONN	21
	1	MS3106A-20-4S	CONN	20
	1	MS3126F-22-55S	CONN	19
	3	MS3126F-10-6S	CONN	18
✱	7.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/ORN/GY	17
✱	21.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/ORN/GY	16
~~✱~~	~~14.0~~	~~MIL-W-16878/4 E12~~	~~WIRE, ELEC, WHT/RED/GY~~	~~15~~
✱	21.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/RED/GY	14
✱	12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/RED/GY	13
✱	12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BRN/GY	12
✱	52.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BRN/GY	11
✱	11.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/BLK/GY	10
✱	10.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/BLK/GY	9
✱	52.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BLK/GY	8
✱	52.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BLK/GY	7
✱	7.0	MIL-W-16878/4 E14	WIRE, ELEC, BLK	6
✱	102.0	MIL-W-16878/4 E16	WIRE, ELEC, BLK	5
✱	49.0	MIL-W-16878/4 E20	WIRE, ELEC, BLK	4
✱	37.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT	3
✱	26.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT	2
✱	158.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT	1
	-011	LIST OF MATERIALS		

✱ DENOTES LENGTH IN FEET

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 44
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. MARK SLEEVING WITH REFERENCE DESIGNATIONS AS SHOWN USING BLACK INK 1006256-001 .12 HIGH, PER ND1002019
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. STRIP ALL LEADS .38 ±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. CRIMP PER ND1002206
7. SERIALIZE PER ND1002023
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
10. MIL-I-23053 CLASS 1, COLOR WHITE, ID .125
11. AR DENOTES AS REQUIRED
12. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. SOLDER PER ND1002071

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 30 SEPT 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL C Stark

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER DISTRIBUTION
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014490
SCALE 1/1 | WT | SHEET 1 OF 2

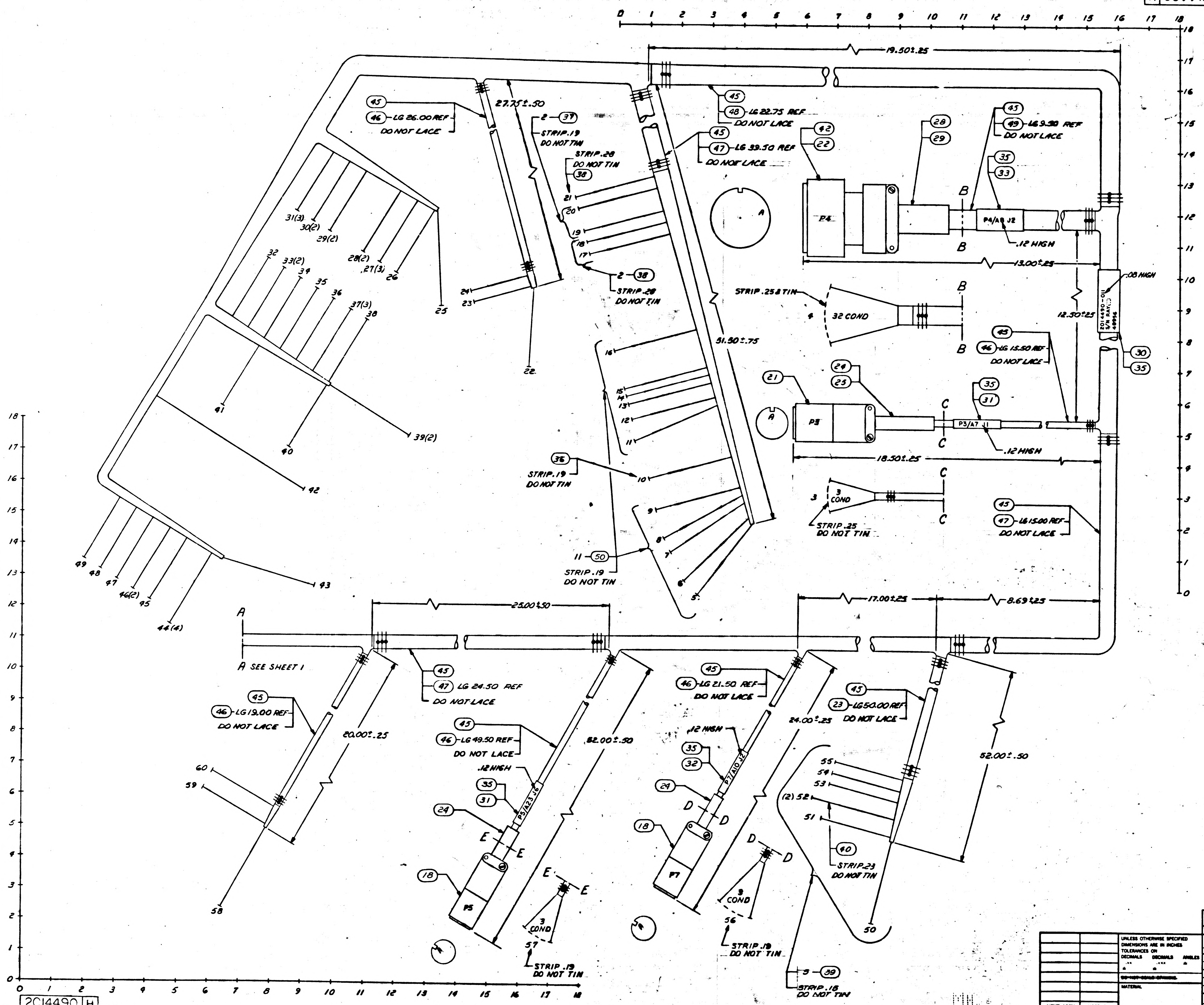
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014490 H

2014490 H

2014490 H

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25314	[illegible]	U. Moran
1	CHANGED PER CCA 25410 DR R. Wilson CHK J. Yu APPD	11/12/65	[illegible]
—	CLASS B CHANGED PER CCAR25502	[illegible]	[illegible]
A	CHANGED PER CCA R25619 DR CHK APPD P.E.D.	4/20/65	[illegible]
B	CHANGED PER CCA R25678 DR CHK APPD P.E.D	1/13/66	[illegible]
C	CHANGED PER CCA R25766 AND CLASS A RELEASED PER TDRR 25477	1/14/66	[illegible]
D	CHANGED PER TDRR 25470 DR CHK R.E APPD	2/24/66	[illegible]
E	CHANGED PER TDRR 26471 DR A.J. Brown CHK APPD	[illegible]	[illegible]
F	CHANGED PER TDRR 26472 DR CHK APPD	3/18/66	[illegible]
G	CHANGED PER TDRR 26473 DR CHK APPD PED	4/4/66	[illegible]
H	CHANGED PER TDRR 26543 DR R.P. Clenthen CHK APPD P.E.D	7/15/66	[illegible]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1
H
G
F
E
D
C
B
A
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19.50±.25
27.75±.50
45
46 LG 26.00 REF
DO NOT LACE
2 - 37
STRIP .19
DO NOT TIN
STRIP .28
DO NOT TIN
38
2 - 38
STRIP .28
DO NOT TIN
45
48 LG 22.75 REF
DO NOT LACE
45
47 LG 33.50 REF
DO NOT LACE
42
22
28
29
43
49 LG 9.50 REF
DO NOT LACE
35
33
P4
B
B
P4/A8 J2
.12 HIGH
13.00±.25
.08 HIGH
2014490-011 S/N RAY 49956
12.50±.25
30
35
A
31(3)
30(2)
29(2)
28(2)
27(3)
26
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33(2)
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36
37(3)
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24
23
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6
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51.50±.75
STRIP .25 & TIN
4
32 COND
B
B
45
46 LG 15.50 REF
DO NOT LACE
21
24
25
35
31
P3
C
C
P3/A7 J1
.12 HIGH
A
18.50±.25
41
40
39(2)
42
43
49
48
47
46(2)
45
44(4)
36
STRIP .19
DO NOT TIN
11 - 50
STRIP .19
DO NOT TIN
3
3 COND
C
C
STRIP .25
DO NOT TIN
45
47 LG 15.00 REF
DO NOT LACE
A
A SEE SHEET 1
25.00±.50
17.00±.25
8.69±.25
45
47 LG 24.50 REF
DO NOT LACE
45
46 LG 19.00 REF
DO NOT LACE
20.00±.25
60
59
58
45
46 LG 49.50 REF
DO NOT LACE
52.00±.50
.12 HIGH
35
31
P5/A23 J3
24
E
E
18
P5
E
E
3 COND
57
STRIP .19
DO NOT TIN
45
46 LG 21.50 REF
DO NOT LACE
.12 HIGH
35
32
P7/A10 J2
24.00±.25
24
D
D
18
P7
D
D
3 COND
56
STRIP .18
DO NOT TIN
5 - 39
STRIP .18
DO NOT TIN
45
23 LG 50.00 REF
DO NOT LACE
52.00±.50
55
54
53
(2) 52
51
40
STRIP .23
DO NOT TIN
50

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

~~DO NOT SCALE DRAWING~~

MATERIAL

NEXT ASSY	USED ON

APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 25 SEP 65
CHECKED 20 Oct 65
APPROVAL 20 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL C. Sperling 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER DISTRIBUTION
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014490
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014490 H

2014490 H

2014490 J

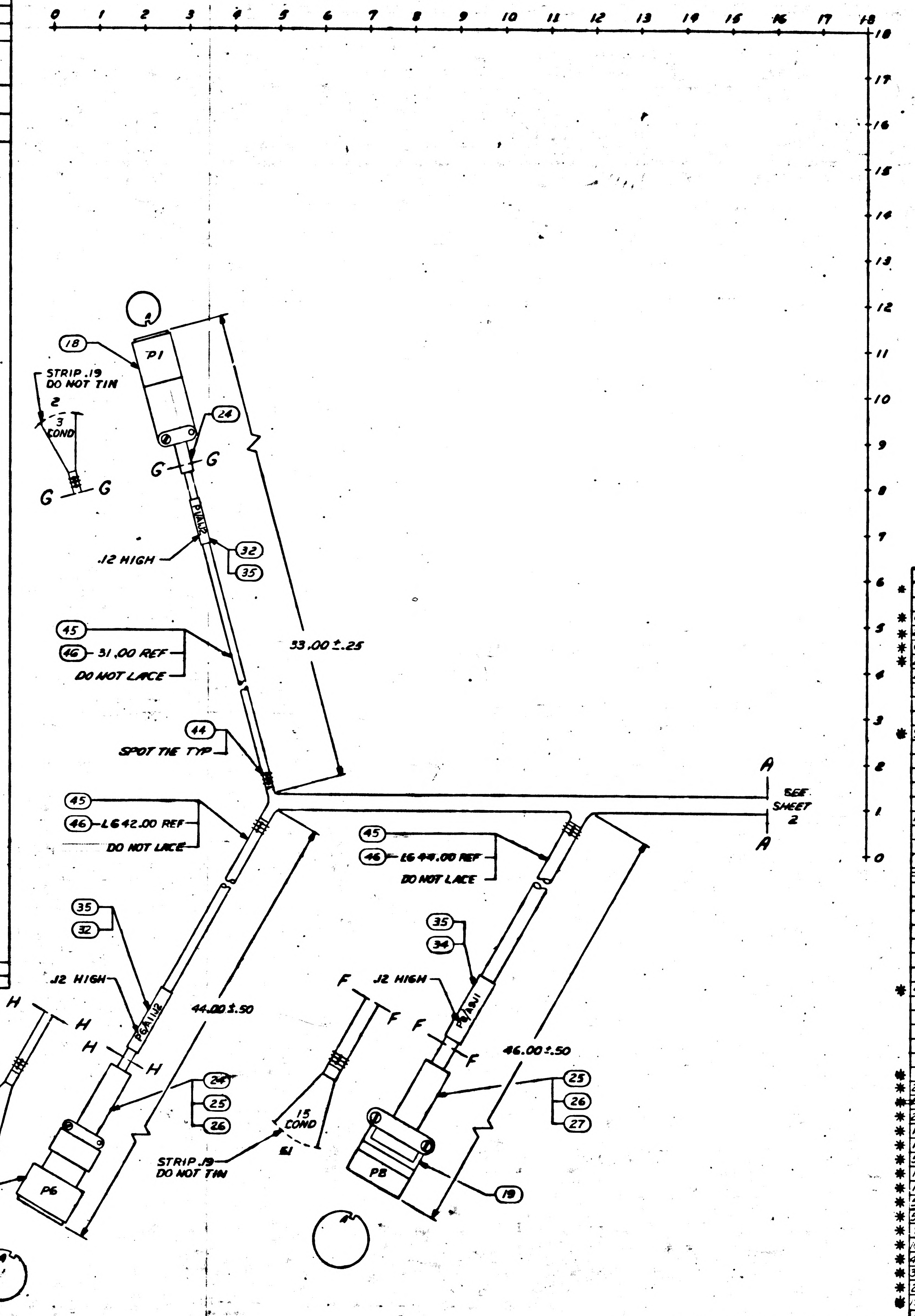
ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO.	STA NO.	DESTINATION	REMARKS
	A1	4	P4-P	BLK	20	4	56	P7-A	
	A2		-P	BLK		4	2	P1-A	
△	A3		-A	WHT/BRN/GY		11	61	P8-C	
	A4		-G	WHT/BRN/GY		11	2	P1-C	TWIST
	A5		-D	WHT/BLK/GY		7	2	P1-B	
	A6		-E	WHT/BLK/GY		7	56	P7-B	TWIST
△	A7		-U	WHT/BRN/GY		11	56	P7-C	
	A8		-B	WHT		1	61	P8-D	
	A9		-F	WHT		1	61	P8-B	
△	A10		-c	WHT/BRN/GY		11	61	P8-A	
	A11		-d	WHT		1	61	P8-J	
	A12		-e	WHT		1	61	P8-K	
	A13		-f	WHT		1	61	P8-L	
	A14		-J	WHT	20	1	61	P8-W	
△	A15		-C	WHT/BRN/GY	16	12	50	A16TB1-1	△
	A16		-j	WHT/ORN/GY		16	11	A22A3TB1-1	△
	A17		-R	WHT		2	38	A19TB4-7	△
△	A18		-W	WHT/RED/GY		13	3	P3-C	
	A19		-Z	WHT		2	15	A22A3TB1-6	△
△	A20		-a	WHT/ORN/GY		16	1	P6-A	
	A21		-b	WHT/RED/GY	16	13	58	A21TB1-3	△
	A22		-S	WHT/RED/GY	14	14	22	A5TB1-1	△
△	A23		-H	WHT/BLK/GY	12	10	27	A19TB5-6	△
	A24		-I	WHT	12	3	21	A22A2TB1-6	△
	A25		-K	WHT	12	3	44	A19TB1-6	△
	A26		-L	WHT	14	51	9	A22A1TB1-6	△
	A27		-M	WHT	12	3	30	A19TB5-2	△
	A28		-N	WHT	12	3	44	A19TB1-7	△
	A29		-T	WHT	12	3	41	A19TB3-3	△
△	A30		-V	WHT/ORN/GY	12	17	17	A22A2TB1-1	△
△	A31		-X	WHT/RED/GY	14	14	5	A22A1TB1-1	△
	A32	4	P4-Y	WHT	12	3	42	A19TB2-5	△
	A33	61	P8-b	WHT	20	1	57	P5-A	
△ △	A34	29	A19TB5-3	WHT/BLK/GY		7	61	P8-E	
	A35	39	A19TB4-8	WHT		1	61	P8-F	
	A36	39	A19TB3-8	WHT		1	61	P8-G	
	A37	49	A19TB1-1	BLK		4	61	P8-N	
	A38	40	A19TB3-7	WHT		1	61	P8-T	
	A39	43	A19TB1-8	WHT	20	1	61	P8-V	
	A40	37	A19TB4-6	BLK	16	5	3	P3-A	
△	A41	31	A19TB5-1	WHT/BLK/GY	16	8	3	P3-B	
	A42	37	A19TB4-6	BLK	20	4	57	P5-B	
△	A43	31	A19TB5-1	WHT/BLK/GY	20	7	57	P5-C	
	A44	35	A19TB4-4	BLK	16	5	1	P6-C	
△	A45	29	A19TB5-3	WHT/BLK/GY	16	8	1	P6-D	
	A46	37	A19TB4-6	BLK	16	5	24	A5TB1-3	△
△	A47	28	A19TB5-5	WHT/BLK/GY	14	9	23	A5TB1-2	
△	A48	30	A19TB5-2	WHT/BLK/GY	16	8	51	A16TB1-2	
	A49	34	A19TB4-3	BLK		5	53	A16TB1-5	
	A50	46	A19TB1-4	WHT		2	54	A16TB1-6	
	A51	46	A19TB1-4	WHT		2	55	A16TB1-7	
	A52	36	A19TB4-5	BLK		5	60	A21TB1-1	
△	A53	31	A19TB5-1	WHT/BLK/GY	16	8	59	A21TB1-2	△
	A54	45	A19TB1-5	WHT	20	1	10	A22A1TB1-10	△
	A55	48	A19TB1-2	BLK	16	5	7	A22A1TB1-4	
	A56	32	A19TB4-1	BLK	16	5	8	A22A1TB1-5	
△	A57	28	A19TB5-5	WHT/RED/GY	14	14	6	A22A1TB1-2	
	A58	33	A19TB4-2	BLK	16	5	20	A22A2TB1-5	
	A59	47	A19TB1-3	BLK	14	6	19	A22A2TB1-3	
△	A60	27	A19TB5-6	WHT/BLK/GY	12	10	18	A22A2TB1-2	
	A61	25	A19TB5-8	BLK	16	5	13	A22A3TB1-4	
	A62	33	A19TB4-2	BLK	16	5	14	A22A3TB1-5	
△	A63	27	A19TB5-6	WHT/BLK/GY	14	9	12	A22A3TB1-2	
	A64	26	A19TB5-7	WHT	14	51	16	A22A3TB1-11	△
	A65	52	A16TB1-4	WHT	12	3	44	A19TB1-6	△
△	A66	52	A16TB1-3	WHT	12	3	44	A19TB1-6	△

△ ATTACH FIND 41 LG 1.25 ±.06 & SEE NOTE 3
△ ATTACH FIND 41 LG 1.75 ±.06 & SEE NOTE 3
△ ATTACH FIND 41 LG .75 ±.06 TO EACH END OF CONDUCTOR & SEE NOTE 2

NOTES

1. FABRICATE PER ND1002032 EXCEPT USE FIND 44
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. MARK SLEEVING WITH REFERENCE DESIGNATIONS AS SHOWN USING BLACK INK 1006256-001 .12 HIGH, PER ND1002019
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. STRIP ALL LEADS .38 ±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. CRIMP PER ND1002206
7. SERIALIZE PER ND1002023
8. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
10. MIL-I-23053 CLASS 1, COLOR WHITE, ID .125
11. AR DENOTES AS REQUIRED
12. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. SOLDER PER ND1002071



REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASE PER CCA R25314	10/14/65	G Haas
1	CHANGED PER CCA 25410 DR P. Milner CHK J. [illegible] APPD [illegible]	11/12/65	[illegible]
–	CLASS B CHANGED PER CCAR25502	11/5/65	[illegible]
A	CHANGED PER CCA R 25619 DR [illegible] CHK [illegible] APPD RFD	[illegible]	[illegible]
B	CHANGED PER CCA R25678 DR [illegible] CHK [illegible] APPD RFD	1/[illegible]/66	[illegible]
C	CHANGED PER CCA R25766 AND CLASS A RELEASED PER TDRR 25872	1/[illegible]/66	[illegible]
D	CHANGED PER TDRR 26470 DR [illegible] CHK [illegible] APPD [illegible]	2/24/66	[illegible]
E	CHANGED PER TDRR 26471 DR [illegible] CHK [illegible] APPD [illegible]	3/7/66	[illegible]
F	CHANGED PER TDRR 26472 DR [illegible] CHK [illegible] APPD [illegible]	3/12/66	[illegible]
G	CHANGED PER TDRR 26473 DR [illegible] CHK [illegible] APPD RFD	4/4/66	[illegible]
H	CHANGED PER TDRR 26543 DR [illegible] CHK [illegible] APPD RFD	4/25/66	[illegible]
J	CHANGED PER TDRR 26689 DR. P. Bott CHK C. [illegible] APPD [illegible]	[illegible]	[illegible]

LIST OF MATERIALS

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014172	SCHEMATIC	REF
✱	15.0	MIL-W-16878/4 E14	WIRE, ELECTRICAL, WHT	51
	11	1006431-005	LUG, TERMINAL	50
✱	0.5	1006696-5	SLEEVING	49
✱	2.0	1006696-7	SLEEVING	48
✱	6.6	1006696-4	SLEEVING	47
✱	20.4	1006696-1	SLEEVING	46
	AR	1006699	SOLVENT	45
	AR	1006458-004	TAPE, LACING	44
	1	MS3057-12A	CLAMP, CABLE	43
	1	MS3057-24A	CLAMP, CABLE	42
✱	9.6	SEE NOTE 10	SLEEVING	41
	1	MS17143-21	LUG, TERMINAL	40
	5	MS25036-52	LUG, TERMINAL	39
	3	1006431-010	LUG, TERMINAL	38
	2	MS25036-6	LUG, TERMINAL	37
	1	1006431-001	LUG, TERMINAL	36
	AR	1006253	ADHESIVE	35
	1	1006415-130	BAND MARKER, CABLE	34
	1	1006415-125	BAND MARKER, CABLE	33
	5	1006415-129	BAND MARKER, CABLE	32
	~~3~~	~~1006415-089~~	~~BAND MARKER, CABLE~~	~~31~~
	1	1006415-134	BAND MARKER, CABLE	30
	1	MS39056-7	BUSHING	29
	1	MS39056-6	BUSHING	28
	1	MS39056-5	BUSHING	27
	2	MS39056-4	BUSHING	26
	3	MS39056-3	BUSHING	25
	5	MS39056-2	BUSHING	24
✱	4.3	1006696-2	SLEEVING	23
	1	MS3106A-36-9P	CONN	22
	1	MS3126F-16-8S	CONN	21
	1	MS3106A-20-4S	CONN	20
	1	MS3126F-22-55S	CONN	19
	3	MS3126F-10-6S	CONN	18
✱	7.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/ORN/GY	17
✱	21.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/ORN/GY	16
~~✱~~	~~14.0~~	~~MIL-W-16878/4 E12~~	~~WIRE, ELEC, WHT/RED/GY~~	~~15~~
✱	21.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/RED/GY	14
✱	12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/RED/GY	13
✱	12.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BRN/GY	12
✱	52.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BRN/GY	11
✱	11.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT/BLK/GY	10
✱	10.0	MIL-W-16878/4 E14	WIRE, ELEC, WHT/BLK/GY	9
✱	52.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT/BLK/GY	8
✱	52.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT/BLK/GY	7
✱	7.0	MIL-W-16878/4 E14	WIRE, ELEC, BLK	6
✱	102.0	MIL-W-16878/4 E16	WIRE, ELEC, BLK	5
✱	49.0	MIL-W-16878/4 E20	WIRE, ELEC, BLK	4
✱	37.0	MIL-W-16878/4 E12	WIRE, ELEC, WHT	3
✱	26.0	MIL-W-16878/4 E16	WIRE, ELEC, WHT	2
✱	158.0	MIL-W-16878/4 E20	WIRE, ELEC, WHT	1

-011 LIST OF MATERIALS

✱ DENOTES LENGTH IN FEET

2014042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 30 SEPT 65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL C. Starke 11/4/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER DISTRIBUTION
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014490
SCALE 1/1 | WT | SHEET 1 OF 2

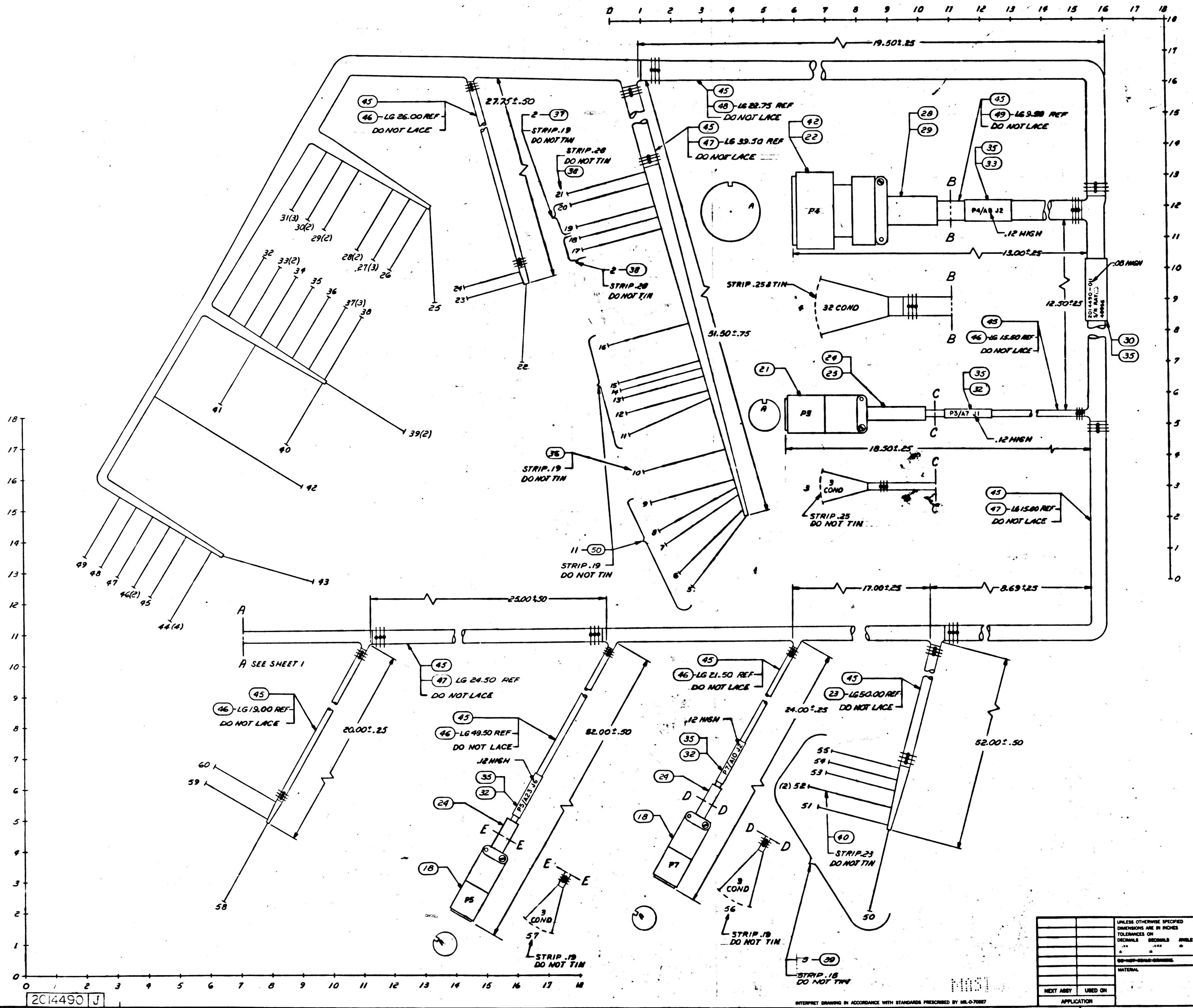
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014490 J

2014490 J

2014490 J

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25314		
1	CHANGED PER CCA 25410 DR R. [illegible] CHK J. [illegible] APPD [illegible]	11/10/65	
—	CLASS B CHANGED PER CCAR25502		
A	CHANGED PER CCA R25619 DR [illegible] CHK [illegible] APPD P.C.D.	12/20/65	
B	CHANGED PER CCA R25678 DR [illegible] CHK [illegible] APPD P.C.D.	1/ /66	
C	CHANGED PER CCA R25766 AND CLASS A RELEASED PER TDRR 25472	1/14/66	
D	CHANGED PER TDRR25470 DR [illegible] CHK [illegible] APPD [illegible]	2/24/66	
E	CHANGED PER TDRR 26471 DR A.J. [illegible] CHK [illegible] APPD [illegible]		
F	CHANGED PER TDRR 26472 DR [illegible] CHK [illegible] APPD [illegible]		
G	CHANGED PER TDRR 26473 DR [illegible] CHK [illegible] APPD PED		
H	CHANGED PER TDRR 26543 DR R.P. [illegible] CHK [illegible] APPD P.C.D.	4/15/66	
J	CHANGED PER TDRR 26689 DR P. [illegible] CHK [illegible] APPD. [illegible]		



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19.50±.25
27.75±.50
45
46 -LG 26.00 REF
DO NOT LACE
2 - 37
STRIP .19
DO NOT TIN
STRIP .28
DO NOT TIN
38
45
48 -LG 22.75 REF
DO NOT LACE
45
47 -LG 39.50 REF
DO NOT LACE
22
42
28
29
45
49 -LG 9.50 REF
DO NOT LACE
35
33
P4
P4/A8 J2
.12 HIGH
B
13.00±.25
.08 HIGH
2014490-011 S/N RAY
30
35
12.50±.25
STRIP .25 & TIN
32 COND
45
46 -LG 15.50 REF
DO NOT LACE
21
24
25
35
32
P3
P3/A7 J1
.12 HIGH
C
18.50±.25
3 COND
STRIP .25
DO NOT TIN
45
47 -LG 15.00 REF
DO NOT LACE
31.50±.75
36
STRIP .19
DO NOT TIN
11 - 50
STRIP .19
DO NOT TIN
31(3)
30(2)
29(2)
28(2)
27(3)
26
25
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33(2)
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37(3)
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48
47
46(2)
45
44(4)
A
A SEE SHEET 1
25.00±.50
17.00±.25
8.69±.25
45
47 LG 24.50 REF
DO NOT LACE
45
46 -LG 19.00 REF
DO NOT LACE
20.00±.25
60
59
58
45
46 -LG 49.50 REF
DO NOT LACE
82.00±.50
.12 HIGH
35
32
P5/A23 J6
24
E
18
P5
3 COND
57
STRIP .19
DO NOT TIN
45
46 -LG 21.50 REF
DO NOT LACE
24.00±.25
.12 HIGH
35
32
P7/A10 J2
24
D
18
P7
3 COND
56
STRIP .19
DO NOT TIN
5 - 59
STRIP .18
DO NOT TIN
45
23 -LG 50.00 REF
DO NOT LACE
52.00±.50
55
54
53
(2) 52
51
40
STRIP .23
DO NOT TIN
50

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

~~DO NOT SCALE DRAWING~~

MATERIAL

NEXT ASSY	USED ON
APPLICATION	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9 497
DRAWN [illegible] DATE 25SEP65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]
MIT APPROVAL C Sperly 1/10/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
POWER DISTRIBUTION
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014490
SCALE 1/1
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014490 J

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	6	J1-C	WHT	22	1	20	S1A-1	
			D	BLK			20	S1B-1	
	A2		E	WHT		2	8	K1-2	
	A3		F				20	S1C-ARM	
	A4		G				19	M1-6	
	A5		H				8	K1-6	
	A6	6	J1-L	WHT		2	7	E1	
	A7	4	A1-1	WHT		1	19	M1-1	
		4	A1-2	BLK			19	M1-2	
	A8	2	A1-6	WHT		1	19	M1-A	
		2	A1-5	BLK			19	M1-B	
	A9	17	DS1-A	WHT		2	18	DS3-LOAD	
	A10	17	DS1-C				18	DS3-(-)	
	A11	17	DS2-A				8	K1-1	
	A12	17	DS2-C				19	M1-12	
	A13	18	DS3-(+)				19	M1-9	
	A14	18	DS3-(-)				8	K1-7	
	A15	8	K1-3	WHT	22	2	19	M1-10	
	A16	6	J1-A	WHT	22	11	21	XF1-1	
		△	E2	SHLD			△	E3	
	A17	6	J1-B	WHT	22	11	5	A1-1	
		△	E4	SHLD			△	E5	
	A18	22	XF1-2	WHT	22	11	3	A1-2	
		△	E6	SHLD			△	E7	
	A19	△	E3	BLK	22	3	△	E6	
	A20	△	E2	BLK	22	3	△	E4	
	A21	△	E2	BLK	22	3	7	E1	

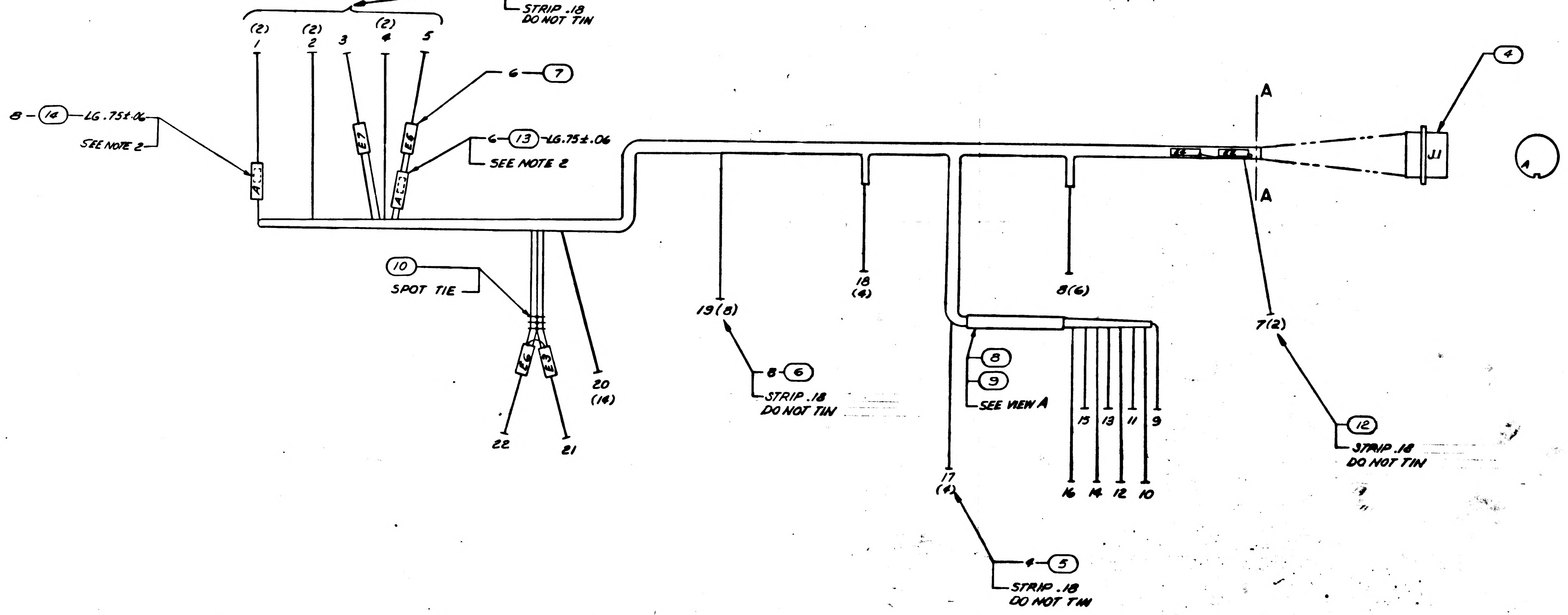
△ DENOTES INTERNAL CONNECTION

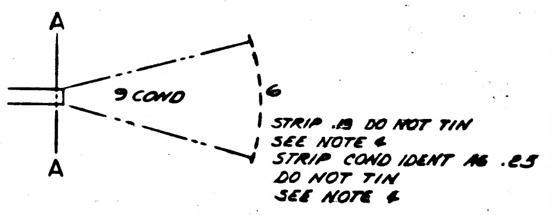
ASSEMBLY INFORMATION CHART

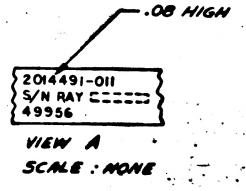
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A22	20	S1A-ARM	WHT	22	1	1	A1-8	
			S1B-ARM	BLK			1	A1-9	
	A23		S1C-1	WHT		2	8	K1-4	
	A24		S1A-3				9	A2-7	
	A25		S1A-5				11	A2-8	
	A26		S1A-7				13	A2-9	
	A27		S1A-9				15	A2-10	
	A28		S1B-3				10	A2-1	
	A29		S1B-5				12	A2-2	
	A30		S1B-7				14	A2-3	
	A31	20	S1B-9	WHT	22	2	16	A2-4	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA [illegible]		
1	CHANGED PER CCAR 25419 DR CHK APPD		
—	CLASS B NO CHANGE PER CCA R25509	12/1/65	
A	CHANGED PER CCA R25581 DR CHK APPD RCD	1/18/66	
B	CHANGED PER CCA R25771 AND CLASS A RELEASED PER TDRR 25476	1/4/66	







VIEW A
SCALE : NONE

NOTES

1. FABRICATE PER ND 1002032 EXCEPT USE FIND NO. 10
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
3. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
4. CRIMP PER ND 1002206
5. STRIP ALL LEADS .50 ±.06 & TIN PER ND 1002071 UNLESS OTHERWISE SPECIFIED
6. SERIALIZE PER ND 1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
8. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
9. AR DENOTES AS REQUIRED
10. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS
11. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
12. MIL-W-16878/4 E22, WHT, SHIELDED, JACKET TFE, WHT
13. MIL-I-23053 CLASS I COLOR WHITE I.D. .187 FOR FIND NO. 13, I.D. .125 FOR FIND NO. 14
14. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	2014152	ELECTRICAL SCHEMATIC	REF
*	0.5	SEE NOTE 13	SLEEVING	14
*	0.4	SEE NOTE 13	SLEEVING	13
	1	MS25036-6	TERMINAL, LUG	12
*	5.2	SEE NOTE 12	WIRE, ELECTRICAL	11
	AR	1006458-004	TAPE, LACING	10
	AR	1006253	ADHESIVE	9
	1	1006415-128	MARKER, BAND	8
	6	1010402-1	SLEEVE, SOLDER	7
	8	MS25036-48	TERMINAL, LUG	6
	12	MS25036-1	TERMINAL, LUG	5
	1	MS3120E-14-12P	CONNECTOR	4
*	0.8	MIL-W-16878/4 E22	WIRE, ELECTRICAL BLACK	3
*	30.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL WHITE	2
*	4.0	1014341-11	WIRE, ELECTRICAL TW PR WHT/BLK	1

011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014313	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 6-65
CHECKED
APPROVAL 5-05-65
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS BRANCHED
TEMPERATURE MONITOR
OPERATION CONSOLE

CODE IDENT NO 49956 SIZE J NASA DRAWING NO. 2014491
SCALE 1/1 WT SHEET 1 OF 1

2014492 A

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25293	10/13/65	O. Hanana
1	CHANGED PER CCA R25530 DR Ry Cmd CHK J. Valuath APPD C.Chutta	17 Nov 65	
–	CLASS A RELEASED PER TDRR 25972		
A	CHANGED PER TDRR 26665 DR	3/.. /66	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F1	S1D-NC	S2D-NC	BUS	22	
F2	S1D-NO	S2D-NO			
F3	S1-2	S1D-C			
F4	S1-3	S1-1			
F5	S1-3	S2-1			
F6	S1A-C	S16A-C			
F7	S2D-NC	S3D-NC			
F8	S2D-NO	S3D-NO			
F9	S2-2	S2D-C			
F10	S2-1	S2-3			
F11	S2-3	S3-1			
F12	S2A-C	S3A-C			
F13	S3D-NC	S4D-NC			
F14	S3D-NO	S4D-NO			
F15	S3-2	S3D-C			
F16	S3-1	S3-3			
F17	S3-3	S4-1			
F18	S4D-NC	S5D-NC			
F19	S4D-NO	S5D-NO			
F20	S4-2	S4D-C			
F21	S4-1	S4-3			
F22	S4-3	S5-1			
F23	S4A-C	S5A-C			
F24	S5D-NC	S6D-NC			
F25	S5D-NO	S6D-NO			
F26	S5-2	S5D-C			
F27	S5-1	S5-3			
F28	S5-3	S6-1			
F29	S6D-NC	S7D-NC			
F30	S6D-NO	S7D-NO			
F31	S6-2	S6D-C			
F32	S6-1	S6-3			
F33	S6-3	S7-1			
F34	S6A-C	S7A-C			
F35	S7D-NC	S8D-NC			
F36	S7D-NO	S8D-NO			
F37	S7-2	S7D-C			
F38	S7-1	S7-3			
F39	S7-3	S8-1			
F40	S8D-NC	S9D-NC			
F41	S8D-NO	S9D-NO			
F42	S8-2	S8D-C			
F43	S8-1	S8-3			
F44	S8A-C	S9A-C			
F45	S8-3	S9-1			
F46	S9D-NC	S10D-NC			
F47	S9D-NO	S10D-NO			
F48	S9-2	S9D-C			
F49	S9-1	S9-3			
F50	S9-3	S10-1			
F51	S9B-NC	S10B-NC			
F52	S10D-NC	S11D-NC			
F53	S10D-NO	S11D-NO			
F54	S10-2	S10D-C			
F55	S10-1	S10-3			
F56	S10-3	S11-1	BUS		
F57	S10B-NC	S14B-NC	WHT		
F58	S10A-C	S11A-C	BUS		
F59	S11D-NC	S12D-NC			
F60	S11D-NO	S12D-NO			
F61	S11-2	S11D-C			
F62	S11-1	S11-3			
F63	S11-3	S12-1			
F64	S12D-NC	S13D-NC			
F65	S12D-NO	S13D-NO			
F66	S12-2	S12D-C			
F67	S12-1	S12-3			
F68	S12-3	S13-1			
F69	S12A-C	S13A-C			
F70	S13D-NC	S14D-NC			
F71	S13D-NO	S14D-NO			
F72	S13-1	S13-3			
F73	S13-3	S14-1			
F74	S13-2	S13D-C			
F75	S14D-NC	S15D-NC			
F76	S14D-NO	S15D-NO			
F77	S14-1	S14-3			
F78	S14-3	S15-1			
F79	S14A-C	S15A-C			
F80	S14-2	S14D-C	BUS	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F81	S15D-NC	S30D-NC	BUS	22	
F82	S15D-NO	S30D-NO			
F83	S15-1	S15-3			
F84	S15-3	S30-1			
F85	S15-2	S15D-C			
F86	S30D-NC	S29D-NC			
F87	S30D-NO	S29D-NO			
F88	S30-1	S30-3			
F89	S30-3	S29-1			
F90	S30-2	S30D-C			
F91	S30A-C	S29A-C			
F92	S29D-NC	S28D-NC			
F93	S29D-NO	S28D-NO			
F94	S29-1	S29-3			
F95	S29-3	S28-1			
F96	S29-2	S29D-C			
F97	S28D-NC	S27D-NC			
F98	S28D-NO	S27D-NO			
F99	S28-1	S28-3			
F100	S28-3	S27-1			
F101	S28-2	S28D-C			
F102	S28A-C	S27A-C			
F103	S27D-NC	S26D-NC			
F104	S27D-NO	S26D-NO			
F105	S27-1	S27-3			
F106	S27-3	S26-1			
F107	S27-2	S27D-C			
F108	S27B-NC	S26B-NC			
F109	S26D-NC	S25D-NC			
F110	S26D-NO	S25D-NO			
F111	S26-1	S26-3			
F112	S26-3	S25-1			
F113	S26-2	S26D-C			
F114	S26A-C	S25A-C			
F115	S26B-NC	S25B-NC			
F116	S25D-NC	S24D-NC			
F117	S25D-NO	S24D-NO			
F118	S25-1	S25-3			
F119	S25-3	S24-3			
F120	S25-2	S25D-C			
F121	S25B-NC	S41B-NC			
F122	S24D-NC	S23D-NC			
F123	S24D-NO	S23D-NO			
F124	S24-1	S24-3			
F125	S24-3	S23-1			
F126	S24-2	S24D-C			
F127	S24A-C	S23A-C			
F128	S23D-NC	S22D-NC			
F129	S23D-NO	S22D-NO			
F130	S23-1	S23-3			
F131	S23-3	S22-1			
F132	S23-2	S23D-C			
F133	S22D-NC	S21D-NC			
F134	S22D-NO	S21D-NO			
F135	S22-1	S22-3			
F136	S22-3	S21-1			
F137	S22-2	S22D-C			
F138	S22A-C	S21A-C			
F139	S21D-NC	S20D-NC			
F140	S21D-NO	S20D-NO			
F141	S21-1	S21-3			
F142	S21-3	S20-1			
F143	S21-2	S21D-C			
F144	S20D-NC	S19D-NC			
F145	S20D-NO	S19D-NO			
F146	S20-1	S20-3			
F147	S20-3	S19-1			
F148	S20-2	S20D-C			
F149	S20A-C	S19A-C			
F150	S19D-NC	S18D-NC			
F151	S19D-NO	S18D-NO			
F152	S19-1	S19-3			
F153	S19-3	S18-1			
F154	S19-2	S19D-C			
F155	S18D-NC	S17D-NC			
F156	S18D-NO	S17D-NO			
F157	S18-1	S18-3			
F158	S18-3	S17-1			
F159	S18-2	S18D-C			
F160	S18A-C	S17A-C	BUS	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F161	S17D-NC	S16D-NC	BUS	22	
F162	S17D-NO	S16D-NO			
F163	S17-1	S17-3			
F164	S17-3	S16-1			
F165	S17-2	S17D-C			
F166	S16-1	S16-3			
F167	S16-2	S16D-C			
F168	S31D-NC	S32D-NC			
F169	S31D-NO	S32D-NO			
F170	S31-1	S31-3			
F171	S31-3	S32-1			
F172	S31-2	S31D-C			
F173	S32D-NC	S33D-NC			
F174	S32D-NO	S33D-NO			
F175	S32-1	S32-3			
F176	S32-3	S33-1			
F177	S32-2	S32D-C			
F178	S32A-C	S33A-C			
F179	S33D-NC	S34D-NC			
F180	S33D-NO	S34D-NO			
F181	S33-1	S33-3			
F182	S33-3	S34-1			
F183	S33-2	S33D-C			
F184	S34D-NC	S35D-NC			
F185	S34D-NO	S35D-NO			
F186	S34-1	S34-3			
F187	S34-3	S35-1			
F188	S34-2	S34D-C			
F189	S34A-C	S35A-C			
F190	S35D-NC	S36D-NC			
F191	S35D-NO	S36D-NO			
F192	S35-1	S35-3			
F193	S35-3	S36-1			
F194	S35-2	S35D-C			
F195	S36D-NC	S37D-NC			
F196	S36D-NO	S37D-NO			
F197	S36-1	S36-3			
F198	S36-3	S37-1			
F199	S36-2	S36D-C			
F200	S36A-C	S37A-C			
F201	S37D-NC	S38D-NC			
F202	S37D-NO	S38D-NO			
F203	S37-1	S37-3			
F204	S37-3	S38-1			
F205	S37-2	S37D-C			
F206	S38D-NC	S39D-NC			
F207	S38D-NO	S39D-NO			
F208	S38-1	S38-3			
F209	S38-3	S39-1			
F210	S38-2	S38D-C			
F211	S38A-C	S39A-C			
F212	S39D-NC	S40D-NC			
F213	S39D-NO	S40D-NO			
F214	S39-1	S39-3			
F215	S39-3	S40-1			
F216	S39-2	S39D-C			
F217	S40D-NC	S41D-NC			
F218	S40D-NO	S41D-NO			
F219	S40-1	S40-3			
F220	S40-3	S41-1			
F221	S40-2	S40D-C			
F222	S40A-C	S41A-C			
F223	S41D-NC	S42D-NC			
F224	S41D-NO	S42D-NO			
F225	S41-1	S41-3			
F226	S41-3	S42-1			
F227	S41-2	S41D-C			
F228	S42D-NC	S43D-NC			
F229	S42D-NO	S43D-NO			
F230	S42-1	S42-3			
F231	S42-3	S43-1			
F232	S42-2	S42DC			
F233	S42A-C	S43A-C			
F234	S43D-NC	S44D-NC			
F235	S43D-NO	S44D-NO			
F236	S43-1	S43-3			
F237	S43-3	S44-1			
F238	S43-2	S43D-C			
F239	S44D-NC	S45D-NC			
F240	S44D-NO	S45D-NO	BUS	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F241	S44-1	S44-3	BUS	22	
F242	S44-3	S45-1			
F243	S44-2	S44D-C			
F244	S44A-C	S45A-C			
F245	S45D-NC	S60D-NC			
F246	S45D-NO	S60D-NO			
F247	S45-1	S45-3			
F248	S45-3	S60-1			
F249	S45-2	S45D-C			
F250	S60D-NC	S59D-NC			
F251	S60D-NO	S59D-NO			
F252	S60-1	S60-3			
F253	S60-3	S59-1			
F254	S60-2	S60D-C			
F255	S60A-C	S75A-C			
F256	S59D-NC	S58D-NC			
F257	S59D-NO	S58D-NO			
F258	S59-1	S59-3			
F259	S59-3	S58-1			
F260	S59-2	S59D-C			
F261	S59A-C	S58A-C			
F262	S58D-NC	S57D-NC			
F263	S58D-NO	S57D-NO			
F264	S58-1	S58-3			
F265	S58-3	S57-1			
F266	S58-2	S58D-C			
F267	S57D-NC	S56D-NC			
F268	S57D-NO	S56D-NO			
F269	S57-1	S57-3			
F270	S57-3	S56-1			
F271	S57-2	S57D-C			
F272	S57A-C	S56A-C			
F273	S56D-NC	S55D-NC			
F274	S56D-NO	S55D-NO			
F275	S56-1	S56-3			
F276	S56-3	S55-1			
F277	S56-2	S56D-C			
F278	S55D-NC	S54D-NC			
F279	S55D-NO	S54D-NO			
F280	S55-1	S55-3			
F281	S55-3	S54-1			
F282	S55-2	S55D-C			
F283	S55A-C	S54A-C			
F284	S54D-NC	S53D-NC			
F285	S54D-NO	S53D-NO			
F286	S54-1	S54-3			
F287	S54-3	S53-1			
F288	S54-2	S54D-C			
F289	S53D-NC	S52D-NC			
F290	S53D-NO	S52D-NO			
F291	S53-1	S53-3			
F292	S53-3	S52-1			
F293	S53-2	S53D-C			
F294	S53A-C	S52A-C			
F295	S52D-NC	S51D-NC			
F296	S52D-NO	S51D-NO			
F297	S52-1	S52-3			
F298	S52-3	S51-1			
F299	S52-2	S52D-C			
F300	S51D-NC	S50D-NC			
F301	S51D-NO	S50D-NO			
F302	S51-1	S51-3			
F303	S51-3	S50-1			
F304	S51-2	S51D-C			
F305	S51A-C	S50A-C			
F306	S50D-NC	S49D-NC			
F307	S50D-NO	S49D-NO			
F308	S50-1	S50-3			
F309	S50-3	S49-1			
F310	S50-2	S50D-C			
F311	S49D-NC	S48D-NC			
F312	S49D-NO	S48D-NO			
F313	S49-1	S49-3			
F314	S49-3	S48-1			
F315	S49-2	S49D-C			
F316	S49A-C	S48A-C			
F317	S48D-NC	S47D-NC			
F318	S48D-NO	S47D-NO			
F319	S48-1	S48-3			
F320	S48-3	S47-1	BUS	22	

NOTES

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014045	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 7SEP65
CHECKED 25SEP65
APPROVAL 9OCT65
APPROVAL
APPROVAL
NASA APPROVAL L. G. METZGER
MIT APPROVAL
MIT APPROVAL C Smith 11/1/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LEAD ELECTRICAL
RDC INTERFACE
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014492
SCALE NONE
WT
SHEET 1 OF 2

2014492 A

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25293	10/13/65	A. Hassano
1	CHANGED PER CCA R25530 DR [illegible] CHK [illegible] APPD [illegible]	[illegible] 65	[illegible]
–	CLASS A RELEASED PER TDRR 25472		
A	CHANGED PER TDRR 26665 DR [illegible] CHK [illegible] APPD [illegible]	[illegible]	[illegible]

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F321	S48-2	S48D-C	BUS	22	
F322	S47D-NC	S46D-NC			
F323	S47D-NO	S46D-NO			
F324	S47-1	S47-3			
F325	S47-3	S46-1			
F326	S47-2	S47D-C			
F327	S47A-C	S46A-C			
F328	S46-1	S46-3			
F329	S46-2	S46D-C			
F330	S61D-NC	S62D-NC			
F331	S61D-NO	S62D-NO			
F332	S61-1	S61-3			
F333	S61-3	S62-1			
F334	S61-2	S61D-C			
F335	S61A-C	S62A-C			
F336	S62D-NC	S63D-NC			
F337	S62D-NO	S63D-NO			
F338	S62-1	S62-3			
F339	S62-3	S63-1			
F340	S62-2	S62D-C			
F341	S63D-NC	S64D-NC			
F342	S63D-NO	S64D-NO			
F343	S63-1	S63-3			
F344	S63-3	S64-1			
F345	S63-2	S63D-C			
F346	S63A-C	S64A-C			
F347	S64D-NC	S65D-NC			
F348	S64D-NO	S65D-NO			
F349	S64-1	S64-3			
F350	S64-3	S65-1			
F351	S64-2	S64D-C			
F352	S63B-NC	S64B-C			
F353	S64B-NC	S65B-C			
F354	S65D-NC	S66D-NC			
F355	S65D-NO	S66D-NO			
F356	S65-1	S65-3			
F357	S65-3	S66-1			
F358	S65-2	S65D-C			
F359	S66D-NC	S67D-NC			
F360	S66D-NO	S67D-NO			
F361	S66-1	S66-3			
F362	S66-3	S67-1			
F363	S66-2	S66D-C			
F364	S66A-C	S67A-C			
F365	S66B-NC	S67B-C			
F366	S67D-NC	S68D-NC			
F367	S67D-NO	S68D-NO			
F368	S67-1	S67-3			
F369	S67-3	S68-1			
F370	S67-2	S67D-C			
F371	S68D-NC	S69D-NC			
F372	S68D-NO	S69D-NO			
F373	S68-1	S68-3			
F374	S68-3	S69-1			
F375	S68-2	S68D-C			
F376	S69D-NC	S70D-NC			
F377	S69D-NO	S70D-NO			
F378	S69-1	S69-3			
F379	S69-3	S70-1			
F380	S69-2	S69D-C			
F381	S69A-C	S70A-C			
F382	S70D-NC	S71D-NC			
F383	S70D-NO	S71D-NO			
F384	S70-1	S70-3			
F385	S70-3	S71-1			
F386	S70-2	S70D-C			
F387	S71D-NC	S72D-NC			
F388	S71D-NO	S72D-NO			
F389	S71-1	S71-3			
F390	S71-3	S72-1			
F391	S71-2	S71D-C			
F392	S71A-C	S72A-C			
F393	S72D-NC	S73D-NC			
F394	S72D-NO	S73D-NO			
F395	S72-1	S72-3			
F396	S72-3	S73-1			
F397	S72-2	S72D-C			
F398	S73D-NC	S74D-NC			
F399	S73D-NO	S74D-NO			
F400	S73-1	S73-3	BUS	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F401	S73-3	S74-1	BUS	22	
F402	S73-2	S73D-C			
F403	S73A-C	S74A-C			
F404	S74D-NC	S75D-NC			
F405	S74D-NO	S75D-NO			
F406	S74-1	S74-3			
F407	S74-3	S75-1			
F408	S74-2	S74D-C	BUS		
F409	S75D-NC	S84D-NC	WHT		
F410	S75D-NO	S84D-NO	WHT		
F411	S75-1	S75-3	BUS		
F412	S75-3	S84-1	WHT		
F413	S75-2	S75D-C	BUS		
F414	S84D-NC	S93D-NC			
F415	S84D-NO	S93D-NO			
F416	S84-1	S84-3			
F417	S84-3	S93-1			
F418	S84-2	S84D-C			
F419	S93D-NC	S96D-NC			
F420	S93D-NO	S96D-NO			
F421	S93-1	S93-3			
F422	S93-3	S96-1			
F423	S93-2	S93D-C			
F424	S96D-NC	S95D-NC			
F425	S96D-NO	S95D-NO			
F426	S96-1	S96-3			
F427	S96-3	S95-1			
F428	S96-2	S96D-C			
F429	S95D-NC	S92D-NC			
F430	S95D-NO	S92D-NO			
F431	S95-1	S95-3			
F432	S95-3	S92-1			
F433	S95-2	S95D-C			
F434	S92D-NC	S83D-NC			
F435	S92D-NO	S83D-NO			
F436	S92-1	S92-3			
F437	S92-3	S83-1			
F438	S92-2	S92D-C			
F439	S92A-NC	S92B-NO			
F440	S92A-NO	S92B-NC			
F441	S83D-NC	S82D-NC			
F442	S83D-NO	S82D-NO			
F443	S83-1	S83-3			
F444	S83-3	S82-1			
F445	S83-2	S83D-C			
F446	S82D-NC	S91D-NC			
F447	S82D-NO	S91D-NO			
F448	S82-1	S82-3			
F449	S82-3	S91-1			
F450	S82-2	S82D-C			
F451	S91D-NC	S94D-NC			
F452	S91D-NO	S94D-NO			
F453	S91-1	S91-3			
F454	S91-3	S94-1			
F455	S91-2	S91D-C			
F456	S85-1	S85-3			
F457	S85-2	S85D-C			
F458	S94-1	S94-3	BUS		
~~F459~~	~~S87B-C~~	~~A3-2~~	~~WHT~~		
F460	S94-2	S94D-C	BUS		
F461	S90D-NC	S89D-NC			
F462	S90D-NO	S89D-NO			
F463	S90-1	S90-3			
F464	S90-3	S89-1			
F465	S90-2	S90D-C			
F466	S90A-C	S89A-C			
F467	S90B-C	S89B-C			
F468	S89D-NC	S88D-NC			
F469	S89D-NO	S88D-NO			
F470	S89-1	S89-3			
F471	S89-3	S88-1			
F472	S89-2	S89D-C			
F473	S89A-C	S88A-C			
F474	S89B-C	S88B-C			
F475	S88D-NC	S87D-NC			
F476	S88D-NO	S87D-NO			
F477	S88-1	S88-3			
F478	S88-3	S87-1			
F479	S88-2	S88D-C	BUS	22	
~~F480~~	~~S87A-C~~	~~A3-1~~	~~WHT~~	~~22~~	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F481	S79-B5	S79-B6	BUS	22	
F482	S87-1	S87-3	BUS		
F483	AIR2-ARM	A2-24	WHT		
F484	S87-2	S87D-C	BUS		
F485	S86D-NC	S81D-NC			
F486	S86D-NO	S81D-NO			
F487	S86-1	S86-3			
F488	S86-3	S81-1			
F489	S86-2	S86D-C			
F490	S81D-NC	S80D-NC			
F491	S81D-NO	S80D-NO			
F492	S81-1	S81-3			
F493	S81-3	S80-1			
F494	S81-2	S81D-C			
F495	S80D-NC	S85D-NC			
F496	S80D-NO	S85D-NO			
F497	S80-1	S80-3			
F498	S80-3	S85-1			
F499	S80-2	S80D-C			
F500	S80B-NC	S80C-NO	BUS		
F501	S76A-1	AIR1-CCW	WHT		
F502	S76A-2	AIR2-CCW			
F503	S76A-3	AIR3-CCW			
F504	S76A-4	AIR4-CCW			
F505	S76A-5	AIR5-CCW			
F506	S76C-5	S80C-C	WHT		
F507	S77A-D1	S89A-C	BLK		
	S77A-C1	S89B-C	WHT		
F508	S78A-ARM	S79-A1			
F509	S78B-ARM	S79-A2			
F510	S78C-ARM	S79-A3			
F511	S78D-ARM	S79-A4			
F512	S78E-ARM	S79-A5	WHT		
F513	S77B-D3	S77B-D2	BUS		
F514	S88A-NO	A3-13	BLK		
	S88B-NO	A3-14	WHT		
F515	S79-B2	S79-B3	BUS		
F516	S79-B3	S79-B4	BUS		
F517	S79-B4	S79-B5	BUS		
F518	S87A-NO	A3-3	BLK		
	S87B-NO	A3-6	WHT		
F519	S90A-NO	A3-22	BLK		
	S90B-NO	A3-31	WHT		
F520	S89A-NO	A3-19	BLK		
	S89B-NO	A3-20	WHT		
F521	S79-B1	S79-B2	BUS		
F522	S77A-A1	S77A-A2	BUS		
F523	S77A-B1	S77A-B2	BUS		
F524	S77A-A2	S77B-B1	WHT		
F525	S87B-C	A3-2	WHT		
	S87A-C	A3-1	BLK	22	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN A. J. [illegible] DATE 7SEP65
CHECKED [illegible] 25SEP65
APPROVAL [illegible] 9 Oct 65
APPROVAL D. O'[illegible] 10/8/65
APPROVAL [illegible] 10/13/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL C Shea 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LEAD ELECTRICAL
RDC INTERFACE
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014492
SCALE NONE
WT
SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F1	S1D-NC	S2D-NC	BUS	22	
F2	S1D-NO	S2D-NO			
F3	S1-2	S1D-C			
F4	S1-3	S1-1			
F5	S1-3	S2-1			
F6	S1A-C	S16A-C			
F7	S2D-NC	S3D-NC			
F8	S2D-NO	S3D-NO			
F9	S2-2	S2D-C			
F10	S2-1	S2-3			
F11	S2-3	S3-1			
F12	S2A-C	S3A-C			
F13	S3D-NC	S4D-NC			
F14	S3D-NO	S4D-NO			
F15	S3-2	S3D-C			
F16	S3-1	S3-3			
F17	S3-3	S4-1			
F18	S4D-NC	S5D-NC			
F19	S4D-NO	S5D-NO			
F20	S4-2	S4D-C			
F21	S4-1	S4-3			
F22	S4-3	S5-1			
F23	S4A-C	S5A-C			
F24	S5D-NC	S6D-NC			
F25	S5D-NO	S6D-NO			
F26	S5-2	S5D-C			
F27	S5-1	S5-3			
F28	S5-3	S6-1			
F29	S6D-NC	S7D-NC			
F30	S6D-NO	S7D-NO			
F31	S6-2	S6D-C			
F32	S6-1	S6-3			
F33	S6-3	S7-1			
F34	S6A-C	S7A-C			
F35	S7D-NC	S8D-NC			
F36	S7D-NO	S8D-NO			
F37	S7-2	S7D-C			
F38	S7-1	S7-3			
F39	S7-3	S8-1			
F40	S8D-NC	S9D-NC			
F41	S8D-NO	S9D-NO			
F42	S8-2	S8D-C			
F43	S8-1	S8-3			
F44	S8A-C	S9A-C			
F45	S8-3	S9-1			
F46	S9D-NC	S10D-NC			
F47	S9D-NO	S10D-NO			
F48	S9-2	S9D-C			
F49	S9-1	S9-3			
F50	S9-3	S10-1			
F51	S9B-NC	S10B-NC			
F52	S10D-NC	S11D-NC			
F53	S10D-NO	S11D-NO			
F54	S10-2	S10D-C			
F55	S10-1	S10-3			
F56	S10-3	S11-1	BUS		
F57	S10B-NC	S14B-NC	WHT		
F58	S10A-C	S11A-C	BUS		
F59	S11D-NC	S12D-NC			
F60	S11D-NO	S12D-NO			
F61	S11-2	S11D-C			
F62	S11-1	S11-3			
F63	S11-3	S12-1			
F64	S12D-NC	S13D-NC			
F65	S12D-NO	S13D-NO			
F66	S12-2	S12D-C			
F67	S12-1	S12-3			
F68	S12-3	S13-1			
F69	S12A-C	S13A-C			
F70	S13D-NC	S14D-NC			
F71	S13D-NO	S14D-NO			
F72	S13-1	S13-3			
F73	S13-3	S14-1			
F74	S13-2	S13D-C			
F75	S14D-NC	S15D-NC			
F76	S14D-NO	S15D-NO			
F77	S14-1	S14-3			
F78	S14-3	S15-1			
F79	S14A-C	S15A-C			
F80	S14-2	S14D-C	BUS	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F81	S15D-NC	S30D-NC	BUS	22	
F82	S15D-NO	S30D-NO			
F83	S15-1	S15-3			
F84	S15-3	S30-1			
F85	S15-2	S15D-C			
F86	S30D-NC	S29D-NC			
F87	S30D-NO	S29D-NO			
F88	S30-1	S30-3			
F89	S30-3	S29-1			
F90	S30-2	S30D-C			
F91	S30A-C	S29A-C			
F92	S29D-NC	S28D-NC			
F93	S29D-NO	S28D-NO			
F94	S29-1	S29-3			
F95	S29-3	S28-1			
F96	S29-2	S29D-C			
F97	S28D-NC	S27D-NC			
F98	S28D-NO	S27D-NO			
F99	S28-1	S28-3			
F100	S28-3	S27-1			
F101	S28-2	S28D-C			
F102	S28A-C	S27A-C			
F103	S27D-NC	S26D-NC			
F104	S27D-NO	S26D-NO			
F105	S27-1	S27-3			
F106	S27-3	S26-1			
F107	S27-2	S27D-C			
F108	S27B-NC	S26B-NC			
F109	S26D-NC	S25D-NC			
F110	S26D-NO	S25D-NO			
F111	S26-1	S26-3			
F112	S26-3	S25-1			
F113	S26-2	S26D-C			
F114	S26A-C	S25A-C			
F115	S26B-NC	S25B-NC			
F116	S25D-NC	S24D-NC			
F117	S25D-NO	S24D-NO			
F118	S25-1	S25-3			
F119	S25-3	S24-3			
F120	S25-2	S25D-C			
F121	S25B-NC	S41B-NC			
F122	S24D-NC	S23D-NC			
F123	S24D-NO	S23D-NO			
F124	S24-1	S24-3			
F125	S24-3	S23-1			
F126	S24-2	S24D-C			
F127	S24A-C	S23A-C			
F128	S23D-NC	S22D-NC			
F129	S23D-NO	S22D-NO			
F130	S23-1	S23-3			
F131	S23-3	S22-1			
F132	S23-2	S23D-C			
F133	S22D-NC	S21D-NC			
F134	S22D-NO	S21D-NO			
F135	S22-1	S22-3			
F136	S22-3	S21-1			
F137	S22-2	S22D-C			
F138	S22A-C	S21A-C			
F139	S21D-NC	S20D-NC			
F140	S21D-NO	S20D-NO			
F141	S21-1	S21-3			
F142	S21-3	S20-1			
F143	S21-2	S21D-C			
F144	S20D-NC	S19D-NC			
F145	S20D-NO	S19D-NO			
F146	S20-1	S20-3			
F147	S20-3	S19-1			
F148	S20-2	S20D-C			
F149	S20A-C	S19A-C			
F150	S19D-NC	S18D-NC			
F151	S19D-NO	S18D-NO			
F152	S19-1	S19-3			
F153	S19-3	S18-1			
F154	S19-2	S19D-C			
F155	S18D-NC	S17D-NC			
F156	S18D-NO	S17D-NO			
F157	S18-1	S18-3			
F158	S18-3	S17-1			
F159	S18-2	S18D-C			
F160	S18A-C	S17A-C	BUS	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F161	S17D-NC	S16D-NC	BUS	22	
F162	S17D-NO	S16D-NO			
F163	S17-1	S17-3			
F164	S17-3	S16-1			
F165	S17-2	S17D-C			
F166	S16-1	S16-3			
F167	S16-2	S16D-C			
F168	S31D-NC	S32D-NC			
F169	S31D-NO	S32D-NO			
F170	S31-1	S31-3			
F171	S31-3	S32-1			
F172	S31-2	S31D-C			
F173	S32D-NC	S33D-NC			
F174	S32D-NO	S33D-NO			
F175	S32-1	S32-3			
F176	S32-3	S33-1			
F177	S32-2	S32D-C			
F178	S32A-C	S33A-C			
F179	S33D-NC	S34D-NC			
F180	S33D-NO	S34D-NO			
F181	S33-1	S33-3			
F182	S33-3	S34-1			
F183	S33-2	S33D-C			
F184	S34D-NC	S35D-NC			
F185	S34D-NO	S35D-NO			
F186	S34-1	S34-3			
F187	S34-3	S35-1			
F188	S34-2	S34D-C			
F189	S34A-C	S35A-C			
F190	S35D-NC	S36D-NC			
F191	S35D-NO	S36D-NO			
F192	S35-1	S35-3			
F193	S35-3	S36-1			
F194	S35-2	S35D-C			
F195	S36D-NC	S37D-NC			
F196	S36D-NO	S37D-NO			
F197	S36-1	S36-3			
F198	S36-3	S37-1			
F199	S36-2	S36D-C			
F200	S36A-C	S37A-C			
F201	S37D-NC	S38D-NC			
F202	S37D-NO	S38D-NO			
F203	S37-1	S37-3			
F204	S37-3	S38-1			
F205	S37-2	S37D-C			
F206	S38D-NC	S39D-NC			
F207	S38D-NO	S39D-NO			
F208	S38-1	S38-3			
F209	S38-3	S39-1			
F210	S38-2	S38D-C			
F211	S38A-C	S39A-C			
F212	S39D-NC	S40D-NC			
F213	S39D-NO	S40D-NO			
F214	S39-1	S39-3			
F215	S39-3	S40-1			
F216	S39-2	S39D-C			
F217	S40D-NC	S41D-NC			
F218	S40D-NO	S41D-NO			
F219	S40-1	S40-3			
F220	S40-3	S41-1			
F221	S40-2	S40D-C			
F222	S40A-C	S41A-C			
F223	S41D-NC	S42D-NC			
F224	S41D-NO	S42D-NO			
F225	S41-1	S41-3			
F226	S41-3	S42-1			
F227	S41-2	S41D-C			
F228	S42D-NC	S43D-NC			
F229	S42D-NO	S43D-NO			
F230	S42-1	S42-3			
F231	S42-3	S43-1			
F232	S42-2	S42DC			
F233	S42A-C	S43A-C			
F234	S43D-NC	S44D-NC			
F235	S43D-NO	S44D-NO			
F236	S43-1	S43-3			
F237	S43-3	S44-1			
F238	S43-2	S43D-C			
F239	S44D-NC	S45D-NC			
F240	S44D-NO	S45D-NO	BUS	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F241	S44-1	S44-3	BUS	22	
F242	S44-3	S45-1			
F243	S44-2	S44D-C			
F244	S44A-C	S45A-C			
F245	S45D-NC	S60D-NC			
F246	S45D-NO	S60D-NO			
F247	S45-1	S45-3			
F248	S45-3	S60-1			
F249	S45-2	S45D-C			
F250	S60D-NC	S59D-NC			
F251	S60D-NO	S59D-NO			
F252	S60-1	S60-3			
F253	S60-3	S59-1			
F254	S60-2	S60D-C			
F255	S60A-C	S75A-C			
F256	S59D-NC	S58D-NC			
F257	S59D-NO	S58D-NO			
F258	S59-1	S59-3			
F259	S59-3	S58-1			
F260	S59-2	S59D-C			
F261	S59A-C	S58A-C			
F262	S58D-NC	S57D-NC			
F263	S58D-NO	S57D-NO			
F264	S58-1	S58-3			
F265	S58-3	S57-1			
F266	S58-2	S58D-C			
F267	S57D-NC	S56D-NC			
F268	S57D-NO	S56D-NO			
F269	S57-1	S57-3			
F270	S57-3	S56-1			
F271	S57-2	S57D-C			
F272	S57A-C	S56A-C			
F273	S56D-NC	S55D-NC			
F274	S56D-NO	S55D-NO			
F275	S56-1	S56-3			
F276	S56-3	S55-1			
F277	S56-2	S56D-C			
F278	S55D-NC	S54D-NC			
F279	S55D-NO	S54D-NO			
F280	S55-1	S55-3			
F281	S55-3	S54-1			
F282	S55-2	S55D-C			
F283	S55A-C	S54A-C			
F284	S54D-NC	S53D-NC			
F285	S54D-NO	S53D-NO			
F286	S54-1	S54-3			
F287	S54-3	S53-1			
F288	S54-2	S54D-C			
F289	S53D-NC	S52D-NC			
F290	S53D-NO	S52D-NO			
F291	S53-1	S53-3			
F292	S53-3	S52-1			
F293	S53-2	S53D-C			
F294	S53A-C	S52A-C			
F295	S52D-NC	S51D-NC			
F296	S52D-NO	S51D-NO			
F297	S52-1	S52-3			
F298	S52-3	S51-1			
F299	S52-2	S52D-C			
F300	S51D-NC	S50D-NC			
F301	S51D-NO	S50D-NO			
F302	S51-1	S51-3			
F303	S51-3	S50-1			
F304	S51-2	S51D-C			
F305	S51A-C	S50A-C			
F306	S50D-NC	S49D-NC			
F307	S50D-NO	S49D-NO			
F308	S50-1	S50-3			
F309	S50-3	S49-1			
F310	S50-2	S50D-C			
F311	S49D-NC	S48D-NC			
F312	S49D-NO	S48D-NO			
F313	S49-1	S49-3			
F314	S49-3	S48-1			
F315	S49-2	S49D-C			
F316	S49A-C	S48A-C			
F317	S48D-NC	S47D-NC			
F318	S48D-NO	S47D-NO			
F319	S48-1	S48-3			
F320	S48-3	S47-1	BUS	22	

NOTES
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25293	10/13/65	
1	CHANGED PER CCA R25530 DR CHK APPD	65	
–	CLASS A RELEASED PER TDRR 25972		
A	CHANGED PER TDRR 26665 DR CHK APPD	3/66	
B	CHANGED PER TDRR 26692 DR Q. J. CHK APPD	3/23/66	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 7SEP65
CHECKED 25SEP65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL G. METZGER
MIT APPROVAL
MIT APPROVAL C. 1/4/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LEAD ELECTRICAL
RDC INTERFACE
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014492
SCALE NONE
SHEET 1 OF 2

MASTER

2014492 B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA C25293	10/13/65	
1	CHANGED PER CCA R25530 DR [illegible] CHK [illegible] APPD [illegible]	[illegible] 65	
—	CLASS A RELEASED PER TDRR	[illegible]	
A	CHANGED PER TDRR 26665 DR B. [illegible] CHK [illegible] APPD [illegible]	3/2/66	
B	CHANGED PER TDRR 26692 DR C. [illegible] Green CHK [illegible] APPD [illegible]	3/24/66	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F321	S98-2	S98D-C	BUS	22	
F322	S97D-NC	S96D-NC	↑	↑	
F323	S97D-NO	S96D-NO			
F324	S97-1	S97-3			
F325	S97-3	S96-1			
F326	S97-2	S97D-C			
F327	S97A-C	S96A-C			
F328	S96-1	S96-3			
F329	S96-2	S96D-C			
F330	S61D-NC	S62D-NC			
F331	S61D-NC	S62D-NO			
F332	S61-1	S61-3			
F333	S61-3	S62-1			
F334	S61-2	S61D-C			
F335	S61A-C	S62A-C			
F336	S62D-NC	S63D-NC			
F337	S62D-NO	S63D-NO			
F338	S62-1	S62-3			
F339	S62-3	S63-1			
F340	S62-2	S62D-C			
F341	S63D-NC	S64D-NC			
F342	S63D-NO	S64D-NO			
F343	S63-1	S63-3			
F344	S63-3	S64-1			
F345	S63-2	S63D-C			
F346	S63A-C	S64A-C			
F347	S64D-NC	S65D-NC			
F348	S64D-NO	S65D-NC			
F349	S64-1	S64-3			
F350	S64-3	S65-1			
F351	S64-2	S64D-C			
F352	S63B-NC	S64B-C			
F353	S64B-NC	S65B-C			
F354	S65D-NC	S66D-NC			
F355	S65D-NO	S66D-NO			
F356	S65-1	S65-3			
F357	S65-3	S66-1			
F358	S65-2	S65D-C			
F359	S66D-NC	S67D-NC			
F360	S66D-NO	S67D-NO			
F361	S66-1	S66-3			
F362	S66-3	S67-1			
F363	S66-2	S66D-C			
F364	S66A-C	S67A-C			
F365	S66B-NC	S67B-C			
F366	S67D-NC	S68D-NC			
F367	S67D-NO	S68D-NO			
F368	S67-1	S67-3			
F369	S67-3	S68-1			
F370	S67-2	S67D-C			
F371	S68D-NC	S69D-NC			
F372	S68D-NO	S69D-NO			
F373	S68-1	S68-3			
F374	S68-3	S69-1			
F375	S68-2	S68D-C			
F376	S69D-NC	S70D-NC			
F377	S69D-NO	S70D-NO			
F378	S69-1	S69-3			
F379	S69-3	S70-1			
F380	S69-2	S69D-C			
F381	S69A-C	S70A-C			
F382	S70D-NC	S71D-NC			
F383	S70D-NO	S71D-NO			
F384	S70-1	S70-3			
F385	S70-3	S71-1			
F386	S70-2	S70D-C			
F387	S71D-NC	S72D-NC			
F388	S71D-NO	S72D-NO			
F389	S71-1	S71-3			
F390	S71-3	S72-1			
F391	S71-2	S71D-C			
F392	S71A-C	S72A-C			
F393	S72D-NC	S73D-NC			
F394	S72D-NO	S73D-NO			
F395	S72-1	S72-3			
F396	S72-3	S73-1			
F397	S72-2	S72D-C			
F398	S73D-NC	S74D-NC			
F399	S73D-NO	S74D-NO	↓	↓	
F400	S73-1	S73-3	BUS	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F401	S73-3	S74-1	BUS	22	
F402	S73-2	S73D-C	↑	↑	
F403	S73A-C	S74A-C			
F404	S74D-NC	S75D-NC			
F405	S74D-NO	S75D-NO			
F406	S74-1	S74-3			
F407	S74-3	S75-1	↓		
F408	S74-2	S74D-C	BUS		
F409	S75D-NC	S84D-NC	WHT		
F410	S75D-NO	S84D-NO	WHT		
F411	S75-1	S75-3	BUS		
F412	S75-3	S84-1	WHT		
F413	S75-2	S75D-C	BUS		
F414	S84D-NC	S93D-NC	↑		
F415	S84D-NO	S93D-NO			
F416	S84-1	S84-3			
F417	S84-3	S93-1			
F418	S84-2	S84D-C			
F419	S93D-NC	S96D-NC			
F420	S93D-NO	S96D-NO			
F421	S93-1	S93-3			
F422	S93-3	S96-1			
F423	S93-2	S93D-C			
F424	S96D-NC	S95D-NC			
F425	S96D-NO	S95D-NO			
F426	S96-1	S96-3			
F427	S96-3	S95-1			
F428	S96-2	S96D-C			
F429	S95D-NC	S92D-NC			
F430	S95D-NO	S92D-NO			
F431	S95-1	S95-3			
F432	S95-3	S92-1			
F433	S95-2	S95D-C			
F434	S92D-NC	S83D-NC			
F435	S92D-NO	S83D-NO			
F436	S92-1	S92-3			
F437	S92-3	S83-1			
F438	S92-2	S92D-C			
F439	S92A-NC	S92B-NO			
F440	S92A-NO	S92B-NC			
F441	S83D-NC	S82D-NC			
F442	S83D-NO	S82D-NO			
F443	S83-1	S83-3			
F444	S83-3	S82-1			
F445	S83-2	S83D-C			
F446	S82D-NC	S91D-NC			
F447	S82D-NO	S91D-NO			
F448	S82-1	S82-3			
F449	S82-3	S91-1			
F450	S82-2	S82D-C			
F451	S91D-NC	S94D-NC			
F452	S91D-NO	S94D-NO			
F453	S91-1	S91-3			
F454	S91-3	S94-1			
F455	S91-2	S91D-C			
F456	S85-1	S85-3			
F457	S85-2	S85D-C	↓		
F458	S94-1	S94-3	BUS		
~~F459~~	~~S87B-C~~	~~A3-2~~	~~WHT~~		
F460	S94-2	S94D-C	BUS		
F461	S90D-NC	S89D-NC	↑		
F462	S90D-NO	S89D-NO			
F463	S90-1	S90-3			
F464	S90-3	S89-1			
F465	S90-2	S90D-C			
F466	S90A-C	S89A-C			
F467	S90B-C	S89B-C			
F468	S89D-NC	S88D-NC			
F469	S89D-NO	S88D-NO			
F470	S89-1	S89-3			
F471	S89-3	S88-1			
F472	S89-2	S89D-C			
F473	S89A-C	S88A-C			
F474	S89B-C	S88B-C			
F475	S88D-NC	S87D-NC			
F476	S88D-NO	S87D-NO			
F477	S88-1	S88-3			
F478	S88-3	S87-1	↓	↓	
F479	S88-2	S88D-C	BUS	22	
~~F480~~	~~S87A-C~~	~~A3-1~~	~~WHT~~	~~22~~	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F481	S79-B5	S79-B6	BUS	22	
F482	S87-1	S87-3	BUS	↑	
F483	AIR2-ARM	A2-24	WHT		
F484	S87-2	S87D-C	BUS		
F485	S86D-NC	S81D-NC	↑		
F486	S86D-NO	S81D-NO			
F487	S86-1	S86-3			
F488	S86-3	S81-1			
F489	S86-2	S86D-C			
F490	S81D-NC	S80D-NC			
F491	S81D-NO	S80D-NO			
F492	S81-1	S81-3			
F493	S81-3	S80-1			
F494	S81-2	S81D-C			
F495	S80D-NC	S85D-NC			
F496	S80D-NO	S85D-NO			
F497	S80-1	S80-3			
F498	S80-3	S85-1			
F499	S80-2	S80D-C	↓		
F500	S80B-NC	S80C-NO	BUS		
F501	S76A-5	AIR5-CCW	WHT		
F502	S76A-4	AIR4-CCW	↑		
F503	S76A-3	AIR3-CCW			
F504	S76A-2	AIR2-CCW			
F505	S76A-1	AIR1-CCW	↓		
F506	S76C-5	S80C-C	WHT		
F507	S77A-D1	S89A-C	BLK		
	S77A-C1	S89B-C	WHT		
F508	S78A-ARM	S79-A1	↑		
F509	S78B-ARM	S79-A2			
F510	S78C-ARM	S79-A3			
F511	S78D-ARM	S79-A4	↓		
F512	S78E-ARM	S79-A5	WHT		
F513	S77B-D3	S77B-D2	BUS		
F514	S88A-NO	A3-13	BLK		
	S88B-NO	A3-14	WHT		
F515	S79-B2	S79-B3	BUS		
F516	S79-B3	S79-B4	BUS		
F517	S79-B4	S79-B5	BUS		
F518	S87A-NO	A3-3	BLK		
	S87B-NO	A3-6	WHT		
F519	S90A-NO	A3-22	BLK		
	S90B-NO	A3-31	WHT		
F520	S89A-NO	A3-19	BLK		
	S89B-NO	A3-20	WHT		
F521	S79-B1	S79-B2	BUS		
F522	S77A-A1	S77A-A2	BUS		
F523	S77A-B1	S77A-B2	BUS		
F524	S77A-A2	S77B-B1	WHT		
F525	S87B-C	A3-2	WHT	↓	
	S87A-C	A3-1	BLK	22	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 7SEP65
CHECKED [illegible] 25SEP65
APPROVAL [illegible] 9OCT65
APPROVAL [illegible] 10/8/65
APPROVAL [illegible] 10/13/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 21 Jan 66
MIT APPROVAL C Sterle 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LEAD ELECTRICAL
RDC INTERFACE
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014492
SCALE NONE | WT | SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

2014492 B

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25293	10/13/65	G. Hansen
1	CHANGED PER CCA R25530 DR Ry Conde CHK J Walworth APPD C Clinton	17 Nov 65	
–	CLASS A RELEASED PER TORR 25972		

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F1	S1D-NC	S2D-NC	BUS	22	
F2	S1D-NO	S2D-NO			
F3	S1-2	S1D-C			
F4	S1-3	S1-1			
F5	S1-3	S2-1			
F6	S1A-C	S16A-C			
F7	S2D-NC	S3D-NC			
F8	S2D-NO	S3D-NO			
F9	S2-2	S2D-C			
F10	S2-1	S2-3			
F11	S2-3	S3-1			
F12	S2A-C	S3A-C			
F13	S3D-NC	S4D-NC			
F14	S3D-NO	S4D-NO			
F15	S3-2	S3D-C			
F16	S3-1	S3-3			
F17	S3-3	S4-1			
F18	S4D-NC	S5D-NC			
F19	S4D-NO	S5D-NO			
F20	S4-2	S4D-C			
F21	S4-1	S4-3			
F22	S4-3	S5-1			
F23	S4A-C	S5A-C			
F24	S5D-NC	S6D-NC			
F25	S5D-NO	S6D-NO			
F26	S5-2	S5D-C			
F27	S5-1	S5-3			
F28	S5-3	S6-1			
F29	S6D-NC	S7D-NC			
F30	S6D-NO	S7D-NO			
F31	S6-2	S6D-C			
F32	S6-1	S6-3			
F33	S6-3	S7-1			
F34	S6A-C	S7A-C			
F35	S7D-NC	S8D-NC			
F36	S7D-NO	S8D-NO			
F37	S7-2	S7D-C			
F38	S7-1	S7-3			
F39	S7-3	S8-1			
F40	S8D-NC	S9D-NC			
F41	S8D-NO	S9D-NO			
F42	S8-2	S8D-C			
F43	S8-1	S8-3			
F44	S8A-C	S9A-C			
F45	S8-3	S9-1			
F46	S9D-NC	S10D-NC			
F47	S9D-NO	S10D-NO			
F48	S9-2	S9D-C			
F49	S9-1	S9-3			
F50	S9-3	S10-1			
F51	S9B-NC	S10B-NC			
F52	S10D-NC	S11D-NC			
F53	S10D-NO	S11D-NO			
F54	S10-2	S10D-C			
F55	S10-1	S10-3			
F56	S10-3	S11-1	BUS		
F57	S10B-NC	S14B-NC	WHT		
F58	S10A-C	S11A-C	BUS		
F59	S11D-NC	S12D-NC			
F60	S11D-NO	S12D-NO			
F61	S11-2	S11D-C			
F62	S11-1	S11-3			
F63	S11-3	S12-1			
F64	S12D-NC	S13D-NC			
F65	S12D-NO	S13D-NO			
F66	S12-2	S12D-C			
F67	S12-1	S12-3			
F68	S12-3	S13-1			
F69	S12A-C	S13A-C			
F70	S13D-NC	S14D-NC			
F71	S13D-NO	S14D-NO			
F72	S13-1	S13-3			
F73	S13-3	S14-1			
F74	S13-2	S13D-C			
F75	S14D-NC	S15D-NC			
F76	S14D-NO	S15D-NO			
F77	S14-1	S14-3			
F78	S14-3	S15-1			
F79	S14A-C	S15A-C			
F80	S14-2	S14D-C	BUS	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F81	S15D-NC	S30D-NC	BUS	22	
F82	S15D-NO	S30D-NO			
F83	S15-1	S15-3			
F84	S15-3	S30-1			
F85	S15-2	S15D-C			
F86	S30D-NC	S29D-NC			
F87	S30D-NO	S29D-NO			
F88	S30-1	S30-3			
F89	S30-3	S29-1			
F90	S30-2	S30D-C			
F91	S30A-C	S29A-C			
F92	S29D-NC	S28D-NC			
F93	S29D-NO	S28D-NO			
F94	S29-1	S29-3			
F95	S29-3	S28-1			
F96	S29-2	S29D-C			
F97	S28D-NC	S27D-NC			
F98	S28D-NO	S27D-NO			
F99	S28-1	S28-3			
F100	S28-3	S27-1			
F101	S28-2	S28D-C			
F102	S28A-C	S27A-C			
F103	S27D-NC	S26D-NC			
F104	S27D-NO	S26D-NO			
F105	S27-1	S27-3			
F106	S27-3	S26-1			
F107	S27-2	S27D-C			
F108	S27B-NC	S26B-NC			
F109	S26D-NC	S25D-NC			
F110	S26D-NO	S25D-NO			
F111	S26-1	S26-3			
F112	S26-3	S25-1			
F113	S26-2	S26D-C			
F114	S26A-C	S25A-C			
F115	S26B-NC	S25B-NC			
F116	S25D-NC	S24D-NC			
F117	S25D-NO	S24D-NO			
F118	S25-1	S25-3			
F119	S25-3	S24-3			
F120	S25-2	S25D-C			
F121	S25B-NC	S41B-NC			
F122	S24D-NC	S23D-NC			
F123	S24D-NO	S23D-NO			
F124	S24-1	S24-3			
F125	S24-3	S23-1			
F126	S24-2	S24D-C			
F127	S24A-C	S23A-C			
F128	S23D-NC	S22D-NC			
F129	S23D-NO	S22D-NO			
F130	S23-1	S23-3			
F131	S23-3	S22-1			
F132	S23-2	S23D-C			
F133	S22D-NC	S21D-NC			
F134	S22D-NO	S21D-NO			
F135	S22-1	S22-3			
F136	S22-3	S21-1			
F137	S22-2	S22D-C			
F138	S22A-C	S21A-C			
F139	S21D-NC	S20D-NC			
F140	S21D-NO	S20D-NO			
F141	S21-1	S21-3			
F142	S21-3	S20-1			
F143	S21-2	S21D-C			
F144	S20D-NC	S19D-NC			
F145	S20D-NO	S19D-NO			
F146	S20-1	S20-3			
F147	S20-3	S19-1			
F148	S20-2	S20D-C			
F149	S20A-C	S19A-C			
F150	S19D-NC	S18D-NC			
F151	S19D-NO	S18D-NO			
F152	S19-1	S19-3			
F153	S19-3	S18-1			
F154	S19-2	S19D-C			
F155	S18D-NC	S17D-NC			
F156	S18D-NO	S17D-NO			
F157	S18-1	S18-3			
F158	S18-3	S17-1			
F159	S18-2	S18D-C			
F160	S18A-C	S17A-C	BUS	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F161	S17D-NC	S16D-NC	BUS	22	
F162	S17D-NO	S16D-NO			
F163	S17-1	S17-3			
F164	S17-3	S16-1			
F165	S17-2	S17D-C			
F166	S16-1	S16-3			
F167	S16-2	S16D-C			
F168	S31D-NC	S32D-NC			
F169	S31D-NO	S32D-NO			
F170	S31-1	S31-3			
F171	S31-3	S32-1			
F172	S31-2	S31D-C			
F173	S32D-NC	S33D-NC			
F174	S32D-NO	S33D-NO			
F175	S32-1	S32-3			
F176	S32-3	S33-1			
F177	S32-2	S32D-C			
F178	S32A-C	S33A-C			
F179	S33D-NC	S34D-NC			
F180	S33D-NO	S34D-NO			
F181	S33-1	S33-3			
F182	S33-3	S34-1			
F183	S33-2	S33D-C			
F184	S34D-NC	S35D-NC			
F185	S34D-NO	S35D-NO			
F186	S34-1	S34-3			
F187	S34-3	S35-1			
F188	S34-2	S34D-C			
F189	S34A-C	S35A-C			
F190	S35D-NC	S36D-NC			
F191	S35D-NO	S36D-NO			
F192	S35-1	S35-3			
F193	S35-3	S36-1			
F194	S35-2	S35D-C			
F195	S36D-NC	S37D-NC			
F196	S36D-NO	S37D-NO			
F197	S36-1	S36-3			
F198	S36-3	S37-1			
F199	S36-2	S36D-C			
F200	S36A-C	S37A-C			
F201	S37D-NC	S38D-NC			
F202	S37D-NO	S38D-NO			
F203	S37-1	S37-3			
F204	S37-3	S38-1			
F205	S37-2	S37D-C			
F206	S38D-NC	S39D-NC			
F207	S38D-NO	S39D-NO			
F208	S38-1	S38-3			
F209	S38-3	S39-1			
F210	S38-2	S38D-C			
F211	S38A-C	S39A-C			
F212	S39D-NC	S40D-NC			
F213	S39D-NO	S40D-NO			
F214	S39-1	S39-3			
F215	S39-3	S40-1			
F216	S39-2	S39D-C			
F217	S40D-NC	S41D-NC			
F218	S40D-NO	S41D-NO			
F219	S40-1	S40-3			
F220	S40-3	S41-1			
F221	S40-2	S40D-C			
F222	S40A-C	S41A-C			
F223	S41D-NC	S42D-NC			
F224	S41D-NO	S42D-NO			
F225	S41-1	S41-3			
F226	S41-3	S42-1			
F227	S41-2	S41D-C			
F228	S42D-NC	S43D-NC			
F229	S42D-NO	S43D-NO			
F230	S42-1	S42-3			
F231	S42-3	S43-1			
F232	S42-2	S42D C			
F233	S42A-C	S43A-C			
F234	S43D-NC	S44D-NC			
F235	S43D-NO	S44D-NO			
F236	S43-1	S43-3			
F237	S43-3	S44-1			
F238	S43-2	S43D-C			
F239	S44D-NC	S45D-NC			
F240	S44D-NO	S45D-NO	BUS	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F241	S44-1	S44-3	BUS	22	
F242	S44-3	S45-1			
F243	S44-2	S44D-C			
F244	S44A-C	S45A-C			
F245	S45D-NC	S60D-NC			
F246	S45D-NO	S60D-NO			
F247	S45-1	S45-3			
F248	S45-3	S60-1			
F249	S45-2	S45D-C			
F250	S60D-NC	S59D-NC			
F251	S60D-NO	S59D-NO			
F252	S60-1	S60-3			
F253	S60-3	S59-1			
F254	S60-2	S60D-C			
F255	S60A-C	S75A-C			
F256	S59D-NC	S58D-NC			
F257	S59D-NO	S58D-NO			
F258	S59-1	S59-3			
F259	S59-3	S58-1			
F260	S59-2	S59D-C			
F261	S59A-C	S58A-C			
F262	S58D-NC	S57D-NC			
F263	S58D-NO	S57D-NO			
F264	S58-1	S58-3			
F265	S58-3	S57-1			
F266	S58-2	S58D-C			
F267	S57D-NC	S56D-NC			
F268	S57D-NO	S56D-NO			
F269	S57-1	S57-3			
F270	S57-3	S56-1			
F271	S57-2	S57D-C			
F272	S57A-C	S56A-C			
F273	S56D-NC	S55D-NC			
F274	S56D-NO	S55D-NO			
F275	S56-1	S56-3			
F276	S56-3	S55-1			
F277	S56-2	S56D-C			
F278	S55D-NC	S54D-NC			
F279	S55D-NO	S54D-NO			
F280	S55-1	S55-3			
F281	S55-3	S54-1			
F282	S55-2	S55D-C			
F283	S55A-C	S54A-C			
F284	S54D-NC	S53D-NC			
F285	S54D-NO	S53D-NO			
F286	S54-1	S54-3			
F287	S54-3	S53-1			
F288	S54-2	S54D-C			
F289	S53D-NC	S52D-NC			
F290	S53D-NO	S52D-NO			
F291	S53-1	S53-3			
F292	S53-3	S52-1			
F293	S53-2	S53D-C			
F294	S53A-C	S52A-C			
F295	S52D-NC	S51D-NC			
F296	S52D-NO	S51D-NO			
F297	S52-1	S52-3			
F298	S52-3	S51-1			
F299	S52-2	S52D-C			
F300	S51D-NC	S50D-NC			
F301	S51D-NO	S50D-NO			
F302	S51-1	S51-3			
F303	S51-3	S50-1			
F304	S51-2	S51D-C			
F305	S51A-C	S50A-C			
F306	S50D-NC	S49D-NC			
F307	S50D-NO	S49D-NO			
F308	S50-1	S50-3			
F309	S50-3	S49-1			
F310	S50-2	S50D-C			
F311	S49D-NC	S48D-NC			
F312	S49D-NO	S48D-NO			
F313	S49-1	S49-3			
F314	S49-3	S48-1			
F315	S49-2	S49D-C			
F316	S49A-C	S48A-C			
F317	S48D-NC	S47D-NC			
F318	S48D-NO	S47D-NO			
F319	S48-1	S48-3			
F320	S48-3	S47-1	BUS	22	

NOTES

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

NEXT ASSY	USED ON
2014045	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 7 SEP 65
CHECKED J. Walworth 25 SEP 65
APPROVAL 9 Oct 65
APPROVAL
APPROVAL 11/16/65
NASA APPROVAL C. G. METZGER
MIT APPROVAL
MIT APPROVAL C Sperling 1/4/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LEAD ELECTRICAL
RDC INTERFACE
COMPUTER TEST SET

SIZE J
CODE IDENT NO. 49956
NASA DRAWING NO. 2014492
SCALE NONE
SHEET 1 OF 2

2014492 -

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
O	RELEASED PER CCA R25293	14:365	J. Thomas
1	CHANGED PER CCA R25530 DR By Coomb CHK J Galbraith APPD	65	
—	CLASS A RELEASED PER TDRR 25472		

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F321	S48-2	S48D-C	BUS	22	
F322	S47D-NC	S46D-NC	↑	↑	
F323	S47D-NO	S46D-NO			
F324	S47-1	S47-3			
F325	S47-3	S46-1			
F326	S47-2	S47D-C			
F327	S47A-C	S46A-C			
F328	S46-1	S46-3			
F329	S46-2	S46D-C			
F330	S61D-NC	S62D-NC			
F331	S61D-NC	S62D-NO			
F332	S61-1	S61-3			
F333	S61-3	S62-1			
F334	S61-2	S61D-C			
F335	S61A-C	S62A-C			
F336	S62D-NC	S63D-NC			
F337	S62D-NO	S63D-NO			
F338	S62-1	S62-3			
F339	S62-3	S63-1			
F340	S62-2	S62D-C			
F341	S63D-NC	S64D-NC			
F342	S63D-NO	S64D-NC			
F343	S63-1	S63-3			
F344	S63-3	S64-1			
F345	S63-2	S63D-C			
F346	S63A-C	S64A-C			
F347	S64D-NC	S65D-NC			
F348	S64D-NO	S65D-NO			
F349	S64-1	S64-3			
F350	S64-3	S65-1			
F351	S64-2	S64D-C			
F352	S63B-NC	S64B-C			
F353	S64B-NC	S65B-C			
F354	S65D-NC	S66D-NC			
F355	S65D-NO	S66D-NO			
F356	S65-1	S65-3			
F357	S65-3	S66-1			
F358	S65-2	S65D-C			
F359	S66D-NC	S67D-NC			
F360	S66D-NO	S67D-NO			
F361	S66-1	S66-3			
F362	S66-3	S67-1			
F363	S66-2	S66D-C			
F364	S66A-C	S67A-C			
F365	S66B-NC	S67B-C			
F366	S67D-NC	S68D-NC			
F367	S67D-NO	S68D-NO			
F368	S67-1	S67-3			
F369	S67-3	S68-1			
F370	S67-2	S67D-C			
F371	S68D-NC	S69D-NC			
F372	S68D-NO	S69D-NO			
F373	S68-1	S68-3			
F374	S68-3	S69-1			
F375	S68-2	S68D-C			
F376	S69D-NC	S70D-NC			
F377	S69D-NO	S70D-NO			
F378	S69-1	S69-3			
F379	S69-3	S70-1			
F380	S69-2	S69D-C			
F381	S69A-C	S70A-C			
F382	S70D-NC	S71D-NC			
F383	S70D-NO	S71D-NO			
F384	S70-1	S70-3			
F385	S70-3	S71-1			
F386	S70-2	S70D-C			
F387	S71D-NC	S72D-NC			
F388	S71D-NO	S72D-NO			
F389	S71-1	S71-3			
F390	S71-3	S72-1			
F391	S71-2	S71D-C			
F392	S71A-C	S72A-C			
F393	S72D-NC	S73D-NC			
F394	S72D-NO	S73D-NO			
F395	S72-1	S72-3			
F396	S72-3	S73-1			
F397	S72-2	S72D-C			
F398	S73D-NC	S74D-NC			
F399	S73D-NO	S74D-NO	↓	↓	
F400	S73-1	S73-3	BUS	22	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F401	S73-3	S74-1	BUS	22	
F402	S73-2	S73D-C	↑	↑	
F403	S73A-C	S74A-C			
F404	S74D-NC	S75D-NC			
F405	S74D-NO	S75D-NO			
F406	S74-1	S74-3			
F407	S74-3	S75-1	↓		
F408	S74-2	S74D-C	BUS		
F409	S75D-NC	S84D-NC	WHT		
F410	S75D-NO	S84D-NO	WHT		
F411	S75-1	S75-3	BUS		
F412	S75-3	S84-1	WHT		
F413	S75-2	S75D-C	BUS		
F414	S84D-NC	S93D-NC	↑		
F415	S84D-NO	S93D-NO			
F416	S84-1	S84-3			
F417	S84-3	S93-1			
F418	S84-2	S84D-C			
F419	S93D-NC	S96D-NC			
F420	S93D-NO	S96D-NO			
F421	S93-1	S93-3			
F422	S93-3	S96-1			
F423	S93-2	S93D-C			
F424	S96D-NC	S95D-NC			
F425	S96D-NO	S95D-NO			
F426	S96-1	S96-3			
F427	S96-3	S95-1			
F428	S96-2	S96D-C			
F429	S95D-NC	S92D-NC			
F430	S95D-NO	S92D-NO			
F431	S95-1	S95-3			
F432	S95-3	S92-1			
F433	S95-2	S95D-C			
F434	S92D-NC	S83D-NC			
F435	S92D-NO	S83D-NO			
F436	S92-1	S92-3			
F437	S92-3	S83-1			
F438	S92-2	S92D-C			
F439	S92A-NC	S92B-NO			
F440	S92A-NO	S92B-NC			
F441	S83D-NC	S82D-NC			
F442	S83D-NO	S82D-NO			
F443	S83-1	S83-3			
F444	S83-3	S82-1			
F445	S83-2	S83D-C			
F446	S82D-NC	S91D-NC			
F447	S82D-NO	S91D-NO			
F448	S82-1	S82-3			
F449	S82-3	S91-1			
F450	S82-2	S82D-C			
F451	S91D-NC	S94D-NC			
F452	S91D-NO	S94D-NO			
F453	S91-1	S91-3			
F454	S91-3	S94-1			
F455	S91-2	S91D-C			
F456	S85-1	S85-3			
F457	S85-2	S85D-C	↓		
F458	S94-1	S94-3	BUS		
~~F459~~	~~S87B-C~~	~~A3-2~~	~~WHT~~		
F460	S94-2	S94D-C	BUS		
F461	S90D-NC	S89D-NC	↑		
F462	S90D-NO	S89D-NO			
F463	S90-1	S90-3			
F464	S90-3	S89-1			
F465	S90-2	S90D-C			
F466	S90A-C	S89A-C			
F467	S90B-C	S89B-C			
F468	S89D-NC	S88D-NC			
F469	S89D-NO	S88D-NO			
F470	S89-1	S89-3			
F471	S89-3	S88-1			
F472	S89-2	S89D-C			
F473	S89A-C	S88A-C			
F474	S89B-C	S88B-C			
F475	S88D-NC	S87D-NC			
F476	S88D-NO	S87D-NO			
F477	S88-1	S88-3			
F478	S88-3	S87-1	↓	↓	
F479	S88-2	S88D-C	BUS	22	
~~F480~~	~~S87A-C~~	~~A3-1~~	~~WHT~~	~~22~~	

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
F481	S79-B5	S79-B6	BUS	22	
F482	S87-1	S87-3	BUS	↑	
F483	AIR2-CW	A2-24	WHT		
F484	S87-2	S87D-C	BUS		
F485	S86D-NC	S81D-NC	↑		
F486	S86D-NO	S81D-NO			
F487	S86-1	S86-3			
F488	S86-3	S81-1			
F489	S86-2	S86D-C			
F490	S81D-NC	S80D-NC			
F491	S81D-NO	S80D-NO			
F492	S81-1	S81-3			
F493	S81-3	S80-1			
F494	S81-2	S81D-C			
F495	S80D-NC	S85D-NC			
F496	S80D-NO	S85D-NO			
F497	S80-1	S80-3			
F498	S80-3	S85-1			
F499	S80-2	S80D-C	↓		
F500	S80B-NC	S80C-NO	BUS		
F501	S76A-1	AIR5-CCW	WHT		
F502	S76A-2	AIR4-CCW	↑		
F503	S76A-3	AIR3-CCW			
F504	S76A-4	AIR2-CCW			
F505	S76A-5	AIR1-CCW	↓		
F506	S76C-5	S80C-C	WHT		
F507	S77A-D1	S89A-C	BLK		
	S77A-C1	S89B-C	WHT		
F508	S78A-ARM	S79-A1	↑		
F509	S78B-ARM	S79-A2			
F510	S78C-ARM	S79-A3			
F511	S78D-ARM	S79-A4	↓		
F512	S78E-ARM	S79-A5	WHT		
F513	S77B-D3	S77B-D2	BUS		
F514	S88A-NO	A3-13	BLK		
	S88B-NO	A3-14	WHT		
F515	S79-B2	S79-B3	BUS		
F516	S79-B3	S79-B4	BUS		
F517	S79-B4	S79-B5	BUS		
F518	S87A-NO	A3-3	BLK		
	S87B-NO	A3-6	WHT		
F519	S90A-NO	A3-22	BLK		
	S90B-NO	A3-31	WHT		
F520	S89A-NO	A3-19	BLK		
	S89B-NO	A3-20	WHT		
F521	S79-B1	S79-B2	BUS		
F522	S77A-A1	S77A-A2	BUS		
F523	S77A-B1	S77A-B2	BUS		
F524	S77A-A2	S77B-B1	WHT		
F525	S87B-C	A3-2	WHT	↓	
	S87A-C	A3-1	BLK	22	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN A. J. Kim DATE 7SEP65
CHECKED J. Galbraith 25SEP65
APPROVAL 9Oct65
APPROVAL D. O'Brien 10/8/65
APPROVAL M. J. 10/13/65
NASA APPROVAL METZGER
MIT APPROVAL 66
MIT APPROVAL 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LEAD ELECTRICAL
RDC INTERFACE
COMPUTER TEST SET

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014492

SCALE NONE | WT | SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014492 -

2014494 -

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASE PER CCA R25227	10/5/65	G. Hansen
-	CLASS A RELEASED PER DRR 25472		

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
B1	S1A-NO	S1-1	BUSS	22	SEE NOTE 2
B2	S1-1	S1-3	↑	↑	↑
B3	S1B-NC	S1A(C)			
B4	S1A(C)	S2A(C)			
B5	S6A(C)	S5A(C)			
B6	S5A(C)	S4A(C)			
B7	S4A(C)	S3A(C)			
B8	S1C(C)	S29B-NC			
B9	S29B-NC	S28B-NC			
B10	S28B-NC	S27B-NC			
B11	S27B-NC	S23B-NO			
B12	S23B-NO	S25B-NC			
B13	S25B-NC	S26B-NC			
B14	S26B-NC	S22C-NC			
B15	S22C-NC	S21B-NC			
B16	S21B-NC	S20B-NC			
B17	S20B-NC	S19B-NC			
B18	S19B-NC	S15B-NC			
B19	S15B-NC	S16B-NC			
B20	S16B-NC	S17B-NC			
B21	S17B-NC	S18B-NC			
B22	S18B-NC	S14B-NC			
B23	S14B-NC	S13B-NC			
B24	S13B-NC	S12B-NC			
B25	S12B-NC	S11B-NC			
B26	S11B-NC	S7B-NC			
B27	S7B-NC	S8B-NC			
B28	S8B-NC	S9B-NC			
B29	S9B-NC	S10B-NC			
B30	S10B-NC	S6B-NC			
B31	S6B-NC	S5B-NC			
B32	S5B-NC	S4B-NC			
B33	S4B-NC	S3B-NC			
B34	S1-2	S1B-NO			
B35	S1B-NO	S1C-NC			
B36	S1C-NC	S1D-NO			
B37	S1D-NO	S2-2			
B38	S6-2	S6B-NO			
B39	S6B-NO	S5B-NO			
B40	S5B-NO	S5-2			
B41	S5-2	S4-2			
B42	S4-2	S4B-NO			
B43	S4B-NO	S3B-NO			
B44	S3B-NO	S3-2			
B45	S2A-NO	S2-1			
B46	S2-1	S2-3			
B47	S3A-NO	S3-1			
B48	S3-1	S3-3			
B49	S4A-NO	S4-1			
B50	S4-1	S4-3			
B51	S5A-NO	S5-1			
B52	S5-1	S5-3			
B53	S6A-NO	S6-1			
B54	S6-1	S6-3			
B55	S7A-NO	S7-1			
B56	S7-1	S7-3			
B57	S8A-NO	S8-1			
B58	S8-1	S8-3			
B59	S9A-NO	S9-1	↓	↓	↓
B60	S9-1	S9-3	BUSS	22	SEE NOTE 2

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
B61	S10A-NO	S10-1	BUSS	22	SEE NOTE 2
B62	S10-1	S10-3	↑	↑	↑
B63	S10B-NO	S10-2			
B64	S10-2	S9-2			
B65	S9-2	S9B-NO			
B66	S9B-NO	S8B-NO			
B67	S8B-NO	S8-2			
B68	S8-2	S7-2			
B69	S7-2	S7B-NO			
B70	S7B-NO	S11B-NO			
B71	S11B-NO	S11-2			
B72	S11-2	S12-2			
B73	S12-2	S12B-NO			
B74	S11A-NO	S11-1			
B75	S11-1	S11-3			
B76	S12A-NO	S12-1			
B77	S12-1	S12-3			
B78	S12A(C)	S11A(C)			
B79	S11A(C)	S7A(C)			
B80	S7A(C)	S8A(C)			
B81	S8A(C)	S9A(C)			
B82	S9A(C)	S10A(C)			
B83	S13A-NO	S13-1			
B84	S13-1	S13-3			
B85	S13A(C)	S14A(C)			
B86	S14A(C)	S18A(C)			
B87	S18A(C)	S17A(C)			
B88	S17A(C)	S16A(C)			
B89	S16A(C)	S15A(C)			
B90	S13-2	S13B-NO			
B91	S13B-NO	S14B-NO			
B92	S14B-NO	S14-2			
B93	S14-2	S18-2			
B94	S18-2	S17-2			
B95	S17-2	S17B-NO			
B96	S17B-NO	S16B-NO			
B97	S16B-NO	S16-2			
B98	S16-2	S15-2			
B99	S15-2	S15B-NO			
B100	S14A-NO	S14-1			
B101	S14-1	S14-3			
B102	S15A-NO	S15-1			
B103	S15-1	S15-3			
B104	S16A-NO	S16-1			
B105	S16-1	S16-3			
B106	S17A-NO	S17-1			
B107	S17-1	S17-3			
B108	S18A-NO	S18-1			
B109	S18-1	S18-3			
B110	S19A-NO	S19-1			
B111	S19-1	S19-3			
B112	S20A-NO	S20-1			
B113	S20-1	S20-3			
B114	S21A-NO	S21-1			
B115	S21-1	S21-3			
B116	S22A-NO	S22-1			
B117	S22-1	S22-3			
B118	S22-2	S22B-NC			
B119	S22B-NC	S21B-NO	↓	↓	↓
B120	S21B-NO	S21-2	BUSS	22	SEE NOTE 2

JUMPER CHART

COND IDENT	FROM	TO	COLOR	AWG	REMARKS
B121	S21-2	S20-2	BUSS	22	SEE NOTE 2
B122	S20-2	S20B-NO	↑	↑	↑
B123	S20B-NO	S19B-NO			
B124	S19B-NO	S19-2			
B125	S19-2	S23-2			
B126	S23-2	S23B-NC			
B127	S23B-NC	S25B-NO			
B128	S25B-NO	S25-2			
B129	S22A(C)	S21A(C)			
B130	S21A(C)	S20A(C)			
B131	S20A(C)	S19A(C)			
B132	S19A(C)	S23A(C)			
B133	S23A(C)	S25A(C)			
B134	S23A-NO	S23-1			
B135	S23-1	S23-3			
B136	S24A-NO	S24-1			
B137	S24-1	S24-3			
B138	S24A(C)	S26A(C)			
B139	S26A(C)	S30A(C)			
B140	S30A(C)	S29A(C)			
B141	S29A(C)	S28A(C)			
B142	S28A(C)	S27A(C)			
B143	S24-2	S24B-NC			
B144	S24B-NC	S26B-NO			
B145	S26B-NO	S26-2			
B146	S26-2	S30-2			
B147	S30-2	S30B-NO			
B148	S30B-NO	S29B-NO			
B149	S29B-NO	S29-2			
B150	S29-2	S28-2			
B151	S28-2	S28B-NO			
B152	S28B-NO	S27B-NO			
B153	S27B-NO	S27-2			
B154	S25A-NO	S25-1			
B155	S25-1	S25-3			
B156	S26A-NO	S26-1			
B157	S26-1	S26-3			
B158	S27A-NO	S27-1			
B159	S27-1	S27-3			
B160	S28A-NO	S28-1			
B161	S28-1	S28-3			
B162	S29A-NO	S29-1			
B163	S29-1	S29-3			
B164	S30A-NO	S30-1			
B165	S30-1	S30-3			
B166	S30B-NC	S1D-NC			
B167	S1D-NC	S1C-NO			
B168	S1C-NO	S34-1			
B169	J3-GND	J7-GND			
B170	J7-GND	J2-GND			
B171	J2-GND	J1-GND			
B172	J1-GND	J8-GND			
B173	J8-GND	J6-GND	↓	↓	↓
B174	J6-GND	J9-GND	BUSS	22	SEE NOTE 2
~~B175~~	~~[illegible]~~	~~[illegible]~~			
B176	S25B-NO	S24-2	BUSS	22	SEE NOTE 2
B177	S18-2	S18B-NO	BUSS	22	SEE NOTE 2

NOTES:

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
2. SLEEVE ALL LEADS
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014364	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .xx ± DECIMALS .xxx ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT No. NAS 9-497
DRAWN DATE 15 SEP 65
CHECKED 22 SEP 65
APPROVAL 24 Sep 65
APPROVAL
APPROVAL 1-?-66
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL C Smerly 1/26/66

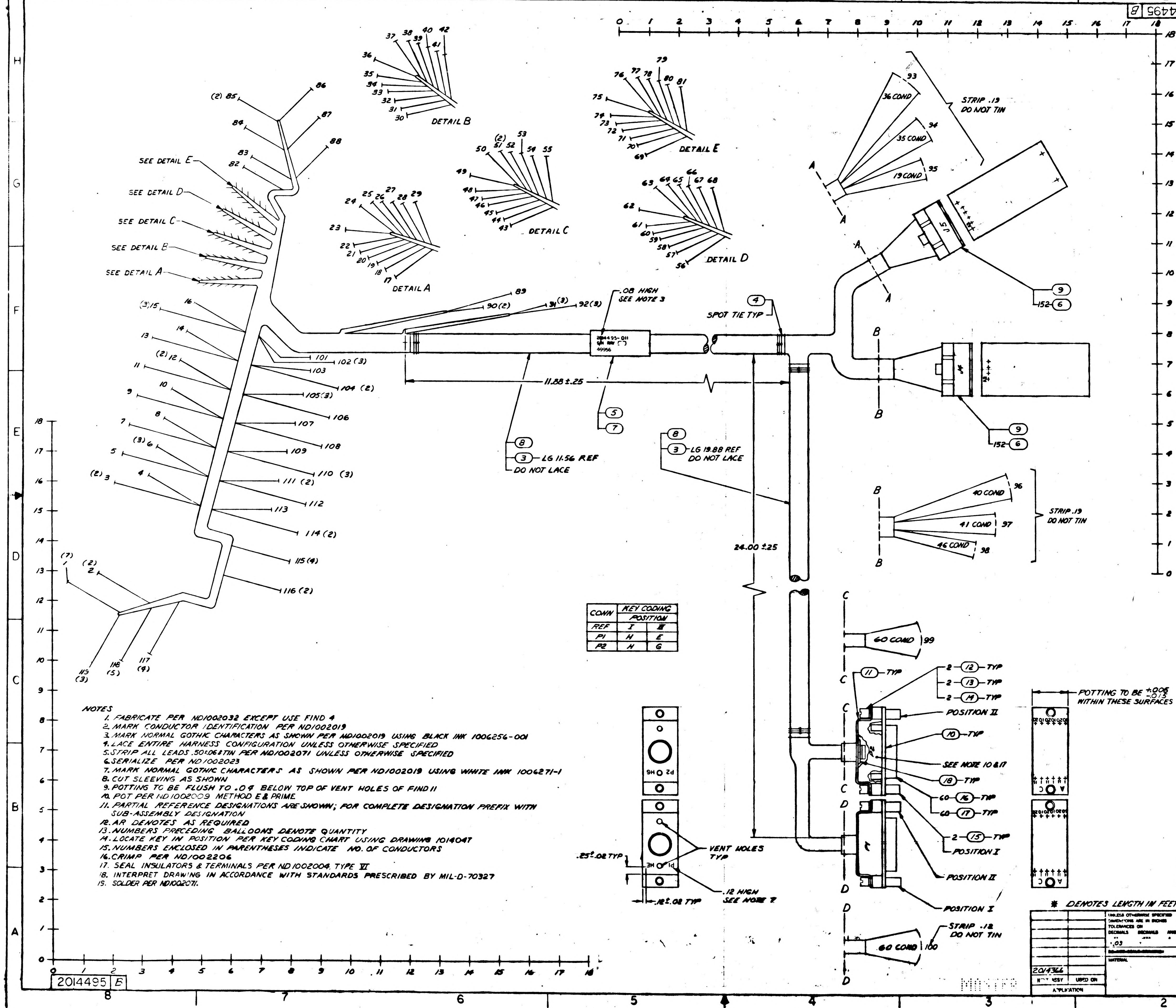
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LEAD ELECTRICAL
SELF TEST PANEL
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014494
SCALE
WT
SHEET 1 OF 1

2014494 -

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25280		
1	CHANGED PER CCA R25385 DR CHK APPD	11/12/65	
—	CLASS B CHANGED PER CCA R25502	12/4/65	
A	CHANGED PER CCA R25636 DR CHK APPD	12/21/65	
B	CHANGED PER CCA R25700 & CLASS A RELEASED PER TORR 25472	1/15/66	



DETAIL A
DETAIL B
DETAIL C
DETAIL D
DETAIL E
SEE DETAIL A
SEE DETAIL B
SEE DETAIL C
SEE DETAIL D
SEE DETAIL E
.08 HIGH
SEE NOTE 3
2014495-011
49956
SPOT TIE TYP
11.88 ±.25
LG 11.56 REF
DO NOT LACE
LG 19.88 REF
DO NOT LACE
24.00 ±.25
J5
J4
P2
P1
36 COND
35 COND
19 COND
STRIP .19
DO NOT TIN
40 COND
41 COND
46 COND
STRIP .19
DO NOT TIN
60 COND
60 COND
STRIP .12
DO NOT TIN
2 — 12 — TYP
2 — 13 — TYP
2 — 14 — TYP
11 — TYP
10 — TYP
POSITION II
SEE NOTE 10 & 17
18 — TYP
60 — 16 — TYP
60 — 17 — TYP
2 — 15 — TYP
POSITION I
POSITION II
POSITION I
POTTING TO BE +.005 -.015
WITHIN THESE SURFACES
VENT HOLES
TYP
.25±.02 TYP
.12±.02 TYP
.12 HIGH
SEE NOTE 7
152 — 6
9

CONN	KEY CODING POSITION	
REF	I	III
P1	H	E
P2	H	G

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND 4
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. STRIP ALL LEADS .50±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. CUT SLEEVING AS SHOWN
9. POTTING TO BE FLUSH TO .04 BELOW TOP OF VENT HOLES OF FIND 11
10. POT PER ND1002009 METHOD E & PRIME
11. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATION
12. AR DENOTES AS REQUIRED
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. LOCATE KEY IN POSITION PER KEY CODING CHART USING DRAWING 1014047
15. NUMBERS ENCLOSED IN PARENTHESES INDICATE NO. OF CONDUCTORS
16. CRIMP PER ND1002206
17. SEAL INSULATORS & TERMINALS PER ND1002004, TYPE VI
18. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
19. SOLDER PER ND1002071.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014157	SCHEMATIC	REF
~~4~~	~~1006671-2~~	~~GUIDE PIN~~	~~21~~
~~304~~	~~1006491-011~~	~~CONTACT, ELEC~~	~~20~~
~~8~~	~~1006671-3~~	~~NUT, STOP~~	~~19~~
2	1020370-23	BUSHING, SLEEVE	18
120	1010380	INSULATOR, FEMALE, WRAPOST	17
120	1010379-1	CONTACT, FEMALE, WRAPOST	16
4	1014032	RECEPTACLE, INDEXING	15
4	1006997	WASHER, PLAIN, FLAT	14
4	MS35337-79	WASHER, LOCK	13
4	1006998-1	SCREW, CAPTIVE	12
2	1014024-3	BRACKET, ANGLE	11
2	1014021	PLATE, CONNECTOR	10
2	1006671-001	CONNECTOR	9
AR	1006699	SOLVENT	8
AR	1006253	ADHESIVE	7
304	1006491-011	CONTACT, ELEC	6
1	1006415-134	BAND MARKER, CABLE	5
AR	1006458-004	TAPE, LACING	4
* 3.0	1006696-5	SLEEVING, INSULATION	3
* 40	MIL-W-16878/4 E22	WIRE, ELECTRICAL, BLACK	2
* 500	MIL-W-16878/4 E22	WIRE, ELECTRICAL, WHITE	1
-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 3 AUG 65
CHECKED 30 SEP 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL 1/11/66

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

WIRING HARNESS
SELF TEST ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014495
SCALE 1/1
SHEET 1 OF 2

2014495 B

2014495 B

2014495 B

2014495 B

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	100	P1-A1	WHITE	22	1	96	J4-F1	
	A2		P1-A2					J4-F2	
	A3		P1-A3					J4-F3	
	A4		P1-A4					J4-F4	
	A5		P1-A5				96	J4-F5	
	A6		P1-A6				116	S1D(C)	
	A7		P1-A7				96	J4-F6	
	A8		P1-A8					J4-F7	
	A9		P1-A9					J4-F8	
	A10		P1-A10					J4-G1	
	A11		P1-A11					J4-G2	
	A12		P1-A12				96	J4-G3	
	A13		P1-A13				113	S29B(C)	
	A14		P1-A14				96	J4-G4	
	A15		P1-A15				96	J4-G5	
	A16		P1-A16				96	J4-G6	
	A17		P1-A17				112	S26B(C)	
	A18		P1-A18				96	J4-G7	
	A19		P1-A19	WHITE		1	96	J4-G8	
	A20		P1-A20	BLACK		2	96	J4-D8	
	A21		P1-B1	WHITE		1	97	J4-H1	
	A22		P1-B2				97	J4-H2	
	A23		P1-B3				97	J4-H3	
	A24		P1-B4				117	S34-2	
	A25		P1-B5				97	J4-H4	
	A26		P1-B6					J4-H5	
	A27		P1-B7					J4-H6	
	A28		P1-B8					J4-H7	
	A29		P1-B9					J4-H8	
	A30		P1-B10					J4-J1	
	A31		P1-B11					J4-J2	
	A32		P1-B12				97	J4-J3	
	A33		P1-B13				4	S28B(C)	
	A34		P1-B14				97	J4-J4	
	A35		P1-B15				97	J4-J5	
	A36		P1-B16				97	J4-J6	
	A37		P1-B17				3	S27B(C)	
	A38		P1-B18				97	J4-J7	
	A39		P1-B19	WHITE		1	97	J4-J8	
	A40		P1-B20	BLACK		2	96	J4-E8	
	A41		P1-C1	WHITE		1	97	J4-K1	
	A42		P1-C2				97	J4-K2	
	A43		P1-C3				97	J4-K3	
	A44		P1-C4				111	S25B(C)	
	A45		P1-C5				98	J4-U8	
	A46		P1-C6				119	S32-2	
	A47		P1-C7				5	S23B(C)	
	A48		P1-C8				1	DS1-1	
	A49		P1-C9				98	J4-V1	
	A50		P1-C10				97	J4-K6	
	A51		P1-C11					J4-K7	
	A52		P1-C12					J4-K8	
	A53		P1-C13				97	J4-L1	
	A54		P1-C14				118	S33-2	
	A55		P1-C15				97	J4-L2	
	A56		P1-C16				98	J4-V2	
	A57		P1-C17					J4-V3	
	A58		P1-C18					J4-V4	
	A59		P1-C19	WHITE		1	98	J4-V5	
	A60	100	P1-C20	BLACK		2	93	J5-B7	
	A61	99	P2-A1	WHITE		1	97	J4-L7	
	A62		P2-A2					J4-L8	
	A63		P2-A3					J4-M1	
	A64		P2-A4					J4-M2	
	A65		P2-A5				97	J4-M3	
	A66		P2-A6				98	J4-V6	
	A67		P2-A7				98	J4-V7	
	A68		P2-A8				97	J4-M6	
	A69		P2-A9					J4-M7	
	A70		P2-A10					J4-M8	
	A71		P2-A11					J4-N1	
	A72		P2-A12					J4-N2	
	A73		P2-A13					J4-N3	
	A74		P2-A14					J4-N4	
	A75		P2-A15					J4-N5	
	A76		P2-A16					J4-N6	
	A77		P2-A17					J4-N7	
	A78		P2-A18					J4-N8	
	A79		P2-A19	WHITE		1	97	J4-P1	
	A80		P2-A20	BLACK		2	93	J5-B6	
	A81		P2-B1	WHITE		1	98	J4-P2	
	A82		P2-B2					J4-P3	
	A83		P2-B3					J4-P4	
	A84		P2-B4					J4-P5	
	A85		P2-B5					J4-P6	
	A86		P2-B6					J4-P7	
	A87	99	P2-B7	WHITE	22	1	98	J4-P8	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A88	99	P2-B8	WHITE	22	1	98	J4-R1	
	A89		P2-B9					J4-R2	
	A90		P2-B10					J4-R3	
	A91		P2-B11					J4-R4	
	A92		P2-B12					J4-R5	
	A93		P2-B13					J4-R6	
	A94		P2-B14					J4-R7	
	A95		P2-B15					J4-R8	
	A96		P2-B16					J4-S1	
	A97		P2-B17					J4-S2	
	A98		P2-B18					J4-S3	
	A99		P2-B19	WHITE		1	98	J4-S4	
	A100		P2-B20	BLACK		2	93	J5-B5	
	A101		P2-C1	WHITE		1	98	J4-S5	
	A102		P2-C2					J4-S6	
	A103		P2-C3					J4-S7	
	A104		P2-C4					J4-S8	
	A105		P2-C5					J4-T1	
	A106		P2-C6					J4-T2	
	A107		P2-C7					J4-T3	
	A108		P2-C8					J4-T4	
	A109		P2-C9					J4-T5	
	A110		P2-C10					J4-T6	
	A111		P2-C11					J4-T7	
	A112		P2-C12					J4-T8	
	A113		P2-C13					J4-U1	
	A114		P2-C14					J4-U2	
	A115		P2-C15					J4-U3	
	A116		P2-C16					J4-U4	
	A117		P2-C17					J4-U5	
	A118		P2-C18					J4-U6	
	A119		P2-C19	WHITE		1	98	J4-U7	
	A120	99	P2-C20	BLACK		2	93	J5-B4	
	A121	96	J4-A3	WHITE		1	13	S7B(C)	
	A122		J4-A4				14	S8B(C)	
	A123		J4-A5				103	S9B(C)	
	A124		J4-A6				104	S10B(C)	
	A125		J4-B1				11	S11B(C)	
	A126		J4-B2				12	S12B(C)	
	A127		J4-B3				12	S12A(C)	
	A128		J4-B4				105	S13B(C)	
	A129		J4-B5				106	S14B(C)	
	A130		J4-B6	WHITE		1	9	S15B(C)	
	A131		J4-B8	BLACK		2	105	S13-2	
	A132		J4-C1	WHITE		1	10	S16B(C)	
	A133		J4-C2				107	S17B(C)	
	A134		J4-C3				108	S18B(C)	
	A135		J4-C4				105	S13A(C)	
	A136		J4-[illegible]				7	S19B(C)	
	A137		J4-C6				8	S20B(C)	
	A138		J4-C7	WHITE		1	109	S21B(C)	
	A139		J4-C8	BLACK		2	110	S22-2	
	A140		J4-D2	WHITE		1	110	S22C(C)	
	A141		J4-D3	WHITE		1	110	S22B(C)	
	A142	96	J4-D4	WHITE		1	111	S25A(C)	
	A143	93	J5-A3	BLACK		2	92	K1-1	
	A144		J5-A4				92	K1-1	
	A145		J5-A5				89	K1-4	
	A146		J5-A6				91	K1-8	
	A147		J5-B1	BLACK		2	1	DS1-3	
	A148		J5-E1	WHITE		1	56	S31-B-0	
	A149		J5-E2				68	S31-B-1	
	A150		J5-E3				57	S31-B-2	
	A151		J5-E4				67	S31-B-3	
	A152		J5-E5				58	S31-B-4	
	A153		J5-E6				66	S31-B-5	
	A154		J5-E7				65	S31-B-6	
	A155		J5-E8				60	S31-B-7	
	A156		J5-F1				64	S31-B-8	
	A157		J5-F2				61	S31-B-9	
	A158		J5-F3				63	S31-B-10	
	A159		J5-F4				62	S31-B-11	
	A160		J5-F5				43	S31-C-0	
	A161		J5-F6				55	S31-C-1	
	A162		J5-F7				44	S31-C-2	
	A163		J5-F8				54	S31-C-3	
	A164		J5-G1				45	S31-C-4	
	A165		J5-G5				53	S31-C-5	
	A166		J5-G2				52	S31-C-6	
	A167		J5-G3				47	S31-C-7	
	A168		J5-G4				51	S31-C-8	
	A169		J5-G6				48	S31-C-9	
	A170		J5-G7				50	S31-C-10	
	A171	93	J5-G8				49	S31-C-11	
	A172	94	J5-H1				30	S31-D-0	
	A173	94	J5-H2				42	S31-D-1	
	A174	94	J5-H3	WHITE	22	1	31	S31-D-2	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A175	94	J5-H4	WHITE	22	1	41	S31-D-3	
	A176		J5-H5				32	S31-D-4	
	A177		J5-H6				40	S31-D-5	
	A178		J5-H7				39	S31-D-6	
	A179		J5-H8				34	S31-D-7	
	A180		J5-J1				38	S31-D-8	
	A181		J5-J2				35	S31-D-9	
	A182		J5-J3				37	S31-D-10	
	A183		J5-J4				36	S31-D-11	
	A184		J5-J5				17	S31-E-0	
	A185		J5-J6				29	S31-E-1	
	A186		J5-J7				18	S31-E-2	
	A187		J5-J8				28	S31-E-3	
	A188		J5-K1				19	S31-E-4	
	A189		J5-K2				27	S31-E-5	
	A190		J5-K3				26	S31-E-6	
	A191		J5-K6				22	S31-E-9	
	A192		J5-K7				24	S31-E-10	
	A193		J5-K8				23	S31-E-11	
	A194		J5-L1				71	S31-A-4	
	A195		J5-L2				79	S31-A-5	
	A196		J5-L7				76	S31-A-10	
	A197		J5-L8				75	S31-A-11	
	A198		J5-M1				1	DS1-5	
	A199		J5-M2				90	K1-6	
	A200		J5-M3				91	K1-3	
	A201		J5-M6				85	J3	
	A202		J5-M7				87	J6	
	A203		J5-M8				84	J7	
	A204		J5-N1				88	J8	
	A205	94	J5-N2	WHITE		1	86	J9	
	A206	93	J5-C1	BLACK		2	15	S3-2	
	A207	94	J5-P1	WHITE		1	1	DS1-2	
	A208	95	J5-R1				114	S30B(C)	
	A209		J5-R2				6	S24B(C)	
	A210		J5-R3				6	S24A(C)	
	A211		J5-R4				116	S1B(C)	
	A212		J5-R5				114	S30B-NC	
	A213		J5-R7				115	S2B(C)	
	A214		J5-R8				15	[illegible]	
	A215		J5-S1				16	[illegible]4B(C)	
	A216		J5-S2				101	S5B(C)	
	A217		J5-S3				102	S6B(C)	
	A218		J5-S4				15	S3A(C)	
	A219		J5-U8				21	S31-E-7	
	A220		J5-V1				25	S31-E-8	
	A221		J5-V2				78	S31-A-6	
	A222		J5-V3				73	S31-A-7	
	A223		J5-V4				77	S31-A-8	
	A224		J5-V5				74	S31-A-9	
	A225		J5-V6				91	K1-3	
	A226	95	J5-V7				83	J2	
	A227	72	S31-A-C				82	J1	
	A228	69	S31-A-0				20	S31-E-C	
	A229	81	S31-A-1				59	S31-B-C	
	A230	70	S31-A-2				46	S31-C-C	
	A231	80	S31-A-3				33	S31-D-C	
	A232	51	S31-C-B				115	S2B-NC	
	A233	119	S32-1	WHITE		1	118	S33-1	
	A234	119	S32-3	BLACK		2	118	S33-3	
	A235	118	S33-1	WHITE		1	117	S34-1	
	A236	118	S33-3	BLACK		2	117	S34-3	
	A237	2	S35-3	WHITE		1	92	K1-7	
	A238	2	S35-4	WHITE		1	1	DS1-2	
	A239	1	DS1-5	WHITE		1	90	K1-6	
	A240	85	J3-GRD	BLACK		2	1	DS1-3	
	A241	115	S2A(C)	WHITE		1	102	S6A(C)	
	A242	115	S2-2	WHITE		1	102	S6-2	
	A243	93	J5-C2	BLACK		2	104	S10B-NO	
	A244	93	J5-C3	BLACK		2	3	S27-2	
	A245	117	S34-3	BLACK	22	2	6	S24-2	

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25280	10/65	O. [illegible]
1	CHANGED PER CCA R25385 DR [illegible] CHK [illegible] APPD [illegible]	11/10/65	[illegible]
—	CLASS B CHANGED PER CCA R25502	12/10/65	[illegible]
A	CHANGED PER CCA R25636 DR [illegible] CHK [illegible] APPD	[illegible]	[illegible]
B	CHANGED PER CCA R25700 & CLASS A RELEASED PER TDRR 25472	1/12/66	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 2 AUG 65
CHECKED [illegible] 30 SEP 65
APPROVAL [illegible] 10/3/65
APPROVAL D. [illegible]
APPROVAL [illegible] 10/18/65
NASA APPROVAL A. G. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible] 1/20/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS
SELF TEST ASSY
COMPUTER TEST SET

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014495

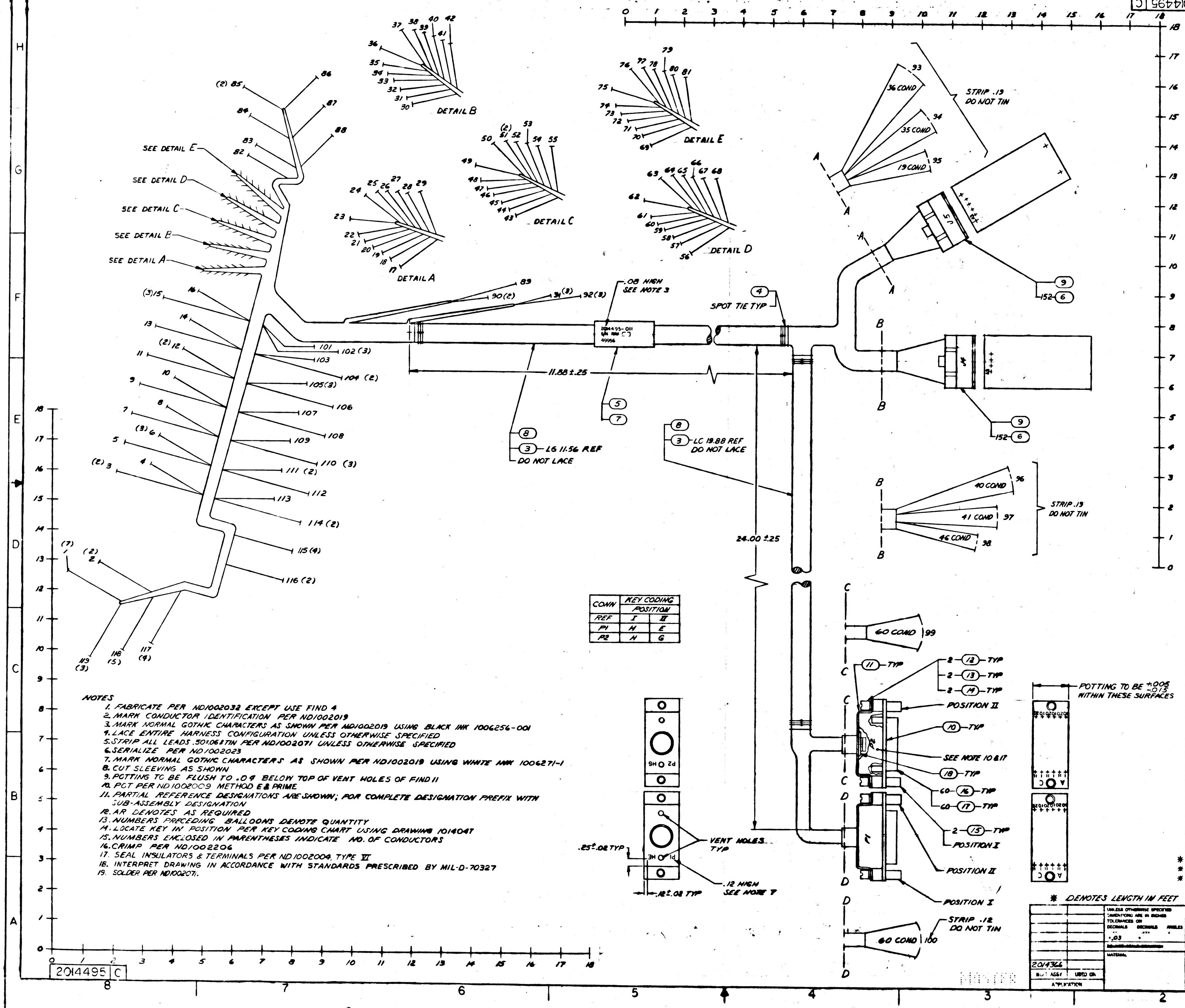
SCALE WT SHEET 2 OF 2

MASTER

2014495 B

2014495 B

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA 25280		
1	CHANGED PER CCA R25385 DR CHK APPD	11/ /65	
—	CLASS B CHANGED PER CCA R25502	12/ /65	
A	CHANGED PER CCA R25636 DR CHK APPD	12/ /65	
B	CHANGED PER CCA R25700 & CLASS A RELEASED PER TDRR 25472	1/ /66	
C	CHANGED PER TDRR 26310 DR CHK APPD PCO	2/17/66	


2014495 C
DETAIL A
DETAIL B
DETAIL C
DETAIL D
DETAIL E
SEE DETAIL A
SEE DETAIL B
SEE DETAIL C
SEE DETAIL D
SEE DETAIL E
.08 HIGH SEE NOTE 3
2014495-011
49956
SPOT TIE TYP
11.88 ± .25
24.00 ± .25
LG 11.56 REF DO NOT LACE
LG 19.88 REF DO NOT LACE
STRIP .19 DO NOT TIN
36 COND
35 COND
19 COND
40 COND
41 COND
46 COND
60 COND
STRIP .12 DO NOT TIN
POSITION I
POSITION II
SEE NOTE 10 & 17
POTTING TO BE +.005 -.015 WITHIN THESE SURFACES
VENT HOLES TYP
.12 HIGH SEE NOTE 7
.25 ± .02 TYP
.12 ± .02 TYP
P1
P2
J5
J4
A
B
C
D

CONN	KEY CODING POSITION	
	I	II
REF	I	II
P1	H	E
P2	H	G

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND 4
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
4. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
5. STRIP ALL LEADS .50±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
6. SERIALIZE PER ND1002023
7. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING WHITE INK 1006271-1
8. CUT SLEEVING AS SHOWN
9. POTTING TO BE FLUSH TO .04 BELOW TOP OF VENT HOLES OF FIND 11
10. PCT PER ND1002009 METHOD E & PRIME
11. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATION
12. AR DENOTES AS REQUIRED
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. LOCATE KEY IN POSITION PER KEY CODING CHART USING DRAWING 1014047
15. NUMBERS ENCLOSED IN PARENTHESES INDICATE NO. OF CONDUCTORS
16. CRIMP PER ND1002206
17. SEAL INSULATORS & TERMINALS PER ND1002004, TYPE VI
18. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
19. SOLDER PER ND1002071.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2014157	SCHEMATIC	REF
~~4~~	~~1006671-2~~	~~GUIDE PIN~~	~~21~~
~~304~~	~~1006491-011~~	~~CONTACT, ELEC~~	~~20~~
~~8~~	~~1006671-3~~	~~NUT, STOP~~	~~19~~
2	1020370-23	BUSHING, SLEEVE	18
120	1010380	INSULATOR, FEMALE, WRAPOST	17
120	1010379-1	CONTACT, FEMALE, WRAPOST	16
4	1014032	RECEPTACLE, INDEXING	15
4	1006997	WASHER, PLAIN, FLAT	14
4	MS35337-79	WASHER, LOCK	13
4	1006998-1	SCREW, CAPTIVE	12
2	1014084-3	BRACKET, ANGLE	11
2	1014021	PLATE, CONNECTOR	10
2	1006671-001	CONNECTOR	9
AR	1006699	SOLVENT	8
AR	1006253	ADHESIVE	7
304	1006491-011	CONTACT, ELEC	6
1	1006415-134	BAND MARKER, CABLE	5
AR	1006458-004	TAPE, LACING	4
* 3.0	1006696-5	SLEEVING, INSULATION	3
* 40	MIL-W-16878/4 E22	WIRE, ELECTRICAL, BLACK	2
* 500	MIL-W-16878/4 E22	WIRE, ELECTRICAL, WHITE	1

-011 LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2014366	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 3 AUG 65
CHECKED 30 SEP 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

WIRING HARNESS
SELF TEST ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014495
SCALE 1/1
WT
SHEET 1 OF 2

2014495 C

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA 25280	10/65	O.
1	CHANGED PER CCA R25385 DR CHK APPD	11/10/65	
—	CLASS B CHANGED PER CCA R25502		
A	CHANGED PER CCA R25636 DR CHK APPD		
B	CHANGED PER CCA R25700 & CLASS A RELEASED PER TDRR 25472	1/12/66	
C	CHANGED PER TDRR 26310 DR CHK APPD	4/12/66	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARK	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
		100	P1-A1	WHITE	22	1	96	J4-F1	
	2	↑	P1-A2	↑	↑	↑	↑	J4-F2	
	A3		P1-A3					J4-F3	
	A4		P1-A4				↓	J4-F4	
	A5		P1-A5				96	J4-F5	
	A6		P1-A6				116	S1D(C)	
	A7		P1-A7				96	J4-F6	
	A8		P1-A8				↑	J4-F7	
	A9		P1-A9					J4-F8	
	A10		P1-A10					J4-G1	
	A11		P1-A11				↓	J4-G2	
	A12		P1-A12				96	J4-G3	
	A13		P1-A13				113	S29B(C)	
	A14		P1-A14				96	J4-G4	
	A15		P1-A15				96	J4-G5	
	A16		P1-A16				96	J4-G6	
	A17		P1-A17				112	S26B(C)	
	A18		P1-A18	↓		↓	96	J4-G7	
	A19		P1-A19	WHITE		1	96	J4-G8	
	A20		P1-A20	BLACK		2	96	J4-D8	
	A21		P1-B1	WHITE		1	97	J4-H1	
	A22		P1-B2	↑		↑	97	J4-H2	
	A23		P1-B3				97	J4-H3	
	A24		P1-B4				117	S34-2	
	A25		P1-B5				97	J4-H4	
	A26		P1-B6				↑	J4-H5	
	A27		P1-B7					J4-H6	
	A28		P1-B8					J4-H7	
	A29		P1-B9					J4-H8	
	A30		P1-B10					J4-J1	
	A31		P1-B11				↓	J4-J2	
	A32		P1-B12				97	J4-J3	
	A33		P1-B13				4	S28B(C)	
	A34		P1-B14				97	J4-J4	
	A35		P1-B15				97	J4-J5	
	A36		P1-B16				97	J4-J6	
	A37		P1-B17				3	S27B(C)	
	A38		P1-B18	↓		↓	97	J4-J7	
	A39		P1-B19	WHITE		1	97	J4-J8	
	A40		P1-B20	BLACK		2	96	J4-E8	
	A41		P1-C1	WHITE		1	97	J4-K1	
	A42		P1-C2	↑		↑	97	J4-K2	
	A43		P1-C3				97	J4-K3	
	A44		P1-C4				111	S25B(C)	
	A45		P1-C5				98	J4-U8	
	A46		P1-C6				119	S32-2	
	A47		P1-C7				5	S23B(C)	
	A48		P1-C8				1	DS1-1	
	A49		P1-C9				98	J4-V1	
	A50		P1-C10				97	J4-K6	
	A51		P1-C11				↑	J4-K7	
	A52		P1-C12				↓	J4-K8	
	A53		P1-C13				97	J4-L1	
	A54		P1-C14				118	S33-2	
	A55		P1-C15				97	J4-L2	
	A56		P1-C16				98	J4-V2	
	A57		P1-C17				↑	J4-V3	
	A58		P1-C18	↓		↓	↓	J4-V4	
	A59	↓	P1-C19	WHITE		1	98	J4-V5	
	A60	100	P1-C20	BLACK		2	93	J5-B7	
	A61	99	P2-A1	WHITE		1	97	J4-L7	
	A62	↑	P2-A2	↑		↑	↑	J4-L8	
	A63		P2-A3					J4-M1	
	A64		P2-A4				↓	J4-M2	
	A65		P2-A5				97	J4-M3	
	A66		P2-A6				98	J4-V6	
	A67		P2-A7				98	J4-V7	
	A68		P2-A8				97	J4-M6	
	A69		P2-A9				↑	J4-M7	
	A70		P2-A10					J4-M8	
	A71		P2-A11					J4-N1	
	A72		P2-A12					J4-N2	
	A73		P2-A13					J4-N3	
	A74		P2-A14					J4-N4	
	A75		P2-A15					J4-N5	
	A76		P2-A16					J4-N6	
	A77		P2-A17					J4-N7	
	A78		P2-A18	↓		↓	↓	J4-N8	
	A79		P2-A19	WHITE		1	97	J4-P1	
	A80		P2-A20	BLACK		2	93	J5-B6	
	A81		P2-B1	WHITE		1	98	J4-P2	
	A82		P2-B2	↑		↑	↑	J4-P3	
	A83		P2-B3					J4-P4	
	A84		P2-B4					J4-P5	
	A85		P2-B5					J4-P6	
	A86	↓	P2-B6	↓	↓	↓	↓	J4-P7	
	A87	99	P2-B7	WHITE	22	1	98	J4-P8	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A88	99	P2-B8	WHITE	22	1	98	J4-R1	
	A89	↑	P2-B9	↑	↑	↑	↑	J4-R2	
	A90		P2-B10					J4-R3	
	A91		P2-B11					J4-R4	
	A92		P2-B12					J4-R5	
	A93		P2-B13					J4-R6	
	A94		P2-B14					J4-R7	
	A95		P2-B15					J4-R8	
	A96		P2-B16					J4-S1	
	A97		P2-B17					J4-S2	
	A98		P2-B18	↓		↓	↓	J4-S3	
	A99		P2-B19	WHITE		1	98	J4-S4	
	A100		P2-B20	BLACK		2	93	J5-B5	
	A101		P2-C1	WHITE		1	98	J4-S5	
	A102		P2-C2	↑		↑	↑	J4-S6	
	A103		P2-C3					J4-S7	
	A104		P2-C4					J4-S8	
	A105		P2-C5					J4-T1	
	A106		P2-C6					J4-T2	
	A107		P2-C7					J4-T3	
	A108		P2-C8					J4-T4	
	A109		P2-C9					J4-T5	
	A110		P2-C10					J4-T6	
	A111		P2-C11					J4-T7	
	A112		P2-C12					J4-T8	
	A113		P2-C13					J4-U1	
	A114		P2-C14					J4-U2	
	A115		P2-C15					J4-U3	
	A116		P2-C16					J4-U4	
	A117		P2-C17					J4-U5	
	A118		P2-C18	↓		↓	↓	J4-U6	
	A119	↓	P2-C19	WHITE		1	98	J4-U7	
	A120	99	P2-C20	BLACK		2	93	J5-B4	
	A121	96	J4-A3	WHITE		1	13	S7B(C)	
	A122	↑	J4-A4	↑		↑	14	S8B(C)	
	A123		J4-A5				103	S9B(C)	
	A124		J4-A6				104	S10B(C)	
	A125		J4-B1				11	S11B(C)	
	A126		J4-B2				12	S12B(C)	
	A127		J4-B3				12	S12A(C)	
	A128		J4-B4				105	S13B(C)	
	A129		J4-B5	↓		↓	106	S14B(C)	
	A130		J4-B6	WHITE		1	9	S15B(C)	
	A131		J4-B8	BLACK		2	105	S13-2	
	A132		J4-C1	WHITE		1	10	S16B(C)	
	A133		J4-C2	↑		↑	107	S17B(C)	
	A134		J4-C3				108	S18B(C)	
	A135		J4-C4				105	S13A(C)	
	A136		J4-C5				7	S19B(C)	
	A137		J4-C6	↓		↓	8	S20B(C)	
	A138		J4-C7	WHITE		1	109	S21B(C)	
	A139		J4-C8	BLACK		2	110	S22-2	
	A140		J4-D2	WHITE		1	110	S22C(C)	
	A141	↓	J4-D3	WHITE		1	110	S22B(C)	
	A142	96	J4-D4	WHITE		1	111	S25A(C)	
	A143	93	J5-A3	BLACK		2	92	K1-1	
	A144	↑	J5-A4	↑		↑	92	K1-1	
	A145		J5-A5				89	K1-4	
	A146		J5-A6	↓		↓	91	K1-8	
	A147		J5-B1	BLACK		2	1	DS1-3	
	A148		J5-E1	WHITE		1	68	S31-B-0	
	A149		J5-E2	↑		↑	56	S31-B-1	
	A150		J5-E3				67	S31-B-2	
	A151		J5-E4				57	S31-B-3	
	A152		J5-E5				66	S31-B-4	
	A153		J5-E6				58	S31-B-5	
	A154		J5-E7				59	S31-B-6	
	A155		J5-E8				64	S31-B-7	
	A156		J5-F1				60	S31-B-8	
	A157		J5-F2				63	S31-B-9	
	A158		J5-F3				61	S31-B-10	
	A159		J5-F4				62	S31-B-11	
	A160		J5-F5				55	S31-C-0	
	A161		J5-F6				43	S31-C-1	
	A162		J5-F7				54	S31-C-2	
	A163		J5-F8				44	S31-C-3	
	A164		J5-G1				53	S31-C-4	
	A165		J5-G5				45	S31-C-5	
	A166		J5-G2				46	S31-C-6	
	A167		J5-G3				51	S31-C-7	
	A168		J5-G4				47	S31-C-8	
	A169		J5-G6				50	S31-C-9	
	A170	↓	J5-G7				48	S31-C-10	
	A171	93	J5-G8				49	S31-C-11	
	A172	94	J5-H1				42	S31-D-0	
	A173	94	J5-H2	↓	↓	↓	30	S31-D-1	
	A174	94	J5-H3	WHITE	22	1	41	S31-D-2	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A175	94	J5-H4	WHITE	22	1	31	S31-D-3	
	A176	↑	J5-H5	↑	↑	↑	40	S31-D-4	
	A177		J5-H6				32	S31-D-5	
	A178		J5-H7				33	S31-D-6	
	A179		J5-H8				38	S31-D-7	
	A180		J5-J1				34	S31-D-8	
	A181		J5-J2				37	S31-D-9	
	A182		J5-J3				35	S31-D-10	
	A183		J5-J4				36	S31-D-11	
	A184		J5-J5				29	S31-E-0	
	A185		J5-J6				17	S31-E-1	
	A186		J5-J7				28	S31-E-2	
	A187		J5-J8				18	S31-E-3	
	A188		J5-K1				27	S31-E-4	
	A189		J5-K2				19	S31-E-5	
	A190		J5-K3				20	S31-E-6	
	A191		J5-K6				24	S31-E-9	
	A192		J5-K7				22	S31-E-10	
	A193		J5-K8				23	S31-E-11	
	A194		J5-L1				79	S31-A-4	
	A195		J5-L2				71	S31-A-5	
	A196		J5-L7				74	S31-A-10	
	A197		J5-L8				75	S31-A-11	
	A198		J5-M1				1	DS1-5	
	A199		J5-M2				90	K1-6	
	A200		J5-M3				91	K1-3	
	A201		J5-M6				85	J3	
	A202		J5-M7				87	J6	
	A203		J5-M8				84	J7	
	A204	↓	J5-N1	↓		↓	88	J8	
	A205	94	J5-N2	WHITE		1	86	J9	
	A206	93	J5-C1	BLACK		2	15	S3-2	
	A207	94	J5-P1	WHITE		1	1	DS1-2	
	A208	95	J5-R1	↑		↑	114	S30B(C)	
	A209	↑	J5-R2				6	S24B(C)	
	A210		J5-R3				6	S24A(C)	
	A211		J5-R4				116	S1B(C)	
	A212		J5-R5				114	S30B-NC	
	A213		J5-R7				115	S2B(C)	
	A214		J5-R8				15	S3B(C)	
	A215		J5-S1				16	S4B(C)	
	A216		J5-S2				101	S5B(C)	
	A217		J5-S3				102	S6B(C)	
	A218		J5-S4				15	S3A(C)	
	A219		J5-U8				21	S31-E-7	
	A220		J5-V1				25	S31-E-8	
	A221		J5-V2				72	S31-A-6	
	A222		J5-V3				77	S31-A-7	
	A223		J5-V4				73	S31-A-8	
	A224		J5-V5				76	S31-A-9	
	A225	↓	J5-V6				91	K1-3	
	A226	95	J5-V7				83	J2	
	A227	78	S31-A-C				82	J1	
	A228	81	S31-A-0				26	S31-E-C	
	A229	69	S31-A-1				65	S31-B-C	
	A230	80	S31-A-2				52	S31-C-C	
	A231	70	S31-A-3				39	S31-D-C	
	A232	47	S31-C-8	↓		↓	115	S2B-NC	
	A233	119	S32-1	WHITE		1	118	S33-1	
	A234	119	S32-3	BLACK		2	118	S33-3	
	A235	118	S33-1	WHITE		1	117	S34-1	
	A236	118	S33-3	BLACK		2	117	S34-3	
	A237	2	S35-3	WHITE		1	92	K1-7	
	A238	2	S35-4	WHITE		1	1	DS1-2	
	A239	1	DS1-5	WHITE		1	90	K1-6	
	A240	85	J3-GRD	BLACK		2	1	DS1-3	
	A241	115	S2A(C)	WHITE		1	102	S6A(C)	
	A242	115	S2-2	WHITE		1	102	S6-2	
	A243	93	J5-C2	BLACK		2	104	S10B-NO	
	A244	93	J5-C3	BLACK	↓	2	3	S27-2	
	A245	117	S34-3	BLACK	22	2	6	S24-2	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO
LEXINGTON MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 2 AUG 65
CHECKED 30 SEP 65
APPROVAL 6 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL A. G. METZGER
MIT APPROVAL
MIT APPROVAL 1/26/66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

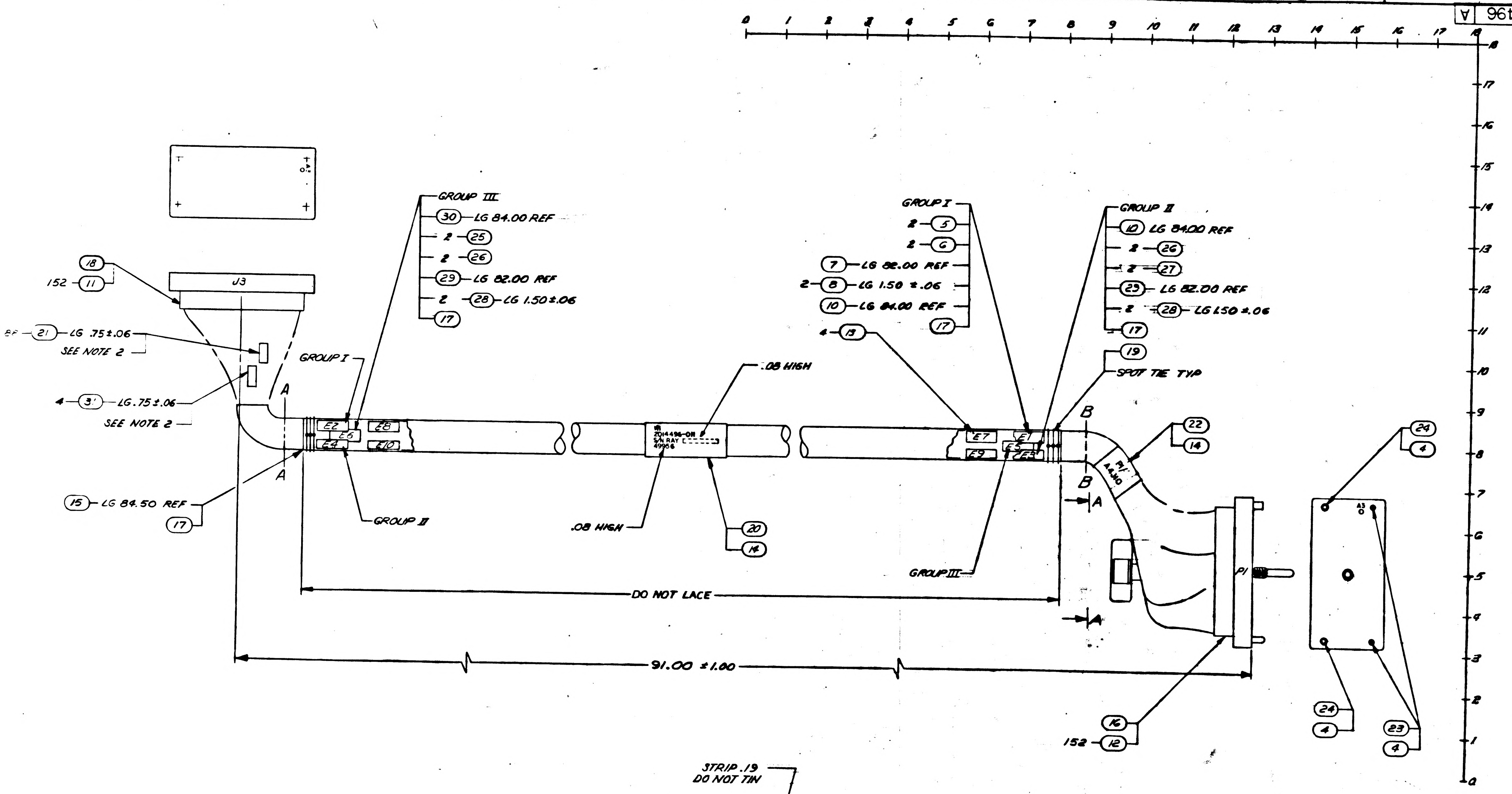
WIRING HARNESS
SELF TEST ASSY
COMPUTER TEST SET

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014495
SCALE
WT
SHEET 2 OF 2

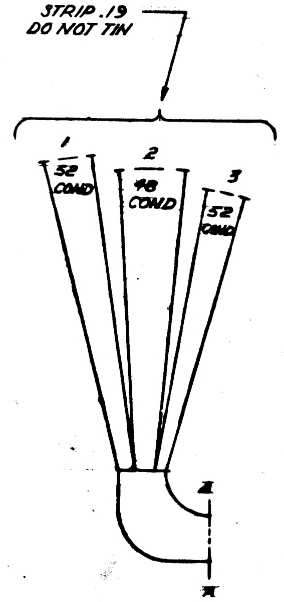
MASTER

2014496 A

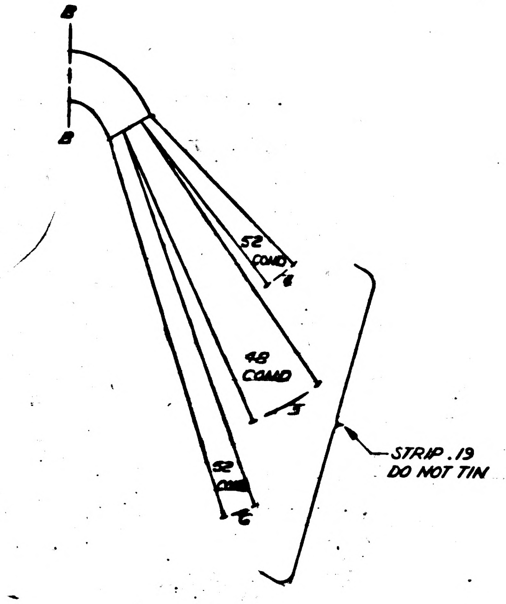
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R 25222	9/30/65	A. Nausang
1	CHANGE PER CCA R25452 DR W. Kelly CHK J Gilbreath APPD	11/19/65	R.A.B.
–	CLASS B CHANGED PER CCA R25509	12/27/65	R.F.A.
A	CHANGED PER CCA R25663 & CLASS A RELEASEC PER TDRR 25476	1/15/66	



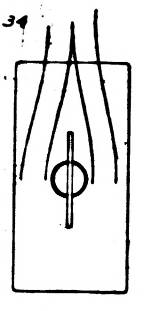
J3
152 - 11
18
RF - 21 - LG .75±.06
SEE NOTE 2
4 - 3 - LG .75±.06
SEE NOTE 2
GROUP I
GROUP II
GROUP III
30 - LG 84.00 REF
2 - 25
2 - 26
29 - LG 82.00 REF
2 - 28 - LG 1.50±.06
17
15 - LG 84.50 REF
17
E2 E6 E8 E4 E10
.08 HIGH
2014496-011 S/N RAY C 49956
20
14
GROUP I
2 - 5
2 - 6
7 - LG 82.00 REF
2 - 8 - LG 1.50±.06
10 - LG 84.00 REF
17
4 - 13
GROUP II
10 - LG 84.00 REF
2 - 26
2 - 27
23 - LG 82.00 REF
2 - 28 - LG 1.50±.06
17
19
SPOT TIE TYP
E7 E1 E9 E5 E3
22
14
P1 A4 M0
A
B
DO NOT LACE
91.00 ±1.00
P1
24
4
152 - 16
152 - 12
24
4
23
4



STRIP .19
DO NOT TIN
1
52 COND
2
48 COND
3
52 COND



B
B
52 COND
48 COND
52 COND
STRIP .19
DO NOT TIN



VIEW A-A

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 19
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
4. CRIMP PER ND1002206
5. SERIALIZE PER ND1002023
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
~~7. SEAL FIND NO.15 USING FIND NO.17~~
~~8. BOND FIND NO.20 USING FIND NO.14~~
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUBASSEMBLY DESIGNATION
10. MIL-I-23053 CLASS I, COLOR BLK, ID .750 FOR FIND NO. 28 ID 1.000 FOR FIND NO. 8
11. QQ-B-575 FOR FIND NO. 10 BRAID SIZE .50 AWG 34, FOR FIND NO. 30 BRAID SIZE .375 AWG 34
12. AR DENOTES AS REQUIRED
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. MIL-I-23053 CLASS I, COLOR WHT, ID .125 FOR FIND 21, ID .187 FOR FIND 31
15. MIL-W-16878/4 E22 WHT SHLD'D JACKET TFE WHT
~~16. THIS SYMBOL △ SHOWN ON ASSEMBLY INFORMATION CHART DENOTES INTERNAL CONNECTIONS~~
17. STRIP ALL LEADS .50±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
18. CUT SLEEVING LENGTH AS SHOWN
19. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	.3	SEE NOTE 14	SLEEVING, INSUL SHRINK	31
*	7.0	SEE NOTE 11	SHIELD, BRAID	30
*	13.7	1006696-4	SLEEVING, INSULATION	29
*	0.5	SEE NOTE 10	SLEEVING, INSULATION	28
	2	1000243-36	FERRULE, INNER	27
	4	1000242-33	FERRULE, OUTER	26
	2	1000243-37	FERRULE, INNER	25
	2	1006672-006	GUIDE SOCKET	24
	2	1006672-002	GUIDE PIN	23
	1	1006415-065	BAND MARKER, CABLE	22
*	2.8	SEE NOTE 14	SLEEVING, INSUL. SHRINK	21
	1	1006415-141	BAND MARKER, CABLE	20
	AR	1006458-004	TAPE, LACING	19
	1	1006671-001	CONNECTOR, RECEPTACLE	18
	AR	1006699	SOLVENT	17
	1	1006672-001	CONNECTOR, PLUG	16
*	7.6	1006696-9	SLEEVING, INSULATION	15
	AR	1006253	ADHESIVE	14
	4	1010402-1	SLEEVE, SOLDER	13
	152	1006491-011	CONTACT, ELECT. MALE, CRIMP	12
	152	1006491-012	CONTACT, ELECT. FEMALE, CRIMP	11
*	14	SEE NOTE 11	SHIELD, BRAID	10
*	6.0	MIL-W-16878/4 E22	WIRE, ELECT BLK	9
*	0.3	SEE NOTE 10	SLEEVING, INSUL. SHRINK	8
*	20.5	1006696-5	SLEEVING, INSULATION	7
	2	1000242-38	FERRULE, OUTER	6
	2	1000243-38	FERRULE, INNER	5
	4	1006672-005	NUT, STOP	4
*	18.0	SEE NOTE 15	WIRE, ELEC. TW. PR. BLK & WHT SHLD.	3
*	344.0	1014341-11	WIRE, ELEC. TW. PR. BLK & WHT	2
*	440.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, WHT	1
	-011	LIST OF MATERIALS		

* INDICATES LENGTH IN FEET

2014028	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 9 AUG 65
CHECKED 20 AUG 65
APPROVAL 28 Sept 65
APPROVAL D. Alquist 9/21/65
APPROVAL 9/14/65
NASA APPROVAL A. C. METCALF
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W1
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014496
SCALE 1/1
WT
SHEET 1 OF 3

2014496 A

2014496 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25222	3/30/65	
1	CHANGE PER CCA R25452 DR W. Kelly CHK APPD		
–	CLASS B CHANGED PER CCA R25509		
A	CHANGED PER CCA R25663 & CLASS A RELEASED PER TDRR 25476	/15/66	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP I	A1	3	J3-A3	WHT	22	2	4	P1-A3	
			A4	BLK				A4	
	A2		A5	WHT				A5	
			A6	BLK				A6	
	A3		B1	WHT				B1	
			B2	BLK				B2	
	A4		B3	WHT				B3	
			B4	BLK				B4	
	A5		B5	WHT				B5	
			B6	BLK				B6	
	A6		B7	WHT				B7	
			B8	BLK				B8	
	A7		C1	WHT				C1	
			C2	BLK				C2	
	A8		C3	WHT		2		C3	
			C4	BLK	22			C4	
	A9		C5	WHT	22	1		C5	
	A10		C6	WHT	22	2		C6	
			C7	BLK				C7	
	A11		C8	WHT				C8	
			D8	BLK				D8	
	A12		D2	WHT				D2	
			D3	BLK				D3	
	A13		D4	WHT				D4	
			D5	BLK				D5	
	A14		D6	WHT				D6	
			D7	BLK				D7	
	A15		D1	WHT				D1	
			E1	BLK				E1	
	A16		E2	WHT				E2	
			E3	BLK				E3	
	A17		E4	WHT		2		E4	
			E5	BLK	22			E5	
	A18		E6	WHT	22	1		E6	
	A19		E7	WHT	22	2		E7	
			E8	BLK				E8	
	A20		F1	WHT				F1	
			F2	BLK				F2	
	A21		F3	WHT				F3	
			F4	BLK				F4	
	A22		F5	WHT				F5	
			F6	BLK				F6	
	A23		F7	WHT				F7	
			F8	BLK				F8	
	A24		G1	WHT				G1	
			G2	BLK				G2	
	A25		G3	WHT				G3	
			G4	BLK				G4	
	A26		G5	WHT		2		G5	
			G6	BLK	22			G6	
	A27		G7	WHT	22	1		G7	
	A28	3	G8	WHT	22	2	4	G8	
		2	H8	BLK			5	H8	
	A29		H1	WHT				H1	
			H2	BLK				H2	
	A30		H3	WHT				H3	
			H4	BLK				H4	
	A31		H5	WHT				H5	
			H6	BLK				H6	
	A32		H7	WHT		2		H7	
		2	J8	BLK	22		5	J8	
	A33	1	S6	WHT	22	1	6	S6	
	A34	1	S8	WHT	22	1	6	S8	
	A35	2	J3	WHT	22	2	5	J3	
			J4	BLK	22			J4	
	A36		J5	WHT	22	1		J5	
	A37	2	J3J6	WHT	22	1	5	P1-J6	
		△1	E2	SHLD			△1	E1	
	A38	2	J3-J7	BLK	22	9	△1	E2	
	A39	△1	E1	BLK	22	9	5	P1-J7	
GROUP II	A40	1	J3-X3	WHT	22	2	6	P1-X3	
			X4	BLK				X4	
	A41		X5	WHT				X5	
			X6	BLK				X6	
	A42		W1	WHT				W1	
			W2	BLK				W2	
	A43		W3	WHT				W3	
			W4	BLK				W4	
	A44		W5	WHT				W5	
			W6	BLK				W6	
	A45		W7	WHT				W7	
			W8	BLK				W8	
	A46		V3	WHT		2		V3	
			V4	BLK	22			V4	
	A47	1	J3-V5	WHT	22	1	6	P1-V5	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP II	A48	1	J3-V6	WHT	22	2	6	P1-V6	
			V7	BLK				V7	
	A49		V8	WHT				V8	
			U8	BLK				U8	
	A50		U1	WHT				U1	
			U2	BLK	22	2		U2	
	A51		U7	WHT	22	1		U7	
	A52		T1	WHT	22	1		T1	
	A53		T4	WHT	22	2		T4	
			T5	BLK				T5	
	A54		T6	WHT	22	1		T6	
	A55		T8					T8	
	A56		U3					U3	
	A57		U4					U4	
	A58		U5					U5	
	A59		U6					U6	
	A60		R7					R7	
	A61		V1					V1	
	A62		J3-V2	WHT	22	1	6	P1-V2	
		△1	E4	SHLD			△1	E3	
	A63	1	J3-T7	BLK	22	9	△1	E4	
	A64	△1	E3	BLK	22	9	6	P1-T7	
	A65	2	J3-K7	WHT	22	3	5	P1-K7	
		2	J3-L7	BLK	22		5	P1-L7	
		△1	E8	SHLD			△1	E7	
	A66	2	J3-K6	BLK	22	9	△1	E8	
	A67	△1	E7	BLK	22	9	5	P1-K6	
	A68	2	J3-M7	WHT	22	3	5	P1-M7	
		2	J3-N7	BLK	22		5	P1-N7	
		△1	E10	SHLD			△1	E9	
	A69	2	J3-M6	BLK	22	9	△1	E10	
	A70	△1	E9	BLK	22	9	5	P1-M6	
GROUP III	A71	2	J3-P1	WHT	22	1	5	P1-P1	
	A72		P2					P2	
	A73		P3					P3	
	A74		P4					P4	
	A75		P5					P5	
	A76		P6	WHT	22	1		P6	
	A77		P7	WHT	22	2		P7	
		2	P8	BLK			5	P8	
	A78	1	S1	WHT	22	1	6	S1	
	A79		S2					S2	
	A80		S3					S3	
	A81		S4					S4	
	A82		S5					S5	
	A83	1	S7				6	S7	
	A84	2	J1				5	J1	
	A85		J2					J2	
	A86		K1					K1	
	A87		K2					K2	
	A88		K3	WHT	22	1		K3	
	A89		K8	WHT	22	2		K8	
			L8	BLK				L8	
	A90		L1	WHT	22	1		L1	
	A91		L2					L2	
	A92		M1					M1	
	A93		M2					M2	
	A94		M3	WHT	22	1		M3	
	A95		M8	WHT	22	2		M8	
			N8	BLK				N8	
	A96		N1	WHT	22	1		N1	
	A97		N2					N2	
	A98		N3					N3	
	A99		N4					N4	
	A100		N5					N5	
	A101	2	N6				5	N6	
	A102	1	R1				6	R1	
	A103		R2					R2	
	A104		R3					R3	
	A105		R4					R4	
	A106		R5					R5	
	A107		R6					R6	
	A109		T2					T2	
	A110	1	J3-T3	WHT	22	1	6	P1-T3	
		△1	E6	SHLD			△1	E5	
	A111	1	J3-R8	BLK	22	9	△1	E6	
	A112	△1	E5	BLK	22	9	6	P1-R8	

△1 DENOTES INTERNAL CONNECTION

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 10/14/65
CHECKED 28 AUG 65
APPROVAL 28 Sept 65
APPROVAL 9/24/65
APPROVAL 9/19/65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

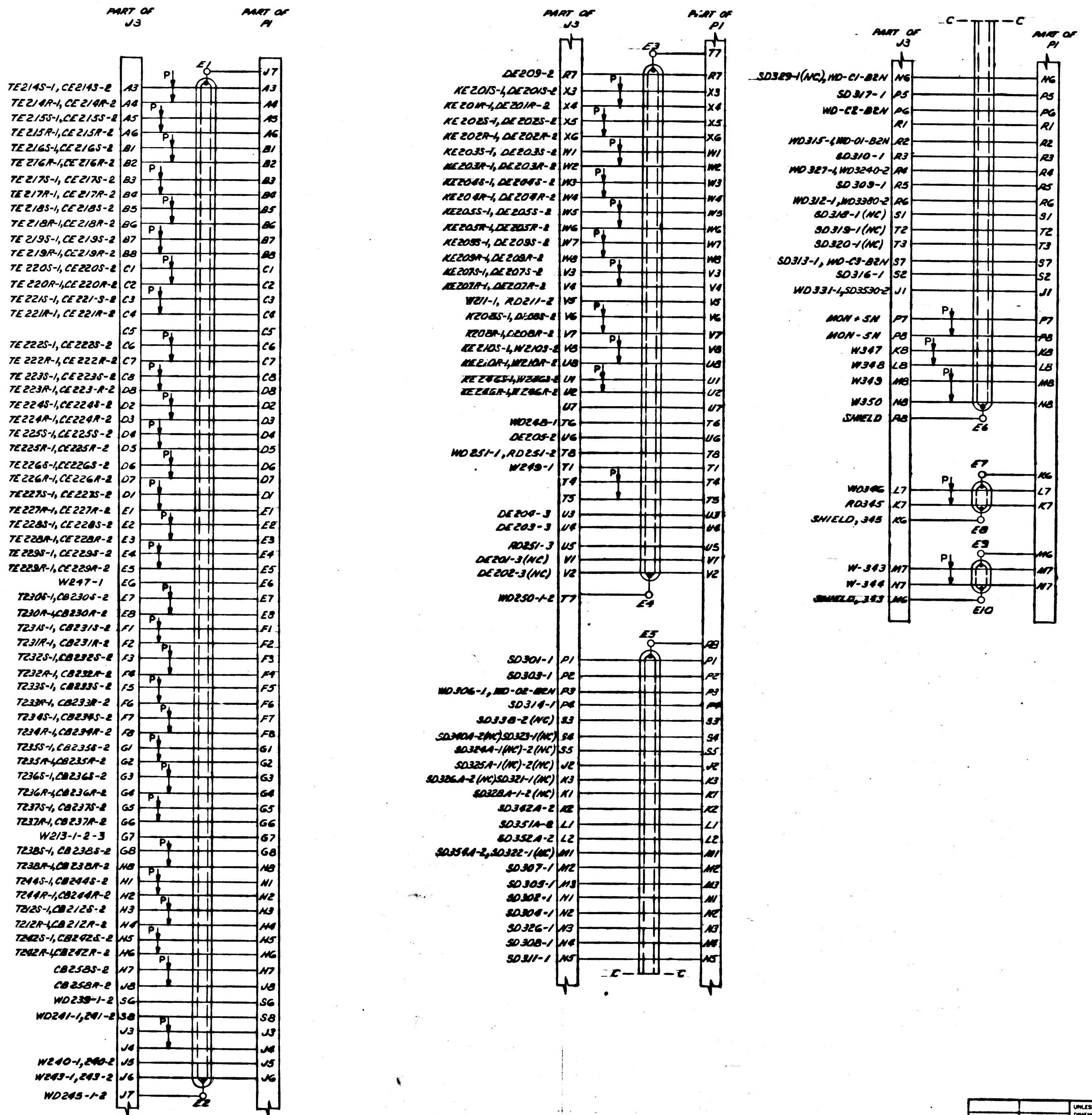
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W1
OPERATION [illegible]E

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014496
SCALE NONE
WT
SHEET 2 OF 3

2014496 A

SYM	REVISIONS DESCRIPTION	DATE	APPROVAL
0	RELEASED PER CCA R25222	9/30/65	[illegible]
1	CHANGE PER CCA R25452 DR W. Kelly CHK [illegible] APPD AJM	11/12/65	[illegible]
–	CLASS B CHANGED PER CCA R25509	11/27/65	[illegible]
A	CHANGED PER CCA R25663 & CLASS A RELEASED PER TORR 25476	1/13/66	[illegible]


PART OF J3
PART OF P1
E1
J7
TE214S-1, CE214S-2 A3
TE214R-1, CE214R-2 A4
TE215S-1, CE215S-2 A5
TE215R-1, CE215R-2 A6
TE216S-1, CE216S-2 B1
TE216R-1, CE216R-2 B2
TE217S-1, CE217S-2 B3
TE217R-1, CE217R-2 B4
TE218S-1, CE218S-2 B5
TE218R-1, CE218R-2 B6
TE219S-1, CE219S-2 B7
TE219R-1, CE219R-2 B8
TE220S-1, CE220S-2 C1
TE220R-1, CE220R-2 C2
TE221S-1, CE221-S-2 C3
TE221R-1, CE221R-2 C4
C5
TE222S-1, CE222S-2 C6
TE222R-1, CE222R-2 C7
TE223S-1, CE223S-2 C8
TE223R-1, CE223-R-2 D8
TE224S-1, CE224S-2 D2
TE224R-1, CE224R-2 D3
TE225S-1, CE225S-2 D4
TE225R-1, CE225R-2 D5
TE226S-1, CE226S-2 D6
TE226R-1, CE226R-2 D7
TE227S-1, CE227S-2 D1
TE227R-1, CE227R-2 E1
TE228S-1, CE228S-2 E2
TE228R-1, CE228R-2 E3
TE229S-1, CE229S-2 E4
TE229R-1, CE229R-2 E5
W247-1 E6
T230S-1, CB230S-2 E7
T230R-1, CB230R-2 E8
T231S-1, CB231S-2 F1
T231R-1, CB231R-2 F2
T232S-1, CB232S-2 F3
T232R-1, CB232R-2 F4
T233S-1, CB233S-2 F5
T233R-1, CB233R-2 F6
T234S-1, CB234S-2 F7
T234R-1, CB234R-2 F8
T235S-1, CB235S-2 G1
T235R-1, CB235R-2 G2
T236S-1, CB236S-2 G3
T236R-1, CB236R-2 G4
T237S-1, CB237S-2 G5
T237R-1, CB237R-2 G6
W213-1-2-3 G7
T238S-1, CB238S-2 G8
T238R-1, CB238R-2 H8
T244S-1, CB244S-2 H1
T244R-1, CB244R-2 H2
T212S-1, CB212S-2 H3
T212R-1, CB212R-2 H4
T242S-1, CB242S-2 H5
T242R-1, CB242R-2 H6
CB258S-2 H7
CB258R-2 J8
WD239-1-2 S6
WD241-1, 241-2 S8
J3
J4
W240-1, 240-2 J5
W243-1, 243-2 J6
WD245-1-2 J7
E2
P
PART OF J3
PART OF P1
E3
T7
DE209-2 R7
KE201S-1, DE201S-2 X3
KE201R-1, DE201R-2 X4
KE202S-1, DE202S-2 X5
KE202R-1, DE202R-2 X6
KE203S-1, DE203S-2 W1
KE203R-1, DE203R-2 W2
KE204S-1, DE204S-2 W3
KE204R-1, DE204R-2 W4
KE205S-1, DE205S-2 W5
KE205R-1, DE205R-2 W6
KE209S-1, DE209S-2 W7
KE209R-1, DE209R-2 W8
KE207S-1, DE207S-2 V3
KE207R-1, DE207R-2 V4
W211-1, RD211-2 V5
K208S-1, D208S-2 V6
K208R-1, D208R-2 V7
KE210S-1, W210S-2 V8
KE210R-1, W210R-2 U8
KE246S-1, W246S-2 U1
KE246R-1, W246R-2 U2
U7
WD248-1 T6
DE205-2 U6
WD251-1, RD251-2 T8
W249-1 T1
T4
T5
DE204-3 U3
DE203-3 U4
RD251-3 U5
DE201-3 (NC) V1
DE202-3 (NC) V2
WD250-1-2 T7
E4
E5
R8
SD301-1 P1
SD303-1 P2
WD306-1, WD-02-B2N P3
SD314-1 P4
SD338-2 (NC) S3
SD340A-2 (NC) SD323-1 (NC) S4
SD324A-1 (NC)-2 (NC) S5
SD325A-1 (NC)-2 (NC) J2
SD326A-2 (NC) SD321-1 (NC) K3
SD328A-1-2 (NC) K1
SD342A-2 K2
SD351A-2 L1
SD352A-2 L2
SD354A-2, SD322-1 (NC) M1
SD307-1 M2
SD305-1 M3
SD302-1 N1
SD304-1 N2
SD326-1 N3
SD308-1 N4
SD311-1 N5
C
C
PART OF J3
PART OF P1
C
C
SD329-1 (NC), WD-C1-B2N N6
SD317-1 P5
WD-C2-B2N P6
R1
WD315-1, WD-01-B2N R2
SD310-1 R3
WD327-1, WD3240-2 R4
SD309-1 R5
WD312-1, WD3380-2 R6
SD318-1 (NC) S1
SD319-1 (NC) T2
SD320-1 (NC) T3
SD313-1, WD-C3-B2N S7
SD316-1 S2
WD331-1, SD3530-2 J1
MON + SN P7
MON - SN P8
W347 K8
W348 L8
W349 M8
W350 N8
SHIELD R8
E6
E7
K6
WD346 L7
RD345 K7
SHIELD, 345 K6
E8
E9
M6
W-343 M7
W-344 N7
SHIELD, 343 M6
E10

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

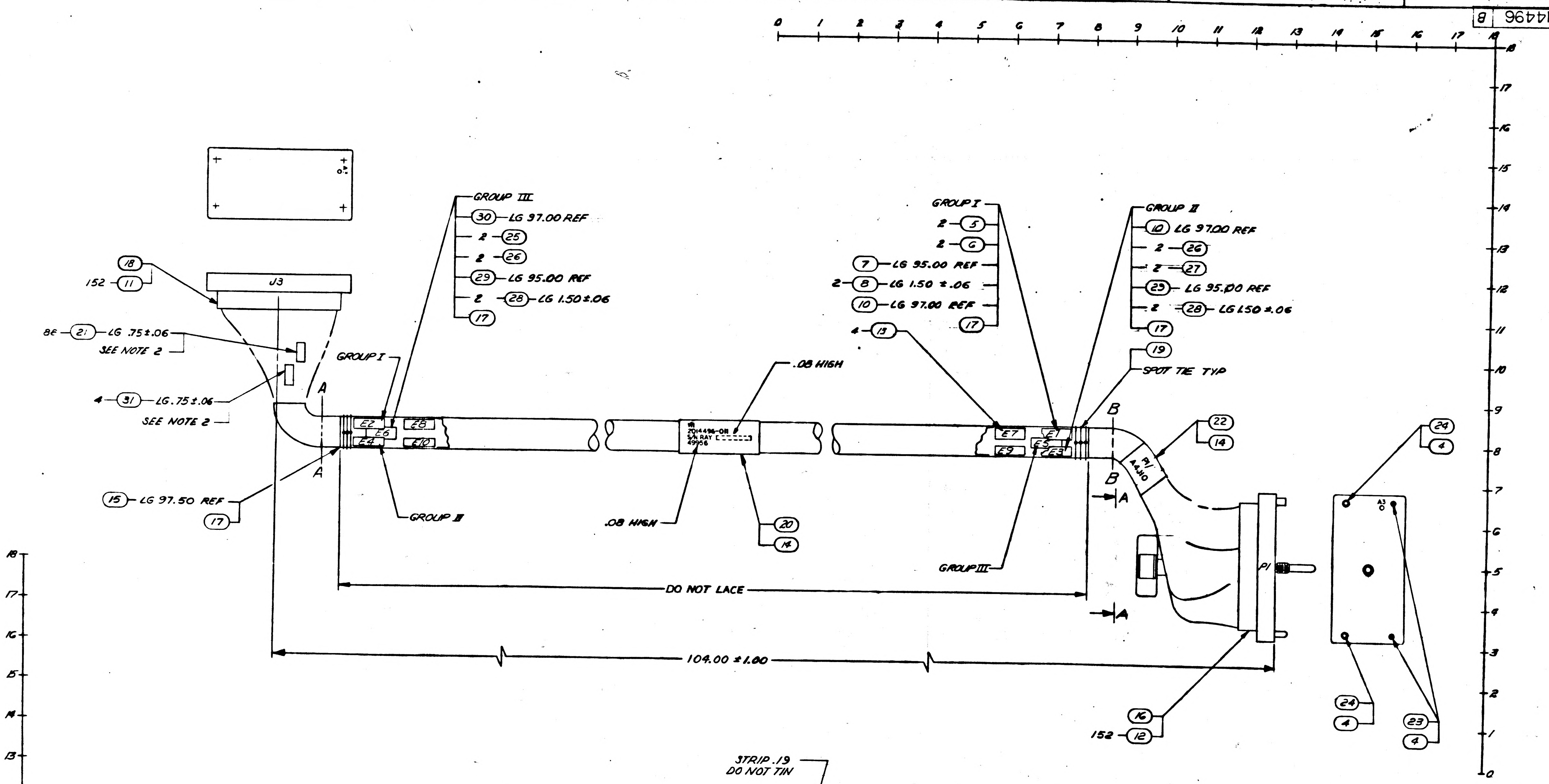
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 3AUG 65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. J. Meintel
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

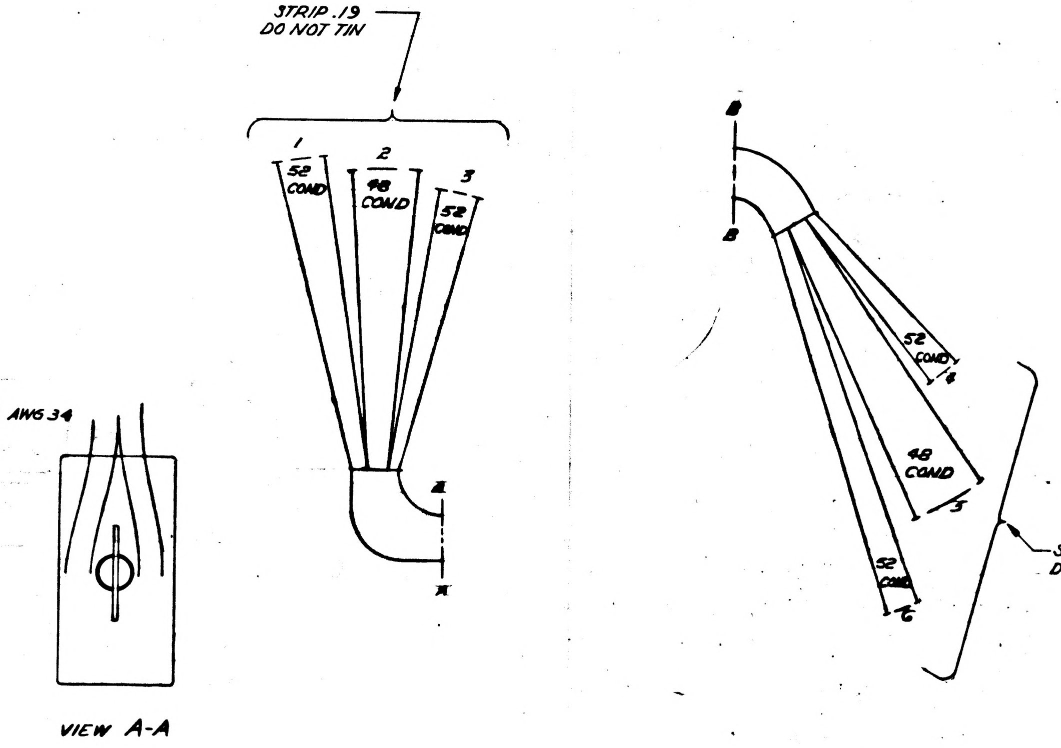
CABLE ASSEMBLY W1
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014496
SCALE NONE
WT
SHEET 3 OF 3

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R 25222	9/30/65	G. Hasang
1	CHANGE PER CCA R25452 DR W. Kelly CHK J Sheath APPD	11/12/65	
–	CLASS B CHANGED PER CCA R25529	4/27/66	
A	CHANGED PER CCA R25663 & CLASS A RELEASED PER TDRR 25476	1/15/66	
B	CHANGED PER TDRR 26444 DR CHK APPD	2/24/66	


J3
152 – 11
18
8E – 21 – LG .75 ±.06
SEE NOTE 2
4 – 31 – LG .75 ±.06
SEE NOTE 2
15 – LG 97.50 REF
17
A
A
GROUP I
GROUP II
GROUP III
30 – LG 97.00 REF
2 – 25
2 – 26
29 – LG 95.00 REF
2 – 28 – LG 1.50 ±.06
17
E2 E6 E8 E4 E10
.08 HIGH
2014496-011 S/N RAY 49956
.08 HIGH
20
14
DO NOT LACE
104.00 ±1.00
GROUP I
2 – 5
2 – 6
7 – LG 95.00 REF
2 – 8 – LG 1.50 ±.06
10 – LG 97.00 REF
17
4 – 13
E7 E1 E9 E5 E3
GROUP II
10 – LG 97.00 REF
2 – 26
2 – 27
29 – LG 95.00 REF
2 – 28 – LG 1.50 ±.06
17
19
SPOT TIE TYP
B
B
A
A
22
14
P1 A3A10
P1
24
4
24
4
23
4
16
152 – 12
GROUP III

NOTES
1. FABRICATE PER ND1002032 EXCEPT USE FIND NO.19
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
4. CRIMP PER ND1002206
5. SERIALIZE PER ND1002023
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
~~7. SEAL FIND NO.15 USING FIND NO.17~~
~~8. BOND FIND NO.20 USING FIND NO.14~~
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUBASSEMBLY DESIGNATION
10. MIL-I-23053 CLASS I, COLOR BLK, ID .750 FOR FIND NO. 28 ID 1.000 FOR FIND NO. 8
11. QQ-B-575 FOR FIND NO. 10 BRAIDSIZE .50 AWG 34, FOR FIND NO. 30 BRAID SIZE .375 AWG 34
12. AR DENOTES AS REQUIRED
13. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
14. MIL-I-23053 CLASS I, COLOR WHT, ID .125 FOR FIND 21, ID .187 FOR FIND 31
15. MIL-W-16878/4 E22 WHT SHLD'D JACKET TFE WHT
~~16. THIS SYMBOL A SHOWN ON ASSEMBLY INFORMATION CHART DENOTES INTERNAL CONNECTIONS.~~
17. STRIP ALL LEADS .50 ±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
18. CUT SLEEVING LENGTH AS SHOWN
19. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327


STRIP .19
DO NOT TIN
1
52 COND
2
48 COND
3
52 COND
B
B
52 COND
48 COND
52 COND
STRIP .19
DO NOT TIN
VIEW A-A

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
*	.3	SEE NOTE 14	SLEEVING, INSUL SHRINK	31
*	8.3	SEE NOTE 11	SHIELD, BRAID	30
*	16.0	1006696-4	SLEEVING, INSULATION	29
*	0.5	SEE NOTE 10	SLEEVING, INSULATION	28
	2	1000243-36	FERRULE, INNER	27
	4	1000242-33	FERRULE, OUTER	26
	2	1000243-37	FERRULE, INNER	25
	2	1006672-006	GUIDE SOCKET	24
	2	1006672-002	GUIDE PIN	23
	1	1006415-065	BAND MARKER, CABLE	22
*	2.8	SEE NOTE 14	SLEEVING, INSUL. SHRINK	21
	1	1006415-141	BAND MARKER, CABLE	20
	AR	1006458-004	TAPE, LACING	19
	1	1006671-001	CONNECTOR, RECEPTACLE	18
	AR	1006699	SOLVENT	17
	1	1006672-001	CONNECTOR, PLUG	16
*	8.3	1006696-9	SLEEVING, INSULATION	15
	AR	1006253	ADHESIVE	14
	4	1010402-1	SLEEVE, SOLDER	13
	152	1006491-011	CONTACT, ELECT. MALE, CRIMP	12
	152	1006491-012	CONTACT, ELECT. FEMALE, CRIMP	11
*	16.2	SEE NOTE 11	SHIELD, BRAID	10
*	6.0	MIL-W-16878/4 E22	WIRE, ELECT BLK	9
*	0.3	SEE NOTE 10	SLEEVING, INSUL. SHRINK	8
*	8.0	1006696-8	SLEEVING, INSULATION	7
	2	1000242-38	FERRULE, OUTER	6
	2	1000243-38	FERRULE, INNER	5
	4	1006672-005	NUT, STOP	4
*	19.0	SEE NOTE 15	WIRE, ELEC. TW. PR. BLK & WHT SHLD	3
*	405.0	1014341-11	WIRE, ELEC. TW. PR. BLK & WHT	2
*	505.0	MIL-W-16878/4 E22	WIRE, ELECTRICAL, WHT	1
	-011	LIST OF MATERIALS		

* INDICATES LENGTH IN FEET

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 9 AUG 65
CHECKED 28 AUG 65
APPROVAL 28 Sept 65
APPROVAL D. Alegment
APPROVAL 9/14/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W1
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014496
SCALE 1/1
WT
SHEET 1 OF 3

SYM	DESCRIPTION	DATE	APPROVED
REVISIONS			
0	RELEASED PER CCA R25222	9/30/65	
1	CHANGE PER CCA R25453 DR W. Kelly CHK APPD	11/12/65	
–	CLASS B CHANGED PER CCA R25509	12/27/65	
A	CHANGED PER CCA R25663 & CLASS A RELEASED PER TDRR 25476	1/15/66	
B	CHANGED PER TDRR 26444 DR CHK APPD	2/24/69	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP I	A1	3	J3-A3	WHT	22	2	4	P1-A3	
			A4	BLK				A4	
	A2		A5	WHT				A5	
			A6	BLK				A6	
	A3		B1	WHT				B1	
			B2	BLK				B2	
	A4		B3	WHT				B3	
			B4	BLK				B4	
	A5		B5	WHT				B5	
			B6	BLK				B6	
	A6		B7	WHT				B7	
			B8	BLK				B8	
	A7		C1	WHT				C1	
			C2	BLK				C2	
	A8		C3	WHT		2		C3	
			C4	BLK	22			C4	
	A9		C5	WHT	22	1		C5	
	A10		C6	WHT	22	2		C6	
			C7	BLK				C7	
	A11		C8	WHT				C8	
			D8	BLK				D8	
	A12		D2	WHT				D2	
			D3	BLK				D3	
	A13		D4	WHT				D4	
			D5	BLK				D5	
	A14		D6	WHT				D6	
			D7	BLK				D7	
	A15		D1	WHT				D1	
			E1	BLK				E1	
	A16		E2	WHT				E2	
			E3	BLK				E3	
	A17		E4	WHT		2		E4	
			E5	BLK	22			E5	
	A18		E6	WHT	22	1		E6	
	A19		E7	WHT	22	2		E7	
			E8	BLK				E8	
	A20		F1	WHT				F1	
			F2	BLK				F2	
	A21		F3	WHT				F3	
			F4	BLK				F4	
	A22		F5	WHT				F5	
			F6	BLK				F6	
	A23		F7	WHT				F7	
			F8	BLK				F8	
	A24		G1	WHT				G1	
			G2	BLK				G2	
	A25		G3	WHT				G3	
			G4	BLK				G4	
	A26		G5	WHT		2		G5	
			G6	BLK	22			G6	
	A27		G7	WHT	22	1		G7	
	A28	3	G8	WHT	22	2	4	G8	
		2	H8	BLK			5	H8	
	A29		H1	WHT				H1	
			H2	BLK				H2	
	A30		H3	WHT				H3	
			H4	BLK				H4	
	A31		H5	WHT				H5	
			H6	BLK				H6	
	A32		H7	WHT		2		H7	
		2	J8	BLK	22		5	J8	
	A33	1	S6	WHT	22	1	6	S6	
	A34	1	S8	WHT	22	1	6	S8	
	A35	2	J3	WHT	22	2	5	J3	
			J4	BLK	22			J4	
	A36		J5	WHT	22	1		J5	
	A37	2	J3J6	WHT	22	1	5	P1-J6	
		△	E2	SHLD			△	E1	
	A38	2	J3-J7	BLK	22	9	△	E2	
	A39	△	E1	BLK	22	9	5	P1-J7	
GROUP II	A40	1	J3-X3	WHT	22	2	6	P1-X3	
			X4	BLK				X4	
	A41		X5	WHT				X5	
			X6	BLK				X6	
	A42		W1	WHT				W1	
			W2	BLK				W2	
	A43		W3	WHT				W3	
			W4	BLK				W4	
	A44		W5	WHT				W5	
			W6	BLK				W6	
	A45		W7	WHT				W7	
			W8	BLK				W8	
	A46		V3	WHT		2		V3	
			V4	BLK	22			V4	
	A47	1	J3-V5	WHT	22	1	6	P1-V5	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP II	A48	1	J3-V6	WHT	22	2	6	P1-V6	
			V7	BLK				V7	
	A49		V8	WHT				V8	
			U8	BLK				U8	
	A50		U1	WHT				U1	
			U2	BLK	22	2		U2	
	A51		U7	WHT	22	1		U7	
	A52		T1	WHT	22	1		T1	
	A53		T4	WHT	22	2		T4	
			T5	BLK				T5	
	A54		T6	WHT	22	1		T6	
	A55		T8					T8	
	A56		U3					U3	
	A57		U4					U4	
	A58		U5					U5	
	A59		U6					U6	
	A60		R7					R7	
	A61		V1					V1	
	A62		J3-V2	WHT	22	1	6	P1-V2	
		△	E4	SHLD			△	E3	
	A63	1	J3-T7	BLK	22	9	△	E4	
	A64	△	E3	BLK	22	9	6	P1-T7	
	A65	2	J3-K7	WHT	22	3	5	P1-K7	
		2	J3-L7	BLK	22		5	P1-L7	
		△	E8	SHLD			△	E7	
	A66	2	J3-K6	BLK	22	9	△	E8	
	A67	△	E7	BLK	22	9	5	P1-K6	
	A68	2	J3-M7	WHT	22	3	5	P1-M7	
		2	J3-N7	BLK	22		5	P1-N7	
		△	E10	SHLD			△	E9	
	A69	2	J3-M6	BLK	22	9	△	E10	
	A70	△	E9	BLK	22	9	5	P1-M6	
GROUP III	A71	2	J3-P1	WHT	22	1	5	P1-P1	
	A72		P2					P2	
	A73		P3					P3	
	A74		P4					P4	
	A75		P5					P5	
	A76		P6	WHT	22	1		P6	
	A77		P7	WHT	22	2		P7	
		2	P8	BLK			5	P8	
	A78	1	S1	WHT	22	1	6	S1	
	A79		S2					S2	
	A80		S3					S3	
	A81		S4					S4	
	A82		S5					S5	
	A83	1	S7				6	S7	
	A84	2	J1				5	J1	
	A85		J2					J2	
	A86		K1					K1	
	A87		K2					K2	
	A88		K3	WHT	22	1		K3	
	A89		K8	WHT	22	2		K8	
			L8	BLK				L8	
	A90		L1	WHT	22	1		L1	
	A91		L2					L2	
	A92		M1					M1	
	A93		M2					M2	
	A94		M3	WHT	22	1		M3	
	A95		M8	WHT	22	2		M8	
			N8	BLK				N8	
	A96		N1	WHT	22	1		N1	
	A97		N2					N2	
	A98		N3					N3	
	A99		N4					N4	
	A100		N5					N5	
	A101	2	N6				5	N6	
	A102	1	R1				6	R1	
	A103		R2					R2	
	A104		R3					R3	
	A105		R4					R4	
	A106		R5					R5	
	A107		R6					R6	
	A109		T2					T2	
	A110	1	J3-T3	WHT	22	1	6	P1-T3	
		△	E6	SHLD			△	E5	
	A111	1	J3-R8	BLK	22	9	△	E6	
	A112	△	E5	BLK	22	9	6	P1-R8	

△ DENOTES INTERNAL CONNECTION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 10 AUG 65
CHECKED 28 AUG 65
APPROVAL 28 Sept 65
APPROVAL 9/24/65
APPROVAL 9/1/-
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

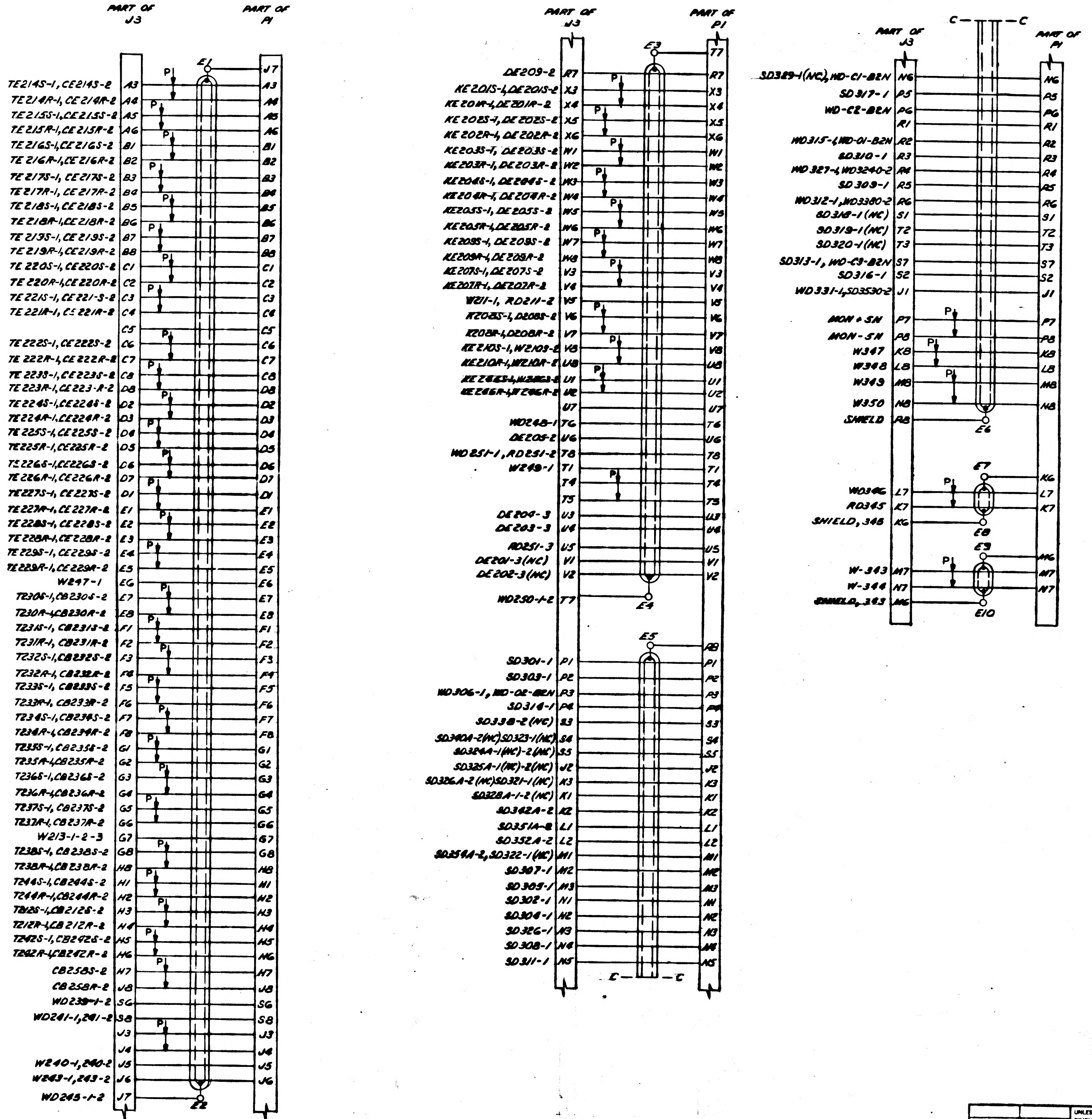
CABLE ASSEMBLY
W1
OPERATION CONSOLE

CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014496
SCALE NONE | WT | SHEET 2 OF 3

2014496 B

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25222	9/30/65	O. Hanson
1	CHANGE PER CCA R25452 DR W. Kelly CHK APPD	11/12/65	
–	CLASS B CHANGED PER CCA R25509	11/23/65	
A	CHANGED PER CCA R25663 & CLASS A RELEASED PER TDRR 25476	1/15/66	
B	CHANGED PER TDRR 25444 DR CHK APPD	2/24/66	


PART OF J3
PART OF P1
E1
P
TE214S-1, CE214S-2 A3
TE214R-1, CE214R-2 A4
TE215S-1, CE215S-2 A5
TE215R-1, CE215R-2 A6
TE216S-1, CE216S-2 B1
TE216R-1, CE216R-2 B2
TE217S-1, CE217S-2 B3
TE217R-1, CE217R-2 B4
TE218S-1, CE218S-2 B5
TE218R-1, CE218R-2 B6
TE219S-1, CE219S-2 B7
TE219R-1, CE219R-2 B8
TE220S-1, CE220S-2 C1
TE220R-1, CE220R-2 C2
TE221S-1, CE221-S-2 C3
TE221R-1, CE221R-2 C4
C5
TE222S-1, CE222S-2 C6
TE222R-1, CE222R-2 C7
TE223S-1, CE223S-2 C8
TE223R-1, CE223-R-2 D8
TE224S-1, CE224S-2 D2
TE224R-1, CE224R-2 D3
TE225S-1, CE225S-2 D4
TE225R-1, CE225R-2 D5
TE226S-1, CE226S-2 D6
TE226R-1, CE226R-2 D7
TE227S-1, CE227S-2 D1
TE227R-1, CE227R-2 E1
TE228S-1, CE228S-2 E2
TE228R-1, CE228R-2 E3
TE229S-1, CE229S-2 E4
TE229R-1, CE229R-2 E5
W247-1 E6
T230S-1, CB230S-2 E7
T230R-1, CB230R-2 E8
T231S-1, CB231S-2 F1
T231R-1, CB231R-2 F2
T232S-1, CB232S-2 F3
T232R-1, CB232R-2 F4
T233S-1, CB233S-2 F5
T233R-1, CB233R-2 F6
T234S-1, CB234S-2 F7
T234R-1, CB234R-2 F8
T235S-1, CB235S-2 G1
T235R-1, CB235R-2 G2
T236S-1, CB236S-2 G3
T236R-1, CB236R-2 G4
T237S-1, CB237S-2 G5
T237R-1, CB237R-2 G6
W213-1-2-3 G7
T238S-1, CB238S-2 G8
T238R-1, CB238R-2 H8
T244S-1, CB244S-2 H1
T244R-1, CB244R-2 H2
T212S-1, CB212S-2 H3
T212R-1, CB212R-2 H4
T242S-1, CB242S-2 H5
T242R-1, CB242R-2 H6
CB258S-2 H7
CB258R-2 J8
WD239-1-2 S6
WD241-1, 241-2 S8
J3
J4
W240-1, 240-2 J5
W243-1, 243-2 J6
WD245-1-2 J7
E2
J7
PART OF J3
PART OF P1
E3
T7
DE209-2 R7
KE201S-1, DE201S-2 X3
KE201R-1, DE201R-2 X4
KE202S-1, DE202S-2 X5
KE202R-1, DE202R-2 X6
KE203S-1, DE203S-2 W1
KE203R-1, DE203R-2 W2
KE204S-1, DE204S-2 W3
KE204R-1, DE204R-2 W4
KE205S-1, DE205S-2 W5
KE205R-1, DE205R-2 W6
KE209S-1, DE209S-2 W7
KE209R-1, DE209R-2 W8
KE207S-1, DE207S-2 V3
KE207R-1, DE207R-2 V4
W211-1, RD211-2 V5
K208S-1, D208S-2 V6
K208R-1, D208R-2 V7
KE210S-1, W210S-2 V8
KE210R-1, W210R-2 U8
KE246S-1, W246S-2 U1
KE246R-1, W246R-2 U2
U7
WD248-1 T6
DE205-2 U6
WD251-1, RD251-2 T8
W249-1 T1
T4
T5
DE204-3 U3
DE203-3 U4
RD251-3 U5
DE201-3 (NC) V1
DE202-3 (NC) V2
WD250-1-2 T7
E4
E5
R8
SD301-1 P1
SD303-1 P2
WD306-1, WD-02-B2N P3
SD314-1 P4
SD338-2 (NC) S3
SD340A-2 (NC) SD323-1 (NC) S4
SD324A-1 (NC)-2 (NC) S5
SD325A-1 (NC)-2 (NC) J2
SD326A-2 (NC) SD321-1 (NC) K3
SD328A-1-2 (NC) K1
SD342A-2 K2
SD351A-2 L1
SD352A-2 L2
SD354A-2, SD322-1 (NC) M1
SD307-1 M2
SD305-1 M3
SD302-1 N1
SD304-1 N2
SD326-1 N3
SD308-1 N4
SD311-1 N5
C — C
PART OF J3
PART OF P1
C — C
SD329-1 (NC), WD-C1-B2N N6
SD317-1 P5
WD-C2-B2N P6
R1
WD315-1, WD-01-B2N R2
SD310-1 R3
WD327-1, WD3240-2 R4
SD309-1 R5
WD312-1, WD3380-2 R6
SD318-1 (NC) S1
SD319-1 (NC) T2
SD320-1 (NC) T3
SD313-1, WD-C3-B2N S7
SD316-1 S2
WD331-1, SD3530-2 J1
MON + 5N P7
MON - 5N P8
W347 K8
W348 L8
W349 M8
W350 N8
SHIELD R8
E6
E7
K6
WD346 L7
RD345 K7
SHIELD, 345 K6
E8
E9
M6
W-343 M7
W-344 N7
SHIELD, 343 M6
E10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 3 AUG 65
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL
NASA APPROVAL
NASA APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W1
OPERATION CONSOLE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014496

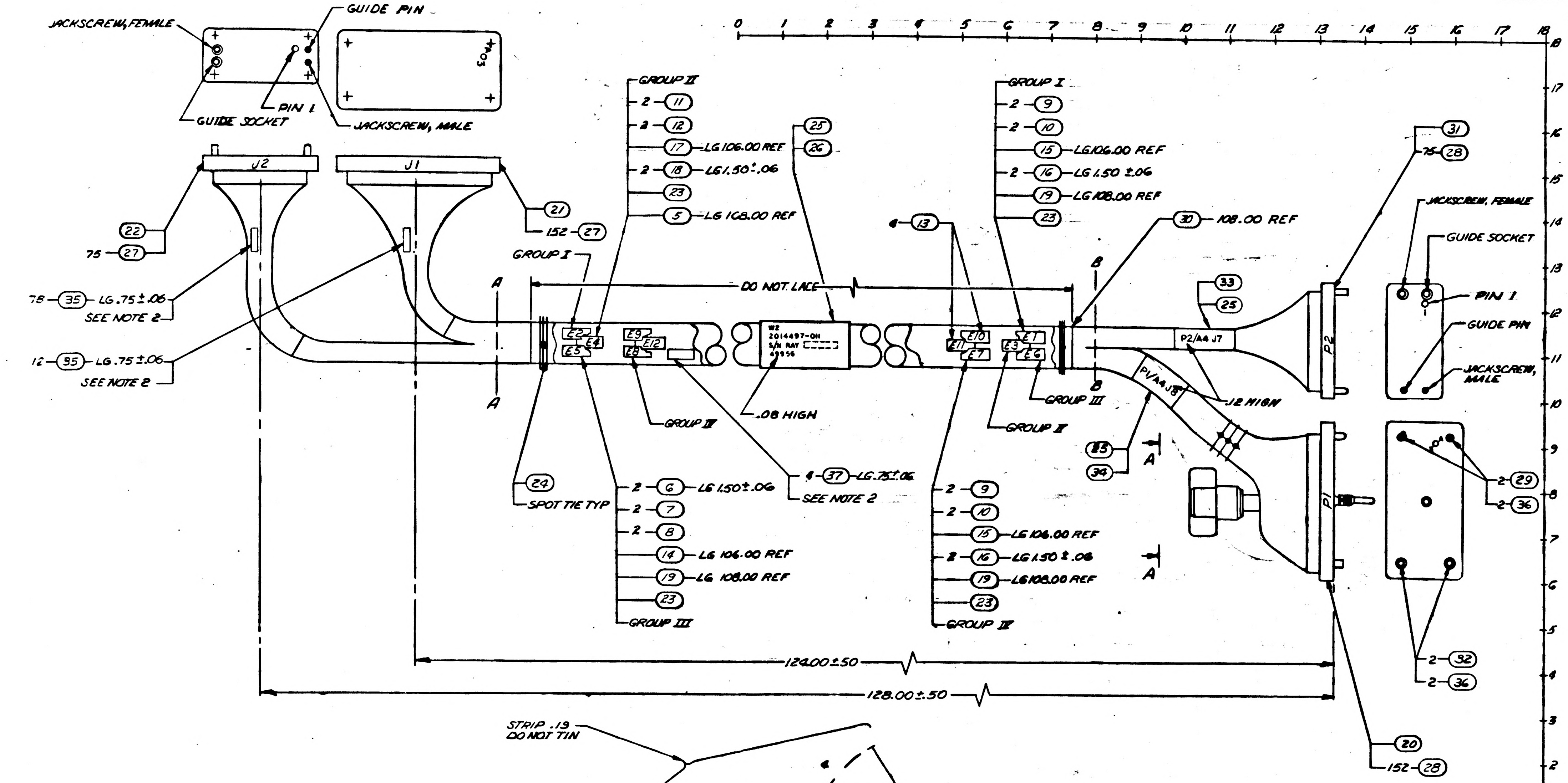
SCALE NONE WT SHEET 3 OF 3

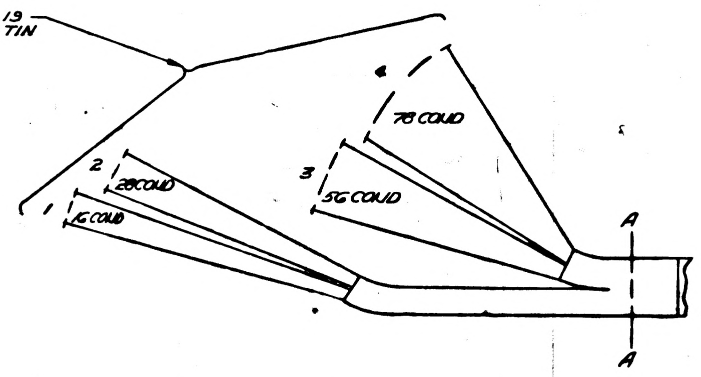
MASTER

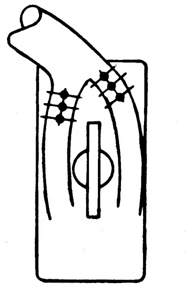
2014496 B

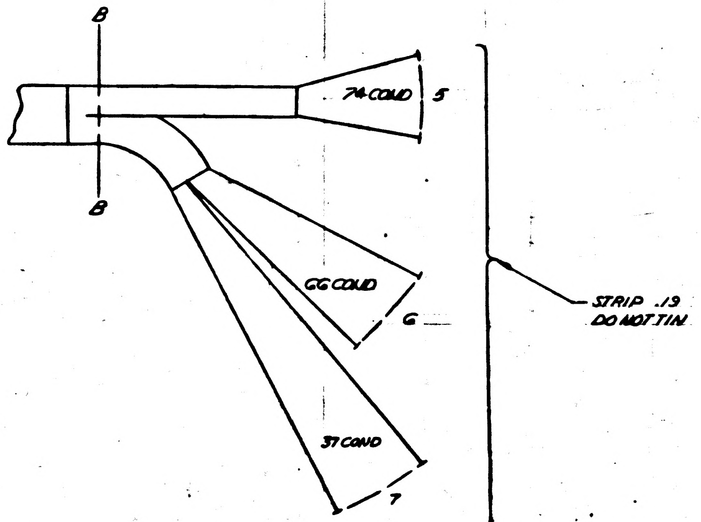
2014497 A

SYM	DESCRIPTION	DATE	APPROV
0	RELEASED PER CCA R25226	10/6/65	D. Harms
1	CHANGED PER CCA R25437 DR Blomy CHK A. Kofen APPD G. Mitchell	11/1/65	
—	CLASS A RELEASED PER TDRR 25476		
A	CHANGED PER TDRR 25923 DR Tom Hillm CHK APP'D RCB		


JACKSCREW, FEMALE
GUIDE PIN
PIN 1
GUIDE SOCKET
JACKSCREW, MALE
J2
J1
GROUP II
GROUP I
GROUP III
GROUP IV
2-11
2-12
17 - LG 106.00 REF
2-18 - LG 1.50±.06
23
5 - LG 108.00 REF
25
26
2-9
2-10
15 - LG 106.00 REF
2-16 - LG 1.50±.06
19 - LG 108.00 REF
23
4-13
30 - 108.00 REF
31
75-28
21
152-27
22
75-27
78-35 - LG .75±.06
SEE NOTE 2
12-35 - LG .75±.06
SEE NOTE 2
A
A
DO NOT LACE
E2 E4 E5 E9 E12 E8
W2 2014497-011 S/N RAY 49956
E10 E11 E7 E3 E6
B
B
33
25
P2/A4 J7
P1/A4 J8
.12 HIGH
.08 HIGH
GROUP III
GROUP II
GROUP IV
24
SPOT TIE TYP
2-6 - LG 1.50±.06
2-7
2-8
14 - LG 106.00 REF
19 - LG 108.00 REF
23
4-37 - LG .75±.06
SEE NOTE 2
2-9
2-10
15 - LG 106.00 REF
2-16 - LG 1.50±.06
19 - LG 108.00 REF
23
35
34
P2
P1
JACKSCREW, FEMALE
GUIDE SOCKET
PIN 1
GUIDE PIN
JACKSCREW, MALE
2-29
2-36
2-32
2-36
124.00±.50
128.00±.50
20
152-28


STRIP .19
DO NOT TIN
4
78 COND
3
56 COND
2
28 COND
1
16 COND
A
A


VIEW A-A


B
B
74 COND
5
66 COND
6
37 COND
7
STRIP .19
DO NOT TIN

NOTES:

1. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 24
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
3. LACE ENTIRE CABLE CONFIGURATION UNLESS OTHERWISE SPECIFIED
4. CRIMP PER ND 1002206
5. SERIALIZE PER ND 1002023
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
7. MIL-I-23053, CLASS I, COLOR WHT, ID .125 FOR FIND 35, ID .187 FOR FIND 37
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATION
10. MIL-I-23053 CLASS I, COLOR BLK, ID 1.00 FOR FIND NO. 18, ID .50 FOR FIND NO. 6, ID .75 FOR FIND NO. 16
11. QQ-B-575 FOR FIND NO. 19, BRAID SIZE .38 - AWG 34, FOR FIND NO. 5 BRAID SIZE .50 - AWG 34
12. AR DENOTES AS REQUIRED
13. STRIP ALL LEADS .50±.06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
14. MIL-W-16878/4 E22 WHITE & BLACK TWISTED, SHIELDED JACKET TFE WHITE
15. THIS SYMBOL △ SHOWN ON ASSEMBLY INFORMATION CHART DENOTES INTERNAL CONNECTIONS
16. CUT SLEEVE & BRAID LENGTHS AS SHOWN
17. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	0.3	SEE NOTE 7	SLEEVING, INSULATION, SHRINK	37
	4	1006672-005	NUT, STOP	36
*	5.6	SEE NOTE 7	SLEEVING, INSULATION, SHRINK	35
	1	1006415-099	BAND MARKER	34
	1	1006415-097	BAND MARKER	33
	2	1006672-006	GUIDE, SOCKET	32
	1	1006490-002	CONNECTOR, PLUG	31
*	9.0	1006696-7	SLEEVING, INSULATION, ELEC	30
	2	1006672-002	GUIDE, PIN	29
	227	1006491-011	CONTACT, MALE, CRIMP	28
	227	1006491-012	CONTACT, FEMALE, CRIMP	27
	1	1006415-141	BAND MARKER	26
	AR	1006253	ADHESIVE	25
	AR	1006458-004	LACING, TAPE	24
	AR	1006699	SOLVENT	23
	1	1006494-002	CONNECTOR, ELEC	22
	1	1006671-001	CONNECTOR, RECEPTACLE	21
	1	1006672-001	CONNECTOR, ELEC, PLUG	20
*	27.0	SEE NOTE 11	SHIELD, BRAID	19
*	0.3	SEE NOTE 10	SLEEVING, INSULATION, SHRINK	18
*	9.0	1006696-6	SLEEVING, INSULATION, ELEC	17
*	0.5	SEE NOTE 10	SLEEVING, INSULATION, SHRINK	16
*	17.3	1006696-4	SLEEVING, INSULATION, ELEC	15
*	9.0	1006696-3	SLEEVING, INSULATION, ELEC	14
	4	1010402-1	SLEEVE, SOLDER	13
	2	1000242-38	FERRULE, OUTER	12
	2	1000243-38	FERRULE, INNER	11
	4	1000242-33	FERRULE, OUTER	10
	4	1000243-37	FERRULE, INNER	9
	2	1000242-30	FERRULE, OUTER	8
	2	1000243-34	FERRULE, INNER	7
*	0.3	SEE NOTE 10	SLEEVING, INSULATION, SHRINK	6
*	9.0	SEE NOTE 11	SHIELD, BRAID	5
*	105.0	MIL-W-16878/4 E22	WIRE, ELEC, BLK	4
*	31.0	SEE NOTE 14	WIRE, ELEC	3
*	465.0	1014341-11	WIRE, ELEC	2
*	830.0	MIL-W-16878/4 E22	WIRE, ELEC, WHT	1
	-011	LIST OF MATERIALS		

* INDICATES LENGTH IN FEET

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 10 AUG 65
CHECKED 28 AUG 65
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W2
OPERATION CONSOLE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
49956	J	2014497

SCALE 1/1 WT SHEET 1 OF 3

MASTER

2014497 A

2014497 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25226	10/4/	
1	CHANGED PER CCA R25437 DR CHK APPD		
–	CLASS A RELEASED PER TDRR 25476		
A	CHANGED PER TDRR 25923 DR CHK APPD P.C.O		

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP I	A1	3	J1-S1	WHT	22	2	7	P1-X3	
			-T2	BLK				-X4	
	A2		-W6	WHT				-X5	
			-X6	BLK				-X6	
	A3		-V1	WHT				-W1	
			-W2	BLK				-W2	
	A4		-X4	WHT				-W3	
			-W4	BLK				-W4	
	A5		-U7	WHT				-W5	
			-U6	BLK				-W6	
	A6		-W7	WHT				-V1	
			-V2	BLK				-V2	
	A7		-V3	WHT				-V3	
			-V4	BLK				-V4	
	A8		-V6	WHT				-V6	
			-V7	BLK				-V7	
	A9		-V8	WHT				-V8	
			-U8	BLK				-U8	
	A10		-U1	WHT		2		-U1	
			-U2	BLK	22			-U2	
	A11		-U3	WHT	22	1		-U3	
	A12		-U4					-U4	
	A13		-U5					-U5	
	A14		-X3					-U6	
	A15		-X5					-U7	
	A16		-W1					-T1	
	A17		-W3					-T2	
	A18		-W5					-T3	
	A19		-T6					-T6	
	A20		-V5					-T8	
	A21		-T1	WHT	22	1		-S1	
	A22		-T4	WHT	22	2		-T4	
			-T5	BLK	22			-T5	
	A23	3	J1-T8	WHT	22	1	7	P1-V5	
		△	E2	SHLD			△	E1	
	A24	3	J1-T7	BLK	22	4	△	E2	
	A25	△	E1	BLK	22	4	7	P1-T7	
GROUP II	A26	4	J1-A3	WHT	22	2	6	P1-A3	
			-A4	BLK				-A4	
	A27		-A5	WHT				-A5	
			-A6	BLK				-A6	
	A28		-B1	WHT				-B1	
			- 2	BLK				-B2	
	A29		-B3	WHT				-B3	
			-B4	BLK				-B4	
	A30		-B5	WHT				-B5	
			-B6	BLK				-B6	
	A31		-B7	WHT				-B7	
			-B8	BLK				-B8	
	A32		-C1	WHT				-C1	
			-C2	BLK				-C2	
	A33		-C3	WHT				-C3	
			-C4	BLK				-C4	
	A34		-C6	WHT				-C6	
			-C7	BLK				-C7	
	A35		-D1	WHT				-D1	
			-E1	BLK				-E1	
	A36		-E2	WHT				-E2	
			-E3	BLK				-E3	
	A37		-E4	WHT				-E4	
			-E5	BLK				-E5	
	A38		-E7	WHT				-E7	
			-E8	BLK				-E8	
	A39		-F1	WHT				-F1	
			-F2	BLK				-F2	
	A40		-F3	WHT				-F3	
			-F4	BLK				-F4	
	A41		-F5	WHT				-F5	
			-F6	BLK				-F6	
	A42		-F7	WHT				-F7	
			-F8	BLK				-F8	
	A43		-G1	WHT				-G1	
			-G2	BLK				-G2	
	A44		-G3	WHT				-G3	
			-G4	BLK				-G4	
	A45		-G5	WHT				-G5	
			-G6	BLK				-G6	
	A46		-G8	WHT				-G8	
			-H8	BLK				-H8	
	A47		-H1	WHT				-H1	
			-H2	BLK				-H2	
	A48		-H5	WHT				-H5	
			-H6	BLK				-H6	
	A49		-H7	WHT		2		-H7	
		4	J1-J8	BLK	22		6	P1-J8	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP II	A50	4	J1-H3	WHT	22	2	6	P1-H3	
			-H4	BLK				-H4	
	A51		-J3	WHT				-J3	
			-J4	BLK				-J4	
	A52		-C8	WHT				-C8	
			-D8	BLK				-D8	
	A53		-D2	WHT				-D2	
			-D3	BLK				-D3	
	A54		-D4	WHT				-D4	
			-D5	BLK				-D5	
	A55		-D6	WHT		2		-D6	
			-D7	BLK	22			-D7	
	A56		-C5	WHT	22	1		-C5	
	A57		-E6					-E6	
	A58		-G7					-G7	
	A59		-J5					-J5	
	A60	4	-J6				6	-J2	
	A61	3	-S6				7	-S7	
	A62	3	J1-S8	WHT	22	1	7	P1-S8	
		△	E4	SHLD			△	E3	
	A63	4	J1-J7	BLK	22	4	△	E4	
	A64	△	E3	BLK	22	4	6	P1-J7	
GROUP III	A65	3	J1-N6	WHT	22	1	5	P2-3	
	A66		-P6					-5	
	A67		-S7					-62	
	A68		-R2					-57	
	A69		-P3					-25	
	A70		-R6					-20	
	A71	3	-R4					-45	
	A72	4	-J1					-37	
	A73	4	-K3					-36	
	A74	3	-M1					-17	
	A75	3	-S4					-43	
	A76	3	-S3					-46	
	A77	4	-K1					-39	
	A78		-L1					-56	
	A79		-K2					-44	
	A80	4	-L2					-50	
	A81	3	-S5					-18	
	A82	4	-J2	WHT	22	1		-35	
	A83	4	-K8	WHT	22	2		-70	
		4	-L8	BLK				-71	
	A84	3	-M8	WHT				-72	
			-N8	BLK				-73	
	A85		-P7	WHT		2		-74	
		3	J1-P8	BLK	22		5	P2-75	
		△	E5	SHLD			△	E6	
	A86	3	J1-R8	BLK	22	4	△	E5	
SEE A137	A87	△	E6	BLK	22	4	△	E7	
	A88	4	J1-K7	WHT	22	3	5	P2-76	
		4	J1-L7	BLK	22		5	P2-77	
		△	E-9	SHLD			△	E10	
	A89	△	E10	BLK	22	4	5	P2-78	
	A90	4	J1-K6	BLK	22	4	△	E9	
	A91	3	J1-M7	WHT	22	3	5	P2-79	
		3	J1-N7	BLK	22		5	P2-80	
		△	E12	SHLD			△	E11	
	A92	△	E11	BLK	22	4	5	P2-82	
	A93.	4	J1-M6	BLK	22	4	△	E12	
GROUP IV	A94	2	J2-1	WHT	22	1	5	P2-1	
	A95		-2					-2	
	A96		-4					-4	
	A97		-7					-7	
	A98		-8					-8	
	A99		-10					-10	
	A100		-11					-11	
	A101		-12					-12	
	A102		-13					-13	
	A103		-14					-14	
	A104		-15					-15	
	A105		-16					-16	
	A106		-21					-21	
	A107		-22					-22	
	A108		-23					-23	
	A109		-24					-24	
	A110		-26					-26	
	A111		-27					-27	
	A112		-28					-28	
	A113		-30					-30	
	A114		-32					-32	
	A115		-33					-33	
	A116		-34					-34	
	A117	2	J2-38	WHT	22	1	5	P2-38	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
GROUP IV	A118	2	J2-40	WHT	22	1	5	P2-40	
	A119	2	-41					-41	
	A120	2	-42					-42	
	A121	1	-47					-47	
	A122		-48					-48	
	A123		-49					-49	
	A124		-51					-51	
	A125		-52					-52	
	A126		-53					-53	
	A127		-54					-54	
	A128	1	-55					-56	
	A129	2	-29					-29	
	A130	1	-58					-58	
	A131		-59					-59	
	A132		-60					-60	
	A133		-63					-63	
	A134		-64	WHT	22	1		-64	
	A135		-66	WHT	22	2		-66	
		1	J2-67	BLK			5	P2-67	
		△	E8	SHLD			△	E7	
	A136	1	J2-65	BLK	22	4	△	E8	
SEE A87	A137	△	E7	BLK	22	4	5	P2-65	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W2
OPERATION CONSOLE

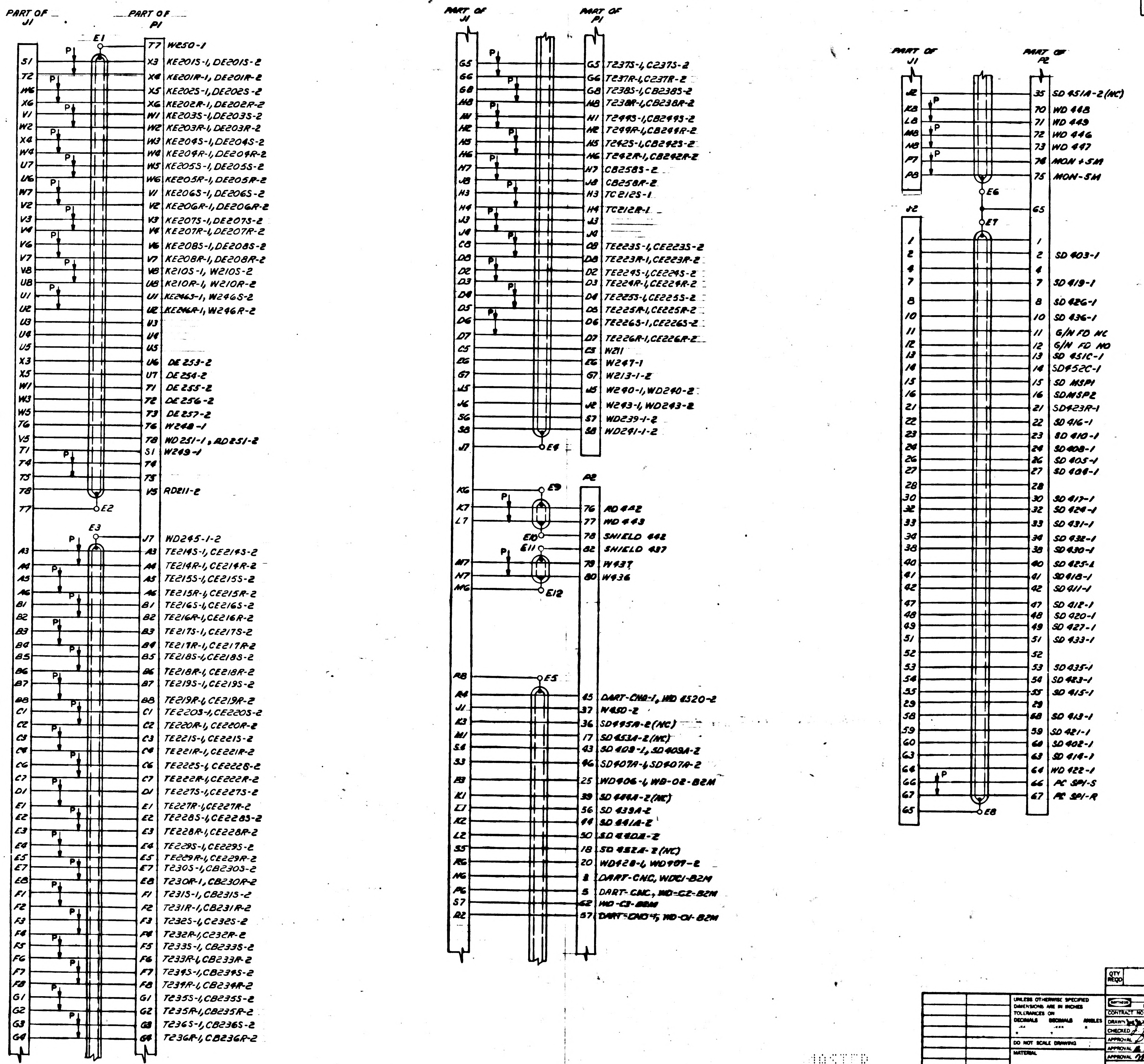
CODE IDENT NO. 49956 | SIZE J | NASA DRAWING NO. 2014497

SCALE NONE | WT | SHEET 2 OF 2

MASTER

2014497 A

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25226	10/4/65	
1	CHANGED PER CCA R25437 DR CHK APPD		
–	CLASS A RELEASED PER TDRR 25476		
A	CHANGED PER TDRR 25923 DR CHK		


PART OF J1
PART OF P1
E1
P
T7 W250-1
S1 X3 KE201S-1, DE201S-2
T2 X4 KE201R-1, DE201R-2
W6 X5 KE202S-1, DE202S-2
X6 X6 KE202R-1, DE202R-2
V1 W1 KE203S-1, DE203S-2
W2 W2 KE203R-1, DE203R-2
X4 W3 KE204S-1, DE204S-2
W4 W4 KE204R-1, DE204R-2
U7 W5 KE205S-1, DE205S-2
U6 W6 KE205R-1, DE205R-2
W7 V1 KE206S-1, DE206S-2
V2 V2 KE206R-1, DE206R-2
V3 V3 KE207S-1, DE207S-2
V4 V4 KE207R-1, DE207R-2
V6 V6 KE208S-1, DE208S-2
V7 V7 KE208R-1, DE208R-2
V8 V8 K210S-1, W210S-2
U8 U8 K210R-1, W210R-2
U1 U1 KE246S-1, W246S-2
U2 U2 KE246R-1, W246R-2
U3 U3
U4 U4
U5 U5
X3 U6 DE 253-2
X5 U7 DE 254-2
W1 T1 DE 255-2
W3 T2 DE 256-2
W5 T3 DE 257-2
T6 T6 W248-1
V5 T8 WD 251-1, AD251-2
T1 S1 W249-1
T4 T4
T5 T5
T8 V5 RD211-2
T7 E2
E3
J7 WD245-1-2
A3 A3 TE214S-1, CE214S-2
A4 A4 TE214R-1, CE214R-2
A5 A5 TE215S-1, CE215S-2
A6 A6 TE215R-1, CE215R-2
B1 B1 TE216S-1, CE216S-2
B2 B2 TE216R-1, CE216R-2
B3 B3 TE217S-1, CE217S-2
B4 B4 TE217R-1, CE217R-2
B5 B5 TE218S-1, CE218S-2
B6 B6 TE218R-1, CE218R-2
B7 B7 TE219S-1, CE219S-2
B8 B8 TE219R-1, CE219R-2
C1 C1 TE220S-1, CE220S-2
C2 C2 TE220R-1, CE220R-2
C3 C3 TE221S-1, CE221S-2
C4 C4 TE221R-1, CE221R-2
C6 C6 TE222S-1, CE222S-2
C7 C7 TE222R-1, CE222R-2
D1 D1 TE227S-1, CE227S-2
E1 E1 TE227R-1, CE227R-2
E2 E2 TE228S-1, CE228S-2
E3 E3 TE228R-1, CE228R-2
E4 E4 TE229S-1, CE229S-2
E5 E5 TE229R-1, CE229R-2
E7 E7 T230S-1, CB230S-2
E8 E8 T230R-1, CB230R-2
F1 F1 T231S-1, CB231S-2
F2 F2 T231R-1, CB231R-2
F3 F3 T232S-1, C232S-2
F4 F4 T232R-1, C232R-2
F5 F5 T233S-1, CB233S-2
F6 F6 T233R-1, CB233R-2
F7 F7 T234S-1, CB234S-2
F8 F8 T234R-1, CB234R-2
G1 G1 T235S-1, CB235S-2
G2 G2 T235R-1, CB235R-2
G3 G3 T236S-1, CB236S-2
G4 G4 T236R-1, CB236R-2
PART OF J1
PART OF P1
G5 G5 T237S-1, C237S-2
G6 G6 T237R-1, C237R-2
G8 G8 T238S-1, CB238S-2
H8 H8 T238R-1, CB238R-2
H1 H1 T249S-1, CB249S-2
H2 H2 T249R-1, CB249R-2
H5 H5 T242S-1, CB242S-2
H6 H6 T242R-1, CB242R-2
H7 H7 CB258S-2
J8 J8 CB258R-2
H3 H3 TC212S-1
H4 H4 TC212R-1
J3 J3
J4 J4
C8 C8 TE223S-1, CE223S-2
D8 D8 TE223R-1, CE223R-2
D2 D2 TE224S-1, CE224S-2
D3 D3 TE224R-1, CE224R-2
D4 D4 TE225S-1, CE225S-2
D5 D5 TE225R-1, CE225R-2
D6 D6 TE226S-1, CE226S-2
D7 D7 TE226R-1, CE226R-2
C5 C5 W211
E6 E6 W247-1
G7 G7 W213-1-2
J5 J5 W240-1, WD240-2
J6 J2 W243-1, WD243-2
S6 S7 WD239-1-2
S8 S8 WD241-1-2
J7 E4
P2
K6 E9
K7 76 AD 442
L7 77 WD 443
E10 78 SHIELD 442
E11 82 SHIELD 437
M7 79 W437
N7 80 W436
M6 E12
R8 E5
R4 45 DART-CNA-1, WD 4520-2
J1 37 W450-2
K3 36 SD495A-2(NC)
M1 17 SD453A-2(NC)
S4 43 SD 409-1, SD409A-2
S3 46 SD407A-1, SD407A-2
R3 25 WD406-1, WB-02-B2M
K1 39 SD 444A-2(NC)
L1 56 SD 439A-2
K2 44 SD 441A-2
L2 50 SD 440A-2
S5 18 SD 452A-2(NC)
R6 20 WD428-1, WD407-2
N6 8 DART-CNC, WDC1-B2M
P6 5 DART-CNC, WD-C2-B2M
S7 62 WD-C3-B2M
R2 57 DART-CND-1, WD-C4-B2M
PART OF J1
PART OF P2
J2 35 SD 451A-2(NC)
K8 70 WD 448
L8 71 WD 449
M8 72 WD 446
N8 73 WD 447
P7 74 MON +5M
P8 75 MON-5M
E6
65
J2
E7
1 1
2 2 SD 403-1
4 4
7 7 SD 419-1
8 8 SD 426-1
10 10 SD 436-1
11 11 G/N FD NC
12 12 G/N FD NO
13 13 SD 451C-1
14 14 SD452C-1
15 15 SD MSP1
16 16 SDMSP2
21 21 SD423R-1
22 22 SD 416-1
23 23 SD 410-1
24 24 SD 408-1
26 26 SD 405-1
27 27 SD 404-1
28 28
30 30 SD 417-1
32 32 SD 424-1
33 33 SD 431-1
34 34 SD 432-1
38 38 SD 430-1
40 40 SD 425-1
41 41 SD 418-1
42 42 SD 411-1
47 47 SD 412-1
48 48 SD 420-1
49 49 SD 427-1
51 51 SD 433-1
52 52
53 53 SD 435-1
54 54 SD 423-1
55 55 SD 415-1
29 29
58 58 SD 413-1
59 59 SD 421-1
60 60 SD 402-1
63 63 SD 414-1
64 64 WD 422-1
66 66 PC SP1-S
67 67 PC SP1-R
65 E8

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 9 AUG 65
CHECKED 28 AUG 65
APPROVAL 1 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL A.C. METZ
MIT APPROVAL
MIT APPROVAL

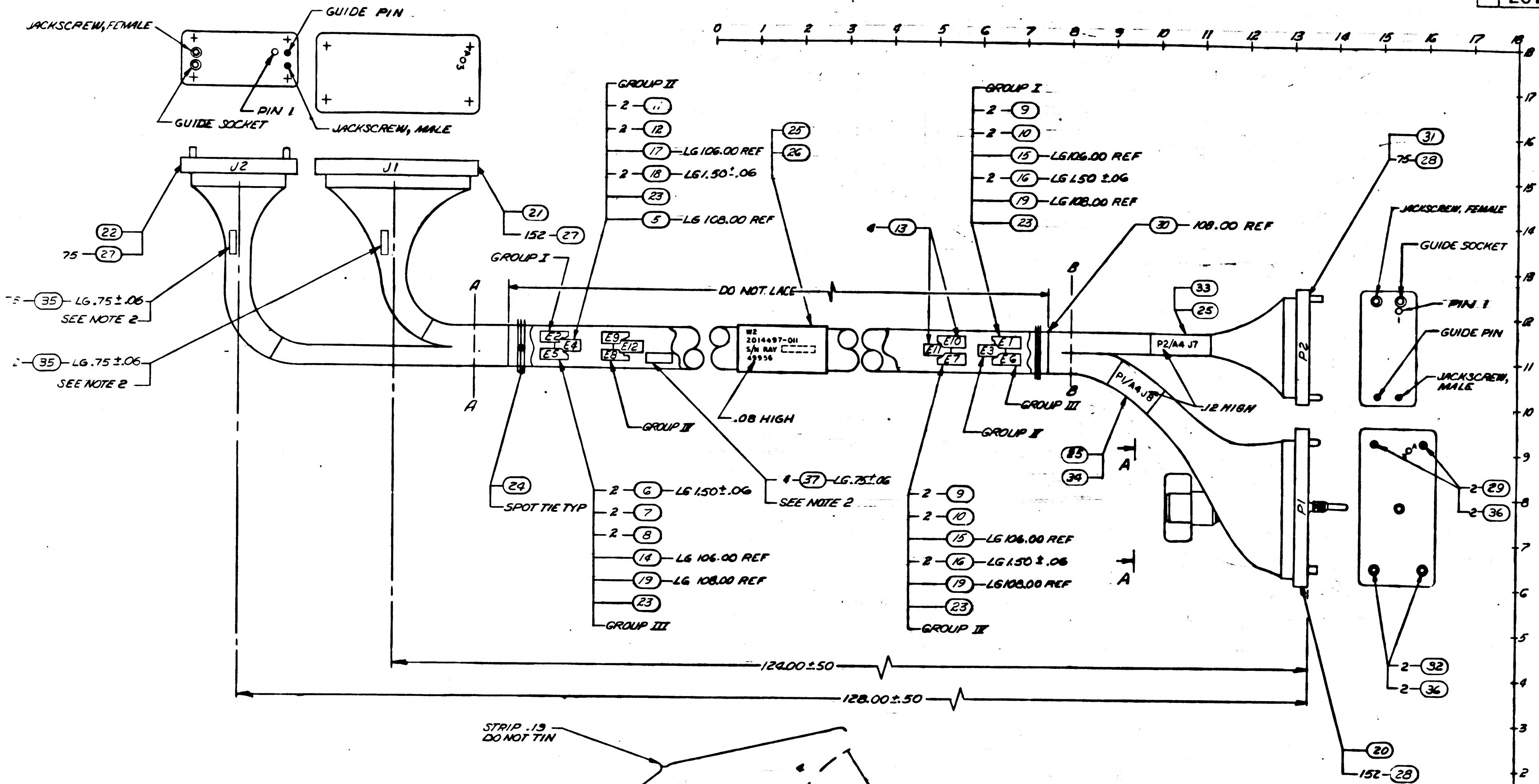
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W2
OPERATION CONSOLE

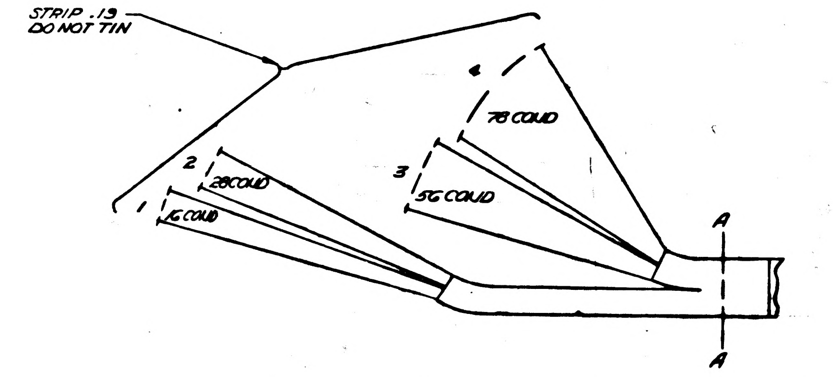
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014497
SCALE NONE
WT
SHEET 3 3

SYM	DESCRIPTION	DATE	APPROVAL
0	RELEASED PER CCA R25226	10/6/65	D. Hansen
1	CHANGED PER CCA R25437 DR [illegible] CHK [illegible] APPD [illegible]	11/10/65	[illegible]
—	CLASS A RELEASED PER TDRR 25476		

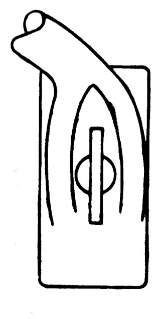
2014497 —



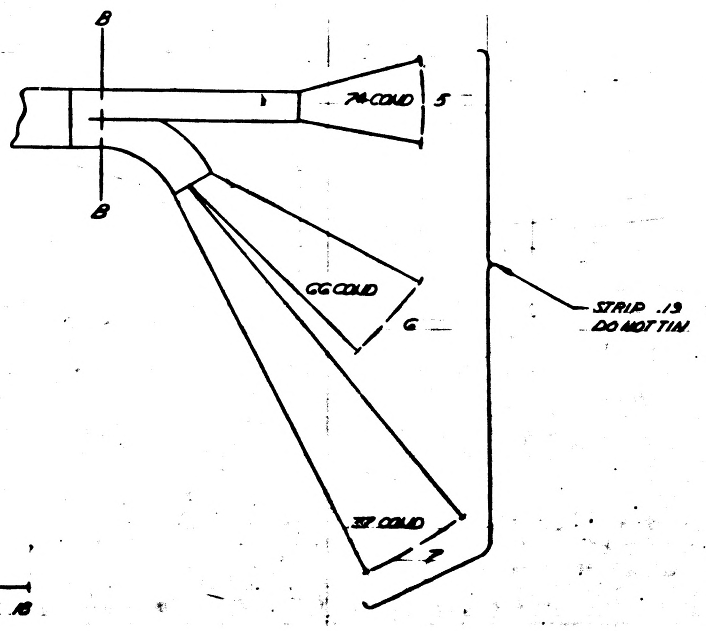
JACKSCREW, FEMALE
GUIDE PIN
PIN 1
GUIDE SOCKET
JACKSCREW, MALE
J2
J1
22
75 — 27
21
152 — 27
35 — LG .75 ± .06
SEE NOTE 2
GROUP I
GROUP II
GROUP III
GROUP IV
2 — 11
2 — 12
17 — LG 106.00 REF
2 — 18 — LG 1.50 ± .06
23
5 — LG 108.00 REF
25
26
A
DO NOT LACE
W2 2014497-011 S/N RAY 49956
.08 HIGH
4 — 37 — LG .75 ± .06
SEE NOTE 2
SPOT TIE TYP
24
2 — 6 — LG 1.50 ± .06
2 — 7
2 — 8
14 — LG 106.00 REF
19 — LG 108.00 REF
4 — 13
2 — 9
2 — 10
15 — LG 106.00 REF
2 — 16 — LG 1.50 ± .06
19 — LG 108.00 REF
30 — 108.00 REF
B
31
75 — 28
33
25
P2/A4 J7
P1/A4 J8
.12 HIGH
P2
P1
GUIDE SOCKET
PIN 1
GUIDE PIN
JACKSCREW, MALE
34
35
2 — 29
2 — 36
2 — 32
2 — 36
20
152 — 28
124.00 ± .50
128.00 ± .50
E2 E4 E3 E9 E12 E8 E11 E10 E7 E5 E1 E6



STRIP .13 DO NOT TIN
4
78 COND
3
56 COND
2
28 COND
1
16 COND
A



VIEW A-A



B
74 COND
5
66 COND
6
37 COND
7
STRIP .13 DO NOT TIN

NOTES:

1. FABRICATE PER ND1002032 EXCEPT USE FIND NO. 24
2. MARK CONDUCTOR IDENTIFICATION PER ND 1002019
3. LACE ENTIRE CABLE CONFIGURATION UNLESS OTHERWISE SPECIFIED
4. CRIMP PER ND 1002206
5. SERIALIZE PER ND 1002023
6. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND 1002019 USING BLACK INK 1006256-001
7. MIL-I-23053, CLASS I, COLOR WHT, ID .125 FOR FIND 35, ID .187 FOR FIND 37
8. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
9. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS PREFIX WITH SUB-ASSEMBLY DESIGNATION
10. MIL-I-23053 CLASS I, COLOR BLK, ID 1.00 FOR FIND NO. 18, ID .50 FOR FIND NO. 6, ID .75 FOR FIND NO. 16
11. QQ-B-575 FOR FIND NO. 19, BRAID SIZE .38 - AWG 34, FOR FIND NO. 5 BRAID SIZE .50 - AWG 34
12. AR DENOTES AS REQUIRED
13. STRIP ALL LEADS .50 ± .06 & TIN PER ND1002071 UNLESS OTHERWISE SPECIFIED
14. MIL-W-16878/4 E22 WHITE & BLACK TWISTED, SHIELDED JACKET TFE WHITE
15. THIS SYMBOL △ SHOWN ON ASSEMBLY INFORMATION CHART DENOTES INTERNAL CONNECTIONS
16. CUT SLEEVE & BRAID LENGTHS AS SHOWN
17. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
*	0.3	SEE NOTE 7	SLEEVING, INSULATION, SHRINK	37
	4	1006672-005	NUT, STOP	36
*	5.6	SEE NOTE 7	SLEEVING, INSULATION, SHRINK	35
	1	1006415-099	BAND MARKER	34
	1	1006415-097	BAND MARKER	33
	2	1006672-006	GUIDE, SOCKET	32
	1	1006490-002	CONNECTOR, PLUG	31
*	9.0	1006696-7	SLEEVING, INSULATION, ELEC	30
	2	1006672-002	GUIDE, PIN	29
	227	1006491-011	CONTACT, MALE, CRIMP	28
	227	1006491-012	CONTACT, FEMALE, CRIMP	27
	1	1006415-141	BAND MARKER	26
	AR	1006253	ADHESIVE	25
	AR	1006458-004	LACING, TAPE	24
	AR	1006699	SOLVENT	23
	1	1006494-002	CONNECTOR, ELEC	22
	1	1006671-001	CONNECTOR, RECEPTACLE	21
	1	1006672-001	CONNECTOR, ELEC, PLUG	20
*	27.0	SEE NOTE 11	SHIELD, BRAID	19
*	0.3	SEE NOTE 10	SLEEVING, INSULATION, SHRINK	18
*	9.0	1006696-6	SLEEVING, INSULATION, ELEC	17
*	0.5	SEE NOTE 10	SLEEVING, INSULATION, SHRINK	16
*	17.0	1006696-4	SLEEVING, INSULATION, ELEC	15
*	9.0	1006696-3	SLEEVING, INSULATION, ELEC	14
	4	1010402-1	SLEEVE, SOLDER	13
	2	1000242-38	FERRULE, OUTER	12
	2	1000243-38	FERRULE, INNER	11
	4	1000242-33	FERRULE, OUTER	10
	4	1000243-37	FERRULE, INNER	9
	2	1000242-30	FERRULE, OUTER	8
	2	1000243-34	FERRULE, INNER	7
*	0.3	SEE NOTE 10	SLEEVING, INSULATION, SHRINK	6
*	9.0	SEE NOTE 11	SHIELD, BRAID	5
*	105.0	MIL-W-16878/4 E22	WIRE, ELEC, BLK	4
*	31.0	SEE NOTE 14	WIRE, ELEC	3
*	465.0	1014341-11	WIRE, ELEC	2
*	830.0	MIL-W-16878/4 E22	WIRE, ELEC, WHT	1
	-011	LIST OF MATERIALS		

* INDICATES LENGTH IN FEET

2014497 1

2014026	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.03 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO
LEXINGTON MASS
CONTRACT NO NAS 9-497
DRAWN [illegible] DATE 10 AUG 65
CHECKED [illegible] 28 AUG 65
APPROVAL [illegible] 10/65
APPROVAL D. [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. Metzger
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W2
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014497
SCALE 1/1
WT
SHEET 1 OF 3

2014497 —

MASTER

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	3	J1-S1	WHT	22	2	7	P1-X3	
		↑	↑ -T2	BLK	↑		↑	↑ -X4	
	A2		-W6	WHT		↑		-X5	
			-X6	BLK				-X6	
	A3		-V1	WHT				-W1	
			-W2	BLK				-W2	
	A4		-X4	WHT				-W3	
			-W4	BLK				-W4	
	A5		-U7	WHT				-W5	
			-U6	BLK				-W6	
	A6		-W7	WHT				-V1	
			-V2	BLK				-V2	
	A7		-V3	WHT				-V3	
			-V4	BLK				-V4	
GROUP I	A8		-V6	WHT				-V6	
			-V7	BLK				-V7	
	A9		-V8	WHT				-V8	
			-U8	BLK		↓		-U8	
	A10		-U1	WHT	↓	2		-U1	
			-U2	BLK	22			-U2	
	A11		-U3	WHT	22	1		-U3	
	A12		-U4	↑	↑	↑		-U4	
	A13		-U5					-U5	
	A14		-X3					-U6	
	A15		-X5					-U7	
	A16		-W1					-T1	
	A17		-W3					-T2	
	A18		-W5					-T3	
	A19		-T6					-T6	
	A20		-V5	↓	↓	↓		-T8	
	A21		-T1	WHT	22	1		-S1	
	A22		-T4	WHT	22	2		-T4	
		↓	↓ -T5	BLK	22		↓	↓ -T5	
	A23	3	J1-T8	WHT	22	1	7	P1-V5	
		⚠	E2	SHLD			⚠	E1	
	A24	3	J1-T7	BLK	22	4	⚠	E2	
	A25	⚠	E1	BLK	22	4	7	P1-T7	
	A26	4	J1-A3	WHT	22	2	6	P1-A3	
		↑	↑ -A4	BLK	↑		↑	↑ -A4	
	A27		-A5	WHT		↑		-A5	
			-A6	BLK				-A6	
	A28		-B1	WHT				-B1	
			-B2	BLK				-B2	
	A29		-B3	WHT				-B3	
			-B4	BLK				-B4	
	A30		-B5	WHT				-B5	
			-B6	BLK				-B6	
	A31		-B7	WHT				-B7	
			-B8	BLK				-B8	
	A32		-C1	WHT				-C1	
			-C2	BLK				-C2	
	A33		-C3	WHT				-C3	
			-C4	BLK				-C4	
	A34		-C6	WHT				-C6	
			-C7	BLK				-C7	
	A35		-D1	WHT				-D1	
			-E1	BLK				-E1	
GROUP II	A36		-E2	WHT				-E2	
			-E3	BLK				-E3	
	A37		-E4	WHT				-E4	
			-E5	BLK				-E5	
	A38		-E7	WHT				-E7	
			-E8	BLK				-E8	
	A39		-F1	WHT				-F1	
			-F2	BLK				-F2	
	A40		-F3	WHT				-F3	
			-F4	BLK				-F4	
	A41		-F5	WHT				-F5	
			-F6	BLK				-F6	
	A42		-F7	WHT				-F7	
			-F8	BLK				-F8	
	A43		-G1	WHT				-G1	
			-G2	BLK				-G2	
	A44		-G3	WHT				-G3	
			-G4	BLK				-G4	
	A45		-G5	WHT				-G5	
			-G6	BLK				-G6	
	A46		-G8	WHT				-G8	
			-H8	BLK				-H8	
	A47		-H1	WHT				-H1	
			-H2	BLK				-H2	
	A48		-H5	WHT				-H5	
			-H6	BLK		↓		-H6	
	A49	↓	↓ -H7	WHT	↓	2	↓	↓ -H7	
		4	J1-J8	BLK	22		6	P1-J8	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A50	4	J1-H3	WHT	22	2	6	P1-H3	
		↑	↑ -H4	BLK	↑		↑	↑ -H4	
	A51		-J3	WHT		↑		-J3	
			-J4	BLK				-J4	
	A52		-C8	WHT				-C8	
			-D8	BLK				-D8	
	A53		-D2	WHT				-D2	
			-D3	BLK				-D3	
GROUP II	A54		-D4	WHT				-D4	
			-D5	BLK		↓		-D5	
	A55		-D6	WHT	↓	2		-D6	
			-D7	BLK	22			-D7	
	A56.		-C5	WHT	22	1		-C5	
	A57		-E6	↑	↑	↑		-E6	
	A58		-G7					-G7	
	A59	↓	-J5				↓	-J5	
	A60	4	-J6				6	-J2	
	A61	3	↓ -S6	↓	↓	↓	7	↓ -S7	
	A62	3	J1-S8	WHT	22	1	7	P1-S8	
		⚠	E4	SHLD			⚠	E3	
	A63	4	J1-J7	BLK	22	4	⚠	E4	
	A64	⚠	E3	BLK	22	4	6	P1-J7	
	A65	3	J1-N6	WHT	22	1	5	P2-3	
	A66	↑	↑ -P6	↑	↑	↑	↑	↑ -5	
	A67		-S7					-62	
	A68		-R2					-57	
	A69		-P3					-25	
	A70	↓	-R6					-20	
	A71	3	-R4					-45	
	A72	4	-J1					-37	
	A73	4	-K3					-36	
	A74	3	-M1					-17	
	A75	3	-S4					-43	
	A76	3	-S3					-46	
GROUP III	A77	4	-K1					-39	
	A78	↑	-L1					-56	
	A79	↓	-K2					-44	
	A80	4	-L2					-50	
	A81	3	-S5	↓	↓	↓		-18	
	A82	4	-J2	WHT	22	1		-35	
	A83	4	-K8	WHT	22	2		-70	
		4	-L8	BLK	↑			-71	
	A84	3	-M8	WHT		↑		-72	
		↑	-N8	BLK		↓		-73	
	A85	↓	↓ -P7	WHT	↓	2	↓	↓ -74	
		3	J1-P8	BLK	22		5	P2-75	
		⚠	E5	SHLD			⚠	E6	
	A86	3	J1-R8	BLK	22	4	⚠	E5	
SEE A137	A87	⚠	E6	BLK	22	4	⚠	E7	
	A88	4	J1-K7	WHT	22	3	5	P2-76	
		4	J1-L7	BLK	22		5	P2-77	
		⚠	E-9	SHLD			⚠	E10	
	A89	⚠	E9	BLK	22	4	5	P2-78	
	A90	4	J1-K6	BLK	22	4	⚠	E10	
	A91	3	J1-M7	WHT	22	3	5	P2-79	
		3	J1-N7	BLK	22		5	P2-80	
		⚠	E12	SHLD			⚠	E11	
	A92	⚠	E11	BLK	22	4	5	P2-82	
	A93.	4	J1-M6	BLK	22	4	⚠	E12	
	A94	2	J2-1	WHT	22	1	5	P2-1	
	A95	↑	↑ -2	↑	↑	↑	↑	↑ -2	
	A96		-4					-4	
	A97		-7					-7	
	A98		-8					-8	
	A99		-10					-10	
	A100		-11					-11	
	A101		-12					-12	
	A102		-13					-13	
GROUP IV	A103		-14					-14	
	A104		-15					-15	
	A105		-16					-16	
	A106		-21					-21	
	A107		-22					-22	
	A108		-23					-23	
	A109		-24					-24	
	A110		-26					-26	
	A111		-27					-27	
	A112		-28					-28	
	A113		-30					-30	
	A114		-32					-32	
	A115		-33					-33	
	A116	↓	↓ -34	↓	↓	↓	↓	↓ -34	
	A117	2	J2-38	WHT	22	1	5	P2-38	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A118	2	J2-40	WHT	22	1	5	P2-40	
	A119	2	↑ -41	↑	↑	↑	↑	↑ -41	
	A120	2	-42					-42	
	A121	1	-47					-47	
	A122	↑	-48					-48	
	A123		-49					-49	
	A124		-51					-51	
	A125		-52					-52	
	A126		-53					-53	
GROUP IV	A127	↓	-54					-54	
	A128	1	-55					-56	
	A129	2	-29					-29	
	A130	1	-58					-58	
	A131	↑	-59					-59	
	A132		-60					-60	
	A133		-63	↓	↓	↓		-63	
	A134		-64	WHT	22	1		-64	
	A135	↓	↓ -66	WHT	22	2	↓	↓ -66	
		1	J2-67	BLK			5	P2-67	
		⚠	E8	SHLD			⚠	E7	
	A136	1	J2-65	BLK	22	4	⚠	E8	
SEE A87	A137	⚠	E7	BLK	22	4	5	P2-65	

2014497 -

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25226	10/1/65	
1	CHANGED PER CCA R25437 DR CHK APPD	11/10/65	
-	CLASS A RELEASED PER TDRR 25476		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±

DO NOT SCALE DRAWING

MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
APPROVAL
NASA APPROVAL A. C. METCALF
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W2
OPERATION CONSOLE

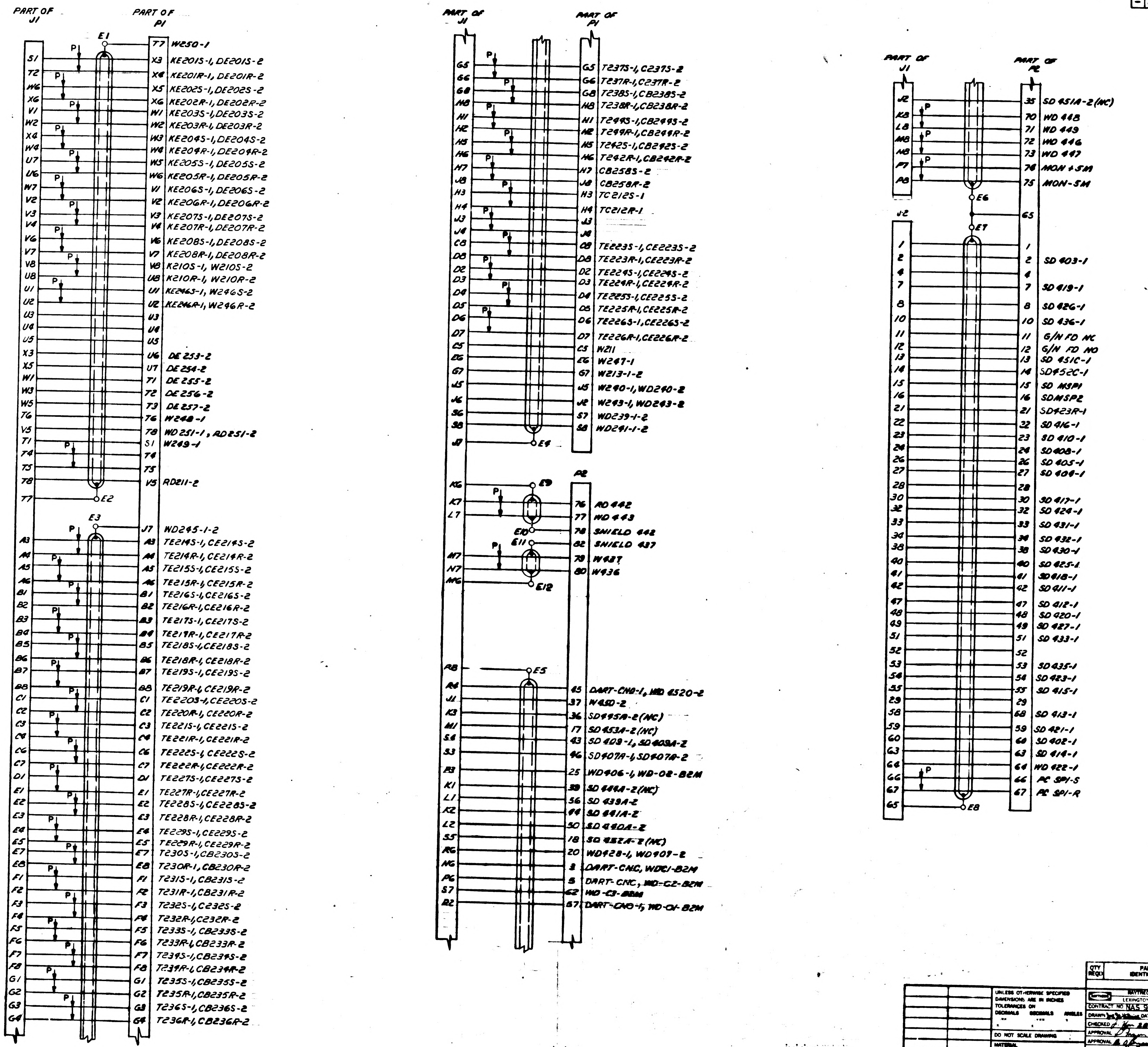
CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014497
SCALE NONE
WT
SHEET 2 OF 3

MASTER

2014497 -

2014497 -

SYM	REVISIONS DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25226	10/4/65	
1	CHANGED PER CCA R25437 DR CHK APP	11/11/65	
-	CLASS A RELEASED PER DRR 25476		



PART OF J1
PART OF P1
E1
T7 W250-1
S1 X3 KE201S-1, DE201S-2
T2 X4 KE201R-1, DE201R-2
W6 X5 KE202S-1, DE202S-2
X6 X6 KE202R-1, DE202R-2
V1 W1 KE203S-1, DE203S-2
W2 W2 KE203R-1, DE203R-2
X4 W3 KE204S-1, DE204S-2
W4 W4 KE204R-1, DE204R-2
U7 W5 KE205S-1, DE205S-2
U6 W6 KE205R-1, DE205R-2
W7 V1 KE206S-1, DE206S-2
V2 V2 KE206R-1, DE206R-2
V3 V3 KE207S-1, DE207S-2
V4 V4 KE207R-1, DE207R-2
V6 V6 KE208S-1, DE208S-2
V7 V7 KE208R-1, DE208R-2
V8 V8 K210S-1, W210S-2
U8 U8 K210R-1, W210R-2
U1 U1 KE246S-1, W246S-2
U2 U2 KE246R-1, W246R-2
U3 U3
U4 U4
U5 U5
X3 U6 DE 253-2
X5 U7 DE 254-2
W1 T1 DE 255-2
W3 T2 DE 256-2
W5 T3 DE 257-2
T6 T6 W248-1
V5 T8 WD 251-1, RD251-2
T1 S1 W249-1
T4 T4
T5 T5
T8 V5 RD211-2
T7 E2
E3
J7 WD245-1-2
A3 A3 TE214S-1, CE214S-2
A4 A4 TE214R-1, CE214R-2
A5 A5 TE215S-1, CE215S-2
A6 A6 TE215R-1, CE215R-2
B1 B1 TE216S-1, CE216S-2
B2 B2 TE216R-1, CE216R-2
B3 B3 TE217S-1, CE217S-2
B4 B4 TE217R-1, CE217R-2
B5 B5 TE218S-1, CE218S-2
B6 B6 TE218R-1, CE218R-2
B7 B7 TE219S-1, CE219S-2
B8 B8 TE219R-1, CE219R-2
C1 C1 TE220S-1, CE220S-2
C2 C2 TE220R-1, CE220R-2
C3 C3 TE221S-1, CE221S-2
C4 C4 TE221R-1, CE221R-2
C6 C6 TE222S-1, CE222S-2
C7 C7 TE222R-1, CE222R-2
D1 D1 TE227S-1, CE227S-2
E1 E1 TE227R-1, CE227R-2
E2 E2 TE228S-1, CE228S-2
E3 E3 TE228R-1, CE228R-2
E4 E4 TE229S-1, CE229S-2
E5 E5 TE229R-1, CE229R-2
E7 E7 T230S-1, CB230S-2
E8 E8 T230R-1, CB230R-2
F1 F1 T231S-1, CB231S-2
F2 F2 T231R-1, CB231R-2
F3 F3 T232S-1, C232S-2
F4 F4 T232R-1, C232R-2
F5 F5 T233S-1, CB233S-2
F6 F6 T233R-1, CB233R-2
F7 F7 T234S-1, CB234S-2
F8 F8 T234R-1, CB234R-2
G1 G1 T235S-1, CB235S-2
G2 G2 T235R-1, CB235R-2
G3 G3 T236S-1, CB236S-2
G4 G4 T236R-1, CB236R-2
P
PART OF J1
PART OF P1
G5 G5 T237S-1, C237S-2
G6 G6 T237R-1, C237R-2
G8 G8 T238S-1, CB238S-2
H8 H8 T238R-1, CB238R-2
H1 H1 T249S-1, CB249S-2
H2 H2 T249R-1, CB249R-2
H5 H5 T242S-1, CB242S-2
H6 H6 T242R-1, CB242R-2
H7 H7 CB258S-2
J8 J8 CB258R-2
H3 H3 TC212S-1
H4 H4 TC212R-1
J3 J3
J4 J4
C8 C8 TE223S-1, CE223S-2
D8 D8 TE223R-1, CE223R-2
D2 D2 TE224S-1, CE224S-2
D3 D3 TE224R-1, CE224R-2
D4 D4 TE225S-1, CE225S-2
D5 D5 TE225R-1, CE225R-2
D6 D6 TE226S-1, CE226S-2
D7 D7 TE226R-1, CE226R-2
C5 C5 W211
E6 E6 W247-1
G7 G7 W213-1-2
J5 J5 W240-1, WD240-2
J6 J2 W243-1, WD243-2
S6 S7 WD239-1-2
S8 S8 WD241-1-2
J7 E4
P2
K6 E9
K7 76 RD 442
L7 77 WD 443
E10 78 SHIELD 442
E11 82 SHIELD 437
M7 79 W437
N7 80 W436
M6 E12
P8 E5
R4 45 DART-CNO-1, WD 4520-2
J1 37 W450-2
K3 36 SD445A-2 (NC)
M1 17 SD453A-2 (NC)
S4 43 SD 409-1, SD409A-2
S3 46 SD407A-1, SD407A-2
P3 25 WD406-1, WD-02-B2M
K1 39 SD 444A-2 (NC)
L1 56 SD 439A-2
K2 44 SD 441A-2
L2 50 SD 440A-2
S5 18 SD 452A-2 (NC)
R6 20 WD428-1, WD407-2
N6 3 DART-CNC, WDC1-B2M
P6 5 DART-CNC, WD-C2-B2M
S7 62 WD-C3-B2M
R2 57 DART-CNO-1, WD-C1-B2M
PART OF J1
PART OF P2
J2 35 SD 451A-2 (NC)
K8 70 WD 448
L8 71 WD 449
M8 72 WD 446
N8 73 WD 447
P7 74 MON +5M
P8 75 MON -5M
E6
J2
65
E7
1 1
2 2 SD 403-1
4 4
7 7 SD 419-1
8 8 SD 426-1
10 10 SD 436-1
11 11 G/N FD NC
12 12 G/N FD NO
13 13 SD 451C-1
14 14 SD452C-1
15 15 SD MSP1
16 16 SDMSP2
21 21 SD423R-1
22 32 SD 416-1
23 23 SD 410-1
24 24 SD408-1
26 26 SD 405-1
27 27 SD 404-1
28 28
30 30 SD 417-1
32 32 SD 424-1
33 33 SD 431-1
34 34 SD 432-1
38 38 SD 430-1
40 40 SD 425-1
41 41 SD418-1
42 42 SD411-1
47 47 SD 412-1
48 48 SD 420-1
49 49 SD 427-1
51 51 SD 433-1
52 52
53 53 SD435-1
54 54 SD423-1
55 55 SD 415-1
29 29
58 58 SD 413-1
59 59 SD 421-1
60 60 SD 402-1
63 63 SD 414-1
64 64 WD 422-1
66 66 PC SP1-S
67 67 PC SP1-R
65 E8

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± DECIMALS .XXX ± ANGLES ±
DO NOT SCALE DRAWING
MATERIAL

RAYTHEON CO.
LEXINGTON MASS.
CONTRACT NO NAS 9-497
DRAWN DATE 9AUG65
CHECKED 20AUG65
APPROVAL 1 Oct 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CABLE ASSEMBLY
W2
OPERATION CONSOLE

CODE IDENT NO. 49956
SIZE J
NASA DRAWING NO. 2014497
SCALE NONE
WT
SHEET 3 3

MASTER

2014497 -

2014498 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
0	RELEASED PER CCA R25489		
—	CLASS B CHANGED PER CCA R25509	12/30/65	A.F.A.
A	CHANGED PER CCA R 26626 AND CLASS A RELEASED PER TCRR 25476	1/19/66	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	4	P1-64	WHT	20	2	23	P3-48	
	A2		-60					-45	
	A3		-57					-57	
	A4		-54					-54	
	A5		-51		20	2	23	P3-51	
	A6		-80		16	4	27	A2PS1-3	
	A7		-79				24	A2PS1-7	
	A8		-72				12	A4PS1-4	
	A9		-73				13	A4PS1-6	
	A10		-74				14	A2PS1-7	
	A11		-67				11	A4PS1-3	
	A12		-75				21	PS1-3	
	A13	4	P1-76				23	P3-76	
	A14	19	PS1-7				23	P3-75	
	A15	22	PS1-1	WHT		4	29	P6-Z	△5 TWIST
	A16	22	PS1-2	BLK		5	29	P6-H	△6
	A17	4	P1-12				29	P6-E	△5
	A18	4	P1-4				29	P6-C	△6
△5	A19	29	P6-b				23	P3-44	
△6	A20	29	P6-K				23	P3-82	
△4	A21	6	P4-L				29	P6-G	△5
	A22	4	P1-E	BLK	16	5	29	P6-D	△6
	A23		-71	WHT	20	2	23	P3-71	TWIST
	A24		-70	BLK		3		-70	
	A25		-59	WHT		2		-59	
	A26		-58	BLK		3		-58	
	A27		-56	WHT		2		-56	
	A28		-55	BLK		3		-55	
	A29		-49	WHT		2		-49	
	A30	4	P1-50	BLK		3	23	P3-50	
	A31	3	P2-1	WHT		2	15	P5-1	
	A32		-4	BLK		3	15	-4	
	A33		-16	WHT		2	15	-16	
	A34		-23	BLK		3	15	-23	
	A35		-55	WHT		2	17	-55	
	A36		-32	BLK		3	16	-32	
	A37		-33	WHT		2		-33	
	A38		-36	BLK		3		-36	
	A39		-31	WHT		2		-31	
	A40		-38	BLK		3		-38	
	A41		-37	WHT		2		-37	
	A42		-40	BLK		3		-40	
	A43		-45	WHT		2		-45	
	A44		-46	BLK		3		-46	
	A45		-53	WHT		2		-53	
	A46		-52	BLK		3	16	-52	
	A47		-24	WHT		2	15	-24	
	A48	3	P2-30	BLK		3	15	P5-30	
	A49	6	P4-E	WHT		2	23	P3-46	
	A50	6	P4-F	BLK		3	23	P3-47	
	A51	6	P4-G	WHT		2	23	P3-79	
	A52	6	P4-H	BLK	20	3	23	P3-80	
	A53	6	P4-C	WHT	20	2	8	E3	△1
	A54	6	P4-D	BLK	20	3	7	E4	△1
	A55	4	P1-63	WHT	16	4	23	P3-63	
	A56		-62	BLK		5	23	P3-62	
	A57		-53	WHT		4	23	P3-53	
	A58		-52	BLK		5	23	P3-52	
	A59		-77	WHT		4	25	A2PS1-6	
	A60	4	P1-78	BLK		5	26	A2PS1-4	
	A61	3	P2-2	WHT		4	15	P5-2	
	A62		-3	BLK		5		-3	
	A63		-7	WHT		4		-7	
	A64		-11	BLK		5		-11	
	A65		-5	WHT		4		-5	
	A66		-8	BLK		5		-8	
	A67		-13	WHT		4		-13	
	A68		-12	BLK		5		-12	
	A69		-14	WHT		4		-14	
	A70		-17	BLK		5		-17	
	A71		-10	WHT		4		-10	
	A72		-21	BLK		5		-21	
	A73		-15	WHT		4		-15	
	A74		-18	BLK		5		-18	
	A75		-25	WHT		4		-25	
	A76		-22	BLK		5	15	-22	
	A77		-49	WHT		4	16	-49	
	A78	3	P2-50	BLK	16	5	16	P5-50	TWIST

NOTES
1. FABRICATE PER ND 1002032 EXCEPT USE FIND 22
2. MARK CONDUCTOR IDENTIFICATION PER ND1002019
3. CRIMP PER ND1002206
4. SERIALIZE PER ND1002023
5. MARK NORMAL GOTHIC CHARACTERS AS SHOWN PER ND1002019 USING BLACK INK 1006256-001
6. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION PREFIX WITH SUB-ASSEMBLY DESIGNATIONS
7. AR DENOTES AS REQUIRED
8. STRIP ALL LEADS .19, DO NOT TIN UNLESS OTHERWISE SPECIFIED
9. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED
10. NUMBERS ENCLOSED IN PARENTHESES INDICATE NUMBER OF CONDUCTORS

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A79	3	P2-43	WHT	16	4	16	P5-43	TWIST
	A80		-44	BLK		5		-44	
	A81		-47	WHT		4		-47	
	A82		-48	BLK		5		-48	
	A83		-51	WHT		4		-51	
	A84	3	P2-54	BLK		5	16	P5-54	
△4	A85	6	P4-M	WHT		4	23	P3-72	
△4	A86	6	P4-K	BLK		5		-67	
	A87	20	PS1-4	WHT		4		-73	
	A88	20	PS1-6	BLK		5		-74	
	A89	20	PS1-4	WHT		4		-78	
	A90	20	PS1-6	BLK	16	5	23	P3-77	
	A91	4	P1-66	WHT	16	4	23	P3-66	TWIST
	A92	4	P1-65	BLK	16	5	23	P3-65	
	A93	4	P1-3	WHT	22	7	23	P3-3	
		4	P1-2	BLK	22		23	P3-2	
		△1	E32	SHLD			△1	E33	
	A94	4	P1-1	BLK	22	1	△1	E32	△1
△1	A95	△1	E33	BLK	22	1	23	P3-1	
	A96	3	P2-39	WHT	22	7	16	P5-39	
		3	P2-41	BLK	22		16	P5-41	
		△1	E6	SHLD			△1	E7	
	A97	3	P2-42	BLK	22	1	△1	E6	△1
△1	A98	△1	E7	BLK	22	1	16	P5-42	
	A99	3	P2-63	WHT	22	7	17	P5-63	
		3	P2-64	BLK	22		17	P5-64	
		△1	E8	SHLD			△1	E9	
	A100	3	P2-62	BLK	22	1	△1	E8	△1
△1	A101	△1	E9	BLK	22	1	17	P5-62	
	A102	3	P2-67	WHT	22	7	17	P5-67	
		3	P2-66	BLK	22		17	P5-66	
		△1	E10	SHLD			△1	E11	
	A103	3	P2-65	BLK	22	1	△1	E10	△1
△1	A104	△1	E11	BLK	22	1	17	P5-65	
	A105	3	P2-78	WHT	22	7	17	P5-78	
		3	P2-77	BLK	22		17	P5-77	
		△1	E12	SHLD			△1	E13	
	A106	3	P2-76	BLK	22	1	△1	E12	△1
△1	A107	△1	E13	BLK	22	1	17	P5-76	
	A108	3	P2-80	WHT	22	7	17	P5-80	
		3	P2-82	BLK	22		17	P5-82	
		△1	E14	SHLD			△1	E15	
	A109	3	P2-79	BLK	22	1	△1	E14	△1
△1	A110	△1	E15	BLK	22	1	17	P5-79	
	A111	4	P1-10	WHT	20	8	29	P6-I	△6
		4	P1-11	BLK	20		29	P6-S	△6
		△1	E30	SHLD			△1	E21	
	A112	6	P4-A	WHT	20	8	29	P6-W	△6
		6	P4-B	BLK	20		29	P6-Y	△6
		△1	E23	SHLD			△1	E16	
△1	A113	1	E2	WHT	16	9	5	B1-A	△1
△1		2	C1-1	BLK	16		5	B1-B	△1
		△1	E27	SHLD			△1	E28	
△6	A114	29	P6-X	WHT	16	9	28	A2PS1-1	
△5		29	P6-c	BLK	16		28	A2PS1-2	
		△1	E17	SHLD			△1	E24	
△6	A115	29	P6-N	WHT	16	9	9	A4PS1-1	
△5		29	P6-J	BLK	16		10	A4PS1-2	
		△1	E18	SHLD			△1	E25	
△5	A116	29	P6-a	WHT	16	9	1	E2	△1
△6		29	P6-V	BLK	16		2	C1-1	△1
		△1	E19	SHLD			△1	E26	
△6	A117	29	P6-T	△2	16	10	18	B3-A	
△6		29	P6-L	BLK	16		18	B3-B	
△6		29	P6-M	△3	16		18	B3-C	
		△1	E20	SHLD			△1	E29	
	A118	4	P1-13	△2	20	11	29	P6-B	△6
		4	P1-14	BLK	20		29	P6-d	△6
		4	P1-15	△3	20		29	P6-U	△6
		△1	E31	SHLD			△1	E22	
△1	A119	△1	E16	BLK	22	1	△1	E17	△1
	A120	△1	E17				△1	E18	
	A121	△1	E18				△1	E19	
	A122	△1	E19				△1	E20	
	A123	△1	E20				△1	E21	
	A124	△1	E21				△1	E22	△1
	A125	△1	E22				29	P6-A	△6
△1	A126	△1	E26	BLK	22	1		E27	△1

11. MIL-W-16878/4 E22, 2 COND TWISTED, WHT & BLK, SHLD'D, JACKET TFE WHITE
12. MIL-W-16878/4 E20, 2 COND TWISTED, WHT & BLK, SHLD'D, JACKET TFE WHITE
13. MIL-W-16878/4 E16, 2 COND TWISTED, WHT & BLK, SHLD'D, JACKET TFE WHITE
14. MIL-W-16878/4 E16, 3 COND TWISTED, BLK, WHT/RED/GY, WHT/BLK/GY, SHLD'D, JACKET TFE WHITE
15. MIL-W-16878/4 E20, 3 COND TWISTED, BLK, WHT/RED/GY, WHT/BLK/GY, SHLD'D, JACKET TFE WHITE
16. NUMBERS PRECEDING BALLOONS DENOTE QUANTITY
17. TIN PER ND1002071
18. CUT SLEEVING LENGTHS AS SHOWN
19. SOLDER PER ND1002071
20. MIL-I-23053 CLASS I COLOR WHT ID .187 FOR FIND 38, ID .250 FOR FIND 39

△1 DENOTES INTERNAL CONNECTION
△2 DENOTES WHT/RED/GY
△3 DENOTES WHT/BLK/GY
△4 STRIP .25 DO NOT TIN
△5 STRIP .31 & TIN
△6 STRIP .44 & TIN
△7 STRIP .50 & TIN

	☒	2014499	INTERCONNECTION DIAGRAM	REF
*	0.8	SEE NOTE 20	SLEEVING, INSULATION	39
*	0.3	SEE NOTE 20	SLEEVING, INSULATION	38
	23	MS25036-6	TERMINAL, LUG	37
	1	MS39057-9	BUSHING, SLEEVE	36
	1	MS39056-4	BUSHING, SLEEVE	35
	1	1006415-054	BAND, MARKER	34
	2	1006415-058	BAND, MARKER	33
	AR	1006253	ADHESIVE	32
	1	1006415-056	BAND, MARKER	31
	28	1010402-3	SLEEVE, SOLDER	30
*	2.4	1006696-6	INSULATION, SLEEVING	29
*	3.0	1006696-3	INSULATION, SLEEVING	28
*	5.0	1006696-5	INSULATION, SLEEVING	27
*	3.2	1006696-7	INSULATION, SLEEVING	26
*	6.0	1006696-8	INSULATION, SLEEVING	25
	1	MS39057-8	BUSHING, SLEEVE	24
	1	1006415-138	BAND, MARKER	23
	AR	1006458-004	TAPE, LACING	22
	3	1006415-059	BAND, MARKER	21
	39	1006491-012	CONTACT, ELECTRICAL	20
	1	MS39057-7	BUSHING, SLEEVE	19
	42	1006491-013	CONTACT, ELECTRICAL	18
	33	1006491-011	CONTACT, ELECTRICAL	17
	186	1006491-014	CONTACT, ELECTRICAL	16
	1	MS3106R-36-9P	CONNECTOR, PLUG	15
	1	MS3126F-14-12S	CONNECTOR, PLUG	14
	4	1006490-002	CONNECTOR, PLUG	13
	AR	1006699	SOLVENT	12
*	12.0	SEE NOTE 15	WIRE ELEC	11
*	6.0	SEE NOTE 14	WIRE ELEC	10
*	35.0	SEE NOTE 13	WIRE ELEC	9
*	25.0	SEE NOTE 12	WIRE ELEC	8
*	40.0	SEE NOTE 11	WIRE ELEC	7
	1	MS39056-9	BUSHING, SLEEVE	6
*	86.0	MIL-W-16878/4 E16	WIRE ELEC, BLK	5
*	84.0	MIL-W-16878/4 E16	WIRE ELEC, WHT	4
*	78.0	MIL-W-16878/4 E20	WIRE ELEC, BLK	3
*	75.0	MIL-W-16878/4 E20	WIRE ELEC, WHT	2
*	4.5	MIL-W-16878/4 E22	WIRE ELEC, BLK	1
	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

2014024	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN [illegible] DATE 5 OCT 65
CHECKED [illegible] 5 OCT 65
APPROVAL [illegible] 19 OCT 65
APPROVAL [illegible] 11/19/65
APPROVAL [illegible] 11/16/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED A
AC DC POWER DISTRIBUTION
OPERATION CONSOLE

SIZE J | CODE IDENT NO. 49956 | NASA DRAWING NO. 2014498
SCALE NONE | WT | SHEET 1 OF 2

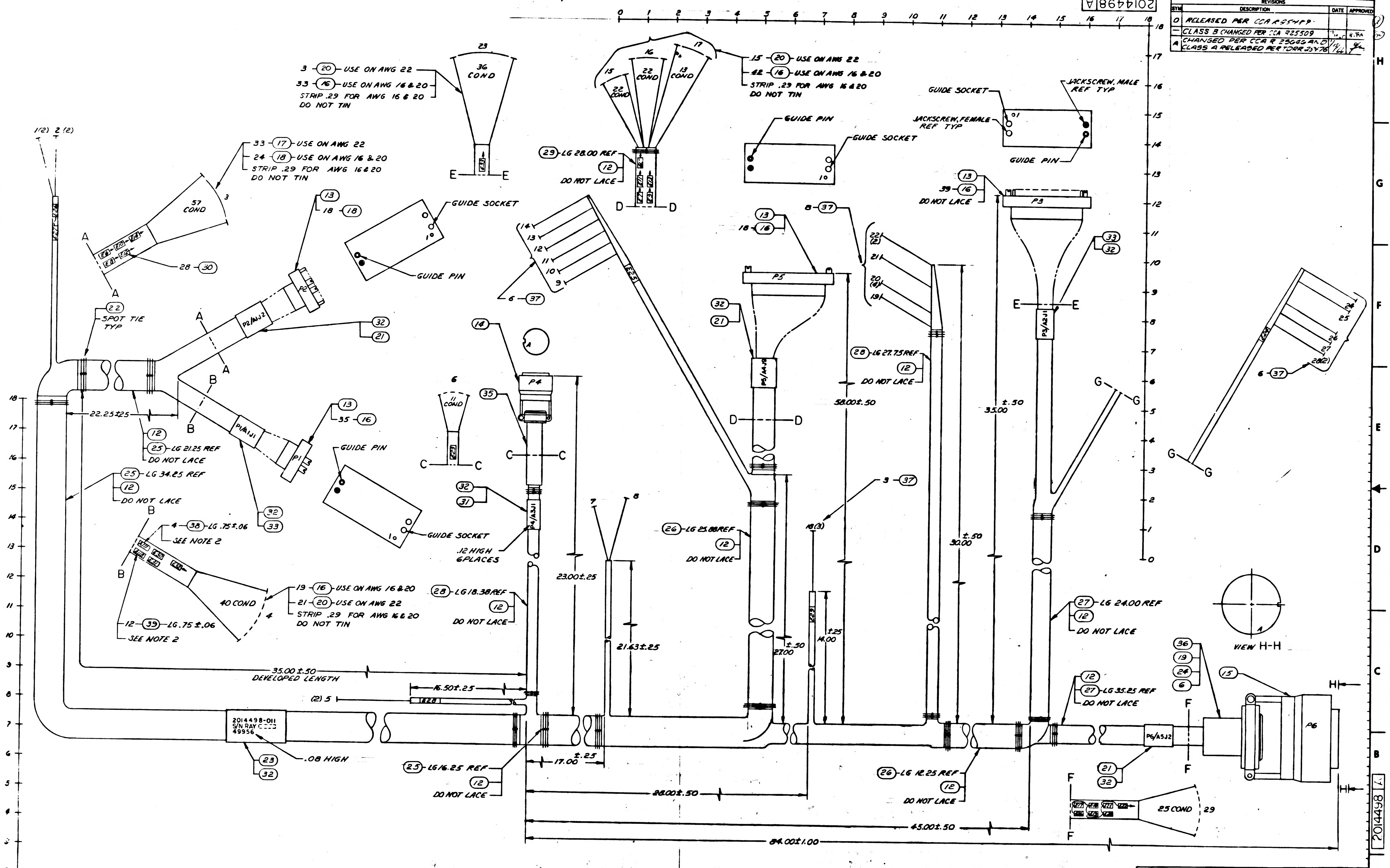
INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014498

2014498 A

2014498 A

SYM	DESCRIPTION	DATE	APPROVED
O	RELEASED PER CCA R25489		
—	CLASS B CHANGED PER CCA R25509	12/10/65	R.FA
A	CHANGED PER CCA R 25646 AND CLASS A RELEASED PER TORR 25476	11/15/66	



3 (20) USE ON AWG 22
33 (16) USE ON AWG 16 & 20
STRIP .29 FOR AWG 16 & 20
DO NOT TIN
36 COND
E E
15 (20) USE ON AWG 22
42 (16) USE ON AWG 16 & 20
STRIP .29 FOR AWG 16 & 20
DO NOT TIN
22 COND
13 COND
(29) LG 28.00 REF
(12) DO NOT LACE
D D
33 (17) USE ON AWG 22
24 (18) USE ON AWG 16 & 20
STRIP .29 FOR AWG 16 & 20
DO NOT TIN
57 COND
28 (30)
(13) 18 (18)
GUIDE SOCKET
GUIDE PIN
P2
P2/A1J2
(32) (21)
(22) SPOT TIE TYP
22.25±.25
(12) (25) LG 21.25 REF DO NOT LACE
P1/A1J1
P1
(13) 35 (16)
(25) LG 34.25 REF
(12) DO NOT LACE
(32) (33)
4 (38) LG .75±.06 SEE NOTE 2
19 (16) USE ON AWG 16 & 20
21 (20) USE ON AWG 22
STRIP .29 FOR AWG 16 & 20
DO NOT TIN
40 COND
12 (39) LG .75±.06 SEE NOTE 2
35.00±.50 DEVELOPED LENGTH
2014498-011 S/N RAY 49956
(23) (32) .08 HIGH
16.50±.25
(2) 5
6 (37)
(14) P4 (35)
11 COND
C C
(32) (31) P4/A3J1
.12 HIGH 6 PLACES
(28) LG 18.38 REF (12) DO NOT LACE
23.00±.25
21.63±.25
(23) LG 16.25 REF (12) DO NOT LACE
17.00±.25
28.00±.50
45.00±.50
84.00±1.00
(13) 18 (16)
P5
(32) (21)
P5/A4J1
(26) LG 25.88 REF (12) DO NOT LACE
27.00±.50
8 (37)
(28) LG 27.75 REF (12) DO NOT LACE
58.00±.50
3 (37)
18(3)
14.00±.25
30.00±.50
(26) LG 12.25 REF (12) DO NOT LACE
GUIDE SOCKET
JACKSCREW, FEMALE REF TYP
JACKSCREW, MALE REF TYP
GUIDE PIN
(13) 39 (16) DO NOT LACE
P3
(33) (32)
P3/A2J1
35.00±.50
G G
6 (37)
(27) LG 24.00 REF (12) DO NOT LACE
(12) (27) LG 35.25 REF DO NOT LACE
(36) (19) (24) (6)
(15) P6
P6/A5J2
(21) (32)
F F
25 COND 29
H H
VIEW H-H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ±.06 DECIMALS .XXX ± ANGLES ±
~~DO NOT SCALE DRAWING~~
MATERIAL

RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO. NAS 9-497
DRAWN DATE 25 SEPT 65
CHECKED B.C. Jemison 5 OCT 65
APPROVAL 9 OCT 65
APPROVAL
APPROVAL
NASA APPROVAL A.C. METZGER
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED A
AC DC POWER DISTRIBUTION
OPERATION CONSOLE

SIZE	CODE IDENT NO.	NASA DRAWING NO.
J	49956	2014498

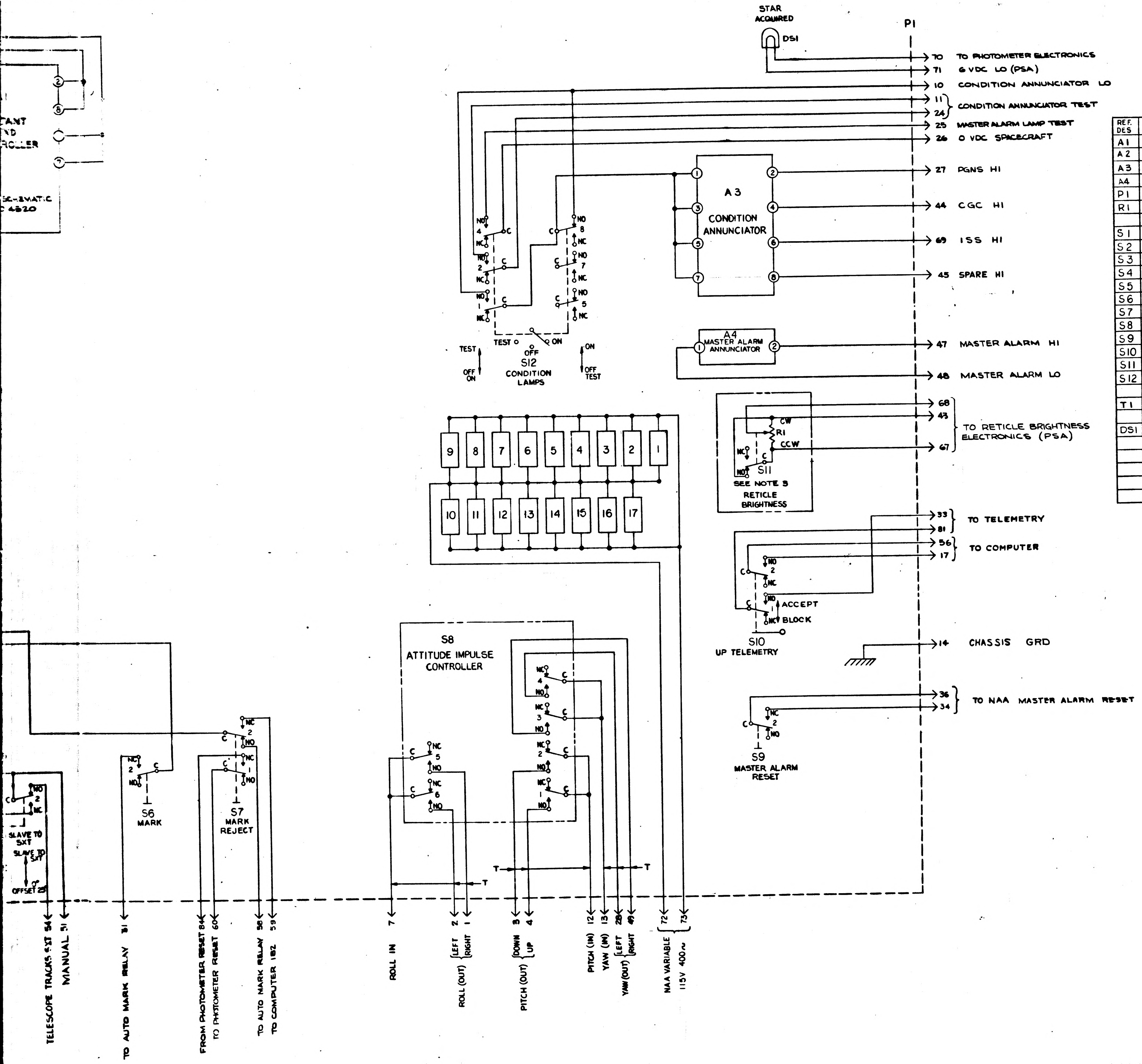
SCALE 1/1 WT SHEET 2 OF 2

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

2014498 A

2014498 A

REVISIONS 17862			
SYM	DESCRIPTION	DATE	APPROVAL
A9	REVISED PER TDRR NO. 18974	19 MAY 65	WK



STAR ACQUIRED
DS1
P1
70 TO PHOTOMETER ELECTRONICS
71 6 VDC LO (PSA)
10 CONDITION ANNUNCIATOR LO
11, 24 CONDITION ANNUNCIATOR TEST
25 MASTER ALARM LAMP TEST
26 0 VDC SPACECRAFT
A3 CONDITION ANNUNCIATOR
27 PGNS HI
44 CGC HI
69 ISS HI
45 SPARE HI
A4 MASTER ALARM ANNUNCIATOR
47 MASTER ALARM HI
48 MASTER ALARM LO
TEST
OFF
ON
S12 CONDITION LAMPS
NO
NC
C
R1
CW
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
68, 43, 67 TO RETICLE BRIGHTNESS ELECTRONICS (PSA)
33, 81 TO TELEMETRY
56, 17 TO COMPUTER
ACCEPT
BLOCK
S10 UP TELEMETRY
14 CHASSIS GRD
36, 34 TO NAA MASTER ALARM RESET
S9 MASTER ALARM RESET
S8 ATTITUDE IMPULSE CONTROLLER
T
TANT
ND
ROLLER
SC-3MAT.C
C 4820
SLAVE TO SXT
0°
OFFSET 25
S6 MARK
S7 MARK REJECT
TELESCOPE TRACKS SXT 54
MANUAL 51
TO AUTO MARK RELAY 31
FROM PHOTOMETER RESET 84
TO PHOTOMETER RESET 60
TO AUTO MARK RELAY 58
TO COMPUTER 182 59
ROLL IN 7
ROLL (OUT) LEFT 2
RIGHT 1
PITCH (OUT) DOWN 3
UP 4
PITCH (IN) 12
YAW (IN) 13
YAW (OUT) LEFT 28
RIGHT 49
NAA VARIABLE 115V 400~ 72, 73

REF. DES	PART NO.	DESCRIPTION
A1	2014550-011	SEXTANT HAND CONTROLLER
A2		
A3	1010949-1	CONDITION ANNUNCIATOR
A4	1010948-1	MASTER ALARM ANNUNCIATOR
P1	1010930-104	CONNECTOR
R1	1010916-1	POTENTIOMETER
S1	1010902-6	SWITCH, TOGGLE
S2	1010902-5	↕
S3	1010903-4	
S4	1010905-5	
S5	1010902-4	TOGGLE
S6	1010904-2	PUSH BUTTON
S7	1010904-1	PUSH BUTTON
S8	1015048-021	IMPULSE
S9	1010904-2	PUSH BUTTON
S10	1010905-3	TOGGLE
S11	1010901-1	BASIC
S12	1010903-3	SWITCH, TOGGLE
T1	1010942-1	TRANSFORMER
DS1	1010268-2	LAMP (6V)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
	2014578-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE MAR 65
CHECKED 3-22-65
APPROVAL 3-22-65
APPROVAL
NASA APPROVAL 3-29-6?
MIT APPROVAL

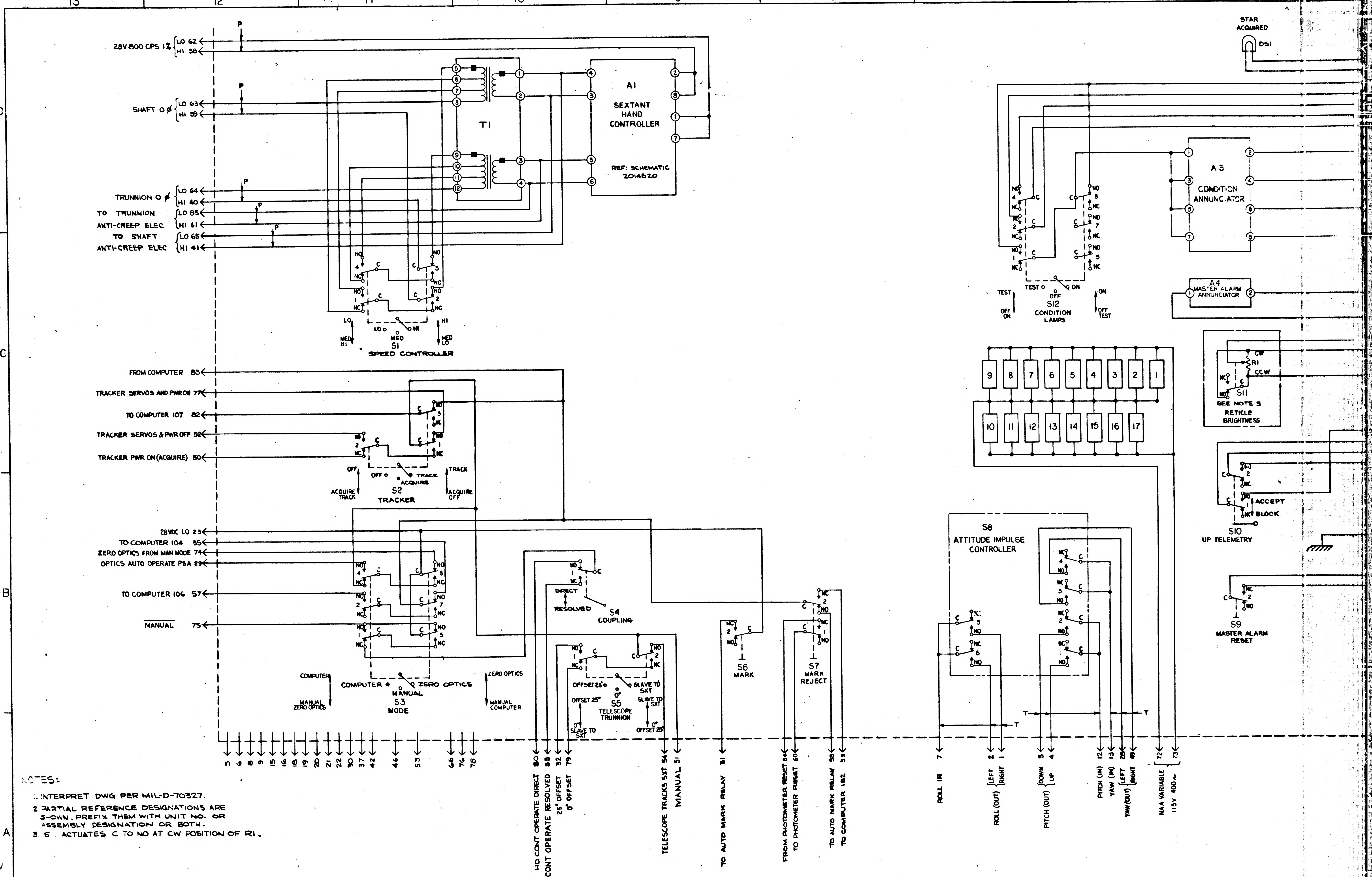
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC DIAGRAM,
G&N INDICATOR CONTROL PANEL

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2014507
SCALE —
WT
SHEET 1 OF 1

2014507 A

F-2


13
12
11
10
9
8
7
6
5
D
C
B
A
28V 800 CPS 1%
LO 62
HI 38
SHAFT 0 ∅
LO 63
HI 39
TRUNNION 0 ∅
LO 64
HI 40
TO TRUNNION ANTI-CREEP ELEC
LO 85
HI 61
TO SHAFT ANTI-CREEP ELEC
LO 65
HI 41
P
T1
A1
SEXTANT HAND CONTROLLER
REF: SCHEMATIC 2014520
LO
MED HI
LO
MED
HI
HI
MED LO
S1
SPEED CONTROLLER
FROM COMPUTER 83
TRACKER SERVOS AND PWR ON 77
TO COMPUTER 107 82
TRACKER SERVOS & PWR OFF 52
TRACKER PWR ON (ACQUIRE) 50
OFF
ACQUIRE TRACK
OFF
TRACK
ACQUIRE
TRACK
ACQUIRE OFF
S2
TRACKER
28VDC LO 23
TO COMPUTER 104 35
ZERO OPTICS FROM MAN MODE 74
OPTICS AUTO OPERATE PSA 29
TO COMPUTER 106 57
MANUAL 75
COMPUTER
MANUAL ZERO OPTICS
COMPUTER
ZERO OPTICS
MANUAL
S3
MODE
ZERO OPTICS
MANUAL COMPUTER
DIRECT
RESOLVED
S4
COUPLING
OFFSET 25°
SLAVE TO SXT
0°
S5
TELESCOPE TRUNNION
OFFSET 25°
SLAVE TO SXT
SLAVE TO SXT
OFFSET 25°
S6
MARK
S7
MARK REJECT
S8
ATTITUDE IMPULSE CONTROLLER
T
STAR ACQUIRED
DS1
A3
CONDITION ANNUNCIATOR
A4
MASTER ALARM ANNUNCIATOR
TEST
OFF ON
TEST
OFF
ON
S12
CONDITION LAMPS
ON
OFF TEST
CW
R1
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
ACCEPT
BLOCK
S10
UP TELEMETRY
S9
MASTER ALARM RESET
NO
NC
C
5 6 8 9 15 16 18 19 20 21 22 30 37 42 46 53 66 76 78
HD CONT OPERATE DIRECT 80
HD CONT OPERATE RESOLVED 55
25° OFFSET 32
0° OFFSET 79
TELESCOPE TRACKS SXT 54
MANUAL 51
TO AUTO MARK RELAY 81
FROM PHOTOMETER RESET 84
TO PHOTOMETER RESET 60
TO AUTO MARK RELAY 58
TO COMPUTER 182 59
ROLL IN 7
ROLL (OUT) LEFT 2
RIGHT 1
PITCH (OUT) DOWN 3
UP 4
PITCH (IN) 12
YAW (IN) 13
YAW (OUT) LEFT 28
RIGHT 49
NAA VARIABLE 72
115V 400~ 73

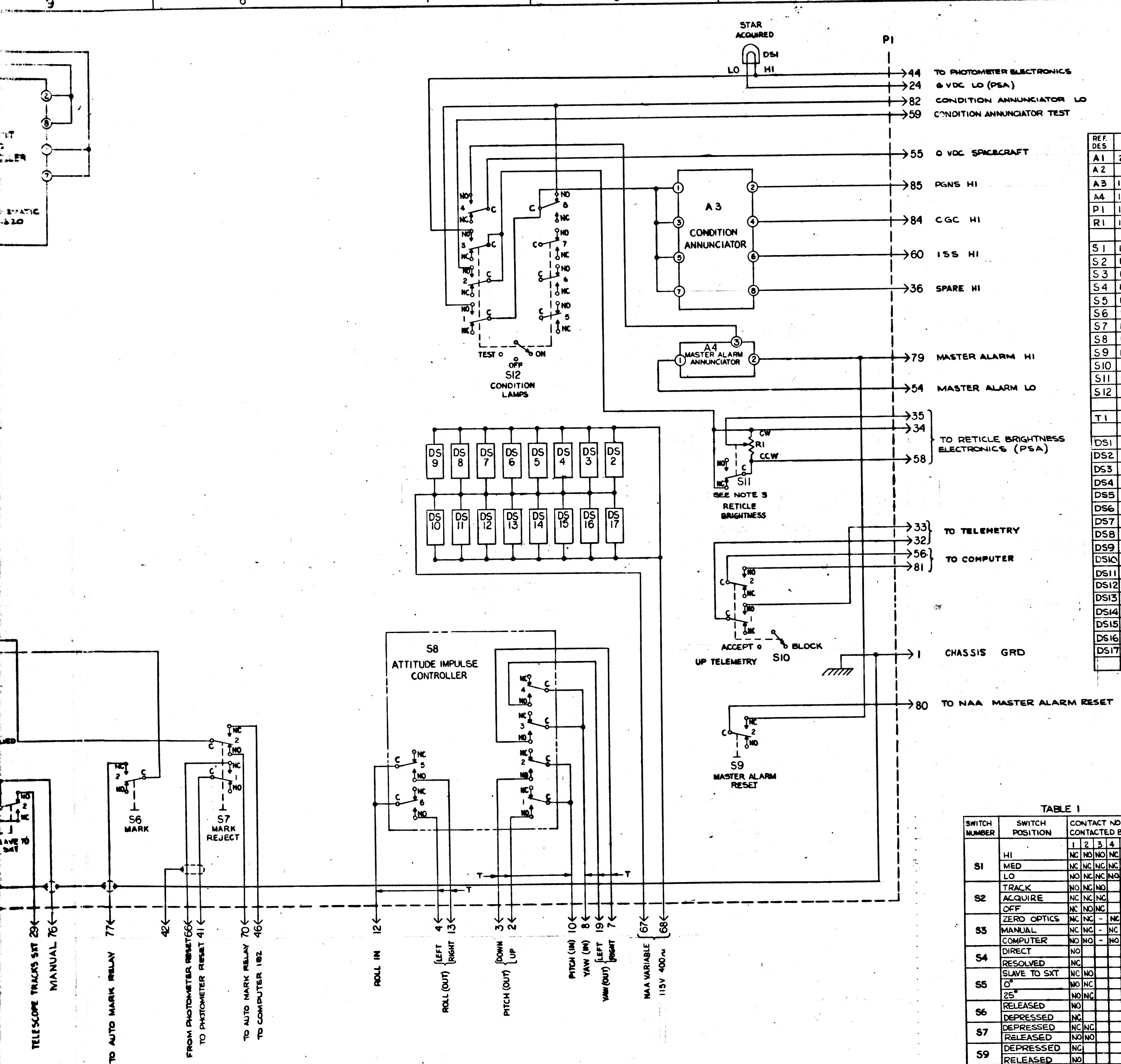
NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THEM WITH UNIT NO. OR ASSEMBLY DESIGNATION OR BOTH.
3. S ACTUATES C TO NO AT CW POSITION OF R1.

2014507 B

SYM	DESCRIPTION	DATE	APPROVAL
A9	REVISED PER TDRR NO. 18974	19 MAY 65	WK
B	REVISED PER TDRR NO. 21523	13 AUG 65	WK

REVISIONS 17892


STAR ACQUIRED
DS1
LO
HI
P1
44 TO PHOTOMETER ELECTRONICS
24 6 VDC LO (PSA)
82 CONDITION ANNUNCIATOR LO
59 CONDITION ANNUNCIATOR TEST
55 0 VDC SPACECRAFT
85 PGNS HI
84 CGC HI
60 ISS HI
36 SPARE HI
A3
CONDITION ANNUNCIATOR
A4
MASTER ALARM ANNUNCIATOR
79 MASTER ALARM HI
54 MASTER ALARM LO
TEST
OFF
ON
S12
CONDITION LAMPS
35
34
TO RETICLE BRIGHTNESS ELECTRONICS (PSA)
58
CW
R1
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
DS9 DS8 DS7 DS6 DS5 DS4 DS3 DS2
DS10 DS11 DS12 DS13 DS14 DS15 DS16 DS17
33
32
TO TELEMETRY
56
81
TO COMPUTER
ACCEPT
BLOCK
UP TELEMETRY
S10
1 CHASSIS GRD
80 TO NAA MASTER ALARM RESET
S9
MASTER ALARM RESET
S8
ATTITUDE IMPULSE CONTROLLER
S6
MARK
S7
MARK REJECT
SLAVE TO SXT
29 TELESCOPE TRACKS SXT
76 MANUAL
77 TO AUTO MARK RELAY
42
66 FROM PHOTOMETER RESET
41 TO PHOTOMETER RESET
70 TO AUTO MARK RELAY
46 TO COMPUTER 1&2
12 ROLL IN
4 ROLL (OUT) LEFT
13 RIGHT
3 PITCH (OUT) DOWN
2 UP
10 PITCH (IN)
8 YAW (IN)
19 YAW (OUT) LEFT
7 RIGHT
67 NAA VARIABLE
68 115V 400~
T
NC
NO
C

REF. DES	PART NO	DESCRIPTION
A1	2014550-011	SEXTANT HAND CONTROLLER
A2		
A3	1010949-1	CONDITION ANNUNCIATOR
A4	1010948-1	MASTER ALARM ANNUNCIATOR
P1	1010930-104	CONNECTOR
R1	1010916-1	POTENTIOMETER
S1	1010902-6	SWITCH, TOGGLE
S2	1010902-5	↑ ↑
S3	1010903-4	
S4	1010905-5	↓
S5	1010902-4	TOGGLE
S6	1010904-2	PUSH BUTTON
S7	1010904-1	PUSH BUTTON
S8	1015048-021	IMPULSE
S9	1010904-2	PUSH BUTTON
S10	1010905-3	TOGGLE
S11	1010901-1	↓ BASIC
S12	1010903-7	SWITCH, TOGGLE
T1	1010942-1	TRANSFORMER
DS1	1010268-5	LAMP (6V)
DS2	1010999-004	ELECTROLUMINESCENT LAMP
DS3	↑ -004	↑
DS4	-008	
DS5	-001	
DS6	-011	
DS7	-010	
DS8	-004	
DS9	-004	
DS10	-008	
DS11	-007	
DS12	-004	
DS13	-004	
DS14	-004	
DS15	-006	
DS16	↓ -006	↓
DS17	1010999-003	ELECTROLUMINESCENT LAMP

TABLE 1

SWITCH NUMBER	SWITCH POSITION	CONTACT NO. & TERMINAL CONTACTED BY TERMINAL C							
		1	2	3	4	5	6	7	8
S1	HI	NC	NO	NO	NC				
	MED	NC	NC	NC	NC				
	LO	NO	NC	NC	NO				
S2	TRACK	NO	NC	NO					
	ACQUIRE	NC	NC	NC					
	OFF	NC	NO	NC					
S3	ZERO OPTICS	NC	NC	-	NC	NO		NO	NO
	MANUAL	NC	NC	-	NC	NC		NC	NC
	COMPUTER	NO	NO	-	NO	NC		NC	NC
S4	DIRECT	NO							
	RESOLVED	NC							
S5	SLAVE TO SXT	NC	NO						
	0°	NO	NC						
	25°	NO	NC						
S6	RELEASED	NO							
	DEPRESSED	NC							
S7	DEPRESSED	NC	NC						
	RELEASED	NO	NO						
S9	DEPRESSED	NC							
	RELEASED	NO							
S10	ACCEPT	NO	NO						
	BLOCK	NC	NC						
S12	ON	NC	NC	NC	NC	NO	NO	NO	NO
	OFF	NC	NC	NC	NC	NC	NC	NC	NC
	TEST	NO	NO	NO	NO	NC	NC	NC	NC

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
	2014578-011

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

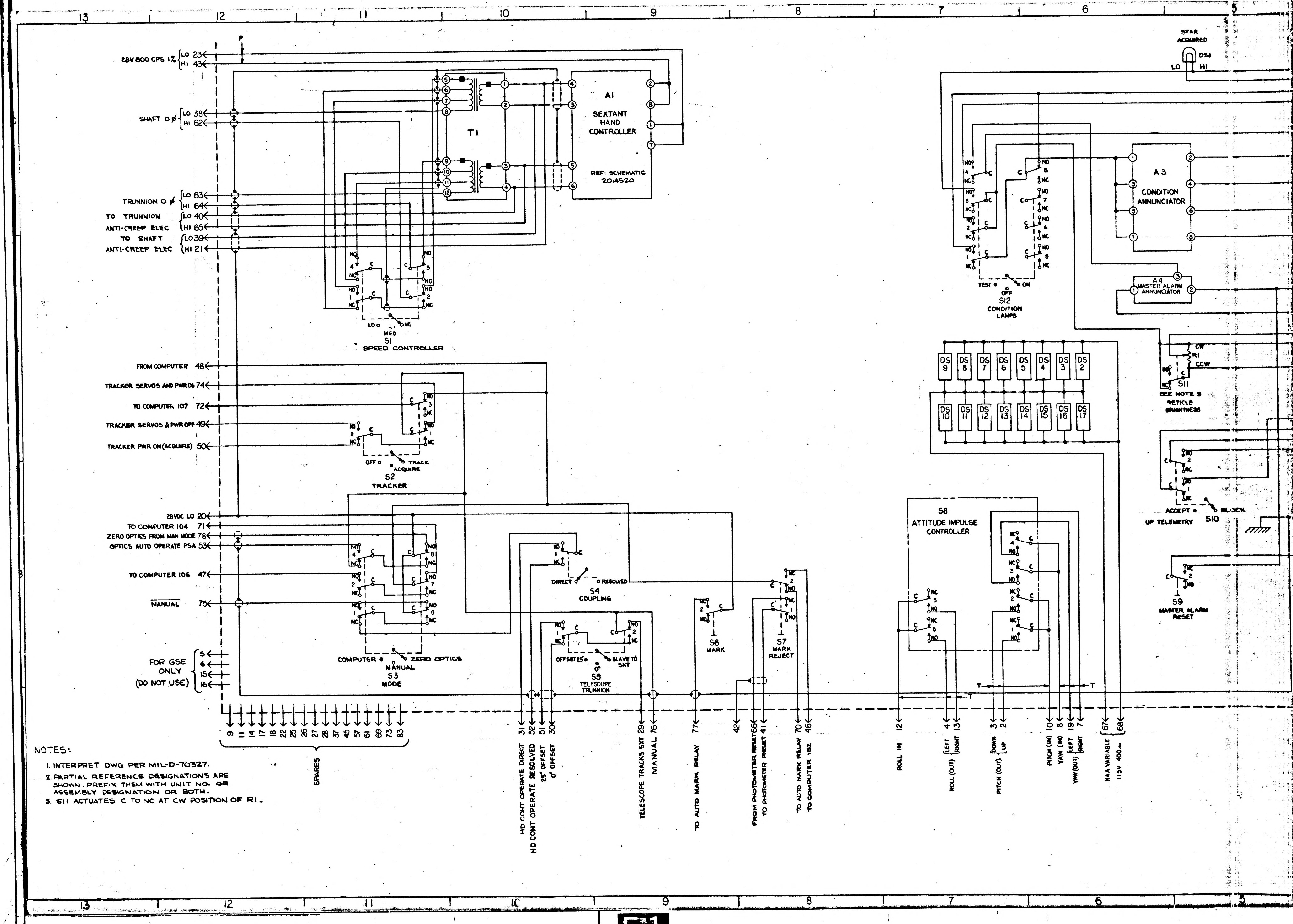
MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE MAR 17 65
CHECKED 3-22-65
APPROVAL 3-22-65
APPROVAL
NASA APPROVAL 3-29-61
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC DIAGRAM,
G&N INDICATOR CONTROL PANEL

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2014507
SCALE
WT
SHEET OF

2014507 B


28V 800 CPS 1%
LO 23
HI 43
SHAFT 0 ϕ
LO 38
HI 62
TRUNNION 0 ϕ
LO 63
HI 64
TO TRUNNION ANTI-CREEP ELEC
LO 40
HI 65
TO SHAFT ANTI-CREEP ELEC
LO 39
HI 21
T1
A1
SEXTANT HAND CONTROLLER
REF: SCHEMATIC 2014520
S1
SPEED CONTROLLER
LO
MED
HI
FROM COMPUTER 48
TRACKER SERVOS AND PWR ON 74
TO COMPUTER 107 72
TRACKER SERVOS & PWR OFF 49
TRACKER PWR ON (ACQUIRE) 50
OFF
ACQUIRE
TRACK
S2
TRACKER
28VDC LO 20
TO COMPUTER 104 71
ZERO OPTICS FROM MAN MODE 78
OPTICS AUTO OPERATE PSA 53
TO COMPUTER 106 47
MANUAL 75
COMPUTER
MANUAL
ZERO OPTICS
S3
MODE
DIRECT
RESOLVED
S4
COUPLING
OFFSET 25°
0°
SLAVE TO SXT
S5
TELESCOPE TRUNNION
S6
MARK
S7
MARK REJECT
FOR GSE ONLY (DO NOT USE)
5
6
15
16
9 11 14 17 18 22 25 26 27 28 37 45 57 61 69 73 83
SPARES
31 HD CONT OPERATE DIRECT
52 HD CONT OPERATE RESOLVED
51 25° OFFSET
30 0° OFFSET
29 TELESCOPE TRACKS SXT
76 MANUAL
77 TO AUTO MARK RELAY
42 FROM PHOTOMETER RESET
66
41 TO PHOTOMETER RESET
70 TO AUTO MARK RELAY
46 TO COMPUTER 182
S8
ATTITUDE IMPULSE CONTROLLER
12 ROLL IN
4 ROLL (OUT) LEFT
13 RIGHT
3 PITCH (OUT) DOWN
2 UP
10 PITCH (IN)
8 YAW (IN)
19 YAW (OUT) LEFT
7 RIGHT
67 NAA VARIABLE
68 115V 400~
STAR ACQUIRED
DS1
LO
HI
A3
CONDITION ANNUNCIATOR
A4
MASTER ALARM ANNUNCIATOR
TEST
OFF
ON
S12
CONDITION LAMPS
DS 9
DS 8
DS 7
DS 6
DS 5
DS 4
DS 3
DS 2
DS 10
DS 11
DS 12
DS 13
DS 14
DS 15
DS 16
DS 17
CW
R1
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
ACCEPT
BLOCK
UP TELEMETRY
S10
S9
MASTER ALARM RESET
13
12
11
10
9
8
7
6
5

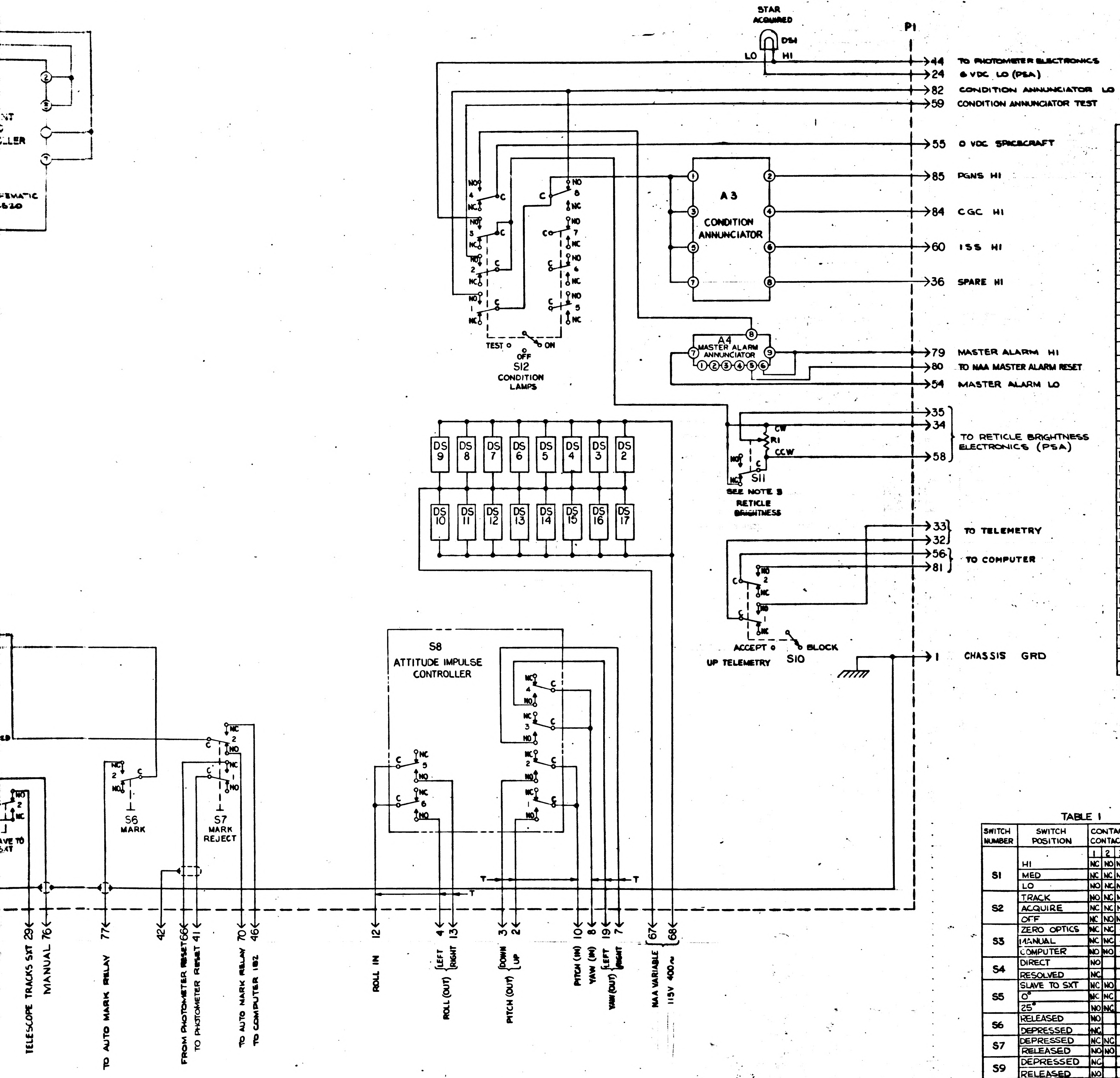
NOTES:-

1. INTERPRET DWG PER MIL-D-70327.
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THEM WITH UNIT NO. OR ASSEMBLY DESIGNATION OR BOTH.
3. S11 ACTUATES C TO NC AT CW POSITION OF R1.

2014507 B

SYM	DESCRIPTION	DATE	APPROVAL
A9	REVISED PER TDRR NO. 18974	19 MAY 65	WK
B	REVISED PER TDRR NO. 21523	13 AUG 65	WK
C	REVISED PER TDRR NO. 22655	4 OCT 65	WK

REVISIONS 17992


STAR ACQUIRED
DS1
LO
HI
P1
44 TO PHOTOMETER ELECTRONICS
24 6 VDC LO (PSA)
82 CONDITION ANNUNCIATOR LO
59 CONDITION ANNUNCIATOR TEST
55 0 VDC SPACECRAFT
85 PGNS HI
84 CGC HI
60 ISS HI
36 SPARE HI
A3 CONDITION ANNUNCIATOR
A4 MASTER ALARM ANNUNCIATOR
79 MASTER ALARM HI
80 TO NAA MASTER ALARM RESET
54 MASTER ALARM LO
TEST
OFF
ON
S12 CONDITION LAMPS
35
34
58
TO RETICLE BRIGHTNESS ELECTRONICS (PSA)
R1
CW
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
DS9 DS8 DS7 DS6 DS5 DS4 DS3 DS2
DS10 DS11 DS12 DS13 DS14 DS15 DS16 DS17
33
32
TO TELEMETRY
56
81
TO COMPUTER
ACCEPT
BLOCK
UP TELEMETRY
S10
1 CHASSIS GRD
S8
ATTITUDE IMPULSE CONTROLLER
S6 MARK
S7 MARK REJECT
SLAVE TO SXT
29 TELESCOPE TRACKS SXT
76 MANUAL
77 TO AUTO MARK RELAY
42
66 FROM PHOTOMETER RESET
41 TO PHOTOMETER RESET
70 TO AUTO MARK RELAY
46 TO COMPUTER 182
12 ROLL IN
4 LEFT
13 RIGHT
ROLL (OUT)
3 DOWN
2 UP
PITCH (OUT)
10 PITCH (IN)
8 YAW (IN)
19 LEFT
7 RIGHT
YAW (OUT)
67
68
NAA VARIABLE 115V 400~
T
SCHEMATIC
CONTROLLER

REF. DES	PART NO	DESCRIPTION
A1	2014550-011	SEXTANT HAND CONTROLLER
A2		
A3	1010949-1	CONDITION ANNUNCIATOR
A4	1008824-1	MASTER ALARM ANNUNCIATOR
P1	1010930-104	CONNECTOR
R1	1010916-1	POTENTIOMETER
S1	1010902-6	SWITCH , TOGGLE
S2	1010902-5	↕
S3	1010903-4	
S4	1010905-5	
S5	1010902-4	TOGGLE
S6	1010904-2	PUSH BUTTON
S7	1010904-1	PUSH BUTTON
S8	1015048-021	IMPULSE
S9		
S10	1010905-3	TOGGLE
S11	1010901-1	BASIC
S12	1010903-7	SWITCH , TOGGLE
T1	1010942-1	TRANSFORMER
DS1	1010268-5	LAMP(6V)
DS2	1010999-004	ELECTROLUMINESCENT LAMP
DS3	-004	↕
DS4	-008	
DS5	-001	
DS6	-011	
DS7	-010	
DS8	-004	
DS9	-004	
DS10	-008	
DS11	-007	
DS12	-004	
DS13	-004	
DS14	-004	
DS15	-006	
DS16	-006	
DS17	1010999 -003	ELECTROLUMINESCENT LAMP

TABLE 1

SWITCH NUMBER	SWITCH POSITION	CONTACT NO. & TERMINAL CONTACTED BY TERMINAL C							
		1	2	3	4	5	6	7	8
S1	HI	NC	NO	NO	NC				
	MED	NC	NC	NC	NC				
	LO	NO	NC	NC	NO				
S2	TRACK	NO	NC	NO					
	ACQUIRE	NC	NC	NC					
	OFF	NC	NO	NC					
S3	ZERO OPTICS	NC	NC	-	NC	NO		NO	NO
	MANUAL	NC	NC	-	NC	NC		NC	NC
	COMPUTER	NO	NO	-	NO	NC		NC	NC
S4	DIRECT	NO							
	RESOLVED	NC							
S5	SLAVE TO SXT	NC	NO						
	0°	NC	NC						
	25°	NO	NC						
S6	RELEASED	NO							
	DEPRESSED	NC							
S7	DEPRESSED	NC	NC						
	RELEASED	NO	NO						
S9	DEPRESSED	NC							
	RELEASED	NO							
S10	ACCEPT	NO	NO						
	BLOCK	NC	NC						
S12	ON	NC	NC	NC	NC	NO	NO	NO	NO
	OFF	NC	NC	NC	NC	NC	NC	NC	NC
	TEST	NO	NO	NO	NO	NC	NC	NC	NC

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
	2014578-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

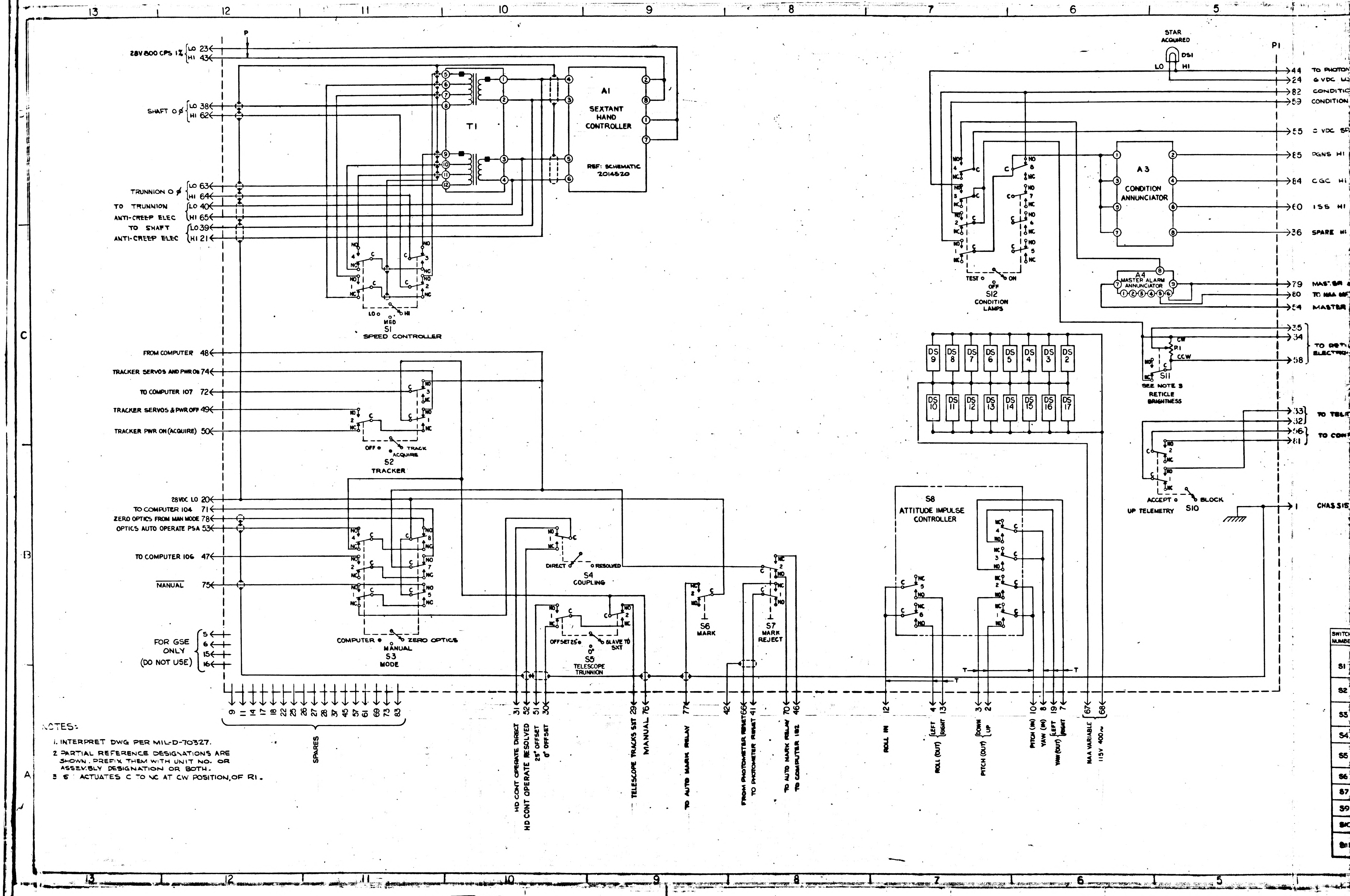
MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE 3-22-65
CHECKED 3-22-65
APPROVAL 3-22-65
I.L. APPROVAL
NASA APPROVAL 3-29-65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC DIAGRAM, G&N INDICATOR CONTROL PANEL

CODE IDENT. NO. 80230
SIZE J
NASA DRAWING NO 2014507
SCALE
WT
SHEET 1 OF

2014507 B


13
12
11
10
9
8
7
6
5
C
B
A
P
28V 800 CPS 1%
LO 23
HI 43
SHAFT 0 ϕ
LO 38
HI 62
TRUNNION 0 ϕ
LO 63
HI 64
TO TRUNNION ANTI-CREEP ELEC
LO 40
HI 65
TO SHAFT ANTI-CREEP ELEC
LO 39
HI 21
T1
A1
SEXTANT HAND CONTROLLER
REF: SCHEMATIC 2014520
LO
MED
HI
S1
SPEED CONTROLLER
FROM COMPUTER 48
TRACKER SERVOS AND PWR ON 74
TO COMPUTER 107 72
TRACKER SERVOS & PWR OFF 49
TRACKER PWR ON (ACQUIRE) 50
OFF
ACQUIRE
TRACK
S2
TRACKER
28VDC LO 20
TO COMPUTER 104 71
ZERO OPTICS FROM MAN MODE 78
OPTICS AUTO OPERATE PSA 53
TO COMPUTER 106 47
MANUAL 75
COMPUTER
MANUAL
ZERO OPTICS
S3
MODE
DIRECT
RESOLVED
S4
COUPLING
OFFSET 25°
0°
SLAVE TO SXT
S5
TELESCOPE TRUNNION
S6
MARK
S7
MARK REJECT
FOR GSE ONLY (DO NOT USE)
5
6
15
16
9 11 14 17 18 22 25 26 27 28 37 45 57 61 69 73 83
SPARES
31 HD CONT OPERATE DIRECT
52 HD CONT OPERATE RESOLVED
51 25° OFFSET
30 0° OFFSET
29 TELESCOPE TRACKS SXT
76 MANUAL
77 TO AUTO MARK RELAY
42
66 FROM PHOTOMETER RESET
41 TO PHOTOMETER RESET
70 TO AUTO MARK RELAY
46 TO COMPUTER 182
12 ROLL IN
4 ROLL (OUT) LEFT
13 RIGHT
3 PITCH (OUT) DOWN
2 UP
10 PITCH (IN)
8 YAW (IN)
19 YAW (OUT) LEFT
7 RIGHT
67 NAA VARIABLE
68 115V 400~
T
S8
ATTITUDE IMPULSE CONTROLLER
STAR ACQUIRED
DS1
LO
HI
P1
44 TO PHOTON
24 6 VDC L
82 CONDITIC
59 CONDITION
55 0 VDC SP
85 PGNS HI
84 CGC HI
60 ISS HI
36 SPARE HI
A3
CONDITION ANNUNCIATOR
TEST
OFF
ON
S12
CONDITION LAMPS
A4
MASTER ALARM ANNUNCIATOR
79 MASTER
80 TO NAA
54 MASTER
DS9 DS8 DS7 DS6 DS5 DS4 DS3 DS2
DS10 DS11 DS12 DS13 DS14 DS15 DS16 DS17
35
34
58
TO RETI
ELECTR
CW
R1
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
33
32
TO TELE
56
81
TO CON
ACCEPT
BLOCK
UP TELEMETRY
S10
1 CHASSIS
SWITCH NUMBER
S1
S2
S3
S4
S5
S6
S7
S9
S10
S11

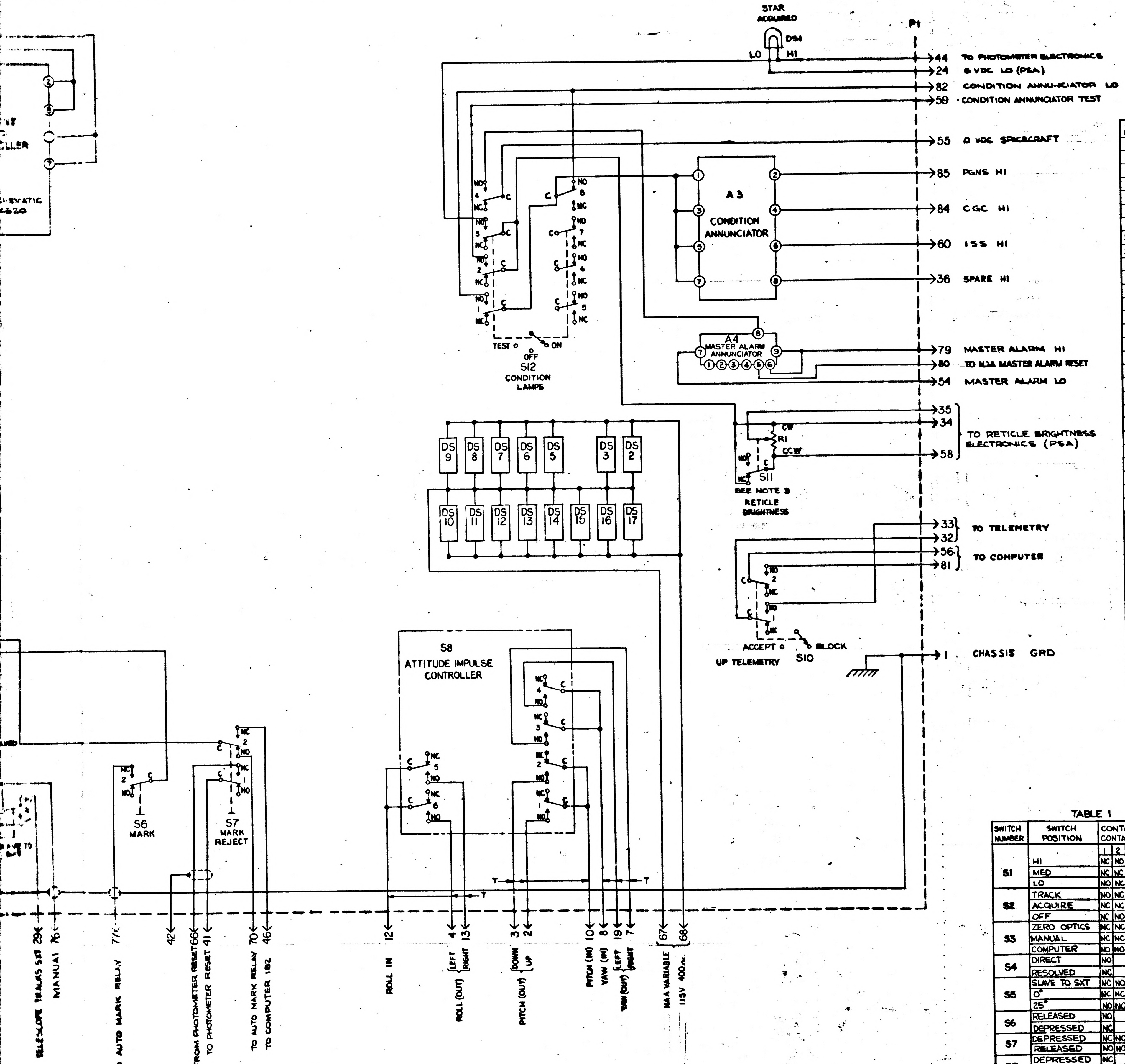
NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THEM WITH UNIT NO. OR ASSEMBLY DESIGNATION OR BOTH.
3. S11 ACTUATES C TO NC AT CW POSITION, OF R1.

2014507 D

LTR	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR NO. 18974	13 MAY 65	WK
B	REVISED PER TDRR NO. 21523	13 AUG 65	WK
C	REVISED PER TDRR NO. 22655	4 OCT 65	WK
D	REVISED PER TDRR NO. 23286	OCT 65	WSM

REVISIONS 1-1892


STAR ACQUIRED
DS1
LO
HI
P1
44 TO PHOTOMETER ELECTRONICS
24 6 VDC LO (PSA)
82 CONDITION ANNUNCIATOR LO
59 CONDITION ANNUNCIATOR TEST
55 0 VDC SPACECRAFT
85 PGNS HI
84 CGC HI
60 ISS HI
36 SPARE HI
A3
CONDITION ANNUNCIATOR
TEST
OFF
ON
S12
CONDITION LAMPS
A4
MASTER ALARM ANNUNCIATOR
79 MASTER ALARM HI
80 TO NAA MASTER ALARM RESET
54 MASTER ALARM LO
35
34
58
TO RETICLE BRIGHTNESS ELECTRONICS (PSA)
CW
R1
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
DS 9
DS 8
DS 7
DS 6
DS 5
DS 3
DS 2
DS 10
DS 11
DS 12
DS 13
DS 14
DS 15
DS 16
DS 17
33
32
TO TELEMETRY
56
81
TO COMPUTER
ACCEPT
BLOCK
UP TELEMETRY
S10
1 CHASSIS GRD
S8
ATTITUDE IMPULSE CONTROLLER
S6
MARK
S7
MARK REJECT
...LLER
...SI-SVATIC
29 TELESCOPE TRACKS SXT
76 MANUAL
77 TO AUTO MARK RELAY
42 FROM PHOTOMETER RESET
66 TO PHOTOMETER RESET
41
70 TO AUTO MARK RELAY
46 TO COMPUTER 1&2
12 ROLL IN
4 ROLL (OUT) LEFT
13 RIGHT
3 PITCH (OUT) DOWN
2 UP
10 PITCH (IN)
8 YAW (IN)
19 YAW (OUT) LEFT
7 RIGHT
67 NAA VARIABLE
68 115V 400~
T

REF. DES	PART NO	DESCRIPTION
A1	2014550-011	SEXTANT HAND CONTROLLER
A2		
A3	1010949-1	CONDITION ANNUNCIATOR
A4	1008824-1	MASTER ALARM ANNUNCIATOR
P1	1010930-104	CONNECTOR
R1	1010916-1	POTENTIOMETER
S1	1010902-6	SWITCH, TOGGLE
S2	1010902-5	
S3	1010903-9	
S4	1010905-5	
S5	1010902-4	TOGGLE
S6	1010904-2	PUSH BUTTON
S7	1010904-1	PUSH BUTTON
S8	2014700-011	IMPULSE
S9		
S10	1010905-3	TOGGLE
S11	1010901-1	BASIC
S12	1010903-8	SWITCH, TOGGLE
T1	1010942-1	TRANSFORMER
DS1	1010268-5	LAMP (6V)
DS2	1010999-004	ELECTROLUMINESCENT LAMP
DS3	-004	
DS4		
DS5	-001	
DS6	-011	
DS7	-010	
DS8	-004	
DS9	-004	
DS10	-008	
DS11	-007	
DS12	-004	
DS13	-004	
DS14	-004	
DS15	-006	
DS16	-006	
DS17	1010999-003	ELECTROLUMINESCENT LAMP

TABLE 1

SWITCH NUMBER	SWITCH POSITION	CONTACT NO. & TERMINAL CONTACTED BY TERMINAL C							
		1	2	3	4	5	6	7	8
S1	HI	NC	NO	NO	NC				
	MED	NC	NC	NC	NC				
	LO	NO	NC	NC	NO				
S2	TRACK	NO	NC	NO					
	ACQUIRE	NC	NC	NC					
	OFF	NC	NO	NC					
S3	ZERO OPTICS	NC	NC	-	NC	NO		NO	NO
	MANUAL	NC	NC	-	NC	NC		NC	NC
	COMPUTER	NO	NO	-	NO	NC		NC	NC
S4	DIRECT	NO							
	RESOLVED	NC							
S5	SLAVE TO SXT	NC	NO						
	0°	NC	NC						
	25°	NO	NC						
S6	RELEASED	NO							
	DEPRESSED	NC							
S7	DEPRESSED	NC	NC						
	RELEASED	NO	NO						
S9	DEPRESSED	NC							
	RELEASED	NO							
S10	ACCEPT	NO	NO						
	BLOCK	NC	NC						
S12	ON	NC	NC	NC	NC	NO	NO	NO	NO
	OFF	NC	NC	NC	NC	NC	NC	NC	NC
	TEST	NO	NO	NO	NO	NC	NC	NC	NC

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
	2014578-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN R. [illegible] DATE [illegible]
CHECKED [illegible] 3-22-65
APPROVAL [illegible] 3-22-65
APPROVAL J. [illegible]
NASA APPROVAL W. G. [illegible] 3-24-65
MIT APPROVAL [illegible]

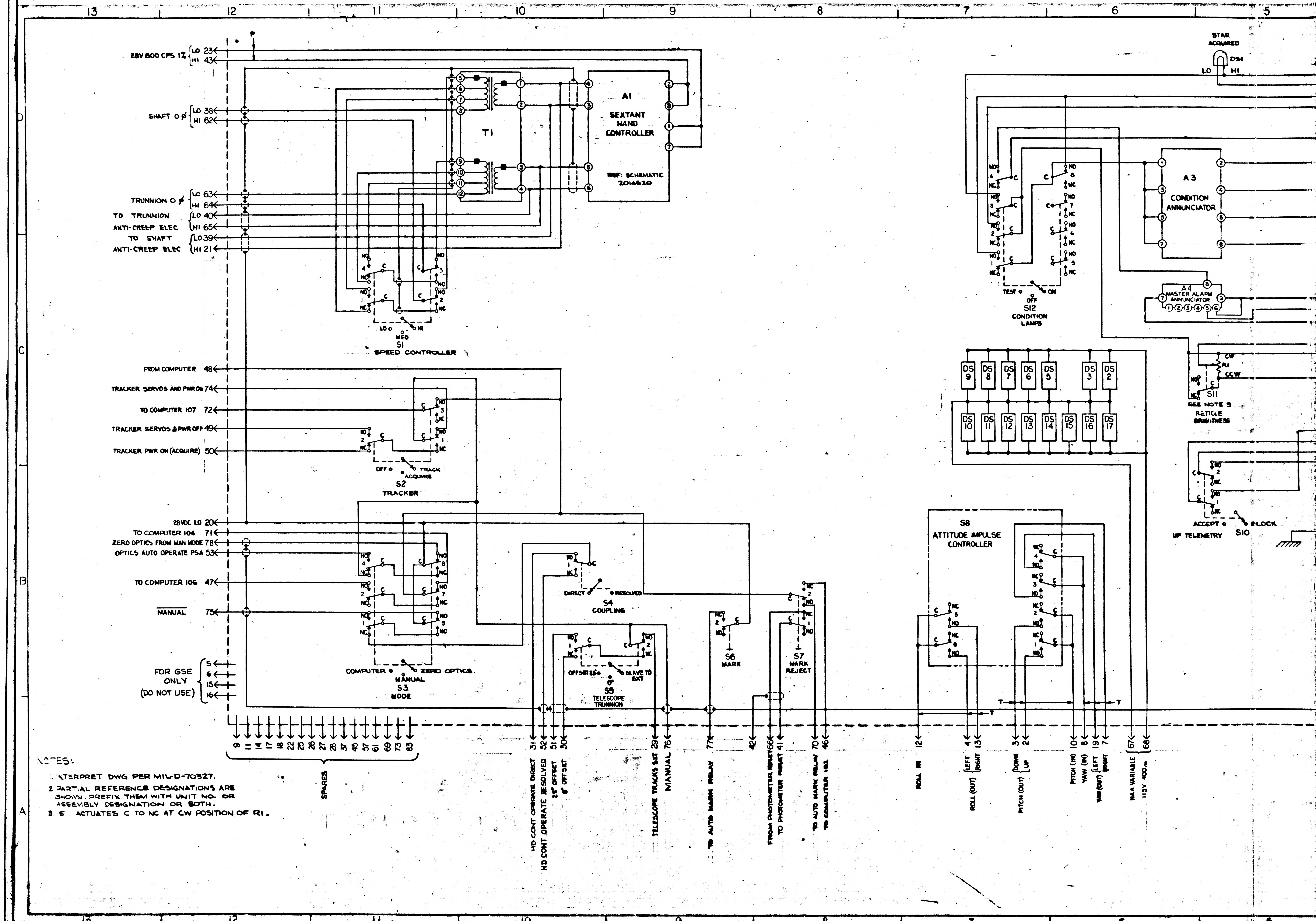
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC DIAGRAM,
G&N INDICATOR CONTROL PANEL

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	2014507

SCALE — WT SHEET 1 OF 1

2014507


13
12
11
10
9
8
7
6
5
D
C
B
A
28V 800 CPS 1% LO 23
HI 43
SHAFT 0 ø LO 38
HI 62
TRUNNION 0 ø LO 63
HI 64
TO TRUNNION ANTI-CREEP ELEC LO 40
HI 65
TO SHAFT ANTI-CREEP ELEC LO 39
HI 21
T1
A1
SEXTANT HAND CONTROLLER
REF: SCHEMATIC 2014520
S1
SPEED CONTROLLER
LO
MED
HI
FROM COMPUTER 48
TRACKER SERVOS AND PWR ON 74
TO COMPUTER 107 72
TRACKER SERVOS & PWR OFF 49
TRACKER PWR ON (ACQUIRE) 50
OFF
TRACK
ACQUIRE
S2
TRACKER
28VDC LO 20
TO COMPUTER 104 71
ZERO OPTICS FROM MAN MODE 78
OPTICS AUTO OPERATE PSA 53
TO COMPUTER 106 47
MANUAL 75
COMPUTER
MANUAL
ZERO OPTICS
S3
MODE
FOR GSE ONLY (DO NOT USE) 5 6 15 16
DIRECT
RESOLVED
S4
COUPLING
OFFSET 25°
SLAVE TO SXT
6°
S5
TELESCOPE TRUNNION
S6
MARK
S7
MARK REJECT
S8
ATTITUDE IMPULSE CONTROLLER
NO
NC
C
STAR ACQUIRED
DS1
LO
HI
A3
CONDITION ANNUNCIATOR
A4
MASTER ALARM ANNUNCIATOR
TEST
OFF
ON
S12
CONDITION LAMPS
DS 9
DS 8
DS 7
DS 6
DS 5
DS 3
DS 2
DS 10
DS 11
DS 12
DS 13
DS 14
DS 15
DS 16
DS 17
CW
R1
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
ACCEPT
LOCK
UP TELEMETRY
S10
9 11 14 17 18 22 25 26 27 28 37 45 57 61 69 73 83
SPARES
31 HD CONT OPERATE DIRECT
52 HD CONT OPERATE RESOLVED
51 25° OFFSET
30 6° OFFSET
29 TELESCOPE TRACKS SXT
76 MANUAL
77 TO AUTO MARK RELAY
42
66 FROM PHOTOMETER RESET
41 TO PHOTOMETER RESET
70 TO AUTO MARK RELAY
46 TO COMPUTER 182
12 ROLL IN
4 LEFT
13 RIGHT
ROLL (OUT)
3 DOWN
2 UP
PITCH (OUT)
10 PITCH (IN)
8 YAW (IN)
19 LEFT
7 RIGHT
YAW (OUT)
67 NAA VARIABLE
68 115V 400~
T

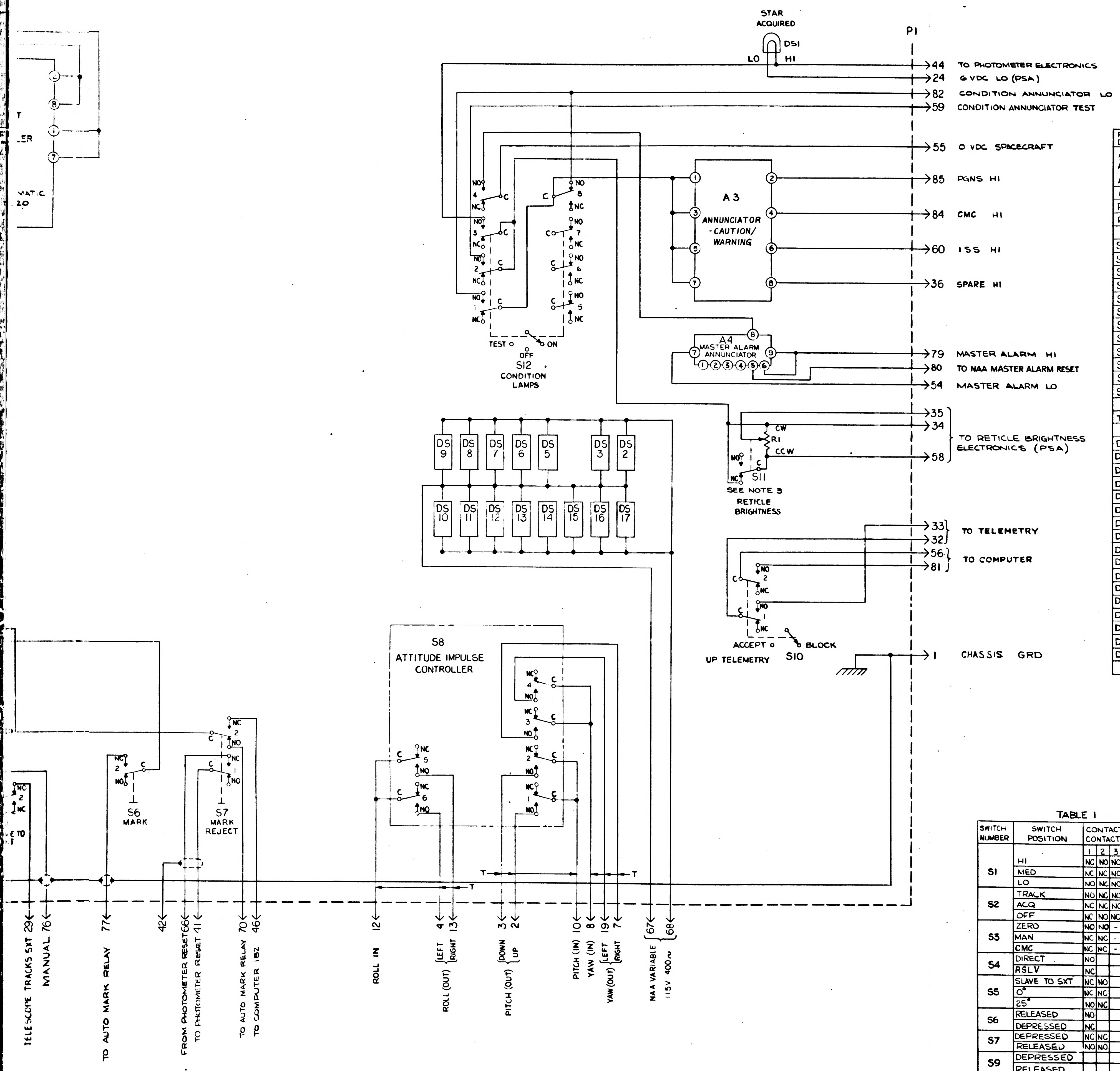
NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THEM WITH UNIT NO. OR ASSEMBLY DESIGNATION OR BOTH.
3. S ACTUATES C TO NC AT CW POSITION OF R1.

2014507

2014507 E

SYM	DESCRIPTION	DATE	APPROVAL
A9	REVISED PER TDRR NO. 18974	19 MAY 65	WK
B	REVISED PER TDRR NO. 21523	13 AUG 65	WK
C	REVISED PER TDRR NO. 22655	4 OCT 65	WK
D	REVISED PER TDRR NO. 23286	20 OCT 65	
E	*REVISED PER TDRR-26824*		B LJ


STAR ACQUIRED
DS1
LO
HI
P1
44 TO PHOTOMETER ELECTRONICS
24 6 VDC LO (PSA)
82 CONDITION ANNUNCIATOR LO
59 CONDITION ANNUNCIATOR TEST
55 0 VDC SPACECRAFT
85 PGNS HI
84 CMC HI
60 ISS HI
36 SPARE HI
A3
ANNUNCIATOR -CAUTION/ WARNING
79 MASTER ALARM HI
80 TO NAA MASTER ALARM RESET
54 MASTER ALARM LO
A4
MASTER ALARM ANNUNCIATOR
TEST
OFF
ON
S12
CONDITION LAMPS
35
34
58
TO RETICLE BRIGHTNESS ELECTRONICS (PSA)
CW
R1
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
DS 9
DS 8
DS 7
DS 6
DS 5
DS 3
DS 2
DS 10
DS 11
DS 12
DS 13
DS 14
DS 15
DS 16
DS 17
33
32
TO TELEMETRY
56
81
TO COMPUTER
ACCEPT
BLOCK
UP TELEMETRY
S10
1 CHASSIS GRD
S8
ATTITUDE IMPULSE CONTROLLER
S6
MARK
S7
MARK REJECT
NO
NC
C
T
29 TELESCOPE TRACKS SXT
76 MANUAL
77 TO AUTO MARK RELAY
42
66 FROM PHOTOMETER RESET
41 TO PHOTOMETER RESET
70 TO AUTO MARK RELAY
46 TO COMPUTER 1B2
12 ROLL IN
4 LEFT
13 RIGHT
ROLL (OUT)
3 DOWN
2 UP
PITCH (OUT)
10 PITCH (IN)
8 YAW (IN)
19 LEFT
7 RIGHT
YAW (OUT)
67
68
NAA VARIABLE
115V 400~

REF. DES	PART NO	DESCRIPTION
A1	2014550-011	SEXTANT HAND CONTROLLER
A2		
A3	1010949-1	ANNUNCIATOR - CAUTION/WARNING
A4	1008824-1	MASTER ALARM ANNUNCIATOR
P1	1010930-104	CONNECTOR
R1	1010916-1	POTENTIOMETER
S1	1010902-6	SWITCH , TOGGLE
S2	1010902-5	↑ ↑
S3	1010903-9	
S4	1010905-5	↓
S5	1010902-4	TOGGLE
S6	1010904-2	PUSH BUTTON
S7	1010904-1	PUSH BUTTON
S8	2014700-011	IMPULSE
S9		
S10	1010905-3	TOGGLE
S11	1010901-1	↓ BASIC
S12	1010903-8	SWITCH , TOGGLE
T1	1010942	TRANSFORMER
DS1	1010268-5	LAMP (6V)
DS2	1010999-004	ELECTROLUMINESCENT LAMP
DS3	↑ -004	↑
DS4		
DS5	-001	
DS6	-011	
DS7	-010	
DS8	-004	
DS9	-004	
DS10	-008	
DS11	-007	
DS12	-004	
DS13	-004	
DS14	-004	
DS15	-006	
DS16	↓ -006	↓
DS17	1010999 -003	ELECTROLUMINESCENT LAMP

TABLE 1

SWITCH NUMBER	SWITCH POSITION	CONTACT NO & TERMINAL CONTACTED BY TERMINAL C							
		1	2	3	4	5	6	7	8
S1	HI	NC	NO	NO	NC				
	MED	NC	NC	NC	NC				
	LO	NO	NC	NC	NO				
S2	TRACK	NO	NC	NO					
	ACQ	NC	NC	NC					
	OFF	NC	NO	NC					
S3	ZERO	NO	NO	-	NO	NC		NC	NC
	MAN	NC	NC	-	NC	NC		NC	NC
	CMC	NC	NC	-	NC	NO		NO	NO
S4	DIRECT	NO							
	RSLV	NC							
S5	SLAVE TO SXT	NC	NO						
	0°	NC	NC						
	25°	NO	NC						
S6	RELEASED	NO							
	DEPRESSED	NC							
S7	DEPRESSED	NC	NC						
	RELEASED	NO	NO						
S9	DEPRESSED								
	RELEASED								
S10	ACCEPT	NO	NO						
	BLOCK	NC	NC						
S12	ON	NC	NC	NC	NC	NO	NO	NO	NO
	OFF	NC	NC	NC	NC	NC	NC	NC	NC
	TEST	NO	NO	NO	NO	NC	NC	NC	NC

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
	2014578-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN R. Rodrigue DATE MAR 17 65
CHECKED 3-22-65
APPROVAL W.C. Watson 3-23-65
APPROVAL
NASA APPROVAL 3-29-65
MIT APPROVAL 29 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC DIAGRAM, G&N INDICATOR CONTROL PANEL

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO. 2014507
SCALE —
WT
SHEET 1 OF 1

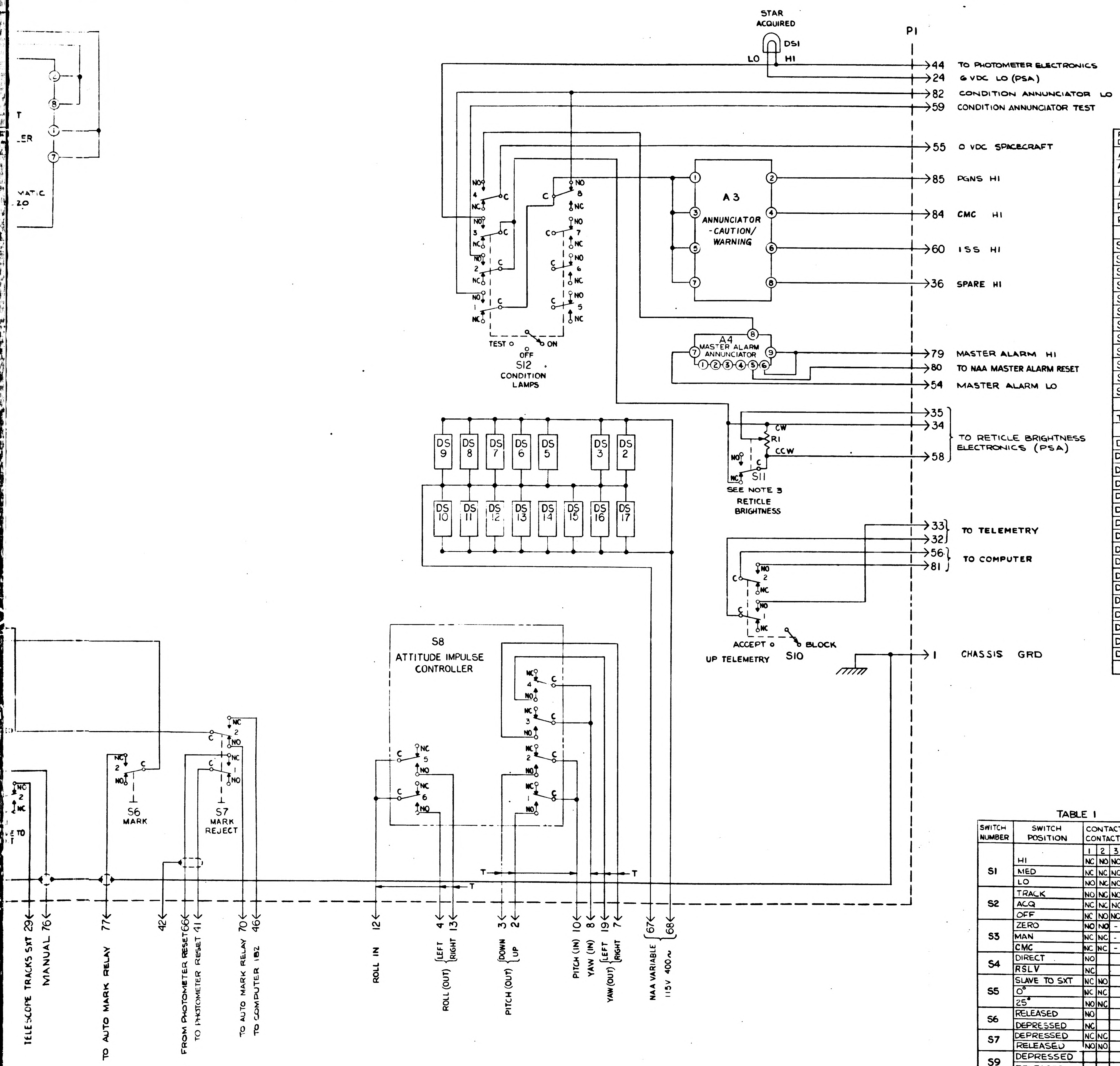
2014507 E

2/2014507

2014507 E

SYM	DESCRIPTION	DATE	APPROVAL
A9	REVISED PER TDRR NO. 18974	19 MAY 65	WK
B	REVISED PER TDRR NO. 21523	13 AUG 65	WK
C	REVISED PER TDRR NO. 22655	4 OCT 65	WK
D	REVISED PER TDRR NO. 23286	20 OCT 65	
E	REVISED PER TDRR-26824		B

REVISIONS 17352


STAR ACQUIRED
DS1
LO
HI
P1
44 TO PHOTOMETER ELECTRONICS
24 6 VDC LO (PSA)
82 CONDITION ANNUNCIATOR LO
59 CONDITION ANNUNCIATOR TEST
55 0 VDC SPACECRAFT
85 PGNS HI
84 CMC HI
60 ISS HI
36 SPARE HI
A3 ANNUNCIATOR - CAUTION/ WARNING
A4 MASTER ALARM ANNUNCIATOR
79 MASTER ALARM HI
80 TO NAA MASTER ALARM RESET
54 MASTER ALARM LO
TEST
OFF
ON
S12 CONDITION LAMPS
35
34
58
TO RETICLE BRIGHTNESS ELECTRONICS (PSA)
CW
R1
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
DS 9
DS 8
DS 7
DS 6
DS 5
DS 3
DS 2
DS 10
DS 11
DS 12
DS 13
DS 14
DS 15
DS 16
DS 17
33
32
TO TELEMETRY
56
81
TO COMPUTER
ACCEPT
BLOCK
S10
UP TELEMETRY
1 CHASSIS GRD
S8 ATTITUDE IMPULSE CONTROLLER
S6 MARK
S7 MARK REJECT
T
NC
NO
C
29 TELESCOPE TRACKS SXT
76 MANUAL
77 TO AUTO MARK RELAY
42 FROM PHOTOMETER RESET
66
41 TO PHOTOMETER RESET
70 TO AUTO MARK RELAY
46 TO COMPUTER 1B2
12 ROLL IN
4 LEFT
13 RIGHT
ROLL (OUT)
3 DOWN
2 UP
PITCH (OUT)
10 PITCH (IN)
8 YAW (IN)
19 LEFT
7 RIGHT
YAW (OUT)
67
68
NAA VARIABLE
115V 400~
ER
VATIC
20

REF. DES	PART NO	DESCRIPTION
A1	2014550-011	SEXTANT HAND CONTROLLER
A2		
A3	1010949-1	ANNUNCIATOR - CAUTION/WARNING
A4	1008824-1	MASTER ALARM ANNUNCIATOR
P1	1010930-104	CONNECTOR
R1	1010916-1	POTENTIOMETER
S1	1010902-6	SWITCH , TOGGLE
S2	1010902-5	
S3	1010903-9	
S4	1010905-5	
S5	1010902-4	TOGGLE
S6	1010904-2	PUSH BUTTON
S7	1010904-1	PUSH BUTTON
S8	2014700-011	IMPULSE
S9		
S10	1010905-3	TOGGLE
S11	1010901-1	BASIC
S12	1010903-8	SWITCH , TOGGLE
T1	1010942	TRANSFORMER
DS1	1010268-5	LAMP (6V)
DS2	1010999-004	ELECTROLUMINESCENT LAMP
DS3	-004	
DS4		
DS5	-001	
DS6	-011	
DS7	-010	
DS8	-004	
DS9	-004	
DS10	-008	
DS11	-007	
DS12	-004	
DS13	-004	
DS14	-004	
DS15	-006	
DS16	-006	
DS17	1010999-003	ELECTROLUMINESCENT LAMP

TABLE 1

SWITCH NUMBER	SWITCH POSITION	CONTACT NO & TERMINAL CONTACTED BY TERMINAL C							
		1	2	3	4	5	6	7	8
S1	HI	NC	NO	NO	NC				
	MED	NC	NC	NC	NC				
	LO	NO	NC	NC	NO				
S2	TRACK	NO	NC	NO					
	ACQ	NC	NC	NC					
	OFF	NC	NO	NC					
S3	ZERO	NO	NO	-	NO	NC		NC	NC
	MAN	NC	NC	-	NC	NC		NC	NC
	CMC	NC	NC	-	NC	NO		NO	NO
S4	DIRECT	NO							
	RSLV	NC							
S5	SLAVE TO SXT	NC	NO						
	0°	NC	NC						
	25°	NO	NC						
S6	RELEASED	NO							
	DEPRESSED	NC							
S7	DEPRESSED	NC	NC						
	RELEASED	NO	NO						
S9	DEPRESSED								
	RELEASED								
S10	ACCEPT	NO	NO						
	BLOCK	NC	NC						
S12	ON	NC	NC	NC	NC	NO	NO	NO	NO
	OFF	NC	NC	NC	NC	NC	NC	NC	NC
	TEST	NO	NO	NO	NO	NC	NC	NC	NC

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

	2014578-011
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT
DRAWN DATE
CHECKED 3-23-65
APPROVAL 3-23-65
APPROVAL
NASA APPROVAL 3-29-65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC DIAGRAM, G&N INDICATOR CONTROL PANEL

CODE IDENT NO	SIZE	NASA DRAWING NO.
80230	J	2014507

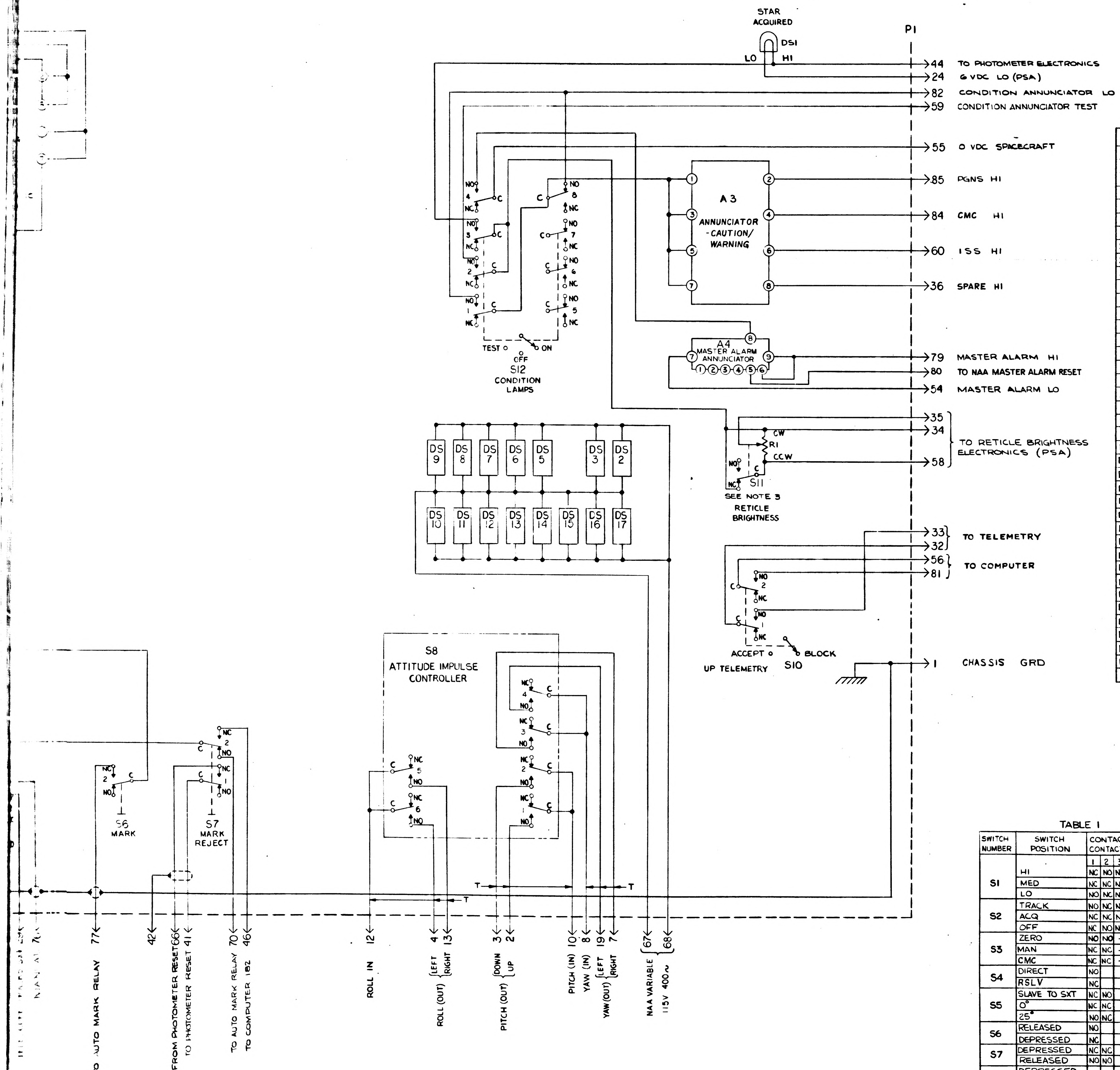
SCALE —— WT SHEET 1 OF 1

2014507 E

2/2014507

2014507 F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A9	REVISED PER TDRR NO. 18974	19 MAY 65	WK
B	REVISED PER TDRR NO. 21523	13 AUG 65	WK
C	REVISED PER TDRR NO. 22655	4 OCT 65	WK
D	REVISED PER TDRR NO. 23286	20 OCT 65	
E	REVISED PER TDRR-26824		B. AU
F	REVISED PER TDRR 27044	16 MAR 66	OMD JW


STAR ACQUIRED
DS1
LO
HI
P1
44 TO PHOTOMETER ELECTRONICS
24 6 VDC LO (PSA)
82 CONDITION ANNUNCIATOR LO
59 CONDITION ANNUNCIATOR TEST
55 0 VDC SPACECRAFT
85 PGNS HI
84 CMC HI
60 ISS HI
36 SPARE HI
A3
ANNUNCIATOR - CAUTION/ WARNING
A4
MASTER ALARM ANNUNCIATOR
79 MASTER ALARM HI
80 TO NAA MASTER ALARM RESET
54 MASTER ALARM LO
TEST
OFF
ON
S12
CONDITION LAMPS
35
34
58
TO RETICLE BRIGHTNESS ELECTRONICS (PSA)
CW
R1
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
DS 9
DS 8
DS 7
DS 6
DS 5
DS 3
DS 2
DS 10
DS 11
DS 12
DS 13
DS 14
DS 15
DS 16
DS 17
33
32
TO TELEMETRY
56
81
TO COMPUTER
ACCEPT
BLOCK
UP TELEMETRY
S10
1 CHASSIS GRD
S8
ATTITUDE IMPULSE CONTROLLER
S6
MARK
S7
MARK REJECT
77 TO AUTO MARK RELAY
42
66 FROM PHOTOMETER RESET
41 TO PHOTOMETER RESET
70 TO AUTO MARK RELAY
46 TO COMPUTER 1&2
12 ROLL IN
4 LEFT
13 RIGHT
ROLL (OUT)
3 DOWN
2 UP
PITCH (OUT)
10 PITCH (IN)
8 YAW (IN)
19 LEFT
7 RIGHT
YAW (OUT)
67
68
NAA VARIABLE
115V 400~
T

REF. DES	PART NO	DESCRIPTION
A1	2014550-011	SEXTANT HAND CONTROLLER
A2		
A3	1010949-1	ANNUNCIATOR - CAUTION/WARNING
A4	1008824-1	MASTER ALARM ANNUNCIATOR
P1	1010930-104	CONNECTOR
R1	1010916-1	POTENTIOMETER
S1	1010902-6	SWITCH , TOGGLE
S2	1010902-5	↑ ↑
S3	1010903-9	
S4	1010905-5	↓
S5	1010902-4	TOGGLE
S6	1010904-2	PUSH BUTTON
S7	1010904-1	PUSH BUTTON
S8	2014700-011	IMPULSE
S9		
S10	1010905-3	TOGGLE
S11	1010901-1	↓ BASIC
S12	1010903-8	SWITCH , TOGGLE
T1	1010942	TRANSFORMER
DS1	1010268-5	LAMP (6V)
DS2	1010999-004	ELECTROLUMINESCENT LAMP
DS3	↑ -004	↑
DS4		
DS5	-001	
DS6	-011	
DS7	-010	
DS8	-004	
DS9	-004	
DS10	-008	
DS11	-007	
DS12	-004	
DS13	-004	
DS14	-004	
DS15	-006	
DS16	↓ -006	↓
DS17	1010999 -003	ELECTROLUMINESCENT LAMP

TABLE 1

SWITCH NUMBER	SWITCH POSITION	CONTACT NO & TERMINAL CONTACTED BY TERMINAL C							
		1	2	3	4	5	6	7	8
S1	HI	NC	NO	NO	NC				
	MED	NC	NC	NC	NC				
	LO	NO	NC	NC	NO				
S2	TRACK	NO	NC	NO					
	ACQ	NC	NC	NC					
	OFF	NC	NO	NC					
S3	ZERO	NO	NO	-	NO	NC		NC	NC
	MAN	NC	NC	-	NC	NC		NC	NC
	CMC	NC	NC	-	NC	NO		NO	NO
S4	DIRECT	NO							
	RSLV	NC							
S5	SLAVE TO SXT	NC	NO						
	0°	NC	NC						
	25°	NO	NC						
S6	RELEASED	NO							
	DEPRESSED	NC							
S7	DEPRESSED	NC	NC						
	RELEASED	NO	NO						
S9	DEPRESSED								
	RELEASED								
S10	ACCEPT	NO	NO						
	BLOCK	NC	NC						
S12	ON	NC	NC	NC	NC	NO	NO	NO	NO
	OFF	NC	NC	NC	NC	NC	NC	NC	NC
	TEST	NO	NO	NO	NO	NC	NC	NC	NC

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
LIST OF MATERIALS		

	2014578-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
— ± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL ———
HEAT TREATMENT ———
FINAL FINISH ———

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN R. Rotella DATE MAR 17 65
CHECKED Fischer 3-22-65
APPROVAL NPC Watson 3-23-65
APPROVAL
NASA APPROVAL 3-29-65
MIT APPROVAL 29 Mar 65

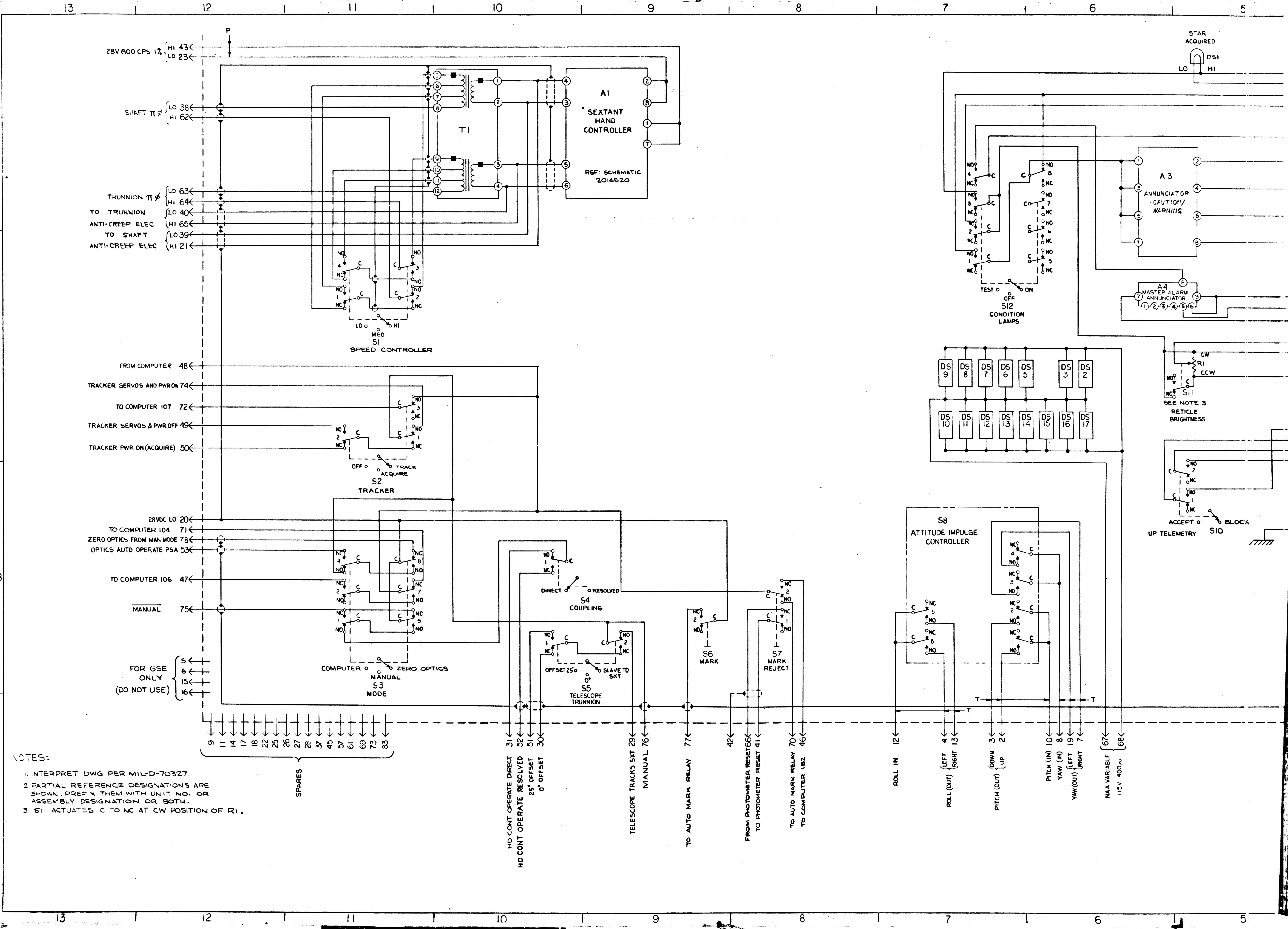
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC DIAGRAM,
G&N INDICATOR CONTROL PANEL

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2014507
SCALE ——
WT
SHEET 1 OF 1

2014507

2720145.07

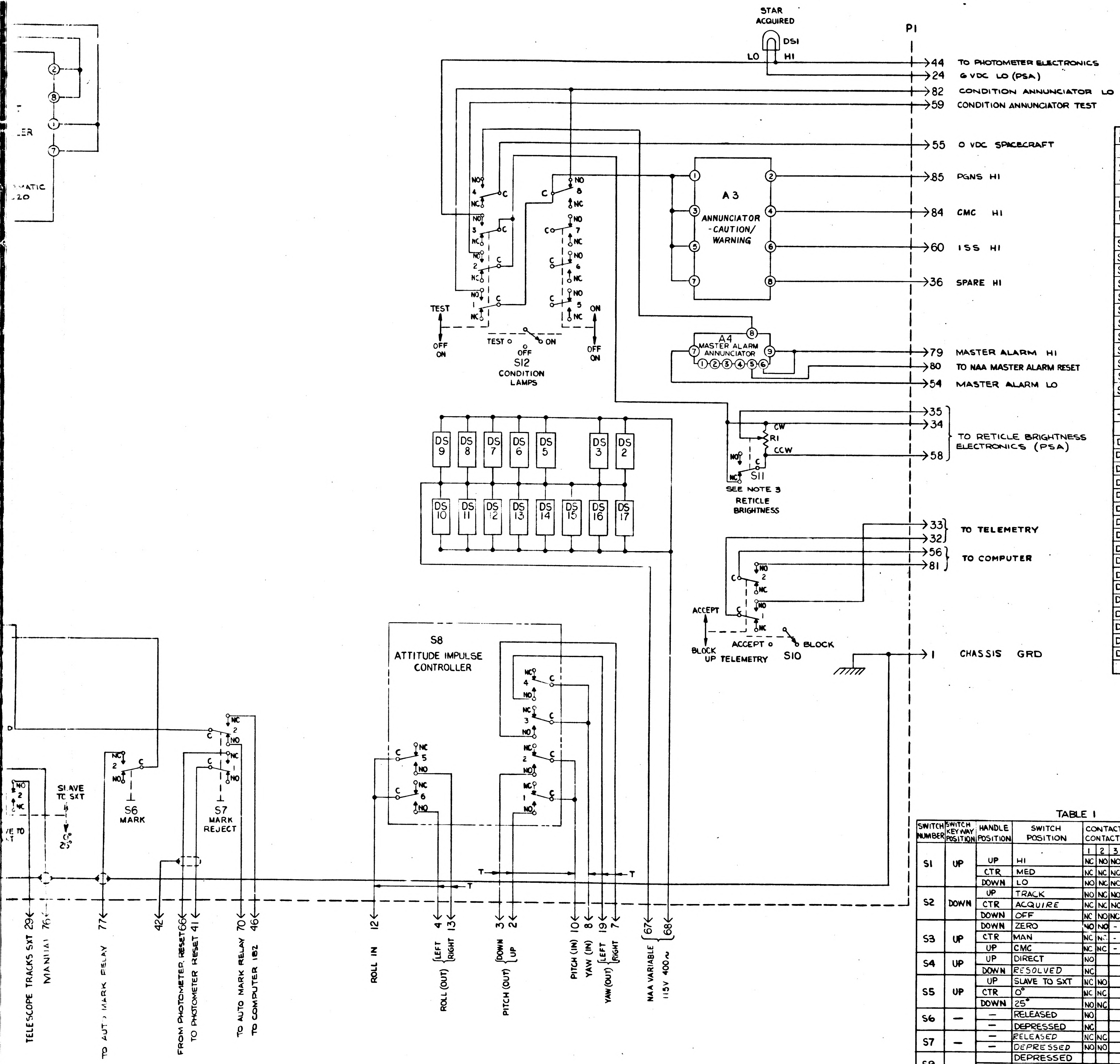

13
12
11
10
9
8
7
6
5
P
28V 800 CPS 1%
HI 43
LO 23
SHAFT π ϕ
LO 38
HI 62
TRUNNION π ϕ
LO 63
HI 64
TO TRUNNION ANTI-CREEP ELEC
LO 40
HI 65
TO SHAFT ANTI-CREEP ELEC
LO 39
HI 21
T1
A1
SEXTANT HAND CONTROLLER
REF: SCHEMATIC 2014520
LO
MED
HI
S1
SPEED CONTROLLER
FROM COMPUTER 48
TRACKER SERVOS AND PWR ON 74
TO COMPUTER 107 72
TRACKER SERVOS & PWR OFF 49
TRACKER PWR ON (ACQUIRE) 50
OFF
ACQUIRE
TRACK
S2
TRACKER
28VDC LO 20
TO COMPUTER 104 71
ZERO OPTICS FROM MAN MODE 78
OPTICS AUTO OPERATE PSA 53
TO COMPUTER 106 47
MANUAL 75
COMPUTER
MANUAL
ZERO OPTICS
S3
MODE
FOR GSE ONLY (DO NOT USE)
5
6
15
16
DIRECT
RESOLVED
S4
COUPLING
OFFSET 25°
0°
SLAVE TO SXT
S5
TELESCOPE TRUNNION
S6
MARK
S7
MARK REJECT
STAR ACQUIRED
DS1
LO
HI
A3
ANNUNCIATOR -CAUTION/ WARNING
A4
MASTER ALARM ANNUNCIATOR
TEST
OFF
ON
S12
CONDITION LAMPS
DS 9
DS 8
DS 7
DS 6
DS 5
DS 3
DS 2
DS 10
DS 11
DS 12
DS 13
DS 14
DS 15
DS 16
DS 17
CW
R1
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
ACCEPT
BLOCK
UP TELEMETRY
S10
S8
ATTITUDE IMPULSE CONTROLLER
T
SPARES
9 11 14 17 18 22 25 26 27 28 37 45 57 61 69 73 83
31 HD CONT OPERATE DIRECT
52 HD CONT OPERATE RESOLVED
51 25° OFFSET
30 0° OFFSET
29 TELESCOPE TRACKS SXT
76 MANUAL
77 TO AUTO MARK RELAY
42
66 FROM PHOTOMETER RESET
41 TO PHOTOMETER RESET
70 TO AUTO MARK RELAY
46 TO COMPUTER 182
12 ROLL IN
4 ROLL (OUT) LEFT
13 ROLL (OUT) RIGHT
3 PITCH (OUT) DOWN
2 PITCH (OUT) UP
10 PITCH (IN)
8 YAW (IN)
19 YAW (OUT) LEFT
7 YAW (OUT) RIGHT
67 NAA VARIABLE
68 115V 400~

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THEM WITH UNIT NO. OR ASSEMBLY DESIGNATION OR BOTH.
3. S11 ACTUATES C TO NC AT CW POSITION OF R1.

1/2014507

SYM	DESCRIPTION	DATE	APPROVAL
A9	REVISED PER TDRR NO.18974	19 MAY 65	WK
B	REVISED PER TDRR NO. 21523	13 AUG 65	WK
C	REVISED PER TDRR NO. 22655	4 OCT 65	WK
D	REVISED PER TDRR NO.23286	OCT 65	
E	REVISED PER TDRR-26824		B. AU
F	REVISED PER TDRR 27044	16 MAR 66	
G	REVISED PER TDRR 27372	31 MAR 66	



STAR ACQUIRED
DS1
LO
HI
P1
44 TO PHOTOMETER ELECTRONICS
24 6 VDC LO (PSA)
82 CONDITION ANNUNCIATOR LO
59 CONDITION ANNUNCIATOR TEST
55 0 VDC SPACECRAFT
85 PGNS HI
84 CMC HI
60 ISS HI
36 SPARE HI
A3 ANNUNCIATOR - CAUTION/ WARNING
A4 MASTER ALARM ANNUNCIATOR
79 MASTER ALARM HI
80 TO NAA MASTER ALARM RESET
54 MASTER ALARM LO
35
34 TO RETICLE BRIGHTNESS ELECTRONICS (PSA)
58
CW
R1
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
33
32 TO TELEMETRY
56
81 TO COMPUTER
ACCEPT
BLOCK UP TELEMETRY
ACCEPT
BLOCK
S10
1 CHASSIS GRD
TEST
OFF ON
TEST OFF ON
S12 CONDITION LAMPS
DS 9
DS 8
DS 7
DS 6
DS 5
DS 3
DS 2
DS 10
DS 11
DS 12
DS 13
DS 14
DS 15
DS 16
DS 17
S8 ATTITUDE IMPULSE CONTROLLER
S6 MARK
S7 MARK REJECT
SLAVE TC SXT
25°
29 TELESCOPE TRACKS SXT
76 MANUAL
77 TO AUTO MARK RELAY
42 FROM PHOTOMETER RESET
66 TO PHOTOMETER RESET
41
70 TO AUTO MARK RELAY
46 TO COMPUTER 182
12 ROLL IN
4 13 ROLL (OUT) LEFT RIGHT
3 2 PITCH (OUT) DOWN UP
10 PITCH (IN)
8 YAW (IN)
19 7 YAW (OUT) LEFT RIGHT
67 NAA VARIABLE
68 115V 400~

REF. DES	PART NO	DESCRIPTION
A1	2014550-011	SEXTANT HAND CONTROLLER
A2		
A3	1010949-1	ANNUNCIATOR - CAUTION/WARNING
A4	1008824-1	MASTER ALARM ANNUNCIATOR
P1	1010930-104	CONNECTOR
R1	1010916-1	POTENTIOMETER
S1	1010902-6	SWITCH, TOGGLE
S2	1010902-5	
S3	1010903-9	
S4	1010905-5	
S5	1010902-4	TOGGLE
S6	1010904-2	PUSH BUTTON
S7	1010904-1	PUSH BUTTON
S8	2014700-011	IMPULSE
S9		
S10	1010905-3	TOGGLE
S11	1010901-1	BASIC
S12	1010903-8	SWITCH, TOGGLE
T1	1010942	TRANSFORMER
DS1	1010268-5	LAMP (6V)
DS2	1010999-004	ELECTROLUMINESCENT LAMP
DS3	-004	
DS4		
DS5	-001	
DS6	-011	
DS7	-010	
DS8	-004	
DS9	-004	
DS10	-008	
DS11	-007	
DS12	-004	
DS13	-004	
DS14	-004	
DS15	-006	
DS16	-006	
DS17	1010999-003	ELECTROLUMINESCENT LAMP

TABLE I

SWITCH NUMBER	SWITCH KEYWAY POSITION	HANDLE POSITION	SWITCH POSITION	CONTACT NO & TERMINAL CONTACTED BY TERMINAL C							
				1	2	3	4	5	6	7	8
S1	UP	UP	HI	NC	NO	NO	NC				
		CTR	MED	NC	NC	NC	NC				
		DOWN	LO	NO	NC	NC	NO				
S2	DOWN	UP	TRACK	NO	NC	NO					
		CTR	ACQUIRE	NC	NC	NC					
		DOWN	OFF	NC	NO	NC					
S3	UP	DOWN	ZERO	NO	NO	-	NO	NC		NC	NC
		CTR	MAN	NC	NC	-	NC	NC		NC	NC
		UP	CMC	NC	NC	-	NC	NO		NO	NO
S4	UP	UP	DIRECT	NO							
		DOWN	RESOLVED	NC							
S5	UP	UP	SLAVE TO SXT	NC	NO						
		CTR	0°	NC	NC						
		DOWN	25°	NO	NC						
S6	—	—	RELEASED	NO							
		—	DEPRESSED	NC							
S7	—	—	RELEASED	NC	NC						
		—	DEPRESSED	NO	NO						
S9			DEPRESSED								
			RELEASED								
S10	UP	UP	ACCEPT	NO	NO						
		DOWN	BLOCK	NC	NC						
S12	UP	UP	ON	NC	NC	NC	NC	NO	NO	NO	NO
		CTR	OFF	NC	NC	NC	NC	NC	NC	NC	NC
		DOWN	TEST	NO	NO	NO	NO	NC	NC	NC	NC

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

	2014-578-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN E. Rotala DATE MAR 17 65
CHECKED Z. Bockema 3-22-65
APPROVAL JPC Watson 3-23-65
APPROVAL
NASA APPROVAL 3-24-65
MIT APPROVAL 29 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

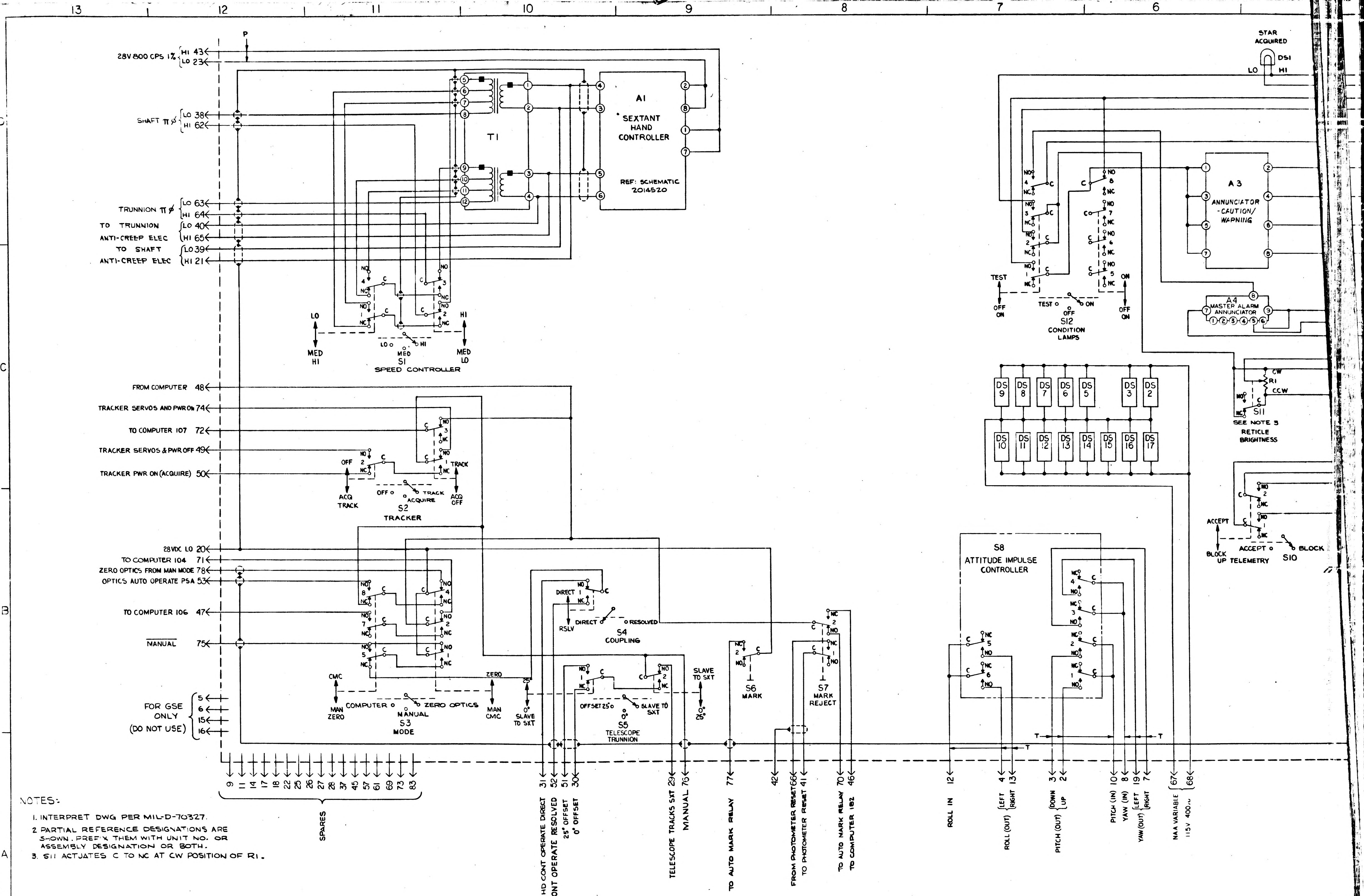
SCHEMATIC DIAGRAM,
G&N INDICATOR CONTROL PANEL

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	2014507

SCALE — WT SHEET 1 OF 1

2014507 G

2/2014507



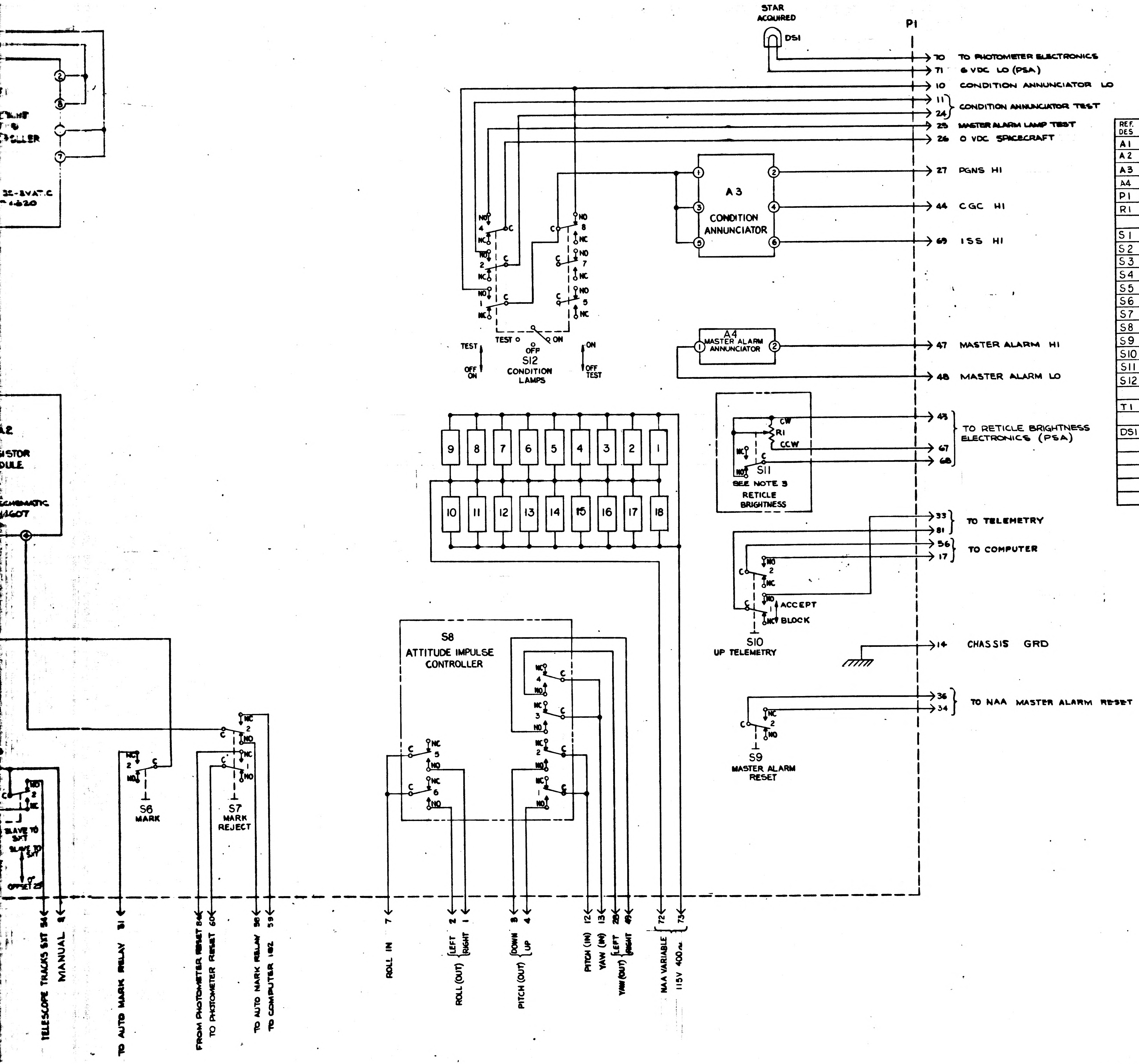
13
12
11
10
9
8
7
6
5
D
C
B
A
P
28V 800 CPS 1%
HI 43
LO 23
SHAFT π ø
LO 38
HI 62
TRUNNION π ø
LO 63
HI 64
TO TRUNNION ANTI-CREEP ELEC
LO 40
HI 65
TO SHAFT ANTI-CREEP ELEC
LO 39
HI 21
T1
A1
SEXTANT HAND CONTROLLER
REF: SCHEMATIC 2014520
LO
MED HI
HI
MED LO
LO
MED
HI
S1
SPEED CONTROLLER
FROM COMPUTER 48
TRACKER SERVOS AND PWR ON 74
TO COMPUTER 107 72
TRACKER SERVOS & PWR OFF 49
TRACKER PWR ON (ACQUIRE) 50
OFF
TRACK
ACQ TRACK
ACQ OFF
OFF
ACQUIRE
TRACK
S2
TRACKER
28VDC LO 20
TO COMPUTER 104 71
ZERO OPTICS FROM MAN MODE 78
OPTICS AUTO OPERATE PSA 53
TO COMPUTER 106 47
MANUAL 75
CMC
MAN ZERO
COMPUTER
MANUAL
ZERO OPTICS
MAN CMC
S3
MODE
ZERO
25°
0°
SLAVE TO SXT
DIRECT
RSLV
DIRECT
RESOLVED
S4
COUPLING
OFFSET 25°
0°
SLAVE TO SXT
S5
TELESCOPE TRUNNION
SLAVE TO SXT
0°
25°
S6
MARK
S7
MARK REJECT
FOR GSE ONLY (DO NOT USE)
5
6
15
16
9
11
14
17
18
22
25
26
27
28
37
45
57
61
69
73
83
SPARES
31 HD CONT OPERATE DIRECT
52 HD CONT OPERATE RESOLVED
51 25° OFFSET
30 0° OFFSET
29 TELESCOPE TRACKS SXT
76 MANUAL
77 TO AUTO MARK RELAY
42 FROM PHOTOMETER RESET
66
41 TO PHOTOMETER RESET
70 TO AUTO MARK RELAY
46 TO COMPUTER 182
12 ROLL IN
4 LEFT
13 RIGHT
ROLL (OUT)
3 DOWN
2 UP
PITCH (OUT)
10 PITCH (IN)
8 YAW (IN)
19 LEFT
7 RIGHT
YAW (OUT)
67 NAA VARIABLE
68 115V 400~
T
S8
ATTITUDE IMPULSE CONTROLLER
STAR ACQUIRED
DS1
LO
HI
A3
ANNUNCIATOR -CAUTION/WARNING
A4
MASTER ALARM ANNUNCIATOR
TEST
OFF ON
TEST
OFF
ON
OFF ON
S12
CONDITION LAMPS
DS 9
DS 8
DS 7
DS 6
DS 5
DS 3
DS 2
DS 10
DS 11
DS 12
DS 13
DS 14
DS 15
DS 16
DS 17
CW
R1
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
ACCEPT
BLOCK UP TELEMETRY
ACCEPT
BLOCK
S10
NO
NC
C

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THEM WITH UNIT NO. OR ASSEMBLY DESIGNATION OR BOTH.
3. S11 ACTUATES C TO NC AT CW POSITION OF R1.

1/2014507

2014507


STAR ACQUIRED
DS1
P1
70 TO PHOTOMETER ELECTRONICS
71 6 VDC LO (PSA)
10 CONDITION ANNUNCIATOR LO
11
24 CONDITION ANNUNCIATOR TEST
25 MASTER ALARM LAMP TEST
26 0 VDC SPACECRAFT
27 PGNS HI
44 CGC HI
69 ISS HI
A3
CONDITION ANNUNCIATOR
NO
NC
C
TEST
OFF
ON
S12
CONDITION LAMPS
A4
MASTER ALARM ANNUNCIATOR
47 MASTER ALARM HI
48 MASTER ALARM LO
43
67
68
TO RETICLE BRIGHTNESS ELECTRONICS (PSA)
CW
R1
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
33
81
TO TELEMETRY
56
17
TO COMPUTER
ACCEPT
BLOCK
S10
UP TELEMETRY
14 CHASSIS GRD
36
34
TO NAA MASTER ALARM RESET
S9
MASTER ALARM RESET
A2
RESISTOR MODULE
S8
ATTITUDE IMPULSE CONTROLLER
S6
MARK
S7
MARK REJECT
SEXTANT HAND CONTROLLER
SLAVE TO SXT
OFFSET
TELESCOPE TRACKS SXT 54
MANUAL 8
TO AUTO MARK RELAY 51
FROM PHOTOMETER RESET 64
TO PHOTOMETER RESET 60
TO AUTO MARK RELAY 56
TO COMPUTER 162 59
ROLL IN 7
ROLL (OUT) LEFT 2 RIGHT 1
PITCH (OUT) DOWN 3 UP 4
PITCH (IN) 12
YAW (IN) 13
YAW (OUT) LEFT 28 RIGHT 49
NAA VARIABLE 115V 400~ 72 73

REF. DES	PART NO	DESCRIPTION
A1	2014550-011	SEXTANT HAND CONTROLLER
A2	2014608-011	RESISTOR MODULE
A3	1010949-1	CONDITION ANNUNCIATOR
A4	1010948-1	MASTER ALARM ANNUNCIATOR
P1	1010930-104	CONNECTOR
R1	1010916-1	POTENTIOMETER
S1	1010902-6	SWITCH, TOGGLE
S2	1010902-5	
S3	1010903-4	
S4	1010905-5	
S5	1010902-4	TOGGLE
S6	1010904-2	PUSH BUTTON
S7	1010904-1	PUSH BUTTON
S8	1015048-021	IMPULSE
S9	1010904-2	PUSH BUTTON
S10	1010905-3	TOGGLE
S11	1010901-1	BASIC
S12	1010903-3	SWITCH, TOGGLE
T1	1010942-1	TRANSFORMER
DS1	1010268-2	LAMP(6V)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

	2014578-011
NEXT ASSY	USED ON

APPLICATION

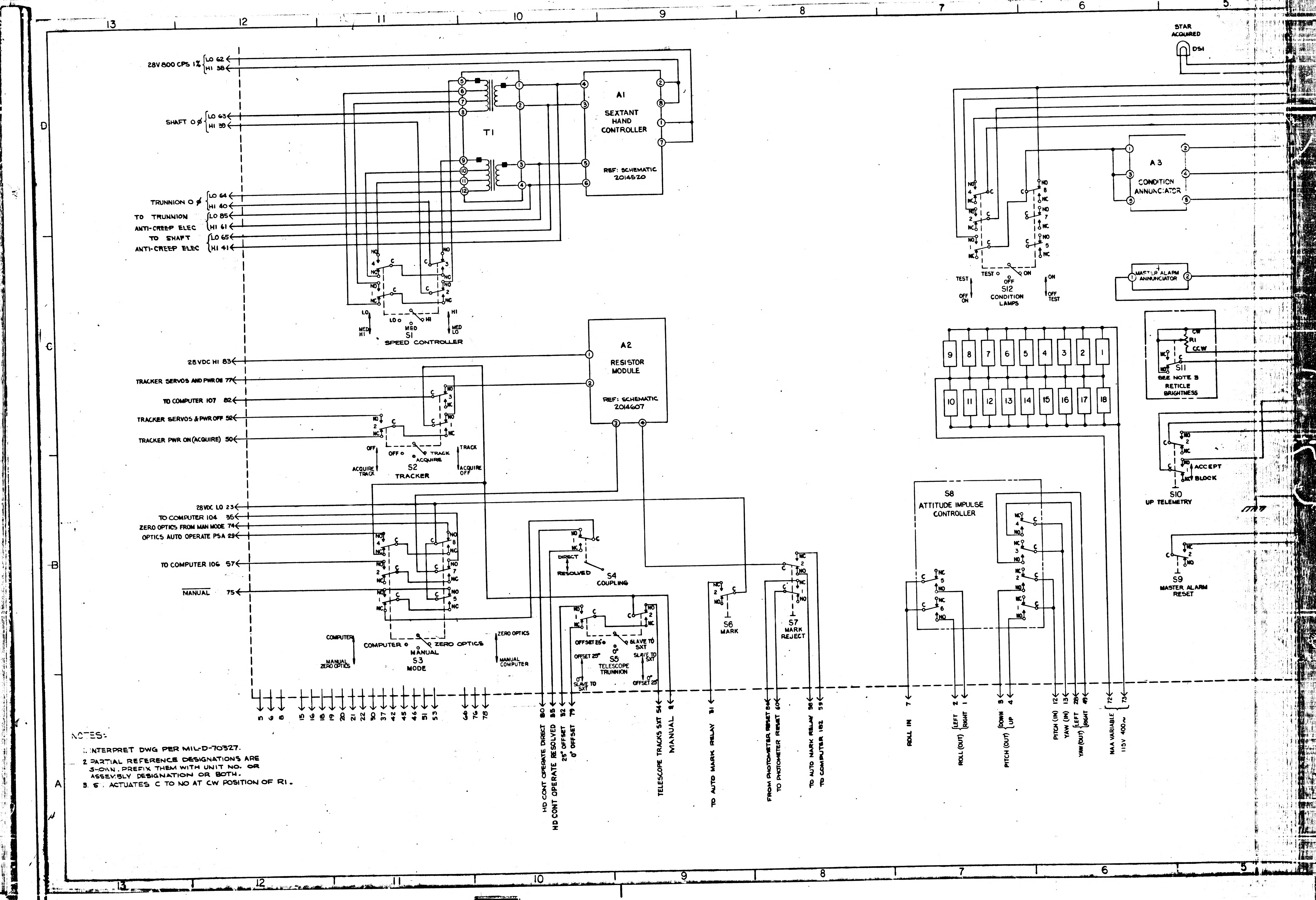
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE 3-23-65
CHECKED 3-22-65
APPROVAL 3-22-65
APPROVAL
NASA APPROVAL 3-29-65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC DIAGRAM, G&N INDICATOR CONTROL PANEL

CODE IDENT NO.
SIZE
NASA DRAWING NO. 2014507
SCALE
WT
SHEET OF


13
12
11
10
9
8
7
6
5
D
C
B
A
28V 800 CPS 1%
LO 62
HI 38
SHAFT 0 ϕ
LO 63
HI 39
TRUNNION 0 ϕ
LO 64
HI 40
TO TRUNNION ANTI-CREEP ELEC
LO 85
HI 61
TO SHAFT ANTI-CREEP ELEC
LO 65
HI 41
T1
A1
SEXTANT HAND CONTROLLER
REF: SCHEMATIC 2014520
S1
SPEED CONTROLLER
LO
MED
HI
28VDC HI 83
TRACKER SERVOS AND PWR ON 77
TO COMPUTER 107 82
TRACKER SERVOS & PWR OFF 52
TRACKER PWR ON (ACQUIRE) 50
OFF
TRACK
ACQUIRE
S2
TRACKER
A2
RESISTOR MODULE
REF: SCHEMATIC 2014607
28VDC LO 23
TO COMPUTER 104 35
ZERO OPTICS FROM MAN MODE 74
OPTICS AUTO OPERATE PSA 29
TO COMPUTER 106 57
MANUAL 75
COMPUTER
MANUAL
ZERO OPTICS
S3
MODE
DIRECT
RESOLVED
S4
COUPLING
OFFSET 25°
0°
SLAVE TO SXT
S5
TELESCOPE TRUNNION
S6
MARK
S7
MARK REJECT
5 6 8 15 16 18 19 20 21 22 30 37 42 45 51 53 66 76 78
HD CONT OPERATE DIRECT 80
HD CONT OPERATE RESOLVED 55
25° OFFSET 32
0° OFFSET 79
TELESCOPE TRACKS SXT 54
MANUAL 8
TO AUTO MARK RELAY 31
FROM PHOTOMETER RESET 84
TO PHOTOMETER RESET 60
TO AUTO MARK RELAY 58
TO COMPUTER 182 59
STAR ACQUIRED
DS1
A3
CONDITION ANNUNCIATOR
TEST
OFF
ON
S12
CONDITION LAMPS
MASTER ALARM ANNUNCIATOR
1 2 3 4 5 6 7 8 9
10 11 12 13 14 15 16 17 18
R1
CW
CCW
S11
SEE NOTE 3
RETICLE BRIGHTNESS
ACCEPT
BLOCK
S10
UP TELEMETRY
S8
ATTITUDE IMPULSE CONTROLLER
S9
MASTER ALARM RESET
ROLL IN 7
ROLL (OUT) LEFT 2 RIGHT 1
PITCH (OUT) DOWN 3 UP 4
PITCH (IN) 12
YAW (IN) 13
YAW (OUT) LEFT 28 RIGHT 49
NAA VARIABLE 115V 400~ 72 73

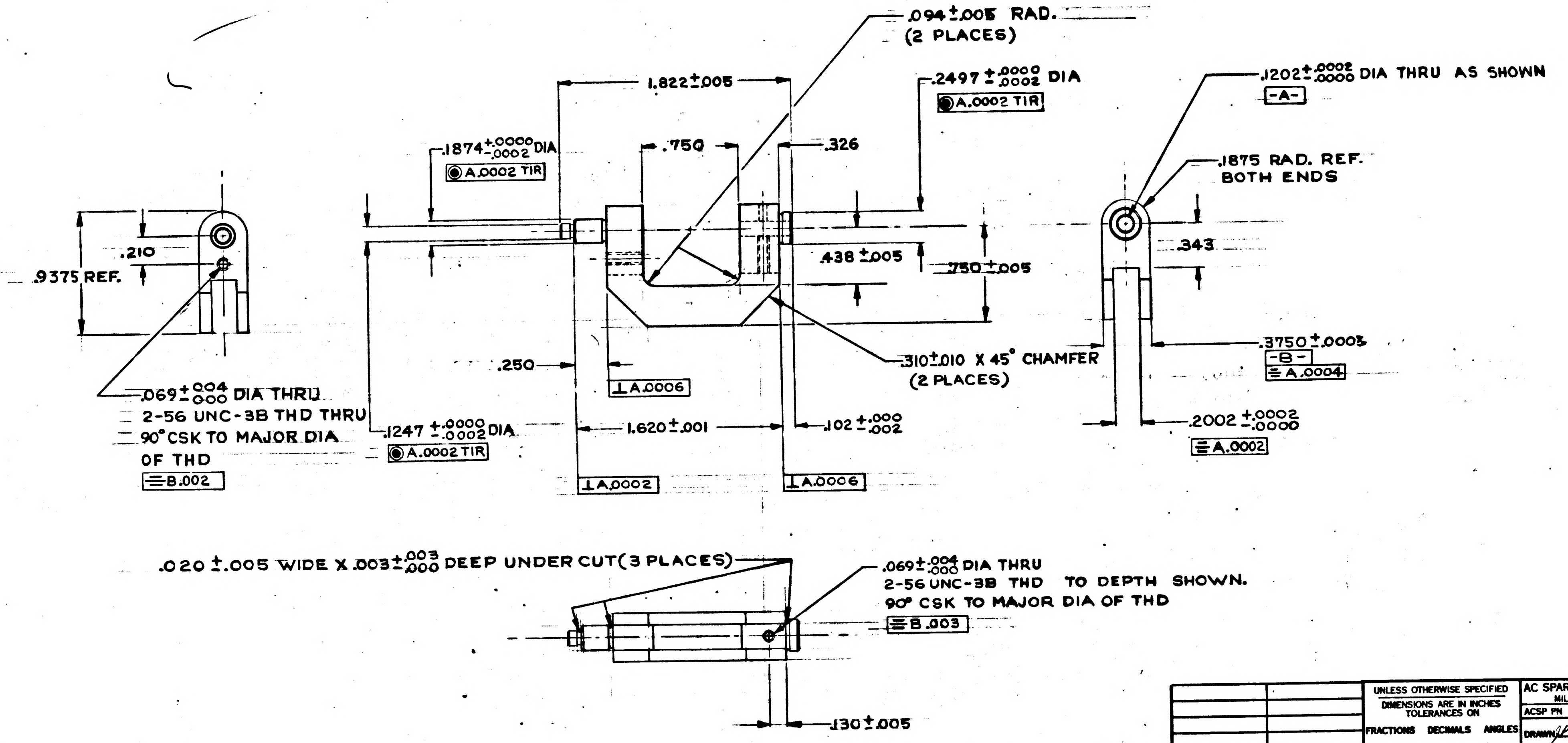
NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THEM WITH UNIT NO. OR ASSEMBLY DESIGNATION OR BOTH.
3. S11 ACTUATES C TO NO AT CW POSITION OF R1.

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NC	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16703		3/4/65	WK

NOTE:

1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-S-763, CL 416, COND A, - - (ES-376).
3. IDENTIFY USING DRAWING NO. AND MFG SYM PER ND1002019.
4. HEAT TREAT PER MIL-H-6875 TO 38-40 RC
5. FINISH: MIL-F-14072 (SIG C) FIN. E300 (ES-585).
6. UNLESS OTHERWISE SPECIFIED:
   a. ALL CORNERS TO BE .005 TO .015 RAD. OR CHAMFER.
   b. SURFACE ROUGHNESS MUST NOT EXCEED $\overset{32}{\checkmark}$.
7. REMOVE ALL BURRS.



$.094 \pm .005$ RAD. (2 PLACES)
$1.822 \pm .005$
$.2497^{+.0000}_{-.0002}$ DIA
◉ A.0002 TIR
$.1202^{+.0002}_{-.0000}$ DIA THRU AS SHOWN
-A-
$.1874^{+.0000}_{-.0002}$ DIA
◉ A.0002 TIR
.750
.326
.1875 RAD. REF. BOTH ENDS
.210
.9375 REF.
$.438 \pm .005$
$.750 \pm .005$
.343
$.310 \pm .010$ X 45° CHAMFER (2 PLACES)
.250
⊥A.0006
$.3750 \pm .0005$
-B-
≡A.0004
$.069^{+.004}_{-.000}$ DIA THRU
2-56 UNC-3B THD THRU
90° CSK TO MAJOR DIA OF THD
≡B.002
$.1247^{+.0000}_{-.0002}$ DIA
◉ A.0002 TIR
$1.620 \pm .001$
$.102^{+.000}_{-.002}$
$.2002^{+.0002}_{-.0000}$
≡A.0002
⊥A.0002
⊥A.0006
$.020 \pm .005$ WIDE X $.003^{+.003}_{-.000}$ DEEP UNDER CUT (3 PLACES)
$.069^{+.004}_{-.000}$ DIA THRU
2-56 UNC-3B THD TO DEPTH SHOWN.
90° CSK TO MAJOR DIA OF THD
≡B.003
$.130 \pm .005$

MASTER

~~2014550~~ -011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.002 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN J.P. Bruck DATE 4 FEB 65
CHECKED J. Lewin 18 Feb 65
APPROVAL W.R. Thompson 19 FEB 65
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

SHAFT, YOKE

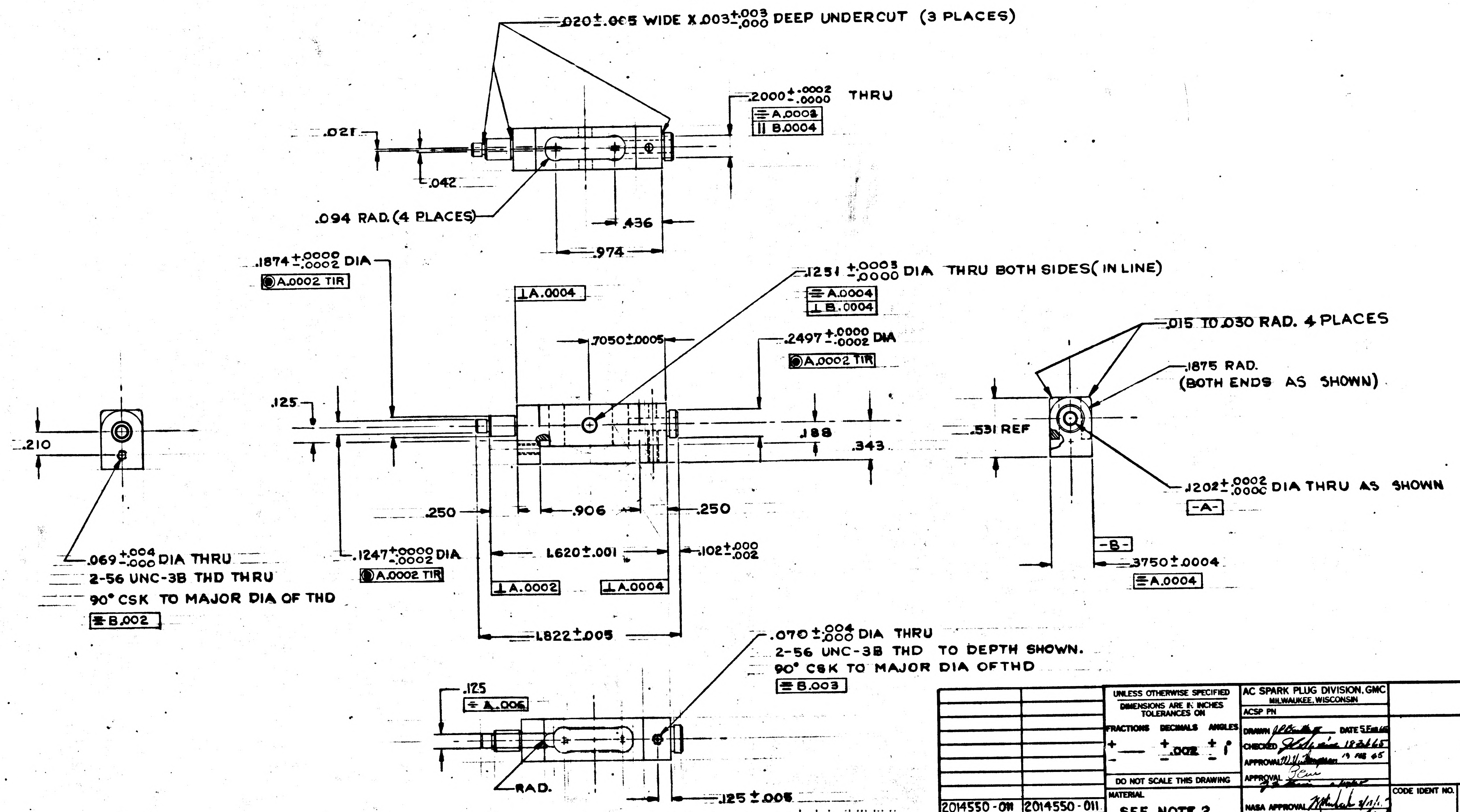
CODE IDENT NO.
SIZE D
2014534
SCALE 2/1
SHEET 1 OF 1

2014535

NOTE:

1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-S-763, CL 416, COND A, (ES-376).
3. IDENTIFY USING DRAWING NO. AND MFG SYM PER ND1002019.
4. HEAT TREAT PER MIL-H 6875 TO 38-40 RC
5. FINISH: MIL-F-14072 (SIG C) FIN, E 300 (ES-585).
6. UNLESS OTHERWISE SPECIFIED:
   - a. ALL CORNERS TO BE .005 TO .015 RAD. OR CHAMFER.
   - b. SURFACE ROUGHNESS MUST NOT EXCEED 32√.
7. REMOVE ALL BURRS.

REVISIONS 16703					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16703		4/9/65	WR


.020 ± .005 WIDE X .003 +.003 -.000 DEEP UNDERCUT (3 PLACES)
.2000 +.0002 -.0000 THRU
≡ A.0008
|| B.0004
.021
.042
.094 RAD. (4 PLACES)
.436
.974
.1874 +.0000 -.0002 DIA
◉ A.0002 TIR
⊥ A.0004
.1251 +.0005 -.0000 DIA THRU BOTH SIDES (IN LINE)
≡ A.0004
⊥ B.0004
.7050 ± .0005
.2497 +.0000 -.0002 DIA
◉ A.0002 TIR
.015 TO .030 RAD. 4 PLACES
.1875 RAD.
(BOTH ENDS AS SHOWN)
.125
.210
.188
.343
.531 REF
.250
.906
.250
.1202 +.0002 -.0000 DIA THRU AS SHOWN
-A-
-B-
.3750 ± .0004
≡ A.0004
.069 +.004 -.000 DIA THRU
2-56 UNC-3B THD THRU
90° CSK TO MAJOR DIA OF THD
≡ B.002
.1247 +.0000 -.0002 DIA
◉ A.0002 TIR
1.620 ± .001
.102 +.000 -.002
⊥ A.0002
⊥ A.0004
1.822 ± .005
.070 +.004 -.000 DIA THRU
2-56 UNC-3B THD TO DEPTH SHOWN.
90° CSK TO MAJOR DIA OF THD
≡ B.003
.125
≡ A.006
RAD.
.125 ± .005

MASTER

2014550-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .002 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 2
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE 5 Feb 65
CHECKED 18 Feb 65
APPROVAL 19 FEB 65
APPROVAL
NASA APPROVAL
MIT APPROVAL 19 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

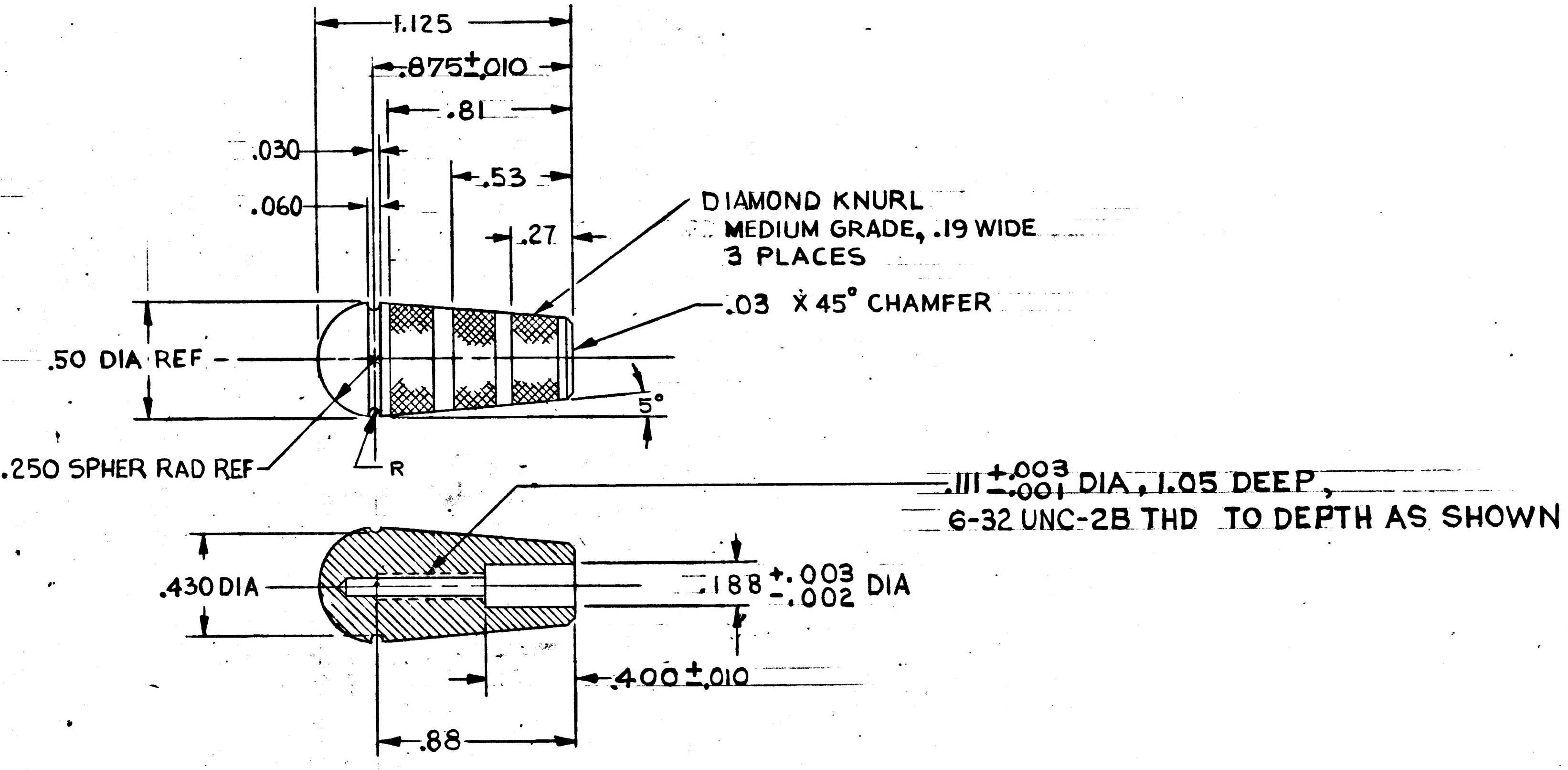
SHAFT, PIVOT

CODE IDENT NO.
SIZE D
2014535
SCALE 2/1
SHEET 1 OF 1

NOTE:
1. INTERPRET DWG IN ACCORDANCE WITH STD PRESCRIBED BY MIL-D-70327
2. MATERIAL: QQ-A-225/6, 2024-T4 AL ALY, (ES-2104)
3. FINISH: MIL-A-8625, TYPE I, EXCEPT TAPPED HOLE TO BE CHEMICAL FILMED PER MIL-C-5541
4. UNLESS OTHERWISE SPECIFIED:
   a. ALL CORNERS MUST BE .005 TO .015 RAD. OR CHAMFER.
   b. SURFACE ROUGHNESS MUST NOT EXCEED $\overset{63}{\surd}$.
5. REMOVE ALL BURRS.
6. IDENTIFY USING DWG NO PER ND1002019

REVISIONS 16703

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16703		2/15/65	WK
A		REVISED PER TDRR NO. 20556		12AUG65	W K


1.125
.875±.010
.81
.030
.53
.060
.27
DIAMOND KNURL
MEDIUM GRADE, .19 WIDE
3 PLACES
.03 X 45° CHAMFER
.50 DIA REF
5°
.250 SPHER RAD REF
R
.111 +.003 -.001 DIA, 1.05 DEEP,
6-32 UNC-2B THD TO DEPTH AS SHOWN
.430 DIA
.188 +.003 -.002 DIA
.400±.010
.88

2014550-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
± ~	±.005 ±.02	±1°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN

DRAWN J P B DATE 23 Jun 64
CHECKED J C Swain 18 Feb 65
APPROVAL W. V. Thompson 19 FEB 65
APPROVAL
NASA APPROVAL 2/17/65
MIT APPROVAL W Kupfer 19 Feb 65

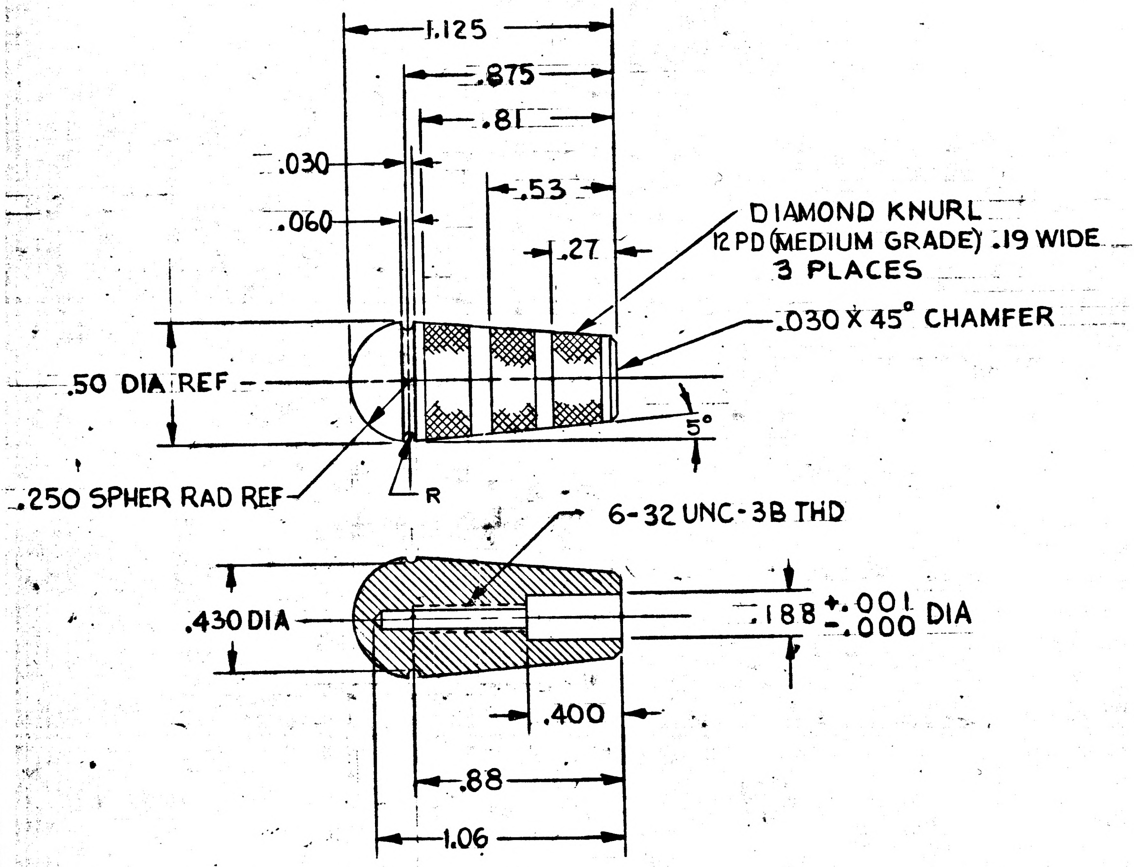
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

HANDLE

CODE IDENT NO. 80230
SIZE C
2014536
SCALE 2/1
SHEET 1 OF 1

NOTE:
1. INTERPRET DWG IN ACCORDANCE WITH STD PRESCRIBED BY MIL-D-70327
2. MATERIAL: QQ-A-225/6, 2024-T4 AL ALY, (ES-2104)
3. FINISH: MIL-A-8625 TYPE I (ES-385)
4. UNLESS OTHERWISE SPECIFIED:
   a. ALL CORNERS MUST BE .005 TO .015 RAD. OR CHAMFER.
   b. SURFACE ROUGHNESS MUST NOT EXCEED $\sqrt[63]{}$.
5. REMOVE ALL BURRS.
6. IDENTIFY USING DWG NO. AND MFG SYM PER ND1002019

REVISIONS 16703					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16703		2/15/65	


1.125
.875
.81
.030
.060
.53
.27
DIAMOND KNURL
12 PD (MEDIUM GRADE) .19 WIDE
3 PLACES
.030 X 45° CHAMFER
.50 DIA REF
5°
.250 SPHER RAD REF
R
6-32 UNC-3B THD
.430 DIA
.188 +.001 -.000 DIA
.400
.88
1.06

2014550-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
± ~	±.005 ±.02	± 30'

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN J.P.B. DATE 23 Jun 64
CHECKED J.C. Swain 18 Feb 65
APPROVAL V.V. Thompson 19 FEB 65
APPROVAL
NASA APPROVAL 2/17/65
MIT APPROVAL 17 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

HANDLE

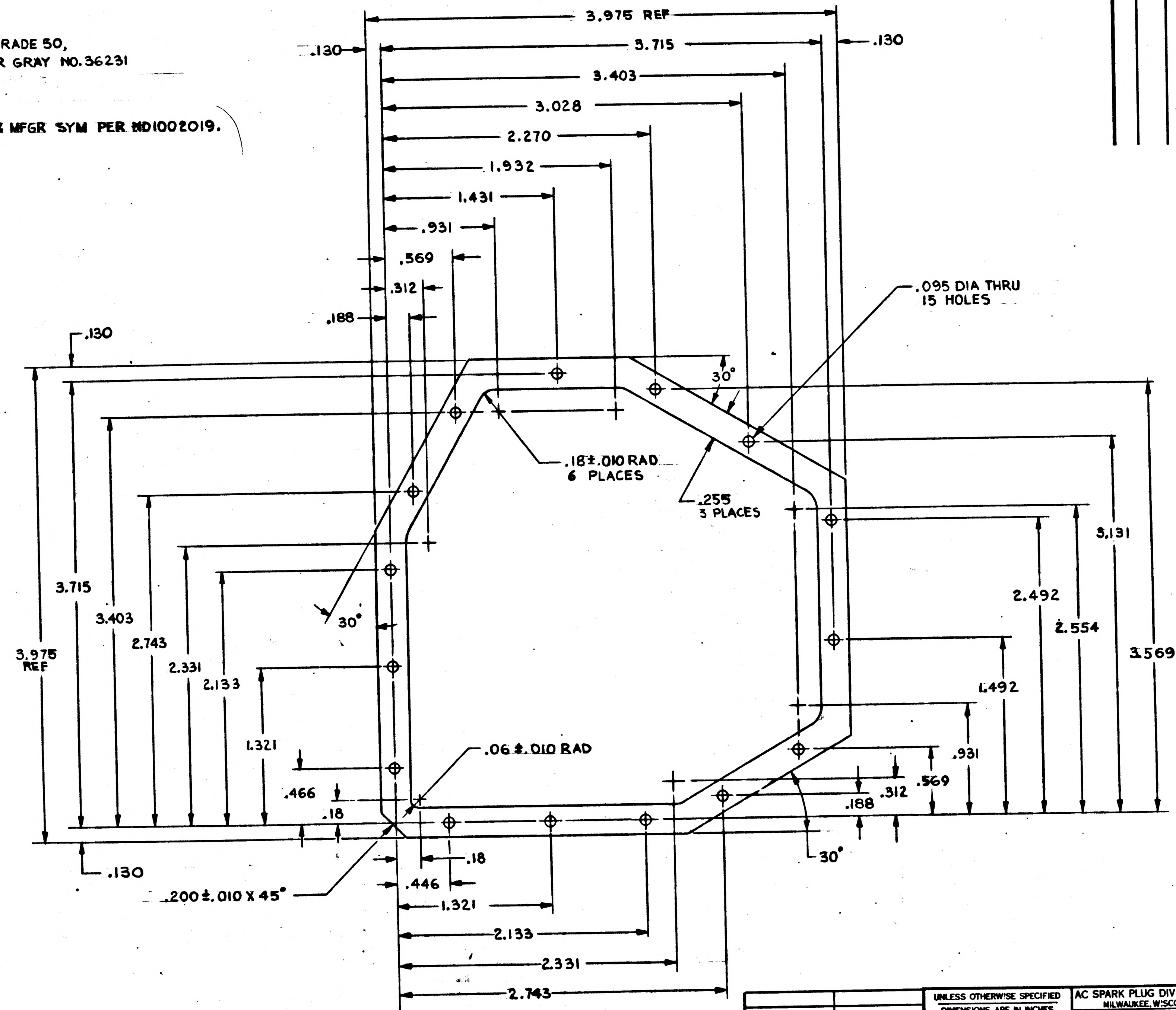
CODE IDENT NO.	SIZE	
	C	2014536
SCALE 2/1		SHEET 1 OF 1

2014537

REVISIONS					16703
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16703		4/16/65	WK

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. MATERIAL: MIL-R-5847, CLASS III, GRADE 50, SILICONE RUBBER .060 THK, COLOR GRAY NO. 36231 PER FED. STD 595.
3. IDENTIFY USING DRAWING NO. & MFGR SYM PER MD1002019.



3.975 REF
.130
3.715
.130
3.403
3.028
2.270
1.932
1.431
.931
.569
.312
.188
.095 DIA THRU
15 HOLES
.130
30°
.18±.010 RAD
6 PLACES
.255
3 PLACES
3.131
2.492
2.554
3.569
1.492
.931
.569
.312
.188
30°
3.715
3.403
2.743
3.975
REF
2.331
2.133
1.321
.466
.18
30°
.06±.010 RAD
.130
.200±.010 X 45°
.18
.446
1.321
2.133
2.331
2.743

MASTER

2014550-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
± —	±.008	± 2°

DO NOT SCALE THIS DRAWING

MATERIAL SEE NOTE 2

CONTRACT

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

ACSP PN

DRAWN R. Rotka DATE 4-FEB 65
CHECKED 12 Feb 65
APPROVAL W.H. Thompson 19 FEB 65
APPROVAL
NASA APPROVAL 2/17/65
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

GASKET

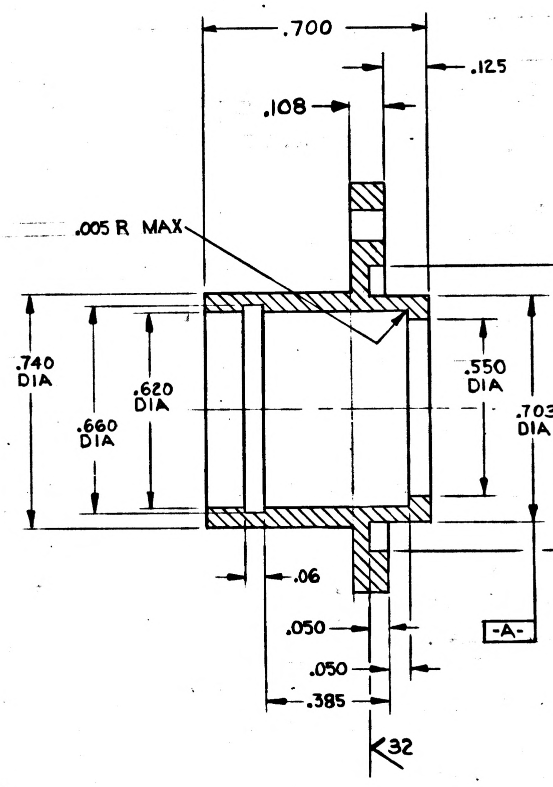
CODE IDENT NO.
SIZE D
2014537
SCALE 2:1
SHEET 1 OF 1

NOTES:

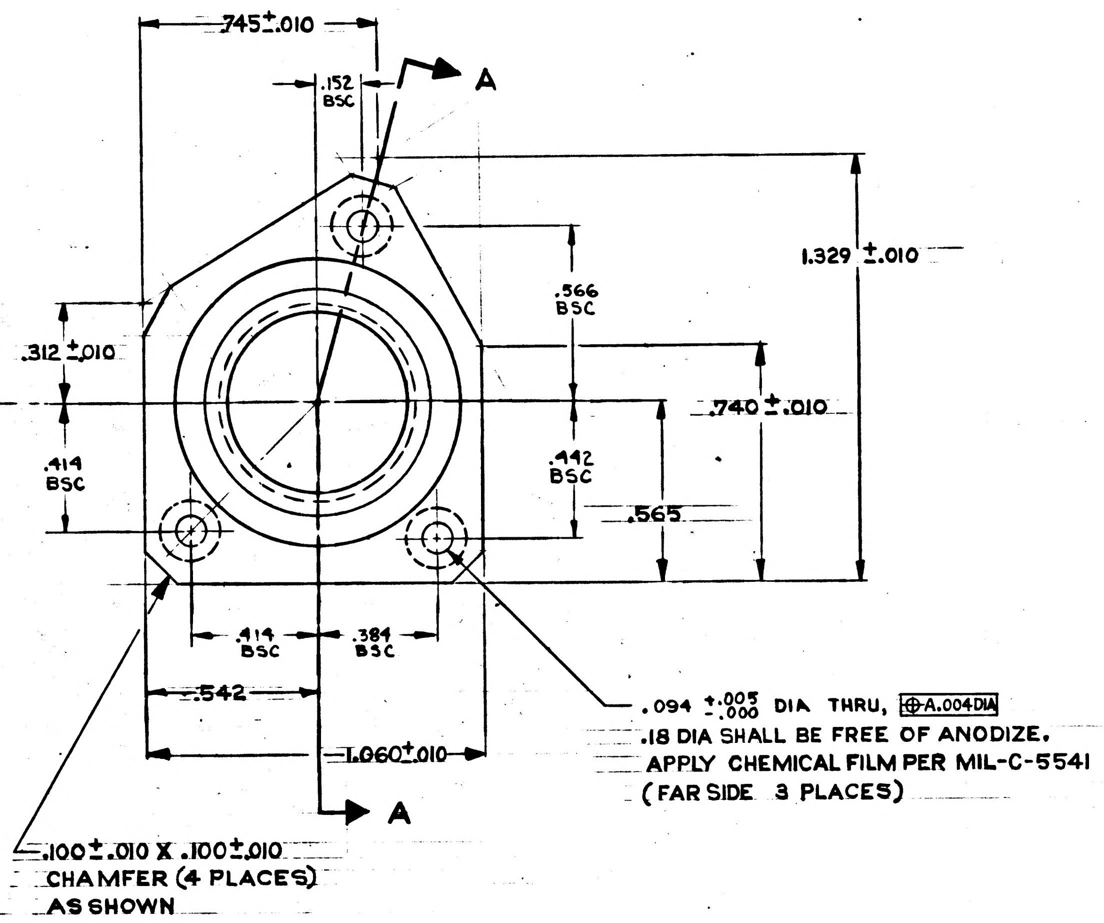
1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-225/6, 2024-T4 AL ALY. (ES-2104).
3. UNLESS OTHERWISE SPECIFIED:
    - A. ALL DIA'S TO BE $\boxed{\circledcirc \text{A} .005\text{TIR}}$
    - B. ALL SURFACES TO BE $\boxed{\parallel \text{A} .005}$ OR $\boxed{\perp \text{A} .005}$
    - C. SURFACE ROUGHNESS MUST NOT EXCEED $\overset{63}{\checkmark}$
    - D. ALL CORNERS TO BE .005 TO .015 RAD. OR CHAMFER.
4. FINISH: MIL-A-8625 TYPE I, ANODIZE, EXCEPT AS NOTED.
5. IDENTIFY USING DWG NO. PER ND1002019.

A 2014538

REVISIONS 16703					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16763		1/14/65	wK
A		REVISED PER TDRR NO. 20643		12AUG65	WK


.700
.125
.108
.005 R MAX
.740 DIA
.660 DIA
.620 DIA
.550 DIA
.703 DIA
.895 DIA
.06
.050
.050
.385
-A-
32

SECTION A-A


.745±.010
.152 BSC
A
1.329 ±.010
.566 BSC
.312 ±.010
.740 ±.010
.414 BSC
.442 BSC
.565
.414 BSC
.384 BSC
.542
1.060±.010
A

.094 $^{+.005}_{-.000}$ DIA THRU, $\boxed{\oplus \text{A} .004\text{DIA}}$
.18 DIA SHALL BE FREE OF ANODIZE.
APPLY CHEMICAL FILM PER MIL-C-5541
(FAR SIDE 3 PLACES)

.100±.010 X .100±.010
CHAMFER (4 PLACES)
AS SHOWN

MASTER

2014550-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
XX DEC. ±.02	XXX DEC. ±.005	±1°

DO NOT SCALE THIS DRAWING

MATERIAL SEE NOTE 2

CONTRACT NAS 9 497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN W. Thompson DATE 12-2-65
CHECKED J. Swain 18 Feb 65
APPROVAL W. Thompson 19 FEB 65
APPROVAL [illegible]
NASA APPROVAL [illegible] 2/16
MIT APPROVAL W. Kupfer 16 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

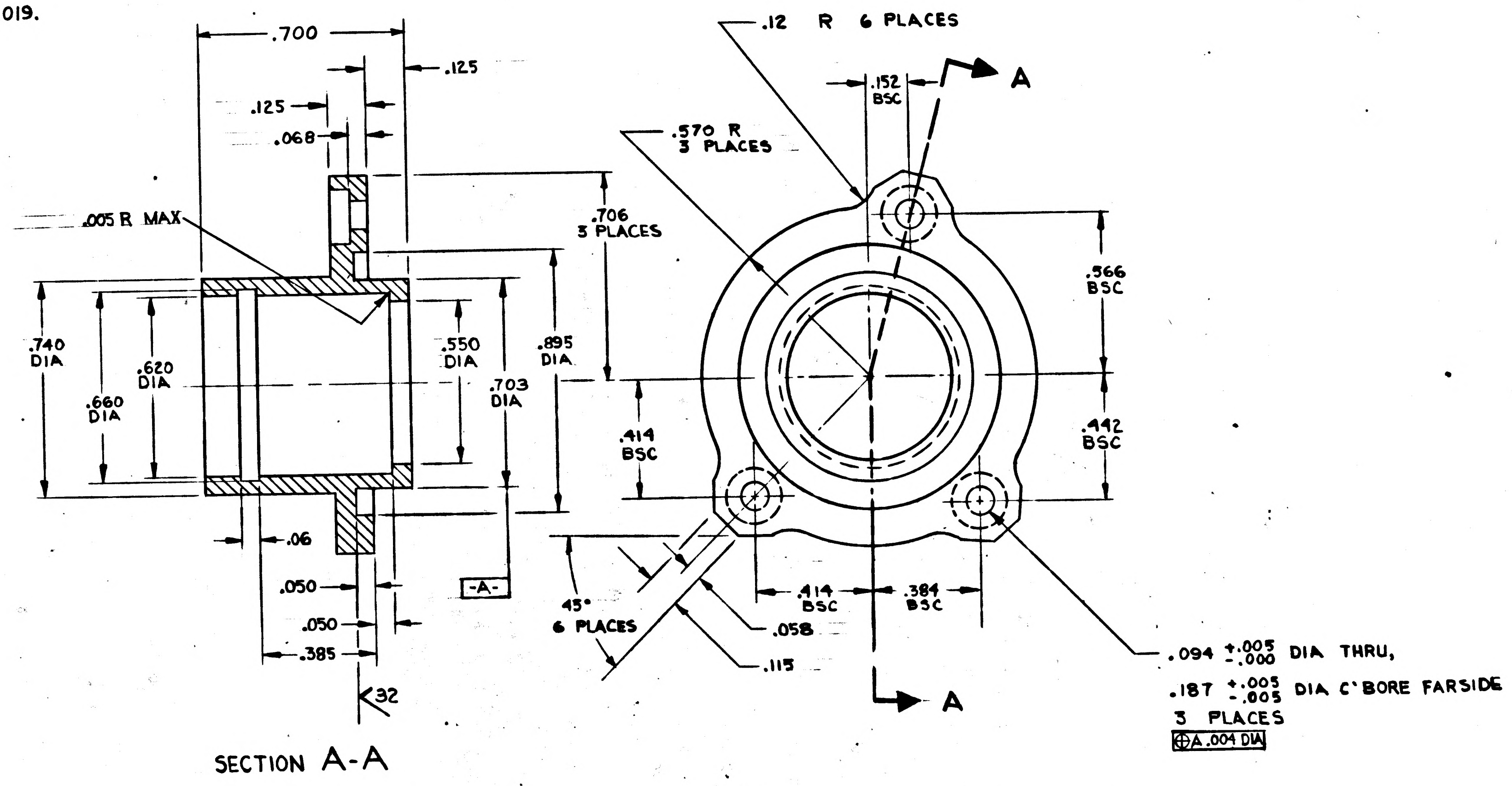
HOUSING, FEEDTHRU

CODE IDENT NO.	SIZE	
80230	D	2014538
SCALE 4:1		SHEET 1 OF 1

NOTES:

1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-225/6, 2024-T4 AL ALY. (ES-2104).
3. UNLESS OTHERWISE SPECIFIED:
    - A. ALL DIA'S TO BE ◎A.005TIR
    - B. ALL SURFACES TO BE ∥A.005 OR ⊥A.005
    - C. SURFACE ROUGHNESS MUST NOT EXCEED 63√
    - D. ALL CORNERS TO BE .005 TO .015 RAD. OR CHAMFER.
4. FINISH: MIL-A-8625 TYPE I, ANODIZE (ES-385).
5. IDENTIFY USING DWG NO. AND MFGR SYMBOL PER ND1002019.

REVISIONS 16763					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16763		9/14/65	WK



.700
.125
.125
.068
.005 R MAX
.706
3 PLACES
.740 DIA
.620 DIA
.660 DIA
.550 DIA
.703 DIA
.895 DIA
.06
.050
.050
.385
-A-
32
SECTION A-A
.12 R 6 PLACES
.152 BSC
A
.570 R
3 PLACES
.566 BSC
.414 BSC
.442 BSC
45°
6 PLACES
.058
.115
.414 BSC
.384 BSC
A
.094 +.005 -.000 DIA THRU,
.187 +.005 -.005 DIA C'BORE FARSIDE
3 PLACES
⊕A.004 DIA

MASTER

2014550-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
XX DEC. ±.02	XXX DEC. ±.005	±1°

DO NOT SCALE THIS DRAWING

MATERIAL SEE NOTE 2

CONTRACT NAS 9 497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

ACSP PN

DRAWN W. Thompson DATE 12-2-65
CHECKED J. Swain 10 Feb 65
APPROVAL W. Thompson 10 Feb 65
APPROVAL
NASA APPROVAL 2/16/65
MIT APPROVAL W Kupfer 15 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

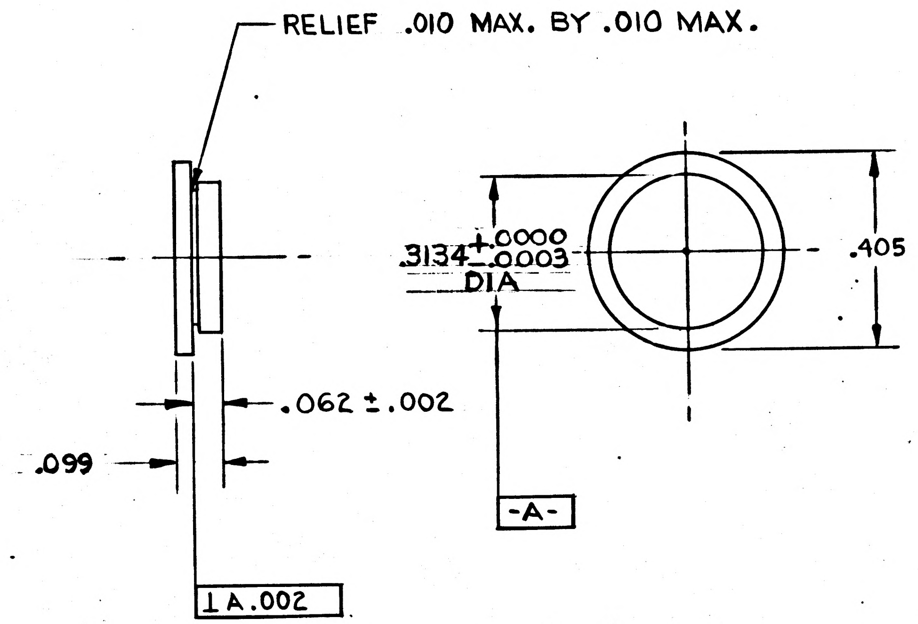
HOUSING, FEEDTHRU

CODE IDENT NO.
SIZE D
2014538
SCALE 4:1
SHEET 1 OF 1

REVISIONS 16703					
SYM	ZONE	DESCRIPTION		DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16703	CHG NO.	2/19/65	WK

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327.
2. MATERIAL: SINTERED BRONZE PER MIL-B-5687, TYPE 1, COMPOSITION A, WITH 4% ± .05 % MOLYBDENUM DISULPHIDE ADDED AT SINTERING.
3. UNLESS OTHERWISE SPECIFIED:
   A. ALL CORNERS MUST BE .005 TO .015 R. OR CHAMFER.
   B. SURFACE ROUGHNESS MUST NOT EXCEED 63√.
   C. MUST BE FREE FROM BURRS.
4. IDENTIFY USING DWG NO. AND MFG SYM PER ND 1002019.



2014541-011	2014550-011	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS + − DECIMALS ±.005 ANGLES ± 1°	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN ACSP PN
NEXT ASSY	USED ON	DO NOT SCALE THIS DRAWING	DRAWN W. Thompson DATE 2-13-65 CHECKED J.E. Swain 18 Feb 65 APPROVAL W. U. Thompson 19 FEB 65 APPROVAL 2/19/65
APPLICATION		MATERIAL SEE NOTE 2	NASA APPROVAL 2/15/65
		CONTRACT NAS 9 497	MIT APPROVAL W Kupfer 19 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

BUSHING, FLANGED

CODE IDENT NO. | SIZE C | 2014540

SCALE 4:1 | SHEET 1 OF 1

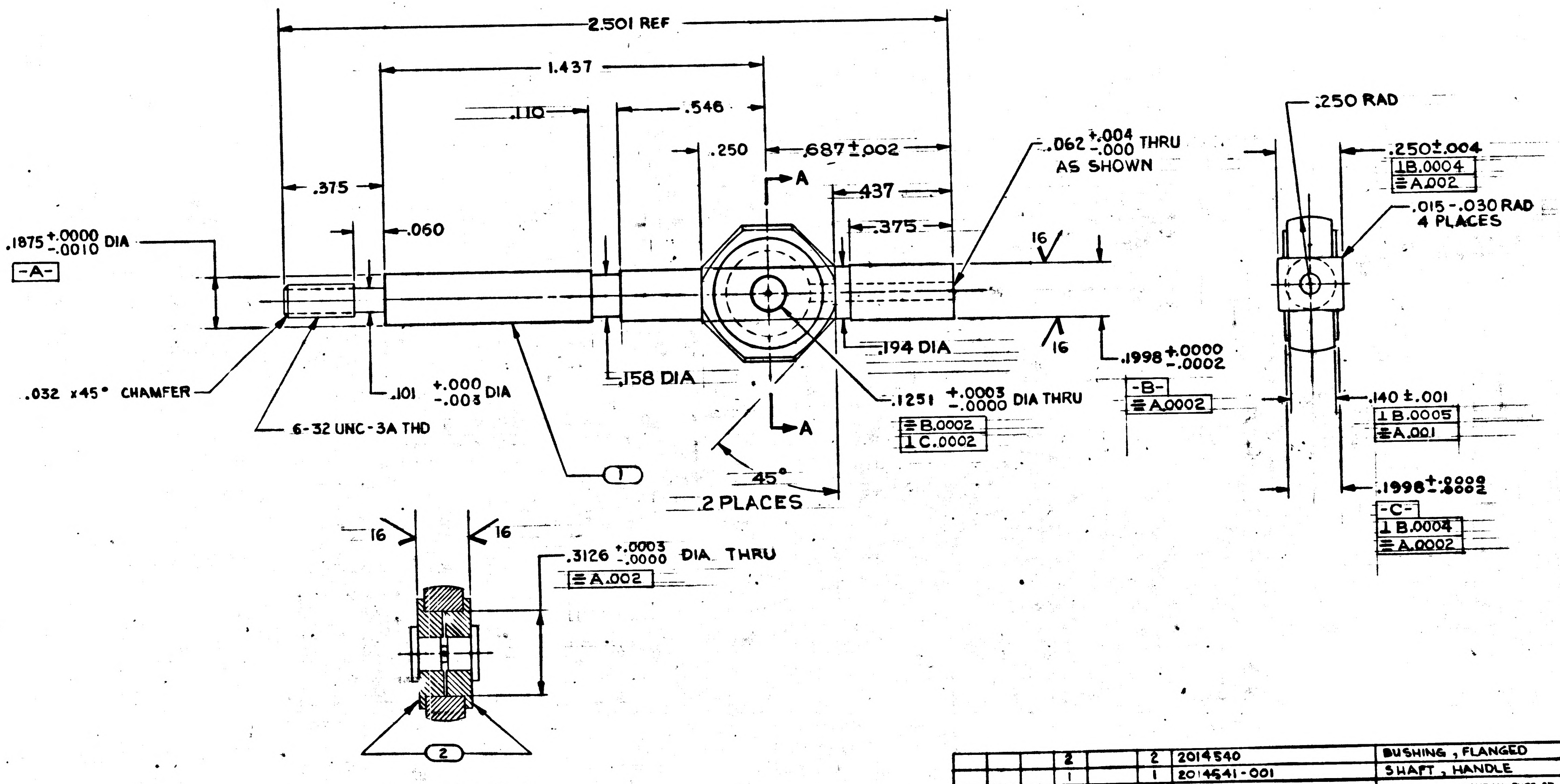
MIL 1077C—P

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16703		2/9/65	

REVISIONS 16703

NOTES:

1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-S-763, CLASS 440C, COND.A (ES-373).
3. HEAT TREAT PER MIL-H-6875 TO 56 - 58 RC
4. FINISH: MIL-F-14072 (SIG C) FIN.E-300 (ES-585).
5. UNLESS OTHERWISE SPECIFIED:
   - A. ALL CORNERS TO BE .005 TO .015 RAD. OR CHAMFER.
   - B. SURFACE ROUGHNESS MUST NOT EXCEED 32√
6. REMOVE ALL BURRS.
7. IDENTIFY USING DRAWING NO. & MFGR SYM PER ND1002019.


2.501 REF
1.437
.110
.546
.250
.687 ± .002
.437
.375
.375
.060
.1875 +.0000 -.0010 DIA
-A-
A
A
.062 +.004 -.000 THRU AS SHOWN
16
16
.1998 +.0000 -.0002
-B-
≡ A.0002
.194 DIA
.158 DIA
.1251 +.0003 -.0000 DIA THRU
≡ B.0002
⊥ C.0002
.032 x45° CHAMFER
6-32 UNC-3A THD
.101 +.000 -.003 DIA
1
45°
2 PLACES
.250 RAD
.250 ±.004
⊥ B.0004
≡ A.002
.015-.030 RAD 4 PLACES
.140 ±.001
⊥ B.0005
≡ A.001
.1998 +.0000 -.0002
-C-
⊥ B.0004
≡ A.0002
16
16
.3126 +.0003 -.0000 DIA THRU
≡ A.002
2

SECTION A-A

					ITEM NO.	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION
			2		2	2014540	BUSHING, FLANGED
			1		1	2014541-001	SHAFT, HANDLE
			011	EFFECTIVITY			
DASH NO.							
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON
2014550-011	2014550-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
CONTRACT NAS 9 497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN R. Fotke DATE 5 FEB 65
CHECKED 18 Feb 65
APPROVAL H. W. Thompson 19 FEB 65
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

SHAFT, HANDLE
(INSEP ASSY)

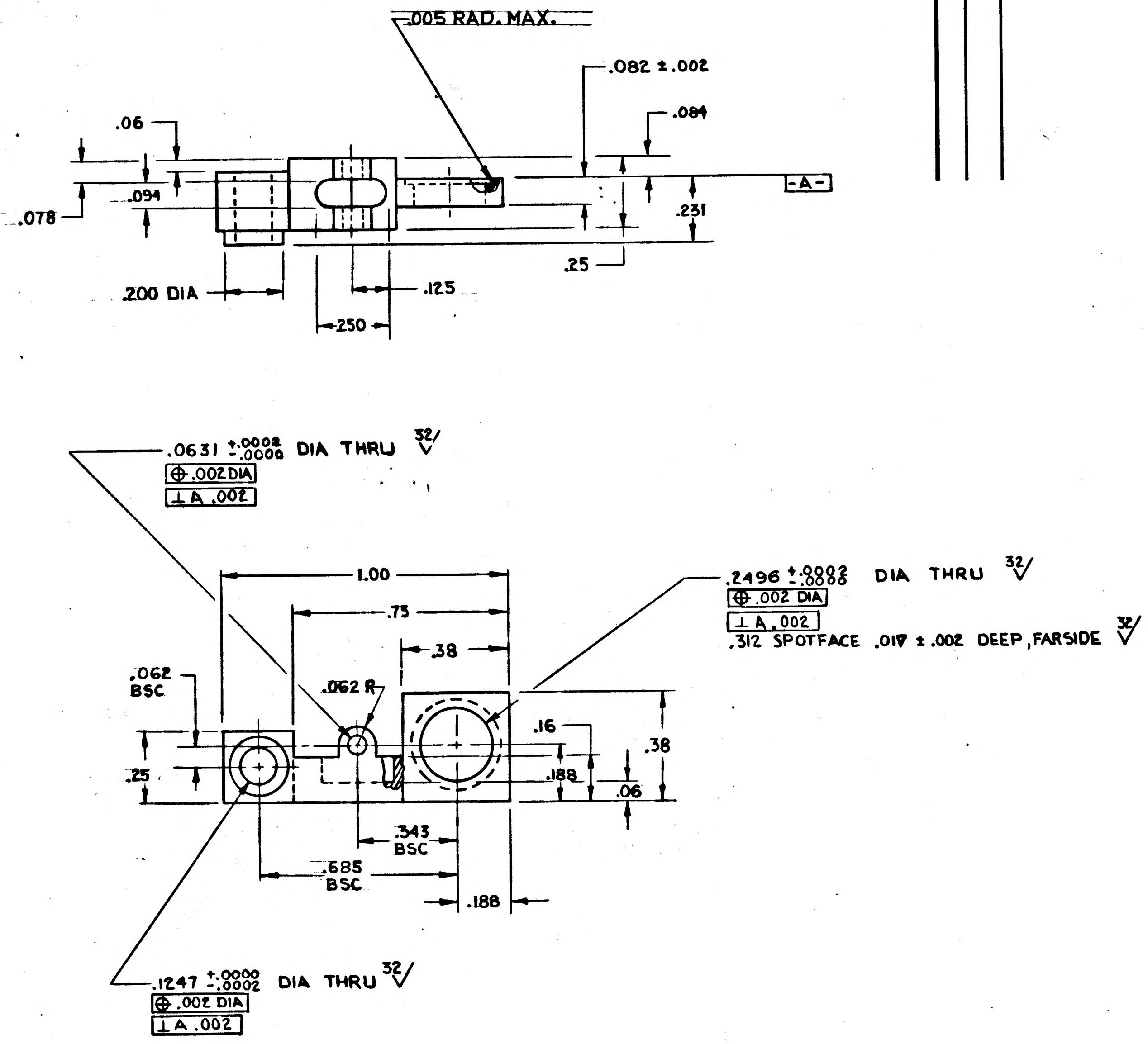
CODE IDENT NO.
SIZE D
2014541
SCALE 4:1
SHEET 1 OF 1

MASTER

2014543

REVISIONS		16703			
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16703		2/26/65	

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH STD PRESCRIBED BY MIL-D-70327.
2. MATERIAL: QQ-S-763, CL 303 OR 303 SE COND A, . (ES-380).
3. FINISH: MIL-F-14072 (SIGC) FIN. E300 (ES-585).
4. UNLESS OTHERWISE SPECIFIED:
   a. ALL CORNERS TO BE .005 TO .015 RAD. OR CHAMFER.
   b. SURFACE ROUGHNESS MUST NOT EXCEED 63√.
   c. REMOVE ALL BURRS
5. IDENTIFY USING DWG NO. AND MFG SYM PER ND1002019.



.005 RAD. MAX.
.082 ±.002
.084
.06
.094
.078
-A-
.231
.25
.200 DIA
.125
.250
.0631 +.0002 -.0000 DIA THRU 32√
⊕ .002 DIA
⊥ A .002
1.00
.75
.38
.2496 +.0002 -.0000 DIA THRU 32√
⊕ .002 DIA
⊥ A .002
.312 SPOTFACE .017 ± .002 DEEP, FARSIDE 32√
.062 BSC
.062 R
.16
.38
.25
.188
.06
.343 BSC
.685 BSC
.188
.1247 +.0000 -.0002 DIA THRU 32√
⊕ .002 DIA
⊥ A .002

2014550-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS .XX DEC ± .02 DECIMALS .XXX DEC ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN W. Thompson DATE 31-1-65
CHECKED 19 Feb 65
APPROVAL W. H. Thompson 19 Feb 65
APPROVAL
NASA APPROVAL
MIT APPROVAL W Kupfer 19 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ARM, CAM FOLLOWER

CODE IDENT NO.
SIZE D
2014543
SCALE 4/1
SHEET 1 OF 1

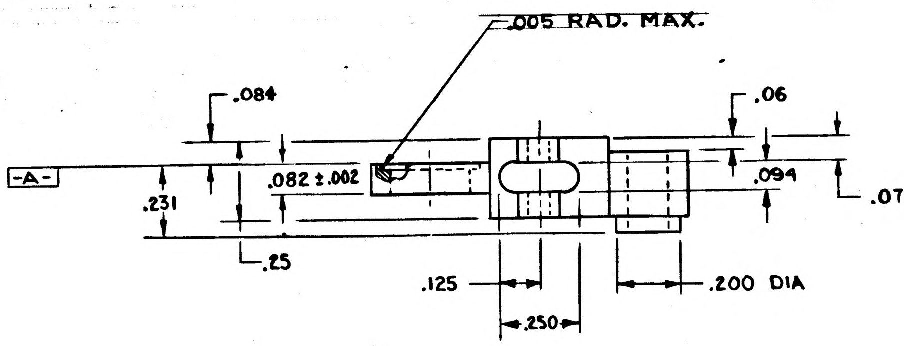
MASTER

2014544

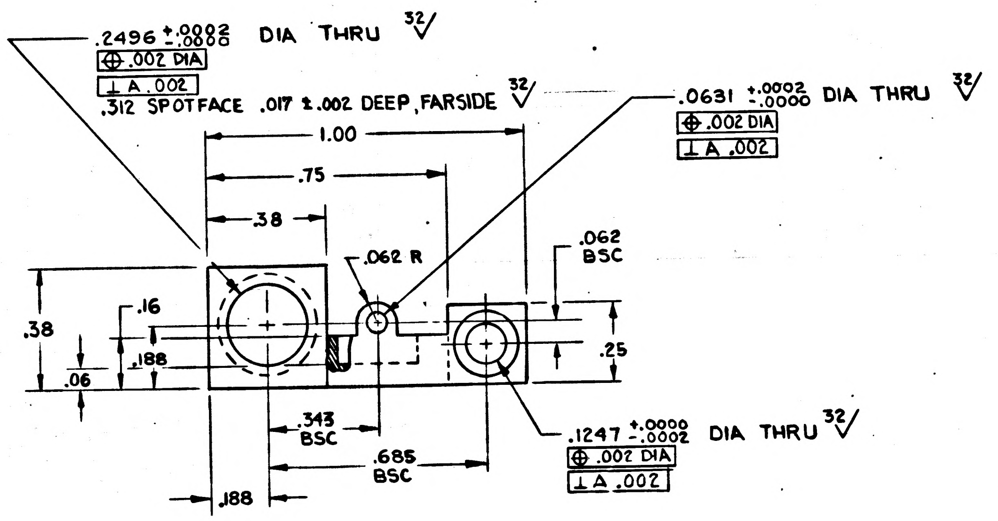
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		REVISIONS 16703			
		INITIAL CLASS A RELEASE TDRR NO. 16703		2/4/65	WK

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH STD PRESCRIBED BY MIL-D-70327.
2. MATERIAL: QQ-S-763, CL 303 OR 303 SE COND A, (ES-380).
3. FINISH: MIL-F-14072 (SIGC) FIN. E300 (ES-585).
4. UNLESS OTHERWISE SPECIFIED:
   - a. ALL CORNERS TO BE .005 TO .015 RAD. OR CHAMFER.
   - b. SURFACE ROUGHNESS MUST NOT EXCEED $\overset{63}{\surd}$.
   - c. REMOVE ALL BURRS.
5. IDENTIFY USING DWG NO. AND MFG SYM PER ND1002019.



.005 RAD. MAX.
.084
-A-
.231
.082 ± .002
.25
.06
.094
.078
.125
.250
.200 DIA



.2496 +.0002 -.0000 DIA THRU 32√
⊕ .002 DIA
⊥ A .002
.312 SPOTFACE .017 ± .002 DEEP, FARSIDE 32√
.0631 +.0002 -.0000 DIA THRU 32√
⊕ .002 DIA
⊥ A .002
1.00
.75
.38
.062 R
.062 BSC
.16
.38
.188
.06
.25
.343 BSC
.685 BSC
.188
.1247 +.0000 -.0002 DIA THRU 32√
⊕ .002 DIA
⊥ A .002

MASTER

NEXT ASSY	USED ON
2014550-011	2014550-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± .02 · .XX DEC
DECIMALS .XXX DEC ± .005
ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL SEE NOTE 2
CONTRACT NAS 9-497

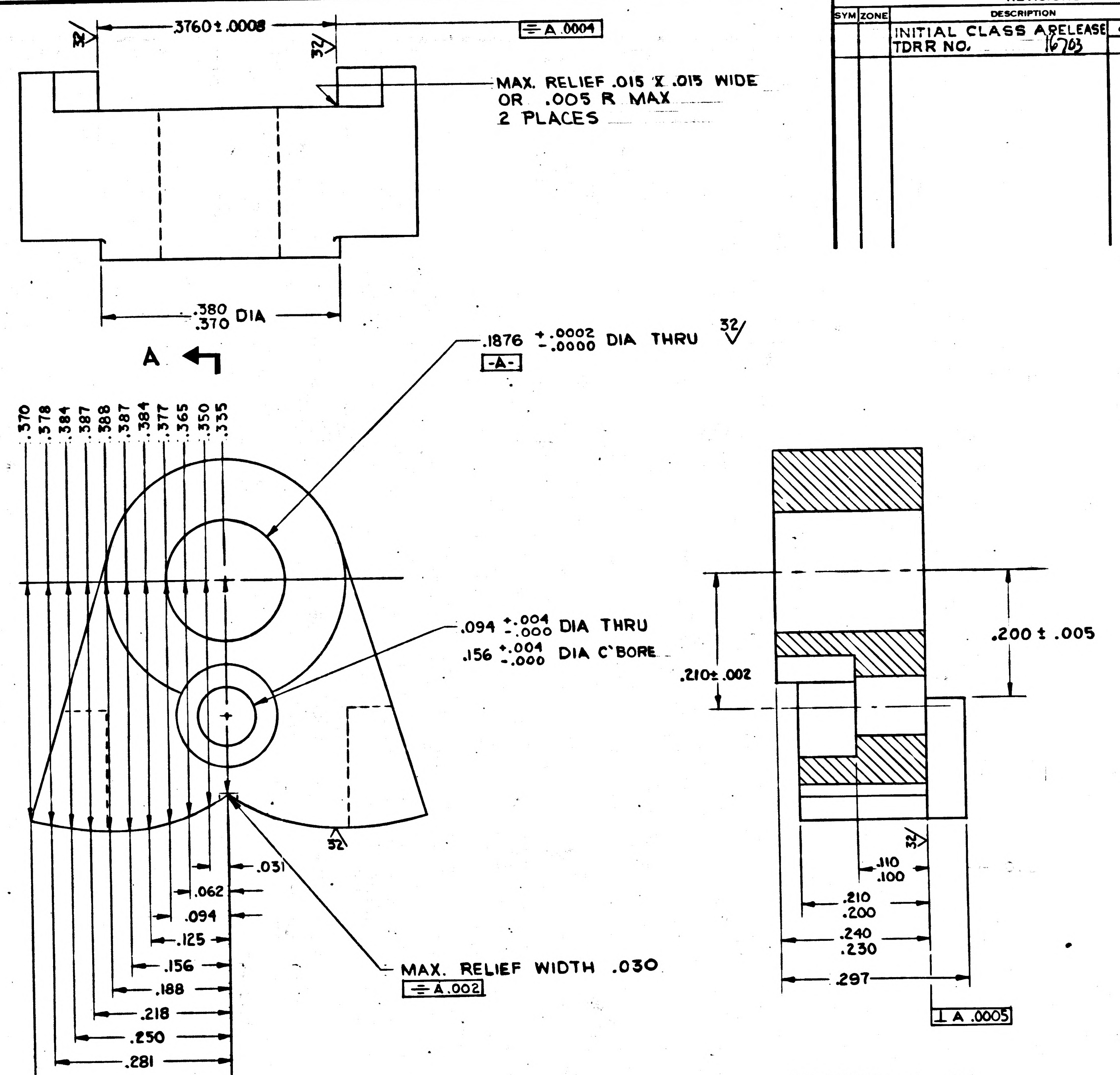
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN W. Thompson DATE 31-1-65
CHECKED 18 Feb 65
APPROVAL W. Y. Thompson 19 FEB 65
APPROVAL
NASA APPROVAL
MIT APPROVAL 19 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ARM, CAM FOLLOWER

CODE IDENT NO. SIZE D 2014544
SCALE 4/1 SHEET 1 OF 1

NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-S-763, CL 416, COND A, (ES-376).
3. IDENTIFY USING DRAWING NO. AND MFG SYM PER ND1002019.
4. FINISH: MIL-F-14072 (SIG C) FIN. E300 (ES-585).
5. UNLESS OTHERWISE SPECIFIED:
   a. ALL CORNERS TO BE .005 TO .015 RAD. OR CHAMFER.
   b. SURFACE ROUGHNESS MUST NOT EXCEED 63/.
6. REMOVE ALL BURRS.
7. HEAT TREAT PER MIL-H-6875 TO 38-40 RC


32/
.3760 ± .0008
32/
⌯ A .0004
MAX. RELIEF .015 X .015 WIDE
OR .005 R MAX
2 PLACES
.380
.370 DIA
A
.1876 +.0002 -.0000 DIA THRU 32/
-A-
.370
.378
.384
.387
.388
.387
.384
.377
.365
.350
.335
.094 +.004 -.000 DIA THRU
.156 +.004 -.000 DIA C'BORE
32/
.031
.062
.094
.125
.156
.188
.218
.250
.281
.312
MAX. RELIEF WIDTH .030
⌯ A .002
.210 ± .002
.200 ± .005
32/
.110
.100
.210
.200
.240
.230
.297
⊥ A .0005

SECTION A-A

A

REVISIONS 16703					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16703		2/19/65	WK

2014546

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.001 ANGLES ± 1°	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
			ACSP PN		
			DRAWN W. Thompson DATE 2-2-65	CAM	
			CHECKED 18 Feb 65		
			APPROVAL W. H. Thompson 19 Feb 65		
		DO NOT SCALE THIS DRAWING	APPROVAL 2/19/65		
2014550-011	2014550-011	MATERIAL SEE NOTE 2	NASA APPROVAL 2/19/65	CODE IDENT NO.	SIZE D 2014546
NEXT ASSY	USED ON		MIT APPROVAL		
APPLICATION		CONTRACT NAS 9 497		SCALE 10 : 1	SHEET 1 OF 1

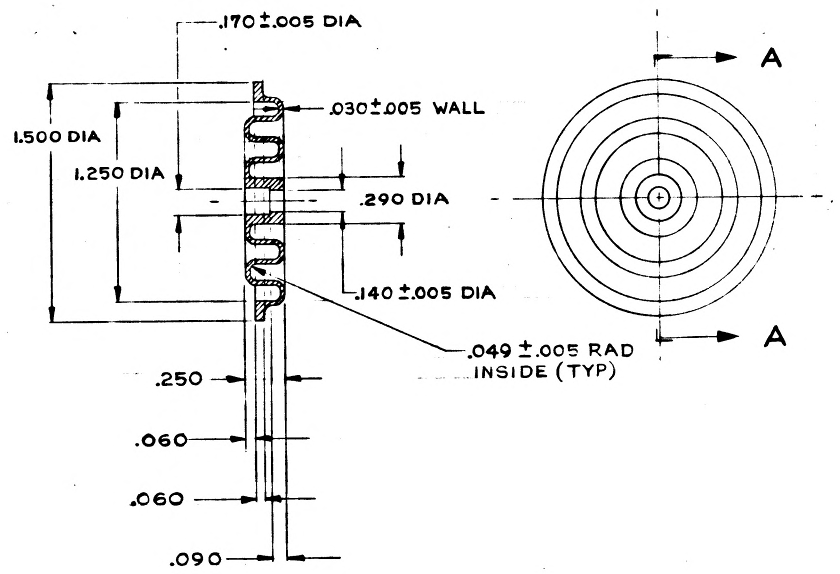
MASTER

NOTES:
1. INTERPRET DWG PER MIL-D-70327
2. MATERIAL: MIL-R-5847, SILICONE RUBBER, CLASS III, GRADE 50, (ES 73-3).
COLOR; GRAY, NO. 36231, PER FED. STD 595.
3. ALL CORNERS TO BE .015 RAD MAX.
4. SURFACE FINISH NOT TO EXCEED 63√.
5. IDENTIFY USING DWG NO. AND MFG SYM PER ND1002019.
6. ALL DIA'S TO BE CONCENTRIC WITHIN .005 T.I.R.
7. DESIGN REQUIREMENTS:
   - A. ATMOSPHERE: 100% OXYGEN.
   - B. PRESSURE: 15 PSIA TO 10^{-4} MM HG
   - C. TEMPERATURE: OPERATING, 0°F TO +160°F.
   - D. RELATIVE HUMIDITY: 100%
   - E. MATERIAL SHALL NOT OUT-GAS TOXIC OR CORROSIVE GASES UNDER ABOVE CONDITIONS.
8. PARTS TO BE FREE FROM FLASH.

A 2014547

REVISIONS 16703					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
		INITIAL CLASS A RELEASE TDRR NO. 16703			WR
A		REVISED PER TDRR 31594		25 OCT 66	JC / SC

SECTION A-A



2014550-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
±	±.010	±

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE 19 JAN 65
CHECKED J. Swain 18 Feb 65
APPROVAL W.H. Thompson 19 FEB 65
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DIAPHRAGM

CODE IDENT NO.	SIZE	
80230	D	2014547
SCALE 2/1		SHEET 1 OF 1

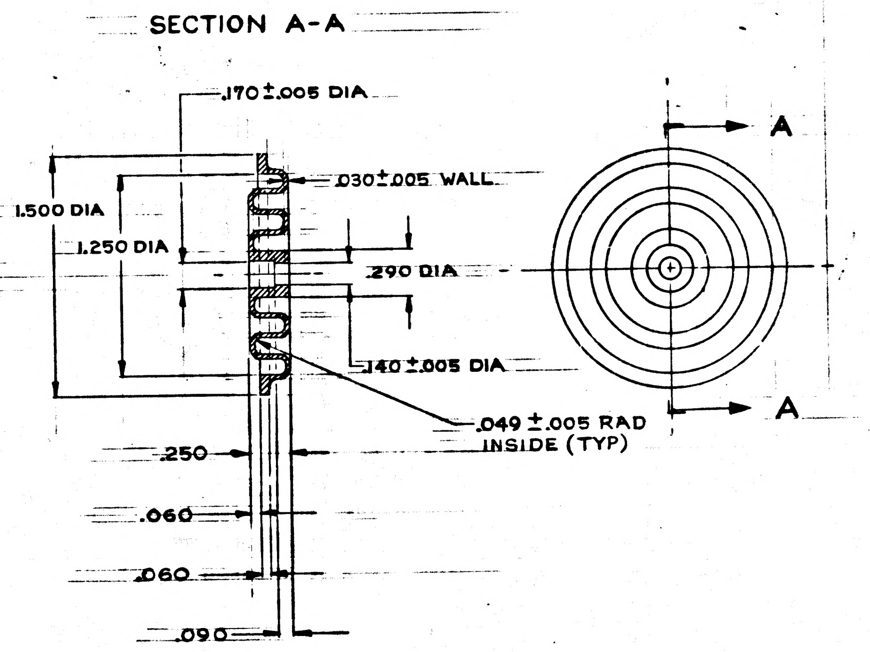
2014547

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16703		2/4/65	W.R.

REVISIONS 16703

NOTES:

1. INTERPRET DWG PER MIL-D-70327
2. MATERIAL: MIL-R-5847, SILICONE RUBBER, CLASS III, GRADE 50, (ES 73-3).
   COLOR; GRAY, NO. 36231, PER FED. STD 595.
3. ALL CORNERS TO BE .005 TO .015 RAD.
4. SURFACE FINISH NOT TO EXCEED 63√.
5. IDENTIFY USING DWG NO. AND MFG SYM PER ND1002019.
6. ALL DIA'S TO BE CONCENTRIC WITHIN .005 T.I.R.
7. DESIGN REQUIREMENTS:
   - A. ATMOSPHERE: 100% OXYGEN.
   - B. PRESSURE: 15 PSIA TO 10^{-4} MM HG
   - C. TEMPERATURE: OPERATING, 0°F TO +160°F.
   - D. RELATIVE HUMIDITY: 100%
   - E. MATERIAL SHALL NOT OUT-GAS TOXIC OR CORROSIVE GASES UNDER ABOVE CONDITIONS.



MASTER

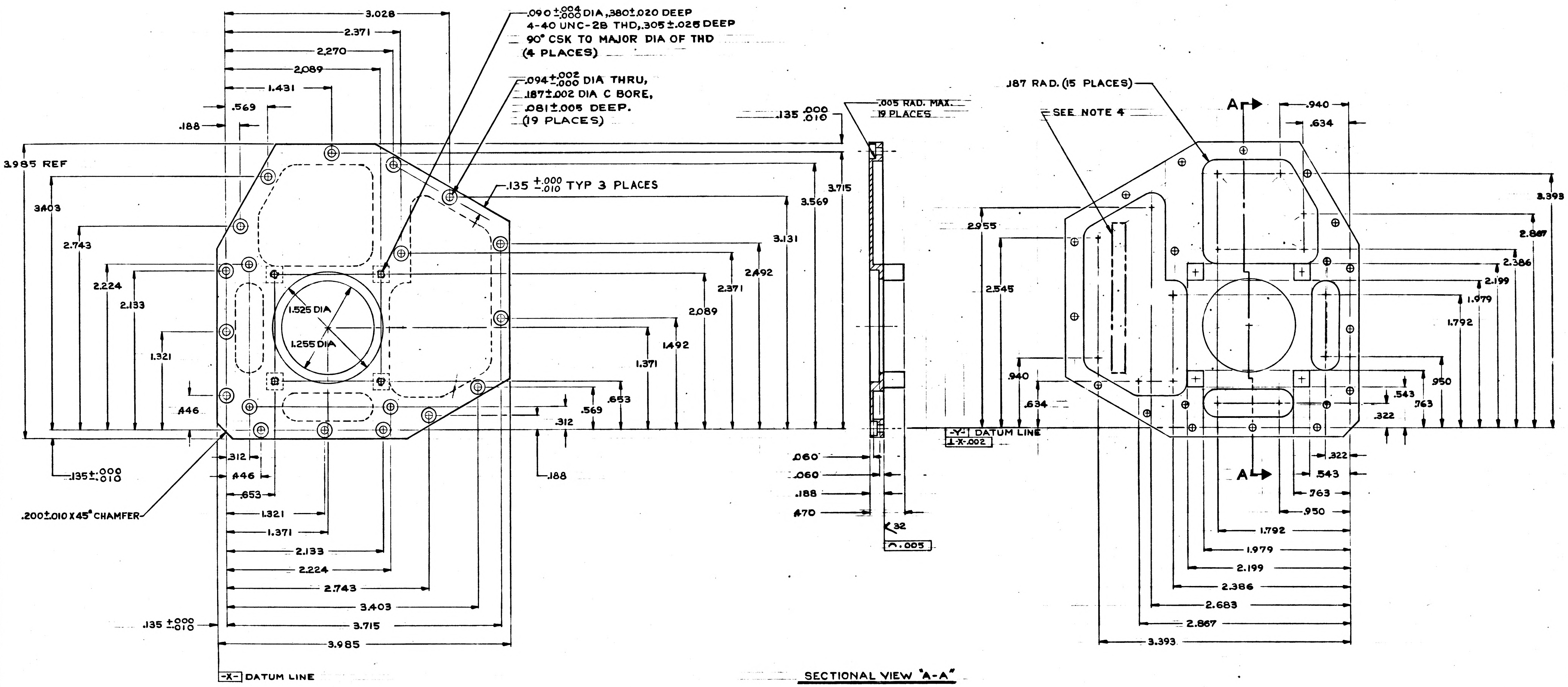
2014550-011	2014550-011	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.010 ANGLES ± DO NOT SCALE THIS DRAWING	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN ACSP PN DRAWN J.P. Brook DATE 19 Jan 65 CHECKED J. Lorraine 18 Feb 65 APPROVAL W.H. Thompson 19 FEB 65 APPROVAL	MANNED SPACECRAFT CENTER HOUSTON, TEXAS DIAPHRAGM
NEXT ASSY	USED ON	MATERIAL SEE NOTE 2	NASA APPROVAL	CODE IDENT NO. SIZE D 2014547
APPLICATION		CONTRACT NAS 9-497	MIT APPROVAL	SCALE 2/1 SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16703						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 16703			2/19/65	WK
A		REVISED PER TDRR NO.20636		JEd	2 AUG65	

NOTES:

1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-250/4, 2024-T4, AL ALY, (ES-2104).
3. REMOVE ALL BURRS.
4. IDENTIFY USING DRAWING NO. PER ND1002019.
5. REMOVE ALL CORNERS .005 TO .015 RAD. OR CHAMFER.
6. SURFACE ROUGHNESS MUST NOT EXCEED 63√.
7. FINISH: MIL-A-8625, TYPE I, ANODIZE, EXCEPT ALL CBORE FACES AND TAPPED HOLES TO BE CHEMICAL FILMED PER MIL-C-5541.
8. ALL DRILLED HOLE LOCATING DIM'S ARE BASIC AND ⌖.004 DIA, UNLESS OTHERWISE SPECIFIED.
9. DATUM LINES -X- AND -Y- ARE TO BE USED FOR INITIAL DIM. REF.


3.028
2.371
2.270
2.089
1.431
.569
.188
3.985 REF
3.403
2.743
2.224
2.133
1.321
.446
.090 +.004/-.000 DIA, .380±.020 DEEP
4-40 UNC-2B THD, .305±.025 DEEP
90° CSK TO MAJOR DIA OF THD
(4 PLACES)
.094 +.002/-.000 DIA THRU,
.187±.002 DIA C BORE,
.081±.005 DEEP.
(19 PLACES)
.135 +.000/-.010 TYP 3 PLACES
1.525 DIA
1.255 DIA
3.715
3.569
3.131
2.492
2.371
2.089
1.492
1.371
.653
.569
.312
.312
.446
.653
1.321
1.371
2.133
2.224
2.743
3.403
3.715
3.985
.188
.135 +.000/-.010
.200±.010 X 45° CHAMFER
.135 +.000/-.010
-X- DATUM LINE
.135 .000/.010
.005 RAD. MAX.
19 PLACES
.060
.060
.188
.470
32
⌒.005
-Y- DATUM LINE
⊥-X-.002
SECTIONAL VIEW "A-A"
.187 RAD. (15 PLACES)
SEE NOTE 4
A
A
.940
.634
3.393
2.867
2.386
2.199
1.979
1.792
2.955
2.545
.940
.634
.950
.763
.543
.322
.322
.543
.763
.950
1.792
1.979
2.199
2.386
2.683
2.867
3.393

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014550-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NO. NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

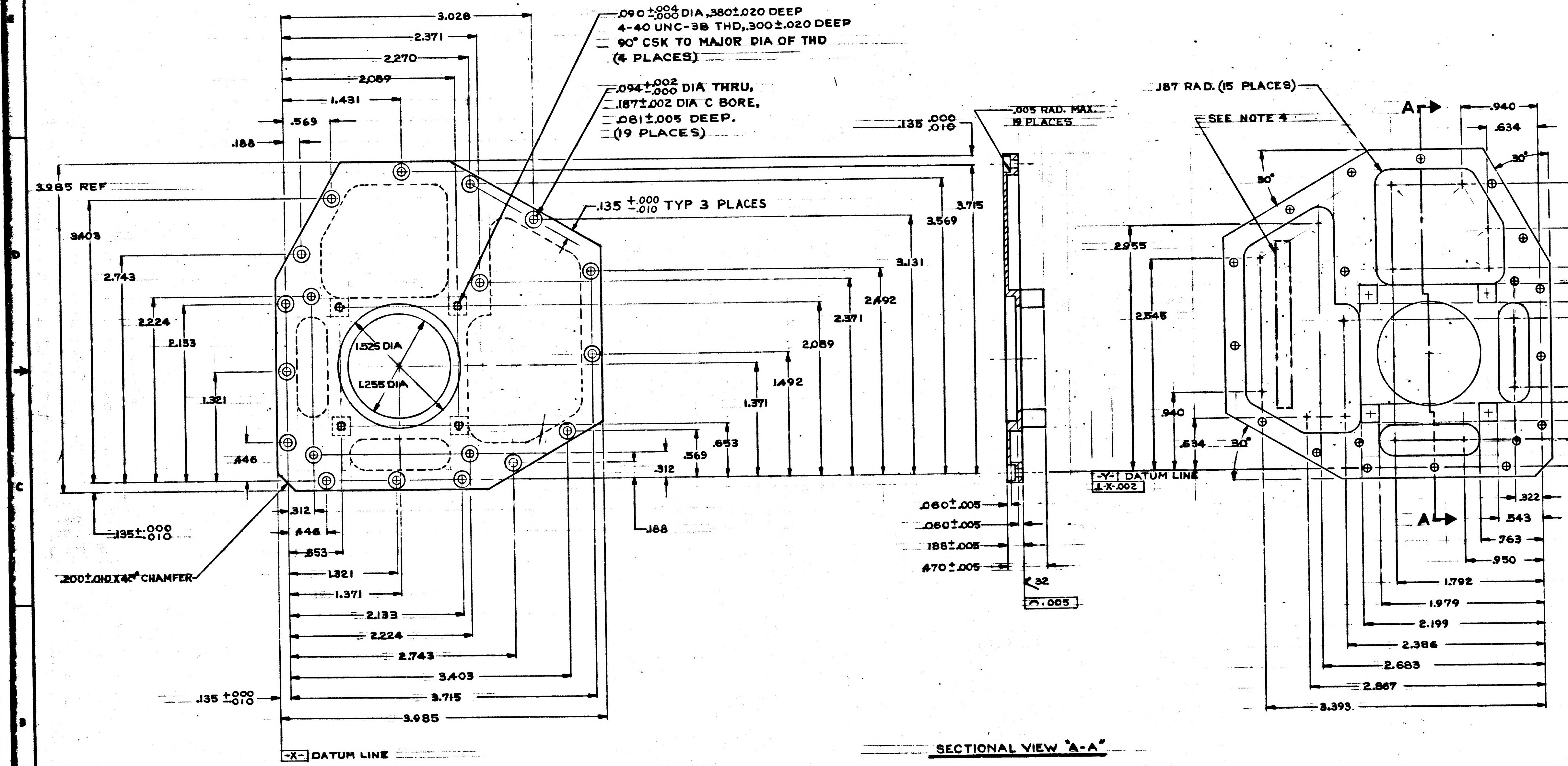
DRAWN	JPB	2 FEB 65
CHECKED		18 Feb 65
APPROVED		19 Feb 65
APPROVED		
APPROVED MIT		
APPROVED MSC		
		DATE

PLATE, BASE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2014548
SCALE 2/1		SHEET 1 OF 1

REVISIONS 16703						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 16703			7/19/65	WK

NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-250/4, 2024-T4, AL ALY, (ES-2104).
3. REMOVE ALL BURRS.
4. IDENTIFY USING DRAWING NO AND MFG SYM PER ND1002019.
5. REMOVE ALL CORNERS .005 TO .015 RAD. OR CHAMFER.
6. SURFACE ROUGHNESS MUST NOT EXCEED 63√.
7. FINISH: MIL-A-8625, TYPE I, ANODIZE (ES-385).
8. ALL HOLE LOCATING DIM'S ARE BASIC AND ⊕.004 DIA, UNLESS OTHERWISE SPECIFIED.
9. DATUM LINES -X- AND -Y- ARE TO BE USED FOR INITIAL DIM. REF.



.090 +.004 -.000 DIA, .380±.020 DEEP
4-40 UNC-3B THD, .300±.020 DEEP
90° CSK TO MAJOR DIA OF THD
(4 PLACES)
.094 +.002 -.000 DIA THRU,
.187±.002 DIA C BORE,
.081±.005 DEEP.
(19 PLACES)
.135 +.000 -.010 TYP 3 PLACES
.135 .000 .010
.005 RAD. MAX.
19 PLACES
.187 RAD. (15 PLACES)
SEE NOTE 4
3.028
2.371
2.270
2.089
1.431
.569
.188
3.985 REF
3.403
2.743
2.224
2.133
1.321
.446
1.525 DIA
1.255 DIA
3.715
3.569
3.131
2.492
2.371
2.089
1.492
1.371
.653
.569
.312
.188
.135 +.000 -.010
.200±.010 X 45° CHAMFER
.312
.446
.653
1.321
1.371
2.133
2.224
2.743
3.403
3.715
3.985
.135 +.000 -.010
-X- DATUM LINE
.060±.005
.060±.005
.188±.005
.470±.005
32
⌒ .005
A
A
.940
.634
30°
30°
30°
3.393
2.867
2.683
2.386
2.199
1.979
1.792
.950
.763
.543
.322
2.955
2.545
.940
.634
-Y- DATUM LINE
⊥ -X- .002
.322
.543
.763
.950
1.792
1.979
2.199
2.386
2.683
2.867
3.393
SECTIONAL VIEW "A-A"

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	ITEM NO.

LIST OF MATERIALS

2014530-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ——— DECIMALS ±.002 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NO. NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J P B 2 FEB 65
CHECKED J. E. Swain
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, BASE

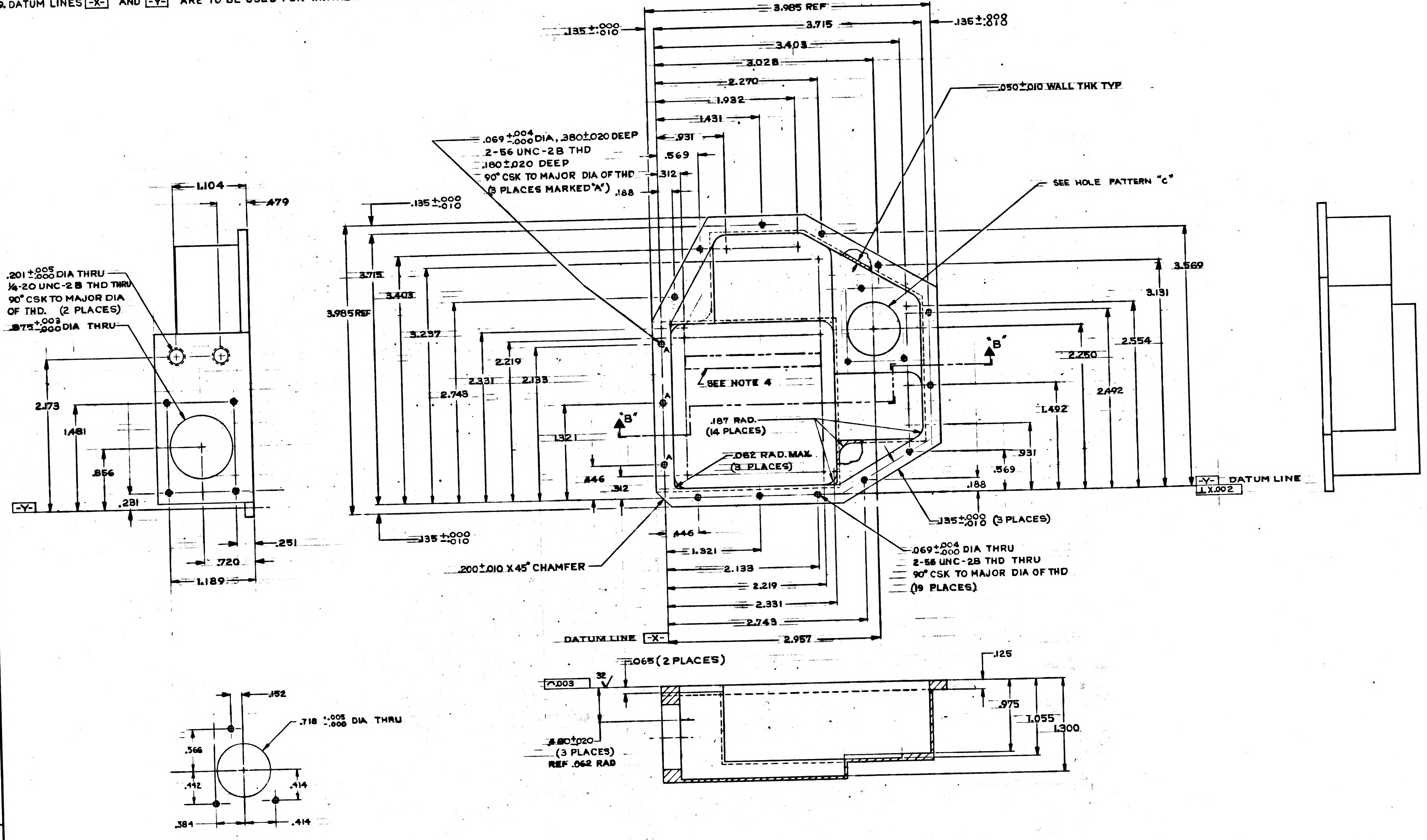
CODE IDENT NO.
SIZE E
DRAWING NO. 2014548
SCALE 2/1
SHEET 1 OF 1

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 16703			1/14/65	
A		REVISED PER TDRR NO.20637			12AUG65	

6703

NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-250/4, 2024-T4 AL ALY, ROLLED FINISH, (ES-2104).
3. REMOVE ALL BURRS.
4. IDENTIFY USING DRAWING NO. PER ND1002019.
5. REMOVE ALL CORNERS .005 TO .015 RAD. OR CHAMFER.
6. SURFACE ROUGHNESS MUST NOT EXCEED 63√.
7. FINISH: MIL-A-8625, TYPE I, ANODIZE, EXCEPT TAPPED HOLES TO BE CHEMICAL FILM PER MIL-C-5541.
8. ALL DRILL HOLE LOCATING DIM'S ARE BASIC AND ⌖.004 DIA UNLESS OTHERWISE SPECIFIED.
9. DATUM LINES -X- AND -Y- ARE TO BE USED FOR INITIAL DIM. REF.



3.985 REF
3.715
3.403
3.028
2.270
1.932
1.431
.931
.569
.312
.188
.135 +.000 -.010
.050 ±.010 WALL THK TYP
.069 +.004 -.000 DIA, .380 ±.020 DEEP
2-56 UNC-2B THD
.180 ±.020 DEEP
90° CSK TO MAJOR DIA OF THD
(3 PLACES MARKED 'A')
A
SEE HOLE PATTERN "C"
1.104
.479
.201 +.005 -.000 DIA THRU
1/4-20 UNC-2B THD THRU
90° CSK TO MAJOR DIA
OF THD. (2 PLACES)
.375 +.003 -.000 DIA THRU
2.173
1.481
.856
.281
-Y-
.251
.720
1.189
3.985 REF
3.715
3.403
3.237
2.743
2.331
2.219
2.133
1.321
.446
.312
"B"
SEE NOTE 4
.187 RAD.
(14 PLACES)
.062 RAD. MAX.
(3 PLACES)
3.569
3.131
2.554
2.250
2.492
1.492
.931
.569
.188
-Y- DATUM LINE
⊥ X.002
.135 +.000 -.010 (3 PLACES)
.069 +.004 -.000 DIA THRU
2-56 UNC-2B THD THRU
90° CSK TO MAJOR DIA OF THD
(19 PLACES)
.200 ±.010 X 45° CHAMFER
.446
1.321
2.133
2.219
2.331
2.743
2.957
DATUM LINE -X-
.065 (2 PLACES)
⌒.003
32√
.125
.975
1.055
1.300
.180 ±.020
(3 PLACES)
REF .062 RAD
.152
.718 +.005 -.000 DIA THRU
.566
.442
.414
.384
.414

HOLE PATTERN "C"

SECTION "B-B"

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014550-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NO. NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN		28 JAN 65
CHECKED		
APPROVED	D. H. Thompson	
APPROVED		
APPROVED MIT		
APPROVED MSC		3/15/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2014549

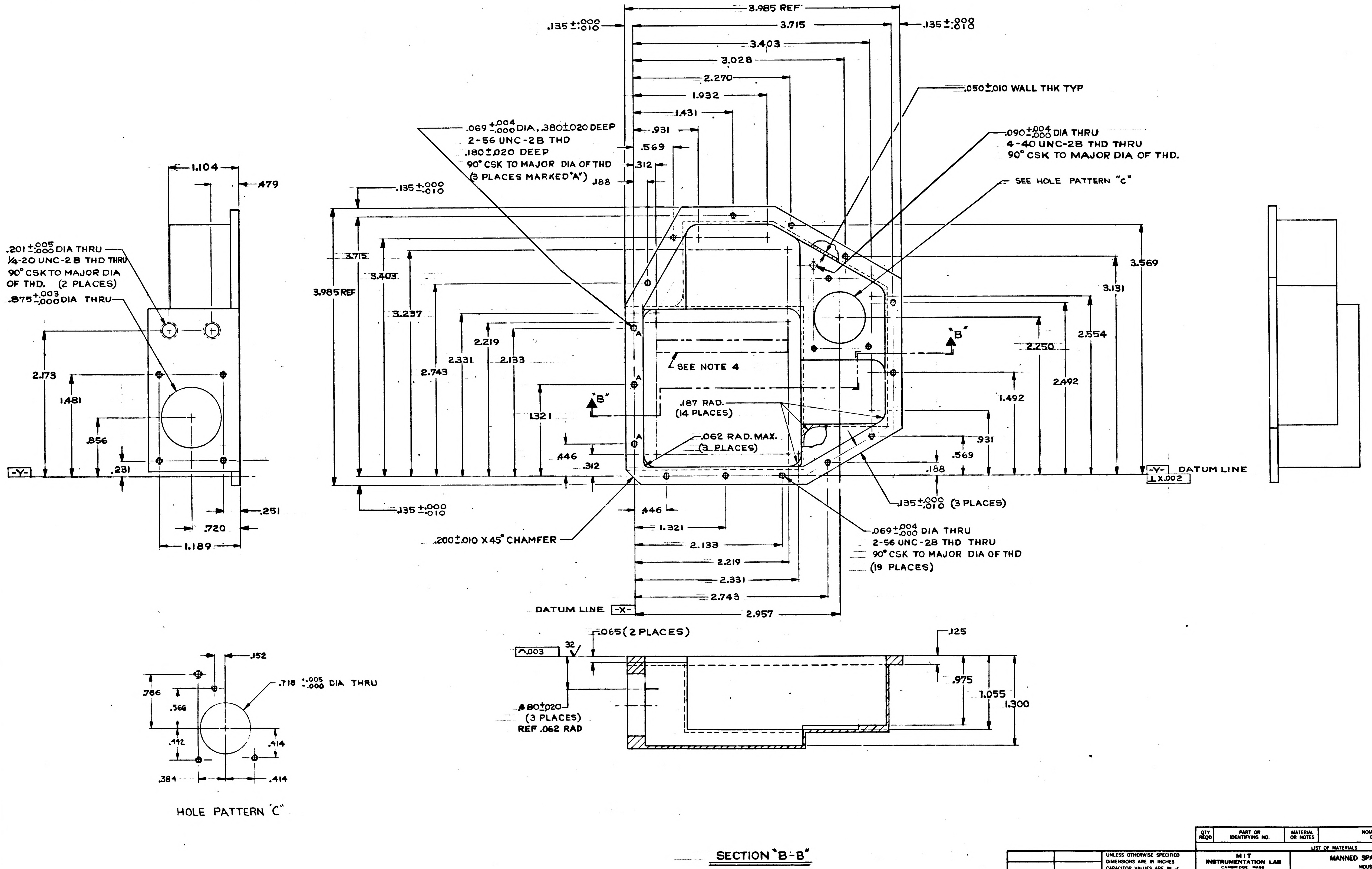
SCALE 2/1
SHEET 1 OF 1

2014549 B

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						16703
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 16703			7/19/65	WK
A		REVISED PER TDRR NO.20637			12AUG65	WK
B		REVISED PER TDRR NO.21382			27AUG65	

NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-250/4, 2024-T4 AL ALY, ROLLED FINISH, (ES-2104).
3. REMOVE ALL BURRS.
4. IDENTIFY USING DRAWING NO. PER ND1002019.
5. REMOVE ALL CORNERS .005 TO .015 RAD. OR CHAMFER.
6. SURFACE ROUGHNESS MUST NOT EXCEED 63√.
7. FINISH: MIL-A-8625, TYPE I, ANODIZE, EXCEPT TAPPED HOLES TO BE CHEMICAL FILM PER MIL-C-5541.
8. ALL DRILL HOLE LOCATING DIM'S ARE BASIC AND ⌖.004 DIA UNLESS OTHERWISE SPECIFIED.
9. DATUM LINES -X- AND -Y- ARE TO BE USED FOR INITIAL DIM. REF.


3.985 REF
.135 ±.000 −.010
3.715
3.403
3.028
2.270
1.932
1.431
.931
.569
.312
.188
.050±.010 WALL THK TYP
.069 +.004 −.000 DIA, .380±.020 DEEP
2-56 UNC-2B THD
.180±.020 DEEP
90° CSK TO MAJOR DIA OF THD
(3 PLACES MARKED "A")
.090 +.004 −.000 DIA THRU
4-40 UNC-2B THD THRU
90° CSK TO MAJOR DIA OF THD.
SEE HOLE PATTERN "C"
1.104
.479
.201 +.005 −.000 DIA THRU
1/4-20 UNC-2B THD THRU
90° CSK TO MAJOR DIA
OF THD. (2 PLACES)
.875 +.003 −.000 DIA THRU
2.173
1.481
.856
.231
-Y-
.720
.251
1.189
3.715
3.403
3.985 REF
3.237
2.743
2.331
2.219
2.133
1.321
.446
.312
A
"B"
SEE NOTE 4
.187 RAD.
(14 PLACES)
.062 RAD. MAX.
(3 PLACES)
3.569
3.131
2.554
2.250
2.492
1.492
.931
.569
.188
-Y- DATUM LINE
⊥ X .002
.135 ±.000 −.010 (3 PLACES)
.069 +.004 −.000 DIA THRU
2-56 UNC-2B THD THRU
90° CSK TO MAJOR DIA OF THD
(19 PLACES)
.200±.010 X 45° CHAMFER
.446
1.321
2.133
2.219
2.331
2.743
2.957
DATUM LINE -X-
.065 (2 PLACES)
.125
⌒ .003
32√
.975
1.055
1.300
.480±.020
(3 PLACES)
REF .062 RAD
.152
.766
.566
.718 +.005 −.000 DIA THRU
.442
.414
.384
.414
HOLE PATTERN "C"

SECTION "B-B"

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014550-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NO. NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN V. Bart 28 JAN 65
CHECKED 18 Feb 65
APPROVED W. H. Thompson 19 Feb 65
APPROVED
APPROVED MIT 2/19/65
APPROVED MSC 2/19/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

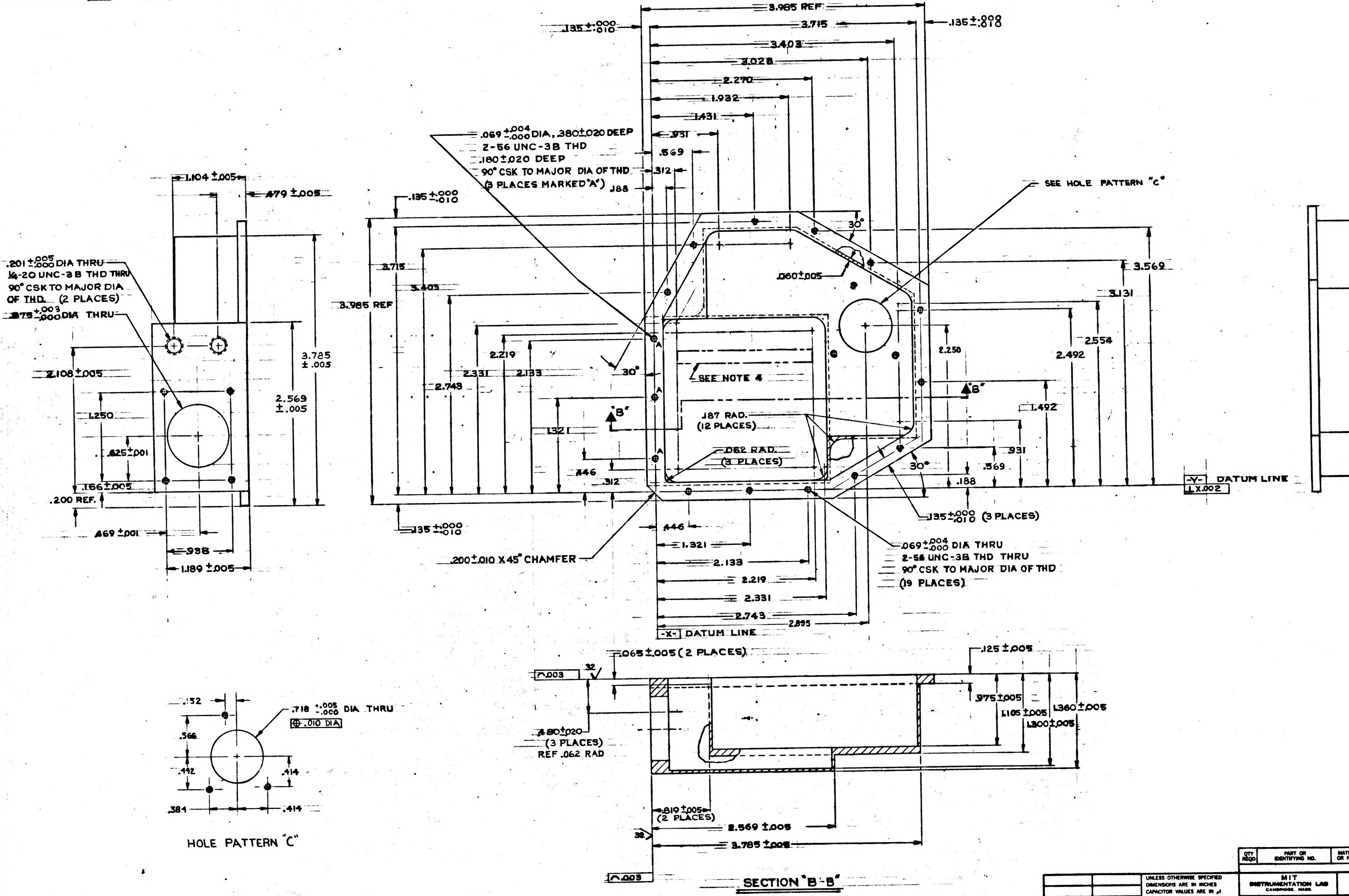
COVER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014549
SCALE 2/1
SHEET 1 OF 1

2014549 B

REVISIONS						6703
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 6703			1/14/65	

NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-250/4, 2024-T4 AL ALY, ROLLED FINISH, (ES-2104).
3. REMOVE ALL BURRS.
4. IDENTIFY USING DRAWING NO. PER ND1002019.
5. REMOVE ALL CORNERS .005 TO .015 RAD. OR CHAMFER.
6. SURFACE ROUGHNESS MUST NOT EXCEED 63√.
7. FINISH: MIL-A-8625, TYPE I, ANODIZE (ES-385).
8. ALL HOLE LOCATING DIM'S ARE BASIC AND ⊕.004 DIA, UNLESS OTHERWISE SPECIFIED.
9. DATUM LINES -X- AND -Y- ARE TO BE USED FOR INITIAL DIM. REF.



3.985 REF
3.715
3.403
3.028
2.270
1.932
1.431
.931
.569
.312
.188
.135 +.000 −.010
.069 +.004 −.000 DIA, .380±.020 DEEP
2-56 UNC-3B THD
.180±.020 DEEP
90° CSK TO MAJOR DIA OF THD
(3 PLACES MARKED "A")
SEE HOLE PATTERN "C"
.060±.005
30°
SEE NOTE 4
.187 RAD. (12 PLACES)
.062 RAD. (3 PLACES)
"B"
3.569
3.131
2.554
2.492
2.250
1.492
.931
.569
.188
-Y- DATUM LINE
⊥ X .002
.135 +.000 −.010 (3 PLACES)
.069 +.004 −.000 DIA THRU
2-56 UNC-3B THD THRU
90° CSK TO MAJOR DIA OF THD
(19 PLACES)
.200±.010 X 45° CHAMFER
.446
1.321
2.133
2.219
2.331
2.743
2.895
-X- DATUM LINE
2.743
2.331
2.133
2.219
1.321
.446
.312
1.104 ±.005
.479 ±.005
.201 +.005 −.000 DIA THRU
1/4-20 UNC-3B THD THRU
90° CSK TO MAJOR DIA OF THD (2 PLACES)
.375 +.003 −.000 DIA THRU
3.785 ±.005
2.569 ±.005
2.108 ±.005
1.250
.625±.001
.166±.005
.200 REF.
.469 ±.001
.938
1.189 ±.005
.152
.718 +.005 −.000 DIA THRU
⊕ .010 DIA
.566
.442
.414
.384
.414
HOLE PATTERN "C"
.065±.005 (2 PLACES)
.125 ±.005
⌒ .003
32√
.975 ±.005
1.105 ±.005
1.300 ±.005
1.360 ±.005
.480±.020 (3 PLACES)
REF .062 RAD
.819 ±.005 (2 PLACES)
2.569 ±.005
3.785 ±.005
SECTION "B-B"

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014550-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.002 ANGLES ± 0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NO. NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

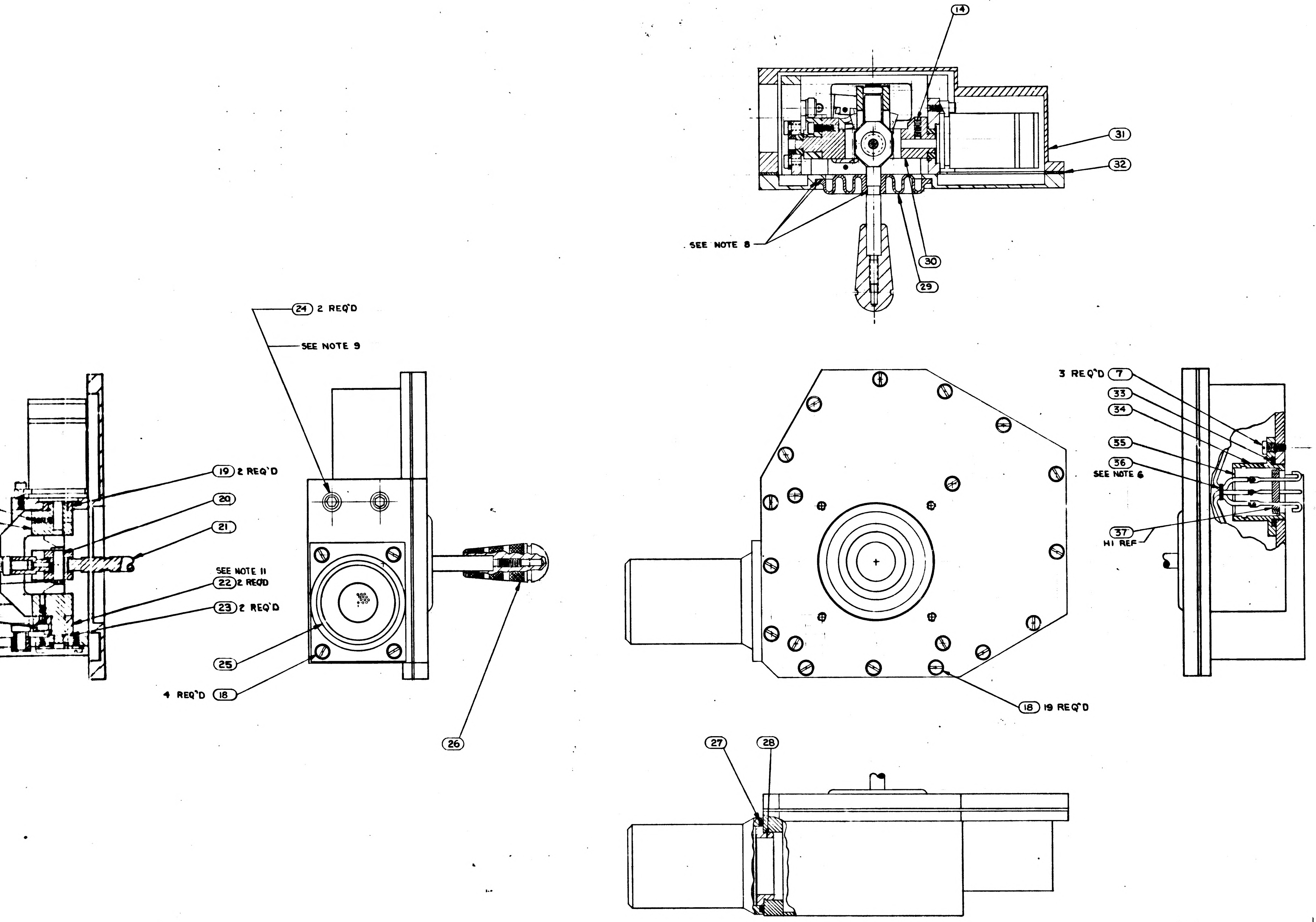
DRAWN 28 JAN 65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER

CODE IDENT NO.
SIZE E
DRAWING NO. 2014549
SCALE 2/1
SHEET 1 OF 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
	INITIAL CLASS A RELEASE TDRR NO. 6703		WK
A	REVISED PER TDRR NO. 20646	14 AUG 65	



QUANTITY REQUIRED (DASH NO. 011)	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
REF		46	2014520	SCHEMATIC DIAGRAM - SEXT HAND CON
REF		45	2014506	WIRING DIAGRAM - SEXTANT HAND CONT
AR		44	1010718	PRIMER, SILICONE ADHESIVE
AR		43	MIL-A-25457	ADHESIVE - SILICONE RUBBER (ES-2531)
AR		42	MIL-S-22473	SEALING COMP, RETAINING, GRADE C
AR		41	MIL-M-7866	MOLYBDENUM DISULFIDE POWDER
AR		40	MIL-F-14256	FLUX (ES-2798)
AR		39	QQ-S-571, SN10WARP	SOLDER
AR		38	QQ-S-571, SN10WS	SOLDER
1		37	1010855	TERMINAL, FEEDTHRU, INSULATED
AR		36	1012507-004	TAPE, LACING
AR		35	1012503	POLYURETHANE POTTING COMPOUND
1		34	2014538	HOUSING, FEEDTHRU
1		33	1010858-18	PACKING, PREFORMED - "O" RING
1		32	2014537	GASKET
1		31	2014549	COVER
1		30	2014535	SHAFT, PIVOT
1		29	2014547	DIAPHRAGM
1		28	1021769	RING RETAINER
1		27	1010858-22	PACKING, PREFORMED - "O" RING
1		26	2014536	HANDLE
1		25	1021752-021	DESICCATOR ASSEMBLY
2		24	MS51029-49	SET SCREW, HEX SOC. HD
4		23	1010418-001	BUSHING, FLANGED
2		22	2014546	CAM
1		21	2014541-011	SHAFT HANDLE (INSEP ASSY)
1		20	2014558	PIN, PIVOT HEADED
2		19	1010418-002	BUSHING, FLANGED
23		18	MS35233-4	SCREW, MACHINE, PAN HD
1		17	MS16624-12	RING, RETAINING, EXTERNAL
4		16	MS35233-2	SCREW, MACHINE, PAD HD
1		15	2014534	SHAFT, YOKE
2		14	MS51045-3	SETSCREW, HEXAGON SOCKET HD
1		13	2014544	ARM, CAM FOLLOWER
2		12	2014555	PIN, PIVOT
2		11	1010931	SPRING, HELICAL, EXTENSION
4		10	MS16556-2	PIN, STRAIGHT, HEADLESS
3		9	1010780-1	BEARING, NEEDLE CAM FOLLOWER
1		8	2014543	ARM, CAM FOLLOWER
3		7	MS35233-3	SCREW, MACHINE, PAN HD
2		6	2014539	CAP, BEARING PRELOAD
1		5	2014551-011	HOUSING ASS'Y, MATCHED MACH.
6		4	1015542	CLAMP, SYNCHRO
8		3	NAS1352C02-4	SCREW, CAP, SOCKET HEAD
2		2	1010740	LINEAR ROTARY TRANSFORMER
1		1	2014548	PLATE, BASE

LIST OF MATERIALS

NEXT ASSY	USED ON
2014578-011	2014578-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN DATE 6 FEB 64
CHECKED 15 JAN 65
APPROVAL W. H. Thompson 19 FEB 65
APPROVAL
NASA APPROVAL
MIT APPROVAL 16 FEB 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

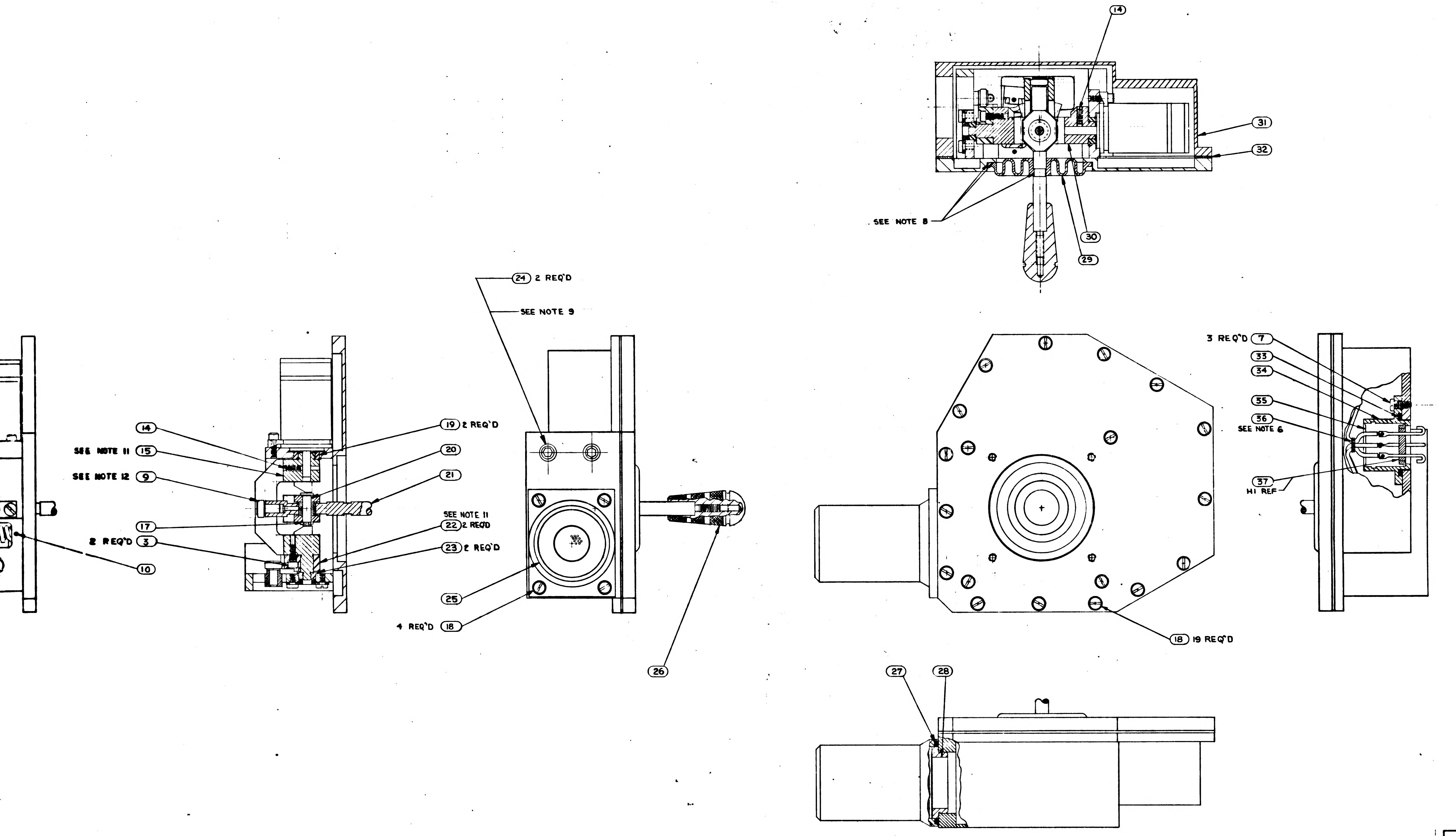
SEXTANT HAND CONTROLLER ASSEMBLY

CODE IDENT NO. 80230
SIZE J2
NASA DRAWING NO. 2014550
SCALE 2/1
WT
SHEET 1 OF 1

2014550 A

3H

SYM	
	INITIAL CLASS TDRR NO
A	REVISED PER T



14
31
32
SEE NOTE 8
30
29
24 2 REQ'D
SEE NOTE 9
3 REQ'D 7
33
34
35
36
SEE NOTE 6
37
HI REF
14
19 2 REQ'D
SEE NOTE 11 15
20
SEE NOTE 12 9
21
17
SEE NOTE 11
22 2 REQ'D
2 REQ'D 3
23 2 REQ'D
10
25
4 REQ'D 18
26
18 19 REQ'D
27
28

QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	
REF		46	2014520	SCHEMATIC
REF		45	2014506	WIRING DIAG
AR		44	1010718	PRIMER, SIL
AR		43	MIL-A-25457	ADHESIVE
AR		42	MIL-S-22473	SEALING C
AR		41	MIL-M-7866	MOLYBDEN
AR		40	MIL-F-14256	FLUX (E
AR		39	QQ-S-571, SNIOWARP	SOLDER
AR		38	QQ-S-571, SNIOWS	SOLDER
1		37	1010855	TERMINAL,
AR		36	1012507-004	TAPE, LAC
AR		35	1012503	POLYURETH
1		34	2014538	HOUSING
1		33	1010858-18	PACKING, P
1		32	2014537	GASKET
1		31	2014549	COVER
1		30	2014535	SHAFT, PIV
1		29	2014547	DIAPHRAGM
1		28	1021769	RING, RETA
1		27	1010858-22	PACKING, PR
1		26	2014536	HANDLE
1		25	1021752-021	DESICCATO
2		24	MS51029-49	SET SCREW
4		23	1010418-001	BUSHING.
2		22	2014546	CAM
1		21	2014541-011	SHAFT HAN
1		20	2014558	PIN, PIVO
2		19	1010418-002	BUSHING,
23		18	MS35233-4	SCREW, MA
1		17	MS16624-12	RING, RETA
4		16	MS35233-2	SCREW, MA
1		15	2014534	SHAFT, YO
2		14	MS51045-3	SET SCREW
1		13	2014544	ARM, CAM
2		12	2014555	PIN, PIVO
2		11	1010931	SPRING, H
4		10	MS16556-2	PIN, STRAI
3		9	1010780-1	BEARING,
1		8	2014543	ARM, CAM
3		7	MS35233-3	SCREW, MA
2		6	2014539	CAP, BEAR
		5	2014551-011	HOUSING AS
6		4	1015542	CLAMP,
8		3	NAS1352C02-4	SCREW, CAP
2		2	1010740	LINEAR RO
1		1	2014548	PLATE, E

DASH NO.
QUANTITY REQUIRED

LIST OF MATERIALS

NEXT ASSY	USED ON
2014578-011	2014578-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE 6 FEB 6
CHECKED
APPROVAL 19 FEB 6
APPROVAL
NASA APPROVAL
MIT APPROVAL

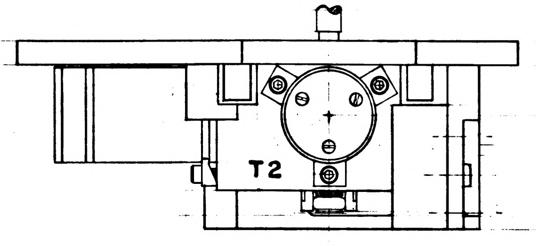
SEXTANT HA
ASSE

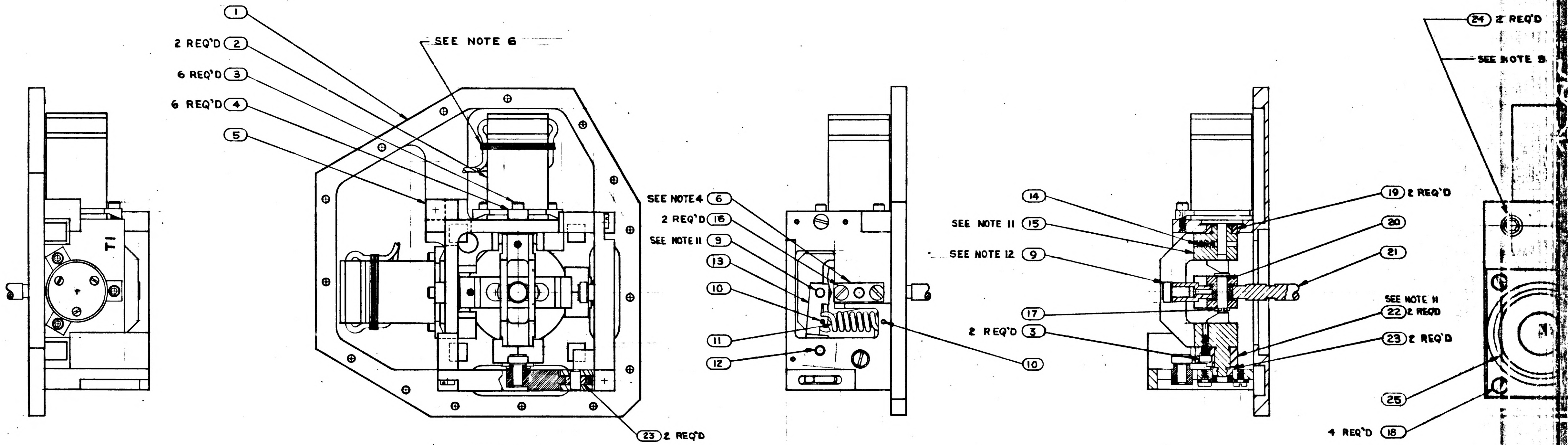
CODE IDENT NO. 80230
SIZE J2
SCALE 2/1

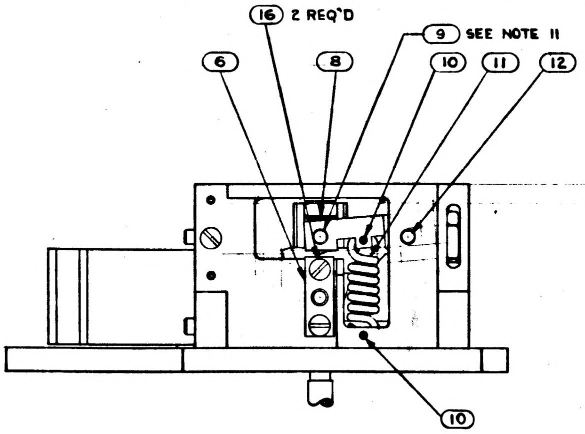
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

NOTES:

1. INTERPRET THIS DRAWING PER MIL-D-70327.
2. IDENTIFY USING DRAWING NO. PER ND1002019.
3. SERIALIZE PER ND1002023.
4. ASSEMBLE AND MOISTURE PROOF PRIOR TO INSTALLING ITEM ㉕.
5. UNLESS OTHERWISE SPECIFIED: SECURE ALL THREADS USING ITEM (42) PER ND1002211.
6. SPOT TIE WIRES TO TRANSFORMER BODY AND LACE WIRES TOGETHER BETWEEN TRANSFORMER AND FEEDTHRU, PER ND1002023, USING ITEM (36)
7. SOLDER ALL LEADS PER ND1002071 EXCEPT USE ITEMS (38) AND (40), OR (39).
8. BOND ITEM ㉙ TO ITEMS ① AND ㉑ PER ND1002151 USING ITEMS (43) AND (44) AS SHOWN.
9. APPLY ITEM (42) PER ND1002211 TO ITEM ㉔ AFTER COMPLETION OF PRESSURE DIFFERENTIAL TEST. ITEM ㉔ SHALL BE FLUSH TO .030 BELOW SURFACE.
10. ASSEMBLE, MOISTUREPROOF AND INSPECT PER PS2014550.
11. PROCEDURE FOR APPLICATION OF ITEM (41):
    A. PARTS SHALL BE FREE FROM OIL, GREASE AND DIRT BEFORE APPLICATION OF LUBRICANT.
    B. APPLY A FILM OF ITEM (41) TO CONTACT SURFACES OF ITEMS ⑮ AND ⑨.
    C. APPLY A FILM OF ITEM (41) TO CONTACT SURFACES OF ITEMS ⑨ AND ㉒.
    D. REMOVE EXCESS LUBRICANT.
12. SECURE ITEM ⑨ TO ITEM ㉑ USING ITEM (42) PER ND1002211.



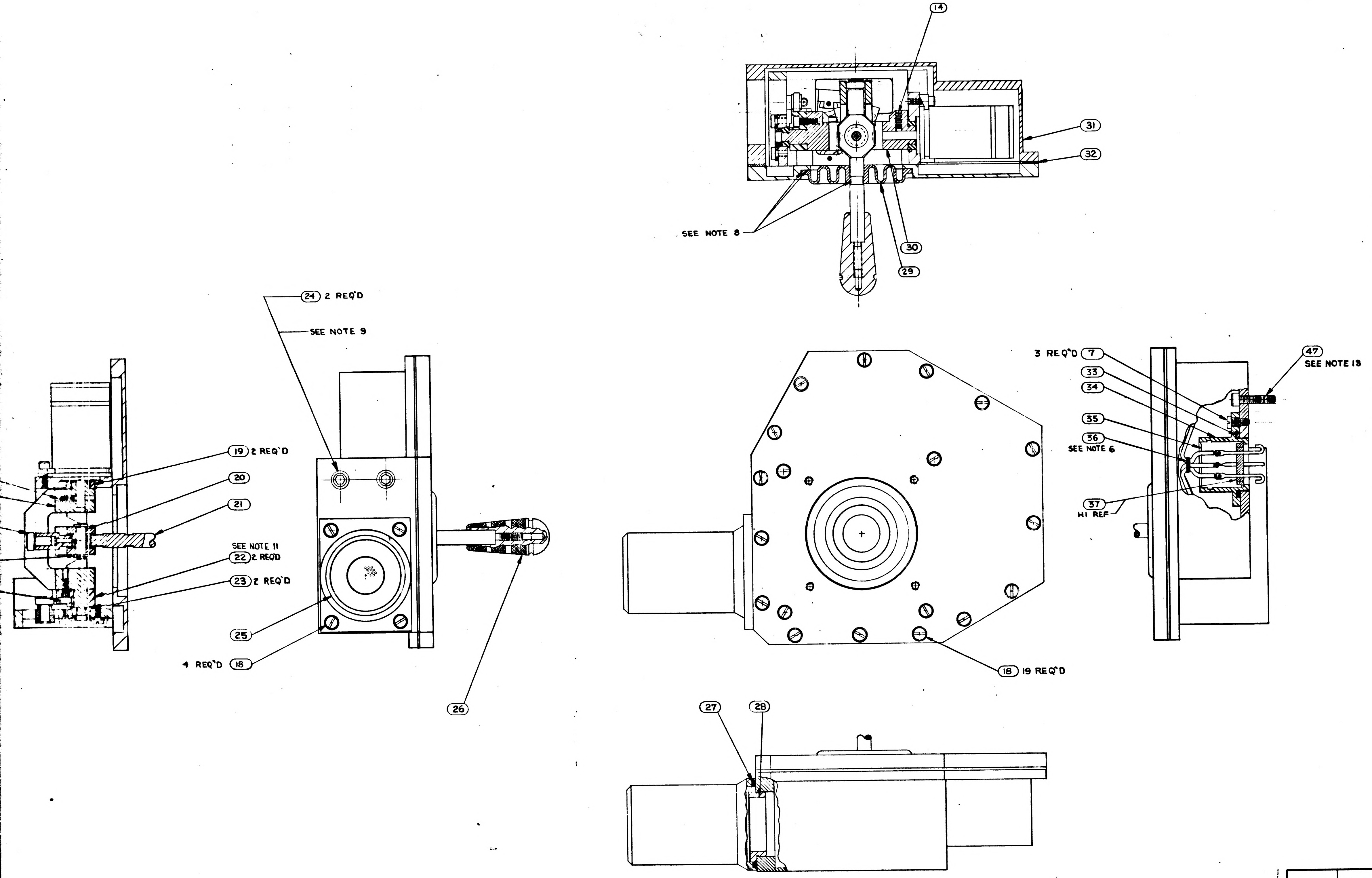




SEE NOTE 7

CONDUCTOR	FROM	STRIP	TIN	TO	STRIP	TIN	ITEM NO.	LENGTH
T1 - RED	T1			H1-8	.30	YES		6.50
T1 - BLK	T1			H1-7				
T1 - YEL	T1			H1-5				
T1 - BLU	T1			H1-6				
T2 - RED	T2			H1-2				
T2 - BLK	T2			H1-1				
T2 - YEL	T2			H1-3				
T2 - BLU	T2			H1-4	.30	YES		6.50

SYM	DESCRIPTION	DATE	APPROVAL
	INITIAL CLASS A RELEASE TDRR NO. 6703	7/15/65	WK
A	REVISED PER TDRR NO. 20646	14 AUG 65	W/C
B	REVISED PER TDRR NO. 21383	27 AUG 65	WS



QUANTITY REQUIRED DASH NO. 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
AR		48	MIL-S-22473	SEALING COMP, RETAINING, GRADE AA
1		47	NAS1352 C04-8	SCREW, SOC HD. CAP
REF		46	2014520	SCHEMATIC DIAGRAM - SEXT HAND CON
REF		45	2014506	WIRING DIAGRAM - SEXTANT HAND CONT
AR		44	1010718	PRIMER, SILICONE ADHESIVE
AR		43	MIL-A-25457	ADHESIVE - SILICONE RUBBER (ES-2531)
AR		42	MIL-S-22473	SEALING COMP, RETAINING, GRADE C
AR		41	MIL-M-7866	MOLYBDENUM DISULFIDE POWDER
AR		40	MIL-F-14256	FLUX (ES-2798)
AR		39	QQ-S-571, SN10WARP	SOLDER
AR		38	QQ-S-571, SN10WS	SOLDER
1		37	1010855	TERMINAL, FEEDTHRU, INSULATED
AR		36	1012507-004	TAPE, LACING
AR		35	1012503	POLYURETHANE POTTING COMPOUND
1		34	2014538	HOUSING, FEEDTHRU
1		33	1010858-18	PACKING, PREFORMED - "O" RING
1		32	2014537	GASKET
1		31	2014549	COVER
1		30	2014535	SHAFT, PIVOT
1		29	2014547	DIAPHRAGM
1		28	1021769	RING RETAINER
1		27	1010858-22	PACKING, PREFORMED - "O" RING
1		26	2014536	HANDLE
1		25	2014715-011	DESICCATOR ASSEMBLY
2		24	MS51029-49	SET SCREW, HEX SOC. HD
4		23	1010418-001	BUSHING, FLANGED
2		22	2014546	CAM
1		21	2014541-011	SHAFT HANDLE (INSEP ASSY)
1		20	2014558	PIN, PIVOT HEADED
2		19	1010418-002	BUSHING, FLANGED
23		18	MS35233-4	SCREW, MACHINE, PAN HD
1		17	MS16624-12	RING, RETAINING, EXTERNAL
4		16	MS35233-2	SCREW, MACHINE, PAD HD
1		15	2014534	SHAFT, YOKE
2		14	MS51045-3	SETSCREW, HEXAGON SOCKET HD
1		13	2014544	ARM, CAM FOLLOWER
2		12	2014555	PIN, PIVOT
2		11	1010931	SPRING, HELICAL, EXTENSION
4		10	MS16556-2	PIN, STRAIGHT, HEADLESS
3		9	1010780-1	BEARING, NEEDLE CAM FOLLOWER
1		8	2014543	ARM, CAM FOLLOWER
3		7	MS 35233-3	SCREW, MACHINE, PAN HD
2		6	2014539	CAP, BEARING PRELOAD
1		5	2014551-011	HOUSING ASS'Y, MATCHED MACH.
6		4	1015542	CLAMP, SYNCHRO
8		3	NAS1352C02-4	SCREW, CAP, SOCKET HEAD
2		2	1010740	LINEAR ROTARY TRANSFORMER
1		1	2014548	PLATE, BASE

LIST OF MATERIALS

NEXT ASSY	USED ON
2014578-011	2014578-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN DATE 6FEB64
CHECKED 15 FEB 65
APPROVAL W.H. Thompson 19 FEB 65
APPROVAL
NASA APPROVAL
MIT APPROVAL 15 FEB 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

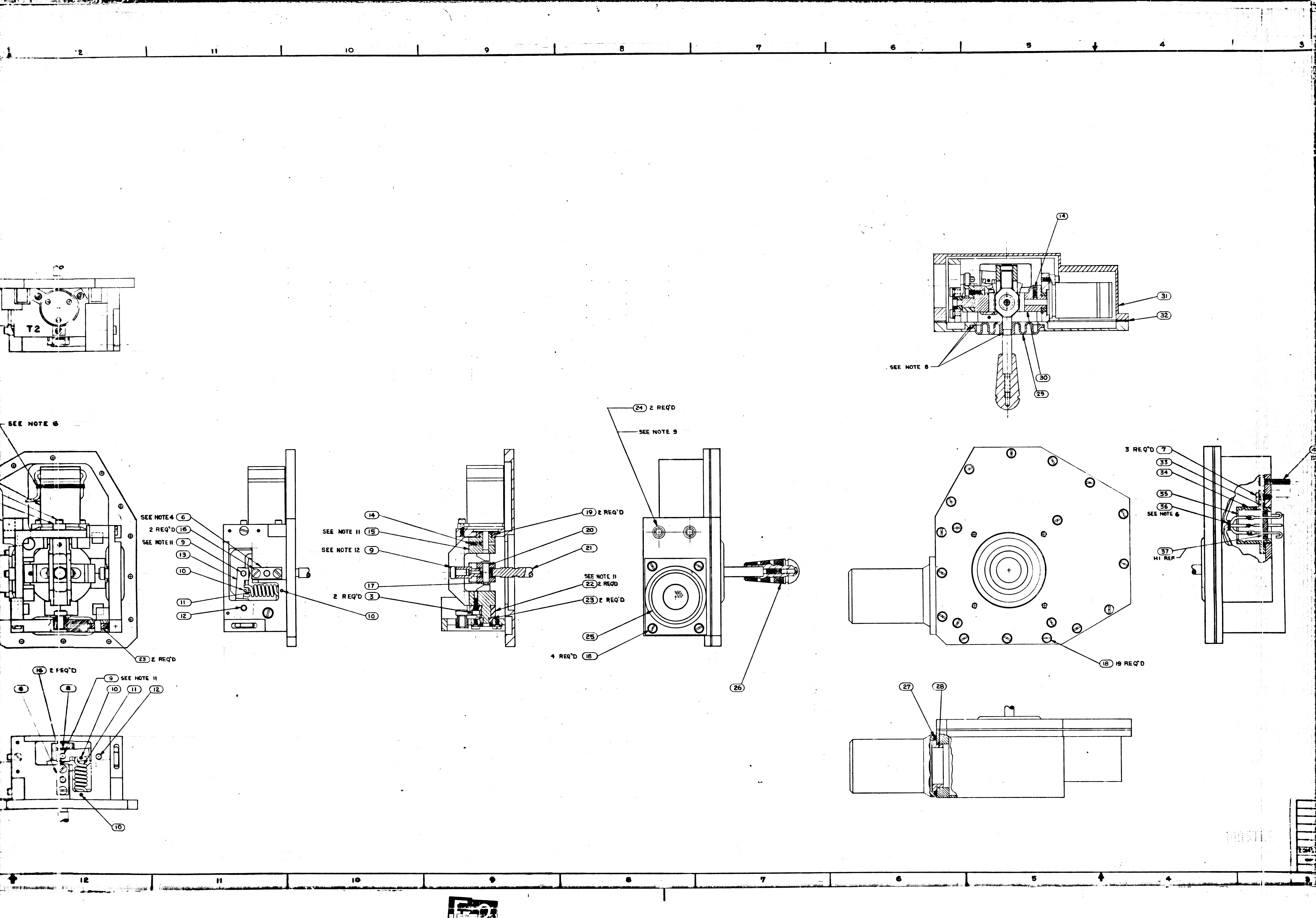
SEXTANT HAND CONTROLLER ASSEMBLY

CODE IDENT NO. 80230
SIZE J2
NASA DRAWING NO. 2014550
SCALE 2/1
WT
SHEET 1 OF 1

2014550

3H

2014550

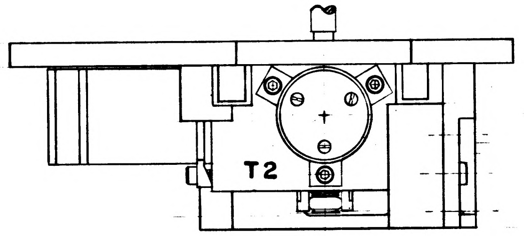


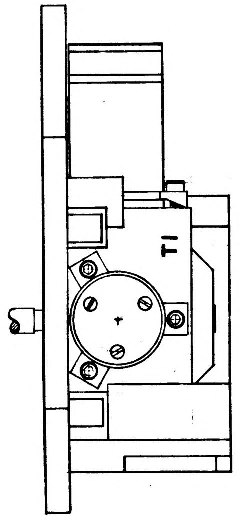
T2
SEE NOTE 6
SEE NOTE 8
24 2 REQ'D
SEE NOTE 9
SEE NOTE 4 6
2 REQ'D 16
SEE NOTE 11 9
SEE NOTE 11 15
SEE NOTE 12 9
2 REQ'D 3
19 2 REQ'D
SEE NOTE 11
22 2 REQ'D
23 2 REQ'D
4 REQ'D 18
3 REQ'D 7
SEE NOTE 6
H1 REF
18 19 REQ'D
23 2 REQ'D
16 2 REQ'D
9 SEE NOTE 11

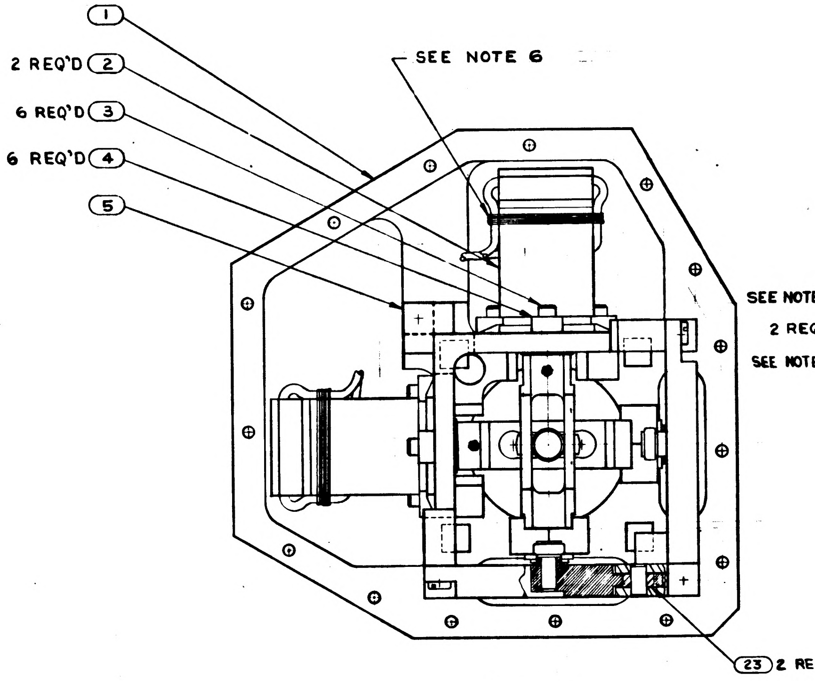
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

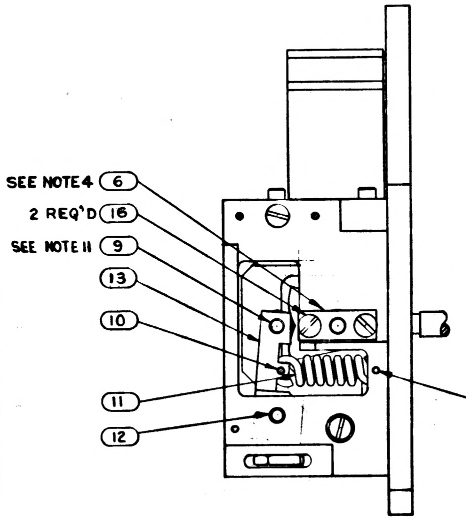
NOTES:

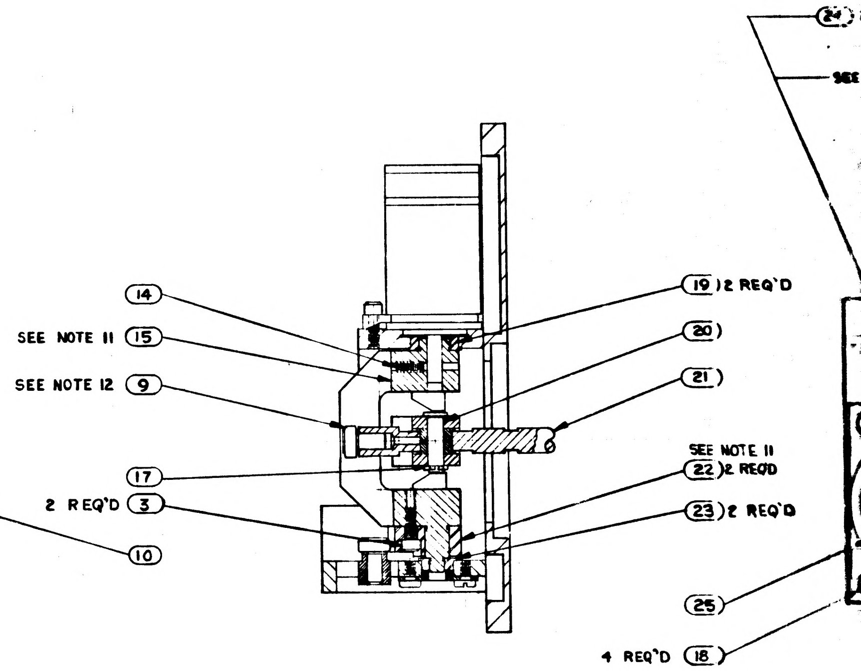
1. INTERPRET THIS DRAWING PER MIL-D-70327.
2. IDENTIFY USING DRAWING NO. PER ND1002019.
3. SERIALIZE PER ND1002023.
4. ASSEMBLE AND MOISTURE PROOF PRIOR TO INSTALLING ITEM (25).
5. UNLESS OTHERWISE SPECIFIED: SECURE ALL THREADS USING ITEM (42) PER ND1002211.
6. SPOT TIE WIRES TO TRANSFORMER BODY AND LACE WIRES TOGETHER BETWEEN TRANSFORMER AND FEEDTHRU, PER ND1002023, USING ITEM (36)
7. SOLDER ALL LEADS PER ND1002071 EXCEPT USE ITEMS (38) AND (40), OR (39).
8. BOND ITEM (29) TO ITEMS ① AND (21) PER ND1002151 USING ITEMS (43) AND (44) AS SHOWN.
9. APPLY ITEM (42) PER ND1002211 TO ITEM (24) AFTER COMPLETION OF PRESSURE DIFFERENTIAL TEST. ITEM (24) SHALL BE FLUSH TO .030 BELOW SURFACE.
10. ASSEMBLE, MOISTUREPROOF AND INSPECT PER PS 2014550.
11. PROCEDURE FOR APPLICATION OF ITEM (41):
    - A. PARTS SHALL BE FREE FROM OIL, GREASE AND DIRT BEFORE APPLICATION OF LUBRICANT.
    - B. APPLY A FILM OF ITEM (41) TO CONTACT SURFACES OF ITEMS (15) AND ⑨.
    - C. APPLY A FILM OF ITEM (41) TO CONTACT SURFACES OF ITEMS ⑨ AND (22).
    - D. REMOVE EXCESS LUBRICANT.
12. SECURE ITEM ⑨ TO ITEM (21) USING ITEM (42) PER ND1002211.
13. APPLY ITEM (48) TO THE THREAD OF ITEM (47) PER ND1002211.

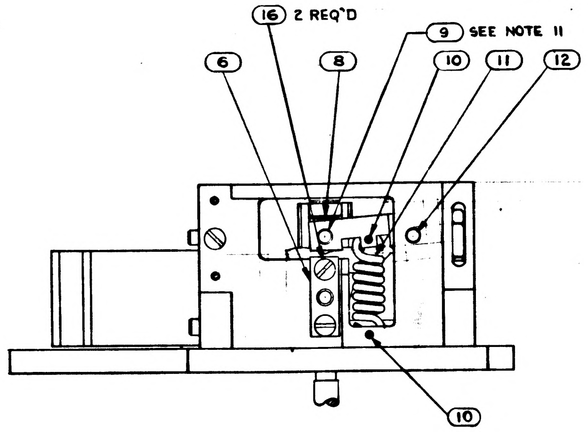





①
2 REQ'D ②
6 REQ'D ③
6 REQ'D ④
⑤
SEE NOTE 6
(23) 2 REQ'D


SEE NOTE 4 ⑥
2 REQ'D (16)
SEE NOTE 11 ⑨
(13)
(10)
(11)
(12)
(10)

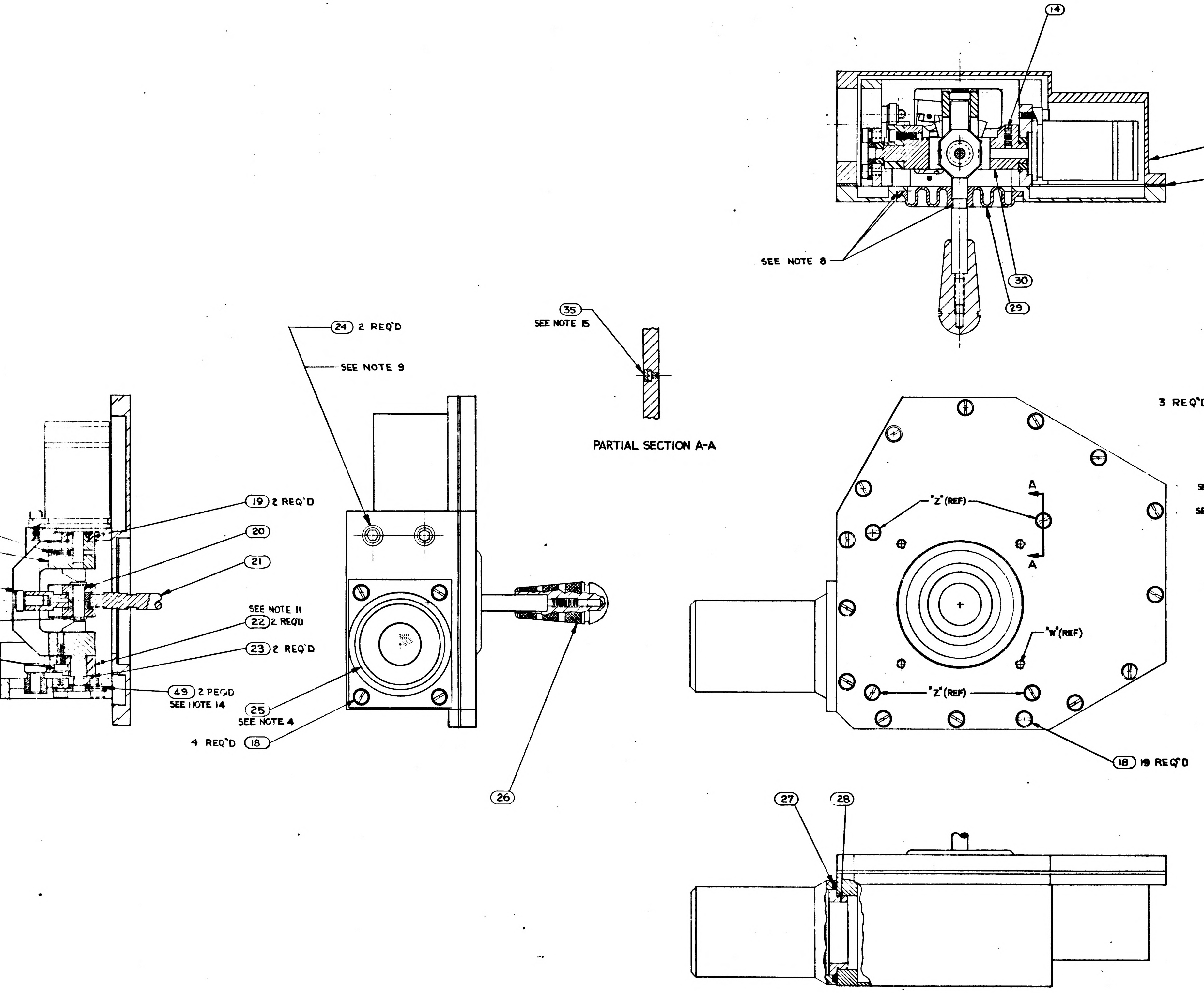

(14)
SEE NOTE 11 (15)
SEE NOTE 12 ⑨
(17)
2 REQ'D ③
(19) 2 REQ'D
(20)
(21)
SEE NOTE 11
(22) 2 REQ'D
(23) 2 REQ'D
(25)
4 REQ'D (18)
(24)


(16) 2 REQ'D
⑨ SEE NOTE 11
⑥
⑧
(10)
(11)
(12)
(10)

SEE NOTE 7

CONDUCTOR	FROM	STRIP	TIN	TO	STRIP	TIN	ITEM NO.	LENGTH
T1 - RED	T1			H1-8	.30	YES		6.50
T1 - BLK	T1			H1-7				
T1 - YEL	T1			H1-5				
T1 - BLU	T1			H1-6				
T2 - RED	T2			H1-2				
T2 - BLK	T2			H1-1				
T2 - YEL	T2			H1-3	↓	↓		↓
T2 - BLU	T2			H1-4	.30	YES		6.50

SYM	DESCRIPTION	DATE	APPROVAL
	INITIAL CLASS A RELEASE TDRR NO. 6703	7/13/65	WK
A	REVISED PER TDRR NO. 20646	14 AUG 65	WK
B	REVISED PER TDRR NO. 21383	27 AUG 65	WK
C	REVISED PER TDRR NO. 24114	7/12/65	



QUANTITY REQUIRED (DASH NO. 011)	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
4		49	1008836-001	WASHER, SHIM, LAMINATED
AR		48	MIL-S-22473	SEALING COMP, RETAINING, GRADE AA
1		47	NAS1352C04-8	SCREW, SOC HD. CAP
REF		46	2014520	SCHEMATIC DIAGRAM - SEXT HAND CON
REF		45	2014506	WIRING DIAGRAM - SEXTANT HAND CONT
AR		44	1010718	PRIMER, SILICONE ADHESIVE
AR		43	MIL-A-25457	ADHESIVE - SILICONE RUBBER (ES-2531)
AR		42	MIL-S-22473	SEALING COMP, RETAINING, GRADE C
AR		41	MIL-M-7866	MOLYBDENUM DISULFIDE POWDER
AR		40	MIL-F-14256	FLUX (ES-2798)
AR		39	QQ-S-571, SN10WARP	SOLDER
AR		38	QQ-S-571, SN10WS	SOLDER
1		37	1010855	TERMINAL, FEEDTHRU, INSULATED
AR		36	1012507-004	TAPE, LACING
AR		35	1012503	POLYURETHANE POTTING COMPOUND
1		34	2014538	HOUSING, FEEDTHRU
1		33	1010858-18	PACKING, PREFORMED - "O" RING
1		32	2014537	GASKET
1		31	2014549	COVER
1		30	2014535	SHAFT, PIVOT
1		29	2014547	DIAPHRAGM
1		28	1021769	RING RETAINER
1		27	1010858-22	PACKING, PREFORMED - "O" RING
1		26	2014536	HANDLE
1		25	2014715-011	DESICCATOR ASSEMBLY
2		24	MS51029-49	SET SCREW, HEX SOC. HD
4		23	1010418-001	BUSHING, FLANGED
2		22	2014546	CAM
1		21	2014541-011	SHAFT HANDLE (INSEP ASSY)
1		20	2014558	PIN, PIVOT HEADED
2		19	1010418-002	BUSHING, FLANGED
23		18	MS35233-4	SCREW, MACHINE, PAN HD
1		17	MS16624-12	RING, RETAINING, EXTERNAL
4		16	NAS1352C02LL3	SCREW, SOC. HD. CAP, SELF-LOCKING
1		15	2014534	SHAFT, YOKE
2		14	MS51045-3	SETSCREW, HEXAGON SOCKET HD
1		13	2014544	ARM, CAM FOLLOWER
2		12	2014555	PIN, PIVOT
2		11	1010931	SPRING, HELICAL, EXTENSION
4		10	MS16556-2	PIN, STRAIGHT, HEADLESS
3		9	1010780-1	BEARING, NEEDLE CAM FOLLOWER
1		8	2014543	ARM, CAM FOLLOWER
3		7	MS35233-3	SCREW, MACHINE, PAN HD
2		6	2014539	CAP, BEARING PRELOAD
1		5	2014551-011	HOUSING ASS'Y, MATCHED MACH.
6		4	1015542	CLAMP, SYNCHRO
8		3	NAS1352C02-4	SCREW, CAP, SOCKET HEAD
2		2	1010740	LINEAR ROTARY TRANSFORMER
1		1	2014548	PLATE, BASE

LIST OF MATERIALS

NEXT ASSY	USED ON
2014578-011	2014623-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE 6 FEB 64
CHECKED 15 ZAGS
APPROVAL W.N. Thompson 19 FEB 65
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

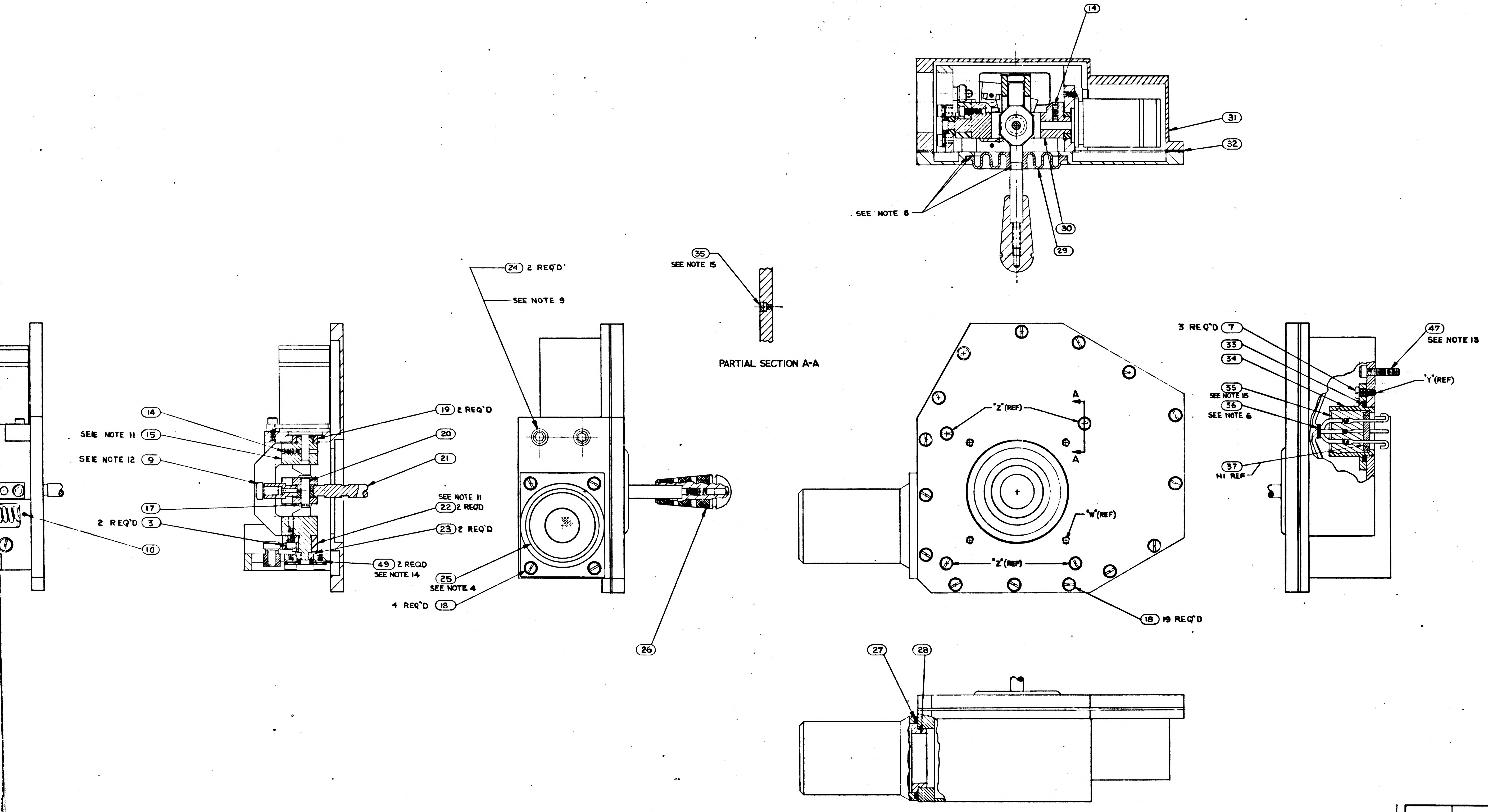
SEXTANT HAND CONTROLLER ASSEMBLY

CODE IDENT NO. 80230
SIZE J2
NASA DRAWING NO. 2014550
SCALE 2/1
WT
SHEET 1 OF 1

2014550 C

F3

	TDRR. NO.
A	REVISED PER TDRR NO.
B	REVISED PER TDRR NO.
C	REVISED PER TDRR NO.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31
32
SEE NOTE 8
30
29
35
SEE NOTE 15
PARTIAL SECTION A-A
24 2 REQ'D
SEE NOTE 9
14
SEE NOTE 11 15
SEE NOTE 12 9
17
2 REQ'D 3
10
19 2 REQ'D
20
21
SEE NOTE 11
22 2 REQ'D
23 2 REQ'D
49 2 REQD
SEE NOTE 14
25
SEE NOTE 4
4 REQ'D 18
26
"Z" (REF)
A
A
"W" (REF)
"Z" (REF)
18 19 REQ'D
3 REQ'D 7
33
34
35
SEE NOTE 15
36
SEE NOTE 6
37
H1 REF
47
SEE NOTE 13
"Y" (REF)
27
28

QUANTITY REQUIRED					ITEM NO.	PART OR IDENTIFYING NO.	NOMENCLAT DESCRIP
DASH NO.			011	EFFECTIVITY			
			4		49	1008836-001	WASHER, SHIM, LAM
			AR		49	MIL-S-22473	SEALING COMP, R
			1		47	NAS1352C04-8	SCREW, SOC H
			REF		46	2014520	SCHEMATIC DIAGR
			REF		45	2014506	WIRING DIAGRAM
			AR		44	1010718	PRIMER, SILICONE
			AR		43	MIL-A-25457	ADHESIVE -SILIC
			AR		42	MIL-S-22473	SEALING COMP,
			AR		41	MIL-M-7866	MOLYBDENUM
			AR		40	MIL-F-14256	FLUX (ES-2798)
			AR		39	QQ-S-571, SN10WARP	SOLDER
			AR		38	QQ-S-571, SN10WS	SOLDER
			1		37	1010855	TERMINAL, FEED
			AR		36	1012507-004	TAPE, LACING
			AR		35	1012503	POLYURETHANE
			1		34	2014538	HOUSING, FEED
			1		33	1010858-18	PACKING, PREFO
			1		32	2014537	GASKET
			1		31	2014549	COVER
			1		30	2014535	SHAFT, PIVOT
			1		29	2014547	DIAPHRAGM
			1		28	1021769	RING RETAINER
			1		27	1010858-22	PACKING, PREFOR
			1		26	2014536	HANDLE
			1		25	2014715-011	DESICCATOR A
			2		24	MS51029-49	SET SCREW, HEX
			4		23	1010418-001	BUSHING, FLANG
			2		22	2014546	CAM
			1		21	2014541-011	SHAFT HANDLE
			1		20	2014558	PIN, PIVOT HE
			2		19	1010418-002	BUSHING, FLAN
			23		18	MS35233-4	SCREW, MACHIN
			1		17	MS16624-12	RING, RETAINING
			4		16	NAS352C02LL3	SCREW, SOC. HD. CAP, S
			1		15	2014534	SHAFT, YOKE
			2		14	MS51045-3	SETSCREW, HEX
			1		13	2014544	ARM, CAM FOL
			2		12	2014555	PIN, PIVOT
			2		11	1010931	SPRING, HELICA
			4		10	MS16556-2	PIN, STRAIGHT, H
			3		9	1010780-1	BEARING, NEE
			1		8	2014543	ARM, CAM FOL
			3		7	MS35233-3	SCREW, MACHINE
			2		6	2014539	CAP, BEARING P
					5	2014551-011	HOUSING ASS'Y
			6		4	1015542	CLAMP, SYNCHR
			8		3	NAS1352C02-4	SCREW, CAP, SO
			2		2	1010740	LINEAR ROTARY
			1		1	2014548	PLATE, BASE

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH
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NEXT ASSY	USED ON
2014578-011	2014623-011

APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN [illegible] DATE 6 FEB 64
CHECKED [illegible] 15 FEB 65
APPROVAL W. Thompson 19 FEB 65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECR
HOUSTON

SEXTANT HAND
ASSEMBL

CODE IDENT NO. 80 0 SIZE 2 20
SCALE 2/1 WT

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NOTES:

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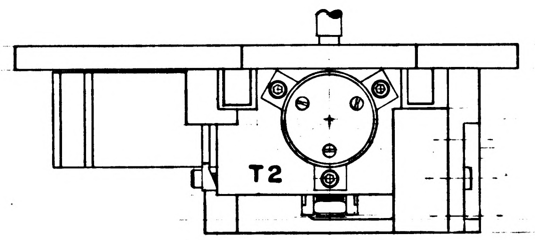
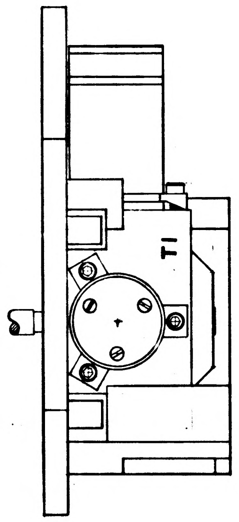
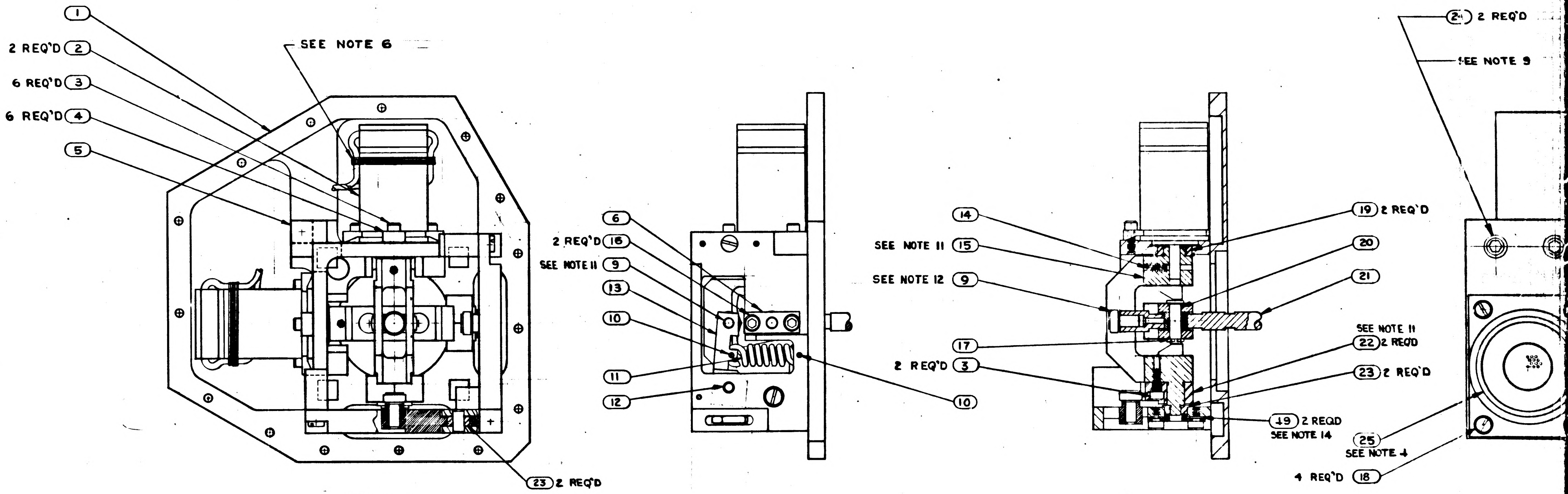
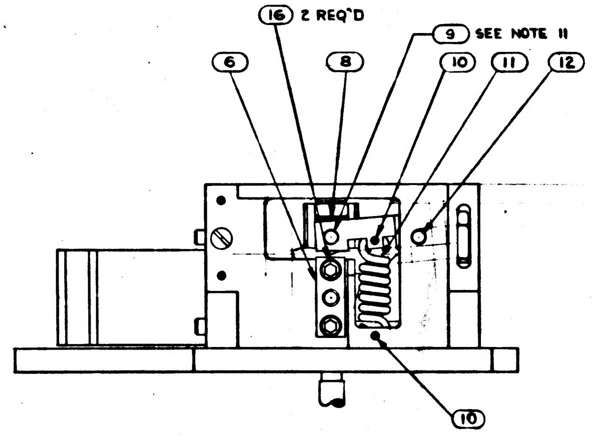
4. ASSEMBLE AND MOISTURE PROOF PRIOR TO INSTALLING ITEM (25).
5. ALL THREADS NOT SECURED BY LOCKING DEVICES SHALL BE SECURED USING ITEM (42) PER ND1002211 UNLESS OTHERWISE SPECIFIED.
6. SPOT TIE WIRES TO TRANSFORMER BODY AND LACE WIRES TOGETHER BETWEEN TRANSFORMER AND FEEDTHRU, PER ND1002032, USING ITEM (36)
7. SOLDER ALL LEADS PER ND1002071 EXCEPT USE ITEMS (38) AND (40), OR (39).
8. BOND ITEM (29) TO ITEMS (1) AND (21) PER ND1002151 USING ITEMS (43) AND (44) AS SHOWN.
9. APPLY ITEM (42) PER ND1002211 TO ITEM (24) AFTER COMPLETION OF PRESSURE DIFFERENTIAL TEST. ITEM (24) SHALL BE FLUSH TO .030 BELOW SURFACE.
10. ASSEMBLE AND INSPECT PER PS 2014550.
11. PROCEDURE FOR APPLICATION OF ITEM (41):
    A. PARTS SHALL BE FREE FROM OIL, GREASE AND DIRT BEFORE APPLICATION OF LUBRICANT.
    B. APPLY A FILM OF ITEM (41) TO CONTACT SURFACES OF ITEMS (15) AND (9).
    C. APPLY A FILM OF ITEM (41) TO CONTACT SURFACES OF ITEMS (9) AND (22).
    D. REMOVE EXCESS LUBRICANT.
12. SECURE ITEM (9) TO ITEM (21) USING ITEM (48) PER ND1002211.
13. APPLY ITEM (48) TO THE THREAD OF ITEM (47) PER ND1002211.
14. PEEL ITEM (49) TO THE THICKNESS REQUIRED TO OBTAIN MINIMUM END-PLAY WITHOUT BINDING OF ITEM (15) AND (30), AND WITH ITEM (6) BEARING FIRMLY AGAINST ITEM (49).
15. ENCAPSULATE THE FOLLOWING, USING ITEM (35) PER ND1002236, EXCEPT THE OVEN TEMPERATURE SHALL BE 150° ± 5°F FOR THE CURING PROCEDURE FOR 10 HOURS MINIUMUM:
    A. ITEM (34) TO TOP OF CAVITY $^{+0.00}_{-0.06}$ AS SHOWN.
    B. SCREW HEADS DESIGNATED "Z" AS SHOWN.









SEE NOTE 7

CONDUCTOR	FROM	STRIP	TIN	TO	STRIP	TIN	ITEM NO.	LENGTH
T1 - RED	T1			H1-8	.30	YES		6.50
T1 - BLK	T1			H1-7	↓	↓		↓
T1 - YEL	T1			H1-5	↓	↓		↓
T1 - BLU	T1			H1-6	↓	↓		↓
T2 - RED	T2			H1-2	↓	↓		↓
T2 - BLK	T2			H1-1	↓	↓		↓
T2 - YEL	T2			H1-3	↓	↓		↓
T2 - BLU	T2			H1-4	.30	YES		6.50

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NOTES:

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3. SERIALIZE PER ND1002023.
4. ASSEMBLE AND MOISTURE PROOF PRIOR TO INSTALLING ITEM (25).
5. ALL THREADS NOT SECURED BY LOCKING DEVICES SHALL BE SECURED USING ITEM (42) PER ND1002211 UNLESS OTHERWISE SPECIFIED.
6. SPOT TIE WIRES TO TRANSFORMER BODY AND LACE WIRES TOGETHER BETWEEN TRANSFORMER AND FEEDTHRU, PER ND1002032, USING ITEM ~~(36)~~ (30)
7. SOLDER ALL LEADS PER ND1002071 EXCEPT USE ITEMS (38) AND (40), OR (39).
8. BOND ITEM (29) TO ITEMS (1) AND (21) PER ND1002151 USING ITEMS (43) AND (44) AS SHOWN.
9. APPLY ITEM (42) PER ND1002211 TO ITEM (24) AFTER COMPLETION OF PRESSURE DIFFERENTIAL TEST. ITEM (24) SHALL BE FLUSH TO .030 BELOW SURFACE.
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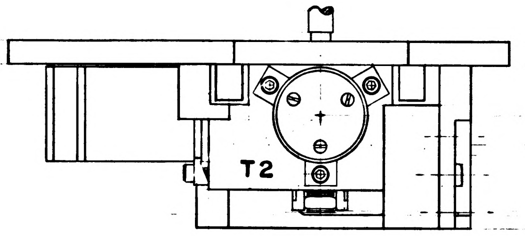
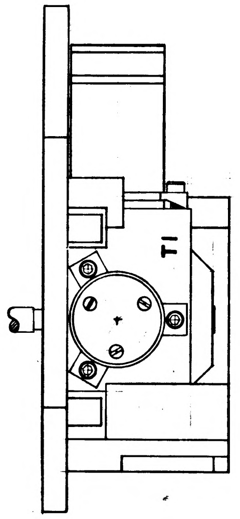
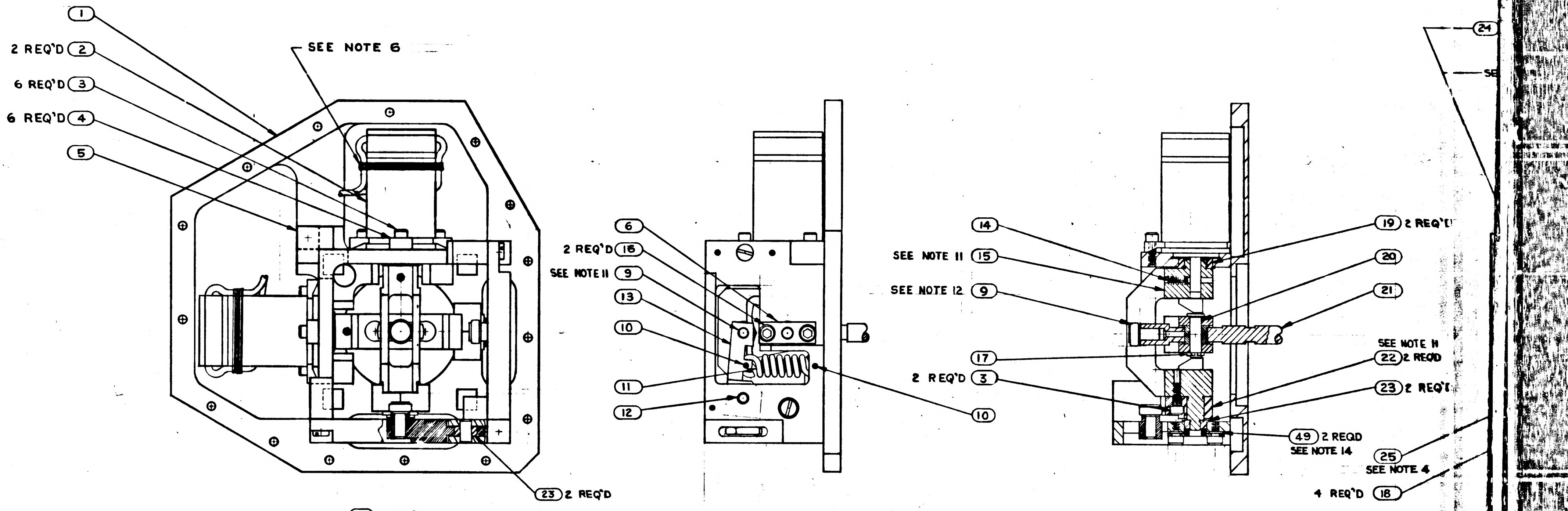
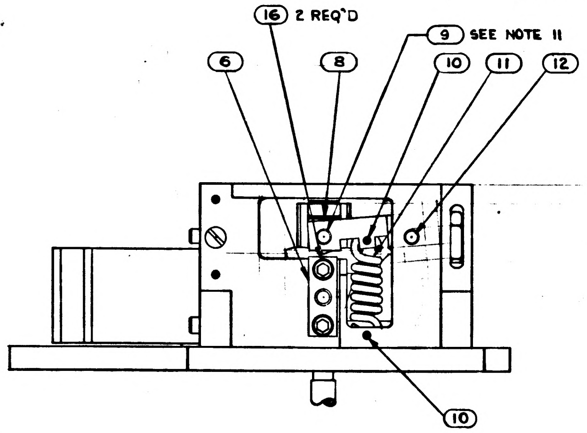
11. PROCEDURE FOR APPLICATION OF ITEM (41):
    A. PARTS SHALL BE FREE FROM OIL, GREASE AND DIRT BEFORE APPLICATION OF LUBRICANT.
    B. APPLY A FILM OF ITEM (41) TO CONTACT SURFACES OF ITEMS (15) AND (9).
    C. APPLY A FILM OF ITEM (41) TO CONTACT SURFACES OF ITEMS (9) AND (22).
    D. REMOVE EXCESS LUBRICANT.
12. SECURE ITEM (9) TO ITEM (21) USING ITEM (48) PER ND1002211.
13. APPLY ITEM (48) TO THE THREAD OF ITEM (47) PER ND1002211.
14. PEEL ITEM (49) TO THE THICKNESS REQUIRED TO OBTAIN MINIMUM END-PLAY WITHOUT BINDING OF ITEM (15) AND (30), AND WITH ITEM (6) BEARING FIRMLY AGAINST ITEM (49).
15. ENCAPSULATE THE FOLLOWING, USING ITEM (35) PER ND1002236, EXCEPT THE OVEN TEMPERATURE SHALL BE 150° ± 5°F FOR THE CURING PROCEDURE FOR 10 HOURS MINIUMUM:
    A. ITEM (34) TO TOP OF CAVITY $^{+0.00}_{-0.06}$ AS SHOWN.
    B. SCREW HEADS DESIGNATED "Z" AS SHOWN.







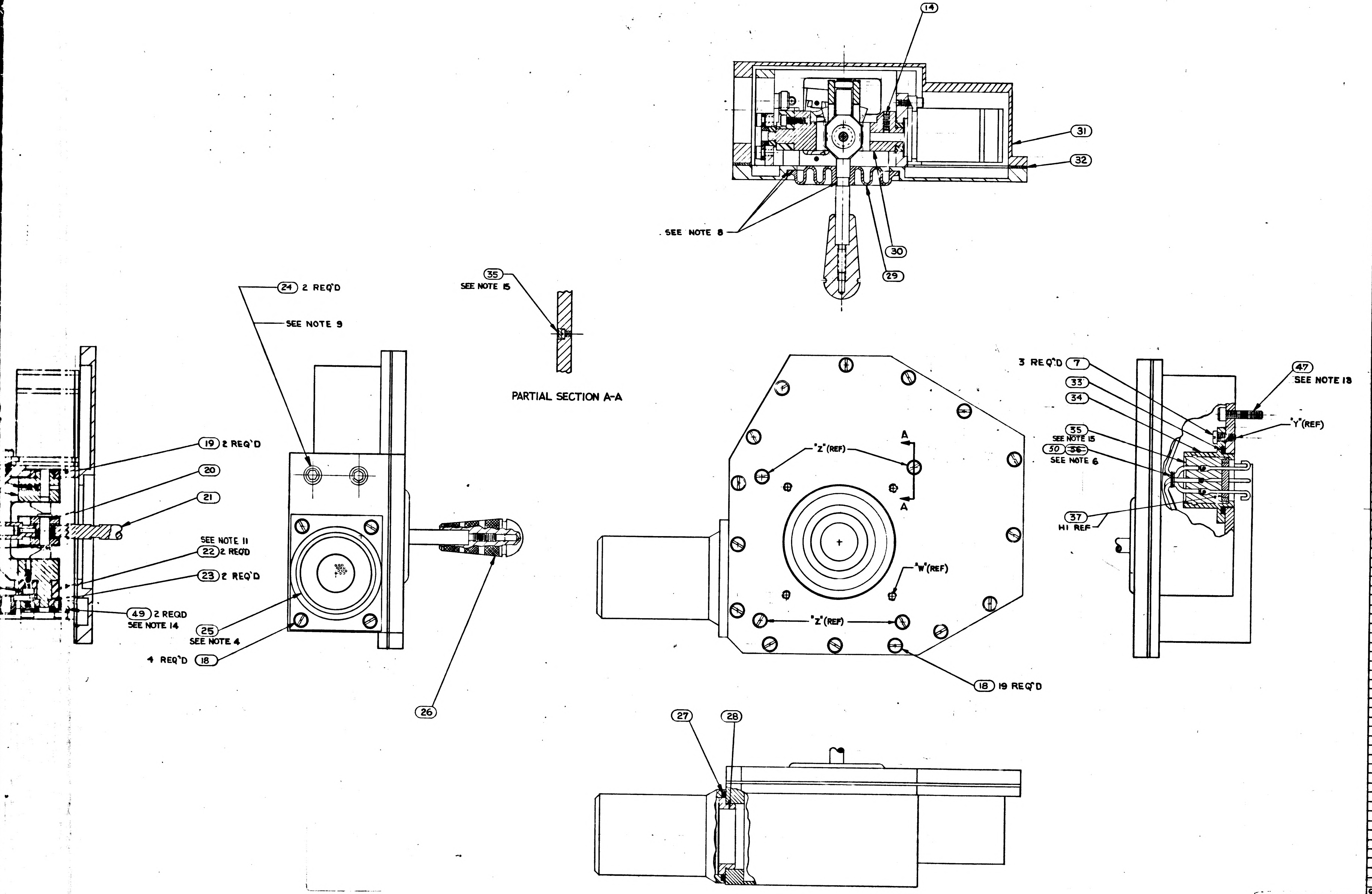


SEE NOTE 7

CONDUCTOR	FROM	STRIP	TIN	TO	STRIP	TIN	ITEM NO.	LENGTH
T1 - RED	T1			H1-8	.30	YES		6.50
T1 - BLK	T1			H1-7				
T1 - YEL	T1			H1-5				
T1 - BLU	T1			H1-6				
T2 - RED	T2			H1-2				
T2 - BLK	T2			H1-1				
T2 - YEL	T2			H1-3				
T2 - BLU	T2			H1-4	.30	YES		6.50

34

REVISIONS		6703	
SYM	DESCRIPTION	DATE	APPROVAL
	INITIAL CLASS A RELEASE TDRR NO. 6703	7/1/65	WK
A	REVISED PER TDRR NO. 20646	14 AUG 65	WR
B	REVISED PER TDRR NO. 21383	27 AUG 65	WR
Ⓜ C	REVISED PER TDRR NO. 24114	7/12/65	WK
D	REVISED PER TDRR 32390	19 JAN 67	JRK EF



QUANTITY REQUIRED 011	ITEM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
AR	50	1012555-002	TAPE, LACING
4	49	1008836-001	WASHER, SHIM, LAMINATED
AR	48	MIL-S-22473	SEALING COMP, RETAINING, GRADE AA
1	47	NAS1352C04-8	SCREW, SOC HD. CAP
REF	46	2014520	SCHEMATIC DIAGRAM - SEXT HAND CONT
REF	45	2014506	WIRING DIAGRAM - SEXTANT HAND CONT
AR	44	1010718	PRIMER, SILICONE ADHESIVE
AR	43	MIL-A-25457	ADHESIVE - SILICONE RUBBER (ES-2531)
AR	42	MIL-S-22473	SEALING COMP, RETAINING, GRADE C
AR	41	MIL-M-7866	MOLYBDENUM DISULFIDE POWDER
AR	40	MIL-F-14256	FLUX (ES-2798)
AR	39	QQ-S-571, SN10WARP	SOLDER
AR	38	QQ-S-571, SN10WS	SOLDER
1	37	1010855	TERMINAL, FEEDTHRU, INSULATED
~~AR~~	~~36~~	~~1012507-004~~	~~TAPE, LACING~~
AR	35	1012503	POLYURETHANE POTTING COMPOUND
1	34	2014538	HOUSING, FEEDTHRU
1	33	1010858-18	PACKING, PREFORMED - "O" RING
1	32	2014537	GASKET
1	31	2014549	COVER
1	30	2014535	SHAFT, PIVOT
1	29	2014547	DIAPHRAGM
1	28	1021769	RING RETAINER
1	27	1010858-22	PACKING, PREFORMED - "O" RING
1	26	2014536	HANDLE
1	25	2014715-011	DESICCATOR ASSEMBLY
2	24	MS51029-49	SET SCREW, HEX SOC. HD
4	23	1010418-001	BUSHING, FLANGED
2	22	2014546	CAM
1	21	2014541-011	SHAFT HANDLE (INSEP ASSY)
1	20	2014558	PIN, PIVOT HEADED
2	19	1010418-002	BUSHING, FLANGED
23	18	MS35233-4	SCREW, MACHINE, PAN HD
1	17	MS16624-12	RING, RETAINING, EXTERNAL
4	16	NAS1352C02LL3	SCREW, SOC. HD. CAP, SELF-LOCKING
1	15	2014534	SHAFT, YOKE
2	14	MS51045-3	SETSCREW, HEXAGON SOCKET HD
1	13	2014544	ARM, CAM FOLLOWER
2	12	2014555	PIN, PIVOT
2	11	1010931	SPRING, HELICAL, EXTENSION
4	10	MS16556-2	PIN, STRAIGHT, HEADLESS
3	9	1010780-1	BEARING, NEEDLE CAM FOLLOWER
1	8	2014543	ARM, CAM FOLLOWER
3	7	MS35233-3	SCREW, MACHINE, PAN HD
2	6	2014539	CAP, BEARING PRELOAD
1	5	2014551-011	HOUSING ASS'Y, MATCHED MACH.
6	4	1015542	CLAMP, SYNCHRO
8	3	NAS1352C02-4	SCREW, CAP, SOCKET HEAD
2	2	1010740	LINEAR ROTARY TRANSFORMER
1	1	2014548	PLATE, BASE

DASH NO. · EFFECTIVITY

LIST OF MATERIALS

3#

NEXT ASSY	USED ON
2014578-011	2014623-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN [illegible] DATE 6 FEB 65
CHECKED [illegible] 15 FEB 65
APPROVAL W.H. Thompson 19 FEB 65
APPROVAL [illegible]
[illegible] 2/10/65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 15 FEB 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SEXTANT HAND CONTROLLER ASSEMBLY

CODE IDENT NO. 80230
SIZE J2
NASA DRAWING NO. 2014550
SCALE 2/1
WT
SHEET 1 OF 1

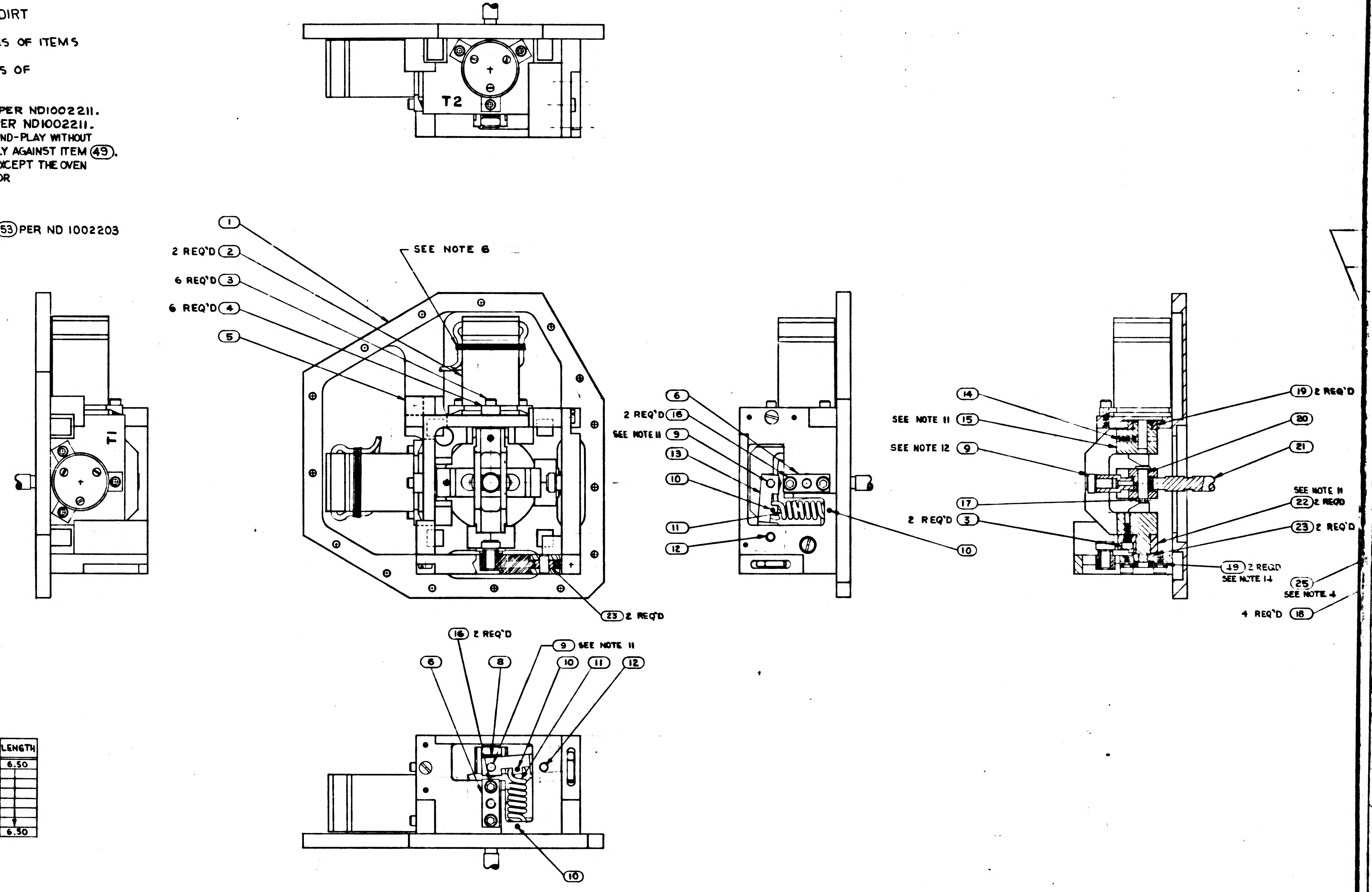
2014550

2/2014550

NOTICE [illegible]

NOTES:

1. INTERPRET THIS DRAWING PER MIL-D-70327.
2. IDENTIFY USING DRAWING NO. PER ND1002019.
3. SERIALIZE PER ND1002023.
4. ASSEMBLE AND MOISTURE PROOF PRIOR TO INSTALLING ITEM ㉕.
5. ALL THREADS NOT SECURED BY LOCKING DEVICES SHALL BE SECURED USING ITEM ㊷ PER ND1002211 UNLESS OTHERWISE SPECIFIED.
6. SPOT TIE WIRES TO TRANSFORMER BODY AND LACE WIRES TOGETHER BETWEEN TRANSFORMER AND FEEDTHRU, PER ND1002032, USING ITEM ~~㊱~~ ㊲
7. SOLDER ALL LEADS PER ND1002071 EXCEPT USE ITEMS ㊳ AND ㊵, OR ㊴.
8. BOND ITEM ㉙ TO ITEMS ① AND ㉑ PER ND1002151 USING ITEMS ㊸ AND ㊹ AS SHOWN.
9. APPLY ITEM ㊷ PER ND1002211 TO ITEM ㉔ AFTER COMPLETION OF PRESSURE DIFFERENTIAL TEST. ITEM ㉔ SHALL BE FLUSH TO .030 BELOW SURFACE.
10. ASSEMBLE AND INSPECT PER PS 2014550.
11. PROCEDURE FOR APPLICATION OF ITEM ㊶:
    - A. PARTS SHALL BE FREE FROM OIL, GREASE AND DIRT BEFORE APPLICATION OF LUBRICANT.
    - B. APPLY A FILM OF ITEM ㊶ TO CONTACT SURFACES OF ITEMS ⑮ AND ⑨.
    - C. APPLY A FILM OF ITEM ㊶ TO CONTACT SURFACES OF ITEMS ⑨ AND ㉒.
    - D. REMOVE EXCESS LUBRICANT.
12. SECURE ITEM ⑨ TO ITEM ㉑ USING ITEM ㊽ PER ND1002211.
13. APPLY ITEM ㊽ TO THE THREAD OF ITEM ㊼ PER ND1002211.
14. PEEL ITEM (49) TO THE THICKNESS REQUIRED TO OBTAIN MINIMUM END-PLAY WITHOUT BINDING OF ITEM ⑮ AND ㉚, AND WITH ITEM ⑥ BEARING FIRMLY AGAINST ITEM (49).
15. ENCAPSULATE THE FOLLOWING, USING ITEM ㉟ PER ND 1002236, EXCEPT THE OVEN TEMPERATURE SHALL BE 150° ± 5°F FOR THE CURING PROCEDURE FOR 10 HOURS MINIUMUM:
    - A. ITEM ㉞ TO TOP OF CAVITY $^{+0.00}_{-0.06}$ AS SHOWN.
    - B. SCREW HEADS DESIGNATED "Z" AS SHOWN.
16. APPLY A SMALL AMOUNT OF ADHESIVE, USING ITEMS (52) AND (53) PER ND 1002203 TO THE KNOTS OF ALL STARTING, FINISHING AND SPOT TIES.



T2
T1
①
2 REQ'D ②
6 REQ'D ③
6 REQ'D ④
⑤
SEE NOTE 6
㉓ 2 REQ'D
⑥
2 REQ'D ⑯
SEE NOTE 11 ⑨
⑬
⑩
⑪
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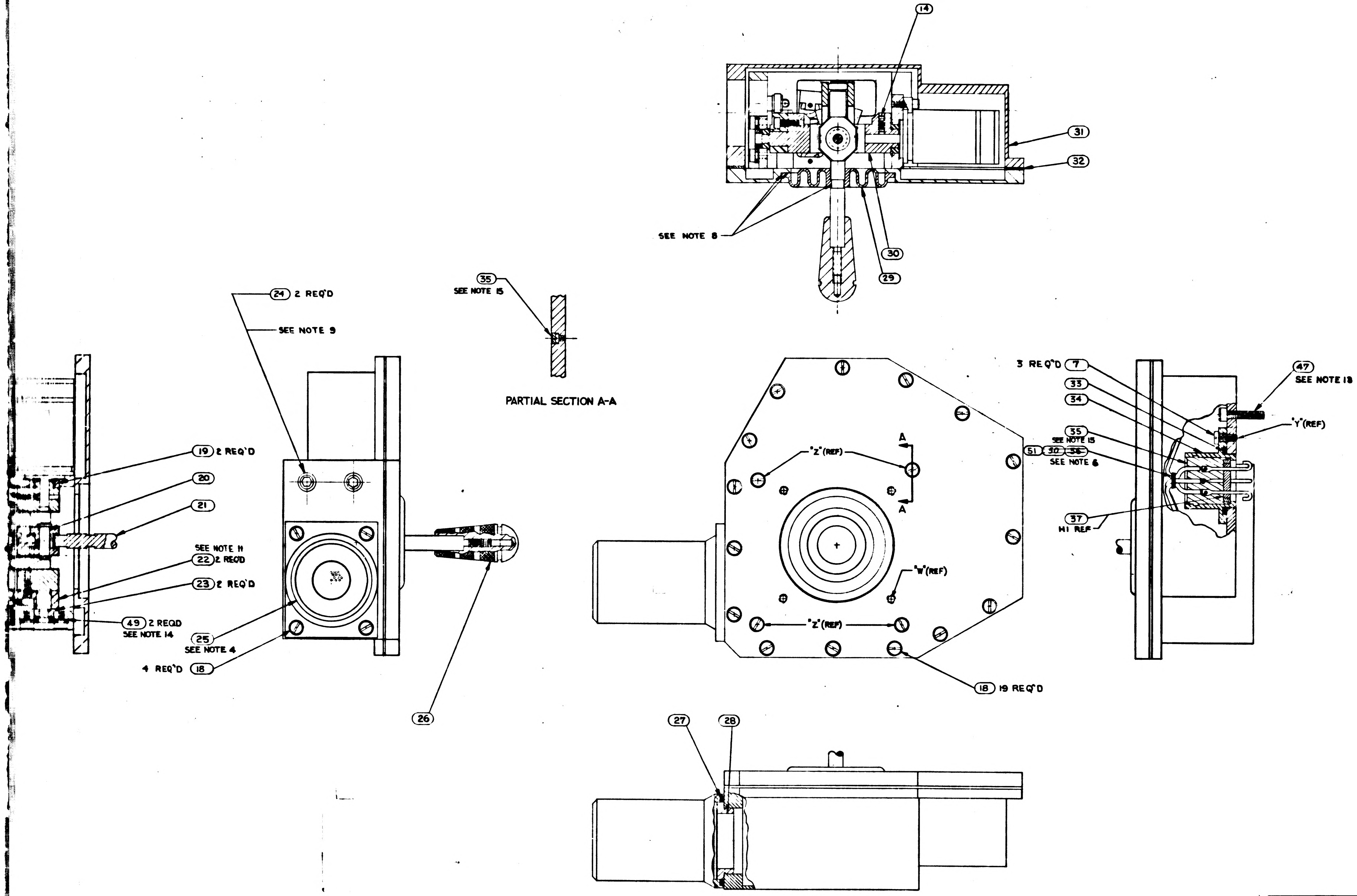
⑩
⑭
SEE NOTE 11 ⑮
SEE NOTE 12 ⑨
⑰
2 REQ'D ③
⑲ 2 REQ'D
⑳
㉑
SEE NOTE 11
㉒ 2 REQ'D
㉓ 2 REQ'D
⑲ 2 REQ'D
SEE NOTE 14
㉕
SEE NOTE 4
4 REQ'D ⑱
⑯ 2 REQ'D
⑨ SEE NOTE 11
⑥
⑧
⑩
⑪
⑫
⑩

SEE NOTE 7

CONDUCTOR	FROM	STRIP	TIN	TO	STRIP	TIN	ITEM NO.	LENGTH
T1 - RED	T1			H1-8	.30	YES		6.50
T1 - BLK	T1			H1-7				
T1 - YEL	T1			H1-5				
T1 - BLU	T1			H1-6				
T2 - RED	T2			H1-2				
T2 - BLK	T2			H1-1				
T2 - YEL	T2			H1-3				
T2 - BLU	T2 -			H1-4	.30	YES		6.50

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
	INITIAL CLASS A RELEASE TDRR NO. 6703	7/ /65	WK
A	REVISED PER TDRR NO. 20646	14 AUG 65	WK
B	REVISED PER TDRR NO. 21383	27 AUG 65	WK
C	REVISED PER TDRR NO. 24114	7/12/65	
D	REVISED PER TDRR 32390	19 JAN 67	JRK EF
E	REVISED PER TDRR 35895	22 MAR 68	



DASH NO. 011 (QUANTITY REQUIRED)	ITEM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
AR	53	1010750	CURING AGENT, POLYAMIDE
AR	52	1010748	EPOXY RESIN
AR	51	1008936-003	TAPE, LACING
~~AR~~	~~50~~	~~1012555-002~~	~~TAPE, LACING~~
4	49	1008836-001	WASHER, SHIM, LAMINATED
AR	48	MIL-S-22473	SEALING COMP, RETAINING, GRADE AA
1	47	NAS1352C04-8	SCREW, SOC HD. CAP
REF	46	2014520	SCHEMATIC DIAGRAM - SEXT HAND CONT
REF	45	2014506	WIRING DIAGRAM SEXTANT HAND CONT
AR	44	1010718	PRIMER, SILICONE ADHESIVE
AR	43	MIL-A-25457	ADHESIVE - SILICONE RUBBER (ES-2531)
AR	42	MIL-S-22473	SEALING COMP, RETAINING, GRADE C
AR	41	MIL-M-7866	MOLYBDENUM DISULFIDE POWDER
AR	40	MIL-F-14256	FLUX (ES-2798)
AR	39	QQ-S-571, SN10WARP	SOLDER
AR	38	QQ-S-571, SN10WS	SOLDER
1	37	1010855	TERMINAL, FEEDTHRU, INSULATED
~~AR~~	~~36~~	~~1012507-004~~	~~TAPE, LACING~~
AR	35	1012503	POLYURETHANE POTTING COMPOUND
1	34	2014538	HOUSING, FEEDTHRU
1	33	1010858-18	PACKING, PREFORMED - "O" RING
1	32	2014537	GASKET
1	31	2014549	COVER
1	30	2014535	SHAFT, PIVOT
1	29	2014547	DIAPHRAGM
1	28	1021769	RING RETAINER
1	27	1010858-22	PACKING, PREFORMED - "O" RING
1	26	2014536	HANDLE
1	25	2014715-011	DESICCATOR ASSEMBLY
2	24	MS51029-49	SET SCREW, HEX SOC. HD
4	23	1010418-001	BUSHING, FLANGED
2	22	2014546	CAM
1	21	2014541-011	SHAFT HANDLE (INSEP ASSY)
1	20	2014558	PIN, PIVOT HEADED
2	19	1010418-002	BUSHING, FLANGED
23	18	MS35233-4	SCREW, MACHINE, PAN HD
1	17	MS16624-12	RING, RETAINING, EXTERNAL
4	16	NAS1352C02LL3	SCREW, SOC. HD CAP, SELF-LOCKING
1	15	2014534	SHAFT, YOKE
2	14	MS51045-3	SETSCREW, HEXAGON SOCKET HD
1	13	2014544	ARM, CAM FOLLOWER
2	12	2014555	PIN, PIVOT
2	11	1010931	SPRING, HELICAL, EXTENSION
4	10	MS16556-2	PIN, STRAIGHT, HEADLESS
3	9	1010780-1	BEARING, NEEDLE CAM FOLLOWER
1	8	2014543	ARM, CAM FOLLOWER
3	7	MS35233-3	SCREW, MACHINE, PAN HD
2	6	2014539	CAP, BEARING PRELOAD
1	5	2014551-011	HOUSING ASS'Y, MATCHED MACH.
6	4	1015542	CLAMP, SYNCHRO
8	3	NAS1352C02-4	SCREW, CAP, SOCKET HEAD
2	2	1010740	LINEAR ROTARY TRANSFORMER
1	1	2014548	PLATE, BASE

EFFECTIVITY

LIST OF MATERIALS

NEXT ASSY	USED ON
2014578-011	2014623-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
CHECKED
APPROVAL W.J. Thompson 19 FEB 6
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SEXTANT HAND CONTROLLER ASSEMBLY

CODE IDENT NO. 80230
SIZE J2
NASA DRAWING NO. 2014550
SCALE 2/1
WT
SHEET 1 OF 1

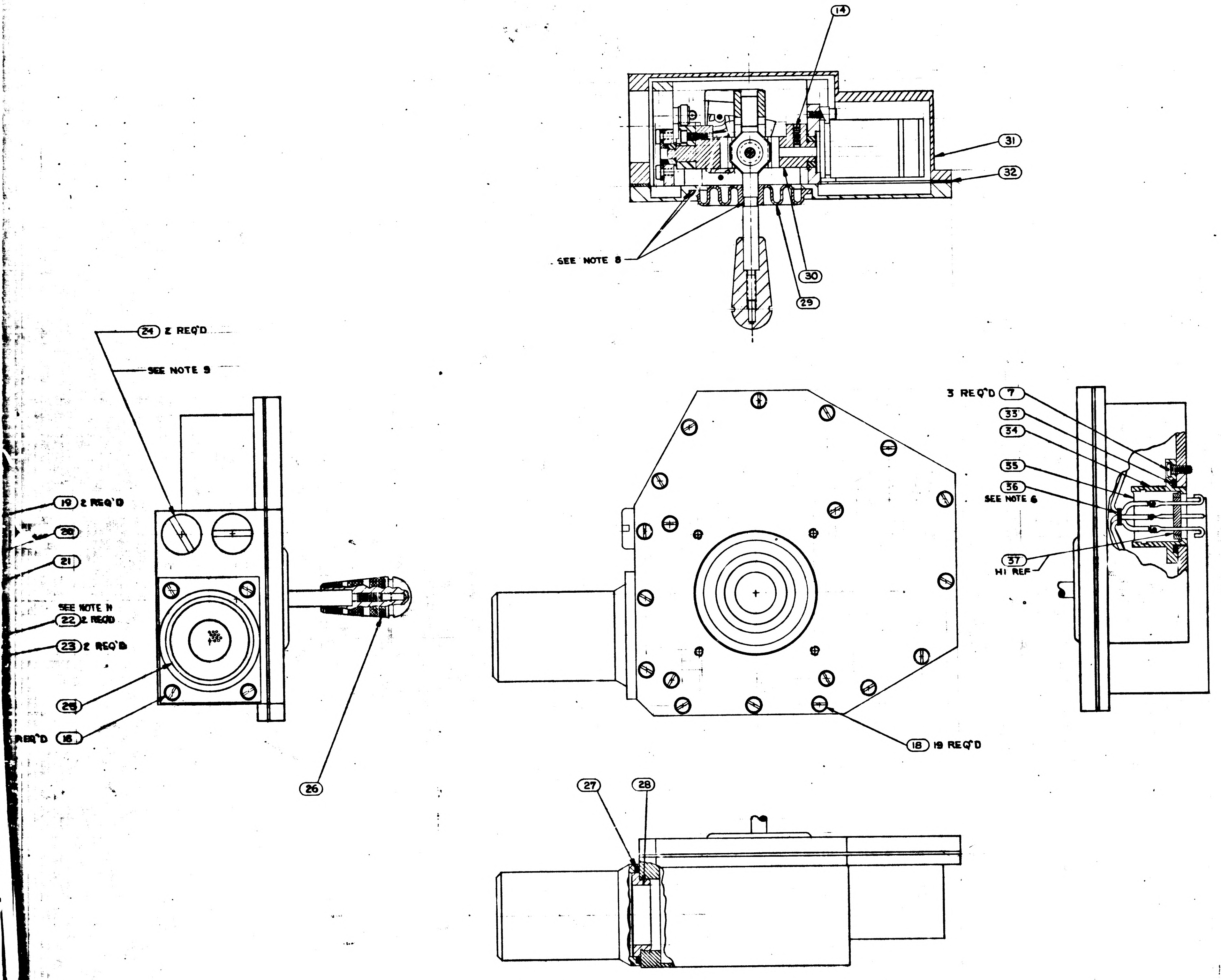
2014550

3H

2/2014550

SYM	DESCRIPTION	DATE	APPROVAL
	INITIAL CLASS A RELEASE TDRR NO. 6703	1/3/66	WK

REVISIONS 6703



F3

011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
REF		46	2014520	SCHEMATIC DIAGRAM - SEXT HAND CONT
REF		45	2014506	WIRING DIAGRAM - SEXTANT HAND CONT
AR		44	1010718	PRIMER, SILICONE ADHESIVE
AR		43	MIL-A-25457	ADHESIVE - SILICONE RUBBER (ES-2531)
AR		42	MIL-S-22473	SEALING COMP, RETAINING, GRADE C
AR		41	MIL-M-7866	MOLYBDENUM DISULFIDE POWDER
AR		40	MIL-F-14256	FLUX (ES-2798)
AR		39	QQ-S-571, SN10 [illegible]	SOLDER
AR		38	QQ-S-571, SN10WS	SOLDER
1		37	1010855	TERMINAL, FEEDTHRU, INSULATED
AR		36	1012507-004	TAPE, LACING
AR		35	1012503	POLYURETHANE POTTING COMPOUND
1		34	2014538	HOUSING, FEEDTHRU
1		33	1010858-18	PACKING, PREFORMED - "O" RING
1		32	2014537	GASKET
1		31	2014549	COVER
1		30	2014535	SHAFT, PIVOT
1		29	2014547	DIAPHRAGM
1		28	1021769	RING RETAINER
1		27	1010858-22	PACKING, PREFORMED - "O" RING
1		26	2014536	HANDLE
1		25	1021752-011	DESICCATOR ASSEMBLY
2		24	MS35233-76	SCREW, MACHINE, PAN HD
4		23	1010418-001	BUSHING, FLANGED
2		22	2014546	CAM
1		21	2014541-011	SHAFT HANDLE (INSEP ASSY)
1		20	2014558	PIN, PIVOT HEADED
2		19	1010418-002	BUSHING, FLANGED
23		18	MS35233-4	SCREW, MACHINE, PAN HD
1		17	MS16624-12	RING, RETAINING, EXTERNAL
4		16	MS35233-2	SCREW, MACHINE, PAD HD
1		15	2014534	SHAFT, YOKE
2		14	MS51045-3	SETSCREW, HEXAGON SOCKET HD
1		13	2014544	ARM, CAM FOLLOWER
2		12	2014555	PIN, PIVOT
2		11	1010931	SPRING, HELICAL, EXTENSION
4		10	MS16556-2	PIN, STRAIGHT, HEADLESS
2		9	1010780-1	BEARING, NEEDLE CAM FOLLOWER
1		8	2014543	ARM, CAM FOLLOWER
3		7	MS35233-3	SCREW, MACHINE, PAN HD
2		6	2014539	CAP, BEARING PRELOAD
1		5	2014551-011	HOUSING ASS'Y, MATCHED MACH.
6		4	1015542	CLAMP, SYNCHRO
8		3	NAS1352C02-4	SCREW, CAP, SOCKET HEAD
2		2	1010740	LINEAR ROTARY TRANSFORMER
1		1	2014548	PLATE, BASE

DASH NO.
QUANTITY REQUIRED

LIST OF MATERIALS

2014550

NEXT ASSY	USED ON
2014578-011	2014578-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

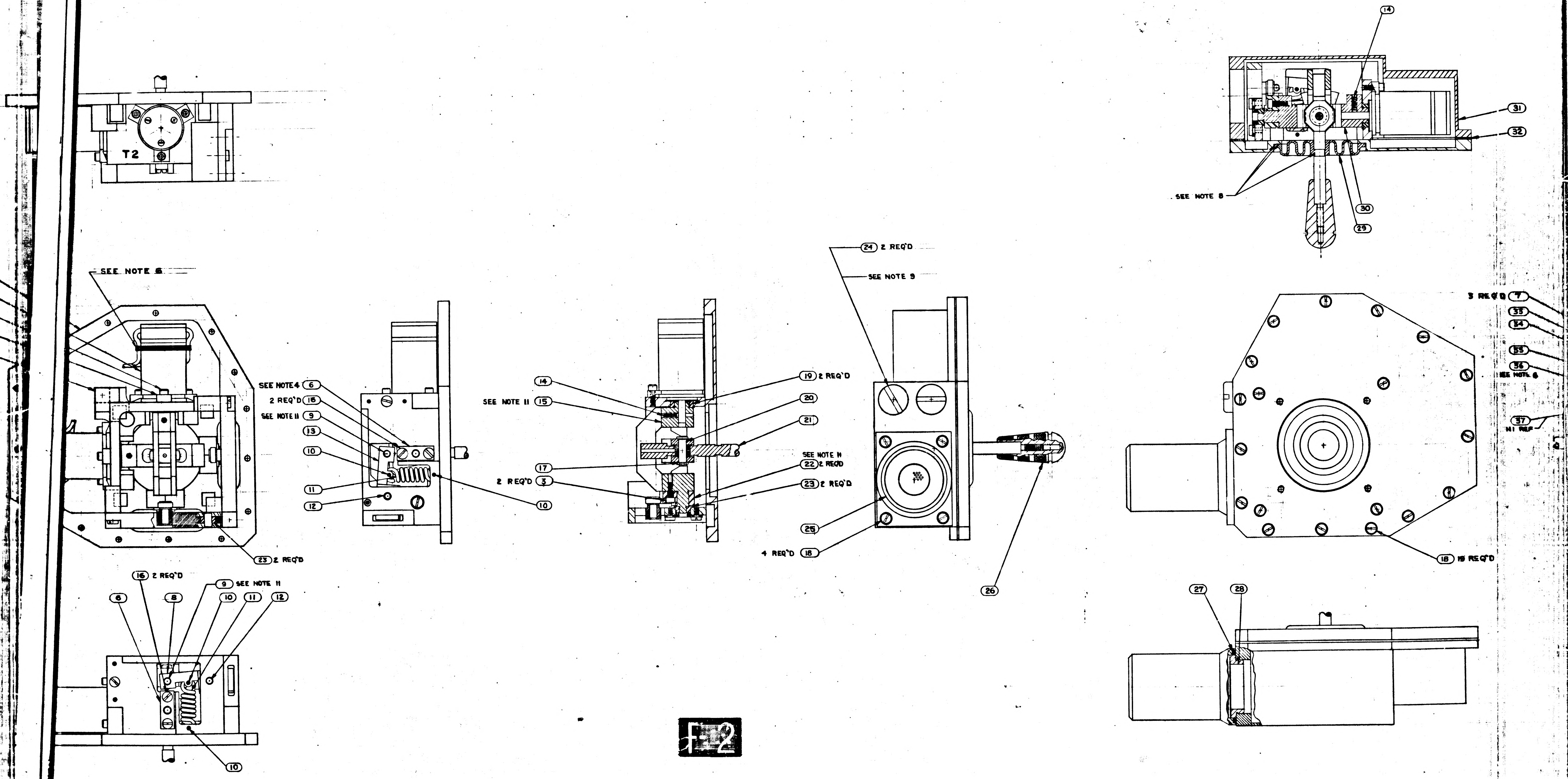
DRAWN DATE
CHECKED 15 FEB 65
APPROVAL W.H. Thompson 19 FEB 65
APPROVAL
NASA APPROVAL
MIT APPROVAL 15 FEB 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SEXTANT HAND CONTROLLER ASSEMBLY

CODE IDENT NO.
SIZE J2
NASA DRAWING NO. 2014550
SCALE 2/1
WT
SHEET 1 OF 1

3H


T2
SEE NOTE 6
SEE NOTE4 6
2 REQ'D 16
SEE NOTE 11 9
13
10
11
12
10
23 2 REQ'D
14
SEE NOTE 11 15
17
2 REQ'D 3
19 2 REQ'D
20
21
SEE NOTE 11
22 2 REQ'D
23 2 REQ'D
24 2 REQ'D
SEE NOTE 9
25
4 REQ'D 18
26
14
31
32
SEE NOTE 8
30
29
3 REQ'D 7
33
34
35
36
SEE NOTE 6
37
H1 REF
18 15 REQ'D
16 2 REQ'D
9 SEE NOTE 11
6
8
10
11
12
10
27
28

F-2

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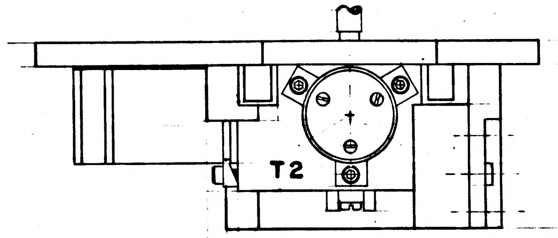
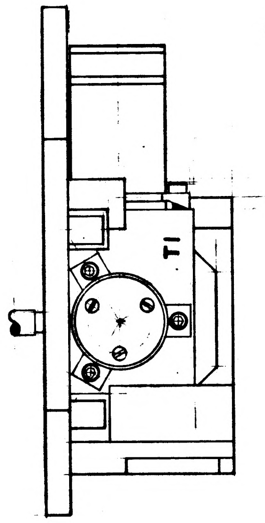
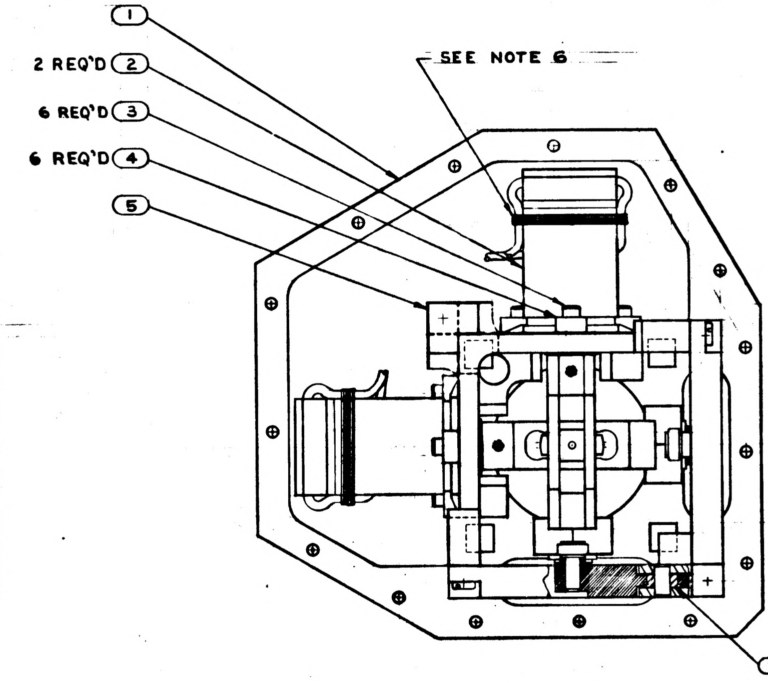
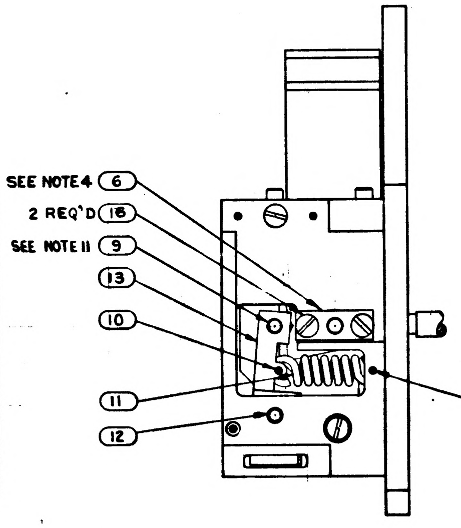
NOTES:

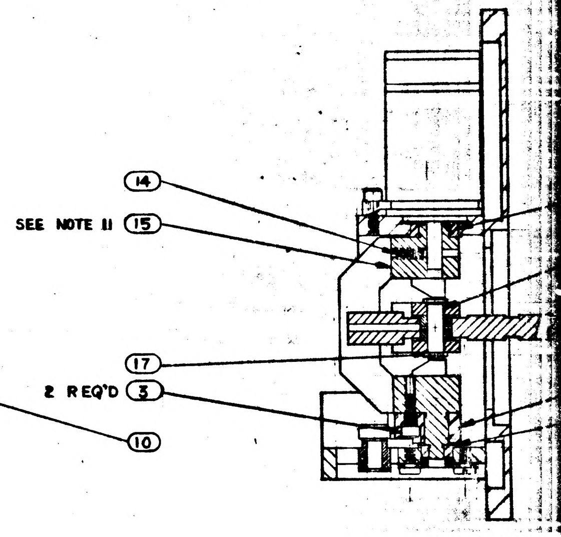
1. INTERPRET THIS DRAWING PER MIL-D-70327.
2. IDENTIFY USING DRAWING NO. AND MFG SYM PER ND1002019
3. SERIALIZE PER ND1002023.
4. ASSEMBLE AND MOISTURE PROOF PER ATP 2014550 PRIOR TO INSTALLING ITEM ㉕.
5. UNLESS OTHERWISE SPECIFIED; SECURE ALL THREADS USING ITEM (42) PER ND1002211.
6. SPOT TIE WIRES TO TRANSFORMER BODY AND LACE WIRES TOGETHER BETWEEN TRANSFORMER AND FEEDTHRU, PER ND1002023, USING ITEM (36)
7. SOLDER ALL LEADS PER ND1002071 EXCEPT USE ITEMS (38) AND (40), OR (39).
8. BOND ITEM ㉙ TO ITEMS ① AND ㉑ PER ND1002151 USING ITEMS (43) AND (44) AS SHOWN.
9. APPLY ITEM (42) PER ND1002211 TO ITEM ㉔ AFTER COMPLETION OF FTM2014550, PRESSURE DIFFERENTIAL TEST.
10. INSPECT PER PS 2014550.
11. PROCEDURE FOR APPLICATION OF ITEM (41):
    - A. PARTS SHALL BE FREE FROM OIL, GREASE AND DIRT BEFORE APPLICATION OF LUBRICANT.
    - B. APPLY A FILM OF ITEM (41) TO CONTACT SURFACES OF ITEMS ⑮ AND ㉑.
    - C. APPLY A FILM OF ITEM (41) TO CONTACT SURFACES OF ITEMS ⑨ AND ㉒.
    - D. REMOVE EXCESS LUBRICANT.

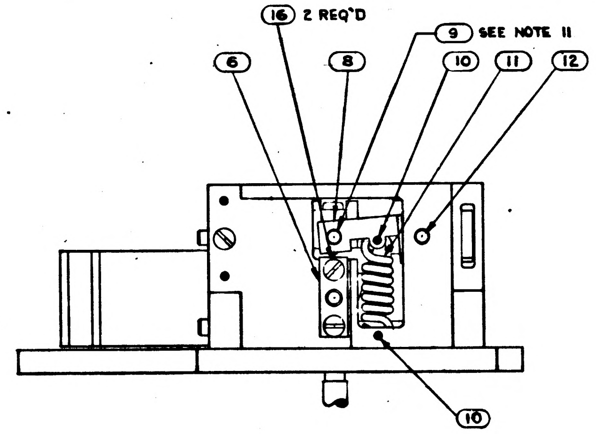












SEE NOTE 7

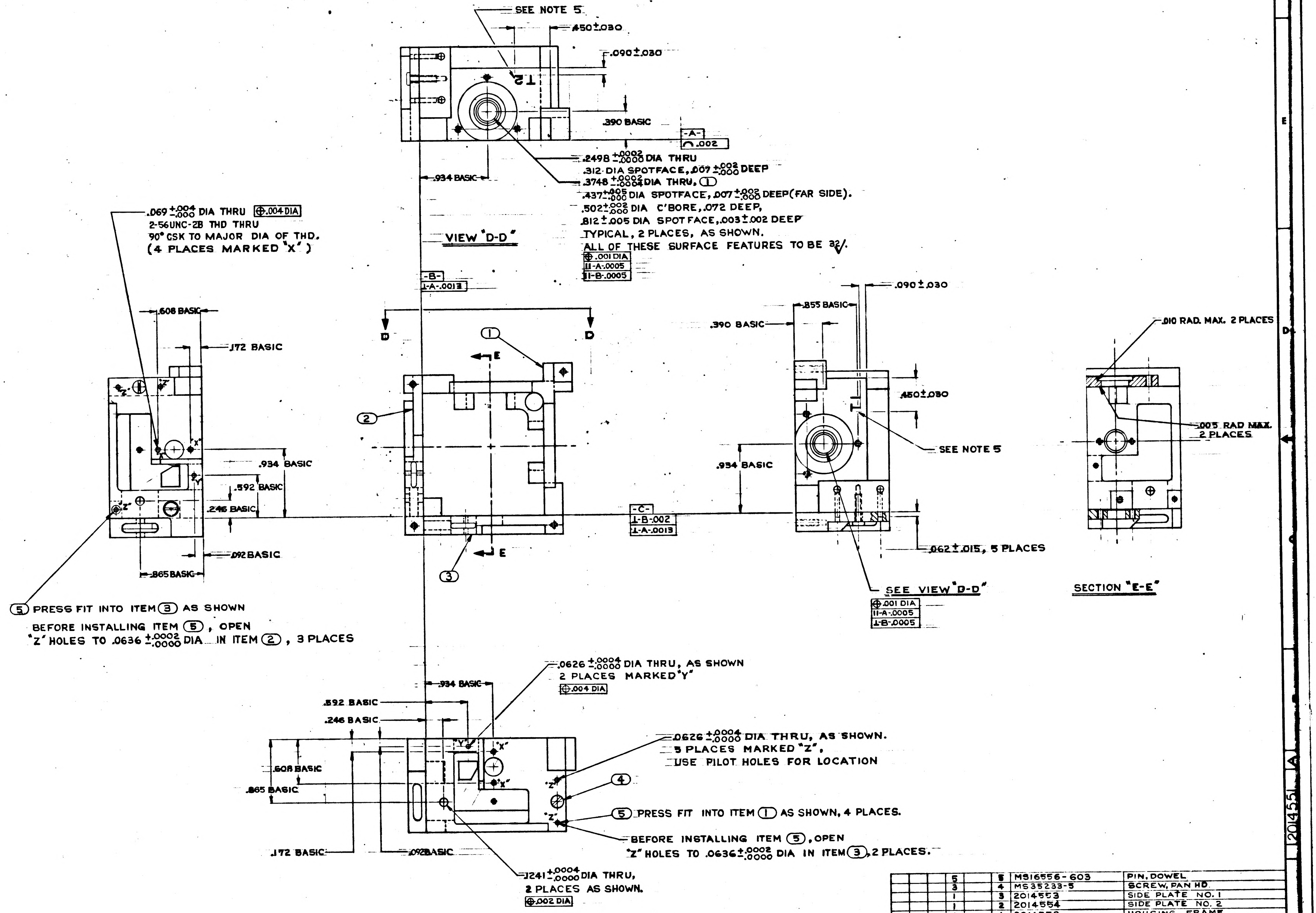
CONDUCTOR	FROM	STRIP	TIN	TO	STRIP	TIN	ITEM NO	LENGTH
T1 - RED	T1			H1-8	.30	YES		6.50
T1 - BLK	T1			H1-7				
T1 - YEL	T1			H1-5				
T1 - BLU	T1			H1-6				
T2 - RED	T2			H1-2				
T2 - BLK	T2			H1-1				
T2 - YEL	T2			H1-3				
T2 - BLU	T2			H1-4	.30	YES		6.50

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						16703
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 16703			7Mar65	WK
A		REVISED PER TDRR NO. 20642				

NOTES:

1. INTERPRET DRAWING PER MIL-D-70327.
2. ASSEMBLE AND ALIGN ITEMS ①, ② AND ③, USING ITEM ④
3. REMOVE ALL BURRS.
4. FINISH: CHEMICAL FILM, TREAT PER MIL-C-5541.
5. MARK CHARACTERS PER ND1002019, .12 HIGH, COLOR BLACK.
6. IDENTIFY USING DRAWING NO. PER ND1002019.
7. SERIALIZE PER ND1002023.



SEE NOTE 5
.450±.030
.090±.030
T2
.390 BASIC
-A-
.002
.934 BASIC
.2498 +.0002 −.0000 DIA THRU
.312 DIA SPOTFACE, .007 +.002 −.000 DEEP
.3748 +.0002 −.0004 DIA THRU, ①
.437 +.005 −.000 DIA SPOTFACE, .007 +.002 −.000 DEEP (FAR SIDE).
.502 +.002 −.000 DIA C'BORE, .072 DEEP,
.812 ±.005 DIA SPOT FACE, .003±.002 DEEP
TYPICAL, 2 PLACES, AS SHOWN.
ALL OF THESE SURFACE FEATURES TO BE 32/
.001 DIA
II-A-.0005
II-B-.0005
VIEW "D-D"
-B-
⊥-A-.0013
.069 +.004 −.000 DIA THRU
.004 DIA
2-56UNC-2B THD THRU
90° CSK TO MAJOR DIA OF THD.
(4 PLACES MARKED "X")
.608 BASIC
.172 BASIC
.934 BASIC
.592 BASIC
.246 BASIC
.092 BASIC
.865 BASIC
"X"
"Y"
"Z"
D
D
E
E
①
②
③
-C-
⊥-B-.002
⊥-A-.0013
⑤ PRESS FIT INTO ITEM ③ AS SHOWN
BEFORE INSTALLING ITEM ⑤, OPEN
"Z" HOLES TO .0636 +.0002 −.0000 DIA IN ITEM ②, 3 PLACES
.855 BASIC
.390 BASIC
.090±.030
.450±.030
SEE NOTE 5
.934 BASIC
.062±.015, 5 PLACES
SEE VIEW "D-D"
.001 DIA
II-A-.0005
⊥-B-.0005
.010 RAD. MAX. 2 PLACES
.005 RAD MAX.
2 PLACES
SECTION "E-E"
.0626 +.0004 −.0000 DIA THRU, AS SHOWN
2 PLACES MARKED "Y"
.004 DIA
.934 BASIC
.592 BASIC
.246 BASIC
.608 BASIC
.865 BASIC
.172 BASIC
.092 BASIC
.0626 +.0004 −.0000 DIA THRU, AS SHOWN.
5 PLACES MARKED "Z",
USE PILOT HOLES FOR LOCATION
④
⑤ PRESS FIT INTO ITEM ① AS SHOWN, 4 PLACES.
BEFORE INSTALLING ITEM ⑤, OPEN
"Z" HOLES TO .0636 +.0002 −.0000 DIA IN ITEM ③, 2 PLACES.
.1241 +.0004 −.0000 DIA THRU,
2 PLACES AS SHOWN.
.002 DIA

					ITEM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
			5		5	MS16556-603	PIN, DOWEL
			3		4	MS35233-5	SCREW, PAN HD
			1		3	2014553	SIDE PLATE NO. 1
			1		2	2014554	SIDE PLATE NO. 2
			1		1	2014552	HOUSING, FRAME
			011	EFFECTIVITY			
DASH NO.							
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON
2014550-011	2014550-011
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ——— DECIMALS ±.005 ±.02 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL ———

CONTRACT NO. NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J P 27JAN65
CHECKED
APPROVED R.V. Thompson 19 FEB 65
APPROVED
APPROVED MIT W Kupfer
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING ASSEMBLY
MATCHED MACHINED

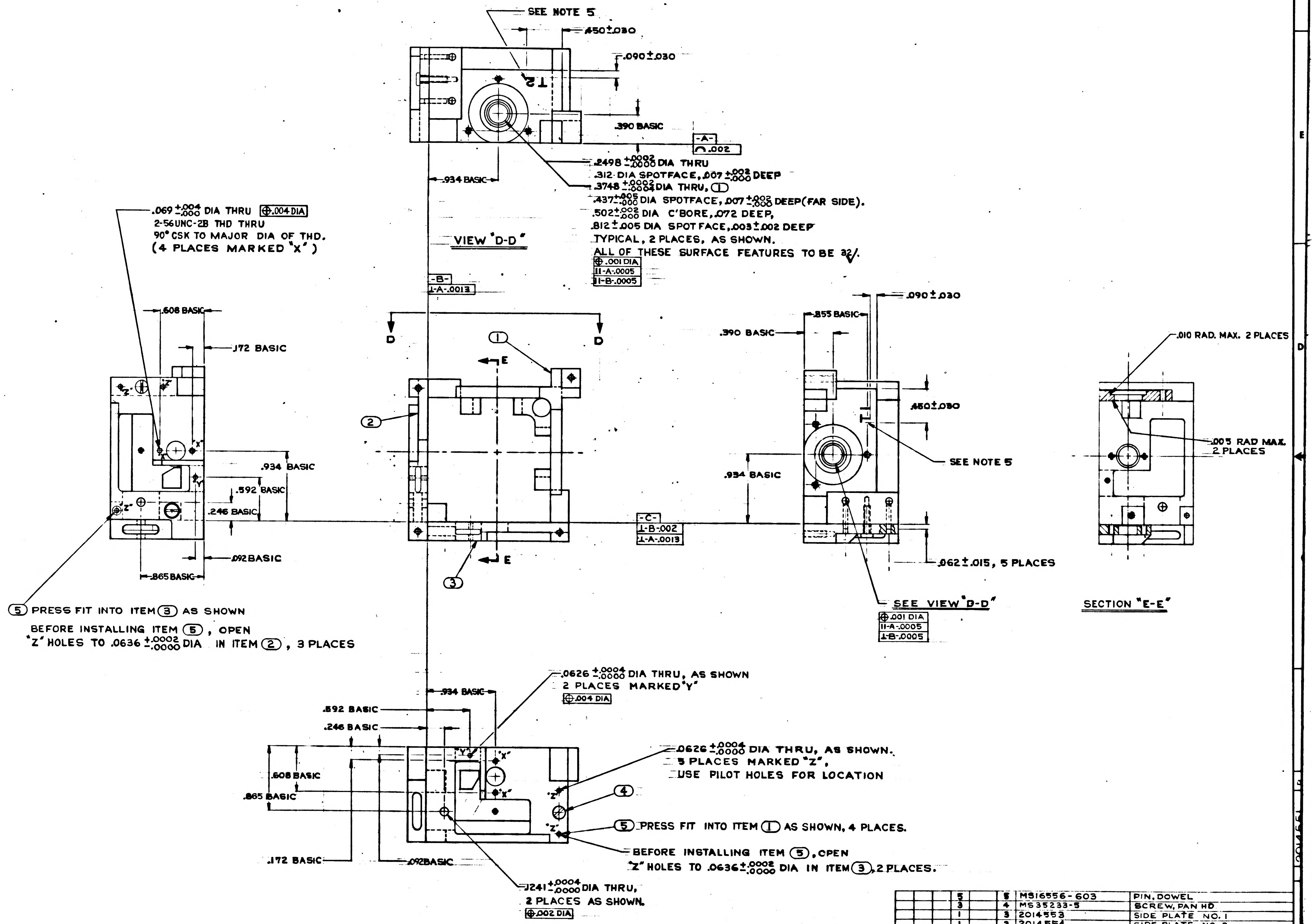
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014551
SCALE 2/1
SHEET 1 OF 1

2014551 A

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16703						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 16703			3/16/65	WK
A		REVISED PER TDRR NO. 20642			4 AUG 65	
B		REVISED PER TDRR NO. 24515			12/8/65	

NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. ASSEMBLE AND ALIGN ITEMS ①, ② AND ③, USING ITEM ④
3. REMOVE ALL BURRS.
4. FINISH: CHEMICAL FILM, TREAT PER MIL-C-5541, CLASS 3.
5. MARK CHARACTERS PER ND1002019, .12 HIGH, COLOR BLACK.
6. IDENTIFY USING DRAWING NO. PER ND1002019.
7. SERIALIZE PER ND1002023.


SEE NOTE 5
.450±.030
.090±.030
.390 BASIC
-A-
⌒ .002
.934 BASIC
.2498 +.0002 -.0000 DIA THRU
.312 DIA SPOTFACE, .007 +.002 -.000 DEEP
.3748 +.0002 -.0004 DIA THRU, ①
.437 +.005 -.000 DIA SPOTFACE, .007 +.002 -.000 DEEP (FAR SIDE).
.502 +.002 -.000 DIA C'BORE, .072 DEEP,
.812 ± .005 DIA SPOT FACE, .003 ± .002 DEEP
TYPICAL, 2 PLACES, AS SHOWN.
ALL OF THESE SURFACE FEATURES TO BE 32√.
⊕ .001 DIA
⊥-A-.0005
⊥-B-.0005
VIEW "D-D"
.069 +.004 -.000 DIA THRU ⊕ .004 DIA
2-56UNC-2B THD THRU
90° CSK TO MAJOR DIA OF THD.
(4 PLACES MARKED "X")
-B-
⊥-A-.0013
D
D
①
E
②
.608 BASIC
.172 BASIC
"Z"
"X"
"Y"
.934 BASIC
.592 BASIC
.246 BASIC
.092 BASIC
.865 BASIC
-C-
⊥-B-.002
⊥-A-.0013
E
③
⑤ PRESS FIT INTO ITEM ③ AS SHOWN
BEFORE INSTALLING ITEM ⑤, OPEN
"Z" HOLES TO .0636 +.0002 -.0000 DIA IN ITEM ②, 3 PLACES
.855 BASIC
.090±.030
.390 BASIC
.450±.030
.934 BASIC
SEE NOTE 5
.062±.015, 5 PLACES
SEE VIEW "D-D"
⊕ .001 DIA
⊥-A-.0005
⊥-B-.0005
.010 RAD. MAX. 2 PLACES
.005 RAD MAX. 2 PLACES
SECTION "E-E"
.934 BASIC
.0626 +.0004 -.0000 DIA THRU, AS SHOWN
2 PLACES MARKED "Y"
⊕ .004 DIA
.592 BASIC
.246 BASIC
.608 BASIC
.865 BASIC
"Y"
"X"
"X"
"Z"
"Z"
.0626 +.0004 -.0000 DIA THRU, AS SHOWN.
5 PLACES MARKED "Z",
USE PILOT HOLES FOR LOCATION
④
⑤ PRESS FIT INTO ITEM ① AS SHOWN, 4 PLACES.
BEFORE INSTALLING ITEM ⑤, OPEN
"Z" HOLES TO .0636 +.0002 -.0000 DIA IN ITEM ③, 2 PLACES.
.172 BASIC
.092 BASIC
.1241 +.0004 -.0000 DIA THRU,
2 PLACES AS SHOWN.
⊕ .002 DIA

			5		5	MS16556-603	PIN, DOWEL
			3		4	MS35233-5	SCREW, PAN HD
			1		3	2014553	SIDE PLATE NO. 1
			1		2	2014554	SIDE PLATE NO. 2
			1		1	2014552	HOUSING, FRAME
			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
DASH NO.							
QUANTITY REQUIRED					LIST OF MATERIALS		

2014550-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ——— DECIMALS ±.005 ±.02 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
———

CONTRACT NO. NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.P. [illegible] 27JAN65
CHECKED [illegible]
APPROVED W.U. [illegible]
APPROVED
APPROVED MIT
APPROVED MSC
DATE

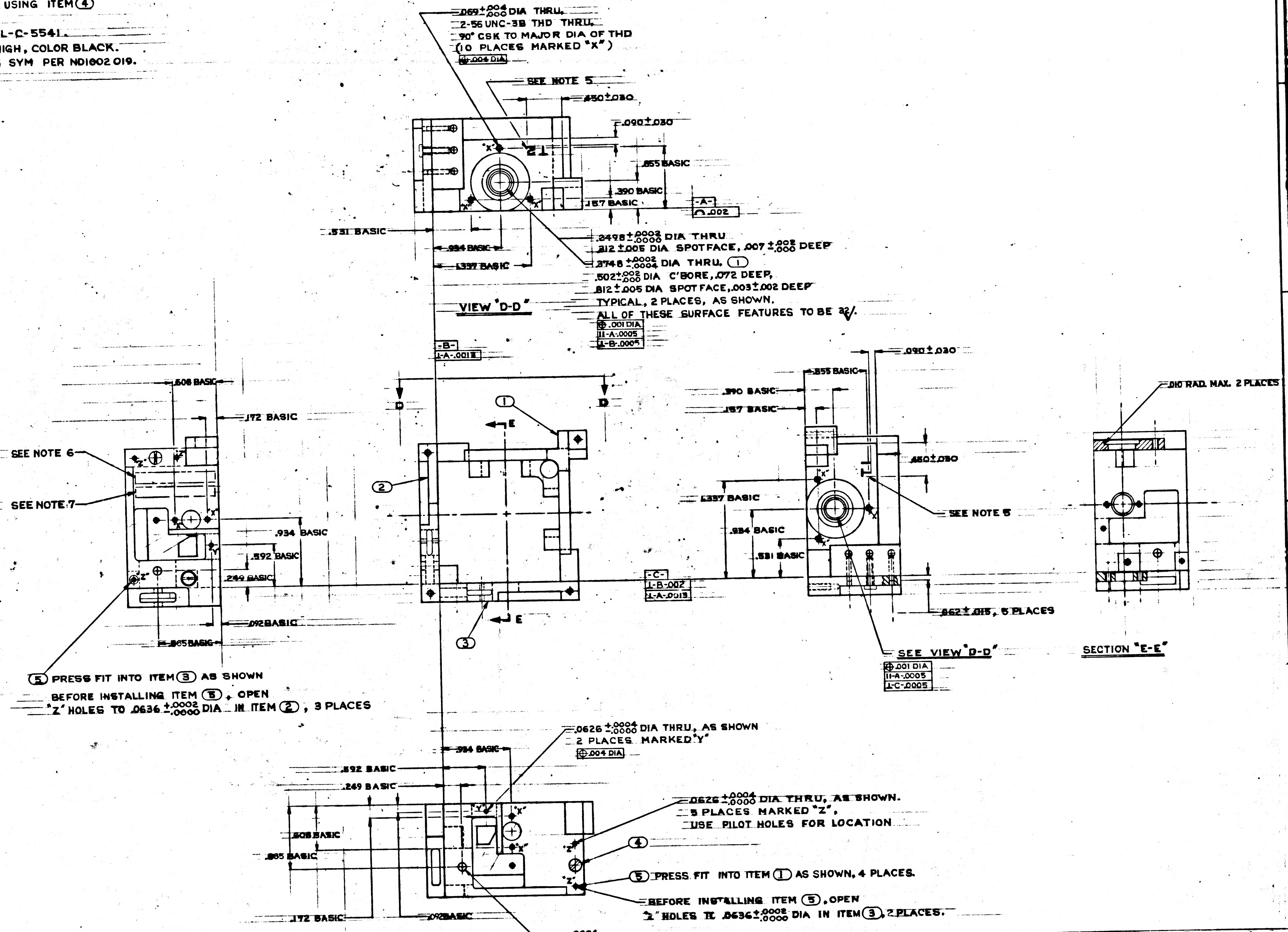
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING ASSEMBLY
MATCHED MACHINED

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014551
SCALE 2/1
SHEET 1 OF 1

REVISIONS						6703
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 6703			3/16/65	WK

NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. ASSEMBLE AND ALIGN ITEMS ①, ② AND ③, USING ITEM ④
3. REMOVE ALL BURRS.
4. FINISH: CHEMICAL FILM, TREAT PER MIL-C-5541.
5. MARK CHARACTERS PER ND1002019, .12 HIGH, COLOR BLACK.
6. IDENTIFY USING DRAWING NO. AND MFG SYM PER ND1002019.
7. SERIALIZE PER ND1002023.



.069 +.004 -.000 DIA THRU.
2-56 UNC-3B THD THRU.
90° CSK TO MAJOR DIA OF THD
(10 PLACES MARKED "X")
⊕ .004 DIA
SEE NOTE 5
.450±.030
.090±.030
.855 BASIC
.390 BASIC
.187 BASIC
-A-
⌒ .002
.531 BASIC
.934 BASIC
1.337 BASIC
.2498 +.0002 -.0000 DIA THRU
.812±.005 DIA SPOTFACE, .007 +.003 -.000 DEEP
.3748 +.0002 -.0004 DIA THRU. ①
.502 +.002 -.000 DIA C'BORE, .072 DEEP,
.812±.005 DIA SPOTFACE, .003±.002 DEEP
TYPICAL, 2 PLACES, AS SHOWN.
ALL OF THESE SURFACE FEATURES TO BE 32/.
⊕ .001 DIA
∥ -A- .0005
⊥ -B- .0005
VIEW "D-D"
-B-
⊥ -A- .001
.508 BASIC
.172 BASIC
SEE NOTE 6
SEE NOTE 7
.934 BASIC
.592 BASIC
.249 BASIC
.092 BASIC
.865 BASIC
D
D
E
E
①
②
③
-C-
⊥ -B- .002
⊥ -A- .0015
.090±.030
.855 BASIC
.390 BASIC
.187 BASIC
.450±.030
1.337 BASIC
SEE NOTE 5
.934 BASIC
.531 BASIC
.062±.015, 5 PLACES
SEE VIEW "D-D"
⊕ .001 DIA
∥ -A- .0005
⊥ -C- .0005
.010 RAD. MAX. 2 PLACES
SECTION "E-E"
⑤ PRESS FIT INTO ITEM ③ AS SHOWN
BEFORE INSTALLING ITEM ⑤, OPEN
"Z" HOLES TO .0636 +.0002 -.0000 DIA IN ITEM ②, 3 PLACES
.0625 +.0004 -.0000 DIA THRU, AS SHOWN
2 PLACES MARKED "Y"
⊕ .004 DIA
.934 BASIC
.592 BASIC
.249 BASIC
.508 BASIC
.865 BASIC
.172 BASIC
.092 BASIC
.0626 +.0004 -.0000 DIA THRU, AS SHOWN.
5 PLACES MARKED "Z",
USE PILOT HOLES FOR LOCATION
④
⑤ PRESS FIT INTO ITEM ① AS SHOWN, 4 PLACES.
BEFORE INSTALLING ITEM ⑤, OPEN
"Z" HOLES TO .0636 +.0002 -.0000 DIA IN ITEM ③, 2 PLACES.
.1241 +.0004 -.0000 DIA THRU,
2 PLACES AS SHOWN.
⊕ .002 DIA

			6		5	MS16556-603	PIN, DOWEL
			3		4	MS35233-5	SCREW, PAN HD.
			1		3	2014553	SIDE PLATE NO. 1
			1		2	2014554	SIDE PLATE NO. 2
			1		1	2014552	HOUSING, FRAME
			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
DASH NO.						LIST OF MATERIALS	
QUANTITY REQUIRED							

NEXT ASSY	USED ON
2014550-011	2014550-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.002 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL ——

CONTRACT NO. NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J P [illegible]	27JAN65
CHECKED	[illegible]	[illegible]
APPROVED	[illegible]	19 FEB 65
APPROVED	B [illegible]	
APPROVED MIT	W [illegible]	[illegible]
APPROVED MSC	[illegible] 3/4/65	
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING ASSEMBLY
MATCHED MACHINED

CODE IDENT NO.	SIZE	DRAWING NO.
	E	2014551

SCALE 2/1 SHEET 1 OF 1

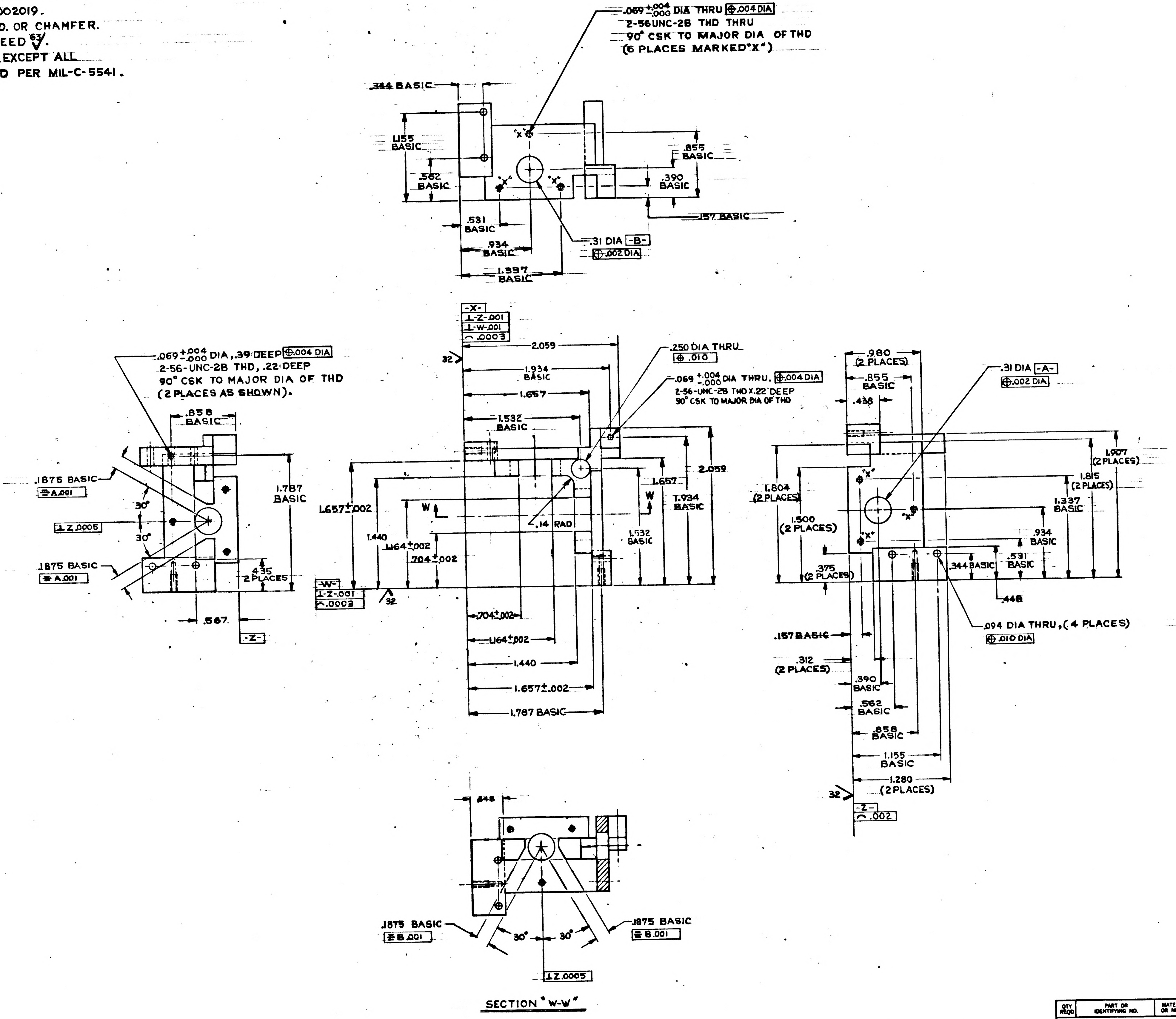
2014551

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 16763				
A		REVISED PER TDRR NO. 20634			5 AUG 65	

16763

NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-225/6, 2024-T4 AL ALY, (ES-2104).
3. REMOVE ALL BURRS.
4. IDENTIFY USING DRAWING NO. PER ND1002019.
5. REMOVE ALL CORNERS .005 TO .015 RAD. OR CHAMFER.
6. SURFACE ROUGHNESS MUST NOT EXCEED $\sqrt{}^{63}$.
7. FINISH: MIL-A-8625, TYPE I, ANODIZE, EXCEPT ALL TAPPED HOLES TO BE CHEMICAL FILMED PER MIL-C-5541.



.069 +.004/−.000 DIA THRU ⊕ .004 DIA
2-56 UNC-2B THD THRU
90° CSK TO MAJOR DIA OF THD
(6 PLACES MARKED "X")
.344 BASIC
1.155 BASIC
.562 BASIC
.531 BASIC
.934 BASIC
1.337 BASIC
.855 BASIC
.390 BASIC
.157 BASIC
.31 DIA -B-
⊕ .002 DIA
.069 +.004/−.000 DIA, .39 DEEP ⊕ .004 DIA
2-56-UNC-2B THD, .22 DEEP
90° CSK TO MAJOR DIA OF THD
(2 PLACES AS SHOWN).
.858 BASIC
.1875 BASIC
≡ A .001
30°
⊥ Z .0005
.435 2 PLACES
1.787 BASIC
.567
-Z-
-X-
⊥ Z .001
⊥ W .001
⌒ .0003
2.059
1.934 BASIC
1.657
1.532 BASIC
.250 DIA THRU
⊕ .010
.069 +.004/−.000 DIA THRU, ⊕ .004 DIA
2-56-UNC-2B THD X .22 DEEP
90° CSK TO MAJOR DIA OF THD
32
1.657 ±.002
1.440
1.164 ±.002
.704 ±.002
W
.14 RAD
-W-
⊥ Z .001
⌒ .0003
1.657 ±.002
1.787 BASIC
.980 (2 PLACES)
.855 BASIC
.438
.31 DIA -A-
⊕ .002 DIA
1.907 (2 PLACES)
1.815 (2 PLACES)
1.804 (2 PLACES)
1.500 (2 PLACES)
.375 (2 PLACES)
.344 BASIC
.448
.094 DIA THRU, (4 PLACES)
⊕ .010 DIA
.157 BASIC
.312 (2 PLACES)
.390 BASIC
.562 BASIC
.858 BASIC
1.155 BASIC
1.280 (2 PLACES)
-Z-
⌒ .002
.448
.1875 BASIC
≡ B .001
30°
⊥ Z .0005

SECTION "W-W"

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014551-011	2014550-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
XX DEC ±.02 XXX DECIMALS ±.005 ANGLES ±0°-15'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 11 FEB 65
CHECKED 15 FEB 65
APPROVED
APPROVED
APPROVED MIT 15 FEB 65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING, FRAME

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014552
SCALE 2/1
SHEET 1 OF 1

2014552 A

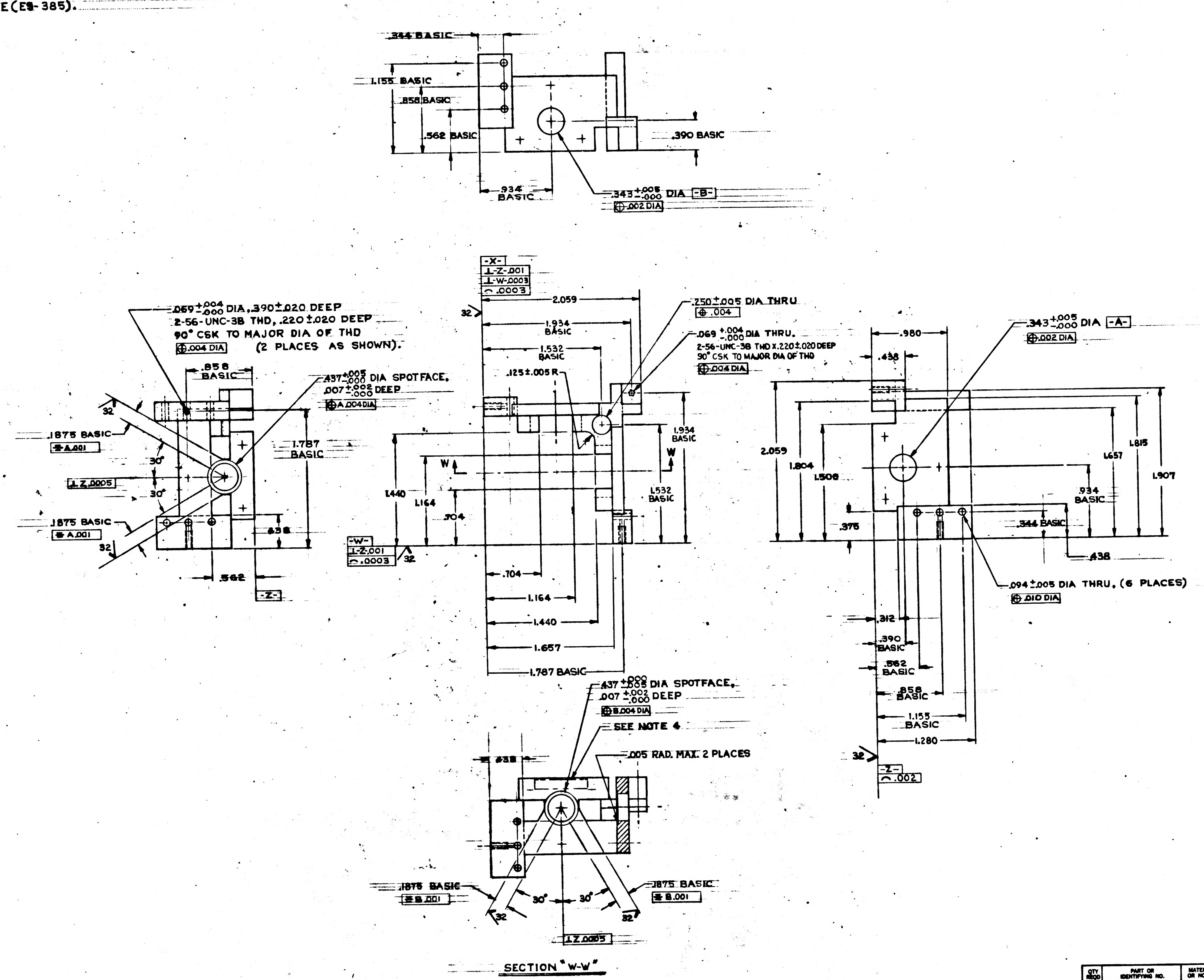
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 16763			3/11/65	wk

16703

NOTES:

1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-225/6, 2024-T4 AL ALY, (ES-2104).
3. REMOVE ALL BURRS.
4. IDENTIFY USING DRAWING NO. AND MFG SYM. PER ND1002019.
5. REMOVE ALL CORNERS .005 TO .015 RAD. OR CHAMFER.
6. SURFACE ROUGHNESS MUST NOT EXCEED $\sqrt{63}$.
7. FINISH: MIL-A-8625, TYPE I, ANODIZE (ES-385).


.344 BASIC
1.155 BASIC
.858 BASIC
.562 BASIC
.390 BASIC
.934 BASIC
.343 +.005 -.000 DIA -B-
⊕ .002 DIA
-X-
⊥-Z-.001
⊥-W-.0003
⌒ .0003
2.059
1.934 BASIC
1.532 BASIC
.125±.005 R
.250±.005 DIA THRU
⊕ .004
.069 +.004 -.000 DIA THRU.
2-56-UNC-3B THD X .220±.020 DEEP
90° CSK TO MAJOR DIA OF THD
⊕ .004 DIA
.069 +.004 -.000 DIA, .390±.020 DEEP
2-56-UNC-3B THD, .220±.020 DEEP
90° CSK TO MAJOR DIA OF THD
⊕ .004 DIA (2 PLACES AS SHOWN).
.858 BASIC
.437 +.005 -.000 DIA SPOTFACE,
.007 +.002 -.000 DEEP
⊕ A .004 DIA
32
.1875 BASIC
≡ A .001
30°
⊥ Z .0005
30°
.1875 BASIC
≡ A .001
32
1.787 BASIC
.438
.562
-Z-
-W-
⊥-Z-.001
⌒ .0003
32
1.440
1.164
.704
W
W
1.934 BASIC
1.532 BASIC
.704
1.164
1.440
1.657
1.787 BASIC
.343 +.005 -.000 DIA -A-
⊕ .002 DIA
.980
.438
2.059
1.804
1.506
1.657
1.815
1.907
.934 BASIC
.375
.344 BASIC
.438
.094±.005 DIA THRU. (6 PLACES)
⊕ .010 DIA
.312
.390 BASIC
.562 BASIC
.858 BASIC
1.155 BASIC
1.280
32
-Z-
⌒ .002
.437 +.000 -.005 DIA SPOTFACE,
.007 +.002 -.000 DEEP
⊕ B .004 DIA
SEE NOTE 4
.005 RAD. MAX. 2 PLACES
.438
.1875 BASIC
≡ B .001
30°
30°
.1875 BASIC
≡ B .001
32
32
⊥ Z .0005
SECTION "W-W"

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014551-011	2014550-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.002 ANGLES ±0°-15'
DO NOT SCALE THIS DRAWING

MATERIAL SEE NOTE 2

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN JPBritton 11 Feb 65
CHECKED JLSimmons 12 Feb 65
APPROVED W.W. Thompson 12 Feb 65
APPROVED
APPROVED MIT WWright 15 Feb 65
APPROVED DISC 3/11/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING, FRAME

CODE IDENT NO.
SIZE E
DRAWING NO. 2014552
SCALE 2/1
SHEET 1 OF 1

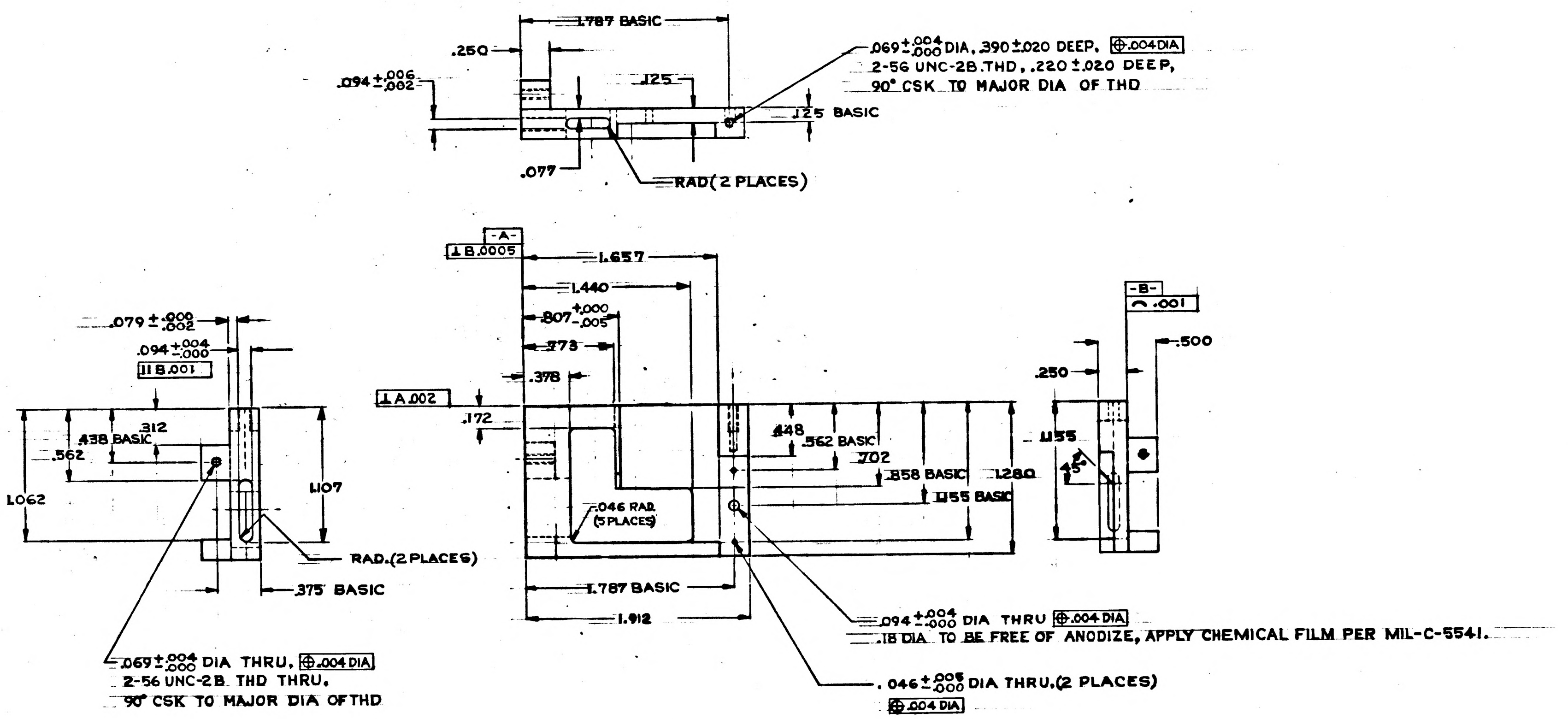
2014552

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16703						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITAL CLASS A RELEASE TDRR NO. 16703				
A		REVISED PER TDRR NO.20644				

NOTES:

1. INTERPRET THIS DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-225/6, 2024-T4, AL ALY, (ES-2104).
3. REMOVE ALL BURRS.
4. IDENTIFY USING DRAWING ~~NO. PER~~ ND1002019
5. REMOVE ALL CORNERS .005 TO .015 RAD. OR CHAMFER.
6. SURFACE ROUGHNESS MUST NOT EXCEED 63√.
7. FINISH: MIL-A-8625, TYPE I, ANODIZE, EXCEPT ALL TAPPED HOLES TO BE CHEMICAL FILMED PER MIL-C-5541.


1.787 BASIC
.250
.094 +.006 -.002
.125
.125 BASIC
.077
RAD(2 PLACES)
.069 +.004 -.000 DIA, .390 ±.020 DEEP, ⊕.004 DIA
2-56 UNC-2B THD, .220 ±.020 DEEP,
90° CSK TO MAJOR DIA OF THD
-A-
⊥ B .0005
1.657
1.440
.807 +.000 -.005
.773
.378
⊥ A .002
.172
.046 RAD. (5 PLACES)
.448
.562 BASIC
.702
.858 BASIC
1.155 BASIC
1.280
1.787 BASIC
1.912
.094 +.004 -.000 DIA THRU ⊕.004 DIA
.18 DIA TO BE FREE OF ANODIZE, APPLY CHEMICAL FILM PER MIL-C-5541.
.046 +.005 -.000 DIA THRU.(2 PLACES)
⊕.004 DIA
.079 +.000 -.002
.094 +.004 -.000
∥ B .001
.312
.438 BASIC
.562
1.062
1.107
RAD.(2 PLACES)
.375 BASIC
.069 +.004 -.000 DIA THRU, ⊕.004 DIA
2-56 UNC-2B THD THRU,
90° CSK TO MAJOR DIA OF THD
-B-
⌒ .001
.250
.500
1.155
45°

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014551-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON DECIMALS ± ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL: SEE NOTE 2

CONTRACT NAS9-497

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 15 FEB 66
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SIDE PLATE NO. 1

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2014553

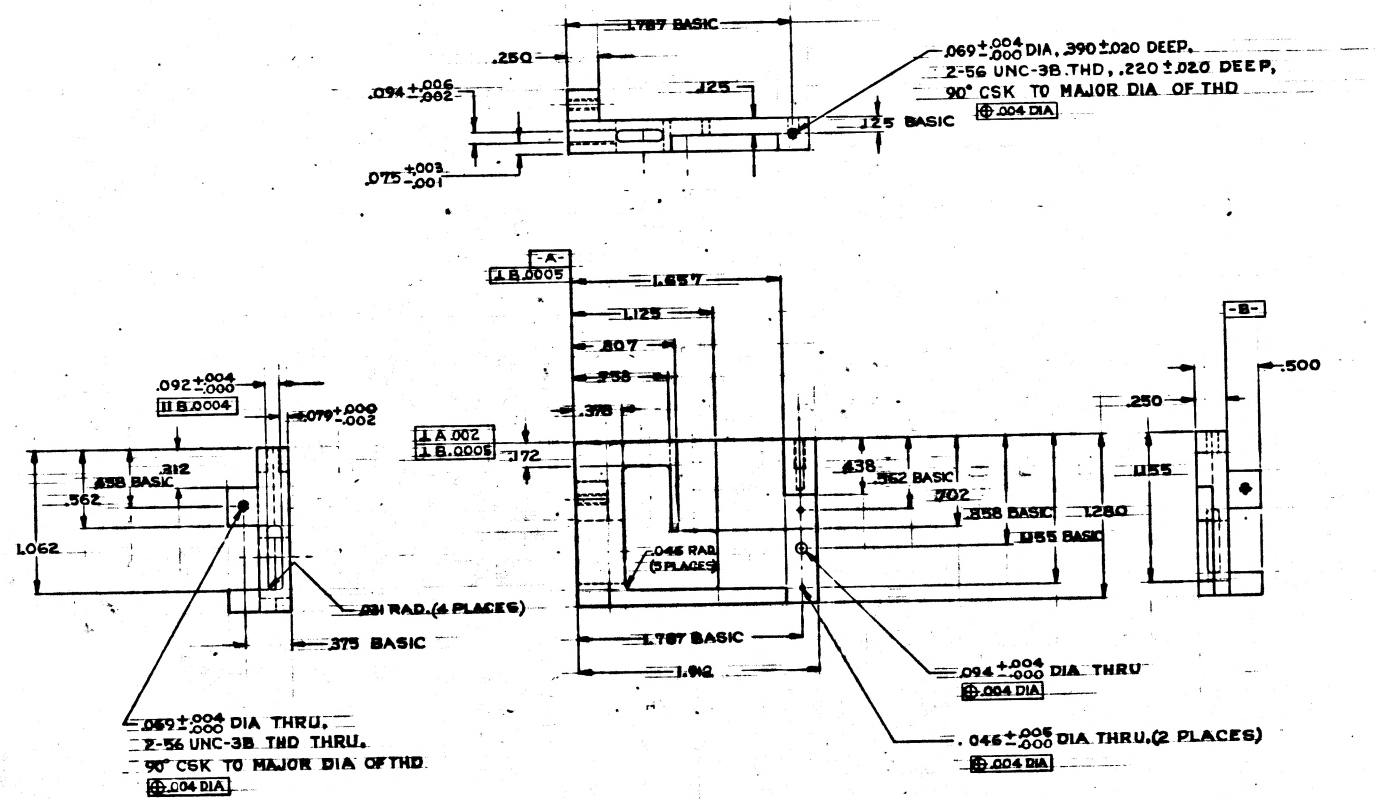
SCALE 2/1 SHEET 1 OF 1

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITAL CLASS A RELEASE TDRR NO. 16703			2/4/66	

16703

NOTES:

1. INTERPRET THIS DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-225/6, 2024-T4, AL ALY, (ES-2104).
3. REMOVE ALL BURRS.
4. IDENTIFY USING DRAWING NO. & MFG SYM PER ND 1002019.
5. REMOVE ALL CORNERS .005 TO .015 RAD. OR CHAMFER.
6. SURFACE ROUGHNESS MUST NOT EXCEED 63/.
7. FINISH: MIL-A-8625, TYPE I, ANODIZE (ES-385).


1.787 BASIC
.250
.094 +.006 -.002
.125
.125 BASIC
.075 +.003 -.001
.069 +.004 -.000 DIA, .390 ±.020 DEEP.
2-56 UNC-3B THD, .220 ±.020 DEEP,
90° CSK TO MAJOR DIA OF THD
⊕ .004 DIA
-A-
⊥ B .0005
1.657
1.125
.807
.758
.378
⊥ A .002
⊥ B .0005
.172
.438
.562 BASIC
.702
.858 BASIC
1.155 BASIC
1.280
.046 RAD. (5 PLACES)
1.787 BASIC
1.912
-B-
.500
.250
1.155
.092 +.004 -.000
// B .0004
.079 +.000 -.002
.312
.858 BASIC
.562
1.062
.031 RAD. (4 PLACES)
.375 BASIC
.069 +.004 -.000 DIA THRU,
2-56 UNC-3B THD THRU,
90° CSK TO MAJOR DIA OF THD
⊕ .004 DIA
.094 +.004 -.000 DIA THRU
⊕ .004 DIA
.046 +.005 -.000 DIA THRU (2 PLACES)
⊕ .004 DIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014551-011	2014550-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.002 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-4497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 15 FEB 66
CHECKED 18 FEB 66
APPROVED W. Thompson 19 FEB 66
APPROVED
APPROVED MIT
APPROVED MSC 7/5/66
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

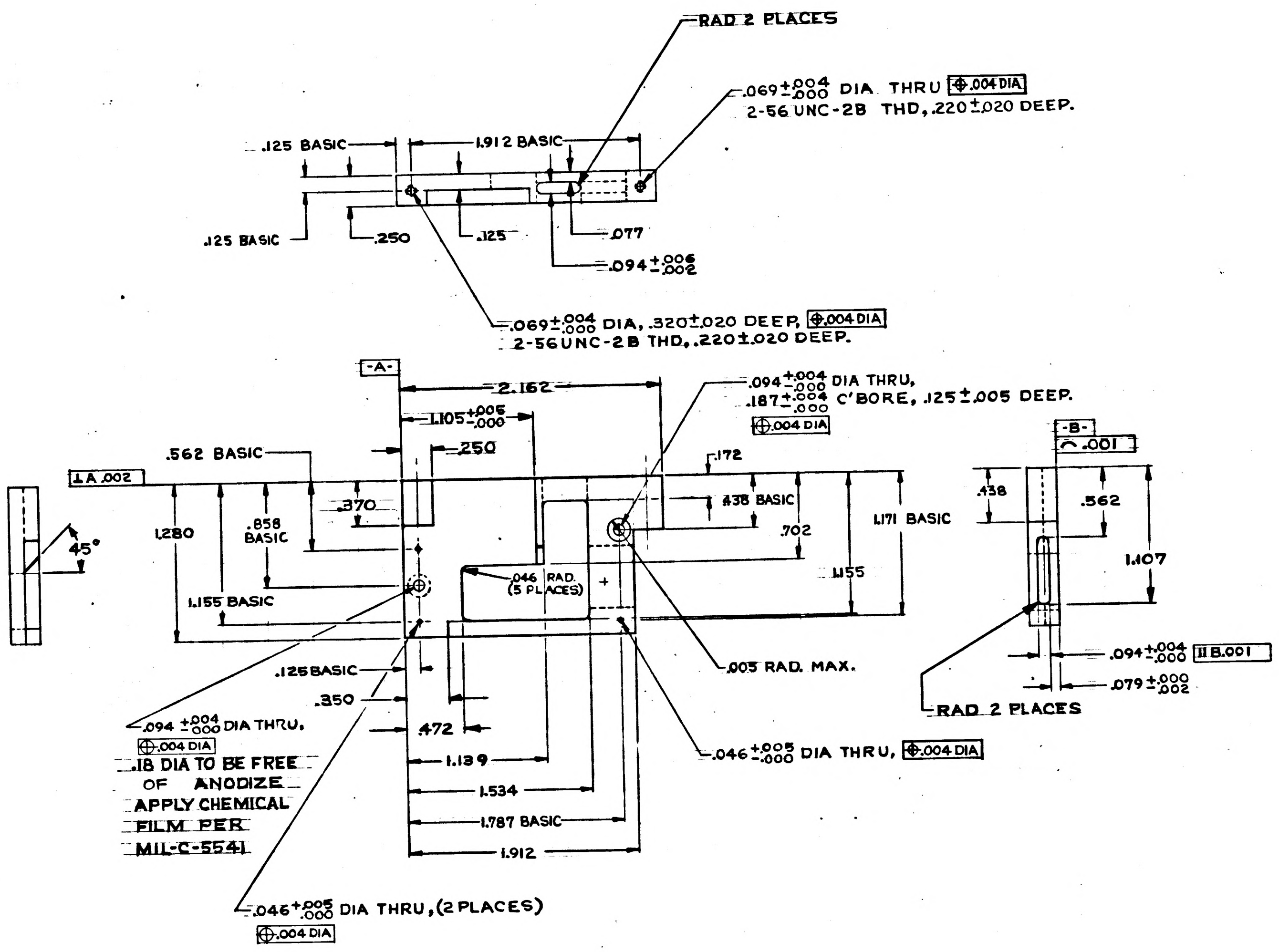
SIDE PLATE
NO. 1

CODE IDENT NO.
SIZE E
DRAWING NO. 2014553
SCALE 2/1
SHEET 1 OF 1

2014553

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 16703				
A		REVISED PER TDRR NO. 20635				

NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-225/6, 2024-T4 AL ALY, (ES-21014).
3. REMOVE ALL BURRS.
4. IDENTIFY USING DRAWING NO. PER ND1002019.
5. REMOVE ALL CORNERS .005 TO .015 RAD. OR CHAMFER.
6. SURFACE ROUGHNESS MUST NOT EXCEED 63√.
7. FINISH: MIL-A-8625, TYPE I, ANODIZE, EXCEPT C'BORE FACE AND TAPPED HOLES TO BE CHEMICAL FILMED PER MIL-C-5541.



RAD 2 PLACES
.069 +.004 -.000 DIA THRU ⌖.004 DIA
2-56 UNC-2B THD, .220±.020 DEEP.
.125 BASIC
1.912 BASIC
.125 BASIC
.250
.125
.077
.094 +.006 -.002
.069 +.004 -.000 DIA, .320±.020 DEEP, ⌖.004 DIA
2-56 UNC-2B THD, .220±.020 DEEP.
-A-
2.162
1.105 +.005 -.000
.250
.094 +.004 -.000 DIA THRU,
.187 +.004 -.000 C'BORE, .125±.005 DEEP.
⌖.004 DIA
.172
.562 BASIC
⊥A .002
1.280
.858 BASIC
.370
45°
1.155 BASIC
.046 RAD. (5 PLACES)
.438 BASIC
.702
1.155
1.171 BASIC
.005 RAD. MAX.
.125 BASIC
.350
.472
1.139
1.534
1.787 BASIC
1.912
.094 +.004 -.000 DIA THRU,
⌖.004 DIA
.18 DIA TO BE FREE OF ANODIZE APPLY CHEMICAL FILM PER MIL-C-5541
.046 +.005 -.000 DIA THRU, ⌖.004 DIA
.046 +.005 -.000 DIA THRU, (2 PLACES)
⌖.004 DIA
-B-
⌒ .001
.438
.562
1.107
.094 +.004 -.000
∥ B .001
.079 +.000 -.002
RAD 2 PLACES

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014551-011	2014550-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 15 FEB 65
CHECKED
APPROVED W.H. Thompson
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE SIDE
NO. 2

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014554
SCALE 2/1
SHEET 1 OF 1

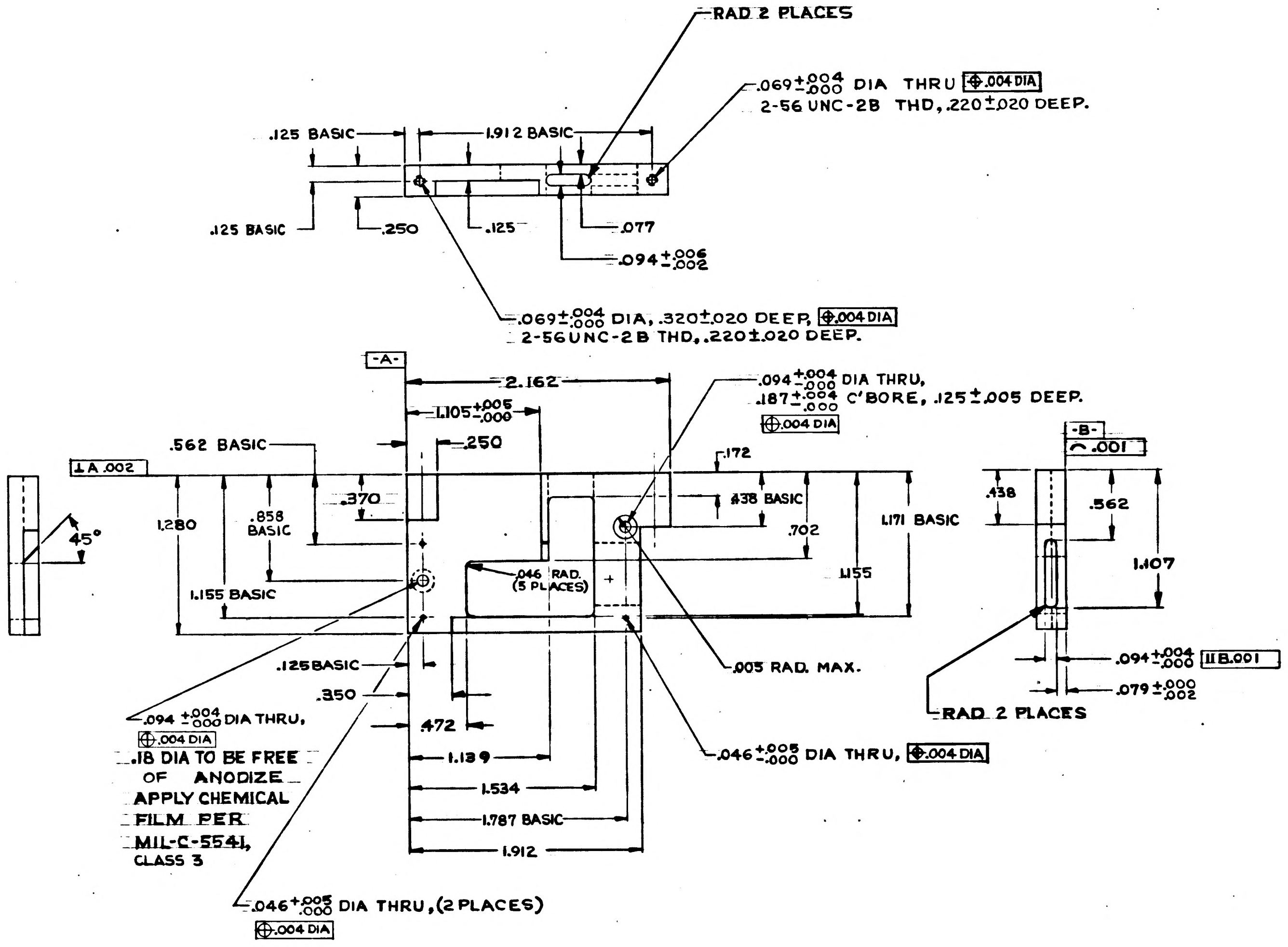
2014554 A

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 6763			7 Apr 65	WK
A		REVISED PER TDRR NO. 20635			13 AUG 65	WK
B		REVISED PER TDRR NO. 24512			12/8/65	

NOTES:

1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-225/6, 2024-T4 AL ALY, (ES-21014).
3. REMOVE ALL BURRS.
4. IDENTIFY USING DRAWING NO. PER ND1002019.
5. REMOVE ALL CORNERS .005 TO .015 RAD. OR CHAMFER.
6. SURFACE ROUGHNESS MUST NOT EXCEED 63√.
7. FINISH: MIL-A-8625, TYPE I, ANODIZE, EXCEPT C BORE FACE AND TAPPED HOLES TO BE CHEMICAL FILMED PER MIL-C-5541, CLASS 3.


RAD 2 PLACES
.069 +.004 -.000 DIA THRU ⊕.004 DIA
2-56 UNC-2B THD, .220±.020 DEEP.
.125 BASIC
1.912 BASIC
.125 BASIC
.250
.125
.077
.094 +.006 -.002
.069 +.004 -.000 DIA, .320±.020 DEEP, ⊕.004 DIA
2-56UNC-2B THD, .220±.020 DEEP.
-A-
2.162
1.105 +.005 -.000
.250
.562 BASIC
⊥A .002
.370
1.280
.858 BASIC
1.155 BASIC
45°
.094 +.004 -.000 DIA THRU,
.187 +.004 -.000 C'BORE, .125±.005 DEEP.
⊕.004 DIA
.172
.438 BASIC
.702
1.171 BASIC
1.155
.046 RAD. (5 PLACES)
.005 RAD. MAX.
.125BASIC
.350
.472
1.139
1.534
1.787 BASIC
1.912
.094 +.004 -.000 DIA THRU,
⊕.004 DIA
.18 DIA TO BE FREE OF ANODIZE APPLY CHEMICAL FILM PER MIL-C-5541, CLASS 3
.046 +.005 -.000 DIA THRU, (2 PLACES)
⊕.004 DIA
.046 +.005 -.000 DIA THRU, ⊕.004 DIA
-B-
⌒.001
.438
.562
1.107
.094 +.004 -.000 ∥B.001
.079 +.000 -.002
RAD 2 PLACES

2014554 B

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014551-011	2014550-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.P. Brooks 15 FEB 65
CHECKED
APPROVED W.H. Thompson
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE SIDE
NO. 2

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014554
SCALE 2/1
SHEET 1 OF 1

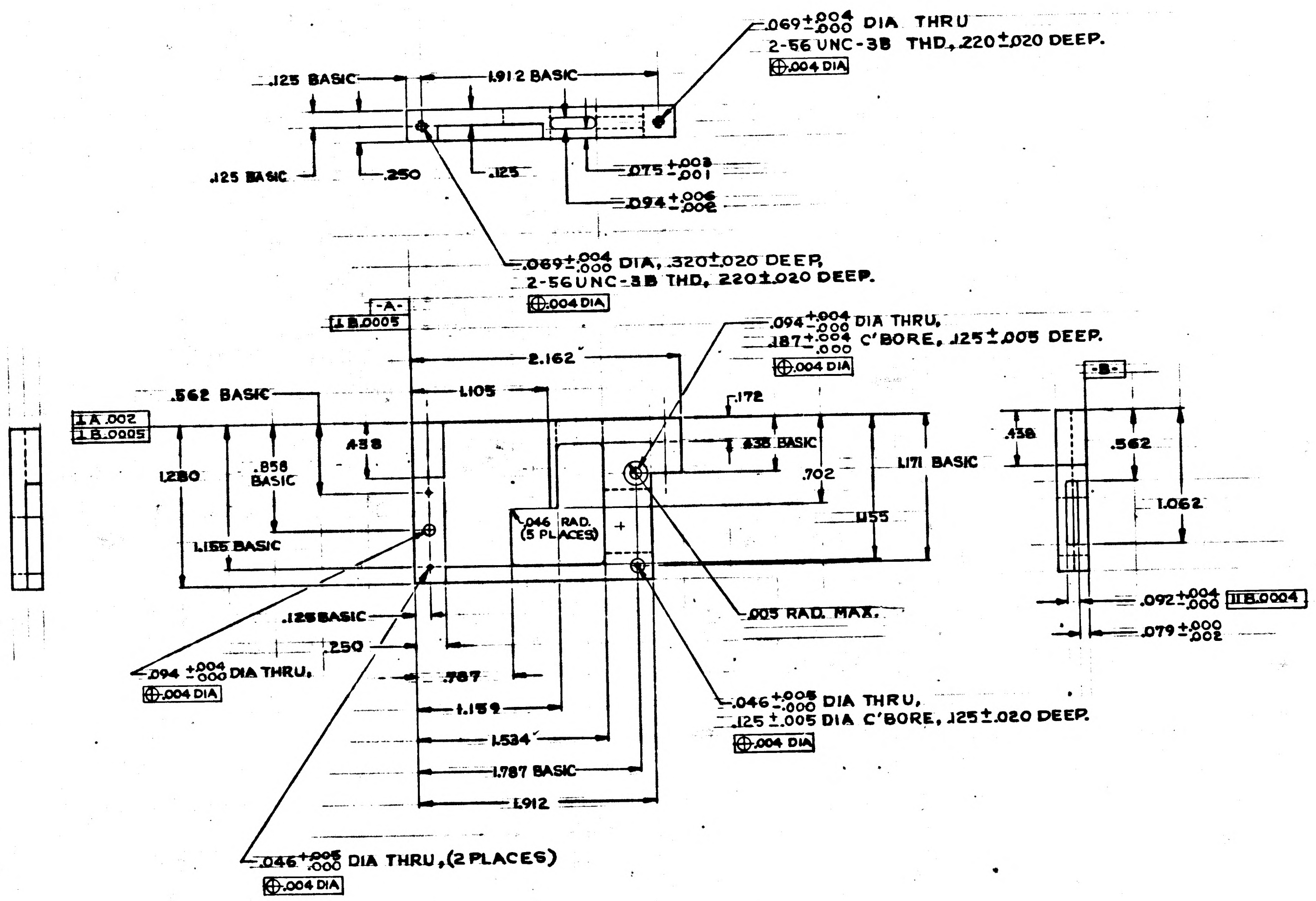
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS							
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
		INITIAL CLASS A RELEASE TDRR NO. 6703			7/7/63	WK	

6703

NOTES:

1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-225/6, 2024-T4 AL ALY, (ES-21014).
3. REMOVE ALL BURRS.
4. IDENTIFY USING DRAWING NO. & MFGR SYM PER ND102019.
5. REMOVE ALL CORNERS .005 TO .015 RAD. OR CHAMFER.
6. SURFACE ROUGHNESS MUST NOT EXCEED 63/.
7. FINISH: MIL-A-8625, TYPE I, ANODIZE (ES-385).



.069 +.004 −.000 DIA THRU
2-56 UNC-3B THD, .220 ±.020 DEEP.
⊕ .004 DIA
.125 BASIC
1.912 BASIC
.125 BASIC
.250
.125
.075 +.003 −.001
.094 +.006 −.002
.069 +.004 −.000 DIA, .320 ±.020 DEEP,
2-56 UNC-3B THD, .220 ±.020 DEEP.
⊕ .004 DIA
-A-
⊥ B .0005
2.162
.094 +.004 −.000 DIA THRU,
.187 +.004 −.000 C'BORE, .125 ±.005 DEEP.
⊕ .004 DIA
-B-
.562 BASIC
1.105
.172
⊥ A .002
⊥ B .0005
.438
.858 BASIC
1.280
.438 BASIC
.702
1.171 BASIC
1.155
.438
.562
1.062
.046 RAD. (5 PLACES)
1.155 BASIC
.005 RAD. MAX.
.092 +.004 −.000
// B .0004
.079 +.000 −.002
.125 BASIC
.250
.094 +.004 −.000 DIA THRU,
⊕ .004 DIA
.787
1.159
1.534
1.787 BASIC
1.912
.046 +.005 −.000 DIA THRU,
.125 ±.005 DIA C'BORE, .125 ±.020 DEEP.
⊕ .004 DIA
.046 +.005 −.000 DIA THRU, (2 PLACES)
⊕ .004 DIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014551-011	2014550-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ——— DECIMALS ±.002 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.P. [illegible] 15 FEB 63
CHECKED [illegible]
APPROVED W.H. [illegible]
APPROVED [illegible]
APPROVED MIT [illegible]
APPROVED MSC [illegible] 7/1/6[illegible]
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

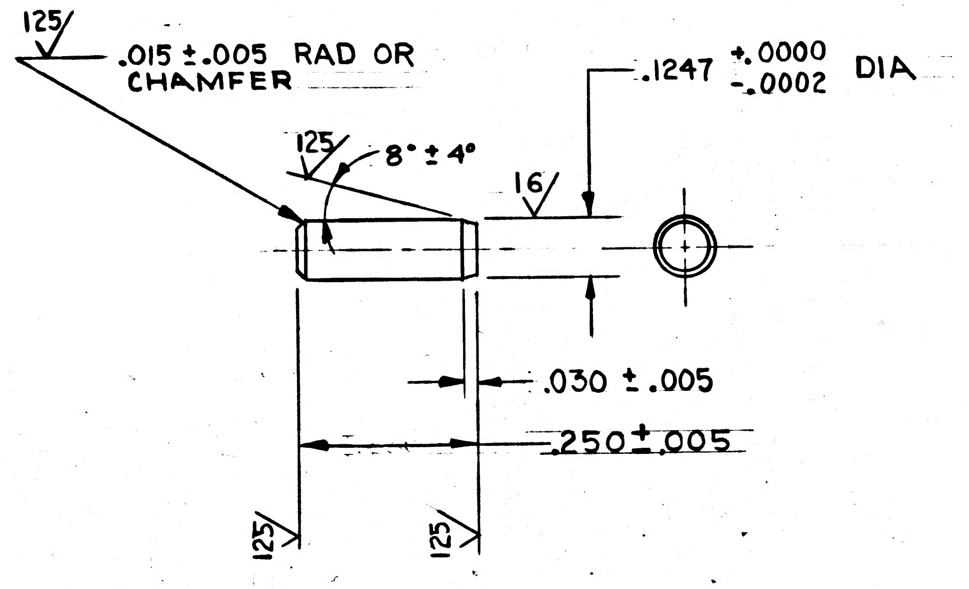
PLATE SIDE
NO. 2

CODE IDENT NO.
SIZE E
DRAWING NO. 2014554
SCALE 2/1
SHEET 1 OF 1

MASTER

NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-S-763, CL 410 OR 416, COND A, (ES-376).
3. HEAT TREAT PER MIL-H-6875 TO 38-40 RC.
4. REMOVE ALL BURRS.
5 IDENTIFY USING DRAWING NO. AND MFG SYM PER ND1002019.
6. FINISH: MIL-F-14072 (SIG C) FIN. E300 (ES-585).

REVISIONS 16703					
SYM	ZONE	DESCRIPTION		DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16703	CHG NO.	2/19/65	WK

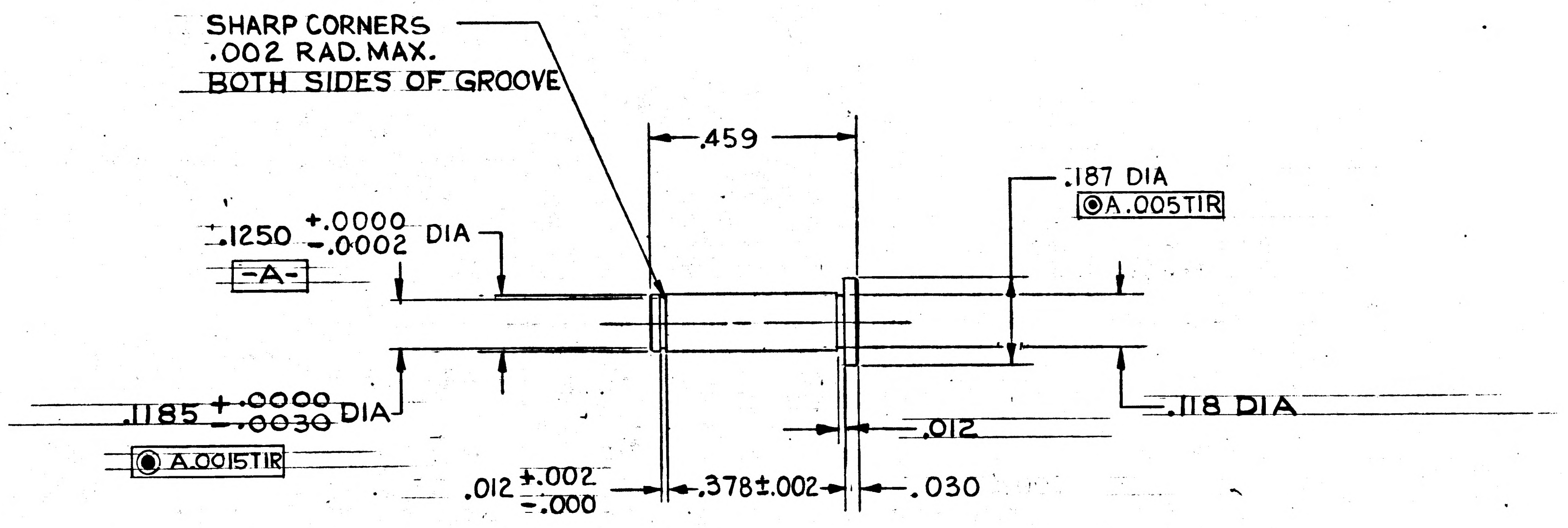


2014550-011	2014550-011	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± ___ DECIMALS ± ___ ANGLES ± ___ DO NOT SCALE THIS DRAWING	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN ACSP PN DRAWN W. Thompson DATE 2-7-65 CHECKED J. Swain 18 Feb 65 APPROVAL W.U. Thompson 19 FEB 65 APPROVAL J. Ekm 2/19/65	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	PIN PIVOT
NEXT ASSY	USED ON	MATERIAL SEE NOTE 2	NASA APPROVAL M Michal 2/19/65	CODE IDENT NO.	SIZE C 2014555
APPLICATION		CONTRACT NAS9-497	MIT APPROVAL W Kupfer 19 Feb 65	SCALE 4/1	SHEET 1 OF 1

REVISIONS 16703					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 16703		2/19/65	WK

NOTES:

1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-S-763, CL410 OR 416, COND A (ES-376).
3. HEAT TREAT PER MIL-H-6875 TO 38 - 40 RC.
4. ALL CORNERS TO BE .005 TO .015 RAD. OR CHAMFER.
5. REMOVE ALL BURRS.
6. FINISH: MIL-F-14072 (SIG C) FIN. E300 (ES585).
7. IDENTIFY USING DRAWING NO. PER ND1002019.
8. SURFACE ROUGHNESS NOT TO EXCEED $\sqrt{}^{32}$.



SHARP CORNERS
.002 RAD. MAX.
BOTH SIDES OF GROOVE
.459
.187 DIA
◎ A .005 TIR
.1250 +.0000 -.0002 DIA
-A-
.1185 +.0000 -.0030 DIA
◎ A .0015 TIR
.118 DIA
.012
.012 +.002 -.000
.378±.002
.030

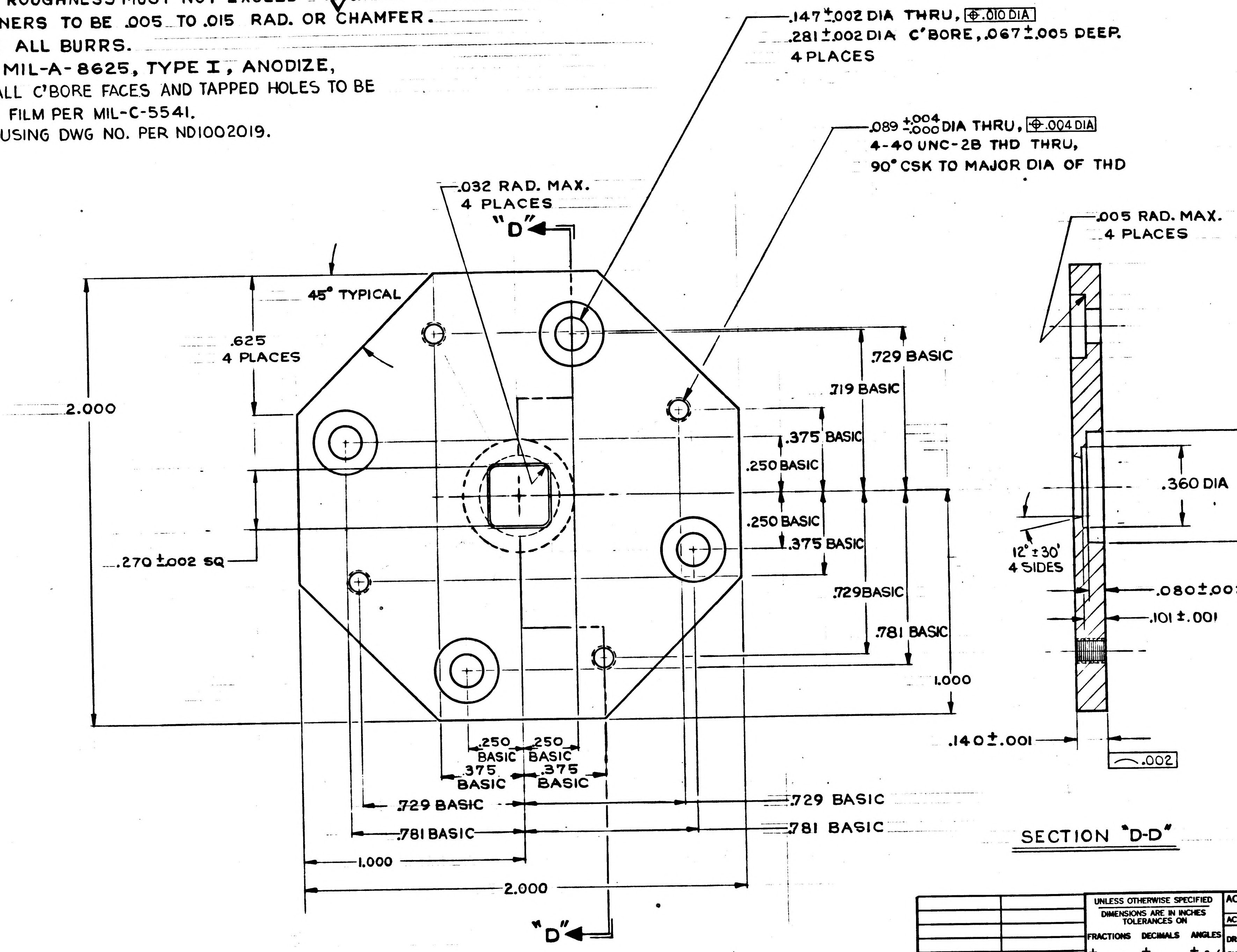
2014555-011	2014555-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ±.005 ANGLES ± –	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
	ACSP PN	
	DRAWN R. Rotta DATE FEB 13 65	PIN, PIVOT, HEADED
	CHECKED J. Suwine 18 Feb 65 19 FEB 65	
	APPROVAL D. J. Thompson	
DO NOT SCALE THIS DRAWING	APPROVAL BCW 2/19/65	
MATERIAL SEE NOTE 2	NASA APPROVAL 4/15/65	CODE IDENT NO. — SIZE C — 2014558
CONTRACT NAS 9-497	MIT APPROVAL	SCALE 4:1 — SHEET 1 OF 1

2014558

MIL 1077C-P

NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-250/5 , 2024-T3 AL ALY
3. SURFACE ROUGHNESS MUST NOT EXCEED 63√.
4. ALL CORNERS TO BE .005 TO .015 RAD. OR CHAMFER.
5. REMOVE ALL BURRS.
6. FINISH: MIL-A-8625, TYPE I, ANODIZE, EXCEPT ALL C'BORE FACES AND TAPPED HOLES TO BE CHEMICAL FILM PER MIL-C-5541.
7. IDENTIFY USING DWG NO. PER ND1002019.



.147±.002 DIA THRU, ⌖ .010 DIA
.281±.002 DIA C'BORE, .067±.005 DEEP.
4 PLACES
.089 +.004 -.000 DIA THRU, ⌖ .004 DIA
4-40 UNC-2B THD THRU,
90° CSK TO MAJOR DIA OF THD
.032 RAD. MAX.
4 PLACES
"D"
45° TYPICAL
.625
4 PLACES
2.000
.270±.002 SQ
.729 BASIC
.719 BASIC
.375 BASIC
.250 BASIC
.250 BASIC
.375 BASIC
.729 BASIC
.781 BASIC
1.000
.250 BASIC
.250 BASIC
.375 BASIC
.375 BASIC
.729 BASIC
.781 BASIC
.729 BASIC
.781 BASIC
1.000
2.000
"D"
.005 RAD. MAX.
4 PLACES
.360 DIA
.500 +.005 -.000 DIA
12° ± 30'
4 SIDES
.080±.002
.101±.001
.140±.001
⌒ .002

SECTION "D-D"

2014563 | 2

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 21099			

2014700	2014578
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± ___ DECIMALS ±.010 ANGLES ±2°0'
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE 1 MAR65
CHECKED 15 July 65
APPROVAL 19 July 65
APPROVAL PC Watson 20 JULY 65
NASA APPROVAL
MIT APPROVAL 7-21-65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, MOUNTING

CODE IDENT NO. 80230
SIZE D
2014563
SCALE 4/1
SHEET 1 OF 1

2014567

REVISIONS TDRR 22050

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			1			2014648	G&N INTERCONNECT HARNESS H
			1			2014647	G&N INTERCONNECT HARNESS G
			1			2014646	G&N INTERCONNECT HARNESS F
			1			2014645	G&N INTERCONNECT HARNESS E
			1			2014644	G&N INTERCONNECT HARNESS D
			1			2014643	G&N INTERCONNECT HARNESS C
			1			2014642	G&N INTERCONNECT HARNESS B
			1			2014641	G&N INTERCONNECT HARNESS A

QUANTITY REQUIRED

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN E. Litzow DATE 27 MAY 1965
CHECKED 28 MAY 65
APPROVAL P C Watson 8-24-65
APPROVAL 8/23/65
DEB 8-16-65
NASA APPROVAL 8/31/65
MIT APPROVAL 3 Aug 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS ASSEMBLY
(G/N BLOCK II)

CODE IDENT NO. 80230
SIZE C
2014567
SCALE
SHEET 1 OF 1

MIL 1078C—P

REVISIONS TDRR 22050

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		INITIAL RELEASE CLASS A PER TDRR			
B		REVISED PER TDRR 26661		23 MAR -66	B.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. SELECT AS REQUIRED.

SEE NOTE 2

SEE NOTE 2

			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			1			1010349-4 THRU-6	CLAMP, LOOP, HINGED
			18			1010400-1 THRU-7	CLAMP, LOOP, HINGED
			2			1010400-105 THRU -109	CLAMP, LOOP, HINGED
			1			1010705-2 THRU -4	CLAMP
			8			1010705-7 THRU -13	CLAMP
			2			1008807-1 THRU-3	CLAMP, MULTIPLE
			2			2014731	BRACKET, CABLE CLAMP
			2			1006783-27	SCREW, BUTTON HEAD
			1			2014648	G&N INTERCONNECT HARNESS H
			1			2014647	G&N INTERCONNECT HARNESS G
			1			2014646	G&N INTERCONNECT HARNESS F
			1			2014645	G&N INTERCONNECT HARNESS E
			1			2014644	G&N INTERCONNECT HARNESS D
			1			2014643	G&N INTERCONNECT HARNESS C
			1			2014642	G&N INTERCONNECT HARNESS B
			1			2014641	G&N INTERCONNECT HARNESS A

QUANTITY REQUIRED

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN E. Bitzow DATE 27 MAY 1965
CHECKED Zeeler 28 MAY 6
APPROVAL P C Wilson 8-24-65
APPROVAL J Z Nevins 8/23/65 DEA 8-16-65
NASA APPROVAL 8/3/6
MIT APPROVAL 23 Aug 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS GROUP
(C/M BLOCK II)

CODE IDENT NO. 80230
SIZE C
2014567
SCALE —
SHEET 1 OF 1

REVISIONS					
ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28-2		18 APRIL 66	

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. CONFIGURATION VIEW IS FOR REFERENCE ONLY, REPRESENTING HARNESS AS INSTALLED IN SPACECRAFT.
3. ALPHABETICAL CHARACTERS A, B, C, & ETC. ARE REFERENCE DESIGNATIONS APPLIED TO EACH CLAMP.
4. CLAMPS SHALL BE SELECTED FROM ITEM CALLED OUT AT CLAMP LOCATION AND BE INDIVIDUALLY IDENTIFIED WITH CORRESPONDING REFERENCE DESIGNATION.
5. HARNESS INSTALLATION: EACH CLAMP SHALL BE INSTALLED AT THE LOCATION REFERENCED ON THE CONFIGURATION VIEW.
6. VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING
7. INTERCONNECT DIAGRAM FOR THIS DRAWING IS 2014669

QUANTITY REQUIRED				EFFEC-TIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				

LIST OF PARTS AND MATERIALS

SEE NOTE 6 (items 20–16)

SEE NOTE 4&6 (items 14–9)

QUANTITY REQUIRED				EFFEC-TIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			2		20	MS16995-25	SCREW, SOC. HD.
			1		19	MS16996-10	SCREW, SOC. HD.
			1		18	MS21045-C3	(1897082-113) NUT, SELF LOCKING
			3		17	MS16996-9	SCREW, SOC HD.
			2		16	1006783-27	SCREW, BUTTON HD.
			2		15	2014731	BRACKET, CABLE CLAMP
			2		14	1008807-3 OR-4	CLAMP, MULTIPLE
			7		13	1010705-7 THRU-15	
			1		12	1010705-3 OR-4	
			3		11	1010400-105 THRU-109	LOOP, HINGED
			15		10	1010400-1 THRU-7	LOOP, HINGED
			3		9	1010349-4 THRU-6	CLAMP, LOOP, HINGED
			1		8	2014648	G&N INTERCONNECT HARNESS H
			1		7	2014647	G
			1		6	2014646	F
			1		5	2014645	E
			1		4	2014644	D
			1		3	2014643	C
			1		2	2014642	B
			1		1	2014641	G&N INTERCONNECT HARNESS A

LIST OF PARTS AND MATERIALS

APPLICABLE DASH NO.	NEXT ASSY	USED ON
-011		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS ± 3 PLACE DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL ———
APPROVAL

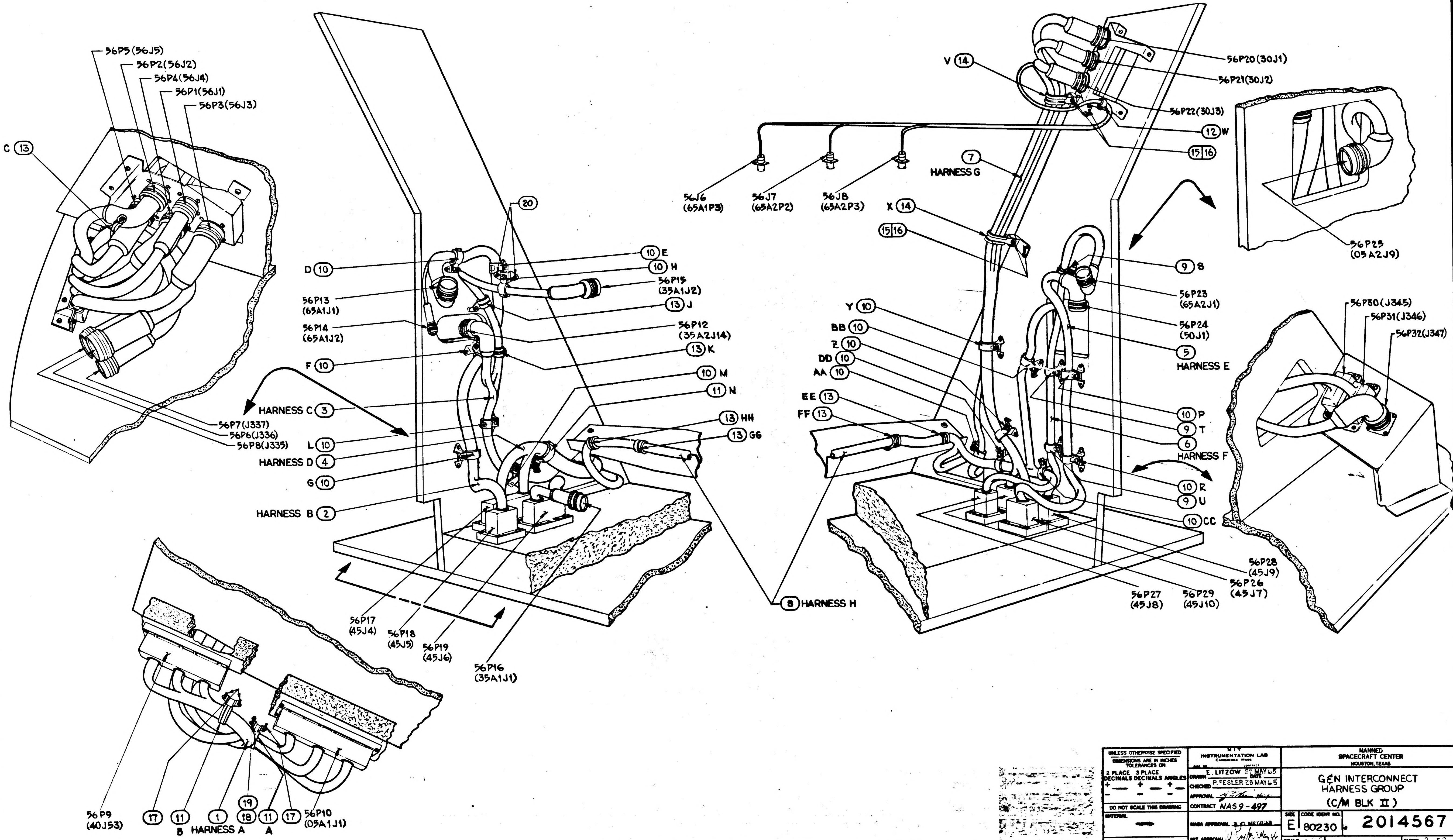
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN E. LITZOW DATE 27 MAY
CHECKED P. FESLER 28 MAY
APPROVAL
CONTRACT NAS9-497
NASA APPROVAL G. L. METZGER
MIT APPROVAL 24 May 66

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT
HARNESS GROUP
(C/M BLK II)

SIZE E
CODE IDENT NO. 80230
2014567
SCALE ~
SHEET 1 OF 2

REVISIONS					
ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		19 APRIL 66	wk



56P5(56J5)
56P2(56J2)
56P4(56J4)
56P1(56J1)
56P3(56J3)
C (13)
56P7(J337)
56P6(J336)
56P8(J335)
(20)
(10) E
D (10)
(10) H
56P13 (65A1J1)
56P15 (35A1J2)
(13) J
56P14 (65A1J2)
56P12 (35A2J14)
F (10)
(13) K
(10) M
(11) N
HARNESS C (3)
(13) HH
(13) GG
L (10)
HARNESS D (4)
G (10)
HARNESS B (2)
56P17 (45J4)
56P18 (45J5)
56P19 (45J6)
56P16 (35A1J1)
(8) HARNESS H
56P9 (40J53)
(17)
(11) B
(1) HARNESS A
(19)
(18)
(11) A
(17)
56P10 (05A1J1)
V (14)
56P20(30J1)
56P21(30J2)
56P22(30J3)
(12) W
(15)(16)
(7) HARNESS G
56J6 (65A1P3)
56J7 (65A2P2)
56J8 (65A2P3)
X (14)
(15)(16)
56P25 (05A2J9)
(9) S
56P23 (65A2J1)
56P24 (50J1)
(5) HARNESS E
Y (10)
BB (10)
Z (10)
DD (10)
AA (10)
EE (13)
FF (13)
56P30(J345)
56P31(J346)
56P32(J347)
(10) P
(9) T
(6) HARNESS F
(10) R
(9) U
(10) CC
56P28 (45J9)
56P26 (45J7)
56P27 (45J8)
56P29 (45J10)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON 2 PLACE DECIMALS ± —— 3 PLACE DECIMALS ± —— ANGLES ± ——	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
DO NOT SCALE THIS DRAWING	DRAWN E. LITZOW DATE 27 MAY 65 CHECKED P. FESLER 28 MAY 65 APPROVAL CONTRACT NAS 9-497	G&N INTERCONNECT HARNESS GROUP (C/M BLK II)
MATERIAL ——	NASA APPROVAL J. C. METZGER	SIZE E · CODE IDENT NO. 80230 · 2014567
APPROVAL	MIT APPROVAL	SCALE NONE · SHEET 2 OF 2

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. CONFIGURATION VIEW IS FOR REFERENCE ONLY, REPRESENTING HARNESS AS INSTALLED IN SPACECRAFT.
3. ALPHABETICAL CHARACTERS A, B, C, & ETC. ARE REFERENCE DESIGNATIONS APPLIED TO EACH CLAMP.
4. CLAMPS SHALL BE SELECTED FROM ITEM CALLED OUT AT CLAMP LOCATION AND BE INDIVIDUALLY IDENTIFIED WITH CORRESPONDING REFERENCE DESIGNATION.
5. HARNESS INSTALLATION: EACH CLAMP SHALL BE INSTALLED AT THE LOCATION REFERENCED ON THE CONFIGURATION VIEW.
6. VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING
7. INTERCONNECT DIAGRAM FOR THIS DRAWING IS 2014669

REVISIONS

ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		18 APRIL 66	
	D	REVISED PER TDRR 29700		26 JUN 66	

QUANTITY REQUIRED			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION

LIST OF PARTS AND MATERIALS

SEE NOTE 6 (ITEMS 20 THRU 16)

SEE NOTE 4&6 (ITEMS 14 THRU 9)

QUANTITY REQUIRED		021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
		1	-		21	2014796	G&N INTERCONNECT HARNESS 'D'
		2	2		20	MS16995-25	SCREW, SOC. HD
		1	1		19	MS16996-10	SCREW, SOC. HD.
		1	1		18	MS21045-C3	(1897082-113) NUT, SELF LOCKING
		3	3		17	MS16996-9	SCREW, SOC. HD.
		2	2		16	1006783-27	SCREW, BUTTON HD.
		2	2		15	2014731	BRACKET, CABLE CLAMP
		2	2		14	1008807-3 OR-4	CLAMP, MULTIPLE
		7	7		13	1010705-7 THRU-15	
		1	1		12	1010705-3 OR-4	
		3	3		11	1010400-105 THRU-109	LOOP, HINGED
		15	15		10	1010400-1 THRU-7	LOOP, HINGED
		3	3		9	1010349-4 THRU-6	CLAMP, LOOP, HINGED
		1	1		8	2014648	G&N INTERCONNECT HARNESS H
		1	1		7	2014647	G
		1	1		6	2014646	F
		1	1		5	2014645	E
		-	1		4	2014644	D
		1	1		3	2014643	C
		1	1		2	2014642	B
		1	1		1	2014641	G&N INTERCONNECT HARNESS A

LIST OF PARTS AND MATERIALS

APPLICABLE DASH NO.	NEXT ASSY	USED ON
-011		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS + — − | 3 PLACE DECIMALS + — − | ANGLES + — −
DO NOT SCALE THIS DRAWING
MATERIAL —
APPROVAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN E. LITZOW DATE 27 MAY 65
CHECKED P. FESLER 28 MAY 65
APPROVAL
CONTRACT NAS9-497
NASA APPROVAL A. C. METZGER
MIT APPROVAL

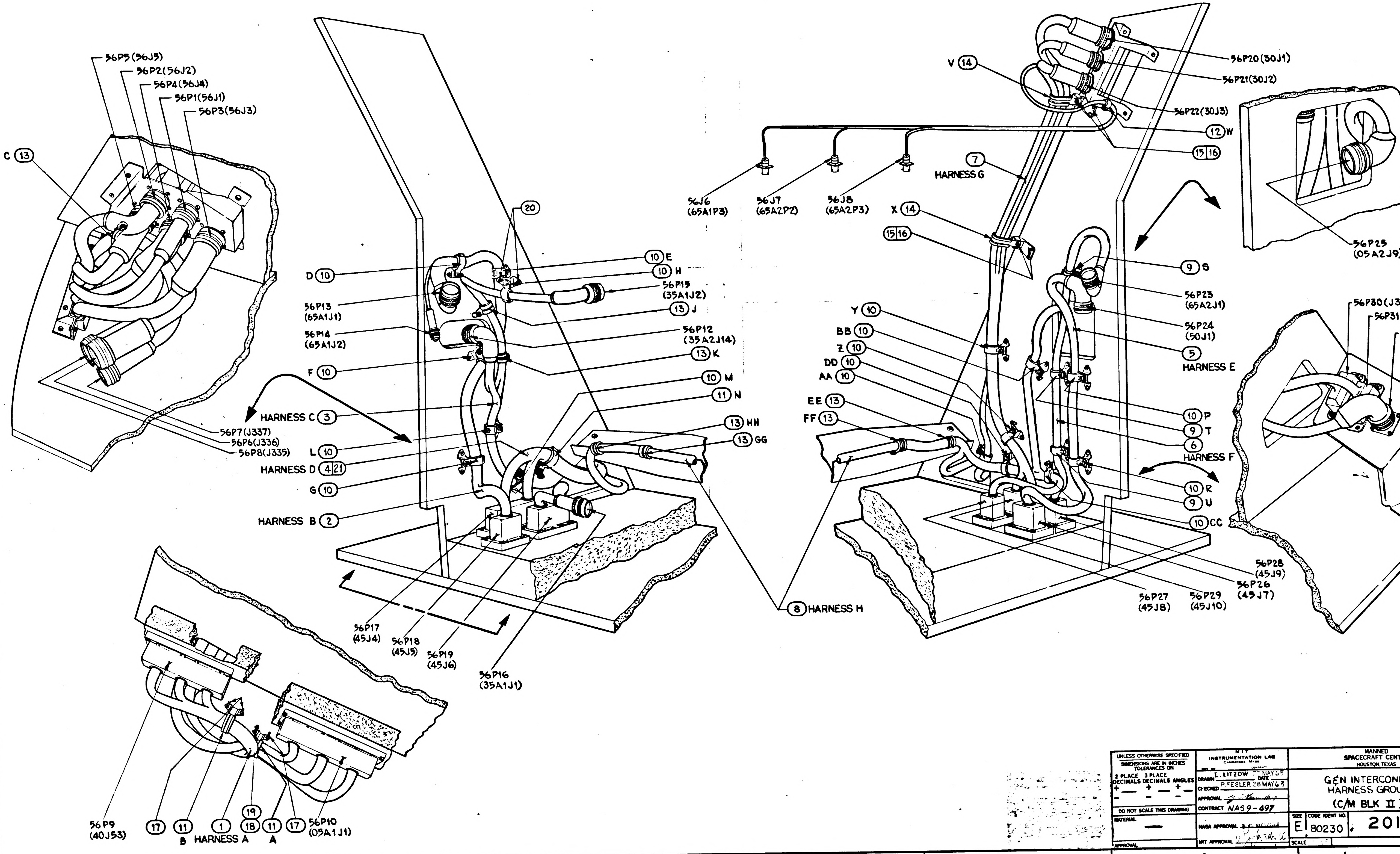
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT
HARNESS GROUP
(C/M BLK II)

SIZE E | CODE IDENT NO. 80230 | 2014567

SCALE ~ | SHEET 1 OF 2

REVISIONS					
ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		18 APRIL 66	WK
	D	REVISED PER TDRR 29700		24 JUN 66	JHF RWH



56P5(56J5)
56P2(56J2)
56P4(56J4)
56P1(56J1)
56P3(56J3)
C (13)
56P7(J337)
56P6(J336)
56P8(J335)
(20)
D (10)
(10) E
(10) H
56P15
(35A1J2)
56P13
(65A1J1)
(13) J
56P14
(65A1J2)
56P12
(35A2J14)
(13) K
F (10)
(10) M
(11) N
HARNESS C (3)
(13) HH
(13) GG
L (10)
HARNESS D (4)(21)
G (10)
HARNESS B (2)
56P17
(45J4)
56P18
(45J5)
56P19
(45J6)
56P16
(35A1J1)
56P9
(40J53)
(17)
(11)
B
(1)
HARNESS A
(19)
(18)
(11)
A
(17)
56P10
(05A1J1)
V (14)
56P20(30J1)
56P21(30J2)
56P22(30J3)
(12) W
(15)(16)
(7)
HARNESS G
56J6
(65A1P3)
56J7
(65A2P2)
56J8
(65A2P3)
X (14)
(15)(16)
56P25
(05A2J9)
(9) S
56P23
(65A2J1)
56P24
(50J1)
(5)
HARNESS E
Y (10)
BB (10)
Z (10)
DD (10)
AA (10)
56P30(J345)
56P31(J346)
56P32(J347)
EE (13)
FF (13)
(10) P
(9) T
(6)
HARNESS F
(10) R
(9) U
(10) CC
56P28
(45J9)
56P26
(45J7)
56P27
(45J8)
56P29
(45J10)
(8) HARNESS H

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS ± 3 PLACE DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
APPROVAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN E. LITZOW 27 MAY 65
CHECKED P. FESLER 28 MAY 65
CONTRACT NAS 9-497
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT
HARNESS GROUP
(C/M BLK II)

SIZE E CODE IDENT NO. 80230 2014567
SCALE
SHEET

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. CONFIGURATION VIEW IS FOR REFERENCE ONLY, REPRESENTING HARNESS AS INSTALLED IN SPACECRAFT.
3. ALPHABETICAL CHARACTERS A, B, C, & ETC. ARE REFERENCE DESIGNATIONS APPLIED TO EACH CLAMP.
4. CLAMPS SHALL BE SELECTED FROM ITEM CALLED OUT AT CLAMP LOCATION AND BE INDIVIDUALLY IDENTIFIED WITH CORRESPONDING REFERENCE DESIGNATION.
5. HARNESS INSTALLATION: EACH CLAMP SHALL BE INSTALLED AT THE LOCATION REFERENCED ON THE CONFIGURATION VIEW.
6. VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING
7. INTERCONNECT DIAGRAM FOR THIS DRAWING IS 2014669

REVISIONS

ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		18 APRIL 66	WK
	D	REVISED PER TDRR 29700		26 JUN 66	RWH
	E	REVISED PER TDRR 31143		7-28-66	

	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
QUANTITY REQUIRED			LIST OF PARTS AND MATERIALS		

SEE NOTE 6 (items 16–20)

SEE NOTE 4&6 (items 9–14)

	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	1	-	-		29	2010781	G&N INTERCONNECT HARNESS H
	1	-	-		28	2010780	G&N INTERCONNECT HARNESS G
	1	-	-		27	2010779	G&N INTERCONNECT HARNESS F
	1	-	-		26	2010778	G&N INTERCONNECT HARNESS E
	1	-	-		25	2010777	G&N INTERCONNECT HARNESS D
	1	-	-		24	2010776	G&N INTERCONNECT HARNESS C
	1	-	-		23	2010775	G&N INTERCONNECT HARNESS B
	1	-	-		22	2010774	G&N INTERCONNECT HARNESS A
	-	1	-		21	2014796	G&N INTERCONNECT HARNESS 'D'
	2	2	2		20	MS16995-25	SCREW, SOC. HD
	1	1	1		19	MS16996-10	SCREW, SOC. HD.
	1	1	1		18	MS21045-C3	(1897082-113) NUT, SELF LOCKING
	3	3	3		17	MS16996-9	SCREW, SOC HD.
	2	2	2		16	1006783-27	SCREW, BUTTON HD.
	2	2	2		15	2014731	BRACKET, CABLE CLAMP
	2	2	2		14	1008807-3 OR-4	CLAMP, MULTIPLE
	7	7	7		13	1010705-7 THRU-15	
	1	1	1		12	1010705-3 OR-4	
	3	3	3		11	1010400-105 THRU-109	LOOP, HINGED
	15	15	15		10	1010400-1 THRU-7	LOOP, HINGED
	3	3	3		9	1010349-4 THRU-6	CLAMP, LOOP, HINGED
	-	1	1		8	2014648	G&N INTERCONNECT HARNESS H
	-	1	1		7	2014647	G
	-	1	1		6	2014646	F
	-	1	1		5	2014645	E
	-	-	1		4	2014644	D
	-	1	1		3	2014643	C
	-	1	1		2	2014642	B
	-	1	1		1	2014641	G&N INTERCONNECT HARNESS A
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

APPLICABLE DASH NO.	NEXT ASSY	USED ON
-011		
	APPLICATION	

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS ± —
3 PLACE DECIMALS ± —
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
APPROVAL

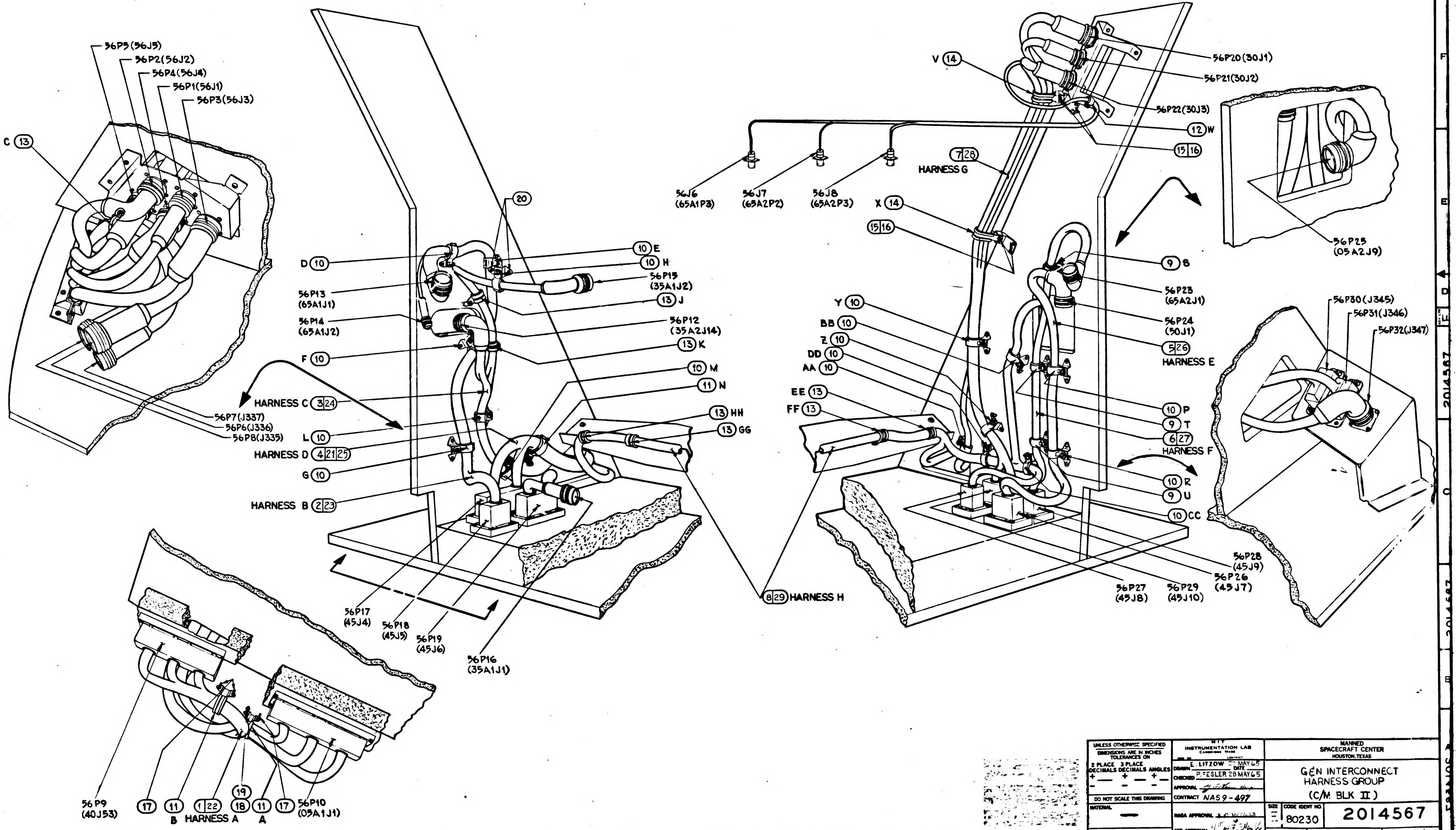
MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN E. LITZOW 27 MAY 65
CHECKED P. FESLER 28 MAY 65
APPROVAL
CONTRACT NAS9-497
NASA APPROVAL A. C. METZGER
MIT APPROVAL 3-4-66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT
HARNESS GROUP
(C/M BLK II)

SIZE E
CODE IDENT NO. 80230
2014567
SCALE ~
SHEET 1 OF 2

REVISIONS					
ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		18 APRIL 66	WK
	D	REVISED PER TDRR 29700		24 JUN 66	JHF RWH
	E	REVISED PER TDRR 31143		9-28-66	



56P5(56J5)
56P2(56J2)
56P4(56J4)
56P1(56J1)
56P3(56J3)
C 13
56P7(J337)
56P6(J336)
56P8(J335)
20
10 E
10 H
D 10
56P15
(35A1J2)
56P13
(65A1J1)
13 J
56P14
(65A1J2)
56P12
(35A2J14)
13 K
F 10
10 M
11 N
HARNESS C 3 24
13 HH
13 GG
L 10
HARNESS D 4 21 25
G 10
HARNESS B 2 23
56P17
(45J4)
56P18
(45J5)
56P19
(45J6)
56P16
(35A1J1)
8 29 HARNESS H
V 14
56P20(30J1)
56P21(30J2)
56P22(30J3)
12 W
15 16
7 28
HARNESS G
56J6
(65A1P3)
56J7
(65A2P2)
56J8
(65A2P3)
X 14
15 16
56P25
(05A2J9)
9 S
56P23
(65A2J1)
56P24
(30J1)
5 26
HARNESS E
Y 10
BB 10
Z 10
DD 10
AA 10
EE 13
FF 13
10 P
9 T
6 27
HARNESS F
10 R
9 U
10 CC
56P30(J345)
56P31(J346)
56P32(J347)
56P28
(45J9)
56P26
(45J7)
56P27
(45J8)
56P29
(45J10)
56P9
(40J53)
17
11
1 22
18
19
11
17
56P10
(05A1J1)
B HARNESS A A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON 2 PLACE DECIMALS ± 3 PLACE DECIMALS ± ANGLES ±	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
DO NOT SCALE THIS DRAWING	DRAWN E. LITZOW 27 MAY 65 DATE CHECKED P. FESLER 28 MAY 65 APPROVAL CONTRACT NAS 9-497	GEN INTERCONNECT HARNESS GROUP (C/M BLK II)
MATERIAL —	NASA APPROVAL MIT APPROVAL	SIZE E CODE IDENT NO. 80230 2014567
APPROVAL		SCALE NONE SHEET

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. CONFIGURATION VIEW IS FOR REFERENCE ONLY, REPRESENTING HARNESS AS INSTALLED IN SPACECRAFT.
3. ALPHABETICAL CHARACTERS A, B, C, & ETC. ARE REFERENCE DESIGNATIONS APPLIED TO EACH CLAMP.
4. CLAMPS SHALL BE SELECTED FROM ITEM CALLED OUT AT CLAMP LOCATION AND BE INDIVIDUALLY IDENTIFIED WITH CORRESPONDING REFERENCE DESIGNATION.
5. HARNESS INSTALLATION: EACH CLAMP SHALL BE INSTALLED AT THE LOCATION REFERENCED ON THE CONFIGURATION VIEW.
6. VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING
7. INTERCONNECT DIAGRAM FOR THIS DRAWING IS 2014669
8. WRAP TEFLON TAPE ITEM 30 AROUND BUNDLE BENEATH CABLE CLAMP AS REQUIRED TO IMPROVE FIT.

REVISIONS

ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		18 APRIL 66	WK
	D	REVISED PER TDRR 29700		24 JUN 66	HF RH
	E	REVISED PER TDRR 31143		3 28 66	AE MV
	F	REVISED PER TDRR 32878		4 FEB 67	AF WH

LIST OF PARTS AND MATERIALS

Note	QUANTITY REQUIRED 031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
SEE NOTE 8	AR	-	-		30	MIL-T-23594	TAPE, TEFLON, TYPE II, 1" WIDE
	1	-	-		29	2010781	G&N INTERCONNECT HARNESS
	1	-	-		28	2010780	G&N INTERCONNECT HARNESS
	1	-	-		27	2010779	G&N INTERCONNECT HARNESS F
	1	-	-		26	2010778	G&N INTERCONNECT HARNESS E
	1	-	-		25	2010777	G&N INTERCONNECT HARNESS D
	1	-	-		24	2010776	G&N INTERCONNECT HARNESS C
	1	-	-		23	2010775	G&N INTERCONNECT HARNESS B
	1	-	-		22	2010774	G&N INTERCONNECT HARNESS A
	-	1	-		21	2014796	G&N INTERCONNECT HARNESS "I"
SEE NOTE 6	2	2	2		20	MS16995-25	SCREW, SOC. HD
	1	1	1		19	MS16996-10	SCREW, SOC. HD.
	1	1	1		18	MS21045-C3	(1897082-113) NUT, SELF LOCKING
	3	3	3		17	MS16996-9	SCREW, SOC. HD.
	2	2	2		16	1006783-27	SCREW, BUTTON HD.
	2	2	2		15	2014731	BRACKET, CABLE CLAMP
SEE NOTE 4&6	2	2	2		14	1008807-3 OR-4	CLAMP, MULTIPLE
	7	7	7		13	1010705-7 THRU-15	
	1	1	1		12	1010705-3 OR-4	
	3	3	3		11	1010400-105 THRU-109	LOOP, HINGED
	15	15	15		10	1010400-1 THRU-7	LOOP, HINGED
	3	3	3		9	1010349-4 THRU-6	CLAMP, LOOP, HINGED
	-	1	1		8	2014648	G&N INTERCONNECT HARNESS H
	-	1	1		7	2014647	G
	-	1	1		6	2014646	F
	-	1	1		5	2014645	E
	-	-	1		4	2014644	D
	-	1	1		3	2014643	C
	-	1	1		2	2014642	B
	-	1	1		1	2014641	G&N INTERCONNECT HARNESS A

APPLICABLE DASH NO.	NEXT ASSY	USED ON
-011		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS ± —
3 PLACE DECIMALS ± —
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
APPROVAL

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN E. LITZOW 27 MAY 65
CHECKED P. FESLER 28 MAY 65
APPROVAL
CONTRACT NAS 9-497
NASA APPROVAL A. C. METZGER
MIT APPROVAL

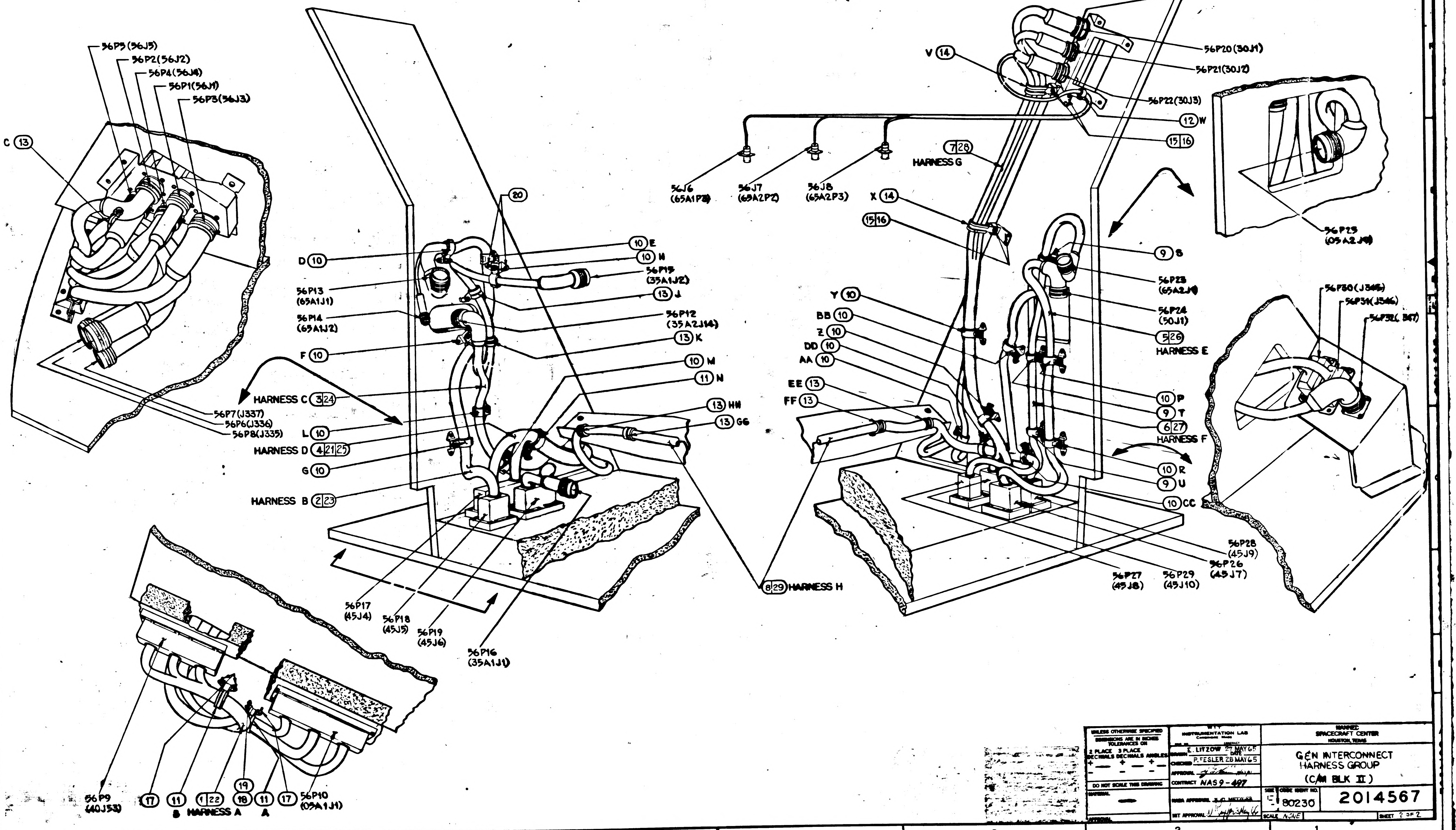
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS GROUP (C/M BLK II)

SIZE E
CODE IDENT NO. 80230
2014567
SCALE ~
SHEET 1 OF 2

REVISIONS

ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		18 APRIL 66	
	D	REVISED PER TDRR 29700		24 JUN 66	RWH
	E	REVISED PER TDRR 31143		9-28-66	
	F	REVISION STATUS CHANGED		14 FEB 67	


56P5(56J5)
56P2(56J2)
56P4(56J4)
56P1(56J1)
56P3(56J3)
C ⑬
56P7(J337)
56P6(J336)
56P8(J335)
⑳
D ⑩
⑩ E
⑩ H
56P15 (35A1J2)
56P13 (65A1J1)
⑬ J
56P14 (65A1J2)
56P12 (35A2J14)
⑬ K
F ⑩
⑩ M
⑪ N
HARNESS C 3 24
⑬ HH
⑬ GG
L ⑩
HARNESS D 4 21 25
G ⑩
HARNESS B 2 23
56P17 (45J4)
56P18 (45J5)
56P19 (45J6)
56P16 (35A1J1)
56P9 (40J53)
⑰
⑪ B
1 22 HARNESS A
⑱
⑲
⑪ A
⑰
56P10 (05A1J1)
V ⑭
56P20(30J1)
56P21(30J2)
56P22(30J3)
⑫ W
15 16
7 28 HARNESS G
56J6 (65A1P1)
56J7 (65A2P2)
56J8 (65A2P3)
X ⑭
15 16
⑨ S
56P23 (65A2J1)
56P24 (50J1)
5 26 HARNESS E
Y ⑩
BB ⑩
Z ⑩
DD ⑩
AA ⑩
EE ⑬
FF ⑬
⑩ P
⑨ T
6 27 HARNESS F
⑩ R
⑨ U
⑩ CC
56P28 (45J9)
56P26 (45J7)
56P27 (45J8)
56P29 (45J10)
8 29 HARNESS H
56P25 (05A2J9)
56P30(J345)
56P31(J346)
56P32(J347)

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE 3 PLACE
DECIMALS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MIT INSTRUMENTATION LAB
Cambridge Mass

DRAWN E. LITZOW 27 MAY 65
CHECKED P. FESLER 28 MAY 65
APPROVAL
CONTRACT NAS 9-497
NASA APPROVAL J.C. METZGER
MIT APPROVAL 3 May 66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

GEN INTERCONNECT HARNESS GROUP (C/M BLK II)

SIZE E
CODE IDENT NO. 80230
2014567
SCALE NONE
SHEET 2 OF 2

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
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6. VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING
7. INTERCONNECT DIAGRAM FOR THIS DRAWING IS 2014669
8. WRAP TEFLON TAPE ITEM 30 AROUND BUNDLE BENEATH CABLE CLAMP AS REQUIRED TO IMPROVE FIT.

REVISIONS

ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		18 APRIL 66	
	D	REVISED PER TDRR 29700		26 JUN 66	
	E	REVISED PER TDRR 31143		28	
	F	REVISED PER TDRR 32878		4 FEB 67	
	G	REVISED PER TDRR 33656		28 67	

041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
1	-	-	-		37	2021280	G&N INTERCONNECT HARNESS H
1	-	-	-		36	2021279	G
1	-	-	-		35	2021278	F
1	-	-	-		34	2021277	E
1	-	-	-		33	2021276	D
1	-	-	-		32	2021275	C
1	-	-	-		31	2021274	G&N INTERCONNECT HARNESS B
AR	AR	-	-		30	MIL-T-23594	TAPE, TEFLON, TYPE II, 1" WIDE
-	1	-	-		29	2010781	G&N INTERCONNECT HARNESS H
-	1	-	-		28	2010780	G&N INTERCONNECT HARNESS G
-	1	-	-		27	2010779	G&N INTERCONNECT HARNESS F
-	1	-	-		26	2010778	G&N INTERCONNECT HARNESS E
-	1	-	-		25	2010777	G&N INTERCONNECT HARNESS D
-	1	-	-		24	2010776	G&N INTERCONNECT HARNESS C
-	1	-	-		23	2010775	G&N INTERCONNECT HARNESS B
1	1	-	-		22	2010774	G&N INTERCONNECT HARNESS A
-	-	1	-		21	2014796	G&N INTERCONNECT HARNESS 'D'
2	2	2	2		20	MS16995-25	SCREW, SOC. HD
1	1	1	1		19	MS16996-10	SCREW, SOC. HD.
1	1	1	1		18	MS21045-C3	(1897082-113) NUT, SELF LOCKING
3	3	3	3		17	MS16996-9	SCREW, SOC HD.
2	2	2	2		16	1006783-27	SCREW, BUTTON HD.
2	2	2	2		15	2014731	BRACKET, CABLE CLAMP
2	2	2	2		14	1008807-3 OR-4	CLAMP, MULTIPLE
7	7	7	7		13	1010705-7 THRU-15	
1	1	1	1		12	1010705-3 OR-4	
3	3	3	3		11	1010400-105 THRU-109	LOOP, HINGED
15	15	15	15		10	1010400-1 THRU-7	LOOP, HINGED
3	3	3	3		9	1010349-4 THRU-6	CLAMP, LOOP, HINGED
-	-	1	1		8	2014648	G&N INTERCONNECT HARNESS H
-	-	1	1		7	2014647	G
-	-	1	1		6	2014646	F
-	-	1	1		5	2014645	E
-	-	-	1		4	2014644	D
-	-	1	1		3	2014643	C
-	-	1	1		2	2014642	B
-	-	1	1		1	2014641	G&N INTERCONNECT HARNESS A

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

SEE NOTE 8 (item 30)

SEE NOTE 6 (items 20–16)

SEE NOTE 4&6 (items 14–9)

011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

APPLICABLE DASH NO.	NEXT ASSY	USED ON
-011		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS ± —
3 PLACE DECIMALS ± —
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
APPROVAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN E. LITZOW 27 MAY 65
CHECKED P. FESLER 28 MAY 65
APPROVAL
CONTRACT NAS9-497
NASA APPROVAL
MIT APPROVAL

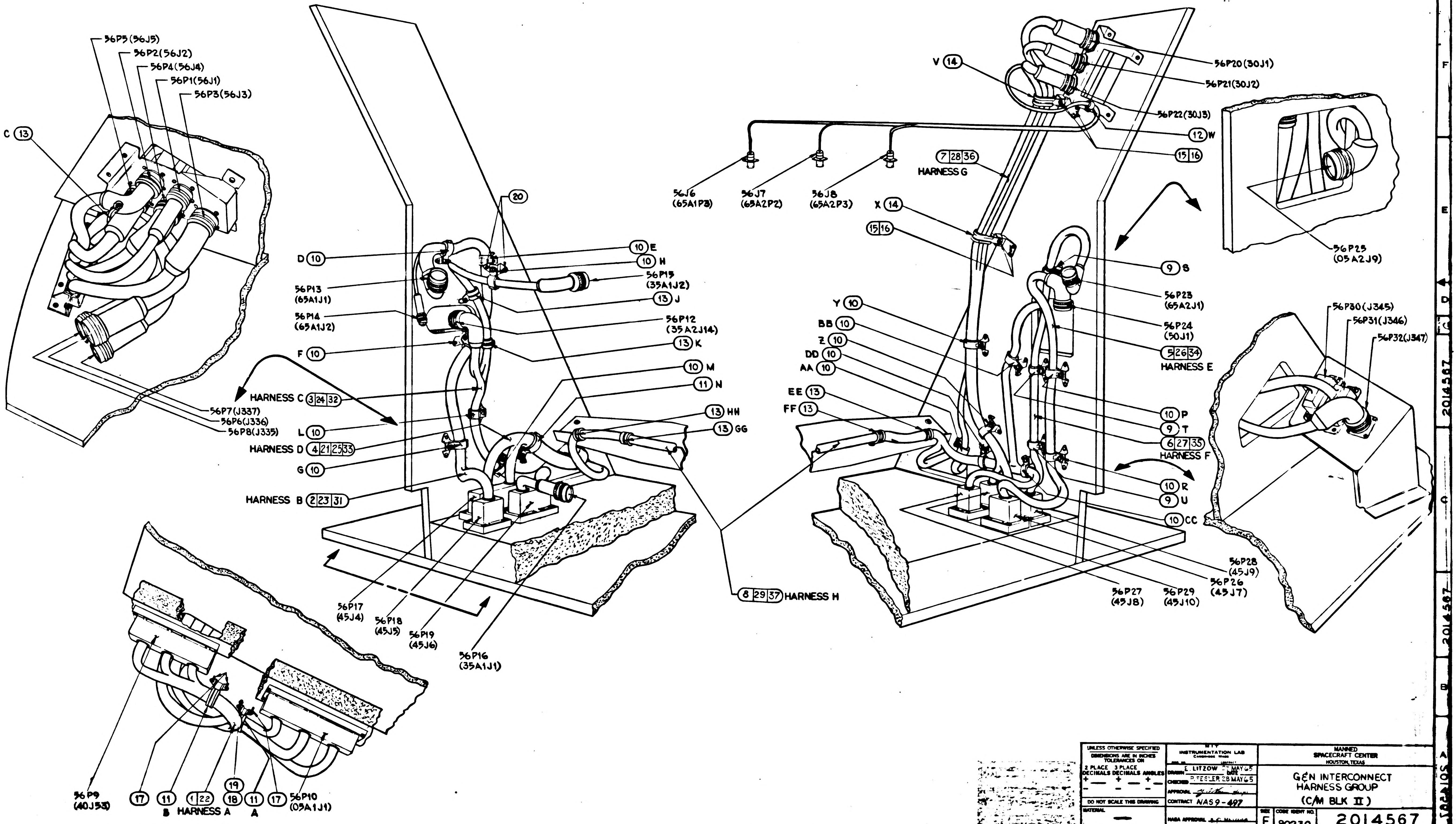
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT
HARNESS GROUP
(C/M BLK I)

SIZE E
CODE IDENT NO. 80230
2014567
SCALE ~
SHEET 1 OF 2

REVISIONS

ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		18 APRIL 66	
	D	REVISED PER TDRR 29700			
	E	REVISED PER TDRR 31143			
	F	REVISION STATUS CHANGED		4 FEB	
	G	REVISED PER TDRR 33656			


56P5(56J5)
56P2(56J2)
56P4(56J4)
56P1(56J1)
56P3(56J3)
C (13)
56P7(J337)
56P6(J336)
56P8(J335)
(20)
D (10)
(10) E
(10) H
56P13 (65A1J1)
56P15 (35A1J2)
(13) J
56P14 (65A1J2)
56P12 (35A2J14)
(13) K
F (10)
(10) M
(11) N
HARNESS C 3 24 32
(13) HH
(13) GG
L (10)
HARNESS D 4 21 25 33
G (10)
HARNESS B 2 23 31
56P17 (45J4)
56P18 (45J5)
56P19 (45J6)
56P16 (35A1J1)
8 29 37 HARNESS H
56P9 (40J53)
(17)
(11)
(1)(22)
(18)
(19)
(11)
(17)
56P10 (05A1J1)
B HARNESS A
A
V (14)
56P20(30J1)
56P21(30J2)
56P22(30J3)
(12) W
(15)(16)
7 28 36
HARNESS G
56J6 (65A1P3)
56J7 (65A2P2)
56J8 (65A2P3)
X (14)
(15)(16)
56P25 (05A2J9)
(9) S
56P23 (65A2J1)
56P24 (50J1)
5 26 34
HARNESS E
Y (10)
BB (10)
Z (10)
DD (10)
AA (10)
EE (13)
FF (13)
56P30(J345)
56P31(J346)
56P32(J347)
(10) P
(9) T
6 27 35
HARNESS F
(10) R
(9) U
(10) CC
56P28 (45J9)
56P26 (45J7)
56P27 (45J8)
56P29 (45J10)

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS + — −
3 PLACE DECIMALS + — −
ANGLES + — −

DO NOT SCALE THIS DRAWING

MATERIAL —

APPROVAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN E. LITZOW DATE 27 MAY 65
CHECKED R. FESLER 28 MAY 65
APPROVAL
CONTRACT NAS 9-497
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

GEN INTERCONNECT
HARNESS GROUP
(C/M BLK II)

SIZE E
CODE IDENT NO. 80230
2014567

SCALE
SHEET 2

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
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6. VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING
7. INTERCONNECT DIAGRAM FOR THIS DRAWING IS 2014669
8. WRAP TEFLON TAPE ITEM 30 AROUND BUNDLE BENEATH CABLE CLAMP AS REQUIRED TO IMPROVE FIT.

REVISIONS

ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		18 APRIL 66	WK
	D	REVISED PER TDRR 29700		20 JUN 66	JHP RWH
	E	REVISED PER TDRR 31143		9 2 66	
	F	REVISED PER TDRR 32878		14 FEB 67	AF WH
	G	REVISED PER TDRR 33656		28 JUL 67	AN
	H	REVISED PER TDRR 34471		10 OCT 67	JRK

	051	041	[illegible]	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	1	-	-	-	-		45	2021292	G&N INTERCONNECT HARNESS H
	1	-	-	-	-		44	2021293	G
	1	-	-	-	-		43	2021297	F
	1	-	-	-	-		42	2021299	E
	1	-	-	-	-		41	2021296	D
	1	-	-	-	-		40	2021294	C
	1	-	-	-	-		39	2021298	B
	1	-	-	-	-		38	2021295	A
	-	1	-	-	-		37	2021280	G&N INTERCONNECT HARNESS H
	-	1	-	-	-		36	2021279	G
	-	1	-	-	-		35	2021278	F
	-	1	-	-	-		34	2021277	E
	-	1	-	-	-		33	2021276	D
	-	1	-	-	-		32	2021275	C
	-	1	-	-	-		31	2021274	G&N INTERCONNECT HARNESS B
SEE NOTE 8	AR	AR	AR	-	-		30	MIL-T-23594	TAPE, TEFLON, TYPE II, 1" WIDE
	-	-	1	-	-		29	2010781	G&N INTERCONNECT HARNESS H
	-	-	1	-	-		28	2010780	G&N INTERCONNECT HARNESS G
	-	-	1	-	-		27	2010779	G&N INTERCONNECT HARNESS F
	-	-	1	-	-		26	2010778	G&N INTERCONNECT HARNESS E
	-	-	1	-	-		25	2010777	G&N INTERCONNECT HARNESS D
	-	-	1	-	-		24	2010776	G&N INTERCONNECT HARNESS C
	-	-	1	-	-		23	2010775	G&N INTERCONNECT HARNESS B
	-	1	1	-	-		22	2010774	G&N INTERCONNECT HARNESS A
	-	-	-	1	-		21	2014796	G&N INTERCONNECT HARNESS 'D'
SEE NOTE 6	2	2	2	2	2		20	MS16995-25	SCREW, SOC. HD
	1	1	1	1	1		19	MS16996-10	SCREW, SOC. HD.
	1	1	1	1	1		18	MS21045-C3	(1897082-113) NUT, SELF LOCKING
	3	3	3	3	3		17	MS16996-9	SCREW, SOC. HD
	2	2	2	2	2		16	1006783-27	SCREW, BUTTON HD.
	2	2	2	2	2		15	2014731	BRACKET, CABLE CLAMP
SEE NOTES 4&6	2	2	2	2	2		14	1008807-3 OR-4	CLAMP, MULTIPLE
	7	7	7	7	7		13	1010705-7THRU-15	
	1	1	1	1	1		12	1010705-3 OR-4	
	3	3	3	3	3		11	1010400-105THRU-109	LOOP, HINGED
	15	15	15	15	15		10	1010400-1THRU-7	LOOP, HINGED
	3	3	3	3	3		9	1010349-4 THRU-6	CLAMP, LOOP, HINGED
	-	-	-	1	1		8	2014648	G&N INTERCONNECT HARNESS H
	-	-	-	1	1		7	2014647	G
	-	-	-	1	1		6	2014646	F
	-	-	-	1	1		5	2014645	E
	-	-	-	-	1		4	2014644	D
	-	-	-	1	1		3	2014643	C
	-	-	-	1	1		2	2014642	B
	-	-	-	1	1		1	2014641	G&N INTERCONNECT HARNESS A

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

011	EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

APPLICABLE DASH NO	NEXT ASSY	USED ON
-011		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS ± —
3 PLACE DECIMALS ± —
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
APPROVAL

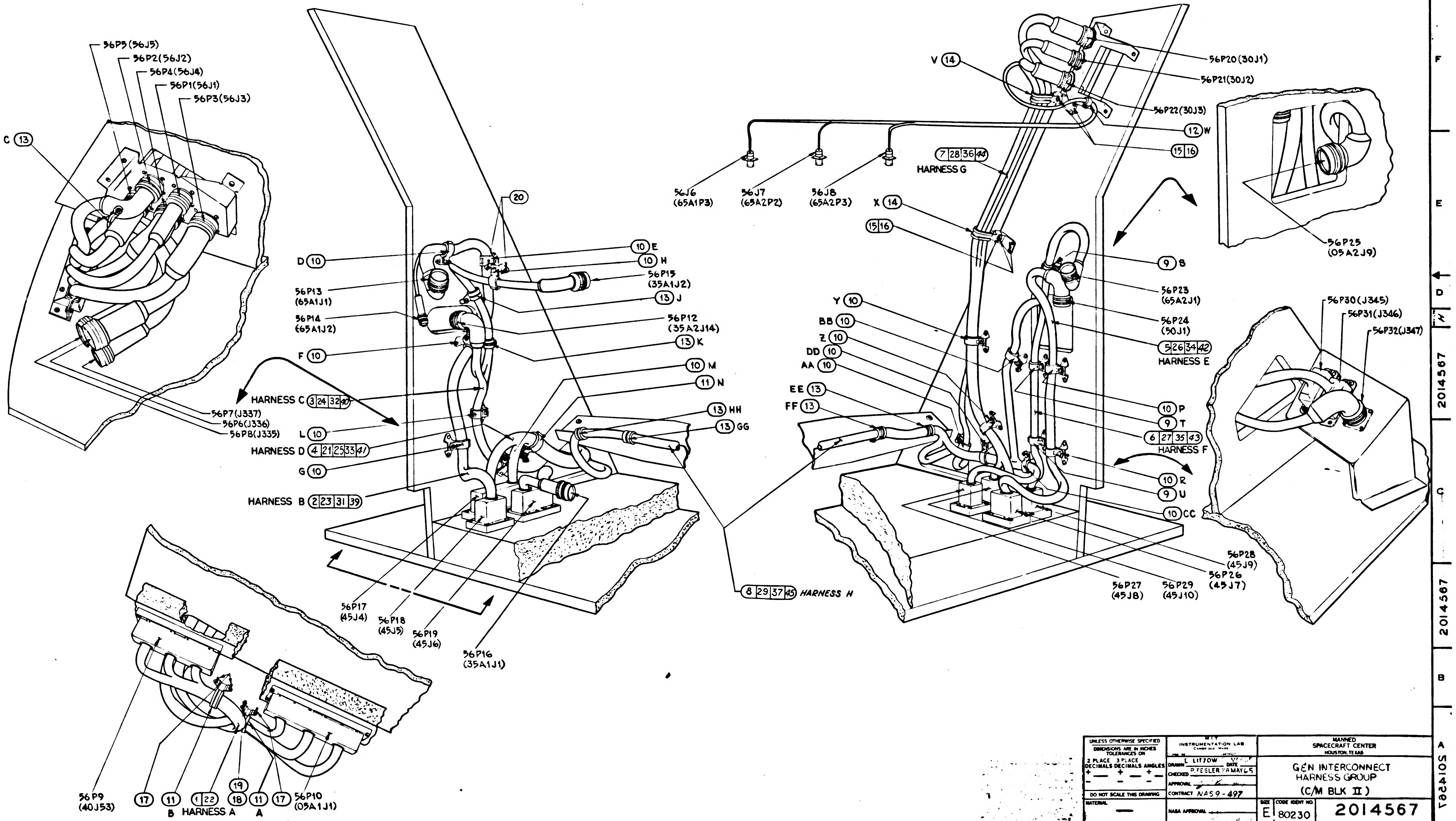
MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN E. LITZOW DATE 27 MAY 65
CHECKED P. FESLER 28 MAY 65
APPROVAL
CONTRACT NAS9-497
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT
HARNESS GROUP
(C/M BLK II)

SIZE E
CODE IDENT NO. 80230
2014567
SCALE ~
SHEET 1 OF 2

REVISIONS					
ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		18 APRIL 66	WK
	D	REVISED PER TDRR 29700		24 JUN 66	JHP RWH
	E	REVISED PER TDRR 3 143			
	F	REVISION STATUS CHANGED		14 FEB 67	AF
	G	REVISED PER TDRR 33656		28 JUL 67	A.N.
	H	REVISED PER TDRR 34471		10 OCT 67	JRK



56P5(56J5)
56P2(56J2)
56P4(56J4)
56P1(56J1)
56P3(56J3)
C (13)
56P7(J337)
56P6(J336)
56P8(J335)
(20)
D (10)
(10) E
(10) H
56P15 (35A1J2)
(13) J
56P13 (65A1J1)
56P14 (65A1J2)
56P12 (35A2J14)
(13) K
F (10)
(10) M
(11) N
HARNESS C 3 24 32 40
(13) HH
(13) GG
L (10)
HARNESS D 4 21 25 33 41
G (10)
HARNESS B 2 23 31 39
56P17 (45J4)
56P18 (45J5)
56P19 (45J6)
56P16 (35A1J1)
8 29 37 45 HARNESS H
V (14)
56P20(30J1)
56P21(30J2)
56P22(30J3)
(12) W
(15)(16)
7 28 36 44 HARNESS G
56J6 (65A1P3)
56J7 (65A2P2)
56J8 (65A2P3)
X (14)
(15)(16)
56P25 (05A2J9)
(9) S
56P23 (65A2J1)
56P24 (50J1)
5 26 34 42 HARNESS E
Y (10)
BB (10)
Z (10)
DD (10)
AA (10)
EE (13)
FF (13)
(10) P
(9) T
6 27 35 43 HARNESS F
(10) R
(9) U
(10) CC
56P30(J345)
56P31(J346)
56P32(J347)
56P28 (45J9)
56P26 (45J7)
56P27 (45J8)
56P29 (45J10)
56P9 (40J53)
(17) (11) (1)(22) (18) (11) (17)
(19)
B HARNESS A A
56P10 (05A1J1)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
2 PLACE DECIMALS ± 3 PLACE DECIMALS ± ANGLES ±	DRAWN E LITZOW DATE CHECKED P. FESLER 28 MAY 65 APPROVAL CONTRACT NAS9-497	GEN INTERCONNECT HARNESS GROUP (C/M BLK II)
DO NOT SCALE THIS DRAWING		
MATERIAL —	NASA APPROVAL	SIZE E CODE IDENT NO. 80230 2014567
APPROVAL	MIT APPROVAL	SCALE SHEET 2 OF 2

2014567

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. CONFIGURATION VIEW IS FOR REFERENCE ONLY, REPRESENTING HARNESS AS INSTALLED IN SPACECRAFT.
3. ALPHABETICAL CHARACTERS A, B, C, & ETC. ARE REFERENCE DESIGNATIONS APPLIED TO EACH CLAMP.
4. CLAMPS SHALL BE SELECTED FROM ITEM CALLED OUT AT CLAMP LOCATION AND BE INDIVIDUALLY IDENTIFIED WITH CORRESPONDING REFERENCE DESIGNATION.
5. HARNESS INSTALLATION: EACH CLAMP SHALL BE INSTALLED AT THE LOCATION REFERENCED ON THE CONFIGURATION VIEW.
6. VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING
7. INTERCONNECT DIAGRAM FOR THIS DRAWING IS 2014669
8. WRAP TAPE AROUND BUNDLE BENEATH CABLE CLAMP AS REQUIRED TO IMPROVE FIT.

REVISIONS

ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		18 APRIL 66	
	D	REVISED PER TDRR 29700		26 JUN 66	
	E	REVISED PER TDRR 31143			
	F	REVISED PER TDRR 32878		4 FEB 67	AF
	G	REVISED PER TDRR 33656		28 JUL 67	
	H	REVISED PER TDRR 34471		10 OCT 67	JRK
	J	REVISED PER TDRR 34475		67	

	061	051	041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	–	1	-	-	-	-		45	2021292	G&N INTERCONNECT HARNESS H
	–	1	-	-	-	-		44	2021293	G
	–	1	-	-	-	-		43	2021297	F
	–	1	-	-	-	-		42	2021299	E
	–	1	-	-	-	-		41	2021296	D
	–	1	-	-	-	-		40	2021294	C
	–	1	-	-	-	-		39	2021298	B
	–	1	-	-	-	-		38	2021295	A
	–	-	1	-	-	-		37	2021280	G&N INTERCONNECT HARNESS H
	–	-	1	-	-	-		36	2021279	G
	–	-	1	-	-	-		35	2021278	F
	–	-	1	-	-	-		34	2021277	E
	–	-	1	-	-	-		33	2021276	D
	–	-	1	-	-	-		32	2021275	C
	–	-	1	-	-	-		31	2021274	G&N INTERCONNECT HARNESS B
SEE NOTE 8	–	AR	AR	AR	–	–		30	MIL-T-23594	TAPE, TEFLON, TYPE II, 1" WIDE
	–	-	-	1	–	-		29	2010781	G&N INTERCONNECT HARNESS H
	–	-	-	1	–	-		28	2010780	G&N INTERCONNECT HARNESS G
	–	-	-	1	–	-		27	2010779	G&N INTERCONNECT HARNESS F
	–	-	-	1	–	-		26	2010778	G&N INTERCONNECT HARNESS E
	–	-	-	1	–	-		25	2010777	G&N INTERCONNECT HARNESS D
	–	-	-	1	–	-		24	2010776	G&N INTERCONNECT HARNESS C
	–	-	-	1	–	-		23	2010775	G&N INTERCONNECT HARNESS B
	–	-	1	1	–	-		22	2010774	G&N INTERCONNECT HARNESS A
	–	-	-	-	1	-		21	2014796	G&N INTERCONNECT HARNESS 'D'
	2	2	2	2	2	2		20	MS16995-25	SCREW, SOC. HD
	1	1	1	1	1	1		19	MS16996-10	SCREW, SOC. HD.
	1	1	1	1	1	1		18	MS21045-C3	(1897082-113) NUT, SELF LOCKING
	3	3	3	3	3	3		17	MS16996-9	SCREW, SOC. HD.
SEE NOTE 6	2	2	2	2	2	2		16	1006783-27	SCREW, BUTTON HD.
	2	2	2	2	2	2		15	2014731	BRACKET, CABLE CLAMP
SEE NOTES 4&6	2	2	2	2	2	2		14	1008807-3 OR-4	CLAMP, MULTIPLE
	7	7	7	7	7	7		13	1010705-7 THRU-15	
	1	1	1	1	1	1		12	1010705-3 OR-4	
	3	3	3	3	3	3		11	1010400-105 THRU-109	LOOP, HINGED
	15	15	15	15	15	15		10	1010400-1 THRU-7	LOOP, HINGED
	3	3	3	3	3	3		9	1010349-4 THRU-6	CLAMP, LOOP, HINGED
	–	-	-	-	1	1		8	2014648	G&N INTERCONNECT HARNESS H
	–	-	-	-	1	1		7	2014647	G
	–	-	-	-	1	1		6	2014646	F
	–	-	-	-	1	1		5	2014645	E
	–	-	-	-	–	1		4	2014644	D
	–	-	-	-	1	1		3	2014643	C
	–	-	-	-	1	1		2	2014642	B
	–	-	-	-	1	1		1	2014641	G&N INTERCONNECT HARNESS A

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

	061	051	041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
SEE NOTES 6&8	AR	–	–	–	–	–		54	1008937-005	TAPE, ALUMINUM FOIL
	1	–	–	–	–	–		53	2021319	G&N INTERCONNECT HARNESS H
	1	–	–	–	–	–		52	2021318	G
	1	–	–	–	–	–		51	2021317	F
	1	–	–	–	–	–		50	2021316	E
	1	–	–	–	–	–		49	2021315	D
	1	–	–	–	–	–		48	2021314	C
	1	–	–	–	–	–		47	2021313	B
	1	–	–	–	–	–		46	2021312	G&N INTERCONNECT HARNESS A

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

APPLICABLE DASH NO.	NEXT ASSY	USED ON
-011		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS ± —
3 PLACE DECIMALS ± —
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
APPROVAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN E. LITZOW 27 MAY 65
CHECKED P. FESLER 28 MAY 65
APPROVAL
CONTRACT NAS9-497
NASA APPROVAL A. C. METZGER
MIT APPROVAL 66

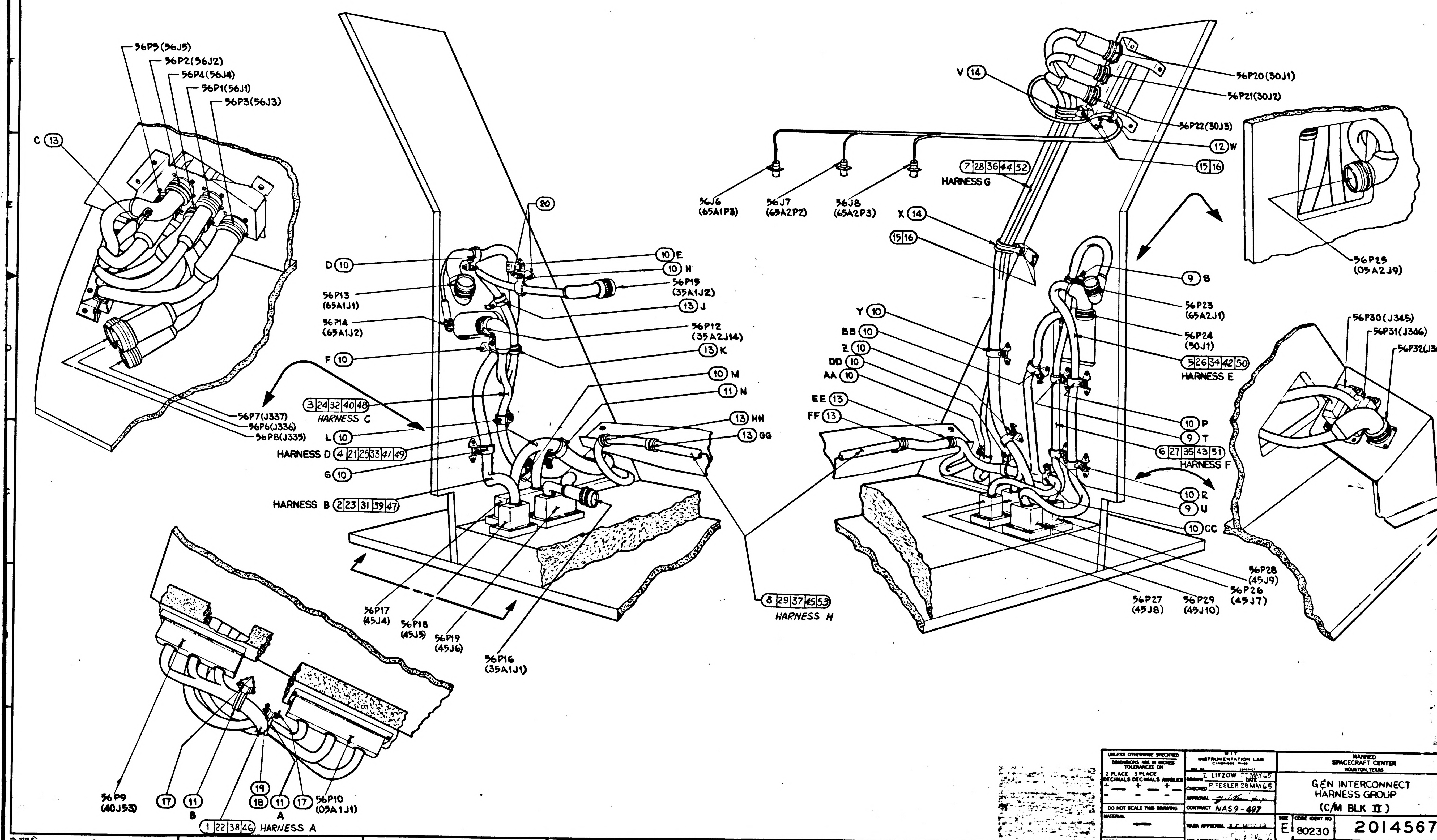
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS GROUP (C/M BLK II)

SIZE E
CODE IDENT NO. 80230
2014567
SCALE ~
SHEET 1 OF 2

REVISIONS

ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		[illegible] 66	
	D	REVISED PER TDRR 29700		24 JUN 66	
	E	REVISED PER TDRR 31143		9 [illegible]	
	F	REVISION STATUS CHANGED		14 FEB 67	
	G	REVISED PER TDRR 33656		28 JUL 67	
	H	REVISED PER TDRR 3447		10 OCT 67	
	J	REVISED PER TDRR 3445		19 OCT 67	



56P5(56J5)
56P2(56J2)
56P4(56J4)
56P1(56J1)
56P3(56J3)
C (13)
56P7(J337)
56P6(J336)
56P8(J335)
D (10)
56P13 (65A1J1)
56P14 (65A1J2)
F (10)
(20)
(10) E
(10) H
56P15 (35A1J2)
(13) J
56P12 (35A2J14)
(13) K
(10) M
(11) N
(13) HH
(13) GG
3 24 32 40 48 HARNESS C
L (10)
HARNESS D 4 21 25 33 41 49
G (10)
HARNESS B 2 23 31 39 47
56P17 (45J4)
56P18 (45J5)
56P19 (45J6)
56P16 (35A1J1)
8 29 37 45 53 HARNESS H
V (14)
56P20(30J1)
56P21(30J2)
56P22(30J3)
(12) W
(15)(16)
7 28 36 44 52 HARNESS G
56J6 (65A1P3)
56J7 (65A2P2)
56J8 (65A2P3)
X (14)
(15)(16)
56P25 (05A2J9)
(9) S
56P23 (65A2J1)
56P24 (50J1)
5 26 34 42 50 HARNESS E
Y (10)
BB (10)
Z (10)
DD (10)
AA (10)
EE (13)
FF (13)
(10) P
(9) T
6 27 35 43 51 HARNESS F
(10) R
(9) U
(10) CC
56P30(J345)
56P31(J346)
56P32(J347)
56P28 (45J9)
56P26 (45J7)
56P27 (45J8)
56P29 (45J10)
56P9 (40J33)
(17) (11) B
(19) (18) (11) (17) A
56P10 (05A1J1)
1 22 38 46 HARNESS A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON 2 PLACE DECIMALS ± — 3 PLACE DECIMALS ± — ANGLES ± —	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
DO NOT SCALE THIS DRAWING	DRAWN E. LITZOW 27 MAY 65 CHECKED P. FESLER 28 MAY 65 APPROVAL CONTRACT NAS 9-497	G&N INTERCONNECT HARNESS GROUP (C/M BLK II)
MATERIAL —	NASA APPROVAL MIT APPROVAL	SIZE E CODE IDENT NO. 80230 2014567
APPROVAL		SHEET 2

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. CONFIGURATION VIEW IS FOR REFERENCE ONLY, REPRESENTING HARNESS AS INSTALLED IN SPACECRAFT.
3. ALPHABETICAL CHARACTERS A, B, C, & ETC. ARE REFERENCE DESIGNATIONS APPLIED TO EACH CLAMP.
4. CLAMPS SHALL BE SELECTED FROM ITEM CALLED OUT AT CLAMP LOCATION AND BE INDIVIDUALLY IDENTIFIED WITH CORRESPONDING REFERENCE DESIGNATION.
5. HARNESS INSTALLATION: EACH CLAMP SHALL BE INSTALLED AT THE LOCATION REFERENCED ON THE CONFIGURATION VIEW.
6. VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING
7. INTERCONNECT DIAGRAM FOR THIS DRAWING IS 2014669
8. WRAP TAPE AROUND BUNDLE BENEATH CABLE CLAMP AS REQUIRED TO IMPROVE FIT.

REVISIONS

ZONE	LTR	DESCRIPTION	ENG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		21 [illegible] 66	WK
	D	REVISED PER TDRR 29700		26 JUN 66	
	E	REVISED PER TDRR 31145		[illegible] 66	
	F	REVISED PER TDRR 32878		14 FEB 67	AF
	G	REVISED PER TDRR 33666		28 JUL 67	AN
	H	REVISED PER TDRR 34471		10 OCT 67	JRK
	J	REVISED PER TDRR 34475		19 OCT 67	
	K	REVISION STATUS CHANGED		6 NOV 67	DL

	061	051	041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
SEE NOTES 6/8	AR	—	—	—	—	—		54	1008937-005	TAPE, ALUMINUM FOIL
	1	—	—	—	—	—		53	2021319	GEN INTERCONNECT HARNESS H
	1	—	—	—	—	—		52	2021318	G
	1	—	—	—	—	—		51	2021317	F
	1	—	—	—	—	—		50	2021316	E
	1	—	—	—	—	—		49	2021315	D
	1	—	—	—	—	—		48	2021314	C
	1	—	—	—	—	—		47	2021313	B
	1	—	—	—	—	—		46	2021312	GEN INTERCONNECT HARNESS A

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

	061	051	041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	—	1	—	—	—	—		45	2021292	GEN INTERCONNECT HARNESS
	—	1	—	—	—	—		44	2021293	
	—	1	—	—	—	—		43	2021297	
	—	1	—	—	—	—		42	2021299	
	—	1	—	—	—	—		41	2021296	
	—	1	—	—	—	—		40	2021294	
	—	1	—	—	—	—		39	2021298	
	—	1	—	—	—	—		38	2021295	
	—	—	1	—	—	—		37	2021280	GEN INTERCONNECT HARNESS H
	—	—	1	—	—	—		36	2021279	G
	—	—	1	—	—	—		35	2021278	F
	—	—	1	—	—	—		34	2021277	E
	—	—	1	—	—	—		33	2021276	D
	—	—	1	—	—	—		32	2021275	C
	—	—	1	—	—	—		31	2021274	GEN INTERCONNECT HARNESS B
SEE NOTE 8	—	AR	AR	AR	—	—		30	MIL-T-23594	TAPE, TEFLON, TYPE II, 1" WIDE
	—	—	—	1	—	—		29	2010781	GEN INTERCONNECT HARNESS
	—	—	—	1	—	—		28	2010780	GEN INTERCONNECT HARNESS
	—	—	—	1	—	—		27	2010779	GEN INTERCONNECT HARNESS F
	—	—	—	1	—	—		26	2010778	GEN INTERCONNECT HARNESS E
	—	—	—	1	—	—		25	2010777	GEN INTERCONNECT HARNESS D
	—	—	—	1	—	—		24	2010776	GEN INTERCONNECT HARNESS C
	—	—	—	1	—	—		23	2010775	GEN INTERCONNECT HARNESS B
	—	—	1	1	—	—		22	2010774	GEN INTERCONNECT HARNESS A
	—	—	—	—	1	—		21	2014796	GEN INTERCONNECT HARNESS 'D
	2	2	2	2	2	2		20	MS16995-25	SCREW, SOC. HD
	1	1	1	1	1	1		19	MS16996-10	SCREW, SOC HD.
	1	1	1	1	1	1		18	MS21045-C3	(897082-113) NUT, SELF LOCKING
	3	3	3	3	3	3		17	MS16996-9	SCREW, SOC HD.
SEE NOTE 6	2	2	2	2	2	2		16	1006783-27	SCREW, BUTTON HD.
	2	2	2	2	2	2		15	2014731	BRACKET, CABLE CLAMP
SEE NOTES 4&6	2	2	2	2	2	2		14	1008807-3 OR-4	CLAMP, MULTIPLE
	7	7	7	7	7	7		13	1010705-7THRU-15	
	1	1	1	1	1	1		12	1010705-3 OR-4	
	3	3	3	3	3	3		11	1010400-105THRU-10	LOOP, HINGED
	15	15	15	15	15	15		10	1010400-1THRU-7	LOOP, HINGED
	3	3	3	3	3	3		9	1010349-4 THRU-6	CLAMP, LOOP, HINGED
	—	—	—	—	1	1		8	2014648	GEN INTERCONNECT HARNESS H
	—	—	—	—	1	1		7	2014647	G
	—	—	—	—	1	1		6	2014646	F
	—	—	—	—	1	1		5	2014645	E
	—	—	—	—	—	1		4	2014644	D
	—	—	—	—	1	1		3	2014643	C
	—	—	—	—	1	1		2	2014642	B
	—	—	—	—	1	1		1	2014641	GEN INTERCONNECT HARNESS A

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

APPLICABLE DASH NO.	NEXT ASSY	USED ON
-011		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS ± — 3 PLACE DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN E. LITZOW 27MAY65
CHECKED P. FESLER 28MAY65
APPROVAL
CONTRACT NAS9-497
NASA APPROVAL

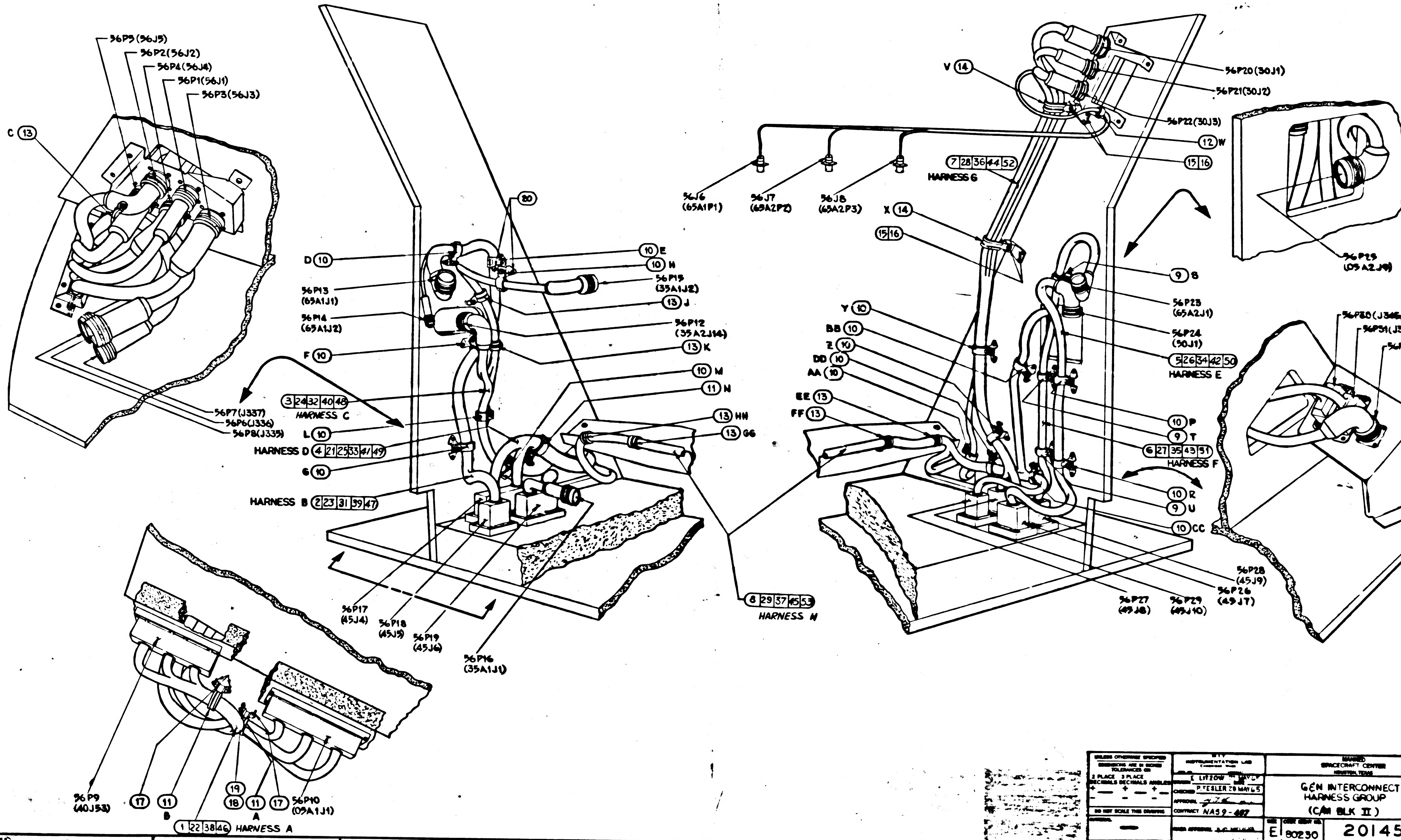
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

GEN INTERCONNECT HARNESS GROUP (C/M BLK II)

SIZE E CODE IDENT NO. 80230 2014567

SCALE ~ SHEET 1 OF 2

REVISIONS					
ZONE	LTR	DESCRIPTION	ENG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		[illegible]	WR
	D	REVISED PER TDRR 29700		14 JUN 66	[illegible]
	E	REVISED PER TDRR 31143		[illegible]	[illegible]
	F	REVISION STATUS CHANGED		14 FEB 67	[illegible]
	G	REVISED PER TDRR 33686		[illegible] 67	[illegible]
	H	REVISED PER TDRR 36471		10 OCT 67	[illegible]
	J	REVISED PER TDRR 34475		[illegible]	[illegible]
	K	REVISED PER TDRR 34527		[illegible]	[illegible]



56P5(56J5)
56P2(56J2)
56P4(56J4)
56P1(56J1)
56P3(56J3)
C 13
56P7(J337)
56P6(J336)
56P8(J335)
20
D 10
56P13 (65A1J1)
56P14 (65A1J2)
F 10
3 24 32 40 48 HARNESS C
L 10
HARNESS D 4 21 25 33 41 49
G 10
HARNESS B 2 23 31 39 47
10 E
10 H
56P15 (35A1J2)
13 J
56P12 (35A2J14)
13 K
10 M
11 N
13 HH
13 GG
56P17 (45J4)
56P18 (45J5)
56P19 (45J6)
56P16 (35A1J1)
8 29 37 45 53 HARNESS H
56P9 (40J53)
17 11 B
19 18 11 17 A
56P10 (09A1J1)
1 22 38 46 HARNESS A
V 14
56P20(30J1)
56P21(30J2)
56P22(30J3)
12 W
15 16
56J6 (65A1P1)
56J7 (65A2P2)
56J8 (65A2P3)
7 28 36 44 52 HARNESS G
X 14
15 16
56P25 (09A2J9)
9 S
56P23 (65A2J1)
56P24 (30J1)
5 26 34 42 50 HARNESS E
Y 10
BB 10
Z 10
DD 10
AA 10
EE 13
FF 13
10 P
9 T
6 27 35 43 51 HARNESS F
10 R
9 U
10 CC
56P30(J345)
56P31(J346)
56P32(J347)
56P28 (45J9)
56P26 (45J7)
56P27 (45J8)
56P29 (45J10)

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS ± 3 PLACE DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT INSTRUMENTATION LAB
DRAWN E LITZOW [illegible] MAY 65
CHECKED P. FESLER 28 MAY 65
APPROVAL [illegible]
CONTRACT NAS 9-497
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

GEN INTERCONNECT
HARNESS GROUP
(C/M BLK II)

SIZE E
CODE IDENT NO. 80230
2014567
SHEET 2

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. CONFIGURATION VIEW IS FOR REFERENCE ONLY, REPRESENTING HARNESS AS INSTALLED IN SPACECRAFT.
3. ALPHABETICAL CHARACTERS A, B, C, & ETC. ARE REFERENCE DESIGNATIONS APPLIED TO EACH CLAMP.
4. CLAMPS SHALL BE SELECTED FROM ITEM CALLED OUT AT CLAMP LOCATION AND BE INDIVIDUALLY IDENTIFIED WITH CORRESPONDING REFERENCE DESIGNATION.
5. HARNESS INSTALLATION: EACH CLAMP SHALL BE INSTALLED AT THE LOCATION REFERENCED ON THE CONFIGURATION VIEW.
6. VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING
7. INTERCONNECT DIAGRAM FOR THIS DRAWING IS 2014669
8. WRAP TAPE AROUND BUNDLE BENEATH CABLE CLAMP AS REQUIRED TO IMPROVE FIT.

REVISIONS					
ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		11 MAY 66	WK
	D	REVISED PER TDRR 29700		24 JUN 66	JHP
	E	REVISED PER TDRR 31143		9 DEC 66	
	F	REVISED PER TDRR 32878		14 FEB 67	AF
	G	REVISED PER TDRR 33656		28 JUL 67	
	H	REVISED PER TDRR 34471		10 OCT 67	JRK
	J	REVISED PER TDRR 34475		19 OCT 67	
	K	REVISION STATUS CHANGED		6 NOV 67	DL
	L	REVISED PER TDRR 35499		1 FEB 68	DL

	071	061	051	041	031	021	011	EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	1	—	—	—	—	—	—		55	2021406	G&N INTERCONNECT HARNESS A
SEE NOTES 6&8	AR	AR	—	—	—	—	—		54	1008937-005	TAPE, ALUMINUM FOIL
	1	1	—	—	—	—	—		53	2021319	G&N INTERCONNECT HARNESS H
	1	1	—	—	—	—	—		52	2021318	G
	1	1	—	—	—	—	—		51	2021317	F
	1	1	—	—	—	—	—		50	2021316	E
	1	1	—	—	—	—	—		49	2021315	D
	1	1	—	—	—	—	—		48	2021314	C
	1	1	—	—	—	—	—		47	2021313	B
	—	1	—	—	—	—	—		46	2021312	G&N INTERCONNECT HARNESS A

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

	071	061	051	041	031	021	011	EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	—	—	1	—	—	—	—		45	2021292	G&N INTERCONNECT HARNESS H
	—	—	1	—	—	—	—		44	2021293	G
	—	—	1	—	—	—	—		43	2021297	F
	—	—	1	—	—	—	—		42	2021299	E
	—	—	1	—	—	—	—		41	2021296	D
	—	—	1	—	—	—	—		40	2021294	C
	—	—	1	—	—	—	—		39	2021298	B
	—	—	1	—	—	—	—		38	2021295	A
	—	—	—	1	—	—	—		37	2021280	G&N INTERCONNECT HARNESS H
	—	—	—	1	—	—	—		36	2021279	G
	—	—	—	1	—	—	—		35	2021278	F
	—	—	—	1	—	—	—		34	2021277	E
	—	—	—	1	—	—	—		33	2021276	D
	—	—	—	1	—	—	—		32	2021275	C
	—	—	—	1	—	—	—		31	2021274	G&N INTERCONNECT HARNESS B
SEE NOTE 8	—	—	AR	AR	AR	—	—		30	MIL-T-23594	TAPE, TEFLON, TYPE II, 1" WIDE
	—	—	—	—	1	—	—		29	2010781	G&N INTERCONNECT HARNESS H
	—	—	—	—	1	—	—		28	2010780	G&N INTERCONNECT HARNESS G
	—	—	—	—	1	—	—		27	2010779	G&N INTERCONNECT HARNESS F
	—	—	—	—	1	—	—		26	2010778	G&N INTERCONNECT HARNESS E
	—	—	—	—	1	—	—		25	2010777	G&N INTERCONNECT HARNESS D
	—	—	—	—	1	—	—		24	2010776	G&N INTERCONNECT HARNESS C
	—	—	—	—	1	—	—		23	2010775	G&N INTERCONNECT HARNESS B
	—	—	—	1	1	—	—		22	2010774	G&N INTERCONNECT HARNESS A
	—	—	—	—	—	1	—		21	2014796	G&N INTERCONNECT HARNESS 'D'
	2	2	2	2	2	2	2		20	MS16995-25	SCREW, SOC. HD
	1	1	1	1	1	1	1		19	MS16996-10	SCREW, SOC. HD.
	1	1	1	1	1	1	1		18	MS21045-C3	(1897082-113) NUT, SELF LOCK'NG
	3	3	3	3	3	3	3		17	MS16996-9	SCREW, SOC. HD
SEE NOTE 6	2	2	2	2	2	2	2		16	1006783-27	SCREW, BUTTON HD.
	2	2	2	2	2	2	2		15	2014731	BRACKET, CABLE CLAMP
SEE NOTES 4&6	2	2	2	2	2	2	2		14	1008807-3 OR-4	CLAMP, MULTIPLE
	7	7	7	7	7	7	7		13	1010705-7 THRU-15	
	1	1	1	1	1	1	1		12	1010705-3 OR-4	
	3	3	3	3	3	3	3		11	1010400-105 THRU-109	LOOP, HINGED
	15	15	15	15	15	15	15		10	1010400-1 THRU-7	LOOP, HINGED
	3	3	3	3	3	3	3		9	1010349-4 THRU-6	CLAMP, LOOP, HINGED
	—	—	—	—	—	1	1		8	2014648	G&N INTERCONNECT HARNESS H
	—	—	—	—	—	1	1		7	2014647	G
	—	—	—	—	—	1	1		6	2014646	F
	—	—	—	—	—	1	1		5	2014645	E
	—	—	—	—	—	—	1		4	2014644	D
	—	—	—	—	—	1	1		3	2014643	C
	—	—	—	—	—	1	1		2	2014642	B
	—	—	—	—	—	1	1		1	2014641	G&N INTERCONNECT HARNESS A

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

APPLICABLE DASH NO.	NEXT ASSY	USED ON
-011		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS ± — 3 PLACE DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
APPROVAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN E. LITZOW 27 MAY 65
CHECKED P. FESLER 28 MAY 65
APPROVAL
CONTRACT NAS9-497
NASA APPROVAL
MIT APPROVAL

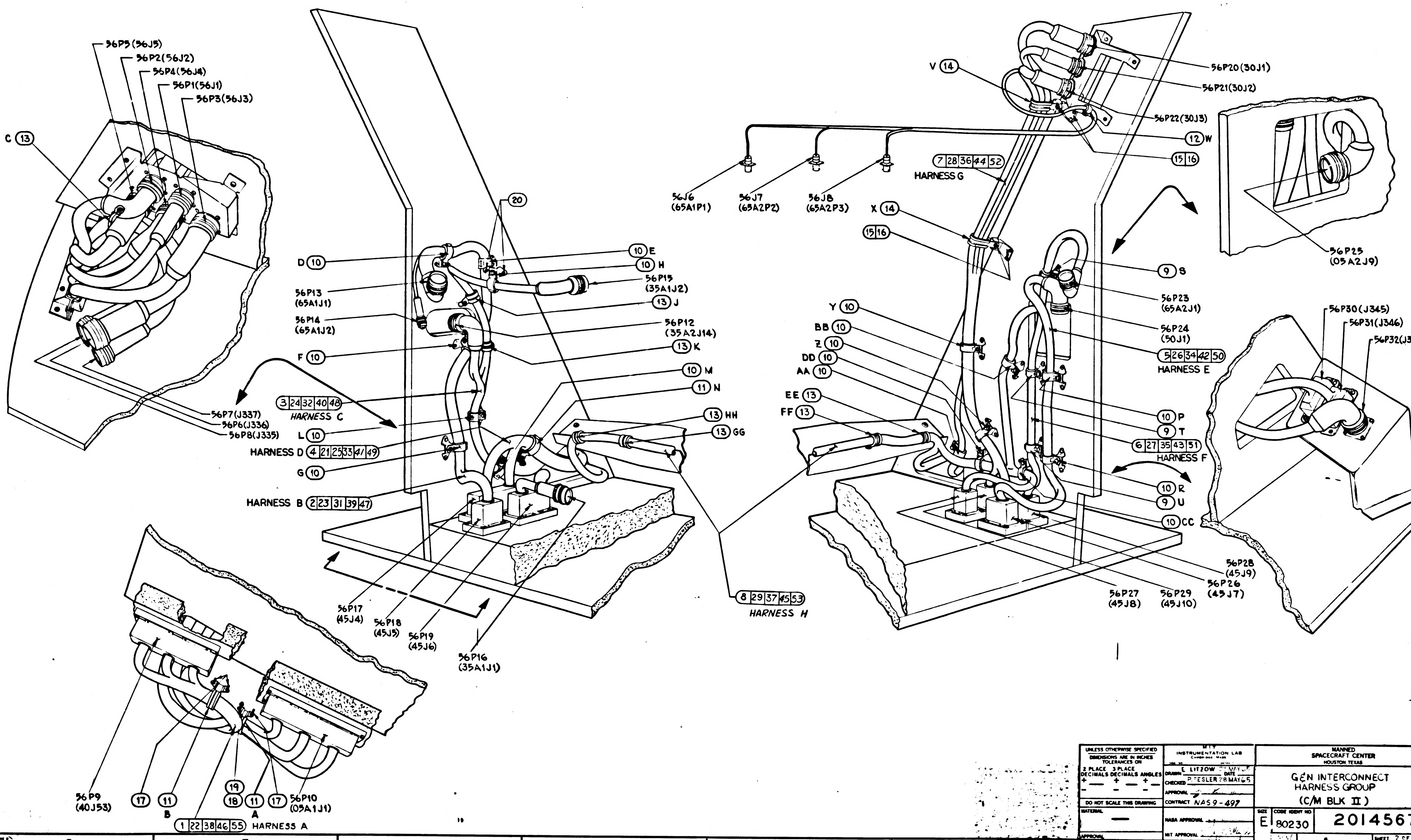
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT
HARNESS GROUP
(C/M BLK II)

SIZE E CODE IDENT NO. 80230 2014567

SHEET 1 OF 2

REVISIONS					
ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		APRIL 66	WK
	D	REVISED PER TDRR 29700		24 JUN 66	JNP RWH
	E	REVISED PER TDRR 31143		[illegible]	[illegible]
	F	REVISION STATUS CHANGED		14 FEB 67	AF
	G	REVISED PER TDRR 33656		28 JUL 67	A.N.
	H	REVISED PER TDRR 34471		10 OCT 67	JRK
	J	REVISED PER TDRR 34475		19 OCT 67	RLP
	K	REVISED PER TDRR 34927		6 NOV 67	DL
	L	REVISED PER TDRR 35499		1 FEB 68	DL


56P5(56J5)
56P2(56J2)
56P4(56J4)
56P1(56J1)
56P3(56J3)
C 13
56P7(J337)
56P6(J336)
56P8(J335)
D 10
56P13 (65A1J1)
56P14 (65A1J2)
F 10
3 24 32 40 48 HARNESS C
L 10
HARNESS D 4 21 25 33 41 49
G 10
HARNESS B 2 23 31 39 47
20
10 E
10 H
56P15 (35A1J2)
13 J
56P12 (35A2J14)
13 K
10 M
11 N
13 HH
13 GG
56P17 (45J4)
56P18 (45J5)
56P19 (45J6)
56P16 (35A1J1)
8 29 37 45 53 HARNESS H
56P9 (40J53)
17
11
B
19
18
11
17
A
56P10 (05A1J1)
1 22 38 46 55 HARNESS A
V 14
56P20(30J1)
56P21(30J2)
56P22(30J3)
12 W
15 16
56J6 (65A1P1)
56J7 (65A2P2)
56J8 (65A2P3)
7 28 36 44 52 HARNESS G
X 14
15 16
56P25 (05A2J9)
9 S
56P23 (65A2J1)
56P24 (50J1)
5 26 34 42 50 HARNESS E
Y 10
BB 10
Z 10
DD 10
AA 10
EE 13
FF 13
10 P
9 T
6 27 35 43 51 HARNESS F
10 R
9 U
10 CC
56P30(J345)
56P31(J346)
56P32(J347)
56P28 (45J9)
56P26 (45J7)
56P27 (45J8)
56P29 (45J10)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	MIT INSTRUMENTATION LAB Cambridge Mass	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
2 PLACE DECIMALS + — − 3 PLACE DECIMALS + — − ANGLES + — −	DRAWN E LITZOW 27 MAY 65 DATE CHECKED P. FESLER 28 MAY 65 APPROVAL CONTRACT NAS 9-497	GEN INTERCONNECT HARNESS GROUP (C/M BLK II)		
DO NOT SCALE THIS DRAWING				
MATERIAL —	NASA APPROVAL	SIZE E	CODE IDENT NO. 80230	2014567
APPROVAL	MIT APPROVAL			SHEET 2 OF 2

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. CONFIGURATION VIEW IS FOR REFERENCE ONLY, REPRESENTING HARNESS AS INSTALLED IN SPACECRAFT.
3. ALPHABETICAL CHARACTERS A, B, C, & ETC. ARE REFERENCE DESIGNATIONS APPLIED TO EACH CLAMP.
4. CLAMPS SHALL BE SELECTED FROM ITEM CALLED OUT AT CLAMP LOCATION AND BE INDIVIDUALLY IDENTIFIED WITH CORRESPONDING REFERENCE DESIGNATION.
5. HARNESS INSTALLATION: EACH CLAMP SHALL BE INSTALLED AT THE LOCATION REFERENCED ON THE CONFIGURATION VIEW.
6. VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING
7. INTERCONNECT DIAGRAM FOR THIS DRAWING IS 2014669
8. WRAP TAPE AROUND BUNDLE BENEATH CABLE CLAMP AS REQUIRED TO IMPROVE FIT.

REVISIONS

ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		18 APRIL 66	WK
	D	REVISED PER TDRR 29700			JHP RWH
	E	REVISED PER TDRR 31143			
	F	REVISED PER TDRR 32878			
	G	REVISED PER TDRR 33656			
	H	REVISED PER TDRR 34471			
	J	REVISED PER TDRR 34475			
	K	REVISION STATUS CHANGED			
	L	REVISED PER TDRR 35499			
	M	REVISED PER TDRR 35507			
	N	REVISED PER TDRR 35775			JAC
	P	REVISED PER TDRR 37928			RWH

	QUANTITY REQUIRED							EFFECTIVITY	LIST OF PARTS AND MATERIALS		
	071	061	051	041	031	021	011		ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	—	—	1	-	-	-	-		45	2021292	G&N INTERCONNECT HARNESS H
	—	—	1	-	-	-	-		44	2021293	G
	—	—	1	-	-	-	-		43	2021297	F
	—	—	1	-	-	-	-		42	2021299	E
	—	—	1	-	-	-	-		41	2021296	D
	—	—	1	-	-	-	-		40	2021294	C
	—	—	1	-	-	-	-		39	2021298	B
	—	—	1	-	-	-	-		38	2021295	A
	—	—	-	1	-	-	-		37	2021280	G&N INTERCONNECT HARNESS H
	—	—	-	1	-	-	-		36	2021279	G
	—	—	-	1	-	-	-		35	2021278	F
	—	—	-	1	-	-	-		34	2021277	E
	—	—	-	1	-	-	-		33	2021276	D
	—	—	-	1	-	-	-		32	2021275	C
	—	—	-	1	-	-	-		31	2021274	G&N INTERCONNECT HARNESS B
SEE NOTE 8	—	—	AR	AR	AR	—	—		30	MIL-T-23594	TAPE, TEFLON, TYPE II, 1" WIDE
	—	—	-	-	1	—	-		29	2010781	G&N INTERCONNECT HARNESS H
	—	—	-	-	1	—	-		28	2010780	G&N INTERCONNECT HARNESS G
	—	—	-	-	1	—	-		27	2010779	G&N INTERCONNECT HARNESS F
	—	—	-	-	1	—	-		26	2010778	G&N INTERCONNECT HARNESS E
	—	—	-	-	1	—	-		25	2010777	G&N INTERCONNECT HARNESS D
	—	—	-	-	1	—	-		24	2010776	G&N INTERCONNECT HARNESS C
	—	—	-	-	1	—	-		23	2010775	G&N INTERCONNECT HARNESS B
	—	—	-	1	1	—	-		22	2010774	G&N INTERCONNECT HARNESS A
	—	—	-	-	-	1	-		21	2014796	G&N INTERCONNECT HARNESS 'D'
	2	2	2	2	2	2	2		20	MS16995-25	SCREW, SOC. HD
	1	1	1	1	1	1	1		19	MS16996-10	SCREW, SOC. HD.
	1	1	1	1	1	1	1		18	MS21045-C3	(1897082-113) NUT, SELF LOCKING
	3	3	3	3	3	3	3		17	MS16996-9	SCREW, SOC. HD.
SEE NOTE 6	2	2	2	2	2	2	2		16	1006783-27	SCREW, BUTTON HD.
	2	2	2	2	2	2	2		15	2014731	BRACKET, CABLE CLAMP
SEE NOTES 4 & 6	2	2	2	2	2	2	2		14	1008807-3THRU-5	CLAMP, MULTIPLE
	7	7	7	7	7	7	7		13	1010705-7THRU-18	
	1	1	1	1	1	1	1		12	1010705-3 OR-4	
	3	3	3	3	3	3	3		11	1010400-105THRU-110	LOOP, HINGED
	15	15	15	15	15	15	15		10	1010400-1THRU-7	LOOP, HINGED
	3	3	3	3	3	3	3		9	1010349-4 THRU-6 OR 1010400-1	CLAMP, LOOP, HINGED
	—	—	-	-	-	1	1		8	2014648	G&N INTERCONNECT HARNESS H
	—	—	-	-	-	1	1		7	2014647	G
	—	—	-	-	-	1	1		6	2014646	F
	—	—	-	-	-	1	1		5	2014645	E
	—	—	-	-	-	—	1		4	2014644	D
	—	—	-	-	-	1	1		3	2014643	C
	—	—	-	-	-	1	1		2	2014642	B
	—	—	-	-	-	1	1		1	2014641	G&N INTERCONNECT HARNESS A
	1	—	—	—	—	—	—		55	2021406	G&N INTERCONNECT HARNESS A
SEE NOTES 6 & 8	AR	AR	—	—	—	—	—		54	1008937-005	TAPE, ALUMINUM FOIL
	1	1	—	—	—	—	—		53	2021319	G&N INTERCONNECT HARNESS H
	1	1	—	—	—	—	—		52	2021318	G
	1	1	—	—	—	—	—		51	2021317	F
	1	1	—	—	—	—	—		50	2021316	E
	1	1	—	—	—	—	—		49	2021315	D
	1	1	—	—	—	—	—		48	2021314	C
	1	1	—	—	—	—	—		47	2021313	B
	—	1	—	—	—	—	—		46	2021312	G&N INTERCONNECT HARNESS A

APPLICABLE DASH NO.	NEXT ASSY	USED ON
-011		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS ± —
3 PLACE DECIMALS ± —
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
APPROVAL

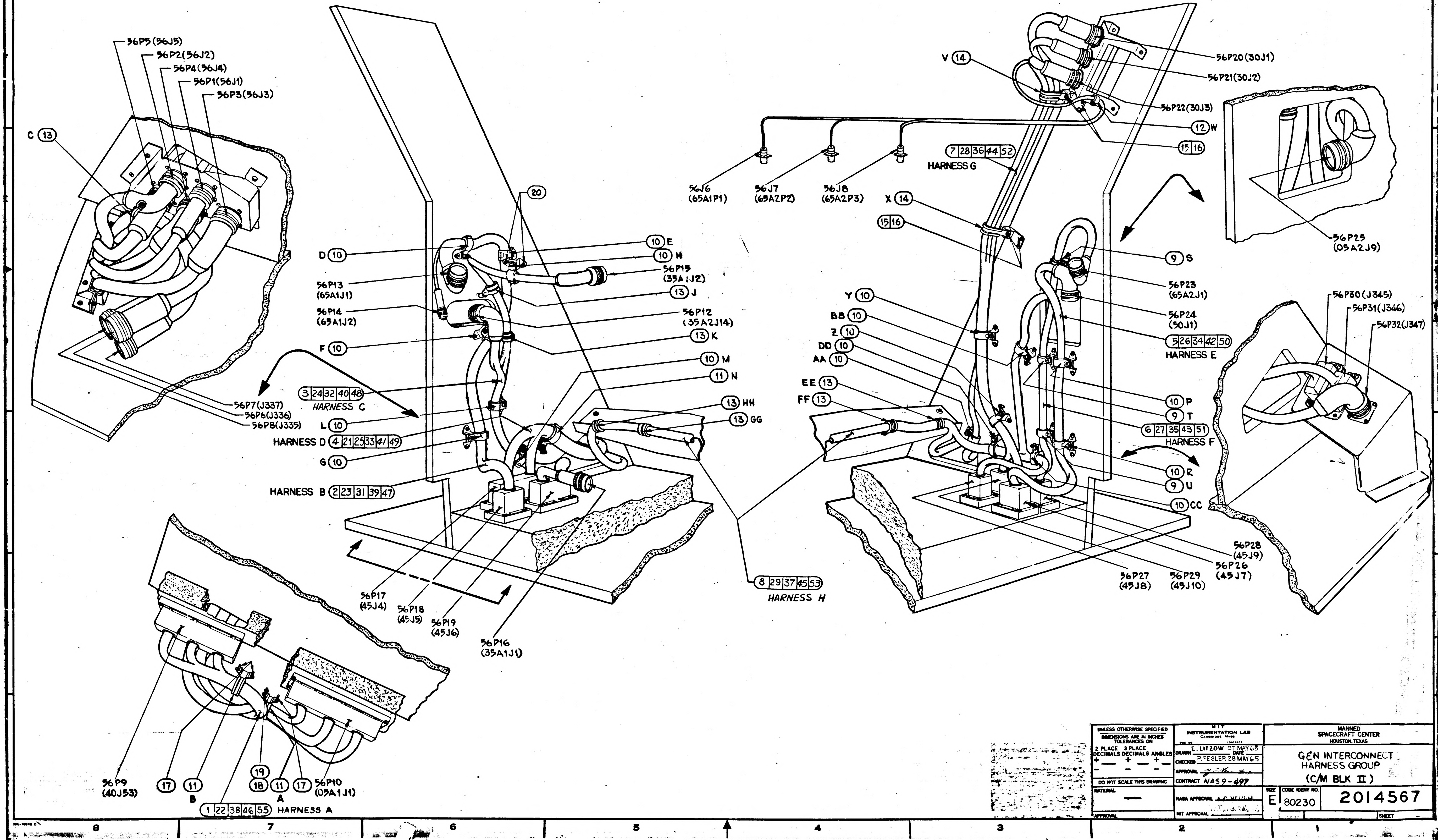
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN E. LITZOW DATE 27 MAY 65
CHECKED P. FESLER 28 MAY 65
APPROVAL
CONTRACT NAS9-497
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT
HARNESS GROUP
(C/M BLK II)

SIZE E
CODE IDENT NO. 80230
2014567
SHEET 1 OF 2

REVISIONS					
ZONE	LTR	DESCRIPTION	CHG. NO.	DATE	APPROVED
	C	REPLACES REV B WITH CHANGE PER TDRR 28412		19 APRIL 66	
	D	REVISED PER TDRR 29700		24 JUN 66	
	E	REVISED PER TDRR 31143		9-28-66	
	F	REVISION STATUS CHANGED		14 FEB 67	
	G	REVISED PER TDRR 33656		28 JUL 67	
	H	REVISED PER TDRR 34471		10 OCT 67	JK
	J	REVISED PER TDRR 344[illegible]5		19 OCT 67	RW
	K	REVISED PER TDRR 34[illegible]27		[illegible] NOV 67	DL
	L	REVISED PER TDRR 35[illegible]99		1 FEB 68	DL
	M	REVISION STATUS CHANGED		7 FEB 68	
	N	REVISION STATUS CHANGED		4 MAR 68	
	P	REVISION STATUS CHANGED		DEC 69	


56P5(56J5)
56P2(56J2)
56P4(56J4)
56P1(56J1)
56P3(56J3)
C (13)
56P7(J337)
56P6(J336)
56P8(J335)
(20)
D (10)
(10) E
(10) H
56P13 (65A1J1)
56P15 (35A1J2)
(13) J
56P14 (65A1J2)
56P12 (35A2J14)
(13) K
F (10)
(10) M
(11) N
3 24 32 40 48 HARNESS C
(13) HH
(13) GG
L (10)
HARNESS D 4 21 25 33 41 49
G (10)
HARNESS B 2 23 31 39 47
56P17 (45J4)
56P18 (45J5)
56P19 (45J6)
56P16 (35A1J1)
8 29 37 45 53 HARNESS H
56P9 (40J53)
(17) (11) B
(19) (18) (11) A (17)
56P10 (03A1J1)
1 22 38 46 55 HARNESS A
V (14)
56P20(30J1)
56P21(30J2)
56P22(30J3)
(12) W
(15)(16)
7 28 36 44 52 HARNESS G
56J6 (65A1P1)
56J7 (65A2P2)
56J8 (65A2P3)
X (14)
(15)(16)
56P25 (05A2J9)
(9) S
56P23 (65A2J1)
56P24 (50J1)
5 26 34 42 50 HARNESS E
Y (10)
BB (10)
Z (10)
DD (10)
AA (10)
EE (13)
FF (13)
56P30(J345)
56P31(J346)
56P32(J347)
(10) P
(9) T
6 27 35 43 51 HARNESS F
(10) R
(9) U
(10) CC
56P28 (45J9)
56P26 (45J7)
56P27 (45J8)
56P29 (45J10)

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
2 PLACE DECIMALS ± — 3 PLACE DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
APPROVAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN E. LITZOW DATE 27 MAY 65
CHECKED P. FESLER 28 MAY 65
APPROVAL
CONTRACT NAS 9-497
NASA APPROVAL J. C. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT
HARNESS GROUP
(C/M BLK II)

SIZE E
CODE IDENT NO. 80230
2014567
SHEET

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

REVISIONS TDRR 22050

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.

			1			2014648	G&N INTERCONNECT HARNESS H
			1			2014647	G&N INTERCONNECT HARNESS G
			1			2014646	G&N INTERCONNECT HARNESS F
			1			2014645	G&N INTERCONNECT HARNESS E
			1			2014644	G&N INTERCONNECT HARNESS D
			1			2014643	G&N INTERCONNECT HARNESS C
			1			2014642	G&N INTERCONNECT HARNESS B
			1			2014641	G&N INTERCONNECT HARNESS A
			011	EFFEC-TIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + − DECIMALS + − ANGLES + −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN E. Litzow DATE 27 MAY 1965
CHECKED Feola 28 MAY 65
APPROVAL P C Watson 8-24-65
APPROVAL Y J Nevins 8/23/65 DEA 8-16-65
NASA APPROVAL V Michael 8/31/65
MIT APPROVAL 3 Aug 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS ASSEMBLY
(G/N BLOCK II)

CODE IDENT NO. 80230
SIZE C
2014567
SCALE —
SHEET 1 OF 1

MIL 1078C—P

REVISIONS 18966					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REMD. P/N 1015048-021, AND ADDED ITEM NO'S. IN L/M.	DO 60350	4-28 65	

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. INSPECT PER PS
3. VENDOR ITEM - SEE SPECIFICATION CONTROL DWG.
4. SERIALIZE PER ND1002023.

					X		20	2014507	SCHEMATIC DIAGRAM
							19		
SEE NOTE 3					1		18	1010268-2	LAMP, INCANDESCENT
SEE NOTE 3					1		17	1010942-1	TRANSFORMER
					1		16		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3					1		15	1010905-5	SWITCH, TOGGLE
					1		14	1010905-3	SWITCH, TOGGLE
					2		13	1010904-2	SWITCH, PUSH BUTTON
					1		12	1010904-1	SWITCH, PUSH BUTTON
					1		11	1010903-4	SWITCH, TOGGLE
					1		10	1010903-3	SWITCH, TOGGLE
					1		9	1010902-6	SWITCH, TOGGLE
					1		8	1010902-5	SWITCH, TOGGLE
					1		7	1010902-4	SWITCH, TOGGLE
					1		6	1010901-1	SWITCH, BASIC
					1		5	1010916-1	POTENTIOMETER
					1		4	1010930-104	CONNECTOR
					1		3	1010948-1	MASTER ALARM ANNUNCIATOR
SEE NOTE 3					1		2	1010949-1	CONDITION ANNUNCIATOR
					1		1	2014550-011	SEXTANT HAND CONTROLLER
					011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	QUANTITY REQUIRED						LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
		-011
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS-9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN 23 APR 65 DATE
CHECKED 23 APR 65
APPROVAL D.W. Mieling 23 APR 65
APPROVAL
NASA APPROVAL 5-11-65
MIT APPROVAL 11 May 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO. 99974
SIZE C
2014578
SCALE NONE
SHEET 1 OF 1

APOLLO G&N Specification
PS2014578 REV A
Original Issue Date: 23 Feb 66
Release Authority: TDRR 26512
Class A Release
CODE IDENT NO. 80230

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

G&N INDICATOR CONTROL PANEL ASSEMBLY

DRAWING NO. 2014578

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
3/10/66	A	27042	3, 13	WK	TM

This specification consists of page 1 to 15 inclusive.

APPROVALS	G. METZGER NASA/MSC	2/23/66 MIT/IL WK		ACSP

E.T.P.
D.W.M.
12-28-65

3. REQUIREMENTS

3.1 PERFORMANCE

3.1.1 Sextant Hand Controller. The Sextant Hand Controller outputs shall be as specified in Table I with the Speed Controller and the Sextant Hand Controller in the positions specified in Table I.

TABLE I

SEXTANT HAND CONTROLLER OUTPUTS

SWITCH POSITIONS		OUTPUTS						
SEXTANT HAND CONTROLLER	SPEED CON-TROLLER	Shaft		Trunnion		Anti-Creep Electronics (Vrms)		
		Voltage (rms)	Phase	Voltage (rms)	Phase	Trunnion	Shaft	Phase
Extreme (+) Trunnion	HI	—	—	28.0 to 39.4	180° ± 3°	28.0 to 38.6	—	180° ± 3°
Extreme (-) Trunnion	HI	—	—	28.0 to 39.4	0° ±3°	—	—	—
Extreme (+) Shaft	HI	28.0 to 39.4	180° ±3°	—	—	—	28.0 to 38.6	180° ± 3°
Extreme (-) Shaft	HI	28.0 to 39.4	0° ±3°	—	—	—	—	—
Normal	HI	—	—	—	—	0.300 max	0.300 max	Optional
Extreme (+) Trunnion	MED	—	—	2.80 to 3.94	180° ± 3°	—	—	—
Extreme (+) Shaft	MED	2.80 to 3.94	180° ± 3°	—	—	—	—	—
Extreme (+) Trunnion	LO	—	—	0.280 to 0.394	180° ± 3°	—	—	—
Extreme (+) Shaft	LO	0.280 to 0.394	180° ±3°	—	—	—	—	—

3.1.2 Indicators. The assembly indicators shall be illuminated in accordance with Table II.

3.1.3 Continuity and DC Resistance. Continuity and dc resistance shall be in accordance with Tables III through VII. The DC resistance between P1-1 and any point on the chassis shall be .02 ohms max.

3.1.4 Insulation Resistance. The insulation resistance between P1-1 and the remaining assembly pins shall not be less than 100 megohms.

TABLE VIII

SEXTANT HAND CONTROLLER

Condition	SWITCH POSITIONS		OUTPUTS						
	SEXTANT HAND CONTROLLER	SPEED CON-TROLLER	Shaft P1-62 (Hi) and P1-38 (Lo)		Trunnion P1-64 (Hi) and P1-63 (Lo)		Anti-Creep Electronics (V rms)		
			V rms (760±40 cps)	Phase	V rms (760±40 cps)	Phase	Shaft (760±40 cps) P1-21 (Hi) & P1-39 (Lo)	Trunnion (760±40 cps) P1-65 (Hi) & P1-40 (Lo)	Phase
A	Extreme (-) Trunnion	Hi	— —	—	28.0 to 39.4	0° ±3°	—	28.0 to 38.6	0° ±3°
	Extreme (-) Shaft	Hi	28.0 to 39.4	0° ±3°	—	—	28.0 to 38.6	—	0° ±3°
B	Normal (not deflected)	Hi	—	—	—	—	0.300 max	0.300 max	opt

APOLLO G&N Specification
PS2014578 REV B
Original Issue Date: 23 Feb 66
Release Authority: TDRR 26572
Class A Release
CODE IDENT NO. 80230

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

G&N INDICATOR CONTROL PANEL ASSEMBLY

DRAWING NO. 2014578

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
3/10/66	A	27042	3, 13	WK	TM
5/3/66	B	28499	3, 11	WK	--

This specification consists of page 1 to 15 inclusive.

APPROVALS	C. METZGE NASA/MSC	2/23/ MIT/IL		ACSP

E.T.P.
Drwm.
12-28-65

3. REQUIREMENTS

3.1 PERFORMANCE

3.1.1 Sextant Hand Controller. The Sextant Hand Controller outputs shall be as specified in Table I with the Speed Controller and the Sextant Hand Controller in the positions specified in Table I.

TABLE I

SEXTANT HAND CONTROLLER OUTPUTS

SWITCH POSITIONS		OUTPUTS						
SEXTANT HAND CONTROLLER	SPEED CONTROLLER	Shaft		Trunnion		Anti-Creep Electronics (Vrms)		
		Voltage (rms)	Phase	Voltage (rms)	Phase	Trunnion	Shaft	Phase
Extreme (+) Trunnion	HI	—	—	28.0 to 39.4	180° ± 3°	28.0 to 38.6	—	180° ± 3°
Extreme (-) Trunnion	HI	—	—	28.0 to 39.4	0° ±3°	—	—	—
Extreme (+) Shaft	HI	28.0 to 39.4	180° ±3°	—	—	—	28.0 to 38.6	180° ± 3°
Extreme (-) Shaft	HI	28.0 to 39.4	0° ±3°	—	—	—	—	—
Normal	HI	—	—	—	—	0.300 max	0.300 max	Optional
Extreme (+) Trunnion	MED	—	—	2.80 to 3.94	180° ± 3°	—	—	—
Extreme (+) Shaft	MED	2.80 to 3.94	180° ± 3°	—	—	—	—	—
Extreme (+) Trunnion	LO	—	—	0.280 to 0.394	180° ± 3°	—	—	—
Extreme (+) Shaft	LO	0.280 to 0.394	180° ±3°	—	—	—	—	—

3.1.2 Indicators. The assembly indicators shall be illuminated in accordance with Table II.

3.1.3 Continuity and DC Resistance. Continuity and dc resistance shall be in accordance with Tables III through VII. The DC resistance between P1-1 and any point on the panel shall be 0.1 ohms max and the DC resistance between any one of the six panel mounting holes and any point on the panel shall be .01 ohms max.

3.1.4 Insulation Resistance. The insulation resistance between P1-1 and the remaining assembly pins shall not be less than 100 megohms.

4.3 TESTS

4.3.1 Drawing Compliance. The assembly shall be visually examined for compliance to the requirements of Drawing 2014578. Particular attention shall be given to inspection for nicks, scratches, burrs, dents, encapsulant defects, contaminants, pin misalignment, and legibility and appearance of marking.

4.3.2 Workmanship-Vibration. With the assembly mounted in the same manner which it mounts in the spacecraft, it shall be subjected to vibration along each of the axes shown in Figure 1. The vibration shall be a simple harmonic motion swept from 10 to 2000 cps at a rate of 1 octave/15 seconds. The magnitude of vibration shall be 1.75g rms limited to a 0.3 inch pp constant displacement from 10 cps to the crossover frequency.

The assembly shall be tested in accordance with 4.3.2.1, 4.3.2.2 Condition A and 4.3.2.3 Condition A during the 10 to 2000 cps vibration.

With the assembly vibrated from 2000 to 10 cps it shall be tested in accordance with 4.3.2.1, 4.3.2.2 Condition B and 4.3.2.3 Condition B. The values specified in 4.3.2.2 and 4.3.2.3 shall be continuously monitored during vibration as applicable and the specified parameters shall not be exceeded for more than 10 milliseconds. After vibration, the assembly shall be visually examined as specified in 4.3.1 and tested in accordance with 4.3.3 through 4.3.7.

4.3.2.1 Electro-Luminescent Lamps. With 75.0±1V rms, 400±5 cps applied to P1-68 (Hi) and P1-67 (Lo), the electro-luminescent lamps (behind all panel face nomenclature, borderlines and floodlighting of all control recess wells) shall be illuminated without flickering during vibration as determined by visual observation.

4.3.2.2 Sextant Hand and Speed Controller. With 28.00±0.28V rms, 760±40 cps applied to P1-43 (Hi) and P1-23 (Lo), the Sextant Hand Controller outputs shall be as specified in Table VIII for conditions A and B.

4.3.2.3 Continuity. With the following pins on connector P1 electrically connected together 1, 8, 10, 12, 20, 33, 34, 41, 48, 76, 80 and 81; continuity shall exist between pin 1 and the pins listed in Table IX for the corresponding switch positions specified in Table IX for conditions A and B.

4.3.3 Continuity and DC Resistance. The dc resistance between the pins listed in Tables III through VII shall be as specified therein, and the DC resistance between P1-1 and any point on the panel shall be 0.1 ohms max, and the DC resistance between any one of the 6 panel mounting holes and any point on the panel shall be .01 ohms max, when measured in accordance with Method 303 of Standard MIL-STD-202.

4.3.4 Insulation Resistance. The resistance between pin P1-1 and the remaining assembly pins shall be as specified in 3.1.4 when measured in accordance with Method 302 Condition A of Standard MIL-STD-202. The megohmmeter used shall be limited to a short circuit current of 6ma.

4.3.5 Maximum Weight. The assembly shall be weighed to the nearest hundreth pound.

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

C 2014578

REVISIONS						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
C		REVISED PER TDRR NO. 23243			1-30-68	WK

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. THE COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014578.
3. VENDOR ITEM - SEE SPECIFICATION CONTROL DWG
4. SERIALIZE PER ND1002023
5. ENCAPSULATE ALL SOLDERED ELECTRICAL COMPONENT CONNECTIONS TO A .06 MIN DEPTH USING ITEMS 26, 27, 29 AND 30 PER ND1002236
6. SOLDER PER ND1002071 USING (23) & (24).
7. BOND (68) TO (22), (69) TO (22), AND THE ELECTRICAL WIRING ENCAPSULANT OF (5) AND (6) TO (22) USING (70) AND (71) PER ND1002004.
8. LOCATE (44) APPROX AS SHOWN.
9. SELECT APPROPRIATE SIZE CLAMP AT ASSEMBLY

WIRING LEGEND	
FROM	TO
DS 2 - WHITE	E6
DS2 - BLACK	E7
DS3 - WHITE	E4
DS3 - BLACK	E5
DS5 - WHITE	E2
DS5 - BLACK	E3
DS6 - WHITE	E14
DS6 - BLACK	E15
DS7 - WHITE	E16
DS7 - BLACK	E17
DS8 - WHITE	E18
DS8 - BLACK	E19
DS9 - WHITE	E24
DS9 - BLACK	E25
DS10 - WHITE	E30
DS10 - BLACK	E31
DS11 - WHITE	E28
DS11 - BLACK	E29
DS12 - WHITE	E20
DS12 - BLACK	E21
DS13 - WHITE	E26
DS13 - BLACK	E27
DS14 - WHITE	E22
DS14 - BLACK	E23
DS15 - WHITE	E32
DS15 - BLACK	E33
DS16 - WHITE	E8

WIRING LEGEND		USE ITEM
FROM	TO	
DS16 - BLACK	E9	
DS17 - WHITE	E10	
DS17 - BLACK	E11	
E2	E4	66
E3	E5	↕
E14	E16	↕
E15	E17	↕
E18	E20	↕
E20	E22	↕
E19	E21	↕
E21	E23	↕
E24	E26	↕
E26	E28	↕
E28	E30	↕
E25	E27	↕
E27	E29	↕
E29	E31	↕
A3-7	A3-1	↕
A3-1	A3-3	↕
A3-3	A3-5	66

C — REPLACES REV B WITH CHANGES.

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
				011					
SEE NOTE 3				2		74	1010999-6		LAMP, ELECTROLUMINESCENT
				4		73	1010630-4		SCREW, FLAT HD, HEX SOC.
				8		72	1006783-11		SCREW, BUTTON HD, HEX SOC.
				AR		71	10.0657		EPOXY RESIN
SEE NOTE 3				AR		70	1010686		CATALYST
				7		69	2014706		RETAINER, LAMP
				1		68	2014718		RETAINER, LAMP
SEE NOTE 3				12		67	6014507		WASHER, SPRING
				AR		66	QQ-W-343, TYPE S		WIRE, ELECT., 24AWG
SEE NOTE 3				16		65	1010617-2		NUT, HEX, SELF-LOCKING
				4		64	1006783-10		SCREW, BUTTON HD, HEX SOCKET
				2		63	1010617-4		NUT, HEX, SELF-LOCKING
				4		62	MS15795-803		WASHER, FLAT
				1		61	1006783-18		SCREW, BUTTON HD, HEX SOCKET
SEE NOTE 3				4		60	1006783-21		SCREW, BUTTON HD, HEX SOCKET
				1		59	2014738		PANEL & LAMP, MATCHED ASSY OF
				1		58	2014737		PANEL & LAMP, MATCHED ASSY OF
				1		57	2014735		PANEL & LAMP, MATCHED ASSY OF
				8		56	2014725		SCREW, SHOULDER
				1		55	2014722		RETAINER, PANEL LEFT
				1		54	2014727		FRAME, ANNUNCIATOR
				1		53	2014721		RETAINER, PANEL
				1		52	2014723		RETAINER, PANEL CENTER
				2		51	2014705		RETAINER, PANEL
				1		50	2014703		RETAINER, PANEL
				1		49	2014702		RETAINER, PANEL
SEE NOTE 3				36		48	1006783-9		SCREW, BUTTON HD
				1		47	2014719		PANEL & LAMP, MATCHED ASSY OF
				2		46	2014683		RETAINER, LIGHT
SEE NOTE 3				4		45	1010477-12		SCREW, FLAT HD SELF LOCKING
				1		44	1004260-146		NAME PLATE
				1		43	2014736		PANEL & LAMP, MATCHED ASSY OF
SEE NOTE 3				4		42	1010477-13		SCREW, FLAT HD SELF LOCKING
SEE NOTE 3				4		41	1010676-1		TERMINAL
SEE NOTE 3				26		40	1010623-3		TERMINAL, TURRET
				22		39	1001489-2		SCREW, SOCKET HD CAP
SEE NOTE 3				17		38	1010630-14		SCREW, FLAT HEAD
				1		37	2014707		BRACKET, CONNECTOR
				2		36	1023002-001		HANDLE
				1		35	2014656-011		RETICLE BRIGHTNESS CONTROL
SEE NOTE 3				15		34	1011918-1		WASHER-CABLE CLAMP
				1		33	2014622		HARNESS
SEE NOTE 3				1		32	1010625-2		LIGHT, INDICATOR
				1		31	1010475-1		CAP, PUSHBUTTON
				AR		30	1012504-2		PRIMER, METAL
				AR		29	1012504-1		PRIMER, METAL
29				15		28	1000220-1 THRU-12		CLAMP, CABLE
				AR		27	1012503-1		COMPOUND, POLYURETHANE
SEE NOTE 3				AR		26	1012503-2		COMPOUND, POLYURETHANE.
				1		25	1023003		CAP, PUSHBUTTON
				AR		24	QQ-S-571 SN60WRAP2		SOLDER
				AR		23	MIL-F-14256		FLUX
				1		22	2014626		PANEL G & N IND CONT (INSEPARABLE)
				1		21	2014627		SUPPORT, HAND CONTROLLER
				X		20	2014507		SCHEMATIC DIAGRAM
				1		19	2014658		SUPPORT, SWITCH
SEE NOTE 3				1		18	1010268-5		LAMP, INCANDESCENT
SEE NOTE 3				1		17	1010942-1		TRANSFORMER
				1		16	2014700-011		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3				1		15	1010905-5		SWITCH, TOGGLE
				1		14	1010905-3		SWITCH, TOGGLE
				1		13	1010904-2		SWITCH, PUSH BUTTON
				1		12	1010904-1		SWITCH, PUSH BUTTON
				1		11	1010903-9		SWITCH, TOGGLE
				1		10	1010903-8		SWITCH, TOGGLE
				1		9	1010902-6		SWITCH, TOGGLE
				1		8	1010902-5		SWITCH, TOGGLE
				1		7	1010902-4		SWITCH, TOGGLE
				7		6	1010999-4		LAMP, ELECTROLUMINESCENT
				1		5	1010999-8		LAMP, ELECTROLUMINESCENT
				4		4	1014503		SCREW, CAPTIVE
				1		3	1008824-1		MASTER ALARM ANNUNCIATOR
SEE NOTE 3				1		2	1010949-1		CONDITION ANNUNCIATOR
				1		1	2014550-011		SEXTANT HAND CONTROLLER

LIST OF MATERIALS

MASTER

2014623		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSY PART NO. IS THE DRAWING NO. AND THE DASH NO. THAT APPLIES.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN F. Dietrich 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson
APPROVED 10-7-65
APPROVED MIT W. Kupfer 10-8-65
NOT REQUIRED PER LETTER
NASA MSC FT7-65-612
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE NONE
SHEET 1 OF 3

2014578

REVISIONS 18966					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REMD. P/N 1015048-021, AND ADDED ITEM NOS. IN L/M.	DO 60350	4-28 65	
B		REVISED PER TDRR 23212	13Oct65	27 SEP 65	A.N.
C		REPLACED BY REV C WITH CHANGE PER TDRR 23213	13Oct65	6 OCT 65	WK.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. INSPECT PER PS
3. VENDOR ITEM - SEE SPECIFICATION CONTROL DWG.
4. SERIALIZE PER ND1002023.

REPLACED BY REV C WITH CHANGE

						ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
				X		20	2014507	SCHEMATIC DIAGRAM
						19		
SEE NOTE 3				1		18	1010268-2	LAMP, INCANDESCENT
SEE NOTE 3				1		17	1010942-1	TRANSFORMER
				1		16	2014700-011	SWITCH, ATTITUDE IMPULSE
SEE NOTE 3				1		15	1010905-5	SWITCH, TOGGLE
				1		14	1010905-3	SWITCH, TOGGLE
				2		13	1010904-2	SWITCH, PUSH BUTTON
				1		12	1010904-1	SWITCH, PUSH BUTTON
				1		11	1010903-4	SWITCH, TOGGLE
				1		10	1010903-3	SWITCH, TOGGLE
				1		9	1010902-6	SWITCH, TOGGLE
				1		8	1010902-5	SWITCH, TOGGLE
				1		7	1010902-4	SWITCH, TOGGLE
				1		6	1010901-1	SWITCH, BASIC
				1		5	1010916-1	POTENTIOMETER
				1		4	1010930-104	CONNECTOR
				1		3	1010948-1	MASTER ALARM ANNUNCIATOR
SEE NOTE 3				1		2	1010949-1	CONDITION ANNUNCIATOR
				1		1	2014550-011	SEXTANT HAND CONTROLLER
				011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

		-011
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + — − DECIMALS + — − ANGLES + — −
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS-9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN Jonquin DATE 23 APR 65
CHECKED J. Stelma 23 APR 65
APPROVAL D.W. Mirling 23 APR 65
APPROVAL
NASA APPROVAL W J R 5-11-65
MIT APPROVAL 11 May 65

MANNED
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G & N INDICATOR CONTROL PANEL ASSEMBLY

CODE IDENT NO. 99974
SIZE C
2014578
SCALE NONE
SHEET 1 OF 1

MIL 1078C—P

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C 2014578

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REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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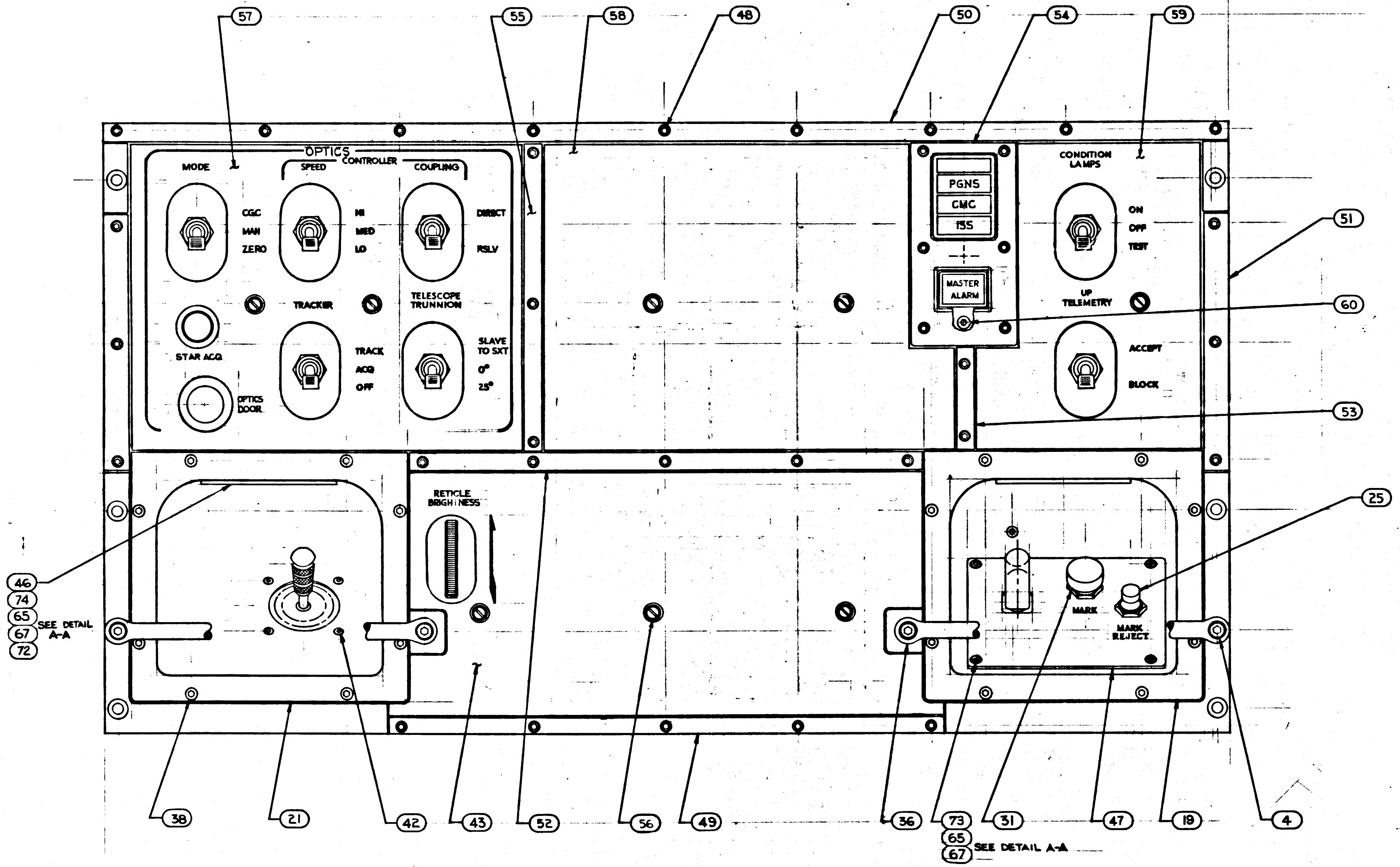
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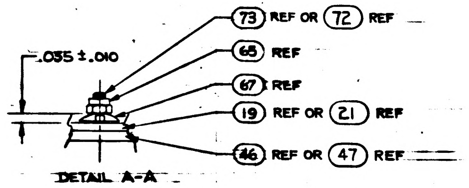
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73 REF OR 72 REF
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19 REF OR 21 REF
46 REF OR 47 REF

DETAIL A-A
SCALE: NONE

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ——— DECIMALS ± ——— ANGLES ± ———
DO NOT SCALE THIS DRAWING

MATERIAL
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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Dietrich 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson OCT. 5-65
APPROVED
APPROVED MIT
NOT REQUIRED PER LETTER
NASA MPR7-65-612
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 2 OF 3

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C 2014578

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REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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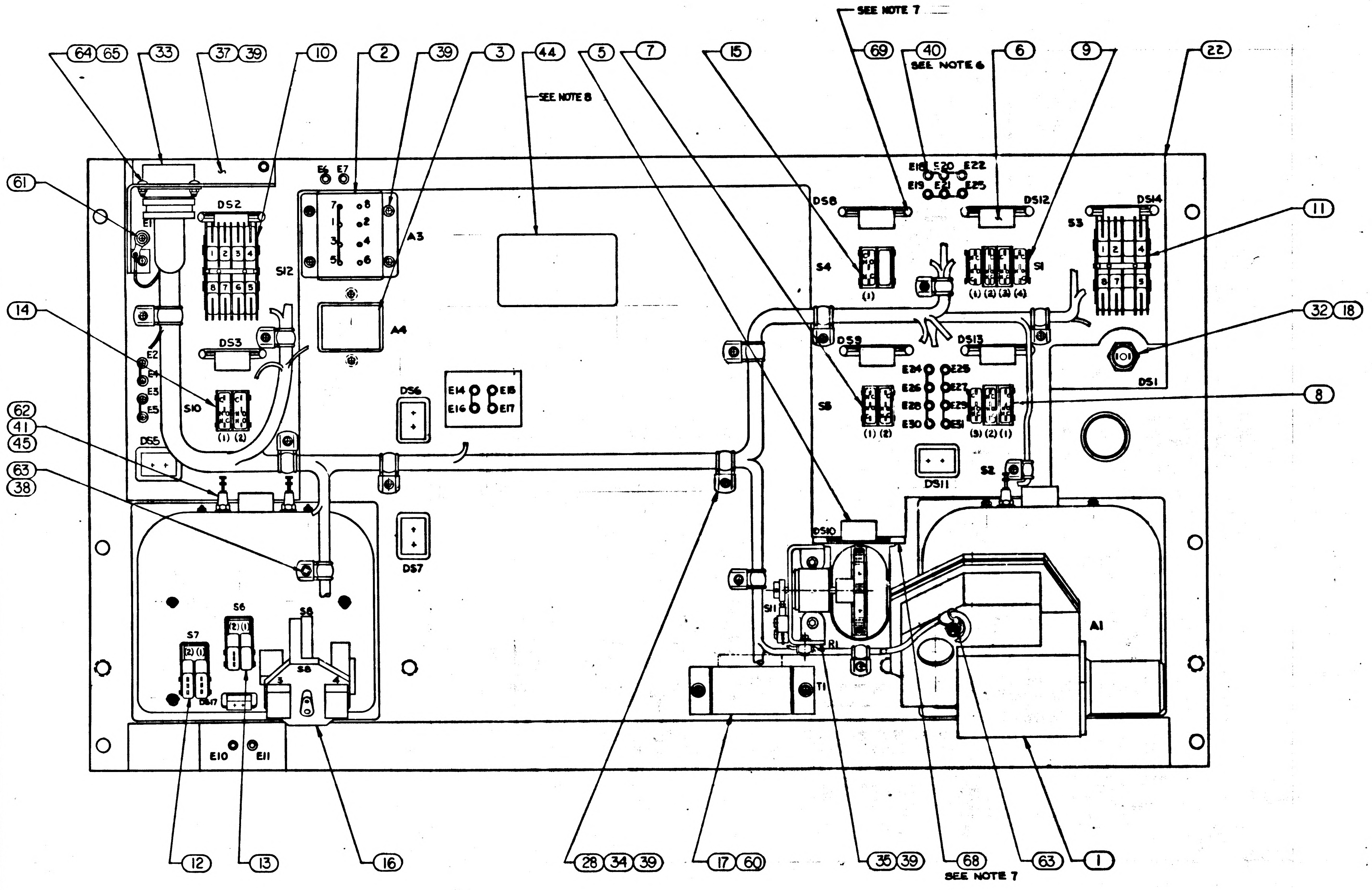

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SEE NOTE 8
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SEE NOTE 7
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DS2
S12
DS3
S10
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DS5
A3
A4
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DS7
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SEE NOTE 7
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QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
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MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN L. Wood 10/1/65
CHECKED [illegible]
APPROVED Paul Watson OCT. 5-65
APPROVED [illegible] 10/5/65
APPROVED MIT [illegible] 13 Oct 65
NOT REQUIRED PER LETTER ~~NASA-EP/65-612~~
MSC DATE

G&N INDICATOR CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 3 OF 3

MASTER

2014578 C

APOLLO G&N Specification
PS2014578 REV C
Original Issue Date: 23 Feb 66
Release Authority: TDRR 26572
Class A Release
CODE IDENT NO. 80230

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

G&N INDICATOR CONTROL PANEL ASSEMBLY

DRAWING NO. 2014578

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
3/10/66	A	27042	3, 13 RDG/AC	WK	TM
5/3/66	B	28499	3, 11 RDG/AC	WK	--
5/17/66	C	28915	13, 15 JH/AC	MGM	—

This specification consists of page 1 to 15 inclusive.

APPROVALS C. METZGER NASA/MSC MIT/IL ACSP

E.T.P.
D.W.M.
12-28-65

TABLE VIII

SEXTANT HAND CONTROLLER

Condition	SWITCH POSITIONS		OUTPUTS						
	SEXTANT HAND CONTROLLER	SPEED CON-TROLLER	Shaft P1-62 (Hi) and P1-38 (Lo)		Trunnion P1-64 (Hi) and P1-63 (Lo)		Anti-Creep Electronics (V rms)		
			V rms (760±40 cps)	Phase	V rms (760±40 cps)	Phase	Shaft (760±40 cps) P1-21 (Hi) & P1-39 (Lo)	Trunnion (760±40 cps) P1-65 (Hi) & P1-40 (Lo)	Phase
A	Extreme (-) Trunnion	Hi	—	—	28.0 to 39.4	±10°	—	28.0 to 38.6	±10°
	Extreme (-) Shaft	Hi	28.0 to 39.4	±10°	—	—	28.0 to 38.6	—	±10°
B	Normal (not deflected)	Hi	—	—	—	—	0.300 max	0.300 max	opt

4.3.6 Sextant Hand Controller. With either a 28.00±0.28V rms, 720 cps ±1 percent or 28.00±0.28V rms, 800 cps ±1 percent applied to pins P1-43 (Hi) and P1-23 (Lo), the Sextant Hand Controller outputs shall be as specified in Table I when measured at the following pins; except the tolerance on phase shift shall be ±10° for inputs of 28.00±0.28V rms, 720 cps ±1 percent.

- a. Trunnion output P1-64 (Hi) and P1-63 (Lo)
- b. Shaft output P1-62 (Hi) and P1-38 (Lo)
- c. Trunnion anti-creep electronics P1-65 (Hi) and P1-40 (Lo)
- d. Shaft anti-creep electronics P1-21 (Hi) and P1-39 (Lo)

4.3.7 Indicators. The indicators shall be illuminated in accordance with Table II.

5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND1002214.

6. NOTES. None.

ETP/dmh

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REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		REVISED PER TDRR NO. 23213			[illegible]	
D		REVISED PER TDRR NO. 23831	L.W		11/12/65	

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. THE COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014578.
3. VENDOR ITEM - SEE SPECIFICATION CONTROL DWG
4. SERIALIZE PER ND1002023
5. ENCAPSULATE ALL SOLDERED ELECTRICAL COMPONENT CONNECTIONS TO A .06 MIN DEPTH USING ITEMS 26, 27, 29 AND 30 PER ND1002236
6. SOLDER PER ND1002071 USING (23) & (24).
7. BOND (68) TO (22), (69) TO (22), AND THE ELECTRICAL WIRING ENCAPSULANT OF (5) AND (6) TO (22) USING (70) AND (71) PER ND1002004.
8. LOCATE (44) APPROX AS SHOWN.
9. SELECT APPROPRIATE SIZE CLAMP AT ASSEMBLY

WIRING LEGEND	
FROM	TO
DS2 - WHITE	E6
DS2 - BLACK	E7
DS3 - WHITE	E4
DS3 - BLACK	E5
DS5 - WHITE	E2
DS5 - BLACK	E3
DS6 - WHITE	E14
DS6 - BLACK	E15
DS7 - WHITE	E16
DS7 - BLACK	E17
DS8 - WHITE	E18
DS8 - BLACK	E19
DS9 - WHITE	E24
DS9 - BLACK	E25
DS10 - WHITE	E30
DS10 - BLACK	E31
DS11 - WHITE	E28
DS11 - BLACK	E29
DS12 - WHITE	E20
DS12 - BLACK	E21
DS13 - WHITE	E26
DS13 - BLACK	E27
DS14 - WHITE	E22
DS14 - BLACK	E23
DS15 - WHITE	E32
DS15 - BLACK	E33
DS16 - WHITE	E8

WIRING LEGEND		USE
FROM	TO	ITEM
DS16 - BLACK	E9	
DS17 - WHITE	E10	
DS17 - BLACK	E11	
E2	E4	66
E3	E5	↑
E14	E16	|
E15	E17	|
E18	E20	|
E20	E22	|
E19	E21	|
E21	E23	|
E24	E26	|
E26	E28	|
E28	E30	|
E25	E27	|
E27	E29	|
E29	E31	|
A3-7	A3-1	|
A3-1	A3-3	↓
A3-3	A3-5	66

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
				011			LIST OF MATERIAL		
				2		76	NAS1081C04D3L		SCREW, SET, SELF LOCK
				1		75	2014655		WHEEL, CONTROL
SEE NOTE 3				2		74	1010999-6		LAMP, ELECTROLUMINESCENT
				4		73	1010630-4		SCREW, FLAT HD, HEX SOC.
				8		72	1006783-11		SCREW, BUTTON HD, HEX SOC.
				AR		71	1010657		EPOXY RESIN
SEE NOTE 3				AR		70	1010686		CATALYST
				7		69	2014706		RETAINER, LAMP
				1		68	2014718		RETAINER, LAMP
SEE NOTE 3				12		67	6014527		WASHER, SPHERICAL
				AR		66	QQ-W-343, TYPE S		WIRE, ELECT., 24AWG
SEE NOTE 3				12		65	1010617-2		NUT, HEX, SELF-LOCKING
						64			
				2		63	1010617-4		NUT, HEX, SELF-LOCKING
				4		62	MS15795-803		WASHER, FLAT
				1		61	1006783-18		SCREW, BUTTON HD, HEX SOCKET
SEE NOTE 3				4		60	1006783-21		SCREW, BUTTON HD, HEX SOCKET
				1		59	2014738		PANEL & LAMP, MATCHED ASSY OF
				1		58	2014737-011		PANEL & LAMP, MATCHED ASSY OF
				1		57	2014735		PANEL & LAMP, MATCHED ASSY OF
				8		56	2014725		SCREW, SHOULDER
				1		55	2014722		RETAINER, PANEL LEFT
				1		54	2014727		FRAME, ANNUNCIATOR
				1		53	2014721		RETAINER, PANEL
				1		52	2014723		RETAINER, PANEL CENTER
				2		51	2014705		RETAINER, PANEL
				1		50	2014703		RETAINER, PANEL
				1		49	2014702		RETAINER, PANEL
SEE NOTE 3				36		48	1006783-9		SCREW, BUTTON HD
				1		47	2014719		PANEL & LAMP, MATCHED ASSY OF
				2		46	2014683		RETAINER, LIGHT
SEE NOTE 3				4		45	1010477-12		SCREW, FLAT HD SELF LOCKING
				1		44	1004260-146		NAME PLATE
				1		43	2014736-011		PANEL & LAMP, MATCHED ASSY OF
SEE NOTE 3				4		42	1010477-13		SCREW, FLAT HD SELF LOCKING
SEE NOTE 3				4		41	1010676-1		TERMINAL

MASTER

Ⓒ REPLACES REV B WITH CHANGES

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
				011			LIST OF MATERIALS		
SEE NOTE 3				26		40	1010623-3		TERMINAL, TURRET
				22		39	1001489-2		SCREW, SOCKET HD CAP
SEE NOTE 3				17		38	1010630-14		SCREW, FLAT HEAD
						37			
				2		36	1023002-001		HANDLE
				1		35	2014656-011		RETICLE BRIGHTNESS CONTROL
SEE NOTE 3				15		34	1011918-1		WASHER-CABLE CLAMP
				1		33	2014622		HARNESS
SEE NOTE 3				1		32	1010625-2		LIGHT, INDICATOR
				1		31	1010475-1		CAP, PUSHBUTTON
				AR		30	1012504-2		PRIMER, METAL
				AR		29	1012504-1		PRIMER, METAL
				15		28	1000220-1 THRU-12		CLAMP, CABLE
				AR		27	1012503-1		COMPOUND, POLYURETHANE
SEE NOTE 3				AR		26	1012503-2		COMPOUND, POLYURETHANE
				1		25	1023003		CAP, PUSHBUTTON
				AR		24	QQ-S-571 SN60WRAP2		SOLDER
				AR		23	MIL-F-14256		FLUX
				1		22	2014626		PANEL G & N IND CONT (INSEPARABLE)
				1		21	2014627		SUPPORT, HAND CONTROLLER
				X		20	2014507		SCHEMATIC DIAGRAM
				1		19	2014658		SUPPORT, SWITCH
SEE NOTE 3				1		18	1010268-5		LAMP, INCANDESCENT
SEE NOTE 3				1		17	1010942		TRANSFORMER
				1		16	2014700-011		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3				1		15	1010905-5		SWITCH, TOGGLE
				1		14	1010905-3		SWITCH, TOGGLE
				1		13	1010904-2		SWITCH, PUSH BUTTON
				1		12	1010904-1		SWITCH, PUSH BUTTON
				1		11	1010903-9		SWITCH, TOGGLE
				1		10	1010903-8		SWITCH, TOGGLE
				1		9	1010902-6		SWITCH, TOGGLE
				1		8	1010902-5		SWITCH, TOGGLE
				1		7	1010902-4		SWITCH, TOGGLE
				7		6	1010999-4		LAMP, ELECTROLUMINESCENT
				1		5	1010999-8		LAMP, ELECTROLUMINESCENT
				4		4	1014503		SCREW, CAPTIVE
				1		3	1008824-1		MASTER ALARM ANNUNCIATO
SEE NOTE 3				1		2	1010949-1		CONDITION ANNUNCIATOR
				1		1	2014550-011		SEXTANT HAND CONTROLLER

2014623		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSY PART NO. IS THE DRAWING NO. AND THE DASH NO. THAT APPLIES

UNLESS OTHERWISE SPECIFIED
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CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 10-4-65
CHECKED 10-5-65
APPROVED Paul
APPROVED
APPROVED MIT
NOT REQUIRED PER LETTER
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE NONE
SHEET 1 OF 3

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D 2014578

REVISIONS

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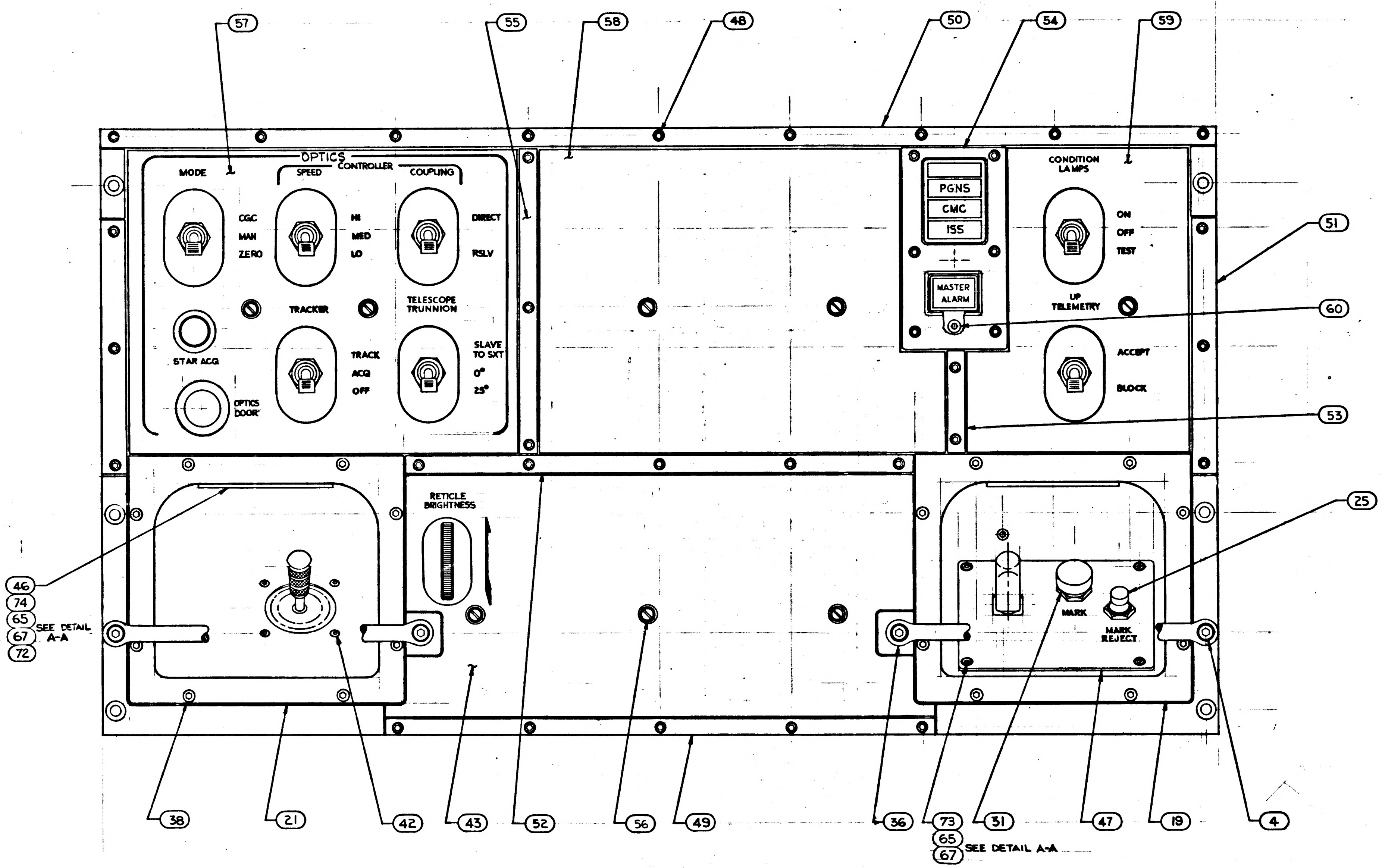
D		TDRR 23831				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MASTER ALARM
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RETICLE BRIGHTNESS
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MARK REJECT
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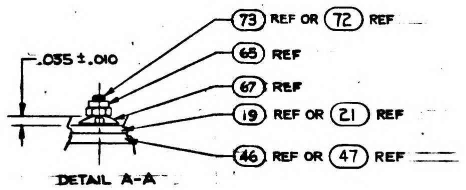
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73 REF OR 72 REF
65 REF
67 REF
19 REF OR 21 REF
46 REF OR 47 REF

DETAIL A-A
SCALE: NONE

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
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TOLERANCES ON
FRACTIONS DECIMALS ANGLES
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DO NOT SCALE THIS DRAWING
MATERIAL
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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson OCT. 5-65
APPROVED
APPROVED MIT
NOT REQUIRED PER LETTER
~~NASA~~ 907-65-612
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2014578

SCALE 1/1
SHEET 2 OF 3

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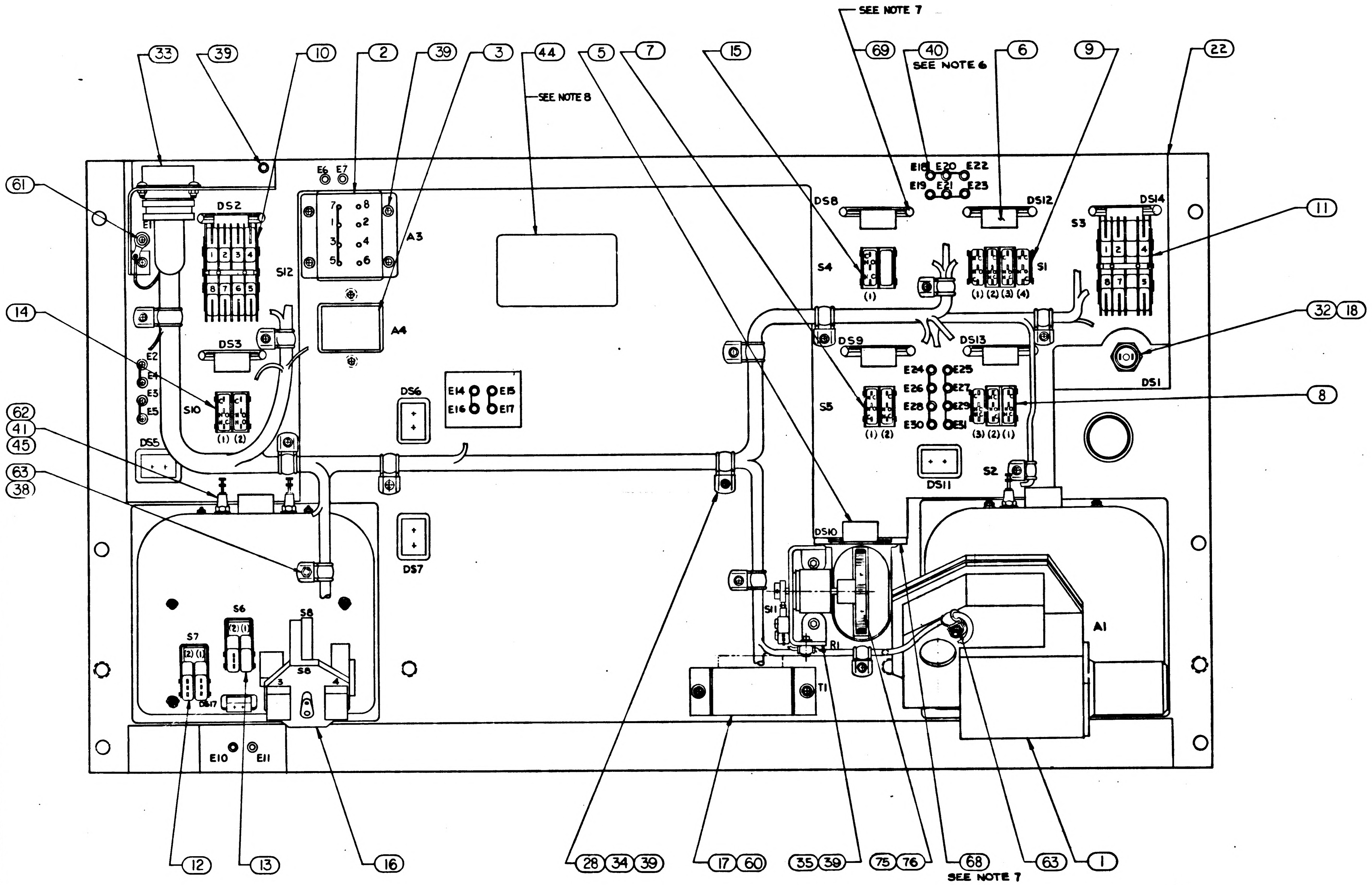
D 2014578

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		TDRR 23213			13 OCT	CWK
D		TDRR 23831			[illegible]	WR



SEE NOTE 7
33
39
10
2
39
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44
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15
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40
SEE NOTE 6
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22
SEE NOTE 8
61
E1
DS2
1 2 3 4
8 7 6 5
E6 E7
7 8
1 2
3 4
5 6
A3
S12
A4
E18 E20 E22
E19 E21 E23
DS8
DS12
DS14
S3
1 2 4
8 7 5
11
S4
(1)
S1
(1) (2) (3) (4)
32 18
DS9
DS13
DS1
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E2
E4
E3
E5
DS3
S10
(1) (2)
DS6
E14 E15
E16 E17
E24 E25
E26 E27
E28 E29
E30 E31
S5
(1) (2)
(3) (2) (1)
8
62
41
45
63
38
DS5
DS11
S2
DS10
DS7
S11
R1
T1
A1
S7
(2) (1)
S6
(2) (1)
S8
DS17
E10
E11
12
13
16
28 34 39
17 60
35 39
75 76
68
SEE NOTE 7
63
1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN L. Hood 10/1/65
CHECKED J. E. [illegible] 10-5-65
APPROVED Paul Watson OCT. 5 65
APPROVED J. [illegible] 10/5/65
APPROVED MIT W. [illegible] 13 Oct 65
NOT REQUIRED PER [illegible]
~~NASA~~ ~~DRW 66-612~~
MSC DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INDICATOR CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 3 OF 3

APOLLO G&N Specification
PS2014578 REV ~~-~~D
Original Issue Date: 23 Feb 66
Release Authority: TDRR 26572
Class A Release
CODE IDENT NO. 80230

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

G&N INDICATOR CONTROL PANEL ASSEMBLY

DRAWING NO. 2014578

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
(2) 3/10/66	A	27042	3, 13 RDL/AC	WK	TM
5/3/66	B	28499	3, 11 RDL/AC	WK	--
5/17/66	C	28915	13, 15 [illegible]/AC	MGM	—
7/6/66	D	30127	3, 9, 11, 12 RDL/AC	MGM	—

This specification consists of page 1 to 15 inclusive.

APPROVALS	C. METZGER NASA/MSC	2/23/6 MIT/IL	ACSP

E.T.P.
Drwm.
12-28-65

3. REQUIREMENTS

3.1 PERFORMANCE

3.1.1 Sextant Hand Controller. The Sextant Hand Controller outputs shall be as specified in Table I with the Speed Controller and the Sextant Hand Controller in the positions specified in Table I.

TABLE I

SEXTANT HAND CONTROLLER OUTPUTS

SWITCH POSITIONS		OUTPUTS						
SEXTANT HAND CONTROLLER	SPEED CON-TROLLER	Shaft		Trunnion		Anti-Creep Electronics (Vrms)		
		Voltage (rms)	Phase	Voltage (rms)	Phase	Trunnion	Shaft	Phase
Extreme (+) Trunnion	HI	—	—	28.0 to 39.4	180° ± 3°	28.0 to 38.6	—	180° ± 3°
Extreme (-) Trunnion	HI	—	—	28.0 to 39.4	0° ±3°	—	—	—
Extreme (+) Shaft	HI	28.0 to 39.4	180° ± ±3°	—	—	—	28.0 to 38.6	180° ± 3°
Extreme (-) Shaft	HI	28.0 to 39.4	0° ±3°	—	—	—	—	—
Normal	HI	—	—	—	—	0.300 max	0.300 max	Optional
Extreme (+) Trunnion	MED	—	—	2.80 to 3.94	180° ± 3°	—	—	—
Extreme (+) Shaft	MED	2.80 to 3.94	180° ± 3°	—	—	—	—	—
Extreme (+) Trunnion	LO	—	—	0.280 to 0.394	180° ± 3°	—	—	—
Extreme (+) Shaft	LO	0.280 to 0.394	180° ±3°	—	—	—	—	—

3.1.2 Indicators. The assembly indicators shall be illuminated in accordance with Table II.

3.1.3 Continuity and DC Resistance. Continuity and dc resistance shall be in accordance with Tables III through VII. The DC resistance between P1-1 and any point on the panel shall be 0.1 ohms max and the DC resistance between any one of the six panel mounting holes and any point on the panel shall be .01 ohms max. Switch positions for Table IV, Attitude Impulse Controller, S8, shall be as defined in Figure 1.

3.1.4 Insulation Resistance. The insulation resistance between P1-1 and the remaining assembly pins shall not be less than 100 megohms.

4.3 TESTS

4.3.1 Drawing Compliance. The assembly shall be visually examined for compliance to the requirements of Drawing 2014578. Particular attention shall be given to inspection for nicks, scratches, burrs, dents, encapsulant defects, contaminants, pin misalignment, and legibility and appearance of marking.

4.3.2 Workmanship-Vibration. With the assembly mounted in the same manner which it mounts in the spacecraft, it shall be subjected to vibration along each of the axes shown in Figure 2. The vibration shall be a simple harmonic motion swept from 10 to 2000 cps at a rate of 1 octave/15 seconds. The magnitude of vibration shall be 1.75g rms limited to a 0.3 inch pp constant displacement from 10 cps to the crossover frequency.

The assembly shall be tested in accordance with 4.3.2.1, 4.3.2.2 Condition A and 4.3.2.3 Condition A during the 10 to 2000 cps vibration.

With the assembly vibrated from 2000 to 10 cps it shall be tested in accordance with 4.3.2.1, 4.3.2.2 Condition B and 4.3.2.3 Condition B. The values specified in 4.3.2.2 and 4.3.2.3 shall be continuously monitored during vibration as applicable and the specified parameters shall not be exceeded for more than 10 milliseconds. After vibration, the assembly shall be visually examined as specified in 4.3.1 and tested in accordance with 4.3.3 through 4.3.7.

4.3.2.1 Electro-Luminescent Lamps. With 75.0±1V rms, 400±5 cps applied to P1-68 (Hi) and P1-67 (Lo), the electro-luminescent lamps (behind all panel face nomenclature, borderlines and floodlighting of all control recess wells) shall be illuminated without flickering during vibration as determined by visual observation.

4.3.2.2 Sextant Hand and Speed Controller. With 28.00±0.28V rms, 760±40 cps applied to P1-43 (Hi) and P1-23 (Lo), the Sextant Hand Controller outputs shall be as specified in Table VIII for conditions A and B.

4.3.2.3 Continuity. With the following pins on connector P1 electrically connected together 1, 8, 10, 12, 20, 33, 34, 41, 48, 76, 80 and 81; continuity shall exist between pin 1 and the pins listed in Table IX for the corresponding switch positions specified in Table IX for conditions A and B.

4.3.3 Continuity and DC Resistance. The dc resistance between the pins listed in Tables III through VII shall be as specified therein, and the DC resistance between P1-1 and any point on the panel shall be 0.1 ohms max, and the DC resistance between any one of the 6 panel mounting holes and any point on the panel shall be .01 ohms max, when measured in accordance with Method 303 of Standard MIL-STD-202.

4.3.4 Insulation Resistance. The resistance between pin P1-1 and the remaining assembly pins shall be as specified in 3.1.4 when measured in accordance with Method 302 Condition A of Standard MIL-STD-202. The megohmmeter used shall be limited to a short circuit current of 6μa.

4.3.5 Maximum Weight. The assembly shall be weighed to the nearest hundreth pound.

APOLLO G&N Specification
PS2014578 REV E
Original Issue Date: 23 Feb 66
Release Authority: TDRR 26572
Class A **Release**
CODE IDENT NO. 80230

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

G&N INDICATOR CONTROL PANEL ASSEMBLY

DRAWING NO. 2014578

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				AC	NASA
3/10/66	A	27042	3, 13 RDG/AC	WK	TM
5/3/66	B	28499	3, 11 RDG/AC	WK	--
5/17/66	C	28915	13, 15 JH/AC	MGM	–
7/6/66	D	30127	3, 9, 11, 12 RDG/AC	MGM	–
1/5/67	E	32486	3, 11, 15 RDG/AC	EA MGM	---

This specification consists of page 1 to 15 inclusive.

APPROVALS	G. METZGER NASA/MSC	2/23/66 MIT/IL		ACSP

E.T.P.
Dwm.
12-28-65

3. REQUIREMENTS

3.1 PERFORMANCE

3.1.1 Sextant Hand Controller. The Sextant Hand Controller outputs shall be as specified in Table I with the Speed Controller and the Sextant Hand Controller in the positions specified in Table I.

TABLE I

SEXTANT HAND CONTROLLER OUTPUTS

SWITCH POSITIONS		OUTPUTS						
SEXTANT HAND CONTROLLER	SPEED CON-TROLLER	Shaft		Trunnion		Anti-Creep Electronics (Vrms)		
		Voltage (rms)	Phase	Voltage (rms)	Phase	Trunnion	Shaft	Phase
Extreme (+) Trunnion	HI	—	—	28.0 to 39.4	180° ± 3°	28.0 to 38.6	—	180° ± 3°
Extreme (-) Trunnion	HI	—	—	28.0 to 39.4	0° ±3°	—	—	—
Extreme (+) Shaft	HI	28.0 to 39.4	180° ± ±3°	—	—	—	28.0 to 38.6	180° ± 3°
Extreme (-) Shaft	HI	28.0 to 39.4	0° ±3°	—	—	—	—	—
Normal	HI	—	—	—	—	0.300 max	0.300 max	Optional
Extreme (+) Trunnion	MED	—	—	2.80 to 3.94	180° ± 3°	—	—	—
Extreme (+) Shaft	MED	2.80 to 3.94	180° ± 3°	—	—	—	—	—
Extreme (+) Trunnion	LO	—	—	0.280 to 0.394	180° ± 3°	—	—	—
Extreme (+) Shaft	LO	0.280 to 0.394	180° ±3°	—	—	—	—	—

3.1.2 Indicators. The assembly indicators shall be illuminated in accordance with Table II.

3.1.3 Continuity and DC Resistance. Continuity and dc resistance shall be in accordance with Tables III through VII. The DC resistance between P1-1 and any point on the panel shall be 0.1 ohms max and the DC resistance through the spacecraft interface to the panel shall be 0.01 ohms max. Switch positions for Table IV, Attitude Impulse Controller, S8, shall be as defined in Figure 1.

3.1.4 Insulation Resistance. The insulation resistance between P1-1 and the remaining assembly pins shall not be less than 100 megohms.

4.3 TESTS

4.3.1 Drawing Compliance. The assembly shall be visually examined for compliance to the requirements of Drawing 2014578. Particular attention shall be given to inspection for nicks, scratches, burrs, dents, encapsulant defects, contaminants, pin misalignment, and legibility and appearance of marking.

4.3.2 Workmanship-Vibration. With the assembly mounted in the same manner which it mounts in the spacecraft, it shall be subjected to vibration along each of the axes shown in Figure 2. The vibration shall be a simple harmonic motion swept from 10 to 2000 cps at a rate of 1 octave/15 seconds. The magnitude of vibration shall be 1.75g rms limited to a 0.3 inch pp constant displacement from 10 cps to the crossover frequency.

The assembly shall be tested in accordance with 4.3.2.1, 4.3.2.2 Condition A and 4.3.2.3 Condition A during the 10 to 2000 cps vibration.

With the assembly vibrated from 2000 to 10 cps it shall be tested in accordance with 4.3.2.1, 4.3.2.2 Condition B and 4.3.2.3 Condition B. The values specified in 4.3.2.2 and 4.3.2.3 shall be continuously monitored during vibration as applicable and the specified parameters shall not be exceeded for more than 10 milliseconds. After vibration, the assembly shall be visually examined as specified in 4.3.1 and tested in accordance with 4.3.3 through 4.3.7.

4.3.2.1 Electro-Luminescent Lamps. With 75.0±1V rms, 400±5 cps applied to P1-68 (Hi) and P1-67 (Lo), the electro-luminescent lamps (behind all panel face nomenclature, borderlines and floodlighting of all control recess wells) shall be illuminated without flickering during vibration as determined by visual observation.

4.3.2.2 Sextant Hand and Speed Controller. With 28.00±0.28V rms, 760±40 cps applied to P1-43 (Hi) and P1-23 (Lo), the Sextant Hand Controller outputs shall be as specified in Table VIII for conditions A and B.

4.3.2.3 Continuity. With the following pins on connector P1 electrically connected together 1, 8, 10, 12, 20 33 34, 41, 48, 76, 80 and 81; continuity shall exist between pin 1 and the pins listed in Table IX for the corresponding switch positions specified in Table IX for conditions A and B.

4.3.3 Continuity and DC Resistance. The DC resistance between the pins listed in Tables III through VII shall be as specified therein, and the DC resistance between P1-1 and any unpainted, chemically filmed metallic point on the panel shall be 0.1 ohms max. With the panel mounted to two surfaces similar to spacecraft interface (i.e., two aluminum bars, chemically filmed per MIL-C-5541, Class 3, with contact areas formed by approximately 1/2 inch wide strips along each side of the rear surface of the panel and extending along the entire height of the panel,), the DC resistance measured from bar to bar shall be 0.02 ohms max. DC resistance shall be measured in accordance with method 303 of MIL-STD-202.

4.3.4 Insulation Resistance. The resistance between pin P1-1 and the remaining assembly pins shall be as specified in 3.1.4 when measured in accordance with Method 302 Condition A of Standard MIL-STD-202. The megohmmeter used shall be limited to a short circuit current of 6 μa.

4.3.5 Maximum Weight. The assembly shall be weighed to the nearest hundreth pound.

4.3.6 Sextant Hand Controller. With either a 28.00±0.28V rms, 720 cps ±1 percent or 28.00±0.28V rms, 800 cps ±1 percent applied to pins P1-43 (Hi) and P1-23 (Lo), the Sextant Hand Controller outputs shall be as specified in Table I when measured at the following pins; except the tolerance on phase shift shall be ±10° for inputs of 28.00±0.28V rms, 720 cps ±1 percent.

a. Trunnion output P1-64 (Hi) and P1-63 (Lo)
b. Shaft output P1-62 (Hi) and P1-38 (Lo)
c. Trunnion anti-creep electronics P1-65 (Hi) and P1-40 (Lo)
d. Shaft anti-creep electronics P1-21 (Hi) and P1-39 (Lo)

4.3.7 Indicators. The indications shall be illuminated in accordance with Table II.

5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND1002214.

6. NOTES. None.

ETP/dmh

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 F

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		REVISED PER TDRR NO. 23243			13 OCT 65	
D		REVISED PER TDRR NO. 23831	L.W.		11/3/65	
E		REVISED PER TDRR NO. 24977	J.D.		JAN 10 66	
F		REVISED PER TDRR NO. 25090	J.D.		JAN 12 66	

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. THE COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014578.
3. VENDOR ITEM - SEE SPECIFICATION CONTROL DWG
4. SERIALIZE PER ND1002023
5. ENCAPSULATE ALL SOLDERED ELECTRICAL COMPONENT CONNECTIONS TO A .06 MIN DEPTH USING ITEMS 26, 27, 29 AND 30 PER ND1002236
6. SOLDER PER ND1002071 USING (23) & (24).
7. BOND (63) TO (22) AND THE ELECTRICAL WIRING ENCAPSULANT OF (5) AND (6) TO (22) USING (70) AND (71) PER ND1002004.
8. LOCATE (44) APPROX AS SHOWN.
9. SELECT APPROPRIATE SIZE CLAMP AT ASSEMBLY
10. BOND (63) TO (22) USING (77) PER MIL-A-25055.

Ⓒ = REPLACES REV B WITH CHANGES

WIRING LEGEND	
FROM	TO
DS2 - WHITE	E6
DS2 - BLACK	E7
DS3 - WHITE	E4
DS3 - BLACK	E5
DS5 - WHITE	E2
DS5 - BLACK	E3
DS6 - WHITE	E14
DS6 - BLACK	E15
DS7 - WHITE	E16
DS7 - BLACK	E17
DS8 - WHITE	E18
DS8 - BLACK	E19
DS9 - WHITE	E24
DS9 - BLACK	E25
DS10 - WHITE	E30
DS10 - BLACK	E31
DS11 - WHITE	E28
DS11 - BLACK	E29
DS12 - WHITE	E20
DS12 - BLACK	E21
DS13 - WHITE	E26
DS13 - BLACK	E27
DS14 - WHITE	E22
DS14 - BLACK	E23
DS15 - WHITE	E32
DS15 - BLACK	E33
DS16 - WHITE	E8

WIRING LEGEND		USE ITEM
FROM	TO	
DS16 - BLACK	E9	
DS17 - WHITE	E10	
DS17 - BLACK	E11	
E2	E4	66
E3	E5	↕
E14	E16	↕
E15	E17	↕
E18	E20	↕
E20	E22	↕
E19	E21	↕
E21	E23	↕
E24	E26	↕
E26	E28	↕
E28	E30	↕
E25	E27	↕
E27	E29	↕
E29	E31	↕
A3-7	A3-1	↕
A3-1	A3-3	↕
A3-3	A3-5	66

	QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
	2		78	2014763		SPACER PANEL
	AR		77	MIL-A-25055		ADHESIVE
	2		76	NAS1081C04D3L		SCREW, SET, SELF LOCK
	1		75	2014655		WHEEL, CONTROL
SEE NOTE 3	2		74	1010999-6		LAMP, ELECTROLUMINESCENT
	4		73	1010630-4		SCREW, FLAT HD, HEX SOC.
	8		72	1006783-11		SCREW, BUTTON HD, HEX SOC.
	AR		71	1010657		EPOXY RESIN
SEE NOTE 3	AR		70	1010686		CATALYST
	7		69	2014706		RETAINER, LAMP
	1		68	2014718		RETAINER, LAMP
SEE NOTE 3	12		67	6014527		WASHER, SPHERICAL
	AR		66	QQ-W-343, TYPE S		WIRE, ELECT., 24AWG
SEE NOTE 3	12		65	1010617-2		NUT, HEX, SELF-LOCKING
			64			
	2		63	1010617-4		NUT, HEX, SELF-LOCKING
	4		62	MS15795-803		WASHER, FLAT
	1		61	1006783-18		SCREW, BUTTON HD, HEX SOCKET
SEE NOTE 3	4		60	1006783-21		SCREW, BUTTON HD, HEX SOCKET
	1		59	2014738		PANEL & LAMP, MATCHED ASSY OF
	1		58	2014737-011		PANEL & LAMP, MATCHED ASSY OF
	1		57	2014735		PANEL & LAMP, MATCHED ASSY OF
	8		56	2014725		SCREW, SHOULDER
	1		55	2014722		RETAINER, PANEL LEFT
	1		54	2014727		FRAME, ANNUNCIATOR
	1		53	2014721		RETAINER, PANEL
	1		52	2014723		RETAINER, PANEL CENTER
	2		51	2014705		RETAINER, PANEL
	1		50	2014703		RETAINER, PANEL
	1		49	2014702		RETAINER, PANEL
SEE NOTE 3	36		48	1006783-9		SCREW, BUTTON HD
	1		47	2014719		PANEL & LAMP, MATCHED ASSY OF
	2		46	2014683		RETAINER, LIGHT
SEE NOTE 3	8		45	1010477-12		SCREW, FLAT HD SELF LOCKING
	1		44	1004260-146		NAME PLATE
	1		43	2014736-011		PANEL & LAMP, MATCHED ASSY OF
SEE NOTE 3	4		42	1010477-13		SCREW, FLAT HD SELF LOCKING
SEE NOTE 3	4		41	1010676-1		TERMINAL
SEE NOTE 3	26		40	1010623-3		TERMINAL, TURRET
	22		39	1001489-2		SCREW, SOCKET HD CAP
SEE NOTE 3	17		38	1010630-14		SCREW, FLAT HEAD
			37			
	2		36	2014764-011		HANDLE ASSEMBLY
	1		35	2014656-011		RETICLE BRIGHTNESS CONTROL
SEE NOTE 3	15		34	1011918-1		WASHER-CABLE CLAMP
	1		33	2014622		HARNESS
SEE NOTE 3	1		32	1010625-2		LIGHT, INDICATOR
	1		31	1010475-1		CAP, PUSHBUTTON
	AR		30	1012504-2		PRIMER, METAL
	AR		29	1012504-1		PRIMER, METAL
	15		28	1000220-1 THRU-12		CLAMP, CABLE
	AR		27	1012503-1		COMPOUND, POLYURETHANE
SEE NOTE 3	AR		26	1012503-2		COMPOUND, POLYURETHANE.
	1		25	1023003		CAP, PUSHBUTTON
	AR		24	QQ-S-571 SN60 WRAP 2		SOLDER
	AR		23	MIL-F-14256		FLUX
	1		22	2014626		PANEL G & N IND CONT (INSEPARABLE)
	1		21	2014627		SUPPORT, HAND CONTROLLER
	X		20	2014507		SCHEMATIC DIAGRAM
	1		19	2014658		SUPPORT, SWITCH
SEE NOTE 3	1		18	1010268-5		LAMP, INCANDESCENT
SEE NOTE 3	1		17	1010942		TRANSFORMER
	1		16	2014700-011		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3	1		15	1010905-5		SWITCH, TOGGLE
	1		14	1010905-3		SWITCH, TOGGLE
	1		13	1010904-2		SWITCH, PUSH BUTTON
	1		12	1010904-1		SWITCH, PUSH BUTTON
	1		11	1010903-9		SWITCH, TOGGLE
	1		10	1010903-8		SWITCH, TOGGLE
	1		9	1010902-6		SWITCH, TOGGLE
	1		8	1010902-5		SWITCH, TOGGLE
	1		7	1010902-4		SWITCH, TOGGLE
	7		6	1010999-4		LAMP, ELECTROLUMINESCENT
	1		5	1010999-8		LAMP, ELECTROLUMINESCENT
			4			
	1		3	1008824-1		MASTER ALARM ANNUNCIATOR
SEE NOTE 3	1		2	1010949-1		CONDITION ANNUNCIATOR
	1		1	2014550-011		SEXTANT HAND CONTROLLER

LIST OF MATERIALS

MASTER

2014623		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSY PART NO. IS THE DRAWING NO. AND THE DASH NO. THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Dietrich 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson
APPROVED
APPROVED MIT W Kupfer
NOT REQUIRED PER LETTER 7-65-612
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY.

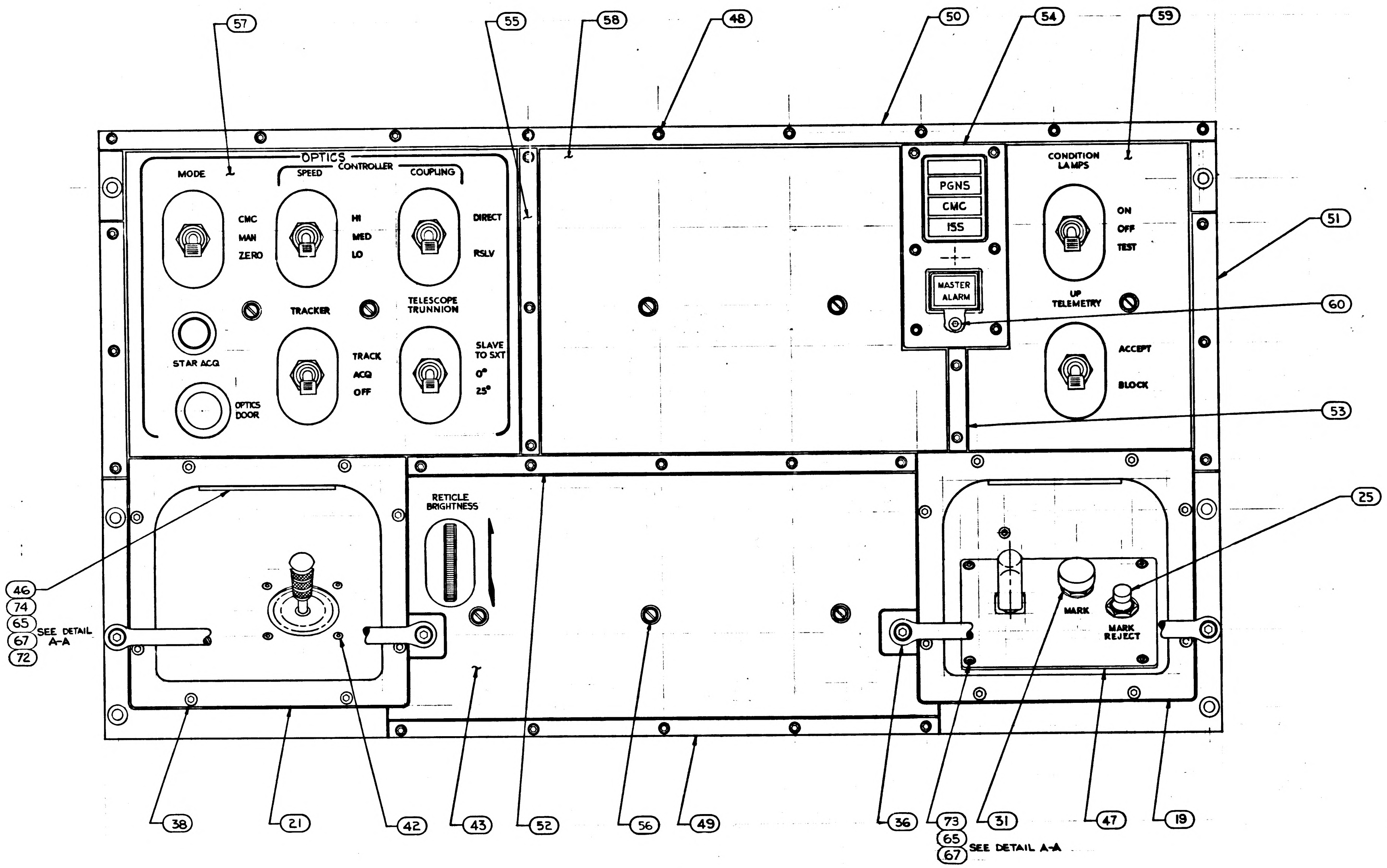
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE NONE
SHEET 1 OF 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 F

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		SEE SHEET 1 FOR REVISION STATUS TDRR 23213				
D		TDRR 23831				
E		REVISED PER TDRR NO. 24977	JD.		1/11/66	
F		REVISED PER TDRR NO.25090	JD.		1/12/66	


57
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OPTICS
CONTROLLER
MODE
SPEED
COUPLING
CMC
MAN
ZERO
HI
MED
LO
DIRECT
RSLV
TRACKER
TELESCOPE TRUNNION
STAR ACQ
OPTICS DOOR
TRACK
ACQ
OFF
SLAVE TO SXT
0°
25°
PGNS
CMC
ISS
MASTER ALARM
CONDITION LAMPS
ON
OFF
TEST
UP TELEMETRY
ACCEPT
BLOCK
51
60
53
25
RETICLE BRIGHTNESS
MARK
MARK REJECT
46
74
65
67
72
SEE DETAIL A-A
38
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42
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SEE DETAIL A-A
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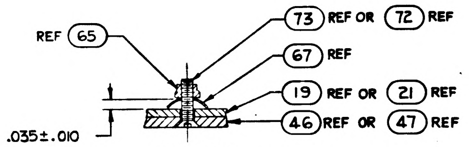
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73 REF OR 72 REF
67 REF
19 REF OR 21 REF
46 REF OR 47 REF
.035±.010

DETAIL A-A
SCALE: NONE

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ——— ± ——— ± ———
DO NOT SCALE THIS DRAWING

MATERIAL
———

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Bietsch 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson OCT.5-65
APPROVED
APPROVED MIT
NOT REQUIRED PER LETTER
NASA 27-65-612
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INDICATOR CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 2 OF 3

NOTICE WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 F

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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M D		TDRR 23831			[illegible]	WK
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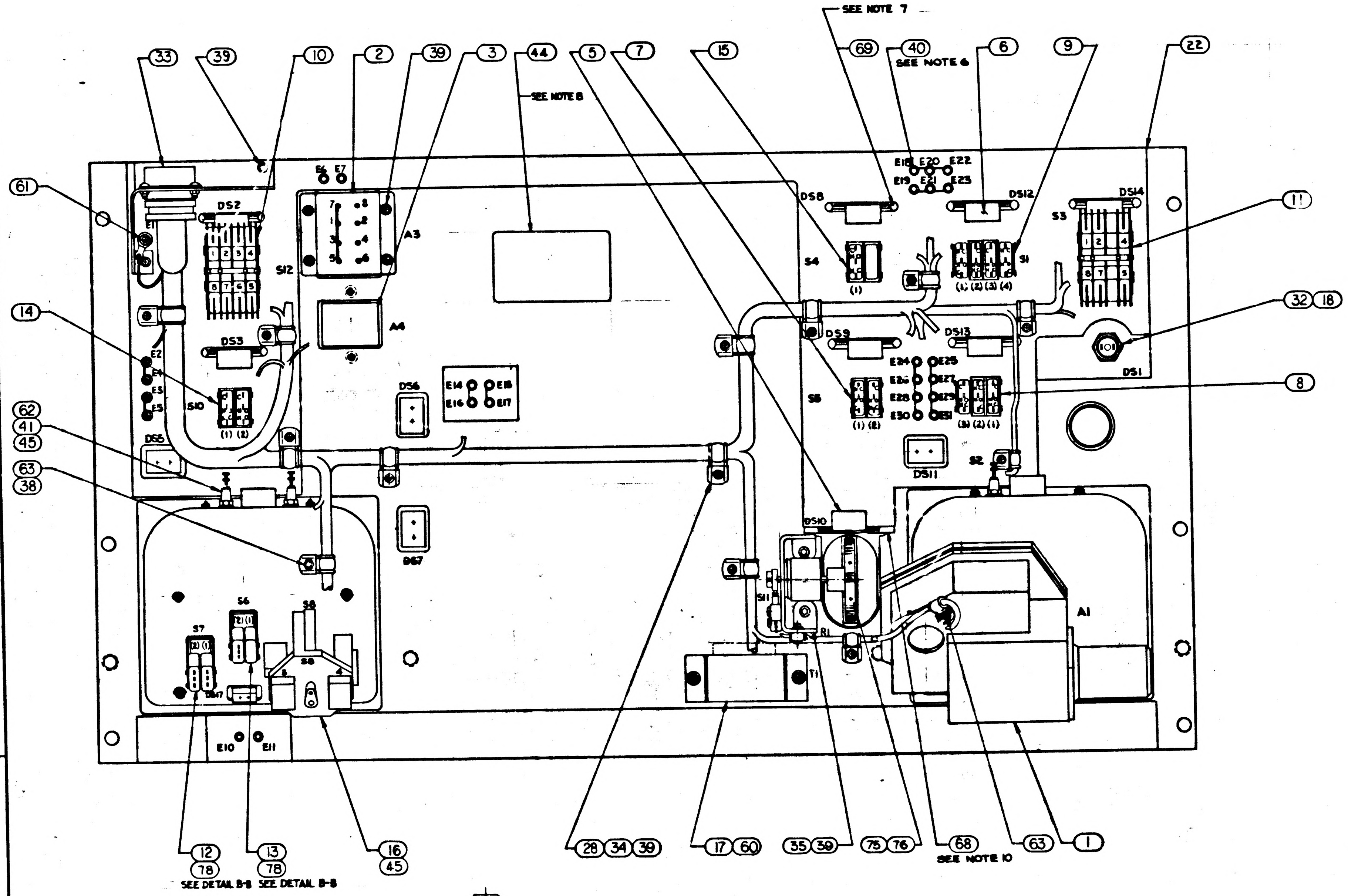
F		REVISED PER TDRR NO. 25090	JD.		1/12/66	WK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SEE NOTE 8
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SEE NOTE 7
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SEE NOTE 6
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22
61
E1
DS2
1 2 3 4
8 7 6 5
S12
E6 E7
7 8
1 2
3 4
5 6
A3
A4
14
E2
E4
E3
E5
S10
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DS5
DS6
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E16 E17
DS7
E18 E20 E22
E19 E21 E23
DS8
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DS14
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(1) (2) (3) (4)
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32 18
DS9
DS13
DS1
E24 E25
E26 E27
E28 E29
E30 E31
S5
(1) (2)
(3) (2) (1)
8
DS11
S2
DS10
S11
R1
A1
T1
S6
S7
S8
DS17
E10 E11
12
78
SEE DETAIL B-B
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SEE DETAIL B-B
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28 34 39
17 60
35 39
75 76
68
SEE NOTE 10
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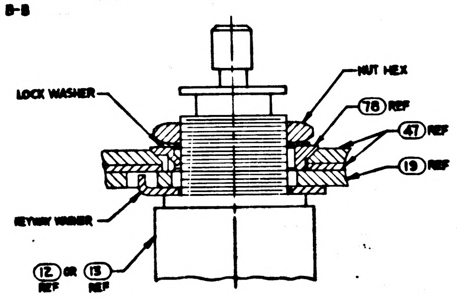
1


LOCK WASHER
NUT HEX
78 REF
47 REF
19 REF
KEYWAY WASHER
12 OR 13
REF REF

DETAIL B-B
SCALE 4/1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
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TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS.

DRAWN L. Wood 10/1/65
CHECKED [illegible] 10-5-65
APPROVED Rod Watson OCT 5-65
APPROVED [illegible] [illegible]
APPROVED MIT [illegible] 13 Oct 65
NOT REQUIRED PER [illegible]
APPROVED MSC NASA [illegible] 65-612
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INDICATOR CONTROL
PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 3 OF 3

APOLLO G&N Specification
PS2014578 REV F
Original Issue Date: 23 Feb 66
Release Authority: TDRR 26572
Class A Release
CODE IDENT NO. 80230

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

G&N INDICATOR CONTROL PANEL ASSEMBLY

DRAWING NO. 2014578

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				AC	NASA
3/10/66	A	27042	3, 13 RDG/AC	WK	TM
5/3/66	B	28499	3, 11 RDG/AC	WK	--
5/17/66	C	28915	13, 15 JH/AC	MGM	–
7/6/66	D	30127	3, 9, 11, 12 RDG/AC	MGM	–
1/5/67	E	32486	3, 11, 15 RDG/AC	EA MGM	---
1/12/67	F	32617	2 RDG/AC	MGM EA	---

This specification consists of page 1 to 15 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	2/23/6 MIT/IL		AC

E.T.P.
D.W.M.
12-28-65

1. SCOPE

1.1 PURPOSE. This specification establishes the detail requirements for complete identification and acceptance of the G&N Indicator Control Panel Assembly Part Number 2014578-011. and 2014578-021.

2. APPLICABLE DOCUMENT

2.1 EFFECTIVE ISSUES. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, Military Standards and Specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment

STANDARDS

Military

MIL-STD-202C	Test Methods for Electronic and Electrical Component Parts

DRAWINGS

APOLLO G&N

2014578	G&N Indicator Control Panel Assembly

(Copies of specifications, standards, drawings, bulletins, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 CONFLICTING REQUIREMENTS. In the event of a conflict between requirements, the following order of precedence shall apply. The contractor shall also notify MIT/IL APOLLO Management of the conflict.

a. The contract
b. This specification
c. Documents listed in this section.

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2014578 G

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
REVISIONS						
C		REVISED PER TDRR NO. 23243			13 Aug 65	WK
D		REVISED PER TDRR NO. 23831	L.J		11/3/65	WK
E		REVISED PER TDRR NO. 24977	J.D.		JAN 10 66	WK
F		REVISED PER TDRR NO. 25090	J.D.		JAN 12 66	WK
G		REVISED PER TDRR 26259	JJMP	RWH	FEB 22 66	

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. THE COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014578.
3. VENDOR ITEM - SEE SPECIFICATION CONTROL DWG
4. SERIALIZE PER ND1002023
5. ENCAPSULATE ALL SOLDERED ELECTRICAL COMPONENT CONNECTIONS TO A .06 MIN DEPTH USING ITEMS 26, 27, 29 AND 30 PER ND1002236
6. SOLDER PER ND1002071 USING ㉓ & ㉔.
7. BOND (63) TO ㉒ AND THE ELECTRICAL WIRING ENCAPSULANT OF ⑤ AND ⑥ TO ㉒ USING (70) AND (71) PER ND1002034.
8. LOCATE ㊹ APPROX AS SHOWN.
9. SELECT APPROPRIATE SIZE CLAMP AT ASSEMBLY
10. BOND (63) TO ㉒ USING (77) PER MIL-A-25055.

Ⓒ REPLACES REV B WITH CHANGES

WIRING LEGEND	
FROM	TO
DS 2 - WHITE	E 6
DS2 - BLACK	E 7
DS3 - WHITE	E 4
DS3 - BLACK	E 5
DS5 - WHITE	E 2
DS5 - BLACK	E 3
DS6 - WHITE	E 14
DS6 - BLACK	E 15
DS7 - WHITE	E 16
DS7 - BLACK	E 17
DS8 - WHITE	E 18
DS8 - BLACK	E 19
DS9 - WHITE	E 24
DS9 - BLACK	E 25
DS10 - WHITE	E 30
DS10 - BLACK	E 31
DS11 - WHITE	E 28
DS11 - BLACK	E 29
DS12 - WHITE	E 20
DS12 - BLACK	E 21
DS13 - WHITE	E 26
DS13 - BLACK	E 27
DS14 - WHITE	E 22
DS14 - BLACK	E 23
DS15 - WHITE	E 32
DS15 - BLACK	E 33
DS16 - WHITE	E 8

WIRING LEGEND		USE ITEM
FROM	TO	
DS16 - BLACK	E9	
DS17 - WHITE	E10	
DS17 - BLACK	E11	
E2	E4	66
E3	E5	↕
E14	E16	
E15	E17	
E18	E20	
E20	E22	
E19	E21	
E21	E23	
E24	E26	
E26	E28	
E28	E30	
E25	E27	
E27	E29	
E29	E31	
A3-7	A3-1	
A3-1	A3-3	
A3-3	A3-5	66

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				011					LIST OF MATERIAL
				2		78	2014763		SPACER PANEL
				AR		77	MIL-A-25055		ADHESIVE
				2		76	NAS1081C04D3L		SCREW, SET, SELF LOCK
				1		75	2014655		WHEEL, CONTROL
SEE NOTE 3				2		74	1010999-6		LAMP, ELECTROLUMINESCENT
				4		73	1010630-4		SCREW, FLAT HD, HEX SOC.
				8		72	1006783-11		SCREW, BUTTON HD, HEX SOC.
				AR		71	1010657		EPOXY RESIN
SEE NOTE 3				AR		70	1010686		CATALYST
				7		69	2014706		RETAINER, LAMP
				1		68	2014718		RETAINER, LAMP
SEE NOTE 3				12		67	6014527		WASHER, SPHERICAL
				AR		66	QQ-W-343, TYPE S		WIRE, ELECT., 24AWG
SEE NOTE 3				12		65	1010617-2		NUT, HEX, SELF-LOCKING
						64			
				2		63	1010617-4		NUT, HEX, SELF-LOCKING
				4		62	MS15795-803		WASHER, FLAT
				1		61	1006783-18		SCREW, BUTTON HD, HEX SOCKET
SEE NOTE 3				4		60	1006783-21		SCREW, BUTTON HD, HEX SOCKET
				1		59	2014738		PANEL & LAMP, MATCHED ASSY OF
				1		58	2014737-011		PANEL & LAMP, MATCHED ASSY OF
				1		57	2014735		PANEL & LAMP, MATCHED ASSY OF
				8		56	2014725		SCREW, SHOULDER
				1		55	2014722		RETAINER, PANEL LEFT
				1		54	2014727		FRAME, ANNUNCIATOR
				1		53	2014721		RETAINER, PANEL
				1		52	2014723		RETAINER, PANEL CENTER
				2		51	2014705		RETAINER, PANEL
				1		50	2014703		RETAINER, PANEL
				1		49	2014702		RETAINER, PANEL
SEE NOTE 3				36		48	1006783-9		SCREW, BUTTON HD
				1		47	2014719		PANEL & LAMP, MATCHED ASSY OF
				2		46	2014683		RETAINER, LIGHT
SEE NOTE 3				8		45	1010477-12		SCREW, FLAT HD SELF LOCKING
				1		44	1004260-181		NAME PLATE
				1		43	2014736-011		PANEL & LAMP, MATCHED ASSY OF
SEE NOTE 3				4		42	1010477-13		SCREW, FLAT HD SELF LOCKING
SEE NOTE 3				4		41	1010676-1		TERMINAL
SEE NOTE 3				26		40	1010623-3		TERMINAL, TURRET
				22		39	1001489-2		SCREW, SOCKET HD CAP
SEE NOTE 3				17		38	1010630-14		SCREW, FLAT HEAD
						37			
				2		36	2014764-011.		HANDLE ASSEMBLY
				1		35	2014656-011		RETICLE BRIGHTNESS CONTROL
SEE NOTE 3				15		34	1011918-1		WASHER-CABLE CLAMP
				1		33	2014622		HARNESS
SEE NOTE 3				1		32	1010625-2		LIGHT, INDICATOR
				1		31	1010475-1		CAP, PUSHBUTTON
				AR		30	1012504-2		PRIMER, METAL
				AR		29	1012504-1		PRIMER, METAL
				15		28	1000220-1 THRU-12		CLAMP, CABLE
				AR		27	1012503-1		COMPOUND, POLYURETHANE
SEE NOTE 3				AR		26	1012503-2		COMPOUND, POLYURETHANE
				1		25	1023003		CAP, PUSHBUTTON
				AR		24	QQ-S-571 SN60WRAP2		SOLDER
				AR		23	MIL-F-14256		FLUX
				1		22	2014626		PANEL G & N IND CONT (INSEPARABLE)
				1		21	2014627		SUPPORT, HAND CONTROLLER
				X		20	2014507		SCHEMATIC DIAGRAM
				1		19	2014658		SUPPORT, SWITCH
SEE NOTE 3				1		18	1010268-5		LAMP, INCANDESCENT
SEE NOTE 3				1		17	1010942		TRANSFORMER
				1		16	2014700-011		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3				1		15	1010905-5		SWITCH, TOGGLE
				1		14	1010905-3		SWITCH, TOGGLE
				1		13	1010904-2		SWITCH, PUSH BUTTON
				1		12	1010904-1		SWITCH, PUSH BUTTON
				1		11	1010903-9		SWITCH, TOGGLE
				1		10	1010903-8		SWITCH, TOGGLE
				1		9	1010902-6		SWITCH, TOGGLE
				1		8	1010902-5		SWITCH, TOGGLE
				1		7	1010902-4		SWITCH, TOGGLE
				7		6	1010999-4		LAMP, ELECTROLUMINESCENT
				1		5	1010999-8		LAMP, ELECTROLUMINESCENT
						4			
				1		3	1008824-1		MASTER ALARM ANNUNCIATOR
SEE NOTE 3				1		2	1010949-1		CONDITION ANNUNCIATOR
				1		1	2014550-011		SEXTANT HAND CONTROLLER

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
2014623		
APPLICATION		

THE ASSY PART NO. IS THE DRAWING NO. AND THE DASH NO. THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Dietrich	10-4-65
CHECKED	[illegible]	10-5-65
APPROVED	Paul Watson	
APPROVED	[illegible]	10/1/65
APPROVED MIT	W Kupfer	13 Oct 65
APPROVED MSC	7-65-612	DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2014578
SCALE NONE		SHEET 1 OF 3

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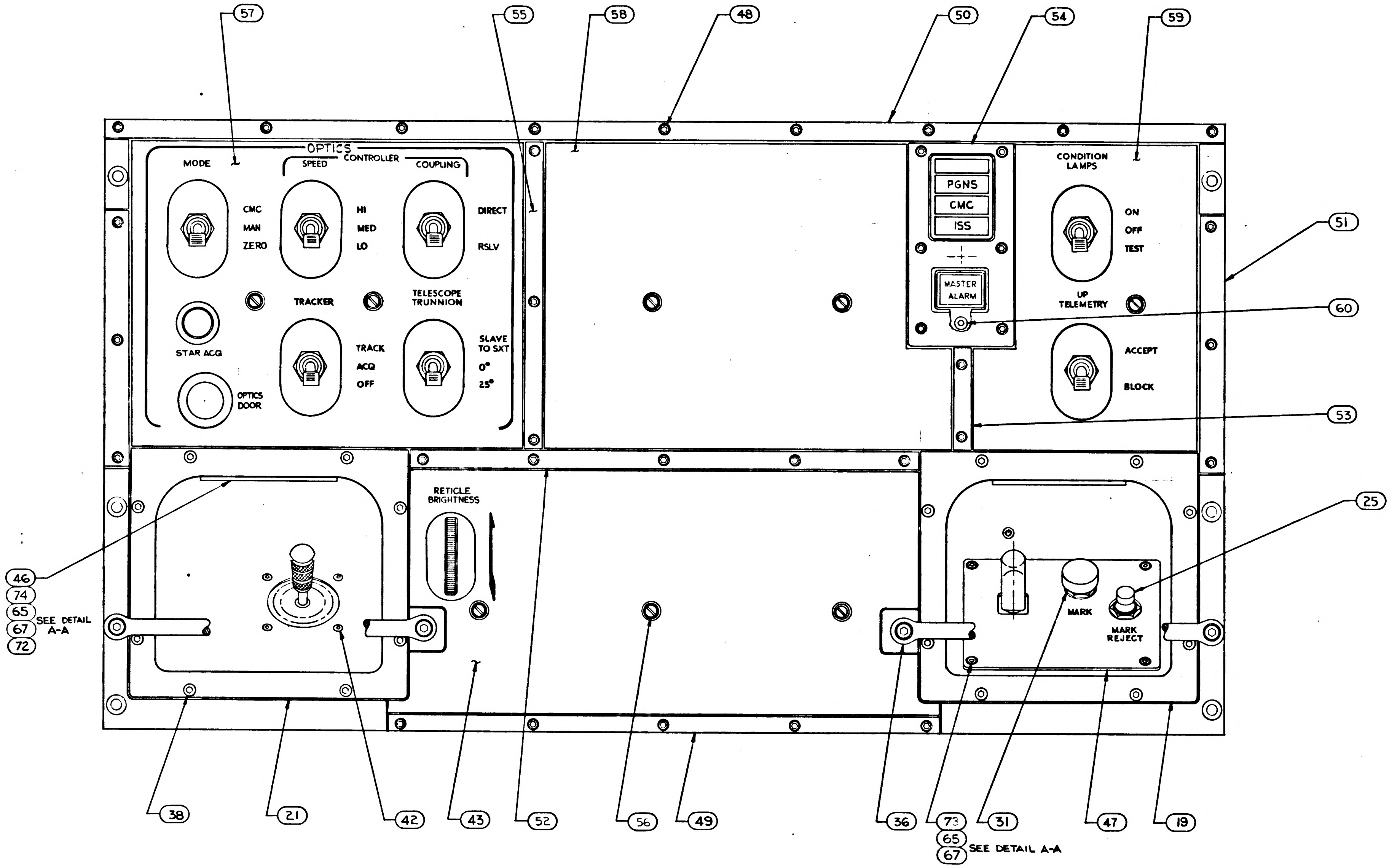
2014578 G

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		SEE SHEET 1 FOR REVISION STATUS TDRR 23263			11-8-65	WK
D		TDRR 23831			1-1-66	WK
E		REVISED PER TDRR NO. 24977	JD.		1-1-66	WK
F		REVISED PER TDRR NO. 25090	JD.		1-2-66	WK
G		REVISION STATUS CHANGED	JMP	RWH	FEB 22 66	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TELESCOPE TRUNNION
STAR ACQ
TRACK
ACQ
OFF
SLAVE TO SXT
0°
25°
OPTICS DOOR
PGNS
CMC
ISS
MASTER ALARM
CONDITION LAMPS
ON
OFF
TEST
UP TELEMETRY
ACCEPT
BLOCK
51
60
53
25
RETICLE BRIGHTNESS
MARK
MARK REJECT
46
74
65
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SEE DETAIL A-A
38
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SEE DETAIL A-A
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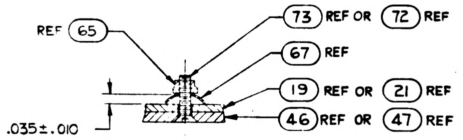
REF 65
73 REF OR 72 REF
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.035±.010

DETAIL A-A
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CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J. Dietrich 10-4-65
CHECKED J. Swain 10-5-65
APPROVED Paul Nelson 10-5-65
APPROVED
APPROVED MIT 12-6-65
APPROVED MSC
DATE

G & N INDICATOR
CONTROL PANEL ASSEMBLY

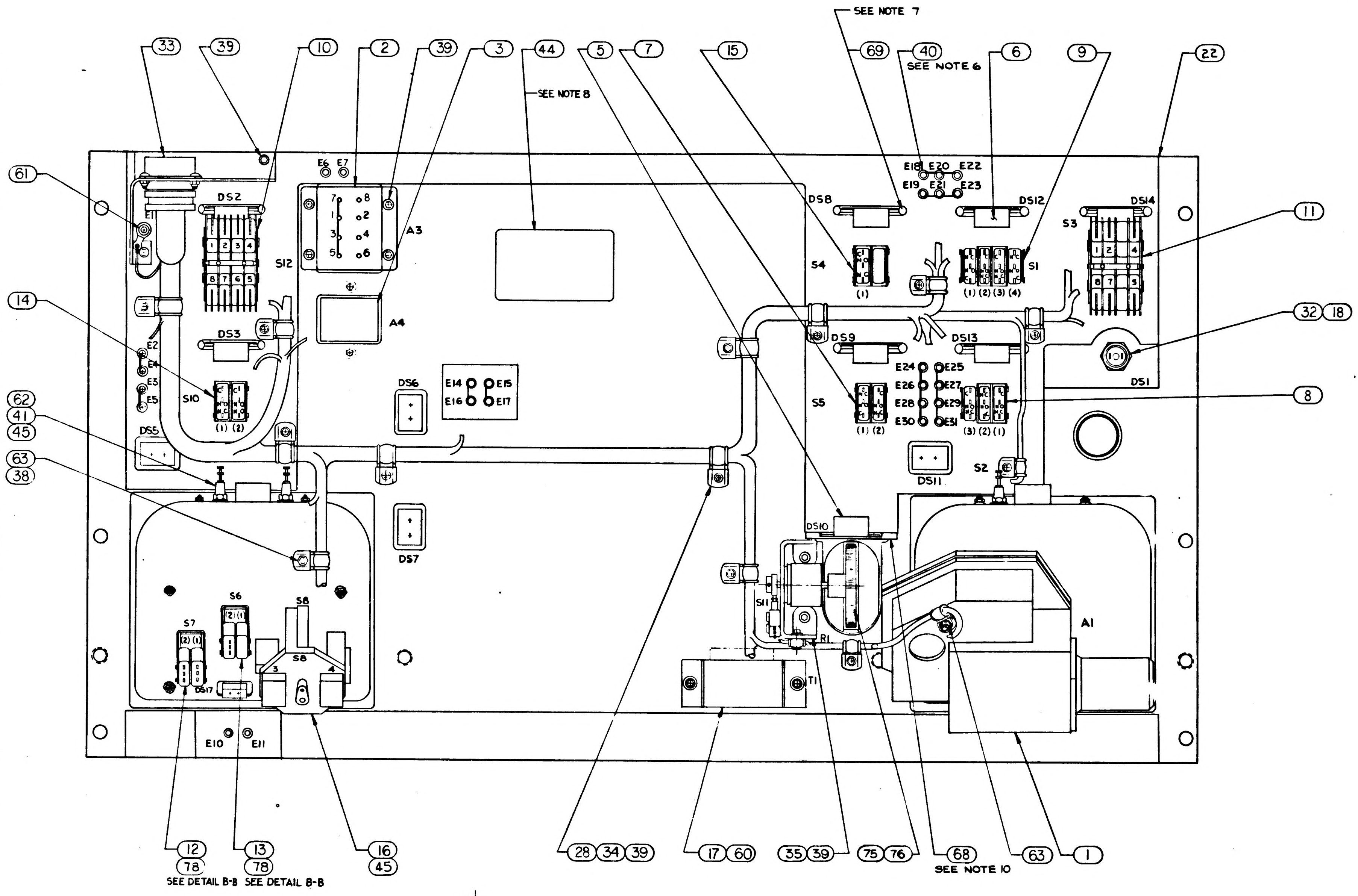
CODE IDENT NO 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 2 OF 3

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 G

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
Ⓜ C		TDRR 23213			13 OCT	Wk
Ⓜ D		TDRR 23831			11/10/65	Wk
E		REVISED PER TDRR NO. 24977	JD.		1/11/66	wk
F		REVISED PER TDRR NO. 25090	JD.		1/12/66	wk
G		REVISION STATUS CHANGED		RWH	FEB 24 66	



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8 7 6 5
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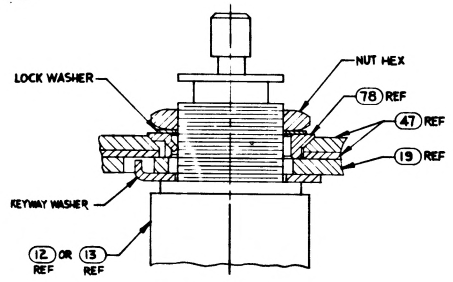

LOCK WASHER
NUT HEX
78 REF
47 REF
19 REF
KEYWAY WASHER
12 OR 13
REF
REF

DETAIL B-B
SCALE 4/1

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN L. Hood 10/1/65
CHECKED [illegible] 10-5-65
APPROVED Paul Watson 10-5-65
APPROVED J.J. [illegible] 10/5/65
APPROVED MIT W. [illegible] 13 Oct 65
APPROVED MSC [illegible]
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INDICATOR CONTROL
PANEL ASSEMBLY

CODE IDENT NO 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 3 OF 3

APOLLO G&N Specification
PS2014578 REV G
Original Issue Date: 23 Feb 66
Release Authority: TDRR 26572
Class A Release
CODE IDENT NO. 80230

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

G&N INDICATOR CONTROL PANEL ASSEMBLY

DRAWING NO. 2014578

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised		Approvals AC	Approvals NASA
3/10/66	A	27042	3, 13	RDG/AC	WK	TM
5/3/66	B	28499	3, 11	RDG/AC	WK	--
5/17/66	C	28915	13, 15	JH/AC	MGM	—
7/6/66	D	30127	3, 9, 11, 12	RDG/AC	MGM	—
1/5/67	E	32486	3, 11, 15	RDG/AC	EA MGM	---
1/12/67	F	32617	2	RDG/AC	MGM EA	——
4/5/67	G	33489	13	RDG/AC	MGM EA	-

This specification consists of page 1 to 15 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	2/23/66 MIT/IL	AC	E.T.P. Drwm. 12-28-65

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H 2014578

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		REVISED PER TDRR NO. 23243			13[illegible]	
D		REVISED PER TDRR NO. 23831	L.J		11/3/65	
E		REVISED PER TDRR NO. 24977	JD.		JAN 10 66	
F		REVISED PER TDRR NO. 25090	JD		JAN 12 66	
G		REVISED PER TDRR 26259	JMF	RWH	FEB 22 66	
H		REVISED PER TDRR 27053			21 MAR 66	

NOTES:

1. INTEPPRET DWG PER MIL-D-70327.
2. THE COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014578.
3. VENDOR ITEM-SEE SPECIFICATION CONTROL DWG
4. SERIALIZE PER ND1002023
5. ENCAPSULATE ALL SOLDERED ELECTRICAL COMPONENT CONNECTIONS TO A .06 MIN DEPTH USING ITEMS 26,27,29 AND 30 PER ND1002236
6. SOLDER PER ND1002071 USING (23) & (24).
7. BOND (63) TO (22) AND THE ELECTRICAL WIRING ENCAPSULANT OF (5) AND (6) TO (22) USING (70) AND (71) PER ND1002024.
8. LOCATE (44) APPROX AS SHOWN.
9. SELECT APPROPRIATE SIZE CLAMP AT ASSEMBLY
10. BOND (63) TO (22) USING (77) PER MIL-A-25055.

Ⓒ REPLACES REV B WITH CHANGES

WIRING LEGEND	
FROM	TO
DS 2 - BLACK	E 6
DS2 - BROWN	E 7
DS3 - BLACK	E 4
DS3 - BROWN	E 5
DS5 - BLACK	E 2
DS5 - BROWN	E 3
DS6 - BLACK	E 14
DS6 - BROWN	E 15
DS7 - BLACK	E 16
DS7 - BROWN	E 17
DS8 - BLACK	E 18
DS8 - BROWN	E 19
DS9 - BLACK	E 24
DS9 - BROWN	E 25
DS10 - BLACK	E 30
DS10 - BROWN	E 31
DS11 - BLACK	E 28
DS11 - BROWN	E 29
DS12 - BLACK	E 20
DS12 - BROWN	E 21
DS13 - BLACK	E 26
DS13 - BROWN	E 27
DS14 - BLACK	E 22
DS14 - BROWN	E 23
DS15 - BLACK	E 32
DS15 - BROWN	E 33
DS16 - BLACK	E 8

WIRING LEGEND		USE ITEM
FROM	TO	
DS16 - BROWN	E9	
DS17 - BLACK	E10	
DS17 - BROWN	E11	
E2	E4	66
E3	E5	↑
E14	E16	│
E15	E17	│
E18	E20	│
E20	E22	│
E19	E21	│
E21	E23	│
E24	E26	│
E26	E28	│
E28	E30	│
E25	E27	│
E27	E29	│
E29	E31	│
A3-7	A3-1	│
A3-1	A3-3	↓
A3-3	A3-5	66

	QUANTITY REQUIRED				EFFECTIVITY	LIST OF MATERIAL			
				011		ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
				2		78	2014763		SPACER PANEL
				AR		77	MIL-A-25055		ADHESIVE
				2		76	NAS1081C04D3L		SCREW, SET, SELF LOCK
				1		75	2014655		WHEEL, CONTROL
SEE NOTE 3				2		74	1010999-6		LAMP, ELECTROLUMINESCENT
				4		73	1010630-4		SCREW, FLAT HD, HEX SOC.
				8		72	1006783-11		SCREW, BUTTON HD, HEX SOC.
				AR		71	1010657		EPOXY RESIN
SEE NOTE 3				AR		70	1010686		CATALYST
				7		69	2014706		RETAINER, LAMP
				1		68	2014718		RETAINER, LAMP
SEE NOTE 3				12		67	6014527		WASHER, SPHERICAL
				AR		66	QQ-W-343, TYPE S		WIRE, ELECT., 24AWG
SEE NOTE 3				12		65	1010617-2		NUT, HEX, SELF-LOCKING
						64			
				2		63	1010617-4		NUT, HEX, SELF-LOCKING
				4		62	MS15795-803		WASHER, FLAT
				1		61	1006783-18		SCREW, BUTTON HD, HEX SOCKET
SEE NOTE 3				4		60	1006783-21		SCREW, BUTTON HD, HEX SOCKET
				1		59	2014738		PANEL & LAMP, MATCHED ASSY OF
				1		58	2014737-011		PANEL & LAMP, MATCHED ASSY OF
				1		57	2014735		PANEL & LAMP, MATCHED ASSY OF
				8		56	2014725		SCREW, SHOULDER
				1		55	2014722		RETAINER, PANEL LEFT
				1		54	2014727		FRAME, ANNUNCIATOR
				1		53	2014721		RETAINER, PANEL
				1		52	2014723		RETAINER, PANEL CENTER
				2		51	2014705		RETAINER, PANEL
				1		50	2014703		RETAINER, PANEL
				1		49	2014702		RETAINER, PANEL
SEE NOTE 3				36		48	1006783-9		SCREW, BUTTON HD
				1		47	2014719		PANEL & LAMP, MATCHED ASSY OF
				2		46	2014683		RETAINER, LIGHT
SEE NOTE 3				8		45	1010477-12		SCREW, FLAT HD SELF LOCKING
				1		44	1004260-181		NAME PLATE
				1		43	2014736-011		PANEL & LAMP, MATCHED ASSY OF
SEE NOTE 3				4		42	1010477-13		SCREW, FLAT HD SELF LOCKING
SEE NOTE 3				4		41	1010676-1		TERMINAL

	QUANTITY REQUIRED				EFFECTIVITY	LIST OF MATERIALS			
				011		ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
SEE NOTE 3				26		40	1010623-3		TERMINAL, TURRET
				22		39	1001489-2		SCREW, SOCKET HD CAP
SEE NOTE 3				17		38	1010630-14		SCREW, FLAT HEAD
						37			
				2		36	2014764-011		HANDLE ASSEMBLY
				1		35	2014656-011		RETICLE BRIGHTNESS CONTROL
SEE NOTE 3				15		34	1011918-1		WASHER-CABLE CLAMP
				1		33	2014622		HARNESS
SEE NOTE 3				1		32	1010625-2		LIGHT, INDICATOR
				1		31	1010475-1		CAP, PUSHBUTTON
				AR		30	1012504-2		PRIMER, METAL
				AR		29	1012504-1		PRIMER, METAL
&9				15		28	1000220-1 THRU-12		CLAMP, CABLE
				AR		27	1012503-1		COMPOUND, POLYURETHANE
SEE NOTE 3				AR		26	1012503-2		COMPOUND, POLYURETHANE
				1		25	1023003		CAP, PUSHBUTTON
				AR		24	QQ-S-571 SN60 WRAP 2		SOLDER
				AR		23	MIL-F-14256		FLUX
				1		22	2014626		PANEL G & N IND CONT (INSEPARABLE)
				1		21	2014627		SUPPORT, HAND CONTROLLER
				X		20	2014507		SCHEMATIC DIAGRAM
				1		19	2014658		SUPPORT, SWITCH
SEE NOTE 3				1		18	1010268-5		LAMP, INCANDESCENT
SEE NOTE 3				1		17	1010942		TRANSFORMER
				1		16	2014700-011		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3				1		15	1010905-5		SWITCH, TOGGLE
				1		14	1010905-3		SWITCH, TOGGLE
				1		13	1010904-2		SWITCH, PUSH BUTTON
				1		12	1010904-1		SWITCH, PUSH BUTTON
				1		11	1010903-9		SWITCH, TOGGLE
				1		10	1010903-8		SWITCH, TOGGLE
				1.		9	1010902-6		SWITCH, TOGGLE
				1		8	1010902-5		SWITCH, TOGGLE
				1		7	1010902-4		SWITCH, TOGGLE
				7		6	1010399-4		LAMP, ELECTROLUMINESCENT
				1		5	1010999-8		LAMP, ELECTROLUMINESCENT
						4			
				1		3	1008824-1		MASTER ALARM ANNUNCIATOR
SEE NOTE 3				1		2	1010949-1		CONDITION ANNUNCIATOR
				1		1	2014550-011		SEXTANT HAND CONTROLLER

NEXT ASSY	USED ON	APPLICABLE DASH NO.
2014623		
APPLICATION		

THE ASSY PART NO. IS THE DRAWING NO. AND THE DASH NO. THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Dietrich 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson
APPROVED
APPROVED MIT W Kupfer
APPROVED MSC 7-65-612 DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO 80230
SIZE E
DRAWING NO. 2014578
SCALE NONE
SHEET 1 OF

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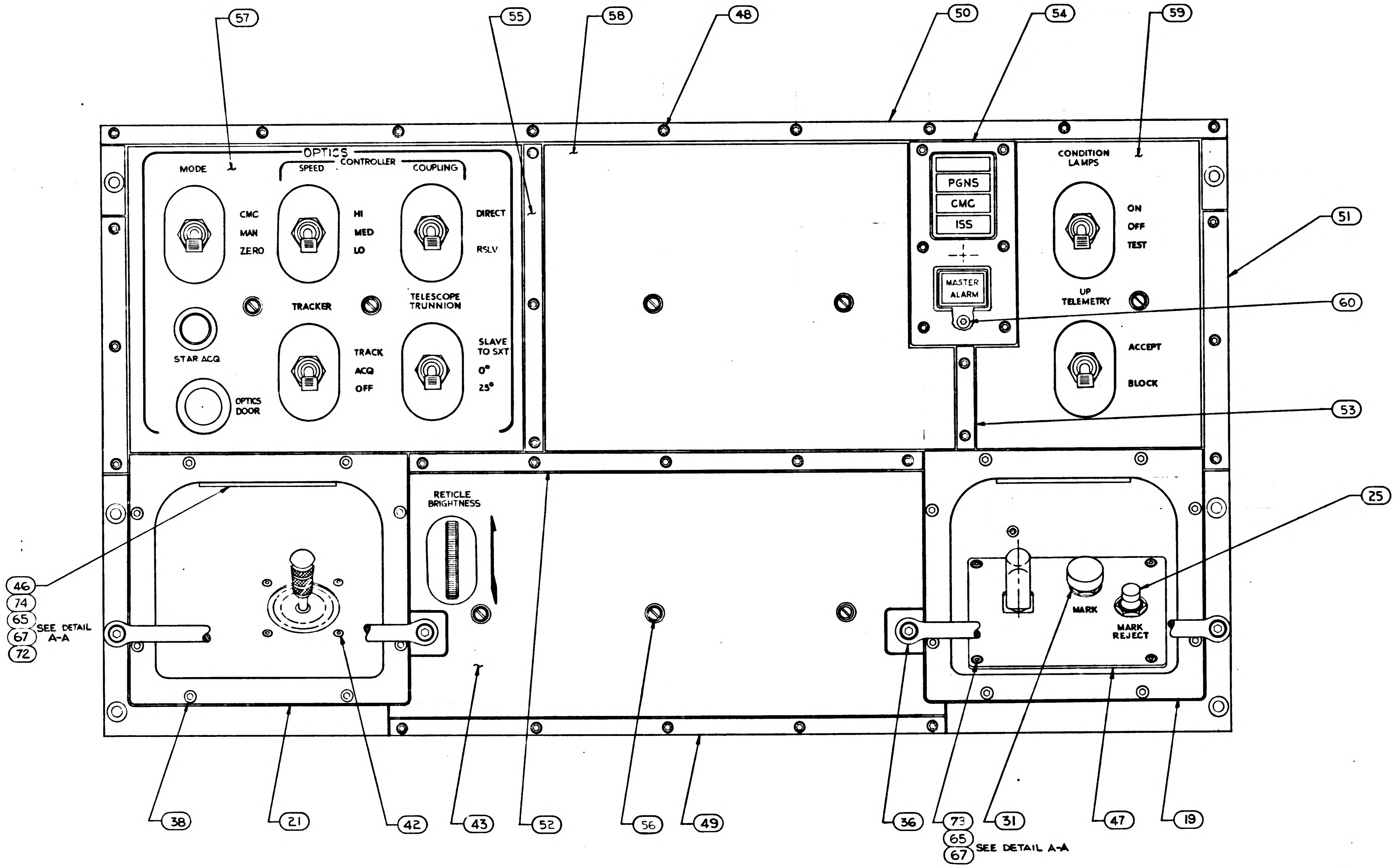
H 2014578

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		SEE SHEET I FOR REVISION STATUS TDRR 2323			65	
D		TDRR 23831			1/66	
E		REVISED PER TDRR NO. 24977	JD.		1/11/66	
F		REVISED PER TDRR NO. 25090	JD.		1/12/66	
G		REVISION STATUS CHANGED	JMP	RWH	FEB 22 66	
H		REVISION STATUS CHANGED			21 MAR 66	



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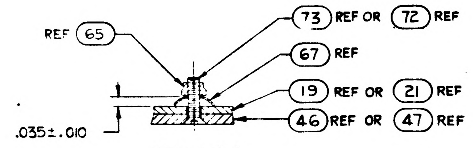

REF 65
73 REF OR 72 REF
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19 REF OR 21 REF
46 REF OR 47 REF
.035±.010

DETAIL A-A
SCALE: NONE

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson OCT. 5-65
APPROVED
APPROVED MIT
APPROVED MSC 65 612
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 2 OF 3

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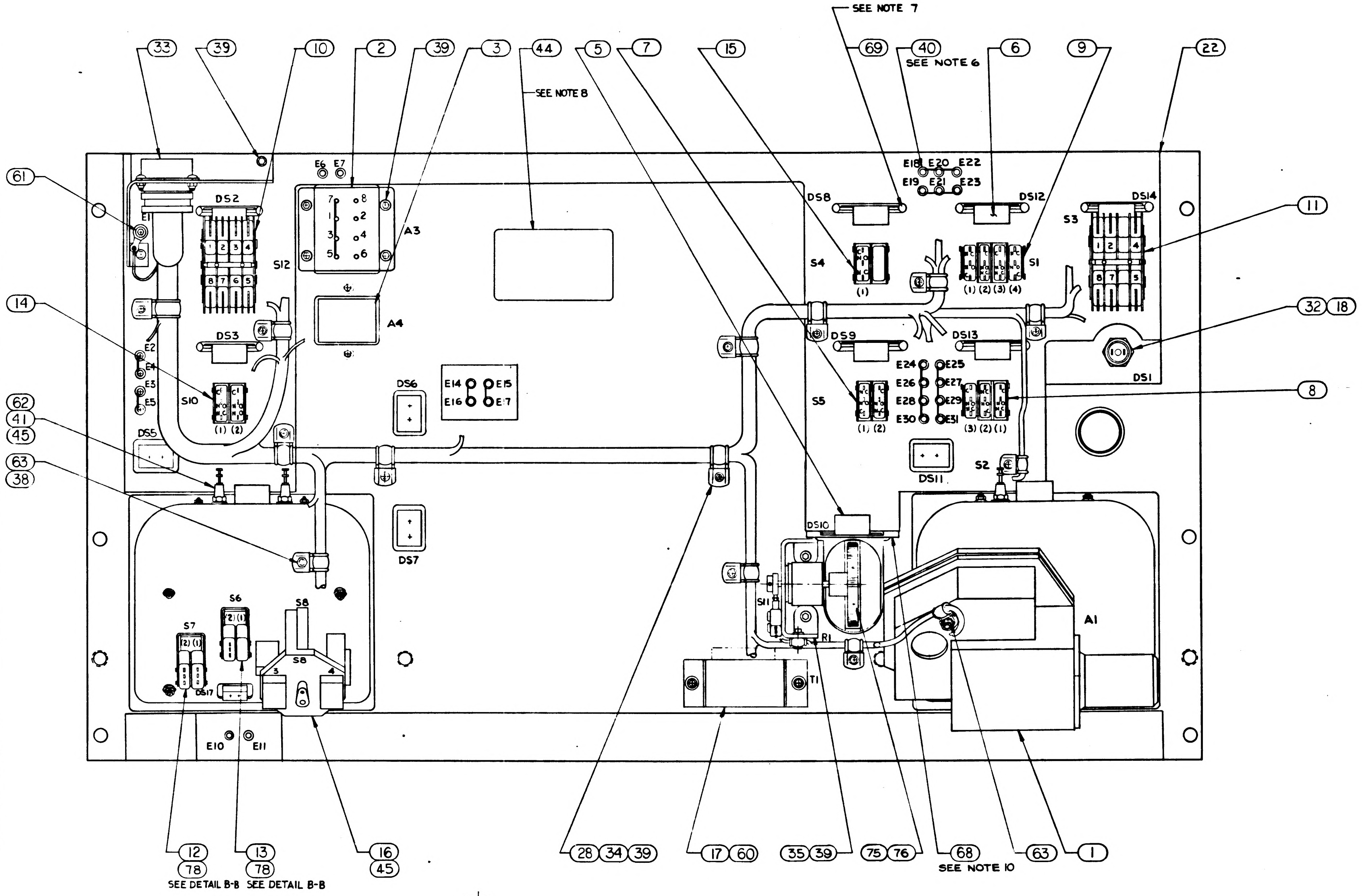
2014578 H

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		TDRR 23213			13 [illegible]	
D		TDRR 23831			[illegible]	
E		REVISED PER TDRR NO. 24977			1/ /66	
F		REVISED PER TDRR NO. 25090			1/12/66	
G		REVISION STATUS CHANGED		RWH	FEB 22 66	
H		REVISION STATUS CHANGED	RLP		21 MAR 66	



SEE NOTE 7
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SEE NOTE 8
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A1
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DS17
E10 E11
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SEE NOTE 10
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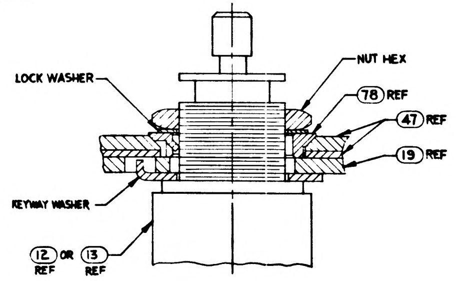

LOCK WASHER
NUT HEX
78 REF
47 REF
19 REF
KEYWAY WASHER
12 OR 13
REF REF

DETAIL B-B
SCALE 4/1

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

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APPLICATION	

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CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN L. [illegible] 10/1/65
CHECKED [illegible] 10-5-65
APPROVED [illegible] 10-5-65
APPROVED [illegible] 10/5/65
APPROVED MIT [illegible] 13 Oct 65
APPROVED MSC 7-65 [illegible]
DATE

G&N INDICATOR CONTROL
PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 3 OF 3

APOLLO G&N Specification
PS2014578 REV F G
Original Issue Date: 23 Feb 66
Release Authority: TDRR 26572
Class I Release
CODE IDENT NO. 80230

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

G&N INDICATOR CONTROL PANEL ASSEMBLY

DRAWING NO. 2014578

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				AC	NASA
3/10/66	A	27042	3, 13 RDG/AC	WK	TM
5/3/66	B	28499	3, 11 RDG/AC	WK	--
5/17/66	C	28915	13, 15 JH/AC	MGM	—
7/6/66	D	30127	3, 9, 11, 12 RDG/AC	MGM	—
1/5/67	E	32486	3, 11, 15 RDG/AC	EA MGM	---
1/12/67	F	32617	2 RDG/AC	MGM EA	——
4/5/67	G	33489	13 RDG/AC	MGM EA	-
6/30/67	H	34056	2 RDG/AC	MGM EA	--

This specification consists of page 1 to 15 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	2/23/66 MIT/IL	WK	ACSP	E.T.P. Dwm 12-28-65

1. SCOPE

1.1 PURPOSE. This specification establishes the detail requirements for complete identification and acceptance of the G&N Indicator Control Panel Assembly Part Number 2014578-011, 2014578-021, and 2014578-031.

2. APPLICABLE DOCUMENT

2.1 EFFECTIVE ISSUES. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, Military Standards and Specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment

STANDARDS

Military

MIL-STD-202C	Test Methods for Electronic and Electrical Component Parts

DRAWINGS

APOLLO G&N

2014578	G&N Indicator Control Panel Assembly

(Copies of specifications, standards, drawings, bulletins, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 CONFLICTING REQUIREMENTS. In the event of a conflict between requirements, the following order of precedence shall apply. The contractor shall also notify MIT/IL APOLLO Management of the conflict.

a. The contract
b. This specification
c. Documents listed in this section.

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 J

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		REVISED PER TDRR NO. 23263			13 APR 65	WK
D		REVISED PER TDRR NO. 23831	L.J		11/2/65	
E		REVISED PER TDRR NO. 24977	JD.		JAN 10 66	WK
F		REVISED PER TDRR NO. 25090	JD.		JAN 12 66	WK
G		REVISED PER TDRR 26259	JMP	RWH	FEB 22 66	
H		REVISED PER TDRR 27053			21 MAR 66	
J		REVISED PER TDRR 27455	R		6 APR 66	

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. THE COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014578 EXCEPT 79, 80 & 81 SHALL NOT BE INSTALLED.
3. VENDOR ITEM - SEE SPECIFICATION CONTROL DWG
4. SERIALIZE PER ND1002023
5. ENCAPSULATE ALL SOLDERED ELECTRICAL COMPONENT CONNECTIONS TO A .06 MIN DEPTH USING ITEMS 26, 27, 29 AND 30 PER ND1002236
6. SOLDER PER ND1002071 USING (23) & (24).
7. BOND (63) TO (22) AND THE ELECTRICAL WIRING ENCAPSULANT OF (5) AND (6) TO (22) USING (70) AND (71) PER ND1002004.
8. LOCATE (44) APPROX AS SHOWN.
9. SELECT APPROPRIATE SIZE CLAMP AT ASSEMBLY
10. BOND (63) TO (22) USING (77) PER MIL-A-25055.
11. INSTALL (79) AND (80) USING (81) SO THAT S2, TRACKER SWITCH IS RESTRAINED IN THE "OFF" POSITION UPON COMPLETION OF TESTING PER NOTE 2. ITEM (79) SHALL BE INSTALLED FLUSH PLUS APPROXIMATELY 1/2 TURN BEYOND FLUSH ON THE MOUNTING BUSHING OF ITEM (8).

WIRING LEGEND	
FROM	TO
DS2-BLACK	E6
DS2-BROWN	E7
DS3-BLACK	E4
DS3-BROWN	E5
DS5-BLACK	E2
DS5-BROWN	E3
DS6-BLACK	E14
DS6-BROWN	E15
DS7-BLACK	E16
DS7-BROWN	E17
DS8-BLACK	E18
DS8-BROWN	E19
DS9-BLACK	E24
DS9-BROWN	E25
DS10-BLACK	E30
DS10-BROWN	E31
DS11-BLACK	E28
DS11-BROWN	E29
DS12-BLACK	E20
DS12-BROWN	E21
DS13-BLACK	E26
DS13-BROWN	E27
DS14-BLACK	E22
DS14-BROWN	E23
DS15-BLACK	E32
DS15-BROWN	E33
DS16-BLACK	E8

WIRING LEGEND		USE ITEM
FROM	TO	
DS16-BROWN	E9	
DS17-BLACK	E10	
DS17-BROWN	E11	
E2	E4	66
E3	E5	↑
E14	E16	
E15	E17	
E18	E20	
E20	E22	
E19	E21	
E21	E23	
E24	E26	
E26	E28	
E28	E30	
E25	E27	
E27	E29	
E29	E31	
A3-7	A3-1	
A3-1	A3-3	↓
A3-3	A3-5	66

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
				011					LIST OF MATERIAL
SEE NOTE 2 & 11				2		81	NAS1352C02LL3		SCREW, SOC. HD. CAP SELF LOCKING
SEE NOTE 2 & 11				1		80	2021201		PLATE, SWITCH BLOCKOUT
SEE NOTE 2 & 11				1		79	2021200		BUSHING, SWITCH BLOCKOUT
				2		78	2014763		SPACER PANEL
				AR		77	MIL-A-25055		ADHESIVE
				2		76	NAS1081C04D3L		SCREW, SET, SELF LOCK
				1		75	2014655		WHEEL, CONTROL
SEE NOTE 3				2		74	1010999-6		LAMP, ELECTROLUMINESCENT
				4		73	1010630-4		SCREW, FLAT HD, HEX SOC.
				8		72	1006783-11		SCREW, BUTTON HD, HEX SOC.
				AR		71	1010657		EPOXY RESIN
SEE NOTE 3				AR		70	1010686		CATALYST
				7		69	2014706		RETAINER, LAMP
				1		68	2014718		RETAINER, LAMP
SEE NOTE 3				12		67	6014527		WASHER, SPHERICAL
				AR		66	QQ-W-343, TYPE S		WIRE, ELECT., 24AWG
SEE NOTE 3				12		65	1010617-2		NUT, HEX, SELF-LOCKING
						64			
				2		63	1010617-4		NUT, HEX, SELF-LOCKING
				4		62	MS15795-803		WASHER, FLAT
				1		61	1006783-18		SCREW, BUTTON HD, HEX SOCKET
SEE NOTE 3				4		60	1006783-21		SCREW, BUTTON HD, HEX SOCKET
				1		59	2014738		PANEL & LAMP, MATCHED ASSY OF
				1		58	2014737-011		PANEL & LAMP, MATCHED ASSY OF
				1		57	2014735		PANEL & LAMP, MATCHED ASSY OF
				8		56	2014725		SCREW, SHOULDER
				1		55	2014722		RETAINER, PANEL LEFT
				1		54	2014727		FRAME, ANNUNCIATOR
				1		53	2014721		RETAINER, PANEL
				1		52	2014723		RETAINER, PANEL CENTER
				2		51	2014705		RETAINER, PANEL
				1		50	2014703		RETAINER, PANEL
				1		49	2014702		RETAINER, PANEL
SEE NOTE 3				36		48	1006783-9		SCREW, BUTTON HD
				1		47	2014719		PANEL & LAMP, MATCHED ASSY OF
				2		46	2014683		RETAINER, LIGHT
SEE NOTE 3				8		45	1010477-12		SCREW, FLAT HD SELF LOCKING
				1		44	1004260-181		NAME PLATE
				1		43	2014736-011		PANEL & LAMP, MATCHED ASSY OF
SEE NOTE 3				4		42	1010477-13		SCREW, FLAT HD SELF LOCKING
SEE NOTE 3				4		41	1010676-1		TERMINAL

Ⓒ REPLACES REV B WITH CHANGES

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
				011					LIST OF MATERIALS
SEE NOTE 3				26		40	1010623-3		TERMINAL, TURRET
				22		39	1001489-2		SCREW, SOCKET HD CAP
SEE NOTE 3				17		38	1010630-14		SCREW, FLAT HEAD
						37			
				2		36	2014764-011		HANDLE ASSEMBLY
				1		35	2014656-011		RETICLE BRIGHTNESS CONTROL
SEE NOTE 3				15		34	1011918-1		WASHER-CABLE CLAMP
				1		33	2014622		HARNESS
SEE NOTE 3				1		32	1010625-2		LIGHT, INDICATOR
				1		31	1010475-1		CAP, PUSHBUTTON
				AR		30	1012504-2		PRIMER, METAL
				AR		29	1012504-1		PRIMER, METAL
& 9				15		28	1000220-1 THRU -12		CLAMP, CABLE
				AR		27	1012503-1		COMPOUND, POLYURETHANE
SEE NOTE 3				AR		26	1012503-2		COMPOUND, POLYURETHANE
				1		25	1023003		CAP, PUSHBUTTON
				AR		24	QQ-S-571 SN60 WRAP 2		SOLDER
				AR		23	MIL-F-14256		FLUX
				1		22	2014626		PANEL G & N IND CONT (INSEPARABLE)
				1		21	2014627		SUPPORT, HAND CONTROLLER
				X		20	2014507		SCHEMATIC DIAGRAM
				1		19	2014658		SUPPORT, SWITCH
SEE NOTE 3				1		18	1010268-5		LAMP, INCANDESCENT
SEE NOTE 3				1		17	1010942		TRANSFORMER
				1		16	2014700-011		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3				1		15	1010905-5		SWITCH, TOGGLE
				1		14	1010905-3		SWITCH, TOGGLE
				1		13	1010904-2		SWITCH, PUSH BUTTON
				1		12	1010904-1		SWITCH, PUSH BUTTON
				1		11	1010903-9		SWITCH, TOGGLE
				1		10	1010903-8		SWITCH, TOGGLE
				1		9	1010902-6		SWITCH, TOGGLE
				1		8	1010902-5		SWITCH, TOGGLE
				1		7	1010902-4		SWITCH, TOGGLE
				7		6	1010999-4		LAMP, ELECTROLUMINESCENT
				1		5	1010999-8		LAMP, ELECTROLUMINESCENT
						4			
				1		3	1008824-1		MASTER ALARM ANNUNCIATOR
SEE NOTE 3				1		2	1010949-1		CONDITION ANNUNCIATOR
				1		1	2014550-011		SEXTANT HAND CONTROLLER

NEXT ASSY	USED ON	APPLICABLE DASH NO.
2014623		
APPLICATION		

THE ASSY PART NO. IS THE DRAWING NO. AND THE DASH NO. THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Dietrich 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

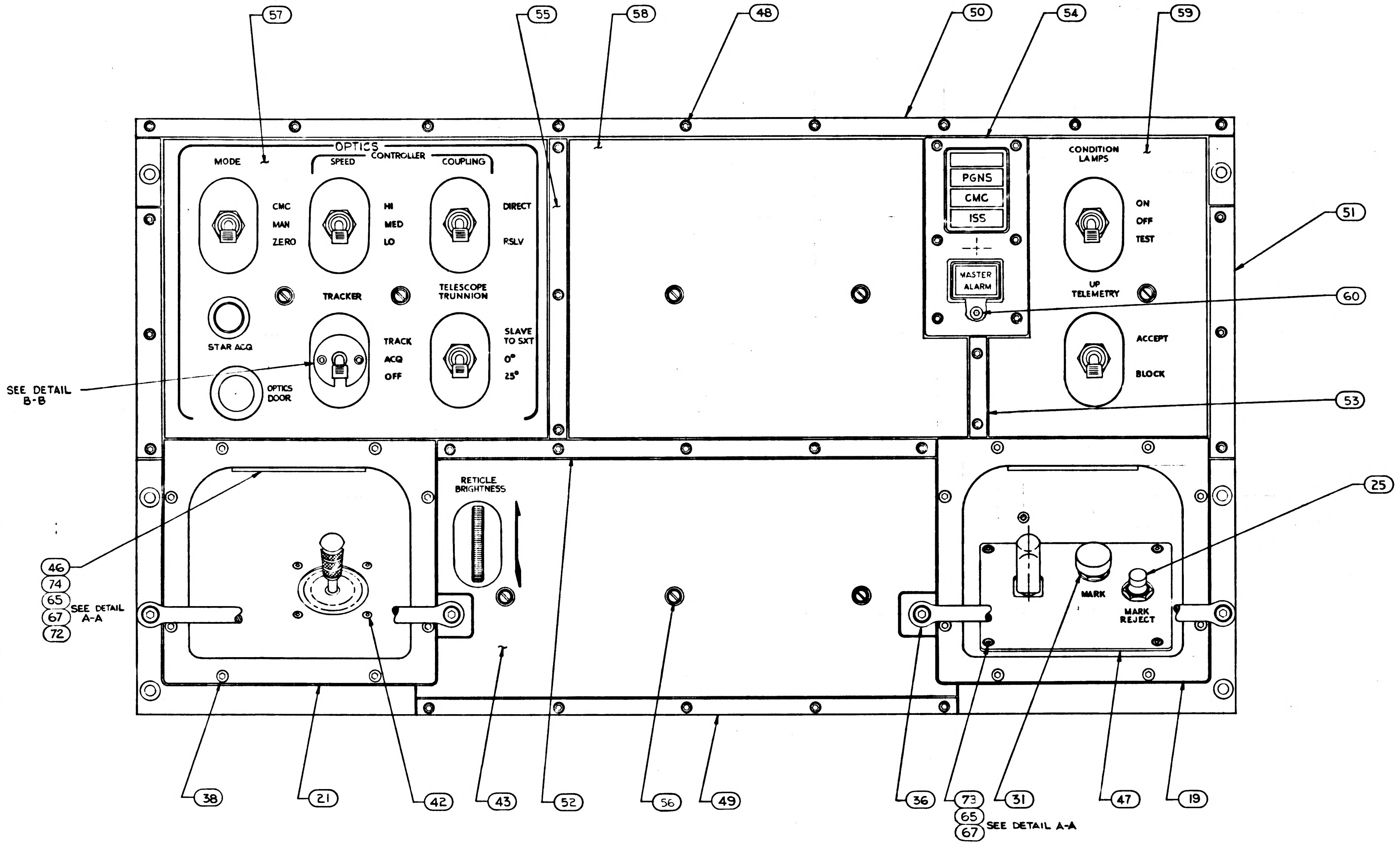
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2014578
SCALE NONE		SHEET 1 OF

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 J

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		SEE SHEET 1 FOR REVISION STATUS TMR 2323			30 [illegible] 65	
D		TDRR 23831			[illegible]	
E		REVISED PER TDRR NO. 24977	JD.		1/11/66	
F		REVISED PER TDRR NO. 25090	JD.		1/12/66	
G		REVISION STATUS CHANGED	JMP	RWH	FEB 22 66	
H		REVISION STATUS CHANGED			21 MAR 66	
J		REVISED PER TDRR 27455			22 [illegible] 66	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OPTICS
CONTROLLER
MODE
SPEED
COUPLING
CMC
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MED
LO
DIRECT
RSLV
TRACKER
TELESCOPE TRUNNION
STAR ACQ
TRACK
ACQ
OFF
SLAVE TO SXT
0°
25°
OPTICS DOOR
SEE DETAIL B-B
PGNS
CMC
ISS
MASTER ALARM
CONDITION LAMPS
ON
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TEST
UP TELEMETRY
ACCEPT
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RETICLE BRIGHTNESS
MARK
MARK REJECT
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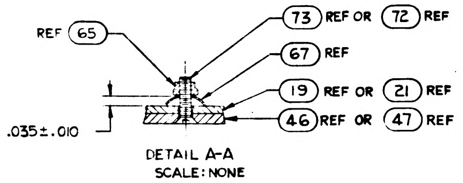
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73 REF OR 72 REF
67 REF
19 REF OR 21 REF
46 REF OR 47 REF
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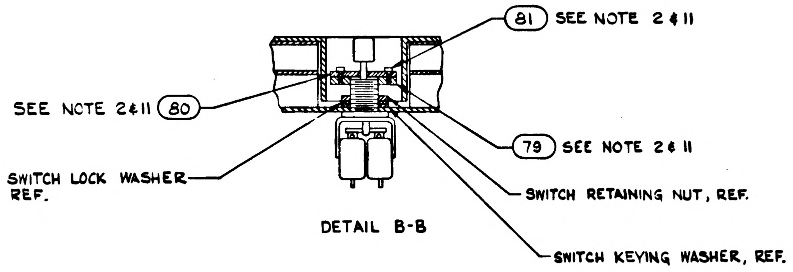
DETAIL A-A
SCALE: NONE


81 SEE NOTE 2 & 11
SEE NOTE 2 & 11 80
79 SEE NOTE 2 & 11
SWITCH LOCK WASHER REF.
SWITCH RETAINING NUT, REF.
SWITCH KEYING WASHER, REF.

DETAIL B-B

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J Dietrich 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson OCT. 5-65
APPROVED
APPROVED MIT 13 Oct 65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 2 OF 3

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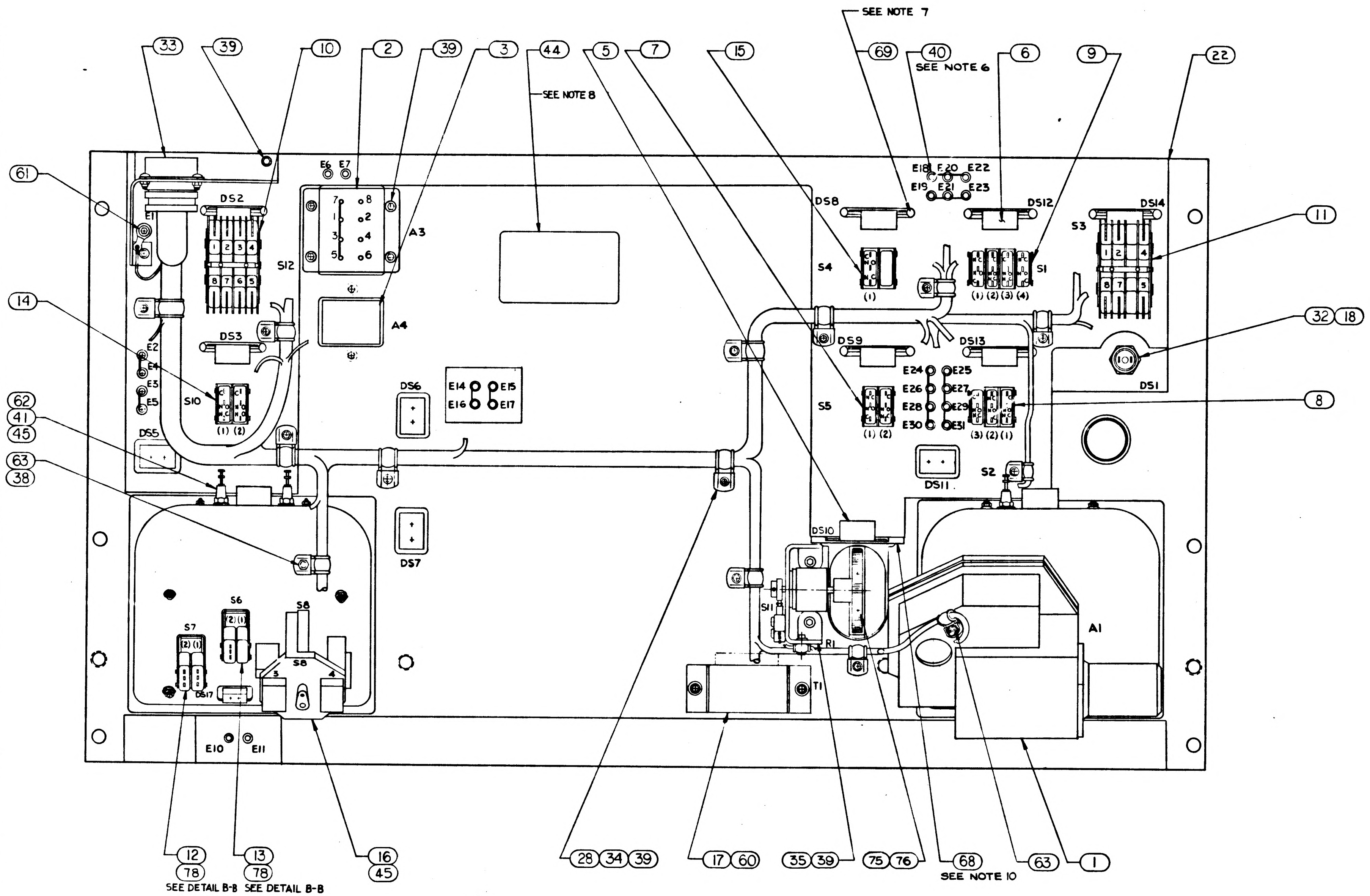
2014578 J

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
Ⓜ C		TDRR 23213			13 OCT 65	
Ⓜ D		TDRR 23831			11/10/65	WK
E		REVISED PER TDRR NO. 24977	JD.		1/ /66	WK
Ⓜ F		REVISED PER TDRR NO. 25090	JD.		1/12/66	WK
Ⓜ G		REVISION STATUS CHANGED	MF	RWH	FEB 22 66	
Ⓜ H		REVISION STATUS CHANGED	RLP		21 MAR 66	
J		REVISION STATUS CHANGED			66	



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39
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SEE NOTE 8
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SEE NOTE 7
69
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SEE NOTE 6
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22
61
E1
DS2
1 2 3 4
8 7 6 5
S12
E6 E7
7 8
1 2
3 4
5 6
A3
A4
DS8
E18 E20 E22
E19 E21 E23
DS12
DS14
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(1)
S1
(1) (2) (3) (4)
32 18
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(1) (2)
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E16 E17
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E24 E25
E26 E27
E28 E29
E30 E31
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(1) (2)
(3) (2) (1)
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41
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63
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DS5
DS11
S2
DS7
DS10
S11
R1
A1
T1
S6
S7
S8
(2) (1)
5 4
DS17
E10
E11
12
78
SEE DETAIL B-B
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SEE DETAIL B-B
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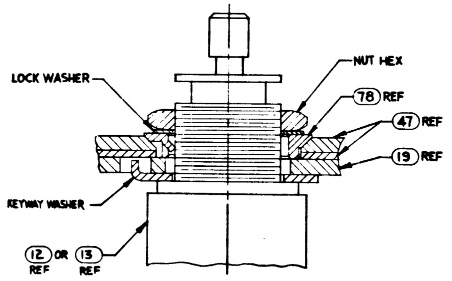
45
28 34 39
17 60
35 39
75 76
68
SEE NOTE 10
63
1



NUT HEX
LOCK WASHER
78 REF
47 REF
19 REF
KEYWAY WASHER
12 OR 13
REF REF

DETAIL B-B
SCALE 4/1

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN L. Wood 10/1/65
CHECKED 10-5-65
APPROVED Paul Watson
APPROVED 10/5/65
APPROVED MIT 13 Oct 65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INDICATOR CONTROL
PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 3 OF 3

APOLLO G&N Specification
PS2014578 REV [illegible]
Original Issue Date: 23 Feb 66
Release Authority: TDRR 26572
Class A Release
CODE IDENT NO. 80230

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

G&N INDICATOR CONTROL PANEL ASSEMBLY

DRAWING NO. 2014578

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				AC	NASA
3/10/66	A	27042	3, 13	WK	TM
5/3/66	B	28499	3, 11	WK	--
5/17/66	C	28915	13, 15	MGM	–
7/6/66	D	30127	3, 9, 11, 12	MGM	–
1/5/67	E	32486	3, 11, 15	EA MGM	---
1/12/67	F	32617	2	MGM EA	—
4/5/67	G	33489	13	MGM EA	-
6/30/67	H	34056	2	MGM EA	--
11/21/67	J	35139	2	MGM EA	--

This specification consists of page 1 to 15 inclusive.

APPROVALS	C. METZGER NASA/MSC	2/23/6 MIT/IL	AC

E.T.P.
12-28-65

1. SCOPE

1.1 PURPOSE. This specification establishes the detail requirements for complete identification and acceptance of the G&N Indicator Control Panel Assembly Part Number 2014578-011, 2014578-021, 2014578-031, and 2021323-011.

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Military

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APOLLO G&N

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2021323	G&N Indicator Control Panel Assembly

(Copies of specifications, standards, drawings, bulletins, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

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b. This specification
c. Documents listed in this section.

B 2014578

SYM	ZONE	DESCRIPTION	DR.	CHK	DATE	APPROVED
C		REVISED PER TDRR NO. 23213				
D		REVISED PER TDRR NO. 23831	L.J		[illegible]	
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F		REVISED PER TDRR NO. 25090	J.D.		JAN 12 66	
G		REVISED PER TDRR 26259	JMP	RWH	FEB 22 66	
H		REVISED PER TDRR 27053	BP		21 MAR 66	
J		REVISED PER TDRR 27455	R		5 APR 66	
K		REVISED PER TDRR 28809	JK	JAC	20 MAY 66	

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4. SERIALIZE PER ND1002023
5. ENCAPSULATE ALL SOLDERED ELECTRICAL COMPONENT CONNECTIONS TO A .06 MIN DEPTH USING ITEMS 26, 27, 29 AND 30 PER ND1002236
6. SOLDER PER ND1002071 USING (23) & (24).
7. BOND (69) TO (22) AND THE ELECTRICAL WIRING ENCAPSULANT OF (5) AND (6) TO (22) USING (70) AND (71) PER ND1002004.
8. LOCATE (44) APPROX AS SHOWN.
9. SELECT APPROPRIATE SIZE CLAMP AT ASSEMBLY
10. BOND (68) TO (22) USING (77) PER MIL-A-25055.
11. INSTALL (79) AND (80) USING (81) SO THAT S2, TRACKER SWITCH IS RESTRAINED IN THE "OFF" POSITION UPON COMPLETION OF TESTING PER NOTE 2. ITEM (79) SHALL BE INSTALLED FLUSH PLUS APPROXIMATELY 1/2 TURN BEYOND FLUSH ON THE MOUNTING BUSHING OF ITEM (8).
12. THE TERMINAL END OF ITEM (3) SHALL BE SEALED PER ND1002004 TYPE I, USING ITEMS (82) AND (83) TO PREVENT LEAKAGE OF THE ENCAPSULANT WHICH IS APPLIED IN NOTE 5.

	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
	8		85	MS35649-24		NUT, PLAIN HEX
	4		84	NAS1352C02-4		SCREW, SOCKET HEAD CAP
SEE NOTE 3	AR		83	1010683		CURING AGENT, AMINE
SEE NOTE 3	AR		82	1010682		EPOXY RESIN
SEE NOTE 2 & 11	2		81	NAS1352C02LL3		SCREW, SOC. HD. CAP, SELF LOCKING
SEE NOTE 2 & 11	1		80	2021201		PLATE, SWITCH BLOCKOUT
SEE NOTE 2 & 11	1		79	2021200		BUSHING, SWITCH BLOCKOUT
	2		78	2014763		SPACER PANEL
	AR		77	MIL-A-25055		ADHESIVE
	2		76	NAS1081C04D3L		SCREW, SET, SELF LOCK
	1		75	2014655		WHEEL, CONTROL
SEE NOTE 3	2		74	1010999-6		LAMP, ELECTROLUMINESCENT
	4		73	1010630-4		SCREW, FLAT HD, HEX SOC.
	8		72	1010618-7		SCREW, BUTTON HD, HEX SOC.
	AR		71	1010657		EPOXY RESIN
SEE NOTE 3	AR		70	1010686		CATALYST
	7		69	2014706		RETAINER, LAMP
	1		68	2014718		RETAINER, LAMP
SEE NOTE 3	12		67	6014527		WASHER, SPHERICAL
	AR		66	QQ-W-343, TYPE S		WIRE, ELECT., 24AWG
SEE NOTE 3	4		65	1010617-2		NUT, HEX, SELF-LOCKING
			64			
	2		63	1010617-4		NUT, HEX, SELF-LOCKING
	4		62	MS15795-803		WASHER, FLAT
	1		61	1006783-18		SCREW, BUTTON HD, HEX SOCKET
SEE NOTE 3	4		60	1006783-21		SCREW, BUTTON HD, HEX SOCKET
	1		59	2014738		PANEL & LAMP, MATCHED ASSY OF
	1		58	2014737-011		PANEL & LAMP, MATCHED ASSY OF
	1		57	2014735		PANEL & LAMP, MATCHED ASSY OF
	8		56	2014725		SCREW, SHOULDER
	1		55	2014722		RETAINER, PANEL LEFT
	1		54	2014727		FRAME, ANNUNCIATOR
	1		53	2014721		RETAINER, PANEL
	1		52	2014723		RETAINER, PANEL CENTER
	2		51	2014705		RETAINER, PANEL
	1		50	2014703		RETAINER, PANEL
	1		49	2014702		RETAINER, PANEL
SEE NOTE 3	36		48	1006783-9		SCREW, BUTTON HD
	1		47	2014719		PANEL & LAMP, MATCHED ASSY OF
	2		46	2014683		RETAINER, LIGHT
SEE NOTE 3	8		45	1010477-12		SCREW, FLAT HD SELF LOCKING
	1		44	1004260-181		NAME PLATE
	1		43	2014736-011		PANEL & LAMP, MATCHED ASSY OF
SEE NOTE 3	4		42	1010477-13		SCREW, FLAT HD SELF LOCKING
SEE NOTE 3	4		41	1010676-1		TERMINAL

QUANTITY REQUIRED — LIST OF MATERIAL

(C) REPLACES REV B WITH CHANGES

	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
SEE NOTE 3	26		40	1010623-3		TERMINAL, TURRET
	18		39	1001489-2		SCREW, SOCKET HD CAP
SEE NOTE 3	17		38	1010630-14		SCREW, FLAT HEAD
			37			
	2		36	2014764-011		HANDLE ASSEMBLY
	1		35	2014656-011		RETICLE BRIGHTNESS CONTROL
SEE NOTE 3	15		34	1011918-1		WASHER-CABLE CLAMP
	1		33	2014622		HARNESS
SEE NOTE 3	1		32	1010625-2		LIGHT, INDICATOR
	1		31	1010475-1		CAP, PUSHBUTTON
	AR		30	1012504-2		PRIMER, METAL
	AR		29	1012504-1		PRIMER, METAL
	15		28	1000220-1 THRU-12		CLAMP, CABLE
	AR		27	1012503-1		COMPOUND, POLYURETHANE
SEE NOTE 3	AR		26	1012503-2		COMPOUND, POLYURETHANE
	1		25	1023003		CAP, PUSHBUTTON
	AR		24	QQ-S-571 SN60 WRAP 2		SOLDER
	AR		23	MIL-F-14256		FLUX
	1		22	2014626		PANEL G & N IND CONT (INSEPARABLE)
	1		21	2014627		SUPPORT, HAND CONTROLLER
	X		20	2014507		SCHEMATIC DIAGRAM
	1		19	2014658		SUPPORT, SWITCH
SEE NOTE 3	1		18	1010268-5		LAMP, INCANDESCENT
SEE NOTE 3	1		17	1010942		TRANSFORMER
	1		16	2014700-011		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3	1		15	1010905-5		SWITCH, TOGGLE
	1		14	1010905-3		SWITCH, TOGGLE
	1		13	1010904-2		SWITCH, PUSH BUTTON
	1		12	1010904-1		SWITCH, PUSH BUTTON
	1		11	1010903-9		SWITCH, TOGGLE
	1		10	1010903-8		SWITCH, TOGGLE
	1		9	1010902-6		SWITCH, TOGGLE
	1		8	1010902-5		SWITCH, TOGGLE
	1		7	1010902-4		SWITCH, TOGGLE
	7		6	1010999-4		LAMP, ELECTROLUMINESCENT
	1		5	1010999-8		LAMP, ELECTROLUMINESCENT
			4			
	1		3	1008824-1		MASTER ALARM ANNUNCIATOR
SEE NOTE 3	1		2	1010949-1		CONDITION ANNUNCIATOR
	1		1	2014550-011		SEXTANT HAND CONTROLLER

QUANTITY REQUIRED — LIST OF MATERIALS

WIRING LEGEND FROM	TO
DS2-BLACK	E6
DS2-BROWN	E7
DS3-BLACK	E4
DS3-BROWN	E5
DS5-BLACK	E2
DS5-BROWN	E3
DS6-BLACK	E14
DS6-BROWN	E15
DS7-BLACK	E16
DS7-BROWN	E17
DS8-BLACK	E18
DS8-BROWN	E19
DS9-BLACK	E24
DS9-BROWN	E25
DS10-BLACK	E30
DS10-BROWN	E31
DS11-BLACK	E28
DS11-BROWN	E29
DS12-BLACK	E20
DS12-BROWN	E21
DS13-BLACK	E26
DS13-BROWN	E27
DS14-BLACK	E22
DS14-BROWN	E23
DS15-BLACK	E32
DS15-BROWN	E33
DS16-BLACK	E8

WIRING LEGEND FROM	TO	USE ITEM
DS16-BROWN	E9	
DS17-BLACK	E10	
DS17-BROWN	E11	
E2	E4	66
E5	E5	
E14	E16	
E15	E17	
E18	E20	
E20	E22	
E19	E21	
E21	E23	
E24	E26	
E26	E28	
E28	E30	
E25	E27	
E27	E29	
E29	E31	
A3-7	A3-1	
A3-1	A3-3	
A3-3	A3-5	66

NEXT ASSY	USED ON	APPLICABLE DASH NO.
2014623		

APPLICATION

THE ASSY PART NO. IS THE DRAWING NO. AND THE DASH NO. THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS.

DRAWN Dietrich 10-4-65
CHECKED 10-5-65
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE NONE
SHEET 1 OF 3

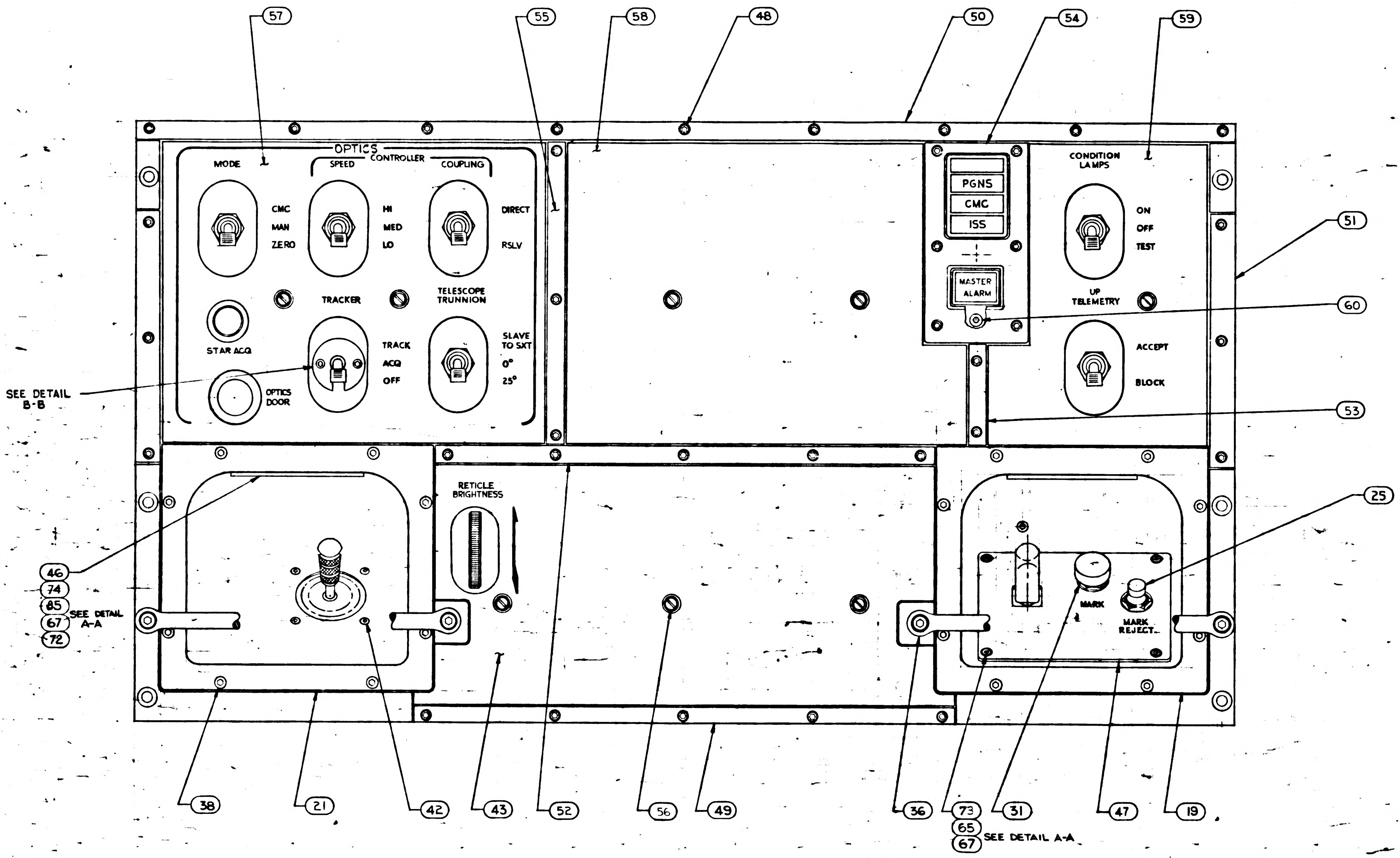
2014578 EK

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 J

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		SEE SHEET I FOR REVISION STATUS TMI 2323				
D		TDRR 23831				
E		REVISED PER TDRR NO. 24977	JD.		1/11/66	
F		REVISED PER TDRR NO. 25090	JD.		1/12/66	
G		REVISION STATUS CHANGED	JMP		FEB 22 66	
H		REVISION STATUS CHANGED			21 MAR 66	
J		REVISED PER TDRR 27455			APR 66	
K		REVISED PER TDRR 28809	J.K.	J.R.C.	20 MAY 66	


57
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OPTICS
CONTROLLER
MODE
SPEED
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DIRECT
RSLV
TRACKER
TELESCOPE TRUNNION
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SLAVE TO SXT
0°
25°
OPTICS DOOR
SEE DETAIL B-B
PGNS
CMC
ISS
MASTER ALARM
CONDITION LAMPS
ON
OFF
TEST
UP TELEMETRY
ACCEPT
BLOCK
51
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RETICLE BRIGHTNESS
MARK
MARK REJECT
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SEE DETAIL A-A
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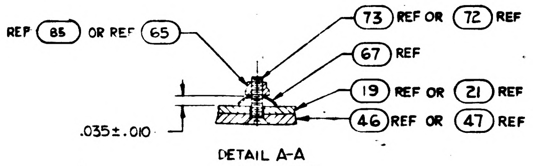
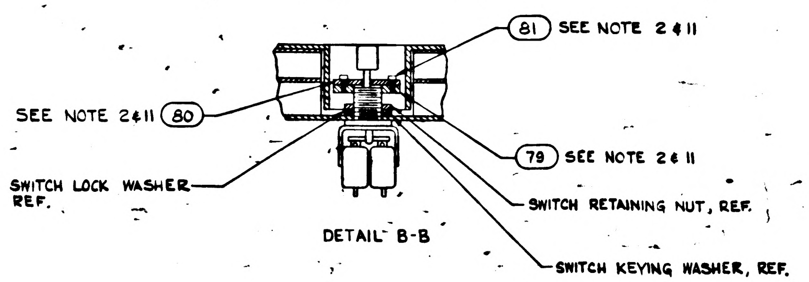

REF 85 OR REF 65
73 REF OR 72 REF
67 REF
19 REF OR 21 REF
46 REF OR 47 REF
.035±.010

DETAIL A-A
SCALE: NONE


81 SEE NOTE 2 & 11
SEE NOTE 2&11 80
79 SEE NOTE 2 & 11
SWITCH LOCK WASHER REF.
SWITCH RETAINING NUT, REF.
SWITCH KEYING WASHER, REF.

DETAIL B-B

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Dietrich	10-4-65
CHECKED		10-5-65
APPROVED	Paul Watson	OCT 5-65
APPROVED		
APPROVED MIT		
MSC		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2014578

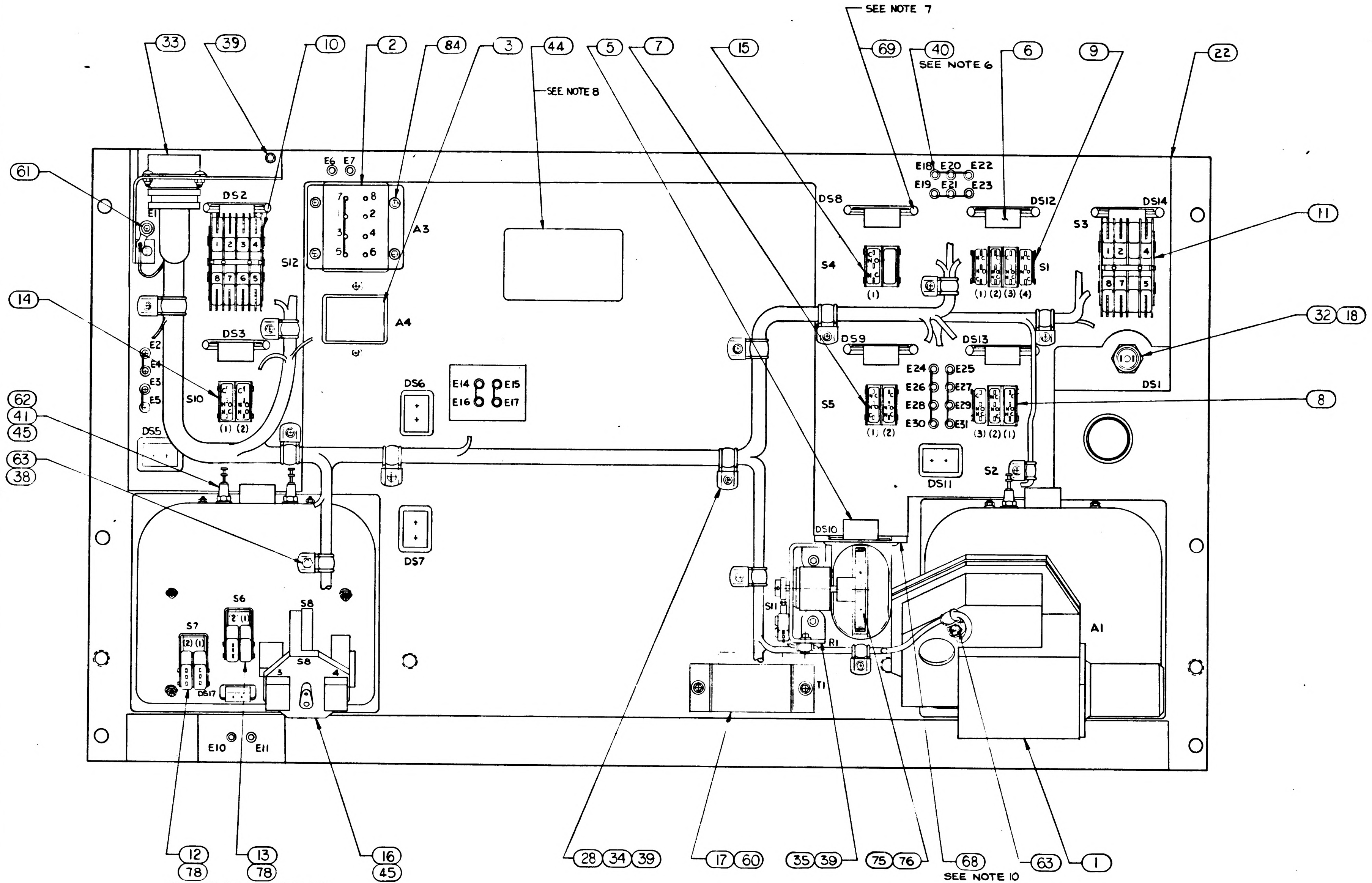
SCALE 1/1
SHEET 2 OF 3

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 J

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		TDAR 23213			13 Oct	WK
D		TDRR 23831			[illegible]	WK
E		REVISED PER TDRR NO. 24977	JD.		1/11/66	WK
F		REVISED PER TDRR NO. 25090	JD.		1/12/66	WK
G		REVISION STATUS CHANGED	LIMP	RWH	FEB 22 66	
H		REVISION STATUS CHANGED	RLP		21 MAR 66	
J		REVISION STATUS CHANGED	TE		4 APR 66	
K		REVISED PER TDRR 28809	J.K.	JAC	20 MAY 66	



SEE NOTE 7
SEE NOTE 6
SEE NOTE 8
SEE NOTE 10
SEE DETAIL B-B
SEE DETAIL B-B
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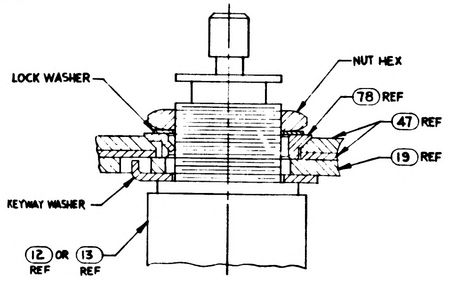
A3
A4
R1
T1



LOCK WASHER
NUT HEX
78 REF
47 REF
19 REF
KEYWAY WASHER
12 OR 13
REF
REF

DETAIL B-B
SCALE 4/1

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN L. Hood 10/1/65
CHECKED [illegible] 10-5-65
APPROVED [illegible]
APPROVED [illegible] 10/5/65
APPROVED MIT [illegible] 13 Oct 65
APPROVED MSC
DATE

G&N INDICATOR CONTROL PANEL ASSEMBLY

CODE IDENT NO 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 3 OF 3

2014578 K

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. THE COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014578 EXCEPT 79, 80 & 81 SHALL NOT BE INSTALLED.
3. VENDOR ITEM - SEE SPECIFICATION CONTROL DWG
4. SERIALIZE PER ND1002023
5. ENCAPSULATE ALL SOLDERED ELECTRICAL COMPONENT CONNECTIONS TO A .06 MIN DEPTH USING ITEMS 26, 27, 29 AND 30 PER ND1002236
6. SOLDER PER ND1002071 USING ㉓ & ㉔.
7. BOND (63) TO ㉒ AND THE ELECTRICAL WIRING ENCAPSULANT OF (83) TO ㉒ USING (70) AND (71) PER ND1002004.
8. LOCATE ㊹ APPROX AS SHOWN.
9. SELECT APPROPRIATE SIZE CLAMP AT ASSEMBLY
10. BOND (68) TO ㉒ USING (77) PER MIL-A-25055.
11. INSTALL (79) AND (80) USING (81) SO THAT S2, TRACKER SWITCH IS RESTRAINED IN THE "OFF" POSITION UPON COMPLETION OF TESTING PER NOTE 2. ITEM (79) SHALL BE INSTALLED FLUSH PLUS APPROXIMATELY 1/2 TURN BEYOND FLUSH ON THE MOUNTING BUSHING OF ITEM ⑧.
12. THE TERMINAL END OF ITEM ③ SHALL BE SEALED PER ND1002004 TYPE I, USING ITEMS (82) AND (83) TO PREVENT LEAKAGE OF THE ENCAPSULANT WHICH IS APPLIED IN NOTE 5.

2014578 L

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		REVISED PER TDRR NO. 23143			[illegible]	WH
D		REVISED PER TDRR NO. 23831	L.J		11/3/65	[illegible]
E		REVISED PER TDRR NO. 24977	JD.		JAN 12 66	WH
F		REVISED PER TDRR NO. 25090	JD.		JAN 12 66	WH
G		REVISED PER TDRR 26259	WMP	RWH	FEB 22 66	
H		REVISED PER TDRR 27053	BP	[illegible]	21 MAR 66	
J		REVISED PER TDRR 27455	R	[illegible]	6 APR 66	
K		REVISED PER TDRR 28809	JK	JAC	20 MAY 66	
L		REVISED PER TDRR 28931	WMP	[illegible]	23 MAY 66	

WIRING LEGEND	
FROM	TO
DS2 - BLACK	E6
DS2 - BROWN	E7
DS3 - BLACK	E4
DS3 - BROWN	E5
DS5 - BLACK	E2
DS5 - BROWN	E3
DS6 - BLACK	E14
DS6 - BROWN	E15
DS7 - BLACK	E16
DS7 - BROWN	E17
DS8 - BLACK	E18
DS8 - BROWN	E19
DS9 - BLACK	E24
DS9 - BROWN	E25
DS10 - BLACK	E30
DS10 - BROWN	E31
DS11 - BLACK	E28
DS11 - BROWN	E29
DS12 - BLACK	E20
DS12 - BROWN	E21
DS13 - BLACK	E26
DS13 - BROWN	E27
DS14 - BLACK	E22
DS14 - BROWN	E23
DS15 - BLACK	E32
DS15 - BROWN	E33
DS16 - BLACK	E8

WIRING LEGEND		USE ITEM
FROM	TO	
DS16 - BROWN	E9	
DS17 - BLACK	E10	
DS17 - BROWN	E11	
E2	E4	66
E3	E5	↑
E14	E16	│
E15	E17	│
E18	E20	│
E20	E22	│
E19	E21	│
E21	E23	│
E24	E26	│
E26	E28	│
E28	E30	│
E25	E27	│
E27	E29	│
E29	E31	│
A3-7	A3-1	│
A3-1	A3-3	↓
A3-3	A3-5	66

	QUANTITY REQUIRED			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
				8		86	2014798		LAMP, ELECTROLUMINESCENT, MODIFIED
				8		85	MS35649-24		NUT, PLAIN HEX
				4		84	NAS1352C02-4		SCREW, SOCKET HEAD CAP
SEE NOTE 3				AR		83	1010683		CURING AGENT, AMINE
SEE NOTE 3				AR		82	1010682		EPOXY RESIN
SEE NOTE 2 & 11				2		81	NAS1352C02LL3		SCREW, SOC. HD. CAP, SELF LOCKING
SEE NOTE 2 & 11				1		80	2021201		PLATE, SWITCH BLOCKOUT
SEE NOTE 2 & 11				1		79	2021200		BUSHING, SWITCH BLOCKOUT
				2		78	2014763		SPACER PANEL
				AR		77	MIL-A-25055		ADHESIVE
				2		76	NAS1081C04D3L		SCREW, SET, SELF LOCK
				1		75	2014655		WHEEL, CONTROL
SEE NOTE 3				2		74	1010999-6		LAMP, ELECTROLUMINESCENT
│				4		73	1010630-4		SCREW, FLAT HD, HEX SOC.
│				8		72	1010618-7		SCREW, BUTTON HD, HEX SOC.
│				AR		71	1010657		EPOXY RESIN
SEE NOTE 3				AR		70	1010686		CATALYST
				7		69	2014706		RETAINER, LAMP
				1		68	2014718		RETAINER, LAMP
SEE NOTE 3				12		67	6014527		WASHER, SPHERICAL
				AR		66	QQ-W-343, TYPE S		WIRE, ELECT., 24AWG
SEE NOTE 3				4		65	1010617-2		NUT, HEX, SELF-LOCKING
│						64			
│				2		63	1010617-4		NUT, HEX, SELF-LOCKING
│				4		62	MS15795-803		WASHER, FLAT
│				1		61	1006783-18		SCREW, BUTTON HD, HEX SOCKET
SEE NOTE 3				4		60	1006783-21		SCREW, BUTTON HD, HEX SOCKET
				1		59	2014738		PANEL & LAMP, MATCHED ASSY OF
				1		58	2014737-011		PANEL & LAMP, MATCHED ASSY OF
				1		57	2014735		PANEL & LAMP, MATCHED ASSY OF
				8		56	2014725		SCREW, SHOULDER
				1		55	2014722		RETAINER, PANEL LEFT
				1		54	2014727		FRAME, ANNUNCIATOR
				1		53	2014721		RETAINER, PANEL
				1		52	2014723		RETAINER, PANEL CENTER
				2		51	2014705		RETAINER, PANEL
				1		50	2014703		RETAINER, PANEL
				1		49	2014702		RETAINER, PANEL
SEE NOTE 3				36		48	1006783-9		SCREW, BUTTON HD
				1		47	2014719		PANEL & LAMP, MATCHED ASSY OF
				2		46	2014683		RETAINER, LIGHT
SEE NOTE 3				8		45	1010477-12		SCREW, FLAT HD SELF LOCKING
				1		44	1004260-181		NAME PLATE
				1		43	2014736-011		PANEL & LAMP, MATCHED ASSY OF
SEE NOTE 3				4		42	1010477-13		SCREW, FLAT HD SELF LOCKING
SEE NOTE 3				4		41	1010676-1		TERMINAL

LIST OF MATERIAL

Ⓒ = REPLACES REV B WITH CHANGES

	QUANTITY REQUIRED			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
SEE NOTE 3				26		40	1010623-3		TERMINAL, TURRET
│				18		39	1001489-2		SCREW, SOCKET HD CAP
SEE NOTE 3				17		38	1010630-14		SCREW, FLAT HEAD
						37			
				2		36	2014764-011.		HANDLE ASSEMBLY
				1		35	2014656-011		RETICLE BRIGHTNESS CONTROL
SEE NOTE 3				15		34	1011918-1		WASHER-CABLE CLAMP
				1		33	2014622		HARNESS
SEE NOTE 3				1		32	1010625-2		LIGHT, INDICATOR
│				1		31	1010475-1		CAP, PUSHBUTTON
│				AR		30	1012504-2		PRIMER, METAL
│				AR		29	1012504-1		PRIMER, METAL
│ ¢9				15		28	1000220-1 THRU-12		CLAMP, CABLE
│				AR		27	1012503-1		COMPOUND, POLYURETHANE
SEE NOTE 3				AR		26	1012503-2		COMPOUND, POLYURETHANE
				1		25	1023003		CAP, PUSHBUTTON
				AR		24	QQ-S-571 SN60WRAP2		SOLDER
				AR		23	MIL-F-14256		FLUX
				1		22	2014626		PANEL G & N IND CONT (INSEPARABLE)
				1		21	2014627		SUPPORT, HAND CONTROLLER
				X		20	2014507		SCHEMATIC DIAGRAM
				1		19	2014658		SUPPORT, SWITCH
SEE NOTE 3				1		18	1010268-5		LAMP, INCANDESCENT
SEE NOTE 3				1		17	1010942		TRANSFORMER
				1		16	2014700-011		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3				1		15	1010905-5		SWITCH, TOGGLE
│				1		14	1010905-3		SWITCH, TOGGLE
│				1		13	1010904-2		SWITCH, PUSH BUTTON
│				1		12	1010904-1		SWITCH, PUSH BUTTON
│				1		11	1010903-9		SWITCH, TOGGLE
│				1		10	1010903-8		SWITCH, TOGGLE
│				1		9	1010902-6		SWITCH, TOGGLE
│				1		8	1010902-5		SWITCH, TOGGLE
│				1		7	1010902-4		SWITCH, TOGGLE
│				~~7~~		6	~~1010999-4~~		~~LAMP, ELECTROLUMINESCENT~~
│				~~1~~		5	~~1010999-8~~		~~LAMP, ELECTROLUMINESCENT~~
│						4			
│				1		3	1008824-1		MASTER ALARM ANNUNCIATOR
SEE NOTE 3				1		2	1010949-1		CONDITION ANNUNCIATOR
				1		1	2014550-011		SEXTANT HAND CONTROLLER

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
2014623		

APPLICATION

THE ASSY PART NO. IS THE DRAWING NO. AND THE DASH NO. THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Trustrich 10-4-65
CHECKED [illegible] 10-5-65
APPROVED Paul Watson
APPROVED [illegible] 10/1/65
APPROVED MIT W Kupfer
APPROVED MSC [illegible] PER LETTER 7-65-612
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO.
80230	E	2014578

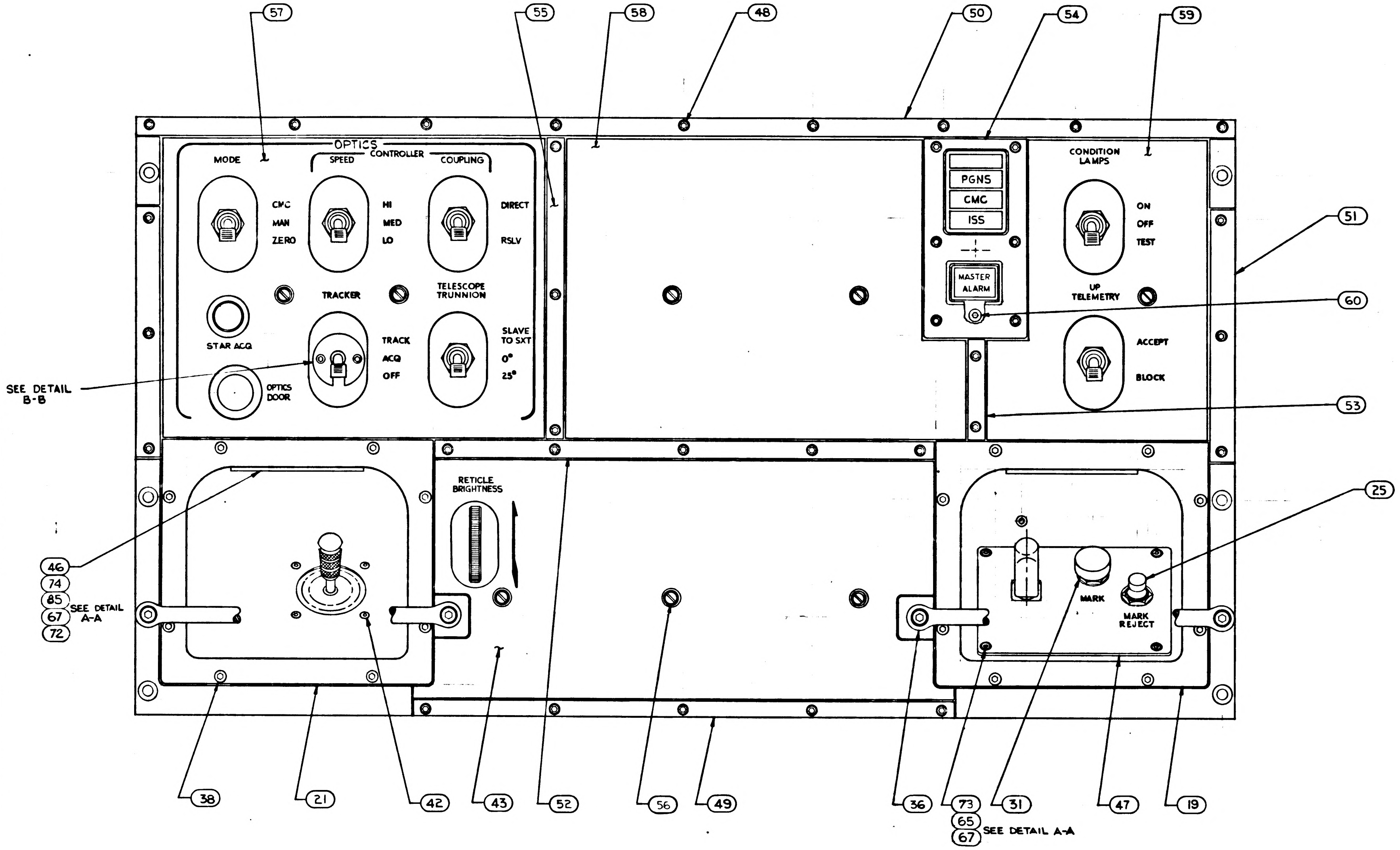
SCALE NONE
SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 L

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		SEE SHEET 1 FOR REVISION STATUS TDRR 2326			[illegible]	
D		TDRR 23831			[illegible]	
E		REVISED PER TDRR NO. 24977	JD.		1/11/66	
F		REVISED PER TDRR NO. 25090	JD.		1/12/66	
G		REVISION STATUS CHANGED	JMP	RWH	FEB 22 66	
H		REVISION STATUS CHANGED			21 MAR 66	
J		REVISED PER TDRR 27455			66	
K		REVISED PER TDRR 28809	J.K	J.A.C.	20 MAY 66	
L		REVISION STATUS CHANGED			66	


57
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OPTICS
MODE
CONTROLLER
SPEED
COUPLING
CMC
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ZERO
HI
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DIRECT
RSLV
TRACKER
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TRACK
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OFF
SLAVE TO SXT
0°
25°
OPTICS DOOR
SEE DETAIL B-B
PGNS
CMC
ISS
MASTER ALARM
CONDITION LAMPS
ON
OFF
TEST
UP TELEMETRY
ACCEPT
BLOCK
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RETICLE BRIGHTNESS
MARK
MARK REJECT
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SEE DETAIL A-A
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SEE DETAIL A-A
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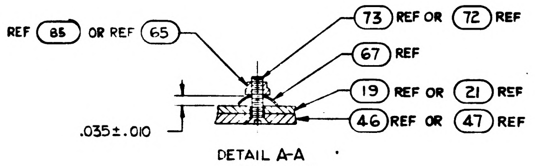
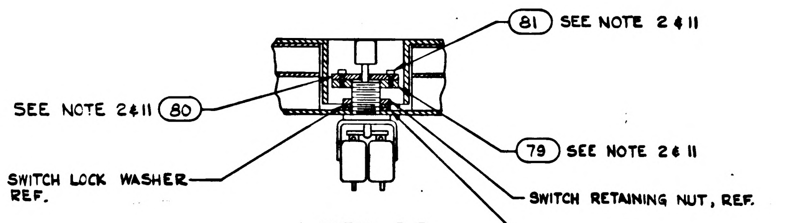

REF 85 OR REF 65
73 REF OR 72 REF
67 REF
19 REF OR 21 REF
46 REF OR 47 REF
.035±.010

DETAIL A-A
SCALE: NONE


81 SEE NOTE 2&11
SEE NOTE 2&11 80
79 SEE NOTE 2&11
SWITCH LOCK WASHER REF.
SWITCH RETAINING NUT, REF.
SWITCH KEYING WASHER, REF.

DETAIL B-B

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J. Dietrich 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson OCT. 5-65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

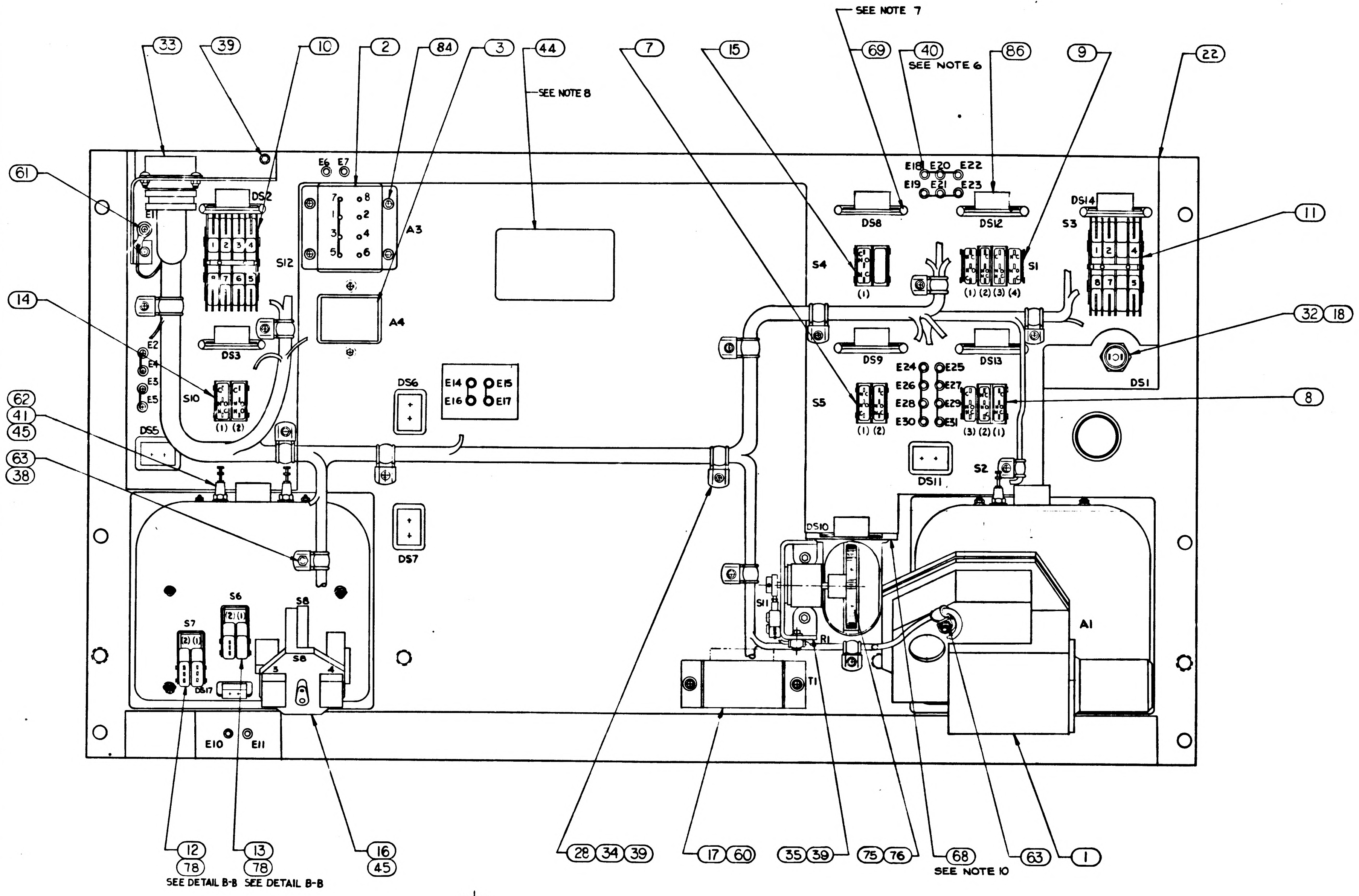
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 2 OF 3

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 L

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
Ⓜ C		TDRR 23213			13 OCT	WK
Ⓜ D		TDRR 23831			11/65	WK
E		REVISED PER TDRR NO. 24977	JD.		1/66	WK
Ⓜ F		REVISED PER TDRR NO. 25090	JD.		1/2/66	WK
Ⓜ G		REVISION STATUS CHANGED	RLP	RWH	FEB 66	
Ⓜ H		REVISION STATUS CHANGED	RLP		21 MAR 66	
Ⓜ J		REVISION STATUS CHANGED			[illegible]	
K		REVISED PER TDRR 28809		TEG	MAY 66	
L		REVISED PER TDRR 2893		CC	23 MAY 66	



SEE NOTE 7
SEE NOTE 6
SEE NOTE 8
SEE NOTE 10
SEE DETAIL B-B
SEE DETAIL B-B
33
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S1
S2
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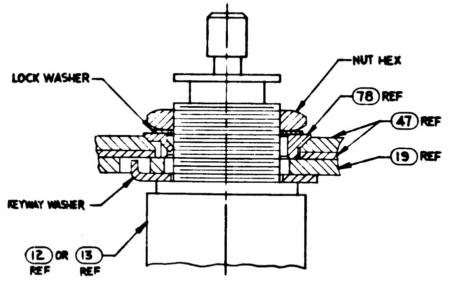
A1
A3
A4
R1
T1



LOCK WASHER
NUT HEX
78 REF
47 REF
19 REF
KEYWAY WASHER
12 OR 13
REF
REF

DETAIL B-B
SCALE 4/1

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN L. Hood 10/1/65
CHECKED 10-5-65
APPROVED Paul Watson 10-5-65
APPROVED 10/5/65
APPROVED MIT W Kupfer 13 Oct 65
APPROVED MSC PP765612
DATE

G&N INDICATOR CONTROL
PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 3 OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 M

SYM	ZONE	REVISIONS DESCRIPTION	DR	CHK	DATE	APPROVED
C		REVISED PER TDRR NO. 23213				WK
D		REVISED PER TDRR NO. 23831	L.J.			
E		REVISED PER TDRR NO. 24977	J.D.		JAN 10 66	WK
F		REVISED PER TDRR NO. 25090	J.D.		JAN 12 66	WK
G		REVISED PER TDRR 26259	JMP	RWH	FEB 22 66	
H		REVISED PER TDRR 27053			21 MAR 66	
J		REVISED PER TDRR 27435			6 APR 66	
K		REVISED PER TDRR 28809	JK	TRC	MAY 66	
L		REVISED PER TDRR 28931	JMP		23 MAY 66	
M		REVISED PER TDRR 30155	J.E.G.		66	

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. THE COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014578 EXCEPT 79, 80 & 81 SHALL NOT BE INSTALLED.
3. VENDOR ITEM - SEE SPECIFICATION CONTROL DWG
4. SERIALIZE PER ND1002023
5. ENCAPSULATE ALL SOLDERED ELECTRICAL COMPONENT CONNECTIONS TO A .06 MIN DEPTH USING ITEMS 26, 27, 29 AND 30 PER ND1002236
6. SOLDER PER ND1002071 USING (23) & (24).
7. BOND (63) TO (22) AND THE ELECTRICAL WIRING ENCAPSULANT OF (63) TO (22) USING (70) AND (71) PER ND1002024.
8. LOCATE (44) APPROX AS SHOWN.
9. SELECT APPROPRIATE SIZE CLAMP AT ASSEMBLY
10. BOND (68) TO (22) USING (77) PER MIL-A-25055.
11. INSTALL (79) AND (80) USING (81) SO THAT S2, TRACKER SWITCH IS RESTRAINED IN THE "OFF" POSITION UPON COMPLETION OF TESTING PER NOTE 2. ITEM (79) SHALL BE INSTALLED FLUSH PLUS APPROXIMATELY 1/2 TURN BEYOND FLUSH ON THE MOUNTING BUSHING OF ITEM (8).
12. THE TERMINAL END OF ITEM (3) SHALL BE SEALED PER ND1002004 TYPE I, USING ITEMS (82) AND (83) TO PREVENT LEAKAGE OF THE ENCAPSULANT WHICH IS APPLIED IN NOTE 5.

(C) REPLACES REV B WITH CHANGES

WIRING LEGEND	
FROM	TO
DS 2 - BLACK	E6
DS2 - BROWN	E7
DS3 - BLACK	E4
DS3 - BROWN	E5
DS5 - BLACK	E2
DS5 - BROWN	E3
DS6 - BLACK	E14
DS6 - BROWN	E15
DS7 - BLACK	E16
DS7 - BROWN	E17
DS8 - BLACK	E18
DS8 - BROWN	E19
DS9 - BLACK	E24
DS9 - BROWN	E25
DS10 - BLACK	E30
DS10 - BROWN	E31
DS11 - BLACK	E28
DS11 - BROWN	E29
DS12 - BLACK	E20
DS12 - BROWN	E21
DS13 - BLACK	E26
DS13 - BROWN	E27
DS14 - BLACK	E22
DS14 - BROWN	E23
DS15 - BLACK	E32
DS15 - BROWN	E33
DS16 - BLACK	E8

WIRING LEGEND		USE ITEM
FROM	TO	
DS16 - BROWN	E9	
DS17 - BLACK	E10	
DS17 - BROWN	E11	
E2	E4	66
E3	E5	↕
E14	E16	
E15	E17	
E18	E20	
E20	E22	
E19	E21	
E21	E23	
E24	E26	
E26	E28	
E28	E30	
E25	E27	
E27	E29	
E29	E31	
A3-7	A3-1	
A3-1	A3-3	
A3-3	A3-5	66

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
				011					LIST OF MATERIAL
SEE NOTE 3				*13*		*87*	*1001489-6*		*SCREW, SOCKET HD CAP*
				8		86	2014798		LAMP, ELECTROLUMINESCENT, MODIFIED
				8		85	MS35649-24		NUT, PLAIN HEX
				4		84	NAS1352C02-4		SCREW, SOCKET HEAD CAP
SEE NOTE 3				AR		83	1010683		CURING AGENT, AMINE
SEE NOTE 3				AR		82	1010682		EPOXY RESIN
SEE NOTE 2 & 11				2		81	NAS1352C02LL3		SCREW, SOC. HD. CAP, SELF LOCKING
SEE NOTE 2 & 11				1		80	2021201		PLATE, SWITCH BLOCKOUT
SEE NOTE 2 & 11				1		79	2021200		BUSHING, SWITCH BLOCKOUT
				2		78	2014763		SPACER PANEL
				AR		77	MIL-A-25055		ADHESIVE
				2		76	NAS1081C04D3L		SCREW, SET, SELF LOCK
				1		75	2014655		WHEEL, CONTROL
SEE NOTE 3				2		74	1010999-6		LAMP, ELECTROLUMINESCENT
				4		73	1010630-4		SCREW, FLAT HD, HEX SOC.
				8		72	1010618-7		SCREW, BUTTON HD, HEX SOC.
				AR		71	1010657		EPOXY RESIN
SEE NOTE 3				AR		70	1010686		CATALYST
				7		69	2014706		RETAINER, LAMP
				1		68	2014718		RETAINER, LAMP
SEE NOTE 3				12		67	6014527		WASHER, SPHERICAL
				AR		66	QQ-W-343, TYPE S		WIRE, ELECT., 24AWG
SEE NOTE 3				4		65	1010617-2		NUT, HEX, SELF-LOCKING
						64			
				2		63	1010617-4		NUT, HEX, SELF-LOCKING
				4		62	MS15795-803		WASHER, FLAT
				1		61	1006783-18		SCREW, BUTTON HD, HEX SOCKET
SEE NOTE 3				4		60	1006783-21		SCREW, BUTTON HD, HEX SOCKET
				1		59	2014738		PANEL & LAMP, MATCHED ASSY OF
				1		58	2014737-011		PANEL & LAMP, MATCHED ASSY OF
				1		57	2014735		PANEL & LAMP, MATCHED ASSY OF
				8		56	2014725		SCREW, SHOULDER
				1		55	2014722		RETAINER, PANEL LEFT
				1		54	2014727		FRAME, ANNUNCIATOR
				1		53	2014721		RETAINER, PANEL
				1		52	2014723		RETAINER, PANEL CENTER
				2		51	2014705		RETAINER, PANEL
				1		50	2014703		RETAINER, PANEL
				1		49	2014702		RETAINER, PANEL
SEE NOTE 3				36		48	1006783-9		SCREW, BUTTON HD
				1		47	2014719		PANEL & LAMP, MATCHED ASSY OF
				2		46	2014683		RETAINER, LIGHT
SEE NOTE 3				8		45	1010477-12		SCREW, FLAT HD SELF LOCKING
				1		44	1004260-181		NAME PLATE
				1		43	2014736-011		PANEL & LAMP, MATCHED ASSY OF
SEE NOTE 3				4		42	1010477-13		SCREW, FLAT HD SELF LOCKING
SEE NOTE 3				4		41	1010676-1		TERMINAL

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
				011					LIST OF MATERIALS
SEE NOTE 3				26		40	1010623-3		TERMINAL, TURRET
				5		39	1001489-2		SCREW, SOCKET HD CAP
SEE NOTE 3				17		38	1010630-14		SCREW, FLAT HEAD
						37			
				2		36	2014764-011		HANDLE ASSEMBLY
				1		35	2014656-011		RETICLE BRIGHTNESS CONTROL
SEE NOTE 3				15		34	1011918-1		WASHER-CABLE CLAMP
				1		33	2014622		HARNESS
SEE NOTE 3				1		32	1010625-2		LIGHT, INDICATOR
				1		31	1010475-1		CAP, PUSHBUTTON
				AR		30	1012504-2		PRIMER, METAL
				AR		29	1012504-1		PRIMER, METAL
				15		28	1000220-1 THRU-12		CLAMP, CABLE
				AR		27	1012503-1		COMPOUND, POLYURETHANE
SEE NOTE 3				AR		26	1012503-2		COMPOUND, POLYURETHANE
				1		25	1023003		CAP, PUSHBUTTON
				AR		24	QQ-S-571 SN60WRAP2		SOLDER
				AR		23	MIL-F-14256		FLUX
				1		22	2014626		PANEL G & N IND CONT (INSEPARABLE)
				1		21	2014627		SUPPORT, HAND CONTROLLER
				X		20	2014507		SCHEMATIC DIAGRAM
				1		19	2014658		SUPPORT, SWITCH
SEE NOTE 3				1		18	1010268-5		LAMP, INCANDESCENT
SEE NOTE 3				1		17	1010942		TRANSFORMER
				1		16	2014700-011		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3				1		15	1010905-5		SWITCH, TOGGLE
				1		14	1010905-3		SWITCH, TOGGLE
				1		13	1010904-2		SWITCH, PUSH BUTTON
				1		12	1010904-1		SWITCH, PUSH BUTTON
				1		11	1010903-9		SWITCH, TOGGLE
				1		10	1010903-8		SWITCH, TOGGLE
				1		9	1010902-6		SWITCH, TOGGLE
				1		8	1010902-5		SWITCH, TOGGLE
				1		7	1010902-4		SWITCH, TOGGLE
				~~7~~		6	~~1010999-4~~		~~LAMP, ELECTROLUMINESCENT~~
				~~1~~		5	~~1010999-8~~		~~LAMP, ELECTROLUMINESCENT~~
						4			
				1		3	1008824-1		MASTER ALARM ANNUNCIATOR
SEE NOTE 3				1		2	1010949-1		CONDITION ANNUNCIATOR
				1		1	2014550-011		SEXTANT HAND CONTROLLER

NEXT ASSY	USED ON	APPLICABLE DASH NO.
2014623		
APPLICATION		

THE ASSY PART NO. IS THE DRAWING NO. AND THE DASH NO. THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Fastrich 10-4-65
CHECKED 10-5-65
APPROVED Carl Watson
APPROVED
APPROVED MIT W.K.
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2014578

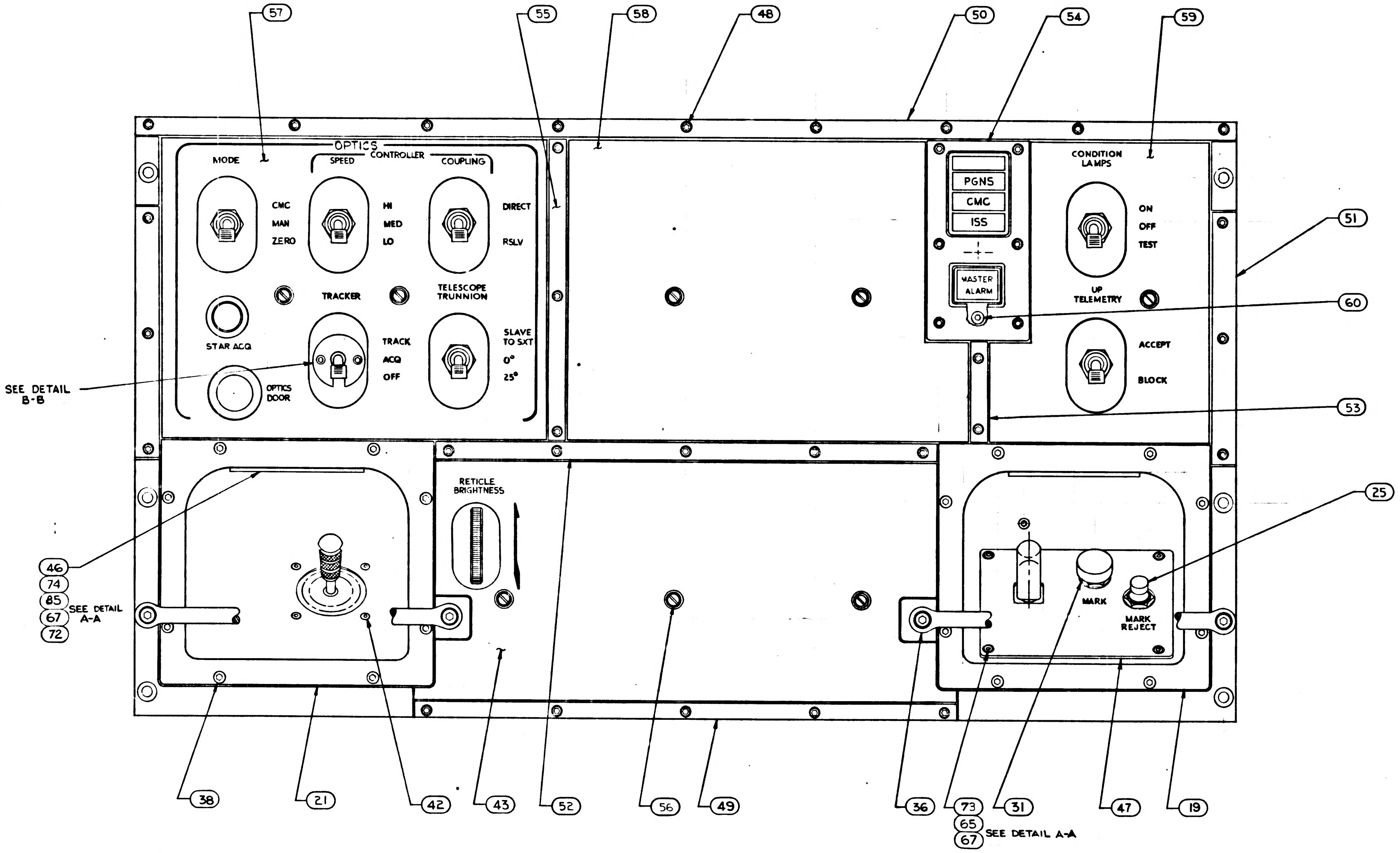
SCALE NONE
SHEET 1 OF 5

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 M

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		SEE SHEET 1 FOR REVISION STATUS TDRR 23213				
D		TDRR 23831				
E		REVISED PER TDRR NO. 24977	JD.		1/11/66	
F		REVISED PER TDRR NO. 25090	JD.		1/12/66	
G		REVISION STATUS CHANGED	JMP	RWH	FEB 22 66	
H		REVISION STATUS CHANGED			21 MAR 66	
J		REVISED PER TDRR 27455			6 APR 66	
K		REVISED PER TDRR 28809	J.K.	J.A.C.	20 MAY 66	
L		REVISION STATUS CHANGED			MAY 66	
M		REV STATUS CHANGED			19 JULY 66	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OPTICS DOOR
SEE DETAIL B-B
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MASTER ALARM
CONDITION LAMPS
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MARK REJECT
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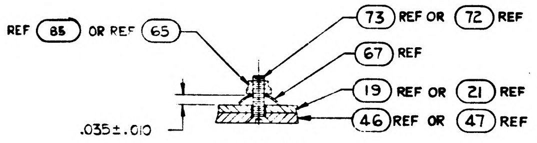
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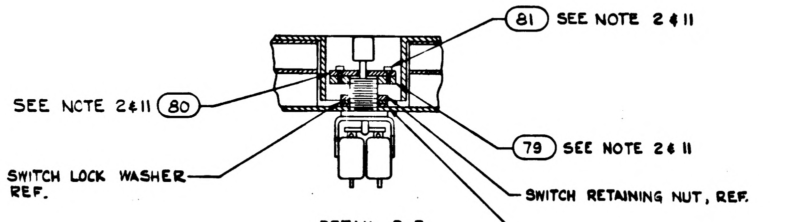
DETAIL A-A
SCALE: NONE


81
SEE NOTE 2 & 11
SEE NOTE 2 & 11
80
79
SEE NOTE 2 & 11
SWITCH LOCK WASHER REF.
SWITCH RETAINING NUT, REF.

DETAIL B-B

SWITCH KEYING WASHER, REF.

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

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CAPACITOR VALUES ARE IN µf
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TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J. Dietrich 10-4-65
CHECKED 10-5-65
APPROVED Paul Weston Oct 5 65
APPROVED
APPROVED MIT 13 Oct 65
APPROVED MSC 65612
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 2 OF 3

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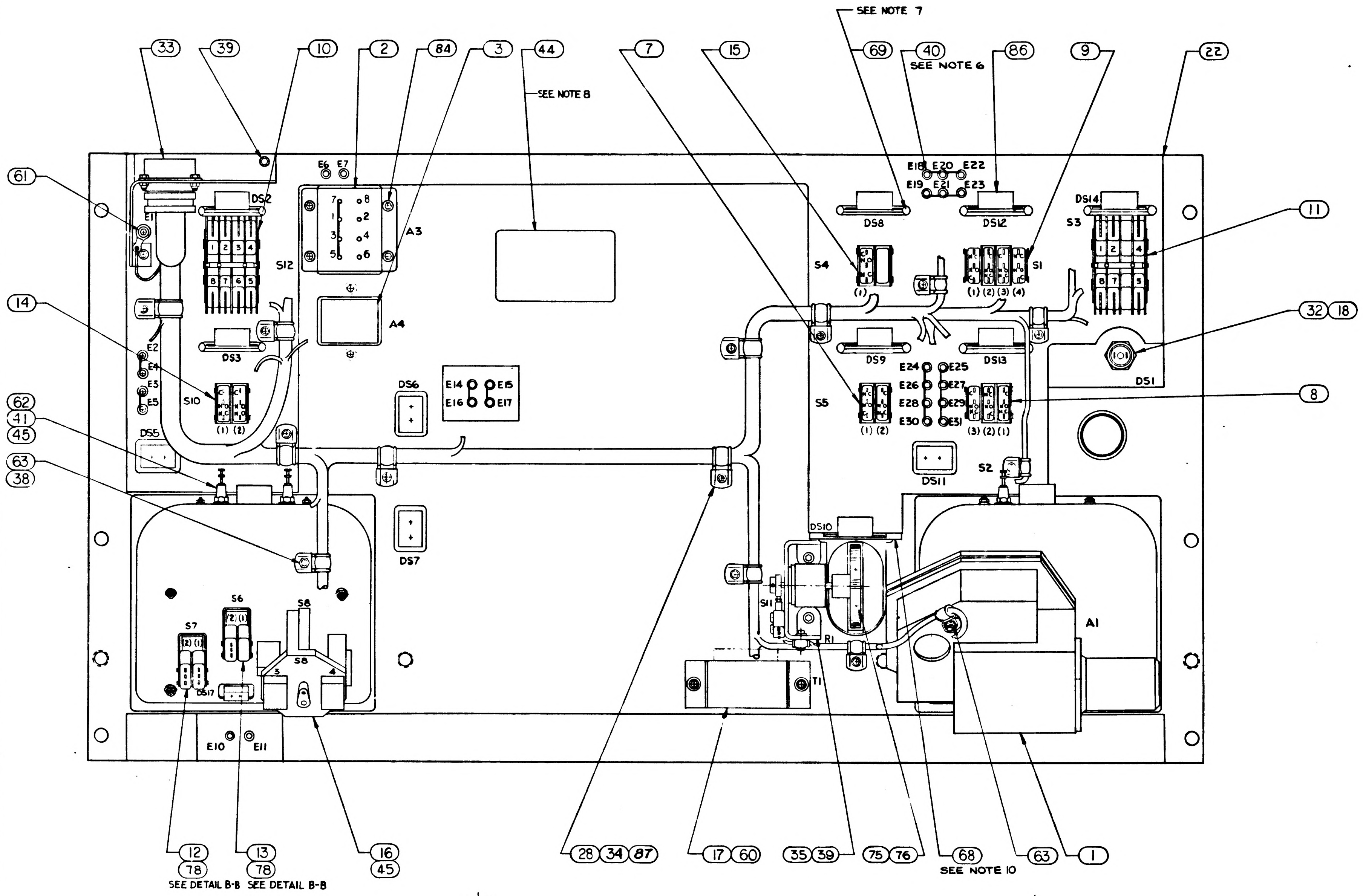
2014578 M

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
(M) C		TDAR 23213			13 DEC	WK
(M) D		TDRR 23831			11/1/65	WK
E		REVISED PER TDRR NO. 24977	JD.		1/1/66	WK
(M) F		REVISED PER TDRR NO. 25090	JD.		1/2/66	WK
(M) G		REVISION STATUS CHANGED	JWP	RWH	FEB 22 66	
(M) H		REVISION STATUS CHANGED	RLP		21 MAR 66	
(M) J		REVISION STATUS CHANGED	TE		4 MAR 66	
K		REVISED PER TDRR 28[illegible]	J.K.	T.C.	2[illegible] MAY 66	
(M) L		REVISED PER TDRR 289[illegible]	JWP		23 MAY 66	
M		REVISED PER TDRR 30155	J.E.		13 JULY 66	



SEE NOTE 7
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SEE NOTE 8
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SEE NOTE 6
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E6 E7
DS2
A3
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E18 E20 E22
E19 E21 E23
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E26 E27
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DS10
S11
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SEE NOTE 10
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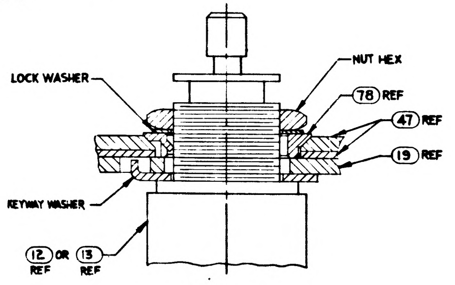

LOCK WASHER
NUT HEX
78 REF
47 REF
19 REF
KEYWAY WASHER
12 OR 13
REF REF

DETAIL B-B
SCALE 4/1

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN L. Hood 10/1/65
CHECKED 10-5-65
APPROVED Paul Watson OCT 5 65
APPROVED 10/5/65
APPROVED MIT 13 Oct 65
APPROVED MSC
DATE

G&N INDICATOR CONTROL PANEL ASSEMBLY.

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 3 OF 3

N 2014578

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		REVISED PER TDRR NO. 23263			[illegible]	
D		REVISED PER TDRR NO. 23831	L.J		[illegible]	
E		REVISED PER TDRR NO. 24977	J.D.		JAN 10 66	
F		REVISED PER TDRR NO. 25090	J.D.		JAN 12 66	
G		REVISED PER TDRR 26259	WAP	RWH	FEB 22 66	
H		REVISED PER TDRR 27053			21 MAR 66	
J		REVISED PER TDRR 27438	R		[illegible] 66	
K		REVISED PER TDRR 20809	JK	TRC	20 MAY 66	
L		REVISED PER TDRR 28931			23 MAY 66	
M		REVISED PER TDRR 30155			[illegible]	
N		REVISED PER TDRR 30900	JJB	NS	8-9-66	

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. THE COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014578 EXCEPT 79, 80 & 81 SHALL NOT BE INSTALLED.
3. VENDOR ITEM - SEE SPECIFICATION CONTROL DWG
4. SERIALIZE PER ND1002023
5. ENCAPSULATE ALL SOLDERED ELECTRICAL COMPONENT CONNECTIONS TO A .06 MIN DEPTH USING ITEMS 26, 27, 29 AND 30 PER ND1002236
6. SOLDER PER ND1002071 USING (23) & (24).
7. BOND (63) TO (22) AND THE ELECTRICAL WIRING ENCAPSULANT OF (86) TO (22) USING (70) AND (71) PER ND1002004.
8. LOCATE (44) APPROX AS SHOWN.
9. SELECT APPROPRIATE SIZE CLAMP AT ASSEMBLY
10. BOND (68) TO (22) USING (77) PER MIL-A-25055.
11. INSTALL (79) AND (80) USING (81) SO THAT S2, TRACKER SWITCH IS RESTRAINED IN THE "OFF" POSITION UPON COMPLETION OF TESTING PER NOTE 2. ITEM (79) SHALL BE INSTALLED FLUSH PLUS APPROXIMATELY 1/2 TURN BEYOND FLUSH ON THE MOUNTING BUSHING OF ITEM (8).
12. THE TERMINAL END OF ITEM (3) SHALL BE SEALED PER ND1002004 TYPE I, USING ITEMS (82) AND (83) TO PREVENT LEAKAGE OF THE ENCAPSULANT WHICH IS APPLIED IN NOTE 5. ETCH ITEM 40 USING ITEM 88 PER ND 1002146 AND BOND TO ITEM 22 USING ITEMS 70 AND 71 PER ND 1002004, TYPE II, SEMI-RIGID.
13. ETCH ITEM (40) USING ITEM (88) PER ND1002146 AND BOND TO ITEM (22) USING ITEMS (70) AND (71) PER ND1002004, TYPE II, SEMI-REGID.

WIRING LEGEND FROM	TO
DS2 - BLACK	E6
DS2 - BROWN	E7
DS3 - BLACK	E4
DS3 - BROWN	E5
DS5 - BLACK	E2
DS5 - BROWN	E3
DS6 - BLACK	E14
DS6 - BROWN	E15
DS7 - BLACK	E16
DS7 - BROWN	E17
DS8 - BLACK	E18
DS8 - BROWN	E19
DS9 - BLACK	E24
DS9 - BROWN	E25
DS10 - BLACK	E30
DS10 - BROWN	E31
DS11 - BLACK	E28
DS11 - BROWN	E29
DS12 - BLACK	E20
DS12 - BROWN	E21
DS13 - BLACK	E26
DS13 - BROWN	E27
DS14 - BLACK	E22
DS14 - BROWN	E23
DS15 - BLACK	E32
DS15 - BROWN	E33
DS16 - BLACK	E8

WIRING LEGEND FROM	TO	USE ITEM
DS16 - BROWN	E9	
DS17 - BLACK	E10	
DS17 - BROWN	E11	
E2	E4	66
E5	E5	
E14	E16	
E15	E17	
E18	E20	
E20	E22	
E19	E21	
E21	E23	
E24	E26	
E26	E28	
E28	E30	
E25	E27	
E27	E29	
E29	E31	
A3-7	A3-1	
A3-1	A3-3	
A3-3	A3-5	66

	QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
SEE NOTE 3	AR		88	1010702		SOLUTION, ETCHING, TEFLON
SEE NOTE 3	13		87	1001489-6		SCREW, SOCKET HD CAP
	8		86	2014798		LAMP, ELECTROLUMINESCENT, MODIFIED
	8		85	MS35649-24		NUT, PLAIN HEX
	4		84	NAS1352C02-4		SCREW, SOCKET HEAD CAP
SEE NOTE 3	AR		83	1010683		CURING AGENT, AMINE
SEE NOTE 3	AR		82	1010682		EPOXY RESIN
SEE NOTE 2 & 11	2		81	NAS1352C02LL3		SCREW, SOC. HD. CAP, SELF LOCKING
SEE NOTE 2 & 11	1		80	2021201		PLATE, SWITCH BLOCKOUT
SEE NOTE 2 & 11	1		79	2021200		BUSHING, SWITCH BLOCKOUT
	2		78	2014763		SPACER PANEL
	AR		77	MIL-A-25055		ADHESIVE
	2		76	NAS1081C04D3L		SCREW, SET, SELF LOCK
	1		75	2014655		WHEEL, CONTROL
SEE NOTE 3	2		74	1010999-6		LAMP, ELECTROLUMINESCENT
	4		73	1010630-4		SCREW, FLAT HD, HEX SOC.
	8		72	1010618-7		SCREW, BUTTON HD, HEX SOC.
	AR		71	1010657		EPOXY RESIN
SEE NOTE 3	AR		70	1010686		CATALYST
	7		69	2014706		RETAINER, LAMP
	1		68	2014718		RETAINER, LAMP
SEE NOTE 3	12		67	6014527		WASHER, SPHERICAL
	AR		66	QQ-W-343, TYPE S		WIRE, ELECT., 24AWG
SEE NOTE 3	4		65	1010617-2		NUT, HEX, SELF-LOCKING
			64			
	2		63	1010617-4		NUT, HEX, SELF-LOCKING
	4		62	MS15795-803		WASHER, FLAT
	1		61	1006783-18		SCREW, BUTTON HD, HEX SOCKET
SEE NOTE 3	4		60	1006783-21		SCREW, BUTTON HD, HEX SOCKET
	1		59	2014738		PANEL & LAMP, MATCHED ASSY OF
	1		58	2014737-011		PANEL & LAMP, MATCHED ASSY OF
	1		57	2014735		PANEL & LAMP, MATCHED ASSY OF
	8		56	2014725		SCREW, SHOULDER
	1		55	2014722		RETAINER, PANEL LEFT
	1		54	2014727		FRAME, ANNUNCIATOR
	1		53	2014721		RETAINER, PANEL
	1		52	2014723		RETAINER, PANEL CENTER
	2		51	2014705		RETAINER, PANEL
	1		50	2014703		RETAINER, PANEL
	1		49	2014702		RETAINER, PANEL
SEE NOTE 3	36		48	1006783-9		SCREW, BUTTON HD
	1		47	2014719		PANEL & LAMP, MATCHED ASSY OF
	2		46	2014683		RETAINER, LIGHT
SEE NOTE 3	8		45	1010477-12		SCREW, FLAT HD SELF LOCKING
	1		44	1004260-181		NAME PLATE
	1		43	2014736-011		PANEL & LAMP, MATCHED ASSY OF
SEE NOTE 3	4		42	1010477-13		SCREW, FLAT HD SELF LOCKING
SEE NOTE 3	4		41	1010676-1		TERMINAL

LIST OF MATERIAL

(C) = REPLACES REV B WITH CHANGES

	QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
SEE NOTE 3	26		40	1010623-3		TERMINAL, TURRET
	5		39	1001489-2		SCREW, SOCKET HD CAP
SEE NOTE 3	17		38	1010630-14		SCREW, FLAT HEAD
			37			
	2		36	2014764-011		HANDLE ASSEMBLY
	1		35	2014656-011		RETICLE BRIGHTNESS CONTROL
SEE NOTE 3	15		34	1011918-1		WASHER-CABLE CLAMP
	1		33	2014622		HARNESS
SEE NOTE 3	1		32	1010625-2		LIGHT, INDICATOR
	1		31	1010475-1		CAP, PUSHBUTTON
	AR		30	1012504-2		PRIMER, METAL
	AR		29	1012504-1		PRIMER, METAL
49	15		28	1000220-1 THRU -12		CLAMP, CABLE
	AR		27	1012503-1		COMPOUND, POLYURETHANE
SEE NOTE 3	AR		26	1012503-2		COMPOUND, POLYURETHANE
	1		25	1023003		CAP, PUSHBUTTON
	AR		24	QQ-S-571 SN60WRAP2		SOLDER
	AR		23	MIL-F-14256		FLUX
	1		22	2014626		PANEL G & N IND CONT (INSEPARABLE)
	1		21	2014627		SUPPORT, HAND CONTROLLER
	X		20	2014507		SCHEMATIC DIAGRAM
	1		19	2014658		SUPPORT, SWITCH
SEE NOTE 3	1		18	1010268-5		LAMP, INCANDESCENT
SEE NOTE 3	1		17	1010942		TRANSFORMER
	1		16	2014700-011		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3	1		15	1010905-5		SWITCH, TOGGLE
	1		14	1010905-3		SWITCH, TOGGLE
	1		13	1010904-2		SWITCH, PUSH BUTTON
	1		12	1010904-1		SWITCH, PUSH BUTTON
	1		11	1010903-9		SWITCH, TOGGLE
	1		10	1010903-8		SWITCH, TOGGLE
	1		9	1010902-6		SWITCH, TOGGLE
	1		8	1010902-5		SWITCH, TOGGLE
	1		7	1010902-4		SWITCH, TOGGLE
	~~2~~		6	~~1010999-4~~		~~LAMP, ELECTROLUMINESCENT~~
	~~1~~		5	~~1010999-8~~		~~LAMP, ELECTROLUMINESCENT~~
			4			
	1		3	1008824-1		MASTER ALARM ANNUNCIATOR
	1		2	1010949-1		CONDITION ANNUNCIATOR
SEE NOTE 3	1		1	2014550-011		SEXTANT HAND CONTROLLER

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
2014623		

APPLICATION

THE ASSY PART NO. IS THE DRAWING NO. AND THE DASH NO. THAT APPLIES

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MATERIAL —

CONTRACT NAS-9-497

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 10-4-65
CHECKED 10-5-65
APPROVED
APPROVED
APPROVED MIT
NOT REQUIRED PER LETTER
APPROVED MSC 65-012
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE NONE
SHEET 1 OF 3

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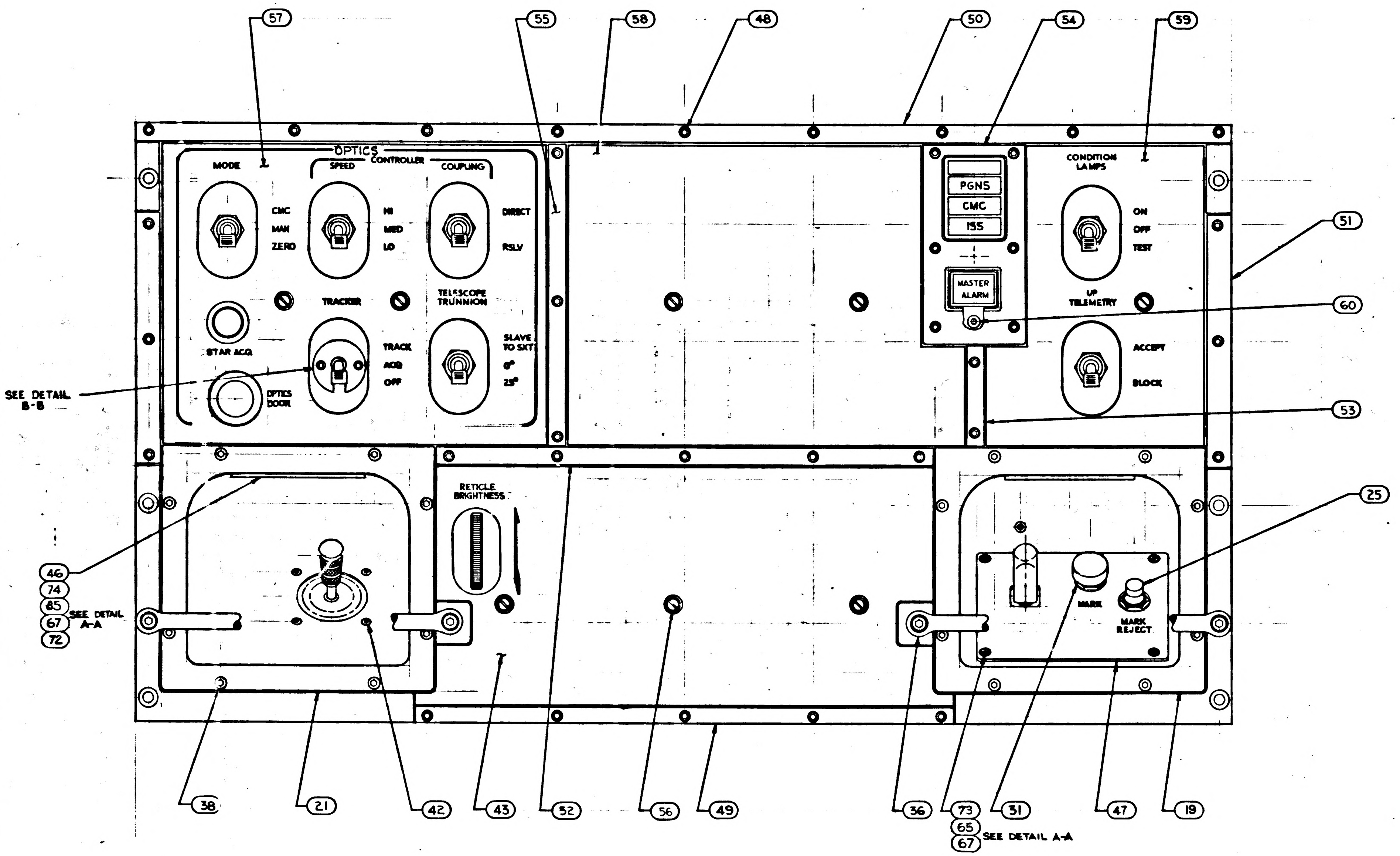
N 2014578

REVISIONS

	SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
	C		SEE SHEET I FOR REVISION STATUS TDRR 23213				
Ⓜ	D		TDRR 23831				
	E		REVISED PER TDRR NO. 24577	JD.		1/11/66	
Ⓜ	F		REVISED PER TDRR NO. 25090	JD.		1/12/66	
Ⓜ	G		REVISION STATUS CHANGED	JMP		FEB 22 66	
Ⓜ	H		REVISION STATUS CHANGED			21 MAR 66	
Ⓜ	J		REVISED PER TDRR 27458			4 APR 66	
	K		REVISED PER TDRR 28809	J.K.	J.A.C.	20 MAY 66	
Ⓜ	L		REVISION STATUS CHANGED			66	
	M		REV STATUS CHANGED			19 JULY 66	
	N		REVISION STATUS CHANGED	JJB	AS	9-9-66	



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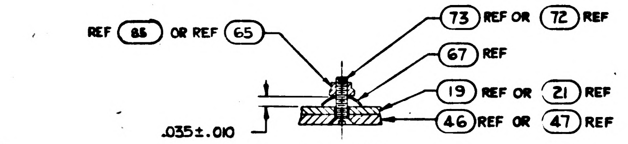

REF 85 OR REF 65
73 REF OR 72 REF
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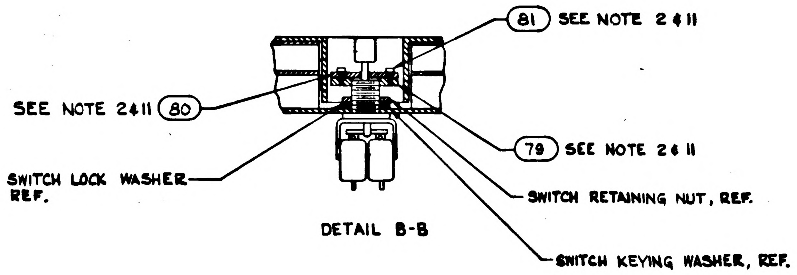
19 REF OR 21 REF
46 REF OR 47 REF
.035±.010

DETAIL A-A
SCALE: NONE



81 SEE NOTE 2 & 11
SEE NOTE 2&11 80
79 SEE NOTE 2 & 11
SWITCH LOCK WASHER REF.
SWITCH RETAINING NUT, REF.
SWITCH KEYING WASHER, REF.

DETAIL B-B

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson OCT. 5-65
APPROVED
APPROVED MIT 10-8-65
NOT REQUIRED PER LETTER 65-612
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 2 OF 3

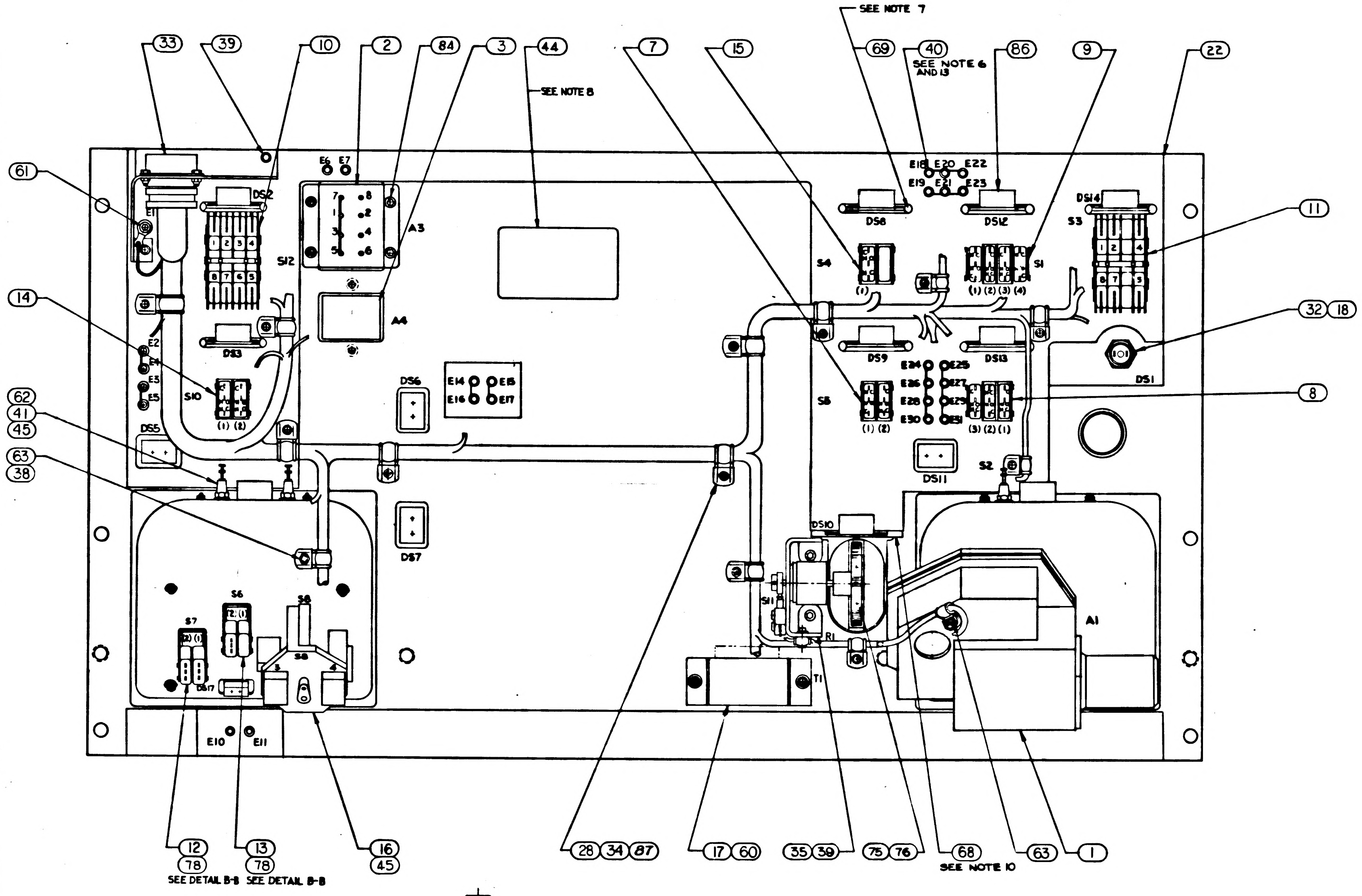
6 5 4 3 2 1

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 N

REVISIONS

	SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
Ⓜ	C		TDRR 23213			13 [illegible]	WK
Ⓜ	D		TDRR 23831			8/17/65	WK
	E		REVISED PER TDRR NO. 2 977	JD.		1/11/66	WK
Ⓜ	F		REVISED PER TDRR NO. 25 90	JD.		1/12/66	WK
Ⓜ	G		REVISION STATUS CHANGED	LIMP	RWM	FEB 22 66	
Ⓜ	H		REVISION STATUS CHANGED	RLP		21 MAR 66	
Ⓜ	J		REVISION STATUS CHANGED	TE		4 APR 66	
	K		REVISED PER TDRR 2880	I.K.	J.A.G.	20 MAY 66	
Ⓜ	L		REVISED PER TDRR 28		PJ	23 MAY 66	
⊖	M		REVISED PER TDRR 30155	J.E.		13 JULY 66	
	N		REVISED PER TDRR 30900	JJE	NS	9-9-66	


SEE NOTE 7
33
39
10
2
84
3
44
SEE NOTE 8
7
15
69
40
SEE NOTE 6 AND 13
86
9
22
61
E1
DS2
1 2 3 4
8 7 6 5
S12
7 8
1 2
3 4
5 6
A3
A4
E6 E7
14
E2
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E4
E5
DS3
S10
(1) (2)
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41
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DS5
DS6
E14 E15
E16 E17
DS7
S7
S6
S8
DS17
E10 E11
E18 E20 E22
E19 E21 E23
DS8
DS12
DS14
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S4
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S1
(1) (2) (3) (4)
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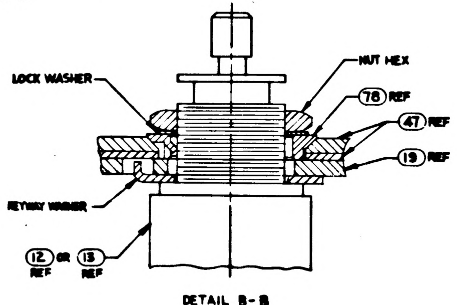
32 18
DS9
DS13
DS1
S5
(1) (2)
E24 E25
E26 E27
E28 E29
E30 E31
(3) (2) (1)
8
DS11
S2
DS10
S11
R1
T1
A1
12
78
SEE DETAIL B-B
13
78
SEE DETAIL B-B
16
45
28 34 87
17 60
35 39
75 76
68
SEE NOTE 10
63
1


LOCK WASHER
NUT HEX
78 REF
47 REF
19 REF
KEYWAY WASHER
12 OR 13 REF

DETAIL B-B
SCALE 4/1

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

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MIT
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CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN L. Wood 10/1/65
CHECKED 10-5-65
APPROVED Paul Watson OCT 5 65
APPROVED
APPROVED MIT
APPROVED MSC 66-612
DATE

G&N INDICATOR CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 3 OF 3

2 1

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2014578 P

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		REVISED PER TDRR NO. 23213			[illegible]	WK
D		REVISED PER TDRR NO. 23831	L.J		11/2/65	[illegible]
E		REVISED PER TDRR NO. 24977	JD.		JAN 10 66	WK
F		REVISED PER TDRR NO. 25090	JD.		JAN 12 66	WK
G		REVISED PER TDRR 26259	JMP	RWH	FEB 22 66	
H		REVISED PER TDRR 27053	BP	[illegible]	21 MAR 66	
J		REVISED PER TDRR 27455	R	[illegible]	4 APR 66	
K		REVISED PER TDRR 28809	JK	JAC	20 MAY 66	
L		REVISED PER TDRR 28931	JMP	PP	23 MAY 66	
M		REVISED PER TDRR 30155	J.E.G.	[illegible]	[illegible] 66	
N		REVISED PER TDRR 30900	JJB	NS	9-[illegible]	
P		REVISED PER TDRR 32616	WC	[illegible]	1-27-[illegible]	

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. THE COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014578 EXCEPT 79, 80 & 81 SHALL NOT BE INSTALLED.
3. VENDOR ITEM-SEE SPECIFICATION CONTROL DWG
4. SERIALIZE PER ND1002023
5. ENCAPSULATE ALL SOLDERED ELECTRICAL COMPONENT CONNECTIONS TO A .06 MIN DEPTH USING ITEMS 26, 27, 29 AND 30 PER ND1002236
6. SOLDER PER ND1002071 USING (23) & (24).
7. BOND (69) TO (22) AND THE ELECTRICAL WIRING ENCAPSULANT OF (86) TO (22) USING (70) AND (71) PER ND1002004.
8. LOCATE NAMEPLATE APPROX. AS SHOWN.
9. SELECT APPROPRIATE SIZE CLAMP AT ASSEMBLY
10. BOND (68) TO (22) USING (77) PER MIL-A-25055.
11. INSTALL (79) AND (80) USING (81) SO THAT S2, TRACKER SWITCH IS RESTRAINED IN THE "OFF" POSITION UPON COMPLETION OF TESTING PER NOTE 2. ITEM (79) SHALL BE INSTALLED FLUSH PLUS APPROXIMATELY 1/2 TURN BEYOND FLUSH ON THE MOUNTING BUSHING OF ITEM (8).
12. THE TERMINAL END OF ITEM (3) SHALL BE SEALED PER ND1002004 TYPE I, USING ITEMS (82) AND (83) TO PREVENT LEAKAGE OF THE ENCAPSULANT WHICH IS APPLIED IN NOTE 5.
13. ETCH ITEM (40) USING ITEM (88) PER ND1002146 AND BOND TO ITEM (22) USING ITEMS (70) AND (71) PER ND1002004, TYPE II, SEMI-REGID.
14. WRAP TEFLON TAPE, ITEM (101), AROUND PERIPHERY OF ITEM (95) TO CLOSE EXPOSED SLOTS

WIRING LEGEND	
FROM	TO
DS2-BLACK	E6
DS2-BROWN	E7
DS3-BLACK	E4
DS3-BROWN	E5
DS5-BLACK	E2
DS5-BROWN	E3
DS6-BLACK	E14
DS6-BROWN	E15
DS7-BLACK	E16
DS7-BROWN	E17
DS8-BLACK	E18
DS8-BROWN	E19
DS9-BLACK	E24
DS9-BROWN	E25
DS10-BLACK	E30
DS10-BROWN	E31
DS11-BLACK	E28
DS11-BROWN	E29
DS12-BLACK	E20
DS12-BROWN	E21
DS13-BLACK	E26
DS13-BROWN	E27
DS14-BLACK	E22
DS14-BROWN	E23
DS15-BLACK	E32
DS15-BROWN	E33
DS16-BLACK	E8

WIRING LEGEND		USE
FROM	TO	ITEM
DS16-BROWN	E9	
DS17-BLACK	E10	
DS17-BROWN	E11	
E2	E4	66
E3	E5	
E14	E16	
E15	E17	
E18	E20	
E20	E22	
E19	E21	
E21	E23	
E24	E26	
E26	E28	
E28	E30	
E25	E27	
E27	E29	
E29	E31	
A3-7	A3-1	
A3-1	A3-3	
A3-3	A3-5	66

(C) REPLACES REV B WITH CHANGES

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
			021	011					
			AR			101	MIL-T-23594 TYPE II		TAPE, TEFLON
			7			100	1010999-4		LAMP, ELECTROLUMINESCENT
			1			99	1010999-8		LAMP, ELECTROLUMINESCENT
			1			98	1004260-545		NAMEPLATE
			1			97	2014656-021		RETICLE, BRIGHTNESS CONTROL
			1			96	2021240		COVER, SHIELD
			1			95	2021239		SHIELD, SWITCH AIS
			2			94	2021238-006		COVER, SWITCH
			2			93	2021238-005		COVER SWITCH
			1			92	2021238-004		COVER, SWITCH
			1			91	2021238-003		COVER, SWITCH
			2			90	2021238-002		COVER, SWITCH
			3			89	2021238-001		COVER - SWITCH
SEE NOTE 3			AR	AR		88	1010702		SOLUTION, ETCHING, TEFLON
SEE NOTE 3			13	13		87	1001488-6		SCREW, SOCKET HD CAP
				8		86	2014798		LAMP, ELECTROLUMINESCENT, MODIFIED
			8	8		85	MS35649-24		NUT, PLAIN HEX
			8	4		84	NAS1352C02-4		SCREW, SOCKET HEAD CAP
SEE NOTE 3			AR	AR		83	1010683		CURING AGENT, AMINE
SEE NOTE 3			AR	AR		82	1010682		EPOXY RESIN
SEE NOTE 2 & 11			2	2		81	NAS1352C02LL3		SCREW, SOC. HD. CAP, SELF LOCKING
SEE NOTE 2 & 11			1	1		80	2021201		PLATE, SWITCH BLOCKOUT
SEE NOTE 2 & 11			1	1		79	2021200		BUSHING, SWITCH BLOCKOUT
			2	2		78	2014763		SPACER PANEL
			AR	AR		77	MIL-A-25055		ADHESIVE
			2	2		76	NAS1081C04D3L		SCREW, SET, SELF LOCK
			1	1		75	2014655		WHEEL, CONTROL
SEE NOTE 3			2	2		74	1010999-6		LAMP, ELECTROLUMINESCENT
			4	4		73	1010630-4		SCREW, FLAT HD, HEX SOC.
			8	8		72	1010618-7		SCREW, BUTTON HD, HEX SOC.
			AR	AR		71	1010657		EPOXY RESIN
SEE NOTE 3			AR	AR		70	1010686		CATALYST
			7	7		69	2014706		RETAINER, LAMP
			1	1		68	2014718		RETAINER, LAMP
SEE NOTE 3			12	12		67	6014527		WASHER, SPHERICAL
			AR	AR		66	QQ-W-343, TYPE S		WIRE, ELECT., 24AWG
SEE NOTE 3			8	4		65	1010617-2		NUT, HEX, SELF-LOCKING
						64			
			2	2		63	1010617-4		NUT, HEX, SELF-LOCKING
			4	4		62	MS15795-803		WASHER, FLAT
			1	1		61	1006783-18		SCREW, BUTTON HD, HEX SOCKET
SEE NOTE 3			4	4		60	1006783-21		SCREW, BUTTON HD, HEX SOCKET
			1	1		59	2014738		PANEL & LAMP, MATCHED ASSY OF
			1	1		58	2014737-011		PANEL & LAMP, MATCHED ASSY OF
			1	1		57	2014735		PANEL & LAMP, MATCHED ASSY OF
			8	8		56	2014725		SCREW, SHOULDER
			1	1		55	2014722		RETAINER, PANEL LEFT
			1	1		54	2014727		FRAME, ANNUNCIATOR
			1	1		53	2014721		RETAINER, PANEL
			1	1		52	2014723		RETAINER, PANEL CENTER
			2	2		51	2014705		RETAINER, PANEL
			1	1		50	2014703		RETAINER, PANEL
			1	1		49	2014702		RETAINER, PANEL
SEE NOTE 3			36	36		48	1006783-9		SCREW, BUTTON HD
			1	1		47	2014719		PANEL & LAMP, MATCHED ASSY OF
			2	2		46	2014683		RETAINER, LIGHT
SEE NOTE 3			4	8		45	1010477-12		SCREW, FLAT HD SELF LOCKING
				1		44	1004260-181		NAME PLATE
			1	1		43	2014736-011		PANEL & LAMP, MATCHED ASSY OF
SEE NOTE 3			8	4		42	1010477-13		SCREW, FLAT HD SELF LOCKING
SEE NOTE 3			4	4		41	1010676-1		TERMINAL
SEE NOTE 3			26	26		40	1010623-3		TERMINAL, TURRET
			5	5		39	1001489-2		SCREW, SOCKET HD CAP
SEE NOTE 3			17	17		38	1010630-14		SCREW, FLAT HEAD
						37			
			2	2		36	2014764-011		HANDLE ASSEMBLY
				1		35	2014656-011		RETICLE BRIGHTNESS CONTROL
SEE NOTE 3			15	15		34	1011918-1		WASHER-CABLE CLAMP
			1	1		33	2014622		HARNESS
SEE NOTE 3			1	1		32	1010625-2		LIGHT, INDICATOR
			1	1		31	1010475-1		CAP, PUSHBUTTON
			AR	AR		30	1012504-2		PRIMER, METAL
			AR	AR		29	1012504-1		PRIMER, METAL
& 9			15	15		28	1000220-1 THRU-12		CLAMP, CABLE
			AR	AR		27	1012503-1		COMPOUND, POLYURETHANE
SEE NOTE 3			AR	AR		26	1012503-2		COMPOUND, POLYURETHANE
			1	1		25	1023003		CAP, PUSHBUTTON
			AR	AR		24	QQ-S-571 SN60 WRAP 2		SOLDER
			AR	AR		23	MIL-F-14256		FLUX
			1	1		22	2014626		PANEL G & N IND CONT (INSEPARABLE)
			1	1		21	2014627		SUPPORT, HAND CONTROLLER
			X	X		20	2014507		SCHEMATIC DIAGRAM
			1	1		19	2014658		SUPPORT, SWITCH
SEE NOTE 3			1	1		18	1010268-5		LAMP, INCANDESCENT
SEE NOTE 3			1	1		17	1010942		TRANSFORMER
			1	1		16	2014700-011		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3			1	1		15	1010905-5		SWITCH, TOGGLE
			1	1		14	1010905-3		SWITCH, TOGGLE
			1	1		13	1010904-2		SWITCH, PUSH BUTTON
			1	1		12	1010904-1		SWITCH, PUSH BUTTON
			1	1		11	1010903-9		SWITCH, TOGGLE
			1	1		10	1010903-8		SWITCH, TOGGLE
			1	1		9	1010902-6		SWITCH, TOGGLE
			1	1		8	1010902-5		SWITCH, TOGGLE
			1	1		7	1010902-4		SWITCH, TOGGLE
				~~7~~		6	~~1010999-4~~		~~LAMP, ELECTROLUMINESCENT~~
				~~1~~		5	~~1010999-8~~		~~LAMP, ELECTROLUMINESCENT~~
						4			
			1	1		3	1008824-1		MASTER ALARM ANNUNCIATOR
SEE NOTE 3			1	1		2	1010949-1		CONDITION ANNUNCIATOR
			1	1		1	2014550-011		SEXTANT HAND CONTROLLER

LIST OF MATERIALS

2014623		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSY PART NO. IS THE DRAWING NO. AND THE DASH NO. THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN F. Dietrich 10-4-65
CHECKED [illegible] 10-5-65
APPROVED Paul Watson
APPROVED [illegible]
APPROVED MIT W Kupfer [illegible]
NOT REQUIRED PER LETTER
APPROVED MSC [illegible]7-65-612
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE NONE
SHEET 1 OF 3

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2014578 P

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		SEE SHEET 1 FOR REVISION STATUS TDRR 2323				
D		TDRR 23531				
E		REVISED PER TDRR NO. 24977	JD.		1/11/66	
F		REVISED PER TDRR NO. 25090	JD.		1/12/66	
G		REVISION STATUS CHANGED	JMP		FEB 22 66	
H		REVISION STATUS CHANGED			21 MAR 66	
J		REVISED PER TDRR 27455			66	
K		REVISED PER TDRR 28809	J.K.	J.A.C.	20 MAY 66	
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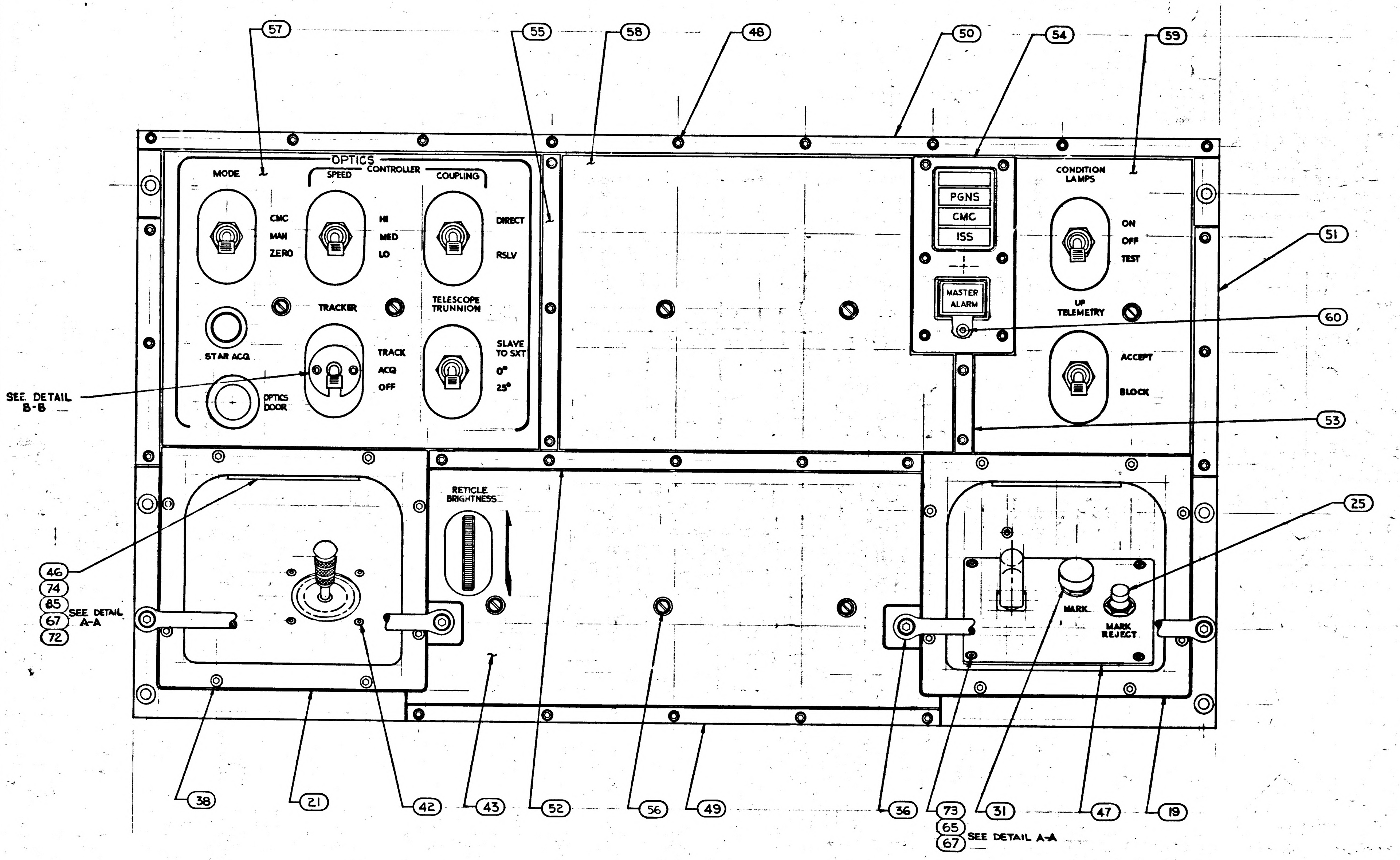
N		REVISION STATUS CHANGED	JJB		9-66	
P		REVISION STATUS CHANGED	WK			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OPTICS
CONTROLLER
MODE
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COUPLING
CMC
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DIRECT
RSLV
TRACKER
TELESCOPE TRUNNION
STAR ACQ
TRACK
ACQ
OFF
SLAVE TO SXT
0°
25°
OPTICS DOOR
SEE DETAIL B-B
PGNS
CMC
ISS
MASTER ALARM
CONDITION LAMPS
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OFF
TEST
UP TELEMETRY
ACCEPT
BLOCK
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53
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RETICLE BRIGHTNESS
MARK
MARK REJECT
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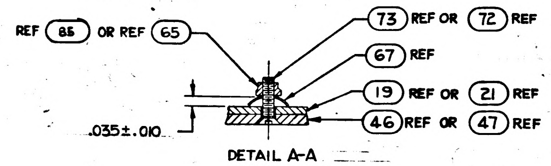
REF 85 OR REF 65
73 REF OR 72 REF
67 REF
19 REF OR 21 REF
46 REF OR 47 REF
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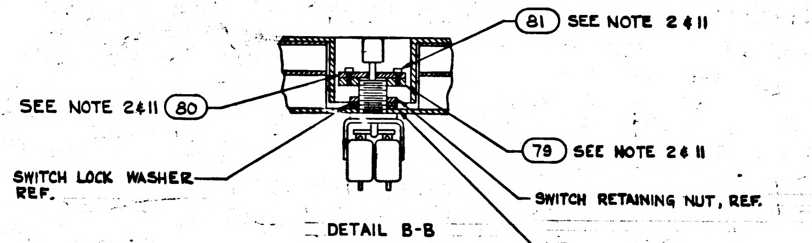
DETAIL A-A
SCALE: NONE


81 SEE NOTE 2&11
SEE NOTE 2&11 80
79 SEE NOTE 2&11
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SWITCH RETAINING NUT, REF.
SWITCH KEYING WASHER, REF.

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APPROVED Paul Watson OCT.5-65
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NASA MSC 65-612
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HOUSTON, TEXAS

G&N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
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DRAWING NO. 2014578
SCALE 1/1
SHEET 2 OF 3

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2014578 P

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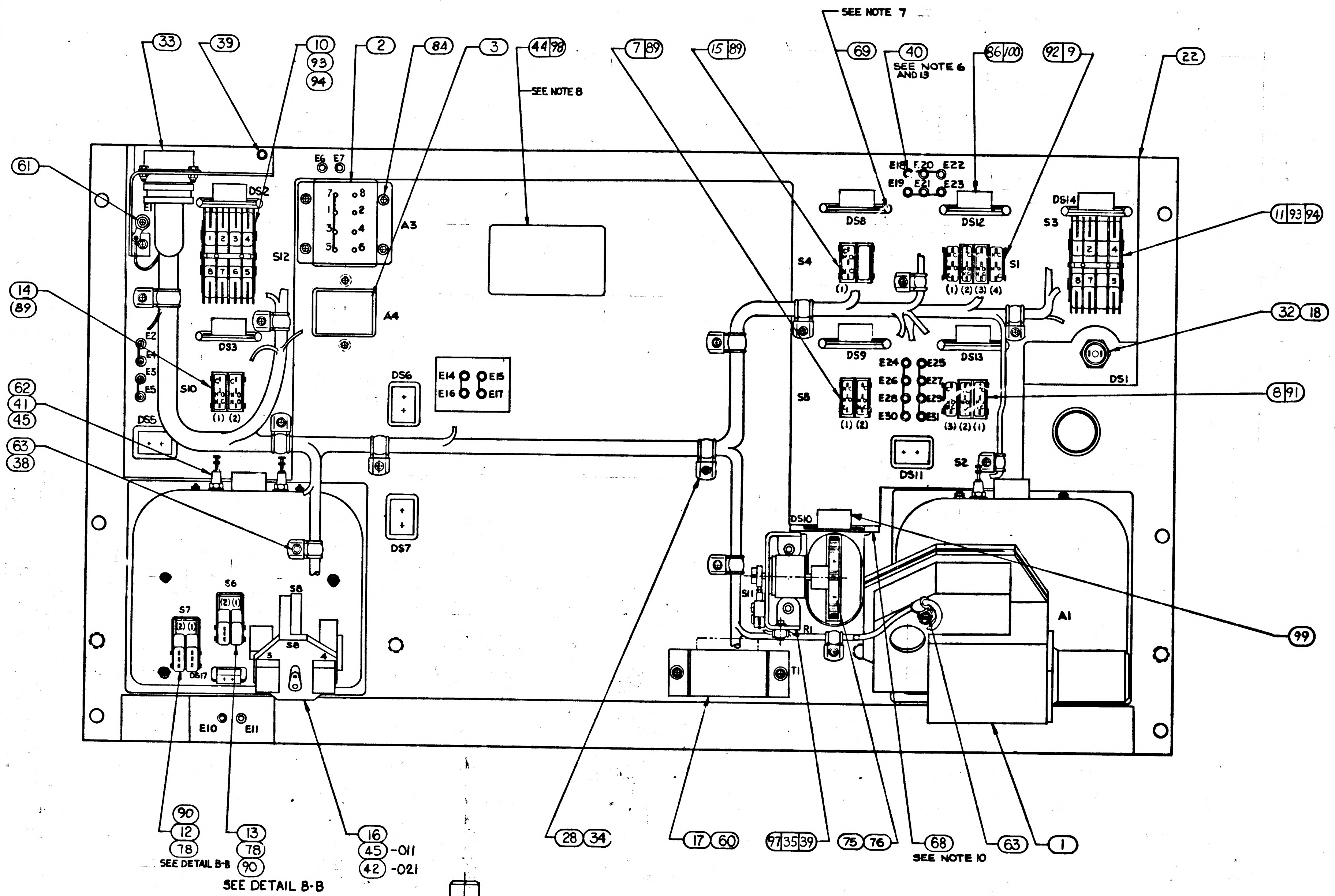
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
Ⓜ C		TDRR 23213			13 [illegible]	WK
Ⓜ D		TDRR 23831			[illegible]	WK
E		REVISED PER TDRR NO. 2 977	JD.		1/11/66	WK
Ⓜ F		REVISED PER TDRR NO. 25 90	JD.		1/12/66	WK
Ⓜ G		REVISION STATUS CHANGED	IMP	RWH	FEB 28 66	
Ⓜ H		REVISION STATUS CHANGED	RLP		21 MAR 66	
Ⓜ J		REVISION STATUS CHANGED	TE		4 APR 66	
K		REVISED PER TDRR 288	IK.	T.A.G.	20 MAY 66	
Ⓜ L		REVISED PER TDRR 289			23 MAY 66	
Ⓜ M		REVISED PER TDRR 301 5	J.E.		JULY 66	
Ⓜ N		REVISED PER T R 30900	WJE		9-9-66	
P		REVISED PER R 32616	WK		30 JAN 67	



33
39
10
93
94
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84
3
44 98
SEE NOTE 8
7 89
15 89
SEE NOTE 7
69
40
SEE NOTE 6 AND 13
86 100
92 9
22
61
E1
DS2
E6
E7
A3
S12
A4
DS3
14
89
E2
E4
E3
E5
S10
(1) (2)
62
41
45
DS5
DS6
E14
E15
E16
E17
63
38
DS7
DS8
DS12
E18
E20
E22
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E21
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DS14
S3
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(1) (2) (3) (4)
11 93 94
DS9
DS13
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DS1
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S5
(1) (2)
(3) (2) (1)
8 91
DS11
S2
DS10
S11
R1
A1
T1
99
S7
S6
S8
3
4
DS17
E10
E11
90
12
78
SEE DETAIL B-B
13
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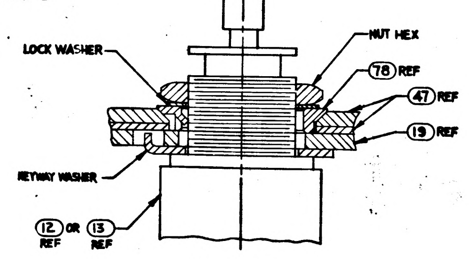
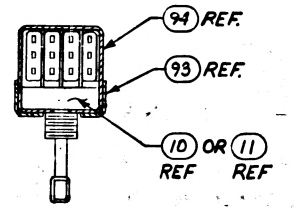
SEE DETAIL B-B
16
45 -011
42 -021
28 34
17 60
97 35 39
75 76
68
SEE NOTE 10
63
1



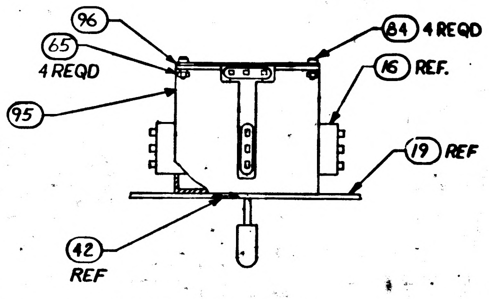
LOCK WASHER
NUT HEX
78 REF
47 REF
19 REF
KEYWAY WASHER
12 OR 13
REF REF

DETAIL B-B
SCALE 4/1



94 REF.
93 REF.
10 OR 11
REF REF

TYPICAL SWITCH COVER
INSTALLATION ON S3 AND S12
-021



96
65
4 REQD
84 4 REQD
16 REF.
95
19 REF
42
REF

S8 SHIELD AND COVER
INSTALLATION -021

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	L. Wood	10/1/65
CHECKED	J. E. Sussin	10-5-65
APPROVED	Paul Watson	OCT. 5-65
APPROVED		10/5/65
APPROVED MIT	W Kupfer	130
APPROVED MSC	NOT REQUIRED PER LETTER NASA PP7-65-612	DATE

G&N INDICATOR CONTROL PANEL ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2014578
SCALE 1/1		SHEET 3 OF 3

2014578 P

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2014578 R

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. THE COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014578 EXCEPT 79, 80 & 81 SHALL NOT BE INSTALLED.
3. VENDOR ITEM - SEE SPECIFICATION CONTROL DWG
4. SERIALIZE PER ND1002023
5. ENCAPSULATE ALL SOLDERED ELECTRICAL COMPONENT CONNECTIONS TO A .06 MIN DEPTH USING ITEMS 26, 27, 29 AND 30 PER ND1002236
6. SOLDER PER ND1002071 USING (23) & (24).
7. BOND (63) TO (22) AND THE ELECTRICAL WIRING ENCAPSULANT OF (86) TO (22) USING (70) AND (71) PER ND1002004.
8. LOCATE NAMEPLATE APPROX. AS SHOWN.
9. SELECT APPROPRIATE SIZE CLAMP AT ASSEMBLY
10. BOND (68) TO (22) USING (77) PER MIL-A-25055.
11. INSTALL (79) AND (80) USING (81) SO THAT S2, TRACKER SWITCH IS RESTRAINED IN THE "OFF" POSITION UPON COMPLETION OF TESTING PER NOTE 2. ITEM (79) SHALL BE INSTALLED FLUSH PLUS APPROXIMATELY 1/2 TURN BEYOND FLUSH ON THE MOUNTING BUSHING OF ITEM (8).
12. THE TERMINAL END OF ITEM (3) SHALL BE SEALED PER ND1002004 TYPE I, USING ITEMS (82) AND (83) TO PREVENT LEAKAGE OF THE ENCAPSULANT WHICH IS APPLIED IN NOTE 5.
13. ETCH ITEM (40) USING ITEM (88) PER ND1002146 AND BOND TO ITEM (22) USING ITEMS (70) AND (71) PER ND1002004, TYPE II, SEMI-REGID.
14. WRAP TEFLON TAPE, ITEM (101), AROUND PERIPHERY OF ITEM (95) TO CLOSE EXPOSED SLOTS

REVISIONS

SYM	ZONE	DESCRIPTION	BR	CHK	DATE	APPROVED
C		REVISED PER TDRR NO. 23243			[illegible]	[illegible]
D		REVISED PER TDRR NO. 23831	L.J		[illegible]	[illegible]
E		REVISED PER TDRR NO. 24977	JD.		JAN 10 66	[illegible]
F		REVISED PER TDRR NO. 25090	JD		JAN 12 66	[illegible]
G		REVISED PER TDRR 26259	WMP	RWH	FEB 22 66	
H		REVISED PER TDRR 27053	[illegible]	[illegible]	21 MAR 66	
J		REVISED PER TDRR 27455	R	[illegible]	4 APR 66	
K		REVISED PER TDRR 28809	JK	JAC	20 MAY 66	
L		REVISED PER TDRR 28931	JMP	[illegible]	27 MAY 66	
M		REVISED PER TDRR 30155	J.E.G.	[illegible]	[illegible] 66	
N		REVISED PER TDRR 30900	JJB	NS	9-9-66	
P		REVISED PER TDRR 32616	WK	[illegible]	1-27-67	
R		REVISED PER TDRR 33630	VE	ESR	[illegible] 67	

Ⓒ REPLACES REV B WITH CHANGES

	QUANTITY REQUIRED				EFFECTIVITY	LIST OF MATERIAL			
			021	011		ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
			6	6		102	1001489-4		SCREW, SOC. HD. CAP
			AR			101	MIL-T-23594 TYPE II		TAPE, TEFLON
			7			100	1010999-4		LAMP, ELECTROLUMINESCENT
			1			99	1010999-8		LAMP, ELECTROLUMINESCENT
			1			98	1004260-545		NAMEPLATE
			1			97	2014656-021		RETICLE, BRIGHTNESS CONTROL
			1			96	2021240		COVER, SHIELD
			1			95	2021239		SHIELD, SWITCH AIS
			2			94	2021238-006		COVER, SWITCH
			2			93	2021238-005		COVER SWITCH
			1			92	2021238-004		COVER, SWITCH
			1			91	2021238-003		COVER, SWITCH
			2			90	2021238-002		COVER, SWITCH
			3			89	2021238-001		COVER - SWITCH
SEE NOTE 3			AR	AR		88	1010702		SOLUTION, ETCHING, TEFLON
SEE NOTE 3			7	7		87	1001489-6		SCREW, SOCKET HD CAP
				8		86	2014798		LAMP, ELECTROLUMINESCENT, MODIFIED
			8	8		85	MS35649-24		NUT, PLAIN HEX
			8	4		84	NAS1352C02-4		SCREW, SOCKET HEAD CAP
SEE NOTE 3			AR	AR		83	1010683		CURING AGENT, AMINE
SEE NOTE 3			AR	AR		82	1010682		EPOXY RESIN
SEE NOTE 2 & 11			2	2		81	NAS1352C02LL3		SCREW, SOC. HD. CAP, SELF LOCKING
SEE NOTE 2 & 11			1	1		80	2021201		PLATE, SWITCH BLOCKOUT
SEE NOTE 2 & 11			1	1		79	2021200		BUSHING, SWITCH BLOCKOUT
			2	2		78	2014763		SPACER PANEL
			AR	AR		77	MIL-A-25055		ADHESIVE
			2	2		76	NAS1081C04D3L		SCREW, SET, SELF LOCK
			1	1		75	2014655		WHEEL, CONTROL
SEE NOTE 3			2	2		74	1010999-6		LAMP, ELECTROLUMINESCENT
			4	4		73	1010630-4		SCREW, FLAT HD, HEX SOC.
			8	8		72	1010618-7		SCREW, BUTTON HD, HEX SOC.
			AR	AR		71	1010657		EPOXY RESIN
SEE NOTE 3			AR	AR		70	1010686		CATALYST
			7	7		69	2014706		RETAINER, LAMP
			1	1		68	2014718		RETAINER, LAMP
SEE NOTE 3			12	12		67	6014527		WASHER, SPHERICAL
			AR	AR		66	QQ-W-343, TYPE S		WIRE, ELECT., 24AWG
SEE NOTE 3			8	4		65	1010617-2		NUT, HEX, SELF-LOCKING
						64			
			2	2		63	1010617-4		NUT, HEX, SELF-LOCKING
			4	4		62	MS15795-803		WASHER, FLAT
			1	1		61	1006783-18		SCREW, BUTTON HD, HEX SOCKET
SEE NOTE 3			4	4		60	1006783-21		SCREW, BUTTON HD, HEX SOCKET
			1	1		59	2014738		PANEL & LAMP, MATCHED ASSY OF
			1	1		58	2014737-011		PANEL & LAMP, MATCHED ASSY OF
			1	1		57	2014735		PANEL & LAMP, MATCHED ASSY OF
			8	8		56	2014725		SCREW, SHOULDER
			1	1		55	2014722		RETAINER, PANEL LEFT
			1	1		54	2014727		FRAME, ANNUNCIATOR
			1	1		53	2014721		RETAINER, PANEL
			1	1		52	2014723		RETAINER, PANEL CENTER
			2	2		51	2014705		RETAINER, PANEL
			1	1		50	2014703		RETAINER, PANEL
			1	1		49	2014702		RETAINER, PANEL
SEE NOTE 3			36	36		48	1006783-9		SCREW, BUTTON HD
			1	1		47	2014719		PANEL & LAMP, MATCHED ASSY OF
			2	2		46	2014683		RETAINER, LIGHT
SEE NOTE 3			4	8		45	1010477-12		SCREW, FLAT HD SELF LOCKING
				1		44	1004260-181		NAME PLATE
			1	1		43	2014736-011		PANEL & LAMP, MATCHED ASSY OF
SEE NOTE 3			8	4		42	1010477-13		SCREW, FLAT HD SELF LOCKING
SEE NOTE 3			4	4		41	1010676-1		TERMINAL
SEE NOTE 3			26	26		40	1010623-3		TERMINAL, TURRET
			5	5		39	1001489-2		SCREW, SOCKET HD CAP
SEE NOTE 3			17	17		38	1010630-14		SCREW, FLAT HEAD
						37			
			2	2		36	2014764-011		HANDLE ASSEMBLY
				1		35	2014656-011		RETICLE BRIGHTNESS CONTROL
SEE NOTE 3			15	15		34	1011918-1		WASHER-CABLE CLAMP
			1	1		33	2014622		HARNESS
SEE NOTE 3			1	1		32	1010625-2		LIGHT, INDICATOR
			1	1		31	1010475-1		CAP, PUSHBUTTON
			AR	AR		30	1012504-2		PRIMER, METAL
			AR	AR		29	1012504-1		PRIMER, METAL
			15	15		28	1000220-1 THRU-12		CLAMP, CABLE
			AR	AR		27	1012503-1		COMPOUND, POLYURETHANE
SEE NOTE 3			AR	AR		26	1012503-2		COMPOUND, POLYURETHANE.
			1	1		25	1023003		CAP, PUSHBUTTON
			AR	AR		24	QQ-S-571 SN60WRAP2		SOLDER
			AR	AR		23	MIL-F-14256		FLUX
			1	1		22	2014626		PANEL G & N IND CONT (INSEPARABLE)
			1	1		21	2014627		SUPPORT, HAND CONTROLLER
			X	X		20	2014507		SCHEMATIC DIAGRAM
			1	1		19	2014658		SUPPORT, SWITCH
SEE NOTE 3			1	1		18	1010268-5		LAMP, INCANDESCENT
SEE NOTE 3			1	1		17	1010942		TRANSFORMER
			1	1		16	2014700-011		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3			1	1		15	1010905-5		SWITCH, TOGGLE
			1	1		14	1010905-3		SWITCH, TOGGLE
			1	1		13	1010904-2		SWITCH, PUSH BUTTON
			1	1		12	1010904-1		SWITCH, PUSH BUTTON
			1	1		11	1010903-9		SWITCH, TOGGLE
			1	1		10	1010903-8		SWITCH, TOGGLE
			1	1		9	1010902-6		SWITCH, TOGGLE
			1	1		8	1010902-5		SWITCH, TOGGLE
			1	1		7	1010902-4		SWITCH, TOGGLE
				~~7~~		6	~~1010999-4~~		~~LAMP, ELECTROLUMINESCENT~~
				~~1~~		5	~~1010999-8~~		~~LAMP, ELECTROLUMINESCENT~~
						4			
			1	1		3	1008824-1		MASTER ALARM ANNUNCIATOR
SEE NOTE 3			1	1		2	1010949-1		CONDITION ANNUNCIATOR
			1	1		1	2014550-011		SEXTANT HAND CONTROLLER

WIRING LEGEND	
FROM	TO
DS2 - BLACK	E6
DS2 - BROWN	E7
DS3 - BLACK	E4
DS3 - BROWN	E5
DS5 - BLACK	E2
DS5 - BROWN	E3
DS6 - BLACK	E14
DS6 - BROWN	E15
DS7 - BLACK	E16
DS7 - BROWN	E17
DS8 - BLACK	E18
DS8 - BROWN	E19
DS9 - BLACK	E24
DS9 - BROWN	E25
DS10 - BLACK	E30
DS10 - BROWN	E31
DS11 - BLACK	E28
DS11 - BROWN	E29
DS12 - BLACK	E20
DS12 - BROWN	E21
DS13 - BLACK	E26
DS13 - BROWN	E27
DS14 - BLACK	E22
DS14 - BROWN	E23
DS15 - BLACK	E32
DS15 - BROWN	E33
DS16 - BLACK	E8

WIRING LEGEND		USE ITEM
FROM	TO	
DS16 - BROWN	E9	
DS17 - BLACK	E10	
DS17 - BROWN	E11	
E2	E4	66
E3	E5	↕
E14	E16	↕
E15	E17	↕
E18	E20	↕
E20	E22	↕
E19	E21	↕
E21	E23	↕
E24	E26	↕
E26	E28	↕
E28	E30	↕
E25	E27	↕
E27	E29	↕
E29	E31	↕
A3-7	A3-1	↕
A3-1	A3-3	↕
A3-3	A3-5	66

2014623		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSY PART NO. IS THE DRAWING NO. AND THE DASH NO. THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Zietrich 10-4-65
CHECKED [illegible] 10-5-65
APPROVED [illegible]
APPROVED [illegible]
APPROVED MIT W Kupfer [illegible]
NOT REQ'D PER LETTER
APPROVED MSC [illegible]7-65-612
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE NONE
SHEET 1 OF 3

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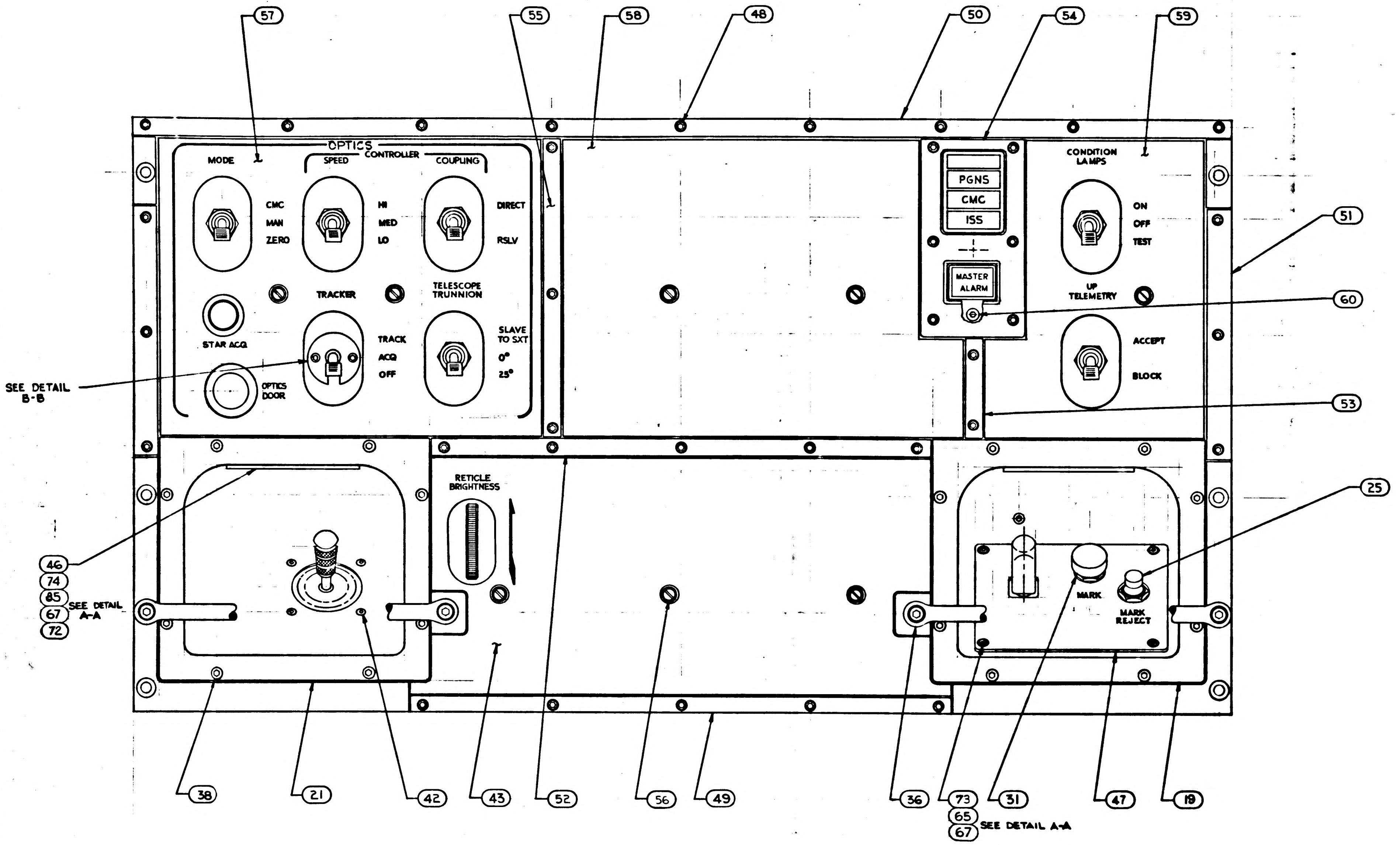
2014578 R

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		SEE SHEET 1 FOR REVISION STATUS TDRR 2323				
D		TDRR 23531				
E		REVISED PER TDRR NO. 24977	JD.		1/11/66	
F		REVISED PER TDRR NO. 25090	JD.		1/12/66	
G		REVISION STATUS CHANGED	JMP		FEB 22 66	
H		REVISION STATUS CHANGED			21 MAR 66	
J		REVISED PER TDRR 27455			66	
K		REVISED PER TDRR 28809	J.K.	JAC	20 MAY 66	
L		REVISION STATUS CHANGED			66	
M		REV STATUS CHANGED			JULY 66	
N		REVISION STATUS CHANGED	JJB		8-9-66	
P		REVISION STATUS CHANGED	WK		7 JAN 67	
R		REVISION STATUS CHANGED	VE		2 APR 67	


57
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58
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59
OPTICS
MODE
CONTROLLER
SPEED
COUPLING
CMC
MAN
ZERO
HI
MED
LO
DIRECT
RSLV
TRACKER
TELESCOPE TRUNNION
STAR ACQ
TRACK
ACQ
OFF
SLAVE TO SXT
0°
25°
OPTICS DOOR
SEE DETAIL B-B
PGNS
CMC
ISS
MASTER ALARM
CONDITION LAMPS
ON
OFF
TEST
UP TELEMETRY
ACCEPT
BLOCK
51
60
53
RETICLE BRIGHTNESS
25
MARK
MARK REJECT
46
74
85
67
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SEE DETAIL A-A
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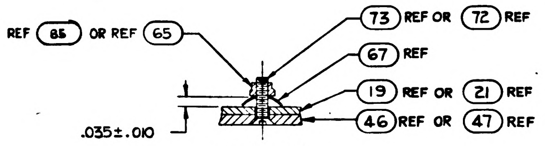
REF 85 OR REF 65
73 REF OR 72 REF
67 REF
19 REF OR 21 REF
46 REF OR 47 REF
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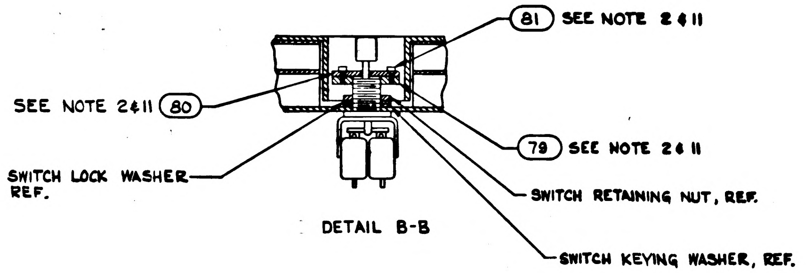
DETAIL A-A
SCALE: NONE


81 SEE NOTE 2 & 11
SEE NOTE 2&11 80
79 SEE NOTE 2 & 11
SWITCH LOCK WASHER REF.
SWITCH RETAINING NUT, REF.
SWITCH KEYING WASHER, REF.

DETAIL B-B

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson OCT. 5-65
APPROVED
APPROVED MIT
NOT REQUIRED PER LETTER
~~APPROVED~~ PP 65 612
MSC DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 2 OF 3

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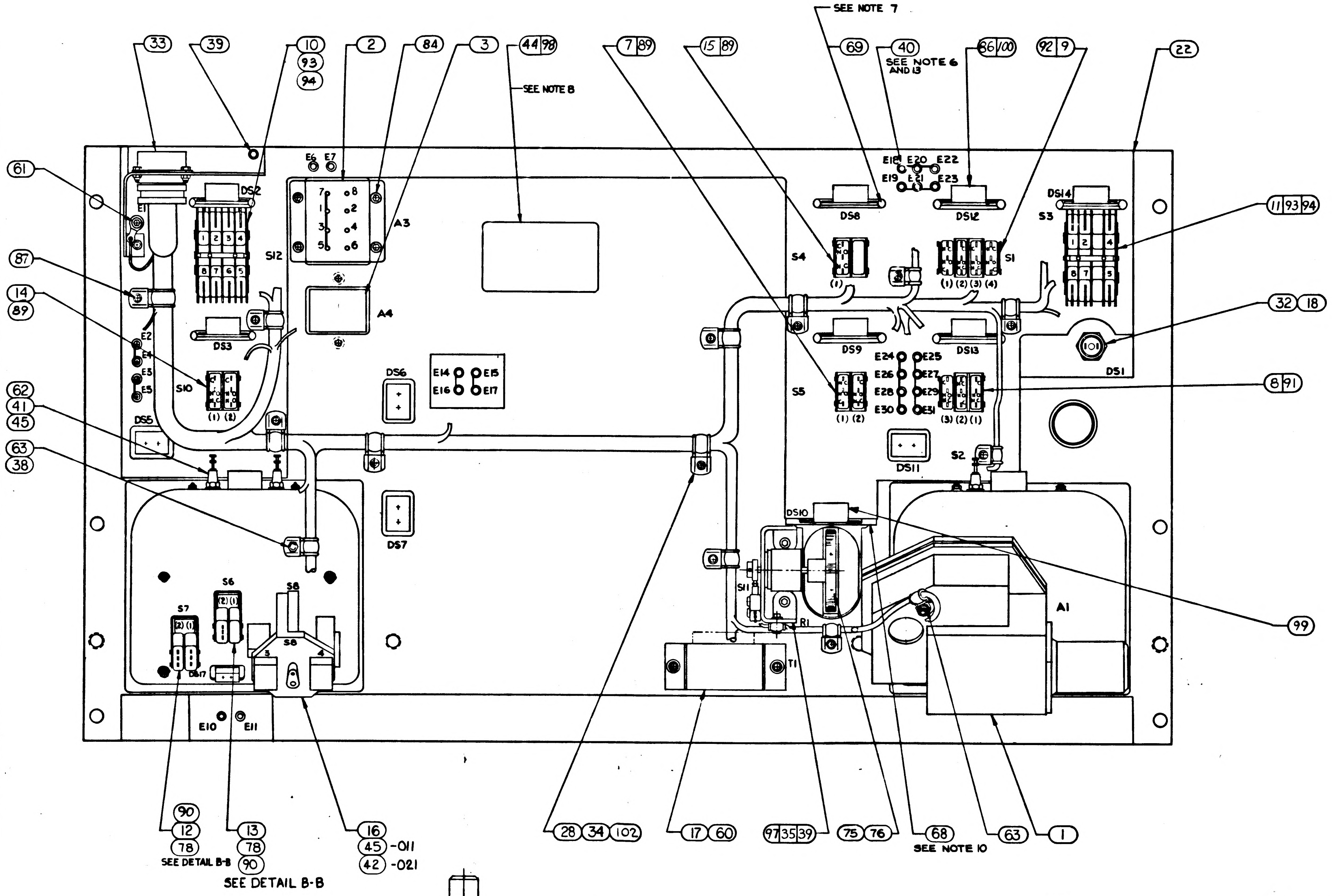
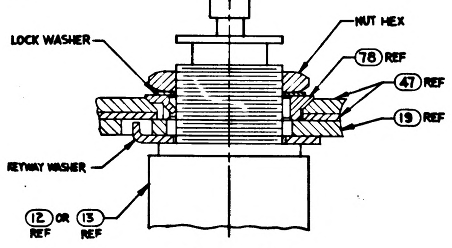
2014578 R

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		TDAR 23213			13 [illegible]	[illegible]
D		TDRR 2?831			[illegible]	[illegible]
E		REVISED PER TDRR NO. 2-977	JD.		11/66	[illegible]
F		REVISED PER TDRR NO. 25090	JD.		1/2/66	[illegible]
G		REVISION STATUS CHANGED	IMP	RWH	FEB 66	
H		REVISION STATUS CHANGED	RLP	[illegible]	21 MAR 66	
J		REVISION STATUS CHANGED	[illegible]	[illegible]	[illegible] 66	
K		REVISED PER TDRR 2880	I.K.	TAC	20 MAY 66	
L		REVISED PER TDRR 2893	[illegible]	[illegible]	23 MAY 66	
M		REVISED PER TDRR 30155	[illegible]	[illegible]	18 JULY 66	
N		REVISED PER TDRR 30900	JJE	[illegible]	9-9-66	
P		REVISED PER TDRR 32616	WK	[illegible]	30 [illegible]	
R		REVISED PER TDRR 3363.	ME	[illegible]	[illegible] 67	

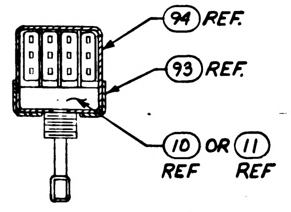


33
39
10
93
94
2
84
3
44 98
SEE NOTE 8
7 89
15 89
SEE NOTE 7
69
40
SEE NOTE 6 AND 13
86 100
92 9
22
61
87
14
89
62
41
45
63
38
11 93 94
32 18
8 91
99
E6 E7
DS2
S12
A3
A4
DS3
E2
E3
E4
E5
S10
(1) (2)
DS5
DS6
E14 E15
E16 E17
DS7
E18 E20 E22
E19 E21 E23
DS8
DS12
DS14
S3
S4
S1
(1) (2) (3) (4)
DS9
DS13
DS1
E24 E25
E26 E27
E28 E29
E30 E31
S5
(1) (2)
(3) (2) (1)
DS11
S2
DS10
S11
R1
T1
A1
S7
S6
S8
DS17
E10 E11
90
12
78
SEE DETAIL B-B
13
78
90
SEE DETAIL B-B
16
45 -011
42 -021
28 34 102
17 60
97 35 39
75 76
68
SEE NOTE 10
63
1



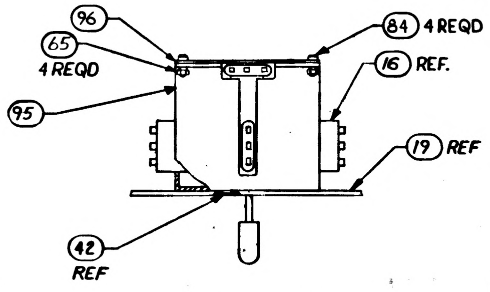
LOCK WASHER
NUT HEX
78 REF
47 REF
19 REF
KEYWAY WASHER
12 OR 13
REF REF

DETAIL B-B
SCALE 4/1



94 REF.
93 REF.
10 OR 11
REF REF

TYPICAL SWITCH COVER
INSTALLATION ON S3 AND S12
-021



96
84 4 REQD
65
4 REQD
16 REF.
95
19 REF
42
REF

S8 SHIELD AND COVER
INSTALLATION -021

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN L. Hood 10/1/65
CHECKED [illegible] 10-5-65
APPROVED Paul Watson OCT 5 65
APPROVED [illegible] [illegible]
APPROVED MIT [illegible] 130[illegible]
APPROVED MSC RP7 65 612

DATE

G&N INDICATOR CONTROL
PANEL ASSEMBLY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 3 OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

S 2014578

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		REVISED PER TDRR NO. 23243			[illegible]	
D		REVISED PER TDRR NO. 23831	L.J		11/2/65	
E		REVISED PER TDRR NO. 24977	J.D.		JAN 11 66	
F		REVISED PER TDRR NO. 25090	J.D.		JAN 12 66	
G		REVISED PER TDRR 26259	JMP	RWH	FEB 2 66	
H		REVISED PER TDRR 27053	BP		21 MAR 66	
J		REVISED PER TDRR 27455	R		8 APR 66	
K		REVISED PER TDRR 28009	JK	JAC	20 MAY 66	
L		REVISED PER TDRR 28931	JMP	PJ	23 MAY 66	
M		REVISED PER TDRR 30155	J.E.G.		[illegible] 66	
N		REVISED PER TDRR 30900	JJB	NS	9-9-66	
P		REVISED PER TDRR 32616	WK		1-27-67	
R		REVISED PER TDRR 33630	ME		26-6-	
S		REVISED PER TDRR 34076	A.N.		11 APR 67	

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. THE COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH, AND SHALL MEET ALL THE REQUIREMENTS OF PS 2014578 EXCEPT 79, 80 & 81 SHALL NOT BE INSTALLED.
3. VENDOR ITEM - SEE SPECIFICATION CONTROL DWG
4. SERIALIZE PER ND1002023
5. ENCAPSULATE ALL SOLDERED ELECTRICAL COMPONENT CONNECTIONS TO A .06 MIN DEPTH USING ITEMS 26, 27, 29 AND 30 PER ND1002236
6. SOLDER PER ND1002071 USING (23) & (24).
7. BOND (63) TO (22) AND THE ELECTRICAL WIRING ENCAPSULANT OF (83) TO (22) USING (70) AND (71) PER ND1002004.
8. LOCATE NAMEPLATE APPROX. AS SHOWN.
9. SELECT APPROPRIATE SIZE CLAMP AT ASSEMBLY
10. BOND (65) TO (22) USING (77) PER MIL-A-25055.
11. INSTALL (79) AND (80) USING (81) SO THAT S2, TRACKER SWITCH IS RESTRAINED IN THE "OFF" POSITION UPON COMPLETION OF TESTING PER NOTE 2. ITEM (79) SHALL BE INSTALLED FLUSH PLUS APPROXIMATELY 1/2 TURN BEYOND FLUSH ON THE MOUNTING BUSHING OF ITEM (8).
12. THE TERMINAL END OF ITEM (3) SHALL BE SEALED PER ND1002004 TYPE I, USING ITEMS (82) AND (83) TO PREVENT LEAKAGE OF THE ENCAPSULANT WHICH IS APPLIED IN NOTE 5.
13. ETCH ITEM (40) USING ITEM (88) PER ND1002146 AND BOND TO ITEM (22) USING ITEMS (70) AND (71) PER ND1002004, TYPE II, SEMI-REGID.
14. WRAP TEFLON TAPE, ITEM (101), AROUND PERIPHERY OF ITEM (95) TO CLOSE EXPOSED SLOTS

WIRING LEGEND	
FROM	TO
DS2 - BLACK	E6
DS2 - BROWN	E7
DS3 - BLACK	E4
DS3 - BROWN	E5
DS5 - BLACK	E2
DS5 - BROWN	E3
DS6 - BLACK	E14
DS6 - BROWN	E15
DS7 - BLACK	E16
DS7 - BROWN	E17
DS8 - BLACK	E18
DS8 - BROWN	E19
DS9 - BLACK	E24
DS9 - BROWN	E25
DS10 - BLACK	E30
DS10 - BROWN	E31
DS11 - BLACK	E28
DS11 - BROWN	E29
DS12 - BLACK	E20
DS12 - BROWN	E21
DS13 - BLACK	E26
DS13 - BROWN	E27
DS14 - BLACK	E22
DS14 - BROWN	E23
DS15 - BLACK	E32
DS15 - BROWN	E33
DS16 - BLACK	E8

WIRING LEGEND		USE ITEM
FROM	TO	
DS16 - BROWN	E9	
DS17 - BLACK	E10	
DS17 - BROWN	E11	
E2	E4	66
E3	E5	↑
E14	E16	│
E15	E17	│
E18	E20	│
E20	E22	│
E19	E21	│
E21	E23	│
E24	E26	│
E26	E28	│
E28	E30	│
E25	E27	│
E27	E29	│
E29	E31	│
A3-7	A3-1	│
A3-1	A3-3	↓
A3-3	A3-5	66

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
		031	021	011					
		1	-	-		104	1004260-561		NAMEPLATE
		1	-	-		103	2014656-031		RETICLE, BRIGHTNESS CONTROL
		6	6	6		102	1001489-4		SCREW, SOC. HD. CAP
		AR	AR			101	MIL-T-23594 TYPE II		TAPE, TEFLON
		7	7			100	1010999-4		LAMP, ELECTROLUMINESCENT
		1	1			99	1010999-8		LAMP, ELECTROLUMINESCENT
		-	1			98	1004260-545		NAMEPLATE
		-	1			97	2014656-021		RETICLE, BRIGHTNESS CONTROL
		1	1			96	2021240		COVER, SHIELD
		1	1			95	2021239		SHIELD, SWITCH AIS
		2	2			94	2021238-006		COVER, SWITCH
		2	2			93	2021238-005		COVER SWITCH
		1	1			92	2021238-004		COVER, SWITCH
		1	1			91	2021238-003		COVER, SWITCH
		2	2			90	2021238-002		COVER, SWITCH
		3	3			89	2021238-001		COVER - SWITCH
SEE NOTE 3		AR	AR	AR		88	1010702		SOLUTION, ETCHING, TEFLON
SEE NOTE 3		7	7	7		87	1001489-6		SCREW, SOCKET HD CAP
		-		8		86	2014798		LAMP, ELECTROLUMINESCENT, MODIFIED
		8	8	8		85	MS35649-24		NUT, PLAIN HEX
		8	8	4		84	NAS1352C02-4		SCREW, SOCKET HEAD CAP
SEE NOTE 3		AR	AR	AR		83	1010683		CURING AGENT, AMINE
SEE NOTE 3		AR	AR	AR		82	1010682		EPOXY RESIN
SEE NOTE 2&11		2	2	2		81	NAS1352C02LL3		SCREW, SOC. HD. CAP, SELF LOCKING
SEE NOTE 2&11		1	1	1		80	2021201		PLATE, SWITCH BLOCKOUT
SEE NOTE 2&11		1	1	1		79	2021200		BUSHING, SWITCH BLOCKOUT
		2	2	2		78	2014763		SPACER PANEL
		AR	AR	AR		77	MIL-A-25055		ADHESIVE
		2	2	2		76	NAS1081C04D3L		SCREW, SET, SELF LOCK
		1	1	1		75	2014655		WHEEL, CONTROL
SEE NOTE 3		2	2	2		74	1010999-6		LAMP, ELECTROLUMINESCENT
│		4	4	4		73	1010630-4		SCREW, FLAT HD, HEX SOC.
│		8	8	8		72	1010618-7		SCREW, BUTTON HD, HEX SOC.
│		AR	AR	AR		71	1010657		EPOXY RESIN
SEE NOTE 3		AR	AR	AR		70	1010686		CATALYST
		7	7	7		69	2014706		RETAINER, LAMP
		1	1	1		68	2014718		RETAINER, LAMP
SEE NOTE 3		12	12	12		67	6014527		WASHER, SPHERICAL
		AR	AR	AR		66	QQ-W-343, TYPE S		WIRE, ELECT., 24AWG
SEE NOTE 3		8	8	4		65	1010617-2		NUT, HEX, SELF-LOCKING
│						64			
│		2	2	2		63	1010617-4		NUT, HEX, SELF-LOCKING
│		4	4	4		62	MS15795-803		WASHER, FLAT
│		1	1	1		61	1006783-18		SCREW, BUTTON HD, HEX SOCKET
SEE NOTE 3		4	4	4		60	1006783-21		SCREW, BUTTON HD, HEX SOCKET
		1	1	1		59	2014738		PANEL & LAMP, MATCHED ASSY OF
		1	1	1		58	2014737-011		PANEL & LAMP, MATCHED ASSY OF
		1	1	1		57	2014735		PANEL & LAMP, MATCHED ASSY OF
		8	8	8		56	2014725		SCREW, SHOULDER
		1	1	1		55	2014722		RETAINER, PANEL LEFT
		1	1	1		54	2014727		FRAME, ANNUNCIATOR
		1	1	1		53	2014721		RETAINER, PANEL
		1	1	1		52	2014723		RETAINER, PANEL CENTER
		2	2	2		51	2014705		RETAINER, PANEL
		1	1	1		50	2014703		RETAINER, PANEL
		1	1	1		49	2014702		RETAINER, PANEL
SEE NOTE 3		36	36	36		48	1006783-9		SCREW, BUTTON HD
		1	1	1		47	2014719		PANEL & LAMP, MATCHED ASSY OF
		2	2	2		46	2014683		RETAINER, LIGHT
SEE NOTE 3		4	4	8		45	1010477-12		SCREW, FLAT HD SELF LOCKING
		-		1		44	1004260-181		NAME PLATE
		1	1	1		43	2014736-011		PANEL & LAMP, MATCHED ASSY OF
SEE NOTE 3		8	8	4		42	1010477-13		SCREW, FLAT HD SELF LOCKING
SEE NOTE 3		4	4	4		41	1010676-1		TERMINAL

LIST OF MATERIAL

Ⓒ = REPLACES REV B WITH CHANGES

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
		031	021	011					
SEE NOTE 3		26	26	26		40	1010623-3		TERMINAL, TURRET
│		5	5	5		39	1001489-2		SCREW, SOCKET HD CAP
SEE NOTE 3		17	17	17		38	1010630-14		SCREW, FLAT HEAD
						37			
		2	2	2		36	2014764-011		HANDLE ASSEMBLY
		-		1		35	2014656-011		RETICLE BRIGHTNESS CONTROL
SEE NOTE 3		15	15	15		34	1011918-1		WASHER-CABLE CLAMP
		1	1	1		33	2014622		HARNESS
SEE NOTE 3		1	1	1		32	1010625-2		LIGHT, INDICATOR
│		1	1	1		31	1010475-1		CAP, PUSHBUTTON
│		AR	AR	AR		30	1012504-2		PRIMER, METAL
│		AR	AR	AR		29	1012504-1		PRIMER, METAL
│		15	15	15		28	1000220-1 THRU-12		CLAMP, CABLE
│		AR	AR	AR		27	1012503-1		COMPOUND, POLYURETHANE
SEE NOTE 3		AR	AR	AR		26	1012503-2		COMPOUND, POLYURETHANE
		1	1	1		25	1023003		CAP, PUSHBUTTON
		AR	AR	AR		24	QQ-S-571 SN60WRAP2		SOLDER
		AR	AR	AR		23	MIL-F-14256		FLUX
		1	1	1		22	2014626		PANEL G & N IND CONT (INSEPARABLE)
		1	1	1		21	2014627		SUPPORT, HAND CONTROLLER
		X	X	X		20	2014507		SCHEMATIC DIAGRAM
		1	1	1		19	2014658		SUPPORT, SWITCH
SEE NOTE 3		1	1	1		18	1010268-5		LAMP, INCANDESCENT
SEE NOTE 3		1	1	1		17	1010942		TRANSFORMER
		1	1	1		16	2014700-011		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3		1	1	1		15	1010905-5		SWITCH, TOGGLE
│		1	1	1		14	1010905-3		SWITCH, TOGGLE
│		1	1	1		13	1010904-2		SWITCH, PUSH BUTTON
│		1	1	1		12	1010904-1		SWITCH, PUSH BUTTON
│		1	1	1		11	1010903-9		SWITCH, TOGGLE
│		1	1	1		10	1010903-8		SWITCH, TOGGLE
│		1	1	1		9	1010902-6		SWITCH, TOGGLE
│		1	1	1		8	1010902-5		SWITCH, TOGGLE
│		1	1	1		7	1010902-4		SWITCH, TOGGLE
│				~~7~~		6	~~1010999-4~~		~~LAMP, ELECTROLUMINESCENT~~
│				~~1~~		5	~~1010999-8~~		~~LAMP, ELECTROLUMINESCENT~~
│						4			
│		1	1	1		3	1008824-1		MASTER ALARM ANNUNCIATOR
SEE NOTE 3		1	1	1		2	1010949-1		CONDITION ANNUNCIATOR
		1	1	1		1	2014550-011		SEXTANT HAND CONTROLLER

LIST OF MATERIALS

2014623		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSY PART NO. IS THE DRAWING NO. AND THE DASH NO. THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Dietrich 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson
APPROVED
APPROVED MIT W Kupfer BOAS
NOT REQUIRED PER LETTER -65-612
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

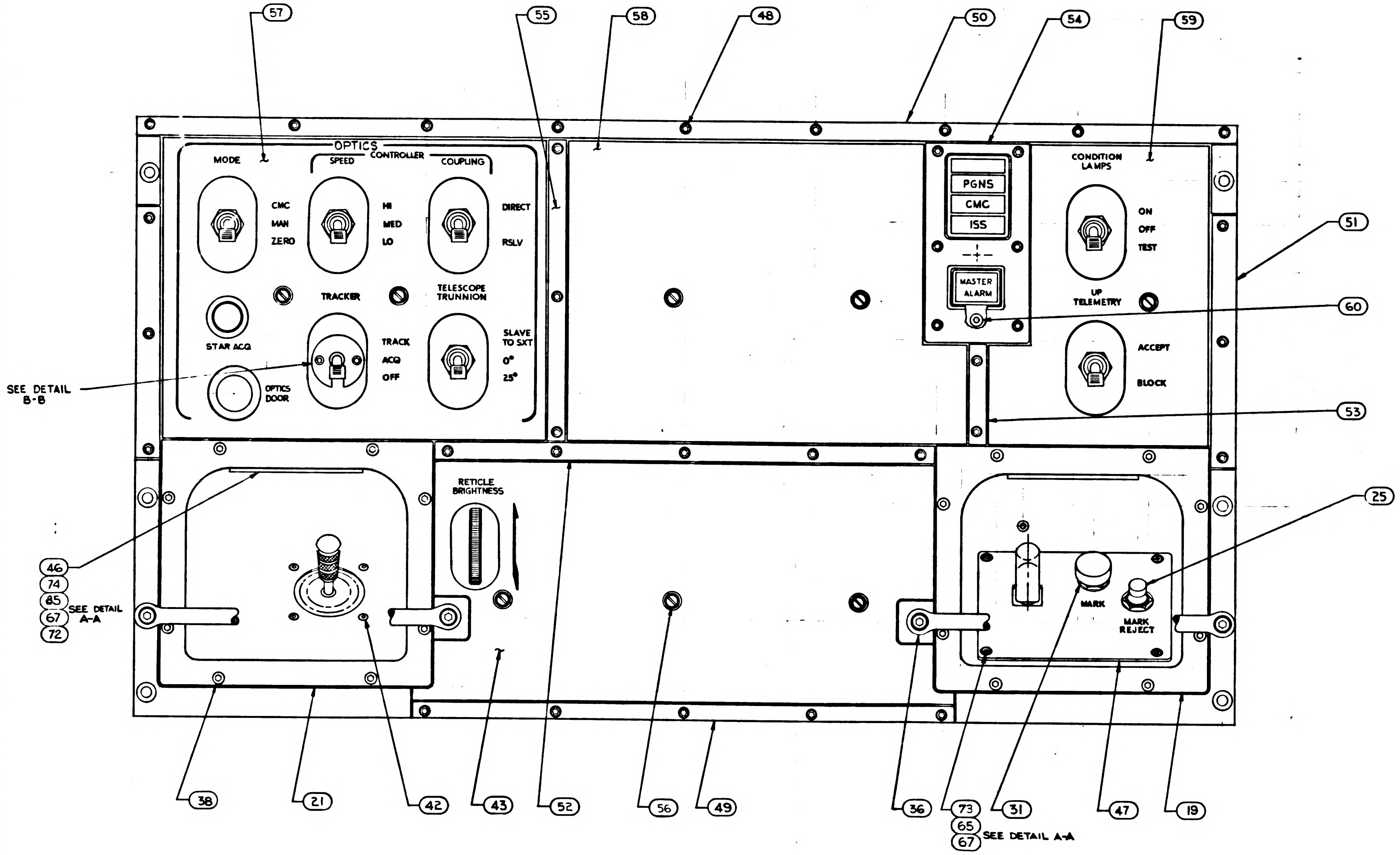
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014578
SCALE NONE
SHEET 1 OF 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

S 2014578

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		SEE SHEET I FOR REVISION STATUS TDRR 23213			[illegible]	
D		TDRR 23831			[illegible]	
E		REVISED PER TDRR NO. 24977	JD.		1/11/66	
F		REVISED PER TDRR NO. 25090	JD.		1/12/66	
G		REVISION STATUS CHANGED	JMP	RWM	FEB 22 66	
H		REVISION STATUS CHANGED			21 MAR 66	
J		REVISED PER TDRR 27455			8 APR 66	
K		REVISED PER TDRR 28809	J.K.	J.R.C.	20 MAY 66	
L		REVISION STATUS CHANGED			MAY 66	
M		REV STATUS CHANGED			JULY 66	
N		REVISION STATUS CHANGED	JJB		9-9-66	
P		REVISION STATUS CHANGED	WK		27 JAN 67	
R		REVISION STATUS CHANGED	ME		2 APR 67	
S		REVISION STATUS CHANGED	A.N.		AUG 67	


57
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48
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OPTICS
MODE
CONTROLLER
SPEED
COUPLING
CMC
MAN
ZERO
HI
MED
LO
DIRECT
RSLV
TRACKER
TELESCOPE TRUNNION
STAR ACQ
TRACK
ACQ
OFF
SLAVE TO SXT
0°
25°
OPTICS DOOR
SEE DETAIL B-B
PGNS
CMC
ISS
MASTER ALARM
CONDITION LAMPS
ON
OFF
TEST
UP TELEMETRY
ACCEPT
BLOCK
51
60
53
25
RETICLE BRIGHTNESS
MARK
MARK REJECT
46
74
85
67
72
SEE DETAIL A-A
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SEE DETAIL A-A
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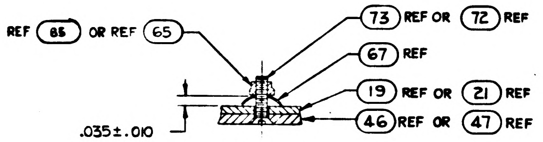
REF 85 OR REF 65
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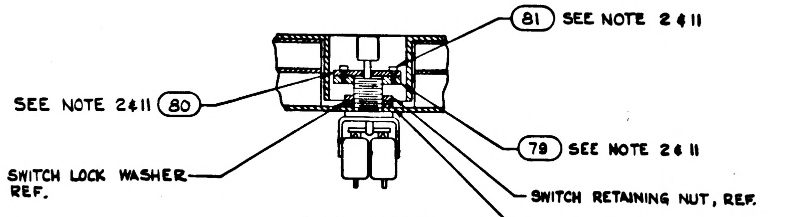
67 REF
19 REF OR 21 REF
46 REF OR 47 REF
.035±.010

DETAIL A-A
SCALE: NONE


81 SEE NOTE 2 & 11
SEE NOTE 2 & 11 80
79 SEE NOTE 2 & 11
SWITCH LOCK WASHER REF.
SWITCH RETAINING NUT, REF.
SWITCH KEYING WASHER, REF.

DETAIL B-B

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J. Dietrich 10-4-65
CHECKED 10-5-65
APPROVED Paul Watson OCT. 5-65
APPROVED
APPROVED MIT
APPROVED 65 612
MSC
DATE

G & N INDICATOR
CONTROL PANEL ASSEMBLY

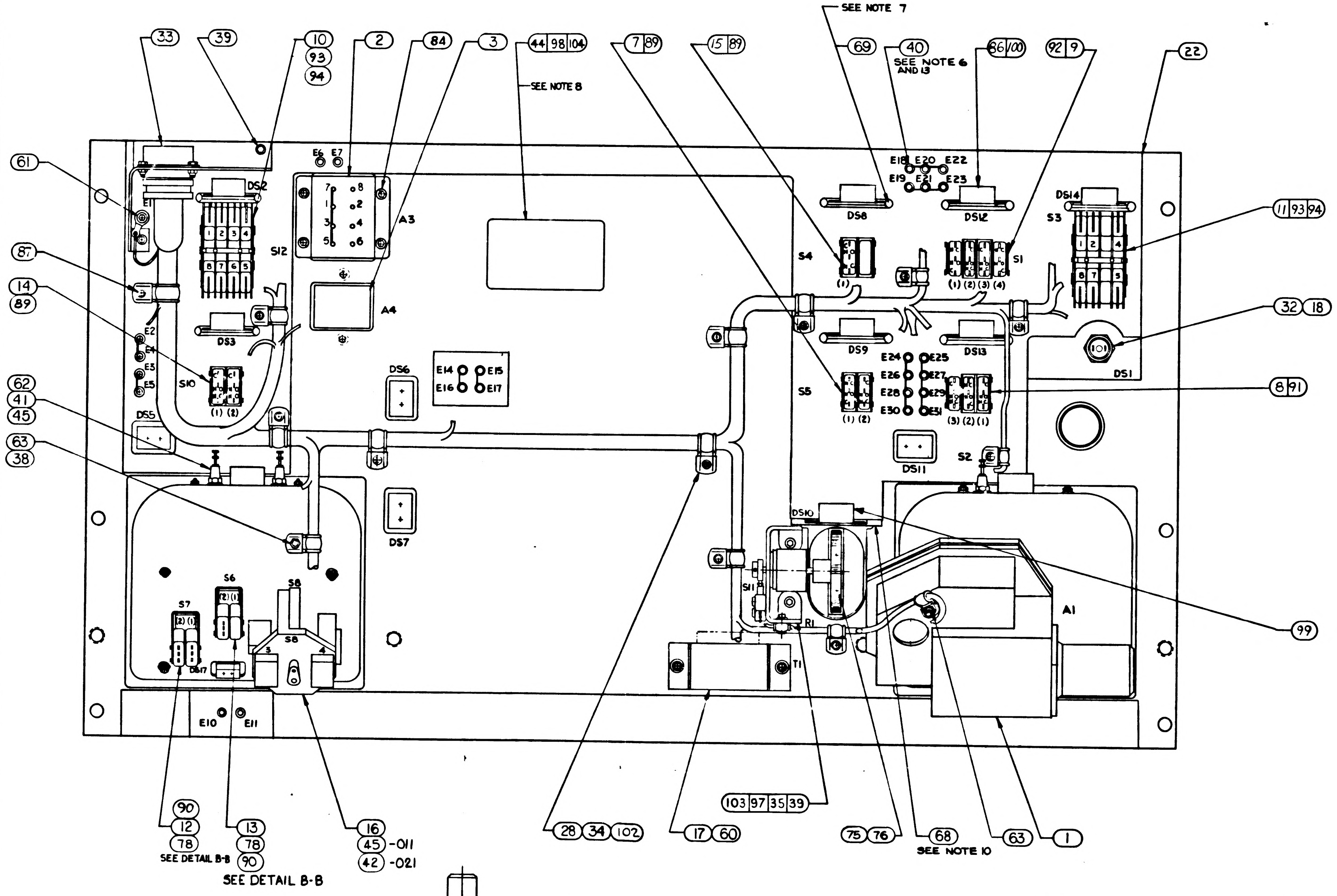
CODE IDENT NO 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 2 OF 3

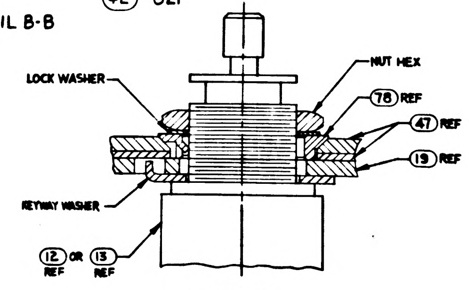
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014578 S

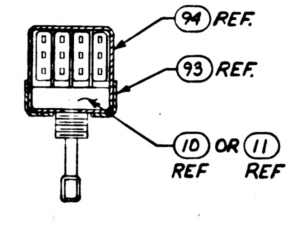
REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
C		TDRR 23213			13 OCT	
D		TDRR 23831			8/11/65	
E		REVISED PER TDRR NO. 2 977	JD.		1/11/66	
F		REVISED PER TDRR NO. 25(90	JD.		1/2/66	
G		REVISION STATUS CHANGED	IMP	RWH	FEB 28 66	
H		REVISION STATUS CHANGED	RLP		21 MAR 66	
J		REVISION STATUS CHANGED	TE		[illegible]	
K		REVISED PER TDRR 288	IK.	JAG	20 MAY 66	
L		REVISED PER TDRR 289			23 MAY 66	
M		REVISED PER TDRR 30155	JE		19 JULY 66	
N		REVISED PER TDRR 30900	JJE		9-9-66	
P		REVISED PER TDRR 32616	WK		30 JAN 67	
R		REVISED PER TDRR 336	ME		3 APR 67	
S		REVISED PER TDRR 3407	N.		AUG 67	

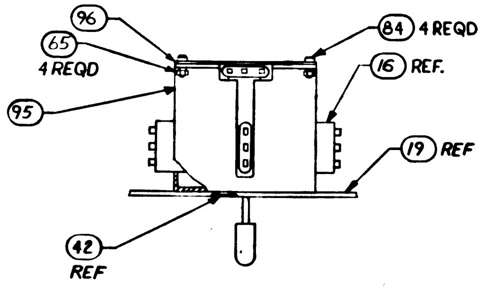

33
39
10
93
94
2
84
3
44 98 104
SEE NOTE 8
7 89
15 89
SEE NOTE 7
69
40
SEE NOTE 6 AND 13
86 100
92 9
22
61
87
14
89
62
41
45
63
38
E1
DS2
E6 E7
A3
S12
A4
E2
E4
E3
E5
S10
(1) (2)
DS3
DS5
DS6
E14 E15
E16 E17
DS7
S7
S6
S8
DS17
E10 E11
E18 E20 E22
E19 E21 E23
DS8
DS12
DS14
S3
S4
S1
(1)
(1) (2) (3) (4)
11 93 94
32 18
DS9
DS13
DS1
E24 E25
E26 E27
E28 E29
E30 E31
S5
(1) (2)
(3) (2) (1)
8 91
DS11
S2
DS10
S11
R1
T1
A1
99
90
12
78
SEE DETAIL B-B
13
78
90
SEE DETAIL B-B
16
45 -011
42 -021
28 34 102
17 60
103 97 35 39
75 76
68
SEE NOTE 10
63
1


LOCK WASHER
NUT HEX
78 REF
47 REF
19 REF
KEYWAY WASHER
12 OR 13
REF REF

DETAIL B-B
SCALE 4/1


94 REF.
93 REF.
10 OR 11
REF REF

TYPICAL SWITCH COVER INSTALLATION ON S3 AND S12
-021


96
65
4 REQD
84 4 REQD
16 REF.
95
19 REF
42
REF

S8 SHIELD AND COVER INSTALLATION -021

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN L. Wood 10/1/65
CHECKED 10-5-65
APPROVED Paul Watson OCT 5 65
APPROVED 10/5/65
APPROVED MIT 13 OCT 65
APPROVED MSC
DATE

G&N INDICATOR CONTROL PANEL ASSEMBLY

CODE IDENT NO 80230
SIZE E
DRAWING NO. 2014578
SCALE 1/1
SHEET 3 OF 3

REVISIONS 18966					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REM'D. P/N 1015048-021, AND ADDED ITEM NO'S. IN L/M.	DO 60350	4-28 65	

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. INSPECT PER PS
3. VENDOR ITEM - SEE SPECIFICATION CONTROL DWG.
4. SERIALIZE PER ND1002023.

	QUANTITY REQUIRED					EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
					011				
					X		20	2014507	SCHEMATIC DIAGRAM
							19		
SEE NOTE 3					1		18	1010268-2	LAMP, INCANDESCENT
SEE NOTE 3					1		17	1010942-1	TRANSFORMER
					1		16		SWITCH, ATTITUDE IMPULSE
SEE NOTE 3					1		15	1010905-5	SWITCH, TOGGLE
					1		14	1010905-3	SWITCH, TOGGLE
					2		13	1010904-2	SWITCH, PUSH BUTTON
					1		12	1010904-1	SWITCH, PUSH BUTTON
					1		11	1010903-4	SWITCH, TOGGLE
					1		10	1010903-3	SWITCH, TOGGLE
					1		9	1010902-6	SWITCH, TOGGLE
					1		8	1010902-5	SWITCH, TOGGLE
					1		7	1010902-4	SWITCH, TOGGLE
					1		6	1010901-1	SWITCH, BASIC
					1		5	1010916-1	POTENTIOMETER
					1		4	1010930-104	CONNECTOR
					1		3	1010948-1	MASTER ALARM ANNUNCIATOR
SEE NOTE 3					1		2	1010949-1	CONDITION ANNUNCIATOR
					1		1	2014550-011	SEXTANT HAND CONTROLLER

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
		-011

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS-9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN Jenquin DATE 23 APR 65
CHECKED J. Stelma 23 APR 65
APPROVAL D.W. Mieling 23 APR 65
APPROVAL 5/5/65
NASA APPROVAL W J Rhine 5-11-65
MIT APPROVAL 11 May 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INDICATOR
CONTROL PANEL ASSEMBLY

CODE IDENT NO. 99974
SIZE C
2014578
SCALE NONE
SHEET 1 OF 1

MIL 1078C—P

APOLLO G&N Specification
PS2014578 REV —
Original Issue Date: 23 Feb 66
Release Authority: TDRR 26572
Class I Release
CODE IDENT NO. 80230

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

G&N INDICATOR CONTROL PANEL ASSEMBLY

DRAWING NO. 2014578

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page 1 to 15 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	2/28/6 MIT/IL	ACSP

E.T.P.
D.W.M.
12-28-65

1. SCOPE

1.1 PURPOSE. This specification establishes the detail requirements for complete identification and acceptance of the G&N Indicator Control Panel Assembly Part Number 2014578-011.

2. APPLICABLE DOCUMENT

2.1 EFFECTIVE ISSUES. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, Military Standards and Specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment

STANDARDS

Military

MIL-STD-202C	Test Methods for Electronic and Electrical Component Parts

DRAWINGS

APOLLO G&N

2014578	G&N Indicator Control Panel Assembly

(Copies of specifications, standards, drawings, bulletins, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 CONFLICTING REQUIREMENTS. In the event of a conflict between requirements, the following order of precedence shall apply. The contractor shall also notify MIT/IL APOLLO Management of the conflict.

a. The contract
b. This specification
c. Documents listed in this section.

3. REQUIREMENTS

3.1 PERFORMANCE

3.1.1 Sextant Hand Controller. The Sextant Hand Controller outputs shall be as specified in Table I with the Speed Controller and the Sextant Hand Controller in the positions specified in Table I.

TABLE I

SEXTANT HAND CONTROLLER OUTPUTS

SWITCH POSITIONS		OUTPUTS						
SEXTANT HAND CONTROLLER	SPEED CON-TROLLER	Shaft		Trunnion		Anti-Creep Electronics (Vrms)		
		Voltage (rms)	Phase	Voltage (rms)	Phase	Trunnion	Shaft	Phase
Extreme (+) Trunnion	HI	—	—	28.0 to 39.4	0° ± 3°	28.0 to 38.6	—	0
Extreme (-) Trunnion	HI	—	—	28.0 to 39.4	180° ± 3°	—	—	—
Extreme (+) Shaft	HI	28.0 to 39.4	0° ± 3°	—	—	—	28.0 to 38.6	0
Extreme (-) Shaft	HI	28.0 to 39.4	180° ± 3°	—	—	—	—	—
Normal	HI	—	—	—	—	0.300 max	0.300 max	Optional
Extreme (+) Trunnion	MED	—	—	2.80 to 3.94	0° ± 3°	—	—	—
Extreme (+) Shaft	MED	2.80 to 3.94	0° ± 3°	—	—	—	—	—
Extreme (+) Trunnion	LO	—	—	0.280 to 0.394	0° ± 3°	—	—	—
Extreme (+) Shaft	LO	0.280 to 0.394	0° ± 3°	—	—	—	—	—

3.1.2 Indicators. The assembly indicators shall be illuminated in accordance with Table II.

3.1.3 Continuity and DC Resistance. Continuity and dc resistance shall be in accordance with Tables III through VII. The DC resistance between P1-1 and any point on the chassis shall be .02 ohms max.

3.1.4 Insulation Resistance. . . The insulation resistance between P1-1 and the remaining assembly pins shall not be less than 100 megohms.

TABLE VII

RETICLE BRIGHTNESS CONTINUITY AND DC RESISTANCE

RETICLE BRIGHTNESS POSITION	DC RESISTANCE		
	From	To	Resistance (Ohms)
Extreme decrease	P1-34	P1-58	100±5%
	P1-34	P1-35	100±5%
	P1-58	P1-35	1.0 max
Rotated in the INCREASE direction	P1-34	P1-35	Shall decrease without interruption from 100 to 1.0 max
Extreme INCREASE	P1-34	P1-58	At or near the extreme INCREASE position the resistance shall change from 100 ±5% to 1.0 max ohms (when the switch deactuates)
	P1-34	P1-35	1.0 max
	P1-58	P1-35	100±5%

4.3 TESTS

4.3.1 Drawing Compliance. The assembly shall be visually examined for compliance to the requirements of Drawing 2014578. Particular attention shall be given to will be given to inspection for nicks, scratches, burrs, dents, encapsulant defects, contaminants, pin misalignment, and legibility and appearance of marking.

4.3.2 Workmanship-Vibration. With the assembly mounted in the same manner which it mounts in the spacecraft, it shall be subjected to vibration along each of the axes shown in Figure 1. The vibration shall be a simple harmonic motion swept from 10 to 2000 cps at a rate of 1 octave/15 seconds. The magnitude of vibration shall be 3.5g rms limited to a 0.3 inch pp constant displacement from 10 cps to the crossover frequency.

The assembly shall be tested in accordance with 4.3.2.1, 4.3.2.2 Condition A and 4.3.2.3 Condition A during the 10 to 2000 cps vibration.

With the assembly vibrated from 2000 to 10 cps it shall be tested in accordance with 4.3.2.1, 4.3.2.2 Condition B and 4.3.2.3 Condition B. The values specified in 4.3.2.2 and 4.3.2.3 shall be continuously monitored during vibration as applicable and the specified parameters shall not be exceeded for more than 10 milliseconds. After vibration, the assembly shall be visually examined as specified in 4.3.1 and tested in accordance with 4.3.3 through 4.3.7.

4.3.2.1 Electro-Luminescent Lamps. With 75.0±1V rms, 400±5 cps applied to P1-68 (Hi) and P1-67 (Lo), the electro-luminescent lamps (behind all panel face nomenclature, borderlines and floodlighting of all control recess wells) shall be illuminated without flickering during vibration as determined by visual observation.

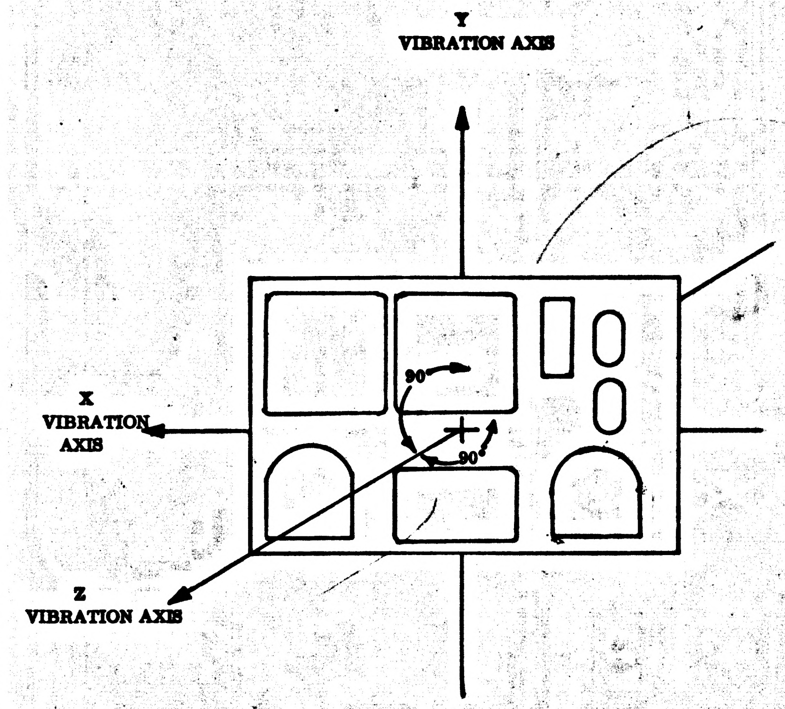
4.3.2.2 Sextant Hand and Speed Controller. With 28.00±0.28V rms, 760±40 cps percent applied to P1-43 (Hi) and P1-23 (Lo), the Sextant Hand Controller outputs shall be as specified in Table VIII for conditions A and B.

4.3.2.3 Continuity. With the following pins on connector P1 electrically connected together 1, 8, 10, 12, 20, 33, 34, 41, 48, 76, 80 and 81; continuity shall exist between pin 1 and the pins listed in Table IX for the corresponding switch positions specified in Table IX for conditions A and B.

4.3.3 Continuity and DC Resistance. The dc resistance between the pins listed in Tables III through VII shall be as specified therein, and the resistance between P1-1 and chassis shall be .02 ohms max, when measured in accordance with Method 303 of Standard MIL-STD-202.

4.3.4 Insulation Resistance. The resistance between pin P1-1 and the remaining assembly pins shall be as specified in 3.1.4 when measured in accordance with Method 302 Condition A of Standard MIL-STD-202. The megohmmeter used shall be limited to a short circuit current of 6 μa.
circuit current of 6 μa.

4.3.5 Maximum Weight. The assembly shall be weighed to the nearest hundreth pound.


Y
VIBRATION AXIS
X
VIBRATION
AXIS
90°
90°
Z
VIBRATION AXIS

VIBRATION AXES FOR G&N INDICATOR CONTROL PANEL

FIGURE 1

TABLE VIII

SEXTANT HAND CONTROLLER

Condition	SWITCH POSITIONS		OUTPUTS						
	SEXTANT HAND CONTROLLER	SPEED CON-TROLLER	Shaft P1-62 (Hi) and P1-38 (Lo)		Trunnion P1-64 (Hi) and P1-63 (Lo)		Anti-Creep Electronics (V rms)		
			V rms (760±40 cps)	Phase	V rms (760±40 cps)	Phase	Shaft (760±40 cps) P1-21 (Hi) & P1-39 (Lo)	Trunnion (760±40 cps) P1-65 (Hi) & P1-40 (Lo)	Phase
A	Extreme (-) Trunnion Extreme (-) Shaft	Hi Hi	——— 28.0 to 39.4	— 180° ± 3°	28.0 to 39.4 ———	180° ±3° —	——— 28.0 to 38.6	28.0 to 38.6 ———	180°±3° 180°±3°
B	Normal (not deflected)	Hi	———	—	———	—	0.300 max	0.300 max	ept

4.3.6 Sextant Hand Controller. With either a 28.00±0.28V rms, 720 cps ±1 percent or 28.00±0.28V rms, 800 cps ±1 percent applied to pins P1-43 (Hi) and P1-23 (Lo), the Sextant Hand Controller outputs shall be as specified in Table I when measured at the following pins:

a. Trunnion output P1-64 (Hi) and P1-63 (Lo)
b. Shaft output P1-62 (Hi) and P1-38 (Lo)
c. Trunnion anti-creep electronics P1-65 (Hi) and P1-40 (Lo)
d. Shaft anti-creep electronics P1-21 (Hi) and P1-39 (Lo)

4.3.7 Indicators. The indicators shall be illuminated in accordance with Table II.

5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND100221.

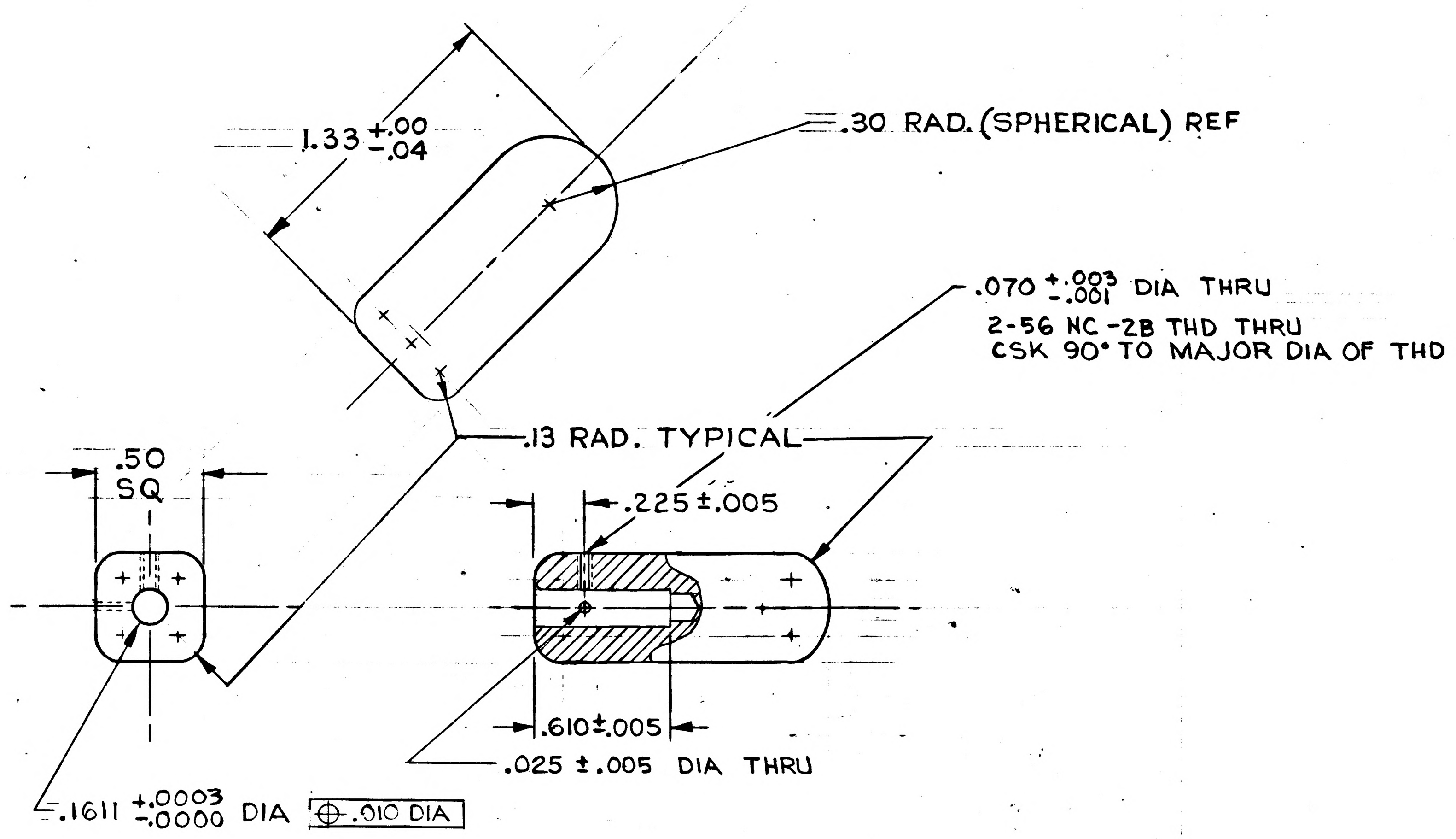
6. NOTES. None.

ETP/dmh

NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-225/6, AL ALY, 2024-T4.
3. SURFACE ROUGHNESS MUST NOT EXCEED 63✓.
4. REMOVE ALL BURRS.
5. FINISH: MIL-A-8625, TYPE I, ANODIZE, EXCEPT HOLES TO BE FILMED PER MIL-C-5541 CLASS 3
6. IDENTIFY USING DRAWING NO. PER ND1002019.

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 21099			
A	–	REVISED PER TDRR NO. 24522		12/8/65	


1.33 $^{+.00}_{-.04}$
.30 RAD. (SPHERICAL) REF
.070 $^{+.003}_{-.001}$ DIA THRU
2-56 NC-2B THD THRU
CSK 90° TO MAJOR DIA OF THD
.13 RAD. TYPICAL
.50 SQ
.225 ± .005
.610 ± .005
.025 ± .005 DIA THRU
.1611 $^{+.0003}_{-.0000}$ DIA ⊕ .010 DIA

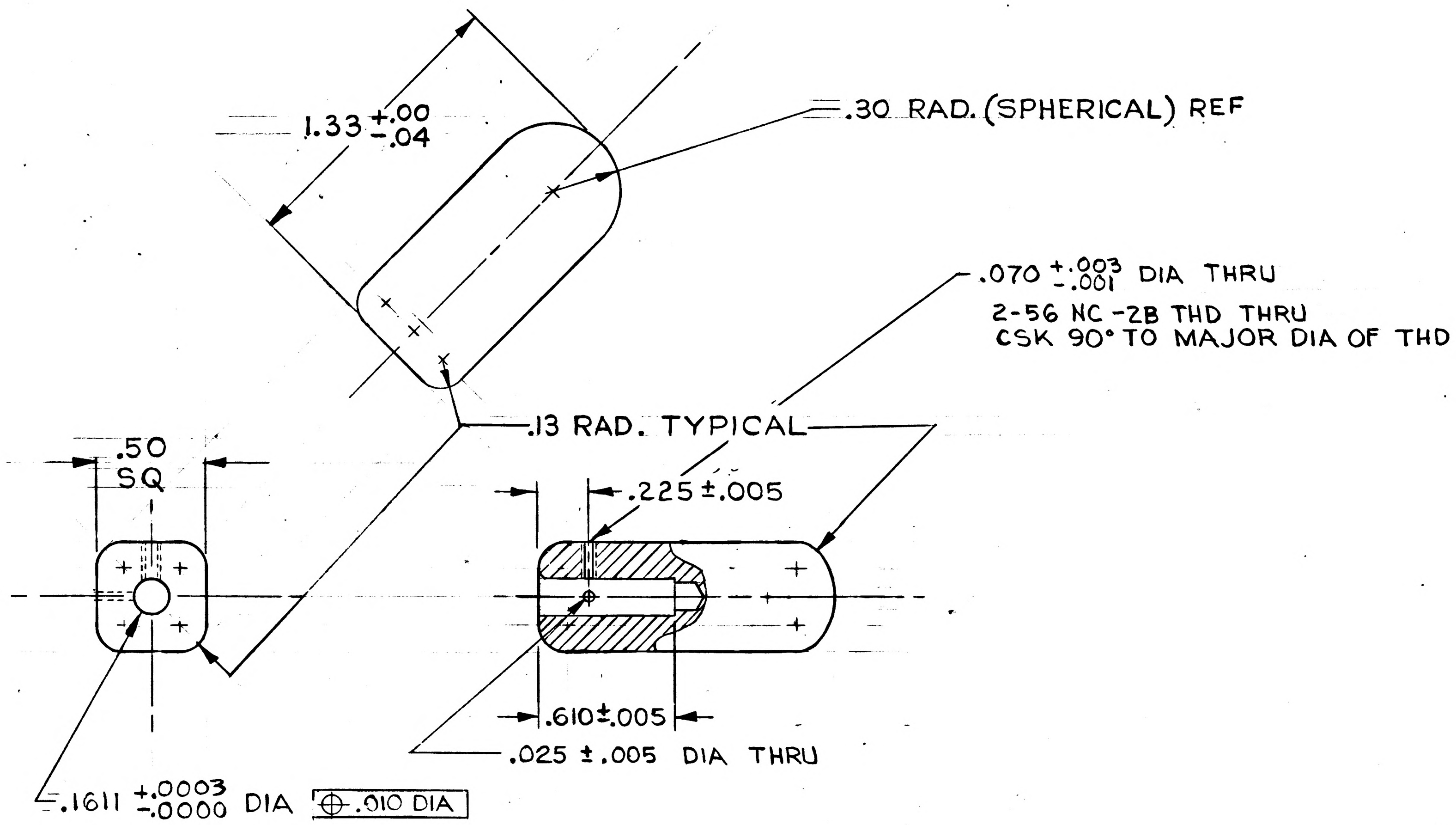
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.02 ANGLES ± DO NOT SCALE THIS DRAWING	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN ACSP PN DRAWN J.P. [illegible] DATE 17 MAR 65 CHECKED J.E. [illegible] 15 JULY 65 APPROVAL W.A. Thompson 19 JULY 65 APPROVAL R.C. Watson 20 JULY 1965	MANNED SPACECRAFT CENTER HOUSTON, TEXAS KNOB, SHAFT, ACTUATOR	
2014700	2014578	MATERIAL SEE NOTE 2	NASA APPROVAL [illegible] 7/21/65	CODE IDENT NO. 80230	SIZE C	2014599
NEXT ASSY	USED ON	CONTRACT NAS 9-497	MIT APPROVAL [illegible] 7-21-65	SCALE 2/1	SHEET 1 OF 1
APPLICATION					

MIL 1077C—P

NOTES:
1. INTERPRET DRAWING PER MIL-D-70327.
2. MATERIAL: QQ-A-225/6, AL ALY, 2024-T4.
3. SURFACE ROUGHNESS MUST NOT EXCEED 63√.
4. REMOVE ALL BURRS.
5. FINISH: MIL-A-8625, TYPE I, ANODIZE, EXCEPT HOLES TO BE FILMED PER MIL-C-5541.
6. IDENTIFY USING DRAWING NO. PER ND1002019.

REVISIONS

SYM	ZONE	DESCRIPTION		DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO. 21099	CHG NO.		



1.33 +.00 −.04
.30 RAD. (SPHERICAL) REF
.070 +.003 −.001 DIA THRU
2-56 NC-2B THD THRU
CSK 90° TO MAJOR DIA OF THD
.13 RAD. TYPICAL
.50 SQ
.225 ±.005
.610 ±.005
.025 ±.005 DIA THRU
.1611 +.0003 −.0000 DIA ⊕ .010 DIA

2014700	2014578
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE 17 MAR 65
CHECKED 15 JULY 65
APPROVAL W.V. Thompson 19 JULY 65
APPROVAL R.C. Watson 20 JULY 1965
7/20/65
NASA APPROVAL 7/21/65
MIT APPROVAL 7-21-65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

KNOB,
SHAFT, ACTUATOR

CODE IDENT NO. 80230
SIZE C
2014599
SCALE 2/1
SHEET 1 OF 1

MIL 1077C—P

TDRR 22658

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014578-011	2014623-011	A	REVISED PER TDRR 23186	15 OCT 1965	MGM 10-15-65

REV STATUS OF SHEETS															
REV	+	+	+	+	A	+	A	+	A	+	+	A	+	+	A
SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

ACSP PN

DRAWN L. Hood DATE 4 Aug 65
CHECKED J. Shain 9-17-65
APPROVAL J.C. Watson 21 SEP 65
APPROVAL J. J. Nissim 9/20/65
NASA APPROVAL
MIT APPROVAL
CONTRACT

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS A
G&N INDICATOR CONTROL PANEL

CODE IDENT NO.	SIZE		REV
80230	A	2014622	A
SCALE		SHEET	OF 15

G&N Harness

GENERAL NOTES

1 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

2 ASSEMBLE PER ND1002032.

3 GRID MODULE IS 1 INCH BASIC AND IS SHOWN FOR DIMENSIONING PURPOSES.

4 UNLESS OTHERWISE SPECIFIED - FEATURE CENTERLINES AT TRUE POSITION WITHIN + OR - .25 INCH RELATIVE TO GRID. ENDS OF LEADS OR ACCESSORIES AT TRUE POSITION WITHIN + OR - .12 INCH RELATIVE TO GRID. TRUE POSITION DIMENSIONS ARE REGARDLESS OF FEATURE SIZE.

5 IDENTIFY USING DWG. NO. PER ND1002019.

6 LACE HARNESS USING ITEM 4

7 SOLDER PER ND 1002071 USING ITEMS 5 AND 6

8 Y OR N IN TINNED COLUMN INDICATES YES OR NO.

9 INSTALL CRIMP STYLE TERMINALS IN ACCORDANCE WITH ND1002206

10 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER INDICATES CONDUCTOR SHIELDING, COLOR, OR MARKING.
A - FROM END SHIELD
B - TO END SHIELD
K - BLACK
R - RED
Y - YELLOW
G - GREEN

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622	
SCALE - NONE	REV LTR +		SHEET 2

MIL 2064-4-64

G&N HARNESS

GENERAL NOTES

11 TOLERANCE CHART, UNLESS OTHERWISE SPECIFIED ---

APPLICABLE LENGTH FOR STRIP WIRE, STRIP JACKET, CUT WIRE OR CUT SHIELD.	TOLERANCE			
	STRIP		CUT	
	WIRE	JACKET	WIRE	SHIELD
UNDER 1 INCH	+.03-.00	+.06-.06	+.06-.06	+.06-.06
1 INCH TO 6 INCHES	+.06-.00	+.25-.25	+.25-.25	+.25-.25
6 INCHES TO 6 FEET		+.50-.50	+.50-.50	+.50-.50

12 ASSEMBLE ITEM 17 IN ALL UNUSED GROMMET HOLES OF ITEM 8.

13 ENCAPSULATE THE WIRED SIDE OF ITEM 8, USING ITEM 9 PER ND1002236. LEAD INSULATION SHALL EXTEND INTO THE ENCAPSULATION .18 PLUS OR MINUS .06 INCHES.

14 MARK SLEEVING OF SINGLE CONDUCTORS .08 + .02 HIGH, COLOR BLACK, WITH THE CONDUCTOR NUMBER OMITTING ALL SUFFIX LETTERS EXCEPT A AND B PER ND1002019, WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM FIELD.

15 MARK SLEEVING OF MULTI-CONDUCTORS WITH THE CONDUCTOR NUMBER .12 INCH HIGH, COLOR BLACK, PER ND1002019 WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM NUMBER FIELD.

16 CONDUCTOR IDENTIFICATION SLEEVING SHALL BE STAGGERED AT TERMINATION NO. 1 TO MINIMIZE THE WIRE BUNDLE DIAMETER.

17 A OR T PREFIX IN THE ACCESSORIES ITEM NUMBER COLUMN INDICATES THE READING POSITION AWAY FROM TERMINATION OR TOWARD TERMINATION RESPECTIVELY, OF THE WIRE MARKER SLEEVE.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622	
SCALE - NONE	REV LTR +		SHEET 3

MIL 2064-4-64

G&N HARNESS

LIST OF MATERIALS

ITEM	QTY	PART NO.	DESCRIPTION
1	1	1010789-001	WIRE, 24AWG YEL, 112 FT. TOTAL LENGTH.
2	1	1010789-003	WIRE, 24AWG YEL, RED, 2 FT. TOTAL LENGTH.
3	1	1010789-004	WIRE, 24AWG YEL,RED, GRN, 2 FT. TOTAL LENGTH.
4	AR	1012507-001	LACING TAPE
5	AR	QQ-S-571 SN60 WRAP2	SOLDER
6	AR	MIL-F-14256	FLUX
7	64	1010770-001	CONTACT, ELECTRICAL
8	1	1010930-104	CONNECTOR, ELECTRICAL
9	AR	1012503	COMPOUND, POLYURETHANE
10	1	1010638-006	TERMINAL
11	57	1010911-052	INSULATION SLEEVING, HEAT SHRINKABLE
12	203	1010911-044	INSULATION SLEEVING, HEAT SHRINKABLE
13	1	1010789-002	WIRE, 24AWG BLK, 8 FT. TOTAL LENGTH.
14	1	1010789-011	WIRE, YEL JKT, 24AWG YEL, 20 FT. TOTAL LENGTH.
15	1	1010789-012	WIRE, YEL JKT, 24AWG YEL, RED, 7 FT. TOTAL LENGTH
16	1	1023012-001	ADAPTER, POTTING MOLD.
17	21	1010958-001	PLUG, SEALING

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622	
SCALE - NONE	REV LTR +		SHEET 4

MIL 2064-4-64

G+N HARNESS

CONDUCTOR			FROM							TO							
NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	CUT WIRE OR SHIELD STRIP WIRE OR JACKET CIRCUIT POINT	2	T I N	2	TERMINATION SPEC. 1	ITEM NO.	NO.	CUT WIRE OR SHIELD STRIP WIRE OR JACKET CIRCUIT POINT	2	T I N	2	TERMINATION SPEC 1	ITEM NO.	NO.	ROUTING
A 1	3							A 11							T 11		
A 1G			P1- 13	10	N		7		1	S8-5-NO	25	Y				28	
A 1R			P1- 4	10	N		7		1	S8-6-NO	25	Y				28	
A 1Y			P1- 12	10	N		7		1	S8-5-C	25	Y				28	
A 2	3							A 11							T 11		
A 2G			P1- 3	10	N		7		1	S8-2-NO	25	Y				28	
A 2R			P1- 2	10	N		7		1	S8-1-NO	25	Y				28	
A 2Y			P1- 10	10	N		7		1	S8-1-C	25	Y				28	
A 3	3							A 11							T 11		
A 3G			P1- 8	10	N		7		1	S8-3-C	25	Y				28	
A 3R			P1- 19	10	N		7		1	S8-4-NO	25	Y				28	
A 3Y			P1- 7	10	N		7		1	S8-3-NO	25	Y				28	
A 4	1		P1- 82	10	N		7	A 12	1	S12-8-NO	25	Y			T 12	6	
A 5	1		P1- 59	10	N		7	A 12	1	S12-2-NO	25	Y			T 12	22	
A 6	1		P1- 1	10	N		7	A 12	1	SHLD A13	25	Y			T 12	1	
A 7	1		P1- 81	10	N		7	A 12	1	S10-2-NO	25	Y			T 12	5	
A 8	1		P1- 20	10	N		7	A 12	1	S6-2-C	25	Y			T 12	26	
A 9	1		S12-2-C	25	Y			A 12	22	S11-NC	25	Y			T 12	30	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR A
SHEET 5

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR			FROM							TO							
NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	CUT WIRE OR SHIELD STRIP WIRE OR JACKET CIRCUIT POINT	2	T I N	2	TERMINATION SPEC. 1	ITEM NO.	NO.	CUT WIRE OR SHIELD STRIP WIRE OR JACKET CIRCUIT POINT	2	T I N	2	TERMINATION SPEC 1	ITEM NO.	NO.	ROUTING
A 10	1		A4-8	25	Y			A 12	4	S12-4-NO	25	Y			T 12	22	
A 11	1		P1- 55	10	N		7	A 12	1	S12-4-C	25	Y			T 12	22	
A 12	1		P1- 85	10	N		7	A 12	1	A3-2	25	Y			T 12	18	
A 13	14			175		150		A 11			50				T 11		
A 13A	13		SHLD A13	25	Y			A 12		SHLD A14	25	Y			T 12		
A 13Y			P1- 53	10	N		7		1	S3-4-NO	25	Y				42	
A 14	14			175		150		A 11			50				T 11		
A 14A	13		SHLD A14	25	Y			A 12		SHLD A15	25	Y			T 12		
A 14Y			P1- 77	10	N		7		1	S6-2-NC	25	Y				26	
A 15	15			175		150		A 11			50				T 11		
A 15A	13		SHLD A15	25	Y			A 12		SHLD A29	25	Y			T 12		
A 15R			P1- 51	10	N		7		1	S5-1-NO	25	Y				36	
A 15Y			P1- 30	10	N		7		1	S5-1-NC	25	Y				36	
A 16	1		P1- 33	10	N		7	A 12	1	S10-1-NO	25	Y			T 12	5	
A 17	1		A4-9	25	Y			A 12	4	A4-6	25	Y			T 12	4	
A 18	1		P1- 71	10	N		7	A 12	1	S3-7-NO	25	Y			T 12	41	
A 19	1		P1- 80	10	N		7	A 12	1	A4-5	25	Y			T 12	4	
A 20	2							A 11							T 11		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR
SHEET 6

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR			FROM							TO							
NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	CUT WIRE OR SHIELD STRIP WIRE OR JACKET CIRCUIT POINT	2	T I N	2	TERMINATION SPEC. 1	ITEM NO.	NO.	CUT WIRE OR SHIELD STRIP WIRE OR JACKET CIRCUIT POINT	2	T I N	2	TERMINATION SPEC 1	ITEM NO.	NO.	ROUTING
A 20R			P1- 43	10	N		7		1	A1-2	25	Y				32	
A 20Y			P1- 23	10	N		7		1	A1-1	25	Y				32	
A 21	14			175		150		A 11			50				T 11		
A 21A	13		SHLD A21	25	Y			A 12		SHLD A58	25	Y			T 12		
A 21Y			P1- 62	10	N		7		1	S1-2-C	25	Y				33	
A 22	14			175		150		A 11			50				T 11		
A 22A	13		SHLD A22	25	Y			A 12		SHLD A60	25	Y			T 12		
A 22Y			P1- 64	10	N		7		1	S1-3-C	25	Y				33	
A 23	15			175		150		A 11			50				T 11		
A 23A	13		SHLD A23	25	Y			A 12		SHLD A38	25	Y			T 12		
A 23R			P1- 39	10	N		7		1	T1-2	25	Y				31	
A 23Y			P1- 21	10	N		7		1	T1-1	25	Y				31	
A 24	1		P1- 34	10	N		7	A 12	1	S12-3-C	25	Y			T 12	22	
A 25	1		P1- 84	10	N		7	A 12	1	A3-4	25	Y			T 12	15	
A 26	1		P1- 79	10	N		7	A 12	1	A4-9	25	Y			T 12	4	
A 27	1		P1- 54	10	N		7	A 12	1	A4-7	25	Y			T 12	4	
A 28	1		P1- 50	10	N		7	A 12	1	S2-2-NC	25	Y			T 12	38	
A 29	14			175		150		A 11			50				T 11		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR A
SHEET 7

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR			FROM							TO							
NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	CUT WIRE OR SHIELD STRIP WIRE OR JACKET CIRCUIT POINT	2	T I N	2	TERMINATION SPEC. 1	ITEM NO.	NO.	CUT WIRE OR SHIELD STRIP WIRE OR JACKET CIRCUIT POINT	2	T I N	2	TERMINATION SPEC 1	ITEM NO.	NO.	ROUTING
A 29A	13		SHLD A29	25	Y			A 12		SHLD A32	25	Y			T 12		
A 29Y			P1- 76	10	N		7	A 12	1	S5-2-C	25	Y			T 12	36	
A 30	1		P1- 49	10	N		7	A 12	1	S2-2-NO	25	Y			T 12	38	
A 31	1		P1- 29	10	N		7	A 12	1	S5-2-NO	25	Y			T 12	36	
A 32	14			175		150		A 11			50				T 11		
A 32A	13		SHLD A32	25	Y			A 12		SHLD A46	25	Y			T 12		
A 32Y			P1- 52	10	N		7		1	S4-1-NC	25	Y				34	
A 33	1		P1- 56	10	N		7	A 12	1	S10-2-C	25	Y			T 12	5	
A 34	1		P1- 47	10	N		7	A 12	1	S3-2-NO	25	Y			T 12	42	
A 35	1		P1- 70	10	N		7	A 12	1	S7-2-NO	25	Y			T 12	25	
A 36	1		P1- 46	10	N		7	A 12	1	S7-2-NC	25	Y			T 12	25	
A 37	1		P1- 36	10	N			A 12	1	A3-8	25	Y			T 12	21	
A 38	15			175		150		A 11			50				T 11		
A 38A	13		SHLD A38	25	Y			A 12		SHLD A59	25	Y			T 12		
A 38R			P1- 65	10	N		7		1	T1-3	25	Y				31	
A 38Y			P1- 40	10	N		7		1	T1-4	25	Y				31	
A 39	1		P1- 58	10	N		7	A 12	1	R1-CCW	25	Y			T 12	30	
A 40	1		P1- 35	10	N		7	A 12	1	R1-WIPER	25	Y			T 12	30	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR
SHEET 8

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR NUMBER	ITEM NO.	FROM CIRCUIT POINT	CUT WIRE OR SHIELD / STRIP WIRE OR JACKET	T I N		TERMINATION SPEC. ITEM NO.	NO.	TO CIRCUIT POINT	CUT WIRE OR SHIELD / STRIP WIRE OR JACKET	T I N	TERMINATION SPEC ITEM NO.	NO.	ROUTING
A 41	1	P1- 60	10	N		7 A 12	1	A3-6	25	Y	T 12	12	
A 42	1	P1- 44	10	N		7 A 12	1	S12-3-NO	25	Y	T 12	22	
A 43	1	P1- 24	10	N		7 A 12	1	DS1-LO	25	Y	T 12	40	
A 44	1	P1- 68	10	N		7 A 12	1	E2	25	Y	T 12	23	
A 45	1	P1- 67	10	N		7 A 12	1	E3	25	Y	T 12	23	
A 46	14		175		150	A 11			50		T 11		
A 46A	13	SHLD A46	25	Y		A 12		SHLD A47	25	Y	T 12		
A 46Y		P1- 78	10	N		7	1	S3-8-NO	25	Y		41	
A 47	14		175		150	A 11			50		T 11		
A 47A	13	SHLD A47	25	Y		A 12		E1	25	Y	T 12 10	2	
A 47Y		P1- 75	10	N		7	1	S3-1-NO	25	Y		42	
A 48	1	P1- 74	10	N		7 A 12	1	S2-1-NO	25	Y	T 12	38	
A 49	1	S12-8-C	25	Y		A 12	6	A3-1	25	Y	T 12	19	
A 50	1	P1- 31	10	N		7 A 12	1	S4-1-NO	25	Y	T 12	34	
A 51	1	P1- 32	10	N		7 A 12	1	S10-1-C	25	Y	T 12	5	
A 52	1	P1- 72	10	N		7 A 12	1	S2-3-C	25	Y	T 12	38	
A 53	1	P1- 48	10	N		7 A 12	1	S7-2-C	25	Y	T 12	25	
A 54	15		175		150	A 11			50		T 11		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SIZE A | 2014622

SCALE - NONE | REV LTR A | SHEET 9

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR NUMBER	ITEM NO.	FROM CIRCUIT POINT	CUT WIRE OR SHIELD / STRIP WIRE OR JACKET	T I N		TERMINATION SPEC. ITEM NO.	NO.	TO CIRCUIT POINT	CUT WIRE OR SHIELD / STRIP WIRE OR JACKET	T I N	TERMINATION SPEC ITEM NO.	NO.	ROUTING
A 54A	13	SHLD A54	25	Y		A 12		P1- 42	10	N	7 T 11	1	
A 54R		P1- 66	10	N		7	1	S7-1-NC	25	Y		25	
A 54Y		P1- 41	10	N		7	1	S7-1-C	25	Y		25	
A 55	1	A1- 2	25	Y		A 12	32	A1-8	25	Y	T 12	32	
A 56	1	A1- 1	25	Y		A 12	32	A1-7	25	Y	T 12	32	
A 57	15		75		50	A 11			50		T 11		
A 57A	13	SHLD A57	25	Y		A 12		SHLD A61	25	Y	T 12		
A 57R		T1- 1	25	Y			31	A1-4	25	Y		32	
A 57Y		T1- 2	25	Y			31	A1-3	25	Y		32	
A 58	14		50			A 11			50		T 11		
A 58A	13	SHLD A58	25	Y		A 12		SHLD A22	25	Y	T 12		
A 58Y		P1- 38	10	N		7	1	T1-8	25	Y		31	
A 59	15		75		50	A 11			50		T 11		
A 59A	13	SHLD A59	25	Y		A 12		SHLD A57	25	Y	T 12		
A 59R		T1- 3	25	Y			31	A1-5	25	Y		32	
A 59Y		T1- 4	25	Y			31	A1-6	25	Y		32	
A 60	14		175		150	A 11			50		T 11		
A 60A	13	SHLD A60	25	Y		A 12		SHLD A23	25	Y	T 12		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SIZE A | 2014622

SCALE - NONE | REV LTR A | SHEET 10

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR NUMBER	ITEM NO.	FROM CIRCUIT POINT	CUT WIRE OR SHIELD / STRIP WIRE OR JACKET	T I N		TERMINATION SPEC. ITEM NO.	NO.	TO CIRCUIT POINT	CUT WIRE OR SHIELD / STRIP WIRE OR JACKET	T I N	TERMINATION SPEC ITEM NO.	NO.	ROUTING
A 60Y		P1- 63	10	N		7	1	T1-12	25	Y		31	
A 61	14		50			A 11			50		T 11		
A 61A	13	SHLD A61	25	Y		A 12		SHLD A62	25	Y	T 12		
A 61Y		T1- 5	25	Y			31	S1-2-NO	25	Y		33	
A 62	14		50			A 11			50		T 11		
A 62A	13	SHLD A62	25	Y		A 12		SHLD A63	25	Y	T 12		
A 62Y		T1- 6	25	Y			31	S1-1-NC	25	Y		33	
A 63	14		50			A 11			50		T 11		
A 63A	13	SHLD A63	25	Y		A 12		SHLD A64	25	Y	T 12		
A 63Y		T1- 7	25	Y			31	S1-1-NO	25	Y		33	
A 64	14		50			A 11			50		T 11		
A 64A	13	SHLD A64	25	Y		A 12		SHLD A65	25	Y	T 12		
A 64Y		T1- 9	25	Y			31	S1-3-NO	25	Y		33	
A 65	14		50			A 11			50		T 11		
A 65A	13	SHLD A65	25	Y		A 12		SHLD A66	25	Y	T 12		
A 65Y		T1- 10	25	Y			31	S1-4-NC	25	Y		33	
A 66	14		50			A 11			50		T 11		
A 66A	13	SHLD A66	25	Y		A 12		SHLD A67	25	Y	T 12		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SIZE A | 2014622

SCALE - NONE | REV LTR | SHEET 11

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR NUMBER	ITEM NO.	FROM CIRCUIT POINT	CUT WIRE OR SHIELD / STRIP WIRE OR JACKET	T I N		TERMINATION SPEC. ITEM NO.	NO.	TO CIRCUIT POINT	CUT WIRE OR SHIELD / STRIP WIRE OR JACKET	T I N	TERMINATION SPEC ITEM NO.	NO.	ROUTING
A 66Y		T1- 11	25	Y			31	S1-4-NO	25	Y		33	
A 67	14		50			A 11			50		T 11		
A 67A	13	SHLD A67	25	Y		A 12		SHLD A68	25	Y	T 12		
A 67Y		S1-3-NC	25	Y			33	S1-4-C	25	Y		33	
A 68	14		50			A 11			50		T 11		
A 68A	13	SHLD A68	25	Y		A 12		S3-5-C	25	Y	T 12	41	
A 68Y		S1-2-NC	25	Y			33	S1-1-C	25	Y		33	
A 69	1	S2-1-NC	25	Y		A 12	38	S2-2-C	25	Y	T 12	38	
A 70	1	S2-3-NO	25	Y		A 12	38	S3-7-C	25	Y	T 12	41	
A 71	1	S7-2-C	25	Y		A 12	25	S3-7-C	25	Y	T 12	41	
A 72	1	S5-2-C	25	Y		A 12	36	S2-1-C	25	Y	T 12	38	
A 73	1	S2-1-C	25	Y		A 12	38	S3-4-NC	25	Y	T 12	42	
A 74	1	S3-5-NC	25	Y		A 12	41	S3-1-C	25	Y	T 12	42	
A 75	1	S3-7-NC	25	Y		A 12	41	S3-2-C	25	Y	T 12	42	
A 76	1	S3-8-NC	25	Y		A 12	41	S3-4-C	25	Y	T 12	42	
A 77	1	S3-8-C	25	Y		A 12	41	S3-5-C	25	Y	T 12	41	
A 78	1	S6-2-C	25	Y		A 12	26	S3-8-C	25	Y	T 12	41	
A 79	1	S3-1-NO	25	Y		A 12	42	S3-5-NO	25	Y	T 12	41	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SIZE A | 2014622

SCALE - NONE | REV LTR A | SHEET 12

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR			FROM					TO					ROUTING
INDIVIDUAL LENGTH			CUT WIRE OR SHIELD			TERMINATION		CUT WIRE OR SHIELD			TERMINATION		
NUMBER	ITEM NO.	2	STRIP WIRE OR JACKET CIRCUIT POINT	2	TIN 2	SPEC. 1 ITEM NO.	NO.	STRIP WIRE OR JACKET CIRCUIT POINT	2	TIN 2	SPEC 1 ITEM NO.	NO.	
A 80	1		S3-1-NC	25	Y	A 12	42	S4-1-C	25	Y	T 12	34	
A 81	1		S5-2-NC	25	Y	A 12	36	S5-1-C	25	Y	T 12	36	
A 82	1		S8-5-C	25	Y	A 12	28	S8-6-C	25	Y	T 12	28	
A 83	1		S8-1-C	25	Y	A 12	28	S8-2-C	25	Y	T 12	28	
A 84	1		S8-3-C	25	Y	A 12	28	S8-4-C	25	Y	T 12	28	
A 85	1		S11-NC	25	Y	A 12	30	R1-CW	25	Y	T 12	30	
A 86	1		S11-C	25	Y	A 12	30	R1-CCW	25	Y	T 12	30	
A 87	1		S12-2-C	25	Y	A 12	22	S12-3-C	25	Y	T 12	22	
A 88	1		S12-3-NO	25	Y	A 12	22	DS1-HI	25	Y	T 12	40	
A 89	1		S12-8-C	25	Y	A 12	6	S12-1-C	25	Y	T 12	22	
A 90	1		S12-8-NO	25	Y	A 12	6	S12-1-NO	25	Y	T 12	22	
A 91	1		E31	25	Y	A 12	37	E33	25	Y	T 12	39	
A 92	1		E4	25	Y	A 12	3	E6	25	Y	T 12	23	
A 93	1		E5	25	Y	A 12	3	E7	25	Y	T 12	23	
A 94	1		E6	25	Y	A 12	23	E8	25	Y	T 12	24	
A 95	1		E7	25	Y	A 12	23	E9	25	Y	T 12	24	
A 96	1		E8	25	Y	A 12	24	E10	25	Y	T 12	27	
A 97	1		E9	25	Y	A 12	24	E11	25	Y	T 12	27	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622	
SCALE - NONE	REV LTR +		SHEET 13

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR			FROM					TO					ROUTING
INDIVIDUAL LENGTH			CUT WIRE OR SHIELD			TERMINATION		CUT WIRE OR SHIELD			TERMINATION		
NUMBER	ITEM NO.	2	STRIP WIRE OR JACKET CIRCUIT POINT	2	TIN 2	SPEC. 1 ITEM NO.	NO.	STRIP WIRE OR JACKET CIRCUIT POINT	2	TIN 2	SPEC 1 ITEM NO.	NO.	
A 98	1		E10	25	Y	A 12	27	E12	25	Y	T 12	29	
A 99	1		E11	25	Y	A 12	27	E13	25	Y	T 12	29	
A 100	1		E16	25	Y	A 12	29	E18	25	Y	T 12	35	
A 101	1		E17	25	Y	A 12	29	E19	25	Y	T 12	35	
A 102	1		E22	25	Y	A 12	35	E24	25	Y	T 12	37	
A 103	1		E23	25	Y	A 12	35	E25	25	Y	T 12	37	
A 104	1		E30	25	Y	A 12	37	E32	25	Y	T 12	39	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

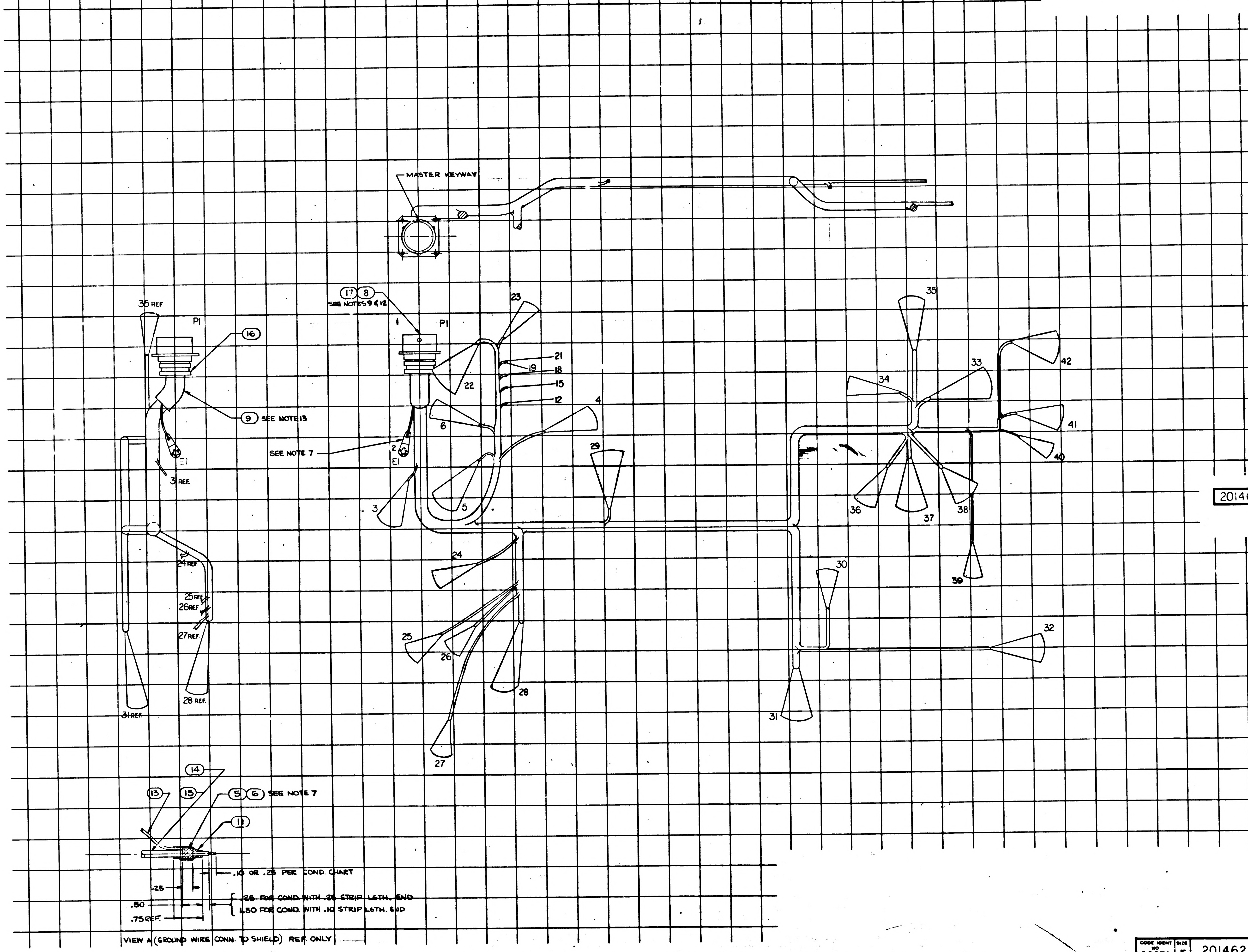
2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622	
SCALE - NONE	REV LTR +		SHEET 14

MIL 2085-4-64 WIR

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
35 REF.
P1
16
9 SEE NOTE 13
E1
3 REF.
24 REF.
25 REF.
26 REF.
27 REF.
31 REF.
28 REF.
17
8
SEE NOTES 9 & 12
1
P1
23
21
19
18
15
12
22
6
4
SEE NOTE 7
2
E1
29
3
5
24
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42
41
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32
31
14
13
15
5
6
SEE NOTE 7
11
.10 OR .25 PER COND. CHART
.25
.50
.75 REF.
.25 FOR COND. WITH .25 STRIP LGTH. END
1.50 FOR COND. WITH .10 STRIP LGTH. END
VIEW A (GROUND WIRE CONN. TO SHIELD) REF. ONLY

2014622
REV LTR A

CODE IDENT NO.	SIZE	
89974	E	2014622
SCALE 1/1		SHEET 15

MK-10881

TDRR 22658

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014578-011	2014623-011	A	REVISED PER TDRR 23186	15 OCT 1965	WGM 10-15-65
		B	REVISED RER TDRR 23832	12 NOV 1965	11/12/65

REV STATUS REV	B	+	+	+	B	B	B	B	B	B	B	B	B	B	B	B
OF SHEETS SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ACSP PN
DRAWN L. Hood DATE 4 Aug 65
CHECKED 9-17-65
APPROVAL J C Watson 21 SEP 65
APPROVAL 9/20/65
NASA APPROVAL
MIT APPROVAL
CONTRACT

WIRING HARNESS A
G&N INDICATOR CONTROL PANEL

CODE IDENT NO.	SIZE		REV
80230	A	2014622	B

SCALE | SHEET | OF 16

GENERAL NOTES

1 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

2 ASSEMBLE PER ND1002032.

3 GRID MODULE IS 1 INCH BASIC AND IS SHOWN FOR DIMENSIONING PURPOSES.

4 UNLESS OTHERWISE SPECIFIED - FEATURE CENTERLINES AT TRUE POSITION WITHIN + OR - .25 INCH RELATIVE TO GRID. ENDS OF LEADS OR ACCESSORIES AT TRUE POSITION WITHIN + OR - .12 INCH RELATIVE TO GRID. TRUE POSITION DIMENSIONS ARE REGARDLESS OF FEATURE SIZE.

5 IDENTIFY USING DWG. NO. PER ND1002019.

6 LACE HARNESS USING ITEM 4

7 SOLDER PER ND 1002071 USING ITEMS 5 AND 6

8 Y OR N IN TINNED COLUMN INDICATES YES OR NO.

9 INSTALL CRIMP STYLE TERMINALS IN ACCORDANCE WITH ND1002206

10 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER INDICATES CONDUCTOR SHIELDING, COLOR, OR MARKING.
A - FROM END SHIELD
B - TO END SHIELD
K - BLACK
R - RED
Y - YELLOW
G - GREEN

MANNED SPACECRAFT CENTER HOUSTON, TEXAS | SIZE A | 2014622
SCALE - NONE | REV LTR + | SHEET 2

GENERAL NOTES

11 TOLERANCE CHART, UNLESS OTHERWISE SPECIFIED ---

APPLICABLE LENGTH FOR STRIP WIRE, STRIP JACKET, CUT WIRE OR CUT SHIELD.	TOLERANCE STRIP WIRE	STRIP JACKET	CUT WIRE	CUT SHIELD
UNDER 1 INCH	+.03-.00	+.06-.06	+.06-.06	+.06-.06
1 INCH TO 6 INCHES	+.06-.00	+.25-.25	+.25-.25	+.25-.25
6 INCHES TO 6 FEET		+.50-.50	+.50-.50	+.50-.50

12 ASSEMBLE ITEM 17 IN ALL UNUSED GROMMET HOLES OF ITEM 8.

13 ENCAPSULATE THE WIRED SIDE OF ITEM 8, USING ITEM 9 PER ND1002236. LEAD INSULATION SHALL EXTEND INTO THE ENCAPSULATION .18 PLUS OR MINUS .06 INCHES.

14 MARK SLEEVING OF SINGLE CONDUCTORS .08 + .02 HIGH, COLOR BLACK, WITH THE CONDUCTOR NUMBER OMITTING ALL SUFFIX LETTERS EXCEPT A AND B PER ND1002019, WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM FIELD.

15 MARK SLEEVING OF MULTI-CONDUCTORS WITH THE CONDUCTOR NUMBER .12 INCH HIGH, COLOR BLACK, PER ND1002019 WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM NUMBER FIELD.

16 CONDUCTOR IDENTIFICATION SLEEVING SHALL BE STAGGERED AT TERMINATION NO. 1 TO MINIMIZE THE WIRE BUNDLE DIAMETER.

17 A OR T PREFIX IN THE ACCESSORIES ITEM NUMBER COLUMN INDICATES THE READING POSITION AWAY FROM TERMINATION OR TOWARD TERMINATION RESPECTIVELY, OF THE WIRE MARKER SLEEVE.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS | SIZE A | 2014622
SCALE - NONE | REV LTR + | SHEET 3

LIST OF MATERIALS

ITEM	QTY	PART NO.	DESCRIPTION
1	1	1010789-001	WIRE, 24AWG YEL, 112 FT. TOTAL LENGTH.
2	1	1010789-003	WIRE, 24AWG YEL, RED, 2 FT. TOTAL LENGTH.
3	1	1010789-004	WIRE, 24AWG YEL,RED, GRN, 2 FT. TOTAL LENGTH.
4	AR	1012507-001	LACING TAPE
5	AR	QQ-S-571 SN60 WRAP2	SOLDER
6	AR	MIL-F-14256	FLUX
7	64	1010770-001	CONTACT, ELECTRICAL
8	1	1010930-104	CONNECTOR, ELECTRICAL
9	AR	1012503	COMPOUND, POLYURETHANE
10	1	1010638-006	TERMINAL
11	57	1010911-052	INSULATION SLEEVING, HEAT SHRINKABLE
12	205	1010911-044	INSULATION SLEEVING, HEAT SHRINKABLE
13	1	1010789-002	WIRE, 24AWG BLK, 8 FT. TOTAL LENGTH.
14	1	1010789-011	WIRE, YEL JKT, 24AWG YEL, 20 FT. TOTAL LENGTH.
15	1	1010789-012	WIRE, YEL JKT, 24AWG YEL, RED, 7 FT. TOTAL LENGTH
16	1	1023012-001	ADAPTER, POTTING MOLD.
17	21	1010958-001	PLUG, SEALING

MANNED SPACECRAFT CENTER HOUSTON, TEXAS | SIZE A | 2014622
SCALE - NONE | REV LTR + | SHEET 4

G+N HARNESS

List of Materials

Item	Qty	Part No.	Description
18	1	2014707	Bracket, Connector.
19	4	1010617-4	Nut, Hex, Self Locking.
20	4	1006783-19	Screw, Button HD.
21	4	MS15795-803	Washer, Flat

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622	
SCALE - NONE	REV LTR B		SHEET 5

MIL 2084-4-64

G+N HARNESS

Conductor Number	Item No.	Individual Length	FROM Circuit Point	Strip Wire or Jacket	T I N	Cut Wire or Shield	Termination Spec. / Item No.	No.	TO Circuit Point	Strip Wire or Jacket	T I N	Cut Wire or Shield	Termination Spec / Item No.	No.	Routing
A 1	3						A 11						T 11		
A 1G			P1- 13	10	N		7	1	S8-5-NO	25	Y			28	
A 1R			P1- 4	10	N		7	1	S8-6-NO	25	Y			28	
A 1Y			P1- 12	10	N		7	1	S8-5-C	25	Y			28	
A 2	3						A 11						T 11		
A 2G			P1- 3	10	N		7	1	S8-2-NO	25	Y			28	
A 2R			P1- 2	10	N		7	1	S8-1-NO	25	Y			28	
A 2Y			P1- 10	10	N		7	1	S8-1-C	25	Y			28	
A 3	3						A 11						T 11		
A 3G			P1- 8	10	N		7	1	S8-3-C	25	Y			28	
A 3R			P1- 19	10	N		7	1	S8-4-NO	25	Y			28	
A 3Y			P1- 7	10	N		7	1	S8-3-NO	25	Y			28	
A 4	1		P1- 82	10	N		7 A 12	1	S12-8-NO	25	Y		T 12	6	
A 5	1		P1- 59	10	N		7 A 12	1	S12-2-NO	25	Y		T 12	22	
A 6	1		P1- 1	10	N		7 A 12	1	SHLD A13	25	Y		T 12	1	
A 7	1		P1- 81	10	N		7 A 12	1	S10-2-NO	25	Y		T 12	5	
A 8	1		P1- 20	10	N		7 A 12	1	S6-2-C	25	Y		T 12	26	
A 9	1		S12-2-C	25	Y		A 12	22	S11-NC	25	Y		T 12	30	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622	
SCALE - NONE	REV LTR * B		SHEET 6 x

MIL 2085-4-64 WIR

G+N HARNESS

Conductor Number	Item No.	Individual Length	FROM Circuit Point	Strip Wire or Jacket	T I N	Cut Wire or Shield	Termination Spec. / Item No.	No.	TO Circuit Point	Strip Wire or Jacket	T I N	Cut Wire or Shield	Termination Spec / Item No.	No.	Routing
A 10	1		A4-8	25	Y		A 12	4	S12-4-NO	25	Y		T 12	22	
A 11	1		P1- 55	10	N		7 A 12	1	S12-4-C	25	Y		T 12	22	
A 12	1		P1- 85	10	N		7 A 12	1	A3-2	25	Y		T 12	18	
A 13	14			175		150	A 11			50			T 11		
A 13A	13		SHLD A13	25	Y		A 12		SHLD A14	25	Y		T 12		
A 13Y			P1- 53	10	N		7	1	S3-4-NO	25	Y			42	
A 14	14			175		150	A 11			50			T 11		
A 14A	13		SHLD A14	25	Y		A 12		SHLD A15	25	Y		T 12		
A 14Y			P1- 77	10	N		7	1	S6-2-NC	25	Y			26	
A 15	15			175		150	A 11			50			T 11		
A 15A	13		SHLD A15	25	Y		A 12		SHLD A29	25	Y		T 12		
A 15R			P1- 51	10	N		7	1	S5-1-NO	25	Y			36	
A 15Y			P1- 30	10	N		7	1	S5-1-NC	25	Y			36	
A 16	1		P1- 33	10	N		7 A 12	1	S10-1-NO	25	Y		T 12	5	
A 17	1		A4-9	25	Y		A 12	4	A4-6	25	Y		T 12	4	
A 18	1		P1- 71	10	N		7 A 12	1	S3-7-NO	25	Y		T 12	41	
A 19	1		P1- 80	10	N		7 A 12	1	A4-5	25	Y		T 12	4	
A 20	2						A 11						T 11		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622	
SCALE - NONE	REV LTR + B		SHEET 7 x

MIL 2085-4-64 WIR

G+N HARNESS

Conductor Number	Item No.	Individual Length	FROM Circuit Point	Strip Wire or Jacket	T I N	Cut Wire or Shield	Termination Spec. / Item No.	No.	TO Circuit Point	Strip Wire or Jacket	T I N	Cut Wire or Shield	Termination Spec / Item No.	No.	Routing
A 20R			P1- 43	10	N		7	1	A1-2	25	Y			32	
A 20Y			P1- 23	10	N		7	1	A1-1	25	Y			32	
A 21	14			175		150	A 11			50			T 11		
A 21A	13		SHLD A21	25	Y		A 12		SHLD A58	25	Y		T 12		
A 21Y			P1- 62	10	N		7	1	S1-2-C	25	Y			33	
A 22	14			175		150	A 11			50			T 11		
A 22A	13		SHLD A22	25	Y		A 12		SHLD A60	25	Y		T 12		
A 22Y			P1- 64	10	N		7	1	S1-3-C	25	Y			33	
A 23	15			175		150	A 11			50			T 11		
A 23A	13		SHLD A23	25	Y		A 12		SHLD A38	25	Y		T 12		
A 23R			P1- 39	10	N		7	1	T1-2	25	Y			31	
A 23Y			P1- 21	10	N		7	1	T1-1	25	Y			31	
A 24	1		P1- 34	10	N		7 A 12	1	S12-3-C	25	Y		T 12	22	
A 25	1		P1- 84	10	N		7 A 12	1	A3-4	25	Y		T 12	15	
A 26	1		P1- 79	10	N		7 A 12	1	A4-9	25	Y		T 12	4	
A 27	1		P1- 54	10	N		7 A 12	1	A4-7	25	Y		T 12	4	
A 28	1		P1- 50	10	N		7 A 12	1	S2-2-NC	25	Y		T 12	38	
A 29	14			175		150	A 11			50			T 11		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622	
SCALE - NONE	REV LTR x B		SHEET 8 x

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR INDIVIDUAL LENGTH NUMBER	ITEM NO.	FROM CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET	TIN		TERMINATION SPEC. ITEM NO.		NO.	TO CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET	TIN	TERMINATION SPEC ITEM NO.			NO.	ROUTING
A 29A	13	SHLD A29	25	Y		A 12			SHLD A32	25	Y	T 12				
A 29Y		P1- 76	10	N		7	A 12	1	S5-2-C	25	Y	T 12			36	
A 30	1	P1- 49	10	N		7	A 12	1	S2-2-NO	25	Y	T 12			38	
A 31	1	P1- 29	10	N		7	A 12	1	S5-2-NO	25	Y	T 12			36	
A 32	14		175		150	A 11				50		T 11				
A 32A	13	SHLD A32	25	Y		A 12			SHLD A46	25	Y	T 12				
A 32Y		P1- 52	10	N		7		1	S4-1-NC	25	Y				34	
A 33	1	P1- 56	10	N		7	A 12	1	S10-2-C	25	Y	T 12			5	
A 34	1	P1- 47	10	N		7	A 12	1	S3-2-NO	25	Y	T 12			42	
A 35	1	P1- 70	10	N		7	A 12	1	S7-2-NO	25	Y	T 12			25	
A 36	1	P1- 46	10	N		7	A 12	1	S7-2-NC	25	Y	T 12			25	
A 37	1	P1- 36	10	N			A 12	1	A3-8	25	Y	T 12			21	
A 38	15		175		150	A 11				50		T 11				
A 38A	13	SHLD A38	25	Y		A 12			SHLD A59	25	Y	T 12				
A 38R		P1- 65	10	N		7		1	T1-3	25	Y				31	
A 38Y		P1- 40	10	N		7		1	T1-4	25	Y				31	
A 39	1	P1- 58	10	N		7	A 12	1	R1-CCW	25	Y	T 12			30	
A 40	1	P1- 35	10	N		7	A 12	1	R1-WIPER	25	Y	T 12			30	

1. THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2. DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR B
SHEET 9

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR INDIVIDUAL LENGTH NUMBER	ITEM NO.	FROM CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET	TIN		TERMINATION SPEC. ITEM NO.		NO.	TO CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET	TIN	TERMINATION SPEC ITEM NO.			NO.	ROUTING
A 41	1	P1- 60	10	N		7	A 12	1	A3-6	25	Y	T 12			12	
A 42	1	P1- 44	10	N		7	A 12	1	S12-3-NO	25	Y	T 12			22	
A 43	1	P1- 24	10	N		7	A 12	1	DS1-LO	25	Y	T 12			40	
A 44	1	P1- 68	10	N		7	A 12	1	E2	25	Y	T 12			23	
A 45	1	P1- 67	10	N		7	A 12	1	E3	25	Y	T 12			23	
A 46	14		175		150	A 11				50		T 11				
A 46A	13	SHLD A46	25	Y		A 12			SHLD A47	25	Y	T 12				
A 46Y		P1- 78	10	N		7		1	S3-8-NO	25	Y				41	
A 47	14		175		150	A 11				50		T 11				
A 47A	13	SHLD A47	25	Y		A 12			E1	25	Y	T 12	10		2	
A 47Y		P1- 75	10	N		7		1	S3-1-NO	25	Y				42	
A 48	1	P1- 74	10	N		7	A 12	1	S2-1-NO	25	Y	T 12			38	
A 49	1	S12-8-C	25	Y			A 12	6	A3-1	25	Y	T 12			19	
A 50	1	P1- 31	10	N		7	A 12	1	S4-1-NO	25	Y	T 12			34	
A 51	1	P1- 32	10	N		7	A 12	1	S10-1-C	25	Y	T 12			5	
A 52	1	P1- 72	10	N		7	A 12	1	S2-3-C	25	Y	T 12			38	
A 53	1	P1- 48	10	N		7	A 12	1	S7-2-C	25	Y	T 12			25	
A 54	15		175		150	A 11				50		T 11				

1. THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2. DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR B
SHEET 10

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR INDIVIDUAL LENGTH NUMBER	ITEM NO.	FROM CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET	TIN		TERMINATION SPEC. ITEM NO.		NO.	TO CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET	TIN	TERMINATION SPEC ITEM NO.			NO.	ROUTING
A 54A	13	SHLD A54	25	Y		A 12			P1- 42	10	N	7	T 11		1	
A 54R		P1- 66	10	N		7		1	S7-1-NC	25	Y				25	
A 54Y		P1- 41	10	N		7		1	S7-1-C	25	Y				25	
A 55	1	A1- 2	25	Y			A 12	32	A1-8	25	Y	T 12			32	
A 56	1	A1- 1	25	Y			A 12	32	A1-7	25	Y	T 12			32	
A 57	15		75		50	A 11				50		T 11				
A 57A	13	SHLD A57	25	Y		A 12			SHLD A61	25	Y	T 12				
A 57R		T1- 1	25	Y				31	A1-4	25	Y				32	
A 57Y		T1- 2	25	Y				31	A1-3	25	Y				32	
A 58	14		50			A 11				50		T 11				
A 58A	13	SHLD A58	25	Y		A 12			SHLD A22	25	Y	T 12				
A 58Y		P1- 38	10	N		7		1	T1-8	25	Y				31	
A 59	15		75		50	A 11				50		T 11				
A 59A	13	SHLD A59	25	Y		A 12			SHLD A57	25	Y	T 12				
A 59R		T1- 3	25	Y				31	A1-5	25	Y				32	
A 59Y		T1- 4	25	Y				31	A1-6	25	Y				32	
A 60	14		175		150	A 11				50		T 11				
A 60A	13	SHLD A60	25	Y		A 12			SHLD A23	25	Y	T 12				

1. THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2. DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR B
SHEET 11

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR INDIVIDUAL LENGTH NUMBER	ITEM NO.	FROM CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET	TIN		TERMINATION SPEC. ITEM NO.		NO.	TO CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET	TIN	TERMINATION SPEC ITEM NO.			NO.	ROUTING
A 60Y		P1- 63	10	N		7		1	T1-12	25	Y				31	
A 61	14		50			A 11				50		T 11				
A 61A	13	SHLD A61	25	Y		A 12			SHLD A62	25	Y	T 12				
A 61Y		T1- 5	25	Y				31	S1-2-NO	25	Y				33	
A 62	14		50			A 11				50		T 11				
A 62A	13	SHLD A62	25	Y		A 12			SHLD A63	25	Y	T 12				
A 62Y		T1- 6	25	Y				31	S1-1-NC	25	Y				33	
A 63	14		50			A 11				50		T 11				
A 63A	13	SHLD A63	25	Y		A 12			SHLD A64	25	Y	T 12				
A 63Y		T1- 7	25	Y				31	S1-1-NO	25	Y				33	
A 64	14		50			A 11				50		T 11				
A 64A	13	SHLD A64	25	Y		A 12			SHLD A65	25	Y	T 12				
A 64Y		T1- 9	25	Y				31	S1-3-NO	25	Y				33	
A 65	14		50			A 11				50		T 11				
A 65A	13	SHLD A65	25	Y		A 12			SHLD A66	25	Y	T 12				
A 65Y		T1- 10	25	Y				31	S1-4-NC	25	Y				33	
A 66	14		50			A 11				50		T 11				
A 66A	13	SHLD A66	25	Y		A 12			SHLD A67	25	Y	T 12				

1. THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2. DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR B
SHEET 12

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	FROM CUT WIRE OR SHIELD / CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN 2	TERMINATION SPEC. 1 ITEM NO.	NO.	TO CUT WIRE OR SHIELD / CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN 2	TERMINATION SPEC 1 ITEM NO.	NO.	ROUTING
A 66Y			T1- 11	25	Y		31	S1-4-NO	25	Y		33	
A 67	14			50		A 11			50		T 11		
A 67A	13		SHLD A67	25	Y	A 12		SHLD A68	25	Y	T 12		
A 67Y			S1-3-NC	25	Y		33	S1-4-C	25	Y		33	
A 68	14			50		A 11			50		T 11		
A 68A	13		SHLD A68	25	Y	A 12		S3-5-C	25	Y	T 12	41	
A 68Y			S1-2-NC	25	Y		33	S1-1-C	25	Y		33	
A 69	1		S2-1-NC	25	Y	A 12	38	S2-2-C	25	Y	T 12	38	
A 70	1		S2-3-NO	25	Y	A 12	38	S3-7-C	25	Y	T 12	41	
A 71	1		S7-2-C	25	Y	A 12	25	S3-7-C	25	Y	T 12	41	
A 72	1		S5-2-C	25	Y	A 12	36	S2-1-C	25	Y	T 12	38	
A 73	1		S2-1-C	25	Y	A 12	38	S3-4-NC	25	Y	T 12	42	
A 74	1		S3-5-NC	25	Y	A 12	41	S3-1-C	25	Y	T 12	42	
A 75	1		S3-7-NC	25	Y	A 12	41	S3-2-C	25	Y	T 12	42	
A 76	1		S3-8-NC	25	Y	A 12	41	S3-4-C	25	Y	T 12	42	
A 77	1		S3-8-C	25	Y	A 12	41	S3-5-C	25	Y	T 12	41	
A 78	1		S6-2-C	25	Y	A 12	26	S3-8-C	25	Y	T 12	41	
A 79	1		S3-1-NO	25	Y	A 12	42	S3-5-NO	25	Y	T 12	41	

1. THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2. DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MIL 2085-4-64 WIR

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622
SCALE - NONE	REV LTR x B	SHEET 13 ~~16~~

G+N HARNESS

CONDUCTOR NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	FROM CUT WIRE OR SHIELD / CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN 2	TERMINATION SPEC. 1 ITEM NO.	NO.	TO CUT WIRE OR SHIELD / CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN 2	TERMINATION SPEC 1 ITEM NO.	NO.	ROUTING
A 80	1		S3-1-NC	25	Y	A 12	42	S4-1-C	25	Y	T 12	34	
A 81	1		S5-2-NC	25	Y	A 12	36	S5-1-C	25	Y	T 12	36	
A 82	1		S8-5-C	25	Y	A 12	28	S8-6-C	25	Y	T 12	28	
A 83	1		S8-1-C	25	Y	A 12	28	S8-2-C	25	Y	T 12	28	
A 84	1		S8-3-C	25	Y	A 12	28	S8-4-C	25	Y	T 12	28	
A 85	1		S11-NC	25	Y	A 12	30	R1-CW	25	Y	T 12	30	
A 86	1		S11-C	25	Y	A 12	30	R1-CCW	25	Y	T 12	30	
A 87	1		S12-2-C	25	Y	A 12	22	S12-3-C	25	Y	T 12	22	
A 88	1		S12-3-NO	25	Y	A 12	22	DS1-HI	25	Y	T 12	40	
A 89	1		S12-8-C	25	Y	A 12	6	S12-1-C	25	Y	T 12	22	
A 90	1		S12-8-NO	25	Y	A 12	6	S12-1-NO	25	Y	T 12	22	
A 91	1		E31	25	Y	A 12	37	E33	25	Y	T 12	39	
A 92	1		E4	25	Y	A 12	3	E6	25	Y	T 12	23	
A 93	1		E5	25	Y	A 12	3	E7	25	Y	T 12	23	
A 94	1		E6	25	Y	A 12	23	E8	25	Y	T 12	24	
A 95	1		E7	25	Y	A 12	23	E9	25	Y	T 12	24	
A 96	1		E8	25	Y	A 12	24	E10	25	Y	T 12	27	
A 97	1		E9	25	Y	A 12	24	E11	25	Y	T 12	27	

1. THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2. DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MIL 2085-4-64 WIR

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622
SCALE - NONE	REV LTR + B	SHEET 14 ~~16~~

G+N HARNESS

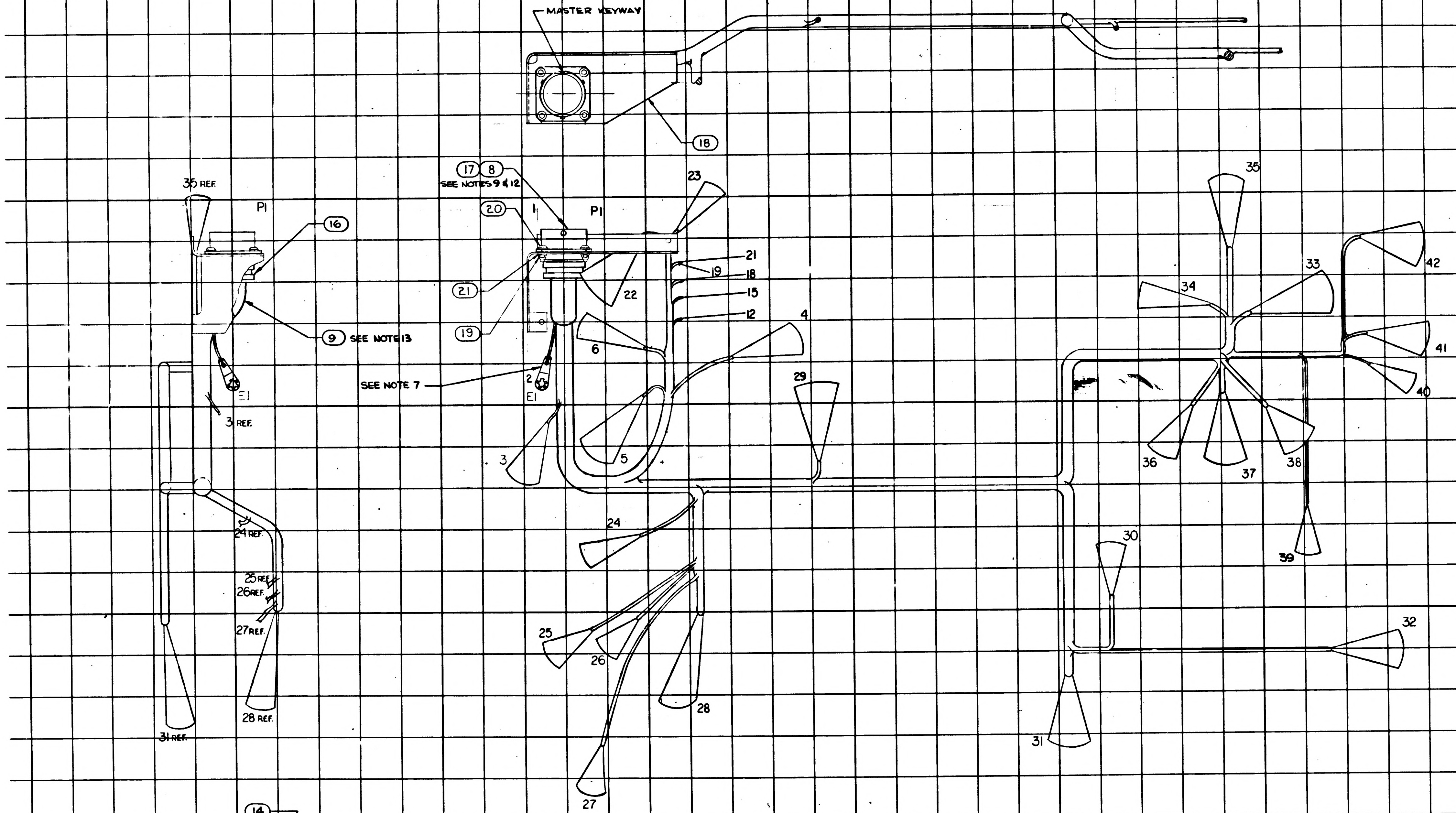
CONDUCTOR NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	FROM CUT WIRE OR SHIELD / CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN 2	TERMINATION SPEC. 1 ITEM NO.	NO.	TO CUT WIRE OR SHIELD / CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN 2	TERMINATION SPEC 1 ITEM NO.	NO.	ROUTING
A 98	1		E10	25	Y	A 12	27	E12	25	Y	T 12	29	
A 99	1		E11	25	Y	A 12	27	E13	25	Y	T 12	29	
A 100	1		E16	25	Y	A 12	29	E18	25	Y	T 12	35	
A 101	1		E17	25	Y	A 12	29	E19	25	Y	T 12	35	
A 102	1		E22	25	Y	A 12	35	E24	25	Y	T 12	37	
A 103	1		E23	25	Y	A 12	35	E25	25	Y	T 12	37	
A 104	1		E30	25	Y	A 12	37	E32	25	Y	T 12	39	

1. THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2. DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MIL 2085-4-64 WIR

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622
SCALE - NONE	REV LTR + B	SHEET ~~14~~ 15

REVISIONS TDRR [illegible]				
SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		
SEE SHEET 1 FOR REVISION RECORD				



MASTER KEYWAY
18
35 REF.
P1
16
9 SEE NOTE 13
E1
3 REF.
24 REF.
25 REF.
26 REF.
27 REF.
28 REF.
31 REF.
17
8
SEE NOTES 9 & 12
20
1
P1
21
19
SEE NOTE 7
2
E1
23
22
21
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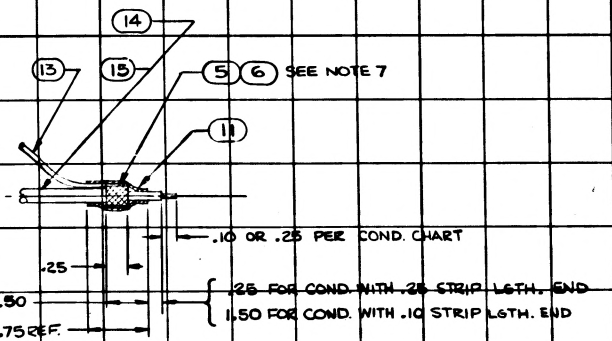


14
13
15
5
6
SEE NOTE 7
11
.10 OR .25 PER COND. CHART
.25
.50
.75 REF.
~~.25 FOR COND. WITH .25 STRIP LGTH. END~~
1.50 FOR COND. WITH .10 STRIP LGTH. END

VIEW A (GROUND WIRE CONN. TO SHIELD) REF. ONLY

2014622	
REV LTR	B

CODE IDENT NO.	SIZE	
99974	E	2014622
SCALE 1/1		SHEET 1 C

MX-10881

TDRR 22658

APPLICATION

NEXT ASSY	USED ON
2014578-011	2014623-011

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 23186	15 OCT 1965	MGM 10-15-65
B	REVISED RER TDRR 23832	12 NOV 1965	MGM 11/12/65
C	REVISED PER TDRR 24827	4 JAN 1966	WJL

REV STATUS OF SHEETS																
REV	B	+	+	C	B	B	C	C	C	C	C	C	C	B	B	B
SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ACSP PN

DRAWN L. Hood DATE 4 Aug 65
CHECKED 9-17-65
APPROVAL JC Watson 21 SEP 65
APPROVAL 9/20/65
NASA APPROVAL
MIT APPROVAL

WIRING HARNESS A G&N INDICATOR CONTROL PANEL

CODE IDENT NO.	SIZE		REV
80230	A	2014622	C

SCALE SHEET 1 OF 16

CONTRACT

G&N Harness

GENERAL NOTES

1 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

2 ASSEMBLE PER ND1002032.

3 GRID MODULE IS 1 INCH BASIC AND IS SHOWN FOR DIMENSIONING PURPOSES.

4 UNLESS OTHERWISE SPECIFIED - FEATURE CENTERLINES AT TRUE POSITION WITHIN + OR - .25 INCH RELATIVE TO GRID. ENDS OF LEADS OR ACCESSORIES AT TRUE POSITION WITHIN + OR - .12 INCH RELATIVE TO GRID. TRUE POSITION DIMENSIONS ARE REGARDLESS OF FEATURE SIZE.

5 IDENTIFY USING DWG. NO. PER ND1002019.

6 LACE HARNESS USING ITEM 4

7 SOLDER PER ND 1002071 USING ITEMS 5 AND 6

8 Y OR N IN TINNED COLUMN INDICATES YES OR NO.

9 INSTALL CRIMP STYLE TERMINALS IN ACCORDANCE WITH ND1002206

10 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER INDICATES CONDUCTOR SHIELDING, COLOR, OR MARKING.
- A - FROM END SHIELD
- B - TO END SHIELD
- K - BLACK
- R - RED
- Y - YELLOW
- G - GREEN

MANNED SPACECRAFT CENTER HOUSTON, TEXAS | SIZE A | 2014622
SCALE-NONE | REV LTR + | SHEET 2

MIL 2084-4-64

G&N HARNESS

GENERAL NOTES

11 TOLERANCE CHART. UNLESS OTHERWISE SPECIFIED ---

APPLICABLE LENGTH FOR STRIP WIRE, STRIP JACKET, CUT WIRE OR CUT SHIELD.	TOLERANCE STRIP WIRE	TOLERANCE STRIP JACKET	TOLERANCE CUT WIRE	TOLERANCE CUT SHIELD
UNDER 1 INCH	+.03-.00	+.06-.06	+.06-.06	+.06-.06
1 INCH TO 6 INCHES	+.06-.00	+.25-.25	+.25-.25	+.25-.25
6 INCHES TO 6 FEET		+.50-.50	+.50-.50	+.50-.50

12 ASSEMBLE ITEM 17 IN ALL UNUSED GROMMET HOLES OF ITEM 8.

13 ENCAPSULATE THE WIRED SIDE OF ITEM 8, USING ITEM 9 PER ND1002236. LEAD INSULATION SHALL EXTEND INTO THE ENCAPSULATION .18 PLUS OR MINUS .06 INCHES.

14 MARK SLEEVING OF SINGLE CONDUCTORS .08 + .02 HIGH, COLOR BLACK, WITH THE CONDUCTOR NUMBER OMITTING ALL SUFFIX LETTERS EXCEPT A AND B PER ND1002019, WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM FIELD.

15 MARK SLEEVING OF MULTI-CONDUCTORS WITH THE CONDUCTOR NUMBER .12 INCH HIGH, COLOR BLACK, PER ND1002019 WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM NUMBER FIELD.

16 CONDUCTOR IDENTIFICATION SLEEVING SHALL BE STAGGERED AT TERMINATION NO. 1 TO MINIMIZE THE WIRE BUNDLE DIAMETER.

17 A OR T PREFIX IN THE ACCESSORIES ITEM NUMBER COLUMN INDICATES THE READING POSITION AWAY FROM TERMINATION OR TOWARD TERMINATION RESPECTIVELY, OF THE WIRE MARKER SLEEVE.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS | SIZE A | 2014622
SCALE-NONE | REV LTR + | SHEET 3

MIL 2084-4-64

G&N HARNESS

LIST OF MATERIALS

ITEM	QTY	PART NO.	DESCRIPTION
1	1	1010789-001	WIRE, 24AWG YEL, 112 FT. TOTAL LENGTH.
2	1	1010789-003	WIRE, 24AWG YEL, RED, 2 FT. TOTAL LENGTH.
3	1	1010789-004	WIRE, 24AWG YEL,RED, GRN, 2 FT. TOTAL LENGTH.
4	AR	1012507-001	LACING TAPE
5	AR	QQ-S-571 SN60 WRAP2	SOLDER
6	AR	MIL-F-14256	FLUX
7	64	1010770-001	CONTACT, ELECTRICAL
8	1	1010930-104	CONNECTOR, ELECTRICAL
9	AR	1012503	COMPOUND, POLYURETHANE
10	1	1010638-006	TERMINAL
11	57	1010911-052	INSULATION SLEEVING, HEAT SHRINKABLE
12	162	1010911-044	INSULATION SLEEVING, HEAT SHRINKABLE
13	1	1010789-002	WIRE, 24AWG BLK, 8 FT. TOTAL LENGTH.
14	1	1010789-011	WIRE, YEL JKT, 24AWG YEL, 20 FT. TOTAL LENGTH.
15	1	1010789-012	WIRE, YEL JKT, 24AWG YEL, RED, 7 FT. TOTAL LENGTH
16	1	1023012-001	ADAPTER, POTTING MOLD.
17	21	1010958-001	PLUG, SEALING

MANNED SPACECRAFT CENTER HOUSTON, TEXAS | SIZE A | 2014622
SCALE-NONE | REV LTR + C | SHEET 4

MIL 2084-4-64

G+N HARNESS

List of Materials

Item	Qty	Part No.	Description
18	1	2014707	Bracket, Connector.
19	4	1010617-4	Nut, Hex, Self Locking.
20	4	1006783-19	Screw, Button HD.
21	4	MS15795-803	Washer, Flat

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622			
SCALE - NONE	REV LTR	B	SHEET	5	

MIL 2064-4-64

G+N HARNESS

CONDUCTOR		FROM							TO					
NUMBER	ITEM NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	TIN	CUT WIRE OR SHIELD	TERMINATION ITEM NO.	SPEC.	NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	TIN	TERMINATION ITEM NO.	NO.	ROUTING
A 1	3					A 11						T 11		
A 1G		P1- 13	10	N		7		1	S8-5-NO	25	Y		28	
A 1R		P1- 4	10	N		7		1	S8-6-NO	25	Y		28	
A 1Y		P1- 12	10	N		7		1	S8-5-C	25	Y		28	
A 2	3					A 11						T 11		
A 2G		P1- 3	10	N		7		1	S8-2-NO	25	Y		28	
A 2R		P1- 2	10	N		7		1	S8-1-NO	25	Y		28	
A 2Y		P1- 10	10	N		7		1	S8-1-C	25	Y		28	
A 3	3					A 11						T 11		
A 3G		P1- 8	10	N		7		1	S8-3-C	25	Y		28	
A 3R		P1- 19	10	N		7		1	S8-4-NO	25	Y		28	
A 3Y		P1- 7	10	N		7		1	S8-3-NO	25	Y		28	
A 4	1	P1- 82	10	N		7	A 12	1	S12-8-NO	25	Y	T 12	6	
A 5	1	P1- 59	10	N		7	A 12	1	S12-2-NO	25	Y	T 12	22	
A 6	1	P1- 1	10	N		7	A 12	1	SHLD A13	25	Y	T 12	1	
A 7	1	P1- 81	10	N		7	A 12	1	S10-2-NO	25	Y	T 12	5	
A 8	1	P1- 20	10	N		7	A 12	1	S6-2-C	25	Y	T 12	26	
A 9	1	S12-2-C	25	Y			A 12	22	S11-NC	25	Y	T 12	30	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622			
SCALE - NONE	REV LTR	B	SHEET	6	

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR		FROM							TO					
NUMBER	ITEM NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	TIN	CUT WIRE OR SHIELD	TERMINATION ITEM NO.	SPEC.	NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	TIN	TERMINATION ITEM NO.	NO.	ROUTING
A 10	1	A4-8	25	Y			A 12	4	S12-4-NO	25	Y	T 12	22	
A 11	1	P1- 55	10	N		7	A 12	1	S12-4-C	25	Y	T 12	22	
A 12	1	P1- 85	10	N		7	A 12	1	A3-2	25	Y	T 12	18	
A 13	14		175		150	A 11				50		T 11		
A 13A	13	SHLD A13	25	Y					SHLD A14	25	Y			
A 13Y		P1- 53	10	N		7		1	S3-4-NO	25	Y		42	
A 14	14		175		150	A 11				50		T 11		
A 14A	13	SHLD A14	25	Y					SHLD A15	25	Y			
A 14Y		P1- 77	10	N		7		1	S6-2-NC	25	Y		26	
A 15	15		175		150	A 11				50		T 11		
A 15A	13	SHLD A15	25	Y					SHLD A29	25	Y			
A 15R		P1- 51	10	N		7		1	S5-1-NO	25	Y		36	
A 15Y		P1- 30	10	N		7		1	S5-1-NC	25	Y		36	
A 16	1	P1- 33	10	N		7	A 12	1	S10-1-NO	25	Y	T 12	5	
A 17	1	A4-9	25	Y			A 12	4	A4-6	25	Y	T 12	4	
A 18	1	P1- 71	10	N		7	A 12	1	S3-7-NO	25	Y	T 12	41	
A 19	1	P1- 80	10	N		7	A 12	1	A4-5	25	Y	T 12	4	
A 20	2					A 11						T 11		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622			
SCALE - NONE	REV LTR	C	SHEET	7	

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR		FROM							TO					
NUMBER	ITEM NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	TIN	CUT WIRE OR SHIELD	TERMINATION ITEM NO.	SPEC.	NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	TIN	TERMINATION ITEM NO.	NO.	ROUTING
A 20R		P1- 43	10	N		7		1	A1-2	25	Y		32	
A 20Y		P1- 23	10	N		7		1	A1-1	25	Y		32	
A 21	14		175		150	A 11				50		T 11		
A 21A	13	SHLD A21	25	Y					SHLD A58	25	Y			
A 21Y		P1- 62	10	N		7		1	S1-2-C	25	Y		33	
A 22	14		175		150	A 11				50		T 11		
A 22A	13	SHLD A22	25	Y					SHLD A60	25	Y			
A 22Y		P1- 64	10	N		7		1	S1-3-C	25	Y		33	
A 23	15		175		150	A 11				50		T 11		
A 23A	13	SHLD A23	25	Y					SHLD A38	25	Y			
A 23R		P1- 39	10	N		7		1	T1-2	25	Y		31	
A 23Y		P1- 21	10	N		7		1	T1-1	25	Y		31	
A 24	1	P1- 34	10	N		7	A 12	1	S12-3-C	25	Y	T 12	22	
A 25	1	P1- 84	10	N		7	A 12	1	A3-4	25	Y	T 12	15	
A 26	1	P1- 79	10	N		7	A 12	1	A4-9	25	Y	T 12	4	
A 27	1	P1- 54	10	N		7	A 12	1	A4-7	25	Y	T 12	4	
A 28	1	P1- 50	10	N		7	A 12	1	S2-2-NC	25	Y	T 12	38	
A 29	14		175		150	A 11				50		T 11		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622			
SCALE - NONE	REV LTR	C	SHEET	8	

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR		FROM							TO							
NUMBER	ITEM NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	T I N	CUT WIRE OR SHIELD	TERMINATION SPEC.	ITEM NO.	NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	T I N	TERMINATION SPEC	ITEM NO.		NO.	ROUTING
A 29A	13	SHLD A29	25	Y					SHLD A32	25	Y					
A 29Y		P1- 76	10	N		7	A 12	1	S5-2-C	25	Y		T 12		36	
A 30	1	P1- 49	10	N		7	A 12	1	S2-2-NO	25	Y		T 12		38	
A 31	1	P1- 29	10	N		7	A 12	1	S5-2-NO	25	Y		T 12		36	
A 32	14		175		150		A 11			50			T 11			
A 32A	13	SHLD A32	25	Y					SHLD A46	25	Y					
A 32Y		P1- 52	10	N		7		1	S4-1-NC	25	Y				34	
A 33	1	P1- 56	10	N		7	A 12	1	S10-2-C	25	Y		T 12		5	
A 34	1	P1- 47	10	N		7	A 12	1	S3-2-NO	25	Y		T 12		42	
A 35	1	P1- 70	10	N		7	A 12	1	S7-2-NO	25	Y		T 12		25	
A 36	1	P1- 46	10	N		7	A 12	1	S7-2-NC	25	Y		T 12		25	
A 37	1	P1- 36	10	N			A 12	1	A3-8	25	Y		T 12		21	
A 38	15		175		150		A 11			50			T 11			
A 38A	13	SHLD A38	25	Y			A 12		SHLD A59	25	Y		T 12			
A 38R		P1- 65	10	N		7		1	T1-3	25	Y				31	
A 38Y		P1- 40	10	N		7		1	T1-4	25	Y				31	
A 39	1	P1- 58	10	N		7	A 12	1	R1-CCW	25	Y		T 12		30	
A 40	1	P1- 35	10	N		7	A 12	1	R1-WIPER	25	Y		T 12		30	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR C
SHEET 9

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR		FROM							TO							
NUMBER	ITEM NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	T I N	CUT WIRE OR SHIELD	TERMINATION SPEC.	ITEM NO.	NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	T I N	TERMINATION SPEC	ITEM NO.		NO.	ROUTING
A 41	1	P1- 60	10	N		7	A 12	1	A3-6	25	Y		T 12		12	
A 42	1	P1- 44	10	N		7	A 12	1	S12-3-NO	25	Y		T 12		22	
A 43	1	P1- 24	10	N		7	A 12	1	DS1-LO	25	Y		T 12		40	
A 44	1	P1- 68	10	N		7	A 12	1	E2	25	Y		T 12		23	
A 45	1	P1- 67	10	N		7	A 12	1	E3	25	Y		T 12		23	
A 46	14		175		150		A 11			50			T 11			
A 46A	13	SHLD A46	25	Y					SHLD A47	25	Y					
A 46Y		P1- 78	10	N		7		1	S3-8-NO	25	Y				41	
A 47	14		175		150		A 11			50			T 11			
A 47A	13	SHLD A47	25	Y					E1	25	Y		T 12	10	2	
A 47Y		P1- 75	10	N		7		1	S3-1-NO	25	Y				42	
A 48	1	P1- 74	10	N		7	A 12	1	S2-1-NO	25	Y		T 12		38	
A 49	1	S12-8-C	25	Y			A 12	6	A3-1	25	Y		T 12		19	
A 50	1	P1- 31	10	N		7	A 12	1	S4-1-NO	25	Y		T 12		34	
A 51	1	P1- 32	10	N		7	A 12	1	S10-1-C	25	Y		T 12		5	
A 52	1	P1- 72	10	N		7	A 12	1	S2-3-C	25	Y		T 12		38	
A 53	1	P1- 48	10	N		7	A 12	1	S7-2-C	25	Y		T 12		25	
A 54	15		175		150		A 11			50			T 11			

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR C
SHEET 10

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR		FROM							TO							
NUMBER	ITEM NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	T I N	CUT WIRE OR SHIELD	TERMINATION SPEC.	ITEM NO.	NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	T I N	TERMINATION SPEC	ITEM NO.		NO.	ROUTING
A 54A	13	SHLD A54	25	Y					P1- 42	10	N	7	T 11		1	
A 54R		P1- 66	10	N		7		1	S7-1-NC	25	Y				25	
A 54Y		P1- 41	10	N		7		1	S7-1-C	25	Y				25	
A 55	1	A1- 2	25	Y			A 12	32	A1-8	25	Y		T 12		32	
A 56	1	A1- 1	25	Y			A 12	32	A1-7	25	Y		T 12		32	
A 57	15		75		50		A 11			50			T 11			
A 57A	13	SHLD A57	25	Y					SHLD A61	25	Y					
A 57R		T1- 1	25	Y				31	A1-4	25	Y				32	
A 57Y		T1- 2	25	Y				31	A1-3	25	Y				32	
A 58	14		50				A 11			50			T 11			
A 58A	13	SHLD A58	25	Y					SHLD A22	25	Y					
A 58Y		P1- 38	10	N		7		1	T1-8	25	Y				31	
A 59	15		75		50		A 11			50			T 11			
A 59A	13	SHLD A59	25	Y					SHLD A57	25	Y					
A 59R		T1- 3	25	Y				31	A1-5	25	Y				32	
A 59Y		T1- 4	25	Y				31	A1-6	25	Y				32	
A 60	14		175		150		A 11			50			T 11			
A 60A	13	SHLD A60	25	Y					SHLD A23	25	Y					

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR C
SHEET 11 ~~10~~

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR		FROM							TO							
NUMBER	ITEM NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	T I N	CUT WIRE OR SHIELD	TERMINATION SPEC.	ITEM NO.	NO.	CIRCUIT POINT	STRIP WIRE OR JACKET	T I N	TERMINATION SPEC	ITEM NO.		NO.	ROUTING
A 60Y		P1- 63	10	N		7		1	T1-12	25	Y				31	
A 61	14		50				A 11			50			T 11			
A 61A	13	SHLD A61	25	Y					SHLD A62	25	Y					
A 61Y		T1- 5	25	Y				31	S1-2-NO	25	Y				33	
A 62	14		50				A 11			50			T 11			
A 62A	13	SHLD A62	25	Y					SHLD A63	25	Y					
A 62Y		T1- 6	25	Y				31	S1-1-NC	25	Y				33	
A 63	14		50				A 11			50			T 11			
A 63A	13	SHLD A63	25	Y					SHLD A64	25	Y					
A 63Y		T1- 7	25	Y				31	S1-1-NO	25	Y				33	
A 64	14		50				A 11			50			T 11			
A 64A	13	SHLD A64	25	Y					SHLD A65	25	Y					
A 64Y		T1- 9	25	Y				31	S1-3-NO	25	Y				33	
A 65	14		50				A 11			50			T 11			
A 65A	13	SHLD A65	25	Y					SHLD A66	25	Y					
A 65Y		T1- 10	25	Y				31	S1-4-NC	25	Y				33	
A 66	14		50				A 11			50			T 11			
A 66A	13	SHLD A66	25	Y			A 12		SHLD A67	25	Y		T 12			

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR C
SHEET 12 ~~11~~

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR NUMBER	INDIVIDUAL LENGTH ITEM NO.	2	FROM CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	TERMINATION SPEC. 1 ITEM NO.	NO.	TO CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	TERMINATION SPEC 1 ITEM NO.	NO.	ROUTING
A 66Y			T1- 11	25	Y		31	S1-4-NO	25	Y		33	
A 67	14			50		A 11			50		T 11		
A 67A	13		SHLD A67	25	Y			SHLD A68	25	Y			
A 67Y			S1-3-NC	25	Y		33	S1-4-C	25	Y		33	
A 68	14			50		A 11			50		T 11		
A 68A	13		SHLD A68	25	Y			S3-5-C	25	Y	T 12	41	
A 68Y			S1-2-NC	25	Y		33	S1-1-C	25	Y		33	
A 69	1		S2-1-NC	25	Y	A 12	38	S2-2-C	25	Y	T 12	38	
A 70	1		S2-3-NO	25	Y	A 12	38	S3-7-C	25	Y	T 12	41	
A 71	1		S7-2-C	25	Y	A 12	25	S3-7-C	25	Y	T 12	41	
A 72	1		S5-2-C	25	Y	A 12	36	S2-1-C	25	Y	T 12	38	
A 73	1		S2-1-C	25	Y	A 12	38	S3-4-NC	25	Y	T 12	42	
A 74	1		S3-5-NC	25	Y	A 12	41	S3-1-C	25	Y	T 12	42	
A 75	1		S3-7-NC	25	Y	A 12	41	S3-2-C	25	Y	T 12	42	
A 76	1		S3-8-NC	25	Y	A 12	41	S3-4-C	25	Y	T 12	42	
A 77	1		S3-8-C	25	Y	A 12	41	S3-5-C	25	Y	T 12	41	
A 78	1		S6-2-C	25	Y	A 12	26	S3-8-C	25	Y	T 12	41	
A 79	1		S3-1-NO	25	Y	A 12	42	S3-5-NO	25	Y	T 12	41	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR C
SHEET 13

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR NUMBER	INDIVIDUAL LENGTH ITEM NO.	2	FROM CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	TERMINATION SPEC. 1 ITEM NO.	NO.	TO CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	TERMINATION SPEC 1 ITEM NO.	NO.	ROUTING
A 80	1		S3-1-NC	25	Y	A 12	42	S4-1-C	25	Y	T 12	34	
A 81	1		S5-2-NC	25	Y	A 12	36	S5-1-C	25	Y	T 12	36	
A 82	1		S8-5-C	25	Y	A 12	28	S8-6-C	25	Y	T 12	28	
A 83	1		S8-1-C	25	Y	A 12	28	S8-2-C	25	Y	T 12	28	
A 84	1		S8-3-C	25	Y	A 12	28	S8-4-C	25	Y	T 12	28	
A 85	1		S11-NC	25	Y	A 12	30	R1-CW	25	Y	T 12	30	
A 86	1		S11-C	25	Y	A 12	30	R1-CCW	25	Y	T 12	30	
A 87	1		S12-2-C	25	Y	A 12	22	S12-3-C	25	Y	T 12	22	
A 88	1		S12-3-NO	25	Y	A 12	22	DS1-HI	25	Y	T 12	40	
A 89	1		S12-8-C	25	Y	A 12	6	S12-1-C	25	Y	T 12	22	
A 90	1		S12-8-NO	25	Y	A 12	6	S12-1-NO	25	Y	T 12	22	
A 91	1		E31	25	Y	A 12	37	E33	25	Y	T 12	39	
A 92	1		E4	25	Y	A 12	3	E6	25	Y	T 12	23	
A 93	1		E5	25	Y	A 12	3	E7	25	Y	T 12	23	
A 94	1		E6	25	Y	A 12	23	E8	25	Y	T 12	24	
A 95	1		E7	25	Y	A 12	23	E9	25	Y	T 12	24	
A 96	1		E8	25	Y	A 12	24	E10	25	Y	T 12	27	
A 97	1		E9	25	Y	A 12	24	E11	25	Y	T 12	27	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR + B
SHEET 14

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR NUMBER	INDIVIDUAL LENGTH ITEM NO.	2	FROM CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	TERMINATION SPEC. 1 ITEM NO.	NO.	TO CUT WIRE OR SHIELD CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	TERMINATION SPEC 1 ITEM NO.	NO.	ROUTING
A 98	1		E10	25	Y	A 12	27	E12	25	Y	T 12	29	
A 99	1		E11	25	Y	A 12	27	E13	25	Y	T 12	29	
A 100	1		E16	25	Y	A 12	29	E18	25	Y	T 12	35	
A 101	1		E17	25	Y	A 12	29	E19	25	Y	T 12	35	
A 102	1		E22	25	Y	A 12	35	E24	25	Y	T 12	37	
A 103	1		E23	25	Y	A 12	35	E25	25	Y	T 12	37	
A 104	1		E30	25	Y	A 12	37	E32	25	Y	T 12	39	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER
2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

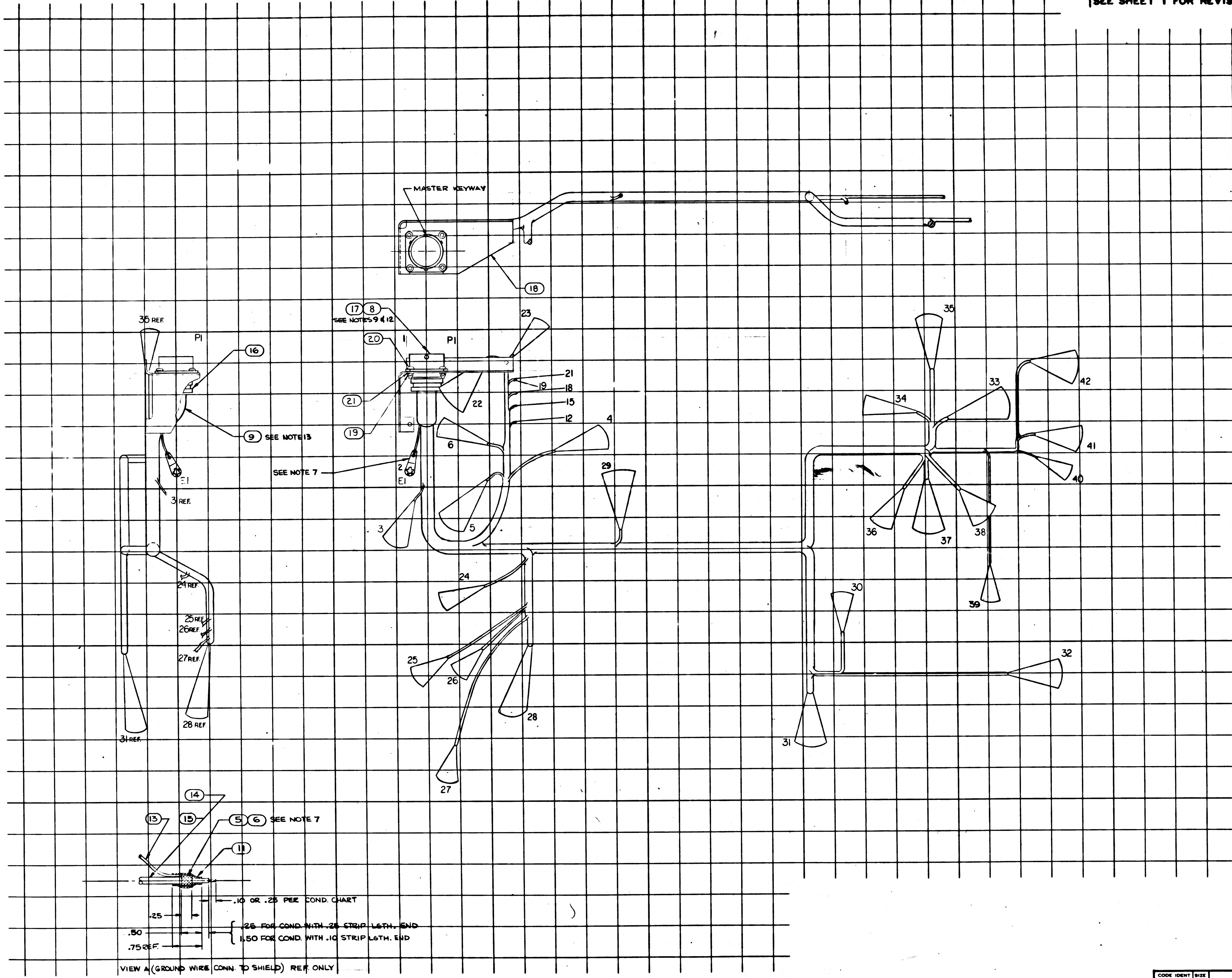
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
SIZE A
2014622
SCALE - NONE
REV LTR + B
SHEET ~~14~~ 15

MIL 2085-4-64 WIR

REVISIONS TDRR 22655

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
18
17
8
SEE NOTES 9 & 12
20
1
P1
21
19
23
21
19
18
15
12
22
6
4
29
SEE NOTE 7
2
E1
3
5
35 REF.
P1
16
9 SEE NOTE 13
E1
3 REF.
24 REF.
25 REF.
26 REF.
27 REF.
28 REF.
31 REF.
24
25
26
27
28
35
33
34
42
41
40
36
37
38
39
30
32
31
14
13
15
5
6
SEE NOTE 7
11
.10 OR .25 PER COND. CHART
.25
.50
.75 REF.
.25 FOR COND. WITH .25 STRIP LGTH. END
1.50 FOR COND. WITH .10 STRIP LGTH. END

VIEW A (GROUND WIRE CONN. TO SHIELD) REF. ONLY

2014622
REV LTR B

CODE IDENT NO.	SIZE	
99974	E	2014622
SCALE 1/1		SHEET 1 OF 6

AC SPARK PLUG DIVISION
[illegible]
MILWAUKEE, WISCONSIN

MX-10881

TDRR 22658

APPLICATION	
NEXT ASSY	USED ON
2014578-011	2014623-011

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 23186	15 OCT 1965	
B	REVISED RER TDRR 23832	12 NOV 1965	11/12/65
C	REVISED PER TDRR 24827	4 JAN 1966	WK
D	REVISED PER TDRR 26818	9 MAR 66	R.W.T. / W.D.

REV																							
SHEET																							
REV STATUS	REV	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
OF SHEETS	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

ACSP PN

DRAWN L. Hood DATE 14 July 65
CHECKED 9-17-65
APPROVAL JC Watson 21SEP65
APPROVAL 9/20/65

NASA ~~APPROVAL~~
MIT APPROVAL

CONTRACT

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS A
G&N INDICATOR CONTROL PANEL

CODE IDENT NO.	SIZE		REV
80230	A	2014622	D
SCALE		SHEET	OF 21

NOTE NUMBER	GENERAL NOTES DESCRIPTION
1	INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2	ASSEMBLE PER ND1002032.
3	GRID MODULE IS 1 INCH BASIC AND IS SHOWN FOR DIMENSIONING PURPOSES.
4	UNLESS OTHERWISE SPECIFIED - FEATURE CENTERLINES AT TRUE POSITION WITHIN + OR - .25 INCH RELATIVE TO GRID. ENDS OF LEADS OR ACCESSORIES AT TRUE POSITION WITHIN + OR - .12 INCH RELATIVE TO GRID. TRUE POSITION DIMENSIONS ARE REGARDLESS OF FEATURE SIZE.
5	IDENTIFY USING DWG. NO. PER ND1002019.
6	LACE HARNESS USING ITEM 4
7	SOLDER PER ND1002071 USING ITEMS 5 AND 6 EXCEPT GROUND WIRE TO SHIELD CONNECTIONS USE ITEMS 6 AND 25 OR 26.
8	Y OR N IN TINNED COLUMN INDICATES YES OR NO.
9	INSTALL CRIMP STYLE TERMINALS IN ACCORDANCE WITH ND1002206.
10	THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER INDICATES CONDUCTOR SHIELDING, COLOR, OR MARKING. A - FROM END SHIELD B - TO END SHIELD K - BLACK R - RED Y - YELLOW G - GREEN

SIZE	CODE IDENT NO.	
A		2014622
SCALE-NONE	REV LTR D	SHEET 2 OF 21

NOTE NUMBER — GENERAL NOTES DESCRIPTION

11 TOLERANCE CHART, UNLESS OTHERWISE SPECIFIED ---

APPLICABLE LENGTH FOR STRIP WIRE, STRIP JACKET, CUT WIRE OR CUT SHIELD.	TOLERANCE STRIP WIRE	JACKET	CUT WIRE	SHIELD
UNDER 1 INCH	+.03-.00	+.06-.06	+.06-.06	+.06-.06
1 INCH TO 6 INCHES	+.06-.00	+.25-.25	+.25-.25	+.25-.25
6 INCHES TO 6 FEET		+.50-.50	+.50-.50	+.50-.50

12 ASSEMBLE ITEM 17 IN ALL UNUSED GRUMMET HOLES OF ITEM 8.

13 ENCAPSULATE THE WIRED SIDE OF ITEM 8, USING ITEM 9 PER ND1002236. LEAD INSULATION SHALL EXTEND INTO THE ENCAPSULATION .18 PLUS OR MINUS .06 INCHES.

14 MARK SLEEVING OF SINGLE CONDUCTORS .08 + .02 HIGH, COLOR BLACK, WITH THE CONDUCTOR NUMBER OMITTING ALL SUFFIX LETTERS EXCEPT A AND B PER ND1002019, WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM FIELD.

15 MARK SLEEVING OF MULTI-CONDUCTORS WITH THE CONDUCTOR NUMBER .12 INCH HIGH, COLOR BLACK, PER ND1002019 WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM NUMBER FIELD.

16 CONDUCTOR IDENTIFICATION SLEEVING SHALL BE STAGGERED AT TERMINATION NO. 1 TO MINIMIZE THE WIRE BUNDLE DIAMETER.

17 A OR T PREFIX IN THE ACCESSORIES ITEM NUMBER COLUMN INDICATES THE READING POSITION AWAY FROM TERMINATION OR TOWARD TERMINATION RESPECTIVELY, OF THE WIRE MARKER SLEEVE.

SIZE	CODE IDENT NO.	
A		2014622
SCALE-NONE	REV LTR D	SHEET 3 OF 21

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	1010789-001	WIRE, 24AWG YEL, 112 FT. TOTAL LENGTH.
	2	1	1010789-003	WIRE, 24AWG YEL, RED, 2 FT. TOTAL LENGTH.
	3	1	1010789-004	WIRE, 24AWG YEL, RED, GRN, 2 FT. TOTAL LENGTH.
	4	AR	1012507-001	LACING TAPE
	5	AR	QQ-S-571 SN60 WRAP2	SOLDER
	6	AR	MIL-F-14256	FLUX
	7	64	1010770-001	CONTACT, ELECTRICAL
	8	1	1010930-104	CONNECTOR, ELECTRICAL
	9	AR	1012503	COMPOUND, POLYURETHANE
	10	1	1010638-006	TERMINAL
	13	1	1010789-002	WIRE, 24AWG BLK, 8 FT. TOTAL LENGTH.
	14	1	1010789-011	WIRE, YEL JKT, 24AWG YEL, 20 FT. TOTAL LENGTH.
	15	1	1010789-012	WIRE, YEL JKT, 24AWG YEL, RED, 7 FT. TOTAL LENGTH
	16	1	1023012-001	ADAPTER, POTTING MOLD.
	17	21	1010958-001	PLUG, SEALING
	18	1	2014707	BRACKET, CONNECTOR
	19	4	1010617- 4	NUT, HEX, SELF LOCKING

SIZE	CODE IDENT NO.	
A		2014622
SCALE-NONE	REV LTR D	SHEET 4 OF 21

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	20	4	1006783- 19	SCREW, BUTTON HD.
	21	4	MS15795-803	WASHER, FLAT
	22	159	1012534- 59	INSULATION SLEEVING, HEAT SHRINKABLE
	23	44	1012534- 57	INSULATION SLEEVING, HEAT SHRINKABLE
	24	12	1012534- 56	INSULATION SLEEVING, HEAT SHRINKABLE
	25	AR	QQ-S-571,SN10WS	SOLDER
	26	AR	QQ-S-571,SN10WRAP	SOLDER

SIZE	CODE IDENT NO.	
A		2014622
SCALE-NONE	REV LTR D	SHEET 5 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 1	3										A 23 T 23	
A 1G			P1-13 S8-5-NO	1 28				.10 .25	NO YES		7	
A 1R			P1-4 S8-6-NO	1 28				.10 .25	NO YES		7	
A 1Y			P1-12 S8-5-C	1 28				.10 .25	NO YES		7	
A 2	3										A 23 T 23	
A 2G			P1-3 S8-2-NO	1 28				.10 .25	NO YES		7	
A 2R			P1-2 S8-1-NO	1 28				.10 .25	NO YES		7	
A 2Y			P1-10 S8-1-C	1 28				.10 .25	NO YES		7	
A 3	3										A 23 T 23	
A 3G			P1-8 S8-3-C	1 28				.10 .25	NO YES		7	
A 3R			P1-19 S8-4-NO	1 28				.10 .25	NO YES		7	
A 3Y			P1-7 S8-3-NO	1 28				.10 .25	NO YES		7	

SIZE A
CODE IDENT NO.
2014622
SCALE-NONE
REV LTR D
SHEET 6 OF 21

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 4	1		P1-82 S12-8-NO	1 6				.10 .25	NO YES		A 22, 7 T 22	
A 5	1		P1-59 S12-2-NO	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 6	1		P1-1 SHLD A13	1				.10 .25	NO YES		A 22, 7 T 22	
A 7	1		P1-81 S10-2-NO	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 8	1		P1-20 S6-2-C	1 26				.10 .25	NO YES		A 22, 7 T 22	
A 9	1		S12-2-C S11-NC	22 30				.25 .25	YES YES		A 22 T 22	
A 10	1		A4-8 S12-4-NO	4 22				.25 .25	YES YES		A 22 T 22	
A 11	1		P1-55 S12-4-C	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 12	1		P1-85 A3-2	1 18				.10 .25	NO YES		A 22, 7 T 22	
A 13	14				1.75 .50	1.50					A 23 T 23	
A 13A	13		SHLD A13 SHLD A14					.25 .25	YES YES			
A 13Y			P1-53 S3-4-NO	1 42				.10 .25	NO YES		7	

SIZE A
CODE IDENT NO.
2014622
SCALE-NONE
REV LTR D
SHEET 7 OF 21

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 14	14				1.75 .50	1.50					A 23 T 23	
A 14A	13		SHLD A14 SHLD A15					.25 .25	YES YES			
A 14Y			P1-77 S6-2-NC	1 26				.10 .25	NO YES		7	
A 15	15				1.75 .50	1.50					A 24 T 24	
A 15A	13		SHLD A15 SHLD A29					.25 .25	YES YES			
A 15R			P1-51 S5-1-NO	1 36				.10 .25	NO YES		7	
A 15Y			P1-30 S5-1-NC	1 36				.10 .25	NO YES		7	
A 16	1		P1-33 S10-1-NO	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 17	1		A4-9 A4-6	4 4				.25 .25	YES YES		A 22 T 22	
A 18	1		P1-71 S3-7-NO	1 41				.10 .25	NO YES		A 22, 7 T 22	
A 19	1		P1-80 A4-5	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 20	2										A 23 T 23	

SIZE A
CODE IDENT NO.
2014622
SCALE-NONE
REV LTR D
SHEET 8 OF 21

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 20R			P1-43 A1-2	1 32				.10 .25	NO YES		7	
A 20Y			P1-23 A1-1	1 32				.10 .25	NO YES		7	
A 21	14				1.75 .50	1.50					A 23 T 23	
A 21A	13		SHLD A21 SHLD A58					.25 .25	YES YES			
A 21Y			P1-62 S1-2-C	1 33				.10 .25	NO YES		7	
A 22	14				1.75 .50	1.50					A 23 T 23	
A 22A	13		SHLD A22 SHLD A60					.25 .25	YES YES			
A 22Y			P1-64 S1-3-C	1 33				.10 .25	NO YES		7	
A 23	15				1.75 .50	1.50					A 24 T 24	
A 23A	13		SHLD A23 SHLD A38					.25 .25	YES YES			
A 23R			P1-39 T1-2	1 31				.10 .25	NO YES		7	
A 23Y			P1-21 T1-1	1 31				.10 .25	NO YES		7	

SIZE A
CODE IDENT NO.
2014622
SCALE-NONE
REV LTR D
SHEET 9 OF 21

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24	1		P1-34 S12-3-C	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 25	1		P1-84 A3-4	1 15				.10 .25	NO YES		A 22, 7 T 22	
A 26	1		P1-79 A4-9	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 27	1		P1-54 A4-7	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 28	1		P1-50 S2-2-NC	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 29	14				1.75 .50	1.50					A 23 T 23	
A 29A	13		SHLD A29 SHLD A32					.25 .25	YES YES			
A 29Y			P1-76 S5-2-C	1 36				.10 .25	NO YES		7	
A 30	1		P1-49 S2-2-NO	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 31	1		P1-29 S5-2-NO	1 36				.10 .25	NO YES		A 22, 7 T 22	
A 32	14				1.75 .50	1.50					A 23 T 23	
A 32A	13		SHLD A32 SHLD A46					.25 .25	YES YES			

SIZE A CODE IDENT NO. 2014622

SCALE-NONE REV LTR D SHEET 10 OF 21

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 32Y			P1-52 S4-1-NC	1 34				.10 .25	NO YES		7	
A 33	1		P1-56 S10-2-C	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 34	1		P1-47 S3-2-NO	1 42				.10 .25	NO YES		A 22, 7 T 22	
A 35	1		P1-70 S7-2-NO	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 36	1		P1-46 S7-2-NC	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 37	1		P1-36 A3-8	1 21				.10 .25	NO YES		A 22 T 22	
A 38	15				1.75 .50	1.50					A 24 T 24	
A 38A	13		SHLD A38 SHLD A59					.25 .25	YES YES		A 22 T 22	
A 38R			P1-65 T1-3	1 31				.10 .25	NO YES		7	
A 38Y			P1-40 T1-4	1 31				.10 .25	NO YES		7	
A 39	1		P1-58 R1-CCW	1 30				.10 .25	NO YES		A 22, 7 T 22	
A 40	1		P1-35 R1-WIPER	1 30				.10 .25	NO YES		A 22, 7 T 22	

SIZE A CODE IDENT NO. 2014622

SCALE-NONE REV LTR D SHEET 11 OF 21

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 41	1		P1-60 A3-6	1 12				.10 .25	NO YES		A 22, 7 T 22	
A 42	1		P1-44 S12-3-NO	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 43	1		P1-24 DS1-LO	1 40				.10 .25	NO YES		A 22, 7 T 22	
A 44	1		P1-68 E2	1 23				.10 .25	NO YES		A 22, 7 T 22	
A 45	1		P1-67 E3	1 23				.10 .25	NO YES		A 22, 7 T 22	
A 46	14				1.75 .50	1.50					A 23 T 23	
A 46A	13		SHLD A46 SHLD A47					.25 .25	YES YES			
A 46Y			P1-78 S3-8-NO	1 41				.10 .25	NO YES		7	
A 47	14				1.75 .50	1.50					A 23 T 23	
A 47A	13		SHLD A47 E1	 2				.25 .25	YES YES		T 22, 10	
A 47Y			P1-75 S3-1-NO	1 42				.10 .25	NO YES		7	
A 48	1		P1-74 S2-1-NO	1 38				.10 .25	NO YES		A 22, 7 T 22	

SIZE A CODE IDENT NO. 2014622

SCALE-NONE REV LTR D SHEET 12 OF 21

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 49	1		S12-8-C A3-1	6 19				.25 .25	YES YES		A 22 T 22	
A 50	1		P1-31 S4-1-NO	1 34				.10 .25	NO YES		A 22, 7 T 22	
A 51	1		P1-32 S10-1-C	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 52	1		P1-72 S2-3-C	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 53	1		P1-48 S7-2-C	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 54	15				1.75 .50	1.50					A 24 T 24	
A 54A	13		SHLD A54 P1-42	 1				.25 .10	YES NO		T 22, 7	
A 54R			P1-66 S7-1-NC	1 25				.10 .25	NO YES		7	
A 54Y			P1-41 S7-1-C	1 25				.10 .25	NO YES		7	
A 55	1		A1-2 A1-8	32 32				.25 .25	YES YES		A 22 T 22	
A 56	1		A1-1 A1-7	32 32				.25 .25	YES YES		A 22 T 22	
A 57	15				.75 .50	.50					A 24 T 24	

SIZE A CODE IDENT NO. 2014622

SCALE-NONE REV LTR D SHEET 13 OF 21

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 57A	13		SHLD A57 SHLD A61					.25 .25	YES YES			
A 57R			T1-1 A1-4	31 32				.25 .25	YES YES			
A 57Y			T1-2 A1-3	31 32				.25 .25	YES YES			
A 58	14				.50 .50						A 23 T 23	
A 58A	13		SHLD A58 SHLD A22					.25 .25	YES YES			
A 58Y			P1-38 T1-8	1 31				.10 .25	NO YES		7	
A 59	15				.75 .50	.50					A 24 T 24	
A 59A	13		SHLD A59 SHLD A57					.25 .25	YES YES			
A 59R			T1-3 A1-5	31 32				.25 .25	YES YES			
A 59Y			T1-4 A1-6	31 32				.25 .25	YES YES			
A 60	14				1.75 .50	1.50					A 23 T 23	
A 60A	13		SHLD A60 SHLD A23					.25 .25	YES YES			

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 60Y			P1-63 T1-12	1 31				.10 .25	NO YES		7	
A 61	14				.50 .50						A 23 T 23	
A 61A	13		SHLD A61 SHLD A62					.25 .25	YES YES			
A 61Y			T1-5 S1-2-NO	31 33				.25 .25	YES YES			
A 62	14				.50 .50						A 23 T 23	
A 62A	13		SHLD A62 SHLD A63					.25 .25	YES YES			
A 62Y			T1-6 S1-1-NC	31 33				.25 .25	YES YES			
A 63	14				.50 .50						A 23 T 23	
A 63A	13		SHLD A63 SHLD A64					.25 .25	YES YES			
A 63Y			T1-7 S1-1-NO	31 33				.25 .25	YES YES			
A 64	14				.50 .50						A 23 T 23	
A 64A	13		SHLD A64 SHLD A65					.25 .25	YES YES			

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 64Y			T1-9 S1-3-NO	31 33				.25 .25	YES YES			
A 65	14				.50 .50						A 23 T 23	
A 65A	13		SHLD A65 SHLD A66					.25 .25	YES YES			
A 65Y			T1-10 S1-4-NC	31 33				.25 .25	YES YES			
A 66	14				.50 .50						A 23 T 23	
A 66A	13		SHLD A66 SHLD A67					.25 .25	YES YES		A 22 T 22	
A 66Y			T1-11 S1-4-NO	31 33				.25 .25	YES YES			
A 67	14				.50 .50						A 23 T 23	
A 67A	13		SHLD A67 SHLD A68					.25 .25	YES YES			
A 67Y			S1-3-NC S1-4-C	33 33				.25 .25	YES YES			
A 68	14				.50 .50						A 23 T 23	
A 68A	13		SHLD A68 S3-5-C	 41				.25 .25	YES YES		 T 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 68Y			S1-2-NC S1-1-C	33 33				.25 .25	YES YES			
A 69	1		S2-1-NC S2-2-C	38 38				.25 .25	YES YES		A 22 T 22	
A 70	1		S2-3-NO S3-7-C	38 41				.25 .25	YES YES		A 22 T 22	
A 71	1		S7-2-C S3-7-C	25 41				.25 .25	YES YES		A 22 T 22	
A 72	1		S5-2-C S2-1-C	36 38				.25 .25	YES YES		A 22 T 22	
A 73	1		S2-1-C S3-4-NC	38 42				.25 .25	YES YES		A 22 T 22	
A 74	1		S3-5-NC S3-1-C	41 42				.25 .25	YES YES		A 22 T 22	
A 75	1		S3-7-NC S3-2-C	41 42				.25 .25	YES YES		A 22 T 22	
A 76	1		S3-8-NC S3-4-C	41 42				.25 .25	YES YES		A 22 T 22	
A 77	1		S3-8-C S3-5-C	41 41				.25 .25	YES YES		A 22 T 22	
A 78	1		S6-2-C S3-8-C	26 41				.25 .25	YES YES		A 22 T 22	
A 79	1		S3-1-NO S3-5-NO	42 41				.25 .25	YES YES		A 22 T 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 80	1		S3-1-NC	42				.25	YES		A 22	
			S4-1-C	34				.25	YES		T 22	
A 81	1		S5-2-NC	36				.25	YES		A 22	
			S5-1-C	36				.25	YES		T 22	
A 82	1		S8-5-C	28				.25	YES		A 22	
			S8-6-C	28				.25	YES		T 22	
A 83	1		S8-1-C	28				.25	YES		A 22	
			S8-2-C	28				.25	YES		T 22	
A 84	1		S8-3-C	28				.25	YES		A 22	
			S8-4-C	28				.25	YES		T 22	
A 85	1		S11-NC	30				.25	YES		A 22	
			R1-CW	30				.25	YES		T 22	
A 86	1		S11-C	30				.25	YES		A 22	
			R1-CCW	30				.25	YES		T 22	
A 87	1		S12-2-C	22				.25	YES		A 22	
			S12-3-C	22				.25	YES		T 22	
A 88	1		S12-3-NO	22				.25	YES		A 22	
			DS1-HI	40				.25	YES		T 22	
A 89	1		S12-8-C	6				.25	YES		A 22	
			S12-1-C	22				.25	YES		T 22	
A 90	1		S12-8-NO	6				.25	YES		A 22	
			S12-1-NO	22				.25	YES		T 22	
A 91	1		E31	37				.25	YES		A 22	
			E33	39				.25	YES		T 22	

SIZE A
CODE IDENT NO.
2014622
SCALE-NONE REV LTR D SHEET 18 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 92	1		E4	3				.25	YES		A 22	
			E6	23				.25	YES		T 22	
A 93	1		E5	3				.25	YES		A 22	
			E7	23				.25	YES		T 22	
A 94	1		E6	23				.25	YES		A 22	
			E8	24				.25	YES		T 22	
A 95	1		E7	23				.25	YES		A 22	
			E9	24				.25	YES		T 22	
A 96	1		E8	24				.25	YES		A 22	
			E10	27				.25	YES		T 22	
A 97	1		E9	24				.25	YES		A 22	
			E11	27				.25	YES		T 22	
A 98	1		E10	27				.25	YES		A 22	
			E12	29				.25	YES		T 22	
A 99	1		E11	27				.25	YES		A 22	
			E13	29				.25	YES		T 22	
A 100	1		E16	29				.25	YES		A 22	
			E18	35				.25	YES		T 22	
A 101	1		E17	29				.25	YES		A 22	
			E19	35				.25	YES		T 22	
A 102	1		E22	35				.25	YES		A 22	
			E24	37				.25	YES		T 22	
A 103	1		E23	35				.25	YES		A 22	
			E25	37				.25	YES		T 22	

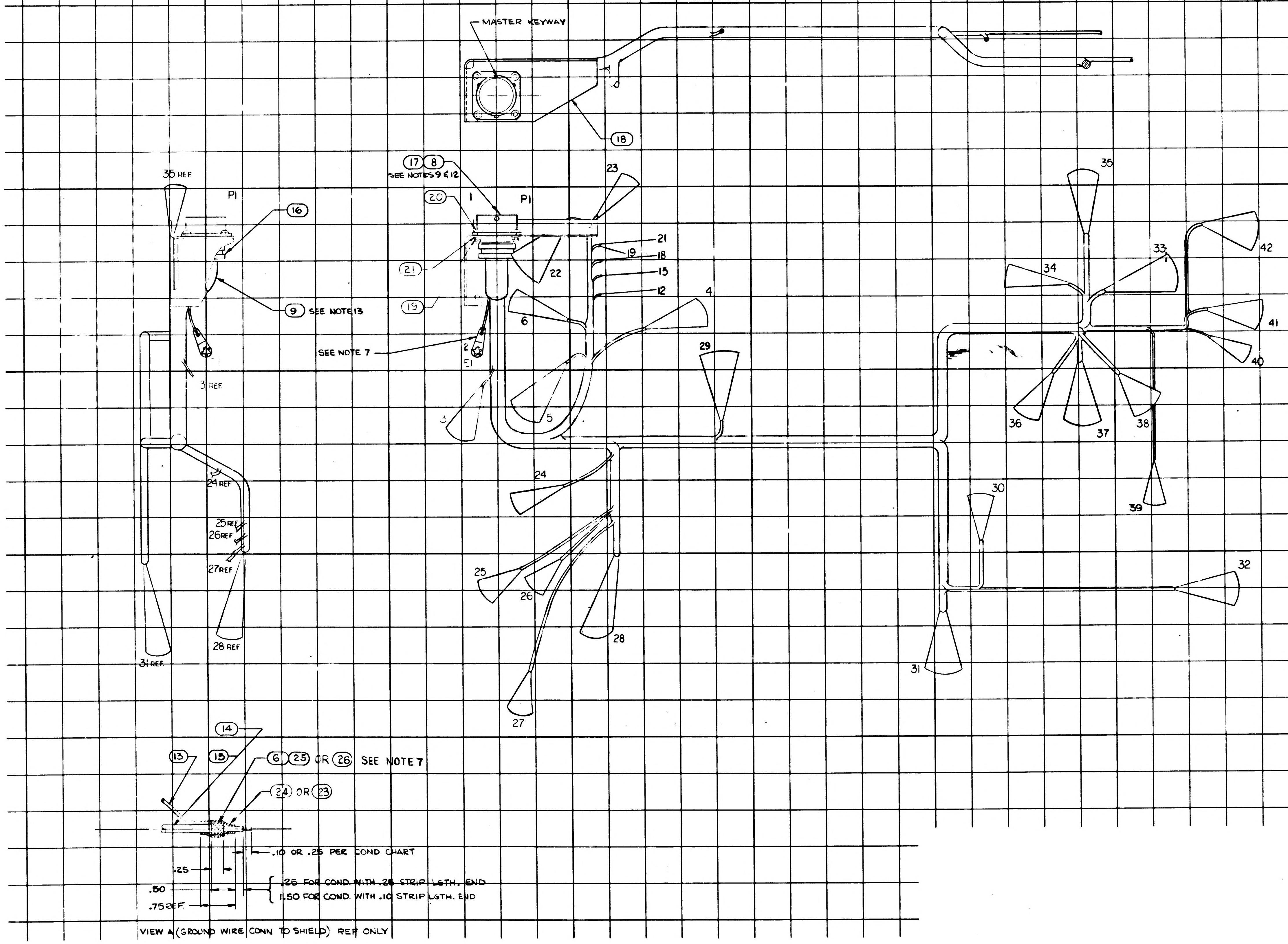
SIZE A
CODE IDENT NO.
2014622
SCALE-NONE REV LTR D SHEET 19 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 104	1		E30	37				.25	YES		A 22	
			E32	39				.25	YES		T 22	

SIZE A
CODE IDENT NO.
2014622
SCALE-NONE REV LTR D SHEET 20 OF 21

REVISIONS
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
18
35 REF
P1
16
9 SEE NOTE 13
3 REF
24 REF
25 REF
26 REF
27 REF
31 REF
28 REF
17 8
SEE NOTES 9 & 12
20
1
P1
21
19
SEE NOTE 7
2
E1
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13
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6 25 OR 26 SEE NOTE 7
24 OR 23
.10 OR .25 PER COND. CHART
.25
.50
.75 REF.
.25 FOR COND. WITH .25 STRIP LGTH. END
1.50 FOR COND. WITH .10 STRIP LGTH. END

VIEW A (GROUND WIRE CONN TO SHIELD) REF ONLY

2014622
REV LTR D

CODE IDENT NO	SIZE	
99974	E	2014622
SCALE 1/1		SHEET

TDRR 22658

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014578-011	2014623-011	A	REVISED PER TDRR 23186	15 OCT 1965	
		B	REVISED RER TDRR 23832	12 NOV 1965	11/12/65
		C	REVISED PER TDRR 24827	4 JAN 1966	WK
		D	REVISED PER TDRR 26818	9 MAR 66	R.W.T. W.D.
		E	REVISED PER TDRR-26822	16-MAR-66	B.

REV																						
SHEET																						
REV STATUS	REV	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
OF SHEETS	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

AC SPARK PLUG DIVISION , GMC
MILWAUKEE, WISCONSIN

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ACSP PN

DRAWN L. Hood DATE 14 July 65
CHECKED 9-17-65
APPROVAL C. Watson 21 SEP 65
APPROVAL 9/20/65

WIRING HARNESS A
G&N INDICATOR CONTROL PANEL

NASA ~~APPROVAL~~
MIT APPROVAL

CODE IDENT NO.	SIZE		REV
80230	A	2014622	E

CONTRACT

SCALE

SHEET 1 OF 21

NOTE GENERAL NOTES

NUMBER DESCRIPTION

1 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

2 ASSEMBLE PER ND1002032.

3 GRID MODULE IS 1 INCH BASIC AND IS SHOWN FOR DIMENSIONING PURPOSES.

4 UNLESS OTHERWISE SPECIFIED - FEATURE CENTERLINES AT TRUE POSITION WITHIN + OR - .25 INCH RELATIVE TO GRID. ENDS OF LEADS OR ACCESSORIES AT TRUE POSITION WITHIN + OR - .12 INCH RELATIVE TO GRID TRUE POSITION DIMENSIONS ARE REGARDLESS OF FEATURE SIZE.

5 IDENTIFY USING DWG. NO. PER ND1002019.

6 LACE HARNESS USING ITEM 4

7 SOLDER PER ND1002071 USING ITEMS 5 AND 6 EXCEPT GROUND WIRE TO SHIELD CONNECTIONS USE ITEMS 6 AND 25 OR 26.

8 Y OR N IN TINNED COLUMN INDICATES YES OR NO.

9 INSTALL CRIMP STYLE TERMINALS IN ACCORDANCE WITH ND1002206.

10 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER INDICATES CONDUCTOR SHIELDING, COLOR, OR MARKING.

A - FROM END SHIELD
B - TO END SHIELD
K - BLACK
R - RED
Y - YELLOW
G - GREEN

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 2 OF 21

NOTE GENERAL NOTES

NUMBER DESCRIPTION

11 TOLERANCE CHART, UNLESS OTHERWISE SPECIFIED ---

APPLICABLE LENGTH FOR STRIP WIRE, STRIP JACKET, CUT WIRE OR CUT SHIELD.	TOLERANCE			
	STRIP		CUT	
	WIRE	JACKET	WIRE	SHIELD
UNDER 1 INCH	+.03-.00	+.06-.06	+.06-.06	+.06-.06
1 INCH TO 6 INCHES	+.06-.00	+.25-.25	+.25-.25	+.25-.25
6 INCHES TO 6 FEET		+.50-.50	+.50-.50	+.50-.50

12 ASSEMBLE ITEM 17 IN ALL UNUSED GROMMET HOLES OF ITEM 8.

13 ENCAPSULATE THE WIRED SIDE OF ITEM 8, USING ITEM 9 PER ND1002236. LEAD INSULATION SHALL EXTEND INTO THE ENCAPSULATION .18 PLUS OR MINUS .06 INCHES.

14 MARK SLEEVING OF SINGLE CONDUCTORS .08 + .02 HIGH, COLOR BLACK, WITH THE CONDUCTOR NUMBER OMITTING ALL SUFFIX LETTERS EXCEPT A AND B PER ND1002C19, WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM FIELD.

15 MARK SLEEVING OF MULTI-CONDUCTORS WITH THE CONDUCTOR NUMBER .12 INCH HIGH, COLOR BLACK, PER ND1002019 WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM NUMBER FIELD.

16 CONDUCTOR IDENTIFICATION SLEEVING SHALL BE STAGGERED AT TERMINATION NO. 1 TO MINIMIZE THE WIRE BUNDLE DIAMETER.

17 A OR T PREFIX IN THE ACCESSORIES ITEM NUMBER COLUMN INDICATES THE READING POSITION AWAY FROM TERMINATION OR TOWARD TERMINATION RESPECTIVELY, OF THE WIRE MARKER SLEEVE.

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR F	SHEET 3 OF 21

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	1010789-001	WIRE, 24AWG YEL, 112 FT. TOTAL LENGTH.
	2	1	1010789-003	WIRE, 24AWG YEL, RED, 2 FT. TOTAL LENGTH.
	3	1	1010789-004	WIRE, 24AWG YEL, RED, GRN, 2 FT. TOTAL LENGTH.
	4	AR	1012507-001	LACING TAPE
	5	AR	QQ-S-571 SN60 WRAP2	SOLDER
	6	AR	MIL-F-14256	FLUX
	7	64	1010770-001	CONTACT, ELECTRICAL
	8	1	1010930-104	CONNECTOR, ELECTRICAL
	9	AR	1012503	COMPOUND, POLYURETHANE
	10	1	1010638-006	TERMINAL
	13	1	1010789-002	WIRE, 24AWG BLK, 8 FT. TOTAL LENGTH.
	14	1	1010789-011	WIRE, YEL JKT, 24AWG YEL, 20 FT. TOTAL LENGTH.
	15	1	1010789-012	WIRE, YEL JKT, 24AWG YEL, RED, 7 FT. TOTAL LENGTH
	16	1	1023012-001	ADAPTER, POTTING MOLD.
	17	21	1010958-001	PLUG, SEALING
	18	1	2014707	BRACKET, CONNECTOR
	19	4	1010617- 4	NUT, HEX, SELF LOCKING

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 4 OF 21

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	20	4	NAS1352C04-6	SCREW, SOCKET HD CAP
	21	4	MS15795-803	WASHER, FLAT
	22	159	1012534- 59	INSULATION SLEEVING, HEAT SHRINKABLE
	23	44	1012534- 57	INSULATION SLEEVING, HEAT SHRINKABLE
	24	12	1012534- 56	INSULATION SLEEVING, HEAT SHRINKABLE
	25	AR	QQ-S-571,SN10WS	SOLDER
	26	AR	QQ-S-571,SN10WRAP	SOLDER

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 5 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 1	3										A 23 T 23	
A 1G			P1-13 S8-5-NO	1 28				.10 .25	NO YES		7	
A 1R			P1-4 S8-6-NO	1 28				.10 .25	NO YES		7	
A 1Y			P1-12 S8-5-C	1 28				.10 .25	NO YES		7	
A 2	3										A 23 T 23	
A 2G			P1-3 S8-2-NO	1 28				.10 .25	NO YES		7	
A 2R			P1-2 S8-1-NO	1 28				.10 .25	NO YES		7	
A 2Y			P1-10 S8-1-C	1 28				.10 .25	NO YES		7	
A 3	3										A 23 T 23	
A 3G			P1-8 S8-3-C	1 28				.10 .25	NO YES		7	
A 3R			P1-19 S8-4-NO	1 28				.10 .25	NO YES		7	
A 3Y			P1-7 S8-3-NO	1 28				.10 .25	NO YES		7	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 4	1		P1-82 S12-8-NO	1 6				.10 .25	NO YES		A 22, 7 T 22	
A 5	1		P1-59 S12-2-NO	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 6	1		P1-1 SHLD A13	1				.10 .25	NO YES		A 22, 7 T 22	
A 7	1		P1-81 S10-2-NO	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 8	1		P1-20 S6-2-C	1 26				.10 .25	NO YES		A 22, 7 T 22	
A 9	1		S12-2-C S11-NC	22 30				.25 .25	YES YES		A 22 T 22	
A 10	1		A4-8 S12-4-NO	4 22				.25 .25	YES YES		A 22 T 22	
A 11	1		P1-55 S12-4-C	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 12	1		P1-85 A3-2	1 18				.10 .25	NO YES		A 22, 7 T 22	
A 13	14				1.75 .50	1.50					A 23 T 23	
A 13A	13		SHLD A13 SHLD A14					.25 .25	YES YES			
A 13Y			P1-53 S3-4-NC	1 42				.10 .25	NO YES		7	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 14	14				1.75 .50	1.50					A 23 T 23	
A 14A	13		SHLD A14 SHLD A15					.25 .25	YES YES			
A 14Y			P1-77 S6-2-NC	1 26				.10 .25	NO YES		7	
A 15	15				1.75 .50	1.50					A 24 T 24	
A 15A	13		SHLD A15 SHLD A29					.25 .25	YES YES			
A 15R			P1-51 S5-1-NO	1 36				.10 .25	NO YES		7	
A 15Y			P1-30 S5-1-NC	1 36				.10 .25	NO YES		7	
A 16	1		P1-33 S10-1-NO	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 17	1		A4-9 A4-6	4 4				.25 .25	YES YES		A 22 T 22	
A 18	1		P1-71 S3-7-NC	1 41				.10 .25	NO YES		A 22, 7 T 22	
A 19	1		P1-80 A4-5	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 20	2										A 23 T 23	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 20R			P1-43 A1-2	1 32				.10 .25	NO YES		7	
A 20Y			P1-23 A1-1	1 32				.10 .25	NO YES		7	
A 21	14				1.75 .50	1.50					A 23 T 23	
A 21A	13		SHLD A21 SHLD A58					.25 .25	YES YES			
A 21Y			P1-62 S1-2-C	1 33				.10 .25	NO YES		7	
A 22	14				1.75 .50	1.50					A 23 T 23	
A 22A	13		SHLD A22 SHLD A60					.25 .25	YES YES			
A 22Y			P1-64 S1-3-C	1 33				.10 .25	NO YES		7	
A 23	15				1.75 .50	1.50					A 24 T 24	
A 23A	13		SHLD A23 SHLD A38					.25 .25	YES YES			
A 23R			P1-39 T1-2	1 31				.10 .25	NO YES		7	
A 23Y			P1-21 T1-1	1 31				.10 .25	NO YES		7	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24	1		P1-34 S12-3-C	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 25	1		P1-84 A3-4	1 15				.10 .25	NO YES		A 22, 7 T 22	
A 26	1		P1-79 A4-9	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 27	1		P1-54 A4-7	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 28	1		P1-50 S2-2-NC	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 29	14				1.75 .50	1.50					A 23 T 23	
→ A 29A	13		SHLD A29 SHLD A32					.25 .25	YES YES			←
A 29Y			P1-76 S5-2-C	1 36				.10 .25	NO YES		7	
A 30	1		P1-49 S2-2-NO	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 31	1		P1-29 S5-2-NO	1 36				.10 .25	NO YES		A 22, 7 T 22	
A 32	14				1.75 .50	1.50					A 23 T 23	
A 32A	13		SHLD A32 SHLD A46					.25 .25	YES YES			

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 32Y			P1-52 S4-1-NC	1 34				.10 .25	NO YES		7	
A 33	1		P1-56 S10-2-C	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 34	1		P1-47 S3-2-NC	1 42				.10 .25	NO YES		A 22, 7 T 22	
A 35	1		P1-70 S7-2-NO	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 36	1		P1-46 S7-2-NC	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 37	1		P1-36 A3-8	1 21				.10 .25	NO YES		A 22 T 22	
→ A 38	15				1.75 .50	1.50					A 24 T 24	←
A 38A	13		SHLD A38 SHLD A59					.25 .25	YES YES		A 22 T 22	
A 38R			P1-65 T1-3	1 31				.10 .25	NO YES		7	
A 38Y			P1-40 T1-4	1 31				.10 .25	NO YES		7	
A 39	1		P1-58 R1-CCW	1 30				.10 .25	NO YES.		A 22, 7 T 22	
A 40	1		P1-35 R1-WIPER	1 30				.10 .25	NO YES		A 22, 7 T 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 41	1		P1-60 A3-6	1 12				.10 .25	NO YES		A 22, 7 T 22	
A 42	1		P1-44 S12-3-NO	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 43	1		P1-24 DS1-LU	1 40				.10 .25	NO YES		A 22, 7 T 22	
A 44	1		P1-68 E2	1 3				.10 .25	NO YES		A 22, 7 T 22	
A 45	1		P1-67 E3	1 3				.10 .25	NO YES		A 22, 7 T 22	
A 46	14				1.75 .50	1.50					A 23 T 23	
→ A 46A	13		SHLD A46 SHLD A47					.25 .25	YES YES			←
A 46Y			P1-78 S3-8-NC	1 41				.10 .25	NO YES		7	
A 47	14				1.75 .50	1.50					A 23 T 23	
A 47A	13		SHLD A47 E1	 2				.25 .25	YES YES		 T 22, 10	
A 47Y			P1-75 S3-1-NC	1 42				.10 .25	NO YES		7	
A 48	1		P1-74 S2-1-NO	1 38				.10 .25	NO YES		A 22, 7 T 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 49	1		S12-8-C A3-1	6 19				.25 .25	YES YES		A 22 T 22	
A 50	1		P1-31 S4-1-NO	1 34				.10 .25	NO YES		A 22, 7 T 22	
A 51	1		P1-32 S10-1-C	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 52	1		P1-72 S2-3-C	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 53	1		P1-48 S7-2-C	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 54	15				1.75 .50	1.50					A 24 T 24	
→ A 54A	13		SHLD A54 P1-42	 1				.25 .10	YES NO		 T 22, 7	←
A 54R			P1-66 S7-1-NC	1 25				.10 .25	NO YES		7	
A 54Y			P1-41 S7-1-C	1 25				.10 .25	NO YES		7	
A 55	1		A1-2 A1-8	32 32				.25 .25	YES YES		A 22 T 22	
A 56	1		A1-1 A1-7	32 32				.25 .25	YES YES		A 22 T 22	
A 57	15				.75 .50	.50					A 24 T 24	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A 57A	13		SHLD A57 SHLD A61					.25 .25	YES YES			
A 57R			T1-1 A1-4	31 32				.25 .25	YES YES			
A 57Y			T1-2 A1-3	31 32				.25 .25	YES YES			
A 58	14				.50 .50						A 23 T 23	
A 58A	13		SHLD A58 SHLD A22					.25 .25	YES YES			
A 58Y			P1-38 T1-8	1 31				.10 .25	NO YES		7	
A 59	15				.75 .50	.50					A 24 T 24	
A 59A	13		SHLD A59 SHLD A57					.25 .25	YES YES			
A 59R			T1-3 A1-5	31 32				.25 .25	YES YES			
A 59Y			T1-4 A1-6	31 32				.25 .25	YES YES			
A 60	14				1.75 .50	1.50					A 23 T 23	
A 60A	13		SHLD A60 SHLD A23					.25 .25	YES YES			

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR F	SHEET 14 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A 60Y			P1-63 T1-12	1 31				.10 .25	NO YES		7	
A 61	14				.50 .50						A 23 T 23	
A 61A	13		SHLD A61 SHLD A62					.25 .25	YES YES			
A 61Y			T1-5 S1-2-NO	31 33				.25 .25	YES YES			
A 62	14				.50 .50						A 23 T 23	
A 62A	13		SHLD A62 SHLD A63					.25 .25	YES YES			
A 62Y			T1-6 S1-1-NC	31 33				.25 .25	YES YES			
A 63	14				.50 .50						A 23 T 23	
A 63A	13		SHLD A63 SHLD A64					.25 .25	YES YES			
A 63Y			T1-7 S1-1-NO	31 33				.25 .25	YES YES			
A 64	14				.50 .50						A 23 T 23	
A 64A	13		SHLD A64 SHLD A65					.25 .25	YES YES			

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR F	SHEET 15 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A 64Y			T1-9 S1-3-NO	31 33				.25 .25	YES YES			
A 65	14				.50 .50						A 23 T 23	
A 65A	13		SHLD A65 SHLD A66					.25 .25	YES YES			
A 65Y			T1-10 S1-4-NC	31 33				.25 .25	YES YES			
A 66	14				.50 .50						A 23 T 23	
A 66A	13		SHLD A66 SHLD A67					.25 .25	YES YES		A 22 T 22	
A 66Y			T1-11 S1-4-NO	31 33				.25 .25	YES YES			
A 67	14				.50 .50						A 23 T 23	
A 67A	13		SHLD A67 SHLD A68					.25 .25	YES YES			
A 67Y			S1-3-NC S1-4-C	33 33				.25 .25	YES YES			
A 68	14				.50 .50						A 23 T 23	
A 68A	13		SHLD A68 S3-5-C	 41				.25 .25	YES YES		 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR F	SHEET 16 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A 68Y			S1-2-NC S1-1-C	33 33				.25 .25	YES YES			
A 69	1		S2-1-NC S2-2-C	38 38				.25 .25	YES YES		A 22 T 22	
A 70	1		S2-3-NO S3-7-C	38 41				.25 .25	YES YES		A 22 T 22	
A 71	1		S7-2-C S3-7-C	25 41				.25 .25	YES YES		A 22 T 22	
A 72	1		S5-2-C S2-1-C	36 38				.25 .25	YES YES		A 22 T 22	
A 73	1		S2-1-C S3-4-NO	38 42				.25 .25	YES YES		A 22 T 22	
A 74	1		S3-5-NO S3-1-C	41 42				.25 .25	YES YES		A 22 T 22	
A 75	1		S3-7-NO S3-2-C	41 42				.25 .25	YES YES		A 22 T 22	
A 76	1		S3-8-NO S3-4-C	41 42				.25 .25	YES YES		A 22 T 22	
A 77	1		S3-8-C S3-5-C	41 41				.25 .25	YES YES		A 22 T 22	
A 78	1		S6-2-C S3-8-C	26 41				.25 .25	YES YES		A 22 T 22	
A 79	1		S3-1-NC S3-5-NC	42 41				.25 .25	YES YES		A 22 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR F	SHEET 17 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A 80	1		S3-1-NO	42				.25	YES		A 22	
			S4-1-C	34				.25	YES		T 22	
A 81	1		S5-2-NC	36				.25	YES		A 22	
			S5-1-C	36				.25	YES		T 22	
A 82	1		S8-5-C	28				.25	YES		A 22	
			S8-6-C	28				.25	YES		T 22	
A 83	1		S8-1-C	28				.25	YES		A 22	
			S8-2-C	28				.25	YES		T 22	
A 84	1		S8-3-C	28				.25	YES		A 22	
			S8-4-C	28				.25	YES		T 22	
A 85	1		S11-NC	30				.25	YES		A 22	
			R1-CW	30				.25	YES		T 22	
A 86	1		S11-C	30				.25	YES		A 22	
			R1-CCW	30				.25	YES		T 22	
A 87	1		S12-2-C	22				.25	YES		A 22	
			S12-3-C	22				.25	YES		T 22	
A 88	1		S12-3-NO	22				.25	YES		A 22	
			DS1-HI	40				.25	YES		T 22	
A 89	1		S12-8-C	6				.25	YES		A 22	
			S12-1-C	22				.25	YES		T 22	
A 90	1		S12-8-NO	6				.25	YES		A 22	
			S12-1-NO	22				.25	YES		T 22	
A 91	1		E31	37				.25	YES		A 22	
			E33	39				.25	YES		T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 18 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A 92	1		E4	3				.25	YES		A 22	
			E6	23				.25	YES		T 22	
A 93	1		E5	3				.25	YES		A 22	
			E7	23				.25	YES		T 22	
A 94	1		E6	23				.25	YES		A 22	
			E8	24				.25	YES		T 22	
A 95	1		E7	23				.25	YES		A 22	
			E9	24				.25	YES		T 22	
A 96	1		E8	24				.25	YES		A 22	
			E10	27				.25	YES		T 22	
A 97	1		E9	24				.25	YES		A 22	
			E11	27				.25	YES		T 22	
A 98	1		E10	27				.25	YES		A 22	
			E14	29				.25	YES		T 22	
A 99	1		E11	27				.25	YES		A 22	
			E15	29				.25	YES		T 22	
A 100	1		E16	29				.25	YES		A 22	
			E18	35				.25	YES		T 22	
A 101	1		E17	29				.25	YES		A 22	
			E19	35				.25	YES		T 22	
A 102	1		E22	35				.25	YES		A 22	
			E24	37				.25	YES		T 22	
A 103	1		E23	35				.25	YES		A 22	
			E25	37				.25	YES		T 22	

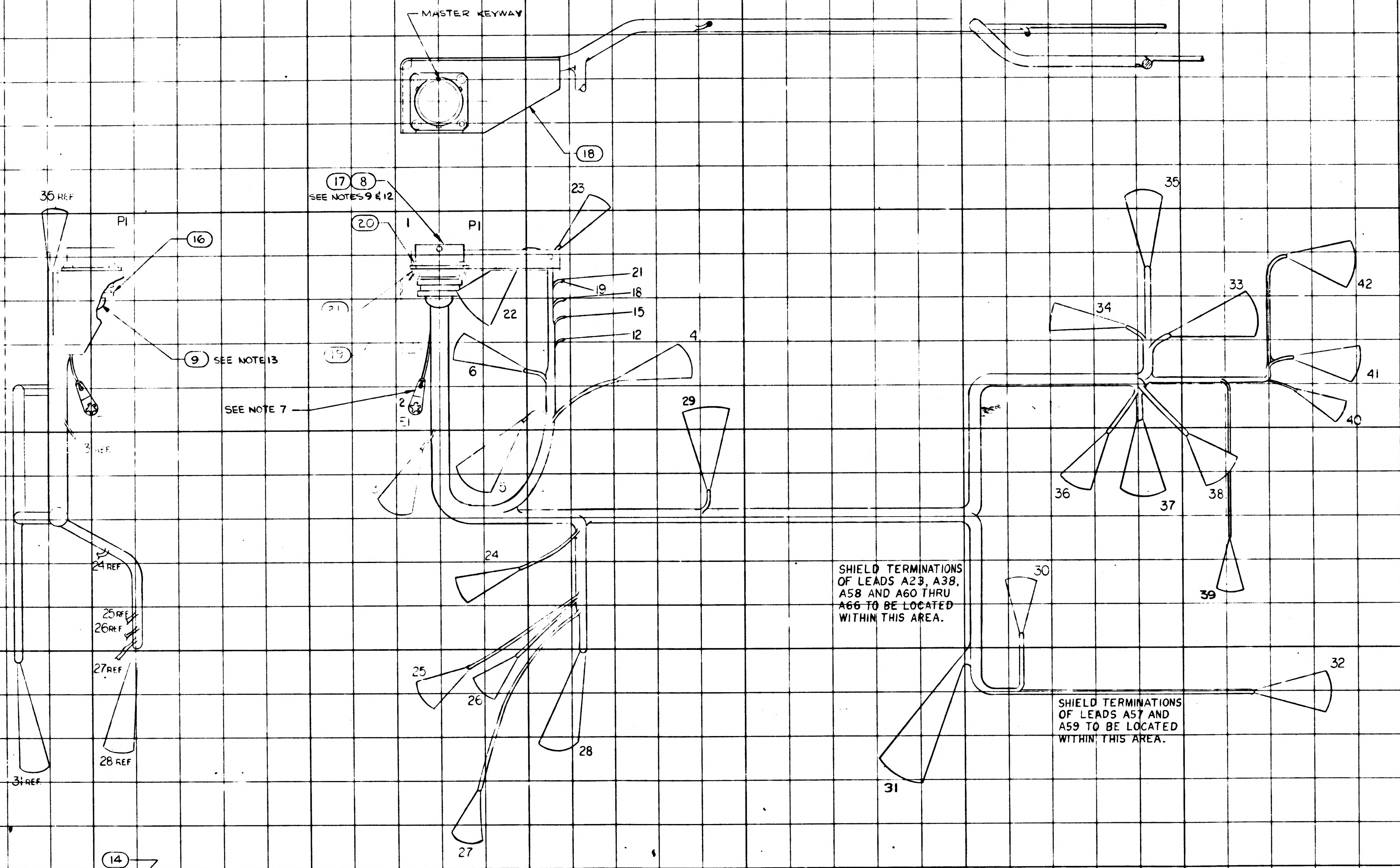
SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 19 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A 104	1		E30	37				.25	YES		A 22	
			E32	39				.25	YES		T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 20 OF 21

REVISIONS TDRR 226--				
SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD


MASTER KEYWAY
18
17
8
SEE NOTES 9 & 12
20
1
P1
23
21
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12
22
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19
6
4
SEE NOTE 7
2
E1
3
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35 REF
P1
16
9
SEE NOTE 13
3 REF
24 REF
25 REF
26 REF
27 REF
28 REF
31 REF
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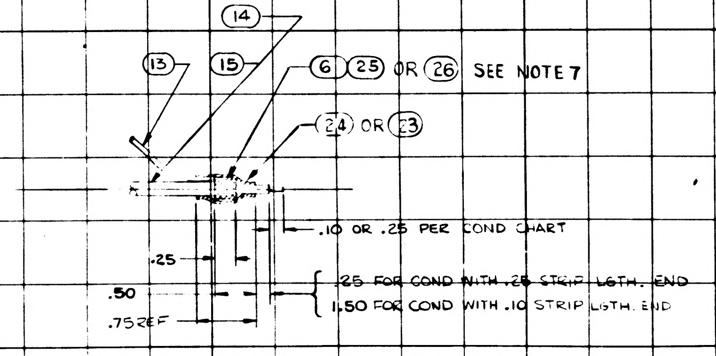
31

SHIELD TERMINATIONS OF LEADS A23, A38, A58 AND A60 THRU A66 TO BE LOCATED WITHIN THIS AREA.

SHIELD TERMINATIONS OF LEADS A57 AND A59 TO BE LOCATED WITHIN THIS AREA.


14
13
15
6
25
OR
26
SEE NOTE 7
24
OR
23
.10 OR .25 PER COND CHART
.25
.50
.75 REF
.25 FOR COND WITH .25 STRIP LGTH. END
1.50 FOR COND WITH .10 STRIP LGTH. END

VIEW A (GROUND WIRE CONN TO SHIELD) REF ONLY

2014622
REV LTR E

CODE IDENT NO	SIZE	
80230	E	2014622
SCALE 1		SHEET

TDRR 22658

APPLICATION	
NEXT ASSY	USED ON
2014578-011	2014623-011

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 23186	15 OCT 1965	10-15
B	REVISED RER TDRR 23832	12 NOV 1965	11/12/65
C	REVISED PER TDRR 24827	4 JAN 1966	WK
D	REVISED PER TDRR 26818	9 MAR 66	R.W.T. W.D.
E	REVISED PER TDRR-26822	16-MAR-66	B.
F	REVISED PER TDRR 27043	18 MAR 66	R.W.T.

REV																						
SHEET																						
REV STATUS	REV	F	E	E	E	E	E	E	E	F	E	E	E	E	E	E	E	E	E	E	E	E
OF SHEETS	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

AC SPARK PLUG DIVISION , GMC
MILWAUKEE, WISCONSIN

ACSP PN

DRAWN L. Hood DATE 14 July 65
CHECKED 9-17-65
APPROVAL OC Watson 21SEP65
APPROVAL 9/20/65
NASA APPROVAL
MIT APPROVAL
CONTRACT

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS A
G&N INDICATOR CONTROL PANEL

CODE IDENT NO.	SIZE		REV
80230	A	2014622	F

SCALE

SHEET 1 OF 21

NOTE NUMBER	GENERAL NOTES DESCRIPTION
1	INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2	ASSEMBLE PER ND1002032.
3	GRID MODULE IS 1 INCH BASIC AND IS SHOWN FOR DIMENSIONING PURPOSES.
4	UNLESS OTHERWISE SPECIFIED - FEATURE CENTERLINES AT TRUE POSITION WITHIN + OR - .25 INCH RELATIVE TO GRID. ENDS OF LEADS OR ACCESSORIES AT TRUE POSITION WITHIN + OR - .12 INCH RELATIVE TO GRID. TRUE POSITION DIMENSIONS ARE REGARDLESS OF FEATURE SIZE.
5	IDENTIFY USING DWG. NO. PER ND1002019.
6	LACE HARNESS USING ITEM 4
7	SOLDER PER ND1002071 USING ITEMS 5 AND 6 EXCEPT GROUND WIRE TO SHIELD CONNECTIONS USE ITEMS 6 AND 25 OR 26.
8	Y OR N IN TINNED COLUMN INDICATES YES OR NO.
9	INSTALL CRIMP STYLE TERMINALS IN ACCORDANCE WITH ND1002206.
10	THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER INDICATES CONDUCTOR SHIELDING, COLOR, OR MARKING. A - FROM END SHIELD B - TO END SHIELD K - BLACK R - RED Y - YELLOW G - GREEN

SIZE A
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REV LTR E
SHEET 2 OF 21

NOTE NUMBER — GENERAL NOTES DESCRIPTION

11 TOLERANCE CHART, UNLESS OTHERWISE SPECIFIED ---

APPLICABLE LENGTH FOR STRIP WIRE, STRIP JACKET, CUT WIRE OR CUT SHIELD.	TOLERANCE STRIP WIRE	TOLERANCE STRIP JACKET	TOLERANCE CUT WIRE	TOLERANCE CUT SHIELD
UNDER 1 INCH	+.03-.00	+.06-.06	+.06-.06	+.06-.06
1 INCH TO 6 INCHES	+.06-.00	+.25-.25	+.25-.25	+.25-.25
6 INCHES TO 6 FEET		+.50-.50	+.50-.50	+.50-.50

NOTE NUMBER	DESCRIPTION
12	ASSEMBLE ITEM 17 IN ALL UNUSED GROMMET HOLES OF ITEM 8.
13	ENCAPSULATE THE WIRED SIDE OF ITEM 8, USING ITEM 9 PER ND1002236. LEAD INSULATION SHALL EXTEND INTO THE ENCAPSULATION .18 PLUS OR MINUS .06 INCHES.
14	MARK SLEEVING OF SINGLE CONDUCTORS .08 + .02 HIGH, COLOR BLACK, WITH THE CONDUCTOR NUMBER OMITTING ALL SUFFIX LETTERS EXCEPT A AND B PER ND1002019, WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM FIELD.
15	MARK SLEEVING OF MULTI-CONDUCTORS WITH THE CONDUCTOR NUMBER .12 INCH HIGH, COLOR BLACK, PER ND1002019 WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM NUMBER FIELD.
16	CONDUCTOR IDENTIFICATION SLEEVING SHALL BE STAGGERED AT TERMINATION NO. 1 TO MINIMIZE THE WIRE BUNDLE DIAMETER.
17	A OR T PREFIX IN THE ACCESSORIES ITEM NUMBER COLUMN INDICATES THE READING POSITION AWAY FROM TERMINATION OR TOWARD TERMINATION RESPECTIVELY, OF THE WIRE MARKER SLEEVE.

SIZE A
CODE IDENT NO. 80230
2014622
SCALE-NONE
REV LTR E
SHEET 3 OF 21

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	1010789-001	WIRE, 24AWG YEL, 112 FT. TOTAL LENGTH.
	2	1	1010789-003	WIRE, 24AWG YEL, RED, 2 FT. TOTAL LENGTH.
	3	1	1010789-004	WIRE, 24AWG YEL, RED, GRN, 2 FT. TOTAL LENGTH.
	4	AR	1012507-001	LACING TAPE
	5	AR	QQ-S-571 SN60 WRAP2	SOLDER
	6	AR	MIL-F-14256	FLUX
	7	64	1010770-001	CONTACT, ELECTRICAL
	8	1	1010930-104	CONNECTOR, ELECTRICAL
	9	AR	1012503	COMPOUND, POLYURETHANE
	10	1	1010638-006	TERMINAL
	13	1	1010789-002	WIRE, 24AWG BLK, 8 FT. TOTAL LENGTH.
	14	1	1010789-011	WIRE, YEL JKT, 24AWG YEL, 20 FT. TOTAL LENGTH.
	15	1	1010789-012	WIRE, YEL JKT, 24AWG YEL, RED, 7 FT. TOTAL LENGTH
	16	1	1023012-001	ADAPTER, POTTING MOLD.
	17	21	1010958-001	PLUG, SEALING
	18	1	2014707	BRACKET, CONNECTOR
	19	4	1010617- 4	NUT, HEX, SELF LOCKING

SIZE A
CODE IDENT NO. 80230
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SCALE-NONE
REV LTR E
SHEET 4 OF 21

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	20	4	NAS1352C04-6	SCREW, SOCKET HD CAP
	21	4	MS15795-803	WASHER, FLAT
	22	159	1012534- 59	INSULATION SLEEVING, HEAT SHRINKABLE
	23	44	1012534- 57	INSULATION SLEEVING, HEAT SHRINKABLE
	24	12	1012534- 56	INSULATION SLEEVING, HEAT SHRINKABLE
	25	AR	QQ-S-571,SN10WS	SOLDER
	26	AR	QQ-S-571,SN10WRAP	SOLDER

SIZE A
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SCALE-NONE
REV LTR E
SHEET 5 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCFSSORY ITEMS	REMARKS
A 1	3										A 23 T 23	
A 1G			P1-13 S8-5-NO	1 28				.10 .25	NO YES		7	
A 1R			P1-4 S8-6-NO	1 28				.10 .25	NO YES		7	
A 1Y			P1-12 S8-5-C	1 28				.10 .25	NO YES		7	
A 2	3										A 23 T 23	
A 2G			P1-3 S8-2-NO	1 28				.10 .25	NO YES		7	
A 2R			P1-2 S8-1-NO	1 28				.10 .25	NO YES		7	
A 2Y			P1-10 S8-1-C	1 28				.10 .25	NO YES		7	
A 3	3										A 23 T 23	
A 3G			P1-8 S8-3-C	1 28				.10 .25	NO YES		7	
A 3R			P1-19 S8-4-NO	1 28				.10 .25	NO YES		7	
A 3Y			P1-7 S8-3-NO	1 28				.10 .25	NO YES		7	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 4	1		P1-82 S12-8-NO	1 6				.10 .25	NO YES		A 22, 7 T 22	
A 5	1		P1-59 S12-2-NO	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 6	1		P1-1 SHLD A13	1				.10 .25	NO YES		A 22, 7 T 22	
A 7	1		P1-81 S10-2-NO	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 8	1		P1-20 S6-2-C	1 26				.10 .25	NO YES		A 22, 7 T 22	
A 9	1		S12-2-C S11-NC	22 30				.25 .25	YES YES		A 22 T 22	
A 10	1		A4-8 S12-4-NO	4 22				.25 .25	YES YES		A 22 T 22	
A 11	1		P1-55 S12-4-C	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 12	1		P1-85 A3-2	1 18				.10 .25	NO YES		A 22, 7 T 22	
A 13	14				1.75 .50	1.50					A 23 T 23	
A 13A	13		SHLD A13 SHLD A14					.25 .25	YES YES			
A 13Y			P1-53 S3-4-NC	1 42				.10 .25	NO YES		7	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 14	14				1.75 .50	1.50					A 23 T 23	
A 14A	13		SHLD A14 SHLD A15					.25 .25	YES YES			
A 14Y			P1-77 S6-2-NC	1 26				.10 .25	NO YES		7	
A 15	15				1.75 .50	1.50					A 24 T 24	
A 15A	13		SHLD A15 SHLD A29					.25 .25	YES YES			
A 15R			P1-51 S5-1-NO	1 36				.10 .25	NO YES		7	
A 15Y			P1-30 S5-1-NC	1 36				.10 .25	NO YES		7	
A 16	1		P1-33 S10-1-NO	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 17	1		A4-9 A4-6	4 4				.25 .25	YES YES		A 22 T 22	
A 18	1		P1-71 S3-7-NC	1 41				.10 .25	NO YES		A 22, 7 T 22	
A 19	1		P1-80 A4-5	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 20	2										A 23 T 23	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 20R			P1-43 A1-1	1 32				.10 .25	NO YES		7	
A 20Y			P1-23 A1-2	1 32				.10 .25	NO YES		7	
A 21	14				1.75 .50	1.50					A 23 T 23	
A 21A	13		SHLD A21 SHLD A58					.25 .25	YES YES			
A 21Y			P1-62 S1-2-C	1 33				.10 .25	NO YES		7	
A 22	14				1.75 .50	1.50					A 23 T 23	
A 22A	13		SHLD A22 SHLD A60					.25 .25	YES YES			
A 22Y			P1-64 S1-3-C	1 33				.10 .25	NO YES		7	
A 23	15				1.75 .50	1.50					A 24 T 24	
A 23A	13		SHLD A23 SHLD A38					.25 .25	YES YES			
A 23R			P1-39 T1-2	1 31				.10 .25	NO YES		7	
A 23Y			P1-21 T1-1	1 31				.10 .25	NO YES		7	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24	1		P1-34 S12-3-C	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 25	1		P1-84 A3-4	1 15				.10 .25	NO YES		A 22, 7 T 22	
A 26	1		P1-79 A4-9	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 27	1		P1-54 A4-7	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 28	1		P1-50 S2-2-NC	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 29	14				1.75 .50	1.50					A 23 T 23	
A 29A	13		SHLD A29 SHLD A32					.25 .25	YES YES			
A 29Y			P1-76 S5-2-C	1 36				.10 .25	NO YES		7	
A 30	1		P1-49 S2-2-NO	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 31	1		P1-29 S5-2-NO	1 36				.10 .25	NO YES		A 22, 7 T 22	
A 32	14				1.75 .50	1.50					A 23 T 23	
A 32A	13		SHLD A32 SHLD A46					.25 .25	YES YES			

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 10 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 32Y			P1-52 S4-1-NC	1 34				.10 .25	NO YES		7	
A 33	1		P1-56 S10-2-C	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 34	1		P1-47 S3-2-NC	1 42				.10 .25	NO YES		A 22, 7 T 22	
A 35	1		P1-70 S7-2-NO	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 36	1		P1-46 S7-2-NC	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 37	1		P1-36 A3-8	1 21				.10 .25	NO YES		A 22 T 22	
A 38	15				1.75 .50	1.50					A 24 T 24	
A 38A	13		SHLD A38 SHLD A59					.25 .25	YES YES		A 22 T 22	
A 38R			P1-65 T1-3	1 31				.10 .25	NO YES		7	
A 38Y			P1-40 T1-4	1 31				.10 .25	NO YES		7	
A 39	1		P1-58 R1-CCW	1 30				.10 .25	NO YES		A 22, 7 T 22	
A 40	1		P1-35 R1-WIPER	1 30				.10 .25	NO YES		A 22, 7 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 11 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 41	1		P1-60 A3-6	1 12				.10 .25	NO YES		A 22, 7 T 22	
A 42	1		P1-44 S12-3-NO	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 43	1		P1-24 DS1-LO	1 40				.10 .25	NO YES		A 22, 7 T 22	
A 44	1		P1-68 E2	1 3				.10 .25	NO YES		A 22, 7 T 22	
A 45	1		P1-67 E3	1 3				.10 .25	NO YES		A 22, 7 T 22	
A 46	14				1.75 .50	1.50					A 23 T 23	
A 46A	13		SHLD A46 SHLD A47					.25 .25	YES YES			
A 46Y			P1-78 S3-8-NC	1 41				.10 .25	NO YES		7	
A 47	14				1.75 .50	1.50					A 23 T 23	
A 47A	13		SHLD A47 E1	 2				.25 .25	YES YES		 T 22, 10	
A 47Y			P1-75 S3-1-NC	1 42				.10 .25	NO YES		7	
A 48	1		P1-74 S2-1-NO	1 38				.10 .25	NO YES		A 22, 7 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 12 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 49	1		S12-8-C A3-1	6 19				.25 .25	YES YES		A 22 T 22	
A 50	1		P1-31 S4-1-NO	1 34				.10 .25	NO YES		A 22, 7 T 22	
A 51	1		P1-32 S10-1-C	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 52	1		P1-72 S2-3-C	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 53	1		P1-48 S7-2-C	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 54	15				1.75 .50	1.50					A 24 T 24	
A 54A	13		SHLD A54 P1-42	 1				.25 .10	YES NO		 T 22, 7	
A 54R			P1-66 S7-1-NC	1 25				.10 .25	NO YES		7	
A 54Y			P1-41 S7-1-C	1 25				.10 .25	NO YES		7	
A 55	1		A1-2 A1-8	32 32				.25 .25	YES YES		A 22 T 22	
A 56	1		A1-1 A1-7	32 32				.25 .25	YES YES		A 22 T 22	
A 57	15				.75 .50	.50					A 24 T 24	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 13 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 57A	13		SHLD A57					.25	YES			
			SHLD A61					.25	YES			
A 57R			T1-1	31				.25	YES			
			A1-4	32				.25	YES			
A 57Y			T1-2	31				.25	YES			
			A1-3	32				.25	YES			
A 58	14				.50						A 23	
					.50						T 23	
A 58A	13		SHLD A58					.25	YES			
			SHLD A22					.25	YES			
A 58Y			P1-38	1				.10	NO		7	
			T1-8	31				.25	YES			
A 59	15				.75	.50					A 24	
					.50						T 24	
A 59A	13		SHLD A59					.25	YES			
			SHLD A57					.25	YES			
A 59R			T1-3	31				.25	YES			
			A1-5	32				.25	YES			
A 59Y			T1-4	31				.25	YES			
			A1-6	32				.25	YES			
A 60	14				1.75	1.50					A 23	
					.50						T 23	
A 60A	13		SHLD A60					.25	YES			
			SHLD A23					.25	YES			

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 60Y			P1-63	1				.10	NO		7	
			T1-12	31				.25	YES			
A 61	14				.50						A 23	
					.50						T 23	
A 61A	13		SHLD A61					.25	YES			
			SHLD A62					.25	YES			
A 61Y			T1-5	31				.25	YES			
			S1-2-NO	33				.25	YES			
A 62	14				.50						A 23	
					.50						T 23	
A 62A	13		SHLD A62					.25	YES			
			SHLD A63					.25	YES			
A 62Y			T1-6	31				.25	YES			
			S1-1-NC	33				.25	YES			
A 63	14				.50						A 23	
					.50						T 23	
A 63A	13		SHLD A63					.25	YES			
			SHLD A64					.25	YES			
A 63Y			T1-7	31				.25	YES			
			S1-1-NO	33				.25	YES			
A 64	14				.50						A 23	
					.50						T 23	
A 64A	13		SHLD A64					.25	YES			
			SHLD A65					.25	YES			

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 64Y			T1-9	31				.25	YES			
			S1-3-NO	33				.25	YES			
A 65	14				.50						A 23	
					.50						T 23	
A 65A	13		SHLD A65					.25	YES			
			SHLD A66					.25	YES			
A 65Y			T1-10	31				.25	YES			
			S1-4-NC	33				.25	YES			
A 66	14				.50						A 23	
					.50						T 23	
A 66A	13		SHLD A66					.25	YES		A 22	
			SHLD A67					.25	YES		T 22	
A 66Y			T1-11	31				.25	YES			
			S1-4-NO	33				.25	YES			
A 67	14				.50						A 23	
					.50						T 23	
A 67A	13		SHLD A67					.25	YES			
			SHLD A68					.25	YES			
A 67Y			S1-3-NC	33				.25	YES			
			S1-4-C	33				.25	YES			
A 68	14				.50						A 23	
					.50						T 23	
A 68A	13		SHLD A68					.25	YES			
			S3-5-C	41				.25	YES		T 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 68Y			S1-2-NC	33				.25	YES			
			S1-1-C	33				.25	YES			
A 69	1		S2-1-NC	38				.25	YES		A 22	
			S2-2-C	38				.25	YES		T 22	
A 70	1		S2-3-NO	38				.25	YES		A 22	
			S3-7-C	41				.25	YES		T 22	
A 71	1		S7-2-C	25				.25	YES		A 22	
			S3-7-C	41				.25	YES		T 22	
A 72	1		S5-2-C	36				.25	YES		A 22	
			S2-1-C	38				.25	YES		T 22	
A 73	1		S2-1-C	38				.25	YES		A 22	
			S3-4-NO	42				.25	YES		T 22	
A 74	1		S3-5-NO	41				.25	YES		A 22	
			S3-1-C	42				.25	YES		T 22	
A 75	1		S3-7-NO	41				.25	YES		A 22	
			S3-2-C	42				.25	YES		T 22	
A 76	1		S3-8-NO	41				.25	YES		A 22	
			S3-4-C	42				.25	YES		T 22	
A 77	1		S3-8-C	41				.25	YES		A 22	
			S3-5-C	41				.25	YES		T 22	
A 78	1		S6-2-C	26				.25	YES		A 22	
			S3-8-C	41				.25	YES		T 22	
A 79	1		S3-1-NC	42				.25	YES		A 22	
			S3-5-NC	41				.25	YES		T 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 80	1		S3-1-NO S4-1-C	42 34				.25 .25	YES YES		A 22 T 22	
A 81	1		S5-2-NC S5-1-C	36 36				.25 .25	YES YES		A 22 T 22	
A 82	1		S8-5-C S8-6-C	28 28				.25 .25	YES YES		A 22 T 22	
A 83	1		S8-1-C S8-2-C	28 28				.25 .25	YES YES		A 22 T 22	
A 84	1		S8-3-C S8-4-C	28 28				.25 .25	YES YES		A 22 T 22	
A 85	1		S11-NC R1-CW	30 30				.25 .25	YES YES		A 22 T 22	
A 86	1		S11-C R1-CCW	30 30				.25 .25	YES YES		A 22 T 22	
A 87	1		S12-2-C S12-3-C	22 22				.25 .25	YES YES		A 22 T 22	
A 88	1		S12-3-NO DS1-HI	22 40				.25 .25	YES YES		A 22 T 22	
A 89	1		S12-8-C S12-1-C	6 22				.25 .25	YES YES		A 22 T 22	
A 90	1		S12-8-NO S12-1-NO	6 22				.25 .25	YES YES		A 22 T 22	
A 91	1		E31 E33	37 39				.25 .25	YES YES		A 22 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 18 OF 21

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 92	1		E4 E6	3 23				.25 .25	YES YES		A 22 T 22	
A 93	1		E5 E7	3 23				.25 .25	YES YES		A 22 T 22	
A 94	1		E6 E8	23 24				.25 .25	YES YES		A 22 T 22	
A 95	1		E7 E9	23 24				.25 .25	YES YES		A 22 T 22	
A 96	1		E8 E10	24 27				.25 .25	YES YES		A 22 T 22	
A 97	1		E9 E11	24 27				.25 .25	YES YES		A 22 T 22	
A 98	1		E10 E14	27 29				.25 .25	YES YES		A 22 T 22	
A 99	1		E11 E15	27 29				.25 .25	YES YES		A 22 T 22	
A 100	1		E16 E18	29 35				.25 .25	YES YES		A 22 T 22	
A 101	1		E17 E19	29 35				.25 .25	YES YES		A 22 T 22	
A 102	1		E22 E24	35 37				.25 .25	YES YES		A 22 T 22	
A 103	1		E23 E25	35 37				.25 .25	YES YES		A 22 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 19 OF 21

MIL 2084 9-65

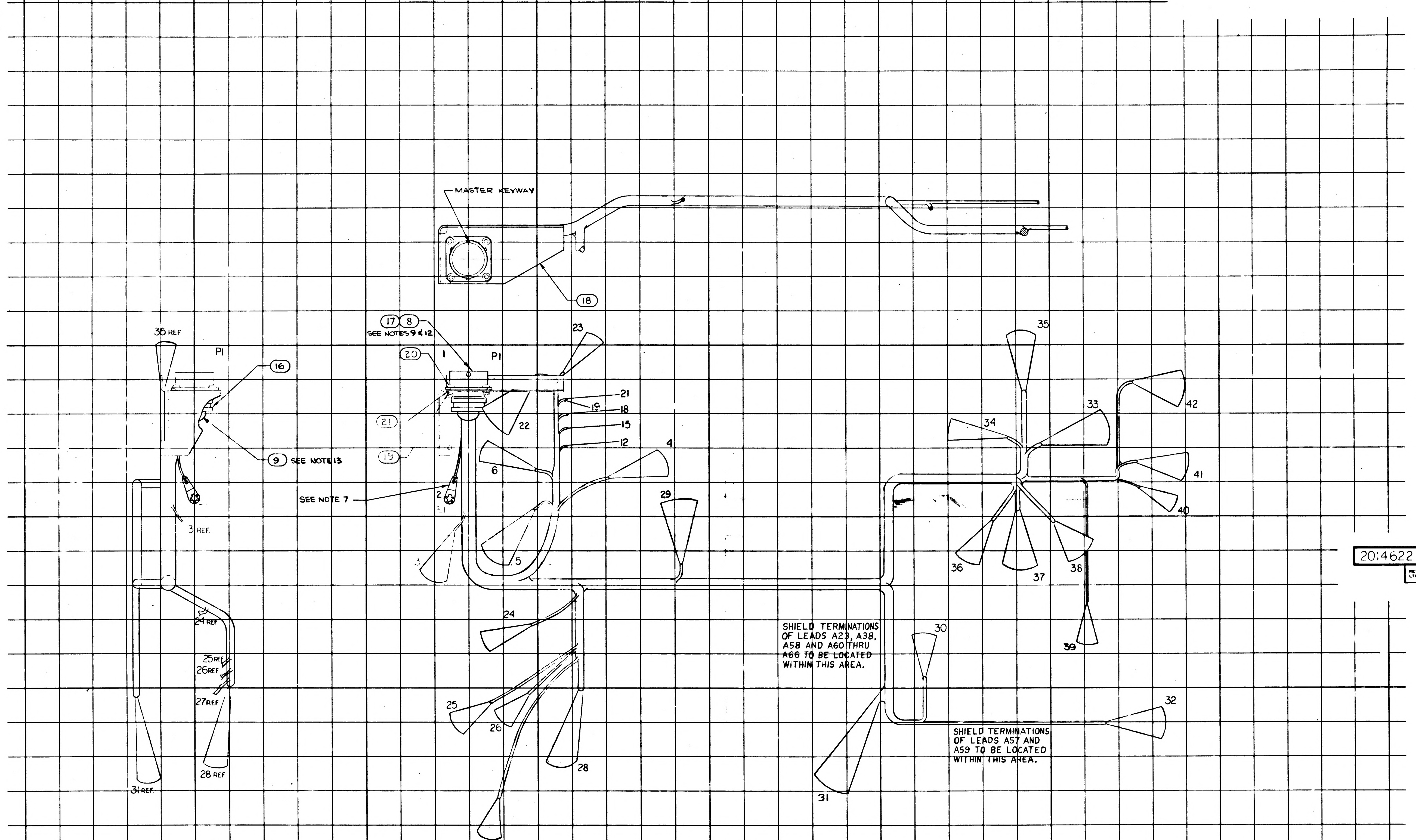
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 104	1		E30 E32	37 39				.25 .25	YES YES		A 22 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 20 OF 21

MIL 2084 9-65

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD


MASTER KEYWAY
18
17
8
SEE NOTES 9 & 12
20
1
P1
23
21
19
18
15
12
4
22
21
19
6
SEE NOTE 7
2
E1
3
5
29
35 REF
P1
16
9 SEE NOTE 13
3 REF.
24 REF
25 REF
26 REF
27 REF
28 REF
31 REF
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32
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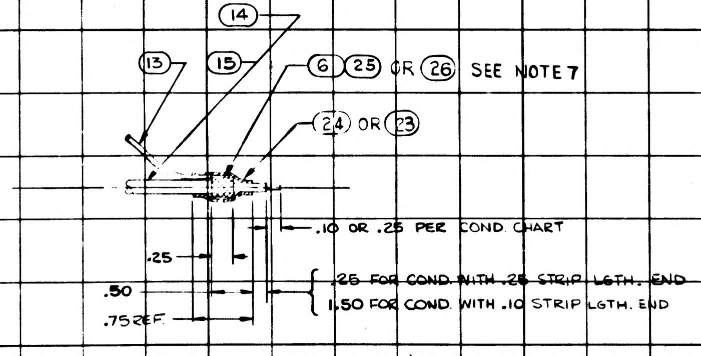
2014622
REV LTR E

SHIELD TERMINATIONS OF LEADS A23, A38, A58 AND A60 THRU A66 TO BE LOCATED WITHIN THIS AREA.

SHIELD TERMINATIONS OF LEADS A57 AND A59 TO BE LOCATED WITHIN THIS AREA.


14
13
15
6
25 OR 26 SEE NOTE 7
24 OR 23
.10 OR .25 PER COND. CHART
.25
.50
.75 REF
.25 FOR COND. WITH .25 STRIP LGTH. END
1.50 FOR COND. WITH .10 STRIP LGTH. END

VIEW A (GROUND WIRE CONN TO SHIELD) REF ONLY

CODE IDENT NO	SIZE	
80230	E	2014622
SCALE 1/1		SHEET

TDRR 22658

APPLICATION	
NEXT ASSY	USED ON
2014578-011	2014623-011

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 23186	15 OCT 1965	
B	REVISED RER TDRR 23832	12 NOV 1965	11/12/65
C	REVISED PER TDRR 24827	4 JAN 1966	WK
D	REVISED PER TDRR 26818	9 MAR 66	R.W.T. W.D.
E	REVISED PER TDRR-26822	16-MAR-66	B.
F	REVISED PER TDRR 27043	18 MAR 66	R.W.T.
G	REVISED PER TDRR 27373	29 MAR 66	JW JAC

(M)

REV																						
SHEET																						
REV STATUS	REV	G	E	E	E	E	E	G	G	F	E	G	G	E	E	E	G	G	G	E	E	E
OF SHEETS	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

AC SPARK PLUG DIVISION , GMC
MILWAUKEE, WISCONSIN

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ACSP PN

DRAWN L. Hood DATE 14 July 65
CHECKED 9-17-65
APPROVAL J C Watson 21 SEP 65
APPROVAL 9/20/65
NASA ~~APPROVAL~~
MIT APPROVAL
CONTRACT

WIRING HARNESS A
G&N INDICATOR CONTROL PANEL

CODE IDENT NO.	SIZE		REV
80230	A	2014622	G
SCALE		SHEET	OF 21

NOTE NUMBER	GENERAL NOTES DESCRIPTION
1	INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2	ASSEMBLE PER ND1002032.
3	GRID MODULE IS 1 INCH BASIC AND IS SHOWN FOR DIMENSIONING PURPOSES.
4	UNLESS OTHERWISE SPECIFIED - FEATURE CENTERLINES AT TRUE POSITION WITHIN + OR - .25 INCH RELATIVE TO GRID. ENDS OF LEADS OR ACCESSORIES AT TRUE POSITION WITHIN + OR - .12 INCH RELATIVE TO GRID. TRUE POSITION DIMENSIONS ARE REGARDLESS OF FEATURE SIZE.
5	IDENTIFY USING DWG. NO. PER ND1002019.
6	LACE HARNESS USING ITEM 4
7	SOLDER PER ND1002071 USING ITEMS 5 AND 6 EXCEPT GROUND WIRE TO SHIELD CONNECTIONS USE ITEMS 6 AND 25 OR 26.
8	Y OR N IN TINNED COLUMN INDICATES YES OR NO.
9	INSTALL CRIMP STYLE TERMINALS IN ACCORDANCE WITH ND1002206.
10	THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER INDICATES CONDUCTOR SHIELDING, COLOR, OR MARKING. A - FROM END SHIELD B - TO END SHIELD K - BLACK R - RED Y - YELLOW G - GREEN

NOTE NUMBER — GENERAL NOTES DESCRIPTION

11 TOLERANCE CHART, UNLESS OTHERWISE SPECIFIED ---

APPLICABLE LENGTH FOR STRIP WIRE, STRIP JACKET, CUT WIRE OR CUT SHIELD.	TOLERANCE STRIP WIRE	STRIP JACKET	CUT WIRE	CUT SHIELD
UNDER 1 INCH	+.03-.00	+.06-.06	+.06-.06	+.06-.06
1 INCH TO 6 INCHES	+.06-.00	+.25-.25	+.25-.25	+.25-.25
6 INCHES TO 6 FEET		+.50-.50	+.50-.50	+.50-.50

12 ASSEMBLE ITEM 17 IN ALL UNUSED GROMMET HOLES OF ITEM 8.

13 ENCAPSULATE THE WIRED SIDE OF ITEM 8, USING ITEM 9 PER ND1002236. LEAD INSULATION SHALL EXTEND INTO THE ENCAPSULATION .18 PLUS OR MINUS .06 INCHES.

14 MARK SLEEVING OF SINGLE CONDUCTORS .08 + .02 HIGH, COLOR BLACK, WITH THE CONDUCTOR NUMBER OMITTING ALL SUFFIX LETTERS EXCEPT A AND B PER ND1002019. WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM FIELD.

15 MARK SLEEVING OF MULTI-CONDUCTORS WITH THE CONDUCTOR NUMBER .12 INCH HIGH, COLOR BLACK, PER ND1002019 WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM NUMBER FIELD.

16 CONDUCTOR IDENTIFICATION SLEEVING SHALL BE STAGGERED AT TERMINATION NO. 1 TO MINIMIZE THE WIRE BUNDLE DIAMETER.

17 A OR T PREFIX IN THE ACCESSORIES ITEM NUMBER COLUMN INDICATES THE READING POSITION AWAY FROM TERMINATION OR TOWARD TERMINATION RESPECTIVELY, OF THE WIRE MARKER SLEEVE.

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	1010789-001	WIRE, 24AWG YEL, 112 FT. TOTAL LENGTH.
	2	1	1010789-003	WIRE, 24AWG YEL, RED, 2 FT. TOTAL LENGTH.
	3	1	1010789-004	WIRE, 24AWG YEL, RED, GRN, 2 FT. TOTAL LENGTH.
	4	AR	1012507-001	LACING TAPE
	5	AR	QQ-S-571 SN60 WRAP2	SOLDER
	6	AR	MIL-F-14256	FLUX
	7	64	1010770-001	CONTACT, ELECTRICAL
	8	1	1010930-104	CONNECTOR, ELECTRICAL
	9	AR	1012503	COMPOUND, POLYURETHANE
	10	1	1010638-006	TERMINAL
	13	1	1010789-002	WIRE, 24AWG BLK, 8 FT. TOTAL LENGTH.
	14	1	1010789-011	WIRE, YEL JKT, 24AWG YEL, 20 FT. TOTAL LENGTH.
	15	1	1010789-012	WIRE, YEL JKT, 24AWG YEL, RED, 7 FT. TOTAL LENGTH
	16	1	1023012-001	ADAPTER, POTTING MOLD.
	17	21	1010958-001	PLUG, SEALING
	18	1	2014707	BRACKET, CONNECTOR
	19	4	1010617- 4	NUT, HEX, SELF LOCKING

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	20	4	NAS1352C04-6	SCREW, SOCKET HD CAP
	21	4	MS15795-803	WASHER, FLAT
	22	159	1012534- 59	INSULATION SLEEVING, HEAT SHRINKABLE
	23	44	1012534- 57	INSULATION SLEEVING, HEAT SHRINKABLE
	24	12	1012534- 56	INSULATION SLEEVING, HEAT SHRINKABLE
	25	AR	QQ-S-571,SN10WS	SOLDER
	26	AR	QQ-S-571,SN10WRAP	SOLDER

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	1	3										A 23 T 23	
A	1G			P1-13 S8-5-NO	1 28				.10 .25	NO YES		7	
A	1R			P1-4 S8-6-NO	1 28				.10 .25	NO YES		7	
A	1Y			P1-12 S8-5-C	1 28				.10 .25	NO YES		7	
A	2	3										A 23 T 23	
A	2G			P1-3 S8-2-NO	1 28				.10 .25	NO YES		7	
A	2R			P1-2 S8-1-NO	1 28				.10 .25	NO YES		7	
A	2Y			P1-10 S8-1-C	1 28				.10 .25	NO YES		7	
A	3	3										A 23 T 23	
A	3G			P1-8 S8-3-C	1 28				.10 .25	NO YES		7	
A	3R			P1-19 S8-4-NO	1 28				.10 .25	NO YES		7	
A	3Y			P1-7 S8-3-NO	1 28				.10 .25	NO YES		7	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 6 OF 21

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	4	1		P1-82 S12-8-NO	1 6				.10 .25	NO YES		A 22, 7 T 22	
A	5	1		P1-59 S12-2-NO	1 22				.10 .25	NO YES		A 22, 7 T 22	
A	6	1		P1-1 SHLD A13	1				.10 .25	NO YES		A 22, 7 T 22	
A	7	1		P1-81 S10-2-NO	1 5				.10 .25	NO YES		A 22, 7 T 22	
A	8	1		P1-20 S6-2-C	1 26				.10 .25	NO YES		A 22, 7 T 22	
A	9	1		S12-2-C S11-NC	22 30				.25 .25	YES YES		A 22 T 22	
A	10	1		A4-8 S12-4-NO	4 22				.25 .25	YES YES		A 22 T 22	
A	11	1		P1-55 S12-4-C	1 22				.10 .25	NO YES		A 22, 7 T 22	
A	12	1		P1-85 A3-2	1 18				.10 .25	NO YES		A 22, 7 T 22	
A	13	14				1.75 .50	1.50					A 23 T 23	
A	13A	13		SHLD A13 SHLD A14					.25 .25	YES YES			
A	13Y			P1-78 S3-4-NO	1 42				.10 .25	NO YES		7	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR G	SHEET 7 OF 21

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	14	14				1.75 .50	1.50					A 23 T 23	
A	14A	13		SHLD A14 SHLD A15					.25 .25	YES YES			
A	14Y			P1-77 S6-2-NC	1 26				.10 .25	NO YES		7	
A	15	15				1.75 .50	1.50					A 24 T 24	
A	15A	13		SHLD A15 SHLD A29					.25 .25	YES YES			
A	15R			P1-51 S5-1-NO	1 36				.10 .25	NO YES		7	
A	15Y			P1-30 S5-1-NC	1 36				.10 .25	NO YES		7	
A	16	1		P1-33 S10-1-NO	1 5				.10 .25	NO YES		A 22, 7 T 22	
A	17	1		A4-9 A4-6	4 4				.25 .25	YES YES		A 22 T 22	
A	18	1		P1-47 S3-7-NO	1 41				.10 .25	NO YES		A 22, 7 T 22	
A	19	1		P1-80 A4-5	1 4				.10 .25	NO YES		A 22, 7 T 22	
A	20	2										A 23 T 23	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR G	SHEET 8 OF 21

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	20R			P1-43 A1-1	1 32				.10 .25	NO YES		7	
A	20Y			P1-23 A1-2	1 32				.10 .25	NO YES		7	
A	21	14				1.75 .50	1.50					A 23 T 23	
A	21A	13		SHLD A21 SHLD A58					.25 .25	YES YES			
A	21Y			P1-62 S1-2-C	1 33				.10 .25	NO YES		7	
A	22	14				1.75 .50	1.50					A 23 T 23	
A	22A	13		SHLD A22 SHLD A60					.25 .25	YES YES			
A	22Y			P1-64 S1-3-C	1 33				.10 .25	NO YES		7	
A	23	15				1.75 .50	1.50					A 24 T 24	
A	23A	13		SHLD A23 SHLD A38					.25 .25	YES YES			
A	23R			P1-39 T1-2	1 31				.10 .25	NO YES		7	
A	23Y			P1-21 T1-1	1 31				.10 .25	NO YES		7	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR F	SHEET 9 OF 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24	1		P1-34 S12-3-C	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 25	1		P1-84 A3-4	1 15				.10 .25	NO YES		A 22, 7 T 22	
A 26	1		P1-79 A4-9	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 27	1		P1-54 A4-7	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 28	1		P1-50 S2-2-NC	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 29	14				1.75 .50	1.50					A 23 T 23	
A 29A	13		SHLD A29 SHLD A32					.25 .25	YES YES			
A 29Y			P1-76 S5-2-C	1 36				.10 .25	NO YES		7	
A 30	1		P1-49 S2-2-NO	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 31	1		P1-29 S5-2-NO	1 36				.10 .25	NO YES		A 22, 7 T 22	
A 32	14				1.75 .50	1.50					A 23 T 23	
A 32A	13		SHLD A32 SHLD A46					.25 .25	YES YES			

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 32Y			P1-52 S4-1-NC	1 34				.10 .25	NO YES		7	
A 33	1		P1-56 S10-2-C	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 34	1		P1-71 S3-2-NO	1 42				.10 .25	NO YES		A 22, 7 T 22	
A 35	1		P1-70 S7-2-NO	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 36	1		P1-46 S7-2-NC	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 37	1		P1-36 A3-8	1 21				.10 .25	NO YES		A 22 T 22	
A 38	15				1.75 .50	1.50					A 24 T 24	
A 38A	13		SHLD A38 SHLD A59					.25 .25	YES YES		A 22 T 22	
A 38R			P1-65 T1-3	1 31				.10 .25	NO YES		7	
A 38Y			P1-40 T1-4	1 31				.10 .25	NO YES		7	
A 39	1		P1-58 R1-CCW	1 30				.10 .25	NO YES		A 22, 7 T 22	
A 40	1		P1-35 R1-WIPER	1 30				.10 .25	NO YES		A 22, 7 T 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 41	1		P1-60 A3-6	1 12				.10 .25	NO YES		A 22, 7 T 22	
A 42	1		P1-44 S12-3-NO	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 43	1		P1-24 DS1-LO	1 40				.10 .25	NO YES		A 22, 7 T 22	
A 44	1		P1-68 E2	1 3				.10 .25	NO YES		A 22, 7 T 22	
A 45	1		P1-67 E3	1 3				.10 .25	NO YES		A 22, 7 T 22	
A 46	14				1.75 .50	1.50					A 23 T 23	
A 46A	13		SHLD A46 SHLD A47					.25 .25	YES YES			
A 46Y			P1-53 S3-8-NO	1 41				.10 .25	NO YES		7	
A 47	14				1.75 .50	1.50					A 23 T 23	
A 47A	13		SHLD A47 E1	 2				.25 .25	YES YES		 T 22, 10	
A 47Y			P1-75 S3-1-NO	1 42				.10 .25	NO YES		7	
A 48	1		P1-74 S2-1-NO	1 38				.10 .25	NO YES		A 22, 7 T 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 49	1		S12-8-C A3-1	6 19				.25 .25	YES YES		A 22 T 22	
A 50	1		P1-31 S4-1-NO	1 34				.10 .25	NO YES		A 22, 7 T 22	
A 51	1		P1-32 S10-1-C	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 52	1		P1-72 S2-3-C	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 53	1		P1-48 S7-2-C	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 54	15				1.75 .50	1.50					A 24 T 24	
A 54A	13		SHLD A54 P1-42	 1				.25 .10	YES NO		 T 22, 7	
A 54R			P1-66 S7-1-NC	1 25				.10 .25	NO YES		7	
A 54Y			P1-41 S7-1-C	1 25				.10 .25	NO YES		7	
A 55	1		A1-2 A1-8	32 32				.25 .25	YES YES		A 22 T 22	
A 56	1		A1-1 A1-7	32 32				.25 .25	YES YES		A 22 T 22	
A 57	15				.75 .50	.50					A 24 T 24	

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	57A	13		SHLD A57 SHLD A61					.25 .25	YES YES			
A	57R			T1-1 A1-4	31 32				.25 .25	YES YES			
A	57Y			T1-2 A1-3	31 32				.25 .25	YES YES			
A	58	14				.50 .50						A 23 T 23	
A	58A	13		SHLD A58 SHLD A22					.25 .25	YES YES			
A	58Y			P1-38 T1-8	1 31				.10 .25	NO YES		7	
A	59	15				.75 .50	.50					A 24 T 24	
A	59A	13		SHLD A59 SHLD A57					.25 .25	YES YES			
A	59R			T1-3 A1-5	31 32				.25 .25	YES YES			
A	59Y			T1-4 A1-6	31 32				.25 .25	YES YES			
A	60	14				1.75 .50	1.50					A 23 T 23	
A	60A	13		SHLD A60 SHLD A23					.25 .25	YES YES			

SIZE A | CODE IDENT NO. 80230 | 2014622
SCALE-NONE | REV LTR E | SHEET 14 OF 21

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	60Y			P1-63 T1-12	1 31				.10 .25	NO YES		7	
A	61	14				.50 .50						A 23 T 23	
A	61A	13		SHLD A61 SHLD A62					.25 .25	YES YES			
A	61Y			T1-5 S1-2-NO	31 33				.25 .25	YES YES			
A	62	14				.50 .50						A 23 T 23	
A	62A	13		SHLD A62 SHLD A63					.25 .25	YES YES			
A	62Y			T1-6 S1-1-NC	31 33				.25 .25	YES YES			
A	63	14				.50 .50						A 23 T 23	
A	63A	13		SHLD A63 SHLD A64					.25 .25	YES YES			
A	63Y			T1-7 S1-1-NO	31 33				.25 .25	YES YES			
A	64	14				.50 .50						A 23 T 23	
A	64A	13		SHLD A64 SHLD A65					.25 .25	YES YES			

SIZE A | CODE IDENT NO. 80230 | 2014622
SCALE-NONE | REV LTR E | SHEET 15 OF 21

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	64Y			T1-9 S1-3-NO	31 33				.25 .25	YES YES			
A	65	14				.50 .50						A 23 T 23	
A	65A	13		SHLD A65 SHLD A66					.25 .25	YES YES			
A	65Y			T1-10 S1-4-NC	31 33				.25 .25	YES YES			
A	66	14				.50 .50						A 23 T 23	
A	66A	13		SHLD A66 SHLD A67					.25 .25	YES YES		A 22 T 22	
A	66Y			T1-11 S1-4-NO	31 33				.25 .25	YES YES			
A	67	14				.50 .50						A 23 T 23	
A	67A	13		SHLD A67 SHLD A68					.25 .25	YES YES			
A	67Y			S1-3-NC S1-4-C	33 33				.25 .25	YES YES			
A	68	14				.50 .50						A 23 T 23	
A	68A	13		SHLD A68 S3-1-C	 42				.25 .25	YES YES		 T 22	

SIZE A | CODE IDENT NO. 80230 | 2014622
SCALE-NONE | REV LTR G | SHEET 16 OF 21

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	68Y			S1-2-NC S1-1-C	33 33				.25 .25	YES YES			
A	69	1		S2-1-NC S2-2-C	38 38				.25 .25	YES YES		A 22 T 22	
A	70	1		S2-3-NO S3-2-C	38 42				.25 .25	YES YES		A 22 T 22	
A	71	1		S7-2-C S3-2-C	25 42				.25 .25	YES YES		A 22 T 22	
A	72	1		S5-2-C S2-1-C	36 38				.25 .25	YES YES		A 22 T 22	
A	73	1		S2-1-C S3-8-NC	38 41				.25 .25	YES YES		A 22 T 22	
A	74	1		S3-5-C S3-1-NC	41 42				.25 .25	YES YES		A 22 T 22	
A	75	1		S3-7-C S3-2-NC	41 42				.25 .25	YES YES		A 22 T 22	
A	76	1		S3-8-C S3-4-NC	41 42				.25 .25	YES YES		A 22 T 22	
A	77	1		S3-4-C S3-1-C	42 42				.25 .25	YES YES		A 22 T 22	
A	78	1		S6-2-C S3-4-C	26 42				.25 .25	YES YES		A 22 T 22	
A	79	1		S3-1-NO S3-5-NO	42 41				.25 .25	YES YES		A 22 T 22	

SIZE A | CODE IDENT NO. 80230 | 2014622
SCALE-NONE | REV LTR G | SHEET 17 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 80	1		S3-5-NC S4-1-C	41 34				.25 .25	YES YES		A 22 T 22	
A 81	1		S5-2-NC S5-1-C	36 36				.25 .25	YES YES		A 22 T 22	
A 82	1		S8-5-C S8-6-C	28 28				.25 .25	YES YES		A 22 T 22	
A 83	1		S8-1-C S8-2-C	28 28				.25 .25	YES YES		A 22 T 22	
A 84	1		S8-3-C S8-4-C	28 28				.25 .25	YES YES		A 22 T 22	
A 85	1		S11-NC R1-CW	30 30				.25 .25	YES YES		A 22 T 22	
A 86	1		S11-C R1-CCW	30 30				.25 .25	YES YES		A 22 T 22	
A 87	1		S12-2-C S12-3-C	22 22				.25 .25	YES YES		A 22 T 22	
A 88	1		S12-3-NO DS1-HI	22 40				.25 .25	YES YES		A 22 T 22	
A 89	1		S12-8-C S12-1-C	6 22				.25 .25	YES YES		A 22 T 22	
A 90	1		S12-8-NO S12-1-NO	6 22				.25 .25	YES YES		A 22 T 22	
A 91	1		E31 E33	37 39				.25 .25	YES YES		A 22 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR G	SHEET 18 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 92	1		E4 E6	3 23				.25 .25	YES YES		A 22 T 22	
A 93	1		E5 E7	3 23				.25 .25	YES YES		A 22 T 22	
A 94	1		E6 E8	23 24				.25 .25	YES YES		A 22 T 22	
A 95	1		E7 E9	23 24				.25 .25	YES YES		A 22 T 22	
A 96	1		E8 E10	24 27				.25 .25	YES YES		A 22 T 22	
A 97	1		E9 E11	24 27				.25 .25	YES YES		A 22 T 22	
A 98	1		E10 E14	27 29				.25 .25	YES YES		A 22 T 22	
A 99	1		E11 E15	27 29				.25 .25	YES YES		A 22 T 22	
A 100	1		E16 E18	29 35				.25 .25	YES YES		A 22 T 22	
A 101	1		E17 E19	29 35				.25 .25	YES YES		A 22 T 22	
A 102	1		E22 E24	35 37				.25 .25	YES YES		A 22 T 22	
A 103	1		E23 E25	35 37				.25 .25	YES YES		A 22 T 22	

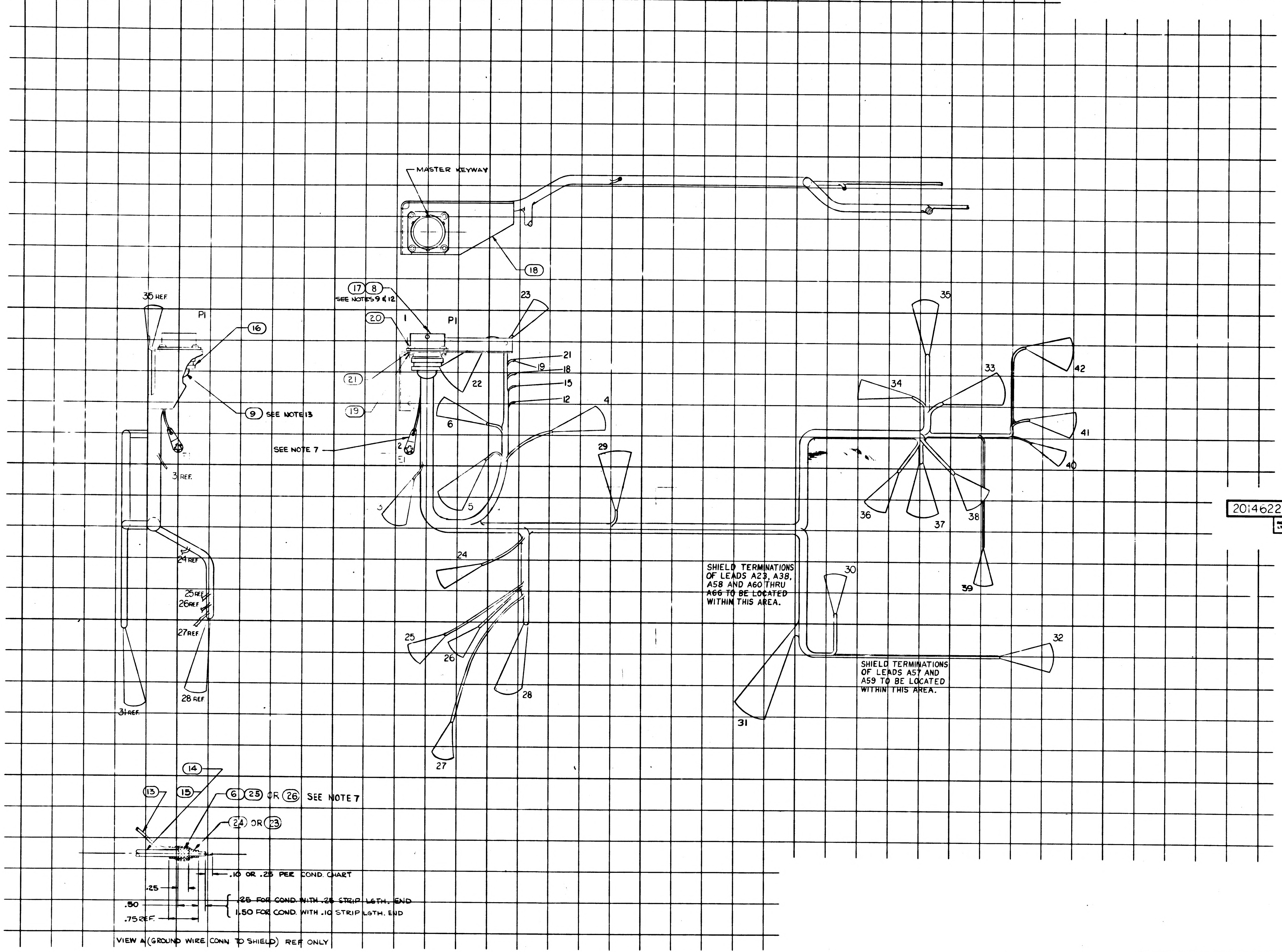
SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 19 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 104	1		E30 E32	37 39				.25 .25	YES YES		A 22 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 20 OF 21

SYM	ZONE	DESCRIPTION	DATE	APPD
		REVISIONS JDRR 22355		
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD


MASTER KEYWAY
18
17 8
SEE NOTES 9 & 12
20
1
P1
23
21
19
18
15
12
4
21
22
19
6
SEE NOTE 7
2
E1
3
5
29
35 REF.
P1
16
9 SEE NOTE 13
3 REF.
24 REF
25 REF
26 REF
27 REF
28 REF
31 REF.
24
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26
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28
35
34
33
42
41
40
36
37
38
39
30
31
32
14
13
15
6 25 OR 26 SEE NOTE 7
24 OR 23
.10 OR .25 PER COND. CHART
.25
.50
.75 REF.
.25 FOR COND. WITH .25 STRIP LGTH. END
1.50 FOR COND. WITH .10 STRIP LGTH. END

SHIELD TERMINATIONS OF LEADS A23, A38, A58 AND A60 THRU A66 TO BE LOCATED WITHIN THIS AREA.

SHIELD TERMINATIONS OF LEADS A57 AND A59 TO BE LOCATED WITHIN THIS AREA.

VIEW A (GROUND WIRE CONN TO SHIELD) REF ONLY

2014622

REV LTR E

CODE IDENT NO.	SIZE	
80230	E	2014622
SCALE 1/1		SHEET 21 of 21

MX-10981

TDRR 22658

APPLICATION	
NEXT ASSY	USED ON
2014578-011	2014623-011

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 23186	15 OCT 1965	10-15
B	REVISED RER TDRR 23832	12 NOV 1965	11/12/65
C	REVISED PER TDRR 24827	4 JAN 1966	WK
D	REVISED PER TDRR 26818	9 MAR 66	R.W.T. W.D.
E	REVISED PER TDRR-26822	16-MAR-66	B.
F	REVISED PER TDRR 27043	18 MAR 66	R.W.T.
G	REVISED PER TDRR 27373	29 MAR 66	JW JAC
H	REVISED PER TDRR 28857	23 MAY 66	JIMP

REV																						
SHEET																						
REV STATUS	REV	H	E	E	H	H	E	H	H	H	H	H	H	H	H	H	H	G	G	E	E	H
OF SHEETS	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

ACSP PN

DRAWN L. Hood DATE 14 July 65
CHECKED 9-17-65
APPROVAL J C Watson 21SEP65
APPROVAL 9/20/65

NASA APPROVAL
MIT APPROVAL

CONTRACT

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS A
G&N INDICATOR CONTROL PANEL

CODE IDENT NO.	SIZE		REV
80230	A	2014622	H

SCALE SHEET OF 21

NOTE GENERAL NOTES

NUMBER DESCRIPTION

1 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

2 ASSEMBLE PER ND1002032.

3 GRID MODULE IS 1 INCH BASIC AND IS SHOWN FOR DIMENSIONING PURPOSES.

4 UNLESS OTHERWISE SPECIFIED - FEATURE CENTERLINES AT TRUE POSITION WITHIN + OR - .25 INCH RELATIVE TO GRID. ENDS OF LEADS OR ACCESSORIES AT TRUE POSITION WITHIN + OR - .12 INCH RELATIVE TO GRID. TRUE POSITION DIMENSIONS ARE REGARDLESS OF FEATURE SIZE.

5 IDENTIFY USING DWG. NO. PER ND1002019.

6 LACE HARNESS USING ITEM 4

7 SOLDER PER ND1002071 USING ITEMS 5 AND 6 EXCEPT GROUND WIRE TO SHIELD CONNECTIONS USE ITEMS 6 AND 25 OR 26.

8 Y OR N IN TINNED COLUMN INDICATES YES OR NO.

9 INSTALL CRIMP STYLE TERMINALS IN ACCORDANCE WITH ND1002206.

10 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER INDICATES CONDUCTOR SHIELDING, COLOR, OR MARKING.

A - FROM END SHIELD
B - TO END SHIELD
K - BLACK
R - RED
Y - YELLOW
G - GREEN

SIZE	CODE IDENT NO.		
A	80230	2014622	
SCALE-NONE	REV LTR	E	SHEET 2 OF 21

NOTE GENERAL NOTES

NUMBER DESCRIPTION

11 TOLERANCE CHART, UNLESS OTHERWISE SPECIFIED ---

APPLICABLE LENGTH FOR STRIP WIRE, STRIP JACKET, CUT WIRE OR CUT SHIELD.	TOLERANCE STRIP WIRE	STRIP JACKET	CUT WIRE	CUT SHIELD
UNDER 1 INCH	+.03-.00	+.06-.06	+.06-.06	+.06-.06
1 INCH TO 6 INCHES	+.06-.00	+.25-.25	+.25-.25	+.25-.25
6 INCHES TO 6 FEET		+.50-.50	+.50-.50	+.50-.50

12 ASSEMBLE ITEM 17 IN ALL UNUSED GROMMET HOLES OF ITEM 8.

13 ENCAPSULATE THE WIRED SIDE OF ITEM 8, USING ITEM 9 PER ND1002236. LEAD INSULATION SHALL EXTEND INTO THE ENCAPSULATION .18 PLUS OR MINUS .06 INCHES.

14 MARK SLEEVING OF SINGLE CONDUCTORS .08 + .02 HIGH, COLOR BLACK, WITH THE CONDUCTOR NUMBER OMITTING ALL SUFFIX LETTERS EXCEPT A AND B PER ND1002019. WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM FIELD.

15 MARK SLEEVING OF MULTI-CONDUCTORS WITH THE CONDUCTOR NUMBER .12 INCH HIGH, COLOR BLACK, PER ND1002019 WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM NUMBER FIELD.

16 CONDUCTOR IDENTIFICATION SLEEVING SHALL BE STAGGERED AT TERMINATION NO. 1 TO MINIMIZE THE WIRE BUNDLE DIAMETER.

17 A OR T PREFIX IN THE ACCESSORIES ITEM NUMBER COLUMN INDICATES THE READING POSITION AWAY FROM TERMINATION OR TOWARD TERMINATION RESPECTIVELY, OF THE WIRE MARKER SLEEVE.

SIZE	CODE IDENT NO.		
A	80230	2014622	
SCALE-NONE	REV LTR	E	SHEET 3 OF 21

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014622-001	WIRE, 1010789-001 24AWG YEL. 112 FT. TOT LGTH.
	2	1	2014622-002	WIRE, 1010789-003 24AWG YEL, RED, 2 FT. TOT LG
	3	1	2014622-003	WIRE, 1010789-004 24AWG YEL, RED, GRN, 2 FT. TOTAL LENGTH.
	4	AR	1012507-001	LACING TAPE
	5	AR	QQ-S-571 SN60 WRAP2	SOLDER
	6	AR	MIL-F-14256	FLUX
	7	64	1010770-001	CONTACT, ELECTRICAL
	8	1	1010930-104	CONNECTOR, ELECTRICAL
	9	AR	1012503	COMPOUND, POLYURETHANE
	10	1	1010638-006	TERMINAL
	13	1	2014622-013	WIRE, 1010789-002 24AWG BLK, 8FT. TOTAL LENGTH
	14	1	2014622-014	WIRE, 1010789-011 YEL JKT, 24AWG YEL, 20 FT. TOTAL LENGTH
	15	1	2014622-015	WIRE, 1010789-012 YEL JKT, 24AWG YEL, RED, 7 FT TOTAL LENGTH
	16	1	1023012-001	ADAPTER, POTTING MOLD.
	17	21	1010958-001	PLUG, SEALING
	18	1	2014707	BRACKET, CONNECTOR

SIZE	CODE IDENT NO.		
A	80230	2014622	
SCALE-NONE	REV LTR	H	SHEET 4 OF 21

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	19	4	1010617- 4	NUT, HEX, SELF LOCKING
	20	4	NAS1352C04-6	SCREW, SOCKET HD CAP
	21	4	MS15795-803	WASHER, FLAT
	22	159	1012534- 59	INSULATION SLEEVING, HEAT SHRINKABLE
	23	44	1012534- 57	INSULATION SLEEVING, HEAT SHRINKABLE
	24	12	1012534- 56	INSULATION SLEEVING, HEAT SHRINKABLE
	25	AR	QQ-S-571,SN10WS	SOLDER
	26	AR	QQ-S-571,SN10WRAP	SOLDER

SIZE	CODE IDENT NO.		
A	80230	2014622	
SCALE-NONE	REV LTR	H	SHEET 5 OF 21

2014622 REV F▼ 2014622 F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 1	3										A 23 T 23	
A 1G			P1-13 S8-5-NO	1 28				.10 .25	NO YES		7	
A 1R			P1-4 S8-6-NO	1 28				.10 .25	NO YES		7	
A 1Y			P1-12 S8-5-C	1 28				.10 .25	NO YES		7	
A 2	3										A 23 T 23	
A 2G			P1-3 S8-2-NO	1 28				.10 .25	NO YES		7	
A 2R			P1-2 S8-1-NO	1 28				.10 .25	NO YES		7	
A 2Y			P1-10 S8-1-C	1 28				.10 .25	NO YES		7	
A 3	3										A 23 T 23	
A 3G			P1-8 S8-3-C	1 28				.10 .25	NO YES		7	
A 3R			P1-19 S8-4-NO	1 28				.10 .25	NO YES		7	
A 3Y			P1-7 S8-3-NO	1 28				.10 .25	NO YES		7	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 6 OF 21

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2014622 REV E▼ 2014622 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 4	1		P1-82 S12-8-NO	1 6				.10 .25	NO YES		A 22, 7 T 22	
A 5	1		P1-59 S12-2-NO	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 6	1		P1-1 SHLD A13	1				.10 .25	NO YES		A 22, 7 T 22	
A 7	1		P1-81 S10-2-NO	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 8	1		P1-20 S6-2-C	1 26				.10 .25	NO YES		A 22, 7 T 22	
A 9	1		S12-2-C S11-NC	22 30				.25 .25	YES YES		A 22 T 22	
A 10	1		A4-8 S12-4-NO	4 22				.25 .25	YES YES		A 22 T 22	
A 11	1		P1-55 S12-4-C	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 12	1		P1-85 A3-2	1 18				.10 .25	NO YES		A 22, 7 T 22	
A 13	14				1.75 2.50	1.50 1.75					A 23 T 23	
A 13A	13		SHLD A13 SHLD A14					.25 .25	YES YES			
A 13Y			P1-78 S3-4-NO	1 42				.10 .25	NO YES		7	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 7 OF 21

MIL 2084 9-65

2014622 REV E▼ 2014622 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 14	14				1.75 2.25	1.50 2.00					A 23 T 23	
A 14A	13		SHLD A14 SHLD A15					.25 .25	YES YES			
A 14Y			P1-77 S6-2-NC	1 26				.10 .25	NO YES		7	
A 15	15				1.75 3.25	1.50 3.00					A 24 T 24	
A 15A	13		SHLD A15 SHLD A29					.25 .25	YES YES			
A 15R			P1-51 S5-1-NO	1 36				.10 .25	NO YES		7	
A 15Y			P1-30 S5-1-NC	1 36				.10 .25	NO YES		7	
A 16	1		P1-33 S10-1-NO	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 17	1		A4-9 A4-6	4 4				.25 .25	YES YES		A 22 T 22	
A 18	1		P1-47 S3-7-NO	1 41				.10 .25	NO YES		A 22, 7 T 22	
A 19	1		P1-80 A4-5	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 20	2										A 23 T 23	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 8 OF 21

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2014622 REV E▼ 2014622 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 20R			P1-43 A1-1	1 32				.10 .25	NO YES		7	
A 20Y			P1-23 A1-2	1 32				.10 .25	NO YES		7	
A 21	14				1.75 3.00	1.50 2.75					A 23 T 23	
A 21A	13		SHLD A21 SHLD A58					.25 .25	YES YES			
A 21Y			P1-62 S1-2-C	1 33				.10 .25	NO YES		7	
A 22	14				1.75 3.00	1.50 2.75					A 23 T 23	
A 22A	13		SHLD A22 SHLD A60					.25 .25	YES YES			
A 22Y			P1-64 S1-3-C	1 33				.10 .25	NO YES		7	
A 23	15				1.75 2.50	1.50 2.25					A 24 T 24	
A 23A	13		SHLD A23 SHLD A38					.25 .25	YES YES			
A 23R			P1-39 T1-2	1 31				.10 .25	NO YES		7	
A 23Y			P1-21 T1-1	1 31				.10 .25	NO YES		7	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 9 OF 21

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24	1		P1-34 S12-3-C	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 25	1		P1-84 A3-4	1 15				.10 .25	NO YES		A 22, 7 T 22	
A 26	1		P1-79 A4-9	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 27	1		P1-54 A4-7	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 28	1		P1-50 S2-2-NC	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 29	14				1.75 3.25	1.50 3.00					A 23 T 23	
A 29A	13		SHLD A29 SHLD A32					.25 .25	YES YES			
A 29Y			P1-76 S5-2-C	1 36				.10 .25	NO YES		7	
A 30	1		P1-49 S2-2-NO	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 31	1		P1-29 S5-2-NO	1 36				.10 .25	NO YES		A 22, 7 T 22	
A 32	14				1.75 2.50	1.50 2.25					A 23 T 23	
A 32A	13		SHLD A32 SHLD A46					.25 .25	YES YES			

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 10 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 32Y			P1-52 S4-1-NC	1 34				.10 .25	NO YES		7	
A 33	1		P1-56 S10-2-C	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 34	1		P1-71 S3-2-NO	1 42				.10 .25	NO YES		A 22, 7 T 22	
A 35	1		P1-70 S7-2-NO	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 36	1		P1-46 S7-2-NC	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 37	1		P1-36 A3-8	1 21				.10 .25	NO YES		A 22 T 22	
A 38	15				1.75 2.50	1.50 2.25					A 24 T 24	
A 38A	13		SHLD A38 SHLD A59					.25 .25	YES YES		A 22 T 22	
A 38R			P1-65 T1-3	1 31				.10 .25	NO YES		7	
A 38Y			P1-40 T1-4	1 31				.10 .25	NO YES		7	
A 39	1		P1-58 R1-CCW	1 30				.10 .25	NO YES		A 22, 7 T 22	
A 40	1		P1-35 R1-WIPER	1 30				.10 .25	NO YES		A 22, 7 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 11 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 41	1		P1-60 A3-6	1 12				.10 .25	NO YES		A 22, 7 T 22	
A 42	1		P1-44 S12-3-NO	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 43	1		P1-24 DS1-LO	1 40				.10 .25	NO YES		A 22, 7 T 22	
A 44	1		P1-68 E2	1 3				.10 .25	NO YES		A 22, 7 T 22	
A 45	1		P1-67 E3	1 3				.10 .25	NO YES		A 22, 7 T 22	
A 46	14				1.75 2.00	1.50 1.75					A 23 T 23	
A 46A	13		SHLD A46 SHLD A47					.25 .25	YES YES			
A 46Y			P1-53 S3-8-NO	1 41				.10 .25	NO YES		7	
A 47	14				1.75 2.50	1.50 2.25					A 23 T 23	
A 47A	13		SHLD A47 E1	 2				.25 .25	YES YES		T 22, 10	
A 47Y			P1-75 S3-1-NO	1 42				.10 .25	NO YES		7	
A 48	1		P1-74 S2-1-NO	1 38				.10 .25	NO YES		A 22, 7 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 12 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 49	1		S12-8-C A3-1	6 19				.25 .25	YES YES		A 22 T 22	
A 50	1		P1-31 S4-1-NO	1 34				.10 .25	NO YES		A 22, 7 T 22	
A 51	1		P1-32 S10-1-C	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 52	1		P1-72 S2-3-C	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 53	1		P1-48 S7-2-C	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 54	15				1.75 3.00	1.50 2.75					A 24 T 24	
A 54A	13		SHLD A54 P1-42	 1				.25 .10	YES NO		T 22, 7	
A 54R			P1-66 S7-1-NC	1 25				.10 .25	NO YES		7	
A 54Y			P1-41 S7-1-C	1 25				.10 .25	NO YES		7	
A 55	1		A1-2 A1-8	32 32				.25 .25	YES YES		A 22 T 22	
A 56	1		A1-1 A1-7	32 32				.25 .25	YES YES		A 22 T 22	
A 57	15				4.00 2.00	3.75 1.75					A 24 T 24	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 13 OF 21

2014622 REV F▼ 2014622 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 57A	13		SHLD A57 SHLD A61					.25 .25	YES YES			
A 57R			T1-1 A1-4	31 32				.25 .25	YES YES			
A 57Y			T1-2 A1-3	31 32				.25 .25	YES YES			
A 58	14				1.75 2.50	1.50 2.25					A 23 T 23	
A 58A	13		SHLD A58 SHLD A22					.25 .25	YES YES			
A 58Y			P1-38 T1-8	1 31				.10 .25	NO YES		7	
A 59	15				4.00 2.00	3.75 1.75					A 24 T 24	
A 59A	13		SHLD A59 SHLD A57					.25 .25	YES YES			
A 59R			T1-3 A1-5	31 32				.25 .25	YES YES			
A 59Y			T1-4 A1-6	31 32				.25 .25	YES YES			
A 60	14				1.75 2.50	1.50 2.25					A 23 T 23	
A 60A	13		SHLD A60 SHLD A23					.25 .25	YES YES			

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 14 OF 21

MIL 2084 9-65

2014622 REV F▼ 2014622 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 60Y			P1-63 T1-12	1 31				.10 .25	NO YES		7	
A 61	14				2.50 3.00	2.25 2.75					A 23 T 23	
A 61A	13		SHLD A61 SHLD A62					.25 .25	YES YES			
A 61Y			T1-5 S1-2-NO	31 33				.25 .25	YES YES			
A 62	14				2.50 3.00	2.25 2.75					A 23 T 23	
A 62A	13		SHLD A62 SHLD A63					.25 .25	YES YES			
A 62Y			T1-6 S1-1-NC	31 33				.25 .25	YES YES			
A 63	14				2.50 3.00	2.25 2.75					A 23 T 23	
A 63A	13		SHLD A63 SHLD A64					.25 .25	YES YES			
A 63Y			T1-7 S1-1-NO	31 33				.25 .25	YES YES			
A 64	14				2.50 3.00	2.25 2.75					A 23 T 23	
A 64A	13		SHLD A64 SHLD A65					.25 .25	YES YES			

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 15 OF 21

MIL 2084 9-65

2014622 REV E▼ 2014622 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 64Y			T1-9 S1-3-NO	31 33				.25 .25	YES YES			
A 65	14				2.50 3.00	2.25 2.75					A 23 T 23	
A 65A	13		SHLD A65 SHLD A66					.25 .25	YES YES			
A 65Y			T1-10 S1-4-NC	31 33				.25 .25	YES YES			
A 66	14				2.50 3.00	2.25 2.75					A 23 T 23	
A 66A	13		SHLD A66 SHLD A67					.25 .25	YES YES		A 22 T 22	
A 66Y			T1-11 S1-4-NO	31 33				.25 .25	YES YES			
A 67	14				3.00 3.00	2.75 2.75					A 23 T 23	
A 67A	13		SHLD A67 SHLD A68					.25 .25	YES YES			
A 67Y			S1-3-NC S1-4-C	33 33				.25 .25	YES YES			
A 68	14				3.00 3.00	2.75 2.75					A 23 T 23	
A 68A	13		SHLD A68 S3-1-C	 42				.25 .25	YES YES		 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 16 OF 21

MIL 2084 9-65

2014622 REV E▼ 2014622 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 68Y			S1-2-NC S1-1-C	33 33				.25 .25	YES YES			
A 69	1		S2-1-NC S2-2-C	38 38				.25 .25	YES YES		A 22 T 22	
A 70	1		S2-3-NO S3-2-C	38 42				.25 .25	YES YES		A 22 T 22	
A 71	1		S7-2-C S3-2-C	25 42				.25 .25	YES YES		A 22 T 22	
A 72	1		S5-2-C S2-1-C	36 38				.25 .25	YES YES		A 22 T 22	
A 73	1		S2-1-C S3-8-NC	38 41				.25 .25	YES YES		A 22 T 22	
A 74	1		S3-5-C S3-1-NC	41 42				.25 .25	YES YES		A 22 T 22	
A 75	1		S3-7-C S3-2-NC	41 42				.25 .25	YES YES		A 22 T 22	
A 76	1		S3-8-C S3-4-NC	41 42				.25 .25	YES YES		A 22 T 22	
A 77	1		S3-4-C S3-1-C	42 42				.25 .25	YES YES		A 22 T 22	
A 78	1		S6-2-C S3-4-C	26 42				.25 .25	YES YES		A 22 T 22	
A 79	1		S3-1-NO S3-5-NO	42 41				.25 .25	YES YES		A 22 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR G	SHEET 17 OF 21

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 80	1		S3-5-NC	41				.25	YES		A 22	
			S4-1-C	34				.25	YES		T 22	
A 81	1		S5-2-NC	36				.25	YES		A 22	
			S5-1-C	36				.25	YES		T 22	
A 82	1		S8-5-C	28				.25	YES		A 22	
			S8-6-C	28				.25	YES		T 22	
A 83	1		S8-1-C	28				.25	YES		A 22	
			S8-2-C	28				.25	YES		T 22	
A 84	1		S8-3-C	28				.25	YES		A 22	
			S8-4-C	28				.25	YES		T 22	
A 85	1		S11-NC	30				.25	YES		A 22	
			R1-CW	30				.25	YES		T 22	
A 86	1		S11-C	30				.25	YES		A 22	
			R1-CCW	30				.25	YES		T 22	
A 87	1		S12-2-C	22				.25	YES		A 22	
			S12-3-C	22				.25	YES		T 22	
A 88	1		S12-3-NO	22				.25	YES		A 22	
			DS1-HI	40				.25	YES		T 22	
A 89	1		S12-8-C	6				.25	YES		A 22	
			S12-1-C	22				.25	YES		T 22	
A 90	1		S12-8-NO	6				.25	YES		A 22	
			S12-1-NO	22				.25	YES		T 22	
A 91	1		E31	37				.25	YES		A 22	
			E33	39				.25	YES		T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR G	SHEET 18 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 92	1		E4	3				.25	YES		A 22	
			E6	23				.25	YES		T 22	
A 93	1		E5	3				.25	YES		A 22	
			E7	23				.25	YES		T 22	
A 94	1		E6	23				.25	YES		A 22	
			E8	24				.25	YES		T 22	
A 95	1		E7	23				.25	YES		A 22	
			E9	24				.25	YES		T 22	
A 96	1		E8	24				.25	YES		A 22	
			E10	27				.25	YES		T 22	
A 97	1		E9	24				.25	YES		A 22	
			E11	27				.25	YES		T 22	
A 98	1		E10	27				.25	YES		A 22	
			E14	29				.25	YES		T 22	
A 99	1		E11	27				.25	YES		A 22	
			E15	29				.25	YES		T 22	
A 100	1		E16	29				.25	YES		A 22	
			E18	35				.25	YES		T 22	
A 101	1		E17	29				.25	YES		A 22	
			E19	35				.25	YES		T 22	
A 102	1		E22	35				.25	YES		A 22	
			E24	37				.25	YES		T 22	
A 103	1		E23	35				.25	YES		A 22	
			E25	37				.25	YES		T 22	

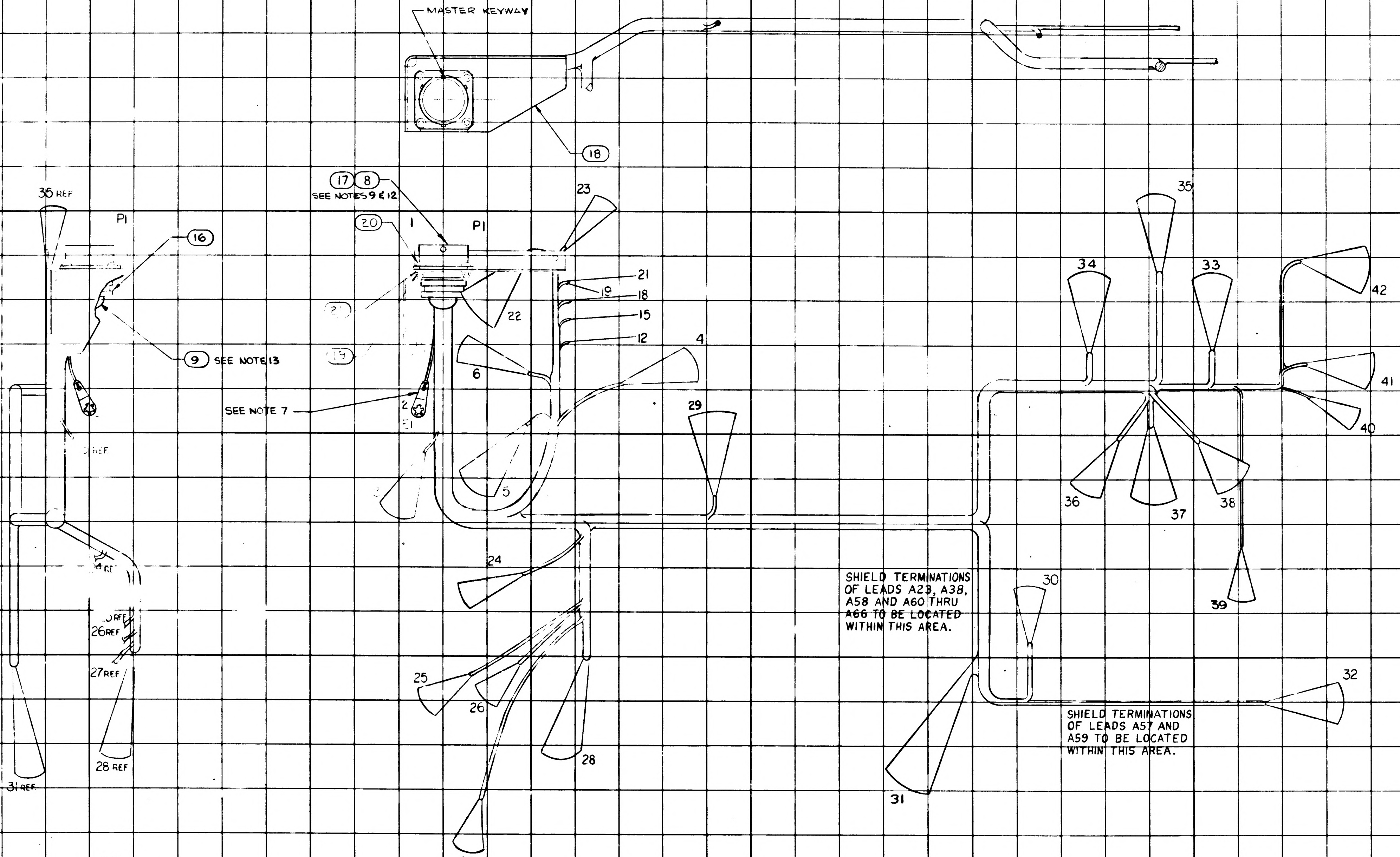
SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 19 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 104	1		E30	37				.25	YES		A 22	
			E32	39				.25	YES		T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 20 OF 21

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
18
17
8
SEE NOTES 9 & 12
20
1
P1
23
21
19
18
15
12
4
22
6
29
SEE NOTE 7
2
5
35 REF
P1
16
9 SEE NOTE 13
26 REF
27 REF
28 REF
31 REF
24
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34
33
42
41
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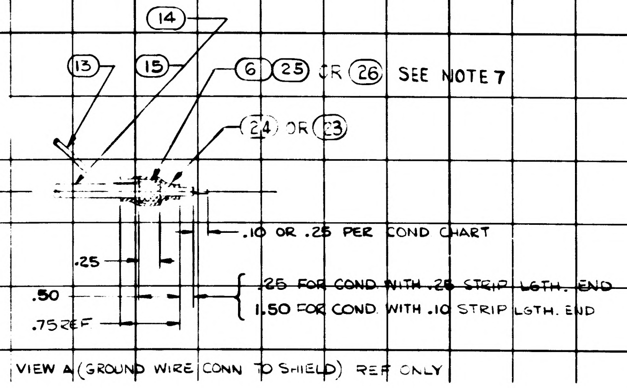
32
SHIELD TERMINATIONS OF LEADS A23, A38, A58 AND A60 THRU A66 TO BE LOCATED WITHIN THIS AREA.
SHIELD TERMINATIONS OF LEADS A57 AND A59 TO BE LOCATED WITHIN THIS AREA.



14
13
15
6
25
OR
26
SEE NOTE 7
24
OR
23
.10 OR .25 PER COND CHART
.25
.50
.75 REF
.25 FOR COND WITH .25 STRIP LGTH. END
1.50 FOR COND WITH .10 STRIP LGTH. END

VIEW A (GROUND WIRE CONN TO SHIELD) REF ONLY

2014622

REV LTR H

CODE IDENT NO	SIZE	
80230	E	2014622
SCALE 1		SHEET

MX-109891

TDRR 22658

APPLICATION	
NEXT ASSY	USED ON
2014578-011	2014623-011

REVISIONS				
SYM	DESCRIPTION	DATE	APPROVAL	
A	REVISED PER TDRR 23186	15 OCT 1965	10-15	
B	REVISED RER TDRR 23832	12 NOV 1965	11/12/65	
C	REVISED PER TDRR 24827	4 JAN 1966	WK	
D	REVISED PER TDRR 26818	9 MAR 66	R.W.T.	W.D.
E	REVISED PER TDRR-26822	16-MAR-66	B.	
Ⓜ F	REVISED PER TDRR 27043	18 MAR 66	R.W.T.	
Ⓜ G	REVISED PER TDRR 27373	29 MAR 66	JW	JAC
Ⓜ H	REVISED PER TDRR 28857	23 MAY 66	JIMP	
J	REVISED PER TDRR 32392	11 JAN 67	JRK	RCY

REV																						
SHEET																						
REV STATUS	REV	J	J	E	J	J	E	H	H	H	H	H	H	H	H	H	H	G	G	E	E	H
OF SHEETS	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ACSP PN

DRAWN L. Hood DATE 14 July 65
CHECKED 9-17-65
APPROVAL JC Watson 21 SEP 65
APPROVAL 9/20/65
NASA APPROVAL
MIT APPROVAL
CONTRACT

WIRING HARNESS A
G&N INDICATOR CONTROL PANEL

CODE IDENT NO.	SIZE		REV
80230	A	2014622	J
SCALE		SHEET	OF 21

NOTE NUMBER — GENERAL NOTES — DESCRIPTION

1 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

2 ASSEMBLE PER ND1002032.

3 GRID MODULE IS 1 INCH BASIC AND IS SHOWN FOR DIMENSIONING PURPOSES.

4 UNLESS OTHERWISE SPECIFIED - FEATURE CENTERLINES AT TRUE POSITION WITHIN + OR - .25 INCH RELATIVE TO GRID. ENDS OF LEADS OR ACCESSORIES AT TRUE POSITION WITHIN + OR - .12 INCH RELATIVE TO GRID. TRUE POSITION DIMENSIONS ARE REGARDLESS OF FEATURE SIZE.

5 IDENTIFY USING DWG. NO. PER ND1002019.

6 LACE HARNESS USING ITEM 27.

7 SOLDER PER ND1002071 USING ITEMS 5 AND 6 EXCEPT GROUND WIRE TO SHIELD CONNECTIONS USE ITEMS 6 AND 25 OR 26.

8 Y OR N IN TINNED COLUMN INDICATES YES OR NO.

9 INSTALL CRIMP STYLE TERMINALS IN ACCORDANCE WITH ND1002206.

10 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER INDICATES CONDUCTOR SHIELDING, COLOR, OR MARKING.
- A - FROM END SHIELD
- B - TO END SHIELD
- K - BLACK
- R - RED
- Y - YELLOW
- G - GREEN

NOTE NUMBER — GENERAL NOTES — DESCRIPTION

11 TOLERANCE CHART, UNLESS OTHERWISE SPECIFIED ---

APPLICABLE LENGTH FOR STRIP WIRE, STRIP JACKET, CUT WIRE OR CUT SHIELD.	TOLERANCE STRIP WIRE	TOLERANCE STRIP JACKET	TOLERANCE CUT WIRE	TOLERANCE CUT SHIELD
UNDER 1 INCH	+.03-.00	+.06-.06	+.06-.06	+.06-.06
1 INCH TO 6 INCHES	+.06-.00	+.25-.25	+.25-.25	+.25-.25
6 INCHES TO 6 FEET		+.50-.50	+.50-.50	+.50-.50

12 ASSEMBLE ITEM 17 IN ALL UNUSED GROMMET HOLES OF ITEM 8.

13 ENCAPSULATE THE WIRED SIDE OF ITEM 8, USING ITEM 9 PER ND1002236. LEAD INSULATION SHALL EXTEND INTO THE ENCAPSULATION .18 PLUS OR MINUS .06 INCHES.

14 MARK SLEEVING OF SINGLE CONDUCTORS .08 + .02 HIGH, COLOR BLACK, WITH THE CONDUCTOR NUMBER OMITTING ALL SUFFIX LETTERS EXCEPT A AND B PER ND1002019, WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM FIELD.

15 MARK SLEEVING OF MULTI-CONDUCTORS WITH THE CONDUCTOR NUMBER .12 INCH HIGH, COLOR BLACK, PER ND1002019 WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM NUMBER FIELD.

16 CONDUCTOR IDENTIFICATION SLEEVING SHALL BE STAGGERED AT TERMINATION NO. 1 TO MINIMIZE THE WIRE BUNDLE DIAMETER.

17 A OR T PREFIX IN THE ACCESSORIES ITEM NUMBER COLUMN INDICATES THE READING POSITION AWAY FROM TERMINATION OR TOWARD TERMINATION RESPECTIVELY, OF THE WIRE MARKER SLEEVE.

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014622-001	WIRE, 1010789-001 24AWG YEL, 112 FT. TOT LGTH.
	2	1	2014622-002	WIRE, 1010789-003 24AWG YEL, RED, 2 FT. TOT LG
	3	1	2014622-003	WIRE, 1010789-004 24AWG YEL, RED, GRN, 2 FT. TOTAL LENGTH.
	4		1012507-001	DELETED
	5	AR	QQ-S-571 SN60 WRAP2	SOLDER
	6	AR	MIL-F-14256	FLUX
	7	64	1010770-001	CONTACT, ELECTRICAL
	8	1	1010930-104	CONNECTOR, ELECTRICAL
	9	AR	1012503	COMPOUND, POLYURETHANE
	10	1	1010638-006	TERMINAL
	13	1	2014622-013	WIRE, 1010789-002 24AWG BLK, 8FT. TOTAL LENGTH
	14	1	2014622-014	WIRE, 1010789-011 YEL JKT, 24AWG YEL, 20 FT. TOTAL LENGTH
	15	1	2014622-015	WIRE, 1010789-012 YEL JKT, 24AWG YEL, RED, 7 FT TOTAL LENGTH
	16	1	1023012-001	ADAPTER, POTTING MOLD.
	17	21	1010958-001	PLUG, SEALING
	18	1	2014707	BRACKET, CONNECTOR

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	19	4	1010617- 4	NUT, HEX, SELF LOCKING
	20	4	NAS1352C04-6	SCREW, SOCKET HD CAP
	21	4	MS15795-803	WASHER, FLAT
	22	159	1012534- 59	INSULATION SLEEVING, HEAT SHRINKABLE
	23	44	1012534- 57	INSULATION SLEEVING, HEAT SHRINKABLE
	24	12	1012534- 56	INSULATION SLEEVING, HEAT SHRINKABLE
	25	AR	QQ-S-571,SN10WS	SOLDER
	26	AR	QQ-S-571,SN10WRAP	SOLDER
	27	AR	1012555-001	TAPE, LACING AND TYING

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 1	3										A 23 T 23	
A 1G			P1-13 S8-5-NO	1 28				.10 .25	NO YES		7	
A 1R			P1-4 S8-6-NO	1 28				.10 .25	NO YES		7	
A 1Y			P1-12 S8-5-C	1 28				.10 .25	NO YES		7	
A 2	3										A 23 T 23	
A 2G			P1-3 S8-2-NO	1 28				.10 .25	NO YES		7	
A 2R			P1-2 S8-1-NO	1 28				.10 .25	NO YES		7	
A 2Y			P1-10 S8-1-C	1 28				.10 .25	NO YES		7	
A 3	3										A 23 T 23	
A 3G			P1-8 S8-3-C	1 28				.10 .25	NO YES		7	
A 3R			P1-19 S8-4-NO	1 28				.10 .25	NO YES		7	
A 3Y			P1-7 S8-3-NO	1 28				.10 .25	NO YES		7	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 6 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 4	1		P1-82 S12-8-NO	1 6				.10 .25	NO YES		A 22, 7 T 22	
A 5	1		P1-59 S12-2-NO	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 6	1		P1-1 SHLD A13	1				.10 .25	NO YES		A 22, 7 T 22	
A 7	1		P1-81 S10-2-NO	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 8	1		P1-20 S6-2-C	1 26				.10 .25	NO YES		A 22, 7 T 22	
A 9	1		S12-2-C S11-NC	22 30				.25 .25	YES YES		A 22 T 22	
A 10	1		A4-8 S12-4-NO	4 22				.25 .25	YES YES		A 22 T 22	
A 11	1		P1-55 S12-4-C	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 12	1		P1-85 A3-2	1 18				.10 .25	NO YES		A 22, 7 T 22	
A 13	14				1.75 2.50	1.50 1.75					A 23 T 23	
A 13A	13		SHLD A13 SHLD A14					.25 .25	YES YES			
A 13Y			P1-78 S3-4-NO	1 42				.10 .25	NO YES		7	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 7 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 14	14				1.75 2.25	1.50 2.00					A 23 T 23	
A 14A	13		SHLD A14 SHLD A15					.25 .25	YES YES			
A 14Y			P1-77 S6-2-NC	1 26				.10 .25	NO YES		7	
A 15	15				1.75 3.25	1.50 3.00					A 24 T 24	
A 15A	13		SHLD A15 SHLD A29					.25 .25	YES YES			
A 15R			P1-51 S5-1-NO	1 36				.10 .25	NO YES		7	
A 15Y			P1-30 S5-1-NC	1 36				.10 .25	NO YES		7	
A 16	1		P1-33 S10-1-NO	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 17	1		A4-9 A4-6	4 4				.25 .25	YES YES		A 22 T 22	
A 18	1		P1-47 S3-7-NO	1 41				.10 .25	NO YES		A 22, 7 T 22	
A 19	1		P1-80 A4-5	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 20	2										A 23 T 23	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 8 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 20R			P1-43 A1-1	1 32				.10 .25	NO YES		7	
A 20Y			P1-23 A1-2	1 32				.10 .25	NO YES		7	
A 21	14				1.75 3.00	1.50 2.75					A 23 T 23	
A 21A	13		SHLD A21 SHLD A58					.25 .25	YES YES			
A 21Y			P1-62 S1-2-C	1 33				.10 .25	NO YES		7	
A 22	14				1.75 3.00	1.50 2.75					A 23 T 23	
A 22A	13		SHLD A22 SHLD A60					.25 .25	YES YES			
A 22Y			P1-64 S1-3-C	1 33				.10 .25	NO YES		7	
A 23	15				1.75 2.50	1.50 2.25					A 24 T 24	
A 23A	13		SHLD A23 SHLD A38					.25 .25	YES YES			
A 23R			P1-39 T1-2	1 31				.10 .25	NO YES		7	
A 23Y			P1-21 T1-1	1 31				.10 .25	NO YES		7	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 9 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG.	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24	1		P1-34 S12-3-C	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 25	1		P1-84 A3-4	1 15				.10 .25	NO YES		A 22, 7 T 22	
A 26	1		P1-79 A4-9	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 27	1		P1-54 A4-7	1 4				.10 .25	NO YES		A 22, 7 T 22	
A 28	1		P1-50 S2-2-NC	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 29	14				1.75 3.25	1.50 3.00					A 23 T 23	
A 29A	13		SHLD A29 SHLD A32					.25 .25	YES YES			
A 29Y			P1-76 S5-2-C	1 36				.10 .25	NO YES		7	
A 30	1		P1-49 S2-2-NO	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 31	1		P1-29 S5-2-NO	1 36				.10 .25	NO YES		A 22, 7 T 22	
A 32	14				1.75 2.50	1.50 2.25					A 23 T 23	
A 32A	13		SHLD A32 SHLD A46					.25 .25	YES YES			

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 10 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 32Y			P1-52 S4-1-NC	1 34				.10 .25	NO YES		7	
A 33	1		P1-56 S10-2-C	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 34	1		P1-71 S3-2-NO	1 42				.10 .25	NO YES		A 22, 7 T 22	
A 35	1		P1-70 S7-2-NO	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 36	1		P1-46 S7-2-NC	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 37	1		P1-36 A3-8	1 21				.10 .25	NO YES		A 22 T 22	
A 38	15				1.75 2.50	1.50 2.25					A 24 T 24	
A 38A	13		SHLD A38 SHLD A59					.25 .25	YES YES		A 22 T 22	
A 38R			P1-65 T1-3	1 31				.10 .25	NO YES		7	
A 38Y			P1-40 T1-4	1 31				.10 .25	NO YES		7	
A 39	1		P1-58 R1-CCW	1 30				.10 .25	NO YES		A 22, 7 T 22	
A 40	1		P1-35 R1-WIPER	1 30				.10 .25	NO YES		A 22, 7 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 11 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 41	1		P1-60 A3-6	1 12				.10 .25	NO YES		A 22, 7 T 22	
A 42	1		P1-44 S12-3-NO	1 22				.10 .25	NO YES		A 22, 7 T 22	
A 43	1		P1-24 DS1-LO	1 40				.10 .25	NO YES		A 22, 7 T 22	
A 44	1		P1-68 E2	1 3				.10 .25	NO YES		A 22, 7 T 22	
A 45	1		P1-67 E3	1 3				.10 .25	NO YES		A 22, 7 T 22	
A 46	14				1.75 2.00	1.50 1.75					A 23 T 23	
A 46A	13		SHLD A46 SHLD A47					.25 .25	YES YES			
A 46Y			P1-53 S3-8-NO	1 41				.10 .25	NO YES		7	
A 47	14				1.75 2.50	1.50 2.25					A 23 T 23	
A 47A	13		SHLD A47 E1	 2				.25 .25	YES YES		T 22, 10	
A 47Y			P1-75 S3-1-NO	1 42				.10 .25	NO YES		7	
A 48	1		P1-74 S2-1-NO	1 38				.10 .25	NO YES		A 22, 7 T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 12 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 49	1		S12-8-C A3-1	6 19				.25 .25	YES YES		A 22 T 22	
A 50	1		P1-31 S4-1-NO	1 34				.10 .25	NO YES		A 22, 7 T 22	
A 51	1		P1-32 S10-1-C	1 5				.10 .25	NO YES		A 22, 7 T 22	
A 52	1		P1-72 S2-3-C	1 38				.10 .25	NO YES		A 22, 7 T 22	
A 53	1		P1-48 S7-2-C	1 25				.10 .25	NO YES		A 22, 7 T 22	
A 54	15				1.75 3.00	1.50 2.75					A 24 T 24	
A 54A	13		SHLD A54 P1-42	 1				.25 .10	YES NO		T 22, 7	
A 54R			P1-66 S7-1-NC	1 25				.10 .25	NO YES		7	
A 54Y			P1-41 S7-1-C	1 25				.10 .25	NO YES		7	
A 55	1		A1-2 A1-8	32 32				.25 .25	YES YES		A 22 T 22	
A 56	1		A1-1 A1-7	32 32				.25 .25	YES YES		A 22 T 22	
A 57	15				4.00 2.00	3.75 1.75					A 24 T 24	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR H	SHEET 13 OF 21

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG.	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE UNE. FIG	ACCESSORY ITEMS	REMARKS
A	57A	13		SHLD A57 SHLD A61					.25 .25	YES YES			
A	57R			T1-1 A1-4	31 32				.25 .25	YES YES			
A	57Y			T1-2 A1-3	31 32				.25 .25	YES YES			
A	58	14				1.75 2.50	1.50 2.25					A 23 T 23	
A	58A	13		SHLD A58 SHLD A22					.25 .25	YES YES			
A	58Y			P1-38 T1-8	1 31				.10 .25	NO YES		7	
A	59	15				4.00 2.00	3.75 1.75					A 24 T 24	
A	59A	13		SHLD A59 SHLD A57					.25 .25	YES YES			
A	59R			T1-3 A1-5	31 32				.25 .25	YES YES			
A	59Y			T1-4 A1-6	31 32				.25 .25	YES YES			
A	60	14				1.75 2.50	1.50 2.25					A 23 T 23	
A	60A	13		SHLD A60 SHLD A23					.25 .25	YES YES			

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A	60Y			P1-63 T1-12	1 31				.10 .25	NO YES		7	
A	61	14				2.50 3.00	2.25 2.75					A 23 T 23	
A	61A	13		SHLD A61 SHLD A62					.25 .25	YES YES			
A	61Y			T1-5 S1-2-NO	31 33				.25 .25	YES YES			
A	62	14				2.50 3.00	2.25 2.75					A 23 T 23	
A	62A	13		SHLD A62 SHLD A63					.25 .25	YES YES			
A	62Y			T1-6 S1-1-NC	31 33				.25 .25	YES YES			
A	63	14				2.50 3.00	2.25 2.75					A 23 T 23	
A	63A	13		SHLD A63 SHLD A64					.25 .25	YES YES			
A	63Y			T1-7 S1-1-NO	31 33				.25 .25	YES YES			
A	64	14				2.50 3.00	2.25 2.75					A 23 T 23	
A	64A	13		SHLD A64 SHLD A65					.25 .25	YES YES			

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A	64Y			T1-9 S1-3-NO	31 33				.25 .25	YES YES			
A	65	14				2.50 3.00	2.25 2.75					A 23 T 23	
A	65A	13		SHLD A65 SHLD A66					.25 .25	YES YES			
A	65Y			T1-10 S1-4-NC	31 33				.25 .25	YES YES			
A	66	14				2.50 3.00	2.25 2.75					A 23 T 23	
A	66A	13		SHLD A66 SHLD A67					.25 .25	YES YES		A 22 T 22	
A	66Y			T1-11 S1-4-NO	31 33				.25 .25	YES YES			
A	67	14				3.00 3.00	2.75 2.75					A 23 T 23	
A	67A	13		SHLD A67 SHLD A68					.25 .25	YES YES			
A	67Y			S1-3-NC S1-4-C	33 33				.25 .25	YES YES			
A	68	14				3.00 3.00	2.75 2.75					A 23 T 23	
A	68A	13		SHLD A68 S3-1-C	 42				.25 .25	YES YES		 T 22	

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	68Y			S1-2-NC S1-1-C	33 33				.25 .25	YES YES			
A	69	1		S2-1-NC S2-2-C	38 38				.25 .25	YES YES		A 22 T 22	
A	70	1		S2-3-NO S3-2-C	38 42				.25 .25	YES YES		A 22 T 22	
A	71	1		S7-2-C S3-2-C	25 42				.25 .25	YES YES		A 22 T 22	
A	72	1		S5-2-C S2-1-C	36 38				.25 .25	YES YES		A 22 T 22	
A	73	1		S2-1-C S3-8-NC	38 41				.25 .25	YES YES		A 22 T 22	
A	74	1		S3-5-C S3-1-NC	41 42				.25 .25	YES YES		A 22 T 22	
A	75	1		S3-7-C S3-2-NC	41 42				.25 .25	YES YES		A 22 T 22	
A	76	1		S3-8-C S3-4-NC	41 42				.25 .25	YES YES		A 22 T 22	
A	77	1		S3-4-C S3-1-C	42 42				.25 .25	YES YES		A 22 T 22	
A	78	1		S6-2-C S3-4-C	26 42				.25 .25	YES YES		A 22 T 22	
A	79	1		S3-1-NO S3-5-NO	42 41				.25 .25	YES YES		A 22 T 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 80	1		S3-5-NC	41				.25	YES		A 22	
			S4-1-C	34				.25	YES		T 22	
A 81	1		S5-2-NC	36				.25	YES		A 22	
			S5-1-C	36				.25	YES		T 22	
A 82	1		S8-5-C	28				.25	YES		A 22	
			S8-6-C	28				.25	YES		T 22	
A 83	1		S8-1-C	28				.25	YES		A 22	
			S8-2-C	28				.25	YES		T 22	
A 84	1		S8-3-C	28				.25	YES		A 22	
			S8-4-C	28				.25	YES		T 22	
A 85	1		S11-NC	30				.25	YES		A 22	
			R1-CW	30				.25	YES		T 22	
A 86	1		S11-C	30				.25	YES		A 22	
			R1-CCW	30				.25	YES		T 22	
A 87	1		S12-2-C	22				.25	YES		A 22	
			S12-3-C	22				.25	YES		T 22	
A 88	1		S12-3-NO	22				.25	YES		A 22	
			DS1-HI	40				.25	YES		T 22	
A 89	1		S12-8-C	6				.25	YES		A 22	
			S12-1-C	22				.25	YES		T 22	
A 90	1		S12-8-NO	6				.25	YES		A 22	
			S12-1-NO	22				.25	YES		T 22	
A 91	1		E31	37				.25	YES		A 22	
			E33	39				.25	YES		T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR G	SHEET 18 OF 21

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 92	1		E4	3				.25	YES		A 22	
			E6	23				.25	YES		T 22	
A 93	1		E5	3				.25	YES		A 22	
			E7	23				.25	YES		T 22	
A 94	1		E6	23				.25	YES		A 22	
			E8	24				.25	YES		T 22	
A 95	1		E7	23				.25	YES		A 22	
			E9	24				.25	YES		T 22	
A 96	1		E8	24				.25	YES		A 22	
			E10	27				.25	YES		T 22	
A 97	1		E9	24				.25	YES		A 22	
			E11	27				.25	YES		T 22	
A 98	1		E10	27				.25	YES		A 22	
			E14	29				.25	YES		T 22	
A 99	1		E11	27				.25	YES		A 22	
			E15	29				.25	YES		T 22	
A 100	1		E16	29				.25	YES		A 22	
			E18	35				.25	YES		T 22	
A 101	1		E17	29				.25	YES		A 22	
			E19	35				.25	YES		T 22	
A 102	1		E22	35				.25	YES		A 22	
			E24	37				.25	YES		T 22	
A 103	1		E23	35				.25	YES		A 22	
			E25	37				.25	YES		T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 19 OF 21

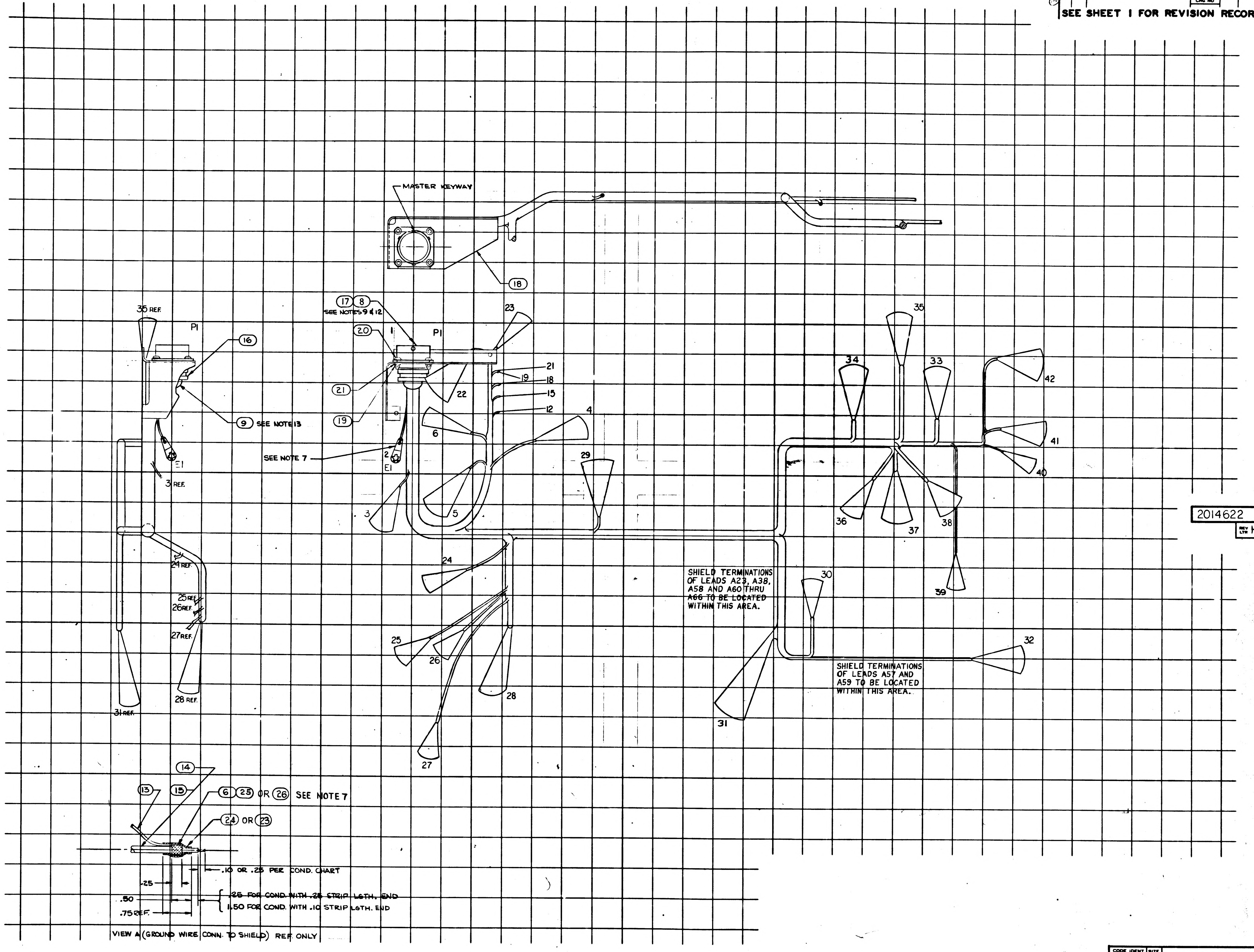
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 104	1		E30	37				.25	YES		A 22	
			E32	39				.25	YES		T 22	

SIZE	CODE IDENT NO.	
A	80230	2014622
SCALE-NONE	REV LTR E	SHEET 20 OF 21

REVISIONS TDRR 2265

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
18
17
8
SEE NOTES 9 & 12
20
1
P1
23
21
19
18
15
12
21
22
19
6
4
2
E1
SEE NOTE 7
3
5
29
35 REF.
P1
16
9 SEE NOTE 13
E1
3 REF.
24 REF.
25 REF.
26 REF.
27 REF.
28 REF.
31 REF.
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25
OR
26
SEE NOTE 7
24
OR
23
.10 OR .25 PER COND. CHART
.25
.50
.75 REF.
.25 FOR COND. WITH .25 STRIP LGTH. END
1.50 FOR COND. WITH .10 STRIP LGTH. END

SHIELD TERMINATIONS OF LEADS A23, A38, A58 AND A60 THRU A66 TO BE LOCATED WITHIN THIS AREA.

SHIELD TERMINATIONS OF LEADS A57 AND A59 TO BE LOCATED WITHIN THIS AREA.

VIEW A (GROUND WIRE CONN. TO SHIELD) REF. ONLY

2014622

REV LTR H

CODE IDENT NO.	SIZE	
80230	E	2014622
SCALE 1/1		SHEET 2 OF 21

MX-10998

TDRR 22658

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014578-011	2014623-011				

REV															
SHEET															
REV STATUS REV	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
OF SHEETS SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ACSP PN
DRAWN L. Hood DATE 4 July 65
CHECKED 9-17-65
APPROVAL JC Watson 21SEP65
APPROVAL 9/20/65
NASA APPROVAL
MIT APPROVAL

WIRING HARNESS A
G&N INDICATOR CONTROL PANEL

CODE IDENT NO.	SIZE		REV
80230	A	2014622	

CONTRACT
SCALE
SHEET OF 5

G&N Harness

GENERAL NOTES

1 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

2 ASSEMBLE PER ND1002032.

3 GRID MODULE IS 1 INCH BASIC AND IS SHOWN FOR DIMENSIONING PURPOSES.

4 UNLESS OTHERWISE SPECIFIED - FEATURE CENTERLINES AT TRUE POSITION WITHIN + OR - .25 INCH RELATIVE TO GRID. ENDS OF LEADS OR ACCESSORIES AT TRUE POSITION WITHIN + OR - .12 INCH RELATIVE TO GRID. TRUE POSITION DIMENSIONS ARE REGARDLESS OF FEATURE SIZE.

5 IDENTIFY USING DWG. NO. PER ND1002019.

6 LACE HARNESS USING ITEM 4

7 SOLDER PER ND 1002071 USING ITEMS 5 AND 6

8 Y OR N IN TINNED COLUMN INDICATES YES OR NO.

9 INSTALL CRIMP STYLE TERMINALS IN ACCORDANCE WITH ND1002206

10 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER INDICATES CONDUCTOR SHIELDING, COLOR, OR MARKING.
A - FROM END SHIELD
B - TO END SHIELD
K - BLACK
R - RED
Y - YELLOW
G - GREEN

MANNED SPACECRAFT CENTER HOUSTON, TEXAS | SIZE A | 2014622
SCALE-NONE | REV LTR + | SHEET 2

MIL 2084-4-64

G&N HARNESS

GENERAL NOTES

11 TOLERANCE CHART, UNLESS OTHERWISE SPECIFIED ---

APPLICABLE LENGTH FOR STRIP WIRE, STRIP JACKET, CUT WIRE OR CUT SHIELD.	TOLERANCE			
	STRIP		CUT	
	WIRE	JACKET	WIRE	SHIELD
UNDER 1 INCH	+.03-.00	+.06-.06	+.06-.06	+.06-.06
1 INCH TO 6 INCHES	+.06-.00	+.25-.25	+.25-.25	+.25-.25
6 INCHES TO 6 FEET		+.50-.50	+.50-.50	+.50-.50

12 ASSEMBLE ITEM 17 IN ALL UNUSED GROMMET HOLES OF ITEM 8.

13 ENCAPSULATE THE WIRED SIDE OF ITEM 8, USING ITEM 9 PER ND1002236. LEAD INSULATION SHALL EXTEND INTO THE ENCAPSULATION .18 PLUS OR MINUS .06 INCHES.

14 MARK SLEEVING OF SINGLE CONDUCTORS .08 + .02 HIGH, COLOR BLACK, WITH THE CONDUCTOR NUMBER OMITTING ALL SUFFIX LETTERS EXCEPT A AND B PER ND1002019, WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM FIELD.

15 MARK SLEEVING OF MULTI-CONDUCTORS WITH THE CONDUCTOR NUMBER .12 INCH HIGH, COLOR BLACK, PER ND1002019 WHEN SLEEVING ITEM NUMBERS FOLLOW AN A OR T IN THE ACCESSORIES ITEM NUMBER FIELD.

16 CONDUCTOR IDENTIFICATION SLEEVING SHALL BE STAGGERED AT TERMINATION NO. 1 TO MINIMIZE THE WIRE BUNDLE DIAMETER.

17 A OR T PREFIX IN THE ACCESSORIES ITEM NUMBER COLUMN INDICATES THE READING POSITION AWAY FROM TERMINATION OR TOWARD TERMINATION RESPECTIVELY, OF THE WIRE MARKER SLEEVE.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS | SIZE A | 2014622
SCALE-NONE | REV LTR + | SHEET 3

MIL 2084-4-64

G&N HARNESS

LIST OF MATERIALS

ITEM	QTY	PART NO.	DESCRIPTION
1	1	1010789-001	WIRE, 24AWG YEL, 112 FT. TOTAL LENGTH.
2	1	1010789-003	WIRE, 24AWG YEL, RED, 2 FT. TOTAL LENGTH.
3	1	1010789-004	WIRE, 24AWG YEL,RED, GRN, 2 FT. TOTAL LENGTH.
4	AR	1012507-001	LACING TAPE
5	AR	QQ-S-571 SN60 WRAP2	SOLDER
6	AR	MIL-F-14256	FLUX
7	64	1010770-001	CONTACT, ELECTRICAL
8	1	1010930-104	CONNECTOR, ELECTRICAL
9	AR	1012503	COMPOUND, POLYURETHANE
10	1	1010638-006	TERMINAL
11	57	1010911-052	INSULATION SLEEVING, HEAT SHRINKABLE
12	203	1010911-044	INSULATION SLEEVING, HEAT SHRINKABLE
13	1	1010789-002	WIRE, 24AWG BLK, 8 FT. TOTAL LENGTH.
14	1	1010789-011	WIRE, YEL JKT, 24AWG YEL, 20 FT. TOTAL LENGTH.
15	1	1010789-012	WIRE, YEL JKT, 24AWG YEL, RED, 7 FT. TOTAL LENGTH
16	1	1023012-001	ADAPTER, POTTING MOLD.
17	21	1010958-001	PLUG, SEALING

MANNED SPACECRAFT CENTER HOUSTON, TEXAS | SIZE A | 2014622
SCALE-NONE | REV LTR + | SHEET 4

MIL 2084-4-64

G+N HARNESS

CONDUCTOR NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	FROM CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC. 1	ITEM NO.	NO.	TO CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC 1	ITEM NO.	NO.	ROUTING
A 1	3						A 11								T 11		
A 1G			P1- 13	10	N		7		1	S8-5-NO	25	Y				28	
A 1R			P1- 4	10	N		7		1	S8-6-NO	25	Y				28	
A 1Y			P1- 12	10	N		7		1	S8-5-C	25	Y				28	
A 2	3						A 11								T 11		
A 2G			P1- 3	10	N		7		1	S8-2-NO	25	Y				28	
A 2R			P1- 2	10	N		7		1	S8-1-NO	25	Y				28	
A 2Y			P1- 10	10	N		7		1	S8-1-C	25	Y				28	
A 3	3						A 11								T 11		
A 3G			P1- 8	10	N		7		1	S8-3-C	25	Y				28	
A 3R			P1- 19	10	N		7		1	S8-4-NO	25	Y				28	
A 3Y			P1- 7	10	N		7		1	S8-3-NO	25	Y				28	
A 4	1		P1- 82	10	N		7	A 12	1	S12-8-NO	25	Y			T 12	6	
A 5	1		P1- 59	10	N		7	A 12	1	S12-2-NO	25	Y			T 12	22	
A 6	1		P1- 1	10	N		7	A 12	1	SHLD A13	25	Y			T 12	2	
A 7	1		P1- 81	10	N		7	A 12	1	S10-2-NO	25	Y			T 12	5	
A 8	1		P1- 20	10	N		7	A 12	1	S6-2-C	25	Y			T 12	26	
A 9	1		S12-2-C	25	Y			A 12	22	S11-NC	25	Y			T 12	30	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622	
SCALE - NONE	REV LTR		SHEET 5

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	FROM CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC. 1	ITEM NO.	NO.	TO CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC 1	ITEM NO.	NO.	ROUTING
A 10	1		A4-8	25	Y			A 12	4	S12-4-NO	25	Y			T 12	22	
A 11	1		P1- 55	10	N		7	A 12	1	S12-4-C	25	Y			T 12	22	
A 12	1		P1- 85	10	N		7	A 12	1	A3-2	25	Y			T 12	18	
A 13	14			175		150	A 11				50				T 11		
A 13A	13		SHLD A13	25	Y		A 12			SHLD A14	25	Y			T 12		
A 13Y			P1- 53	10	N		7		1	S3-4-NO	25	Y				42	
A 14	14			175		150	A 11				50				T 11		
A 14A	13		SHLD A14	25	Y		A 12			SHLD A15	25	Y			T 12		
A 14Y			P1- 77	10	N		7		1	S6-2-NC	25	Y				26	
A 15	15			175		150	A 11				50				T 11		
A 15A	13		SHLD A15	25	Y		A 12			SHLD A29	25	Y			T 12		
A 15R			P1- 51	10	N		7		1	S5-1-NO	25	Y				36	
A 15Y			P1- 30	10	N		7		1	S5-1-NC	25	Y				36	
A 16	1		P1- 33	10	N		7	A 12	1	S10-1-NO	25	Y			T 12	5	
A 17	1		A4-9	25	Y			A 12	4	A4-6	25	Y			T 12	4	
A 18	1		P1- 71	10	N		7	A 12	1	S3-7-NO	25	Y			T 12	41	
A 19	1		P1- 80	10	N		7	A 12	1	A4-5	25	Y			T 12	4	
A 20	2						A 11								T 11		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622	
SCALE - NONE	REV LTR		SHEET 6

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	FROM CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC. 1	ITEM NO.	NO.	TO CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC 1	ITEM NO.	NO.	ROUTING
A 20R			P1- 43	10	N		7		1	A1-2	25	Y				32	
A 20Y			P1- 23	10	N		7		1	A1-1	25	Y				32	
A 21	14			175		150	A 11				50				T 11		
A 21A	13		SHLD A21	25	Y		A 12			SHLD A58	25	Y			T 12		
A 21Y			P1- 62	10	N		7		1	S1-2-C	25	Y				33	
A 22	14			175		150	A 11				50				T 11		
A 22A	13		SHLD A22	25	Y		A 12			SHLD A60	25	Y			T 12		
A 22Y			P1- 64	10	N		7		1	S1-3-C	25	Y				33	
A 23	15			175		150	A 11				50				T 11		
A 23A	13		SHLD A23	25	Y		A 12			SHLD A38	25	Y			T 12		
A 23R			P1- 39	10	N		7		1	T1-2	25	Y				31	
A 23Y			P1- 21	10	N		7		1	T1-1	25	Y				31	
A 24	1		P1- 34	10	N		7	A 12	1	S12-2-C	25	Y			T 12	22	
A 25	1		P1- 84	10	N		7	A 12	1	A3-4	25	Y			T 12	15	
A 26	1		P1- 79	10	N		7	A 12	1	A4-9	25	Y			T 12	4	
A 27	1		P1- 54	10	N		7	A 12	1	A4-7	25	Y			T 12	4	
A 28	1		P1- 50	10	N		7	A 12	1	S2-2-NC	25	Y			T 12	38	
A 29	14			175		150	A 11				50				T 11		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622	
SCALE - NONE	REV LTR		SHEET 7

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	FROM CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC. 1	ITEM NO.	NO.	TO CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC 1	ITEM NO.	NO.	ROUTING
A 29A	13		SHLD A29	25	Y		A 12			SHLD A32	25	Y			T 12		
A 29Y			P1- 76	10	N		7	A 12	1	S5-2-C	25	Y			T 12	36	
A 30	1		P1- 49	10	N		7	A 12	1	S2-2-NO	25	Y			T 12	38	
A 31	1		P1- 29	10	N		7	A 12	1	S5-2-NO	25	Y			T 12	36	
A 32	14			175		150	A 11				50				T 11		
A 32A	13		SHLD A32	25	Y		A 12			SHLD A46	25	Y			T 12		
A 32Y			P1- 52	10	N		7		1	S4-1-NC	25	Y				34	
A 33	1		P1- 56	10	N		7	A 12	1	S10-2-C	25	Y			T 12	5	
A 34	1		P1- 47	10	N		7	A 12	1	S3-2-NO	25	Y			T 12	42	
A 35	1		P1- 70	10	N		7	A 12	1	S7-2-NO	25	Y			T 12	25	
A 36	1		P1- 46	10	N		7	A 12	1	S7-2-NC	25	Y			T 12	25	
A 37	1		P1- 36	10	N			A 12	1	A3-8	25	Y			T 12	21	
A 38	15			175		150	A 11				50				T 11		
A 38A	13		SHLD A38	25	Y		A 12			SHLD A59	25	Y			T 12		
A 38R			P1- 65	10	N		7		1	T1-3	25	Y				31	
A 38Y			P1- 40	10	N		7		1	T1-4	25	Y				31	
A 39	1		P1- 58	10	N		7	A 12	1	R1-CCW	25	Y			T 12	30	
A 40	1		P1- 35	10	N		7	A 12	1	R1-WIPER	25	Y			T 12	30	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622	
SCALE - NONE	REV LTR		SHEET 8

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR			FROM						TO						
NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC. 1 ITEM NO.	NO.	CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC 1 ITEM NO.	NO.	ROUTING
A 41	1		P1- 60	10	N		7 A 12	1	A3-6	25	Y		T 12	12	
A 42	1		P1- 44	10	N		7 A 12	1	S12-3-NO	25	Y		T 12	22	
A 43	1		P1- 24	10	N		7 A 12	1	DS1-LO	25	Y		T 12	40	
A 44	1		P1- 68	10	N		7 A 12	1	E2	25	Y		T 12	23	
A 45	1		P1- 67	10	N		7 A 12	1	E3	25	Y		T 12	23	
A 46	14			175		150	A 11			50			T 11		
A 46A	13		SHLD A46	25	Y		A 12		SHLD A47	25	Y		T 12		
A 46Y			P1- 78	10	N		7	1	S3-8-NO	25	Y			41	
A 47	14			175		150	A 11			50			T 11		
A 47A	13		SHLD A47	25	Y		A 12		E1	25	Y		T 12 10	2	
A 47Y			P1- 75	10	N		7	1	S3-1-NO	25	Y			42	
A 48	1		P1- 74	10	N		7 A 12	1	S2-1-NO	25	Y		T 12	38	
A 49	1		S12-8-C	25	Y		A 12	6	A3-1	25	Y		T 12	16	
A 50	1		P1- 31	10	N		7 A 12	1	S4-1-NO	25	Y		T 12	34	
A 51	1		P1- 32	10	N		7 A 12	1	S10-1-C	25	Y		T 12	5	
A 52	1		P1- 72	10	N		7 A 12	1	S2-3-C	25	Y		T 12	38	
A 53	1		P1- 48	10	N		7 A 12	1	S7-2-C	25	Y		T 12	25	
A 54	15			175		150	A 11			50			T 11		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS | SIZE A | 2014622

SCALE - NONE | REV LTR | SHEET 9

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR			FROM						TO						
NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC. 1 ITEM NO.	NO.	CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC 1 ITEM NO.	NO.	ROUTING
A 54A	13		SHLD A54	25	Y		A 12		P1- 42	10	N		7 T 11	1	
A 54R			P1- 66	10	N		7	1	S7-1-NC	25	Y			25	
A 54Y			P1- 41	10	N		7	1	S7-1-C	25	Y			25	
A 55	1		A1- 2	25	Y		A 12	32	A1-8	25	Y		T 12	32	
A 56	1		A1- 1	25	Y		A 12	32	A1-7	25	Y		T 12	32	
A 57	15			75		50	A 11			50			T 11		
A 57A	13		SHLD A57	25	Y		A 12		SHLD A61	25	Y		T 12		
A 57R			T1- 1	25	Y			31	A1-4	25	Y			32	
A 57Y			T1- 2	25	Y			31	A1-3	25	Y			32	
A 58	14			50			A 11			50			T 11		
A 58A	13		SHLD A58	25	Y		A 12		SHLD A22	25	Y		T 12		
A 58Y			P1- 38	10	N		7	1	T1-8	25	Y			31	
A 59	15			75		50	A 11			50			T 11		
A 59A	13		SHLD A59	25	Y		A 12		SHLD A57	25	Y		T 12		
A 59R			T1- 3	25	Y			31	A1-5	25	Y				
A 59Y			T1- 4	25	Y			31	A1-6	25	Y			32	
A 60	14			175		150	A 11			50			T 11		
A 60A	13		SHLD A60	25	Y		A 12		SHLD A23	25	Y		T 12		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS | SIZE A | 2014622

SCALE - NONE | REV LTR | SHEET 10

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR			FROM						TO						
NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC. 1 ITEM NO.	NO.	CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC 1 ITEM NO.	NO.	ROUTING
A 60Y			P1- 63	10	N		7	1	T1-12	25	Y			31	
A 61	14			50			A 11			50			T 11		
A 61A	13		SHLD A61	25	Y		A 12		SHLD A62	25	Y		T 12		
A 61Y			T1- 5	25	Y			31	S1-2-NO	25	Y			33	
A 62	14			50			A 11			50			T 11		
A 62A	13		SHLD A62	25	Y		A 12		SHLD A63	25	Y		T 12		
A 62Y			T1- 6	25	Y			31	S1-1-NC	25	Y			33	
A 63	14			50			A 11			50			T 11		
A 63A	13		SHLD A63	25	Y		A 12		SHLD A64	25	Y		T 12		
A 63Y			T1- 7	25	Y			31	S1-1-NO	25	Y			33	
A 64	14			50			A 11			50			T 11		
A 64A	13		SHLD A64	25	Y		A 12		SHLD A65	25	Y		T 12		
A 64Y			T1- 9	25	Y			31	S1-3-NO	25	Y			33	
A 65	14			50			A 11			50			T 11		
A 65A	13		SHLD A65	25	Y		A 12		SHLD A66	25	Y		T 12		
A 65Y			T1- 10	25	Y			31	S1-4-NC	25	Y			33	
A 66	14			50			A 11			50			T 11		
A 66A	13		SHLD A66	25	Y		A 12		SHLD A67	25	Y		T 12		

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS | SIZE A | 2014622

SCALE - NONE | REV LTR | SHEET 11

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR			FROM						TO						
NUMBER	ITEM NO.	INDIVIDUAL LENGTH 2	CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC. 1 ITEM NO.	NO.	CIRCUIT POINT	STRIP WIRE OR JACKET 2	TIN	CUT WIRE OR SHIELD 2	TERMINATION SPEC 1 ITEM NO.	NO.	ROUTING
A 66Y			T1- 11	25	Y			31	S1-4-NO	25	Y			33	
A 67	14			50			A 11			50			T 11		
A 67A	13		SHLD A67	25	Y		A 12		SHLD A68	25	Y		T 12		
A 67Y			S1-3-NC	25	Y			33	S1-4-C	25	Y			33	
A 68	14			50			A 11			50			T 11		
A 68A	13		SHLD A68	25	Y		A 12		S3-5-C	25	Y		T 12		
A 68Y			S1-2-NC	25	Y			33	S1-1-C	25	Y			33	
A 69	1		S2-1-NC	25	Y		A 12	38	S2-2-C	25	Y		T 12	38	
A 70	1		S2-3-NO	25	Y		A 12	38	S3-7-C	25	Y		T 12	41	
A 71	1		S7-2-C	25	Y		A 12	25	S3-7-C	25	Y		T 12	41	
A 72	1		S5-2-C	25	Y		A 12	36	S2-1-C	25	Y		T 12	38	
A 73	1		S2-1-C	25	Y		A 12	38	S3-4-NC	25	Y		T 12	42	
A 74	1		S3-5-NC	25	Y		A 12	41	S3-1-C	25	Y		T 12	42	
A 75	1		S3-7-NC	25	Y		A 12	41	S3-2-C	25	Y		T 12	42	
A 76	1		S3-8-NC	25	Y		A 12	41	S3-4-C	25	Y		T 12	42	
A 77	1		S3-8-C	25	Y		A 12	41	S3-5-C	25	Y		T 12	41	
A 78	1		S6-2-C	25	Y		A 12	26	S3-8-C	25	Y		T 12	41	
A 79	1		S3-1-NO	25	Y		A 12	42	S3-5-NO	25	Y		T 12	41	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS | SIZE A | 2014622

SCALE - NONE | REV LTR | SHEET 12

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR			FROM					TO					ROUTING
	INDIVIDUAL LENGTH		CUT WIRE OR SHIELD			TERMINATION SPEC. 1		CUT WIRE OR SHIELD			TERMINATION SPEC 1		
NUMBER	ITEM NO.	2	STRIP WIRE OR JACKET CIRCUIT POINT	2	TIN	ITEM NO.	NO.	STRIP WIRE OR JACKET CIRCUIT POINT	2	TIN	ITEM NO.	NO.	
A 80	1		S3-1-NC	25	Y	A 12	42	S4-1-C	25	Y	T 12	34	
A 81	1		S5-2-NC	25	Y	A 12	36	S5-1-C	25	Y	T 12	36	
A 82	1		S8-5-C	25	Y	A 12	28	S8-6-C	25	Y	T 12	28	
A 83	1		S8-1-C	25	Y	A 12	28	S8-2-C	25	Y	T 12	28	
A 84	1		S8-3-C	25	Y	A 12	28	S8-4-C	25	Y	T 12	28	
A 85	1		S11-NC	25	Y	A 12	30	R1-CW	25	Y	T 12	30	
A 86	1		S11-C	25	Y	A 12	30	R1-CCW	25	Y	T 12	30	
A 87	1		S12-2-C	25	Y	A 12	22	S12-3-C	25	Y	T 12	22	
A 88	1		S12-3-NO	25	Y	A 12	22	DS1-HI	25	Y	T 12	40	
A 89	1		S12-8-C	25	Y	A 12	6	S12-1-C	25	Y	T 12	22	
A 90	1		S12-8-NO	25	Y	A 12	6	S12-1-NO	25	Y	T 12	22	
A 91	1		E31	25	Y	A 12	37	E33	25	Y	T 12	39	
A 92	1		E4	25	Y	A 12	3	E6	25	Y	T 12	23	
A 93	1		E5	25	Y	A 12	3	E7	25	Y	T 12	23	
A 94	1		E6	25	Y	A 12	23	E8	25	Y	T 12	24	
A 95	1		E7	25	Y	A 12	23	E9	25	Y	T 12	24	
A 96	1		E8	25	Y	A 12	24	E10	25	Y	T 12	27	
A 97	1		E9	25	Y	A 12	24	E11	25	Y	T 12	27	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622
SCALE - NONE	REV LTR	SHEET 13

MIL 2085-4-64 WIR

G+N HARNESS

CONDUCTOR			FROM					TO					ROUTING
	INDIVIDUAL LENGTH		CUT WIRE OR SHIELD			TERMINATION SPEC. 1		CUT WIRE OR SHIELD			TERMINATION SPEC 1		
NUMBER	ITEM NO.	2	STRIP WIRE OR JACKET CIRCUIT POINT	2	TIN	ITEM NO.	NO.	STRIP WIRE OR JACKET CIRCUIT POINT	2	TIN	ITEM NO.	NO.	
A 98	1		E10	25	Y	A 12	27	E12	25	Y	T 12	29	
A 99	1		E11	25	Y	A 12	27	E13	25	Y	T 12	29	
A 100	1		E16	25	Y	A 12	29	E18	25	Y	T 12	35	
A 101	1		E17	25	Y	A 12	29	E19	25	Y	T 12	35	
A 102	1		E22	25	Y	A 12	35	E24	25	Y	T 12	37	
A 103	1		E23	25	Y	A 12	35	E25	25	Y	T 12	37	
A 104	1		E30	25	Y	A 12	37	E32	25	Y	T 12	39	

1 THE STD CONDUCTOR TERMINATION FIGURES ARE PER

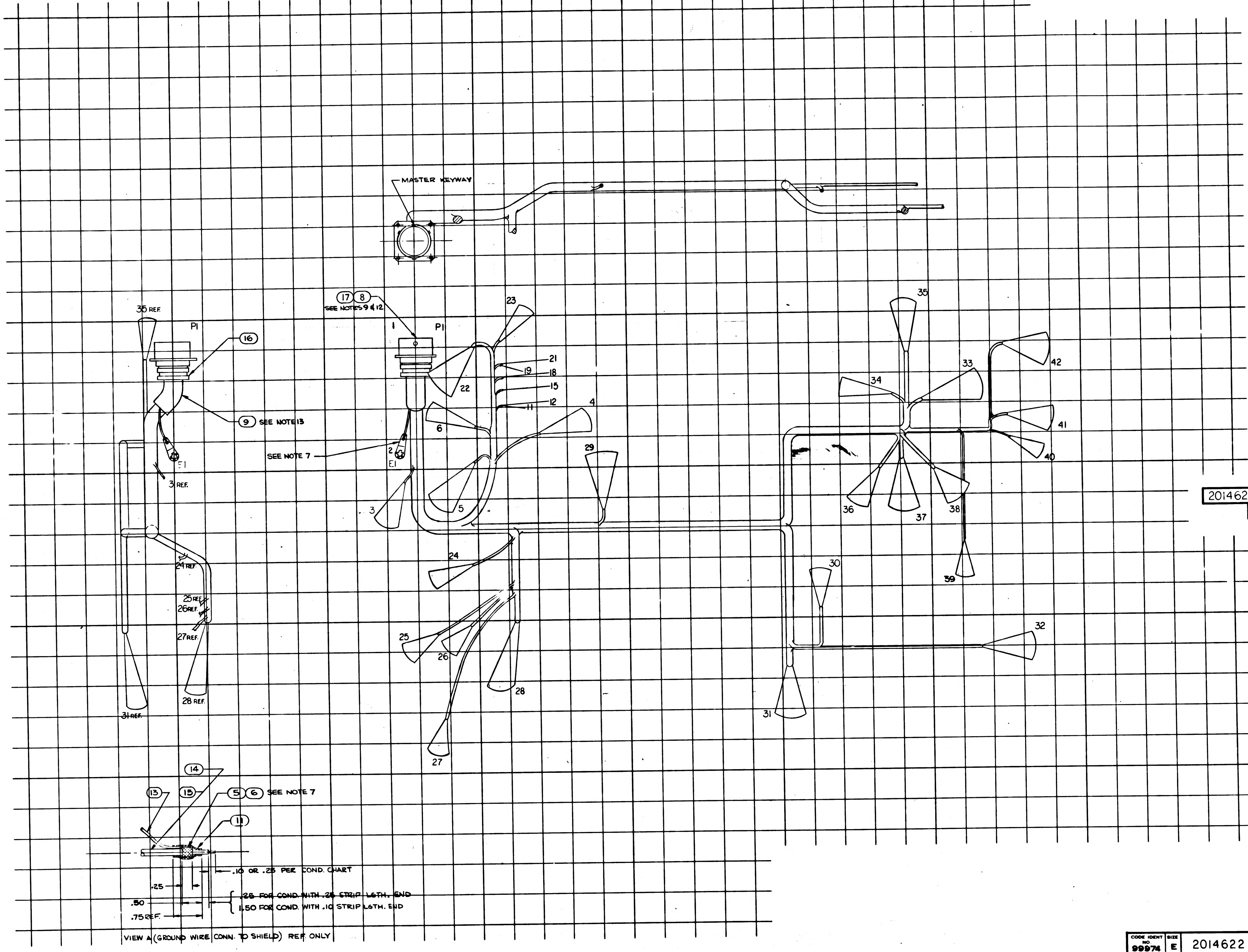
2 DIMENSIONS ARE IN INCHES AND TWO PLACE DECIMALS.

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	SIZE A	2014622
SCALE - NONE	REV LTR	SHEET 14

MIL 2085-4-64 WIR

SYM	ZONE	REVISIONS TDRR 22058 DESCRIPTION	CHG NO	DATE	APPD

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
35 REF.
P1
16
9 SEE NOTE 13
E1
3 REF.
24 REF.
25 REF.
26 REF.
27 REF.
31 REF.
28 REF.
17 8
SEE NOTES 9 & 12
1
P1
23
21
19
18
15
12
11
22
4
6
SEE NOTE 7
2
E1
29
3
5
24
25
26
28
27
35
34
33
42
41
40
36
37
38
39
30
32
31
14
13
15
5 6 SEE NOTE 7
11
.10 OR .25 PER COND. CHART
.25
.50
.75 REF.
.25 FOR COND. WITH .25 STRIP LGTH. END
1.50 FOR COND. WITH .10 STRIP LGTH. END

VIEW A (GROUND WIRE CONN. TO SHIELD) REF. ONLY

2014622

REV LTR

CODE IDENT NO.	SIZE	
99974	E	2014622
SCALE 1/1		SHEET 15

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO 16644			
A		REVISED PER TDRR NO. 16970		3-19-65	MDM
B		REVISED PER TDRR NO. 17732		3-19-65	MDM

		1	3	1014532	OPTICS COVER ASSY
		1	2	2014578 - 011	G & N INDICATOR CONT. PANEL ASSY
		1	1	2014576 - 011	OPTICS SHROUD ASSY
		011	ITEM NO.	PART NUMBER	DESCRIPTION
QUANTITY REQ'D				LIST OF PARTS AND MATERIALS	

2015000	2015000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± __ DECIMALS ± __ ANGLES ± __

DO NOT SCALE THIS DRAWING

MATERIAL ——

CONTRACT

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

ACSP PN

DRAWN R. Robb DATE 15 FEB 65
CHECKED FJ Boehme 2-15-65
APPROVAL 2/16/65
APPROVAL

NASA APPROVAL 2/18/65
MIT APPROVAL 18 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DISPLAY & CONTROL GROUP

CODE IDENT NO.
SIZE C
2014623
SCALE —
SHEET 1 OF 1

2014623 B

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO 16644			
A		REVISED PER TDRR NO. 16970		3-19-65	
B		REVISED PER TDRR NO. 17732		3-19-65	
C		REVISED PER TDRR NO. 24110		12/7/65	WK.

LIST OF PARTS AND MATERIALS

		1	2	2014578 - 011	G & N INDICATOR CONT. PANEL ASSY
		1	1	2014576 - 011	OPTICS SHROUD ASSY
		011	ITEM NO.	PART NUMBER	DESCRIPTION
QUANTITY REQ'D					

NEXT ASSY	USED ON
2015000	2015000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
±	±	±

DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

ACSP PN

DRAWN R. Cobb DATE 15 FEB 65
CHECKED F J Boehme 2-15-65
APPROVAL 2/16/65
APPROVAL

NASA APPROVAL

MIT APPROVAL 18 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DISPLAY & CONTROL GROUP

CODE IDENT NO.

SIZE C

2014623

SCALE —

SHEET 1 OF 1

MIL 1077C—P

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO 16644			
A		REVISED PER TDRR NO. 16970		[illegible]	[illegible]
B		REVISED PER TDRR NO. 17732		[illegible]	[illegible]
C		REVISED PER TDRR NO. 24110		12/7/65	WK
D		REVISED PER TDRR 32614		19 JAN 67	LL
E		REVISED PER TDRR 34061		11 AUG 67	AN

2014623 E

1	–	–	4	2014578-031	G&N INDICATOR CONT. PANEL ASSY
–	1	–	3	2014578-021	G&N INDICATOR CONT. PANEL ASSY
–	–	1	2	2014578-011	G&N INDICATOR CONT. PANEL ASSY
1	1	1	1	2014576-011	OPTICS SHROUD ASSY
031	021	011	ITEM NO.	PART NUMBER	DESCRIPTION
QUANTITY REQ'D				LIST OF PARTS AND MATERIALS	

2015000	2015000
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN R. Cote DATE 15 FEB 65
CHECKED [illegible] 2-15-65
APPROVAL [illegible] 2/16/65
APPROVAL
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 18 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DISPLAY & CONTROL GROUP

CODE IDENT NO.
SIZE C
2014623
SCALE —
SHEET 1 OF 1

MIL 1077C-P

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO 16644			
A		REVISED PER TDRR NO. 16970		3-19-65	
B		REVISED PER TDRR NO. 17732		3-1965	
C		REVISED PER TDRR NO. 24110		12/7/65	WK.
D		REVISED PER TDRR 32614		19 JAN 67	LL
E		REVISED PER TDRR 34061		11 AUG 67	AN
F		REVISED PER TDRR 34074		16 AUG 67-	DG

2014623 F

041	031	021	011	ITEM NO.	PART NUMBER	DESCRIPTION
1	–	–	–	5	2021290-011	G&N INDICATOR CONT. PANEL ASSY
–	1	–	–	4	2014578-031	G&N INDICATOR CONT. PANEL ASSY
–	–	1	–	3	2014578-021	G&N INDICATOR CONT. PANEL ASSY
–	–	–	1	2	2014578-011	G&N INDICATOR CONT. PANEL ASSY
1	1	1	1	1	2014576-011	OPTICS SHROUD ASSY

QUANTITY REQ'D — LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2015000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN R. Cote DATE 15 FEB 65
CHECKED F J Boehm 2-15-65
APPROVAL 2/4/65
APPROVAL
NASA APPROVAL 4/4/65
MIT APPROVAL 16 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DISPLAY & CONTROL GROUP

CODE IDENT NO.
SIZE C
2014623
SCALE —
SHEET 1 OF 1

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO 16644			
A		REVISED PER TDRR NO. 16970		[illegible]	
B		REVISED PER TDRR NO. 17732		[illegible]	
C		REVISED PER TDRR NO. 24110		12/7/65	
D		REVISED PER TDRR 32614		19 JAN 67	LL
E		REVISED PER TDRR 34061		11 AUG 67	AN
F		REVISED PER TDRR 34074		16 AUG 67-	DG
G		REVISED PER TDRR 35052		21 NOV 67	JJJ RWH

2014623 G

081	071	061	051	041	031	021	011	ITEM NO.	PART NUMBER	DESCRIPTION
1	1	1		–	–	–	–	7	2021394-011	OPTICS SHROUD ASSY
–	–	1		–	–	–	–	6	2021323-011	G&N INDICATOR CONT. PANEL ASSY
–	1	–		1	–	–	–	5	2021290-011	G&N INDICATOR CONT. PANEL ASSY
1	–	–		–	1	–	–	4	2014578-031	G&N INDICATOR CONT. PANEL ASSY
–	–	–		–	–	1	–	3	2014578-021	G&N INDICATOR CONT. PANEL ASSY
–	–	–		–	–	–	1	2	2014578-011	G&N INDICATOR CONT. PANEL ASSY
–	–	–		1	1	1	1	1	2014576-011	OPTICS SHROUD ASSY

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2015000	2015000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± __ DECIMALS ± __ ANGLES ± __
DO NOT SCALE THIS DRAWING
MATERIAL ______
CONTRACT

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN R. Rote DATE 15 FEB 65
CHECKED 2-15-65
APPROVAL 2/16/65
APPROVAL
NASA APPROVAL
MIT APPROVAL 18 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DISPLAY & CONTROL GROUP

CODE IDENT NO.
SIZE C
2014623
SCALE —
SHEET 1 OF 1

MIL 1077C-P

4 3 2 1

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		INITIAL CLASS A RELEASE TDRR NO 16644			

		1	4	2014577-011	CONDITION ANNUNCIATOR ASSY
		1	3	1014532	OPTICS COVER ASSY
		1	2	2014078 - 011	G&N INDICATOR CONT. PANEL ASSY
		1	2	1014502-011	OPTICS SHROUD ASSY
		011	ITEM NO.	PART NUMBER	DESCRIPTION
QUANTITY REQ'D				LIST OF PARTS AND MATERIALS	

NEXT ASSY	USED ON
2015000	2015000

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ___ ± ___ ± ___

DO NOT SCALE THIS DRAWING

MATERIAL ______

CONTRACT

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

ACSP PN

DRAWN R. Cobb DATE 15 FEB 65
CHECKED FJ Boehme 2-15-65
APPROVAL 2/16/65
APPROVAL

NASA APPROVAL 2/18/65
MIT APPROVAL 18 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

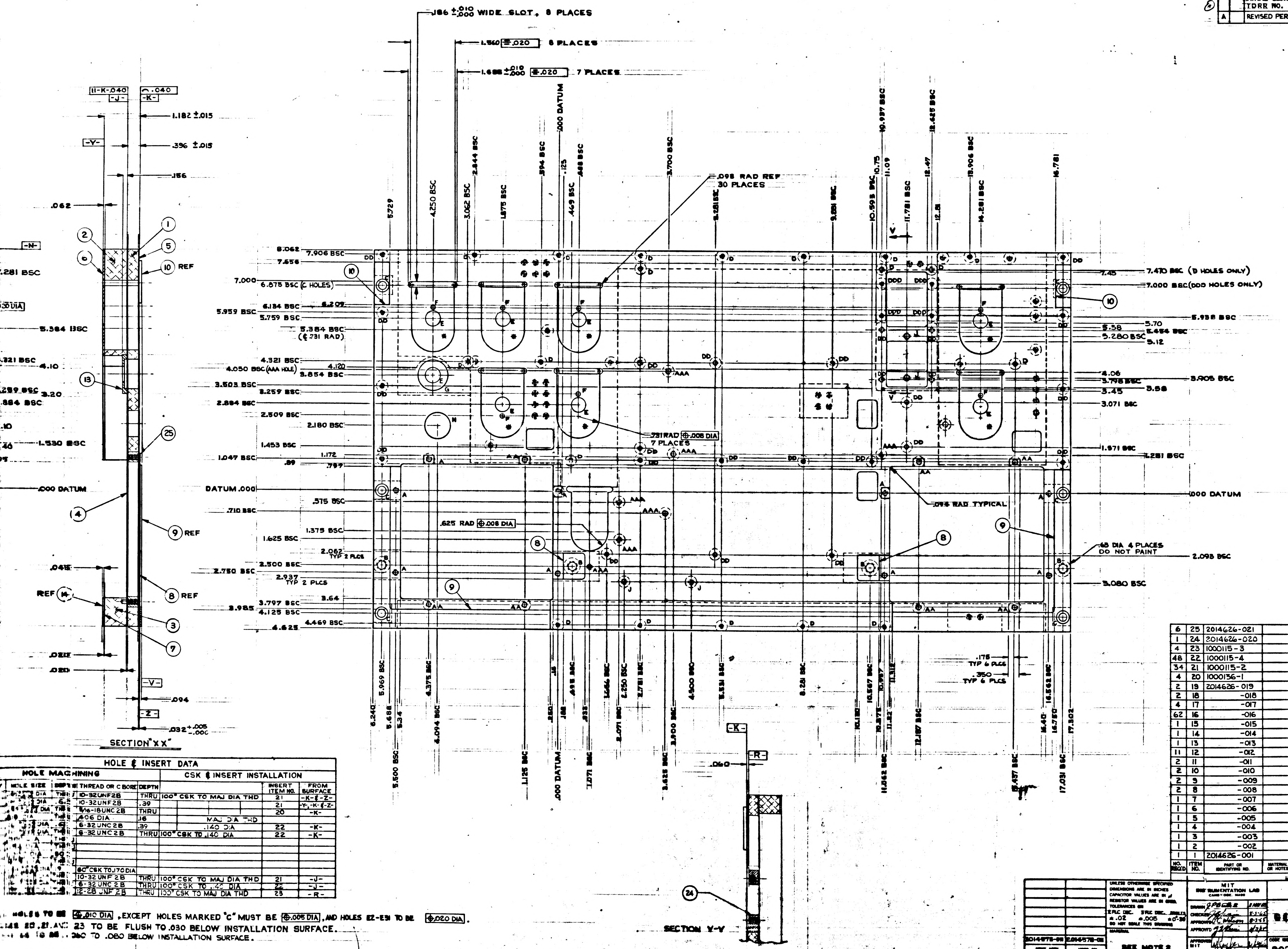
DISPLAY & CONTROL GROUP

CODE IDENT NO.
SIZE C
2014623
SCALE —
SHEET 1 OF 1

MIL 1077C—P

4 3 2 1

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROV
		INITIAL CLASS A RELEASE TDRR NO. 22657				
A		REVISED PER TDRR NO. 23120	J.D.		15OCT65	



.186 +.010 -.000 WIDE SLOT, 8 PLACES
1.560 ⌯.020 8 PLACES
1.688 +.010 -.000 ⌯.020 7 PLACES
.098 RAD REF 30 PLACES
.731 RAD ⊕.005 DIA 7 PLACES
.625 RAD ⊕.005 DIA
.098 RAD TYPICAL
.68 DIA 4 PLACES DO NOT PAINT
7.470 BSC (D HOLES ONLY)
7.000 BSC (DDD HOLES ONLY)
6.875 BSC (C HOLES)
5.384 BSC (¢ .731 RAD)
4.050 BSC (AAA HOLE)
.000 DATUM
DATUM .000
2.062 TYP 2 PLCS
2.937 TYP 2 PLCS
.175 TYP 6 PLCS
.350 TYP 6 PLCS
1.182 ±.015
.396 ±.015
.032 +.005 -.000
SECTION "X X"
SECTION Y-Y
-J-
-K-
-N-
-V-
-Y-
-Z-
-R-
2014626
REV LTR A

HOLE & INSERT DATA						
HOLE MACHINING				CSK & INSERT INSTALLATION		
HOLE SIZE	DEPTH	THREAD OR C BORE	DEPTH		INSERT ITEM NO.	FROM SURFACE
[illegible] DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD	21	-K- ¢ -Z-
[illegible] DIA	.6[illegible]	10-32UNF2B	.39		21	-Y-, -K- ¢ -Z-
[illegible] DIA	THRU	5/16-18UNC2B	THRU		20	-K-
[illegible]	THRU	.406 DIA	.16	MAJ DIA THD		
[illegible] DIA	.6[illegible]	6-32UNC2B	.39	.140 DIA	22	-K-
[illegible] DIA	THRU	6-32UNC2B	THRU	100° CSK TO .140 DIA	22	-K-
[illegible]	THRU					
[illegible]	THRU					
[illegible]	.90					
[illegible]	THRU					
[illegible]		60° CSK TO .170 DIA				
[illegible]	THRU	10-32 UNF 2B	THRU	100° CSK TO MAJ DIA THD	21	-J-
[illegible]	THRU	6-32 UNC 2B	THRU	100° CSK TO .140 DIA	22	-J-
[illegible]	THRU	12-28 UNF 2B	THRU	100° CSK TO MAJ DIA THD	23	-R-

[illegible] HOLES TO BE ⊕.010 DIA, EXCEPT HOLES MARKED "C" MUST BE ⊕.005 DIA, AND HOLES E2-E31 TO BE ⊕.020 DIA.
[illegible] 20, 21 AND 23 TO BE FLUSH TO .030 BELOW INSTALLATION SURFACE.
[illegible] .060 TO .080 BELOW INSTALLATION SURFACE.

NO. REQ'D	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
6	25	2014626-021		FACE PAD
1	24	2014626-020		INSERT, CORE PLATE
4	23	1000115-3		INSERT, THREADED
48	22	1000115-4		INSERT, THREADED
34	21	1000115-2		INSERT, THREADED
4	20	1000136-1		INSERT, THREADED
2	19	2014626-019		INSERT, CORE PLUG
2	18	-018		INSERT, CORE PLUG
4	17	-017		INSERT, CORE PLUG
62	16	-016		INSERT, CORE PLUG
1	15	-015		FACE PAD
1	14	-014		FACE PAD
1	13	-013		FACE PAD
11	12	-012		INSERT, CORE PLUG
2	11	-011		INSERT, CORE PLUG
2	10	-010		FACE PAD
2	9	-009		FACE PAD
2	8	-008		FACE PAD
1	7	-007		FACE PANEL
1	6	-006		FACE PANEL
1	5	-005		FACE PANEL
1	4	-004		FACE PANEL
1	3	-003		CORE HONEYCOMB PAD
1	2	-002		CORE HONEYCOMB PAD
1	1	2014626-001		CORE HONEYCOMB PANEL

LIST OF MATERIALS

NEXT ASSY	USED ON
2014575-011	2014575-011
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
2 PLC DEC. ±.02 3 PLC DEC. ±.005 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

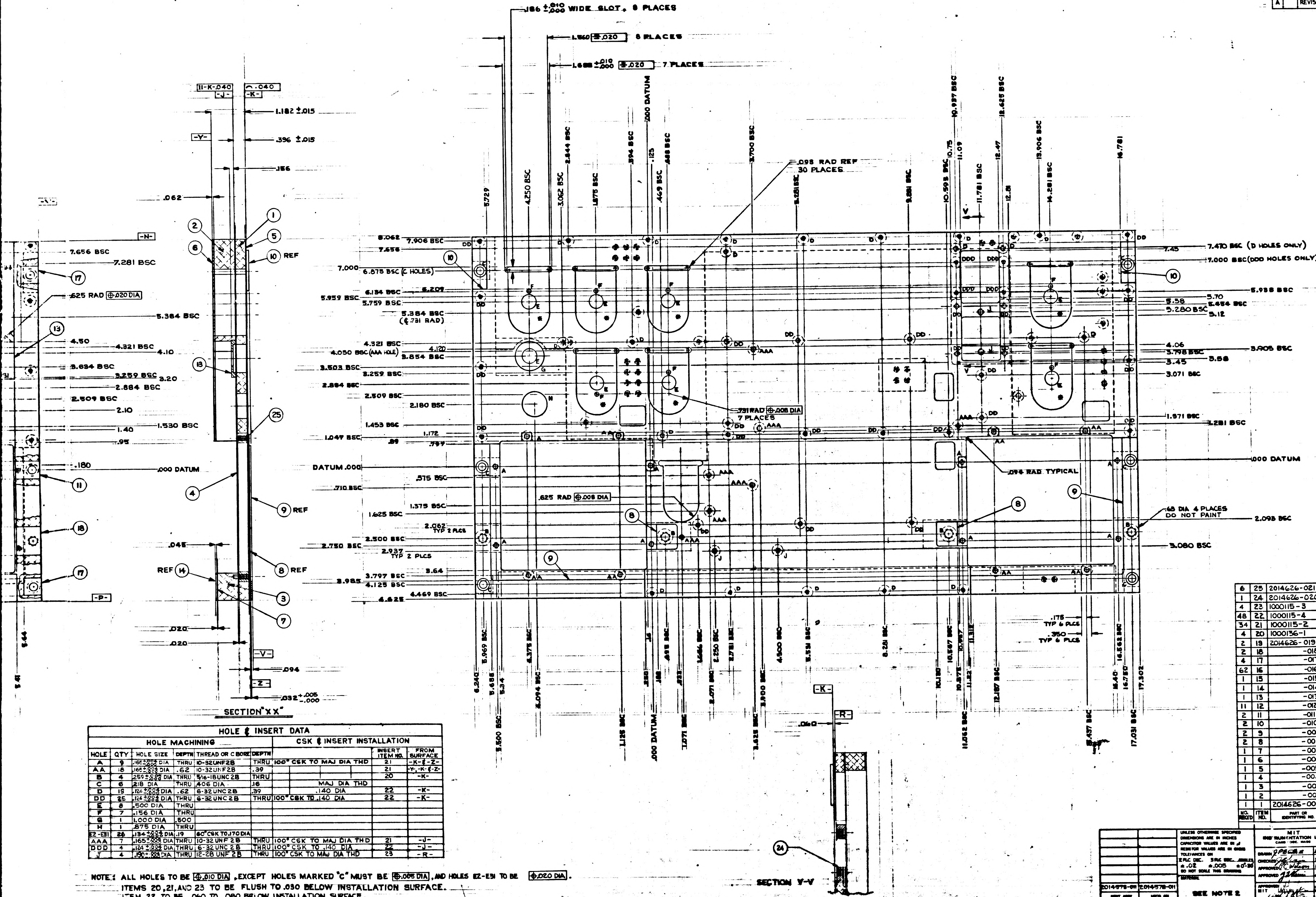
DRAWN J.P.B. 11 MAY 65
CHECKED 8-3-65
APPROVED R C Watson 8-3-65
APPROVED
APPROVED MIT
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL
G&N INDICATOR CONTROL
(INSEPARABLE)

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2014626
SCALE 1/1
SHEET 1 OF 1

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROV
		INITIAL CLASS A RELEASE TDRR NO. 22659				
A		REVISED PER TDRR NO. 23120			15 OCT 65	


.186 +.010 -.000 WIDE SLOT, 8 PLACES
1.560 ⊕.020 8 PLACES
1.688 +.010 -.000 ⊕.020 7 PLACES
.098 RAD REF 30 PLACES
.731 RAD ⊕.008 DIA 7 PLACES
.094 RAD TYPICAL
.625 RAD ⊕.008 DIA
.625 RAD ⊕.020 DIA
.68 DIA 4 PLACES DO NOT PAINT
7.470 BSC (D HOLES ONLY)
7.000 BSC (DDD HOLES ONLY)
6.875 BSC (C HOLES)
4.050 BSC (AAA HOLE)
5.384 BSC (℄ .731 RAD)
.000 DATUM
DATUM .000
2.062 TYP 2 PLCS
2.937 TYP 2 PLCS
.175 TYP 6 PLCS
.350 TYP 6 PLCS
.032 +.005 -.000
SECTION "XX"
SECTION V-V

HOLE & INSERT DATA

HOLE MACHINING						CSK & INSERT INSTALLATION		
HOLE	QTY	HOLE SIZE	DEPTH	THREAD OR C BORE	DEPTH		INSERT ITEM NO.	FROM SURFACE
A	9	.165 +.004 -.000 DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD	21	-K-&-Z-
AA	18	.165 +.004 -.000 DIA	.62	10-32UNF2B	.39		21	-Y-,-K-&-Z-
B	4	.259 +.005 -.000 DIA	THRU	5/16-18UNC2B	THRU		20	-K-
C	6	.218 DIA	THRU	.406 DIA	.16	MAJ DIA THD		
D	19	.124 +.004 -.000 DIA	.62	6-32UNC2B	.39	.140 DIA	22	-K-
DD	25	.124 +.004 -.000 DIA	THRU	6-32UNC2B	THRU	100° CSK TO .140 DIA	22	-K-
E	8	.500 DIA	THRU					
F	7	.156 DIA	THRU					
G	1	1.000 DIA	.500					
H	1	.875 DIA	THRU					
E2-E31	26	.134 +.004 -.000 DIA	.19	60° CSK TO .170 DIA				
AAA	7	.165 +.004 -.000 DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD	21	-J-
DDD	4	.124 +.004 -.000 DIA	THRU	6-32UNC2B	THRU	100° CSK TO .140 DIA	22	-J-
J	4	.190 +.004 -.000 DIA	THRU	12-28UNF2B	THRU	100° CSK TO MAJ DIA THD	23	-R-

NOTE: ALL HOLES TO BE ⊕.010 DIA, EXCEPT HOLES MARKED "C" MUST BE ⊕.005 DIA, AND HOLES EZ-E31 TO BE ⊕.020 DIA.
ITEMS 20, 21, AND 23 TO BE FLUSH TO .030 BELOW INSTALLATION SURFACE.
ITEM 22 TO BE .060 TO .080 BELOW INSTALLATION SURFACE.

NO. REQ'D	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
6	25	2014626-021		FACE PAD
1	24	2014626-020		INSERT, CORE PLATE
4	23	1000115-3		INSERT, THREADED
48	22	1000115-4		INSERT, THREADED
34	21	1000115-2		INSERT, THREADED
4	20	1000136-1		INSERT, THREADED
2	19	2014626-019		INSERT, CORE PLUG
2	18	-018		INSERT, CORE PLUG
4	17	-017		INSERT, CORE PLUG
62	16	-016		INSERT, CORE PLUG
1	15	-015		FACE PAD
1	14	-014		FACE PAD
1	13	-013		FACE PAD
11	12	-012		INSERT, CORE PLUG
2	11	-011		INSERT, CORE PLUG
2	10	-010		FACE PAD
2	9	-009		FACE PAD
2	8	-008		FACE PAD
1	7	-007		FACE PANEL
1	6	-006		FACE PANEL
1	5	-005		FACE PANEL
1	4	-004		FACE PANEL
1	3	-003		CORE HONEYCOMB PAD
1	2	-002		CORE HONEYCOMB PAD
1	1	2014626-001		CORE HONEYCOMB PANEL

LIST OF MATERIALS

NEXT ASSY	USED ON
2014578-011	2014578-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
2 PLC DEC. ±.02 3 PLC DEC. ±.005 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J P B 11 MAY 65
CHECKED 8-5-65
APPROVED R C Watson 8-3-65
APPROVED
APPROVED MIT
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

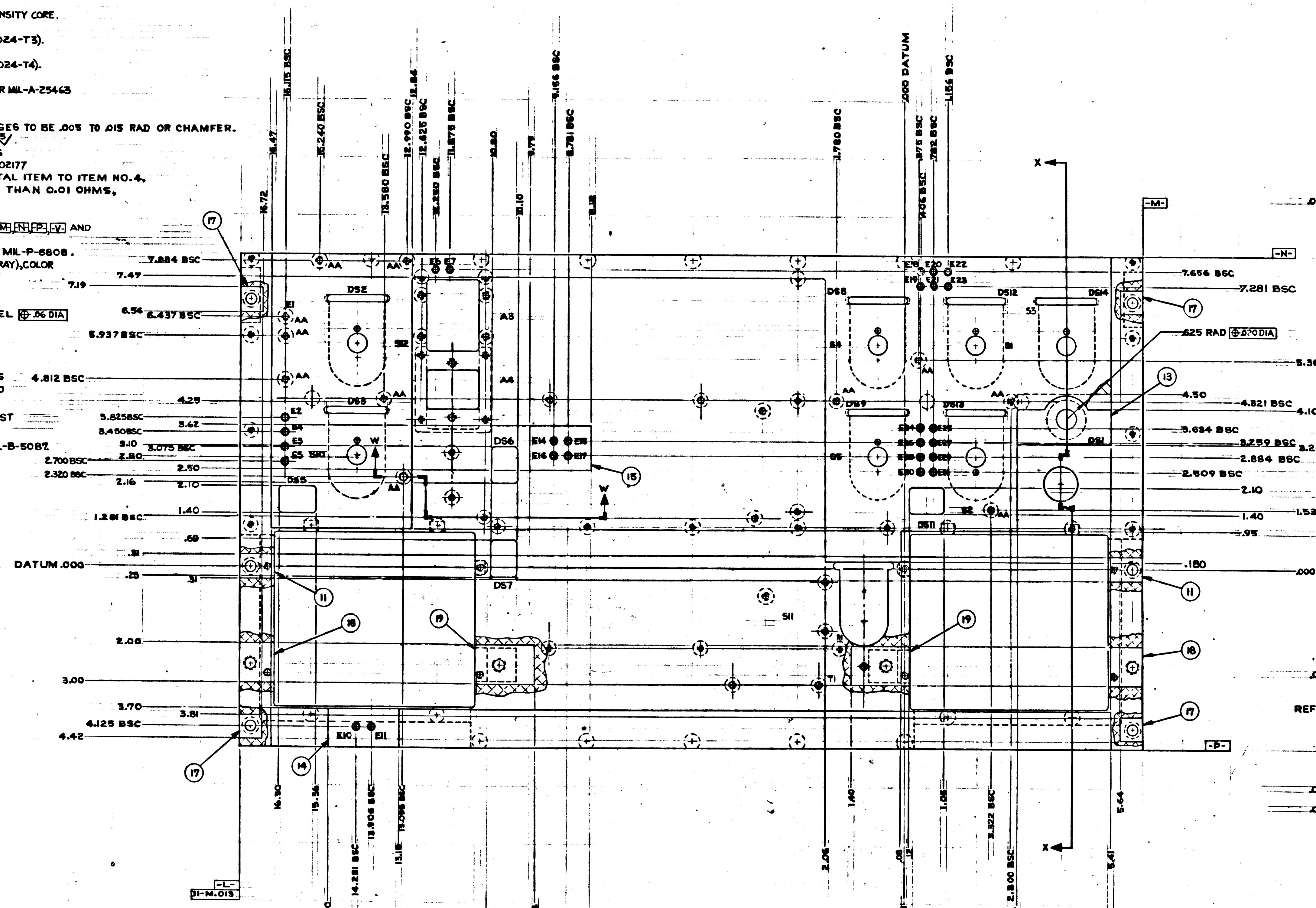
PANEL
G&N INDICATOR CONTROL
(INSEPARABLE)

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2014626

SCALE 1/1

2014626 REV LTR A

NOTES:
1. INTERPRET DWG PER MIL-D-70327
2. MATERIAL:
   - A. ITEMS 1,2 AND 3:
     HONEYCOMB, PER MIL-C-7438, .125 ± .016 CELL SIZE, .001
     FOIL GAUGE (PERFORATED CELL WALLS)
     AL ALY PER QQ-A-250/8(5052-H39), 4.5 DENSITY CORE.
   - B. ITEMS 4,5,6,7 AND 14
     AL ALY PER QQ-A-250/5, TEMPER T3, (2024-T3).
   - C. ITEMS 8,9,10,11,12,13 AND 15.
     AL ALY PER QQ-A-225/6, TEMPER T4, (2024-T4).
3. ADHESIVE:
   ADHESIVE FOR METALLIC CONSTRUCTION PER MIL-A-25463
   (ASG), TYPE II, CLASS 2.
4. UNLESS OTHERWISE SPECIFIED:
   - A. MUST BE FREE FROM BURRS AND ALL EDGES TO BE .005 TO .015 RAD OR CHAMFER.
   - B. SURFACE ROUGHNESS NOT TO EXCEED $\overset{125}{\checkmark}$.
5. BAND ALL EXPOSED HONEYCOMB CORE EDGES
   PER ND1002178 USING EPOXY PUTTY PER ND1002177
6. RESISTANCE MEASURED FROM ANY METAL ITEM TO ITEM NO. 4, THROUGH THE BOND, TO BE LESS THAN 0.01 OHMS.
7. FINISH: $\boxed{2}$
   - A. CHEMICAL FILM PER MIL-C-5541, CLASS 3.
   - B. UNLESS OTHERWISE SPECIFIED: SURFACES $\boxed{-L-}$, $\boxed{-M-}$, $\boxed{-N-}$, $\boxed{-P-}$, $\boxed{-V-}$ AND SURFACES MARKED WITH AN ASTERISK (*):
     1. APPLY ZINC CHROMATE PRIMER PER MIL-P-6808.
     2. APPLY TT-E-527 LUSTERLESS ENAMEL (GRAY), COLOR NO. 36231 OF FED-STD-595, PER ND1002110
8. IDENTIFY USING DWG NO. PER ND1002019
9. SERIALIZE PER ND1002023
10. ALL INSERTS TO BE LOCATED IN PANEL $\boxed{\oplus\ .06\ \text{DIA}}$
11. $\boxed{2}$ CONTROLLED BY ICD MH01-01174-414
12. MARKING ON REAR OF PANEL TO BE .12 HIGH CHARACTERS, COLOR BLACK PER ND1002019 LOCATED APPROXIMATELY AS SHOWN.
13. OVERALL DIM. OF PANEL, LOCATIONS OF H & C HOLES ARE CONTROLLED BY ICD MH01-01304-116.
14. ALL EXPOSED EDGES ON ITEM 6 MUST HAVE .03 TO .05 RAD.
15. ELECTRICAL BONDING TO BE PER MIL-B-5087.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.000 DATUM
DS2
DS3
DS5
DS6
DS7
DS8
DS9
DS11
DS12
DS13
DS14
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A4
S1
S2
S3
S4
S5
S10
S11
S12
T1
E1
E2
E3
E4
E5
E6
E7
E10
E11
E14
E15
E16
E17
E18
E19
E20
E21
E22
E23
AA
W
X
-L-
11-M.015
-M-
-N-
-P-
.625 RAD ⊕.020 DIA
7.884 BSC
7.47
7.19
6.56
6.437 BSC
5.937 BSC
4.812 BSC
4.25
3.825 BSC
3.62
3.450 BSC
3.10
3.075 BSC
2.80
2.700 BSC
2.50
2.320 BSC
2.16
2.10
1.40
1.281 BSC
.69
.31
.25
2.06
3.00
3.70
3.81
4.125 BSC
4.42
7.656 BSC
7.281 BSC
5.384 BSC
4.50
4.321 BSC
4.10
3.684 BSC
3.259 BSC
3.20
2.884 BSC
2.509 BSC
1.530 BSC
.95
.180
16.72
16.47
16.115 BSC
15.240 BSC
13.580 BSC
12.990 BSC
12.84
12.425 BSC
12.250 BSC
11.875 BSC
10.80
10.10
9.79
9.156 BSC
8.781 BSC
8.18
1.780 BSC
.000 DATUM
.375 BSC
.406 BSC
.782 BSC
1.156 BSC
16.30
15.36
15.00
14.281 BSC
13.906 BSC
13.16
13.096 BSC
9.66
2.06
1.40
1.08
.12
.08
3.322 BSC
2.800 BSC
2.97
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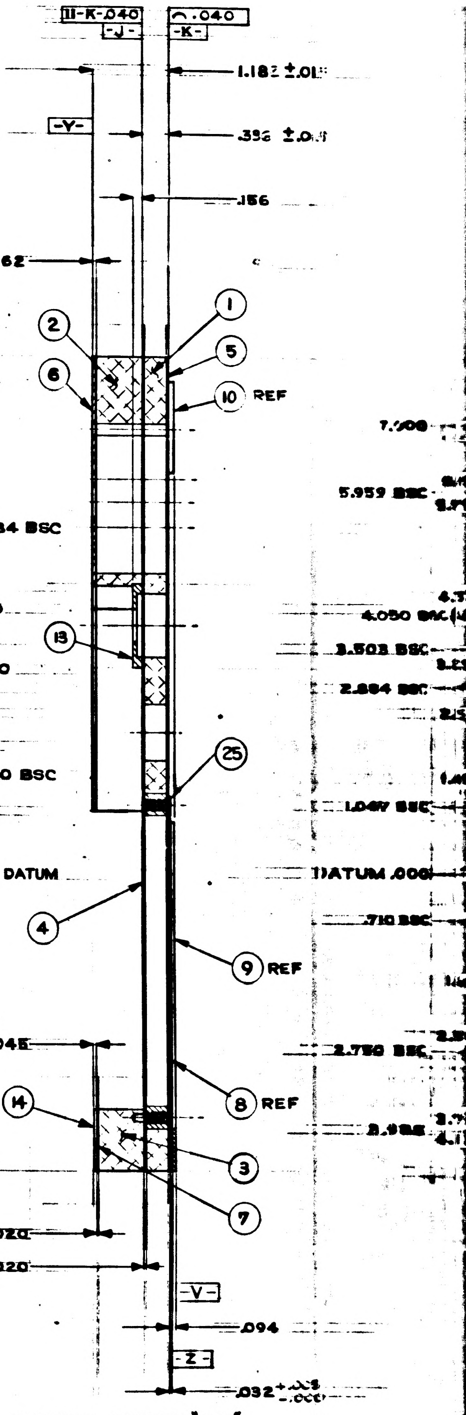
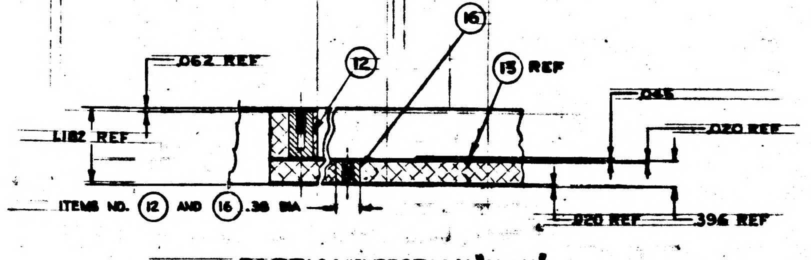
11
13
14
15
17
18
19


11-K-.040
-J-
⌒.040
-K-
1.182 ±.01
-Y-
.352 ±.0
.156
.062
7.908
5.959 BSC
4.050 BSC
3.503 BSC
2.884 BSC
1.047 BSC
DATUM .000
.710 BSC
2.750 BSC
2.986
.045
.020
.020
-V-
.094
-Z-
.032 +.003 -.000
1
2
3
4
5
6
7
8 REF
9 REF
10 REF
13
14 REF
25

SECTION "XX"


.062 REF
1.182 REF
12
16
13 REF
.045
.020 REF
ITEMS NO. 12 AND 16 .38 DIA
.920 REF
.396 REF

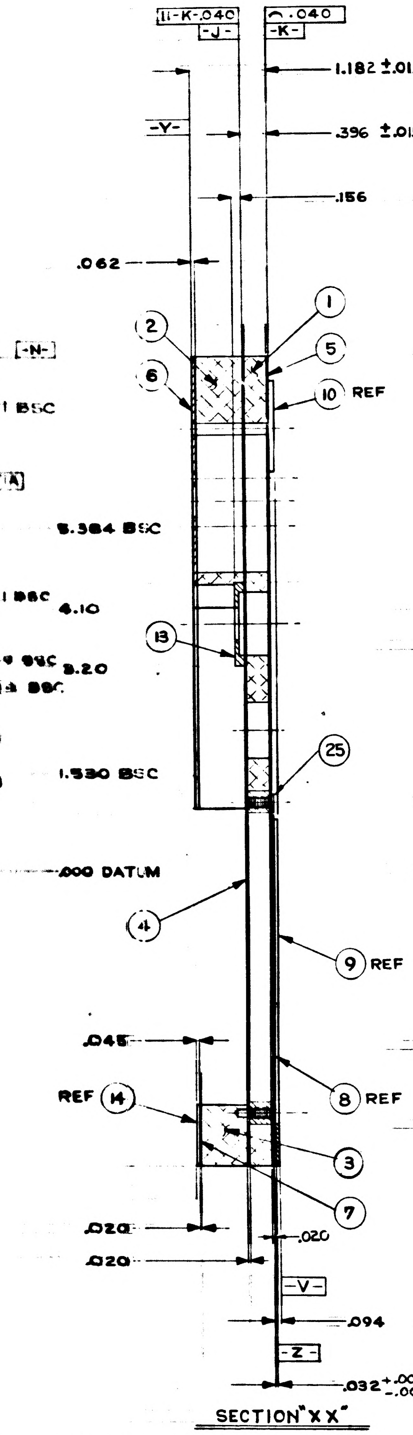
PARTIAL SECTION "WW"

HOLE & INSERT DATA							
HOLE MACHINING						CSK & INSERT INSTAL	
HOLE	QTY	HOLE SIZE	DEPTH	THREAD OR C BORE	DEPTH		
A	9	.165$^{+.004}_{-.000}$ DIA	THRU	10-32UNF2B	THRU	100° CSK TO	MAJ DIA THD
AA	18	.165 [illegible] DIA	.62	10-32UNF2B	.39		
B	4	.259 [illegible] DIA	THRU	5/16-18UNC2B	THRU		
C	6	.218 DIA	THRU	.406 DIA	.16		MAJ DIA THD
D	19	.124$^{+.004}_{-.000}$ DIA	.62	6-32UNC2B	.39		.40 DIA
DD	25	.124 [illegible] DIA	THRU	6-32UNC2B	THRU	100° CSK TO	.40 DIA
E	8	.500 DIA	THRU				
F	7	.156 DIA	THRU				
G	1	1.000 DIA	.500				
H	1	.875 DIA	THRU				
E2-E11	26	.184 [illegible] DIA	.19	60° CSK TO .170 DIA			
AAA	7	.165 [illegible] DIA	THRU	10-32UNF2B	THRU	100° CSK TO	MAJ DIA THD
DDD	4	.124 [illegible] DIA	THRU	6-32UNC2B	THRU	100° CSK TO	[illegible] DIA
J	4	.190 [illegible] DIA	THRU	12-28UNF2B	THRU	100° CSK TO	MAJ DIA THD

NOTE: ALL HOLES TO BE $\boxed{\oplus\ .010\ \text{DIA}}$, EXCEPT HOLES MARKED "C" [illegible]
ITEMS 20, 21, AND 23 TO BE FLUSH TO .030 BELOW INSTAL[illegible]
ITEM 22 TO BE .060 TO .080 BELOW INSTALLATION SURFACE.

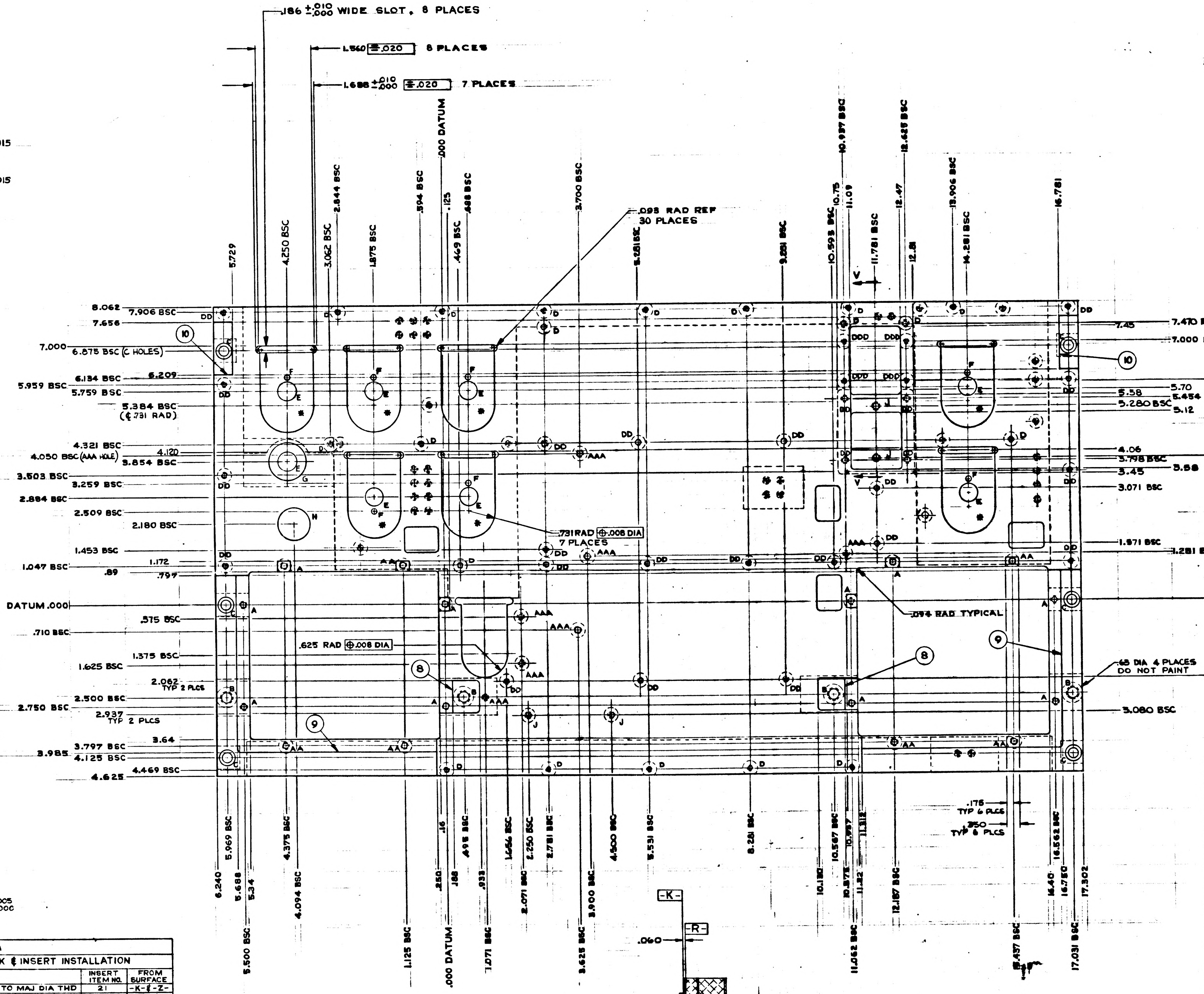
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROV
		INITIAL CLASS A RELEASE TDRR NO. 22659				
A		REVISED PER TDRR NO. 23120	JD		15 OCT 65	
B		REVISED PER TDRR NO. 23287	JD		23 NOV 65	
C		REVISED PER TDRR NO. 24048	JD		23 NOV 65	
D		REVISED PER TDRR NO. 25456	JD		12 Q 66	

REVISIONS

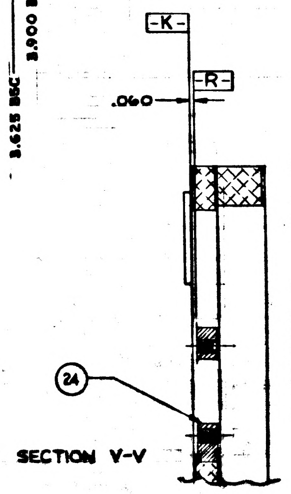


-K- .040
-J-
-K-
1.182 ±.015
-Y-
.396 ±.015
.156
.062
-N-
5.384 BSC
4.10
3.20
1.530 BSC
.000 DATUM
.045
REF
.020
.020
-V-
.094
-Z-
.032 +.005 -.000
REF

SECTION "X X"



.186 +.010 -.000 WIDE SLOT, 8 PLACES
1.560 ⌖.020 8 PLACES
1.688 +.010 -.000 ⌖.020 7 PLACES
.095 RAD REF 30 PLACES
.731 RAD ⌖.008 DIA 7 PLACES
.625 RAD ⌖.008 DIA
.094 RAD TYPICAL
7.470 BSC (D HOLES ONLY)
7.000 BSC (DDD HOLES ONLY)
.000 DATUM
DATUM .000
.68 DIA 4 PLACES DO NOT PAINT
.175 TYP 6 PLCS
.250 TYP 6 PLCS
V



SECTION V-V

2014626 REV LTR D

NO. REQ'D	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
6	25	2014626-021		FACE PAD
1	24	2014626-020		INSERT, CORE PLATE
4	23	1000115-3		INSERT, THREADED
48	22	1000115-4		INSERT, THREADED
34	21	1000115-2		INSERT, THREADED
4	20	1000136-1		INSERT, THREADED
2	19	2014626-019		INSERT, CORE PLUG
2	18	-018		INSERT, CORE PLUG
4	17	-017		INSERT, CORE PLUG
62	16	-016		INSERT, CORE PLUG
1	15	-015		FACE PAD
1	14	-014		FACE PAD
1	13	-013		FACE PAD
11	12	-012		INSERT, CORE PLUG
2	11	-011		INSERT, CORE PLUG
2	10	-010		FACE PAD
2	9	-009		FACE PAD
2	8	-008		FACE PAD
1	7	-007		FACE PANEL
1	6	-006		FACE PANEL
1	5	-005		FACE PANEL
1	4	-004		FACE PANEL
1	3	-003		CORE HONEYCOMB PAD
1	2	-002		CORE HONEYCOMB PAD
1	1	2014626-001		CORE HONEYCOMB PANEL

LIST OF MATERIALS

HOLE & INSERT DATA

HOLE MACHINING				CSK & INSERT INSTALLATION		
HOLE SIZE	DEPTH	THREAD OR C BORE	DEPTH		INSERT ITEM NO.	FROM SURFACE
[illegible] DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD	21	-K- & -Z-
[illegible] DIA	.62	10-32UNF2B	.39		21	-Y-, -K- & -Z-
[illegible] DIA	THRU	5/16-18UNC2B	THRU		20	-K-
.218 DIA	THRU	.406 DIA	.16	MAJ DIA THD		
[illegible] DIA	[illegible]	6-32UNC2B	.22	.140 DIA	22	-K-
[illegible] DIA	THRU	6-32UNC2B	THRU	100° CSK TO .140 DIA	22	-K-
.500 DIA	THRU					
.156 DIA	THRU					
[illegible] DIA	.500					
[illegible] DIA	THRU					
[illegible] DIA	.19	60° CSK TO .170 DIA				
[illegible] DIA	THRU	10-32 UNF 2B	THRU	100° CSK TO MAJ DIA THD	21	-J-
[illegible]	THRU	6-32 UNC 2B	THRU	100° CSK TO .140 DIA	22	-J-
[illegible]	THRU	12-28 UNF 2B	THRU	100° CSK TO MAJ DIA THD	23	-R- & -J-

HOLES TO BE ⌖.010 DIA, EXCEPT HOLES MARKED "C" MUST BE ⌖.005 DIA, AND HOLES E2-E31 TO BE ⌖.020 DIA.

[illegible] 23 TO BE FLUSH TO .030 BELOW INSTALLATION SURFACE.

[illegible] .060 TO .080 BELOW INSTALLATION SURFACE.

MASTER

3H

2014578-011	2014578-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
2 PLC DEC. ±.02 3 PLC DEC. ±.005 ANGLES ±0°-30
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J P B 11 MAY 65
CHECKED 8-3-65
APPROVED R C Watson 8-3-65
APPROVED
APPROVED MIT
APPROVED MSC

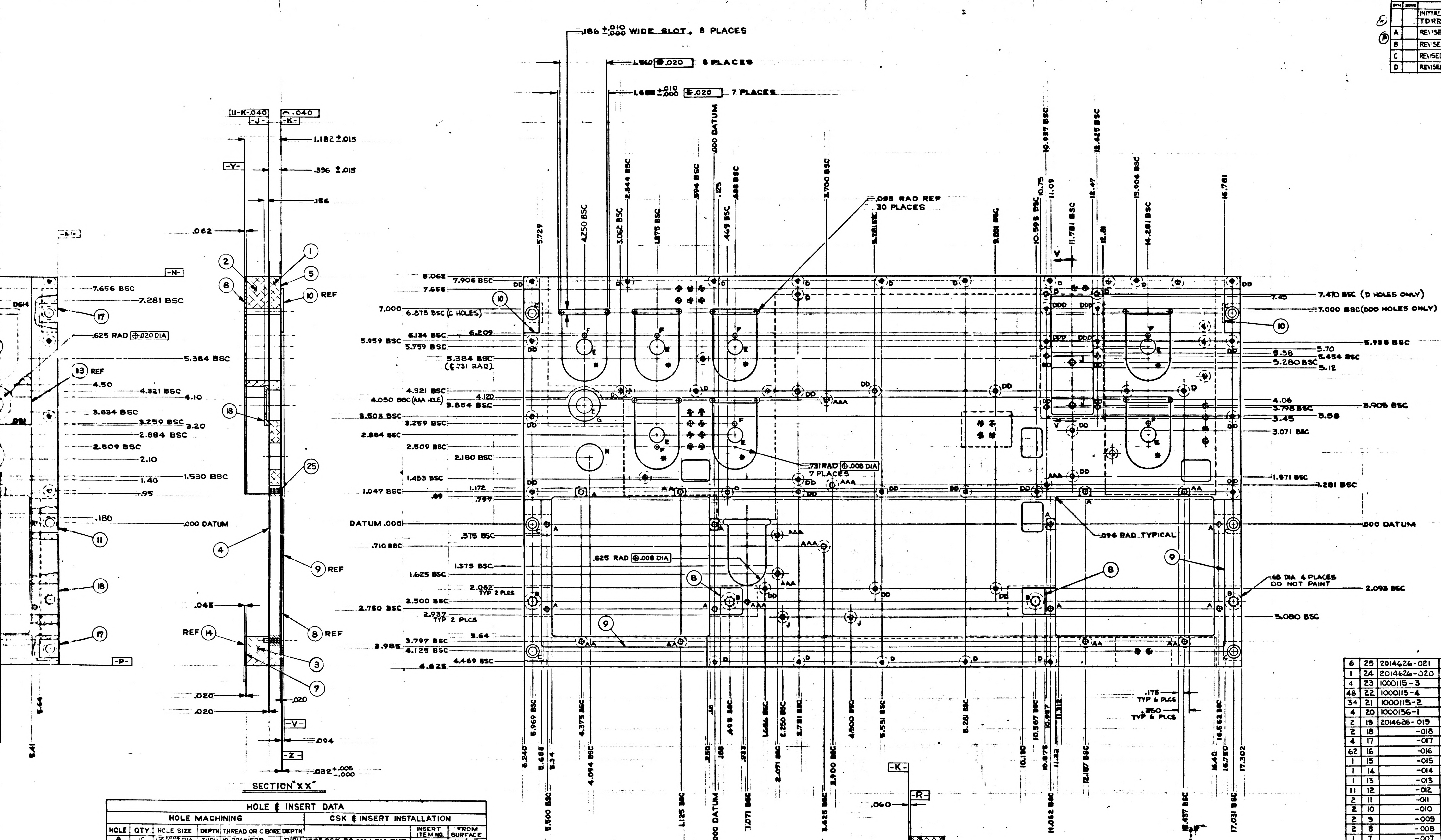
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL
G&N INDICATOR CONTROL
(INSEPARABLE)

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2014626
SCALE 1/1
SHEET 1 OF

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROV
		INITIAL CLASS A RELEASE TDRR NO. 22[illegible]5[illegible]				
A		REVISED PER TDRR NO. 23120				
B		REVISED PER TDRR NO. 23257				
C		REVISED PER TDRR NO. 24048				
D		REVISED PER TDRR NO. 25456				

REVISIONS



.186 +.010 -.000 WIDE SLOT, 8 PLACES
1.560 ±.020 8 PLACES
1.688 +.010 -.000 ±.020 7 PLACES
.095 RAD REF 30 PLACES
.731 RAD ⊕.008 DIA 7 PLACES
.625 RAD ⊕.008 DIA
.625 RAD ⊕.020 DIA
.094 RAD TYPICAL
.65 DIA 4 PLACES DO NOT PAINT
7.470 BSC (D HOLES ONLY)
7.000 BSC (DDD HOLES ONLY)
6.875 BSC (C HOLES)
4.050 BSC (AAA HOLE)
5.384 BSC (₵ .731 RAD)
.000 DATUM
DATUM .000
11-K-.040
-J-
-K-
-Y-
-N-
-P-
-V-
-Z-
-R-
1.182 ±.015
.396 ±.015
.156
.062
.045
.020
.094
.032 +.005 -.000
.060
SECTION "XX"
REF
9 REF
8 REF
10 REF
13 REF
.178 TYP 6 PLCS
.350 TYP 6 PLCS
2.062 TYP 2 PLCS
2.937 TYP 2 PLCS
8.062
7.906 BSC
7.656
7.656 BSC
7.281 BSC
7.000
6.134 BSC
6.209
5.959 BSC
5.759 BSC
5.384 BSC
4.321 BSC
4.120
3.854 BSC
3.634 BSC
3.503 BSC
3.259 BSC
2.884 BSC
2.509 BSC
2.180 BSC
1.453 BSC
1.530 BSC
1.172
1.047 BSC
.89
.797
.575 BSC
.710 BSC
1.375 BSC
1.625 BSC
2.500 BSC
2.750 BSC
3.64
3.797 BSC
3.985
4.125 BSC
4.469 BSC
4.625
4.50
4.10
3.20
2.10
1.40
.95
.180
5.41
5.64
7.45
5.938 BSC
5.58
5.70
5.454 BSC
5.280 BSC
5.12
4.06
3.798 BSC
3.905 BSC
3.45
3.88
3.071 BSC
1.571 BSC
1.281 BSC
2.093 BSC
3.080 BSC
5.729
4.250 BSC
3.062 BSC
2.844 BSC
1.875 BSC
.594 BSC
.000 DATUM
.125
.449 BSC
.488 BSC
3.700 BSC
5.281 BSC
9.881 BSC
10.593 BSC
10.75
10.937 BSC
11.09
11.781 BSC
12.47
12.81
12.625 BSC
13.906 BSC
14.281 BSC
16.781
6.240
5.969 BSC
5.688
5.34
5.500 BSC
4.375 BSC
4.094 BSC
1.125 BSC
.250
.16
.415 BSC
.188
.000 DATUM
.938
1.666 BSC
1.071 BSC
2.071 BSC
2.250 BSC
2.781 BSC
3.625 BSC
3.900 BSC
4.500 BSC
5.531 BSC
8.281 BSC
10.180
10.567 BSC
10.875
10.937
11.318
11.062 BSC
11.82
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15.437 BSC
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16.562 BSC
16.780
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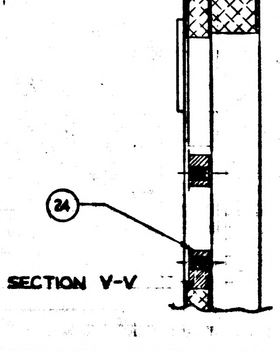
17.302
2014626
REV LTR D


SECTION V-V

HOLE MACHINING						CSK & INSERT INSTALLATION		
HOLE	QTY	HOLE SIZE	DEPTH	THREAD OR C BORE	DEPTH		INSERT ITEM NO.	FROM SURFACE
A	10	.165 $^{+.004}_{-.000}$ DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD	21	-K-&-Z-
AA	17	.165 $^{+.004}_{-.000}$ DIA	.62	10-32UNF2B	.39		21	-Y-, -K-&-Z-
B	4	.259 $^{+.005}_{-.000}$ DIA	THRU	5/16-18UNC2B	THRU		20	-K-
C	6	.218 DIA	THRU	.406 DIA	.16	MAJ DIA THD		
D	19	.124 $^{+.004}_{-.000}$ DIA	.32	6-32UNC2B	.26	.140 DIA	22	-K-
DD	25	.124 $^{+.004}_{-.000}$ DIA	THRU	6-32UNC2B	THRU	100° CSK TO .140 DIA	22	-K-
E	8	.500 DIA	THRU					
F	7	.156 DIA	THRU					
G	1	1.000 DIA	.500					
H	1	.875 DIA	THRU					
EZ-E31	26	.134 $^{+.004}_{-.000}$ DIA	.19	60° CSK TO .170 DIA				
AAA	7	.165 $^{+.004}_{-.000}$ DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD	21	-J-
DDD	4	.124 $^{+.004}_{-.000}$ DIA	THRU	6-32UNC2B	THRU	100° CSK TO .140 DIA	22	-J-
J	4	.190 $^{+.004}_{-.000}$ DIA	THRU	12-28UNF2B	THRU	100° CSK TO MAJ DIA THD	23	-R-&-J-

HOLE & INSERT DATA

NOTE: ALL HOLES TO BE ⊕.010 DIA, EXCEPT HOLES MARKED "C" MUST BE ⊕.005 DIA, AND HOLES EZ-E31 TO BE ⊕.020 DIA.
ITEMS 20, 21, AND 23 TO BE FLUSH TO .030 BELOW INSTALLATION SURFACE.
ITEM 22 TO BE .060 TO .080 BELOW INSTALLATION SURFACE.

NO. REQ'D	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
6	25	2014626-021		FACE PAD
1	24	2014626-020		INSERT, CORE PLATE
4	23	1000115-3		INSERT, THREADED
48	22	1000115-4		INSERT, THREADED
34	21	1000115-2		INSERT, THREADED
4	20	1000136-1		INSERT, THREADED
2	19	2014626-019		INSERT, CORE PLUG
2	18	-018		INSERT, CORE PLUG
4	17	-017		INSERT, CORE PLUG
62	16	-016		INSERT, CORE PLUG
1	15	-015		FACE PAD
1	14	-014		FACE PAD
1	13	-013		FACE PAD
11	12	-012		INSERT, CORE PLUG
2	11	-011		INSERT, CORE PLUG
2	10	-010		FACE PAD
2	9	-009		FACE PAD
2	8	-008		FACE PAD
1	7	-007		FACE PANEL
1	6	-006		FACE PANEL
1	5	-005		FACE PANEL
1	4	-004		FACE PANEL
1	3	-003		CORE - HONEYCOMB PAD
1	2	-002		CORE - HONEYCOMB PAD
1	1	2014626-001		CORE - HONEYCOMB PANEL

LIST OF MATERIALS

2014578-011	2014578-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
2 PLC DEC. ±.02 3 PLC DEC. ±.005 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J P B 11 MAY 65
CHECKED 8-3-65
APPROVED B C Watson 8-3-65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

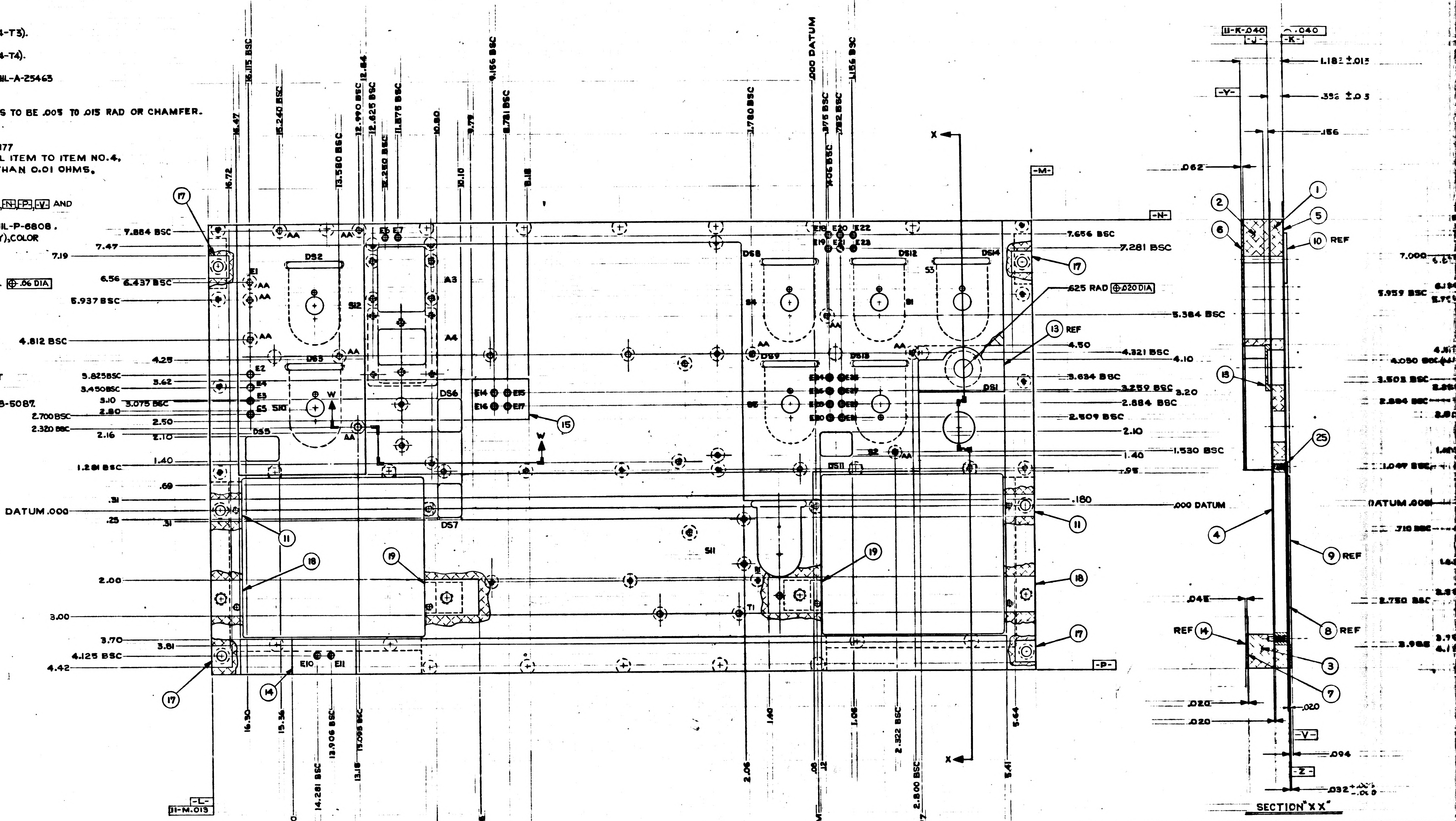
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL
G&N INDICATOR CONTROL
(INSEPARABLE)

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2014626
SCALE 1/1
SHEET 1 OF

F-2

NOTES:
1. INTERPRET DWG PER MIL-D-70327
2. MATERIAL:
  A. ITEMS 1, 2 AND 3:
    HONEYCOMB, PER MIL-C-7438, .125 ± .016 CELL SIZE, .001 FOIL GAUGE (PERFORATED CELL WALLS)
  B. ITEMS 4, 5, 6, 7 AND 14:
    AL ALY PER QQ-A-250/5, TEMPER T3, (2024-T3).
  C. ITEMS 8, 9, 10, 11, 12, 13, 15 THRU 19, 24 AND 25:
    AL ALY PER QQ-A-225/6, TEMPER T4, (2024-T4).
3. ADHESIVE:
  ADHESIVE FOR METALLIC CONSTRUCTION PER MIL-A-25463 (ASG), TYPE II, CLASS 2.
4. UNLESS OTHERWISE SPECIFIED:
  A. MUST BE FREE FROM BURRS AND ALL EDGES TO BE .005 TO .015 RAD OR CHAMFER.
  B. SURFACE ROUGHNESS NOT TO EXCEED $\sqrt[125]{}$.
5. BAND ALL EXPOSED HONEYCOMB CORE EDGES PER ND1002178 USING EPOXY PUTTY PER ND1002177
6. RESISTANCE MEASURED FROM ANY METAL ITEM TO ITEM NO. 4, THROUGH THE BOND, TO BE LESS THAN 0.01 OHMS.
7. FINISH: $\boxed{2}$
  A. CHEMICAL FILM PER MIL-C-5541, CLASS 3.
  B. UNLESS OTHERWISE SPECIFIED: SURFACES $\boxed{-L-}$, $\boxed{-M-}$, $\boxed{-N-}$, $\boxed{-P-}$, $\boxed{-V-}$ AND SURFACES MARKED WITH AN ASTERISK (✱):
    1. APPLY ZINC CHROMATE PRIMER PER MIL-P-6808.
    2. APPLY TT-E-527 LUSTERLESS ENAMEL (GRAY), COLOR NO. 36231 OF FED-STD-595, PER ND1002110
8. IDENTIFY USING DWG NO. PER ND1002019
9. SERIALIZE PER ND1002023
10. ALL INSERTS TO BE LOCATED IN PANEL $\boxed{\oplus\ .06\ \text{DIA}}$
11. $\boxed{2}$ CONTROLLED BY ICD MH01-01174-414
12. MARKING ON REAR OF PANEL TO BE .12 HIGH CHARACTERS, COLOR BLACK PER ND1002019 LOCATED APPROXIMATELY AS SHOWN.
13. OVERALL DIM. OF PANEL, LOCATIONS OF H & C HOLES ARE CONTROLLED BY ICD MH01-01304-116.
14. ALL EXPOSED EDGES ON ITEM 6 MUST HAVE .03 TO .05 RAD.
15. ELECTRICAL BONDING TO BE PER MIL-B-5087.


16
15
14
13
12
11
10
9
8
H
G
F
E
D
C
B
A
16.115 BSC
16.47
16.72
15.240 BSC
13.580 BSC
12.990 BSC
12.84
12.625 BSC
12.250 BSC
11.875 BSC
10.80
10.10
9.79
9.156 BSC
8.781 BSC
8.18
3.780 BSC
.000 DATUM
.375 BSC
.406 BSC
.782 BSC
1.156 BSC
7.884 BSC
7.47
7.19
6.56
6.437 BSC
5.937 BSC
4.812 BSC
4.25
3.825 BSC
3.450 BSC
3.62
3.10
3.075 BSC
2.80
2.700 BSC
2.50
2.320 BSC
2.16
2.10
1.40
1.281 BSC
.69
.31
DATUM .000
.25
2.00
3.00
3.70
3.81
4.125 BSC
4.42
7.656 BSC
7.281 BSC
5.384 BSC
.625 RAD ⊕.020 DIA
4.50
4.321 BSC
4.10
3.634 BSC
3.259 BSC
3.20
2.884 BSC
2.509 BSC
2.10
1.40
1.530 BSC
.95
.180
.000 DATUM
-M-
-N-
-P-
-L-
11-M.013
X
W
AA
E1
E2
E3
E4
E5
E6
E7
E10
E11
E14
E15
E16
E17
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E19
E20
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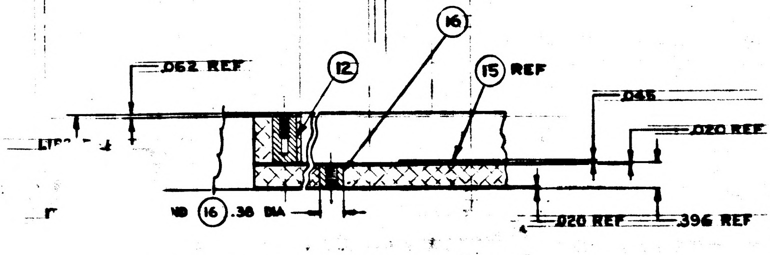
E22
E23
DS1
DS2
DS3
DS5
DS6
DS7
DS8
DS9
DS11
DS12
DS13
DS14
S1
S2
S3
S4
S5
S10
S11
S12
A3
A4
T1
16.30
15.36
14.281 BSC
13.906 BSC
13.16
13.095 BSC
15.00
9.66
2.06
1.40
.08
.12
1.06
2.322 BSC
2.800 BSC
2.97
.000 DATUM
5.44
5.41
11-K-.040
-J-
-K-
.040
1.182 ±.015
.352 ±.03
.156
-Y-
.062
7.000
5.959 BSC
4.050 BSC
3.502 BSC
2.884 BSC
1.047 BSC
DATUM .000
.710 BSC
2.750 BSC
3.986 BSC
.045
.020
.020
.020
-V-
.094
-Z-
.032
REF
⑰
⑪
⑱
⑲
⑬ REF
⑮
⑭
① ② ⑤ ⑥
⑩ REF
⑮
㉕
④
⑨ REF
⑧ REF
REF ⑭
③
⑦

SECTION "XX"

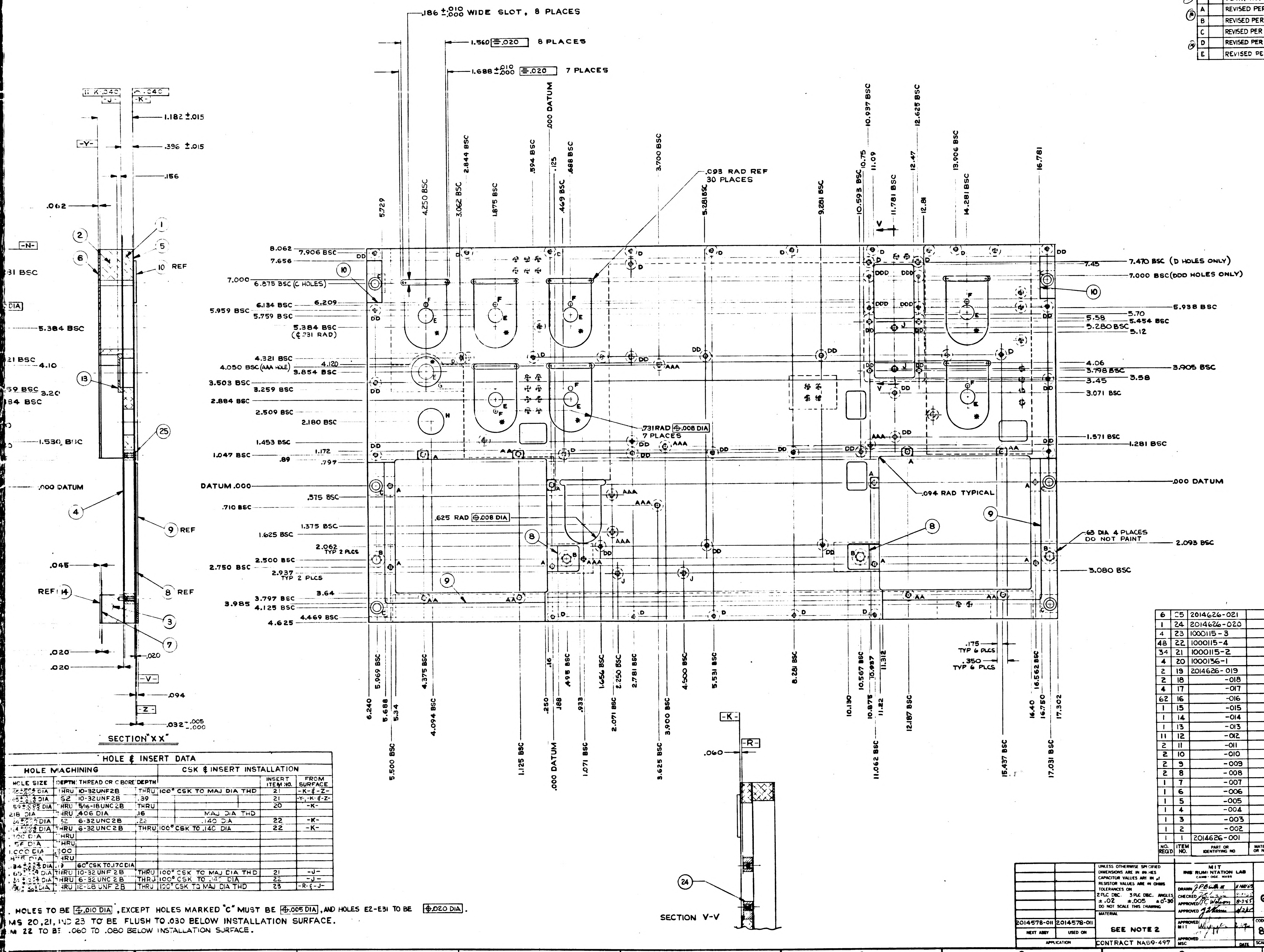

.062 REF
⑫
⑯
⑮ REF
.065
.020 REF
⑯ .38 DIA
.020 REF
.396 REF

PARTIAL SECTION "WW"

HOLE & INSERT DATA

HOLE MACHINING						CSK & INSERT INSTAL
HOLE	QTY	HOLE SIZE	DEPTH	THREAD OR C BORE	DEPTH	
A	.0	.165 [illegible] DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD
AA	17	.165 [illegible] DIA	.62	10-32UNF2B	.39	
B	4	.259 [illegible] DIA	THRU	5/16-18UNC2B	THRU	
C	6	.218 DIA	THRU	.406 DIA	.16	MAJ DIA THD
D	19	.124 [illegible] DIA	.32	6-32UNC2B	.26	[illegible] DIA
DD	26	.124 [illegible] DIA	THRU	6-32UNC2B	THRU	100° CSK TO [illegible] DIA
E	8	.500 DIA	THRU			
F	7	.156 DIA	THRU			
G	1	1.000 DIA	.500			
H	1	.875 DIA	THRU			
E2-E31	26	.134 [illegible] DIA	.19	60° CSK TO .170 DIA		
AAA	7	.165 [illegible] DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD
DDD	4	.124 [illegible] DIA	THRU	6-32UNC2B	THRU	100° CSK TO [illegible] DIA
J	4	.190 [illegible] DIA	THRU	12-28UNF2B	THRU	100° CSK TO MAJ DIA THD

NOTE: ALL HOLES TO BE $\boxed{\oplus\ .010\ \text{DIA}}$, EXCEPT HOLES MARKED "C" MUST
ITEMS 20, 21, AND 23 TO BE FLUSH TO .030 BELOW INSTALLA
ITEM 22 TO BE .060 TO .080 BELOW INSTALLATION SURFACE.


.186 +.010 -.000 WIDE SLOT, 8 PLACES
1.560 ⏥.020 8 PLACES
1.688 +.010 -.000 ⏥.020 7 PLACES
.093 RAD REF 30 PLACES
.731 RAD ⌖.008 DIA 7 PLACES
.625 RAD ⌖.008 DIA
.094 RAD TYPICAL
.68 DIA 4 PLACES DO NOT PAINT
7.470 BSC (D HOLES ONLY)
7.000 BSC (DDD HOLES ONLY)
DATUM .000
.000 DATUM
SECTION "XX"
SECTION V-V
1.182 ±.015
.396 ±.015
.032 +.005 -.000
2014626
REV LTR E

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROV
		INITIAL CLASS A RELEASE TDRR NO. 22659				
A		REVISED PER TDRR NO. 23120	JD		15 OCT 65	
B		REVISED PER TDRR NO. 23287	JD		23 NOV 65	
C		REVISED PER TDRR NO. 24048	JD		23 NOV 65	
D		REVISED PER TDRR NO. 25456	JD		2 [illegible] 66	
E		REVISED PER TDRR 27370			[illegible]	

HOLE & INSERT DATA						
HOLE MACHINING				CSK & INSERT INSTALLATION		
HOLE SIZE	DEPTH	THREAD OR C BORE	DEPTH		INSERT ITEM NO.	FROM SURFACE
[illegible] DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD	21	-K- & -Z-
.65 [illegible] DIA	.62	10-32UNF2B	.39		21	-Y-, -K- & -Z-
.59 [illegible] DIA	THRU	5/16-18UNC2B	THRU		20	-K-
.218 DIA	THRU	.406 DIA	.16	MAJ DIA THD		
.24 [illegible] DIA	.32	6-32UNC2B	.22	.140 DIA	22	-K-
.24 [illegible] DIA	THRU	6-32UNC2B	THRU	100° CSK TO .140 DIA	22	-K-
.100 DIA	THRU					
.56 DIA	THRU					
1.000 DIA	.300					
.875 DIA	THRU					
.34 [illegible] DIA	.19	60° CSK TO .170 DIA				
.65 [illegible] DIA	THRU	10-32 UNF 2B	THRU	100° CSK TO MAJ DIA THD	21	-J-
.24 [illegible] DIA	THRU	6-32 UNC 2B	THRU	100° CSK TO .140 DIA	22	-J-
.30 [illegible] DIA	THRU	12-28 UNF 2B	THRU	100° CSK TO MAJ DIA THD	23	-R- & -J-

. HOLES TO BE ⌖.010 DIA, EXCEPT HOLES MARKED "C" MUST BE ⌖.005 DIA, AND HOLES E2-E31 TO BE ⌖.020 DIA.

MS 20, 21, AND 23 TO BE FLUSH TO .030 BELOW INSTALLATION SURFACE.

M 22 TO BE .060 TO .080 BELOW INSTALLATION SURFACE.

NO. REQ'D	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
6	25	2014626-021		FACE PAD
1	24	2014626-020		INSERT, CORE PLATE
4	23	1000115-3		INSERT, THREADED
48	22	1000115-4		INSERT, THREADED
34	21	1000115-2		INSERT, THREADED
4	20	1000136-1		INSERT, THREADED
2	19	2014626-019		INSERT, CORE PLUG
2	18	-018		INSERT, CORE PLUG
4	17	-017		INSERT, CORE PLUG
62	16	-016		INSERT, CORE PLUG
1	15	-015		FACE PAD
1	14	-014		FACE PAD
1	13	-013		FACE PAD
11	12	-012		INSERT, CORE PLUG
2	11	-011		INSERT, CORE PLUG
2	10	-010		FACE PAD
2	9	-009		FACE PAD
2	8	-008		FACE PAD
1	7	-007		FACE PANEL
1	6	-006		FACE PANEL
1	5	-005		FACE PANEL
1	4	-004		FACE PANEL
1	3	-003		CORE HONEYCOMB PAD
1	2	-002		CORE HONEYCOMB PAD
1	1	2014626-001		CORE HONEYCOMB PANEL

LIST OF MATERIALS

NEXT ASSY	USED ON
2014578-011	2014578-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
2 PLC DEC. ±.02 3 PLC DEC. ±.005 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN	J P B[illegible]	11 MAY 65
CHECKED	[illegible]	8-3-65
APPROVED	C Watson	8-3-65
APPROVED	J [illegible]	[illegible]
APPROVED MIT	[illegible]	[illegible]
APPROVED MSC		DATE

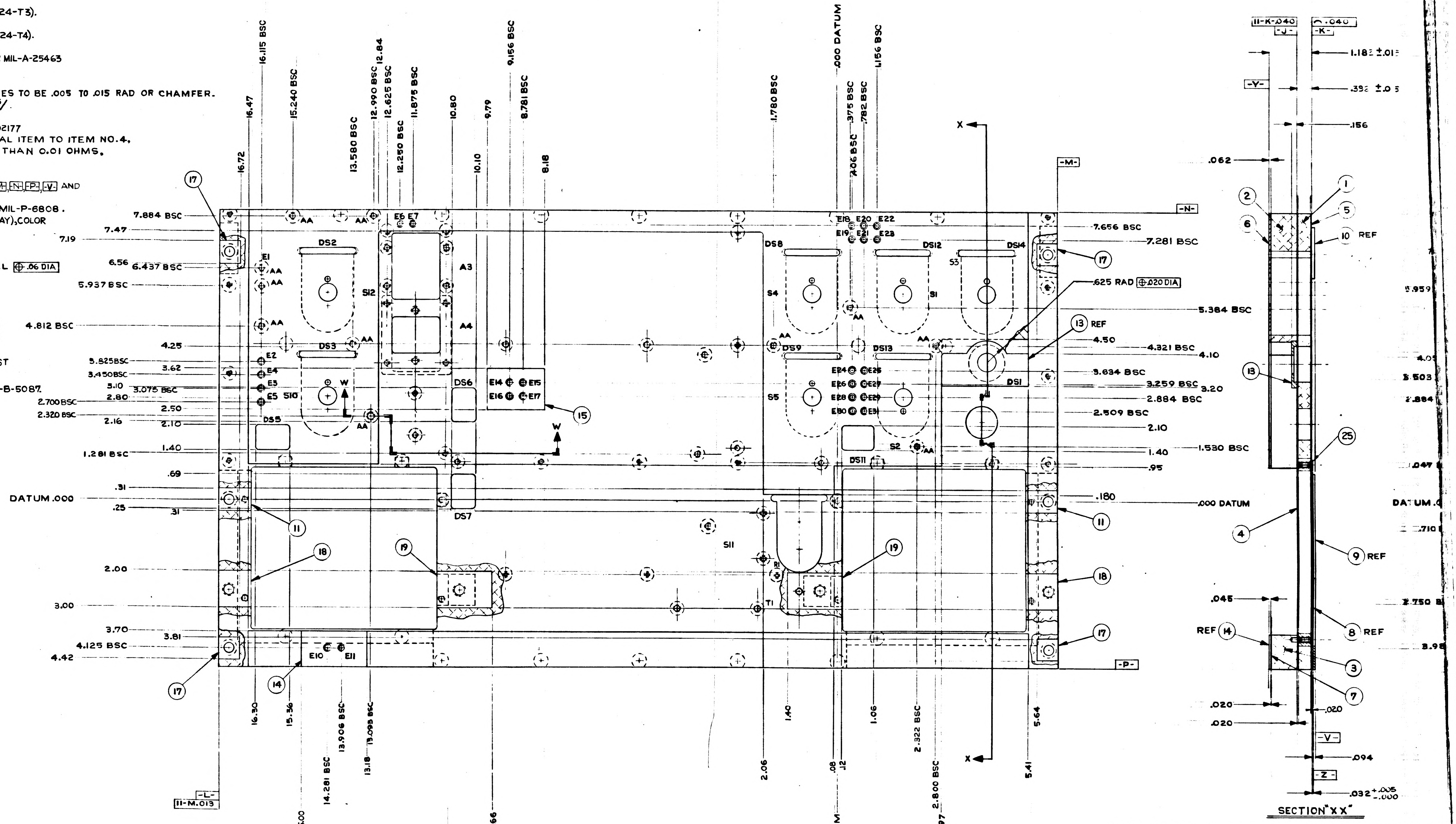
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL
G&N INDICATOR CONTROL
(INSEPARABLE)

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2014626

SCALE 1/1 SHEET 1 OF 1

NOTES:
1. INTERPRET DWG PER MIL-D-70327
2. MATERIAL:
   A. ITEMS 1,2 AND 3:
      HONEYCOMB, PER MIL-C-7438, .125 ± .016 CELL SIZE, .001 FOIL GAUGE (PERFORATED CELL WALLS)
   B. ITEMS 4,5,6,7 AND 14:
      AL ALY PER QQ-A-250/5, TEMPER T3, (2024-T3).
   C. ITEMS 8,9,10,11,12,13,15 THRU 19, 24 AND 25:
      AL ALY PER QQ-A-225/6, TEMPER T4, (2024-T4).
3. ADHESIVE:
   ADHESIVE FOR METALLIC CONSTRUCTION PER MIL-A-25463 (ASG), TYPE II, CLASS 2.
4. UNLESS OTHERWISE SPECIFIED:
   A. MUST BE FREE FROM BURRS AND ALL EDGES TO BE .005 TO .015 RAD OR CHAMFER.
   B. SURFACE ROUGHNESS NOT TO EXCEED $^{125}\checkmark$.
5. BAND ALL EXPOSED HONEYCOMB CORE EDGES PER ND1002178 USING EPOXY PUTTY PER ND1002177
6. RESISTANCE MEASURED FROM ANY METAL ITEM TO ITEM NO. 4, THROUGH THE BOND, TO BE LESS THAN 0.01 OHMS.
7. FINISH: $\boxed{2}$
   A. CHEMICAL FILM PER MIL-C-5541, CLASS 3.
   B. UNLESS OTHERWISE SPECIFIED: SURFACES $\boxed{-L-}$, $\boxed{-M-}$, $\boxed{-N-}$, $\boxed{-P-}$, $\boxed{-V-}$ AND SURFACES MARKED WITH AN ASTERISK (*):
      1. APPLY ZINC CHROMATE PRIMER PER MIL-P-6808.
      2. APPLY TT-E-527 LUSTERLESS ENAMEL (GRAY), COLOR NO. 36231 OF FED-STD-595, PER ND1002110
8. IDENTIFY USING DWG NO. PER ND1002019
9. SERIALIZE PER ND1002023
10. ALL INSERTS TO BE LOCATED IN PANEL $\boxed{\oplus\ .06\ \text{DIA}}$
11. $\boxed{2}$ CONTROLLED BY ICD MH01-01174-414
12. MARKING ON REAR OF PANEL TO BE .12 HIGH CHARACTERS, COLOR BLACK PER ND1002019 LOCATED APPROXIMATELY AS SHOWN.
13. OVERALL DIM. OF PANEL, LOCATIONS OF H & C HOLES ARE CONTROLLED BY ICD MH01-01304-116.
14. ALL EXPOSED EDGES ON ITEM 6 MUST HAVE .03 TO .05 RAD.
15. ELECTRICAL BONDING TO BE PER MIL-B-5087.


16.115 BSC
16.47
16.72
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12.250 BSC
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10.80
10.10
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9.156 BSC
8.781 BSC
8.18
1.780 BSC
.000 DATUM
.206 BSC
.375 BSC
.782 BSC
1.156 BSC
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7.47
7.19
6.56
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5.937 BSC
4.812 BSC
4.25
3.825 BSC
3.62
3.450 BSC
3.10
3.075 BSC
2.80
2.700 BSC
2.50
2.320 BSC
2.16
2.10
1.40
1.281 BSC
.69
.31
DATUM .000
.25
.31
2.00
3.00
3.70
3.81
4.125 BSC
4.42
7.656 BSC
7.281 BSC
.625 RAD ⊕.020 DIA
5.384 BSC
4.50
4.321 BSC
4.10
3.634 BSC
3.259 BSC
3.20
2.884 BSC
2.509 BSC
2.10
1.40
1.530 BSC
.95
.180
.000 DATUM
16.30
15.36
15.00
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13.906 BSC
13.18
13.095 BSC
9.66
2.06
1.40
.08
.12
.000 DATUM
1.06
2.322 BSC
2.800 BSC
2.97
5.64
5.41
-L-
11-M.013
-M-
-N-
-P-
X
W
AA
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DS5
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S11
S12
T1
B1
A3
A4
11
13 REF
14
15
17
18
19
11-K-.040
-J-
.040
-K-
1.182 ±.015
.392 ±.015
-Y-
.156
.062
1
2
5
6
10 REF
4.05
5.959
3.503
2.884
13
25
.047
DATUM .000
.710
4
9 REF
.045
2.750
8 REF
REF 14
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3
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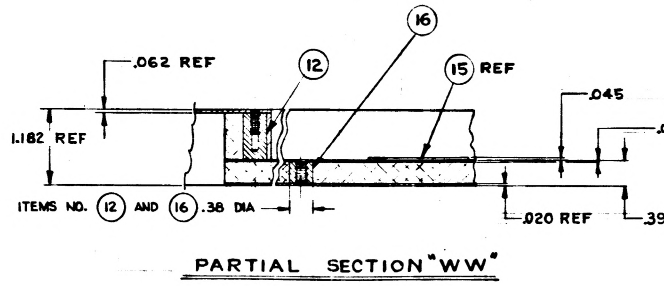
.020
.020
.020
-V-
.094
-Z-
.032 +.005 -.000
SECTION "XX"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12
16
15 REF
.045
1.182 REF
.020 REF
ITEMS NO. 12 AND 16 .38 DIA
.020 REF
.396 REF

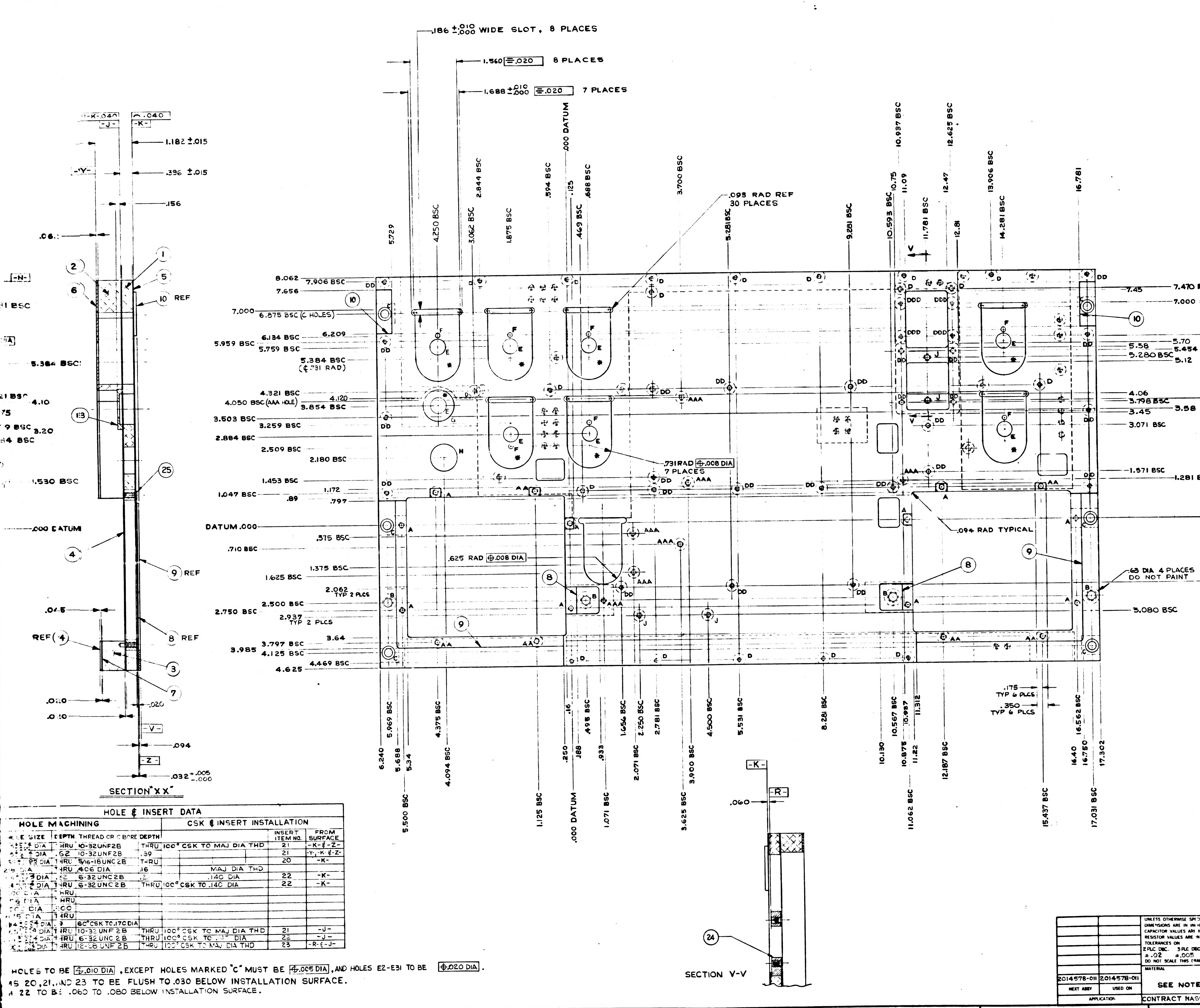
PARTIAL SECTION "WW"

HOLE & INSERT DATA						
HOLE MACHINING						CSK & INSERT IN
HOLE	QTY	HOLE SIZE	DEPTH	THREAD OR C BORE	DEPTH	
A	10	$.165^{+.004}_{-.000}$ DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA TH
AA	17	$.165^{+.004}_{-.000}$ DIA	.62	10-32UNF2B	.39	
B	4	$.259^{+.005}_{-.000}$ DIA	THRU	5/16-18UNC2B	THRU	
C	6	.218 DIA	THRU	.406 DIA	.16	[illegible]
D	19	$.124^{+.004}_{-.000}$ DIA	.32	6-32UNC2B	.26	[illegible]
DD	25	$.124^{+.004}_{-.000}$ DIA	THRU	6-32UNC2B	THRU	100° CSK TO [illegible] DIA
E	8	.500 DIA	THRU			
F	7	.156 DIA	THRU			
G	1	1.000 DIA	.500			
H	1	.875 DIA	THRU			
E2-E31	26	$.134^{+.004}_{-.000}$ DIA	.19	60° CSK TO .170 DIA		
AAA	7	$.165^{+.004}_{-.000}$ DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA T
DDD	4	$.124^{+.004}_{-.000}$ DIA	THRU	6-32UNC2B	THRU	100° CSK TO [illegible] DIA
J	4	$.190^{+.004}_{-.000}$ DIA	THRU	12-28UNF2B	THRU	100° CSK TO [illegible]

NOTE: ALL HOLES TO BE $\boxed{\oplus\ .010\ \text{DIA}}$, EXCEPT HOLES MARKED "C" MUS
ITEMS 20, 21, AND 23 TO BE FLUSH TO .030 BELOW INSTAL
ITEM 22 TO BE .060 TO .080 BELOW INSTALLATION SURFACE

3X

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROV
		INITIAL CLASS A RELEASE TDRR NO. 22659				
A		REVISED PER TDRR NO. 23120			15 OCT 65	
B		REVISED PER TDRR NO. 23287			23 NOV 65	
C		REVISED PER TDRR NO. 2-048			23 NOV 65	
D		REVISED PER TDRR NO. 23456			1/20/66	
E		REVISED PER TDRR 2?370			30 MAR 66	
F		REVISED PER TDRR 23649			22 JUN 66	


.186 +.010 −.000 WIDE SLOT, 8 PLACES
1.560 ⌖.020 8 PLACES
1.688 +.010 −.000 ⌖.020 7 PLACES
.093 RAD REF 30 PLACES
.731 RAD ⌖.008 DIA 7 PLACES
.625 RAD ⌖.008 DIA
.094 RAD TYPICAL
.63 DIA 4 PLACES DO NOT PAINT
7.470 BSC (D HOLES ONLY)
7.000 BSC (DDD HOLES ONLY)
6.875 BSC (C HOLES)
4.050 BSC (AAA HOLE)
5.384 BSC (¢ .731 RAD)
.000 DATUM
DATUM .000
.175 TYP 6 PLCS
.350 TYP 6 PLCS
2.062 TYP 2 PLCS
2.937 TYP 2 PLCS
SECTION "XX"
SECTION V-V
1.182 ±.015
.396 ±.015
.032 +.005 −.000
-K-
-J-
-Y-
-V-
-Z-
-R-
REF
DD
AAA
2014626
REV LTR F

HOLE & INSERT DATA						
HOLE MACHINING				CSK & INSERT INSTALLATION		
HOLE SIZE	DEPTH	THREAD OR C'BORE	DEPTH		INSERT ITEM NO.	FROM SURFACE
[illegible] DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD	21	-K- & -Z-
[illegible] DIA	.62	10-32UNF2B	.39		21	-Y-, -K- & -Z-
[illegible] DIA	THRU	5/16-18UNC2B	THRU		20	-K-
[illegible] DIA	THRU	.406 DIA	.16	MAJ DIA THD		
[illegible] DIA	.62	6-32UNC2B	.2	.140 DIA	22	-K-
[illegible] DIA	THRU	6-32UNC2B	THRU	100° CSK TO .140 DIA	22	-K-
[illegible] DIA	THRU					
[illegible] DIA	THRU					
[illegible] DIA	.300					
[illegible] DIA	THRU					
[illegible] DIA	.9	60° CSK TO .170 DIA				
[illegible] DIA	THRU	10-32 UNF 2B	THRU	100° CSK TO MAJ DIA THD	21	-J-
[illegible] DIA	THRU	6-32 UNC 2B	THRU	100° CSK TO .140 DIA	22	-J-
[illegible] DIA	THRU	12-28 UNF 2B	THRU	100° CSK TO MAJ DIA THD	23	-R- & -J-

HOLES TO BE ⌖.010 DIA, EXCEPT HOLES MARKED "C" MUST BE ⌖.005 DIA, AND HOLES E2-E31 TO BE ⌖.020 DIA.
S 20,21, AND 23 TO BE FLUSH TO .030 BELOW INSTALLATION SURFACE.
22 TO BE .060 TO .080 BELOW INSTALLATION SURFACE.

NO. REQ'D	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
6	25	2014626-021		FACE PAD
1	24	2014626-020		INSERT, CORE PLATE
4	23	1000115-3		INSERT, THREADED
48	22	1000115-4		INSERT, THREADED
34	21	1000115-2		INSERT, THREADED
4	20	1000136-1		INSERT, THREADED
2	19	2014626-019		INSERT, CORE PLUG
2	18	-018		INSERT, CORE PLUG
4	17	-017		INSERT, CORE PLUG
62	16	-016		INSERT, CORE PLUG
1	15	-015		FACE PAD
1	14	-014		FACE PAD
1	13	-013		FACE PAD
11	12	-012		INSERT, CORE PLUG
2	11	-011		INSERT, CORE PLUG
2	10	-010		FACE PAD
2	9	-009		FACE PAD
2	8	-008		FACE PAD
1	7	-007		FACE PANEL
1	6	-006		FACE PANEL
1	5	-005		FACE PANEL
1	4	-004		FACE PANEL
1	3	-003		CORE HONEYCOMB PAD
1	2	-002		CORE HONEYCOMB PAD
1	1	2014626-001		CORE HONEYCOMB PANEL

LIST OF MATERIALS

2014578-011	2014578-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
2 PLC DEC. ±.02 3 PLC DEC. ±.005 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J P Booth 11 MAY 65
CHECKED 8-3-65
APPROVED B C Watson 8-3-65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

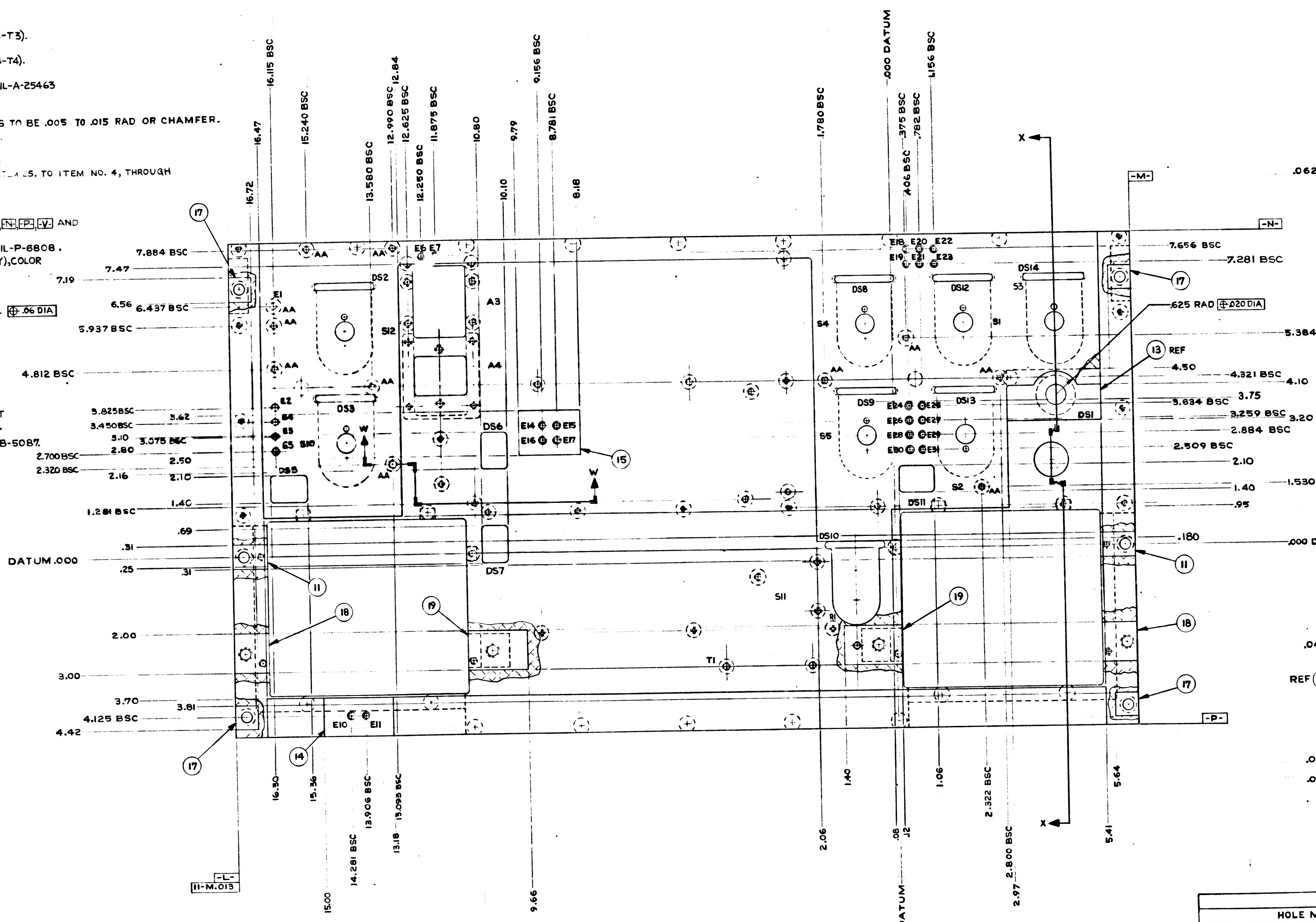
PANEL
G&N INDICATOR CONTROL
(INSEPARABLE)

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2014626
SCALE 1/1
SHEET 1 OF

2/2014626

NOTES:

1. INTERPRET DWG PER MIL-D-70327
2. MATERIAL:
   - A. ITEMS 1,2 AND 3:
     HONEYCOMB, PER MIL-C-7438, .125 ±.016 CELL SIZE, .001
     FOIL GAUGE (PERFORATED CELL WALLS)
   - B. ITEMS 4,5,6,7 AND 14:
     AL ALY PER QQ-A-250/5, TEMPER T3, (2024-T3).
   - C. ITEMS 8,9,10,11,12,13,15 THRU 19,24 AND 25:
     AL ALY PER QQ-A-225/6, TEMPER T4, (2024-T4).
3. ADHESIVE:
   ADHESIVE FOR METALLIC CONSTRUCTION PER MIL-A-25463
   (ASG), TYPE II, CLASS 2.
4. UNLESS OTHERWISE SPECIFIED:
   - A. MUST BE FREE FROM BURRS AND ALL EDGES TO BE .005 TO .015 RAD OR CHAMFER.
   - B. SURFACE ROUGHNESS NOT TO EXCEED 125√.
5. BAND ALL EXPOSED HONEYCOMB CORE EDGES
   PER ND1002178 USING EPOXY PUTTY PER ND10021
6. RESISTANCE MEASURED FROM ANY METAL ITEM, EXCEPT ITEM 25. TO ITEM NO. 4, THROUGH
   THE BOND, TO BE LESS THAN 0.01 OHMS.
7. FINISH: $\boxed{2}$
   - A. CHEMICAL FILM PER MIL-C-5541, CLASS 3.
   - B. UNLESS OTHERWISE SPECIFIED: SURFACES $\boxed{-L-}$, $\boxed{-M-}$, $\boxed{-N-}$, $\boxed{-P-}$, $\boxed{-V-}$ AND
     SURFACES MARKED WITH AN ASTERISK (✱):
     1. APPLY ZINC CHROMATE PRIMER PER MIL-P-6808.
     2. APPLY TT-E-527 LUSTERLESS ENAMEL (GRAY), COLOR
        NO. 36231 OF FED-STD-595, PER ND1002110
8. IDENTIFY USING DWG NO. PER ND1002019
9. SERIALIZE PER ND1002023
10. ALL INSERTS TO BE LOCATED IN PANEL $\boxed{\oplus\ .06\ \text{DIA}}$
11. $\boxed{2}$ CONTROLLED BY ICD MH01-01174-414
12. MARKING ON REAR OF PANEL TO BE .12 HIGH
    CHARACTERS, COLOR BLACK PER ND1002019
    LOCATED APPROXIMATELY AS SHOWN.
13. OVERALL DIM. OF PANEL, LOCATIONS
    OF H & C HOLES ARE CONTROLLED
    BY ICD MH01-01304-116.
14. ALL EXPOSED EDGES ON ITEM 6 MUST
    HAVE .03 TO .05 RAD.
15. ELECTRICAL BONDING TO BE PER MIL-B-5087.


16.115 BSC
15.240 BSC
13.580 BSC
12.990 BSC
12.84
12.625 BSC
12.250 BSC
11.875 BSC
10.80
10.10
9.79
9.156 BSC
8.781 BSC
8.18
1.780 BSC
.000 DATUM
.375 BSC
.406 BSC
.782 BSC
1.156 BSC
16.47
16.72
7.884 BSC
7.47
7.19
6.56
6.437 BSC
5.937 BSC
4.812 BSC
3.825 BSC
3.450 BSC
3.62
3.10
3.075 BSC
2.80
2.700 BSC
2.50
2.320 BSC
2.16
2.10
1.40
1.281 BSC
.69
DATUM .000
.31
.25
.31
2.00
3.00
3.70
3.81
4.125 BSC
4.42
7.656 BSC
7.281 BSC
5.384 BSC
.625 RAD $\boxed{\oplus\ .020\ \text{DIA}}$
4.50
4.321 BSC
4.10
3.75
3.634 BSC
3.259 BSC
3.20
2.884 BSC
2.509 BSC
2.10
1.530 BSC
1.40
.95
.180
.000 DATUM
-M-
-N-
-P-
-L-
11-M.013
X
W
DS1
DS2
DS3
DS5
DS6
DS7
DS8
DS9
DS10
DS11
DS12
DS13
DS14
S1
S2
S3
S4
S5
S10
S11
S12
T1
A3
A4
AA
E1
E2
E3
E4
E5
E6
E7
E10
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E14
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E25
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E27
E28
E29
E30
E31
11
13 REF
14
15
17
18
19
16.30
15.36
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13.093 BSC
14.281 BSC
13.18
15.00
9.66
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.08
.12
1.06
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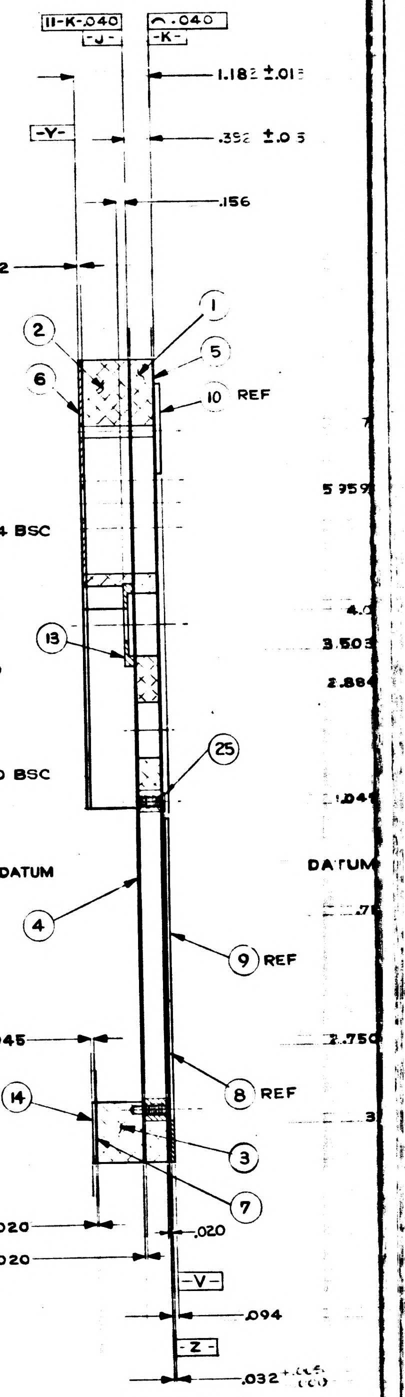
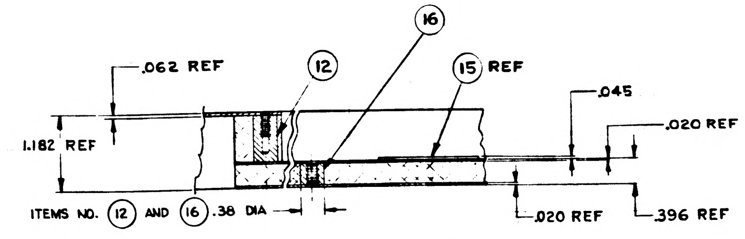
2.800 BSC
2.97
5.64
5.41
.000 DATUM


11-K.040
-J-
⌒ .040
-K-
1.182 ±.015
-Y-
.352 ±.015
.156
.062
1
2
5
6
10 REF
13
25
4
9 REF
.045
8 REF
REF 14
3
7
.020
.020
.020
-V-
.094
-Z-
.032

SECTION "XX"


16
.062 REF
12
15 REF
.045
.020 REF
1.182 REF
ITEMS NO. 12 AND 16 .38 DIA
.020 REF
.396 REF

PARTIAL SECTION "WW"

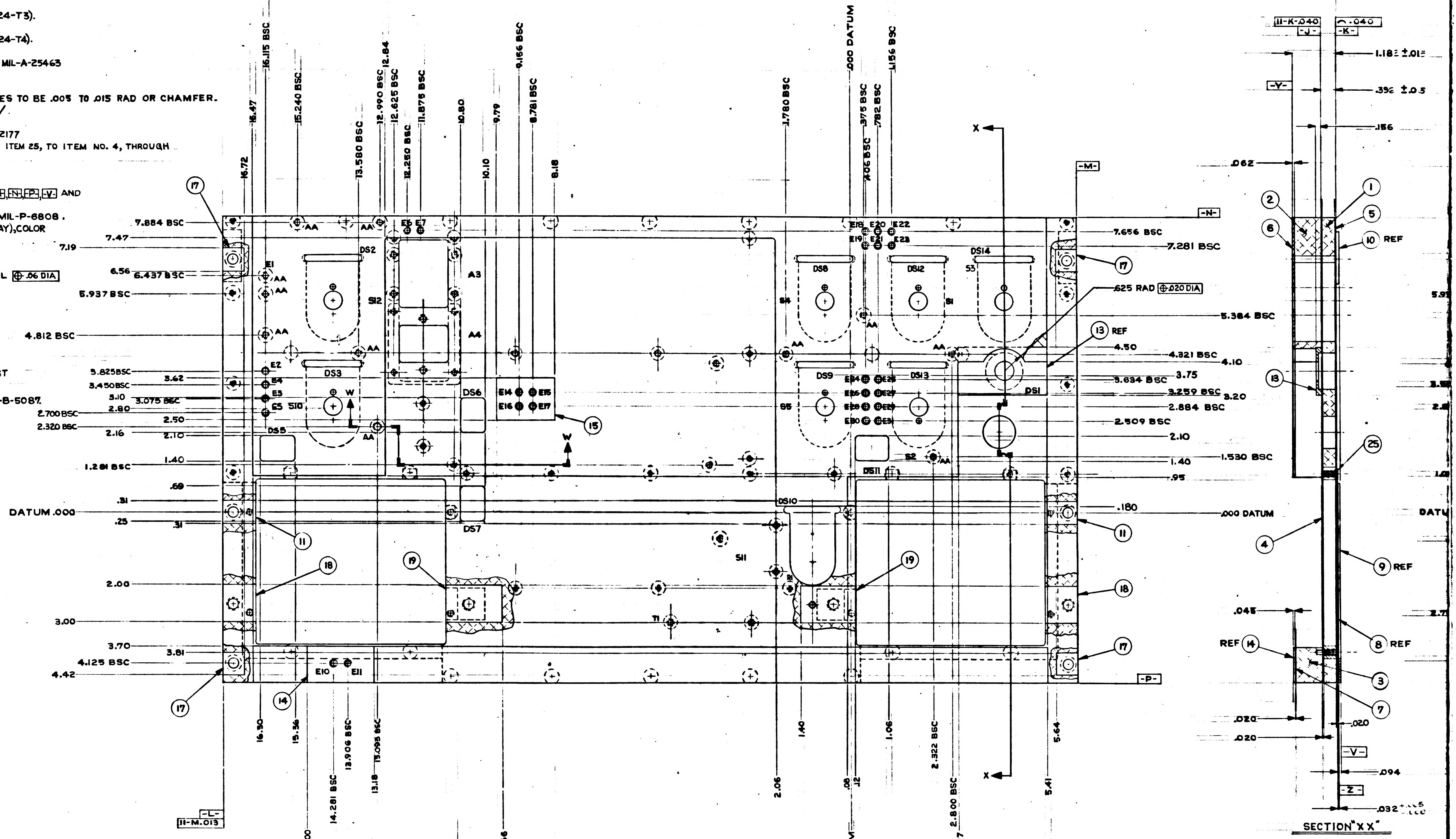
HOLE & INSERT DATA

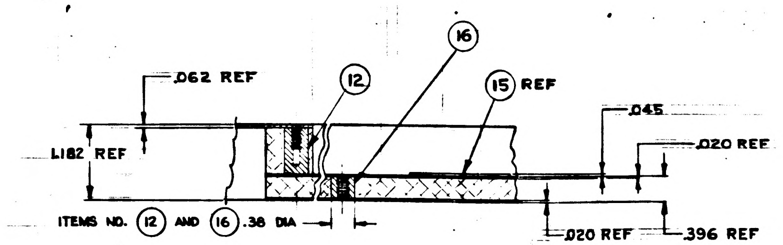
HOLE MACHINING						CSK & INSE
HOLE	QTY	HOLE SIZE	DEPTH	THREAD OR C BORE	DEPTH	
A	10	.165$^{+.004}_{-.000}$ DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ
AA	17	.165$^{+.004}_{-.000}$ DIA	.62	10-32UNF2B	.39	
B	4	.259$^{+.005}_{-.000}$ DIA	THRU	5/16-18UNC2B	THRU	
C	6	.218 DIA	THRU	.406 DIA	.16	
D	19	.124$^{+.004}_{-.000}$ DIA	.32	6-32UNC2B	.26	
DD	25	.124$^{+.004}_{-.000}$ DIA	THRU	6-32UNC2B	THRU	100° CSK TO
E	8	.500 DIA	THRU			
F	7	.156 DIA	THRU			
G	1	1.000 DIA	.500			
H	1	.875 DIA	THRU			
E2-E31	26	.134$^{+.004}_{-.000}$ DIA	.19	60° CSK TO .170 DIA		
AAA	7	.165$^{+.004}_{-.000}$ DIA	THRU	10-32 UNF 2B	THRU	100° CSK TO MAJ
DDD	4	.124$^{+.004}_{-.000}$ DIA	THRU	6-32 UNC 2B	THRU	100° CSK TO
J	4	.190$^{+.004}_{-.000}$ DIA	THRU	12-28 UNF 2B	[illegible]	[illegible]

NOTE: ALL HOLES TO BE $\boxed{\oplus\ .010\ \text{DIA}}$, EXCEPT HOLES MARKED "
ITEMS 20,21, AND 23 TO BE FLUSH TO .030 BELOW
ITEM 22 TO BE .060 TO .080 BELOW

NOTES:

1. INTERPRET DWG PER MIL-D-70327
2. MATERIAL:
   - A. ITEMS 1,2 AND 3:
     HONEYCOMB, PER MIL-C-7438, .125 ± .016 CELL SIZE, .001
     FOIL GAUGE (PERFORATED CELL WALLS)
   - B. ITEMS 4,5,6,7 AND 14:
     AL ALY PER QQ-A-250/5, TEMPER T3, (2024-T3).
   - C. ITEMS 8,9,10,11,12,13,15 THRU 19, 24 AND 25:
     AL ALY PER QQ-A-225/6, TEMPER T4, (2024-T4).
3. ADHESIVE:
   ADHESIVE FOR METALLIC CONSTRUCTION PER MIL-A-25463
   (ASG), TYPE II, CLASS 2.
4. UNLESS OTHERWISE SPECIFIED:
   - A. MUST BE FREE FROM BURRS AND ALL EDGES TO BE .005 TO .015 RAD OR CHAMFER.
   - B. SURFACE ROUGHNESS NOT TO EXCEED $\sqrt{}^{125}$.
5. BAND ALL EXPOSED HONEYCOMB CORE EDGES
   PER ND1002178 USING EPOXY PUTTY PER ND1002177
6. RESISTANCE MEASURED FROM ANY METAL ITEM, EXCEPT ITEM 25, TO ITEM NO. 4, THROUGH
   THE BOND, TO BE LESS THAN 0.01 OHMS.
7. FINISH: $\boxed{2}$
   - A. CHEMICAL FILM PER MIL-C-5541, CLASS 3.
   - B. UNLESS OTHERWISE SPECIFIED: SURFACES $\boxed{-L-}$, $\boxed{-M-}$, $\boxed{-N-}$, $\boxed{-P-}$, $\boxed{-V-}$ AND
     SURFACES MARKED WITH AN ASTERISK (✱):
     1. APPLY ZINC CHROMATE PRIMER PER MIL-P-6808.
     2. APPLY TT-E-527 LUSTERLESS ENAMEL (GRAY), COLOR
        NO. 36231 OF FED-STD-595, PER ND1002110
8. IDENTIFY USING DWG NO. PER ND1002019
9. SERIALIZE PER ND1002023
10. ALL INSERTS TO BE LOCATED IN PANEL $\boxed{\oplus\ .06\ \text{DIA}}$
11. $\boxed{2}$ CONTROLLED BY ICD MH01-01174-414
12. MARKING ON REAR OF PANEL TO BE .12 HIGH
    CHARACTERS, COLOR BLACK PER ND1002019
    LOCATED APPROXIMATELY AS SHOWN.
13. OVERALL DIM. OF PANEL, LOCATIONS
    OF H & C HOLES ARE CONTROLLED
    BY ICD MH01-01304-116.
14. ALL EXPOSED EDGES ON ITEM 6 MUST
    HAVE .03 TO .05 RAD.
15. ELECTRICAL BONDING TO BE PER MIL-B-5087.


-X-
X
7.884 BSC
7.47
7.19
6.56
6.437 BSC
5.937 BSC
4.812 BSC
3.825 BSC
3.450 BSC
3.62
3.10
3.075 BSC
2.80
2.700 BSC
2.50
2.320 BSC
2.16
2.10
1.40
1.281 BSC
.69
.31
DATUM .000
.25
2.00
3.00
3.70
3.81
4.125 BSC
4.42
16.115 BSC
15.240 BSC
13.580 BSC
12.990 BSC
12.84
12.625 BSC
12.250 BSC
11.875 BSC
10.80
10.10
9.79
9.156 BSC
8.781 BSC
8.18
16.47
16.72
1.780 BSC
.000 DATUM
1.156 BSC
.375 BSC
.782 BSC
.406 BSC
7.656 BSC
7.281 BSC
.625 RAD ⊕.020 DIA
5.384 BSC
4.50
4.321 BSC
4.10
3.75
3.634 BSC
3.259 BSC
3.20
2.884 BSC
2.509 BSC
2.10
1.40
1.530 BSC
.95
.180
.000 DATUM
16.30
15.36
13.906 BSC
13.095 BSC
15.00
14.281 BSC
13.18
9.66
2.06
1.40
.08
.12
1.06
2.322 BSC
2.800 BSC
2.97
5.64
5.41
.000 DATUM
-L-
11-M.015
-M-
-N-
-P-
AA
DS2 DS3 DS5 DS6 DS7 DS8 DS9 DS10 DS11 DS12 DS13 DS14 DS1
S1 S2 S3 S4 S5 S10 S11 S12
A3 A4
E1 E2 E4 E5 E6 E7 E10 E11 E14 E15 E16 E17 E18 E19 E20 E21 E22 E23
T1
W
REF
SECTION "XX"
11-K.040
-J-
-K-
-Y-
1.182 ±.015
.392 ±.03
.156
.062
.045
.020
.020
.020
-V-
.094
-Z-
.032
1 2 3 4 5 6 7 8 9 10 11 13 14 15 17 18 19 25


.062 REF
1.182 REF
12
16
15 REF
.045
.020 REF
ITEMS NO. 12 AND 16 .38 DIA
.020 REF
.396 REF

PARTIAL SECTION "WW"

HOLE & INSERT DATA

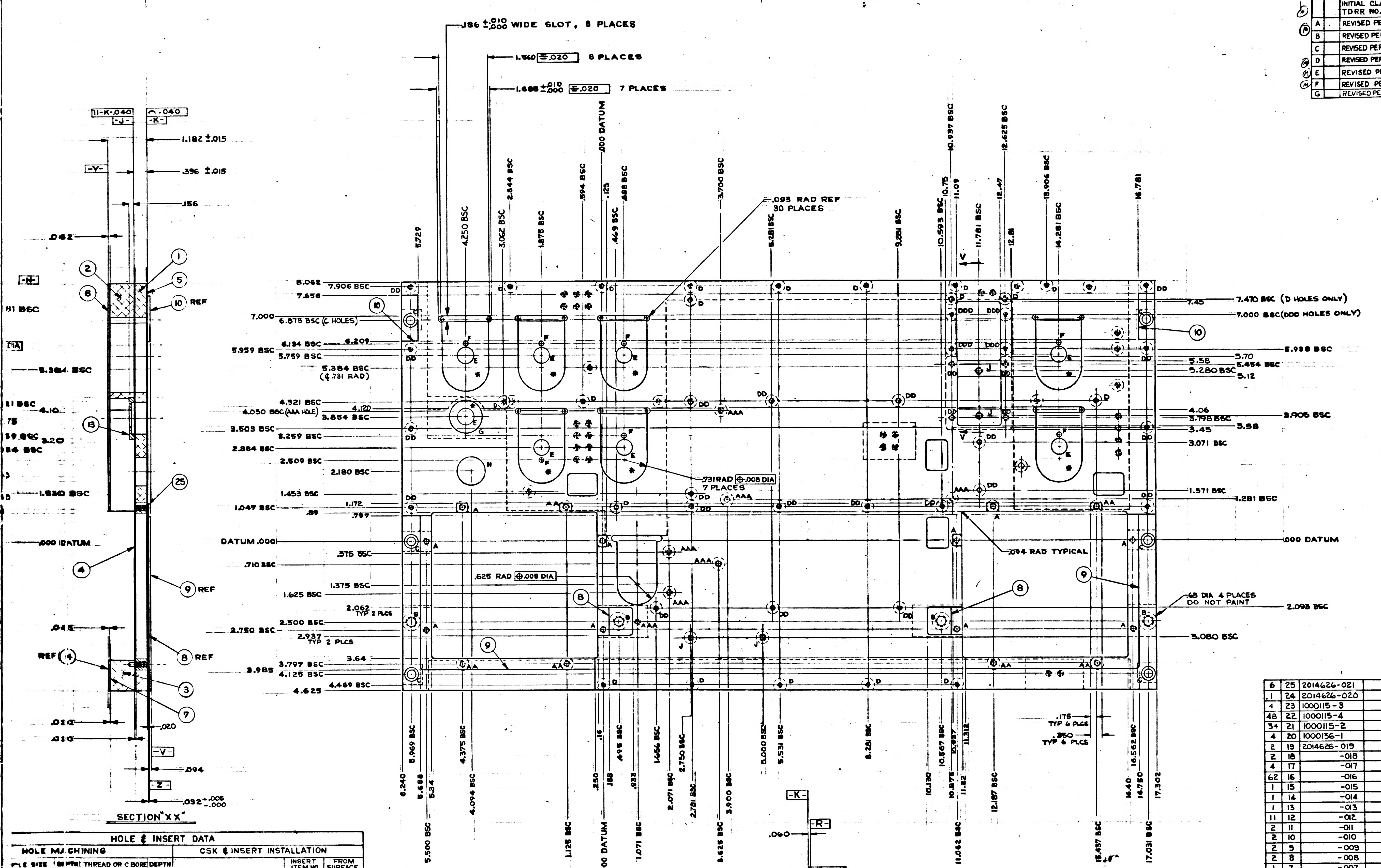
HOLE MACHINING						CSK & INS
HOLE	QTY	HOLE SIZE	DEPTH	THREAD OR C BORE	DEPTH	
A	10	$.165^{+.004}_{-.000}$ DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ
AA	17	$.165^{+.004}_{-.000}$ DIA	.62	10-32UNF2B	.39	
B	4	$.259^{+.005}_{-.000}$ DIA	THRU	5/16-18UNC2B	THRU	
C	6	.218 DIA	THRU	.406 DIA	.16	
D	19	$.124^{+.004}_{-.000}$ DIA	.32	6-32UNC2B	.26	
DD	25	$.124^{+.004}_{-.000}$ DIA	THRU	6-32UNC2B	THRU	100° CSK TO
E	8	.500 DIA	THRU			
F	7	.156 DIA	THRU			
G	1	1.000 DIA	.500			
H	1	.875 DIA	THRU			
E2-E31	26	$.134^{+.004}_{-.000}$ DIA	.19	60° CSK TO .170 DIA		
AAA	7	$.165^{+.004}_{-.000}$ DIA	THRU	10-32 UNF 2B	THRU	100° CSK TO MAJ
DDD	4	$.124^{+.004}_{-.000}$ DIA	THRU	6-32 UNC 2B	THRU	100° CSK TO
J	4	$.190^{+.004}_{-.000}$ DIA	THRU	12-28 UNF 2B	THRU	100°

NOTE: ALL HOLES TO BE $\boxed{\oplus\ .010\ \text{DIA}}$, EXCEPT HOLES MARKED
ITEMS 20, 21, AND 23 TO BE FLUSH TO .030 BELOW
ITEM 22 TO BE .060 TO .080 BELOW INSTALLATION

3H

1172014626

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROV
		INITIAL CLASS A RELEASE TDRR NO. 22-57				
A	.	REVISED PER TDRR NO. 23120			15OCT65	WK
B		REVISED PER TDRR NO. 23287			23NOV65	WK
C		REVISED PER TDRR C.2-048			23NOV65	WK
D		REVISED PER TDRR C.23456			11/20/66	
E		REVISED PER TDR 27370			30MAR66	
F		REVISED PER TDR 29649			22JUN66	
G		REVISED PER TDRR 30796			1SEPT66	


.186 +.010 -.000 WIDE SLOT, 8 PLACES
1.560 ⌯.020 8 PLACES
1.688 +.010 -.000 ⌯.020 7 PLACES
.000 DATUM
.093 RAD REF 30 PLACES
.731 RAD ⊕.008 DIA 7 PLACES
.625 RAD ⊕.008 DIA
.094 RAD TYPICAL
.63 DIA 4 PLACES DO NOT PAINT
7.470 BSC (D HOLES ONLY)
7.000 BSC (DDD HOLES ONLY)
6.875 BSC (C HOLES)
4.050 BSC (AAA HOLE)
5.384 BSC (℄ .731 RAD)
DATUM .000
.000 DATUM
2014626 REV LTR G
SECTION "XX"
-J-
-K-
-Y-
-N-
-V-
-Z-
1.182 ±.015
.396 ±.015
.032 +.005 -.000
REF
1
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6
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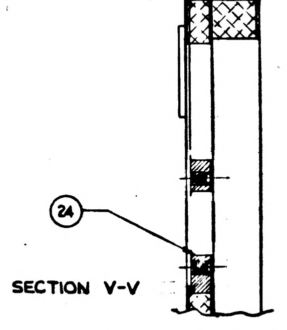
13
25


-K-
-R-
.060
24
SECTION V-V

HOLE & INSERT DATA

HOLE SIZE	DEPTH	THREAD OR C BORE	DEPTH	CSK & INSERT INSTALLATION	INSERT ITEM NO.	FROM SURFACE
[illegible] DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD	21	-K-&-Z-
[illegible] DIA	[illegible]	10-32UNF2B	.39		21	-Y-, -K-&-Z-
[illegible] DIA	THRU	5/16-18UNC2B	THRU		20	-K-
[illegible] DIA	THRU	.406 DIA	.16	MAJ DIA THD		
[illegible] DIA	[illegible]	6-32UNC2B	.26	.140 DIA	22	-K-
[illegible] DIA	THRU	6-32UNC2B	THRU	100° CSK TO .140 DIA	22	-K-
[illegible] DIA	THRU					
[illegible] DIA	THRU					
[illegible] DIA	[illegible] C					
[illegible]	THRU					
[illegible]	[illegible]	60° CSK TO .170 DIA				
[illegible]	THRU	10-32 UNF 2B	THRU	100° CSK TO MAJ DIA THD	21	-J-
[illegible]	THRU	6-32 UNC 2B	THRU	100° CSK TO .140 DIA	22	-J-
[illegible]	THRU	12-28 UNF 2B	THRU	100° CSK TO MAJ DIA THD	23	-R-&-J-

[illegible] HOLES TO BE ⊕.010 DIA, EXCEPT HOLES MARKED "C" MUST BE ⊕.005 DIA, AND HOLES E2-E31 TO BE ⊕.020 DIA.
[illegible] 20, 21, AND 23 TO BE FLUSH TO .030 BELOW INSTALLATION SURFACE.
[illegible] TO BE .060 TO .080 BELOW INSTALLATION SURFACE.

NO. REQ'D	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
6	25	2014626-021		FACE PAD
.1	24	2014626-020		INSERT, CORE PLATE
4	23	1000115-3		INSERT, THREADED
48	22	1000115-4		INSERT, THREADED
34	21	1000115-2		INSERT, THREADED
4	20	1000136-1		INSERT, THREADED
2	19	2014626-019		INSERT, CORE PLUG
2	18	-018		INSERT, CORE PLUG
4	17	-017		INSERT, CORE PLUG
62	16	-016		INSERT, CORE PLUG
1	15	-015		FACE PAD
1	14	-014		FACE PAD
1	13	-013		FACE PAD
11	12	-012		INSERT, CORE PLUG
2	11	-011		INSERT, CORE PLUG
2	10	-010		FACE PAD
2	9	-009		FACE PAD
2	8	-008		FACE PAD
1	7	-007		FACE PANEL
1	6	-006		FACE PANEL
1	5	-005		FACE PANEL
1	4	-004		FACE PANEL
1	3	-003		CORE HONEYCOMB PAD
1	2	-002		CORE HONEYCOMB PAD
1	1	2014626-001		CORE HONEYCOMB PANEL

LIST OF MATERIALS

NEXT ASSY	USED ON
2014578-011	2014578-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
2 PLC DEC. ±.02 3 PLC DEC. ±.005 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J P B[illegible] 11 MAY 65
CHECKED [illegible] 8-3-65
APPROVED P C Watson 8-3-65
APPROVED [illegible]
APPROVED MIT [illegible]
APPROVED MSC
DATE

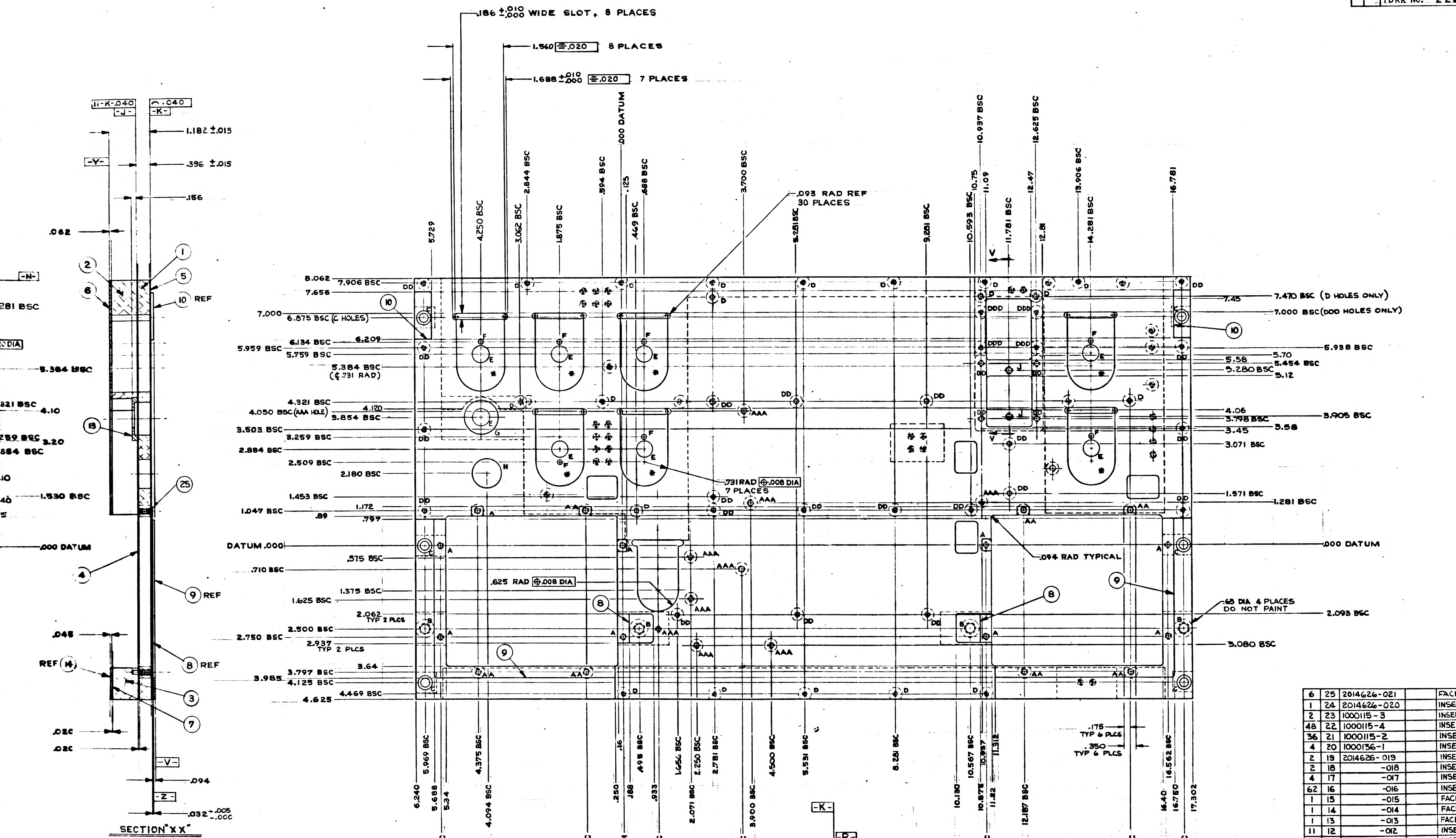
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL
G&N INDICATOR CONTROL
(INSEPARABLE)

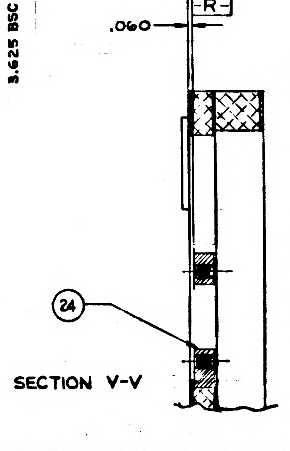
CODE IDENT NO 80230
SIZE J
DRAWING NO. 2014626
SCALE 1/1
SHEET 1 OF 1

2/2014626

		REVISIONS				
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROV
		INITIAL CLASS A RELEASE TDRR NO. 22659				



.186 +.010 -.000 WIDE SLOT, 8 PLACES
1.560 ⌯.020 8 PLACES
1.688 +.010 -.000 ⌯.020 7 PLACES
.093 RAD REF 30 PLACES
.731 RAD ⌖.008 DIA 7 PLACES
.625 RAD ⌖.008 DIA
.094 RAD TYPICAL
.63 DIA 4 PLACES DO NOT PAINT
7.470 BSC (D HOLES ONLY)
7.000 BSC (DDD HOLES ONLY)
6.875 BSC (C HOLES)
4.050 BSC (AAA HOLE)
5.384 BSC (₵.731 RAD)
DATUM .000
.000 DATUM
2.062 TYP 2 PLCS
2.937 TYP 2 PLCS
.175 TYP 6 PLCS
.350 TYP 6 PLCS
SECTION "XX"
1.182 ±.015
.396 ±.015
.156
.062
.045
.020
.094
.032 +.005 -.000
REF
-N-
-Y-
-J-
-K-
-V-
-Z-
V
2014626
REV LTR.



SECTION V-V

HOLE & INSERT DATA							
HOLE MACHINING				CSK & INSERT INSTALLATION			
HOLE SIZE	DEPTH	THREAD OR C'BORE	DEPTH			INSERT ITEM NO.	FROM SURFACE
[illegible]	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD		21	-K-&-Z-
[illegible]	.6	10-32UNF2B	.39			21	-Y-,-K-&-Z-
[illegible] DIA	THRU	1/4-20UNC2B	THRU			20	-K-
[illegible]	THRU	.406 DIA	.16		MAJ DIA THD		
[illegible] DIA	.6	6-32UNC2B	.39		.140 DIA	22	-K-
[illegible] DIA	THRU	6-32UNC2B	THRU	100° CSK TO .140 DIA		22	-K-
[illegible]	THRU						
[illegible]	THRU						
DIA	BSC						
[illegible]	THRU						
[illegible] DIA	.9	82° CSK TO .170 DIA					
[illegible]	THRU	10-32 UNF 2B	THRU	100° CSK TO MAJ DIA THD		21	-J-
[illegible]	THRU	6-32 UNC 2B	THRU	100° CSK TO .140 DIA		22	-J-
[illegible]	THRU	6-28 UNF 2B	THRU	100° CSK TO MAJ DIA THD		23	-R-

[illegible] TO BE ⌖.010 DIA, EXCEPT HOLES MARKED "C" MUST BE ⌖.005 DIA, AND HOLES E2-E31 TO BE ⌖.020 DIA.
[illegible] 20, 21 [illegible] 23 TO BE FLUSH TO .030 BELOW INSTALLATION SURFACE.
[illegible] .060 TO .080 BELOW INSTALLATION SURFACE.

NO. REQ'D	ITEM NO.	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
6	25	2014626-021		FACE PAD
1	24	2014626-020		INSERT, CORE PLATE
2	23	1000115-3		INSERT, THREADED
48	22	1000115-4		INSERT, THREADED
36	21	1000115-2		INSERT, THREADED
4	20	1000136-1		INSERT, THREADED
2	19	2014626-019		INSERT, CORE PLUG
2	18	-018		INSERT, CORE PLUG
4	17	-017		INSERT, CORE PLUG
62	16	-016		INSERT, CORE PLUG
1	15	-015		FACE PAD
1	14	-014		FACE PAD
1	13	-013		FACE PAD
11	12	-012		INSERT, CORE PLUG
2	11	-011		INSERT, CORE PLUG
2	10	-010		FACE PAD
2	9	-009		FACE PAD
2	8	-008		FACE PAD
1	7	-007		FACE PANEL
1	6	-006		FACE PANEL
1	5	-005		FACE PANEL
1	4	-004		FACE PANEL
1	3	-003		CORE HONEYCOMB PAD
1	2	-002		CORE HONEYCOMB PAD
1	1	2014626-001		CORE HONEYCOMB PANEL

LIST OF MATERIALS

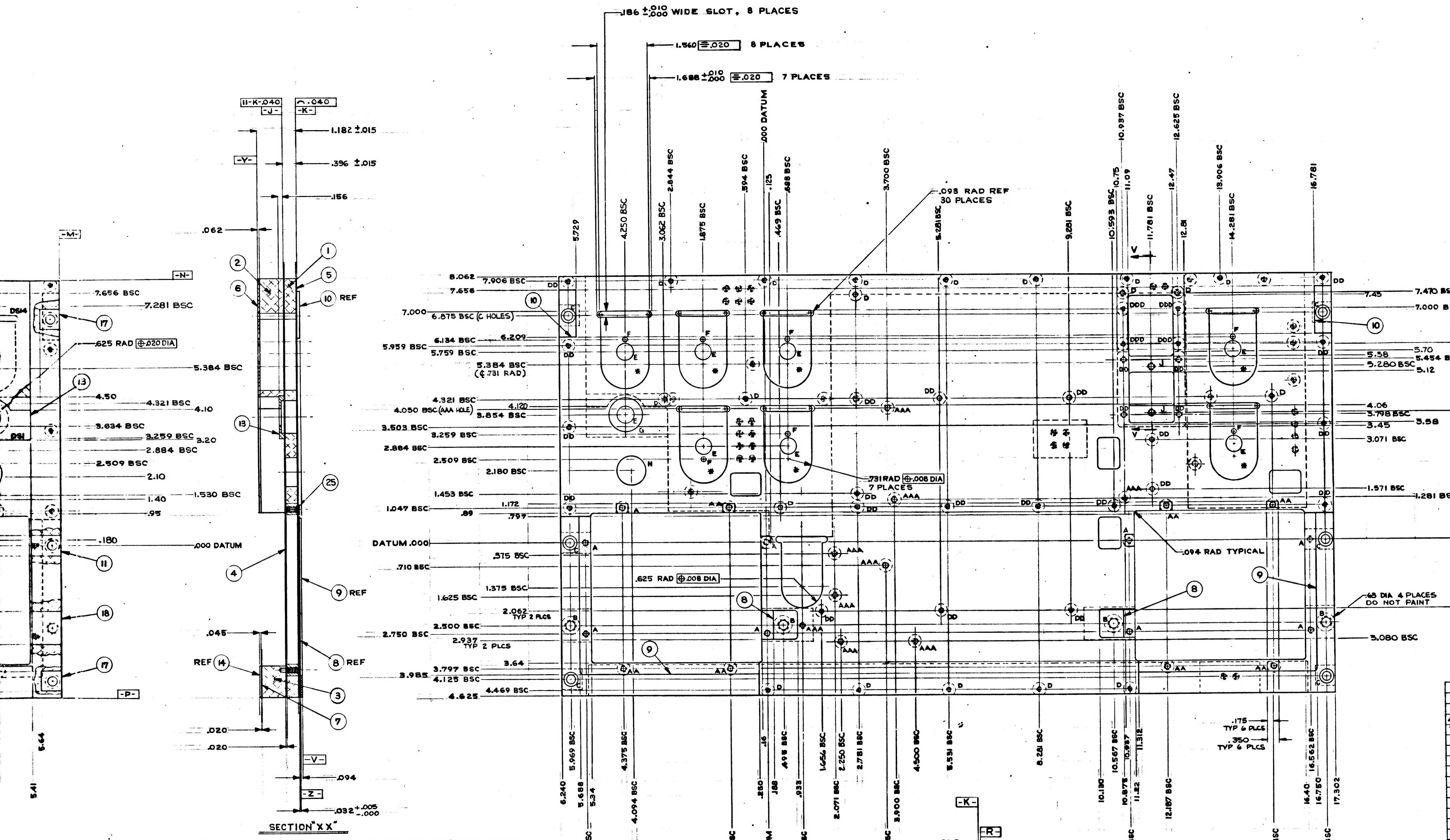
2014578-011	2014578-011	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES CAPACITOR VALUES ARE IN µf RESISTOR VALUES ARE IN OHMS TOLERANCES ON 2 PLC DEC. ±.02 3 PLC DEC. ±.005 ANGLES ±0°-30' DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS
NEXT ASSY	USED ON	MATERIAL SEE NOTE 2	DRAWN J P B [illegible] 11 MAY 65 CHECKED [illegible] 8-3-65 APPROVED C Watson 8-3-65 APPROVED [illegible] APPROVED MIT [illegible] APPROVED MSC DATE
APPLICATION		CONTRACT NAS9-497	

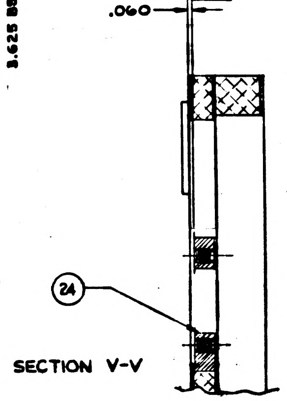
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL
G&N INDICATOR CONTROL
(INSEPARABLE)

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2014626
SCALE 1/1		SHEET 1 OF 1

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 22259				


.186 +.010/-.000 WIDE SLOT, 8 PLACES
1.560 ⌯.020 8 PLACES
1.688 +.010/-.000 ⌯.020 7 PLACES
.000 DATUM
.093 RAD REF 30 PLACES
.731 RAD ⊕.008 DIA 7 PLACES
.625 RAD ⊕.008 DIA
.625 RAD ⊕.020 DIA
.094 RAD TYPICAL
.63 DIA 4 PLACES DO NOT PAINT
7.470 BSC (D HOLES ONLY)
7.000 BSC (DDD HOLES ONLY)
6.875 BSC (C HOLES)
4.050 BSC (AAA HOLE)
5.384 BSC (¢.731 RAD)
DATUM .000
.175 TYP 6 PLCS
.350 TYP 6 PLCS
2.062 TYP 2 PLCS
2.937 TYP 2 PLCS
11-K-.040
⌒.040
-J-
-K-
-Y-
-M-
-N-
-P-
-V-
-Z-
1.182 ±.015
.396 ±.015
.156
.062
.045
.020
.094
.032 +.005/-.000
REF
SECTION "XX"



SECTION V-V

HOLE & INSERT DATA

HOLE MACHINING						CSK & INSERT INSTALLATION		
HOLE	QTY	HOLE SIZE	DEPTH	THREAD OR C BORE	DEPTH		INSERT ITEM NO.	FROM SURFACE
A	9	.165 +.004/-.000 DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD	21	-K- & -Z-
AA	8	.165 +.004/-.000 DIA	.62	10-32UNF2B	.39		21	-Y-, -K- & -Z-
B	4	.259 +.005/-.000 DIA	THRU	5/16-18UNC2B	THRU		20	-K-
C	6	.218 DIA	THRU	.406 DIA	.16	MAJ DIA THD		
D	19	.124 +.004/-.000 DIA	.62	6-32UNC2B	.39	.140 DIA	22	-K-
DD	25	.124 +.004/-.000 DIA	THRU	6-32UNC2B	THRU	100° CSK TO .140 DIA	22	-K-
E	8	.500 DIA	THRU					
F	7	.156 DIA	THRU					
G	1	1.000 DIA	.500					
H	1	.875 DIA	THRU					
E2-E31	26	.134 +.004/-.000 DIA	.19	60° CSK TO .170 DIA				
AAA	9	.165 +.004/-.000 DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD	21	-J-
DDD	4	.124 +.004/-.000 DIA	THRU	6-32UNC2B	THRU	100° CSK TO .140 DIA	22	-J-
J	2	.190 +.004/-.000 DIA	THRU	12-28UNF2B	THRU	100° CSK TO MAJ DIA THD	23	-R-

NOTE: ALL HOLES TO BE ⊕.010 DIA, EXCEPT HOLES MARKED "C" MUST BE ⊕.005 DIA, AND HOLES E2-E31 TO BE ⊕.020 DIA.
ITEMS 20, 21, AND 23 TO BE FLUSH TO .030 BELOW INSTALLATION SURFACE.
ITEM 22 TO BE .060 TO .080 BELOW INSTALLATION SURFACE.

2014626 REV LTR

NO. REQ'D	ITEM NO.	PART OR IDENTIFYING NO	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION
6	25	2014626-021		FACE PAD
1	24	2014626-020		INSERT, CORE PLATE
2	23	1000115-3		INSERT, THREADED
48	22	1000115-4		INSERT, THREADED
36	21	1000115-2		INSERT, THREADED
4	20	1000136-1		INSERT, THREADED
2	19	2014626-019		INSERT, CORE PLUG
2	18	-018		INSERT, CORE PLUG
4	17	-017		INSERT, CORE PLUG
62	16	-016		INSERT, CORE PLUG
1	15	-015		FACE PAD
1	14	-014		FACE PAD
1	13	-013		FACE PAD
11	12	-012		INSERT, CORE PLUG
2	11	-011		INSERT, CORE PLUG
2	10	-010		FACE PAD
2	9	-009		FACE PAD
2	8	-008		FACE PAD
1	7	-007		FACE PANEL
1	6	-006		FACE PANEL
1	5	-005		FACE PANEL
1	4	-004		FACE PANEL
1	3	-003		CORE HONEYCOMB PAD
1	2	-002		CORE HONEYCOMB PAD
1	1	2014626-001		CORE HONEYCOMB PANEL

LIST OF MATERIALS

2014578-011	2014578-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
2 PLC DEC. ±.02 3 PLC DEC. ±.005 ANGLES ±0°-30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMB. MASS

DRAWN G P Booth 11 MAY 65
CHECKED 8-3-65
APPROVED C Watson 8-3-65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

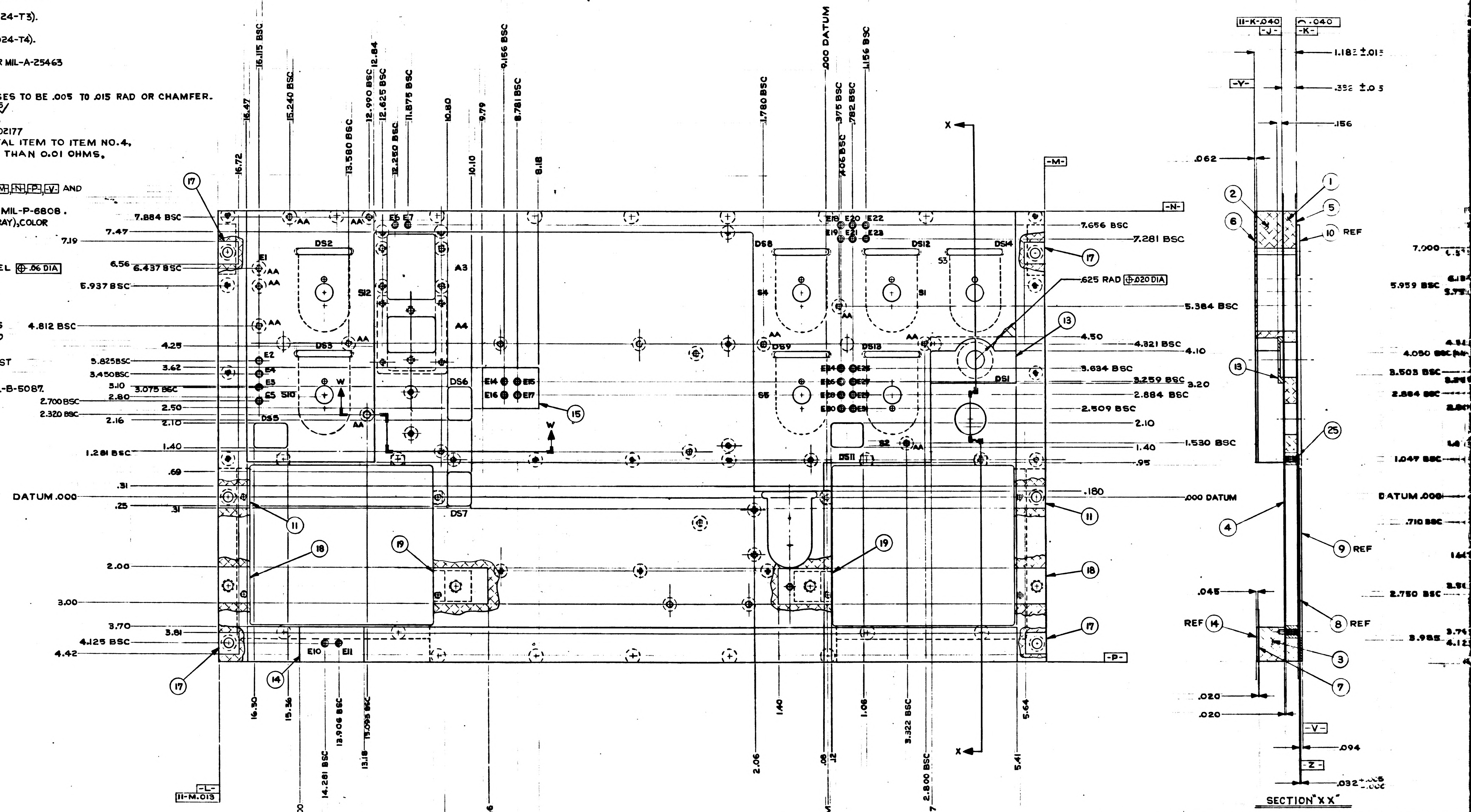
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL
G&N INDICATOR CONTROL
(INSEPARABLE)

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2014626
SCALE 1/1
SHEET 1 OF 1

NOTES:

1. INTERPRET DWG PER MIL-D-70327
2. MATERIAL:
   - A. ITEMS 1, 2 AND 3; HONEYCOMB, PER MIL-C-7438, .125 ± .016 CELL SIZE, .001 FOIL GAUGE (PERFORATED CELL WALLS) AL ALY PER QQ-A-250/8 (5052-H39), 4.5 DENSITY CORE.
   - B. ITEMS 4, 5, 6, 7 AND 14 AL ALY PER QQ-A-250/5, TEMPER T3, (2024-T3).
   - C. ITEMS 8, 9, 10, 11, 12, 13 AND 15. AL ALY PER QQ-A-225/6, TEMPER T4, (2024-T4).
3. ADHESIVE: ADHESIVE FOR METALLIC CONSTRUCTION PER MIL-A-25463 (ASG), TYPE II, CLASS 2.
4. UNLESS OTHERWISE SPECIFIED:
   - A. MUST BE FREE FROM BURRS AND ALL EDGES TO BE .005 TO .015 RAD OR CHAMFER.
   - B. SURFACE ROUGHNESS NOT TO EXCEED $^{125}\surd$
5. BAND ALL EXPOSED HONEYCOMB CORE EDGES PER ND1002178 USING EPOXY PUTTY PER ND1002177
6. RESISTANCE MEASURED FROM ANY METAL ITEM TO ITEM NO. 4, THROUGH THE BOND, TO BE LESS THAN 0.01 OHMS.
7. FINISH: $\boxed{2}$
   - A. CHEMICAL FILM PER MIL-C-5541, CLASS 3.
   - B. UNLESS OTHERWISE SPECIFIED: SURFACES $\boxed{-L-}$, $\boxed{-M-}$, $\boxed{-N-}$, $\boxed{-P-}$, $\boxed{-V-}$ AND SURFACES MARKED WITH AN ASTERISK (✱):
     - 1. APPLY ZINC CHROMATE PRIMER PER MIL-P-6808.
     - 2. APPLY TT-E-527 LUSTERLESS ENAMEL (GRAY), COLOR NO. 36231 OF FED-STD-595, PER ND1002110
8. IDENTIFY USING DWG NO. PER ND1002019
9. SERIALIZE PER ND1002023
10. ALL INSERTS TO BE LOCATED IN PANEL $\boxed{\oplus\ .06\ \text{DIA}}$
11. $\boxed{2}$ CONTROLLED BY ICD MH01-01174-414
12. MARKING ON REAR OF PANEL TO BE .12 HIGH CHARACTERS, COLOR BLACK PER ND1002019 LOCATED APPROXIMATELY AS SHOWN.
13. OVERALL DIM. OF PANEL, LOCATIONS OF H & C HOLES ARE CONTROLLED BY ICD MH01-01304-116.
14. ALL EXPOSED EDGES ON ITEM 6 MUST HAVE .03 TO .05 RAD.
15. ELECTRICAL BONDING TO BE PER MIL-B-5087.


7.884 BSC
7.47
7.19
6.56
6.437 BSC
5.937 BSC
4.812 BSC
4.25
3.825 BSC
3.62
3.450 BSC
3.10
3.075 BSC
2.700 BSC
2.80
2.320 BSC
2.50
2.16
2.10
1.40
1.281 BSC
.69
.31
DATUM .000
.25
.31
2.00
3.00
3.70
3.81
4.125 BSC
4.42
16.115 BSC
16.47
16.72
15.240 BSC
13.580 BSC
12.990 BSC
12.84
12.625 BSC
12.250 BSC
11.875 BSC
10.80
10.10
9.79
9.156 BSC
8.781 BSC
8.18
1.780 BSC
.000 DATUM
.375 BSC
.406 BSC
.782 BSC
1.156 BSC
16.50
15.36
15.00
14.281 BSC
13.906 BSC
13.18
13.095 BSC
9.66
2.06
1.40
.08
.12
.000 DATUM
1.06
3.322 BSC
2.800 BSC
2.97
5.64
5.41
7.656 BSC
7.281 BSC
.625 RAD $\boxed{\oplus .020\ \text{DIA}}$
5.384 BSC
4.50
4.321 BSC
4.10
3.634 BSC
3.259 BSC
3.20
2.884 BSC
2.509 BSC
2.10
1.40
1.530 BSC
.95
.180
.000 DATUM
DS1
DS2
DS3
DS5
DS6
DS7
DS8
DS9
DS11
DS12
DS13
DS14
S1
S2
S3
S4
S5
S10
S12
A3
A4
AA
E1
E2
E3
E4
E5
E6
E7
E10
E11
E14
E15
E16
E17
E18
E19
E20
E21
E22
E23
W
X
-L-
II-M.013
-M-
-N-
-P-
11
13
14
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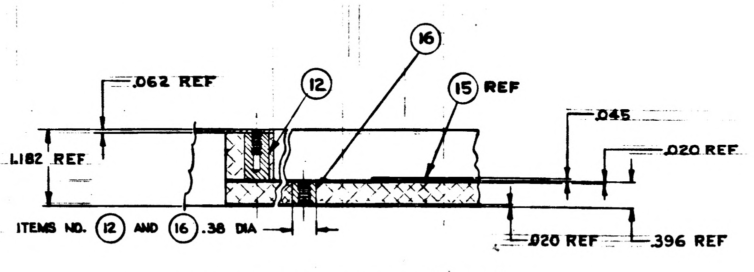
17
18
19
II-K.040
-J-
⌒.040
-K-
1.182 ±.015
-Y-
.392 ±.05
.156
.062
1
2
5
6
10 REF
4
9 REF
8 REF
3
7
25
13
REF 14
.045
.020
.020
-V-
.094
-Z-
.032 +.005 -.000
7.000
5.959 BSC
4.050 BSC
3.503 BSC
2.884 BSC
1.047 BSC
DATUM .000
.710 BSC
2.750 BSC
3.985

SECTION "XX"


.062 REF
12
16
15 REF
.045
1.182 REF
.020 REF
ITEMS NO. 12 AND 16 .38 DIA
.020 REF
.396 REF

PARTIAL SECTION "WW"

HOLE & INSERT DATA							
HOLE MACHINING						CSK & INSERT INSTALL	
HOLE	QTY	HOLE SIZE	DEPTH	THREAD OR C BORE	DEPTH		IN IT
A	9	$.165^{+.004}_{-.000}$ DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD	
AA	18	$.165^{+.004}_{-.002}$ DIA	.62	10-32UNF2B	.39		
B	4	$.259^{+.005}_{-.000}$ DIA	THRU	5/16-18UNC2B	THRU		
C	6	.218 DIA	THRU	.406 DIA	.16	MAJ DIA THD	
D	19	$.124^{+.004}_{-.000}$ DIA	.62	6-32UNC2B	.39	[illegible] DIA	
DD	25	$.124^{+.004}_{-.002}$ DIA	THRU	6-32UNC2B	THRU	100° CSK TO [illegible] DIA	
E	8	.500 DIA	THRU				
F	7	.156 DIA	THRU				
G	1	1.000 DIA	.500				
H	1	.875 DIA	THRU				
E2-E31	26	$.134^{+.004}_{-.000}$ DIA	.19	60° CSK TO .170 DIA			
AAA	9	$.165^{+.004}_{-.000}$ DIA	THRU	10-32UNF2B	THRU	100° CSK TO MAJ DIA THD	
DDD	4	$.124^{+.004}_{-.000}$ DIA	THRU	6-32UNC2B	THRU	100° CSK TO [illegible] DIA	
J	2	$.190^{+.004}_{-.000}$ DIA	THRU	12-28UNF2B	THRU	100° CSK TO MAJ DIA THD	

NOTE: ALL HOLES TO BE $\boxed{\oplus .010\ \text{DIA}}$, EXCEPT HOLES MARKED "C" MUST

ITEMS 20, 21, AND 23 TO BE FLUSH TO .030 BELOW INSTALLA

ITEM 22 TO BE .060 TO .080 BELOW INSTALLATION SURFACE

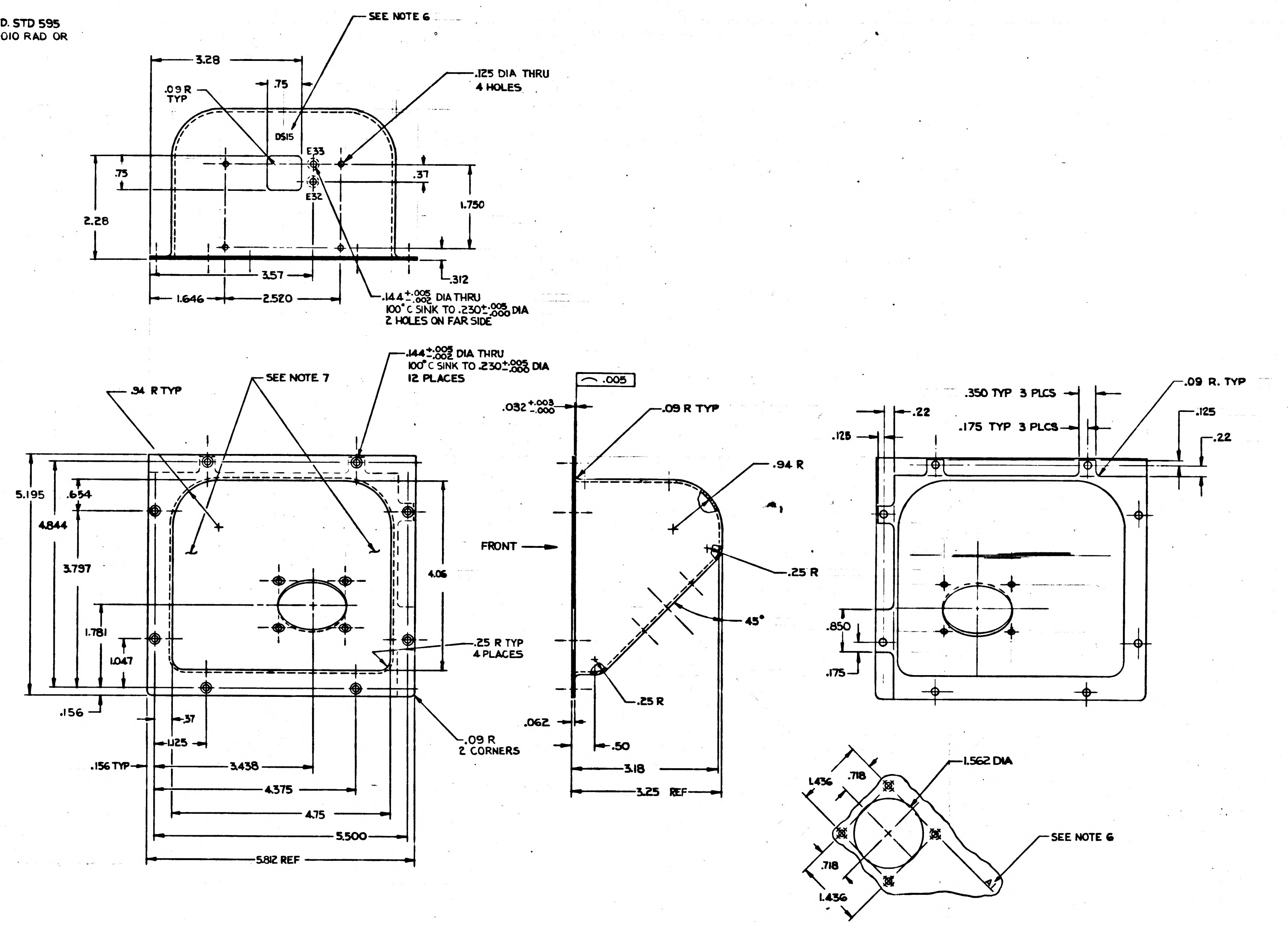
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014627 A

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 22659				
A		REVISED PER TDRR 27872	DKD	PJ	12 APR 66	

NOTES:

1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2. FINISH:
   A. CHEMICAL FILM PER MIL-C-5541, CLASS 3 ALL OVER.
   B. FOR INSIDE SURFACES OF CAN, FRONT SURFACE AND EDGES OF FLANGE EXCEPT HOLES:
      1. APPLY ZINC CHROMATE PRIMER PER MIL-P-6808
      2. APPLY TT-E-527 LUSTERLESS ENAMEL COLOR NO. 36231 OF FED. STD 595
3. UNLESS OTHERWISE SPECIFIED: ALL EDGES MUST NOT EXCEED .010 RAD OR CHAMFER. SURFACE ROUGHNESS MUST NOT EXCEED $\sqrt{}^{125}$. MUST BE FREE FROM BURRS
4. IDENTIFY USING DRAWING NO. PER ND1002019
5. HEAT TREAT AFTER FORMING PART TO CONDITION-T6 PER MIL-H-6088C
6. MARK .12 HIGH CHARACTERS, COLOR BLACK PER ND1002019 LOCATED APPROX. AS SHOWN
7. SURFACE TO BE A SMOOTH BLEND OF ADJACENT RADII


SEE NOTE 6
3.28
.75
.09 R TYP
.125 DIA THRU 4 HOLES
DS15
E33
E32
.75
.37
1.750
2.28
3.57
.312
1.646
2.520
.144 +.005 -.002 DIA THRU 100° C SINK TO .230 +.005 -.000 DIA 2 HOLES ON FAR SIDE
.144 +.005 -.002 DIA THRU 100° C SINK TO .230 +.005 -.000 DIA 12 PLACES
.94 R TYP
SEE NOTE 7
5.195
.654
4.844
3.797
1.781
1.047
4.06
.25 R TYP 4 PLACES
.156
.37
.125
.156 TYP
3.438
4.375
4.75
5.500
5.812 REF
.09 R 2 CORNERS
.005
.032 +.003 -.000
.09 R TYP
.94 R
FRONT
.25 R
45°
.25 R
.062
.50
3.18
3.25 REF
.350 TYP 3 PLCS
.175 TYP 3 PLCS
.22
.125
.09 R. TYP
.125
.22
.850
.175
1.562 DIA
1.436
.718
.718
1.436
SEE NOTE 6

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2014578	2014578

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
2 PLACES ±.015 3 PLACES ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
ALUMINUM ALLOY
6061-0 PER QQ-A-327

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J Dietrich 5-26-65
CHECKED 16 JULY 65
APPROVED 7/2/65
APPROVED R C Watson 8-3-65
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SUPPORT, HAND CONTROLLER

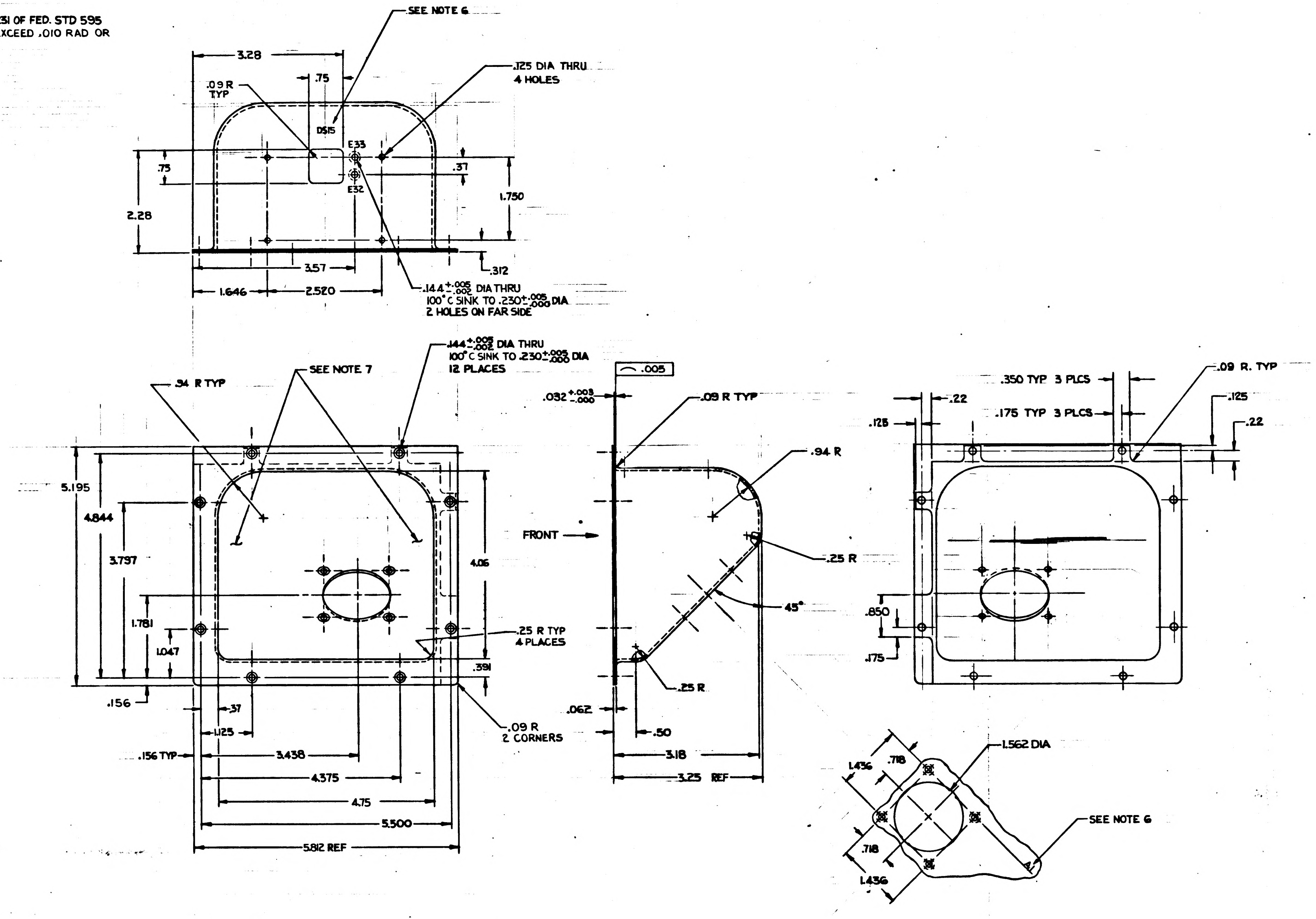
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014627
SCALE 1/1
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2014627

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE TDRR NO. 22659				

NOTES:
1. INTERPRET DWG IN ACCORDANCE WITH MIL-D-70327
2. FINISH:
   A. CHEMICAL FILM PER MIL-C-5541, CLASS 3 ALL OVER.
   B. FOR INSIDE SURFACES OF CAN, FRONT SURFACE AND EDGES OF FLANGE EXCEPT HOLES:
   1. APPLY ZINC CHROMATE PRIMER PER MIL-P-6808
   2. APPLY TT-E-527 LUSTERLESS ENAMEL COLOR NO. 36231 OF FED. STD 595
3. UNLESS OTHERWISE SPECIFIED: ALL EDGES MUST NOT EXCEED .010 RAD OR CHAMFER, SURFACE ROUGHNESS MUST NOT EXCEED $\overset{125}{\surd}$. MUST BE FREE FROM BURRS
4. IDENTIFY USING DRAWING NO. PER ND1002019
5. HEAT TREAT AFTER FORMING PART TO CONDITION-T6 PER MIL-H-6088C
6. MARK .12 HIGH CHARACTERS, COLOR BLACK PER ND1002019 LOCATED APPROX. AS SHOWN
7. SURFACE TO BE A SMOOTH BLEND OF ADJACENT RADII



SEE NOTE 6
3.28
.75
.09 R TYP
DS15
E33
E32
.125 DIA THRU 4 HOLES
.75
.37
2.28
1.750
3.57
.312
1.646
2.520
.144 +.005 -.002 DIA THRU 100° C SINK TO .230 +.005 -.000 DIA 2 HOLES ON FAR SIDE
.34 R TYP
SEE NOTE 7
.144 +.005 -.002 DIA THRU 100° C SINK TO .230 +.005 -.000 DIA 12 PLACES
5.195
4.844
3.797
1.781
1.047
.156
4.06
.25 R TYP 4 PLACES
.391
.37
1.125
.156 TYP
3.438
4.375
4.75
5.500
5.812 REF
.09 R 2 CORNERS
.005
.032 +.003 -.000
.09 R TYP
.94 R
FRONT
.25 R
45°
.25 R
.062
.50
3.18
3.25 REF
.350 TYP 3 PLCS
.175 TYP 3 PLCS
.22
.125
.09 R. TYP
.125
.22
.850
.175
1.562 DIA
1.436
.718
.718
1.436
SEE NOTE 6

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014578	2014578

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
2 PLACES ±.015, 3 PLACES ±.005, ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
ALUMINUM ALLOY
6061-0 PER QQ-A-327

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J. Dietrich	5-26-65
CHECKED		16 JULY 65
APPROVED		7/…/65
APPROVED	R C Watson	8-3-65
APPROVED MIT		
APPROVED MSC		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SUPPORT, HAND CONTROLLER

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2014627

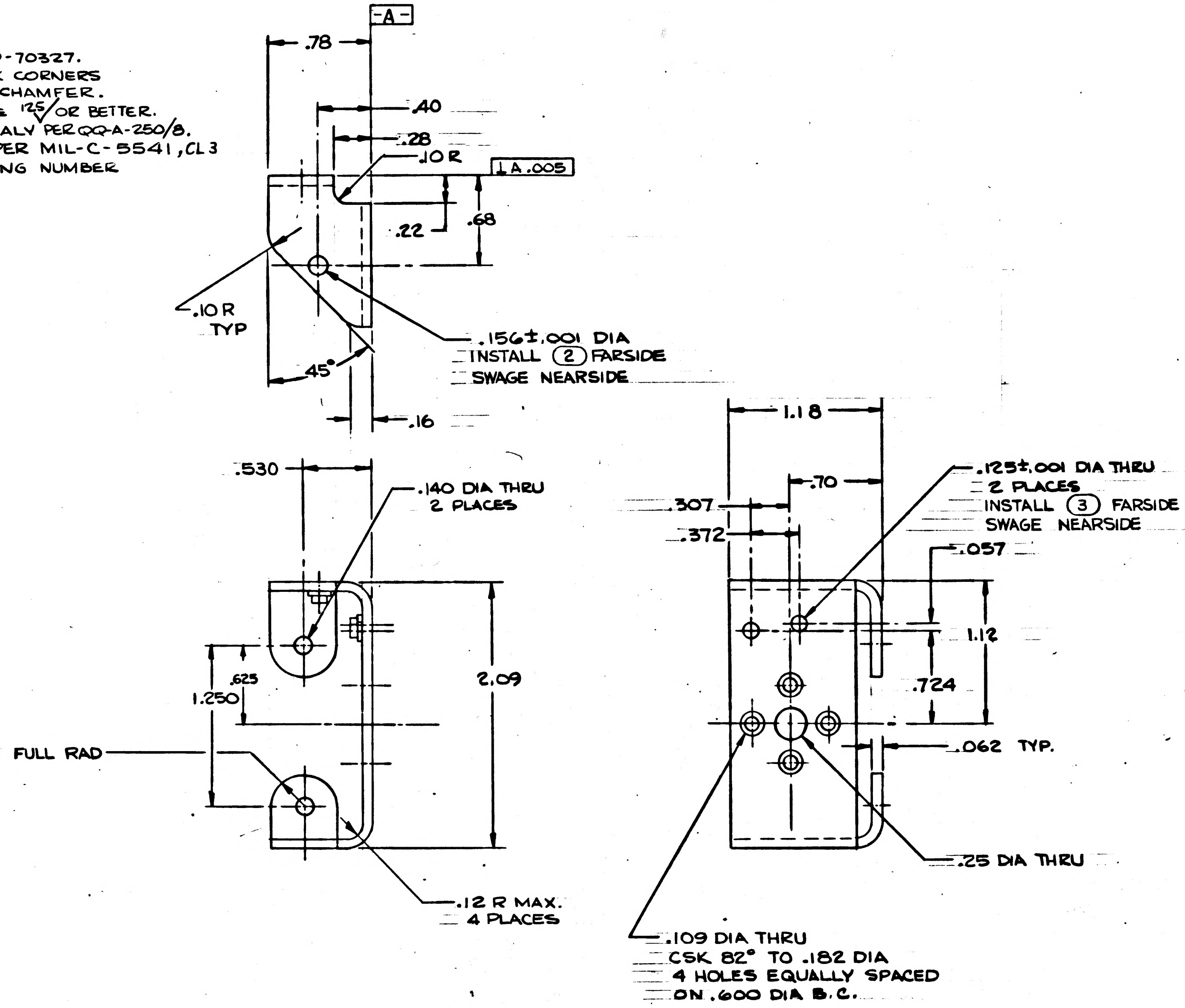
SCALE 1/1
SHEET 1 OF 1

2014627

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE PER TDRR NO. 22659				
A		REVISE PER TDRR 23835			11/10/65	W/L

NOTES:
1. INTERPRET DWG PER MIL-D-70327.
2. REMOVE BURRS AND BREAK CORNERS .005 TO .015 RADIUS OR CHAMFER.
3. SURFACE ROUGHNESS TO BE $^{125}\surd$ OR BETTER.
4. MATERIAL: 5052-H34 AL ALY PER QQ-A-250/8.
5. FINISH: CHEMICAL FILM PER MIL-C-5541, CL 3
6. IDENTIFY USING DRAWING NUMBER PER ND1002019.



-A-
.78
.40
.28
.10 R
⊥ A .005
.22
.68
.10 R TYP
.156±.001 DIA
INSTALL ② FARSIDE
SWAGE NEARSIDE
45°
.16
1.18
.530
.140 DIA THRU
2 PLACES
.70
.125±.001 DIA THRU
2 PLACES
INSTALL ③ FARSIDE
SWAGE NEARSIDE
.307
.372
.057
1.12
.625
1.250
2.09
.724
FULL RAD
.062 TYP.
.25 DIA THRU
.12 R MAX.
4 PLACES
.109 DIA THRU
CSK 82° TO .182 DIA
4 HOLES EQUALLY SPACED
ON .600 DIA B.C.

2	1000076-5		NUT, CLINCH	3
1	1000076-3		NUT, CLINCH	2
1	2014638-001		BRACKET	1
QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014656	2014623
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± .02 .005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN L. HOOD 7/19/65
CHECKED J. Edwards 7-26-65
APPROVED [illegible] 7/28/65
APPROVED P.C. Watson 8-3-65
APPROVED MIT W. Kupfer [illegible]
APPROVED MSC [illegible]
DATE

BRACKET, MOUNTING – INSEP. ASSY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2014638
SCALE 2/1
SHEET 1 OF 1

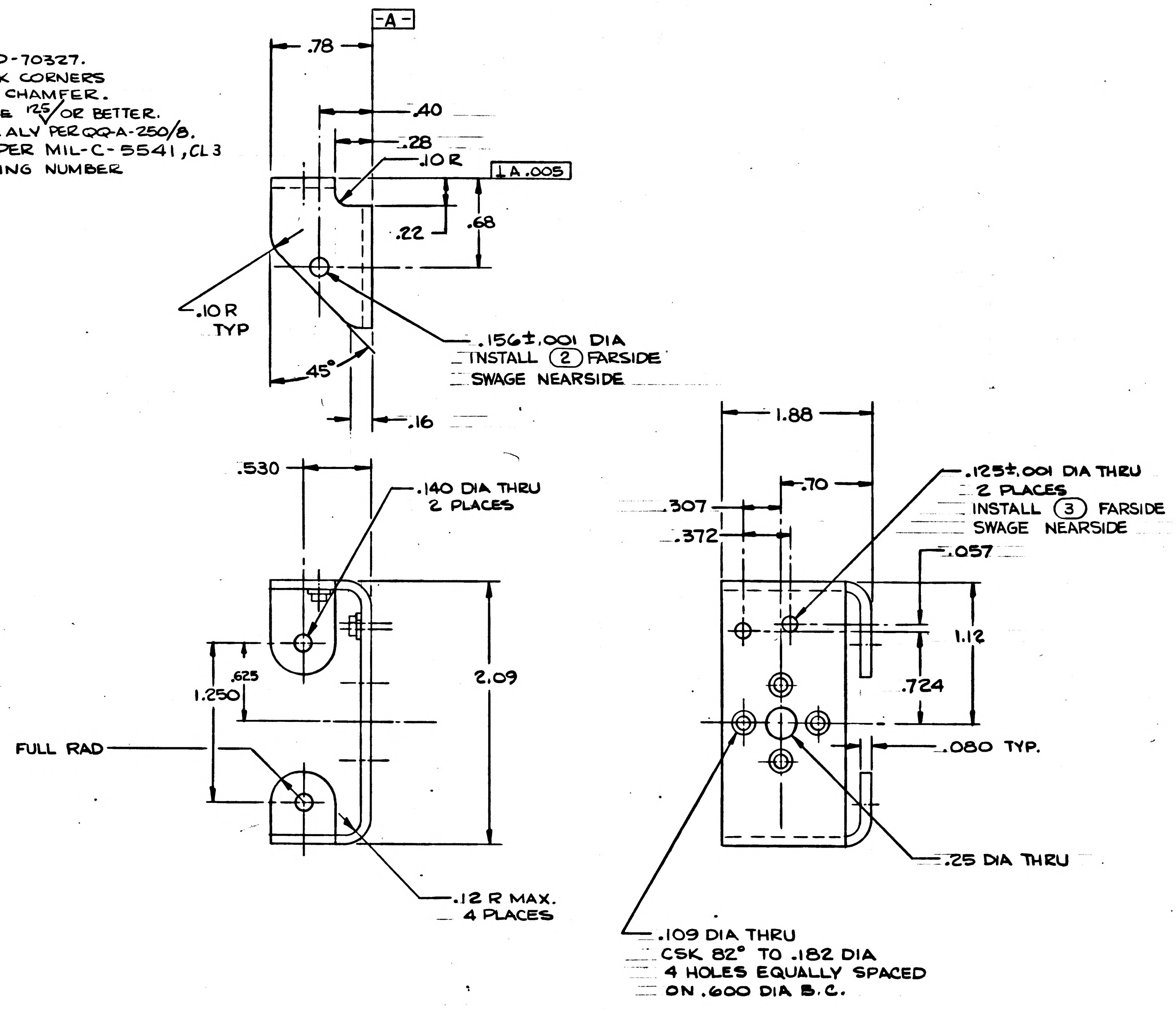
MASTER

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL CLASS A RELEASE PER TDRR NO. 22659				

NOTES:

1. INTERPRET DWG PER MIL-D-70327.
2. REMOVE BURRS AND BREAK CORNERS .005 TO .015 RADIUS OR CHAMFER.
3. SURFACE ROUGHNESS TO BE $125\surd$ OR BETTER.
4. MATERIAL: 5052-H34 AL ALY PER QQ-A-250/8.
5. FINISH: CHEMICAL FILM PER MIL-C-5541, CL3
6. IDENTIFY USING DRAWING NUMBER PER ND1002019.


-A-
.78
.40
.28
.10 R
⊥ A .005
.22
.68
.10 R TYP
.156±.001 DIA
INSTALL ② FARSIDE
SWAGE NEARSIDE
45°
.16
.530
.140 DIA THRU
2 PLACES
.625
1.250
2.09
FULL RAD
.12 R MAX.
4 PLACES
1.88
.70
.307
.372
.125±.001 DIA THRU
2 PLACES
INSTALL ③ FARSIDE
SWAGE NEARSIDE
.057
1.12
.724
.080 TYP.
.25 DIA THRU
.109 DIA THRU
CSK 82° TO .182 DIA
4 HOLES EQUALLY SPACED
ON .600 DIA B.C.

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	1000076-5		NUT, CLINCH	3
1	1000076-3		NUT, CLINCH	2
1	2014638-001		BRACKET	1

LIST OF MATERIALS

2014656	2014623
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± .02 .005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	L. HOOD	7/19/65
CHECKED	J Eduain	7-26-65
APPROVED		7/26/65
APPROVED	PC Watson	8-3-65
APPROVED MIT	W Kupfer	
APPROVED MSC		DATE

BRACKET, MOUNTING –
INSEP. ASSY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2014638
SCALE 2/1		SHEET 1 OF 1

2014638

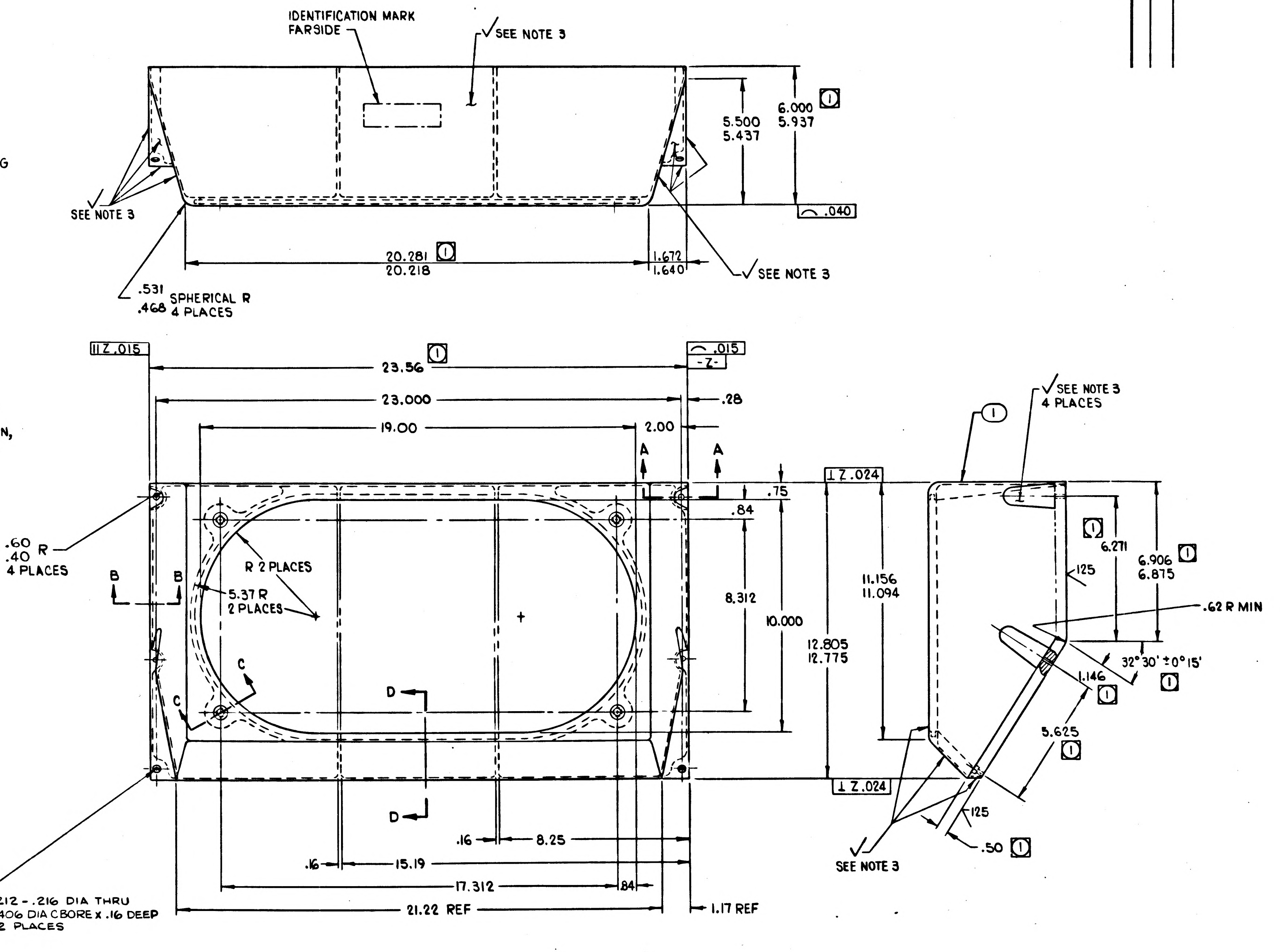
NOTES:

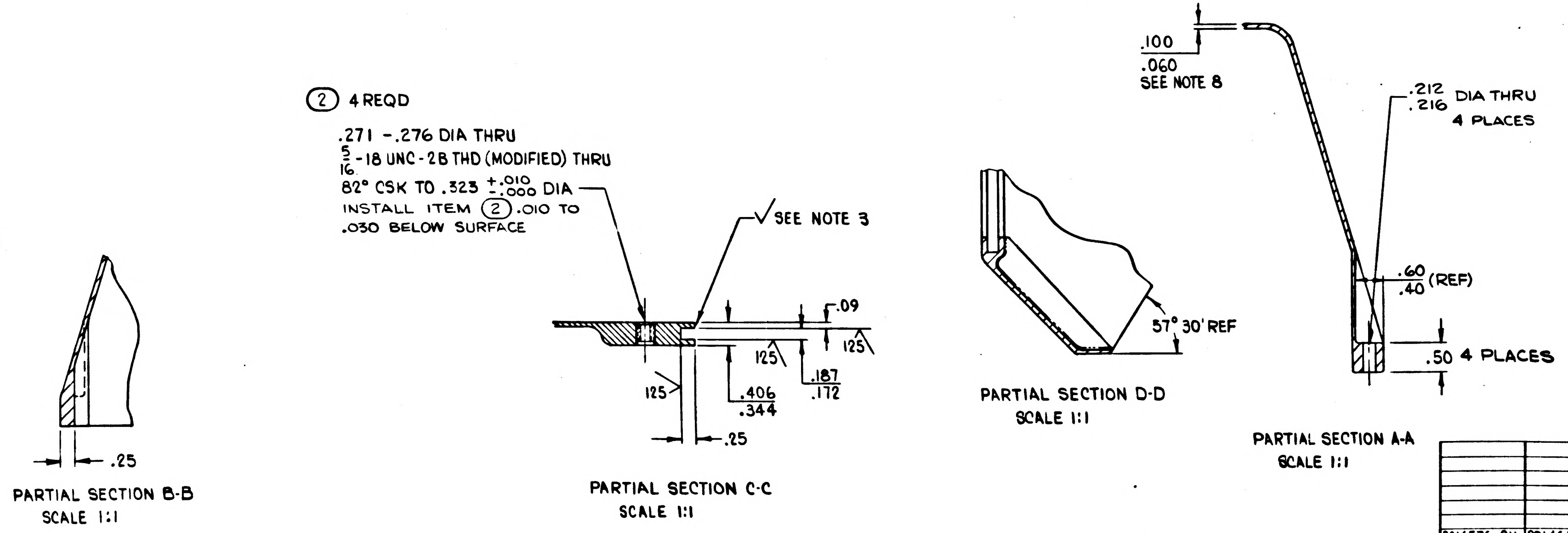
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MATERIAL:
   A. ITEM ①: FIBERGLASS CLOTH PER MIL-Y-1140 FORM 4 CLASS C EPOXY PER MIL-R-9300 TYPE II CLASS I.

   B COLORING DYE:
   MATERIALS SHALL NOT EXHIBIT TOXIC OR CORROSIVE OUTGASSING UNDER ANY OF THE FOLLOWING ENVIRONMENTAL CONDITIONS:
   AMBIENT PRESSURE VARYING FROM 10^{-4} MM HG ABS TO 15 PSIA.
   TEMPERATURE RANGE VARYING FROM -65°F TO +165°F.
   100% OXYGEN ATMOSPHERE.
   100% RELATIVE HUMIDITY.
3. FINISH:
   [2] EXTERNAL SURFACES IDENTIFIED √ SHALL HAVE A SMOOTH EPOXY FINISH WITH A SURFACE ROUGHNESS NOT EXCEEDING 125√. COLOR TO BE LUSTERLESS GRAY, COLOR NO. 36231 OF FED-STD-595, SEE NOTE 2.B.
4. [1] CONTROLLED BY ICD-MH01-01304-116.
5. [2] CONTROLLED BY ICD-MH01-05174-414.
6.

7. MUST BE FREE FROM BURRS.
8. UNLESS OTHERWISE SPECIFIED:
   ALL EDGES MUST BE .010 TO .040 R OR CHAMFER.
   WALL THICKNESS MUST BE .060 TO .100 WITH A MINIMUM OF TWO FIBERGLASS CLOTH LAYERS.
9. WORKMANSHIP:
   THE LAMINATED MATERIAL SHALL BE UNIFORM, SMOOTH AND FREE FROM UNCURED OR UNBONDED AREAS, GAPS, CRACKS, BLISTERS, RESIN POCKETS, AREAS LACKING RESIN, TACKINESS, EXCESS SURFACE RESIN, WRINKLES, DELAMINATION, AIR OR GAS POCKETS, POROSITY, HOLES AND OTHER SIMILAR DEFECTS WHICH WOULD AFFECT THE STRENGTH AND APPEARANCE OF THE FINISHED PART.
10. IDENTIFY USING DRAWING NO. PER ND-1002019.
11. SERIALIZE PER ND-1002023.

REVISIONS					2,384
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 27366		28 MAR 66	LGC / JEC


IDENTIFICATION MARK FARSIDE
√ SEE NOTE 3
5.500
5.437
6.000 [1]
5.937
⌒ .040
SEE NOTE 3
20.281 [1]
20.218
1.672
1.640
.531
.468 SPHERICAL R 4 PLACES
// Z .015
23.56 [1]
⌒ .015 -Z-
23.000
.28
19.00
2.00
A
A
.75
.84
.60
.40 R 4 PLACES
R 2 PLACES
B
B
5.37 R 2 PLACES
8.312
10.000
11.156
11.094
12.805
12.775
C
C
D
D
⊥ Z .024
⊥ Z .024
.16
8.25
.16
15.19
17.312
.84
21.22 REF
1.17 REF
.212 - .216 DIA THRU .406 DIA CBORE x .16 DEEP 2 PLACES
①
√ SEE NOTE 3 4 PLACES
[1] 6.271
6.906 [1]
6.875
125
.62 R MIN
32°30' ±0°15' [1]
1.146 [1]
5.625 [1]
125
.50 [1]
SEE NOTE 3


② 4 REQD
.271 - .276 DIA THRU
5/16 -18 UNC-2B THD (MODIFIED) THRU
82° CSK TO .323 +.010 -.000 DIA
INSTALL ITEM ② .010 TO .030 BELOW SURFACE
√ SEE NOTE 3
.09
125
125
125
.187
.172
.406
.344
.25
.25
57°30' REF
.100
.060
SEE NOTE 8
.212
.216 DIA THRU 4 PLACES
.60
.40 (REF)
.50 4 PLACES

PARTIAL SECTION B-B
SCALE 1:1

PARTIAL SECTION C-C
SCALE 1:1

PARTIAL SECTION D-D
SCALE 1:1

PARTIAL SECTION A-A
SCALE 1:1

ITEM NO.	NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
2	4	NAS1394C-3L	INSERT-THREADED, SELF LOCKING
1	1	2014639-1	SHROUD-FIBERGLASS SEE NOTE 2A

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2014576-011	2014623-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + − DECIMALS ±.02 ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING

MATERIAL SEE NOTE 2

CONTRACT NAS 9-497

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN J. Nolski DATE 25 MAY 65
CHECKED J. Stelma 27 MAY 65
APPROVAL E.W. Mickey 27 May 65
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SHROUD-OPTICS
(INSEPARABLE ASSEMBLY)

CODE IDENT NO 80230
SIZE E
2014639
SCALE 1:2
SHEET 1 OF 1

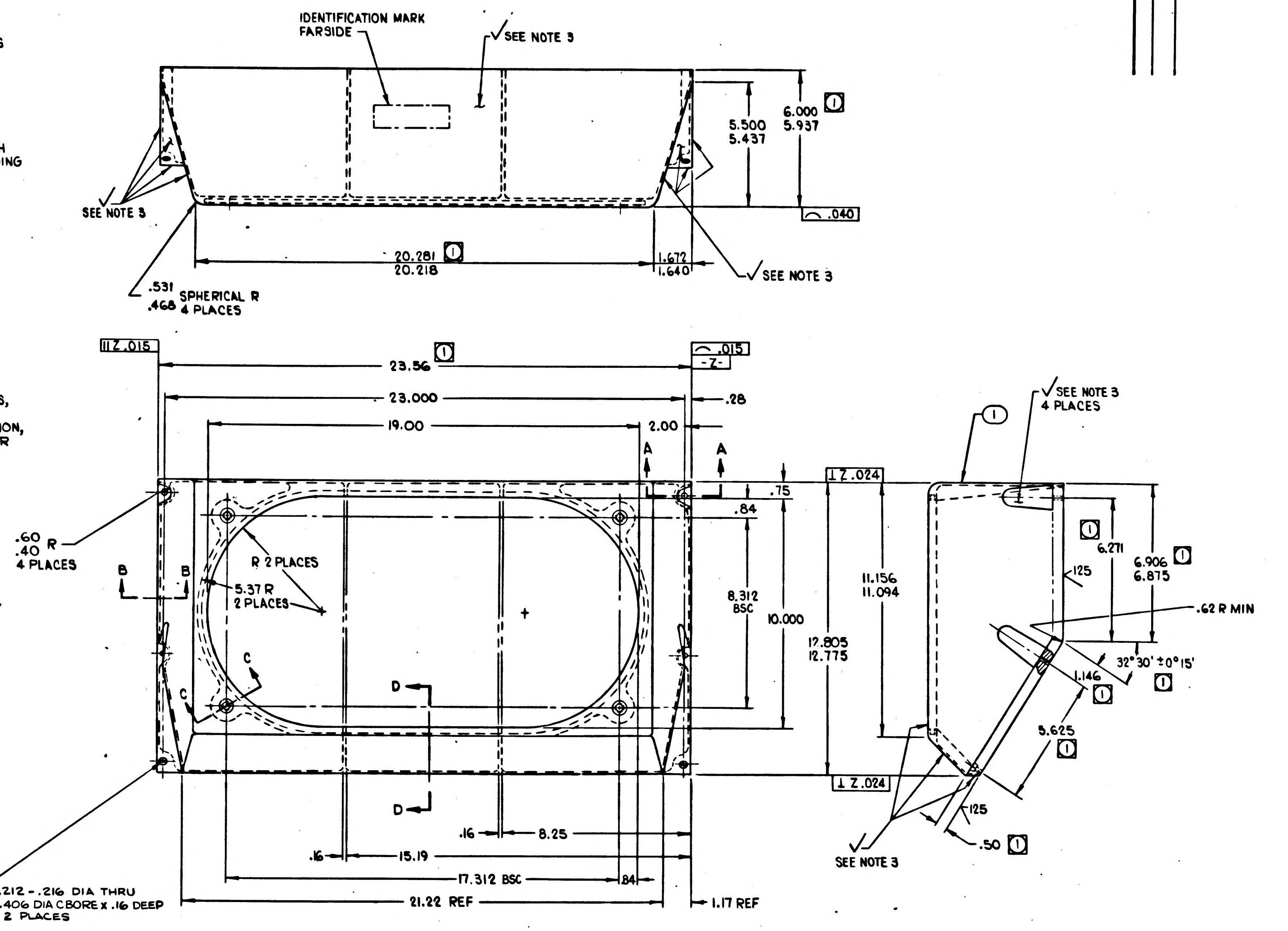
2014639 A

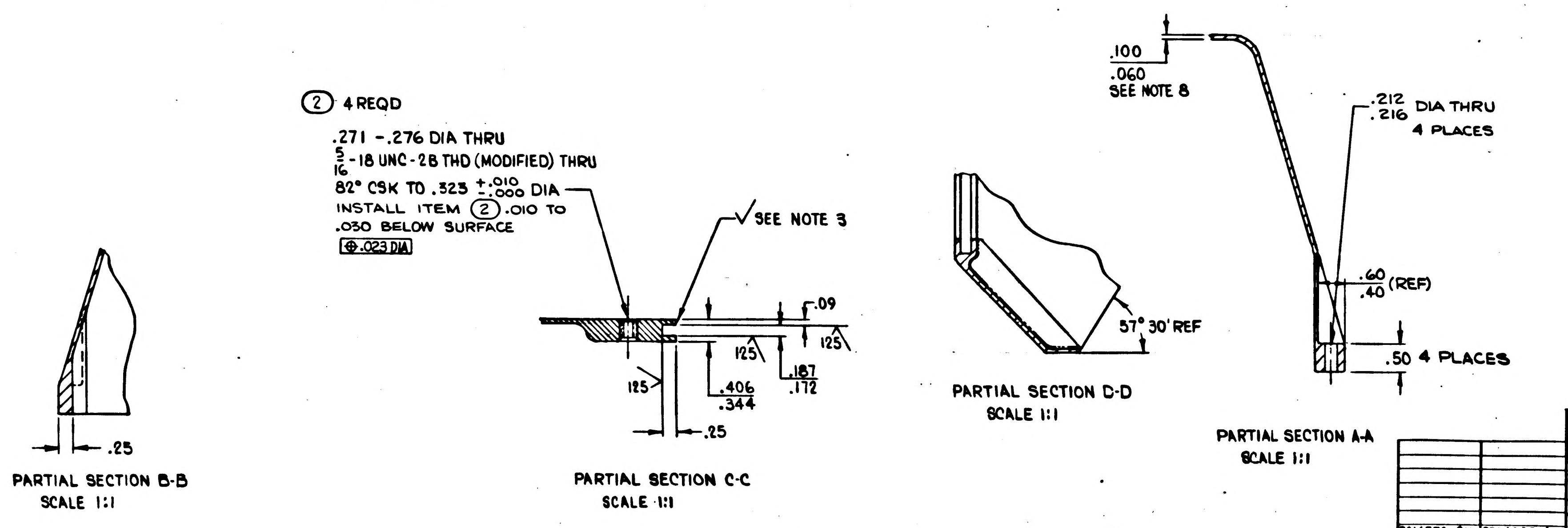
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 27364		29 MAR 66	LGC / JAC
B		REVISED PER TDRR 33408		5 APR 67	JC

2,399

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MATERIAL:
   - A. ITEM ①: FIBERGLASS CLOTH PER MIL-Y-1140 FORM 4 CLASS C EPOXY PER MIL-R-9300 TYPE II CLASS I.
   - B. COLORING DYE: MATERIALS SHALL NOT EXHIBIT TOXIC OR CORROSIVE OUTGASSING UNDER ANY OF THE FOLLOWING ENVIRONMENTAL CONDITIONS:
     - AMBIENT PRESSURE VARYING FROM 10^{-4} MM HG ABS TO 15 PSIA.
     - TEMPERATURE RANGE VARYING FROM -65° F TO +165° F.
     - 100 % OXYGEN ATMOSPHERE.
     - 100 % RELATIVE HUMIDITY.
3. FINISH:
   - $\boxed{2}$ EXTERNAL SURFACES IDENTIFIED √ SHALL HAVE A SMOOTH EPOXY FINISH WITH A SURFACE ROUGHNESS NOT EXCEEDING 125√. COLOR TO BE LUSTERLESS GRAY, COLOR NO. 36231 OF FED-STD-595, SEE NOTE 2.B.
4. $\boxed{1}$ CONTROLLED BY ICD-MH01-01304-116.
5. $\boxed{2}$ CONTROLLED BY ICD-MH01-05174-414.
6.
7. MUST BE FREE FROM BURRS.
8. UNLESS OTHERWISE SPECIFIED: ALL EDGES MUST BE .010 TO .040 R OR CHAMFER. WALL THICKNESS MUST BE .060 TO .100 WITH A MINIMUM OF TWO FIBERGLASS CLOTH LAYERS.
9. WORKMANSHIP: THE LAMINATED MATERIAL SHALL BE UNIFORM, SMOOTH AND FREE FROM UNCURED OR UNBONDED AREAS, GAPS, CRACKS, BLISTERS, RESIN POCKETS, AREAS LACKING RESIN, TACKINESS, EXCESS SURFACE RESIN, WRINKLES, DELAMINATION, AIR OR GAS POCKETS, POROSITY, HOLES AND OTHER SIMILAR DEFECTS WHICH WOULD AFFECT THE STRENGTH AND APPEARANCE OF THE FINISHED PART.
10. IDENTIFY USING DRAWING NO. PER ND-1002019.
11. SERIALIZE PER ND-1002023.


IDENTIFICATION MARK FARSIDE
√ SEE NOTE 3
5.500 / 5.437
6.000 / 5.937 $\boxed{1}$
⌒ .040
SEE NOTE 3
20.281 / 20.218 $\boxed{1}$
1.672 / 1.640
√ SEE NOTE 3
.531 / .468 SPHERICAL R 4 PLACES
// Z .015
23.56 $\boxed{1}$
⌒ .015 -Z-
23.000
.28
19.00
2.00
A
A
.75
.84
.60 / .40 R 4 PLACES
B
B
R 2 PLACES
5.37 R 2 PLACES
8.312 BSC
10.000
11.156 / 11.094
12.805 / 12.775
⊥ Z .024
⊥ Z .024
C
C
D
D
.16
8.25
.16
15.19
17.312 BSC
.84
21.22 REF
1.17 REF
.212 - .216 DIA THRU .406 DIA CBORE x .16 DEEP 2 PLACES
①
√ SEE NOTE 3 4 PLACES
$\boxed{1}$ 6.271
6.906 / 6.875 $\boxed{1}$
125
.62 R MIN
32° 30' ± 0° 15' $\boxed{1}$
1.146 $\boxed{1}$
5.625 $\boxed{1}$
125
.50 $\boxed{1}$
SEE NOTE 3


② 4 REQD
.271 - .276 DIA THRU
5/16 - 18 UNC - 2B THD (MODIFIED) THRU
82° CSK TO .323 +.010 / -.000 DIA
INSTALL ITEM ② .010 TO .030 BELOW SURFACE
⊕ .023 DIA
√ SEE NOTE 3
.09
125
125
125
.187 / .172
.406 / .344
.25
.25
PARTIAL SECTION B-B SCALE 1:1
PARTIAL SECTION C-C SCALE 1:1
57° 30' REF
PARTIAL SECTION D-D SCALE 1:1
.100 / .060 SEE NOTE 8
.212 / .216 DIA THRU 4 PLACES
.60 / .40 (REF)
.50 4 PLACES
PARTIAL SECTION A-A SCALE 1:1

ITEM NO.	NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
2	4	NAS1394C-3L	INSERT-THREADED, SELF LOCKING
1	1	2014639-1	SHROUD-FIBERGLASS SEE NOTE 2A

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2014576-011	2014623-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
± —	± .02 ± .005	± 2°

DO NOT SCALE THIS DRAWING

MATERIAL SEE NOTE 2

CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN J. Nolaki DATE 25 MAY 65
CHECKED J. Stelmo 27 MAY 65
APPROVAL D. W. Mickey 27 May 65
APPROVAL 6/3/65
NASA APPROVAL 6/4/65
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

SHROUD-OPTICS
(INSEPARABLE ASSEMBLY)

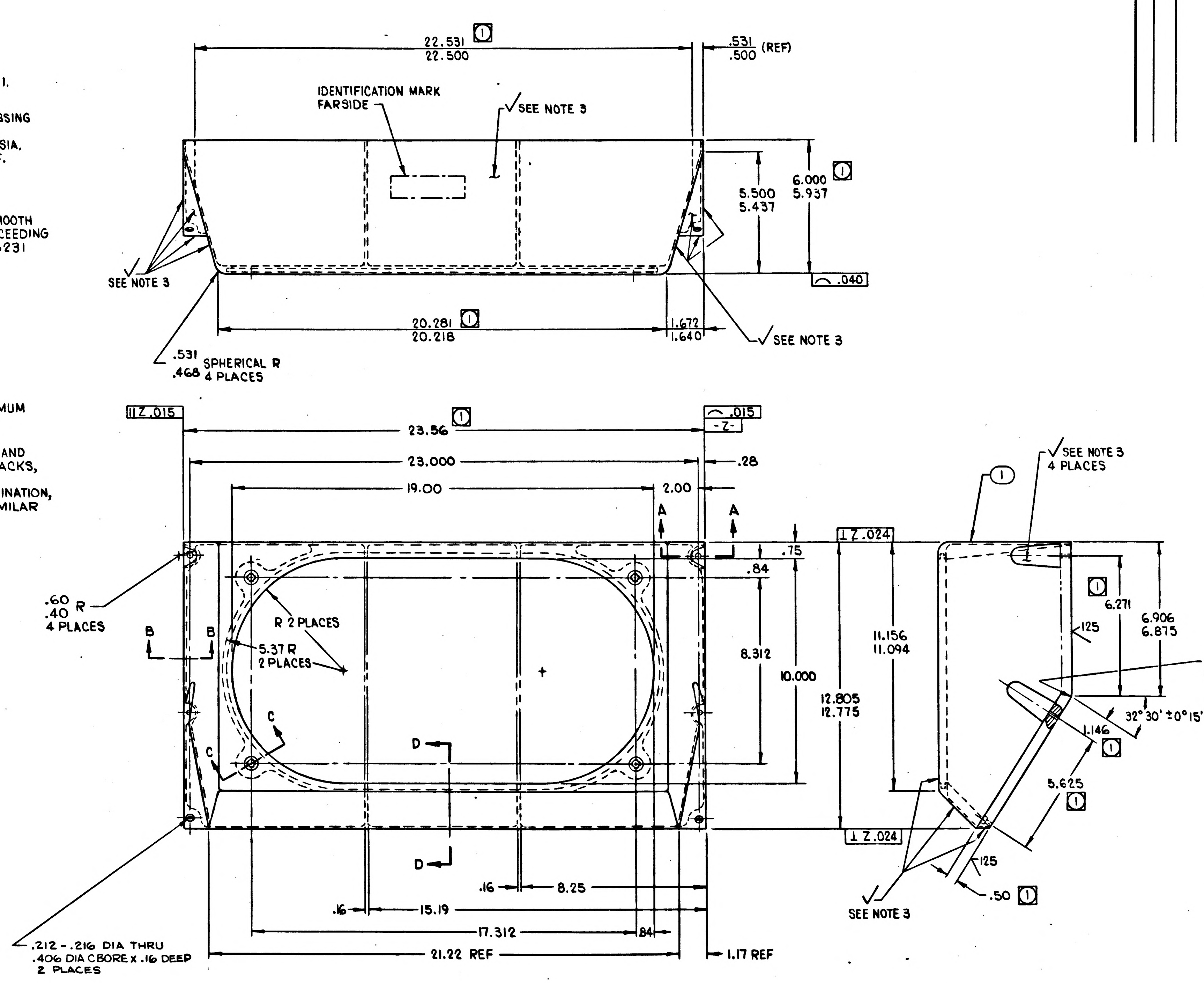
CODE IDENT NO. 80230
SIZE E
2014639
SCALE 1:2
SHEET 1 OF 1

27 MAY 65

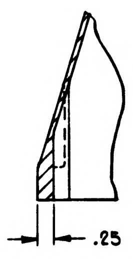
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.

NOTES:

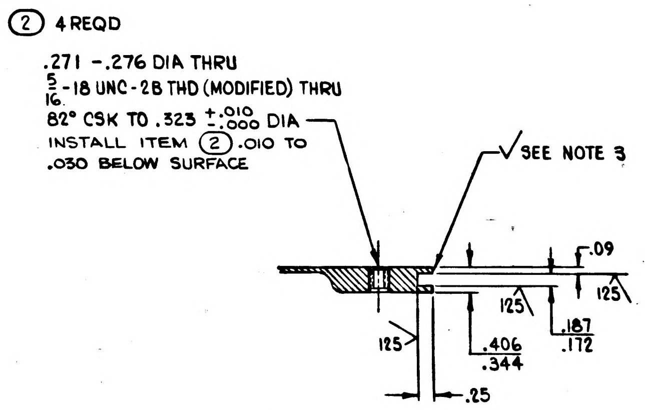
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MATERIAL:
   A. ITEM ①: FIBERGLASS CLOTH PER MIL-Y-1140 FORM 4 CLASS C EPOXY PER MIL-R-9300 TYPE II CLASS I.
   B. COLORING DYE:
   MATERIALS SHALL NOT EXHIBIT TOXIC OR CORROSIVE OUTGASSING UNDER ANY OF THE FOLLOWING ENVIRONMENTAL CONDITIONS:
   AMBIENT PRESSURE VARYING FROM 10^{-4} MM HG ABS TO 15 PSIA.
   TEMPERATURE RANGE VARYING FROM -65° F TO +165° F.
   100 % OXYGEN ATMOSPHERE.
   100 % RELATIVE HUMIDITY.
3. FINISH:
   ② EXTERNAL SURFACES IDENTIFIED √ SHALL HAVE A SMOOTH EPOXY FINISH WITH A SURFACE ROUGHNESS NOT EXCEEDING 125√. COLOR TO BE LUSTERLESS GRAY, COLOR NO. 36231 OF FED-STD-595, SEE NOTE 2.B.
4. ☐ CONTROLLED BY ICD-MH01-01304-116.
5. ② CONTROLLED BY ICD-MH01-05174-414.
6.
7. MUST BE FREE FROM BURRS.
8. UNLESS OTHERWISE SPECIFIED:
   ALL EDGES MUST BE .010 TO .040 R OR CHAMFER.
   WALL THICKNESS MUST BE .060 TO .100 WITH A MINIMUM OF TWO FIBERGLASS CLOTH LAYERS.
9. WORKMANSHIP:
   THE LAMINATED MATERIAL SHALL BE UNIFORM, SMOOTH AND FREE FROM UNCURED OR UNBONDED AREAS, GAPS, CRACKS, BLISTERS, RESIN POCKETS, AREAS LACKING RESIN, TACKINESS, EXCESS SURFACE RESIN, WRINKLES, DELAMINATION, AIR OR GAS POCKETS, POROSITY, HOLES AND OTHER SIMILAR DEFECTS WHICH WOULD AFFECT THE STRENGTH AND APPEARANCE OF THE FINISHED PART.
10. IDENTIFY USING DRAWING NO. PER ND-1002019.
11. SERIALIZE PER ND-1002023.



22.531 ① 22.500
.531 .500 (REF)
IDENTIFICATION MARK FARSIDE
√ SEE NOTE 3
5.500 5.437
6.000 ① 5.937
.040
SEE NOTE 3
20.281 ① 20.218
1.672 1.640
√ SEE NOTE 3
.531 .468 SPHERICAL R 4 PLACES
Z .015
23.56 ①
.015 -Z-
23.000
.28
19.00
2.00
A
A
.75
.84
.60 .40 R 4 PLACES
B B
R 2 PLACES
5.37 R 2 PLACES
C C
8.312
10.000
12.805 12.775
11.156 11.094
Z .024
Z .024
D D
.16
8.25
.16
15.19
17.312
.84
21.22 REF
1.17 REF
.212 - .216 DIA THRU .406 DIA C BORE x .16 DEEP 2 PLACES
①
√ SEE NOTE 3 4 PLACES
①
6.271
6.906 6.875
.125
.62 R MIN
32° 30' ±0° 15'
1.146 ①
5.625 ①
.125
.50 ①
SEE NOTE 3

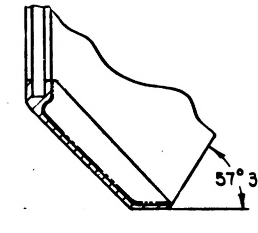


PARTIAL SECTION B-B
SCALE 1:1

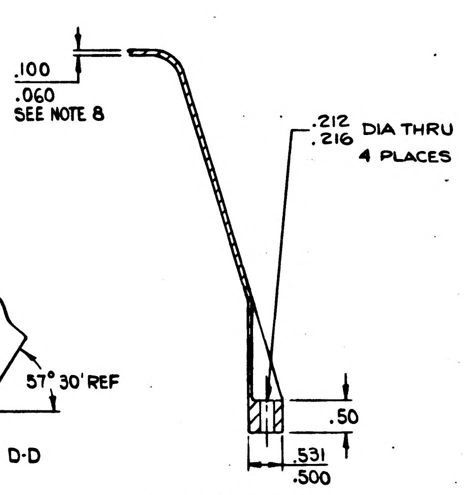


PARTIAL SECTION C-C
SCALE 1:1

② 4 REQD
.271 - .276 DIA THRU
5/16 - 18 UNC - 2B THD (MODIFIED) THRU
82° CSK TO .323 +.010 -.000 DIA
INSTALL ITEM ② .010 TO .030 BELOW SURFACE
√ SEE NOTE 3
.09
125
125
.187 .172
125
.406 .344
.25



PARTIAL SECTION D-D
SCALE 1:1



PARTIAL SECTION A-A
SCALE 1:1

.100 .060 SEE NOTE 8
.212 .216 DIA THRU 4 PLACES
.50
.531 .500

ITEM NO.	NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
2	4	NAS1394C-3L	INSERT-THREADED, SELF LOCKING
1	1	2014639-1	SHROUD-FIBERGLASS SEE NOTE 2A

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2014576-011	2014623-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN J. Nolaki DATE 25 MAY 65
CHECKED J. Stelma 27 MAY 65
APPROVAL 27 May 65
APPROVAL 8/3/65
NASA APPROVAL 8/4/65
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

SHROUD-OPTICS
(INSEPARABLE ASSEMBLY)

CODE IDENT NO. 80230
SIZE E
2014639
SCALE 1:2
SHEET 1 OF 1

2014639

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. VENDOR ITEM-SEE SPECIFICATION CONTROL DRAWING.
3. SELECT AS REQUIRED.
4. DRAWING FOR REFERENCE ONLY

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
C		INITIAL CLASS A RELEASE TORR NO. 22050			

	ITEM NO.	NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
SEE NOTE 3		2	1010981-30 THRU 1010981-1	GROMMET
SEE NOTE 2		100	1010490-112	INSULATION, SLEEVING, ELECT
SEE NOTE 2		100	1010490-110	
SEE NOTES 2 & 3		AR	1012507-4	TAPE, LACING
			1012507-2	
		AR	MIL-T-23594	TAPE, TEFLON
SEE NOTE 2		AR	1010661	EPOXY RESIN
SEE NOTE 2		AR	1010679	ADHESIVE ACTIVATOR
SEE NOTE 2		AR	1012503	COMPOUND, POTTING, POLYURETHANE
SEE NOTE 2		75	1010402-2	SLEEVE, SOLDER
SEE NOTE 2		75	1010402-1	
		1		ADAPTER, POTTING MOLD
		3		ADAPTER, POTTING MOLD
		4		ADAPTER, POTTING MOLD
		1	1010929-105	CONNECTOR, PLUG (P8)
		140	1010958-1	PLUG, PROTECTIVE SEALING
		720	1010956-1	INSULATOR, MALE
		720	1010955-1	CONTACT, MALE
SEE NOTE 2		61	1010770-2	CONTACT, SOCKET
SEE NOTE 2		506	1010770-1	CONTACT, PIN
		1	1010929-005	CONNECTOR, PLUG (P2)
		1	-103	(P5)
		1	-102	(P3)
		1	-101	(P4)
		1	-108	(P7)
		1	-109	(P1)
		1	1010929-104	CONNECTOR, PLUG (P6)

LIST OF PARTS AND MATERIALS

	ITEM NO.	NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
SEE NOTE 4		☒	2014671	INTERCONNECT LIST
		4		CLAMP, CGC CONNECTOR 5052-H32-AL PER QQ-A-250/8, 3" LG x 1/2" WIDE x 1/16" THK
		4		CLAMP, CDU CONNECTOR 5052-H32 AL PER QQ-A-250/8, 3" LG x 1/2" WIDE x 1/16" THK
		2		COVER, CGC CONNECTOR 5052-T6-AL PER QQ-A-250/8, 11" LG x 3" WIDE x 1/32" THK
		2		COVER, CDU CONNECTOR 5052-T6-AL PER QQ-A-250/8, 12" LG x 3" WIDE x 1/32" THK
		1		CONNECTOR, CGC (P10) 6061-T6-AL PER QQ-A-250/11, 10" LG x 2" WIDE x 1/2" THK
		1		CONNECTOR, CDU (P9) 6061-T6-AL PER QQ-A-250/11, 9" LG x 2" WIDE x 1/2" THK
		4	6008007	SCREW, CAPTIVE
		16	MS21209-C0415	INSERT, SCREW THD, SELF LOCKING
		AR	1010989	TAPE, SHIELDING, EMI/RFI
		1		CLAMP, CONNECTOR
		3		
		4		CLAMP, CONNECTOR

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2014567-011	2014567-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN E. LITZOW DATE 27 MAY 65
CHECKED FESLER 20 MAY 65
APPROVAL P C Watson 8-24-65
APPROVAL 8/23/65
NEA 8-26-65
NASA APPROVAL 8/31/65
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "A"

CODE IDENT NO. 80230
SIZE C
2014641
SCALE —
SHEET 1 OF 1

MIL 1077C-P

APPLICATION	
NEXT ASSY	USED ON
2014567-011	2014567-011

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REPLACES REV D WITH CHANGE PER TDRR		
F	CHAD PER TDRR 24806		

REPLACES REV D WITH CHANGE

REV	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	E	E	E	E	E	E	F	E	E	F	E
SHEET	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
REV STATUS OF SHEETS REV							F	F	E	F	F	E	F	E	E	F	E	E	E	E	E	E	F	F	F	E
SHEET							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT

DRAWN Janowiak DATE 7 DEC 65
CHECKED W. Seibel 7 DEC 65
APPROVAL 8 DEC 65
APPROVAL 12/20/65

NASA APPROVAL A. C. METZGER
MIT APPROVAL 21 Dec 65
CONTRACT NAS9-497

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INTERCONNECT HARNESS 'A'
(C/M, BLOCK II)

CODE IDENT NO.	SIZE		REV
80230	A	2014641	F
SCALE		E	SHEET 1 OF 68

REVISION STATUS OF SHEETS

SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV
47	E														
48	F														
49	E														
50	E														
51	E														
52	E														
53	E														
54	F														
55	E														
56	E														
57	E														
58	F														
59	F														
60	F														
61	E														
62	E														
63	E														
64	E														
65	F														
66	E														
67	E														
68	E														

SIZE	CODE IDENT. NO.		
A	80230		2014641
SCALE NONE	REV LTR F		SHEET 2 of 68

MIL 1377A2 8-65

NOTE NUMBER — GENERAL NOTES DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND 1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014671.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
  A - FROM END OF SHIELD
  B - TO END OF SHIELD
  G - GREEN
  K - BLACK
  L - BLUE
  N - BROWN
  R - RED
  W - WHITE
  Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 3 OF 68

MIL 2084 9-65

NOTE NUMBER — GENERAL NOTES DESCRIPTION

11 ALL UNUSED ~~GROMMET HOLES~~ CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
  CONNECTOR 56P2, USE ITEM NUMBERS 23 AND 32.
  CONNECTOR 56P1,3,4,5,6,7, AND 8 USE ITEM NUMBERS 22 AND 32.
  CONNECTOR 56P9, AND P10 USE ITEM NUMBER 24.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 38.

13 A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO PUTTING.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED TO BUILD UP DIAMETER TO FIT ~~CABLE CLAMP~~. SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 4 OF 68

MIL 2084 9-65

NOTE NUMBER

GENERAL NOTES

DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED, INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.

22 PRESEAL BACK OF CONNECTORS 56P9 AND P10 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 41,42,43, AND 44.

23 ENCAPSULATE BACK OF CONNECTORS ~~56P9 AND P10~~ PER ND1002236 USING ITEMS 39 AND 40.

24 CONDUCTORS LISTED WITH AN A,B,C,D,E, OR F IN THE REMARKS COLUMN ARE TO BE ASSEMBLED AS SHOWN ON THE CONFIGURATION DRAWING.

25 GROUP SHIELDING - THREAD ONE CONTINUOUS LENGTH OF GROUND WIRE, ITEM 35, THROUGH CENTER OF EMI/RFI SHIELDING TAPE. ITEM 34. ALLOW 6 INCHES OF GROUND WIRE TO EXTEND BEYOND ENDS OF SHIELDING TAPE. WRAP CABLE WITH ONE CONTINUOUS LENGTH OF PREPARED SHIELDING. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE, WITH A MINIMUM OF RIDGES AND FOLDS.

26 COMPLETELY COVER SHIELD WITH ONE CONTINUOUS WRAP OF INSULATION TAPE, ITEM 36. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE WITH A MINIMUM OF RIDGES AND FOLDS.

27 ASSEMBLE INSULATION TUBING, ITEM 45, OVER GROUND WIRE AS REQUIRED TO REACH TERMINATION. ASSEMBLE SHRINK SLEEVING AS SHOWN.

28 ASSEMBLE A LENGTH OF WIRE BRAID ITEM 53 OVER CONDUCTORS A333 AND A337. ALLOW 1.75 INCH OF LEAD TO EXTEND BEYOND BRAID. COVER BRAID WITH TEFLON TAPE, ITEM 36, PER NOTE 26. ALLOW .25 INCH OF BRAID TO EXTEND BEYOND TAPE. FOLD BRAID OVER TAPE AND TERMINATE PER ND1002071, FIG. 68.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 5 OF 68

NOTE NUMBER

GENERAL NOTES

DESCRIPTION

29 CONDUCTORS SHALL ENTER CONNECTORS 56P9 AND 56P10 THROUGH THE APPROPRIATE BRANCH SPECIFIED IN THE REMARKS COLUMN.

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 6 OF 68

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014641-001	WIRE PER 1010789-006, 22 AWG, YEL, 25 FT TOT LG
	2	1	2014641-002	WIRE PER 1010789-016, 26 AWG, YEL, 50 FT TOT LG
	3	1	2014641-003	WIRE PER 1010789-008, 22 AWG, YEL, RED, 15 FT TOT LG
	4	1	2014641-004	WIRE PER 1010789-017, 26 AWG, YEL, RED, 160 FT TOT LG
	5	1	2014641-005	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 20 FT TOT LG
	6	1	2014641-006	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN 90 FT TOT LG
	7	1	2014641-007	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 25 FT TOT LG
	8	1	2014641-008	WIRE PER 1010789-011, 24 AWG, YEL, YEL JKT, 10 FT TOT LG
	9	1	2014641-009	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 150 FT TOT LG
	10	1	2014641-010	WIRE PER 1010789-013, 24 AWG, YEL, RED, GRN, YEL JKT, 10 FT TOT LG
	11	1	2014641-011	WIRE PER 1010789-002, 24 AWG, BLK, 105 FT TOT LG
	12	1	2014741-011	CONNECTOR, PLUG, ELECTRICAL (56P9)
	13	1	2014749-011	CONNECTOR, PLUG, ELECTRICAL (56P10)
9	14	1	1010929-109	CONNECTOR, PLUG, ELECTRICAL (56P1)

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 7 OF 68

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	15	1	1010929-005	CONNECTOR, PLUG, ELECTRICAL (56P2)
9	16	1	1010929-102	CONNECTOR, PLUG, ELECTRICAL (56P3)
9	17	1	1010929-101	CONNECTOR, PLUG, ELECTRICAL (56P4)
9	18	1	1010929-103	CONNECTOR, PLUG, ELECTRICAL (56P5)
9	19	1	1010929-104	CONNECTOR, PLUG, ELECTRICAL (56P6)
9	20	1	1010929-108	CONNECTOR, PLUG, ELECTRICAL (56P7)
9	21	1	1010929-105	CONNECTOR, PLUG, ELECTRICAL (56P8)
9	22	X	1010770- 1	CONTACT, PIN, SUPPLIED WITH CONNECTOR 1010929
9	23	X	1010770- 2	CONTACT, SOCKET, SUPPLIED WITH CONNECTOR 1010929
9	24	311	1010955- 1	CONTACT, MALE
9	25	349	1010955- 2	CONTACT, MALE
	26	1	2014670- 4	ADAPTER, CONNECTOR
	~~27~~	~~1~~	~~2014670- 5~~	~~ADAPTER, CONNECTOR~~
	28	1	2014670- 7	ADAPTER, CONNECTOR
9	29	34	1012534- 36	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	30	2	1012534- 38	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	31	116	1010402- 2	SLEEVE, SOLDER
9	32	115	1010958- 1	PLUG, PROTECTIVE SEALING

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 8 OF 68

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	34	AR	1010989	TAPE, SHIELDING, EMI/RFI
	35	1	2014641-012	WIRE PER QQ-W-343, TYPE C, CLASS C, 22 AWG, 100 FT TOT LG
	36	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	37	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
9	38	AR	1012507-004	TAPE, LACING AND TYING
9	39	AR	1012503	COMPOUND, POTTING, POLYURETHANE
9	40	AR	1012504	PRIMER, METAL PARTS
9	41	AR	1010661	EPOXY RESIN
9	42	AR	1010679	ADHESIVE ACTIVATOR
9	43	AR	1008822	COLORANT, EPOXY BASE
9	44	AR	1006277	SILICA, PULVERIZED, PYROGENIC
9	45	AR	1006776- 44	INSULATION SLEEVING, 6 FEET TOTAL LENGTH
	46	2	MS17182-2	TERMINAL LUG
	47	6	MS17182-1	TERMINAL LUG
	48	8	MS35333-69	WASHER, LOCK
9	49	8	1006783- 93	SCREW, BUTTON HD
	50	4	MS35335-57	WASHER, LOCK
9	51	4	1006783- 18	SCREW, BUTTON HD

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 9 OF 68

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	52	4	MS25036-52	TERMINAL LUG
28	53	1	2014641-013	WIRE BRAID,QQ-B-575,.12DIA. 36AWG, 5 FT TOT LG
	54	~~1~~ 2	2014670 ~~2014641~~- 11	ADAPTER, CONNECTOR
	55	2	2014670 ~~2014641~~- 12	ADAPTER, CONNECTOR
	56	1	2014670- 13	ADAPTER, CONNECTOR
	57	1	2014670- 15	ADAPTER, CONNECTOR

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 10 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	1	9			1.00 1.00	.75 .75				6B 7	31 29	
A	1A	11	SHLD A1 P9-410					.20 .18	NO NO		24	BRANCH 1
A	1R		P9-610 P10-332					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A	1Y		P9-510 P10-432					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A	2	9			1.00 1.00	.75 .75				6B 7	31 29	
A	2A	11	SHLD A2 P9-110					.20 .18	NO NO		24	BRANCH 1
A	2R		P9-310 P10-330					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A	2Y		P9-210 P10-430					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A	3	9			1.00 1.00	.75 .75				6B 7	31 29	
A	3A	11	SHLD A3 P9-409					.20 .18	NO NO		24	BRANCH 1
A	3R		P9-609 P10-329					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A	3Y		P9-509 P10-429					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 11 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	4	9			1.00 1.00	.75 .75				6B 7	31 29	
A	4A	11	SHLD A4 P9-109					.20 .18	NO NO		24	BRANCH 1
A	4R		P9-309 P10-328					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A	4Y		P9-209 P10-428					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A	5	9			1.00 1.00	.75 .75				6B 7	31 29	
A	5A	11	SHLD A5 P9-408					.20 .18	NO NO		24	BRANCH 1
A	5R		P9-608 P10-334					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	5Y		P9-508 P10-434					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	6	9			1.00 1.00	.75 .75				6B 7	31 29	
A	6A	11	SHLD A6 P9-108					.20 .18	NO NO		24	BRANCH 1
A	6R		P9-308 P10-333					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A	6Y		P9-208 P10-433					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 12 OF 68

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	7	9			1.00 1.00	.75 .75				6B 7	31 29	
A	7A	11	SHLD A7 P9-407					.20 .18	NO NO		24	BRANCH 1
A	7R		P9-607 P10-338					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	7Y		P9-507 P10-438					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	8	9			1.00 1.00	.75 .75				6B 7	31 29	
A	8A	11	SHLD A8 P9-107					.20 .18	NO NO		24	BRANCH 1
A	8R		P9-307 P10-337					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	8Y		P9-207 P10-437					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	9	9			1.00 1.00	.75 .75				6B 7	31 29	
A	9A	11	SHLD A9 P9-406					.20 .18	NO NO		24	BRANCH 1
A	9R		P9-606 P10-336					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	9Y		P9-506 P10-436					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	E	SHEET 13 OF 68

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	10	9			1.00 1.00	.75 .75				6B 7	31 29	
A	10A	11	SHLD A10 P9-106					.20 .18	NO NO		24	BRANCH 1
A	10R		P9-306 P10-335					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	10Y		P9-206 P10-435					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	11	9			1.00 1.00	.75 .75				6B 7	31 29	
A	11A	11	SHLD A11 P9-405					.20 .18	NO NO		24	BRANCH 1
A	11R		P9-605 P10-146					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	11Y		P9-505 P10-246					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	12	9			1.00 1.00	.75 .75				6B 7	31 29	
A	12A	11	SHLD A12 P9-105					.20 .18	NO NO		24	BRANCH 1
A	12R		P9-305 P10-145					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	12Y		P9-205 P10-245					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	E	SHEET 14 OF 68

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	13	9			1.00 1.00	.75 .75				6B 7	31 29	
A	13A	11	SHLD A13 P9-404					.20 .18	NO NO		24	BRANCH 1
A	13R		P9-604 P10-144					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	13Y		P9-504 P10-244					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	14	9			1.00 1.00	.75 .75				6B 7	31 29	
A	14A	11	SHLD A14 P9-104					.20 .18	NO NO		24	BRANCH 1
A	14R		P9-304 P10-143					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	14Y		P9-204 P10-243					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A	15	9			1.00 1.00	.75 .75				6B 7	31 29	
A	15A	11	SHLD A15 P9-403					.20 .18	NO NO		24	BRANCH 1
A	15R		P9-603 P10-148					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A	15Y		P9-503 P10-248					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	E	SHEET 15 OF 68

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	16	9			1.00 1.00	.75 .75				6B 7	31 29	
A	16A	11	SHLD A16 P9-103					.20 .18	NO NO		24	BRANCH 1
A	16R		P9-303 P10-147					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A	16Y		P9-203 P10-247					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A	17	9			1.00 1.00	.75 .75				6B 7	31 29	
A	17A	11	SHLD A17 P9-402					.20 .18	NO NO		24	BRANCH 1
A	17R		P9-602 P10-152					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A	17Y		P9-502 P10-252					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A	18	9			1.00 1.00	.75 .75				6B 7	31 29	
A	18A	11	SHLD A18 P9-102					.20 .18	NO NO		24	BRANCH 1
A	18R		P9-302 P10-151					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A	18Y		P9-202 P10-251					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	E	SHEET 16 OF 68

WIRING HARNESS A 2014641 ~~E~~ F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	19	9			1.00 1.00	.75 .75				6B 7	31 29	
A	19A	11	SHLD A19 P9-401					.20 .18	NO NO		 24	 BRANCH 1
A	19R		P9-601 P10-150					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A	19Y		P9-501 P10-250					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A	20	9			1.00 1.00	.75 .75				6B 7	31 29	
A	20A	11	SHLD A20 P9-101					.20 .18	NO NO		 24	 BRANCH 1
A	20R		P9-301 P10-149					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A	20Y		P9-201 P10-249					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A	21	9			1.00 1.00	.75 .75				6B 7	31 29	
A	21A	11	SHLD A21 P9-111					.20 .18	NO NO		 24	 BRANCH 2
A	21R		P9-311 P10-515					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A	21Y		P9-211 P10-615					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 17 OF 68

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	22	10			1.00 1.00	.75 .75				7 6B	29 31	
A	22B	11	E3 SHLD A22					.19 .20	NO NO			
A	22G		P9-~~411~~ 511 P10-536					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 5
A	22R		P9-611 P10-622					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A	22Y		P9-~~511~~ 411 P10-534					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 5
A	23	9			1.00 1.00	.75 .75				7 6B	29 31	
A	23B	11	E4 SHLD A23					.19 .20	NO NO			
A	23R		P9-212 P10-112					.18 .18	NO NO		25 25	BRANCH 2
A	23Y		P9-112 P10-412					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A	24	9			1.00 1.00	.75 .75				7 6B	29 31	
A	24B	11	E4 SHLD A24					.19 .20	NO NO			
A	24R		P9-412 P10-614					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 18 OF 68

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WIRING HARNESS A 2014641 ~~E~~ F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	24Y		P9-312 P10-313					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A	25	10			1.00 1.00	.75 .75				7 6B	29 31	
A	25B	11	E4 SHLD A25					.19 .20	NO NO		52	
A	25G		P9-113 P10-514					.18 .18	NO NO		25 24	BRANCH 2 BRANCH 4
A	25R		P9-612 P10-314					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A	25Y		P9-512 P10-414					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A	26	9			1.00 1.00	.75 .75				7 6B	29 31	
A	26B	11	E3 SHLD A26					.19 .20	NO NO		52	
A	26R		P9-313 P10-525					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A	26Y		P9-213 P10-624					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A	27	9			1.75 1.00	1.50 .75				6B 6B	31 31	
A	27A	11	SHLD A27 P7-12					.20 .13	NO NO		 22	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 19 OF 68

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	27B	11	P9-637 SHLD A27					.18 .20	NO NO		24	BRANCH 3
A	27R		P7-27 P9-437					.13 .18	NO NO		22 25	 BRANCH 3
A	27Y		P7-13 P9-537					.13 .18	NO NO		22 25	 BRANCH 3
A	28	9			1.75 1.00	1.50 .75				6B 6B	31 31	
A	28A	11	SHLD A28 P7-26					.20 .13	NO NO		 22	
A	28B	11	P9-137 SHLD A28					.18 .20	NO NO		24	BRANCH 3
A	28R		P7-47 P9-237					.13 .18	NO NO		22 25	 BRANCH 3
A	28Y		P7-46 P9-337					.13 .18	NO NO		22 25	 BRANCH 3
A	29	9			1.75 1.00	1.50 .75				6B 6B	31 31	
A	29A	11	SHLD A29 P7-24					.20 .13	NO NO		 22	
A	29B	11	P9-634 SHLD A29					.18 .20	NO NO		24	BRANCH 2
A	29R		P7-44 P9-434					.13 .18	NO NO		22 25	 BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 20 OF 68

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 29Y			P7-25					.13	NO		22	
			P9-534					.18	NO		25	BRANCH 2
A 30	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 30A	11		SHLD A30					.20	NO			
			P7-5					.13	NO		22	
A 30B	11		P9-335					.18	NO		24	BRANCH 2
			SHLD A30					.20	NO			
A 30R			P7-4					.13	NO		22	
			P9-135					.18	NO		25	BRANCH 2
A 30Y			P7-1					.13	NO		22	
			P9-235					.18	NO		25	BRANCH 2
A 31	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 31A	11		SHLD A31					.20	NO			
			P7-3					.13	NO		22	
A 31B	11		P9-635					.18	NO		24	BRANCH 2
			SHLD A31					.20	NO			
A 31R			P7-11					.13	NO		22	
			P9-435					.18	NO		25	BRANCH 2
A 31Y			P7-10					.13	NO		22	
			P9-535					.18	NO		25	BRANCH 2
A 32	4											

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CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR E
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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 32R			P7-53					.13	NO		22	
			P9-536					.18	NO		25	BRANCH 3
A 32Y			P7-54					.13	NO		22	
			P9-636					.18	NO		25	BRANCH 3
A 33	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 33A	11		SHLD A33					.20	NO			
			P1-13					.13	NO		22	
A 33B	11		P9-332					.18	NO		24	BRANCH 2
			SHLD A33					.20	NO			
A 33R			P1-28					.13	NO		22	
			P9-132					.18	NO		25	BRANCH 2
A 33Y			P1-27					.13	NO		22	
			P9-232					.18	NO		25	BRANCH 2
A 34	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 34A	11		SHLD A34					.20	NO			
			P1-16					.13	NO		22	
A 34B	11		P9-632					.18	NO		24	BRANCH 2
			SHLD A34					.20	NO			
A 34R			P1-6					.13	NO		22	
			P9-432					.18	NO		25	BRANCH 2
A 34Y			P1-5					.13	NO		22	
			P9-532					.18	NO		25	BRANCH 2

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR E
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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 35	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 35A	11		SHLD A35					.20	NO			
			P1-1					.13	NO		22	
A 35B	11		P9-333					.18	NO		24	BRANCH 2
			SHLD A35					.20	NO			
A 35R			P1-4					.13	NO		22	
			P9-133					.18	NO		25	BRANCH 2
A 35Y			P1-3					.13	NO		22	
			P9-233					.18	NO		25	BRANCH 2
A 36	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 36A	11		SHLD A36					.20	NO			
			P1-17					.13	NO		22	
A 36B	11		P9-346					.18	NO		24	BRANCH 3
			SHLD A36					.20	NO			
A 36R			P1-34					.13	NO		22	
			P9-146					.18	NO		25	BRANCH 3
A 36Y			P1-33					.13	NO		22	
			P9-246					.18	NO		25	BRANCH 3
A 37	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 37A	11		SHLD A37					.20	NO			
			P1-18					.13	NO		22	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR E
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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 37B	11		P9-646					.18	NO		24	BRANCH 3
			SHLD A37					.20	NO			
A 37R			P1-35					.13	NO		22	
			P9-446					.18	NO		25	BRANCH 3
A 37Y			P1-36					.13	NO		22	
			P9-546					.18	NO		25	BRANCH 3
A 38	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 38A	11		SHLD A38					.20	NO			
			P1-14					.13	NO		22	
A 38B	11		P9-348					.18	NO		24	BRANCH 3
			SHLD A38					.20	NO			
A 38R			P1-30					.13	NO		22	
			P9-148					.18	NO		25	BRANCH 3
A 38Y			P1-29					.13	NO		22	
			P9-248					.18	NO		25	BRANCH 3
A 39	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 39A	11		SHLD A39					.20	NO			
			P1-15					.13	NO		22	
A 39B	11		P9-648					.18	NO		24	BRANCH 3
			SHLD A39					.20	NO			
A 39R			P1-31					.13	NO		22	
			P9-448					.18	NO		25	BRANCH 3

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR E
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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 39Y			P1-32					.13	NO		22	
			P9-548					.18	NO		25	BRANCH 3
A 40	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 40A	11		SHLD A40					.20	NO			
			P1-20					.13	NO		22	
A 40B	11		P9-633					.18	NO		24	BRANCH 2
			SHLD A40					.20	NO			
A 40R			P1-19					.13	NO		22	
			P9-433					.18	NO		25	BRANCH 2
A 40Y			P1-37					.13	NO		22	
			P9-533					.18	NO		25	BRANCH 2
A 41	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 41A	11		SHLD A41					.20	NO			
			P1-21					.13	NO		22	
A 41B	11		P9-334					.18	NO		24	BRANCH 2
			SHLD A41					.20	NO			
A 41R			P1-38					.13	NO		22	
			P9-134					.18	NO		25	BRANCH 2
A 41Y			P1-39					.13	NO		22	
			P9-234					.18	NO		25	BRANCH 2
A 42	6											

SIZE	CODE IDENT NO.	
A	80230	2014641
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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 42G			P1-26					.13	NO		22	
			P9-421					.18	NO		25	BRANCH 2
A 42R			P1-43					.13	NO		22	
			P9-620					.18	NO		25	BRANCH 2
A 42Y			P1-44					.13	NO		22	
			P9-221					.18	NO		25	BRANCH 2
A 43	6											
A 43G			P1-8					.13	NO		22	
			P9-222					.18	NO		25	BRANCH 2
A 43R			P1-7					.13	NO		22	
			P9-621					.18	NO		25	BRANCH 2
A 43Y			P1-2					.13	NO		22	
			P9-119					.18	NO		25	BRANCH 2
A 46	2		P1-25					.13	NO		22	
			P9-422					.18	NO		25	BRANCH 2
A 47	3											
A 47R			P1-40					.13	NO		22	
			P9-228					.18	NO		24	BRANCH 2
A 47Y			P1-23					.13	NO		22	
			P9-328					.18	NO		24	BRANCH 2
A 48	3											

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 26 OF 68

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 48R			P1-41					.13	NO		22	
			P9-428					.18	NO		24	BRANCH 2
A 48Y			P1-42					.13	NO		22	
			P9-528					.18	NO		24	BRANCH 2
A 49	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 49A	11		SHLD A49					.20	NO			
			P4-30					.13	NO		22	
A 49B	11		P9-340					.18	NO		24	BRANCH 3
			SHLD A49					.20	NO			
A 49R			P4-52					.13	NO		22	
			P9-140					.18	NO		25	BRANCH 3
A 49Y			P4-51					.13	NO		22	
			P9-240					.18	NO		25	BRANCH 3
A 50	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 50A	11		SHLD A50					.20	NO			
			P4-31					.13	NO		22	
A 50B	11		P9-640					.18	NO		24	BRANCH 3
			SHLD A50					.20	NO			
A 50R			P4-54					.13	NO		22	
			P9-440					.18	NO		25	BRANCH 3
A 50Y			P4-53					.13	NO		22	
			P9-540					.18	NO		25	BRANCH 3

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 27 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 51	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 51A	11		SHLD A51					.20	NO			
			P4-29					.13	NO		22	
A 51B	11		P9-341					.18	NO		24	BRANCH 3
			SHLD A51					.20	NO			
A 51R			P4-13					.13	NO		22	
			P9-141					.18	NO		25	BRANCH 3
A 51Y			P4-14					.13	NO		22	
			P9-241					.18	NO		25	BRANCH 3
A 52	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 52A	11		SHLD A52					.20	NO			
			P4-32					.13	NO		22	
A 52B	11		P9-641					.18	NO		24	BRANCH 3
			SHLD A52					.20	NO			
A 52R			P4-16					.13	NO		22	
			P9-441					.18	NO		25	BRANCH 3
A 52Y			P4-15					.13	NO		22	
			P9-541					.18	NO		25	BRANCH 3
A 53	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 53A	11		SHLD A53					.20	NO			
			P4-36					.13	NO		22	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 28 OF 68

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 53B	11		P9-342 SHLD A53					.18 .20	NO NO		24	BRANCH 3
A 53R			P4-59 P9-142					.13 .18	NO NO		22 25	 BRANCH 3
A 53Y			P4-60 P9-242					.13 .18	NO NO		22 25	 BRANCH 3
A 54	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 54A	11		SHLD A54 P4-37					.20 .13	NO NO		 22	
A 54B	11		P9-642 SHLD A54					.18 .20	NO NO		24	BRANCH 3
A 54R			P4-61 P9-442					.13 .18	NO NO		22 25	 BRANCH 3
A 54Y			P4-38 P9-542					.13 .18	NO NO		22 25	 BRANCH 3
A 55	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 55A	11		SHLD A55 P4-33					.20 .13	NO NO		 22	
A 55B	11		P9-343 SHLD A55					.18 .20	NO NO		24	BRANCH 3
A 55R			P4-56 P9-143					.13 .18	NO NO		22 25	 BRANCH 3

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 55Y			P4-55 P9-243					.13 .18	NO NO		22 25	 BRANCH 3
A 56	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 56A	11		SHLD A56 P4-34					.20 .13	NO NO		 22	
A 56B	11		P9-643 SHLD A56					.18 .20	NO NO		24	BRANCH 3
A 56R			P4-57 P9-443					.13 .18	NO NO		22 25	 BRANCH 3
A 56Y			P4-58 P9-543					.13 .18	NO NO		22 25	 BRANCH 3
A 57	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 57A	11		SHLD A57 P4-27					.20 .13	NO NO		 22	
A 57B	11		P9-344 SHLD A57					.18 .20	NO NO		24	BRANCH 3
A 57R			P4-48 P9-144					.13 .18	NO NO		22 25	 BRANCH 3
A 57Y			P4-47 P9-244					.13 .18	NO NO		22 25	 BRANCH 3
A 58	9				1.75 1.00	1.50 .75				6B 6B	31 31	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 58A	11		SHLD A58 P4-28					.20 .13	NO NO		 22	
A 58B	11		P9-644 SHLD A58					.18 .20	NO NO		24	BRANCH 3
A 58R			P4-49 P9-444					.13 .18	NO NO		22 25	 BRANCH 3
A 58Y			P4-50 P9-544					.13 .18	NO NO		22 25	 BRANCH 3
A 59	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 59A	11		SHLD A59 P4-35					.20 .13	NO NO		 22	
A 59B	11		P9-345 SHLD A59					.18 .20	NO NO		24	BRANCH 3
A 59R			P4-17 P9-145					.13 .18	NO NO		22 25	 BRANCH 3
A 59Y			P4-18 P9-245					.13 .18	NO NO		22 25	 BRANCH 3
A 60	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 60A	11		SHLD A60 P4-20					.20 .13	NO NO		 22	
A 60B	11		P9-645 SHLD A60					.18 .20	NO NO		24	BRANCH 3

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 60R			P4-19 P9-445					.13 .18	NO NO		22 25	 BRANCH 3
A 60Y			P4-8 P9-545					.13 .18	NO NO		22 25	 BRANCH 3
A 61	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 61A	11		SHLD A61 P4-22					.20 .13	NO NO		 22	
A 61B	11		P9-329 SHLD A61					.18 .20	NO NO		24	BRANCH 2
A 61R			P4-41 P9-129					.13 .18	NO NO		22 25	 BRANCH 2
A 61Y			P4-42 P9-229					.13 .18	NO NO		22 25	 BRANCH 2
A 62	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 62A	11		SHLD A62 P4-24					.20 .13	NO NO		 22	
A 62B	11		P9-629 SHLD A62					.18 .20	NO NO		24	BRANCH 2
A 62R			P4-43 P9-429					.13 .18	NO NO		22 25	 BRANCH 2
A 62Y			P4-44 P9-529					.13 .18	NO NO		22 25	 BRANCH 2

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	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	63	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A	63A	11		SHLD A63 P4-25					.20 .13	NO NO		 22	
A	63B	11		P9-330 SHLD A63					.18 .20	NO NO		24	BRANCH 2
A	63R			P4-45 P9-130					.13 .18	NO NO		22 25	 BRANCH 2
A	63Y			P4-46 P9-230					.13 .18	NO NO		22 25	 BRANCH 2
A	64	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A	64A	11		SHLD A64 P4-21					.20 .13	NO NO		 22	
A	64B	11		P9-630 SHLD A64					.18 .20	NO NO		24	BRANCH 2
A	64R			P4-39 P9-430					.13 .18	NO NO		22 25	 BRANCH 2
A	64Y			P4-40 P9-530					.13 .18	NO NO		22 25	 BRANCH 2
A	65	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A	65A	11		SHLD A65 P4-10					.20 .13	NO NO		 22	

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	E	SHEET 33 OF 68

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WIRING HARNESS A 2014641 E

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	65B	11		P9-331 SHLD A65					.18 .20	NO NO		24	BRANCH 2
A	65R			P4-9 P9-131					.13 .18	NO NO		22 25	 BRANCH 2
A	65Y			P4-23 P9-231					.13 .18	NO NO		22 25	 BRANCH 2
A	66	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A	66A	11		SHLD A66 P4-11					.20 .13	NO NO		 22	
A	66B	11		P9-631 SHLD A66					.18 .20	NO NO		24	BRANCH 2
A	66R			P4-26 P9-431					.13 .18	NO NO		22 25	 BRANCH 2
A	66Y			P4-12 P9-531					.13 .18	NO NO		22 25	 BRANCH 2
A	67	9				1.75 1.00	1.50 .75				6B 7	31 29	
A	67A	11		SHLD A67 P4-1					.20 .13	NO NO		 22	
A	67R			P4-6 P9-338					.13 .18	NO NO		22 25	 BRANCH 3
A	67Y			P4-7 P9-238					.13 .18	NO NO		22 25	 BRANCH 3

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	E	SHEET 34 OF 68

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WIRING HARNESS A 2014641 ~~E~~ F

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	68	8				1.75 1.00	1.50 .75				6B 7	31 29	
A	68A	11		SHLD A68 P4-2					.20 .13	NO NO		 22	
A	68Y			P4-3 P9-138					.13 .18	NO NO		22 24	 BRANCH 3
A	69	1		P4-5 P9-~~136~~336					.13 .18	NO NO		22 24	 BRANCH 3
A	70	1		P4-4 P9-~~336~~136					.13 .18	NO NO		22 24	 BRANCH 3
A	71	1		P5-84 P9-236					.13 .18	NO NO		22 24	 BRANCH 3
A	72	1		P5-60 P9-436					.13 .18	NO NO		22 24	 BRANCH 3
A	74	4											F
A	74R			P2-55 P10-121					.13 .18	NO NO		23 25	F BRANCH 5
A	74Y			P2-56 P10-221					.13 .18	NO NO		23 25	F BRANCH 5
A	75	4											F
A	75R			P2-54 P10-120					.13 .18	NO NO		23 25	F BRANCH 5

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	~~E~~ F	SHEET 35 OF 68

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WIRING HARNESS A 2014641 E

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	75Y			P2-32 P10-220					.13 .18	NO NO		23 25	F BRANCH 5
A	76	4											F
A	76R			P2-17 P10-119					.13 .18	NO NO		23 25	F BRANCH 5
A	76Y			P2-33 P10-219					.13 .18	NO NO		23 25	F BRANCH 5
A	77	4											F
A	77R			P2-16 P10-118					.13 .18	NO NO		23 25	F BRANCH 5
A	77Y			P2-5 P10-218					.13 .18	NO NO		23 25	F BRANCH 5
A	78	4											F
A	78R			P2-57 P10-321					.13 .18	NO NO		23 25	F BRANCH 5
A	78Y			P2-34 P10-421					.13 .18	NO NO		23 25	F BRANCH 5
A	79	4											F
A	79R			P2-18 P10-320					.13 .18	NO NO		23 25	F BRANCH 5

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	E	SHEET 36 OF 68

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 79Y			P2-35 P10-420					.13 .18	NO NO		23 25	F BRANCH 5
A 80	4											F
A 80R			P2-52 P10-319					.13 .18	NO NO		23 25	F BRANCH 5
A 80Y			P2-53 P10-419					.13 .18	NO NO		23 25	F BRANCH 5
A 81	4											F
A 81R			P2-15 P10-318					.13 .18	NO NO		23 25	F BRANCH 5
A 81Y			P2-30 P10-418					.13 .18	NO NO		23 25	F BRANCH 5
A 82	4											F
A 82R			P2-50 P10-317					.13 .18	NO NO		23 25	F BRANCH 5
A 82Y			P2-51 P10-417					.13 .18	NO NO		23 25	F BRANCH 5
A 83	4											F
A 83R			P2-13 P10-323					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR E | SHEET 37 OF 68

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 83Y			P2-29 P10-423					.13 .18	NO NO		23 25	F BRANCH 5
A 84	4											F
A 84R			P2-12 P10-322					.13 .18	NO NO		23 25	F BRANCH 5
A 84Y			P2-27 P10-422					.13 .18	NO NO		23 25	F BRANCH 5
A 85	4											F
A 85R			P2-48 P10-316					.13 .18	NO NO		23 25	F BRANCH 5
A 85Y			P2-49 P10-416					.13 .18	NO NO		23 25	F BRANCH 5
A 86	4											F
A 86R			P2-1 P10-315					.13 .18	NO NO		23 25	F BRANCH 5
A 86Y			P2-4 P10-415					.13 .18	NO NO		23 25	F BRANCH 5
A 87	4											F
A 87R			P2-11 P10-324					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR E | SHEET 38 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 87Y			P2-24 P10-424					.13 .18	NO NO		23 25	F BRANCH 5
A 88	4											F
A 88R			P2-10 P10-117					.13 .18	NO NO		23 24	F BRANCH 5
A 88Y			P2-2 P10-217					.13 .18	NO NO		23 25	F BRANCH 5
A 89	4											F
A 89R			P2-59 P10-139					.13 .18	NO NO		23 25	F BRANCH 5
A 89Y			P2-58 P10-239					.13 .18	NO NO		23 25	F BRANCH 5
A 90	4											F
A 90R			P2-7 P10-138					.13 .18	NO NO		23 25	F BRANCH 5
A 90Y			P2-6 P10-238					.13 .18	NO NO		23 25	F BRANCH 5
A 91	4											F
A 91R			P2-36 P10-137					.13 .18	NO NO		23 25	F BRANCH 5

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SCALE-NONE | REV LTR E | SHEET 39 OF 68

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 91Y			P2-60 P10-237					.13 .18	NO NO		23 25	F BRANCH 5
A 92	4											F
A 92R			P2-8 P10-136					.13 .18	NO NO		23 25	F BRANCH 5
A 92Y			P2-19 P10-236					.13 .18	NO NO		23 25	F BRANCH 5
A 93	4											F
A 93R			P2-61 P10-135					.13 .18	NO NO		23 25	F BRANCH 5
A 93Y			P2-38 P10-235					.13 .18	NO NO		23 25	F BRANCH 5
A 94	4											F
A 94R			P2-39 P10-134					.13 .18	NO NO		23 25	F BRANCH 5
A 94Y			P2-20 P10-234					.13 .18	NO NO		23 25	F BRANCH 5
A 95	4											F
A 95R			P2-43 P10-327					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR E | SHEET 40 OF 68

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 95Y			P2-42 P10-427					.13 .18	NO NO		23 25	F BRANCH 5
A 96	4											F
A 96R			P2-22 P10-326					.13 .18	NO NO		23 25	F BRANCH 5
A 96Y			P2-9 P10-426					.13 .18	NO NO		23 25	F BRANCH 5
A 97	4											F
A 97R			P2-41 P10-325					.13 .18	NO NO		23 25	F BRANCH 5
A 97Y			P2-40 P10-425					.13 .18	NO NO		23 25	F BRANCH 5
A 98	10				1.75 1.00	1.50 .75				68 7	31 29	
A 98A	11		SHLD A98 P2-44					.20 .13	NO NO		 23	
A 98G			P2-25 P10-212					.13 .18	NO NO		23 24	BRANCH 4
A 98R			P2-46 P10-113					.13 .18	NO NO		23 24	BRANCH 4
A 98Y			P2-45 P10-312					.13 .18	NO NO		23 24	BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 41 OF 68

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WIRING HARNESS A 2014641 ~~E~~ F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 99	8				1.75 1.00	1.50 .75				68 7	31 29	
A 99A	11		SHLD A99 P2-26					.20 .13	NO NO		 23	
A 99[illegible]Y			P2-47 P10-114					.13 .18	NO NO		23 24	BRANCH 4
A 104	2		P3-1 P10-538					.13 .18	NO NO		22 25	E BRANCH 5
A 105	2		P3-7 P10-556					.13 .18	NO NO		22 25	E BRANCH 5
A 106	2		P3-2 P10-625					.13 .18	NO NO		22 25	E BRANCH 5
A 113	2		P3-8 P10-547					.13 .18	NO NO		22 25	E BRANCH 5
A 116	1		P5-66 P10-602					.13 .18	NO NO		22 24	D BRANCH 4
A 118	1		P5-45 P10-504					.13 .18	NO NO		22 24	D BRANCH 4
A 125	2		P5-26 P10-409					.13 .22	NO NO		22	D BRANCH 4
A 127	5											A
A 127G			P5-53 P10-161					.13 .18	NO NO		22 24	A BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 42 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 127R			P5-78 P10-159					.13 .18	NO NO		22 24	A BRANCH 6
A 127Y			P5-54 P10-160					.13 .18	NO NO		22 24	A BRANCH 6
A 128	5											A
A 128G			P5-55 P10-260					.13 .18	NO NO		22 24	A BRANCH 6
A 128R			P5-79 P10-261					.13 .18	NO NO		22 24	A BRANCH 6
A 128Y			P5-80 P10-259					.13 .18	NO NO		22 24	A BRANCH 6
A 129	5											A
A 129G			P5-16 P10-360					.13 .18	NO NO		22 24	A BRANCH 6
A 129R			P5-33 P10-361					.13 .18	NO NO		22 24	A BRANCH 6
A 129Y			P5-32 P10-359					.13 .18	NO NO		22 24	A BRANCH 6
A 130	5											A
A 130G			P5-56 P10-460					.13 .18	NO NO		22 24	A BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 43 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 130R			P5-81 P10-461					.13 .18	NO NO		22 24	A BRANCH 6
A 130Y			P5-57 P10-459					.13 .18	NO NO		22 24	A BRANCH 6
A 131	5											A
A 131G			P5-35 P10-560					.13 .18	NO NO		22 24	A BRANCH 6
A 131R			P5-58 P10-561					.13 .18	NO NO		22 24	A BRANCH 6
A 131Y			P5-34 P10-559					.13 .18	NO NO		22 24	A BRANCH 6
A 139	2		P6-77 P10-636					.13 .18	NO NO		22 25	C BRANCH 6
A 148	2		P6-20 P10-613					.13 .18	NO NO		22 25	C BRANCH 6
A 149	4											C
A 149R			P6-85 P10-133					.13 .18	NO NO		22 25	C BRANCH 6
A 149Y			P6-84 P10-233					.13 .18	NO NO		22 25	C BRANCH 6
A 150	4											C

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 44 OF 68

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 150R			P6-82 P10-516					.13 .18	NO NO		22 25	C BRANCH 6
A 150Y			P6-57 P10-616					.13 .18	NO NO		22 25	C BRANCH 6
A 151	4											C
A 151R			P6-8 P10-158					.13 .18	NO NO		22 25	C BRANCH 6
A 151Y			P6-2 P10-258					.13 .18	NO NO		22 25	C BRANCH 6
A 152	4											C
A 152R			P6-19 P10-157					.13 .18	NO NO		22 25	C BRANCH 6
A 152Y			P6-7 P10-257					.13 .18	NO NO		22 25	C BRANCH 6
A 153	4											C
A 153R			P6-6 P10-156					.13 .18	NO NO		22 25	C BRANCH 6
A 153Y			P6-1 P10-256					.13 .18	NO NO		22 25	C BRANCH 6
A 154	4											C

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	~~E~~ F	SHEET 45 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 154R			P6-5 P10-155					.13 .18	NO NO		22 25	C BRANCH 6
A 154Y			P6-4 P10-255					.13 .18	NO NO		22 25	C BRANCH 6
A 155	4											C
A 155R			P6-15 P10-154					.13 .18	NO NO		22 25	C BRANCH 6
A 155Y			P6-16 P10-254					.13 .18	NO NO		22 25	C BRANCH 6
A 156	4											C
A 156R			P6-17 P10-153					.13 .18	NO NO		22 25	C BRANCH 6
A 156Y			P6-33 P10-253					.13 .18	NO NO		22 25	C BRANCH 6
A 157	4											C
A 157R			P6-61 P10-132					.13 .18	NO NO		22 25	C BRANCH 6
A 157Y			P6-60 P10-232					.13 .18	NO NO		22 25	C BRANCH 6
A 158	4											

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	E	SHEET 46 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 158R			P6-37 P10-130					.13 .18	NO NO		22 25	C BRANCH 6
A 158Y			P6-36 P10-230					.13 .18	NO NO		22 25	C BRANCH 6
A 159	4											C
A 159R			P6-83 P10-352					.13 .18	NO NO		22 25	C BRANCH 6
A 159Y			P6-59 P10-452					.13 .18	NO NO		22 25	C BRANCH 6
A 160	4											C
A 160R			P6-35 P10-129					.13 .18	NO NO		22 25	C BRANCH 6
A 160Y			P6-18 P10-229					.13 .18	NO NO		22 25	C BRANCH 6
A 161	4											C
A 161R			P6-58 P10-128					.13 .18	NO NO		22 25	C BRANCH 6
A 161Y			P6-34 P10-228					.13 .18	NO NO		22 25	C BRANCH 6
A 164	1		P8-9 P10-302					.13 .18	NO NO		22 24	B BRANCH 4

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	E	SHEET 47 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 170	2		P8-5 P10-509					.13 .18	NO NO		22 25	B BRANCH 4
A 177	2		P8-8 P10-108					.13 .22	NO NO		22	B BRANCH 4
A 178	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 178A	11		SHLD A178 P3-52					.20 .13	NO NO		22	
A 178B	11		P7-21 SHLD A178					.13 .20	NO NO		22	
A 178R			P3-77 P7-40					.13 .13	NO NO		22 22	
A 178Y			P3-53 P7-22					.13 .13	NO NO		22 22	
A 179	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 179A	11		SHLD A179 P3-30					.20 .13	NO NO		22	
A 179B	11		P7-23 SHLD A179					.13 .20	NO NO		22	
A 179R			P3-31 P7-42					.13 .13	NO NO		22 22	
A 179Y			P3-15 P7-43					.13 .13	NO NO		22 22	

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	~~E~~ F	SHEET 48 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 180	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 180A	11		SHLD A180 P3-51					.20 .13	NO NO		 22	
A 180B	11		P7-2 SHLD A180					.13 .20	NO NO		22	
A 180R			P3-75 P7-8					.13 .13	NO NO		22 22	
A 180Y			P3-76 P7-9					.13 .13	NO NO		22 22	
A 181	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 181A	11		SHLD A181 P3-46					.20 .13	NO NO		 22	
A 181R			P3-71 P7-38					.13 .13	NO NO		22 22	
A 181Y			P3-70 P7-39					.13 .13	NO NO		22 22	
A 182	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 182A	11		SHLD A182 P3-69					.20 .13	NO NO		 22	
A 182R			P3-45 P7-19					.13 .13	NO NO		22 22	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR E
SHEET 49 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 182Y			P3-44 P7-20					.13 .13	NO NO		22 22	
A 183	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 183A	11		SHLD A183 P3-28					.20 .13	NO NO		 22	
A 183R			P3-13 P7-60					.13 .13	NO NO		22 22	
A 183Y			P3-29 P7-61					.13 .13	NO NO		22 22	
A 184	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 184A	11		SHLD A184 P3-74					.20 .13	NO NO		 22	
A 184R			P3-49 P7-36					.13 .13	NO NO		22 22	
A 184Y			P3-50 P7-37					.13 .13	NO NO		22 22	
A 185	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 185A	11		SHLD A185 P3-27					.20 .13	NO NO		 22	
A 185R			P3-26 P7-58					.13 .13	NO NO		22 22	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR E
SHEET 50 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 185Y			P3-47 P7-59					.13 .13	NO NO		22 22	
A 186	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 186A	11		SHLD A186 P3-48					.20 .13	NO NO		 22	
A 186R			P3-72 P7-35					.13 .13	NO NO		22 22	
A 186Y			P3-73 P7-18					.13 .13	NO NO		22 22	
A 187	3											
A 187R			P3-67 P7-57					.13 .13	NO NO		22 22	
A 187Y			P3-66 P7-34					.13 .13	NO NO		22 22	
A 188	7											
A 188G			P3-24 P7-51					.13 .13	NO NO		22 22	
A 188N			P3-43 P7-29					.13 .13	NO NO		22 22	
A 188R			P3-25 P7-50					.13 .13	NO NO		22 22	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR E
SHEET 51 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 188Y			P3-23 P7-28					.13 .13	NO NO		22 22	
A 189	4											
A 189R			P3-5 P7-49					.13 .13	NO NO		22 22	
A 189Y			P3-14 P7-48					.13 .13	NO NO		22 22	
A 195	2		P5-23 P10-608					.13 .22	NO NO		22	D BRANCH 4
A 196	2		P5-22 P10-609					.13 .22	NO NO		22	D BRANCH 4
A 198	6											
A 198G			P1-11 P9-521					.13 .18	NO NO		22 25	 BRANCH 2
A 198R			P1-10 P9-121					.13 .18	NO NO		22 25	 BRANCH 2
A 198Y			P1-9 P9-321					.13 .18	NO NO		22 25	 BRANCH 2
A 199	5											A
A 199G			P5-5 P10-660					.13 .18	NO NO		22 24	A BRANCH 6

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR E
SHEET 52 OF 68

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 199R			P5-31 P10-661					.13 .18	NO NO		22 24	A BRANCH 6
A 199Y			P5-15 P10-659					.13 .18	NO NO		22 24	A BRANCH 6
A 200	2		P3-39 P10-202					.13 .18	NO NO		22 25	E BRANCH 5
A 201	2		P3-64 P10-102					.13 .18	NO NO		22 24	E BRANCH 5
A 202	2		P3-42 P10-652					.13 .18	NO NO		22 25	E BRANCH 5
A 203	2		P3-66 P10-551					.13 .18	NO NO		22 25	E BRANCH 5
A 204	2		P3-21 P10-552					.13 .18	NO NO		22 25	E BRANCH 5
A 205	2		P3-22 P10-651					.13 .18	NO NO		22 25	E BRANCH 5
A 206	2		P3-18 P10-548					.13 .18	NO NO		22 25	E BRANCH 5
A 207	2		P3-36 P10-549					.13 .18	NO NO		22 25	E BRANCH 5
A 208	2		P3-19 P10-550					.13 .18	NO NO		22 25	E BRANCH 5
A 209	2		P3-41 P10-214					.13 .18	NO NO		22 25	E BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 53 OF 68

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WIRING HARNESS A 2014641 ~~E~~ F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 210	2		P3-65 P10-216					.13 .18	NO NO		22 25	E BRANCH 5
A 211	2		P3-40 P10-215					.13 .18	NO NO		22 25	E BRANCH 5
A 212	2		P3-33 P10-646					.13 .18	NO NO		22 25	E BRANCH 5
A 213	2		P3-17 P10-546					.13 .18	NO NO		22 25	E BRANCH 5
A 214	2		P3-57 P10-645					.13 .18	NO NO		22 25	E BRANCH 5
A 215	2		P3-82 P10-545					.13 .18	NO NO		22 25	E BRANCH 5
A 216	2		P3-81 P10-542					.13 .18	NO NO		22 25	E BRANCH 5
A 217	2		P3-80 P10-644					.13 .18	NO NO		22 25	E BRANCH 5
A 218	2		P3-56 P10-544					.13 .18	NO NO		22 25	E BRANCH 5
A 219	2		P3-84 P10-623					.13 .18	NO NO		22 25	E BRANCH 5
A 220	2		P3-60 P10-524					.13 .18	NO NO		22 25	E BRANCH 5
A 221	2		P3-59 P10-522					.13 .18	NO NO		22 25	E BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 54 OF 68

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 222	2		P3-62 P10-648					.13 .18	NO NO		22 25	E BRANCH 5
A 223	2		P3-63 P10-649					.13 .18	NO NO		22 25	E BRANCH 5
A 224	2		P3-38 P10-650					.13 .18	NO NO		22 25	E BRANCH 5
A 225	2		P5-38 P10-401					.13 .18	NO NO		22 25	D BRANCH 4
A 226	2		P5-62 P10-601					.13 .18	NO NO		22 25	D BRANCH 4
A 227	2		P5-63 P10-501					.13 .18	NO NO		22 25	D BRANCH 4
A 228	2		P5-64 P10-101					.13 .18	NO NO		22 24	D BRANCH 4
A 229	2		P5-40 P10-301					.13 .18	NO NO		22 25	D BRANCH 4
A 230	2		P5-39 P10-201					.13 .18	NO NO		22 25	D BRANCH 4
A 231	2		P5-41 P10-502					.13 .22	NO NO		22 25	D BRANCH 4
A 232	2		P5-42 P10-402					.13 .22	NO NO		22	D BRANCH 4
A 233	2		P5-30 P10-204					.13 .22	NO NO		22	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 55 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 234	2		P5-14 P10-505					.13 .22	NO NO		22	D BRANCH 4
A 235	2		P5-29 P10-605					.13 .22	NO NO		22	D BRANCH 4
A 236	2		P5-77 P10-506					.13 .22	NO NO		22	D BRANCH 4
A 237	2		P5-52 P10-404					.13 .22	NO NO		22	D BRANCH 4
A 238	2		P5-76 P10-304					.13 .22	NO NO		22	D BRANCH 4
A 239	2		P5-50 P10-405					.13 .22	NO NO		22	D BRANCH 4
A 240	2		P5-51 P10-606					.13 .22	NO NO		22	D BRANCH 4
A 241	2		P5-75 P10-205					.13 .22	NO NO		22	D BRANCH 4
A 242	2		P5-73 P10-607					.13 .22	NO NO		22	D BRANCH 4
A 243	2		P5-74 P10-305					.13 .22	NO NO		22	D BRANCH 4
A 244	2		P5-49 P10-507					.13 .22	NO NO		22	D BRANCH 4
A 245	2		P5-13 P10-306					.13 .22	NO NO		22	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 56 OF 68

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 246	2		P5-28 P10-206					.13 .22	NO NO		22	D BRANCH 4
A 247	2		P5-27 P10-406					.13 .22	NO NO		22	D BRANCH 4
A 248	2		P5-47 P10-307					.13 .22	NO NO		22	D BRANCH 4
A 249	2		P5-46 P10-208					.13 .22	NO NO		22	D BRANCH 4
A 250	2		P5-4 P10-308					.13 .22	NO NO		22	D BRANCH 4
A 251	2		P5-12 P10-309					.13 .22	NO NO		22	D BRANCH 4
A 252	2		P5-71 P10-207					.13 .22	NO NO		22	D BRANCH 4
A 253	2		P5-72 P10-407					.13 .22	NO NO		22	D BRANCH 4
A 254	2		P5-48 P10-604					.13 .22	NO NO		22	D BRANCH 4
A 255	3											A
A 255R			P5-44 P10-107					.13 .18	NO NO		22 24	A BRANCH 6
A 255Y			P5-68 P10-105					.13 .18	NO NO		22 24	A BRANCH 6

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR E | SHEET 57 OF 68

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WIRING HARNESS A 2014641 ~~E~~ F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 256	2		P6-14 P10-540					.13 .18	NO NO		22 25	C BRANCH 6
A 257	2		P6-30 P10-639					.13 .18	NO NO		22 25	C BRANCH 6
A 258	2		P6-48 P10-658					.13 .18	NO NO		22 25	C BRANCH 6
A 259	2		P6-72 P10-557					.13 .18	NO NO		22 25	C BRANCH 6
A 260	2		P6-73 P10-558					.13 .18	NO NO		22 25	C BRANCH 6
A 261	2		P6-49 P10-657					.13 .18	NO NO		22 25	C BRANCH 6
A 262	2		P6-28 P10-640					.13 .18	NO NO		22 25	C BRANCH 6
A 263	2		P6-29 P10-520					.13 .18	NO NO		22 25	C BRANCH 6
A 264	2		P6-76 P10-523					.13 .18	NO NO		22 25	C BRANCH 6
A 265	2		P6-75 P10-647					.13 .18	NO NO		22 25	C BRANCH 6
A 266	2		P6-50 P10-641					.13 .18	NO NO		22 25	C BRANCH 6
A 267	2		P6-74 P10-541					.13 .18	NO NO		22 25	C BRANCH 6

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR ~~E~~ F | SHEET 58 OF 68

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WIRING HARNESS A 2014641 ~~E~~ F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 268	2		P6-40 P10-109					.13 .18	NO NO		22 25	C BRANCH 6
A 269	2		P6-21 P10-410					.13 .18	NO NO		22 25	C BRANCH 6
A 270	2		P6-65 P10-209					.13 .18	NO NO		22 25	C BRANCH 6
A 271	2		P6-22 P10-310					.13 .18	NO NO		22 25	C BRANCH 6
A 272	2		P6-66 P10-510					.13 .18	NO NO		22 25	C BRANCH 6
A 273	2		P6-42 P10-210					.13 .18	NO NO		22 25	C BRANCH 6
A 274	2		P6-41 P10-610					.13 .18	NO NO		22 25	C BRANCH 6
A 275	2		P6-67 P10-110					.13 .18	NO NO		22 25	C BRANCH 6
A 276	2		P6-10 P10-111					.13 .18	NO NO		22 25	C BRANCH 6
A 277	2		P6-24 P10-612					.13 .18	NO NO		22 25	C BRANCH 6
A 278	2		P6-9 P10-211					.13 .18	NO NO		22 25	C BRANCH 6
A 279	2		P6-23 P10-512					.13 .18	NO NO		22 25	C BRANCH 6

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR ~~E~~ F | SHEET 59 OF 68

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WIRING HARNESS A 2014641 ~~E~~ F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 280	2		P6-68 P10-511					.13 .18	NO NO		22 25	C BRANCH 6
A 281	2		P6-69 P10-411					.13 .18	NO NO		22 25	C BRANCH 6
A 282	2		P6-43 P10-611					.13 .18	NO NO		22 25	C BRANCH 6
A 283	2		P6-44 P10-311					.13 .18	NO NO		22 25	C BRANCH 6
A 284	2		P6-46 P10-627					.13 .18	NO NO		22 25	C BRANCH 6
A 285	2		P6-25 P10-628					.13 .18	NO NO		22 25	C BRANCH 6
A 286	2		P6-45 P10-528					.13 .18	NO NO		22 25	C BRANCH 6
A 287	2		P6-71 P10-526					.13 .18	NO NO		22 25	C BRANCH 6
A 288	2		P6-70 P10-527					.13 .18	NO NO		22 25	C BRANCH 6
A 289	2		P6-47 P10-626					.13 .18	NO NO		22 25	C BRANCH 6
A 290	2		P6-12 P10-654					.13 .18	NO NO		22 25	C BRANCH 6
A 291	2		P6-3 P10-655					.13 .18	NO NO		22 25	C BRANCH 6

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR ~~E~~ F | SHEET 60 OF 68

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 292	2		P6-11 P10-555					.13 .18	NO NO		22 25	C BRANCH 6
A 293	2		P6-27 P10-553					.13 .18	NO NO		22 25	C BRANCH 6
A 294	2		P6-26 P10-554					.13 .18	NO NO		22 25	C BRANCH 6
A 295	2		P6-13 P10-653					.13 .18	NO NO		22 25	C BRANCH 6
A 296	2		P8-24 P10-403					.13 .18	NO NO		22 25	B BRANCH 4
A 297	2		P8-44 P10-603					.13 .18	NO NO		22 25	B BRANCH 4
A 298	2		P8-43 P10-503					.13 .18	NO NO		22 25	B BRANCH 4
A 299	2		P8-41 P10-103					.13 .18	NO NO		22 24	B BRANCH 4
A 300	2		P8-42 P10-303					.13 .18	NO NO		22 25	B BRANCH 4
A 301	2		P8-23 P10-203					.13 .18	NO NO		22 25	B BRANCH 4
A 302	2		P8-22 P10-502					.13 .22	NO NO		22 24	B BRANCH 4
A 303	2		P8-10 P10-402					.13 .22	NO NO		22 24	B BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 304	2		P8-52 P10-207					.13 .22	NO NO		22 24	B BRANCH 4
A 305	2		P8-50 P10-407					.13 .22	NO NO		22 24	B BRANCH 4
A 306	2		P8-51 P10-307					.13 .22	NO NO		22 24	B BRANCH 4
A 307	2		P8-31 P10-408					.13 .22	NO NO		22	B BRANCH 4
A 308	2		P8-53 P10-608					.13 .22	NO NO		22 24	B BRANCH 4
A 309	2		P8-54 P10-508					.13 .22	NO NO		22	B BRANCH 4
A 310	2		P8-32 P10-208					.13 .22	NO NO		22 24	B BRANCH 4
A 311	2		P8-30 P10-309					.13 .22	NO NO		22 24	B BRANCH 4
A 312	2		P8-29 P10-308					.13 .22	NO NO		22 24	B BRANCH 4
A 313	2		P8-16 P10-409					.13 .22	NO NO		22 24	B BRANCH 4
A 314	2		P8-14 P10-604					.13 .22	NO NO		22 24	B BRANCH 4
A 315	2		P8-15 P10-609					.13 .22	NO NO		22 24	B BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 316	1		P8-7 P10-106					.13 .18	NO NO		22 24	B BRANCH 4
A 317	1		P8-2 P10-104					.13 .18	NO NO		22 24	B BRANCH 4
A 318	2		P8-3 P10-607					.13 .22	NO NO		22 24	B BRANCH 4
A 319	2		P8-25 P10-606					.13 .22	NO NO		22 24	B BRANCH 4
A 320	2		P8-1 P10-507					.13 .22	NO NO		22 24	B BRANCH 4
A 321	2		P8-12 P10-406					.13 .22	NO NO		22 24	B BRANCH 4
A 322	2		P8-11 P10-506					.13 .22	NO NO		22 24	B BRANCH 4
A 323	2		P8-28 P10-405					.13 .22	NO NO		22 24	B BRANCH 4
A 324	2		P8-4 P10-206					.13 .22	NO NO		22 24	B BRANCH 4
A 325	2		P8-13 P10-306					.13 .22	NO NO		22 24	B BRANCH 4
A 326	2		P8-26 P10-205					.13 .22	NO NO		22 24	B BRANCH 4
A 327	2		P8-27 P10-305					.13 .22	NO NO		22 24	B BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 328	2		P8-47 P10-204					.13 .22	NO NO		22 24	B BRANCH 4
A 329	2		P8-45 P10-404					.13 .22	NO NO		22 24	B BRANCH 4
A 330	2		P8-46 P10-304					.13 .22	NO NO		22 24	B BRANCH 4
A 331	2		P8-48 P10-605					.13 .22	NO NO		22 24	B BRANCH 4
A 332	2		P8-49 P10-505					.13 .22	NO NO		22 24	B BRANCH 4
A 333	3									6B 6B	31 31	
A 333A	11		SHLD A333 E8					.20 .19	NO NO			
A 333B	11		E12 SHLD A333					.19 .20	NO NO			
A 333R			P3-3 P7-52					.13 .13	NO NO		22 22	
A 333Y			P3-11 P7-31					.13 .13	NO NO		22 22	
A 334	8				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 334A	11		SHLD A334 E8					.20 .19	NO NO		 47	

WIRING HARNESS A 2014641 F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 334B	11		E11 SHLD A334					.19 .20	NO NO		47	
A 334[illegible]Y			P3-4 P6-51					.13 .13	NO NO		22 22	
A 335	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 335A	11		SHLD A335 E10					.20 .19	NO NO			
A 335B	11		E12 SHLD A335					.19 .20	NO NO		47	
A 335R			P5-19 P7-15					.13 .13	NO NO		22 22	
A 335Y			P5-18 P7-16					.13 .13	NO NO		22 22	
A 336	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 336A	11		SHLD A336 E10					.20 .19	NO NO			
A 336B	11		E13 SHLD A336					.19 .20	NO NO			
A 336R			P5-7 P7-30					.13 .13	NO NO		22 22	
A 336Y			P5-8 P7-14					.13 .13	NO NO		22 22	

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A	80230	2014641
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 337	3									6B 6B	31 31	
A 337A	11		SHLD A337 E10					.20 .19	NO NO		 47	
A 337B	11		E13 SHLD A337					.19 .20	NO NO		47	
A 337R			P5-9 P7-6					.13 .13	NO NO		22 22	
A 337Y			P5-2 P7-7					.13 .13	NO NO		22 22	
A 338	2		P5-10 P10-508					.13 .22	NO NO		22 24	D BRANCH 4
A 339	2		P5-24 P10-408					.13 .22	NO NO		22 24	D BRANCH 4
A 340	35		E7 E5					.19 .19	NO NO		46	F
A 341	35		E8 E5					.19 .19	NO NO			E
A 342	35		E9 E5					.19 .19	NO NO		 52	D
A 343	35		E9 E6					.19 .19	NO NO		47	A
A 344	35		E11 E6					.19 .19	NO NO			C

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 66 OF 68

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 345	35		E14 E6					.19 .19	NO NO		46 52	B
A 346	2		P5-43 P10-108					.13 .22	NO NO		22 24	A BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 67 OF 68

WIRING HARNESS A

CONFIGURATION INCOMPLETE

SIZE	CODE IDENT. NO.	
A	80230	2014641
SCALE NONE	REV LTR E	SHEET 68 of 68

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-011	E	REPLACES REV D WITH CHANGE PER TDRR		
		F	CHGD PER TDRR 24806		
		G	Revised per TDRR 25306	2-4-66	

REPLACES REV D WITH CHANGE

REV	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	E	E	E	E	E	E	F	E	E	F	E
SHEET	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
REV STATUS OF SHEETS REV							G	F	E	F	F	G	F	E	E	F	E	E	E	E	E	E	F	F	F	E
SHEET							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

MIT
INSTRUMENTATION LAB
CAMBRIDGE. MASS.
DWG. NO.
CONTRACT

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Janowiak DATE 7 DEC 65
CHECKED W. Diehl 7 DEC 65
APPROVAL D Kling 8 DEC 65
APPROVAL 12/20/65

G & N INTERCONNECT HARNESS "A"
(C/M, BLOCK II)

NASA APPROVAL A. C. METZGER
MIT APPROVAL 21 Dec 65

CODE IDENT NO.	SIZE		REV
80230	A	2014641	G

CONTRACT NAS9-497
SCALE E SHEET 1 OF 68

REVISION STATUS OF SHEETS

SH	REV
47	E
48	F
49	E
50	E
51	E
52	E
53	E
54	F
55	E
56	E
57	E
58	F
59	F
60	F
61	E
62	E
63	E
64	E
65	F
66	E
67	E
68	E

SIZE	CODE IDENT. NO.	
A	80230	2014641

SCALE NONE REV LTR F SHEET 2 of 68

MIL 1377A3 8-65

NOTE NUMBER — GENERAL NOTES DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND 1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014671.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

NOTE NUMBER — GENERAL NOTES DESCRIPTION

11 ALL UNUSED ~~GROMMET HOLES~~ CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTOR 56P2, USE ITEM NUMBERS 23 AND 32.
CONNECTOR 56P1,3,4,5,6,7, AND 8 USE ITEM NUMBERS 22 AND 32.
CONNECTOR 56P9, AND P10 USE ITEM NUMBER 24.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 38.

13 A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED TO BUILD UP DIAMETER TO FIT ~~CABLE CLAMP.~~ SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

NOTE NUMBER — GENERAL NOTES DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED, INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.

22 PRESEAL BACK OF CONNECTORS 56P9 AND P10 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 41,42,43, AND 44.

23 ENCAPSULATE BACK OF CONNECTORS ~~56P9 AND P10~~ PER ND1002236 USING ITEMS 39 AND 40.

24 CONDUCTORS LISTED WITH AN A,B,C,D,E, OR F IN THE REMARKS COLUMN ARE TO BE ASSEMBLED AS SHOWN ON THE CONFIGURATION DRAWING.

25 GROUP SHIELDING - THREAD ONE CONTINUOUS LENGTH OF GROUND WIRE, ITEM 35, THROUGH CENTER OF EMI/RFI SHIELDING TAPE. ITEM 34. ALLOW 6 INCHES OF GROUND WIRE TO EXTEND BEYOND ENDS OF SHIELDING TAPE. WRAP CABLE WITH ONE CONTINUOUS LENGTH OF PREPARED SHIELDING. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE, WITH A MINIMUM OF RIDGES AND FOLDS.

26 COMPLETELY COVER SHIELD WITH ONE CONTINUOUS WRAP OF INSULATION TAPE, ITEM 36. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE WITH A MINIMUM OF RIDGES AND FOLDS.

27 ASSEMBLE INSULATION TUBING, ITEM 45, OVER GROUND WIRE AS REQUIRED TO REACH TERMINATION. ASSEMBLE SHRINK SLEEVING AS SHOWN.

28 ASSEMBLE A LENGTH OF WIRE BRAID ITEM 53 OVER CONDUCTORS A333 AND A337. ALLOW 1.75 INCH OF LEAD TO EXTEND BEYOND BRAID. COVER BRAID WITH TEFLON TAPE, ITEM 36, PER NOTE 26. ALLOW .25 INCH OF BRAID TO EXTEND BEYOND TAPE. FOLD BRAID OVER TAPE AND TERMINATE PER ND1002071, FIG. 6B.

NOTE NUMBER — GENERAL NOTES DESCRIPTION

29 CONDUCTORS SHALL ENTER CONNECTORS 56P9 AND 56P10 THROUGH THE APPROPRIATE BRANCH SPECIFIED IN THE REMARKS COLUMN.

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

30 Perform Workmanship Vibration:
A. Sinusoidal sweep at 3.5 g rms. Limited to 0.3 inch peak to peak displacement, from 10 to 2000 cps at a rate of 4 octaves per minute.
B. Vibration along the X axis of the space craft.
C. Monitor for discontinuities of 10μ seconds or greater during vibration.
D. Complete continuity and insulation resistance testing must be accomplished after vibration.

WIRING HARNESS A 2014641 ~~E~~ F

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014641-001	WIRE PER 1010789-006, 22 AWG, YEL, 25 FT TOT LG
	2	1	2014641-002	WIRE PER 1010789-016, 26 AWG, YEL, 50 FT TOT LG
	3	1	2014641-003	WIRE PER 1010789-008, 22 AWG, YEL, RED, 15 FT TOT LG
	4	1	2014641-004	WIRE PER 1010789-017, 26 AWG, YEL, RED, 160 FT TOT LG
	5	1	2014641-005	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 20 FT TOT LG
	6	1	2014641-006	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN 90 FT TOT LG
	7	1	2014641-007	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 25 FT TOT LG
	8	1	2014641-008	WIRE PER 1010789-011, 24 AWG, YEL, YEL JKT, 10 FT TOT LG
	9	1	2014641-009	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 150 FT TOT LG
	10	1	2014641-010	WIRE PER 1010789-013, 24 AWG, YEL, RED, GRN, YEL JKT, 10 FT TOT LG
	11	1	2014641-011	WIRE PER 1010789-002, 24 AWG, BLK, 105 FT TOT LG
	12	1	2014741-011	CONNECTOR, PLUG, ELECTRICAL (56P9)
	13	1	2014749-011	CONNECTOR, PLUG, ELECTRICAL (56P10)
9	14	1	1010929-109	CONNECTOR, PLUG, ELECTRICAL (56P1)

SIZE	CODE IDENT NO.	
A	80230	2014641
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LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	15	1	1010929-005	CONNECTOR, PLUG, ELECTRICAL (56P2)
9	16	1	1010929-102	CONNECTOR, PLUG, ELECTRICAL (56P3)
9	17	1	1010929-101	CONNECTOR, PLUG, ELECTRICAL (56P4)
9	18	1	1010929-103	CONNECTOR, PLUG, ELECTRICAL (56P5)
9	19	1	1010929-104	CONNECTOR, PLUG, ELECTRICAL (56P6)
9	20	1	1010929-108	CONNECTOR, PLUG, ELECTRICAL (56P7)
9	21	1	1010929-105	CONNECTOR, PLUG, ELECTRICAL (56P8)
9	22	X	1010770- 1	CONTACT, PIN, SUPPLIED WITH CONNECTOR 1010929
9	23	X	1010770- 2	CONTACT, SOCKET, SUPPLIED WITH CONNECTOR 1010929
9	24	311	1010955- 1	CONTACT, MALE
9	25	349	1010955- 2	CONTACT, MALE
	26	1	2014670- 4	ADAPTER, CONNECTOR
	~~27~~	~~1~~	~~2014670- 5~~	~~ADAPTER, CONNECTOR~~
	28	1	2014670- 7	ADAPTER, CONNECTOR
9	29	34	1012534- 36	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	30	2	1012534- 38	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	31	116	1010402- 2	SLEEVE, SOLDER
9	32	115	1010958- 1	PLUG, PROTECTIVE SEALING

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A	80230	2014641
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LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	34	AR	1010989	TAPE, SHIELDING, EMI/RFI
	35	1	2014641-012	WIRE PER QQ-W-343, TYPE C, CLASS C, 22 AWG, 100 FT TOT LG
	36	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	37	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
9	38	AR	1012507-004	TAPE, LACING AND TYING
9	39	AR	1012503	COMPOUND, POTTING, POLYURETHANE
9	40	AR	1012504	PRIMER, METAL PARTS
9	41	AR	1010661	EPOXY RESIN
9	42	AR	1010679	ADHESIVE ACTIVATOR
9	43	AR	1008822	COLORANT, EPOXY BASE
9	44	AR	1006277	SILICA, PULVERIZED, PYROGENIC
9	45	AR	1006776- 44	INSULATION SLEEVING, 6 FEET TOTAL LENGTH
	46	2	MS17182-2	TERMINAL LUG
	47	6	MS17182-1	TERMINAL LUG
	48	8	MS35333-69	WASHER, LOCK
9	49	8	1006783- 93	SCREW, BUTTON HD
	50	4	MS35335-57	WASHER, LOCK
9	51	4	1006783- 18	SCREW, BUTTON HD

SIZE	CODE IDENT NO.	
A	80230	2014641
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LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	52	4	MS25036-52	TERMINAL LUG
28	53	1	2014641-013	WIRE BRAID,QQ-B-575,.12DIA. 36AWG, 5 FT TOT LG
	54	~~1~~2	2014670 ~~2014641~~- 11	ADAPTER, CONNECTOR
	55	2	2014670 ~~2014641~~- 12	ADAPTER, CONNECTOR
	56	1	2014670- 13	ADAPTER, CONNECTOR
	57	1	2014670- 15	ADAPTER, CONNECTOR

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 10 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 1	9				1.00	.75				68	31	
					1.00	.75				7	29	
A 1A	11		SHLD A1					.20	NO			
			P9-410					.18	NO		24	BRANCH 1
A 1R			P9-610					.18	NO		25	BRANCH 1
			P10-332					.18	NO		25	BRANCH 4
A 1Y			P9-510					.18	NO		25	BRANCH 1
			P10-432					.18	NO		25	BRANCH 4
A 2	9				1.00	.75				68	31	
					1.00	.75				7	29	
A 2A	11		SHLD A2					.20	NO			
			P9-110					.18	NO		24	BRANCH 1
A 2R			P9-310					.18	NO		25	BRANCH 1
			P10-330					.18	NO		25	BRANCH 4
A 2Y			P9-210					.18	NO		25	BRANCH 1
			P10-430					.18	NO		25	BRANCH 4
A 3	9				1.00	.75				68	31	
					1.00	.75				7	29	
A 3A	11		SHLD A3					.20	NO			
			P9-409					.18	NO		24	BRANCH 1
A 3R			P9-609					.18	NO		25	BRANCH 1
			P10-329					.18	NO		25	BRANCH 4
A 3Y			P9-509					.18	NO		25	BRANCH 1
			P10-429					.18	NO		25	BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 11 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 4	9				1.00	.75				68	31	
					1.00	.75				7	29	
A 4A	11		SHLD A4					.20	NO			
			P9-109					.18	NO		24	BRANCH 1
A 4R			P9-309					.18	NO		25	BRANCH 1
			P10-328					.18	NO		25	BRANCH 4
A 4Y			P9-209					.18	NO		25	BRANCH 1
			P10-428					.18	NO		25	BRANCH 4
A 5	9				1.00	.75				68	31	
					1.00	.75				7	29	
A 5A	11		SHLD A5					.20	NO			
			P9-408					.18	NO		24	BRANCH 1
A 5R			P9-608					.18	NO		25	BRANCH 1
			P10-334					.18	NO		25	BRANCH 5
A 5Y			P9-508					.18	NO		25	BRANCH 1
			P10-434					.18	NO		25	BRANCH 5
A 6	9				1.00	.75				68	31	
					1.00	.75				7	29	
A 6A	11		SHLD A6					.20	NO			
			P9-108					.18	NO		24	BRANCH 1
A 6R			P9-308					.18	NO		25	BRANCH 1
			P10-333					.18	NO		25	BRANCH 4
A 6Y			P9-208					.18	NO		25	BRANCH 1
			P10-433					.18	NO		25	BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 12 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 7	9				1.00	.75				68	31	
					1.00	.75				7	29	
A 7A	11		SHLD A7					.20	NO			
			P9-407					.18	NO		24	BRANCH 1
A 7R			P9-607					.18	NO		25	BRANCH 1
			P10-338					.18	NO		25	BRANCH 5
A 7Y			P9-507					.18	NO		25	BRANCH 1
			P10-438					.18	NO		25	BRANCH 5
A 8	9				1.00	.75				68	31	
					1.00	.75				7	29	
A 8A	11		SHLD A8					.20	NO			
			P9-107					.18	NO		24	BRANCH 1
A 8R			P9-307					.18	NO		25	BRANCH 1
			P10-337					.18	NO		25	BRANCH 5
A 8Y			P9-207					.18	NO		25	BRANCH 1
			P10-437					.18	NO		25	BRANCH 5
A 9	9				1.00	.75				68	31	
					1.00	.75				7	29	
A 9A	11		SHLD A9					.20	NO			
			P9-406					.18	NO		24	BRANCH 1
A 9R			P9-606					.18	NO		25	BRANCH 1
			P10-336					.18	NO		25	BRANCH 5
A 9Y			P9-506					.18	NO		25	BRANCH 1
			P10-436					.18	NO		25	BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 13 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 10	9				1.00	.75				68	31	
					1.00	.75				7	29	
A 10A	11		SHLD A10					.20	NO			
			P9-106					.18	NO		24	BRANCH 1
A 10R			P9-306					.18	NO		25	BRANCH 1
			P10-335					.18	NO		25	BRANCH 5
A 10Y			P9-206					.18	NO		25	BRANCH 1
			P10-435					.18	NO		25	BRANCH 5
A 11	9				1.00	.75				68	31	
					1.00	.75				7	29	
A 11A	11		SHLD A11					.20	NO			
			P9-405					.18	NO		24	BRANCH 1
A 11R			P9-605					.18	NO		25	BRANCH 1
			P10-146					.18	NO		25	BRANCH 5
A 11Y			P9-505					.18	NO		25	BRANCH 1
			P10-246					.18	NO		25	BRANCH 5
A 12	9				1.00	.75				68	31	
					1.00	.75				7	29	
A 12A	11		SHLD A12					.20	NO			
			P9-105					.18	NO		24	BRANCH 1
A 12R			P9-305					.18	NO		25	BRANCH 1
			P10-145					.18	NO		25	BRANCH 5
A 12Y			P9-205					.18	NO		25	BRANCH 1
			P10-245					.18	NO		25	BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 14 OF 68

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 13	9				1.00 1.00	.75 .75				6B 7	31 29	
A 13A	11		SHLD A13 P9-404					.20 .18	NO NO		 24	 BRANCH 1
A 13R			P9-604 P10-144					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A 13Y			P9-504 P10-244					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A 14	9				1.00 1.00	.75 .75				6B 7	31 29	
A 14A	11		SHLD A14 P9-104					.20 .18	NO NO		 24	 BRANCH 1
A 14R			P9-304 P10-143					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A 14Y			P9-204 P10-243					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 5
A 15	9				1.00 1.00	.75 .75				6B 7	31 29	
A 15A	11		SHLD A15 P9-403					.20 .18	NO NO		 24	 BRANCH 1
A 15R			P9-603 P10-148					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A 15Y			P9-503 P10-248					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 15 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 16	9				1.00 1.00	.75 .75				6B 7	31 29	
A 16A	11		SHLD A16 P9-103					.20 .18	NO NO		 24	 BRANCH 1
A 16R			P9-303 P10-147					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A 16Y			P9-203 P10-247					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A 17	9				1.00 1.00	.75 .75				6B 7	31 29	
A 17A	11		SHLD A17 P9-402					.20 .18	NO NO		 24	 BRANCH 1
A 17R			P9-602 P10-152					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A 17Y			P9-502 P10-252					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A 18	9				1.00 1.00	.75 .75				6B 7	31 29	
A 18A	11		SHLD A18 P9-102					.20 .18	NO NO		 24	 BRANCH 1
A 18R			P9-302 P10-151					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A 18Y			P9-202 P10-251					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 16 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 19	9				1.00 1.00	.75 .75				6B 7	31 29	
A 19A	11		SHLD A19 P9-401					.20 .18	NO NO		 24	 BRANCH 1
A 19R			P9-601 P10-150					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A 19Y			P9-501 P10-250					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A 20	9				1.00 1.00	.75 .75				6B 7	31 29	
A 20A	11		SHLD A20 P9-101					.20 .18	NO NO		 24	 BRANCH 1
A 20R			P9-301 P10-149					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A 20Y			P9-201 P10-249					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 6
A 21	9				1.00 1.00	.75 .75				6B 7	31 29	
A 21A	11		SHLD A21 P9-111					.20 .18	NO NO		 24	 BRANCH 2
A 21R			P9-311 P10-515					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 21Y			P9-211 P10-615					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 17 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 22	10				1.00 1.00	.75 .75				7 6B	29 31	
A 22B	11		E3 SHLD A22					.19 .20	NO NO			
A 22G			P9-~~411~~ 511 P10-536					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 5
A 22R			P9-611 P10-622					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A 22Y			P9-~~511~~ 411 P10-534					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 5
A 23	9				1.00 1.00	.75 .75				7 6B	29 31	
A 23B	11		E4 SHLD A23					.19 .20	NO NO			
A 23R			P9-212 P10-112					.18 .18	NO NO		25 25	BRANCH 2
A 23Y			P9-112 P10-412					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 24	9				1.00 1.00	.75 .75				7 6B	29 31	
A 24B	11		E4 SHLD A24					.19 .20	NO NO			
A 24R			P9-412 P10-614					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 18 OF 68

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	24Y			P9-312 P10-313					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A	25	10				1.00 1.00	.75 .75				7 6B	29 31	
A	25B	11		E4 SHLD A25					.19 .20	NO NO		52	
A	25G			P9-113 P10-514					.18 .18	NO NO		25 24	BRANCH 2 BRANCH 4
A	25R			P9-612 P10-314					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A	25Y			P9-512 P10-414					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A	26	9				1.00 1.00	.75 .75				7 6B	29 31	
A	26B	11		E3 SHLD A26					.19 .20	NO NO		52	
A	26R			P9-313 P10-525					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A	26Y			P9-213 P10-624					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A	27	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A	27A	11		SHLD A27 P7-12					.20 .13	NO NO		22	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR ~~E~~F
SHEET 19 OF 68

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	27B	11		P9-637 SHLD A27					.18 .20	NO NO		24	BRANCH 3
A	27R			P7-27 P9-437					.13 .18	NO NO		22 25	BRANCH 3
A	27Y			P7-13 P9-537					.13 .18	NO NO		22 25	BRANCH 3
A	28	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A	28A	11		SHLD A28 P7-26					.20 .13	NO NO		22	
A	28B	11		P9-137 SHLD A28					.18 .20	NO NO		24	BRANCH 3
A	28R			P7-47 P9-237					.13 .18	NO NO		22 25	BRANCH 3
A	28Y			P7-46 P9-337					.13 .18	NO NO		22 25	BRANCH 3
A	29	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A	29A	11		SHLD A29 P7-24					.20 .13	NO NO		22	
A	29B	11		P9-634 SHLD A29					.18 .20	NO NO		24	BRANCH 2
A	29R			P7-44 P9-434					.13 .18	NO NO		22 25	BRANCH 2

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR E
SHEET 20 OF 68

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	29Y			P7-25 P9-534					.13 .18	NO NO		22 25	BRANCH 2
A	30	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A	30A	11		SHLD A30 P7-5					.20 .13	NO NO		22	
A	30B	11		P9-335 SHLD A30					.18 .20	NO NO		24	BRANCH 2
A	30R			P7-4 P9-135					.13 .18	NO NO		22 25	BRANCH 2
A	30Y			P7-1 P9-235					.13 .18	NO NO		22 25	BRANCH 2
A	31	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A	31A	11		SHLD A31 P7-3					.20 .13	NO NO		22	
A	31B	11		P9-635 SHLD A31					.18 .20	NO NO		24	BRANCH 2
A	31R			P7-11 P9-435					.13 .18	NO NO		22 25	BRANCH 2
A	31Y			P7-10 P9-535					.13 .18	NO NO		22 25	BRANCH 2
A	32	4											

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR E
SHEET 21 OF 68

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	32R			P7-53 P9-536					.13 .18	NO NO		22 25	BRANCH 3
A	32Y			P7-54 P9-636					.13 .18	NO NO		22 25	BRANCH 3
A	33	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A	33A	11		SHLD A33 P1-13					.20 .13	NO NO		22	
A	33B	11		P9-332 SHLD A33					.18 .20	NO NO		24	BRANCH 2
A	33R			P1-28 P9-132					.13 .18	NO NO		22 25	BRANCH 2
A	33Y			P1-27 P9-232					.13 .18	NO NO		22 25	BRANCH 2
A	34	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A	34A	11		SHLD A34 P1-16					.20 .13	NO NO		22	
A	34B	11		P9-632 SHLD A34					.18 .20	NO NO		24	BRANCH 2
A	34R			P1-6 P9-432					.13 .18	NO NO		22 25	BRANCH 2
A	34Y			P1-5 P9-532					.13 .18	NO NO		22 25	BRANCH 2

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR E
SHEET 22 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 35	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 35A	11		SHLD A35 P1-1					.20 .13	NO NO		 22	
A 35B	11		P9-333 SHLD A35					.18 .20	NO NO		24	BRANCH 2
A 35R			P1-4 P9-133					.13 .18	NO NO		22 25	 BRANCH 2
A 35Y			P1-3 P9-233					.13 .18	NO NO		22 25	 BRANCH 2
A 36	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 36A	11		SHLD A36 P1-17					.20 .13	NO NO		 22	
A 36B	11		P9-346 SHLD A36					.18 .20	NO NO		24	BRANCH 3
A 36R			P1-34 P9-146					.13 .18	NO NO		22 25	 BRANCH 3
A 36Y			P1-33 P9-246					.13 .18	NO NO		22 25	 BRANCH 3
A 37	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 37A	11		SHLD A37 P1-18					.20 .13	NO NO		 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 37B	11		P9-646 SHLD A37					.18 .20	NO NO		24	BRANCH 3
A 37R			P1-35 P9-446					.13 .18	NO NO		22 25	 BRANCH 3
A 37Y			P1-36 P9-546					.13 .18	NO NO		22 25	 BRANCH 3
A 38	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 38A	11		SHLD A38 P1-14					.20 .13	NO NO		 22	
A 38B	11		P9-348 SHLD A38					.18 .20	NO NO		24	BRANCH 3
A 38R			P1-30 P9-148					.13 .18	NO NO		22 25	 BRANCH 3
A 38Y			P1-29 P9-248					.13 .18	NO NO		22 25	 BRANCH 3
A 39	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 39A	11		SHLD A39 P1-15					.20 .13	NO NO		 22	
A 39B	11		P9-648 SHLD A39					.18 .20	NO NO		24	BRANCH 3
A 39R			P1-31 P9-448					.13 .18	NO NO		22 25	 BRANCH 3

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 39Y			P1-32 P9-548					.13 .18	NO NO		22 25	 BRANCH 3
A 40	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 40A	11		SHLD A40 P1-20					.20 .13	NO NO		 22	
A 40B	11		P9-633 SHLD A40					.18 .20	NO NO		24	BRANCH 2
A 40R			P1-19 P9-433					.13 .18	NO NO		22 25	 BRANCH 2
A 40Y			P1-37 P9-533					.13 .18	NO NO		22 25	 BRANCH 2
A 41	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 41A	11		SHLD A41 P1-21					.20 .13	NO NO		 22	
A 41B	11		P9-334 SHLD A41					.18 .20	NO NO		24	BRANCH 2
A 41R			P1-38 P9-134					.13 .18	NO NO		22 25	 BRANCH 2
A 41Y			P1-39 P9-234					.13 .18	NO NO		22 25	 BRANCH 2
A 42	6											

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 42G			P1-26 P9-421					.13 .18	NO NO		22 25	 BRANCH 2
A 42R			P1-43 P9-620					.13 .18	NO NO		22 25	 BRANCH 2
A 42Y			P1-44 P9-221					.13 .18	NO NO		22 25	 BRANCH 2
A 43	6											
A 43G			P1-8 P9-222					.13 .18	NO NO		22 25	 BRANCH 2
A 43R			P1-7 P9-621					.13 .18	NO NO		22 25	 BRANCH 2
A 43Y			P1-2 P9-119					.13 .18	NO NO		22 25	 BRANCH 2
A 46	2		P1-25 P9-422					.13 .18	NO NO		22 25	 BRANCH 2
A 47	3											
A 47R			P1-40 P9-228					.13 .18	NO NO		22 24	 BRANCH 2
A 47Y			P1-23 P9-328					.13 .18	NO NO		22 24	 BRANCH 2
A 48	3											

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 48R			P1-41 P9-428					.13 .18	NO NO		22 24	 BRANCH 2
A 48Y			P1-42 P9-528					.13 .18	NO NO		22 24	 BRANCH 2
A 49	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 49A	11		SHLD A49 P4-30					.20 .13	NO NO		 22	
A 49B	11		P9-340 SHLD A49					.18 .20	NO NO		24	BRANCH 3
A 49R			P4-52 P9-140					.13 .18	NO NO		22 25	 BRANCH 3
A 49Y			P4-51 P9-240					.13 .18	NO NO		22 25	 BRANCH 3
A 50	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 50A	11		SHLD A50 P4-31					.20 .13	NO NO		 22	
A 50B	11		P9-640 SHLD A50					.18 .20	NO NO		24	BRANCH 3
A 50R			P4-54 P9-440					.13 .18	NO NO		22 25	 BRANCH 3
A 50Y			P4-53 P9-540					.13 .18	NO NO		22 25	 BRANCH 3

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A	80230	2014641
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 51	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 51A	11		SHLD A51 P4-29					.20 .13	NO NO		 22	
A 51B	11		P9-341 SHLD A51					.18 .20	NO NO		24	BRANCH 3
A 51R			P4-13 P9-141					.13 .18	NO NO		22 25	 BRANCH 3
A 51Y			P4-14 P9-241					.13 .18	NO NO		22 25	 BRANCH 3
A 52	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 52A	11		SHLD A52 P4-32					.20 .13	NO NO		 22	
A 52B	11		P9-641 SHLD A52					.18 .20	NO NO		24	BRANCH 3
A 52R			P4-16 P9-441					.13 .18	NO NO		22 25	 BRANCH 3
A 52Y			P4-15 P9-541					.13 .18	NO NO		22 25	 BRANCH 3
A 53	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 53A	11		SHLD A53 P4-36					.20 .13	NO NO		 22	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 28 OF 68

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 53B	11		P9-342 SHLD A53					.18 .20	NO NO		24	BRANCH 3
A 53R			P4-59 P9-142					.13 .18	NO NO		22 25	 BRANCH 3
A 53Y			P4-60 P9-242					.13 .18	NO NO		22 25	 BRANCH 3
A 54	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 54A	11		SHLD A54 P4-37					.20 .13	NO NO		 22	
A 54B	11		P9-642 SHLD A54					.18 .20	NO NO		24	BRANCH 3
A 54R			P4-61 P9-442					.13 .18	NO NO		22 25	 BRANCH 3
A 54Y			P4-38 P9-542					.13 .18	NO NO		22 25	 BRANCH 3
A 55	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 55A	11		SHLD A55 P4-33					.20 .13	NO NO		 22	
A 55B	11		P9-343 SHLD A55					.18 .20	NO NO		24	BRANCH 3
A 55R			P4-56 P9-143					.13 .18	NO NO		22 25	 BRANCH 3

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 29 OF 68

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 55Y			P4-55 P9-243					.13 .18	NO NO		22 25	 BRANCH 3
A 56	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 56A	11		SHLD A56 P4-34					.20 .13	NO NO		 22	
A 56B	11		P9-643 SHLD A56					.18 .20	NO NO		24	BRANCH 3
A 56R			P4-57 P9-443					.13 .18	NO NO		22 25	 BRANCH 3
A 56Y			P4-58 P9-543					.13 .18	NO NO		22 25	 BRANCH 3
A 57	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 57A	11		SHLD A57 P4-27					.20 .13	NO NO		 22	
A 57B	11		P9-344 SHLD A57					.18 .20	NO NO		24	BRANCH 3
A 57R			P4-48 P9-144					.13 .18	NO NO		22 25	 BRANCH 3
A 57Y			P4-47 P9-244					.13 .18	NO NO		22 25	 BRANCH 3
A 58	9				1.75 1.00	1.50 .75				6B 6B	31 31	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 30 OF 68

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 58A	11		SHLD A58					.20	NO			
			P4-28					.13	NO		22	
A 58B	11		P9-644					.18	NO		24	BRANCH 3
			SHLD A58					.20	NO			
A 58R			P4-49					.13	NO		22	
			P9-444					.18	NO		25	BRANCH 3
A 58Y			P4-50					.13	NO		22	
			P9-544					.18	NO		25	BRANCH 3
A 59	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 59A	11		SHLD A59					.20	NO			
			P4-35					.13	NO		22	
A 59B	11		P9-345					.18	NO		24	BRANCH 3
			SHLD A59					.20	NO			
A 59R			P4-17					.13	NO		22	
			P9-145					.18	NO		25	BRANCH 3
A 59Y			P4-18					.13	NO		22	
			P9-245					.18	NO		25	BRANCH 3
A 60	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 60A	11		SHLD A60					.20	NO			
			P4-20					.13	NO		22	
A 60B	11		P9-645					.18	NO		24	BRANCH 3
			SHLD A60					.20	NO			

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 60R			P4-19					.13	NO		22	
			P9-445					.18	NO		25	BRANCH 3
A 60Y			P4-8					.13	NO		22	
			P9-545					.18	NO		25	BRANCH 3
A 61	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 61A	11		SHLD A61					.20	NO			
			P4-22					.13	NO		22	
A 61B	11		P9-329					.18	NO		24	BRANCH 2
			SHLD A61					.20	NO			
A 61R			P4-41					.13	NO		22	
			P9-129					.18	NO		25	BRANCH 2
A 61Y			P4-42					.13	NO		22	
			P9-229					.18	NO		25	BRANCH 2
A 62	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 62A	11		SHLD A62					.20	NO			
			P4-24					.13	NO		22	
A 62B	11		P9-629					.18	NO		24	BRANCH 2
			SHLD A62					.20	NO			
A 62R			P4-43					.13	NO		22	
			P9-429					.18	NO		25	BRANCH 2
A 62Y			P4-44					.13	NO		22	
			P9-529					.18	NO		25	BRANCH 2

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 63	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 63A	11		SHLD A63					.20	NO			
			P4-25					.13	NO		22	
A 63B	11		P9-330					.18	NO		24	BRANCH 2
			SHLD A63					.20	NO			
A 63R			P4-45					.13	NO		22	
			P9-130					.18	NO		25	BRANCH 2
A 63Y			P4-46					.13	NO		22	
			P9-230					.18	NO		25	BRANCH 2
A 64	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 64A	11		SHLD A64					.20	NO			
			P4-21					.13	NO		22	
A 64B	11		P9-630					.18	NO		24	BRANCH 2
			SHLD A64					.20	NO			
A 64R			P4-39					.13	NO		22	
			P9-430					.18	NO		25	BRANCH 2
A 64Y			P4-40					.13	NO		22	
			P9-530					.18	NO		25	BRANCH 2
A 65	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 65A	11		SHLD A65					.20	NO			
			P4-10					.13	NO		22	

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 65B	11		P9-331					.18	NO		24	BRANCH 2
			SHLD A65					.20	NO			
A 65R			P4-9					.13	NO		22	
			P9-131					.18	NO		25	BRANCH 2
A 65Y			P4-23					.13	NO		22	
			P9-231					.18	NO		25	BRANCH 2
A 66	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 66A	11		SHLD A66					.20	NO			
			P4-11					.13	NO		22	
A 66B	11		P9-631					.18	NO		24	BRANCH 2
			SHLD A66					.20	NO			
A 66R			P4-26					.13	NO		22	
			P9-431					.18	NO		25	BRANCH 2
A 66Y			P4-12					.13	NO		22	
			P9-531					.18	NO		25	BRANCH 2
A 67	9				1.75	1.50				6B	31	
					1.00	.75				7	29	
A 67A	11		SHLD A67					.20	NO			
			P4-1					.13	NO		22	
A 67R			P4-6					.13	NO		22	
			P9-338					.18	NO		25	BRANCH 3
A 67Y			P4-7					.13	NO		22	
			P9-238					.18	NO		25	BRANCH 3

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SCALE-NONE | REV LTR E | SHEET 34 OF 68

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WIRING HARNESS A 2014641 ~~E~~F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 68	8				1.75 1.00	1.50 .75				6B 7	31 29	
A 68A	11		SHLD A68 P4-2					.20 .13	NO NO		 22	
A 68[illegible]Y			P4-3 P9-138					.13 .18	NO NO		22 24	 BRANCH 3
A 69	1		P4-5 P9-~~138~~336					.13 .18	NO NO		22 24	 BRANCH 3
A 70	1		P4-4 P9-~~336~~136					.13 .18	NO NO		22 24	 BRANCH 3
A 71	1		P5-84 P9-236					.13 .18	NO NO		22 24	 BRANCH 3
A 72	1		P5-60 P9-436					.13 .18	NO NO		22 24	 BRANCH 3
A 74	4											F
A 74R			P2-55 P10-121					.13 .18	NO NO		23 25	F BRANCH 5
A 74Y			P2-56 P10-221					.13 .18	NO NO		23 25	F BRANCH 5
A 75	4											F
A 75R			P2-54 P10-120					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR ~~E~~F | SHEET 35 OF 68

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 75Y			P2-32 P10-220					.13 .18	NO NO		23 25	F BRANCH 5
A 76	4											F
A 76R			P2-17 P10-119					.13 .18	NO NO		23 25	F BRANCH 5
A 76Y			P2-33 P10-219					.13 .18	NO NO		23 25	F BRANCH 5
A 77	4											F
A 77R			P2-16 P10-118					.13 .18	NO NO		23 25	F BRANCH 5
A 77Y			P2-5 P10-218					.13 .18	NO NO		23 25	F BRANCH 5
A 78	4											F
A 78R			P2-57 P10-321					.13 .18	NO NO		23 25	F BRANCH 5
A 78Y			P2-34 P10-421					.13 .18	NO NO		23 25	F BRANCH 5
A 79	4											F
A 79R			P2-18 P10-320					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR E | SHEET 36 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 79Y			P2-35 P10-420					.13 .18	NO NO		23 25	F BRANCH 5
A 80	4											F
A 80R			P2-52 P10-319					.13 .18	NO NO		23 25	F BRANCH 5
A 80Y			P2-53 P10-419					.13 .18	NO NO		23 25	F BRANCH 5
A 81	4											F
A 81R			P2-15 P10-318					.13 .18	NO NO		23 25	F BRANCH 5
A 81Y			P2-30 P10-418					.13 .18	NO NO		23 25	F BRANCH 5
A 82	4											F
A 82R			P2-50 P10-317					.13 .18	NO NO		23 25	F BRANCH 5
A 82Y			P2-51 P10-417					.13 .18	NO NO		23 25	F BRANCH 5
A 83	4											F
A 83R			P2-13 P10-323					.13 .18	NO NO		23 25	F BRANCH 5

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SCALE-NONE | REV LTR E | SHEET 37 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 83Y			P2-29 P10-423					.13 .18	NO NO		23 25	F BRANCH 5
A 84	4											F
A 84R			P2-12 P10-322					.13 .18	NO NO		23 25	F BRANCH 5
A 84Y			P2-27 P10-422					.13 .18	NO NO		23 25	F BRANCH 5
A 85	4											F
A 85R			P2-48 P10-316					.13 .18	NO NO		23 25	F BRANCH 5
A 85Y			P2-49 P10-416					.13 .18	NO NO		23 25	F BRANCH 5
A 86	4											F
A 86R			P2-1 P10-315					.13 .18	NO NO		23 25	F BRANCH 5
A 86Y			P2-4 P10-415					.13 .18	NO NO		23 25	F BRANCH 5
A 87	4											F
A 87R			P2-11 P10-324					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR E | SHEET 38 OF 68

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 87Y			P2-24 P10-424					.13 .18	NO NO		23 25	F BRANCH 5
A 88	4											F
A 88R			P2-10 P10-117					.13 .18	NO NO		23 24	F BRANCH 5
A 88Y			P2-2 P10-217					.13 .18	NO NO		23 25	F BRANCH 5
A 89	4											F
A 89R			P2-59 P10-139					.13 .18	NO NO		23 25	F BRANCH 5
A 89Y			P2-58 P10-239					.13 .18	NO NO		23 25	F BRANCH 5
A 90	4											F
A 90R			P2-7 P10-138					.13 .18	NO NO		23 25	F BRANCH 5
A 90Y			P2-6 P10-238					.13 .18	NO NO		23 25	F BRANCH 5
A 91	4											F
A 91R			P2-36 P10-137					.13 .18	NO NO		23 25	F BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR F	SHEET 39 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 91Y			P2-60 P10-237					.13 .18	NO NO		23 25	F BRANCH 5
A 92	4											F
A 92R			P2-8 P10-136					.13 .18	NO NO		23 25	F BRANCH 5
A 92Y			P2-19 P10-236					.13 .18	NO NO		23 25	F BRANCH 5
A 93	4											F
A 93R			P2-61 P10-135					.13 .18	NO NO		23 25	F BRANCH 5
A 93Y			P2-38 P10-235					.13 .18	NO NO		23 25	F BRANCH 5
A 94	4											F
A 94R			P2-39 P10-134					.13 .18	NO NO		23 25	F BRANCH 5
A 94Y			P2-20 P10-234					.13 .18	NO NO		23 25	F BRANCH 5
A 95	4											F
A 95R			P2-43 P10-327					.13 .18	NO NO		23 25	F BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 40 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 95Y			P2-42 P10-427					.13 .18	NO NO		23 25	F BRANCH 5
A 96	4											F
A 96R			P2-22 P10-326					.13 .18	NO NO		23 25	F BRANCH 5
A 96Y			P2-9 P10-426					.13 .18	NO NO		23 25	F BRANCH 5
A 97	4											F
A 97R			P2-41 P10-325					.13 .18	NO NO		23 25	F BRANCH 5
A 97Y			P2-40 P10-425					.13 .18	NO NO		23 25	F BRANCH 5
A 98	10				1.75 1.00	1.50 .75				68 7	31 29	
A 98A	11		SHLD A98 P2-44					.20 .13	NO NO		23	
A 98G			P2-25 P10-212					.13 .18	NO NO		23 24	BRANCH 4
A 98R			P2-46 P10-113					.13 .18	NO NO		23 24	BRANCH 4
A 98Y			P2-45 P10-312					.13 .18	NO NO		23 24	BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 41 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 99	8				1.75 1.00	1.50 .75				68 7	31 29	
A 99A	11		SHLD A99 P2-26					.20 .13	NO NO		23	
A 99Y			P2-47 P10-114					.13 .18	NO NO		23 24	BRANCH 4
A 104	2		P3-1 P10-538					.13 .18	NO NO		22 25	E BRANCH 5
A 105	2		P3-7 P10-556					.13 .18	NO NO		22 25	E BRANCH 5
A 106	2		P3-2 P10-625					.13 .18	NO NO		22 25	E BRANCH 5
A 113	2		P3-8 P10-547					.13 .18	NO NO		22 25	E BRANCH 5
A 116	1		P5-66 P10-602					.13 .18	NO NO		22 24	D BRANCH 4
A 118	1		P5-45 P10-504					.13 .18	NO NO		22 24	D BRANCH 4
A 125	2		P5-26 P10-409					.13 .22	NO NO		22	D BRANCH 4
A 127	5											A
A 127G			P5-53 P10-161					.13 .18	NO NO		22 24	A BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 42 OF 68

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 127R			P5-78 P10-159					.13 .18	NO NO		22 24	A BRANCH 6
A 127Y			P5-54 P10-160					.13 .18	NO NO		22 24	A BRANCH 6
A 128	5											A
A 128G			P5-55 P10-260					.13 .18	NO NO		22 24	A BRANCH 6
A 128R			P5-79 P10-261					.13 .18	NO NO		22 24	A BRANCH 6
A 128Y			P5-80 P10-259					.13 .18	NO NO		22 24	A BRANCH 6
A 129	5											A
A 129G			P5-16 P10-360					.13 .18	NO NO		22 24	A BRANCH 6
A 129R			P5-33 P10-361					.13 .18	NO NO		22 24	A BRANCH 6
A 129Y			P5-32 P10-359					.13 .18	NO NO		22 24	A BRANCH 6
A 130	5											A
A 130G			P5-56 P10-460					.13 .18	NO NO		22 24	A BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 43 OF 68

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WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 130R			P5-81 P10-461					.13 .18	NO NO		22 24	A BRANCH 6
A 130Y			P5-57 P10-459					.13 .18	NO NO		22 24	A BRANCH 6
A 131	5											A
A 131G			P5-35 P10-560					.13 .18	NO NO		22 24	A BRANCH 6
A 131R			P5-58 P10-561					.13 .18	NO NO		22 24	A BRANCH 6
A 131Y			P5-34 P10-559					.13 .18	NO NO		22 24	A BRANCH 6
A 139	2		P6-77 P10-636					.13 .18	NO NO		22 25	C BRANCH 6
A 148	2		P6-20 P10-613					.13 .18	NO NO		22 25	C BRANCH 6
A 149	4											C
A 149R			P6-85 P10-133					.13 .18	NO NO		22 25	C BRANCH 6
A 149Y			P6-84 P10-233					.13 .18	NO NO		22 25	C BRANCH 6
A 150	4											C

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 44 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 ~~E~~F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 150R			P6-82 P10-516					.13 .18	NO NO		22 25	C BRANCH 6
A 150Y			P6-57 P10-616					.13 .18	NO NO		22 25	C BRANCH 6
A 151	4											C
A 151R			P6-8 P10-158					.13 .18	NO NO		22 25	C BRANCH 6
A 151Y			P6-2 P10-258					.13 .18	NO NO		22 25	C BRANCH 6
A 152	4											C
A 152R			P6-19 P10-157					.13 .18	NO NO		22 25	C BRANCH 6
A 152Y			P6-7 P10-257					.13 .18	NO NO		22 25	C BRANCH 6
A 153	4											C
A 153R			P6-6 P10-156					.13 .18	NO NO		22 25	C BRANCH 6
A 153Y			P6-1 P10-256					.13 .18	NO NO		22 25	C BRANCH 6
A 154	4											C

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 45 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 154R			P6-5 P10-155					.13 .18	NO NO		22 25	C BRANCH 6
A 154Y			P6-4 P10-255					.13 .18	NO NO		22 25	C BRANCH 6
A 155	4											C
A 155R			P6-15 P10-154					.13 .18	NO NO		22 25	C BRANCH 6
A 155Y			P6-16 P10-254					.13 .18	NO NO		22 25	C BRANCH 6
A 156	4											C
A 156R			P6-17 P10-153					.13 .18	NO NO		22 25	C BRANCH 6
A 156Y			P6-33 P10-253					.13 .18	NO NO		22 25	C BRANCH 6
A 157	4											C
A 157R			P6-61 P10-132					.13 .18	NO NO		22 25	C BRANCH 6
A 157Y			P6-60 P10-232					.13 .18	NO NO		22 25	C BRANCH 6
A 158	4											

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 46 OF 68

MIL 20H4 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 158R			P6-37 P10-130					.13 .18	NO NO		22 25	C BRANCH 6
A 158Y			P6-36 P10-230					.13 .18	NO NO		22 25	C BRANCH 6
A 159	4											C
A 159R			P6-83 P10-352					.13 .18	NO NO		22 25	C BRANCH 6
A 159Y			P6-59 P10-452					.13 .18	NO NO		22 25	C BRANCH 6
A 160	4											C
A 160R			P6-35 P10-129					.13 .18	NO NO		22 25	C BRANCH 6
A 160Y			P6-18 P10-229					.13 .18	NO NO		22 25	C BRANCH 6
A 161	4											C
A 161R			P6-58 P10-128					.13 .18	NO NO		22 25	C BRANCH 6
A 161Y			P6-34 P10-228					.13 .18	NO NO		22 25	C BRANCH 6
A 164	1		P8-9 P10-302					.13 .18	NO NO		22 24	B BRANCH 4

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR E | SHEET 47 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 170	2		P8-5 P10-509					.13 .18	NO NO		22 25	B BRANCH 4
A 177	2		P8-8 P10-108					.13 .22	NO NO		22	B BRANCH 4
A 178	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 178A	11		SHLD A178 P3-52					.20 .13	NO NO		 22	
A 178B	11		P7-21 SHLD A178					.13 .20	NO NO		22	
A 178R			P3-77 P7-40					.13 .13	NO NO		22 22	
A 178Y			P3-53 P7-22					.13 .13	NO NO		22 22	
A 179	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 179A	11		SHLD A179 P3-30					.20 .13	NO NO		 22	
A 179B	11		P7-23 SHLD A179					.13 .20	NO NO		22	
A 179R			P3-31 P7-42					.13 .13	NO NO		22 22	
A 179Y			P3-15 P7-43					.13 .13	NO NO		22 22	

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR ~~E~~ F | SHEET 48 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 180	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 180A	11		SHLD A180 P3-51					.20 .13	NO NO		 22	
A 180B	11		P7-2 SHLD A180					.13 .20	NO NO		22	
A 180R			P3-75 P7-8					.13 .13	NO NO		22 22	
A 180Y			P3-76 P7-9					.13 .13	NO NO		22 22	
A 181	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 181A	11		SHLD A181 P3-46					.20 .13	NO NO		 22	
A 181R			P3-71 P7-38					.13 .13	NO NO		22 22	
A 181Y			P3-70 P7-39					.13 .13	NO NO		22 22	
A 182	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 182A	11		SHLD A182 P3-69					.20 .13	NO NO		 22	
A 182R			P3-45 P7-19					.13 .13	NO NO		22 22	

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR E | SHEET 49 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 182Y			P3-44 P7-20					.13 .13	NO NO		22 22	
A 183	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 183A	11		SHLD A183 P3-28					.20 .13	NO NO		 22	
A 183R			P3-13 P7-60					.13 .13	NO NO		22 22	
A 183Y			P3-29 P7-61					.13 .13	NO NO		22 22	
A 184	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 184A	11		SHLD A184 P3-74					.20 .13	NO NO		 22	
A 184R			P3-49 P7-36					.13 .13	NO NO		22 22	
A 184Y			P3-50 P7-37					.13 .13	NO NO		22 22	
A 185	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 185A	11		SHLD A185 P3-27					.20 .13	NO NO		 22	
A 185R			P3-26 P7-58					.13 .13	NO NO		22 22	

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR E | SHEET 50 OF 68

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 185Y			P3-47 P7-59					.13 .13	NO NO		22 22	
A 186	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 186A	11		SHLD A186 P3-48					.20 .13	NO NO		 22	
A 186R			P3-72 P7-35					.13 .13	NO NO		22 22	
A 186Y			P3-73 P7-18					.13 .13	NO NO		22 22	
A 187	3											
A 187R			P3-67 P7-57					.13 .13	NO NO		22 22	
A 187Y			P3-68 P7-34					.13 .13	NO NO		22 22	
A 188	7											
A 188G			P3-24 P7-51					.13 .13	NO NO		22 22	
A 188N			P3-43 P7-29					.13 .13	NO NO		22 22	
A 188R			P3-25 P7-50					.13 .13	NO NO		22 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 188Y			P3-23 P7-28					.13 .13	NO NO		22 22	
A 189	4											
A 189R			P3-5 P7-49					.13 .13	NO NO		22 22	
A 189Y			P3-14 P7-48					.13 .13	NO NO		22 22	
A 195	2		P5-23 P10-608					.13 .22	NO NO		22	D BRANCH 4
A 196	2		P5-22 P10-609					.13 .22	NO NO		22	D BRANCH 4
A 198	6											
A 198G			P1-11 P9-521					.13 .18	NO NO		22 25	 BRANCH 2
A 198R			P1-10 P9-121					.13 .18	NO NO		22 25	 BRANCH 2
A 198Y			P1-9 P9-321					.13 .18	NO NO		22 25	 BRANCH 2
A 199	5											A
A 199G			P5-5 P10-660					.13 .18	NO NO		22 24	A BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 199R			P5-31 P10-661					.13 .18	NO NO		22 24	A BRANCH 6
A 199Y			P5-15 P10-659					.13 .18	NO NO		22 24	A BRANCH 6
A 200	2		P3-39 P10-202					.13 .18	NO NO		22 25	E BRANCH 5
A 201	2		P3-64 P10-102					.13 .18	NO NO		22 24	E BRANCH 5
A 202	2		P3-42 P10-652					.13 .18	NO NO		22 25	E BRANCH 5
A 203	2		P3-66 P10-551					.13 .18	NO NO		22 25	E BRANCH 5
A 204	2		P3-21 P10-552					.13 .18	NO NO		22 25	E BRANCH 5
A 205	2		P3-22 P10-651					.13 .18	NO NO		22 25	E BRANCH 5
A 206	2		P3-18 P10-548					.13 .18	NO NO		22 25	E BRANCH 5
A 207	2		P3-36 P10-549					.13 .18	NO NO		22 25	E BRANCH 5
A 208	2		P3-19 P10-550					.13 .18	NO NO		22 25	E BRANCH 5
A 209	2		P3-41 P10-214					.13 .18	NO NO		22 25	E BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 210	2		P3-65 P10-216					.13 .18	NO NO		22 25	E BRANCH 5
A 211	2		P3-40 P10-215					.13 .18	NO NO		22 25	E BRANCH 5
A 212	2		P3-33 P10-646					.13 .18	NO NO		22 25	E BRANCH 5
A 213	2		P3-17 P10-546					.13 .18	NO NO		22 25	E BRANCH 5
A 214	2		P3-57 P10-645					.13 .18	NO NO		22 25	E BRANCH 5
A 215	2		P3-82 P10-545					.13 .18	NO NO		22 25	E BRANCH 5
A 216	2		P3-81 P10-542					.13 .18	NO NO		22 25	E BRANCH 5
A 217	2		P3-80 P10-644					.13 .18	NO NO		22 25	E BRANCH 5
A 218	2		P3-56 P10-544					.13 .18	NO NO		22 25	E BRANCH 5
A 219	2		P3-84 P10-623					.13 .18	NO NO		22 25	E BRANCH 5
A 220	2		P3-60 P10-524					.13 .18	NO NO		22 25	E BRANCH 5
A 221	2		P3-59 P10-522					.13 .18	NO NO		22 25	E BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 222	2		P3-62 P10-648					.13 .18	NO NO		22 25	E BRANCH 5
A 223	2		P3-63 P10-649					.13 .18	NO NO		22 25	E BRANCH 5
A 224	2		P3-38 P10-650					.13 .18	NO NO		22 25	E BRANCH 5
A 225	2		P5-38 P10-401					.13 .18	NO NO		22 25	D BRANCH 4
A 226	2		P5-62 P10-601					.13 .18	NO NO		22 25	D BRANCH 4
A 227	2		P5-63 P10-501					.13 .18	NO NO		22 25	D BRANCH 4
A 228	2		P5-64 P10-101					.13 .18	NO NO		22 24	D BRANCH 4
A 229	2		P5-40 P10-301					.13 .18	NO NO		22 25	D BRANCH 4
A 230	2		P5-39 P10-201					.13 .18	NO NO		22 25	D BRANCH 4
A 231	2		P5-41 P10-502					.13 .22	NO NO		22 25	D BRANCH 4
A 232	2		P5-42 P10-402					.13 .22	NO NO		22	D BRANCH 4
A 233	2		P5-30 P10-204					.13 .22	NO NO		22	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 55 OF 68

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 234	2		P5-14 P10-505					.13 .22	NO NO		22	D BRANCH 4
A 235	2		P5-29 P10-605					.13 .22	NO NO		22	D BRANCH 4
A 236	2		P5-77 P10-506					.13 .22	NO NO		22	D BRANCH 4
A 237	2		P5-52 P10-404					.13 .22	NO NO		22	D BRANCH 4
A 238	2		P5-76 P10-304					.13 .22	NO NO		22	D BRANCH 4
A 239	2		P5-50 P10-405					.13 .22	NO NO		22	D BRANCH 4
A 240	2		P5-51 P10-606					.13 .22	NO NO		22	D BRANCH 4
A 241	2		P5-75 P10-205					.13 .22	NO NO		22	D BRANCH 4
A 242	2		P5-73 P10-607					.13 .22	NO NO		22	D BRANCH 4
A 243	2		P5-74 P10-305					.13 .22	NO NO		22	D BRANCH 4
A 244	2		P5-49 P10-507					.13 .22	NO NO		22	D BRANCH 4
A 245	2		P5-13 P10-306					.13 .22	NO NO		22	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 56 OF 68

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 246	2		P5-28 P10-206					.13 .22	NO NO		22	D BRANCH 4
A 247	2		P5-27 P10-406					.13 .22	NO NO		22	D BRANCH 4
A 248	2		P5-47 P10-307					.13 .22	NO NO		22	D BRANCH 4
A 249	2		P5-46 P10-208					.13 .22	NO NO		22	D BRANCH 4
A 250	2		P5-4 P10-308					.13 .22	NO NO		22	D BRANCH 4
A 251	2		P5-12 P10-309					.13 .22	NO NO		22	D BRANCH 4
A 252	2		P5-71 P10-207					.13 .22	NO NO		22	D BRANCH 4
A 253	2		P5-72 P10-407					.13 .22	NO NO		22	D BRANCH 4
A 254	2		P5-48 P10-604					.13 .22	NO NO		22	D BRANCH 4
A 255	3											A
A 255R			P5-44 P10-107					.13 .18	NO NO		22 24	A BRANCH 6
A 255Y			P5-68 P10-105					.13 .18	NO NO		22 24	A BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 57 OF 68

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 256	2		P6-14 P10-540					.13 .18	NO NO		22 25	C BRANCH 6
A 257	2		P6-30 P10-639					.13 .18	NO NO		22 25	C BRANCH 6
A 258	2		P6-48 P10-658					.13 .18	NO NO		22 25	C BRANCH 6
A 259	2		P6-72 P10-557					.13 .18	NO NO		22 25	C BRANCH 6
A 260	2		P6-73 P10-558					.13 .18	NO NO		22 25	C BRANCH 6
A 261	2		P6-49 P10-657					.13 .18	NO NO		22 25	C BRANCH 6
A 262	2		P6-28 P10-640					.13 .18	NO NO		22 25	C BRANCH 6
A 263	2		P6-29 P10-520					.13 .18	NO NO		22 25	C BRANCH 6
A 264	2		P6-76 P10-523					.13 .18	NO NO		22 25	C BRANCH 6
A 265	2		P6-75 P10-647					.13 .18	NO NO		22 25	C BRANCH 6
A 266	2		P6-50 P10-641					.13 .18	NO NO		22 25	C BRANCH 6
A 267	2		P6-74 P10-541					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 56 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 ~~E~~ F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 268	2		P6-40 P10-109					.13 .18	NO NO		22 25	C BRANCH 6
A 269	2		P6-21 P10-410					.13 .18	NO NO		22 25	C BRANCH 6
A 270	2		P6-65 P10-209					.13 .18	NO NO		22 25	C BRANCH 6
A 271	2		P6-22 P10-310					.13 .18	NO NO		22 25	C BRANCH 6
A 272	2		P6-66 P10-510					.13 .18	NO NO		22 25	C BRANCH 6
A 273	2		P6-42 P10-210					.13 .18	NO NO		22 25	C BRANCH 6
A 274	2		P6-41 P10-610					.13 .18	NO NO		22 25	C BRANCH 6
A 275	2		P6-67 P10-110					.13 .18	NO NO		22 25	C BRANCH 6
A 276	2		P6-10 P10-111					.13 .18	NO NO		22 25	C BRANCH 6
A 277	2		P6-24 P10-612					.13 .18	NO NO		22 25	C BRANCH 6
A 278	2		P6-9 P10-211					.13 .18	NO NO		22 25	C BRANCH 6
A 279	2		P6-23 P10-512					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 59 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 ~~E~~ F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 280	2		P6-68 P10-511					.13 .18	NO NO		22 25	C BRANCH 6
A 281	2		P6-69 P10-411					.13 .18	NO NO		22 25	C BRANCH 6
A 282	2		P6-43 P10-611					.13 .18	NO NO		22 25	C BRANCH 6
A 283	2		P6-44 P10-311					.13 .18	NO NO		22 25	C BRANCH 6
A 284	2		P6-46 P10-627					.13 .18	NO NO		22 25	C BRANCH 6
A 285	2		P6-25 P10-628					.13 .18	NO NO		22 25	C BRANCH 6
A 286	2		P6-45 P10-528					.13 .18	NO NO		22 25	C BRANCH 6
A 287	2		P6-71 P10-526					.13 .18	NO NO		22 25	C BRANCH 6
A 288	2		P6-70 P10-527					.13 .18	NO NO		22 25	C BRANCH 6
A 289	2		P6-47 P10-626					.13 .18	NO NO		22 25	C BRANCH 6
A 290	2		P6-12 P10-654					.13 .18	NO NO		22 25	C BRANCH 6
A 291	2		P6-3 P10-655					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 60 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 292	2		P6-11 P10-555					.13 .18	NO NO		22 25	C BRANCH 6
A 293	2		P6-27 P10-553					.13 .18	NO NO		22 25	C BRANCH 6
A 294	2		P6-26 P10-554					.13 .18	NO NO		22 25	C BRANCH 6
A 295	2		P6-13 P10-653					.13 .18	NO NO		22 25	C BRANCH 6
A 296	2		P8-24 P10-403					.13 .18	NO NO		22 25	B BRANCH 4
A 297	2		P8-44 P10-603					.13 .18	NO NO		22 25	B BRANCH 4
A 298	2		P8-43 P10-503					.13 .18	NO NO		22 25	B BRANCH 4
A 299	2		P8-41 P10-103					.13 .18	NO NO		22 24	B BRANCH 4
A 300	2		P8-42 P10-303					.13 .18	NO NO		22 25	B BRANCH 4
A 301	2		P8-23 P10-203					.13 .18	NO NO		22 25	B BRANCH 4
A 302	2		P8-22 P10-502					.13 .22	NO NO		22 24	B BRANCH 4
A 303	2		P8-10 P10-402					.13 .22	NO NO		22 24	B BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 61 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 304	2		P8-52 P10-207					.13 .22	NO NO		22 24	B BRANCH 4
A 305	2		P8-50 P10-407					.13 .22	NO NO		22 24	B BRANCH 4
A 306	2		P8-51 P10-307					.13 .22	NO NO		22 24	B BRANCH 4
A 307	2		P8-31 P10-408					.13 .22	NO NO		22	B BRANCH 4
A 308	2		P8-53 P10-608					.13 .22	NO NO		22 24	B BRANCH 4
A 309	2		P8-54 P10-508					.13 .22	NO NO		22	B BRANCH 4
A 310	2		P8-32 P10-208					.13 .22	NO NO		22 24	B BRANCH 4
A 311	2		P8-30 P10-309					.13 .22	NO NO		22 24	B BRANCH 4
A 312	2		P8-29 P10-308					.13 .22	NO NO		22 24	B BRANCH 4
A 313	2		P8-16 P10-409					.13 .22	NO NO		22 24	B BRANCH 4
A 314	2		P8-14 P10-604					.13 .22	NO NO		22 24	B BRANCH 4
A 315	2		P8-15 P10-609					.13 .22	NO NO		22 24	B BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 62 OF 68

MIL 2084 9-65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 316	1		P8-7 P10-106					.13 .18	NO NO		22 24	B BRANCH 4
A 317	1		P8-2 P10-104					.13 .18	NO NO		22 24	B BRANCH 4
A 318	2		P8-3 P10-607					.13 .22	NO NO		22 24	B BRANCH 4
A 319	2		P8-25 P10-606					.13 .22	NO NO		22 24	B BRANCH 4
A 320	2		P8-1 P10-507					.13 .22	NO NO		22 24	B BRANCH 4
A 321	2		P8-12 P10-406					.13 .22	NO NO		22 24	B BRANCH 4
A 322	2		P8-11 P10-506					.13 .22	NO NO		22 24	B BRANCH 4
A 323	2		P8-28 P10-405					.13 .22	NO NO		22 24	B BRANCH 4
A 324	2		P8-4 P10-206					.13 .22	NO NO		22 24	B BRANCH 4
A 325	2		P8-13 P10-306					.13 .22	NO NO		22 24	B BRANCH 4
A 326	2		P8-26 P10-205					.13 .22	NO NO		22 24	B BRANCH 4
A 327	2		P8-27 P10-305					.13 .22	NO NO		22 24	B BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 63 OF 68

MIL 2084 9.65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 328	2		P8-47 P10-204					.13 .22	NO NO		22 24	B BRANCH 4
A 329	2		P8-45 P10-404					.13 .22	NO NO		22 24	B BRANCH 4
A 330	2		P8-46 P10-304					.13 .22	NO NO		22 24	B BRANCH 4
A 331	2		P8-48 P10-605					.13 .22	NO NO		22 24	B BRANCH 4
A 332	2		P8-49 P10-505					.13 .22	NO NO		22 24	B BRANCH 4
A 333	3									6B 6B	31 31	
A 333A	11		SHLD A333 E8					.20 .19	NO NO			
A 333B	11		E12 SHLD A333					.19 .20	NO NO			
A 333R			P3-3 P7-52					.13 .13	NO NO		22 22	
A 333Y			P3-11 P7-31					.13 .13	NO NO		22 22	
A 334	8				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 334A	11		SHLD A334 E8					.20 .19	NO NO		 47	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 64 OF 68

MIL 2084 9.65

WIRING HARNESS A 2014641 ~~E~~ F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 334B	11		E11 SHLD A334					.19 .20	NO NO		47	
A 334Y			P3-4 P6-51					.13 .13	NO NO		22 22	
A 335	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 335A	11		SHLD A335 E10					.20 .19	NO NO			
A 335B	11		E12 SHLD A335					.19 .20	NO NO		47	
A 335R			P5-19 P7-15					.13 .13	NO NO		22 22	
A 335Y			P5-18 P7-16					.13 .13	NO NO		22 22	
A 336	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 336A	11		SHLD A336 E10					.20 .19	NO NO			
A 336B	11		E13 SHLD A336					.19 .20	NO NO			
A 336R			P5-7 P7-30					.13 .13	NO NO		22 22	
A 336Y			P5-8 P7-14					.13 .13	NO NO		22 22	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR ~~E~~ F	SHEET 65 OF 68

MIL 2084 9.65

WIRING HARNESS A 2014641 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 337	3									6B 6B	31 31	
A 337A	11		SHLD A337 E10					.20 .19	NO NO		 47	
A 337B	11		E13 SHLD A337					.19 .20	NO NO		47	
A 337R			P5-9 P7-6					.13 .13	NO NO		22 22	
A 337Y			P5-2 P7-7					.13 .13	NO NO		22 22	
A 338	2		P5-10 P10-508					.13 .22	NO NO		22 24	D BRANCH 4
A 339	2		P5-24 P10-408					.13 .22	NO NO		22 24	D BRANCH 4
A 340	35		E7 E5					.19 .19	NO NO		46	F
A 341	35		E8 E5					.19 .19	NO NO			E
A 342	35		E9 E5					.19 .19	NO NO		 52	D
A 343	35		E9 E6					.19 .19	NO NO		47	A
A 344	35		E11 E6					.19 .19	NO NO			C

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 66 OF 68

MIL 2084 9.65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 345	35		E14					.19	NO		46	B
			E6					.19	NO		52	
A 346	2		P5-43					.13	NO		22	A
			P10-108					.22	NO		24	BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR E	SHEET 67 OF 68

MIL 2084 8-65

CONFIGURATION INCOMPLETE

SIZE	CODE IDENT. NO.	
A	80230	2014641
SCALE NONE	REV LTR ✓ E	SHEET 68 of 68

MIL 2084 8-65

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-011	E	REPLACES REV D WITH CHANGE PER TDRR 24806		
		F	CHAD PER TDRR 24806		
		G	Revised per TDRR 25306	2-4-66	
		H	REVISED PER TDRR 25886	10 FEB 66	RLP / EF

REPLACES REV D WITH CHANGE

REV	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
SHEET	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
REV STATUS OF SHEETS REV							H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
REV STATUS OF SHEETS SHEET							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DWG NO
CONTRACT

DRAWN Janowiak DATE 7 DEC 65
CHECKED W. Diehl 7 DEC 65
APPROVAL 8 DEC 65
APPROVAL 12/10/65

G & N INTERCONNECT HARNESS "A"
(C/M, BLOCK II)

NASA APPROVAL
MIT APPROVAL 21 Dec 65
CONTRACT NAS9-497

CODE IDENT NO.	SIZE		REV
80230	A	2014641	H
SCALE		SHEET 1 OF 74	

REVISION STATUS OF SHEETS

SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV
47	H																
48	H																
49	H																
50	H																
51	H																
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71	H																
72	H																
73	H																
74	H																

SIZE	CODE IDENT. NO.	
A	80230	2014641
SCALE NONE	REV LTR H	SHEET 2 of ~~68~~ 74

NOTE GENERAL NOTES

NUMBER DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 68 AND ND 1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014671.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 3 OF 74

NOTE GENERAL NOTES

NUMBER DESCRIPTION

11 ALL UNUSED GROMMET HOLES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTOR 56P2, USE ITEM NUMBERS 23 AND 32.
CONNECTOR 56P1,3,4,5,6,7, AND 8 USE ITEM NUMBERS 22 AND 32.
CONNECTOR 56P9, AND P10 USE ITEM NUMBER 24.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 38.

13 A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED TO BUILD UP DIAMETER TO FIT CABLE CLAMP.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM.

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 4 OF 74

NOTE GENERAL NOTES

NUMBER DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED, INCLUDING ALL SPARE PINS.

22 PRESEAL BACK OF CONNECTORS 56P9 AND P10 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 41,42,43, AND 44.

23 ENCAPSULATE BACK OF CONNECTORS 56P9 AND P10 PER ND1002236 USING ITEMS 39 AND 40.

24 CONDUCTORS WITH AN A,B,C,D,E,F OR G IN THE REMARKS COLUMN ARE TO BE GROUP SHIELDED PER DETAIL A AND/OR B OF THE CONF. DRAWING.

25 GROUP SHIELDING - THREAD ONE CONTINUOUS LENGTH OF GROUND WIRE, ITEM 35, THROUGH CENTER OF EMI/RFI SHIELDING TAPE. ITEM 34. ALLOW 6 INCHES OF GROUND WIRE TO EXTEND BEYOND ENDS OF SHIELDING TAPE. WRAP CABLE WITH ONE CONTINUOUS LENGTH OF PREPARED SHIELDING. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE, WITH A MINIMUM OF RIDGES AND FOLDS.

26 COMPLETELY COVER SHIELD WITH ONE CONTINUOUS WRAP OF INSULATION TAPE, ITEM 36. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE WITH A MINIMUM OF RIDGES AND FOLDS. WRAP TAPE IN OPPOSITE DIRECTION TO SHIELD WRAP.

27 ASSEMBLE INSULATION TUBING, ITEM 45, OVER GROUND WIRE AS REQUIRED TO REACH TERMINATION. ASSEMBLE SHRINK SLEEVING AS SHOWN.

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 5 OF 74

NOTE GENERAL NOTES

NUMBER DESCRIPTION

28 ASSEMBLE A LENGTH OF WIRE BRAID ITEM 53 OVER CONDUCTORS A333 AND A337. ALLOW 1.75 INCH OF LEAD TO EXTEND BEYOND BRAID. COVER BRAID WITH TEFLON TAPE, ITEM 36, PER NOTE 26. ALLOW .25 INCH OF BRAID TO EXTEND BEYOND TAPE. FOLD BRAID OVER TAPE AND TERMINATE PER ND1002071, FIG. 68.

29 CONDUCTORS SHALL ENTER CONNECTORS 56P9 AND 56P10 THROUGH THE APPROPRIATE BRANCH SPECIFIED IN THE REMARKS COLUMN.

31 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 GRMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACECRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICROSECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

32 MARK CHARACTERS .10-.14 HIGH, BLACK, PER ND 1002019. CENTRALIZE AS SHOWN

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 6 OF 74

NOTE GENERAL NOTES

NUMBER DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014641-001	WIRE PER 1010789-006, 22 AWG, YEL, 25 FT TOT LG
	2	1	2014641-002	WIRE PER 1010789-016, 26 AWG, YEL, 50 FT TOT LG
	3	1	2014641-003	WIRE PER 1010789-008, 22 AWG, YEL, RED, 15 FT TOT LG
	4	1	2014641-004	WIRE PER 1010789-017, 26 AWG, YEL, RED, 220 FT TOT LG
	5	1	2014641-005	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 20 FT TOT LG
	6	1	2014641-006	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN 90 FT TOT LG
	7	1	2014641-007	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 25 FT TOT LG
	8	1	2014641-008	WIRE PER 1010789-011, 24 AWG, YEL, YEL JKT, 10 FT TOT LG
	9	1	2014641-009	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 150 FT TOT LG
	10	1	2014641-010	WIRE PER 1010789-013, 24 AWG, YEL, RED, GRN, YEL JKT, 10 FT TOT LG
	11	1	2014641-011	WIRE PER 1010789-002, 24 AWG, BLK, 80 FT TOT LG
	12	1	2014741	CONNECTOR, PLUG, ELECTRICAL (56P9)
	13	1	2014749	CONNECTOR, PLUG, ELECTRICAL (56P10)
9	14	1	1010929-109	CONNECTOR, PLUG, ELECTRICAL (56P1)

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	15	1	1010929-005	CONNECTOR, PLUG, ELECTRICAL (56P2)
9	16	1	1010929-102	CONNECTOR, PLUG, ELECTRICAL (56P3)
9	17	1	1010929-101	CONNECTOR, PLUG, ELECTRICAL (56P4)
9	18	1	1010929-103	CONNECTOR, PLUG, ELECTRICAL (56P5)
9	19	1	1010929-104	CONNECTOR, PLUG, ELECTRICAL (56P6)
9	20	1	1010929-108	CONNECTOR, PLUG, ELECTRICAL (56P7)
9	21	1	1010929-105	CONNECTOR, PLUG, ELECTRICAL (56P8)
9	22	X	1010770- 1	CONTACT, PIN, SUPPLIED WITH CONNECTOR 1010929
9	23	X	1010770- 2	CONTACT, SOCKET, SUPPLIED WITH CONNECTOR 1010929
9	24	311	1010955- 1	CONTACT, MALE
9	25	349	1010955- 2	CONTACT, MALE
	26	1	2014670- 4	ADAPTER, CONNECTOR
	27	1	2014670- 5	ADAPTER, CONNECTOR
	28	1	2014670- 7	ADAPTER, CONNECTOR
9	29	14	1012534- 36	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	30	2	1012534- 38	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	31	97	1010402- 2	SLEEVE, SOLDER
9	32	115	1010958- 1	PLUG, PROTECTIVE SEALING

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	34	AR	1010989	TAPE, SHIELDING, EMI/RFI
	35	1	2014641-012	WIRE PER QQ-W-343, TYPE C, CLASS C, 22 AWG, 100 FT TOT LG
	36	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	37	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
9	38	AR	1012507-004	TAPE, LACING AND TYING
9	39	AR	1012503	COMPOUND, POTTING, POLYURETHANE
9	40	AR	1012504	PRIMER, METAL PARTS
9	41	AR	1010661	EPOXY RESIN
9	42	AR	1010679	ADHESIVE ACTIVATOR
9	43	AR	1008822	COLORANT, EPOXY BASE
9	44	AR	1006277	SILICA, PULVERIZED, PYROGENIC
9	45	AR	1006776- 44	INSULATION SLEEVING, 6 FEET TOTAL LENGTH
	46	2	MS17182-2	TERMINAL LUG
	47	6	MS17182-1	TERMINAL LUG
	48	8	MS35333-69	WASHER, LOCK
9	49	8	1006783- 93	SCREW, BUTTON HD
	50	5	MS35335-57	WASHER, LOCK
9	51	5	1006783- 18	SCREW, BUTTON HD

LIST OF MATERIALS

SFE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	52	4	MS25036-52	TERMINAL LUG
28	53	1	2014641-013	WIRE BRAID,QQ-B-575,.12DIA. 36AWG, 5 FT TOT LG
	54	2	2014670- 11	ADAPTER, CONNECTOR
	55	2	2014670- 12	ADAPTER, CONNECTOR
	56	1	2014670- 13	ADAPTER,CONNECTOR
	57	1	2014670- 15	ADAPTER,CONNECTOR
	58	1	MS25036-48	TERMINAL LUG

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 11 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 1			DELETED									
A 1A			DELETED									
A 1R			DELETED									
A 1Y			DELETED									
A 2			DELETED									
A 2A			DELETED									
A 2R			DELETED									
A 2Y			DELETED									
A 3			DELETED									
A 3A			DELETED									
A 3R			DELETED									
A 3Y			DELETED									

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 12 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 4			DELETED									
A 4A			DELETED									
A 4R			DELETED									
A 4Y			DELETED									
A 5			DELETED									
A 5A			DELETED									
A 5R			DELETED									
A 5Y			DELETED									
A 6			DELETED									
A 6A			DELETED									
A 6R			DELETED									
A 6Y			DELETED									

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 13 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 7			DELETED									
A 7A			DELETED									
A 7R			DELETED									
A 7Y			DELETED									
A 8			DELETED									
A 8A			DELETED									
A 8R			DELETED									
A 8Y			DELETED									
A 9			DELETED									
A 9A			DELETED									
A 9R			DELETED									
A 9Y			DELETED									

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 14 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	10		DELETED									
A	10A		DELETED									
A	10R		DELETED									
A	10Y		DELETED									
A	11		DELETED									
A	11A		DELETED									
A	11R		DELETED									
A	11Y		DELETED									
A	12		DELETED									
A	12A		DELETED									
A	12R		DELETED									
A	12Y		DELETED									

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H
SHEET 15 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	13		DELETED									
A	13A		DELETED									
A	13R		DELETED									
A	13Y		DELETED									
A	14		DELETED									
A	14A		DELETED									
A	14R		DELETED									
A	14Y		DELETED									
A	15		DELETED									
A	15A		DELETED									
A	15R		DELETED									
A	15Y		DELETED									

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H
SHEET 16 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	16		DELETED									
A	16A		DELETED									
A	16R		DELETED									
A	16Y		DELETED									
A	17		DELETED									
A	17A		DELETED									
A	17R		DELETED									
A	17Y		DELETED									
A	18		DELETED									
A	18A		DELETED									
A	18R		DELETED									
A	18Y		DELETED									

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H
SHEET 17 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	19		DELETED									
A	19A		DELETED									
A	19R		DELETED									
A	19Y		DELETED									
A	20		DELETED									
A	20A		DELETED									
A	20R		DELETED									
A	20Y		DELETED									
A	21	9			1.00 1.00	.75 .75				68 68	31 31	
A	21A	11		SHLD A21 P9-111				.20 .18	NO NO		24	BRANCH 2
A	21B	11		E3 SHLD A21				.19 .20	NO NO			
A	21R			P9-311 P10-515				.18	NO NO		25 25	BRANCH 2 BRANCH 4

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H
SHEET 18 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 21Y			P9-211 P10-615					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 22	10				1.00 1.00	.75 .75				7 68	29 31	
A 22B	11		E3 SHLD A22					.19 .20	NO NO			
A 22G			P9-411 P10-536					.18	NO NO		24 24	BRANCH 2 BRANCH 5
A 22R			P9-611 P10-622					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A 22Y			P9-511 P10-534					.18	NO NO		24 24	BRANCH 2 BRANCH 5
A 23	9				1.00 1.00	.75 .75				7 68	29 31	
A 23B	11		E4 SHLD A23					.19 .20	NO NO			
A 23R			P9-212 P10-112					.18 .18	NO NO		25 25	BRANCH 2
A 23Y			P9-112 P10-412					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 24	9				1.00 1.00	.75 .75				7 68	29 31	
A 24B	11		E4 SHLD A24					.19 .20	NO NO			

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SCALE-NONE | REV LTR H | SHEET 19 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24R			P9-412 P10-614					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 24Y			P9-312 P10-313					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 25	10				1.00 1.00	.75 .75				7 68	29 31	
A 25B	11		E4 SHLD A25					.19 .20	NO NO		52	
A 25G			P9-113 P10-514					.18	NO NO		25 24	BRANCH 2 BRANCH 4
A 25R			P9-612 P10-314					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A 25Y			P9-512 P10-414					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A 26	9				1.00 1.00	.75 .75				7 68	29 31	
A 26B	11		E3 SHLD A26					.19 .20	NO NO		52	
A 26R			P9-313 P10-525					.18	NO NO		25 25	BRANCH 2 BRANCH 4
A 26Y			P9-213 P10-624					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 27	9				1.75 1.00	1.50 .75				68 68	31 31	

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SCALE-NONE | REV LTR H | SHEET 20 OF 74

MIL 2084 9 65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 27A	11		SHLD A27 P7-12					.20 .13	NO NO		 22	
A 27B	11		P9-637 SHLD A27					.18 .20	NO NO		24	BRANCH 3
A 27R			P7-27 P9-437					.13 .18	NO NO		22 25	 BRANCH 3
A 27Y			P7-13 P9-537					.13 .18	NO NO		22 25	 BRANCH 3
A 28	9				1.75 1.00	1.50 .75				68 68	31 31	
A 28A	11		SHLD A28 P7-26					.20 .13	NO NO		 22	
A 28B	11		P9-137 SHLD A28					.18 .20	NO NO		24	BRANCH 3
A 28R			P7-47 P9-237					.13 .18	NO NO		22 25	 BRANCH 3
A 28Y			P7-46 P9-337					.13 .18	NO NO		22 25	 BRANCH 3
A 29	9				1.75 1.00	1.50 .75				68 68	31 31	
A 29A	11		SHLD A29 P7-24					.20 .13	NO NO		 22	
A 29B	11		P9-634 SHLD A29					.18 .20	NO NO		24	BRANCH 2

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SCALE-NONE | REV LTR H | SHEET 21 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 29R			P7-44 P9-434					.13 .18	NO NO		22 25	 BRANCH 2
A 29Y			P7-25 P9-534					.13 .18	NO NO		22 25	 BRANCH 2
A 30	9				1.75 1.00	1.50 .75				68 68	31 31	
A 30A	11		SHLD A30 P7-5					.20 .13	NO NO		 22	
A 30B	11		P9-335 SHLD A30					.18 .20	NO NO		24	BRANCH 2
A 30R			P7-4 P9-135					.13 .18	NO NO		22 25	 BRANCH 2
A 30Y			P7-1 P9-235					.13 .18	NO NO		22 25	 BRANCH 2
A 31	9				1.75 1.00	1.50 .75				68 68	31 31	
A 31A	11		SHLD A31 P7-3					.20 .13	NO NO		 22	
A 31B	11		P9-635 SHLD A31					.18 .20	NO NO		24	BRANCH 2
A 31R			P7-11 P9-435					.13 .18	NO NO		22 25	 BRANCH 2
A 31Y			P7-10 P9-535					.13 .18	NO NO		22 25	 BRANCH 2

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 32	4											
A 32R			P7-53 P9-536					.13 .18	NO NO		22 25	BRANCH 3
A 32Y			P7-54 P9-636					.13 .18	NO NO		22 25	BRANCH 3
A 33	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 33A	11		SHLD A33 P1-13					.20 .13	NO NO		22	
A 33B	11		P9-332 SHLD A33					.18 .20	NO NO		24	BRANCH 2
A 33R			P1-28 P9-132					.13 .18	NO NO		22 25	BRANCH 2
A 33Y			P1-27 P9-232					.13 .18	NO NO		22 25	BRANCH 2
A 34	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 34A	11		SHLD A34 P1-16					.20 .13	NO NO		22	
A 34B	11		P9-632 SHLD A34					.18 .20	NO NO		24	BRANCH 2
A 34R			P1-6 P9-432					.13 .18	NO NO		22 25	BRANCH 2

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A	80230	2014641
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 34Y			P1-5 P9-532					.13 .18	NO NO		22 25	BRANCH 2
A 35	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 35A	11		SHLD A35 P1-1					.20 .13	NO NO		22	
A 35B	11		P9-333 SHLD A35					.18 .20	NO NO		24	BRANCH 2
A 35R			P1-4 P9-133					.13 .18	NO NO		22 25	BRANCH 2
A 35Y			P1-3 P9-233					.13 .18	NO NO		22 25	BRANCH 2
A 36	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 36A	11		SHLD A36 P1-17					.20 .13	NO NO		22	
A 36B	11		P9-346 SHLD A36					.18 .20	NO NO		24	BRANCH 3
A 36R			P1-34 P9-146					.13 .18	NO NO		22 25	BRANCH 3
A 36Y			P1-33 P9-246					.13 .18	NO NO		22 25	BRANCH 3
A 37	9				1.75 1.00	1.50 .75				6B 6B	31 31	

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A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 24 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 37A	11		SHLD A37 P1-18					.20 .13	NO NO		22	
A 37B	11		P9-646 SHLD A37					.18 .20	NO NO		24	BRANCH 3
A 37R			P1-35 P9-446					.13 .18	NO NO		22 25	BRANCH 3
A 37Y			P1-36 P9-546					.13 .18	NO NO		22 25	BRANCH 3
A 38	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 38A	11		SHLD A38 P1-14					.20 .13	NO NO		22	
A 38B	11		P9-348 SHLD A38					.18 .20	NO NO		24	BRANCH 3
A 38R			P1-30 P9-148					.13 .18	NO NO		22 25	BRANCH 3
A 38Y			P1-29 P9-248					.13 .18	NO NO		22 25	BRANCH 3
A 39	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 39A	11		SHLD A39 P1-15					.20 .13	NO NO		22	
A 39B	11		P9-648 SHLD A39					.18 .20	NO NO		24	BRANCH 3

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 25 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 39R			P1-31 P9-448					.13 .18	NO NO		22 25	BRANCH 3
A 39Y			P1-32 P9-548					.13 .18	NO NO		22 25	BRANCH 3
A 40	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 40A	11		SHLD A40 P1-20					.20 .13	NO NO		22	
A 40B	11		P9-633 SHLD A40					.18 .20	NO NO		24	BRANCH 2
A 40R			P1-19 P9-433					.13 .18	NO NO		22 25	BRANCH 2
A 40Y			P1-37 P9-533					.13 .18	NO NO		22 25	BRANCH 2
A 41	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 41A	11		SHLD A41 P1-21					.20 .13	NO NO		22	
A 41B	11		P9-334 SHLD A41					.18 .20	NO NO		24	BRANCH 2
A 41R			P1-38 P9-134					.13 .18	NO NO		22 25	BRANCH 2
A 41Y			P1-39 P9-234					.13 .18	NO NO		22 25	BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 26 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 42	6											
A 42G			P1-26 P9-421					.13 .18	NO NO		22 25	BRANCH 2
A 42R			P1-43 P9-620					.13 .18	NO NO		22 25	BRANCH 2
A 42Y			P1-44 P9-221					.13 .18	NO NO		22 25	BRANCH 2
A 43	6											
A 43G			P1-8 P9-222					.13 .18	NO NO		22 25	BRANCH 2
A 43R			P1-7 P9-621					.13 .18	NO NO		22 25	BRANCH 2
A 43Y			P1-2 P9-119					.13 .18	NO NO		22 25	BRANCH 2
A 46	2		P1-25 P9-422					.13 .18	NO NO		22 25	BRANCH 2
A 47	3											
A 47R			P1-40 P9-228					.13 .18	NO NO		22 24	BRANCH 2
A 47Y			P1-23 P9-328					.13 .18	NO NO		22 24	BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 48	3											
A 48R			P1-41 P9-428					.13 .18	NO NO		22 24	BRANCH 2
A 48Y			P1-42 P9-528					.13 .18	NO NO		22 24	BRANCH 2
A 49	9				1.75 1.00	1.50 .75				68 68	31 31	
A 49A	11		SHLD A49 P4-30					.20 .13	NO NO		 22	
A 49B	11		P9-340 SHLD A49					.18 .20	NO NO		24	BRANCH 3
A 49R			P4-52 P9-140					.13 .18	NO NO		22 25	BRANCH 3
A 49Y			P4-51 P9-240					.13 .18	NO NO		22 25	BRANCH 3
A 50	9				1.75 1.00	1.50 .75				68 68	31 31	
A 50A	11		SHLD A50 P4-31					.20 .13	NO NO		 22	
A 50B	11		P9-640 SHLD A50					.13 .20	NO NO		24	BRANCH 3
A 50R			P4-54 P9-440					.13 .18	NO NO		22 25	BRANCH 3

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 50Y			P4-53 P9-540					.13 .18	NO NO		22 25	BRANCH 3
A 51	9				1.75 1.00	1.50 .75				68 68	31 31	
A 51A	11		SHLD A51 P4-29					.20 .13	NO NO		 22	
A 51B	11		P9-341 SHLD A51					.18 .20	NO NO		24	BRANCH 3
A 51R			P4-13 P9-141					.13 .18	NO NO		22 25	BRANCH 3
A 51Y			P4-14 P9-241					.13 .18	NO NO		22 25	BRANCH 3
A 52	9				1.75 1.00	1.50 .75				68 68	31 31	
A 52A	11		SHLD A52 P4-32					.20 .13	NO NO		 22	
A 52B	11		P9-641 SHLD A52					.18 .20	NO NO		24	BRANCH 3
A 52R			P4-16 P9-441					.13 .18	NO NO		22 25	BRANCH 3
A 52Y			P4-15 P9-541					.13 .18	NO NO		22 25	BRANCH 3
A 53	9				1.75 1.00	1.50 .75				68 68	31 31	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 53A	11		SHLD A53 P4-36					.20 .13	NO NO		 22	
A 53B	11		P9-342 SHLD A53					.18 .20	NO NO		24	BRANCH 3
A 53R			P4-59 P9-142					.13 .18	NO NO		22 25	BRANCH 3
A 53Y			P4-60 P9-242					.13 .18	NO NO		22 25	BRANCH 3
A 54	9				1.75 1.00	1.50 .75				68 68	31 31	
A 54A	11		SHLD A54 P4-37					.20 .13	NO NO		 22	
A 54B	11		P9-642 SHLD A54					.18 .20	NO NO		24	BRANCH 3
A 54R			P4-61 P9-442					.13 .18	NO NO		22 25	BRANCH 3
A 54Y			P4-38 P9-542					.13 .18	NO NO		22 25	BRANCH 3
A 55	9				1.75 1.00	1.50 .75				68 68	31 31	
A 55A	11		SHLD A55 P4-33					.20 .13	NO NO		 22	
A 55B	11		P9-343 SHLD A55					.18 .20	NO NO		24	BRANCH 3

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 55R			P4-56					.13	NO		22	
			P9-143					.18	NO		25	BRANCH 3
A 55Y			P4-55					.13	NO		22	
			P9-243					.18	NO		25	BRANCH 3
A 56	9				1.75	1.50				68	31	
					1.00	.75				68	31	
A 56A	11		SHLD A56					.20	NO			
			P4-34					.13	NO		22	
A 56B	11		P9-643					.18	NO		24	BRANCH 3
			SHLD A56					.20	NO			
A 56R			P4-57					.13	NO		22	
			P9-443					.18	NO		25	BRANCH 3
A 56Y			P4-58					.13	NO		22	
			P9-543					.18	NO		25	BRANCH 3
A 57	9				1.75	1.50				68	31	
					1.00	.75				68	31	
A 57A	11		SHLD A57					.20	NO			
			P4-27					.13	NO		22	
A 57B	11		P9-344					.18	NO		24	BRANCH 3
			SHLD A57					.20	NO			
A 57R			P4-48					.13	NO		22	
			P9-144					.18	NO		25	BRANCH 3
A 57Y			P4-47					.13	NO		22	
			P9-244					.18	NO		25	BRANCH 3

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 58	9				1.75	1.50				68	31	
					1.00	.75				68	31	
A 58A	11		SHLD A58					.20	NO			
			P4-28					.13	NO		22	
A 58B	11		P9-644					.18	NO		24	BRANCH 3
			SHLD A58					.20	NO			
A 58R			P4-49					.13	NO		22	
			P9-444					.18	NO		25	BRANCH 3
A 58Y			P4-50					.13	NO		22	
			P9-544					.18	NO		25	BRANCH 3
A 59	9				1.75	1.50				68	31	
					1.00	.75				68	31	
A 59A	11		SHLD A59					.20	NO			
			P4-35					.13	NO		22	
A 59B	11		P9-345					.18	NO		24	BRANCH 3
			SHLD A59					.20	NO			
A 59R			P4-17					.13	NO		22	
			P9-145					.18	NO		25	BRANCH 3
A 59Y			P4-18					.13	NO		22	
			P9-245					.18	NO		25	BRANCH 3
A 60	9				1.75	1.50				68	31	
					1.00	.75				68	31	
A 60A	11		SHLD A60					.20	NO			
			P4-20					.13	NO		22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 60B	11		P9-645					.18	NO		24	BRANCH 3
			SHLD A60					.20	NO			
A 60R			P4-19					.13	NO		22	
			P9-445					.18	NO		25	BRANCH 3
A 60Y			P4-8					.13	NO		22	
			P9-545					.18	NO		25	BRANCH 3
A 61	9				1.75	1.50				68	31	
					1.00	.75				68	31	
A 61A	11		SHLD A61					.20	NO			
			P4-22					.13	NO		22	
A 61B	11		P9-329					.18	NO		24	BRANCH 2
			SHLD A61					.20	NO			
A 61R			P4-41					.13	NO		22	
			P9-129					.18	NO		25	BRANCH 2
A 61Y			P4-42					.13	NO		22	
			P9-229					.18	NO		25	BRANCH 2
A 62	9				1.75	1.50				68	31	
					1.00	.75				68	31	
A 62A	11		SHLD A62					.20	NO			
			P4-24					.13	NO		22	
A 62B	11		P9-629					.18	NO		24	BRANCH 2
			SHLD A62					.20	NO			
A 62R			P4-43					.13	NO		22	
			P9-429					.18	NO		25	BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 62Y			P4-44					.13	NO		22	
			P9-529					.18	NO		25	BRANCH 2
A 63	9				1.75	1.50				68	31	
					1.00	.75				68	31	
A 63A	11		SHLD A63					.20	NO			
			P4-25					.13	NO		22	
A 63B	11		P9-330					.18	NO		24	BRANCH 2
			SHLD A63					.20	NO			
A 63R			P4-45					.13	NO		22	
			P9-130					.18	NO		25	BRANCH 2
A 63Y			P4-46					.13	NO		22	
			P9-230					.18	NO		25	BRANCH 2
A 64	9				1.75	1.50				68	31	
					1.00	.75				68	31	
A 64A	11		SHLD A64					.20	NO			
			P4-21					.13	NO		22	
A 64B	11		P9-630					.18	NO		24	BRANCH 2
			SHLD A64					.20	NO			
A 64R			P4-39					.13	NO		22	
			P9-430					.18	NO		25	BRANCH 2
A 64Y			P4-40					.13	NO		22	
			P9-530					.18	NO		25	BRANCH 2
A 65	9				1.75	1.50				68	31	
					1.00	.75				68	31	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 65A	11		SHLD A65 P4-10					.20 .13	NO NO		 22	
A 65B	11		P9-331 SHLD A65					.18 .20	NO NO		24	BRANCH 2
A 65R			P4-9 P9-131					.13 .18	NO NO		22 25	 BRANCH 2
A 65Y			P4-23 P9-231					.13 .18	NO NO		22 25	 BRANCH 2
A 66	9				1.75 1.00	1.50 .75				68 68	31 31	
A 66A	11		SHLD A66 P4-11					.20 .13	NO NO		 22	
A 66B	11		P9-631 SHLD A66					.18 .20	NO NO		24	BRANCH 2
A 66R			P4-26 P9-431					.13 .18	NO NO		22 25	 BRANCH 2
A 66Y			P4-12 P9-531					.13 .18	NO NO		22 25	 BRANCH 2
A 67	9				1.75 1.00	1.50 .75				68 7	31 29	
A 67A	11		SHLD A67 P4-1					.20 .13	NO NO		 22	
A 67R			P4-6 P9-338					.13 .18	NO NO		22 25	 BRANCH 3

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 67Y			P4-7 P9-238					.13 .18	NO NO		22 25	 BRANCH 3
A 68	8				1.75 1.00	1.50 .75				68 7	31 29	
A 68A	11		SHLD A68 P4-2					.20 .13	NO NO		 22	
A 68R			P4-3 P9-138					.13 .18	NO NO		22 24	 BRANCH 3
A 69	1		P4-5 P9-136					.13 .18	NO NO		22 24	 BRANCH 3
A 70	1		P4-4 P9-336					.13 .18	NO NO		22 24	 BRANCH 3
A 71	1		P5-84 P9-236					.13 .18	NO NO		22 24	 BRANCH 3
A 72	1		P5-60 P9-436					.13 .18	NO NO		22 24	 BRANCH 3
A 74	4											F
A 74R			P2-55 P10-121					.13 .18	NO NO		23 25	F BRANCH 5
A 74Y			P2-56 P10-221					.13 .18	NO NO		23 25	F BRANCH 5
A 75	4											F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT- LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 75R			P2-54 P10-120					.13 .18	NO NO		23 25	F BRANCH 5
A 75Y			P2-32 P10-220					.13 .18	NO NO		23 25	F BRANCH 5
A 76	4											F
A 76R			P2-17 P10-119					.13 .18	NO NO		23 25	F BRANCH 5
A 76Y			P2-33 P10-219					.13 .18	NO NO		23 25	F BRANCH 5
A 77	4											F
A 77R			P2-16 P10-118					.13 .18	NO NO		23 25	F BRANCH 5
A 77Y			P2-5 P1C-218					.13 .18	NO NO		23 25	F BRANCH 5
A 78	4											F
A 78R			P2-57 P10-321					.13 .18	NO NO		23 25	F BRANCH 5
A 78Y			P2-34 P10-421					.13 .18	NO NO		23 25	F BRANCH 5
A 79	4											F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 79R			P2-18 P10-320					.13 .18	NO NO		23 25	F BRANCH 5
A 79Y			P2-35 P10-420					.13 .18	NO NO		23 25	F BRANCH 5
A 80	4											F
A 80R			P2-52 P10-319					.13 .18	NO NO		23 25	F BRANCH 5
A 80Y			P2-53 P10-419					.13 .18	NO NO		23 25	F BRANCH 5
A 81	4											F
A 81R			P2-15 P10-318					.13 .18	NO NO		23 25	F BRANCH 5
A 81Y			P2-30 P10-418					.13 .18	NO NO		23 25	F BRANCH 5
A 82	4											F
A 82R			P2-50 P10-317					.13 .18	NO NO		23 25	F BRANCH 5
A 82Y			P2-51 P10-417					.13 .18	NO NO		23 25	F BRANCH 5
A 83	4											F

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 83R			P2-13 P10-323					.13 .18	NO NO		23 25	F BRANCH 5
A 83Y			P2-29 P10-423					.13 .18	NO NO		23 25	F BRANCH 5
A 84	4											F
A 84R			P2-12 P10-322					.13 .18	NO NO		23 25	F BRANCH 5
A 84Y			P2-27 P10-422					.13 .18	NO NO		23 25	F BRANCH 5
A 85	4											F
85R			P2-48 P10-316					.13 .18	NO NO		23 25	F BRANCH 5
A 85Y			P2-49 P10-416					.13 .18	NO NO		23 25	F BRANCH 5
A 86	4											F
A 86R			P2-1 P10-315					.13 .18	NO NO		23 25	F BRANCH 5
A 86Y			P2-4 P10-415					.13 .18	NO NO		23 25	F BRANCH 5
A 87	4											F

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 39 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 87R			P2-11 P10-324					.13 .18	NO NO		23 25	F BRANCH 5
A 87Y			P2-24 P10-424					.13 .18	NO NO		23 25	F BRANCH 5
A 88	4											F
A 88R			P2-10 P10-117					.13 .18	NO NO		23 24	F BRANCH 5
A 88Y			P2-2 P10-217					.13 .18	NO NO		23 25	F BRANCH 5
A 89	4											F
A 89R			P2-59 P10-139					.13 .18	NO NO		23 25	F BRANCH 5
A 89Y			P2-58 P10-239					.13 .18	NO NO		23 25	F BRANCH 5
A 90	4											F
A 90R			P2-7 P10-138					.13 .18	NO NO		23 25	F BRANCH 5
A 90Y			P2-6 P10-238					.13 .18	NO NO		23 25	F BRANCH 5
A 91	4											F

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 40 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 91R			P2-36 P10-137					.13 .18	NO NO		23 25	F BRANCH 5
A 91Y			P2-60 P10-237					.13 .18	NO NO		23 25	F BRANCH 5
A 92	4											F
A 92R			P2-8 P10-136					.13 .18	NO NO		23 25	F BRANCH 5
A 92Y			P2-19 P10-236					.13 .18	NO NO		23 25	F BRANCH 5
A 93	4											F
A 93R			P2-61 P10-135					.13 .18	NO NO		23 25	F BRANCH 5
A 93Y			P2-38 P10-235					.13 .18	NO NO		23 25	F BRANCH 5
A 94	4											F
A 94R			P2-39 P10-134					.13 .18	NO NO		23 25	F BRANCH 5
A 94Y			P2-20 P10-234					.13 .18	NO NO		23 25	F BRANCH 5
A 95	4											F

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 41 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 95R			P2-43 P10-327					.13 .18	NO NO		23 25	F BRANCH 5
A 95Y			P2-42 P10-427					.13 .18	NO NO		23 25	F BRANCH 5
A 96	4											F
A 96R			P2-22 P10-326					.13 .18	NO NO		23 25	F BRANCH 5
A 96Y			P2-9 P10-426					.13 .18	NO NO		23 25	F BRANCH 5
A 97	4											F
A 97R			P2-41 P10-325					.13 .18	NO NO		23 25	F BRANCH 5
A 97Y			P2-40 P10-425					.13 .18	NO NO		23 25	F BRANCH 5
A 98	10				1.75 1.00	1.50 .75				68 7	31 29	
A 98A	11		SHLD A98 P2-44					.20 .13	NO NO		 23	
A 98G			P2-25 P10-212					.13 .18	NO NO		23 24	 BRANCH 4
A 98R			P2-46 P10-113					.13 .18	NO NO		23 24	 BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 42 OF 74

MIL 2084 9 65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 98Y			P2-45 P10-312					.13 .18	NO NO		23 24	BRANCH 4
A 99	8				1.75 1.00	1.50 .75				6B 7	31 29	
A 99A	11		SHLD A99 P2-26					.20 .13	NO NO		23	
A 99R			P2-47 P10-114					.13 .18	NO NO		23 24	BRANCH 4
A 104	2		P3-1 P10-538					.13	NO NO		22 25	E BRANCH 5
A 105	2		P3-7 P10-556					.13 .18	NO NO		22 25	E BRANCH 5
A 106	2		P3-2 P10-625					.13 .18	NO NO		22 25	E BRANCH 5
A 113	2		P3-8 P10-547					.13 .18	NO NO		22 25	E BRANCH 5
A 116	1		P5-66 P10-602					.13 .18	NO NO		22 24	D BRANCH 4
A 118	1		P5-45 P10-504					.13 .18	NO NO		22 24	D BRANCH 4
A 125	2		P5-26 P10-409					.13 .22	NO NO		22	D BRANCH 4
A 127	5											A

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 127G			P5-53 P10-161					.13 .18	NO NO		22 24	A BRANCH 6
A 127R			P5-78 P10-159					.13 .18	NO NO		22 24	A BRANCH 6
A 127Y			P5-54 P10-160					.13 .18	NO NO		22 24	A BRANCH 6
A 128	5											A
A 128G			P5-55 P10-260					.13 .18	NO NO		22 24	A BRANCH 6
A 128R			P5-79 P10-261					.13 .18	NO NO		22 24	A BRANCH 6
A 128Y			P5-80 P10-259					.13 .18	NO NO		22 24	A BRANCH 6
A 129	5											A
A 129G			P5-16 P10-360					.13 .18	NO NO		22 24	A BRANCH 6
A 129R			P5-33 P10-361					.13 .18	NO NO		22 24	A BRANCH 6
A 129Y			P5-32 P10-359					.13 .18	NO NO		22 24	A BRANCH 6
A 130	5											A

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 130G			P5-56 P10-460					.13 .18	NO NO		22 24	A BRANCH 6
A 130R			P5-81 P10-461					.13 .18	NO NO		22 24	A BRANCH 6
A 130Y			P5-57 P10-459					.13 .18	NO NO		22 24	A BRANCH 6
A 131	5											A
A 131G			P5-35 P10-560					.13 .18	NO NO		22 24	A BRANCH 6
A 131R			P5-58 P10-561					.13 .18	NO NO		22 24	A BRANCH 6
A 131Y			P5-34 P10-559					.13 .18	NO NO		22 24	A BRANCH 6
A 139	2		P6-77 P10-636					.13 .18	NO NO		22 25	C BRANCH 6
A 148	2		P6-20 P10-613					.13 .18	NO NO		22 25	C BRANCH 6
A 149	4											C
A 149R			P6-85 P10-133					.13 .18	NO NO		22 25	C BRANCH 6
A 149Y			P6-84 P10-233					.13 .18	NO NO		22 25	C BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 150	4											C
A 150R			P6-82 P10-516					.13	NO NO		22 25	C BRANCH 6
A 150Y			P6-57 P10-616					.13 .18	NO NO		22 25	C BRANCH 6
A 151	4											C
A 151R			P6-8 P10-158					.13 .18	NO NO		22 25	C BRANCH 6
A 151Y			P6-2 P10-258					.13 .18	NO NO		22 25	C BRANCH 6
A 152	4											C
A 152R			P6-19 P10-157					.13 .18	NO NO		22 25	C BRANCH 6
A 152Y			P6-7 P10-257					.13 .18	NO NO		22 25	C BRANCH 6
A 153	4											C
A 153R			P6-6 P10-156					.13 .18	NO NO		22 25	C BRANCH 6
A 153Y			P6-1 P10-256					.13 .18	NO NO		22 25	C BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 154	4											C
A 154R			P6-5 P10-155					.13 .18	NO NO		22 25	C BRANCH 6
A 154Y			P6-4 P10-255					.13 .18	NO NO		22 25	C BRANCH 6
A 155	4											C
A 155R			P6-15 P10-154					.13 .18	NO NO		22 25	C BRANCH 6
A 155Y			P6-16 P10-254					.13 .18	NO NO		22 25	C BRANCH 6
A 156	4											C
A 156R			P6-17 P10-153					.13 .18	NO NO		22 25	C BRANCH 6
A 156Y			P6-33 P10-253					.13 .18	NO NO		22 25	C BRANCH 6
A 157	4											C
A 157R			P6-61 P10-132					.13 .18	NO NO		22 25	C BRANCH 6
A 157Y			P6-60 P10-232					.13 .18	NO NO		22 25	C BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 158	4											
A 158R			P6-37 P10-130					.13 .18	NO NO		22 29	C BRANCH 6
A 158Y			P6-36 P10-230					.13 .18	NO NO		22 25	C BRANCH 6
A 159	4											C
A 159R			P6-83 P10-352					.13 .18	NO NO		22 25	C BRANCH 6
A 159Y			P6-59 P10-452					.13 .18	NO NO		22 25	C BRANCH 6
A 160	4											C
A 160R			P6-35 P10-129					.13 .18	NO NO		22 25	C BRANCH 6
A 160Y			P6-18 P10-229					.13 .18	NO NO		22 25	C BRANCH 6
A 161	4											C
A 161R			P6-58 P10-128					.13 .18	NO NO		22 25	C BRANCH 6
A 161Y			P6-34 P10-228					.13 .18	NO NO		22 25	C BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 164	1		P8-9 P10-302					.13 .18	NO NO		22 24	B BRANCH 4
A 170	2		P8-5 P10-509					.13	NO NO		22 25	B BRANCH 4
A 177	2		P8-8 P10-108					.13 .22	NO NO		22	B BRANCH 4
A 178	9				1.75 1.75	1.50 1.50				68 68	31 31	
A 178A	11		SHLD A178 P3-52					.20 .13	NO NO		22	
A 178B	11		P7-21 SHLD A178					.13 .20	NO NO		22	
A 178R			P3-77 P7-40					.13 .13	NO NO		22 22	
A 178Y			P3-53 P7-22					.13 .13	NO NO		22 22	
A 179	9				1.75 1.75	1.50 1.50				68 68	31 31	
A 179A	11		SHLD A179 P3-30					.20 .13	NO NO		22	
A 179B	11		P7-23 SHLD A179					.13 .20	NO NO		22	
A 179R			P3-31 P7-42					.13 .13	NO NO		22 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 179Y			P3-15 P7-43					.13 .13	NO NO		22 22	
A 180	9				1.75 1.75	1.50 1.50				68 68	31 31	
A 180A	11		SHLD A180 P3-51					.20 .13	NO NO		22	
A 180B	11		P7-2 SHLD A180					.13 .20	NO NO		22	
A 180R			P3-75 P7-8					.13 .13	NO NO		22 22	
A 180Y			P3-76 P7-9					.13 .13	NO NO		22 22	
A 181	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 181A	11		SHLD A181 P3-46					.20 .13	NO NO		22	
A 181R			P3-71 P7-38					.13 .13	NO NO		22 22	
A 181Y			P3-70 P7-39					.13 .13	NO NO		22 22	
A 182	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 182A	11		SHLD A182 P3-69					.20 .13	NO NO		22	

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 182R			P3-45					.13	NO		22	
			P7-19					.13	NO		22	
A 182Y			P3-44					.13	NO		22	
			P7-20					.13	NO		22	
A 183	9				1.75	1.50				68	31	
					1.75	1.50				7	29	
A 183A	11		SHLD A183					.20	NO			
			P3-28					.13	NO		22	
A 183R			P3-13					.13	NO		22	
			P7-60					.13	NO		22	
A 183Y			P3-29					.13	NO		22	
			P7-61					.13	NO		22	
A 184	9				1.75	1.50				68	31	
					1.75	1.50				7	29	
A 184A	11		SHLD A184					.20	NO			
			P3-74					.13	NO		22	
A 184R			P3-49					.13	NO		22	
			P7-36					.13	NO		22	
A 184Y			P3-50					.13	NO		22	
			P7-37					.13	NO		22	
A 185	9				1.75	1.50				68	31	
					1.75	1.50				7	29	
A 185A	11		SHLD A185					.20	NO			
			P3-27					.13	NO		22	

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 185R			P3-26					.13	NO		22	
			P7-58					.13	NO		22	
A 185Y			P3-47					.13	NO		22	
			P7-59					.13	NO		22	
A 186	9				1.75	1.50				68	31	
					1.75	1.50				7	29	
A 186A	11		SHLD A186					.20	NO			
			P3-48					.13	NO		22	
A 186R			P3-72					.13	NO		22	
			P7-35					.13	NO		22	
A 186Y			P3-73					.13	NO		22	
			P7-18					.13	NO		22	
A 187	3											
A 187R			P3-67					.13	NO		22	
			P7-57					.13	NO		22	
A 187Y			P3-68					.13	NO		22	
			P7-34					.13	NO		22	
A 188	7											
A 188G			P3-24					.13	NO		22	
			P7-51					.13	NO		22	
A 188N			P3-43					.13	NO		22	
			P7-29					.13	NO		22	

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 188R			P3-25					.13	NO		22	
			P7-50					.13	NO		22	
A 188Y			P3-23					.13	NO		22	
			P7-28					.13	NO		22	
A 189	4											
A 189R			P3-5					.13	NO		22	
			P7-49					.13	NO		22	
A 189Y			P3-14					.13	NO		22	
			P7-48					.13	NO		22	
A 195	2		P5-23					.13	NO		22	D
			P10-608					.22	NO			BRANCH 4
A 196	2		P5-22					.13	NO		22	D
			P10-609					.22	NO			BRANCH 4
A 198	6											
A 198G			P1-11					.13	NO		22	
			P9-521					.18	NO		25	BRANCH 2
A 198R			P1-10					.13	NO		22	
			P9-121					.18	NO		25	BRANCH 2
A 198Y			P1-9					.13	NO		22	
			P9-321					.18	NO		25	BRANCH 2
A 199	5											A

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 199G			P5-5					.13	NO		22	A
			P10-660					.18	NO		24	BRANCH 6
A 199R			P5-31					.13	NO		22	A
			P10-661					.18	NO		24	BRANCH 6
A 199Y			P5-15					.13	NO		22	A
			P10-659					.18	NO		24	BRANCH 6
A 200	2		P3-39					.13	NO		22	E
			P10-202					.18	NO		25	BRANCH 5
A 201	2		P3-64					.13	NO		22	E
			P10-102					.18	NO		24	BRANCH 5
A 202	2		P3-42					.13	NO		22	E
			P10-652					.18	NO		25	BRANCH 5
A 203	2		P3-66					.13	NO		22	E
			P10-551					.18	NO		25	BRANCH 5
A 204	2		P3-21					.13	NO		22	E
			P10-552					.18	NO		25	BRANCH 5
A 205	2		P3-22					.13	NO		22	E
			P10-651					.18	NO		25	BRANCH 5
A 206	2		P3-18					.13	NO		22	E
			P10-548					.18	NO		25	BRANCH 5
A 207	2		P3-36					.13	NO		22	E
			P10-549					.18	NO		25	BRANCH 5
A 208	2		P3-19					.13	NO		22	E
			P10-550					.18	NO		25	BRANCH 5

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 209	2		P3-41 P10-214					.13 .18	NO NO		22 25	E BRANCH 5
A 210	2		P3-65 P10-216					.13 .18	NO NO		22 25	E BRANCH 5
A 211	2		P3-40 P10-215					.13 .18	NO NO		22 25	E BRANCH 5
A 212	2		P3-33 P10-646					.13 .18	NO NO		22 25	E BRANCH 5
A 213	2		P3-17 P10-546					.13 .18	NO NO		22 25	E BRANCH 5
A 214	2		P3-57 P10-645					.13 .18	NO NO		22 25	E BRANCH 5
A 215	2		P3-82 P10-545					.13 .18	NO NO		22 25	E BRANCH 5
A 216	2		P3-81 P10-542					.13 .18	NO NO		22 25	E BRANCH 5
A 217	2		P3-80 P10-644					.13 .18	NO NO		22 25	E BRANCH 5
A 218	2		P3-56 P10-544					.13 .18	NO NO		22 25	E BRANCH 5
A 219	2		P3-84 P10-623					.13 .18	NO NO		22 25	E BRANCH 5
A 220	2		P3-60 P10-524					.13	NO NO		22 25	E BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 221	2		P3-59 P10-522					.13	NO NO		22 25	E BRANCH 5
A 222	2		P3-62 P10-648					.13 .18	NO NO		22 25	E BRANCH 5
A 223	2		P3-63 P10-649					.13 .18	NO NO		22 25	E BRANCH 5
A 224	2		P3-38 P10-650					.13 .18	NO NO		22 25	E BRANCH 5
A 225	2		P5-38 P10-401					.13 .18	NO NO		22 25	D BRANCH 4
A 226	2		P5-62 P10-601					.13 .18	NO NO		22 25	D BRANCH 4
A 227	2		P5-63 P10-501					.13 .18	NO NO		22 25	D BRANCH 4
A 228	2		P5-64 P10-101					.13 .18	NO NO		22 24	D BRANCH 4
A 229	2		P5-40 P10-301					.13 .18	NO NO		22 25	D BRANCH 4
A 230	2		P5-39 P10-201					.13 .18	NO NO		22 25	D BRANCH 4
A 231	2		P5-41 P10-502					.13 .22	NO NO		22 25	D BRANCH 4
A 232	2		P5-42 P10-402					.13 .22	NO NO		22	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 233	2		P5-30 P10-204					.13 .22	NO NO		22	D BRANCH 4
A 234	2		P5-14 P10-505					.13 .22	NO NO		22	D BRANCH 4
A 235	2		P5-29 P10-605					.13 .22	NO NO		22	D BRANCH 4
A 236	2		P5-77 P10-506					.13 .22	NO NO		22	D BRANCH 4
A 237	2		P5-52 P10-404					.13 .22	NO NO		22	D BRANCH 4
A 238	2		P5-76 P10-304					.13 .22	NO NO		22	D BRANCH 4
A 239	2		P5-50 P10-405					.13 .22	NO NO		22	D BRANCH 4
A 240	2		P5-51 P10-606					.13 .22	NO NO		22	D BRANCH 4
A 241	2		P5-75 P10-205					.13 .22	NO NO		22	D BRANCH 4
A 242	2		P5-73 P10-607					.13 .22	NO NO		22	D BRANCH 4
A 243	2		P5-74 P10-305					.13 .22	NO NO		22	D BRANCH 4
A 244	2		P5-49 P10-507					.13 .22	NO NO		22	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 245	2		P5-13 P10-306					.13 .22	NO NO		22	D BRANCH 4
A 246	2		P5-28 P10-206					.13 .22	NO NO		22	D BRANCH 4
A 247	2		P5-27 P10-406					.13 .22	NO NO		22	D BRANCH 4
A 248	2		P5-47 P10-307					.13 .22	NO NO		22	D BRANCH 4
A 249	2		P5-46 P10-208					.13 .22	NO NO		22	D BRANCH 4
A 250	2		P5-4 P10-308					.13 .22	NO NO		22	D BRANCH 4
A 251	2		P5-12 P10-309					.13 .22	NO NO		22	D BRANCH 4
A 252	2		P5-71 P10-207					.13 .22	NO NO		22	D BRANCH 4
A 253	2		P5-72 P10-407					.13 .22	NO NO		22	D BRANCH 4
A 254	2		P5-48 P10-604					.13 .22	NO NO		22	D BRANCH 4
A 255	3											A
A 255R			P5-44 P10-107					.13 .18	NO NO		22 24	A BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 255Y			P5-68 P10-105					.13 .18	NO NO		22 24	A BRANCH 6
A 256	2		P6-14 P10-540					.13 .18	NO NO		22 25	C BRANCH 6
A 257	2		P6-30 P10-639					.13 .18	NO NO		22 25	C BRANCH 6
A 258	2		P6-48 P10-658					.13 .18	NO NO		22 25	C BRANCH 6
A 259	2		P6-72 P10-557					.13 .18	NO NO		22 25	C BRANCH 6
A 260	2		P6-73 P10-558					.13 .18	NO NO		22 25	C BRANCH 6
A 261	2		P6-49 P10-657					.13 .18	NO NO		22 25	C BRANCH 6
A 262	2		P6-28 P10-640					.13 .18	NO NO		22 25	C BRANCH 6
A 263	2		P6-29 P10-520					.13	NO NO		22 25	C BRANCH 6
A 264	2		P6-76 P10-523					.13	NO NO		22 25	C BRANCH 6
A 265	2		P6-75 P10-647					.13 .18	NO NO		22 25	C BRANCH 6
A 266	2		P6-50 P10-641					.13 .18	NO NO		22 25	C BRANCH 6

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 267	2		P6-74 P10-541					.13 .18	NO NO		22 25	C BRANCH 6
A 268	2		P6-40 P10-109					.13 .18	NO NO		22 25	C BRANCH 6
A 269	2		P6-21 P10-410					.13 .18	NO NO		22 25	C BRANCH 6
A 270	2		P6-65 P10-209					.13 .18	NO NO		22 25	C BRANCH 6
A 271	2		P6-22 P10-310					.13 .18	NO NO		22 25	C BRANCH 6
A 272	2		P6-66 P10-510					.13	NO NO		22 25	C BRANCH 6
A 273	2		P6-42 P10-210					.13 .18	NO NO		22 25	C BRANCH 6
A 274	2		P6-41 P10-610					.13 .18	NO NO		22 25	C BRANCH 6
A 275	2		P6-67 P10-110					.13 .18	NO NO		22 25	C BRANCH 6
A 276	2		P6-10 P10-111					.13 .18	NO NO		22 25	C BRANCH 6
A 277	2		P6-24 P10-612					.13 .18	NO NO		22 25	C BRANCH 6
A 278	2		P6-9 P10-211					.13 .18	NO NO		22 25	C BRANCH 6

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CODE IDENT NO. 80230
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SCALE-NONE
REV LTR H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 279	2		P6-23 P10-512					.13	NO NO		22 25	C BRANCH 6
A 280	2		P6-68 P10-511					.13	NO NO		22 25	C BRANCH 6
A 281	2		P6-69 P10-411					.13 .18	NO NO		22 25	C BRANCH 6
A 282	2		P6-43 P10-611					.13 .18	NO NO		22 25	C BRANCH 6
A 283	2		P6-44 P10-311					.13 .18	NO NO		22 25	C BRANCH 6
A 284	2		P6-46 P10-627					.13 .18	NO NO		22 25	C BRANCH 6
A 285	2		P6-25 P10-628					.13 .18	NO NO		22 25	C BRANCH 6
A 286	2		P6-45 P10-528					.13	NO NO		22 25	C BRANCH 6
A 287	2		P6-71 P10-526					.13	NO NO		22 25	C BRANCH 6
A 288	2		P6-70 P10-527					.13	NO NO		22 25	C BRANCH 6
A 289	2		P6-47 P10-626					.13 .18	NO NO		22 25	C BRANCH 6
A 290	2		P6-12 P10-654					.13 .18	NO NO		22 25	C BRANCH 6

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 291	2		P6-3 P10-655					.13 .18	NO NO		22 25	C BRANCH 6
A 292	2		P6-11 P10-555					.13 .18	NO NO		22 25	C BRANCH 6
A 293	2		P6-27 P10-553					.13 .18	NO NO		22 25	C BRANCH 6
A 294	2		P6-26 P10-554					.13 .18	NO NO		22 25	C BRANCH 6
A 295	2		P6-13 P10-653					.13 .18	NO NO		22 25	C BRANCH 6
A 296	2		P8-24 P10-403					.13 .18	NO NO		22 25	B BRANCH 4
A 297	2		P8-44 P10-603					.13 .18	NO NO		22 25	B BRANCH 4
A 298	2		P8-43 P10-503					.13 .18	NO NO		22 25	B BRANCH 4
A 299	2		P8-41 P10-103					.13 .18	NO NO		22 24	B BRANCH 4
A 300	2		P8-42 P10-303					.13 .18	NO NO		22 25	B BRANCH 4
A 301	2		P8-23 P10-203					.13 .18	NO NO		22 25	B BRANCH 4
A 302	2		P8-22 P10-502					.13 .22	NO NO		22 24	B BRANCH 4

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REV LTR H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 303	2		P8-10 P10-402					.13 .22	NO NO		22 24	B BRANCH 4
A 304	2		P8-52 P10-207					.13 .22	NO NO		22 24	B BRANCH 4
A 305	2		P8-50 P10-407					.13 .22	NO NO		22 24	B BRANCH 4
A 306	2		P8-51 P10-307					.13 .22	NO NO		22 24	B BRANCH 4
A 307	2		P8-31 P10-408					.13 .22	NO NO		22	B BRANCH 4
A 308	2		P8-53 P10-608					.13 .22	NO NO		22 24	B BRANCH 4
A 309	2		P8-54 P10-508					.13 .22	NO NO		22	B BRANCH 4
A 310	2		P8-32 P10-208					.13 .22	NO NO		22 24	B BRANCH 4
A 311	2		P8-30 P10-309					.13 .22	NO NO		22 24	B BRANCH 4
A 312	2		P8-29 P10-308					.13 .22	NO NO		22 24	B BRANCH 4
A 313	2		P8-16 P10-409					.13 .22	NO NO		22 24	B BRANCH 4
A 314	2		P8-14 P10-604					.13 .22	NO NO		22 24	B BRANCH 4

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE REV LTR H SHEET 63 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 315	2		P8-15 P10-609					.13 .22	NO NO		22 24	B BRANCH 4
A 316	1		P8-7 P10-106					.13 .18	NO NO		22 24	B BRANCH 4
A 317	1		P8-2 P10-104					.13 .18	NO NO		22 24	B BRANCH 4
A 318	2		P8-3 P10-607					.13 .22	NO NO		22 24	B BRANCH 4
A 319	2		P8-25 P10-606					.13 .22	NO NO		22 24	B BRANCH 4
A	2		P8-1 P10-507					.13 .22	NO NO		22 24	B BRANCH 4
A 321	2		P8-12 P10-406					.13 .22	NO NO		22 24	B BRANCH 4
A 322	2		P8-11 P10-506					.13 .22	NO NO		22 24	B BRANCH 4
A 323	2		P8-28 P10-405					.13 .22	NO NO		22 24	B BRANCH 4
A 324	2		P8-4 P10-206					.13 .22	NO NO		22 24	B BRANCH 4
A 325	2		P8-13 P10-306					.13 .22	NO NO		22 24	B BRANCH 4
A 326	2		P8-26 P10-205					.13 .22	NO NO		22 24	B BRANCH 4

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE REV LTR H SHEET 64 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 327	2		P8-27 P10-305					.13 .22	NO NO		22 24	B BRANCH 4
A 328	2		P8-47 P10-204					.13 .22	NO NO		22 24	B BRANCH 4
A 329	2		P8-45 P10-404					.13 .22	NO NO		22 24	B BRANCH 4
A 330	2		P8-46 P10-304					.13 .22	NO NO		22 24	B BRANCH 4
A 331	2		P8-48 P10-605					.13 .22	NO NO		22 24	B BRANCH 4
A 332	2		P8-49 P10-505					.13 .22	NO NO		22 24	B BRANCH 4
A 333	3									6A 6A	31 31	
A 333A	11		SHLD A333 E8					.20 .19	NO NO			
A 333B	11		E12 SHLD A333					.19 .20	NO NO			
A 333R			P3-3 P7-52					.13 .13	NO NO		22 22	
A 333Y			P3-11 P7-31					.13 .13	NO NO		22 22	
A 334	8				1.75 1.75	1.50 1.50				6A 6A	31 31	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE REV LTR H SHEET 65 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 334A	11		SHLD A334 E8					.20 .19	NO NO		 47	
A 334B	11		E11 SHLD A334					.19 .20	NO NO		47	
A 334R			P3-4 P6-51					.13 .13	NO NO		22 22	
A 335	9				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 335A	11		SHLD A335 E10					.20 .19	NO NO			
A 335B	11		E12 SHLD A335					.19 .20	NO NO		47	
A 335R			P5-19 P7-15					.13 .13	NO NO		22 22	
A 335Y			P5-18 P7-16					.13 .13	NO NO		22 22	
A 336	9				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 336A	11		SHLD A336 E10					.20 .19	NO NO			
A 336B	11		E13 SHLD A336					.19 .20	NO NO			
A 336R			P5-7 P7-30					.13 .13	NO NO		22 22	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE REV LTR H SHEET 66 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 336Y			P5-8 P7-14					.13 .13	NO NO		22 22	
A 337	3									6A 6A	31 31	
A 337A	11		SHLD A337 E10					.20 .19	NO NO		 47	
A 337B	11		E13 SHLD A337					.19 .20	NO NO		47 	
A 337R			P5-9 P7-6					.13 .13	NO NO		22 22	
A 337Y			P5-2 P7-7					.13 .13	NO NO		22 22	
A 338	2		P5-10 P10-508					.13 .22	NO NO		22 24	D BRANCH 4
A 339	2		P5-24 P10-408					.13 .22	NO NO		22 24	D BRANCH 4
A 340	35		E7 E5					.19 .19	NO NO		46 	F
A 341	35		E8 E5					.19 .19	NO NO			E
A 342	35		E9 E5					.19 .19	NO NO		 52	D
A 343	35		E9 E6					.19 .19	NO NO		47 	A

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR H | SHEET 67 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 344	35		E11 E6					.19 .19	NO NO			C
A 345	35		E14 E6					.19 .19	NO NO		46 52	B
A 346	2		P5-43 P10-108					.13 .22	NO NO		22 24	A BRANCH 6
A 347	35		E3 E36					.19 .19	NO NO		 58	G
A 348	4											G
A 348R			P9-610 P10-332					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 348Y			P9-510 P10-432					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 349	4											G
A 349R			P9-310 P10-330					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 349Y			P9-210 P10-430					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 350	4											G
A 350R			P9-609 P10-329					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR H | SHEET 68 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 350Y			P9-509 P10-429					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 351	4											G
A 351R			P9-309 P10-328					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 351Y			P9-209 P10-428					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 352	4											G
A 352R			P9-608 P10-334					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 352Y			P9-508 P10-434					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 353	4											G
A 353R			P9-308 P10-333					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 353Y			P9-208 P10-433					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 354	4											G
A 354R			P9-607 P10-338					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR H | SHEET 69 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 354Y			P9-507 P10-438					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 355	4											G
A 355R			P9-307 P10-337					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 355Y			P9-207 P10-437					.18 .18	NO NO		25 25	B, BRANCH 1 BRANCH 5
A 356	4											G
A 356R			P9-606 P10-336					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 356Y			P9-506 P10-436					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 357	4											G
A 357R			P9-306 P10-335					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 357Y			P9-206 P10-435					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 358	4											G
A 358R			P9-605 P10-146					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR H | SHEET 70 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 358Y			P9-505 P10-246					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359	4											G
A 359R			P9-305 P10-145					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359Y			P9-205 P10-245					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360	4											G
A 360R			P9-604 P10-144					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360Y			P9-504 P10-244					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 361	4											G
A 361R			P9-304 P10-143					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 361Y			P9-204 P10-243					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 362	4											G
A 362R			P9-603 P10-148					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H
SHEET 71 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO . (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 362Y			P9-503 P10-248					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363	4											G
A 363R			P9-303 P10-147					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363Y			P9-203 P10-247					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364	4											G
A 364R			P9-602 P10-152					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364Y			P9-502 P10-252					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 365	4											G
A 365R			P9-302 P10-151					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 365Y			P9-202 P10-251					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 366	4											G
A 366R			P9-601 P10-150					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H
SHEET 72 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 366Y			P9-501 P10-250					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367	4											G
A 367R			P9-301 P10-149					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367Y			P9-201 P10-249					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H
SHEET 73 OF 74

CONFIGURATION INCOMPLETE

SIZE A
CODE IDENT. NO. 80230
2014641
SCALE NONE
REV LTR H
SHEET ~~68~~ 74 of ~~68~~ 74

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-011	E	REPLACES REV D WITH CHANGE PER TDRR		
		F	CHAD PER TDRR 24806		
		G	Revised per TDRR 25306	2-4-66	
		H	REVISED PER TDRR 25886	10 FEB 66	RLP EF
		J	REVISED PER TDRR 25841	18 FEB 66	DKD EF

REPLACES REV D WITH CHANGE

REV	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	J	J	J	J	J	J	J	J	J	J	J
SHEET	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
REV STATUS OF SHEETS REV				J	J	J	J	J	J	H	J	J	H	H	H	H	H	H	H	H	J	J	J			
REV STATUS OF SHEETS SHEET				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			

MIT
INSTRUMENTATION LAB
CAMBRIDGE. MASS.
DWG NO.
CONTRACT

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Janowiak DATE 7 DEC 65
CHECKED W. Diehl 7 DEC 65
APPROVAL 8 DEC 65
APPROVAL 12/20/65

G & N INTERCONNECT HARNESS "A"
(C/M, BLOCK II)

NASA APPROVAL A. C. METZGER
MIT APPROVAL 21 Dec 65
CONTRACT NAS9-497

CODE IDENT NO.	SIZE		REV
80230	A	2014641	J
SCALE		SHEET 1 OF 74	

REVISION STATUS OF SHEETS

SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV
47	J																
48	J																
49	J																
50	J																
51	J																
52	J																
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70	J																
71	J																
72	J																
73	J																
74	J																

SIZE	CODE IDENT. NO.	
A	80230	2014641
SCALE NONE	REV LTR J	SHEET 2 of ~~68~~74

MIL 1377A3 8-65

NOTE NUMBER — GENERAL NOTES DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6A AND 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014671.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 3 OF 74

NOTE NUMBER — GENERAL NOTES DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTOR 56P2, USE ITEM NUMBERS 23 AND 32.
CONNECTOR 56P1,3,4,5,6,7, AND 8 USE ITEM NUMBERS 22 AND 32.
CONNECTOR 56P9, AND P10 USE ITEM NUMBER 24.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 38.

13 A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERF SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 4 OF 74

NOTE NUMBER — GENERAL NOTES DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED, INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE. SHORT CIRCUIT CURRENT LIMITED TO 15 MILLIAMPS.

22 PRESEAL BACK OF CONNECTORS 56P9 AND P10 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 41,42,43, AND 44.

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 39 AND 40.

24 CONDUCTORS WITH AN A,B,C,D,E,F OR G IN THE REMARKS COLUMN ARE TO BE GROUP SHIELDED PER DETAIL A AND/OR B OF THE CONF. DRAWING.

25 GROUP SHIELDING - THREAD ONE CONTINUOUS LENGTH OF GROUND WIRE, ITEM 35, THROUGH CENTER OF EMI/RFI SHIELDING TAPE. ITEM 34. ALLOW 6 INCHES OF GROUND WIRE TO EXTEND BEYOND ENDS OF SHIELDING TAPE. WRAP CABLE WITH ONE CONTINUOUS LENGTH OF PREPARED SHIELDING. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE, WITH A MINIMUM OF RIDGES AND FOLDS.

26 COMPLETELY COVER SHIELD WITH ONE CONTINUOUS WRAP OF INSULATION TAPE, ITEM 36. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE WITH A MINIMUM OF RIDGES AND FOLDS. WRAP TAPE IN OPPOSITE DIRECTION TO SHIELD WRAP.

27 ASSEMBLE INSULATION TUBING, ITEM 45, OVER GROUND WIRE AS REQUIRED TO REACH TERMINATION. ASSEMBLE SHRINK SLEEVING AS SHOWN.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 5 OF 74

NOTE NUMBER — GENERAL NOTES DESCRIPTION

28 ASSEMBLE A LENGTH OF WIRE BRAID ITEM 53 OVER CONDUCTORS A333 AND A337. ALLOW 1.75 INCH OF LEAD TO EXTEND BEYOND BRAID. COVER BRAID WITH TEFLON TAPE, ITEM 36, PER NOTE 26. ALLOW .25 INCH OF BRAID TO EXTEND BEYOND TAPE. FOLD BRAID OVER TAPE AND TERMINATE PER ND1002071, FIG. 6B.

29 CONDUCTORS SHALL ENTER CONNECTORS 56P9 AND 56P10 THROUGH THE APPROPRIATE BRANCH SPECIFIED IN THE REMARKS COLUMN.

31 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 GRMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACECRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICROSECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

32 MARK CHARACTERS .10-.14 HIGH, BLACK, PER ND 1002019. CENTRALIZE AS SHOWN

33 LACE HARNESS BRANCHES TOGETHER USING A CONTINUOUS CLOVE HITCH AT LOCATIONS SHOWN.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 6 OF 74

NOTE NUMBER	GENERAL NOTES DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014641- 1	WIRE PER 1010789-006, 22 AWG, YEL, 25 FT TOT LG
	2	1	2014641- 2	WIRE PER 1010789-016, 26 AWG, YEL, 50 FT TOT LG
	3	1	2014641- 3	WIRE PER 1010789-008, 22 AWG, YEL, RED, 15 FT TOT LG
	4	1	2014641- 4	WIRE PER 1010789-017, 26 AWG, YEL, RED, 220 FT TOT LG
	5	1	2014641- 5	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 20 FT TOT LG
	6	1	2014641- 6	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN 90 FT TOT LG
	7	1	2014641- 7	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 25 FT TOT LG
	8	1	2014641- 8	WIRE PER 1010789-011, 24 AWG, YEL, YEL JKT, 10 FT TOT LG
	9	1	2014641- 9	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 150 FT TOT LG
	10	1	2014641- 10	WIRE PER 1010789-013, 24 AWG, YEL, RED, GRN, YEL JKT, 10 FT TOT LG
	11	1	2014641- 11	WIRE PER 1010789-002, 24 AWG, BLK, 80 FT TOT LG
	12	1	2014741-011	CONNECTOR, PLUG, ELECTRICAL (56P9)
	13	1	2014749-011	CONNECTOR, PLUG, ELECTRICAL (56P10)
9	14	1	1010929-109	CONNECTOR, PLUG, ELECTRICAL (56P1)

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	15	1	1010929-005	CONNECTOR, PLUG, ELECTRICAL (56P2)
9	16	1	1010929-102	CONNECTOR, PLUG, ELECTRICAL (56P3)
9	17	1	1010929-101	CONNECTOR, PLUG, ELECTRICAL (56P4)
9	18	1	1010929-103	CONNECTOR, PLUG, ELECTRICAL (56P5)
9	19	1	1010929-104	CONNECTOR, PLUG, ELECTRICAL (56P6)
9	20	1	1010929-108	CONNECTOR, PLUG, ELECTRICAL (56P7)
9	21	1	1010929-105	CONNECTOR, PLUG, ELECTRICAL (56P8)
9	22	X	1010770- 1	CONTACT, PIN, SUPPLIED WITH CONNECTOR 1010929
9	23	X	1010770- 2	CONTACT, SOCKET, SUPPLIED WITH CONNECTOR 1010929
9	24	311	1010955- 1	CONTACT, MALE
9	25	349	1010955- 2	CONTACT, MALE
	26	1	2014670- 4	ADAPTER, CONNECTOR
	27		2014670- 5	DELETED
	28	1	2014670- 7	ADAPTER, CONNECTOR
9	29	14	1012534- 36	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	30	2	1012534- 38	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	31	97	1010402- 2	SLEEVE, SOLDER
9	32	115	1010958- 1	PLUG, PROTECTIVE SEALING

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	34	AR	1010989	TAPE, SHIELDING, EMI/RFI
	35	1	2014641-012	WIRE PER QQ-W-343, TYPE C, CLASS C, 22 AWG, 100 FT TOT LG
	36	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	37	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
9	38	AR	1012507-004	TAPE, LACING AND TYING
9	39	AR	1012503	COMPOUND, POTTING, POLYURETHANE
9	40	AR	1012504	PRIMER, METAL PARTS
9	41	AR	1010661	EPOXY RESIN
9	42	AR	1010679	ADHESIVE ACTIVATOR
9	43	AR	1008822	COLORANT, EPOXY BASE
9	44	AR	1006277	SILICA, PULVERIZED, PYROGENIC
9	45	AR	1006776- 44	INSULATION SLEEVING, 6 FEET TOTAL LENGTH
	46	2	MS17182-2	TERMINAL LUG
	47	6	MS17182-1	TERMINAL LUG
	48	8	MS35333-69	WASHER, LOCK
9	49	8	1006783- 93	SCREW, BUTTON HD
	50	5	MS35335-57	WASHER, LOCK
9	51	5	1006783- 18	SCREW, BUTTON HD

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SEE NOTE

LIST OF MATERIALS

NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	52	4	MS25036-52	TERMINAL LUG
28	53	1	2014641-013	WIRE BRAID,QQ-B-575,.12DIA. 36AWG, 5 FT TOT LG
	54	2	2014670- 11	ADAPTER, CONNECTOR
	55	2	2014670- 12	ADAPTER, CONNECTOR
	56	1	2014670- 13	ADAPTER,CONNECTOR
	57	1	2014670- 15	ADAPTER,CONNECTOR
	58	1	MS25036-48	TERMINAL LUG

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 11 OF 74

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WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	1		DELETED									
A	1A		DELETED									
A	1R		DELETED									
A	1Y		DELETED									
A	2		DELETED									
A	2A		DELETED									
A	2R		DELETED									
A	2Y		DELETED									
A	3		DELETED									
A	3A		DELETED									
A	3R		DELETED									
A	3Y		DELETED									

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 12 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	4		DELETED									
A	4A		DELETED									
A	4R		DELETED									
A	4Y		DELETED									
A	5		DELETED									
A	5A		DELETED									
A	5R		DELETED									
A	5Y		DELETED									
A	6		DELETED									
A	6A		DELETED									
A	6R		DELETED									
A	6Y		DELETED									

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 13 OF 74

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WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	7		DELETED									
A	7A		DELETED									
A	7R		DELETED									
A	7Y		DELETED									
A	8		DELETED									
A	8A		DELETED									
A	8R		DELETED									
A	8Y		DELETED									
A	9		DELETED									
A	9A		DELETED									
A	9R		DELETED									
A	9Y		DELETED									

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 14 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 10			DELETED									
A 10A			DELETED									
A 10R			DELETED									
A 10Y			DELETED									
A 11			DELETED									
A 11A			DELETED									
A 11R			DELETED									
A 11Y			DELETED									
A 12			DELETED									
A 12A			DELETED									
A 12R			DELETED									
A 12Y			DELETED									

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 15 OF 74

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 13			DELETED									
A 13A			DELETED									
A 13R			DELETED									
A 13Y			DELETED									
A 14			DELETED									
A 14A			DELETED									
A 14R			DELETED									
A 14Y			DELETED									
A 15			DELETED									
A 15A			DELETED									
A 15R			DELETED									
A 15Y			DELETED									

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 16 OF 74

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 16			DELETED									
A 16A			DELETED									
A 16R			DELETED									
A 16Y			DELETED									
A 17			DELETED									
A 17A			DELETED									
A 17R			DELETED									
A 17Y			DELETED									
A 18			DELETED									
A 18A			DELETED									
A 18R			DELETED									
A 18Y			DELETED									

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 17 OF 74

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 19			DELETED									
A 19A			DELETED									
A 19R			DELETED									
A 19Y			DELETED									
A 20			DELETED									
A 20A			DELETED									
A 20R			DELETED									
A 20Y			DELETED									
A 21	9				1.00 1.00	.75 .75				6B 6B	31 31	
A 21A	11		SHLD A21 P9-111					.20 .18	NO NO		24	BRANCH 2
A 21B	11		E3 SHLD A21					.19 .20	NO NO			
A 21R			P9-311 P10-515					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 18 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 21Y			P9-211 P10-615					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 22	10				1.00 1.00	.75 .75				7 68	29 31	
A 22B	11		E3 SHLD A22					.19 .20	NO NO			
A 22G			P9-511 P10-536					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 5
A 22R			P9-611 P10-622					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A 22Y			P9-411 P10-534					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 5
A 23	9				1.00 1.00	.75 .75				7 68	29 31	
A 23B	11		E4 SHLD A23					.19 .20	NO NO			
A 23R			P9-212 P10-112					.18 .18	NO NO		25 25	BRANCH 2
A 23Y			P9-112 P10-412					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 24	9				1.00 1.00	.75 .75				7 68	29 31	
A 24B	11		E4 SHLD A24					.19 .20	NO NO			

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 19 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24R			P9-412 P10-614					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 24Y			P9-312 P10-313					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 25	10				1.00 1.00	.75 .75				7 68	29 31	
A 25B	11		E4 SHLD A25					.19 .20	NO NO		52	
A 25G			P9-113 P10-514					.18 .18	NO NO		25 24	BRANCH 2 BRANCH 4
A 25R			P9-612 P10-314					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A 25Y			P9-512 P10-414					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A 26	9				1.00 1.00	.75 .75				7 68	29 31	
A 26B	11		E3 SHLD A26					.19 .20	NO NO		52	
A 26R			P9-313 P10-525					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 26Y			P9-213 P10-624					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 27	9				1.75 1.00	1.50 .75				68 68	31 31	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 20 OF 74

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WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 27A	11		SHLD A27 P7-12					.20 .13	NO NO		 22	
A 27B	11		P9-637 SHLD A27					.18 .20	NO NO		24	BRANCH 3
A 27R			P7-27 P9-437					.13 .18	NO NO		22 25	 BRANCH 3
A 27Y			P7-13 P9-537					.13 .18	NO NO		22 25	 BRANCH 3
A 28	9				1.75 1.00	1.50 .75				68 68	31 31	
A 28A	11		SHLD A28 P7-26					.20 .13	NO NO		 22	
A 28B	11		P9-137 SHLD A28					.18 .20	NO NO		24	BRANCH 3
A 28R			P7-47 P9-237					.13 .18	NO NO		22 25	 BRANCH 3
A 28Y			P7-46 P9-337					.13 .18	NO NO		22 25	 BRANCH 3
A 29	9				1.75 1.00	1.50 .75				68 68	31 31	
A 29A	11		SHLD A29 P7-24					.20 .13	NO NO		 22	
A 29B	11		P9-634 SHLD A29					.18 .20	NO NO		24	BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 21 OF 74

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WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 29R			P7-44 P9-434					.13 .18	NO NO		22 25	 BRANCH 2
A 29Y			P7-25 P9-534					.13 .18	NO NO		22 25	 BRANCH 2
A 30	9				1.75 1.00	1.50 .75				68 68	31 31	
A 30A	11		SHLD A30 P7-5					.20 .13	NO NO		 22	
A 30B	11		P9-335 SHLD A30					.18 .20	NO NO		24	BRANCH 2
A 30R			P7-4 P9-135					.13 .18	NO NO		22 25	 BRANCH 2
A 30Y			P7-1 P9-235					.13 .18	NO NO		22 25	 BRANCH 2
A 31	9				1.75 1.00	1.50 .75				68 68	31 31	
A 31A	11		SHLD A31 P7-3					.20 .13	NO NO		 22	
A 31B	11		P9-635 SHLD A31					.18 .20	NO NO		24	BRANCH 2
A 31R			P7-11 P9-435					.13 .18	NO NO		22 25	 BRANCH 2
A 31Y			P7-10 P9-535					.13 .18	NO NO		22 25	 BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 22 OF 74

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WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 32	4											
A 32R			P7-53					.13	NO		22	
			P9-536					.18	NO		25	BRANCH 3
A 32Y			P7-54					.13	NO		22	
			P9-636					.18	NO		25	BRANCH 3
A 33	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 33A	11		SHLD A33					.20	NO			
			P1-13					.13	NO		22	
A 33B	11		P9-332					.18	NO		24	BRANCH 2
			SHLD A33					.20	NO			
A 33R			P1-28					.13	NO		22	
			P9-132					.18	NO		25	BRANCH 2
A 33Y			P1-27					.13	NO		22	
			P9-232					.18	NO		25	BRANCH 2
A 34	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 34A	11		SHLD A34					.20	NO			
			P1-16					.13	NO		22	
A 34B	11		P9-632					.18	NO		24	BRANCH 2
			SHLD A34					.20	NO			
A 34R			P1-6					.13	NO		22	
			P9-432					.18	NO		25	BRANCH 2

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CODE IDENT NO. 80230
2014641
SCALE-NONE
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 34Y			P1-5					.13	NO		22	
			P9-532					.18	NO		25	BRANCH 2
A 35	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 35A	11		SHLD A35					.20	NO			
			P1-1					.13	NO		22	
A 35B	11		P9-333					.18	NO		24	BRANCH 2
			SHLD A35					.20	NO			
A 35R			P1-4					.13	NO		22	
			P9-133					.18	NO		25	BRANCH 2
A 35Y			P1-3					.13	NO		22	
			P9-233					.18	NO		25	BRANCH 2
A 36	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 36A	11		SHLD A36					.20	NO			
			P1-17					.13	NO		22	
A 36B	11		P9-346					.18	NO		24	BRANCH 3
			SHLD A36					.20	NO			
A 36R			P1-34					.13	NO		22	
			P9-146					.18	NO		25	BRANCH 3
A 36Y			P1-33					.13	NO		22	
			P9-246					.18	NO		25	BRANCH 3
A 37	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H
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WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 37A	11		SHLD A37					.20	NO			
			P1-18					.13	NO		22	
A 37B	11		P9-646					.18	NO		24	BRANCH 3
			SHLD A37					.20	NO			
A 37R			P1-35					.13	NO		22	
			P9-446					.18	NO		25	BRANCH 3
A 37Y			P1-36					.13	NO		22	
			P9-546					.18	NO		25	BRANCH 3
A 38	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 38A	11		SHLD A38					.20	NO			
			P1-14					.13	NO		22	
A 38B	11		P9-348					.18	NO		24	BRANCH 3
			SHLD A38					.20	NO			
A 38R			P1-30					.13	NO		22	
			P9-148					.18	NO		25	BRANCH 3
A 38Y			P1-29					.13	NO		22	
			P9-248					.18	NO		25	BRANCH 3
A 39	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 39A	11		SHLD A39					.20	NO			
			P1-15					.13	NO		22	
A 39B	11		P9-648					.18	NO		24	BRANCH 3
			SHLD A39					.20	NO			

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H
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WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 39R			P1-31					.13	NO		22	
			P9-448					.18	NO		25	BRANCH 3
A 39Y			P1-32					.13	NO		22	
			P9-548					.18	NO		25	BRANCH 3
A 40	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 40A	11		SHLD A40					.20	NO			
			P1-20					.13	NO		22	
A 40B	11		P9-633					.18	NO		24	BRANCH 2
			SHLD A40					.20	NO			
A 40R			P1-19					.13	NO		22	
			P9-433					.18	NO		25	BRANCH 2
A 40Y			P1-37					.13	NO		22	
			P9-533					.18	NO		25	BRANCH 2
A 41	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 41A	11		SHLD A41					.20	NO			
			P1-21					.13	NO		22	
A 41B	11		P9-334					.18	NO		24	BRANCH 2
			SHLD A41					.20	NO			
A 41R			P1-38					.13	NO		22	
			P9-134					.18	NO		25	BRANCH 2
A 41Y			P1-39					.13	NO		22	
			P9-234					.18	NO		25	BRANCH 2

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CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 42	6											
A 42G			P1-26 P9-421					.13 .18	NO NO		22 25	BRANCH 2
A 42R			P1-43 P9-620					.13 .18	NO NO		22 25	BRANCH 2
A 42Y			P1-44 P9-221					.13 .18	NO NO		22 25	BRANCH 2
A 43	6											
A 43G			P1-8 P9-222					.13 .18	NO NO		22 25	BRANCH 2
A 43R			P1-7 P9-621					.13 .18	NO NO		22 25	BRANCH 2
A 43Y			P1-2 P9-119					.13 .18	NO NO		22 25	BRANCH 2
A 46	2		P1-25 P9-422					.13 .18	NO NO		22 25	BRANCH 2
A 47	3											
A 47R			P1-40 P9-228					.13 .18	NO NO		22 24	BRANCH 2
A 47Y			P1-23 P9-328					.13 .18	NO NO		22 24	BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 48	3											
A 48R			P1-41 P9-428					.13 .18	NO NO		22 24	BRANCH 2
A 48Y			P1-42 P9-528					.13 .18	NO NO		22 24	BRANCH 2
A 49	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 49A	11		SHLD A49 P4-30					.20 .13	NO NO		22	
A 49B	11		P9-340 SHLD A49					.18 .20	NO NO		24	BRANCH 3
A 49R			P4-52 P9-140					.13 .18	NO NO		22 25	BRANCH 3
A 49Y			P4-51 P9-240					.13 .18	NO NO		22 25	BRANCH 3
A 50	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 50A	11		SHLD A50 P4-31					.20 .13	NO NO		22	
A 50B	11		P9-640 SHLD A50					.18 .20	NO NO		24	BRANCH 3
A 50R			P4-54 P9-440					.13 .18	NO NO		22 25	BRANCH 3

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 50Y			P4-53 P9-540					.13 .18	NO NO		22 25	BRANCH 3
A 51	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 51A	11		SHLD A51 P4-29					.20 .13	NO NO		22	
A 51B	11		P9-341 SHLD A51					.18 .20	NO NO		24	BRANCH 3
A 51R			P4-13 P9-141					.13 .18	NO NO		22 25	BRANCH 3
A 51Y			P4-14 P9-241					.13 .18	NO NO		22 25	BRANCH 3
A 52	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 52A	11		SHLD A52 P4-32					.20 .13	NO NO		22	
A 52B	11		P9-641 SHLD A52					.18 .20	NO NO		24	BRANCH 3
A 52R			P4-16 P9-441					.13 .18	NO NO		22 25	BRANCH 3
A 52Y			P4-15 P9-541					.13 .18	NO NO		22 25	BRANCH 3
A 53	9				1.75 1.00	1.50 .75				6B 6B	31 31	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 53A	11		SHLD A53 P4-36					.20 .13	NO NO		22	
A 53B	11		P9-342 SHLD A53					.18 .20	NO NO		24	BRANCH 3
A 53R			P4-59 P9-142					.13 .18	NO NO		22 25	BRANCH 3
A 53Y			P4-60 P9-242					.13 .18	NO NO		22 25	BRANCH 3
A 54	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 54A	11		SHLD A54 P4-37					.20 .13	NO NO		22	
A 54B	11		P9-642 SHLD A54					.18 .20	NO NO		24	BRANCH 3
A 54R			P4-61 P9-442					.13 .18	NO NO		22 25	BRANCH 3
A 54Y			P4-38 P9-542					.13 .18	NO NO		22 25	BRANCH 3
A 55	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 55A	11		SHLD A55 P4-33					.20 .13	NO NO		22	
A 55B	11		P9-343 SHLD A55					.18 .20	NO NO		24	BRANCH 3

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 55R			P4-56 P9-143					.13 .18	NO NO		22 25	BRANCH 3
A 55Y			P4-55 P9-243					.13 .18	NO NO		22 25	BRANCH 3
A 56	9				1.75 1.00	1.50 .75				68 68	31 31	
A 56A	11		SHLD A56 P4-34					.20 .13	NO NO		22	
A 56B	11		P9-643 SHLD A56					.18 .20	NO NO		24	BRANCH 3
A 56R			P4-57 P9-443					.13 .18	NO NO		22 25	BRANCH 3
A 56Y			P4-58 P9-543					.13 .18	NO NO		22 25	BRANCH 3
A 57	9				1.75 1.00	1.50 .75				68 68	31 31	
A 57A	11		SHLD A57 P4-27					.20 .13	NO NO		22	
A 57B	11		P9-344 SHLD A57					.18 .20	NO NO		24	BRANCH 3
A 57R			P4-48 P9-144					.13 .18	NO NO		22 25	BRANCH 3
A 57Y			P4-47 P9-244					.13 .18	NO NO		22 25	BRANCH 3

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A	80230	2014641
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 58	9				1.75 1.00	1.50 .75				68 68	31 31	
A 58A	11		SHLD A58 P4-28					.20 .13	NO NO		22	
A 58B	11		P9-644 SHLD A58					.18 .20	NO NO		24	BRANCH 3
A 58R			P4-49 P9-444					.13 .18	NO NO		22 25	BRANCH 3
A 58Y			P4-50 P9-544					.13 .18	NO NO		22 25	BRANCH 3
A 59	9				1.75 1.00	1.50 .75				68 68	31 31	
A 59A	11		SHLD A59 P4-35					.20 .13	NO NO		22	
A 59B	11		P9-345 SHLD A59					.18 .20	NO NO		24	BRANCH 3
A 59R			P4-17 P9-145					.13 .18	NO NO		22 25	BRANCH 3
A 59Y			P4-18 P9-245					.13 .18	NO NO		22 25	BRANCH 3
A 60	9				1.75 1.00	1.50 .75				68 68	31 31	
A 60A	11		SHLD A60 P4-20					.20 .13	NO NO		22	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 32 OF 74

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WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 60B	11		P9-645 SHLD A60					.18 .20	NO NO		24	BRANCH 3
A 60R			P4-19 P9-445					.13 .18	NO NO		22 25	BRANCH 3
A 60Y			P4-8 P9-545					.13 .18	NO NO		22 25	BRANCH 3
A 61	9				1.75 1.00	1.50 .75				68 68	31 31	
A 61A	11		SHLD A61 P4-22					.20 .13	NO NO		22	
A 61B	11		P9-329 SHLD A61					.18 .20	NO NO		24	BRANCH 2
A 61R			P4-41 P9-129					.13 .18	NO NO		22 25	BRANCH 2
A 61Y			P4-42 P9-229					.13 .18	NO NO		22 25	BRANCH 2
A 62	9				1.75 1.00	1.50 .75				68 68	31 31	
A 62A	11		SHLD A62 P4-24					.20 .13	NO NO		22	
A 62B	11		P9-629 SHLD A62					.18 .20	NO NO		24	BRANCH 2
A 62R			P4-43 P9-429					.13 .18	NO NO		22 25	BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 33 OF 74

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WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 62Y			P4-44 P9-529					.13 .18	NO NO		22 25	BRANCH 2
A 63	9				1.75 1.00	1.50 .75				68 68	31 31	
A 63A	11		SHLD A63 P4-25					.20 .13	NO NO		22	
A 63B	11		P9-330 SHLD A63					.18 .20	NO NO		24	BRANCH 2
A 63R			P4-45 P9-130					.13 .18	NO NO		22 25	BRANCH 2
A 63Y			P4-46 P9-230					.13 .18	NO NO		22 25	BRANCH 2
A 64	9				1.75 1.00	1.50 .75				68 68	31 31	
A 64A	11		SHLD A64 P4-21					.20 .13	NO NO		22	
A 64B	11		P9-630 SHLD A64					.18 .20	NO NO		24	BRANCH 2
A 64R			P4-39 P9-430					.13 .18	NO NO		22 25	BRANCH 2
A 64Y			P4-40 P9-530					.13 .18	NO NO		22 25	BRANCH 2
A 65	9				1.75 1.00	1.50 .75				68 68	31 31	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 34 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 65A	11		SHLD A65 P4-10					.20 .13	NO NO		22	
A 65B	11		P9-331 SHLD A65					.18 .20	NO NO		24	BRANCH 2
A 65R			P4-9 P9-131					.13 .18	NO NO		22 25	BRANCH 2
A 65Y			P4-23 P9-231					.13 .18	NO NO		22 25	BRANCH 2
A 66	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 66A	11		SHLD A66 P4-11					.20 .13	NO NO		22	
A 66B	11		P9-631 SHLD A66					.18 .20	NO NO		24	BRANCH 2
A 66R			P4-26 P9-431					.13 .18	NO NO		22 25	BRANCH 2
A 66Y			P4-12 P9-531					.13 .18	NO NO		22 25	BRANCH 2
A 67	9				1.75 1.00	1.50 .75				6B 7	31 29	
A 67A	11		SHLD A67 P4-1					.20 .13	NO NO		22	
A 67R			P4-6 P9-338					.13 .18	NO NO		22 25	BRANCH 3

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SCALE-NONE | REV LTR H | SHEET 35 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 67Y			P4-7 P9-238					.13 .18	NO NO		22 25	BRANCH 3
A 68	8				1.75 1.00	1.50 .75				6B 7	31 29	
A 68A	11		SHLD A68 P4-2					.20 .13	NO NO		22	
A 68R			DELETED									
A 68Y			P4-3 P9-138					.13 .18	NO NO		22 24	BRANCH 3
A 69	1		P4-5 P9-336					.13 .18	NO NO		22 24	BRANCH 3
A 70	1		P4-4 P9-136					.13 .18	NO NO		22 24	BRANCH 3
A 71	1		P5-84 P9-236					.13 .18	NO NO		22 24	BRANCH 3
A 72	1		P5-60 P9-436					.13 .18	NO NO		22 24	BRANCH 3
A 74	4											F
A 74R			P2-55 P10-121					.13 .18	NO NO		23 25	F BRANCH 5
A 74Y			P2-56 P10-221					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641
SCALE-NONE | REV LTR J | SHEET 36 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 75	4											F
A 75R			P2-54 P10-120					.13 .18	NO NO		23 25	F BRANCH 5
A 75Y			P2-32 P10-220					.13 .18	NO NO		23 25	F BRANCH 5
A 76	4											F
A 76R			P2-17 P10-119					.13 .18	NO NO		23 25	F BRANCH 5
A 76Y			P2-33 P10-219					.13 .18	NO NO		23 25	F BRANCH 5
A 77	4											F
A 77R			P2-16 P10-118					.13 .18	NO NO		23 25	F BRANCH 5
A 77Y			P2-5 P10-218					.13 .18	NO NO		23 25	F BRANCH 5
A 78	4											F
A 78R			P2-57 P10-321					.13 .18	NO NO		23 25	F BRANCH 5
A 78Y			P2-34 P10-421					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641
SCALE-NONE | REV LTR J | SHEET 37 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG.	ACCESSORY ITEMS	REMARKS
A 79	4											F
A 79R			P2-18 P10-320					.13 .18	NO NO		23 25	F BRANCH 5
A 79Y			P2-35 P10-420					.13 .18	NO NO		23 25	F BRANCH 5
A 80	4											F
A 80R			P2-52 P10-319					.13 .18	NO NO		23 25	F BRANCH 5
A 80Y			P2-53 P10-419					.13 .18	NO NO		23 25	F BRANCH 5
A 81	4											F
A 81R			P2-15 P10-318					.13 .18	NO NO		23 25	F BRANCH 5
A 81Y			P2-30 P10-418					.13 .18	NO NO		23 25	F BRANCH 5
A 82	4											F
A 82R			P2-50 P10-317					.13 .18	NO NO		23 25	F BRANCH 5
A 82Y			P2-51 P10-417					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641
SCALE-NONE | REV LTR J | SHEET 38 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 83	4											F
A 83R			P2-13 P10-323					.13 .18	NO NO		23 25	F BRANCH 5
A 83Y			P2-29 P10-423					.13 .18	NO NO		23 25	F BRANCH 5
A 84	4											F
A 84R			P2-12 P10-322					.13 .18	NO NO		23 25	F BRANCH 5
A 84Y			P2-27 P10-422					.13 .18	NO NO		23 25	F BRANCH 5
A 85	4											F
A 85R			P2-48 P10-316					.13 .18	NO NO		23 25	F BRANCH 5
A 85Y			P2-49 P10-416					.13 .18	NO NO		23 25	F BRANCH 5
A 86	4											F
A 86R			P2-1 P10-315					.13 .18	NO NO		23 25	F BRANCH 5
A 86Y			P2-4 P10-415					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 87	4											F
A 87R			P2-11 P10-324					.13 .18	NO NO		23 25	F BRANCH 5
A 87Y			P2-24 P10-424					.13 .18	NO NO		23 25	F BRANCH 5
A 88	4											F
A 88R			P2-10 P10-117					.13 .18	NO NO		23 24	F BRANCH 5
A 88Y			P2-2 P10-217					.13 .18	NO NO		23 25	F BRANCH 5
A 89	4											F
A 89R			P2-59 P10-139					.13 .18	NO NO		23 25	F BRANCH 5
A 89Y			P2-58 P10-239					.13 .18	NO NO		23 25	F BRANCH 5
A 90	4											F
A 90R			P2-7 P10-138					.13 .18	NO NO		23 25	F BRANCH 5
A 90Y			P2-6 P10-238					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 91	4											F
A 91R			P2-36 P10-137					.13 .18	NO NO		23 25	F BRANCH 5
A 91Y			P2-60 P10-237					.13 .18	NO NO		23 25	F BRANCH 5
A 92	4											F
A 92R			P2-8 P10-136					.13 .18	NO NO		23 25	F BRANCH 5
A 92Y			P2-19 P10-236					.13 .18	NO NO		23 25	F BRANCH 5
A 93	4											F
A 93R			P2-61 P10-135					.13 .18	NO NO		23 25	F BRANCH 5
A 93Y			P2-38 P10-235					.13 .18	NO NO		23 25	F BRANCH 5
A 94	4											F
A 94R			P2-39 P10-134					.13 .18	NO NO		23 25	F BRANCH 5
A 94Y			P2-20 P10-234					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 95	4											F
A 95R			P2-43 P10-327					.13 .18	NO NO		23 25	F BRANCH 5
A 95Y			P2-42 P10-427					.13 .18	NO NO		23 25	F BRANCH 5
A 96	4											F
A 96R			P2-22 P10-326					.13 .18	NO NO		23 25	F BRANCH 5
A 96Y			P2-9 P10-426					.13 .18	NO NO		23 25	F BRANCH 5
A 97	4											F
A 97R			P2-41 P10-325					.13 .18	NO NO		23 25	F BRANCH 5
A 97Y			P2-40 P10-425					.13 .18	NO NO		23 25	F BRANCH 5
A 98	10				1.75 1.00	1.50 .75				6B 7	31 29	
A 98A	11		SHLD A98 P2-44					.20 .13	NO NO		 23	
A 98G			P2-25 P10-212					.13 .18	NO NO		23 24	BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 98R			P2-46 P10-113					.13 .18	NO NO		23 24	BRANCH 4
A 98Y			P2-45 P10-312					.13 .18	NO NO		23 24	BRANCH 4
A 99	8				1.75 1.00	1.50 .75				68 7	31 29	
A 99A	11		SHLD A99 P2-26					.20 .13	NO NO		23	
A 99R			DELETED									
A 99Y			P2-47 P10-114					.13 .18	NO NO		23 24	BRANCH 4
A 104	2		P3-1 P10-538					.13 .18	NO NO		22 25	E BRANCH 5
A 105	2		P3-7 P10-556					.13 .18	NO NO		22 25	E BRANCH 5
A 106	2		P3-2 P10-625					.13 .18	NO NO		22 25	E BRANCH 5
A 113	2		P3-8 P10-547					.13 .18	NO NO		22 25	E BRANCH 5
A 116	1		P5-66 P10-602					.13 .18	NO NO		22 24	D BRANCH 4
A 118	1		P5-45 P10-504					.13 .18	NO NO		22 24	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 43 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 125	2		P5-26 P10-409					.13 .22	NO NO		22	D BRANCH 4
A 127	5											A
A 127G			P5-53 P10-161					.13 .18	NO NO		22 24	A BRANCH 6
A 127R			P5-78 P10-159					.13 .18	NO NO		22 24	A BRANCH 6
A 127Y			P5-54 P10-160					.13 .18	NO NO		22 24	A BRANCH 6
A 128	5											A
A 128G			P5-55 P10-260					.13 .18	NO NO		22 24	A BRANCH 6
A 128R			P5-79 P10-261					.13 .18	NO NO		22 24	A BRANCH 6
A 128Y			P5-80 P10-259					.13 .18	NO NO		22 24	A BRANCH 6
A 129	5											A
A 129G			P5-16 P10-360					.13 .18	NO NO		22 24	A BRANCH 6
A 129R			P5-33 P10-361					.13 .18	NO NO		22 24	A BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 44 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 129Y			P5-32 P10-359					.13 .18	NO NO		22 24	A BRANCH 6
A 130	5											A
A 130G			P5-56 P10-460					.13 .18	NO NO		22 24	A BRANCH 6
A 130R			P5-81 P10-461					.13 .18	NO NO		22 24	A BRANCH 6
A 130Y			P5-57 P10-459					.13 .18	NO NO		22 24	A BRANCH 6
A 131	5											A
A 131G			P5-35 P10-560					.13 .18	NO NO		22 24	A BRANCH 6
A 131R			P5-58 P10-561					.13 .18	NO NO		22 24	A BRANCH 6
A 131Y			P5-34 P10-559					.13 .18	NO NO		22 24	A BRANCH 6
A 139	2		P6-77 P10-636					.13 .18	NO NO		22 25	C BRANCH 6
A 148	2		P6-20 P10-613					.13 .18	NO NO		22 25	C BRANCH 6
A 149	4											C

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 45 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 149R			P6-85 P10-133					.13 .18	NO NO		22 25	C BRANCH 6
A 149Y			P6-84 P10-233					.13 .18	NO NO		22 25	C BRANCH 6
A 150	4											C
A 150R			P6-82 P10-516					.13 .18	NO NO		22 25	C BRANCH 6
A 150Y			P6-57 P10-616					.13 .18	NO NO		22 25	C BRANCH 6
A 151	4											C
A 151R			P6-8 P10-158					.13 .18	NO NO		22 25	C BRANCH 6
A 151Y			P6-2 P10-258					.13 .18	NO NO		22 25	C BRANCH 6
A 152	4											C
A 152R			P6-19 P10-157					.13 .18	NO NO		22 25	C BRANCH 6
A 152Y			P6-7 P10-257					.13 .18	NO NO		22 25	C BRANCH 6
A 153	4											C

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 46 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 153R			P6-6 P10-156					.13 .18	NO NO		22 25	C BRANCH 6
A 153Y			P6-1 P10-256					.13 .18	NO NO		22 25	C BRANCH 6
A 154	4											C
A 154R			P6-5 P10-155					.13 .18	NO NO		22 25	C BRANCH 6
A 154Y			P6-4 P10-255					.13 .18	NO NO		22 25	C BRANCH 6
A 155	4											C
A 155R			P6-15 P10-154					.13 .18	NO NO		22 25	C BRANCH 6
A 155Y			P6-16 P10-254					.13 .18	NO NO		22 25	C BRANCH 6
A 156	4											C
A 156R			P6-17 P10-153					.13 .18	NO NO		22 25	C BRANCH 6
A 156Y			P6-33 P10-253					.13 .18	NO NO		22 25	C BRANCH 6
A 157	4											C

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 157R			P6-61 P10-132					.13 .18	NO NO		22 25	C BRANCH 6
A 157Y			P6-60 P10-232					.13 .18	NO NO		22 25	C BRANCH 6
A 158	4											
A 158R			P6-37 P10-130					.13 .18	NO NO		22 25	C BRANCH 6
A 158Y			P6-36 P10-230					.13 .18	NO NO		22 25	C BRANCH 6
A 159	4											C
A 159R			P6-83 P10-352					.13 .18	NO NO		22 25	C BRANCH 6
A 159Y			P6-59 P10-452					.13 .18	NO NO		22 25	C BRANCH 6
A 160	4											C
A 160R			P6-35 P10-129					.13 .18	NO NO		22 25	C BRANCH 6
A 160Y			P6-18 P10-229					.13 .18	NO NO		22 25	C BRANCH 6
A 161	4											C

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 161R			P6-58 P10-128					.13 .18	NO NO		22 25	C BRANCH 6
A 161Y			P6-34 P10-228					.13 .18	NO NO		22 25	C BRANCH 6
A 164	1		P8-9 P10-302					.13 .18	NO NO		22 24	B BRANCH 4
A 170	2		P8-5 P10-509					.13 .18	NO NO		22 25	B BRANCH 4
A 177	2		P8-8 P10-108					.13 .22	NO NO		22	B BRANCH 4
A 178	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 178A	11		SHLD A178 P3-52					.20 .13	NO NO		 22	
A 178B	11		P7-21 SHLD A178					.13 .20	NO NO		22	
A 178R			P3-77 P7-40					.13 .13	NO NO		22 22	
A 178Y			P3-53 P7-22					.13 .13	NO NO		22 22	
A 179	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 179A	11		SHLD A179 P3-30					.20 .13	NO NO		 22	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG.	ACCESSORY ITEMS	REMARKS
A 179B	11		P7-23 SHLD A179					.13 .20	NO NO		22	
A 179R			P3-31 P7-42					.13 .13	NO NO		22 22	
A 179Y			P3-15 P7-43					.13 .13	NO NO		22 22	
A 180	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 180A	11		SHLD A180 P3-51					.20 .13	NO NO		 22	
A 180B	11		P7-2 SHLD A180					.13 .20	NO NO		22	
A 180R			P3-75 P7-8					.13 .13	NO NO		22 22	
A 180Y			P3-76 P7-9					.13 .13	NO NO		22 22	
A 181	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 181A	11		SHLD A181 P3-46					.20 .13	NO NO		 22	
A 181R			P3-71 P7-38					.13 .13	NO NO		22 22	
A 181Y			P3-70 P7-39					.13 .13	NO NO		22 22	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 182	9				1.75	1.50				68	31	
					1.75	1.50				7	29	
A 182A	11		SHLD A182					.20	NO			
			P3-69					.13	NO		22	
A 182R			P3-45					.13	NO		22	
			P7-19					.13	NO		22	
A 182Y			P3-44					.13	NO		22	
			P7-20					.13	NO		22	
A 183	9				1.75	1.50				68	31	
					1.75	1.50				7	29	
A 183A	11		SHLD A183					.20	NO			
			P3-28					.13	NO		22	
A 183R			P3-13					.13	NO		22	
			P7-60					.13	NO		22	
A 183Y			P3-29					.13	NO		22	
			P7-61					.13	NO		22	
A 184	9				1.75	1.50				68	31	
					1.75	1.50				7	29	
A 184A	11		SHLD A184					.20	NO			
			P3-74					.13	NO		22	
A 184R			P3-49					.13	NO		22	
			P7-36					.13	NO		22	
A 184Y			P3-50					.13	NO		22	
			P7-37					.13	NO		22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 185	9				1.75	1.50				68	31	
					1.75	1.50				7	29	
A 185A	11		SHLD A185					.20	NO			
			P3-27					.13	NO		22	
A 185R			P3-26					.13	NO		22	
			P7-58					.13	NO		22	
A 185Y			P3-47					.13	NO		22	
			P7-59					.13	NO		22	
A 186	9				1.75	1.50				68	31	
					1.75	1.50				7	29	
A 186A	11		SHLD A186					.20	NO			
			P3-48					.13	NO		22	
A 186R			P3-72					.13	NO		22	
			P7-35					.13	NO		22	
A 186Y			P3-73					.13	NO		22	
			P7-18					.13	NO		22	
A 187	3											
A 187R			P3-67					.13	NO		22	
			P7-57					.13	NO		22	
A 187Y			P3-68					.13	NO		22	
			P7-34					.13	NO		22	
A 188	7											

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 188G			P3-24					.13	NO		22	
			P7-51					.13	NO		22	
A 188N			P3-43					.13	NO		22	
			P7-29					.13	NO		22	
A 188R			P3-25					.13	NO		22	
			P7-50					.13	NO		22	
A 188Y			P3-23					.13	NO		22	
			P7-28					.13	NO		22	
A 189	4											
A 189R			P3-5					.13	NO		22	
			P7-49					.13	NO		22	
A 189Y			P3-14					.13	NO		22	
			P7-48					.13	NO		22	
A 195	2		P5-23					.13	NO		22	D
			P10-608					.22	NO			BRANCH 4
A 196	2		P5-22					.13	NO		22	D
			P10-609					.22	NO			BRANCH 4
A 198	6											
A 198G			P1-11					.13	NO		22	
			P9-521					.18	NO		25	BRANCH 2
A 198R			P1-10					.13	NO		22	
			P9-121					.18	NO		25	BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 198Y			P1-9					.13	NO		22	
			P9-321					.18	NO		25	BRANCH 2
A 199	5											A
A 199G			P5-5					.13	NO		22	A
			P10-660					.18	NO		24	BRANCH 6
A 199R			P5-31					.13	NO		22	A
			P10-661					.18	NO		24	BRANCH 6
A 199Y			P5-15					.13	NO		22	A
			P10-659					.18	NO		24	BRANCH 6
A 200	2		P3-39					.13	NO		22	E
			P10-202					.18	NO		25	BRANCH 5
A 201	2		P3-64					.13	NO		22	E
			P10-102					.18	NO		24	BRANCH 5
A 202	2		P3-42					.13	NO		22	E
			P10-652					.18	NO		25	BRANCH 5
A 203	2		P3-66					.13	NO		22	E
			P10-551					.18	NO		25	BRANCH 5
A 204	2		P3-21					.13	NO		22	E
			P10-552					.18	NO		25	BRANCH 5
A 205	2		P3-22					.13	NO		22	E
			P10-651					.18	NO		25	BRANCH 5
A 206	2		P3-18					.13	NO		22	E
			P10-548					.18	NO		25	BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 207	2		P3-36 P10-549					.13 .18	NO NO		22 25	E BRANCH 5
A 208	2		P3-19 P10-550					.13 .18	NO NO		22 25	E BRANCH 5
A 209	2		P3-41 P10-214					.13 .18	NO NO		22 25	E BRANCH 5
A 210	2		P3-65 P10-216					.13 .18	NO NO		22 25	E BRANCH 5
A 211	2		P3-40 P10-215					.13 .18	NO NO		22 25	E BRANCH 5
A 212	2		P3-33 P10-646					.13 .18	NO NO		22 25	E BRANCH 5
A 213	2		P3-17 P10-546					.13 .18	NO NO		22 25	E BRANCH 5
A 214	2		P3-57 P10-645					.13 .18	NO NO		22 25	E BRANCH 5
A 215	2		P3-82 P10-545					.13 .18	NO NO		22 25	E BRANCH 5
A 216	2		P3-81 P10-542					.13 .18	NO NO		22 25	E BRANCH 5
A 217	2		P3-80 P10-644					.13 .18	NO NO		22 25	E BRANCH 5
A 218	2		P3-56 P10-544					.13 .18	NO NO		22 25	E BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 219	2		P3-84 P10-623					.13 .18	NO NO		22 25	E BRANCH 5
A 220	2		P3-60 P10-524					.13 .18	NO NO		22 25	E BRANCH 5
A 221	2		P3-59 P10-522					.13 .18	NO NO		22 25	E BRANCH 5
A 222	2		P3-62 P10-648					.13 .18	NO NO		22 25	E BRANCH 5
A 223	2		P3-63 P10-649					.13 .18	NO NO		22 25	E BRANCH 5
A 224	2		P3-38 P10-650					.13 .18	NO NO		22 25	E BRANCH 5
A 225	2		P5-38 P10-401					.13 .18	NO NO		22 25	D BRANCH 4
A 226	2		P5-62 P10-601					.13 .18	NO NO		22 25	D BRANCH 4
A 227	2		P5-63 P10-501					.13 .18	NO NO		22 25	D BRANCH 4
A 228	2		P5-64 P10-101					.13 .18	NO NO		22 24	D BRANCH 4
A 229	2		P5-40 P10-301					.13 .18	NO NO		22 25	D BRANCH 4
A 230	2		P5-39 P10-201					.13 .18	NO NO		22 25	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 231	2		P5-41 P10-502					.13 .22	NO NO		22 25	D BRANCH 4
A 232	2		P5-42 P10-402					.13 .22	NO NO		22	D BRANCH 4
A 233	2		P5-30 P10-204					.13 .22	NO NO		22	D BRANCH 4
A 234	2		P5-14 P10-505					.13 .22	NO NO		22	D BRANCH 4
A 235	2		P5-29 P10-605					.13 .22	NO NO		22	D BRANCH 4
A 236	2		P5-77 P10-506					.13 .22	NO NO		22	D BRANCH 4
A 237	2		P5-52 P10-404					.13 .22	NO NO		22	D BRANCH 4
A 238	2		P5-76 P10-304					.13 .22	NO NO		22	D BRANCH 4
A 239	2		P5-50 P10-405					.13 .22	NO NO		22	D BRANCH 4
A 240	2		P5-51 P10-606					.13 .22	NO NO		22	D BRANCH 4
A 241	2		P5-75 P10-205					.13 .22	NO NO		22	D BRANCH 4
A 242	2		P5-73 P10-607					.13 .22	NO NO		22	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 243	2		P5-74 P10-305					.13 .22	NO NO		22	D BRANCH 4
A 244	2		P5-49 P10-507					.13 .22	NO NO		22	D BRANCH 4
A 245	2		P5-13 P10-306					.13 .22	NO NO		22	D BRANCH 4
A 246	2		P5-28 P10-206					.13 .22	NO NO		22	D BRANCH 4
A 247	2		P5-27 P10-406					.13 .22	NO NO		22	D BRANCH 4
A 248	2		P5-47 P10-307					.13 .22	NO NO		22	D BRANCH 4
A 249	2		P5-46 P10-208					.13 .22	NO NO		22	D BRANCH 4
A 250	2		P5-4 P10-308					.13 .22	NO NO		22	D BRANCH 4
A 251	2		P5-12 P10-309					.13 .22	NO NO		22	D BRANCH 4
A 252	2		P5-71 P10-207					.13 .22	NO NO		22	D BRANCH 4
A 253	2		P5-72 P10-407					.13 .22	NO NO		22	D BRANCH 4
A 254	2		P5-48 P10-604					.13 .22	NO NO		22	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 255	3											A
A 255R			P5-44 P10-107					.13 .18	NO NO		22 24	A BRANCH 6
A 255Y			P5-68 P10-105					.13 .18	NO NO		22 24	A BRANCH 6
A 256	2		P6-14 P10-540					.13 .18	NO NO		22 25	C BRANCH 6
A 257	2		P6-30 P10-639					.13 .18	NO NO		22 25	C BRANCH 6
A 258	2		P6-48 P10-658					.13 .18	NO NO		22 25	C BRANCH 6
A 259	2		P6-72 P10-557					.13 .18	NO NO		22 25	C BRANCH 6
A 260	2		P6-73 P10-558					.13 .18	NO NO		22 25	C BRANCH 6
A 261	2		P6-49 P10-657					.13 .18	NO NO		22 25	C BRANCH 6
A 262	2		P6-28 P10-640					.13 .18	NO NO		22 25	C BRANCH 6
A 263	2		P6-29 P10-520					.13 .18	NO NO		22 25	C BRANCH 6
A 264	2		P6-76 P10-523					.13 .18	NO NO		22 25	C BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 265	2		P6-75 P10-647					.13 .18	NO NO		22 25	C BRANCH 6
A 266	2		P6-50 P10-641					.13 .18	NO NO		22 25	C BRANCH 6
A 267	2		P6-74 P10-541					.13 .18	NO NO		22 25	C BRANCH 6
A 268	2		P6-40 P10-109					.13 .18	NO NO		22 25	C BRANCH 6
A 269	2		P6-21 P10-410					.13 .18	NO NO		22 25	C BRANCH 6
A 270	2		P6-65 P10-209					.13 .18	NO NO		22 25	C BRANCH 6
A 271	2		P6-22 P10-310					.13 .18	NO NO		22 25	C BRANCH 6
A 272	2		P6-66 P10-510					.13 .18	NO NO		22 25	C BRANCH 6
A 273	2		P6-42 P10-210					.13 .18	NO NO		22 25	C BRANCH 6
A 274	2		P6-41 P10-610					.13 .18	NO NO		22 25	C BRANCH 6
A 275	2		P6-67 P10-110					.13 .18	NO NO		22 25	C BRANCH 6
A 276	2		P6-10 P10-111					.13 .18	NO NO		22 25	C BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 277	2		P6-24 P10-612					.13 .18	NO NO		22 25	C BRANCH 6
A 278	2		P6-9 P10-211					.13 .18	NO NO		22 25	C BRANCH 6
A 279	2		P6-23 P10-512					.13 .18	NO NO		22 25	C BRANCH 6
A 280	2		P6-68 P10-511					.13 .18	NO NO		22 25	C BRANCH 6
A 281	2		P6-69 P10-411					.13 .18	NO NO		22 25	C BRANCH 6
A 282	2		P6-43 P10-611					.13 .18	NO NO		22 25	C BRANCH 6
A 283	2		P6-44 P10-311					.13 .18	NO NO		22 25	C BRANCH 6
A 284	2		P6-46 P10-627					.13 .18	NO NO		22 25	C BRANCH 6
A 285	2		P6-25 P10-628					.13 .18	NO NO		22 25	C BRANCH 6
A 286	2		P6-45 P10-528					.13 .18	NO NO		22 25	C BRANCH 6
A 287	2		P6-71 P10-526					.13 .18	NO NO		22 25	C BRANCH 6
A 288	2		P6-70 P10-527					.13 .18	NO NO		22 25	C BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 289	2		P6-47 P10-626					.13 .18	NO NO		22 25	C BRANCH 6
A 290	2		P6-12 P10-654					.13 .18	NO NO		22 25	C BRANCH 6
A 291	2		P6-3 P10-655					.13 .18	NO NO		22 25	C BRANCH 6
A 292	2		P6-11 P10-555					.13 .18	NO NO		22 25	C BRANCH 6
A 293	2		P6-27 P10-553					.13 .18	NO NO		22 25	C BRANCH 6
A 294	2		P6-26 P10-554					.13 .18	NO NO		22 25	C BRANCH 6
A 295	2		P6-13 P10-653					.13 .18	NO NO		22 25	C BRANCH 6
A 296	2		P8-24 P10-403					.13 .18	NO NO		22 25	B BRANCH 4
A 297	2		P8-44 P10-603					.13 .18	NO NO		22 25	B BRANCH 4
A 298	2		P8-43 P10-503					.13 .18	NO NO		22 25	B BRANCH 4
A 299	2		P8-41 P10-103					.13 .18	NO NO		22 24	B BRANCH 4
A 300	2		P8-42 P10-303					.13 .18	NO NO		22 25	B BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 301	2		P8-23 P10-203					.13 .18	NO NO		22 25	B BRANCH 4
A 302	2		P8-22 P10-502					.13 .22	NO NO		22 24	B BRANCH 4
A 303	2		P8-10 P10-402					.13 .22	NO NO		22 24	B BRANCH 4
A 304	2		P8-52 P10-207					.13 .22	NO NO		22 24	B BRANCH 4
A 305	2		P8-50 P10-407					.13 .22	NO NO		22 24	B BRANCH 4
A 306	2		P8-51 P10-307					.13 .22	NO NO		22 24	B BRANCH 4
307	2		P8-31 P10-408					.13 .22	NO NO		22	B BRANCH 4
A 308	2		P8-53 P10-608					.13 .22	NO NO		22 24	B BRANCH 4
A 309	2		P8-54 P10-508					.13 .22	NO NO		22	B BRANCH 4
A 310	2		P8-32 P10-208					.13 .22	NO NO		22 24	B BRANCH 4
A 311	2		P8-30 P10-309					.13 .22	NO NO		22 24	B BRANCH 4
A 312	2		P8-29 P10-308					.13 .22	NO NO		22 24	B BRANCH 4

SIZE A	CODE IDENT NO. 80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 63 OF 74	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 313	2		P8-16 P10-409					.13 .22	NO NO		22 24	B BRANCH 4
A 314	2		P8-14 P10-604					.13 .22	NO NO		22 24	B BRANCH 4
A 315	2		P8-15 P10-609					.13 .22	NO NO		22 24	B BRANCH 4
A 316	1		P8-7 P10-106					.13 .18	NO NO		22 24	B BRANCH 4
A 317	1		P8-2 P10-104					.13 .18	NO NO		22 24	B BRANCH 4
A 318	2		P8-3 P10-607					.13 .22	NO NO		22 24	B BRANCH 4
A 319	2		P8-25 P10-606					.13 .22	NO NO		22 24	B BRANCH 4
A 320	2		P8-1 P10-507					.13 .22	NO NO		22 24	B BRANCH 4
A 321	2		P8-12 P10-406					.13 .22	NO NO		22 24	B BRANCH 4
A 322	2		P8-11 P10-506					.13 .22	NO NO		22 24	B BRANCH 4
A 323	2		P8-28 P10-405					.13 .22	NO NO		22 24	B BRANCH 4
A 324	2		P8-4 P10-206					.13 .22	NO NO		22 24	B BRANCH 4

SIZE A	CODE IDENT NO. 80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 64 OF 74	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 325	2		P8-13 P10-306					.13 .22	NO NO		22 24	B BRANCH 4
A 326	2		P8-26 P10-205					.13 .22	NO NO		22 24	B BRANCH 4
A 327	2		P8-27 P10-305					.13 .22	NO NO		22 24	B BRANCH 4
A 328	2		P8-47 P10-204					.13 .22	NO NO		22 24	B BRANCH 4
A 329	2		P8-45 P10-404					.13 .22	NO NO		22 24	B BRANCH 4
A 330	2		P8-46 P10-304					.13 .22	NO NO		22 24	B BRANCH 4
A 331	2		P8-48 P10-605					.13 .22	NO NO		22 24	B BRANCH 4
A 332	2		P8-49 P10-505					.13 .22	NO NO		22 24	B BRANCH 4
A 333	3									6A 6A	31 31	
A 333A	11		SHLD A333 E8					.20 .19	NO NO			
A 333B	11		E12 SHLD A333					.19 .20	NO NO			
A 333R			P3-3 P7-52					.13 .13	NO NO		22 22	

SIZE A	CODE IDENT NO. 80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 65 OF 74	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 333Y			P3-11 P7-31					.13 .13	NO NO		22 22	
A 334	8				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 334A	11		SHLD A334 E8					.20 .19	NO NO		 47	
A 334B	11		E11 SHLD A334					.19 .20	NO NO		47	
A 334R			DELETED									
A 334Y			P3-4 P6-51					.13 .13	NO NO		22 22	
A 335	9				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 335A	11		SHLD A335 E10					.20 .19	NO NO			
A 335B	11		E12 SHLD A335					.19 .20	NO NO		47	
A 335R			P5-19 P7-15					.13 .13	NO NO		22 22	
A 335Y			P5-18 P7-16					.13 .13	NO NO		22 22	
A 336	9				1.75 1.75	1.50 1.50				6A 6A	31 31	

SIZE A	CODE IDENT NO. 80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 66 OF 74	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 336A	11		SHLD A336 E10					.20 .19	NO NO			
A 336B	11		F13 SHLD A336					.19 .20	NO NO			
A 336R			P5-7 P7-30					.13 .13	NO NO		22 22	
A 336Y			P5-8 P7-14					.13 .13	NO NO		22 22	
A 337	3									6A 6A	31 31	
A 337A	11		SHLD A337 E10					.20 .19	NO NO		 47	
A 337B	11		E13 SHLD A337					.19 .20	NO NO		47	
A 337R			P5-9 P7-6					.13 .13	NO NO		22 22	
A 337Y			P5-2 P7-7					.13 .13	NO NO		22 22	
A 338	2		P5-10 P10-508					.13 .22	NO NO		22 24	D BRANCH 4
A 339	2		P5-24 P10-408					.13 .22	NO NO		22 24	D BRANCH 4
A 340	35		E7 E5					.19 .19	NO NO		46	F

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 67 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 341	35		E8 E5					.19 .19	NO NO			E
A 342	35		E9 E5					.19 .19	NO NO		 52	D
A 343	35		E9 E6					.19 .19	NO NO		47	A
A 344	35		E11 E6					.19 .19	NO NO			C
A 345	35		E14 E6					.19 .19	NO NO		46 52	B
A 346	2		P5-43 P10-108					.13 .22	NO NO		22 24	A BRANCH 6
A 347	35		F3 E36					.19 .19	NO NO		 58	G
A 348	4											G
A 348R			P9-610 P10-332					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 348Y			P9-510 P10-432					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 349	4											G
A 349R			P9-310 P10-330					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 68 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 349Y			P9-210 P10-430					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 350	4											G
A 350R			P9-609 P10-329					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 350Y			P9-509 P10-429					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 351	4											G
A 351R			P9-309 P10-328					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 351Y			P9-209 P10-428					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 352	4											G
A 352R			P9-608 P10-334					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 352Y			P9-508 P10-434					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 353	4											G
A 353R			P9-308 P10-333					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 69 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 353Y			P9-208 P10-433					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 354	4											G
A 354R			P9-607 P10-338					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 354Y			P9-507 P10-438					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 355	4											G
A 355R			P9-307 P10-337					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 355Y			P9-207 P10-437					.18 .18	NO NO		25 25	B, BRANCH 1 BRANCH 5
A 356	4											G
A 356R			P9-606 P10-336					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 356Y			P9-506 P10-436					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 357	4											G
A 357R			P9-306 P10-335					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 70 OF 74

WIRING HARNESS A 2014641 J

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LFAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCFSSORY ITEMS	REMARKS
A	357Y			P9-206 P10-435					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	358	4											G
A	358R			P9-605 P10-146					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	358Y			P9-505 P10-246					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	359	4											G
A	359R			P9-305 P10-145					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	359Y			P9-205 P10-245					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	360	4											G
A	360R			P9-604 P10-144					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	360Y			P9-504 P10-244					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	361	4											G
A	361R			P9-304 P10-143					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J
SHEET 71 OF 74

WIRING HARNESS A 2014641 J

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	361Y			P9-204 P10-243					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	362	4											G
A	362R			P9-603 P10-148					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	362Y			P9-503 P10-248					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	363	4											G
A	363R			P9-303 P10-147					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	363Y			P9-203 P10-247					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	364	4											G
A	364R			P9-602 P10-152					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	364Y			P9-502 P10-252					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	365	4											G
A	365R			P9-302 P10-151					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J
SHEET 72 OF 74

WIRING HARNESS A 2014641 J

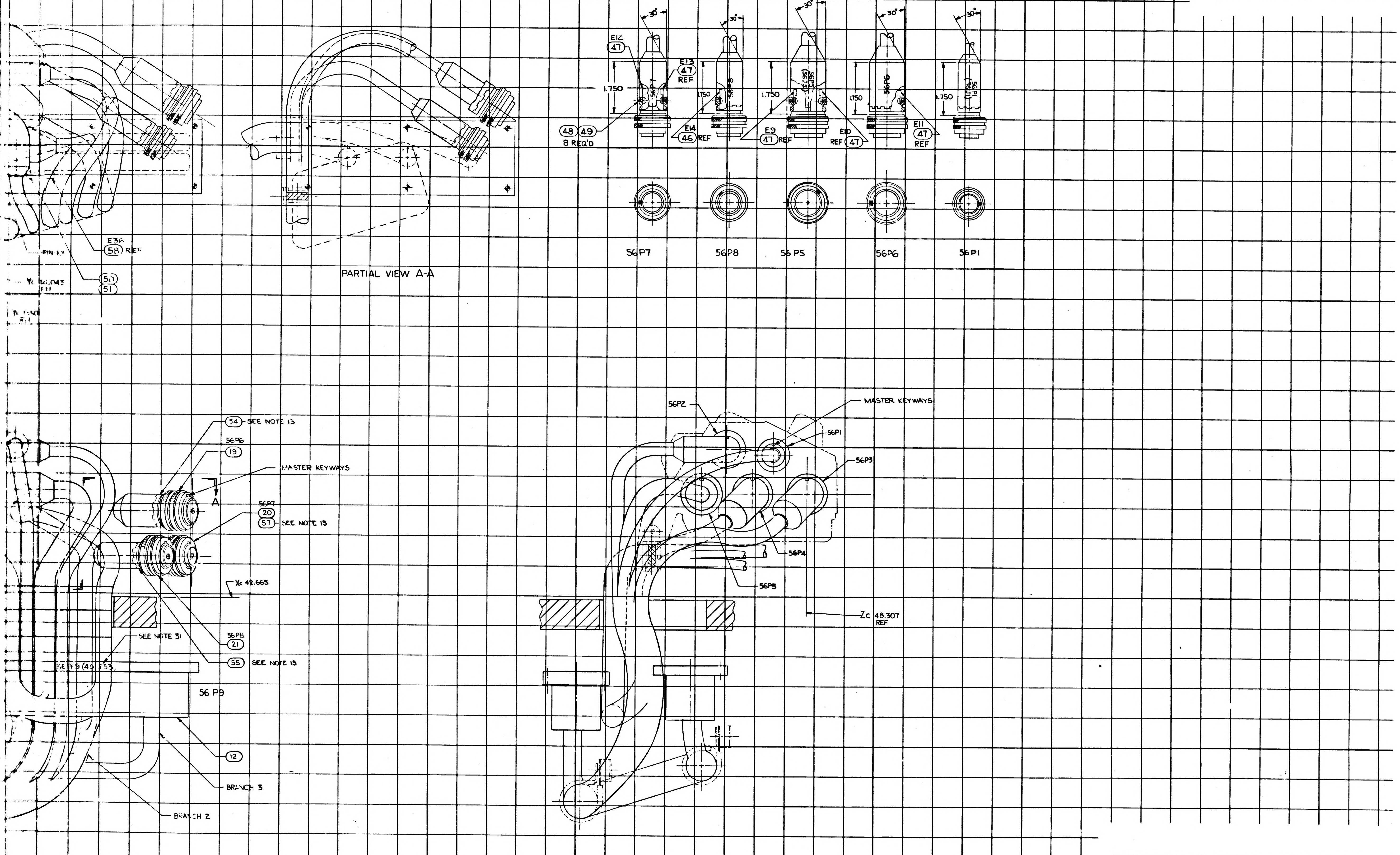
	LEAD IDENT	WIRE MATL ITEM	LFAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCFSSORY ITEMS	REMARKS
A	365Y			P9-202 P10-251					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	366	4											G
A	366R			P9-601 P10-150					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	366Y			P9-501 P10-250					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	367	4											G
A	367R			P9-301 P10-149					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A	367Y			P9-201 P10-249					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J
SHEET 73 OF 74

REVISIONS

SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

SEE SHEET I FOR REVISION RECORD



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58 REF
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Yc 46.043
REF
PARTIAL VIEW A-A
54 SEE NOTE 13
56P6
19
MASTER KEYWAYS
A
56P7
20
57 SEE NOTE 13
Xc 42.665
56P8
21
SEE NOTE 31
55 SEE NOTE 13
56 P9
12
BRANCH 3
BRANCH 2
56P2
56P1
56P3
56P4
56P5
Zc 48.307
REF

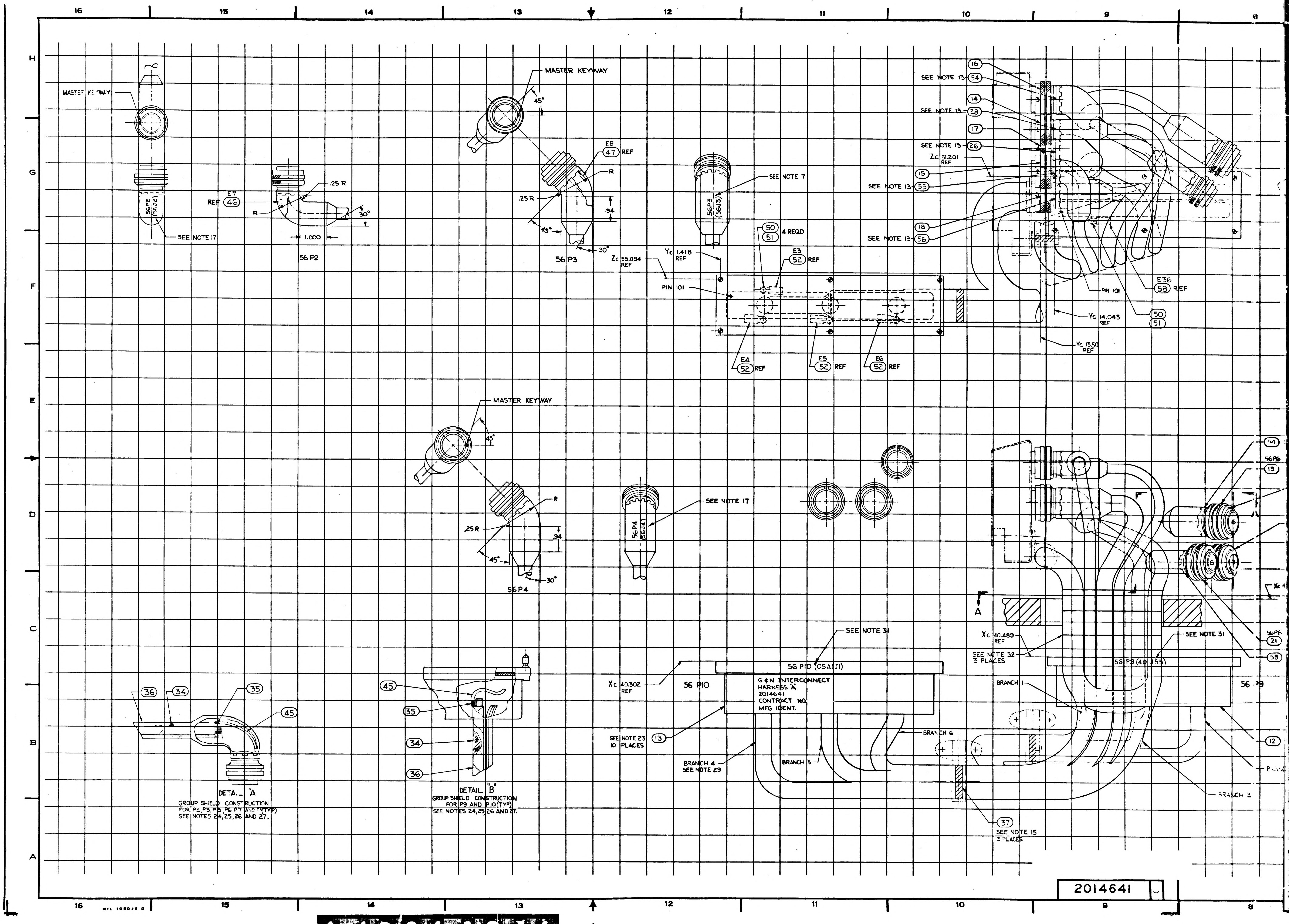
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
FRACTIONS + − DECIMALS + − ANGLES + −	DRAWN J. Dietrich DATE 1/26/66 CHECKED D. E. Abraham 1/27/66 APPROVAL Jim Nelson 1 FEB 5.66 APPROVAL 2/1/66	G&N INTERCONNECT HARNESS "A" (C/M BLOCK II)
DO NOT SCALE THIS DRAWING		
MATERIAL	NASA APPROVAL	CODE IDENT NO 80230 · SIZE J2 · 2014641
CONTRACT	MIT APPROVAL	SCALE · SHEET 74 OF 74

2014641 J

2014641

2014641

2/20146 41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MASTER KEYWAY
56P2 (56J2)
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56P3 (56J3)
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Zc 55.094 REF
Yc 1.418 REF
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Zc 51.201 REF
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56 P4
56P4 (56J4)
SEE NOTE 17
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56P6
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Xc 40.489 REF
SEE NOTE 32 3 PLACES
SEE NOTE 31
56P8
21
55
SEE NOTE 31
56 P10 (05A1J1)
Xc 40.302 REF
56 P10
G & N INTERCONNECT
HARNESS "A"
2014641
CONTRACT NO.
MFG IDENT.
56 P9 (40 J53)
56 P9
BRANCH 1
BRANCH 6
SEE NOTE 23 10 PLACES
13
BRANCH 4
SEE NOTE 29
BRANCH 5
12
BRANCH 2
37
SEE NOTE 15
3 PLACES
36
34
35
45
DETAIL "A"
GROUP SHIELD CONSTRUCTION
FOR P2, P3, P5, P6, P7 AND P8 (TYP)
SEE NOTES 24, 25, 26 AND 27.
45
35
34
36
DETAIL "B"
GROUP SHIELD CONSTRUCTION
FOR P9 AND P10 (TYP)
SEE NOTES 24, 25, 26 AND 27.
MIL 1000J2 D

2014641

1/2014641

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-011	E	REPLACES REV D WITH CHANGE PER TDRR		
		F	CHAD PER TDRR 24806		
		G	Revised per TDRR 25306	2-4-66	Wmm
		Ⓜ H	REVISED PER TDRR 25886	10 FEB 66	RLP EF
		Ⓜ J	REVISED PER TDRR 25841	18 FEB 66	DKD EF
		K	REVISED PER TDRR 27430	30 MAR 66	RLP DKF

REPLACES REV D WITH CHANGE

	REV	H	H	H	H	K	K	H	H	H	H	H	H	H	H	H	J	J	J	J	J	J	J	J	J	J	J
	SHEET	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
REV STATUS	REV				K	J	J	J	J	J	H	J	J	H	H	H	H	H	H	H	H	J	J	J			
OF SHEETS	SHEET				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Janowiak DATE 7 DEC 65
CHECKED W. Diehl 7 DEC 65
APPROVAL D Kling 8 DEC 65
APPROVAL J J Kim 12/20/65

G & N INTERCONNECT HARNESS "A"
(C/M, BLOCK II)

NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 21 Dec 65
CONTRACT NAS9-497

CODE IDENT NO.	SIZE		REV
80230	A	2014641	K
SCALE		SHEET 1 OF 74	

REVISION STATUS OF SHEETS

SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV
47	J																
48	J																
49	J																
50	J																
51	J																
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72	J																
73	J																
74	J																

	SIZE	CODE IDENT. NO.	
	A	80230	2014641
	SCALE NONE	REV LTR J	SHEET 2 of ~~68~~74

MIL 1377A3 8-65

NOTE NUMBER — GENERAL NOTES DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6A AND 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014671.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

NOTE NUMBER — GENERAL NOTES DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTOR 56P2, USE ITEM NUMBERS 23 AND 32.
CONNECTOR 56P1,3,4,5,6,7, AND 8 USE ITEM NUMBERS 22 AND 32.
CONNECTOR 56P9, AND P10 USE ITEM NUMBER 24.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 38.

13 A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

NOTE NUMBER — GENERAL NOTES DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED, INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE. SHORT CIRCUIT CURRENT LIMITED TO 15 MILLIAMPS.

22 PRESEAL BACK OF CONNECTORS 56P9 AND P10 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 41,42,43, AND 44.

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 39 AND 40.

24 CONDUCTORS WITH AN A,B,C,D,E,F OR G IN THE REMARKS COLUMN ARE TO BE GROUP SHIELDED PER DETAIL A AND/OR B OF THE CONF. DRAWING.

25 GROUP SHIELDING - THREAD ONE CONTINUOUS LENGTH OF GROUND WIRE, ITEM 35, THROUGH CENTER OF EMI/RFI SHIELDING TAPE. ITEM 34. ALLOW 6 INCHES OF GROUND WIRE TO EXTEND BEYOND ENDS OF SHIELDING TAPE. WRAP CABLE WITH ONE CONTINUOUS LENGTH OF PREPARED SHIELDING. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE, WITH A MINIMUM OF RIDGES AND FOLDS.

26 COMPLETELY COVER SHIELD WITH ONE CONTINUOUS WRAP OF INSULATION TAPE, ITEM 36. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE WITH A MINIMUM OF RIDGES AND FOLDS. WRAP TAPE IN OPPOSITE DIRECTION TO SHIELD WRAP.

27 ASSEMBLE INSULATION TUBING, ITEM 45, OVER GROUND WIRE AS REQUIRED TO REACH TERMINATION. ASSEMBLE SHRINK SLEEVING AS SHOWN.

NOTE NUMBER — GENERAL NOTES DESCRIPTION

28 ASSEMBLE A LENGTH OF WIRE BRAID ITEM 53 OVER CONDUCTORS A333 AND A337. ALLOW 1.75 INCH OF LEAD TO EXTEND BEYOND BRAID. COVER BRAID WITH TEFLON TAPE, ITEM 36, PER NOTE 26. ALLOW .25 INCH OF BRAID TO EXTEND BEYOND TAPE. FOLD BRAID OVER TAPE AND TERMINATE PER ND1002071, FIG. 6B.

29 CONDUCTORS SHALL ENTER CONNECTORS 56P9 AND 56P10 THROUGH THE APPROPRIATE BRANCH SPECIFIED IN THE REMARKS COLUMN.

31 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 GRMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACECRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICROSECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

32 MARK CHARACTERS .10-.14 HIGH, BLACK, PER ND 1002019. CENTRALIZE AS SHOWN

33 LACE HARNESS BRANCHES TOGETHER USING A CONTINUOUS CLOVE HITCH AT LOCATIONS SHOWN.

NOTE NUMBER

GENERAL NOTES

DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

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A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 7 OF 74

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014641- 1	WIRE PER 1010789-006, 22 AWG, YEL, 25 FT TOT LG
	2	1	2014641- 2	WIRE PER 1010789-016, 26 AWG, YEL, 50 FT TOT LG
	3	1	2014641- 3	WIRE PER 1010789-008, 22 AWG, YEL, RED, 15 FT TOT LG
	4	1	2014641- 4	WIRE PER 1010789-017, 26 AWG, YEL, RED, 220 FT TOT LG
	5	1	2014641- 5	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 20 FT TOT LG
	6	1	2014641- 6	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN 90 FT TOT LG
	7	1	2014641- 7	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 25 FT TOT LG
	8	1	2014641- 8	WIRE PER 1010789-011, 24 AWG, YEL, YEL JKT, 10 FT TOT LG
	9	1	2014641- 9	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 150 FT TOT LG
	10	1	2014641- 10	WIRE PER 1010789-013, 24 AWG, YEL, RED, GRN, YEL JKT, 10 FT TOT LG
	11	1	2014641- 11	WIRE PER 1010789-002, 24 AWG, BLK, 80 FT TOT LG
	12	1	2014741-011	CONNECTOR, PLUG, ELECTRICAL (56P9)
	13	1	2014749-011	CONNECTOR, PLUG, ELECTRICAL (56P10)
9	14	1	1010929-109	CONNECTOR, PLUG, ELECTRICAL (56P1)

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A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 8 OF 74

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	15	1	1010929-005	CONNECTOR, PLUG, ELECTRICAL (56P2)
9	16	1	1010929-102	CONNECTOR, PLUG, ELECTRICAL (56P3)
9	17	1	1010929-101	CONNECTOR, PLUG, ELECTRICAL (56P4)
9	18	1	1010929-103	CONNECTOR, PLUG, ELECTRICAL (56P5)
9	19	1	1010929-104	CONNECTOR, PLUG, ELECTRICAL (56P6)
9	20	1	1010929-108	CONNECTOR, PLUG, ELECTRICAL (56P7)
9	21	1	1010929-105	CONNECTOR, PLUG, ELECTRICAL (56P8)
9	22	X	1010770- 1	CONTACT, PIN, SUPPLIED WITH CONNECTOR 1010929
9	23	X	1010770- 2	CONTACT, SOCKET, SUPPLIED WITH CONNECTOR 1010929
9	24	311	1010955- 1	CONTACT, MALE
9	25	349	1010955- 2	CONTACT, MALE
	26	1	2014670- 4	ADAPTER, CONNECTOR
	27		2014670- 5	DELETED
	28	1	2014670- 7	ADAPTER, CONNECTOR
9	29	14	1012534- 36	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	30	2	1012534- 38	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	31	97	1010402- 2	SLEEVE, SOLDER
9	32	115	1010958- 1	PLUG, PROTECTIVE SEALING

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A	80230	2014641
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LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	34	AR	1010989	TAPE, SHIELDING, EMI/RFI
	35	1	2014641-012	WIRE PER QQ-W-343, TYPE C, CLASS C, 22 AWG, 100 FT TOT LG
	36	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	37	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
9	38	AR	1012507-004	TAPE, LACING AND TYING
9	39	AR	1012503	COMPOUND, POTTING, POLYURETHANE
9	40	AR	1012504	PRIMER, METAL PARTS
9	41	AR	1010661	EPOXY RESIN
9	42	AR	1010679	ADHESIVE ACTIVATOR
9	43	AR	1008822	COLORANT, EPOXY BASE
9	44	AR	1006277	SILICA, PULVERIZED, PYROGENIC
9	45	AR	1006776- 44	INSULATION SLEEVING, 6 FEET TOTAL LENGTH
	46	2	MS17182-2	TERMINAL LUG
	47	6	MS17182-1	TERMINAL LUG
	48	8	MS35333-69	WASHER, LOCK
9	49	8	1006783- 93	SCREW, BUTTON HD
	50	5	MS35335-57	WASHER, LOCK
9	51	5	1006783- 18	SCREW, BUTTON HD

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A	80230	2014641
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LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	52	4	MS25036-52	TERMINAL LUG
28	53	1	2014641-013	WIRE BRAID,QQ-B-575,.12DIA. 36AWG, 5 FT TOT LG
	54	2	2014670- 11	ADAPTER, CONNECTOR
	55	2	2014670- 12	ADAPTER, CONNECTOR
	56	1	2014670- 13	ADAPTER,CONNECTOR
	57	1	2014670- 15	ADAPTER,CONNECTOR
	58	1	MS25036-48	TERMINAL LUG

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	1		DELETED									
A	1A		DELETED									
A	1R		DELETED									
A	1Y		DELETED									
A	2		DELETED									
A	2A		DELETED									
A	2R		DELETED									
A	2Y		DELETED									
A	3		DELETED									
A	3A		DELETED									
A	3R		DELETED									
A	3Y		DELETED									

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	4		DELETED									
A	4A		DELETED									
A	4R		DELETED									
A	4Y		DELETED									
A	5		DELETED									
A	5A		DELETED									
A	5R		DELETED									
A	5Y		DELETED									
A	6		DELETED									
A	6A		DELETED									
A	6R		DELETED									
A	6Y		DELETED									

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	7		DELETED									
A	7A		DELETED									
A	7R		DELETED									
A	7Y		DELETED									
A	8		DELETED									
A	8A		DELETED									
A	8R		DELETED									
A	8Y		DELETED									
A	9		DELETED									
A	9A		DELETED									
A	9R		DELETED									
A	9Y		DELETED									

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 10			DELETED									
A 10A			DELETED									
A 10R			DELETED									
A 10Y			DELETED									
A 11			DELETED									
A 11A			DELETED									
A 11R			DELETED									
A 11Y			DELETED									
A 12			DELETED									
A 12A			DELETED									
A 12R			DELETED									
A 12Y			DELETED									

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 15 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 13			DELETED									
A 13A			DELETED									
A 13R			DELETED									
A 13Y			DELETED									
A 14			DELETED									
A 14A			DELETED									
A 14R			DELETED									
A 14Y			DELETED									
A 15			DELETED									
A 15A			DELETED									
A 15R			DELETED									
A 15Y			DELETED									

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 16 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 16			DELETED									
A 16A			DELETED									
A 16R			DELETED									
A 16Y			DELETED									
A 17			DELETED									
A 17A			DELETED									
A 17R			DELETED									
A 17Y			DELETED									
A 18			DELETED									
A 18A			DELETED									
A 18R			DELETED									
A 18Y			DELETED									

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 17 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 19			DELETED									
A 19A			DELETED									
A 19R			DELETED									
A 19Y			DELETED									
A 20			DELETED									
A 20A			DELETED									
A 20R			DELETED									
A 20Y			DELETED									
A 21	9				1.00 1.00	.75 .75				6B 6B	31 31	
A 21A	11		SHLD A21 P9-111					.20 .18	NO NO		 24	 BRANCH 2
A 21B	11		E3 SHLD A21					.19 .20	NO NO			
A 21R			P9-311 P10-515					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 21Y			P9-211 P10-615					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 22	10				1.00 1.00	.75 .75				7 68	29 31	
A 22B	11		E3 SHLD A22					.19 .20	NO NO			
A 22G			P9-511 P10-536					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 5
A 22R			P9-611 P10-622					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A 22Y			P9-411 P10-534					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 5
A 23	9				1.00 1.00	.75 .75				7 68	29 31	
A 23B	11		E4 SHLD A23					.19 .20	NO NO			
A 23R			P9-212 P10-112					.18 .18	NO NO		25 25	BRANCH 2
A 23Y			P9-112 P10-412					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 24	9				1.00 1.00	.75 .75				7 68	29 31	
A 24B	11		E4 SHLD A24					.19 .20	NO NO			

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 19 OF 74

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24R			P9-412 P10-614					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 24Y			P9-312 P10-313					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 25	10				1.00 1.00	.75 .75				7 68	29 31	
A 25B	11		E4 SHLD A25					.19 .20	NO NO		52	
A 25G			P9-113 P10-514					.18 .18	NO NO		25 24	BRANCH 2 BRANCH 4
A 25R			P9-612 P10-314					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A 25Y			P9-512 P10-414					.18 .18	NO NO		24 24	BRANCH 2 BRANCH 4
A 26	9				1.00 1.00	.75 .75				7 68	29 31	
A 26B	11		E3 SHLD A26					.19 .20	NO NO		52	
A 26R			P9-313 P10-525					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 26Y			P9-213 P10-624					.18 .18	NO NO		25 25	BRANCH 2 BRANCH 4
A 27	9				1.75 1.00	1.50 .75				68 68	31 31	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 20 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 27A	11		SHLD A27 P7-12					.20 .13	NO NO		22	
A 27B	11		P9-637 SHLD A27					.18 .20	NO NO		24	BRANCH 3
A 27R			P7-27 P9-437					.13 .18	NO NO		22 25	BRANCH 3
A 27Y			P7-13 P9-537					.13 .18	NO NO		22 25	BRANCH 3
A 28	9				1.75 1.00	1.50 .75				68 68	31 31	
A 28A	11		SHLD A28 P7-26					.20 .13	NO NO		22	
A 28B	11		P9-137 SHLD A28					.18 .20	NO NO		24	BRANCH 3
A 28R			P7-47 P9-237					.13 .18	NO NO		22 25	BRANCH 3
A 28Y			P7-46 P9-337					.13 .18	NO NO		22 25	BRANCH 3
A 29	9				1.75 1.00	1.50 .75				68 68	31 31	
A 29A	11		SHLD A29 P7-24					.20 .13	NO NO		22	
A 29B	11		P9-634 SHLD A29					.18 .20	NO NO		24	BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 21 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 29R			P7-44 P9-434					.13 .18	NO NO		22 25	BRANCH 2
A 29Y			P7-25 P9-534					.13 .18	NO NO		22 25	BRANCH 2
A 30	9				1.75 1.00	1.50 .75				68 68	31 31	
A 30A	11		SHLD A30 P7-5					.20 .13	NO NO		22	
A 30B	11		P9-335 SHLD A30					.18 .20	NO NO		24	BRANCH 2
A 30R			P7-4 P9-135					.13 .18	NO NO		22 25	BRANCH 2
A 30Y			P7-1 P9-235					.13 .18	NO NO		22 25	BRANCH 2
A 31	9				1.75 1.00	1.50 .75				68 68	31 31	
A 31A	11		SHLD A31 P7-3					.20 .13	NO NO		22	
A 31B	11		P9-635 SHLD A31					.18 .20	NO NO		24	BRANCH 2
A 31R			P7-11 P9-435					.13 .18	NO NO		22 25	BRANCH 2
A 31Y			P7-10 P9-535					.13 .18	NO NO		22 25	BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 22 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 32	4											
A 32R			P7-53 P9-536					.13 .18	NO NO		22 25	BRANCH 3
A 32Y			P7-54 P9-636					.13 .18	NO NO		22 25	BRANCH 3
A 33	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 33A	11		SHLD A33 P1-13					.20 .13	NO NO		22	
A 33B	11		P9-332 SHLD A33					.18 .20	NO NO		24	BRANCH 2
A 33R			P1-28 P9-132					.13 .18	NO NO		22 25	BRANCH 2
A 33Y			P1-27 P9-232					.13 .18	NO NO		22 25	BRANCH 2
A 34	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 34A	11		SHLD A34 P1-16					.20 .13	NO NO		22	
A 34B	11		P9-632 SHLD A34					.18 .20	NO NO		24	BRANCH 2
A 34R			P1-6 P9-432					.13 .18	NO NO		22 25	BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 23 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 34Y			P1-5 P9-532					.13 .18	NO NO		22 25	BRANCH 2
A 35	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 35A	11		SHLD A35 P1-1					.20 .13	NO NO		22	
A 35B	11		P9-333 SHLD A35					.18 .20	NO NO		24	BRANCH 2
A 35R			P1-4 P9-133					.13 .18	NO NO		22 25	BRANCH 2
A 35Y			P1-3 P9-233					.13 .18	NO NO		22 25	BRANCH 2
A 36	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 36A	11		SHLD A36 P1-17					.20 .13	NO NO		22	
A 36B	11		P9-346 SHLD A36					.18 .20	NO NO		24	BRANCH 3
A 36R			P1-34 P9-146					.13 .18	NO NO		22 25	BRANCH 3
A 36Y			P1-33 P9-246					.13 .18	NO NO		22 25	BRANCH 3
A 37	9				1.75 1.00	1.50 .75				6B 6B	31 31	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 24 OF 74

WIRING HARNESS A 2014641 K

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 37A	11		SHLD A37 P1-18					.20 .13	NO NO		22	
A 37B	11		P9-646 SHLD A37					.18 .20	NO NO		24	BRANCH 3
A 37R			P1-35 P9-446					.13 .18	NO NO		22 25	BRANCH 3
A 37Y			P1-36 P9-546					.13 .18	NO NO		22 25	BRANCH 3
A 38	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 38A	11		SHLD A38 P1-14					.20 .13	NO NO		22	
A 38B	11		P9-348 SHLD A38					.18 .20	NO NO		24	BRANCH 3
A 38R			P1-30 P9-248					.13 .18	NO NO		22 25	BRANCH 3
A 38Y			P1-29 P9-148					.13 .18	NO NO		22 25	BRANCH 3
A 39	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 39A	11		SHLD A39 P1-15					.20 .13	NO NO		22	
A 39B	11		P9-648 SHLD A39					.18 .20	NO NO		24	BRANCH 3

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR K	SHEET 25 OF 74

WIRING HARNESS A 2014641 K

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 39R			P1-31 P9-448					.13 .18	NO NO		22 25	BRANCH 3
A 39Y			P1-32 P9-548					.13 .18	NO NO		22 25	BRANCH 3
A 40	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 40A	11		SHLD A40 P1-20					.20 .13	NO NO		22	
A 40B	11		P9-633 SHLD A40					.18 .20	NO NO		24	BRANCH 2
A 40R			P1-19 P9-533					.13 .18	NO NO		22 25	BRANCH 2
A 40Y			P1-37 P9-433					.13 .18	NO NO		22 25	BRANCH 2
A 41	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 41A	11		SHLD A41 P1-21					.20 .13	NO NO		22	
A 41B	11		P9-334 SHLD A41					.18 .20	NO NO		24	BRANCH 2
A 41R			P1-38 P9-234					.13 .18	NO NO		22 25	BRANCH 2
A 41Y			P1-39 P9-134					.13 .18	NO NO		22 25	BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR K	SHEET 26 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 42	6											
A 42G			P1-26 P9-421					.13 .18	NO NO		22 25	BRANCH 2
A 42R			P1-43 P9-620					.13 .18	NO NO		22 25	BRANCH 2
A 42Y			P1-44 P9-221					.13 .18	NO NO		22 25	BRANCH 2
A 43	6											
A 43G			P1-8 P9-222					.13 .18	NO NO		22 25	BRANCH 2
A 43R			P1-7 P9-621					.13 .18	NO NO		22 25	BRANCH 2
A 43Y			P1-2 P9-119					.13 .18	NO NO		22 25	BRANCH 2
A 46	2		P1-25 P9-422					.13 .18	NO NO		22 25	BRANCH 2
A 47	3											
A 47R			P1-40 P9-228					.13 .18	NO NO		22 24	BRANCH 2
A 47Y			P1-23 P9-328					.13 .18	NO NO		22 24	BRANCH 2

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE REV LTR H SHEET 27 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 48	3											
A 48R			P1-41 P9-428					.13 .18	NO NO		22 24	BRANCH 2
A 48Y			P1-42 P9-528					.13 .18	NO NO		22 24	BRANCH 2
A 49	9				1.75 1.00	1.50 .75				68 68	31 31	
A 49A	11		SHLD A49 P4-30					.20 .13	NO NO		22	
A 49B	11		P9-340 SHLD A49					.18 .20	NO NO		24	BRANCH 3
A 49R			P4-52 P9-140					.13 .18	NO NO		22 25	BRANCH 3
A 49Y			P4-51 P9-240					.13 .18	NO NO		22 25	BRANCH 3
A 50	9				1.75 1.00	1.50 .75				68 68	31 31	
A 50A	11		SHLD A50 P4-31					.20 .13	NO NO		22	
A 50B	11		P9-640 SHLD A50					.18 .20	NO NO		24	BRANCH 3
A 50R			P4-54 P9-440					.13 .18	NO NO		22 25	BRANCH 3

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE REV LTR H SHEET 28 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 50Y			P4-53 P9-540					.13 .18	NO NO		22 25	BRANCH 3
A 51	9				1.75 1.00	1.50 .75				68 68	31 31	
A 51A	11		SHLD A51 P4-29					.20 .13	NO NO		22	
A 51B	11		P9-341 SHLD A51					.18 .20	NO NO		24	BRANCH 3
A 51R			P4-13 P9-141					.13 .18	NO NO		22 25	BRANCH 3
A 51Y			P4-14 P9-241					.13 .18	NO NO		22 25	BRANCH 3
A 52	9				1.75 1.00	1.50 .75				68 68	31 31	
A 52A	11		SHLD A52 P4-32					.20 .13	NO NO		22	
A 52B	11		P9-641 SHLD A52					.18 .20	NO NO		24	BRANCH 3
A 52R			P4-16 P9-441					.13 .18	NO NO		22 25	BRANCH 3
A 52Y			P4-15 P9-541					.13 .18	NO NO		22 25	BRANCH 3
A 53	9				1.75 1.00	1.50 .75				68 68	31 31	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE REV LTR H SHEET 29 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 53A	11		SHLD A53 P4-36					.20 .13	NO NO		22	
A 53B	11		P9-342 SHLD A53					.18 .20	NO NO		24	BRANCH 3
A 53R			P4-59 P9-142					.13 .18	NO NO		22 25	BRANCH 3
A 53Y			P4-60 P9-242					.13 .18	NO NO		22 25	BRANCH 3
A 54	9				1.75 1.00	1.50 .75				68 68	31 31	
A 54A	11		SHLD A54 P4-37					.20 .13	NO NO		22	
A 54B	11		P9-642 SHLD A54					.18 .20	NO NO		24	BRANCH 3
A 54R			P4-61 P9-442					.13 .18	NO NO		22 25	BRANCH 3
A 54Y			P4-38 P9-542					.13 .18	NO NO		22 25	BRANCH 3
A 55	9				1.75 1.00	1.50 .75				68 68	31 31	
A 55A	11		SHLD A55 P4-33					.20 .13	NO NO		22	
A 55B	11		P9-343 SHLD A55					.18 .20	NO NO		24	BRANCH 3

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE REV LTR H SHEET 30 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 55R			P4-56 P9-143					.13 .18	NO NO		22 25	BRANCH 3
A 55Y			P4-55 P9-243					.13 .18	NO NO		22 25	BRANCH 3
A 56	9				1.75 1.00	1.50 .75				68 68	31 31	
A 56A	11		SHLD A56 P4-34					.20 .13	NO NO		22	
A 56B	11		P9-643 SHLD A56					.18 .20	NO NO		24	BRANCH 3
A 56R			P4-57 P9-443					.13 .18	NO NO		22 25	BRANCH 3
A 56Y			P4-58 P9-543					.13 .18	NO NO		22 25	BRANCH 3
A 57	9				1.75 1.00	1.50 .75				68 68	31 31	
A 57A	11		SHLD A57 P4-27					.20 .13	NO NO		22	
A 57B	11		P9-344 SHLD A57					.18 .20	NO NO		24	BRANCH 3
A 57R			P4-48 P9-144					.13 .18	NO NO		22 25	BRANCH 3
A 57Y			P4-47 P9-244					.13 .18	NO NO		22 25	BRANCH 3

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 58	9				1.75 1.00	1.50 .75				68 68	31 31	
A 58A	11		SHLD A58 P4-28					.20 .13	NO NO		22	
A 58B	11		P9-644 SHLD A58					.18 .20	NO NO		24	BRANCH 3
A 58R			P4-49 P9-444					.13 .18	NO NO		22 25	BRANCH 3
A 58Y			P4-50 P9-544					.13 .18	NO NO		22 25	BRANCH 3
A 59	9				1.75 1.00	1.50 .75				68 68	31 31	
A 59A	11		SHLD A59 P4-35					.20 .13	NO NO		22	
A 59B	11		P9-345 SHLD A59					.18 .20	NO NO		24	BRANCH 3
A 59R			P4-17 P9-145					.13 .18	NO NO		22 25	BRANCH 3
A 59Y			P4-18 P9-245					.13 .18	NO NO		22 25	BRANCH 3
A 60	9				1.75 1.00	1.50 .75				68 68	31 31	
A 60A	11		SHLD A60 P4-20					.20 .13	NO NO		22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 60B	11		P9-645 SHLD A60					.18 .20	NO NO		24	BRANCH 3
A 60R			P4-19 P9-445					.13 .18	NO NO		22 25	BRANCH 3
A 60Y			P4-8 P9-545					.13 .18	NO NO		22 25	BRANCH 3
A 61	9				1.75 1.00	1.50 .75				68 68	31 31	
A 61A	11		SHLD A61 P4-22					.20 .13	NO NO		22	
A 61B	11		P9-329 SHLD A61					.18 .20	NO NO		24	BRANCH 2
A 61R			P4-41 P9-129					.13 .18	NO NO		22 25	BRANCH 2
A 61Y			P4-42 P9-229					.13 .18	NO NO		22 25	BRANCH 2
A 62	9				1.75 1.00	1.50 .75				68 68	31 31	
A 62A	11		SHLD A62 P4-24					.20 .13	NO NO		22	
A 62B	11		P9-629 SHLD A62					.18 .20	NO NO		24	BRANCH 2
A 62R			P4-43 P9-429					.13 .18	NO NO		22 25	BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 62Y			P4-44 P9-529					.13 .18	NO NO		22 25	BRANCH 2
A 63	9				1.75 1.00	1.50 .75				68 68	31 31	
A 63A	11		SHLD A63 P4-25					.20 .13	NO NO		22	
A 63B	11		P9-330 SHLD A63					.18 .20	NO NO		24	BRANCH 2
A 63R			P4-45 P9-130					.13 .18	NO NO		22 25	BRANCH 2
A 63Y			P4-46 P9-230					.13 .18	NO NO		22 25	BRANCH 2
A 64	9				1.75 1.00	1.50 .75				68 68	31 31	
A 64A	11		SHLD A64 P4-21					.20 .13	NO NO		22	
A 64B	11		P9-630 SHLD A64					.18 .20	NO NO		24	BRANCH 2
A 64R			P4-39 P9-430					.13 .18	NO NO		22 25	BRANCH 2
A 64Y			P4-40 P9-530					.13 .18	NO NO		22 25	BRANCH 2
A 65	9				1.75 1.00	1.50 .75				68 68	31 31	

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 65A	11		SHLD A65 P4-10					.20 .13	NO NO		22	
A 65B	11		P9-331 SHLD A65					.18 .20	NO NO		24	BRANCH 2
A 65R			P4-9 P9-131					.13 .18	NO NO		22 25	BRANCH 2
A 65Y			P4-23 P9-231					.13 .18	NO NO		22 25	BRANCH 2
A 66	9				1.75 1.00	1.50 .75				68 68	31 31	
A 66A	11		SHLD A66 P4-11					.20 .13	NO NO		22	
A 66B	11		P9-631 SHLD A66					.18 .20	NO NO		24	BRANCH 2
A 66R			P4-26 P9-431					.13 .18	NO NO		22 25	BRANCH 2
A 66Y			P4-12 P9-531					.13 .18	NO NO		22 25	BRANCH 2
A 67	9				1.75 1.00	1.50 .75				68 7	31 29	
A 67A	11		SHLD A67 P4-1					.20 .13	NO NO		22	
A 67R			P4-6 P9-338					.13 .18	NO NO		22 25	BRANCH 3

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 35 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 67Y			P4-7 P9-238					.13 .18	NO NO		22 25	BRANCH 3
A 68	8				1.75 1.00	1.50 .75				68 7	31 29	
A 68A	11		SHLD A68 P4-2					.20 .13	NO NO		22	
A 68R			DELETED									
A 68Y			P4-3 P9-138					.13 .18	NO NO		22 24	BRANCH 3
A 69	1		P4-5 P9-336					.13 .18	NO NO		22 24	BRANCH 3
A 70	1		P4-4 P9-136					.13 .18	NO NO		22 24	BRANCH 3
A 71	1		P5-84 P9-236					.13 .18	NO NO		22 24	BRANCH 3
A 72	1		P5-60 P9-436					.13 .18	NO NO		22 24	BRANCH 3
A 74	4											F
A 74R			P2-55 P10-121					.13 .18	NO NO		23 25	F BRANCH 5
A 74Y			P2-56 P10-221					.13 .18	NO NO		23 25	F BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 36 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 75	4											F
A 75R			P2-54 P10-120					.13 .18	NO NO		23 25	F BRANCH 5
A 75Y			P2-32 P10-220					.13 .18	NO NO		23 25	F BRANCH 5
A 76	4											F
A 76R			P2-17 P10-119					.13 .18	NO NO		23 25	F BRANCH 5
A 76Y			P2-33 P10-219					.13 .18	NO NO		23 25	F BRANCH 5
A 77	4											F
A 77R			P2-16 P10-118					.13 .18	NO NO		23 25	F BRANCH 5
A 77Y			P2-5 P10-218					.13 .18	NO NO		23 25	F BRANCH 5
A 78	4											F
A 78R			P2-57 P10-321					.13 .18	NO NO		23 25	F BRANCH 5
A 78Y			P2-34 P10-421					.13 .18	NO NO		23 25	F BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 37 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 79	4											F
A 79R			P2-18 P10-320					.13 .18	NO NO		23 25	F BRANCH 5
A 79Y			P2-35 P10-420					.13 .18	NO NO		23 25	F BRANCH 5
A 80	4											F
A 80R			P2-52 P10-319					.13 .18	NO NO		23 25	F BRANCH 5
A 80Y			P2-53 P10-419					.13 .18	NO NO		23 25	F BRANCH 5
A 81	4											F
A 81R			P2-15 P10-318					.13 .18	NO NO		23 25	F BRANCH 5
A 81Y			P2-30 P10-418					.13 .18	NO NO		23 25	F BRANCH 5
A 82	4											F
A 82R			P2-50 P10-317					.13 .18	NO NO		23 25	F BRANCH 5
A 82Y			P2-51 P10-417					.13 .18	NO NO		23 25	F BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 38 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 83	4											F
A 83R			P2-13 P10-323					.13 .18	NO NO		23 25	F BRANCH 5
A 83Y			P2-29 P10-423					.13 .18	NO NO		23 25	F BRANCH 5
A 84	4											F
A 84R			P2-12 P10-322					.13 .18	NO NO		23 25	F BRANCH 5
A 84Y			P2-27 P10-422					.13 .18	NO NO		23 25	F BRANCH 5
A 85	4											F
A 85R			P2-48 P10-316					.13 .18	NO NO		23 25	F BRANCH 5
A 85Y			P2-49 P10-416					.13 .18	NO NO		23 25	F BRANCH 5
A 86	4											F
A 86R			P2-1 P10-315					.13 .18	NO NO		23 25	F BRANCH 5
A 86Y			P2-4 P10-415					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR J	SHEET 39 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 87	4											F
A 87R			P2-11 P10-324					.13 .18	NO NO		23 25	F BRANCH 5
A 87Y			P2-24 P10-424					.13 .18	NO NO		23 25	F BRANCH 5
A 88	4											F
A 88R			P2-10 P10-117					.13 .18	NO NO		23 24	F BRANCH 5
A 88Y			P2-2 P10-217					.13 .18	NO NO		23 25	F BRANCH 5
A 89	4											F
A 89R			P2-59 P10-139					.13 .18	NO NO		23 25	F BRANCH 5
A 89Y			P2-58 P10-239					.13 .18	NO NO		23 25	F BRANCH 5
A 90	4											F
A 90R			P2-7 P10-138					.13 .18	NO NO		23 25	F BRANCH 5
A 90Y			P2-6 P10-238					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR J	SHEET 40 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 91	4											F
A 91R			P2-36 P10-137					.13 .18	NO NO		23 25	F BRANCH 5
A 91Y			P2-60 P10-237					.13 .18	NO NO		23 25	F BRANCH 5
A 92	4											F
A 92R			P2-8 P10-136					.13 .18	NO NO		23 25	F BRANCH 5
A 92Y			P2-19 P10-236					.13 .18	NO NO		23 25	F BRANCH 5
A 93	4											F
A 93R			P2-61 P10-135					.13 .18	NO NO		23 25	F BRANCH 5
A 93Y			P2-38 P10-235					.13 .18	NO NO		23 25	F BRANCH 5
A 94	4											F
A 94R			P2-39 P10-134					.13 .18	NO NO		23 25	F BRANCH 5
A 94Y			P2-20 P10-234					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR J	SHEET 41 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 95	4											F
A 95R			P2-43 P10-327					.13 .18	NO NO		23 25	F BRANCH 5
A 95Y			P2-42 P10-427					.13 .18	NO NO		23 25	F BRANCH 5
A 96	4											F
A 96R			P2-22 P10-326					.13 .18	NO NO		23 25	F BRANCH 5
A 96Y			P2-9 P10-426					.13 .18	NO NO		23 25	F BRANCH 5
A 97	4											F
A 97R			P2-41 P10-325					.13 .18	NO NO		23 25	F BRANCH 5
A 97Y			P2-40 P10-425					.13 .18	NO NO		23 25	F BRANCH 5
A 98	10				1.75 1.00	1.50 .75				6B 7	31 29	
A 98A	11		SHLD A98 P2-44					.20 .13	NO NO		 23	
A 98G			P2-25 P10-212					.13 .18	NO NO		23 24	 BRANCH 4

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR J	SHEET 42 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 98R			P2-46 P10-113					.13 .18	NO NO		23 24	BRANCH 4
A 98Y			P2-45 P10-312					.13 .18	NO NO		23 24	BRANCH 4
A 99	8				1.75 1.00	1.50 .75				6B 7	31 29	
A 99A	11		SHLD A99 P2-26					.20 .13	NO NO		23	
A 99R			DELETED									
A 99Y			P2-47 P10-114					.13 .18	NO NO		23 24	BRANCH 4
A 104	2		P3-1 P10-538					.13 .18	NO NO		22 25	E BRANCH 5
A 105	2		P3-7 P10-556					.13 .18	NO NO		22 25	E BRANCH 5
A 106	2		P3-2 P10-625					.13 .18	NO NO		22 25	E BRANCH 5
A 113	2		P3-8 P10-547					.13 .18	NO NO		22 25	E BRANCH 5
A 116	1		P5-66 P10-602					.13 .18	NO NO		22 24	D BRANCH 4
A 118	1		P5-45 P10-504					.13 .18	NO NO		22 24	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 43 OF 74

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 125	2		P5-26 P10-409					.13 .22	NO NO		22	D BRANCH 4
A 127	5											A
A 127G			P5-53 P10-161					.13 .18	NO NO		22 24	A BRANCH 6
A 127R			P5-78 P10-159					.13 .18	NO NO		22 24	A BRANCH 6
A 127Y			P5-54 P10-160					.13 .18	NO NO		22 24	A BRANCH 6
A 128	5											A
A 128G			P5-55 P10-260					.13 .18	NO NO		22 24	A BRANCH 6
A 128R			P5-79 P10-261					.13 .18	NO NO		22 24	A BRANCH 6
A 128Y			P5-80 P10-259					.13 .18	NO NO		22 24	A BRANCH 6
A 129	5											A
A 129G			P5-16 P10-360					.13 .18	NO NO		22 24	A BRANCH 6
A 129R			P5-33 P10-361					.13 .18	NO NO		22 24	A BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 44 OF 74

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 129Y			P5-32 P10-359					.13 .18	NO NO		22 24	A BRANCH 6
A 130	5											A
A 130G			P5-56 P10-460					.13 .18	NO NO		22 24	A BRANCH 6
A 130R			P5-81 P10-461					.13 .18	NO NO		22 24	A BRANCH 6
A 130Y			P5-57 P10-459					.13 .18	NO NO		22 24	A BRANCH 6
A 131	5											A
A 131G			P5-35 P10-560					.13 .18	NO NO		22 24	A BRANCH 6
A 131R			P5-58 P10-561					.13 .18	NO NO		22 24	A BRANCH 6
A 131Y			P5-34 P10-559					.13 .18	NO NO		22 24	A BRANCH 6
A 139	2		P6-77 P10-636					.13 .18	NO NO		22 25	C BRANCH 6
A 148	2		P6-20 P10-613					.13 .18	NO NO		22 25	C BRANCH 6
A 149	4											C

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 45 OF 74

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 149R			P6-85 P10-133					.13 .18	NO NO		22 25	C BRANCH 6
A 149Y			P6-84 P10-233					.13 .18	NO NO		22 25	C BRANCH 6
A 150	4											C
A 150R			P6-82 P10-516					.13 .18	NO NO		22 25	C BRANCH 6
A 150Y			P6-57 P10-616					.13 .18	NO NO		22 25	C BRANCH 6
A 151	4											C
A 151R			P6-8 P10-158					.13 .18	NO NO		22 25	C BRANCH 6
A 151Y			P6-2 P10-258					.13 .18	NO NO		22 25	C BRANCH 6
A 152	4											C
A 152R			P6-19 P10-157					.13 .18	NO NO		22 25	C BRANCH 6
A 152Y			P6-7 P10-257					.13 .18	NO NO		22 25	C BRANCH 6
A 153	4											C

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 46 OF 74

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 153R			P6-6 P10-156					.13 .18	NO NO		22 25	C BRANCH 6
A 153Y			P6-1 P10-256					.13 .18	NO NO		22 25	C BRANCH 6
A 154	4											C
A 154R			P6-5 P10-155					.13 .18	NO NO		22 25	C BRANCH 6
A 154Y			P6-4 P10-255					.13 .18	NO NO		22 25	C BRANCH 6
A 155	4											C
A 155R			P6-15 P10-154					.13 .18	NO NO		22 25	C BRANCH 6
A 155Y			P6-16 P10-254					.13 .18	NO NO		22 25	C BRANCH 6
A 156	4											C
A 156R			P6-17 P10-153					.13 .18	NO NO		22 25	C BRANCH 6
A 156Y			P6-33 P10-253					.13 .18	NO NO		22 25	C BRANCH 6
A 157	4											C

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J
SHEET 47 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 157R			P6-61 P10-132					.13 .18	NO NO		22 25	C BRANCH 6
A 157Y			P6-60 P10-232					.13 .18	NO NO		22 25	C BRANCH 6
A 158	4											
A 158R			P6-37 P10-130					.13 .18	NO NO		22 25	C BRANCH 6
A 158Y			P6-36 P10-230					.13 .18	NO NO		22 25	C BRANCH 6
A 159	4											C
A 159R			P6-83 P10-352					.13 .18	NO NO		22 25	C BRANCH 6
A 159Y			P6-59 P10-452					.13 .18	NO NO		22 25	C BRANCH 6
A 160	4											C
A 160R			P6-35 P10-129					.13 .18	NO NO		22 25	C BRANCH 6
A 160Y			P6-18 P10-229					.13 .18	NO NO		22 25	C BRANCH 6
A 161	4											C

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J
SHEET 48 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 161R			P6-58 P10-128					.13 .18	NO NO		22 25	C BRANCH 6
A 161Y			P6-34 P10-228					.13 .18	NO NO		22 25	C BRANCH 6
A 164	1		P8-9 P10-302					.13 .18	NO NO		22 24	B BRANCH 4
A 170	2		P8-5 P10-509					.13 .18	NO NO		22 25	B BRANCH 4
A 177	2		P8-8 P10-108					.13 .22	NO NO		22	B BRANCH 4
A 178	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 178A	11		SHLD A178 P3-52					.20 .13	NO NO		 22	
A 178B	11		P7-21 SHLD A178					.13 .20	NO NO		22	
A 178R			P3-77 P7-40					.13 .13	NO NO		22 22	
A 178Y			P3-53 P7-22					.13 .13	NO NO		22 22	
A 179	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 179A	11		SHLD A179 P3-30					.20 .13	NO NO		 22	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J
SHEET 49 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 179B	11		P7-23 SHLD A179					.13 .20	NO NO		22	
A 179R			P3-31 P7-42					.13 .13	NO NO		22 22	
A 179Y			P3-15 P7-43					.13 .13	NO NO		22 22	
A 180	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 180A	11		SHLD A180 P3-51					.20 .13	NO NO		 22	
A 180B	11		P7-2 SHLD A180					.13 .20	NO NO		22	
A 180R			P3-75 P7-8					.13 .13	NO NO		22 22	
A 180Y			P3-76 P7-9					.13 .13	NO NO		22 22	
A 181	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 181A	11		SHLD A181 P3-46					.20 .13	NO NO		 22	
A 181R			P3-71 P7-38					.13 .13	NO NO		22 22	
A 181Y			P3-70 P7-39					.13 .13	NO NO		22 22	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J
SHEET 50 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 182	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 182A	11		SHLD A182 P3-69					.20 .13	NO NO		 22	
A 182R			P3-45 P7-19					.13 .13	NO NO		22 22	
A 182Y			P3-44 P7-20					.13 .13	NO NO		22 22	
A 183	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 183A	11		SHLD A183 P3-28					.20 .13	NO NO		 22	
A 183R			P3-13 P7-60					.13 .13	NO NO		22 22	
A 183Y			P3-29 P7-61					.13 .13	NO NO		22 22	
A 184	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 184A	11		SHLD A184 P3-74					.20 .13	NO NO		 22	
A 184R			P3-49 P7-36					.13 .13	NO NO		22 22	
A 184Y			P3-50 P7-37					.13 .13	NO NO		22 22	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 51 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 185	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 185A	11		SHLD A185 P3-27					.20 .13	NO NO		 22	
A 185R			P3-26 P7-58					.13 .13	NO NO		22 22	
A 185Y			P3-47 P7-59					.13 .13	NO NO		22 22	
A 186	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 186A	11		SHLD A186 P3-48					.20 .13	NO NO		 22	
A 186R			P3-72 P7-35					.13 .13	NO NO		22 22	
A 186Y			P3-73 P7-18					.13 .13	NO NO		22 22	
A 187	3											
A 187R			P3-67 P7-57					.13 .13	NO NO		22 22	
A 187Y			P3-68 P7-34					.13 .13	NO NO		22 22	
A 188	7											

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 52 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 188G			P3-24 P7-51					.13 .13	NO NO		22 22	
A 188N			P3-43 P7-29					.13 .13	NO NO		22 22	
A 188R			P3-25 P7-50					.13 .13	NO NO		22 22	
A 188Y			P3-23 P7-28					.13 .13	NO NO		22 22	
A 189	4											
A 189R			P3-5 P7-49					.13 .13	NO NO		22 22	
A 189Y			P3-14 P7-48					.13 .13	NO NO		22 22	
A 195	2		P5-23 P10-608					.13 .22	NO NO		22	D BRANCH 4
A 196	2		P5-22 P10-609					.13 .22	NO NO		22	D BRANCH 4
A 198	6											
A 198G			P1-11 P9-521					.13 .18	NO NO		22 25	 BRANCH 2
A 198R			P1-10 P9-121					.13 .18	NO NO		22 25	 BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 53 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 198Y			P1-9 P9-321					.13 .18	NO NO		22 25	 BRANCH 2
A 199	5											A
A 199G			P5-5 P10-660					.13 .18	NO NO		22 24	A BRANCH 6
A 199R			P5-31 P10-661					.13 .18	NO NO		22 24	A BRANCH 6
A 199Y			P5-15 P10-659					.13 .18	NO NO		22 24	A BRANCH 6
A 200	2		P3-39 P10-202					.13 .18	NO NO		22 25	E BRANCH 5
A 201	2		P3-64 P10-102					.13 .18	NO NO		22 24	E BRANCH 5
A 202	2		P3-42 P10-652					.13 .18	NO NO		22 25	E BRANCH 5
A 203	2		P3-66 P10-551					.13 .18	NO NO		22 25	E BRANCH 5
A 204	2		P3-21 P10-552					.13 .18	NO NO		22 25	E BRANCH 5
A 205	2		P3-22 P10-651					.13 .18	NO NO		22 25	E BRANCH 5
A 206	2		P3-18 P10-548					.13 .18	NO NO		22 25	E BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 54 OF 74

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 207	2		P3-36 P10-549					.13 .18	NO NO		22 25	E BRANCH 5
A 208	2		P3-19 P10-550					.13 .18	NO NO		22 25	E BRANCH 5
A 209	2		P3-41 P10-214					.13 .18	NO NO		22 25	E BRANCH 5
A 210	2		P3-65 P10-216					.13 .18	NO NO		22 25	E BRANCH 5
A 211	2		P3-40 P10-215					.13 .18	NO NO		22 25	E BRANCH 5
A 212	2		P3-33 P10-646					.13 .18	NO NO		22 25	E BRANCH 5
A 213	2		P3-17 P10-546					.13 .18	NO NO		22 25	E BRANCH 5
A 214	2		P3-57 P10-645					.13 .18	NO NO		22 25	E BRANCH 5
A 215	2		P3-82 P10-545					.13 .18	NO NO		22 25	E BRANCH 5
A 216	2		P3-81 P10-542					.13 .18	NO NO		22 25	E BRANCH 5
A 217	2		P3-80 P10-644					.13 .18	NO NO		22 25	E BRANCH 5
A 218	2		P3-56 P10-544					.13 .18	NO NO		22 25	E BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 219	2		P3-84 P10-623					.13 .18	NO NO		22 25	E BRANCH 5
A 220	2		P3-60 P10-524					.13 .18	NO NO		22 25	E BRANCH 5
A 221	2		P3-59 P10-522					.13 .18	NO NO		22 25	E BRANCH 5
A 222	2		P3-62 P10-648					.13 .18	NO NO		22 25	E BRANCH 5
A 223	2		P3-63 P10-649					.13 .18	NO NO		22 25	E BRANCH 5
A 224	2		P3-38 P10-650					.13 .18	NO NO		22 25	E BRANCH 5
A 225	2		P5-38 P10-401					.13 .18	NO NO		22 25	D BRANCH 4
A 226	2		P5-62 P10-601					.13 .18	NO NO		22 25	D BRANCH 4
A 227	2		P5-63 P10-501					.13 .18	NO NO		22 25	D BRANCH 4
A 228	2		P5-64 P10-101					.13 .18	NO NO		22 24	D BRANCH 4
A 229	2		P5-40 P10-301					.13 .18	NO NO		22 25	D BRANCH 4
A 230	2		P5-39 P10-201					.13 .18	NO NO		22 25	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 231	2		P5-41 P10-502					.13 .22	NO NO		22 25	D BRANCH 4
A 232	2		P5-42 P10-402					.13 .22	NO NO		22	D BRANCH 4
A 233	2		P5-30 P10-204					.13 .22	NO NO		22	D BRANCH 4
A 234	2		P5-14 P10-505					.13 .22	NO NO		22	D BRANCH 4
A 235	2		P5-29 P10-605					.13 .22	NO NO		22	D BRANCH 4
A 236	2		P5-77 P10-506					.13 .22	NO NO		22	D BRANCH 4
A 237	2		P5-52 P10-404					.13 .22	NO NO		22	D BRANCH 4
A 238	2		P5-76 P10-304					.13 .22	NO NO		22	D BRANCH 4
A 239	2		P5-50 P10-405					.13 .22	NO NO		22	D BRANCH 4
A 240	2		P5-51 P10-606					.13 .22	NO NO		22	D BRANCH 4
A 241	2		P5-75 P10-205					.13 .22	NO NO		22	D BRANCH 4
A 242	2		P5-73 P10-607					.13 .22	NO NO		22	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 243	2		P5-74 P10-305					.13 .22	NO NO		22	D BRANCH 4
A 244	2		P5-49 P10-507					.13 .22	NO NO		22	D BRANCH 4
A 245	2		P5-13 P10-306					.13 .22	NO NO		22	D BRANCH 4
A 246	2		P5-28 P10-206					.13 .22	NO NO		22	D BRANCH 4
A 247	2		P5-27 P10-406					.13 .22	NO NO		22	D BRANCH 4
A 248	2		P5-47 P10-307					.13 .22	NO NO		22	D BRANCH 4
A 249	2		P5-46 P10-208					.13 .22	NO NO		22	D BRANCH 4
A 250	2		P5-4 P10-308					.13 .22	NO NO		22	D BRANCH 4
A 251	2		P5-12 P10-309					.13 .22	NO NO		22	D BRANCH 4
A 252	2		P5-71 P10-207					.13 .22	NO NO		22	D BRANCH 4
A 253	2		P5-72 P10-407					.13 .22	NO NO		22	D BRANCH 4
A 254	2		P5-48 P10-604					.13 .22	NO NO		22	D BRANCH 4

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 255	3											A
A 255R			P5-44 P10-107					.13 .18	NO NO		22 24	A BRANCH 6
A 255Y			P5-68 P10-105					.13 .18	NO NO		22 24	A BRANCH 6
A 256	2		P6-14 P10-540					.13 .18	NO NO		22 25	C BRANCH 6
A 257	2		P6-30 P10-639					.13 .18	NO NO		22 25	C BRANCH 6
A 258	2		P6-48 P10-658					.13 .18	NO NO		22 25	C BRANCH 6
A 259	2		P6-72 P10-557					.13 .18	NO NO		22 25	C BRANCH 6
A 260	2		P6-73 P10-558					.13 .18	NO NO		22 25	C BRANCH 6
A 261	2		P6-49 P10-657					.13 .18	NO NO		22 25	C BRANCH 6
A 262	2		P6-28 P10-640					.13 .18	NO NO		22 25	C BRANCH 6
A 263	2		P6-29 P10-520					.13 .18	NO NO		22 25	C BRANCH 6
A 264	2		P6-76 P10-523					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 59 OF 74	

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 265	2		P6-75 P10-647					.13 .18	NO NO		22 25	C BRANCH 6
A 266	2		P6-50 P10-641					.13 .18	NO NO		22 25	C BRANCH 6
A 267	2		P6-74 P10-541					.13 .18	NO NO		22 25	C BRANCH 6
A 268	2		P6-40 P10-109					.13 .18	NO NO		22 25	C BRANCH 6
A 269	2		P6-21 P10-410					.13 .18	NO NO		22 25	C BRANCH 6
A 270	2		P6-65 P10-209					.13 .18	NO NO		22 25	C BRANCH 6
A 271	2		P6-22 P10-310					.13 .18	NO NO		22 25	C BRANCH 6
A 272	2		P6-66 P10-510					.13 .18	NO NO		22 25	C BRANCH 6
A 273	2		P6-42 P10-210					.13 .18	NO NO		22 25	C BRANCH 6
A 274	2		P6-41 P10-610					.13 .18	NO NO		22 25	C BRANCH 6
A 275	2		P6-67 P10-110					.13 .18	NO NO		22 25	C BRANCH 6
A 276	2		P6-10 P10-111					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 60 OF 74	

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 277	2		P6-24 P10-612					.13 .18	NO NO		22 25	C BRANCH 6
A 278	2		P6-9 P10-211					.13 .18	NO NO		22 25	C BRANCH 6
A 279	2		P6-23 P10-512					.13 .18	NO NO		22 25	C BRANCH 6
A 280	2		P6-68 P10-511					.13 .18	NO NO		22 25	C BRANCH 6
A 281	2		P6-69 P10-411					.13 .18	NO NO		22 25	C BRANCH 6
A 282	2		P6-43 P10-611					.13 .18	NO NO		22 25	C BRANCH 6
A 283	2		P6-44 P10-311					.13 .18	NO NO		22 25	C BRANCH 6
A 284	2		P6-46 P10-627					.13 .18	NO NO		22 25	C BRANCH 6
A 285	2		P6-25 P10-628					.13 .18	NO NO		22 25	C BRANCH 6
A 286	2		P6-45 P10-528					.13 .18	NO NO		22 25	C BRANCH 6
A 287	2		P6-71 P10-526					.13 .18	NO NO		22 25	C BRANCH 6
A 288	2		P6-70 P10-527					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 61 OF 74	

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 289	2		P6-47 P10-626					.13 .18	NO NO		22 25	C BRANCH 6
A 290	2		P6-12 P10-654					.13 .18	NO NO		22 25	C BRANCH 6
A 291	2		P6-3 P10-655					.13 .18	NO NO		22 25	C BRANCH 6
A 292	2		P6-11 P10-555					.13 .18	NO NO		22 25	C BRANCH 6
A 293	2		P6-27 P10-553					.13 .18	NO NO		22 25	C BRANCH 6
A 294	2		P6-26 P10-554					.13 .18	NO NO		22 25	C BRANCH 6
A 295	2		P6-13 P10-653					.13 .18	NO NO		22 25	C BRANCH 6
A 296	2		P8-24 P10-403					.13 .18	NO NO		22 25	B BRANCH 4
A 297	2		P8-44 P10-603					.13 .18	NO NO		22 25	B BRANCH 4
A 298	2		P8-43 P10-503					.13 .18	NO NO		22 25	B BRANCH 4
A 299	2		P8-41 P10-103					.13 .18	NO NO		22 24	B BRANCH 4
A 300	2		P8-42 P10-303					.13 .18	NO NO		22 25	B BRANCH 4

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 62 OF 74	

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 301	2		P8-23 P10-203					.13 .18	NO NO		22 25	B BRANCH 4
A 302	2		P8-22 P10-502					.13 .22	NO NO		22 24	B BRANCH 4
A 303	2		P8-10 P10-402					.13 .22	NO NO		22 24	B BRANCH 4
A 304	2		P8-52 P10-207					.13 .22	NO NO		22 24	B BRANCH 4
A 305	2		P8-50 P10-407					.13 .22	NO NO		22 24	B BRANCH 4
A 306	2		P8-51 P10-307					.13 .22	NO NO		22 24	B BRANCH 4
A 307	2		P8-31 P10-408					.13 .22	NO NO		22	B BRANCH 4
A 308	2		P8-53 P10-608					.13 .22	NO NO		22 24	B BRANCH 4
A 309	2		P8-54 P10-508					.13 .22	NO NO		22	B BRANCH 4
A 310	2		P8-32 P10-208					.13 .22	NO NO		22 24	B BRANCH 4
A 311	2		P8-30 P10-309					.13 .22	NO NO		22 24	B BRANCH 4
A 312	2		P8-29 P10-308					.13 .22	NO NO		22 24	B BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 63 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 313	2		P8-16 P10-409					.13 .22	NO NO		22 24	B BRANCH 4
A 314	2		P8-14 P10-604					.13 .22	NO NO		22 24	B BRANCH 4
A 315	2		P8-15 P10-609					.13 .22	NO NO		22 24	B BRANCH 4
A 316	1		P8-7 P10-106					.13 .18	NO NO		22 24	B BRANCH 4
A 317	1		P8-2 P10-104					.13 .18	NO NO		22 24	B BRANCH 4
A 318	2		P8-3 P10-607					.13 .22	NO NO		22 24	B BRANCH 4
A 319	2		P8-25 P10-606					.13 .22	NO NO		22 24	B BRANCH 4
A 320	2		P8-1 P10-507					.13 .22	NO NO		22 24	B BRANCH 4
A 321	2		P8-12 P10-406					.13 .22	NO NO		22 24	B BRANCH 4
A 322	2		P8-11 P10-506					.13 .22	NO NO		22 24	B BRANCH 4
A 323	2		P8-28 P10-405					.13 .22	NO NO		22 24	B BRANCH 4
A 324	2		P8-4 P10-206					.13 .22	NO NO		22 24	B BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 64 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 325	2		P8-13 P10-306					.13 .22	NO NO		22 24	B BRANCH 4
A 326	2		P8-26 P10-205					.13 .22	NO NO		22 24	B BRANCH 4
A 327	2		P8-27 P10-305					.13 .22	NO NO		22 24	B BRANCH 4
A 328	2		P8-47 P10-204					.13 .22	NO NO		22 24	B BRANCH 4
A 329	2		P8-45 P10-404					.13 .22	NO NO		22 24	B BRANCH 4
A 330	2		P8-46 P10-304					.13 .22	NO NO		22 24	B BRANCH 4
A 331	2		P8-48 P10-605					.13 .22	NO NO		22 24	B BRANCH 4
A 332	2		P8-49 P10-505					.13 .22	NO NO		22 24	B BRANCH 4
A 333	3									6A 6A	31 31	
A 333A	11		SHLD A333 E8					.20 .19	NO NO			
A 333B	11		E12 SHLD A333					.19 .20	NO NO			
A 333R			P3-3 P7-52					.13 .13	NO NO		22 22	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 65 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 333Y			P3-11 P7-31					.13 .13	NO NO		22 22	
A 334	8				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 334A	11		SHLD A334 E8					.20 .19	NO NO		 47	
A 334B	11		E11 SHLD A334					.19 .20	NO NO		47	
A 334R			DELETED									
A 334Y			P3-4 P6-51					.13 .13	NO NO		22 22	
A 335	9				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 335A	11		SHLD A335 E10					.20 .19	NO NO			
A 335B	11		E12 SHLD A335					.19 .20	NO NO		47	
A 335R			P5-19 P7-15					.13 .13	NO NO		22 22	
A 335Y			P5-18 P7-16					.13 .13	NO NO		22 22	
A 336	9				1.75 1.75	1.50 1.50				6A 6A	31 31	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 66 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 336A	11		SHLD A336 E10					.20 .19	NO NO			
A 336B	11		F13 SHLD A336					.19 .20	NO NO			
A 336R			P5-7 P7-30					.13 .13	NO NO		22 22	
A 336Y			P5-8 P7-14					.13 .13	NO NO		22 22	
A 337	3									6A 6A	31 31	
A 337A	11		SHLD A337 E10					.20 .19	NO NO		 47	
A 337B	11		E13 SHLD A337					.19 .20	NO NO		47	
A 337R			P5-9 P7-6					.13 .13	NO NO		22 22	
A 337Y			P5-2 P7-7					.13 .13	NO NO		22 22	
A 338	2		P5-10 P10-508					.13 .22	NO NO		22 24	D BRANCH 4
A 339	2		P5-24 P10-408					.13 .22	NO NO		22 24	D BRANCH 4
A 340	35		E7 E5					.19 .19	NO NO		46	F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 341	35		E8 E5					.19 .19	NO NO			E
A 342	35		E9 E5					.19 .19	NO NO		 52	D
A 343	35		E9 E6					.19 .19	NO NO		47	A
A 344	35		E11 E6					.19 .19	NO NO			C
A 345	35		E14 E6					.19 .19	NO NO		46 52	B
A 346	2		P5-43 P10-108					.13 .22	NO NO		22 24	A BRANCH 6
A 347	35		F3 E36					.19 .19	NO NO		 58	G
A 348	4											G
A 348R			P9-610 P10-332					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 348Y			P9-510 P10-432					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 349	4											G
A 349R			P9-310 P10-330					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 349Y			P9-210 P10-430					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 350	4											G
A 350R			P9-609 P10-329					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 350Y			P9-509 P10-429					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 351	4											G
A 351R			P9-309 P10-328					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 351Y			P9-209 P10-428					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 352	4											G
A 352R			P9-608 P10-334					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 352Y			P9-508 P10-434					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 353	4											G
A 353R			P9-308 P10-333					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 353Y			P9-208 P10-433					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 354	4											G
A 354R			P9-607 P10-338					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 354Y			P9-507 P10-438					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 355	4											G
A 355R			P9-307 P10-337					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 355Y			P9-207 P10-437					.18 .18	NO NO		25 25	B, BRANCH 1 BRANCH 5
A 356	4											G
A 356R			P9-606 P10-336					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 356Y			P9-506 P10-436					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 357	4											G
A 357R			P9-306 P10-335					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

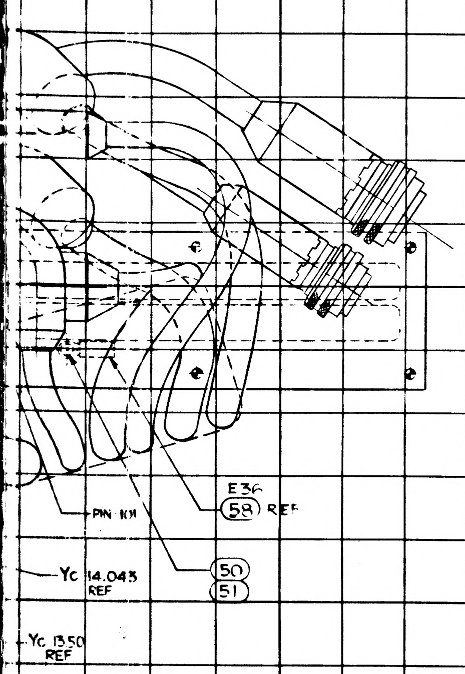
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 357Y			P9-206 P10-435					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 358	4											G
A 358R			P9-605 P10-146					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 358Y			P9-505 P10-246					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359	4											G
A 359R			P9-305 P10-145					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359Y			P9-205 P10-245					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360	4											G
A 360R			P9-604 P10-144					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360Y			P9-504 P10-244					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 361	4											G
A 361R			P9-304 P10-143					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 361Y			P9-204 P10-243					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 362	4											G
A 362R			P9-603 P10-148					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 362Y			P9-503 P10-248					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363	4											G
A 363R			P9-303 P10-147					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363Y			P9-203 P10-247					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364	4											G
A 364R			P9-602 P10-152					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364Y			P9-502 P10-252					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 365	4											G
A 365R			P9-302 P10-151					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 365Y			P9-202 P10-251					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 366	4											G
A 366R			P9-601 P10-150					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 366Y			P9-501 P10-250					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367	4											G
A 367R			P9-301 P10-149					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367Y			P9-201 P10-249					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD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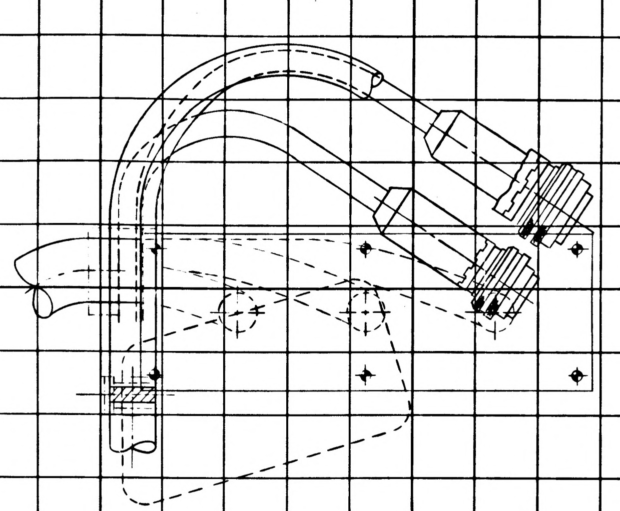
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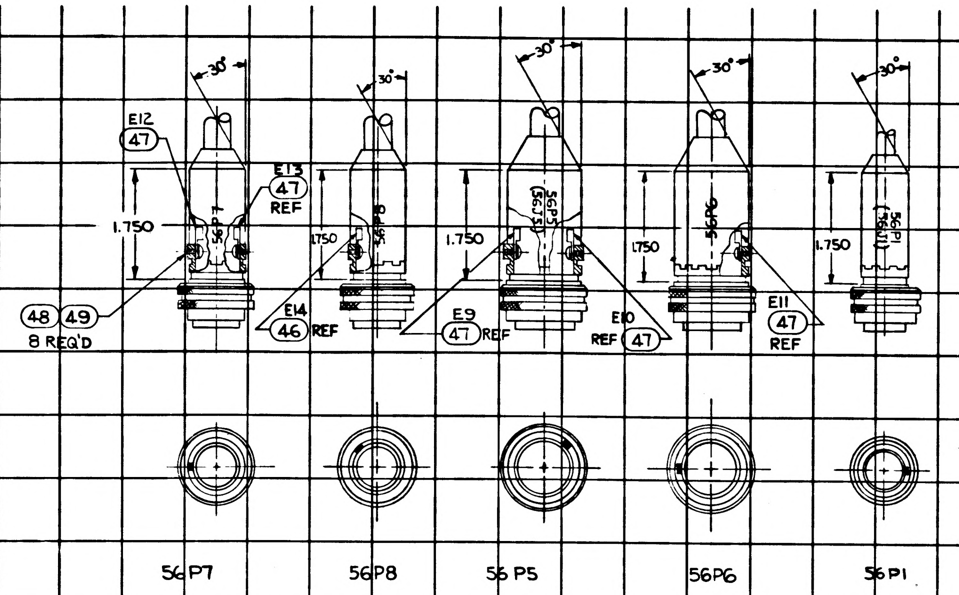
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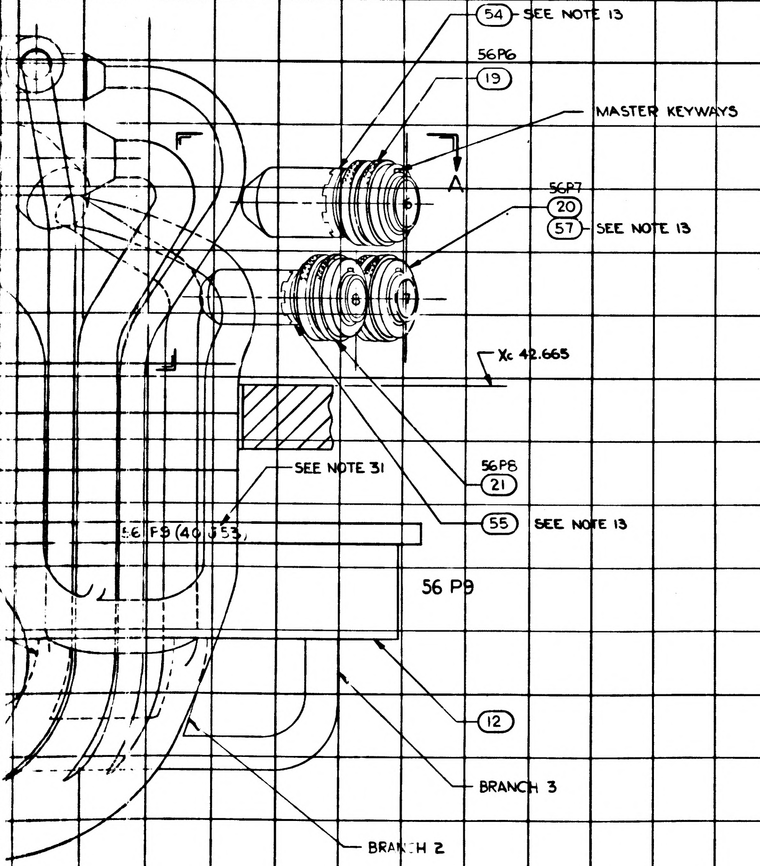
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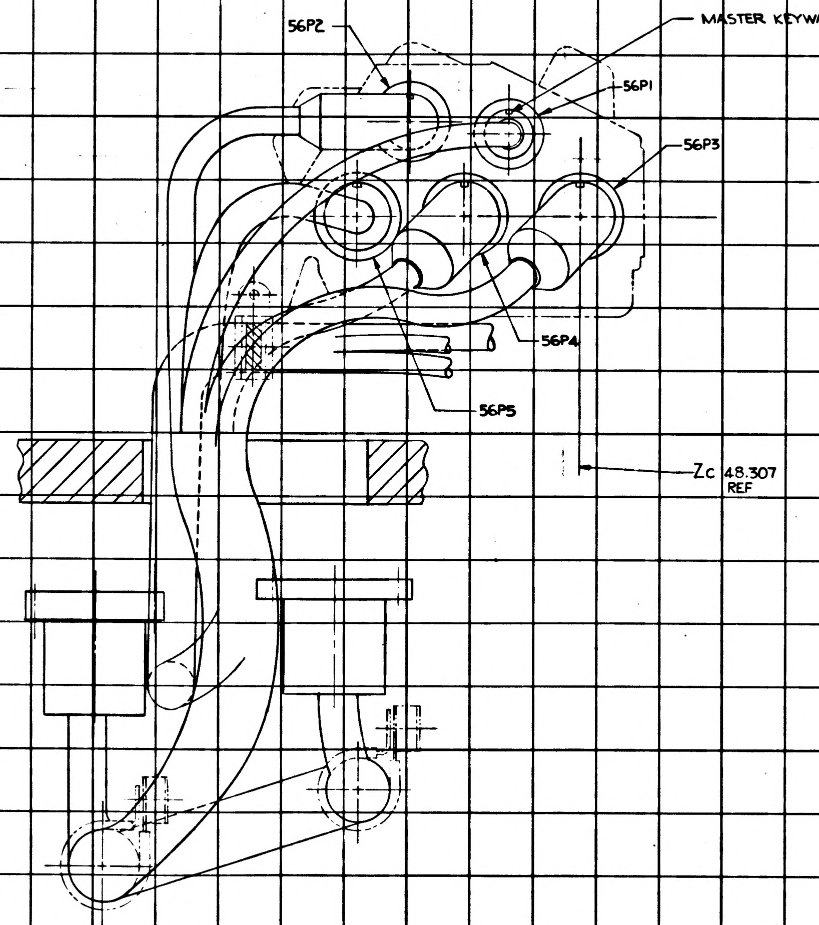
SEE NOTE 31
56P9 (40.353)
56P8
21
55 SEE NOTE 13
56 P9
12
BRANCH 3
BRANCH 2


56P2
MASTER KEYWAYS
56P1
56P3
56P4
56P5
Zc 48.307 REF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES + + + − − −	MIT INSTRUMENTATION LAB CAMBRIDGE MASS DWG NO CONTRACT	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
DO NOT SCALE THIS DRAWING	DRAWN Dietrich DATE 1/24/66 CHECKED N. E. Abraham 1/27/66 APPROVAL Cane Watson FEB. 66 APPROVAL 2/1/66	G&N INTERCONNECT HARNESS "A" (C/M BLOCK II)
MATERIAL	NASA APPROVAL A. C. METZGER	CODE IDENT NO. 80230 · SIZE J₂ · 2014641
CONTRACT	MIT APPROVAL	SCALE · SHEET 74 OF 74

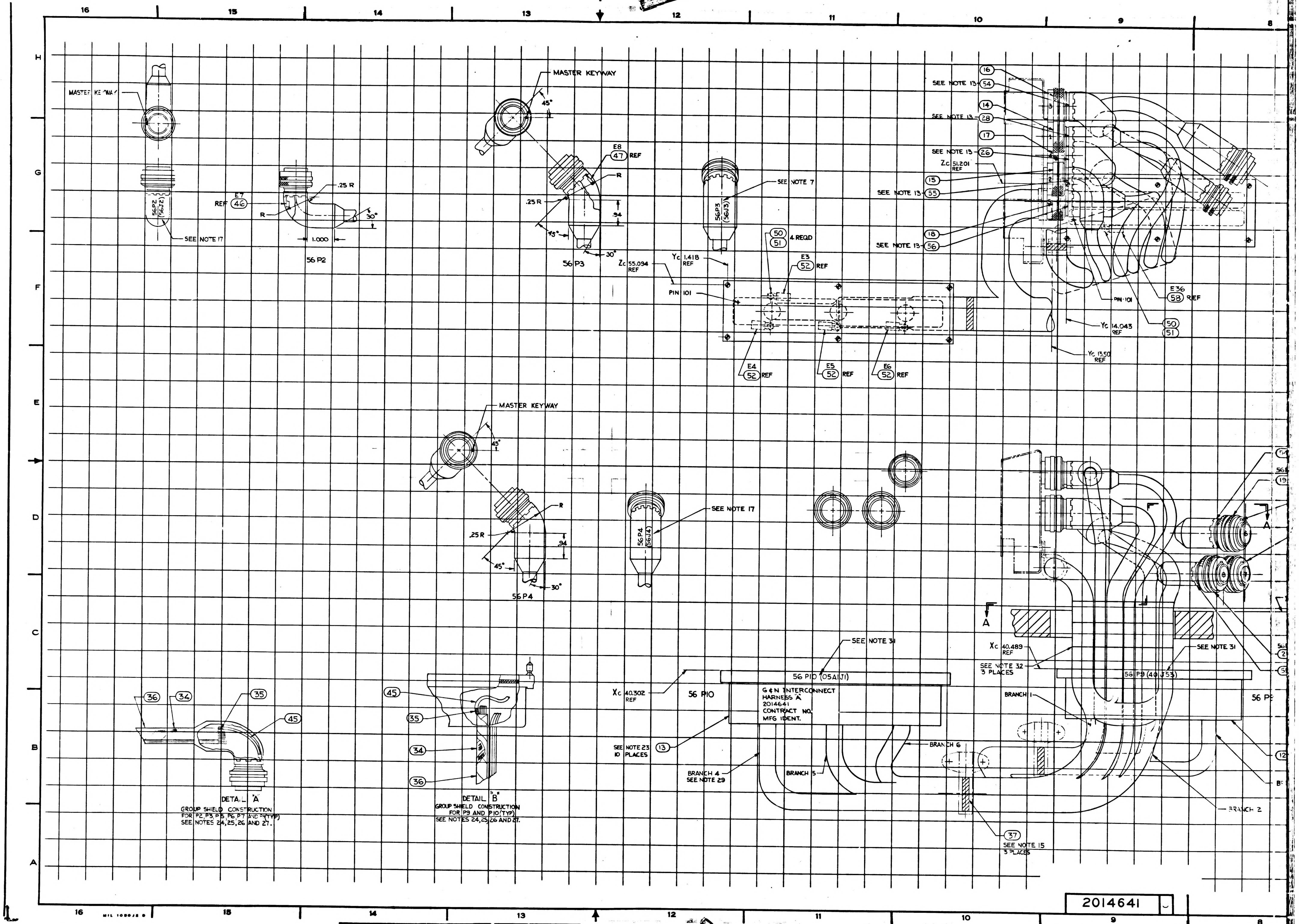
2014641 J

2014641 J

2014641

SO 4641 A B

2/2014641


16
15
14
13
12
11
10
9
8
H
G
F
E
D
C
B
A
MASTER KEYWAY
56P2
(56J2)
SEE NOTE 17
E7
REF 46
R
.25 R
30°
1.000
56 P2
MASTER KEYWAY
45°
E8
47 REF
R
.25 R
.94
45°
30°
56 P3
56P3
(56J3)
SEE NOTE 7
Yc 1.418 REF
Zc 55.094 REF
50
51
4 REQD
E3
52 REF
PIN 101
E4
52 REF
E5
52 REF
E6
52 REF
16
SEE NOTE 13 54
14
SEE NOTE 13 28
17
SEE NOTE 13 26
Zc 51.201 REF
15
SEE NOTE 13 55
18
SEE NOTE 13 56
E36
58 REF
PIN 101
50
51
Yc 14.043 REF
Yc 13.50 REF
MASTER KEYWAY
45°
R
.25 R
.94
45°
30°
56 P4
56P4
(56J4)
SEE NOTE 17
A
A
SEE NOTE 31
56 P10 (05A1J1)
Xc 40.302 REF
56 P10
G&N INTERCONNECT
HARNESS 'A'
2014641
CONTRACT NO.
MFG IDENT.
SEE NOTE 23
10 PLACES
13
BRANCH 4
SEE NOTE 29
BRANCH 5
BRANCH 6
Xc 40.489 REF
SEE NOTE 32
3 PLACES
SEE NOTE 31
56 P9 (40 J53)
56 P
BRANCH 1
BRANCH 2
37
SEE NOTE 15
3 PLACES
36
34
35
45
45
35
34
36

DETAIL 'A'
GROUP SHIELD CONSTRUCTION
FOR P2, P3, P5, P6, P7 AND P8 (TYP)
SEE NOTES 24, 25, 26 AND 27.

DETAIL 'B'
GROUP SHIELD CONSTRUCTION
FOR P9 AND P10 (TYP)
SEE NOTES 24, 25, 26 AND 27.

2014641

MIL 1000/2 B

1/2014641

APPLICATION	
NEXT ASSY	USED ON
2014567-011	2014567-011

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REPLACES REV D WITH CHANGE PER TDRR		
F	CHGD PER TDRR 24806		
G	Revised per TDRR 25?36	2-4-66	[illegible]
H	REVISED PER TDRR 25886	10 FEB 66	RLP EF
J	REVISED PER TDRR 25841	18 FEB 66	DKD EF
K	REVISED PER TDRR 27430	30 MAR 66	RLP DKF
L	REVISED PER TDRR 28021	19 APR 66	R.W.T. AJ

REPLACES REV D WITH CHANGE

REV	H	H	H	H	K	K	H	H	H	H	H	H	H	H	H	J	J	J	J	J	J	J	J	J	J	J
SHEET	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46

REV STATUS OF SHEETS																					
REV	L	L	J	L	J	L	H	J	J	L	L	H	H	H	H	H	H	L	L	L
SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN Janowiak DATE 7 DEC 65
CHECKED W. Diehl 7 DEC 65
APPROVAL [illegible] 8 DEC 65
APPROVAL [illegible] 10/10/65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INTERCONNECT HARNESS "A"
(C/M, BLOCK II)

NASA APPROVAL
MIT APPROVAL [illegible] 21 Feb 66
CONTRACT NAS9-4?7

CODE IDENT NO. 80230 | SIZE A | 2014641 | REV L

SCALE | SHEET 1 OF 74

REVISION STATUS OF SHEETS

SH	REV
47	J
48	J
49	J
50	J
51	J
52	J
53	J
54	J
55	J
56	J
57	J
58	J
59	J
60	J
61	J
62	J
63	J
64	J
65	J
66	J
67	L
68	L
69	J
70	J
71	J
72	J
73	J
74	L

SIZE A | CODE IDENT. NO. 80230 | 2014641

SCALE NONE | REV LTR L | SHEET 2 of ~~68~~ 74

GENERAL NOTES

NOTE NUMBER	DESCRIPTION
1	SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6A AND 6B AND ND1002032 FOR FIGURE 7.
2	INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
3	INTERCONNECT LIST FOR THIS HARNESS IS 2014671.
4	PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT
5	THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER. A - FROM END OF SHIELD B - TO END OF SHIELD G - GREEN K - BLACK L - BLUE N - BROWN R - RED W - WHITE Y - YELLOW
6	ASTERISK DENOTES LOWER CASE LETTER
7	GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION
8	UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.
9	VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.
10	CRIMP CONTACTS PER ND1002032.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 3 OF 74

GENERAL NOTES

NOTE NUMBER	DESCRIPTION
11	ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS CONNECTOR 56P2, USE ITEM NUMBERS 23 AND 32. CONNECTOR 56P1,3,4,5,6,7, AND 8 USE ITEM NUMBERS 22 AND 32. CONNECTOR 56P9, AND P10 USE ITEM NUMBER 24.
12	LACE HARNESS PER ND1002032 USING ITEM NUMBER 38.
13	APPLY BONDING MATERIAL PER ND1002187, TYPE I, USING ITEMS 41 AND 42 TO THE THREADED PORTION OF CONNECTOR AND TO THE THREADED PORTION OF THE ADAPTER PRIOR TO ASSEMBLY.
14	ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.
15	BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.
16	WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED TO BUILD UP DIAMETER TO FIT SHELL HOLE.
17	MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, PER ND1002019, CENTRALIZE.
19	MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.
20	CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR L	SHEET 4 OF 74

GENERAL NOTES

NOTE NUMBER	DESCRIPTION
21	INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND. B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED, INCLUDING ALL SPARE PINS. TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE. SHORT CIRCUIT CURRENT LIMITED TO 15 MILLIAMPS.
22	PRESEAL BACK OF CONNECTORS 56P9 AND P10 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 41,42,43, AND 44.
23	ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 39 AND 40.
24	CONDUCTORS WITH AN A,B,C,D,E,F OR G IN THE REMARKS COLUMN ARE TO BE GROUP SHIELDED PER DETAIL A AND/OR B OF THE CONF. DRAWING.
25	GROUP SHIELDING - THREAD ONE CONTINUOUS LENGTH OF GROUND WIRE, ITEM 35, THROUGH CENTER OF EMI/RFI SHIELDING TAPE. ITEM 34. ALLOW 6 INCHES OF GROUND WIRE TO EXTEND BEYOND ENDS OF SHIELDING TAPE. WRAP CABLE WITH ONE CONTINUOUS LENGTH OF PREPARED SHIELDING. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE, WITH A MINIMUM OF RIDGES AND FOLDS.
26	COMPLETELY COVER SHIELD WITH ONE CONTINUOUS WRAP OF INSULATION TAPE, ITEM 36. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE WITH A MINIMUM OF RIDGES AND FOLDS. WRAP TAPE IN OPPOSITE DIRECTION TO SHIELD WRAP.
27	ASSEMBLE INSULATION TUBING, ITEM 45, OVER GROUND WIRE AS REQUIRED TO REACH TERMINATION. ASSEMBLE SHRINK SLEEVING AS SHOWN.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 5 OF 74

GENERAL NOTES

NOTE NUMBER	DESCRIPTION
28	ASSEMBLE A LENGTH OF WIRE BRAID ITEM 53 OVER CONDUCTORS A333 AND A337. ALLOW 1.75 INCH OF LEAD TO EXTEND BEYOND BRAID. COVER BRAID WITH TEFLON TAPE, ITEM 36, PER NOTE 26. ALLOW .25 INCH OF BRAID TO EXTEND BEYOND TAPE. FOLD BRAID OVER TAPE AND TERMINATE PER ND1002071, FIG. 6B.
29	CONDUCTORS SHALL ENTER CONNECTORS 56P9 AND 56P10 THROUGH THE APPROPRIATE BRANCH SPECIFIED IN THE REMARKS COLUMN.
31	PERFORM WORKMANSHIP VIBRATION A. SINUSOIDAL SWEEP AT 3.5 GRMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE. B. VIBRATION ALONG THE X AXIS OF THE SPACECRAFT. C. MONITOR FOR DISCONTINUITIES OF 10 MICROSECONDS OR GREATER DURING VIBRATION. D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.
32	MARK CHARACTERS .10-.14 HIGH, BLACK, PER ND 1002019. CENTRALIZE AS SHOWN
33	LACE HARNESS BRANCHES TOGETHER USING A CONTINUOUS CLOVE HITCH AT LOCATIONS SHOWN.
34	ASSEMBLE SHRINK SLEEVE, ITEM 59, OVER EACH ELECTRICALLY CONNECTED PIN OF CONNECTORS P9 AND P10. POSITION SLEEVING FLUSH TO TOP OF NYLON INSULATOR.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR L	SHEET 6 OF 74

NOTE GENERAL NOTES

NUMBER DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR H		SHEET 7 OF 74

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014641- 1	WIRE PER 1010789-006, 22 AWG, YEL, 25 FT TOT LG
	2	1	2014641- 2	WIRE PER 1010789-016, 26 AWG, YEL, 50 FT TOT LG
	3	1	2014641- 3	WIRE PER 1010789-008, 22 AWG, YEL, RED, 15 FT TOT LG
	4	1	2014641- 4	WIRE PER 1010789-017, 26 AWG, YEL, RED, 220 FT TOT LG
	5	1	2014641- 5	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 20 FT TOT LG
	6	1	2014641- 6	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN 90 FT TOT LG
	7	1	2014641- 7	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 25 FT TOT LG
	8	1	2014641- 8	WIRE PER 1010789-011, 24 AWG, YEL, YEL JKT, 10 FT TOT LG
	9	1	2014641- 9	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 150 FT TOT LG
	10	1	2014641- 10	WIRE PER 1010789-013, 24 AWG, YEL, RED, GRN, YEL JKT, 10 FT TOT LG
	11	1	2014641- 11	WIRE PER 1010789-002, 24 AWG, BLK, 80 FT TOT LG
	12	1	2014741-011	CONNECTOR, PLUG, ELECTRICAL (56P9)
	13	1	2014749-011	CONNECTOR, PLUG, ELECTRICAL (56P10)
9	14	1	1010929-109	CONNECTOR, PLUG, ELECTRICAL (56P1)

SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR J		SHEET 8 OF 74

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	15	1	1010929-005	CONNECTOR, PLUG, ELECTRICAL (56P2)
9	16	1	1010929-102	CONNECTOR, PLUG, ELECTRICAL (56P3)
9	17	1	1010929-101	CONNECTOR, PLUG, ELECTRICAL (56P4)
9	18	1	1010929-103	CONNECTOR, PLUG, ELECTRICAL (56P5)
9	19	1	1010929-104	CONNECTOR, PLUG, ELECTRICAL (56P6)
9	20	1	1010929-108	CONNECTOR, PLUG, ELECTRICAL (56P7)
9	21	1	1010929-105	CONNECTOR, PLUG, ELECTRICAL (56P8)
9	22	X	1010770- 1	CONTACT, PIN, SUPPLIED WITH CONNECTOR 1010929
9	23	X	1010770- 2	CONTACT, SOCKET, SUPPLIED WITH CONNECTOR 1010929
9	24	311	1010955- 1	CONTACT, MALE
9	25	349	1010955- 2	CONTACT, MALE
	26	1	2014670- 4	ADAPTER, CONNECTOR
	27		2014670- 5	DELETED
	28	1	2014670- 7	ADAPTER, CONNECTOR
9	29	14	1012534- 36	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	30	2	1012534- 38	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	31	97	1010402- 2	SLEEVE, SOLDER
9	32	115	1010958- 1	PLUG, PROTECTIVE SEALING

SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR J		SHEET 9 OF 74

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	34	AR	1010989	TAPE, SHIELDING, EMI/RFI
	35	1	2014641-012	WIRE PER QQ-W-343, TYPE C, CLASS C, 22 AWG, 100 FT TOT LG
	36	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	37	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
9	38	AR	1012507-004	TAPE, LACING AND TYING
9	39	AR	1012503	COMPOUND, POTTING, POLYURETHANE
9	40	AR	1012504	PRIMER, METAL PARTS
9	41	AR	1010661	EPOXY RESIN
9	42	AR	1010679	ADHESIVE ACTIVATOR
9	43	AR	1008822	COLORANT, EPOXY BASE
9	44	AR	1006277	SILICA, PULVERIZED, PYROGENIC
9	45	AR	1006776- 44	INSULATION SLEEVING, 6 FEET TOTAL LENGTH
	46		MS17182-2	DELETED
	47	8	MS17182-1	TERMINAL LUG
	48	8	MS35333-69	WASHER, LOCK
9	49	8	1006783- 93	SCREW, BUTTON HD
	50	5	MS35335-57	WASHER, LOCK
9	51	5	1006783- 18	SCREW, BUTTON HD

SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR L		SHEET 10 OF 74

WIRING HARNESS A 2014641 L

SEE NOTE

LIST OF MATERIALS

NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	52	4	MS25036-52	TERMINAL LUG
28	53	1	2014641-013	WIRE BRAID,QQ-B-575,.12DIA. 36AWG, 5 FT TOT LG
	54	2	2014670- 11	ADAPTER, CONNECTOR
	55	2	2014670- 12	ADAPTER, CONNECTOR
	56	1	2014670- 13	ADAPTER,CONNECTOR
	57	1	2014670- 15	ADAPTER,CONNECTOR
	58	1	MS25036-48	TERMINAL LUG
	59	445	1010490-082	SLEEVE, INSULATION (HEAT SHRINKABLE)

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR L
SHEET 11 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	1		DELETED									
A	1A		DELETED									
A	1R		DELETED									
A	1Y		DELETED									
A	2		DELETED									
A	2A		DELETED									
A	2R		DELETED									
A	2Y		DELETED									
A	3		DELETED									
A	3A		DELETED									
A	3R		DELETED									
A	3Y		DELETED									

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H
SHEET 12 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	4		DELETED									
A	4A		DELETED									
A	4R		DELETED									
A	4Y		DELETED									
A	5		DELETED									
A	5A		DELETED									
A	9R		DELETED									
A	5Y		DELETED									
A	6		DELETED									
A	6A		DELETED									
A	6R		DELETED									
A	6Y		DELETED									

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H
SHEET 13 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	7		DELETED									
A	7A		DELETED									
A	7R		DELETED									
A	7Y		DELETED									
A	8		DELETED									
A	8A		DELETED									
A	8R		DELETED									
A	8Y		DELETED									
A	9		DELETED									
A	9A		DELETED									
A	9R		DELETED									
A	9Y		DELETED									

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR H
SHEET 14 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 10			DELETED									
A 10A			DELETED									
A 10R			DELETED									
A 10Y			DELETED									
A 11			DELETED									
A 11A			DELETED									
A 11R			DELETED									
A 11Y			DELETED									
A 12			DELETED									
A 12A			DELETED									
A 12R			DELETED									
A 12Y			DELETED									

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 13			DELETED									
A 13A			DELETED									
A 13R			DELETED									
A 13Y			DELETED									
A 14			DELETED									
A 14A			DELETED									
A 14R			DELETED									
A 14Y			DELETED									
A 15			DELETED									
A 15A			DELETED									
A 15R			DELETED									
A 15Y			DELETED									

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 16			DELETED									
A 16A			DELETED									
A 16R			DELETED									
A 16Y			DELETED									
A 17			DELETED									
A 17A			DELETED									
A 17R			DELETED									
A 17Y			DELETED									
A 18			DELETED									
A 18A			DELETED									
A 18R			DELETED									
A 18Y			DELETED									

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 19			DELETED									
A 19A			DELETED									
A 19R			DELETED									
A 19Y			DELETED									
A 20			DELETED									
A 20A			DELETED									
A 20R			DELETED									
A 20Y			DELETED									
A 21	9				1.00 1.00	.75 .75				68 68	31 31	
A 21A	11		SHLD A21 P9-111					.20 .18	NO NO		 24	 BRANCH 1
A 21B	11		E3 SHLD A21					.19 .20	NO NO			
A 21R			P9-311 P10-515					.16 .18	NO NO		25 25	BRANCH 1 BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 21Y			P9-211 P10-615					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 22	10				1.00 1.00	.75 .75				7 68	29 31	
A 22B	11		E3 SHLD A22					.19 .20	NO NO			
A 22G			P9-511 P10-536					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 5
A 22R			P9-611 P10-622					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 22Y			P9-411 P10-534					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 5
A 23	9				1.00 1.00	.75 .75				7 68	29 31	
A 23B	11		E4 SHLD A23					.19 .20	NO NO			
A 23R			P9-212 P10-112					.18 .18	NO NO		25 25	BRANCH 1
A 23Y			P9-112 P10-412					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 24	9				1.00 1.00	.75 .75				7 68	29 31	
A 24B	11		E4 SHLD A24					.19 .20	NO NO			

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24R			P9-412 P10-614					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 24Y			P9-312 P10-313					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 25	10				1.00 1.00	.75 .75				7 68	29 31	
A 25B	11		E4 SHLD A25					.19 .20	NO NO		52	
A 25G			P9-113 P10-514					.18 .18	NO NO		25 24	BRANCH 1 BRANCH 4
A 25R			P9-612 P10-314					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 25Y			P9-512 P10-414					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 26	9				1.00 1.00	.75 .75				7 68	29 31	
A 26B	11		E3 SHLD A26					.19 .20	NO NO		52	
A 26R			P9-313 P10-525					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 26Y			P9-213 P10-624					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 27	9				1.75 1.00	1.50 .75				68 68	31 31	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 27A	11		SHLD A27 P7-12					.20 .13	NO NO		 22	
A 27B	11		P9-637 SHLD A27					.18 .20	NO NO		24	BRANCH 3
A 27R			P7-27 P9-437					.13 .18	NO NO		22 25	 BRANCH 3
A 27Y			P7-13 P9-537					.13 .18	NO NO		22 25	 BRANCH 3
A 28	9				1.75 1.00	1.50 .75				68 68	31 31	
A 28A	11		SHLD A28 P7-26					.20 .13	NO NO		 22	
A 28B	11		P9-137 SHLD A28					.18 .20	NO NO		24	BRANCH 3
A 28R			P7-47 P9-237					.13 .18	NO NO		22 25	 BRANCH 3
A 28Y			P7-46 P9-337					.13 .18	NO NO		22 25	 BRANCH 3
A 29	9				1.75 1.00	1.50 .75				68 68	31 31	
A 29A	11		SHLD A29 P7-24					.20 .13	NO NO		 22	
A 29B	11		P9-634 SHLD A29					.18 .20	NO NO		24	BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 29R			P7-44 P9-434					.13 .18	NO NO		22 25	 BRANCH 2
A 29Y			P7-25 P9-534					.13 .18	NO NO		22 25	 BRANCH 2
A 30	9				1.75 1.00	1.50 .75				68 68	31 31	
A 30A	11		SHLD A30 P7-5					.20 .13	NO NO		 22	
A 30B	11		P9-335 SHLD A30					.18 .20	NO NO		24	BRANCH 2
A 30R			P7-4 P9-135					.13 .18	NO NO		22 25	 BRANCH 2
A 30Y			P7-1 P9-235					.13 .18	NO NO		22 25	 BRANCH 2
A 31	9				1.75 1.00	1.50 .75				68 68	31 31	
A 31A	11		SHLD A31 P7-3					.20 .13	NO NO		 22	
A 31B	11		P9-635 SHLD A31					.18 .20	NO NO		24	BRANCH 2
A 31R			P7-11 P9-435					.13 .18	NO NO		22 25	 BRANCH 2
A 31Y			P7-10 P9-535					.13 .18	NO NO		22 25	 BRANCH 2

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A	32	4											
A	32R			P7-53 P9-536					.13 .18	NO NO		22 25	BRANCH 3
A	32Y			P7-54 P9-636					.13 .18	NO NO		22 25	BRANCH 3
A	33	9				1.75 1.00	1.50 .75				68 68	31 31	
A	33A	11		SHLD A33 P1-13					.20 .13	NO NO		22	
A	33B	11		P9-332 SHLD A33					.18 .20	NO NO		24	BRANCH 2
A	33R			P1-28 P9-132					.13 .18	NO NO		22 25	BRANCH 2
A	33Y			P1-27 P9-232					.13 .18	NO NO		22 25	BRANCH 2
A	34	9				1.75 1.00	1.50 .75				68 68	31 31	
A	34A	11		SHLD A34 P1-16					.20 .13	NO NO		22	
A	34B	11		P9-632 SHLD A34					.18 .20	NO NO		24	BRANCH 2
A	34R			P1-6 P9-432					.13 .18	NO NO		22 25	BRANCH 2

SIZE A | CODE IDENT NO. 80230 | 2014641
SCALE-NONE | REV LTR H | SHEET 23 OF 74

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A	34Y			P1-5 P9-532					.13 .18	NO NO		22 25	BRANCH 2
A	35	9				1.75 1.00	1.50 .75				68 68	31 31	
A	35A	11		SHLD A35 P1-1					.20 .13	NO NO		22	
A	35B	11		P9-333 SHLD A35					.18 .20	NO NO		24	BRANCH 2
A	35R			P1-4 P9-133					.13 .18	NO NO		22 25	BRANCH 2
A	35Y			P1-3 P9-233					.13 .18	NO NO		22 25	BRANCH 2
A	36	9				1.75 1.00	1.50 .75				68 68	31 31	
A	36A	11		SHLD A36 P1-17					.20 .13	NO NO		22	
A	36B	11		P9-346 SHLD A36					.18 .20	NO NO		24	BRANCH 3
A	36R			P1-34 P9-146					.13 .18	NO NO		22 25	BRANCH 3
A	36Y			P1-33 P9-246					.13 .18	NO NO		22 25	BRANCH 3
A	37	9				1.75 1.00	1.50 .75				68 68	31 31	

SIZE A | CODE IDENT NO. 80230 | 2014641
SCALE-NONE | REV LTR H | SHEET 24 OF 74

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A	37A	11		SHLD A37 P1-18					.20 .13	NO NO		22	
A	37B	11		P9-646 SHLD A37					.18 .20	NO NO		24	BRANCH 3
A	37R			P1-35 P9-446					.13 .18	NO NO		22 25	BRANCH 3
A	37Y			P1-36 P9-546					.13 .18	NO NO		22 25	BRANCH 3
A	38	9				1.75 1.00	1.50 .75				68 68	31 31	
A	38A	11		SHLD A38 P1-14					.20 .13	NO NO		22	
A	38B	11		P9-348 SHLD A38					.18 .20	NO NO		24	BRANCH 3
A	38R			P1-30 P9-248					.13 .18	NO NO		22 25	BRANCH 3
A	38Y			P1-29 P9-148					.13 .18	NO NO		22 25	BRANCH 3
A	39	9				1.75 1.00	1.50 .75				68 68	31 31	
A	39A	11		SHLD A39 P1-15					.20 .13	NO NO		22	
A	39B	11		P9-648 SHLD A39					.18 .20	NO NO		24	BRANCH 3

SIZE A | CODE IDENT NO. 80230 | 2014641
SCALE-NONE | REV LTR K | SHEET 25 OF 74

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A	39R			P1-31 P9-448					.13 .18	NO NO		22 25	BRANCH 3
A	39Y			P1-32 P9-548					.13 .18	NO NO		22 25	BRANCH 3
A	40	9				1.75 1.00	1.50 .75				68 68	31 31	
A	40A	11		SHLD A40 P1-20					.20 .13	NO NO		22	
A	40B	11		P9-633 SHLD A40					.18 .20	NO NO		24	BRANCH 2
A	40R			P1-19 P9-533					.13 .18	NO NO		22 25	BRANCH 2
A	40Y			P1-37 P9-433					.13 .18	NO NO		22 25	BRANCH 2
A	41	9				1.75 1.00	1.50 .75				68 68	31 31	
A	41A	11		SHLD A41 P1-21					.20 .13	NO NO		22	
A	41B	11		P9-334 SHLD A41					.18 .20	NO NO		24	BRANCH 2
A	41R			P1-38 P9-234					.13 .18	NO NO		22 25	BRANCH 2
A	41Y			P1-39 P9-134					.13 .18	NO NO		22 25	BRANCH 2

SIZE A | CODE IDENT NO. 80230 | 2014641
SCALE-NONE | REV LTR K | SHEET 26 OF 74

WIRING HARNESS A 2014641 H

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	42	6											
A	42G			P1-26 P9-421					.13 .18	NO NO		22 25	 BRANCH 2
A	42R			P1-43 P9-620					.13 .18	NO NO		22 25	 BRANCH 2
A	42Y			P1-44 P9-221					.13 .18	NO NO		22 25	 BRANCH 2
A	43	6											
A	43G			P1-8 P9-222					.13 .18	NO NO		22 25	 BRANCH 2
A	43R			P1-7 P9-621					.13 .18	NO NO		22 25	 BRANCH 2
A	43Y			P1-2 P9-119					.13 .18	NO NO		22 25	 BRANCH 2
A	46	2		P1-25 P9-422					.13 .18	NO NO		22 25	 BRANCH 2
A	47	3											
A	47R			P1-40 P9-228					.13 .18	NO NO		22 24	 BRANCH 2
A	47Y			P1-23 P9-328					.13 .18	NO NO		22 24	 BRANCH 2

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR H		SHEET 27 OF 74

WIRING HARNESS A 2014641 H

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	48	3											
A	48R			P1-41 P9-428					.13 .18	NO NO		22 24	 BRANCH 2
A	48Y			P1-42 P9-528					.13 .18	NO NO		22 24	 BRANCH 2
A	49	9				1.75 1.00	1.50 .75				68 68	31 31	
A	49A	11		SHLD A49 P4-30					.20 .13	NO NO		 22	
A	49B	11		P9-340 SHLD A49					.18 .20	NO NO		24	BRANCH 3
A	49R			P4-52 P9-140					.13 .18	NO NO		22 25	 BRANCH 3
A	49Y			P4-51 P9-240					.13 .18	NO NO		22 25	 BRANCH 3
A	50	9				1.75 1.00	1.50 .75				68 68	31 31	
A	50A	11		SHLD A50 P4-31					.20 .13	NO NO		 22	
A	50B	11		P9-640 SHLD A50					.18 .20	NO NO		24	BRANCH 3
A	50R			P4-54 P9-440					.13 .18	NO NO		22 25	 BRANCH 3

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR H		SHEET 28 OF 74

WIRING HARNESS A 2014641 H

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	50Y			P4-53 P9-540					.13 .18	NO NO		22 25	 BRANCH 3
A	51	9				1.75 1.00	1.50 .75				68 68	31 31	
A	51A	11		SHLD A51 P4-29					.20 .13	NO NO		 22	
A	51B	11		P9-341 SHLD A51					.18 .20	NO NO		24	BRANCH 3
A	51R			P4-13 P9-141					.13 .18	NO NO		22 25	 BRANCH 3
A	51Y			P4-14 P9-241					.13 .18	NO NO		22 25	 BRANCH 3
A	52	9				1.75 1.00	1.50 .75				68 68	31 31	
A	52A	11		SHLD A52 P4-32					.20 .13	NO NO		 22	
A	52B	11		P9-641 SHLD A52					.18 .20	NO NO		24	BRANCH 3
A	52R			P4-16 P9-441					.13 .18	NO NO		22 25	 BRANCH 3
A	52Y			P4-15 P9-541					.13 .18	NO NO		22 25	 BRANCH 3
A	53	9				1.75 1.00	1.50 .75				68 68	31 31	

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR H		SHEET 29 OF 74

WIRING HARNESS A 2014641 H

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	53A	11		SHLD A53 P4-36					.20 .13	NO NO		 22	
A	53B	11		P9-342 SHLD A53					.18 .20	NO NO		24	BRANCH 3
A	53R			P4-59 P9-142					.13 .18	NO NO		22 25	 BRANCH 3
A	53Y			P4-60 P9-242					.13 .18	NO NO		22 25	 BRANCH 3
A	54	9				1.75 1.00	1.50 .75				68 68	31 31	
A	54A	11		SHLD A54 P4-37					.20 .13	NO NO		 22	
A	54B	11		P9-642 SHLD A54					.18 .20	NO NO		24	BRANCH 3
A	54R			P4-61 P9-442					.13 .18	NO NO		22 25	 BRANCH 3
A	54Y			P4-38 P9-542					.13 .18	NO NO		22 25	 BRANCH 3
A	55	9				1.75 1.00	1.50 .75				68 68	31 31	
A	55A	11		SHLD A55 P4-33					.20 .13	NO NO		 22	
A	55B	11		P9-343 SHLD A55					.18 .20	NO NO		24	BRANCH 3

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR H		SHEET 30 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 55R			P4-56 P9-143					.13 .18	NO NO		22 25	 BRANCH 3
A 55Y			P4-55 P9-243					.13 .18	NO NO		22 25	 BRANCH 3
A 56	9				1.75 1.00	1.50 .75				68 68	31 31	
A 56A	11		SHLD A56 P4-34					.20 .13	NO NO		 22	
A 56B	11		P9-643 SHLD A56					.18 .20	NO NO		24	BRANCH 3
A 56R			P4-57 P9-443					.13 .18	NO NO		22 25	 BRANCH 3
A 56Y			P4-58 P9-543					.13 .18	NO NO		22 25	 BRANCH 3
A 57	9				1.75 1.00	1.50 .75				68 68	31 31	
A 57A	11		SHLD A57 P4-27					.20 .13	NO NO		 22	
A 57B	11		P9-344 SHLD A57					.18 .20	NO NO		24	BRANCH 3
A 57R			P4-48 P9-144					.13 .18	NO NO		22 25	 BRANCH 3
A 57Y			P4-47 P9-244					.13 .18	NO NO		22 25	 BRANCH 3

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 31 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG.	ACCESSORY ITEMS	REMARKS
A 58	9				1.75 1.00	1.50 .75				68 68	31 31	
A 58A	11		SHLD A58 P4-28					.20 .13	NO NO		 22	
A 58B	11		P9-644 SHLD A58					.18 .20	NO NO		24	BRANCH 3
A 58R			P4-49 P9-444					.13 .18	NO NO		22 25	 BRANCH 3
A 58Y			P4-50 P9-544					.13 .18	NO NO		22 25	 BRANCH 3
A 59	9				1.75 1.00	1.50 .75				68 68	31 31	
A 59A	11		SHLD A59 P4-35					.20 .13	NO NO		 22	
A 59B	11		P9-345 SHLD A59					.18 .20	NO NO		24	BRANCH 3
A 59R			P4-17 P9-145					.13 .18	NO NO		22 25	 BRANCH 3
A 59Y			P4-18 P9-245					.13 .18	NO NO		22 25	 BRANCH 3
A 60	9				1.75 1.00	1.50 .75				68 68	31 31	
A 60A	11		SHLD A60 P4-20					.20 .13	NO NO		 22	

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 32 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 60B	11		P9-645 SHLD A60					.18 .20	NO NO		24	BRANCH 3
A 60R			P4-19 P9-445					.13 .18	NO NO		22 25	 BRANCH 3
A 60Y			P4-8 P9-545					.13 .18	NO NO		22 25	 BRANCH 3
A 61	9				1.75 1.00	1.50 .75				68 68	31 31	
A 61A	11		SHLD A61 P4-22					.20 .13	NO NO		 22	
A 61B	11		P9-329 SHLD A61					.18 .20	NO NO		24	BRANCH 2
A 61R			P4-41 P9-129					.13 .18	NO NO		22 25	 BRANCH 2
A 61Y			P4-42 P9-229					.13 .18	NO NO		22 25	 BRANCH 2
A 62	9				1.75 1.00	1.50 .75				68 68	31 31	
A 62A	11		SHLD A62 P4-24					.20 .13	NO NO		 22	
A 62B	11		P9-629 SHLD A62					.18 .20	NO NO		24	BRANCH 2
A 62R			P4-43 P9-429					.13 .18	NO NO		22 25	 BRANCH 2

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 33 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 62Y			P4-44 P9-529					.13 .18	NO NO		22 25	 BRANCH 2
A 63	9				1.75 1.00	1.50 .75				68 68	31 31	
A 63A	11		SHLD A63 P4-25					.20 .13	NO NO		 22	
A 63B	11		P9-330 SHLD A63					.18 .20	NO NO		24	BRANCH 2
A 63R			P4-45 P9-130					.13 .18	NO NO		22 25	 BRANCH 2
A 63Y			P4-46 P9-230					.13 .18	NO NO		22 25	 BRANCH 2
A 64	9				1.75 1.00	1.50 .75				68 68	31 31	
A 64A	11		SHLD A64 P4-21					.20 .13	NO NO		 22	
A 64B	11		P9-630 SHLD A64					.18 .20	NO NO		24	BRANCH 2
A 64R			P4-39 P9-430					.13 .18	NO NO		22 25	 BRANCH 2
A 64Y			P4-40 P9-530					.13 .18	NO NO		22 25	 BRANCH 2
A 65	9				1.75 1.00	1.50 .75				68 68	31 31	

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 34 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 65A	11		SHLD A65 P4-10					.20 .13	NO NO		22	
A 65B	11		P9-331 SHLD A65					.18 .20	NO NO		24	BRANCH 2
A 65R			P4-9 P9-131					.13 .18	NO NO		22 25	BRANCH 2
A 65Y			P4-23 P9-231					.13 .18	NO NO		22 25	BRANCH 2
A 66	9				1.75 1.00	1.50 .75				68 68	31 31	
A 66A	11		SHLD A66 P4-11					.20 .13	NO NO		22	
A 66B	11		P9-631 SHLD A66					.18 .20	NO NO		24	BRANCH 2
A 66R			P4-26 P9-431					.13 .18	NO NO		22 25	BRANCH 2
A 66Y			P4-12 P9-531					.13 .18	NO NO		22 25	BRANCH 2
A 67	9				1.75 1.00	1.50 .75				68 7	31 29	
A 67A	11		SHLD A67 P4-1					.20 .13	NO NO		22	
A 67R			P4-6 P9-338					.13 .18	NO NO		22 25	BRANCH 3

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR H	SHEET 35 OF 74

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 67Y			P4-7 P9-238					.13 .18	NO NO		22 25	BRANCH 3
A 68	8				1.75 1.00	1.50 .75				68 7	31 29	
A 68A	11		SHLD A68 P4-2					.20 .13	NO NO		22	
A 68R			DELETED									
A 68Y			P4-3 P9-138					.13 .18	NO NO		22 24	BRANCH 3
A 69	1		P4-5 P9-336					.13 .18	NO NO		22 24	BRANCH 3
A 70	1		P4-4 P9-136					.13 .18	NO NO		22 24	BRANCH 3
A 71	1		P5-84 P9-236					.13 .18	NO NO		22 24	BRANCH 3
A 72	1		P5-60 P9-436					.13 .18	NO NO		22 24	BRANCH 3
A 74	4											F
A 74R			P2-55 P10-121					.13 .18	NO NO		23 25	F BRANCH 5
A 74Y			P2-56 P10-221					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR J	SHEET 36 OF 74

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 75	4											F
A 75R			P2-54 P10-120					.13 .18	NO NO		23 25	F BRANCH 5
A 75Y			P2-32 P10-220					.13 .18	NO NO		23 25	F BRANCH 5
A 76	4											F
A 76R			P2-17 P10-119					.13 .18	NO NO		23 25	F BRANCH 5
A 76Y			P2-33 P10-219					.13 .18	NO NO		23 25	F BRANCH 5
A 77	4											F
A 77R			P2-16 P10-118					.13 .18	NO NO		23 25	F BRANCH 5
A 77Y			P2-5 P10-218					.13 .18	NO NO		23 25	F BRANCH 5
A 78	4											F
A 78R			P2-57 P10-321					.13 .18	NO NO		23 25	F BRANCH 5
A 78Y			P2-34 P10-421					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR J	SHEET 37 OF 74

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 79	4											F
A 79R			P2-18 P10-320					.13 .18	NO NO		23 25	F BRANCH 5
A 79Y			P2-35 P10-420					.13 .18	NO NO		23 25	F BRANCH 5
A 80	4											F
A 80R			P2-52 P10-319					.13 .18	NO NO		23 25	F BRANCH 5
A 80Y			P2-53 P10-419					.13 .18	NO NO		23 25	F BRANCH 5
A 81	4											F
A 81R			P2-15 P10-318					.13 .18	NO NO		23 25	F BRANCH 5
A 81Y			P2-30 P10-418					.13 .18	NO NO		23 25	F BRANCH 5
A 82	4											F
A 82R			P2-50 P10-317					.13 .18	NO NO		23 25	F BRANCH 5
A 82Y			P2-51 P10-417					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR J	SHEET 38 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 83	4											F
A 83R			P2-13 P10-323					.13 .18	NO NO		23 25	F BRANCH 5
A 83Y			P2-29 P10-423					.13 .18	NO NO		23 25	F BRANCH 5
A 84	4											F
A 84R			P2-12 P10-322					.13 .18	NO NO		23 25	F BRANCH 5
A 84Y			P2-27 P10-422					.13 .18	NO NO		23 25	F BRANCH 5
A 85	4											F
A 85R			P2-48 P10-316					.13 .18	NO NO		23 25	F BRANCH 5
A 85Y			P2-49 P10-416					.13 .18	NO NO		23 25	F BRANCH 5
A 86	4											F
A 86R			P2-1 P10-315					.13 .18	NO NO		23 25	F BRANCH 5
A 86Y			P2-4 P10-415					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 87	4											F
A 87R			P2-11 P10-324					.13 .18	NO NO		23 25	F BRANCH 5
A 87Y			P2-24 P10-424					.13 .18	NO NO		23 25	F BRANCH 5
A 88	4											F
A 88R			P2-10 P10-117					.13 .18	NO NO		23 24	F BRANCH 5
A 88Y			P2-2 P10-217					.13 .18	NO NO		23 25	F BRANCH 5
A 89	4											F
A 89R			P2-59 P10-139					.13 .18	NO NO		23 25	F BRANCH 5
A 89Y			P2-58 P10-239					.13 .18	NO NO		23 25	F BRANCH 5
A 90	4											F
A 90R			P2-7 P10-138					.13 .18	NO NO		23 25	F BRANCH 5
A 90Y			P2-6 P10-238					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 91	4											F
A 91R			P2-36 P10-137					.13 .18	NO NO		23 25	F BRANCH 5
A 91Y			P2-60 P10-237					.13 .18	NO NO		23 25	F BRANCH 5
A 92	4											F
A 92R			P2-8 P10-136					.13 .18	NO NO		23 25	F BRANCH 5
A 92Y			P2-19 P10-236					.13 .18	NO NO		23 25	F BRANCH 5
A 93	4											F
A 93R			P2-61 P10-135					.13 .18	NO NO		23 25	F BRANCH 5
A 93Y			P2-38 P10-235					.13 .18	NO NO		23 25	F BRANCH 5
A 94	4											F
A 94R			P2-39 P10-134					.13 .18	NO NO		23 25	F BRANCH 5
A 94Y			P2-20 P10-234					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 95	4											F
A 95R			P2-43 P10-327					.13 .18	NO NO		23 25	F BRANCH 5
A 95Y			P2-42 P10-427					.13 .18	NO NO		23 25	F BRANCH 5
A 96	4											F
A 96R			P2-22 P10-326					.13 .18	NO NO		23 25	F BRANCH 5
A 96Y			P2-9 P10-426					.13 .18	NO NO		23 25	F BRANCH 5
A 97	4											F
A 97R			P2-41 P10-325					.13 .18	NO NO		23 25	F BRANCH 5
A 97Y			P2-40 P10-425					.13 .18	NO NO		23 25	F BRANCH 5
A 98	10				1.75 1.00	1.50 .75				68 7	31 29	
A 96A	11		SHLD A98 P2-44					.20 .13	NO NO		 23	
A 96G			P2-25 P10-212					.13 .18	NO NO		23 24	BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 98R			P2-46 P10-113					.13 .18	NO NO		23 24	BRANCH 4
A 98Y			P2-45 P10-312					.13 .18	NO NO		23 24	BRANCH 4
A 99	8				1.75 1.00	1.50 .75				6B 7	31 29	
A 99A	11		SHLD A99 P2-26					.20 .13	NO NO		23	
A 99R			DELETED									
A 99Y			P2-47 P10-114					.13 .18	NO NO		23 24	BRANCH 4
A 104	2		P3-1 P10-538					.13 .18	NO NO		22 25	F BRANCH 5
A 105	2		P3-7 P10-556					.13 .18	NO NO		22 25	F BRANCH 5
A 106	2		P3-2 P10-625					.13 .18	NO NO		22 25	F BRANCH 5
A 113	2		P3-8 P10-547					.13 .18	NO NO		22 25	F BRANCH 5
A 116	1		P5-66 P10-602					.13 .18	NO NO		22 24	D BRANCH 4
A 118	1		P5-45 P10-504					.13 .18	NO NO		22 24	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 125	2		P5-26 P10-409					.13 .22	NO NO		22	D BRANCH 4
A 127	5											A
A 127G			P5-53 P10-161					.13 .18	NO NO		22 24	A BRANCH 6
A 127R			P5-78 P10-159					.13 .18	NO NO		22 24	A BRANCH 6
A 127Y			P5-54 P10-160					.13 .18	NO NO		22 24	A BRANCH 6
A 128	5											A
A 128G			P5-55 P10-260					.13 .18	NO NO		22 24	A BRANCH 6
A 128R			P5-79 P10-261					.13 .18	NO NO		22 24	A BRANCH 6
A 128Y			P5-80 P10-259					.13 .18	NO NO		22 24	A BRANCH 6
A 129	5											A
A 129G			P5-16 P10-360					.13 .18	NO NO		22 24	A BRANCH 6
A 129R			P5-33 P10-361					.13 .18	NO NO		22 24	A BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 129Y			P5-32 P10-359					.13 .18	NO NO		22 24	A BRANCH 6
A 130	5											A
A 130G			P5-56 P10-460					.13 .18	NO NO		22 24	A BRANCH 6
A 130R			P5-81 P10-461					.13 .18	NO NO		22 24	A BRANCH 6
A 130Y			P5-57 P10-459					.13 .18	NO NO		22 24	A BRANCH 6
A 131	5											A
A 131G			P5-35 P10-560					.13 .18	NO NO		22 24	A BRANCH 6
A 131R			P5-58 P10-561					.13 .18	NO NO		22 24	A BRANCH 6
A 131Y			P5-34 P10-559					.13 .18	NO NO		22 24	A BRANCH 6
A 139	2		P6-77 P10-636					.13 .18	NO NO		22 25	C BRANCH 6
A 148	2		P6-20 P10-613					.13 .18	NO NO		22 25	C BRANCH 6
A 149	4											C

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 149R			P6-85 P10-133					.13 .18	NO NO		22 25	C BRANCH 6
A 149Y			P6-84 P10-233					.13 .18	NO NO		22 25	C BRANCH 6
A 150	4											C
A 150R			P6-82 P10-516					.13 .18	NO NO		22 25	C BRANCH 6
A 150Y			P6-57 P10-616					.13 .18	NO NO		22 25	C BRANCH 6
A 151	4											C
A 151R			P6-8 P10-158					.13 .18	NO NO		22 25	C BRANCH 6
A 151Y			P6-2 P10-258					.13 .18	NO NO		22 25	C BRANCH 6
A 152	4											C
A 152R			P6-19 P10-157					.13 .18	NO NO		22 25	C BRANCH 6
A 152Y			P6-7 P10-257					.13 .18	NO NO		22 25	C BRANCH 6
A 153	4											C

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	153R			P6-6 P10-156					.13 .18	NO NO		22 25	C BRANCH 6
A	153Y			P6-1 P10-256					.13 .18	NO NO		22 25	C BRANCH 6
A	154	4											C
A	154R			P6-5 P10-155					.13 .18	NO NO		22 25	C BRANCH 6
A	154Y			P6-4 P10-255					.13 .18	NO NO		22 25	C BRANCH 6
A	155	4											C
A	155R			P6-15 P10-154					.13 .18	NO NO		22 25	C BRANCH 6
A	155Y			P6-16 P10-254					.13 .18	NO NO		22 25	C BRANCH 6
A	156	4											C
A	156R			P6-17 P10-153					.13 .18	NO NO		22 25	C BRANCH 6
A	156Y			P6-33 P10-253					.13 .18	NO NO		22 25	C BRANCH 6
A	157	4											C

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J

LEAD IDENT		WIRE MATL ITEM	LEAD LG,	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	157R			P6-61 P10-132					.13 .18	NO NO		22 25	C BRANCH 6
A	157Y			P6-60 P10-232					.13 .18	NO NO		22 25	C BRANCH 6
A	158	4											
A	158R			P6-37 P10-130					.13 .18	NO NO		22 25	C BRANCH 6
A	158Y			P6-36 P10-230					.13 .18	NO NO		22 25	C BRANCH 6
A	159	4											C
A	159R			P6-83 P10-352					.13 .18	NO NO		22 25	C BRANCH 6
A	159Y			P6-59 P10-452					.13 .18	NO NO		22 25	C BRANCH 6
A	160	4											C
A	160R			P6-35 P10-129					.13 .18	NO NO		22 25	C BRANCH 6
A	160Y			P6-18 P10-229					.13 .18	NO NO		22 25	C BRANCH 6
A	161	4											C

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	161R			P6-58 P10-128					.13 .18	NO NO		22 25	C BRANCH 6
A	161Y			P6-34 P10-228					.13 .18	NO NO		22 25	C BRANCH 6
A	164	1		P8-9 P10-302					.13 .18	NO NO		22 24	B BRANCH 4
A	170	2		P8-5 P10-509					.13 .18	NO NO		22 25	B BRANCH 4
A	177	2		P8-8 P10-108					.13 .22	NO NO		22	B BRANCH 4
A	178	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A	178A	11		SHLD A178 P3-52					.20 .13	NO NO		 22	
A	178B	11		P7-21 SHLD A178					.13 .20	NO NO		22	
A	178R			P3-77 P7-40					.13 .13	NO NO		22 22	
A	178Y			P3-53 P7-22					.13 .13	NO NO		22 22	
A	179	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A	179A	11		SHLD A179 P3-30					.20 .13	NO NO		 22	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	179B	11		P7-23 SHLD A179					.13 .20	NO NO		22	
A	179R			P3-31 P7-42					.13 .13	NO NO		22 22	
A	179Y			P3-15 P7-43					.13 .13	NO NO		22 22	
A	180	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A	180A	11		SHLD A180 P3-51					.20 .13	NO NO		 22	
A	180B	11		P7-2 SHLD A180					.13 .20	NO NO		22	
A	180R			P3-75 P7-8					.13 .13	NO NO		22 22	
A	180Y			P3-76 P7-9					.13 .13	NO NO		22 22	
A	181	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A	181A	11		SHLD A181 P3-46					.20 .13	NO NO		 22	
A	181R			P3-71 P7-38					.13 .13	NO NO		22 22	
A	181Y			P3-70 P7-39					.13 .13	NO NO		22 22	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 182	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 182A	11		SHLD A182 P3-69					.20 .13	NO NO		22	
A 182R			P3-45 P7-19					.13 .13	NO NO		22 22	
A 182Y			P3-44 P7-20					.13 .13	NO NO		22 22	
A 183	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 183A	11		SHLD A183 P3-28					.20 .13	NO NO		22	
A 183R			P3-13 P7-60					.13 .13	NO NO		22 22	
A 183Y			P3-29 P7-61					.13 .13	NO NO		22 22	
A 184	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 184A	11		SHLD A184 P3-74					.20 .13	NO NO		22	
A 184R			P3-49 P7-36					.13 .13	NO NO		22 22	
A 184Y			P3-50 P7-37					.13 .13	NO NO		22 22	

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 51 OF 74	

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 185	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 185A	11		SHLD A185 P3-27					.20 .13	NO NO		22	
A 185R			P3-26 P7-58					.13 .13	NO NO		22 22	
A 185Y			P3-47 P7-59					.13 .13	NO NO		22 22	
A 186	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 186A	11		SHLD A186 P3-48					.20 .13	NO NO		22	
A 186R			P3-72 P7-35					.13 .13	NO NO		22 22	
A 186Y			P3-73 P7-18					.13 .13	NO NO		22 22	
A 187	3											
A 187R			P3-67 P7-57					.13 .13	NO NO		22 22	
A 187Y			P3-68 P7-34					.13 .13	NO NO		22 22	
A 188	7											

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 52 OF 74	

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 188G			P3-24 P7-51					.13 .13	NO NO		22 22	
A 188N			P3-43 P7-29					.13 .13	NO NO		22 22	
A 188R			P3-25 P7-50					.13 .13	NO NO		22 22	
A 188Y			P3-23 P7-28					.13 .13	NO NO		22 22	
A 189	4											
A 189R			P3-5 P7-49					.13 .13	NO NO		22 22	
A 189Y			P3-14 P7-48					.13 .13	NO NO		22 22	
A 195	2		P5-23 P10-608					.13 .22	NO NO		22	D BRANCH 4
A 196	2		P5-22 P10-609					.13 .22	NO NO		22	D BRANCH 4
A 198	6											
A 198G			P1-11 P9-521					.13 .18	NO NO		22 25	BRANCH 2
A 198R			P1-10 P9-121					.13 .18	NO NO		22 25	BRANCH 2

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 53 OF 74	

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 198Y			P1-9 P9-321					.13 .18	NO NO		22 25	BRANCH 2
A 199	5											A
A 199G			P5-5 P10-660					.13 .18	NO NO		22 24	A BRANCH 6
A 199R			P5-31 P10-661					.13 .18	NO NO		22 24	A BRANCH 6
A 199Y			P5-15 P10-659					.13 .18	NO NO		22 24	A BRANCH 6
A 200	2		P3-39 P10-202					.13 .18	NO NO		22 25	E BRANCH 5
A 201	2		P3-64 P10-102					.13 .18	NO NO		22 24	F BRANCH 5
A 202	2		P3-42 P10-652					.13 .18	NO NO		22 25	E BRANCH 5
A 203	2		P3-66 P10-551					.13 .18	NO NO		22 25	F BRANCH 5
A 204	2		P3-21 P10-552					.13 .18	NO NO		22 25	E BRANCH 5
A 205	2		P3-22 P10-651					.13 .18	NO NO		22 25	E BRANCH 5
A 206	2		P3-18 P10-548					.13 .18	NO NO		22 25	E BRANCH 5

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 54 OF 74	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 207	2		P3-36 P10-549					.13 .18	NO NO		22 25	E BRANCH 5
A 208	2		P3-19 P10-550					.13 .18	NO NO		22 25	E BRANCH 5
A 209	2		P3-41 P10-214					.13 .18	NO NO		22 25	E BRANCH 5
A 210	2		P3-65 P10-216					.13 .18	NO NO		22 25	E BRANCH 5
A 211	2		P3-40 P10-215					.13 .18	NO NO		22 25	E BRANCH 5
A 212	2		P3-33 P10-646					.13 .18	NO NO		22 25	E BRANCH 5
A 213	2		P3-17 P10-546					.13 .18	NO NO		22 25	E BRANCH 5
A 214	2		P3-57 P10-645					.13 .18	NO NO		22 25	E BRANCH 5
A 215	2		P3-82 P10-545					.13 .18	NO NO		22 25	E BRANCH 5
A 216	2		P3-81 P10-542					.13 .18	NO NO		22 25	E BRANCH 5
A 217	2		P3-80 P10-644					.13 .18	NO NO		22 25	E BRANCH 5
A 218	2		P3-56 P10-544					.13 .18	NO NO		22 25	E BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 55 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 219	2		P3-84 P10-623					.13 .18	NO NO		22 25	E BRANCH 5
A 220	2		P3-60 P10-524					.13 .18	NO NO		22 25	E BRANCH 5
A 221	2		P3-59 P10-522					.13 .18	NO NO		22 25	E BRANCH 5
A 222	2		P3-62 P10-648					.13 .18	NO NO		22 25	E BRANCH 5
A 223	2		P3-63 P10-649					.13 .18	NO NO		22 25	E BRANCH. 5
A 224	2		P3-38 P10-650					.13 .18	NO NO		22 25	E BRANCH 5
A 225	2		P5-38 P10-401					.13 .18	NO NO		22 25	D BRANCH 4
A 226	2		P5-62 P10-601					.13 .18	NO NO		22 25	D BRANCH 4
A 227	2		P5-63 P10-501					.13 .18	NO NO		22 25	D BRANCH 4
A 228	2		P5-64 P10-101					.13 .18	NO NO		22 24	D BRANCH 4
A 229	2		P5-40 P10-301					.13 .18	NO NO		22 25	D BRANCH 4
A 230	2		P5-39 P10-201					.13 .18	NO NO		22 25	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 56 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 231	2		P5-41 P10-502					.13 .22	NO NO		22 25	D BRANCH 4
A 232	2		P5-42 P10-402					.13 .22	NO NO		22	D BRANCH 4
A 233	2		P5-30 P10-204					.13 .22	NO NO		22	D BRANCH 4
A 234	2		P5-14 P10-505					.13 .22	NO NO		22	D BRANCH 4
A 235	2		P5-29 P10-605					.13 .22	NO NO		22	D BRANCH 4
A 236	2		P5-77 P10-506					.13 .22	NO NO		22	D BRANCH 4
A 237	2		P5-52 P10-404					.13 .22	NO NO		22	D BRANCH 4
A 238	2		P5-76 P10-304					.13 .22	NO NO		22	D BRANCH 4
A 239	2		P5-50 P10-405					.13 .22	NO NO		22	D BRANCH 4
A 240	2		P5-51 P10-606					.13 .22	NO NO		22	D BRANCH 4
A 241	2		P5-75 P10-205					.13 .22	NO NO		22	D BRANCH 4
A 242	2		P5-73 P10-607					.13 .22	NO NO		22	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 57 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 243	2		P5-74 P10-305					.13 .22	NO NO		22	D BRANCH 4
A 244	2		P5-49 P10-507					.13 .22	NO NO		22	D BRANCH 4
A 245	2		P5-13 P10-306					.13 .22	NO NO		22	D BRANCH 4
A 246	2		P5-28 P10-206					.13 .22	NO NO		22	D BRANCH 4
A 247	2		P5-27 P10-406					.13 .22	NO NO		22	D BRANCH 4
A 248	2		P5-47 P10-307					.13 .22	NO NO		22	D BRANCH 4
A 249	2		P5-46 P10-208					.13 .22	NO NO		22	D BRANCH 4
A 250	2		P5-4 P10-308					.13 .22	NO NO		22	D BRANCH 4
A 251	2		P5-12 P10-309					.13 .22	NO NO		22	D BRANCH 4
A 252	2		P5-71 P10-207					.13 .22	NO NO		22	D BRANCH 4
A 253	2		P5-72 P10-407					.13 .22	NO NO		22	D BRANCH 4
A 254	2		P5-48 P10-604					.13 .22	NO NO		22	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 58 OF 74

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 255	3											A
A 255R			P5-44 P10-107					.13 .18	NO NO		22 24	A BRANCH 6
A 255Y			P5-68 P10-105					.13 .18	NO NO		22 24	A BRANCH 6
A 256	2		P6-14 P10-540					.13 .18	NO NO		22 25	C BRANCH 6
A 257	2		P6-30 P10-639					.13 .18	NO NO		22 25	C BRANCH 6
A 258	2		P6-48 P10-658					.13 .18	NO NO		22 25	C BRANCH 6
A 259	2		P6-72 P10-557					.13 .18	NO NO		22 25	C BRANCH 6
A 260	2		P6-73 P10-558					.13 .18	NO NO		22 25	C BRANCH 6
A 261	2		P6-49 P10-657					.13 .18	NO NO		22 25	C BRANCH 6
A 262	2		P6-28 P10-640					.13 .18	NO NO		22 25	C BRANCH 6
A 263	2		P6-29 P10-520					.13 .18	NO NO		22 25	C BRANCH 6
A 264	2		P6-76 P10-523					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 59 OF 74	

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 265	2		P6-75 P10-647					.13 .18	NO NO		22 25	C BRANCH 6
A 266	2		P6-50 P10-641					.13 .18	NO NO		22 25	C BRANCH 6
A 267	2		P6-74 P10-541					.13 .18	NO NO		22 25	C BRANCH 6
A 268	2		P6-40 P10-109					.13 .18	NO NO		22 25	C BRANCH 6
A 269	2		P6-21 P10-410					.13 .18	NO NO		22 25	C BRANCH 6
A 270	2		P6-65 P10-209					.13 .18	NO NO		22 25	C BRANCH 6
A 271	2		P6-22 P10-310					.13 .18	NO NO		22 25	C BRANCH 6
A 272	2		P6-66 P10-510					.13 .18	NO NO		22 25	C BRANCH 6
A 273	2		P6-42 P10-210					.13 .18	NO NO		22 25	C BRANCH 6
A 274	2		P6-41 P10-610					.13 .18	NO NO		22 25	C BRANCH 6
A 275	2		P6-67 P10-110					.13 .18	NO NO		22 25	C BRANCH 6
A 276	2		P6-10 P10-111					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 60 OF 74	

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 277	2		P6-24 P10-612					.13 .18	NO NO		22 25	C BRANCH 6
A 278	2		P6-9 P10-211					.13 .18	NO NO		22 25	C BRANCH 6
A 279	2		P6-23 P10-512					.13 .18	NO NO		22 25	C BRANCH 6
A 280	2		P6-68 P10-511					.13 .18	NO NO		22 25	C BRANCH 6
A 281	2		P6-69 P10-411					.13 .18	NO NO		22 25	C BRANCH 6
A 282	2		P6-43 P10-611					.13 .18	NO NO		22 25	C BRANCH 6
A 283	2		P6-44 P10-311					.13 .18	NO NO		22 25	C BRANCH 6
A 284	2		P6-46 P10-627					.13 .18	NO NO		22 25	C BRANCH 6
A 285	2		P6-25 P10-628					.13 .18	NO NO		22 25	C BRANCH 6
A 286	2		P6-45 P10-528					.13 .18	NO NO		22 25	C BRANCH 6
A 287	2		P6-71 P10-526					.13 .18	NO NO		22 25	C BRANCH 6
A 288	2		P6-70 P10-527					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 61 OF 74	

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 289	2		P6-47 P10-626					.13 .18	NO NO		22 25	C BRANCH 6
A 290	2		P6-12 P10-654					.13 .18	NO NO		22 25	C BRANCH 6
A 291	2		P6-3 P10-655					.13 .18	NO NO		22 25	C BRANCH 6
A 292	2		P6-11 P10-555					.13 .18	NO NO		22 25	C BRANCH 6
A 293	2		P6-27 P10-553					.13 .18	NO NO		22 25	C BRANCH 6
A 294	2		P6-26 P10-554					.13 .18	NO NO		22 25	C BRANCH 6
A 295	2		P6-13 P10-653					.13 .18	NO NO		22 25	C BRANCH 6
A 296	2		P8-24 P10-403					.13 .18	NO NO		22 25	B BRANCH 4
A 297	2		P8-44 P10-603					.13 .18	NO NO		22 25	B BRANCH 4
A 298	2		P8-43 P10-503					.13 .18	NO NO		22 25	B BRANCH 4
A 299	2		P8-41 P10-103					.13 .18	NO NO		22 24	B BRANCH 4
A 300	2		P8-42 P10-303					.13 .18	NO NO		22 25	B BRANCH 4

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 62 OF 74	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 301	2		P8-23 P10-203					.13 .18	NO NO		22 25	B BRANCH 4
A 302	2		P8-22 P10-502					.13 .22	NO NO		22 24	B BRANCH 4
A 303	2		P8-10 P10-402					.13 .22	NO NO		22 24	B BRANCH 4
A 304	2		P8-52 P10-207					.13 .22	NO NO		22 24	B BRANCH 4
A 305	2		P8-50 P10-407					.13 .22	NO NO		22 24	B BRANCH 4
A 306	2		P8-51 P10-307					.13 .22	NO NO		22 24	B BRANCH 4
A 307	2		P8-31 P10-408					.13 .22	NO NO		22	B BRANCH 4
A 308	2		P8-53 P10-608					.13 .22	NO NO		22 24	B BRANCH 4
A 309	2		P8-54 P10-508					.13 .22	NO NO		22	B BRANCH 4
A 310	2		P8-32 P10-208					.13 .22	NO NO		22 24	B BRANCH 4
A 311	2		P8-30 P10-309					.13 .22	NO NO		22 24	B BRANCH 4
A 312	2		P8-29 P10-308					.13 .22	NO NO		22 24	B BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 313	2		P8-16 P10-409					.13 .22	NO NO		22 24	B BRANCH 4
A 314	2		P8-14 P10-604					.13 .22	NO NO		22 24	B BRANCH 4
A 315	2		P8-15 P10-609					.13 .22	NO NO		22 24	B BRANCH 4
A 316	1		P8-7 P10-106					.13 .18	NO NO		22 24	B BRANCH 4
A 317	1		P8-2 P10-104					.13 .18	NO NO		22 24	B BRANCH 4
A 318	2		P8-3 P10-607					.13 .22	NO NO		22 24	B BRANCH 4
A 319	2		P8-25 P10-606					.13 .22	NO NO		22 24	B BRANCH 4
A 320	2		P8-1 P10-507					.13 .22	NO NO		22 24	B BRANCH 4
A 321	2		P8-12 P10-406					.13 .22	NO NO		22 24	B BRANCH 4
A 322	2		P8-11 P10-506					.13 .22	NO NO		22 24	B BRANCH 4
A 323	2		P8-28 P10-405					.13 .22	NO NO		22 24	B BRANCH 4
A 324	2		P8-4 P10-206					.13 .22	NO NO		22 24	B BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 325	2		P8-13 P10-306					.13 .22	NO NO		22 24	B BRANCH 4
A 326	2		P8-26 P10-205					.13 .22	NO NO		22 24	B BRANCH 4
A 327	2		P8-27 P10-305					.13 .22	NO NO		22 24	B BRANCH 4
A 328	2		P8-47 P10-204					.13 .22	NO NO		22 24	B BRANCH 4
A 329	2		P8-45 P10-404					.13 .22	NO NO		22 24	B BRANCH 4
A 330	2		P8-46 P10-304					.13 .22	NO NO		22 24	B BRANCH 4
A 331	2		P8-48 P10-605					.13 .22	NO NO		22 24	B BRANCH 4
A 332	2		P8-49 P10-505					.13 .22	NO NO		22 24	B BRANCH 4
A 333	3									6A 6A	31 31	
A 333A	11		SHLD A333 E8					.20 .19	NO NO			
A 333B	11		E12 SHLD A333					.19 .20	NO NO			
A 333R			P3-3 P7-52					.13 .13	NO NO		22 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 333Y			P3-11 P7-31					.13 .13	NO NO		22 22	
A 334	8				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 334A	11		SHLD A334 E8					.20 .19	NO NO		 47	
A 334B	11		E11 SHLD A334					.19 .20	NO NO		47	
A 334R			DELETED									
A 334Y			P3-4 P6-51					.13 .13	NO NO		22 22	
A 335	9				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 335A	11		SHLD A335 E10					.20 .19	NO NO			
A 335B	11		E12 SHLD A335					.19 .20	NO NO		47	
A 335R			P5-19 P7-15					.13 .13	NO NO		22 22	
A 335Y			P5-18 P7-16					.13 .13	NO NO		22 22	
A 336	9				1.75 1.75	1.50 1.50				6A 6A	31 31	

WIRING HARNESS A 2014641 L

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 336A	11		SHLD A336 E10					.20 .19	NO NO			
A 336B	11		E13 SHLD A336					.19 .20	NO NO			
A 336R			P5-7 P7-30					.13 .13	NO NO		22 22	
A 336Y			P5-8 P7-14					.13 .13	NO NO		22 22	
A 337	3									6A 6A	31 31	
A 337A	11		SHLD A337 E10					.20 .19	NO NO		 47	
A 337B	11		E13 SHLD A337					.19 .20	NO NO		47	
A 337R			P5-9 P7-6					.13 .13	NO NO		22 22	
A 337Y			P5-2 P7-7					.13 .13	NO NO		22 22	
A 338	2		P5-10 P10-508					.13 .22	NO NO		22 24	D BRANCH 4
A 339	2		P5-24 P10-408					.13 .22	NO NO		22 24	D BRANCH 4
A 340	35		E7 E5					.19 .19	NO NO		47	F

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR L	SHEET 67 OF 74

WIRING HARNESS A 2014641 L

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 341	35		E8 E5					.19 .19	NO NO			E
A 342	35		E9 E5					.19 .19	NO NO		 52	D
A 343	35		E9 E6					.19 .19	NO NO		47	A
A 344	35		E11 E6					.19 .19	NO NO			C
A 345	35		E14 E6					.19 .19	NO NO		47 52	B
A 346	2		P5-43 P10-108					.13 .22	NO NO		22 24	A BRANCH 6
A 347	35		E3 E36					.19 .19	NO NO		 58	G
A 348	4											G
A 348R			P9-610 P10-332					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 348Y			P9-510 P10-432					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 349	4											G
A 349R			P9-310 P10-330					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR L	SHEET 68 OF 74

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 349Y			P9-210 P10-430					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 350	4											G
A 350R			P9-609 P10-329					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 350Y			P9-509 P10-429					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 351	4											G
A 351R			P9-309 P10-328					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 351Y			P9-209 P10-428					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 352	4											G
A 352R			P9-608 P10-334					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 352Y			P9-508 P10-434					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 353	4											G
A 353R			P9-308 P10-333					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 69 OF 74

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 353Y			P9-208 P10-433					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 354	4											G
A 354R			P9-607 P10-338					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 354Y			P9-507 P10-438					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 355	4											G
A 355R			P9-307 P10-337					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 355Y			P9-207 P10-437					.18 .18	NO NO		25 25	B, BRANCH 1 BRANCH 5
A 356	4											G
A 356R			P9-606 P10-336					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 356Y			P9-506 P10-436					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 357	4											G
A 357R			P9-306 P10-335					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 70 OF 74

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 357Y			P9-206 P10-435					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 358	4											G
A 358R			P9-605 P10-146					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 358Y			P9-505 P10-246					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359	4											G
A 359R			P9-305 P10-145					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359Y			P9-205 P10-245					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360	4											G
A 360R			P9-604 P10-144					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360Y			P9-504 P10-244					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 361	4											G
A 361R			P9-304 P10-143					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641
SCALE-NONE | REV LTR J | SHEET 71 OF 74

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 361Y			P9-204 P10-243					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 362	4											G
A 362R			P9-603 P10-148					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 362Y			P9-503 P10-248					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363	4											G
A 363R			P9-303 P10-147					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363Y			P9-203 P10-247					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364	4											G
A 364R			P9-602 P10-152					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364Y			P9-502 P10-252					.16 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 365	4											G
A 365R			P9-302 P10-151					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

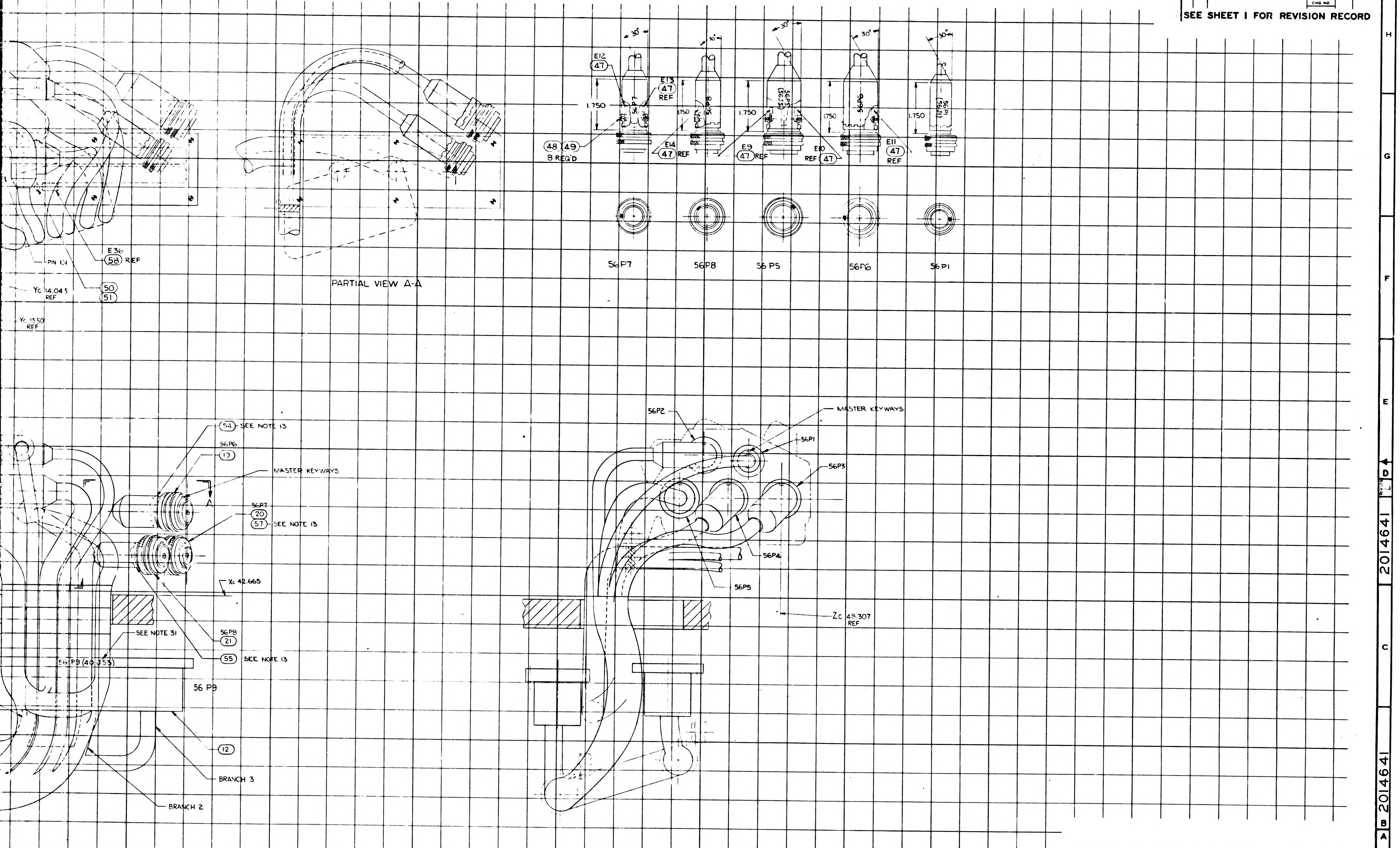
SIZE A | CODE IDENT NO. 80230 | 2014641
SCALE-NONE | REV LTR J | SHEET 72 OF 74

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 365Y			P9-202 P10-251					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 366	4											G
A 366R			P9-601 P10-150					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 366Y			P9-501 P10-250					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367	4											G
A 367R			P9-301 P10-149					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367Y			P9-201 P10-249					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A | CODE IDENT NO. 80230 | 2014641
SCALE-NONE | REV LTR J | SHEET 73 OF 74

SYM	ZONE	REVISIONS DESCRIPTION	CHG NO	DATE	APPD
		SEE SHEET 1 FOR REVISION RECORD			



30°
E12
(47)
E13
(47)
REF
1.750
56P7
56P8
56P5 (56J5)
56P6
56P1 (56J1)
(48) (49)
8 REQ'D
E14
(47) REF
E9
(47) REF
E10
REF (47)
E11
(47)
REF
56P7
56P8
56P5
56P6
56P1
PARTIAL VIEW A-A
E36
(58) REF
PN 131
(50)
(51)
Yc 14.043
REF
Yc 13.50
REF
(54) SEE NOTE 13
56P6
(13)
MASTER KEYWAYS
A
56P7
(20)
(57) SEE NOTE 13
Xc 42.665
56P8
(21)
(55) SEE NOTE 13
SEE NOTE 31
56P9 (40 J53)
56 P9
(12)
BRANCH 3
BRANCH 2
56P2
MASTER KEYWAYS
56P1
56P3
56P4
56P5
Zc 48.307
REF

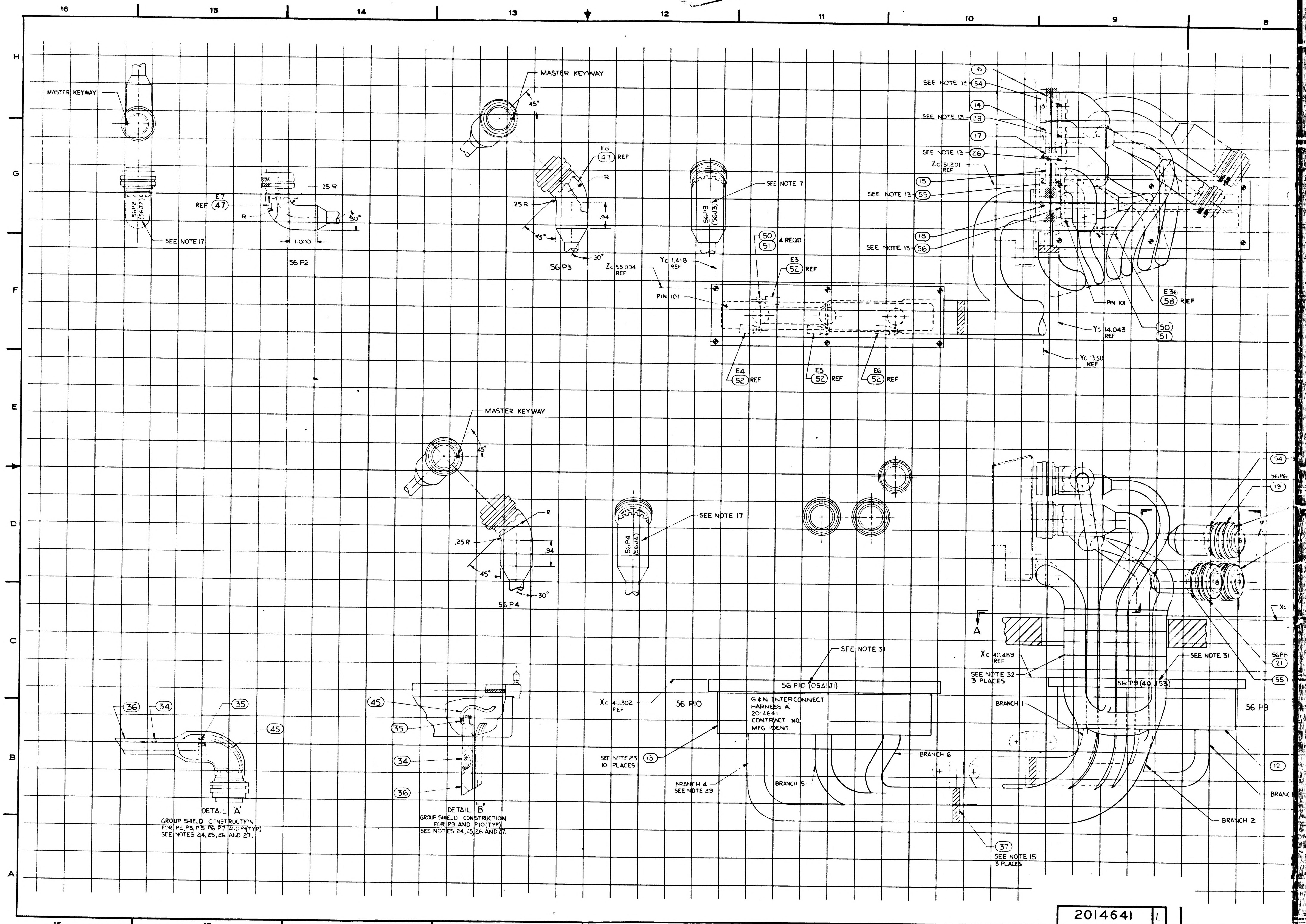
2014641 L

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON			MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON TEXAS		
FRACTIONS	DECIMALS	ANGLES	DRAWN Dietrich DATE 1/24/66	G&N INTERCONNECT HARNESS "A" (C/M BLOCK II)		
+	+	+	CHECKED A. G. Graham			
−	−	−	APPROVAL			
DO NOT SCALE THIS DRAWING			APPROVAL			
MATERIAL			NASA APPROVAL	CODE IDENT NO 80230	SIZE J₂	2014641
CONTRACT			MIT APPROVAL	SCALE		SHEET 74 OF 74

2014641

2014641

2/2014641


16
15
14
13
12
11
10
9
8
H
G
F
E
D
C
B
A
MASTER KEYWAY
SEE NOTE 17
56P2 (56J2)
E7
REF (47)
R
.25 R
30°
1.000
56 P2
MASTER KEYWAY
45°
E6
(47) REF
R
.25 R
.94
45°
30°
56 P3
Zc 55.034 REF
SEE NOTE 7
56P3 (56J3)
Yc 1.418 REF
PIN 101
(50)
(51) 4 REQD
E3
(52) REF
E4
(52) REF
E5
(52) REF
E6
(52) REF
(16)
SEE NOTE 13 (54)
(14)
SEE NOTE 13 (28)
(17)
SEE NOTE 13 (26)
Zc 51.201 REF
(15)
SEE NOTE 13 (55)
(18)
SEE NOTE 13 (56)
E36
(58) REF
PIN 101
Yc 14.043 REF
(50)
(51)
Yc 13.50 REF
MASTER KEYWAY
45°
R
.25 R
.94
45°
30°
56 P4
SEE NOTE 17
56P4 (56J4)
(54)
56P6
(19)
Xc
A
Xc 40.489 REF
SEE NOTE 32 3 PLACES
SEE NOTE 31
56P8
(21)
(55)
56 P9 (40J53)
56 P9
BRANCH 1
(12)
BRANCH
BRANCH 2
SEE NOTE 31
56 P10 (05A1J1)
Xc 40.302 REF
56 P10
G & N INTERCONNECT
HARNESS "A"
2014641
CONTRACT NO.
MFG IDENT.
SEE NOTE 23 10 PLACES (13)
BRANCH 4 SEE NOTE 29
BRANCH 5
BRANCH 6
(37)
SEE NOTE 15 3 PLACES
(36)
(34)
(35)
(45)
DETAIL "A"
GROUP SHIELD CONSTRUCTION
FOR P2, P3, P5, P6, P7 AND P8 (TYP)
SEE NOTES 24, 25, 26 AND 27.
(45)
(35)
(34)
(36)
DETAIL "B"
GROUP SHIELD CONSTRUCTION
FOR P9 AND P10 (TYP)
SEE NOTES 24, 25, 26 AND 27.
MIL 1000/2 D

2014641 L

1/2014641

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-011	E	REPLACES REV D WITH CHANGE PER TDRR		
		F	CHAD PER TDRR 24806		
		G	Revised per TDRR 25306	2-4-66	
		H	REVISED PER TDRR 25886	10 FEB 66	RLP EF
		J	REVISED PER TDRR 25841	18 FEB 66	DKD EF
		K	REVISED PER TDRR 27430	30 MAR 66	RLP
		L	REVISED PER TDRR 28021	19 APR 66	R.W.T.
		M	REVISED PER TDRR 28022	21 APR 66	R.W.T. CP

(H)

(M)

M

REPLACES REV D WITH CHANGE

REV	H	H	M	M	K	K	H	H	H	H	H	H	H	H	H	J	J	J	J	J	J	J	J	J	J	J
SHEET	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46

REV STATUS	REV				M	L	J	L	J	L	H	J	J	L	L	H	H	H	H	H	H	L	L	L
OF SHEETS	SHEET				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS

DWG NO
CONTRACT

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Janowiak DATE 7 DEC 65
CHECKED W. Diehl 7 DEC 65
APPROVAL 8 DEC 65
APPROVAL 12/20/65

G & N INTERCONNECT HARNESS "A"
(C/M, BLOCK II)

NASA APPROVAL A. C. METZGER
MIT APPROVAL 21 Dec 65
CONTRACT NAS9-497

CODE IDENT NO.	SIZE		REV
80230	A	2014641	M
SCALE		SHEET 1 OF 74	

REVISION STATUS OF SHEETS

SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV
47	J																
48	J																
49	J																
50	J																
51	J																
52	J																
53	J																
54	J																
55	J																
56	J																
57	J																
58	J																
59	J																
60	J																
61	J																
62	J																
63	J																
64	J																
65	J																
66	J																
67	L																
68	L																
69	J																
70	J																
71	J																
72	J																
73	J																
74	L																

SIZE	CODE IDENT. NO.	
A	80230	2014641
SCALE NONE	REV LTR L	SHEET 2 of ~~68~~ 74

MIL 1377A3 8-65

NOTE GENERAL NOTES

NUMBER DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6A AND 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014671.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 3 OF 74

NOTE GENERAL NOTES

NUMBER DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTOR 56P2, USE ITEM NUMBERS 23 AND 32.
CONNECTOR 56P1,3,4,5,6,7, AND 8 USE ITEM NUMBERS 22 AND 32.
CONNECTOR 56P9, AND P10 USE ITEM NUMBER 24.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 38.

13 APPLY BONDING MATERIAL PER ND1002187, TYPE I, USING ITEMS 41 AND 42 TO THE THREADED PORTION OF CONNECTOR AND TO THE THREADED PORTION OF THE ADAPTER PRIOR TO ASSEMBLY.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR L	SHEET 4 OF 74

NOTE GENERAL NOTES

NUMBER DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED, INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE. SHORT CIRCUIT CURRENT LIMITED TO 15 MILLIAMPS.

22 PRESEAL BACK OF CONNECTORS 56P9 AND P10 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 41,42,43, AND 44.

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 39 AND 40.

24 CONDUCTORS WITH AN A,B,C,D,E,F OR G IN THE REMARKS COLUMN ARE TO BE GROUP SHIELDED PER DETAIL A AND/OR B OF THE CONF. DRAWING.

25 GROUP SHIELDING - THREAD ONE CONTINUOUS LENGTH OF GROUND WIRE, ITEM 35, THROUGH CENTER OF EMI/RFI SHIELDING TAPE. ITEM 34. ALLOW 6 INCHES OF GROUND WIRE TO EXTEND BEYOND ENDS OF SHIELDING TAPE. WRAP CABLE WITH ONE CONTINUOUS LENGTH OF PREPARED SHIELDING. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE, WITH A MINIMUM OF RIDGES AND FOLDS.

26 COMPLETELY COVER SHIELD WITH ONE CONTINUOUS WRAP OF INSULATION TAPE, ITEM 36. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE WITH A MINIMUM OF RIDGES AND FOLDS. WRAP TAPE IN OPPOSITE DIRECTION TO SHIELD WRAP.

27 ASSEMBLE INSULATION TUBING, ITEM 45, OVER GROUND WIRE AS REQUIRED TO REACH TERMINATION. ASSEMBLE SHRINK SLEEVING AS SHOWN.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 5 OF 74

NOTE GENERAL NOTES

NUMBER DESCRIPTION

28 ASSEMBLE A LENGTH OF WIRE BRAID ITEM 53 OVER CONDUCTORS A333 AND A337. ALLOW 1.75 INCH OF LEAD TO EXTEND BEYOND BRAID. COVER BRAID WITH TEFLON TAPE, ITEM 36, PER NOTE 26. ALLOW .25 INCH OF BRAID TO EXTEND BEYOND TAPE. FOLD BRAID OVER TAPE AND TERMINATE PER ND1002071, FIG. 6B.

29 CONDUCTORS SHALL ENTER CONNECTORS 56P9 AND 56P10 THROUGH THE APPROPRIATE BRANCH SPECIFIED IN THE REMARKS COLUMN.

31 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 GRMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACECRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICROSECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

32 MARK CHARACTERS .10-.14 HIGH, BLACK, PER ND 1002019. CENTRALIZE AS SHOWN

33 LACE HARNESS BRANCHES TOGETHER USING A CONTINUOUS CLOVE HITCH AT LOCATIONS SHOWN.

34 ASSEMBLE SHRINK SLEEVE, ITEM 59, OVER EACH ELECTRICALLY CONNECTED PIN OF CONNECTORS P9 AND P10. POSITION SLEEVING FLUSH TO TOP OF NYLON INSULATOR.

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR L	SHEET 6 OF 74

NOTE GENERAL NOTES

NUMBER DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 7 OF 74

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014641- 1	WIRE PER 1010789-006, 22 AWG, YEL, 25 FT TOT LG
	2	1	2014641- 2	WIRE PER 1010789-016, 26 AWG, YEL, 50 FT TOT LG
	3	1	2014641- 3	WIRE PER 1010789-008, 22 AWG, YEL, RED, 15 FT TOT LG
	4	1	2014641- 4	WIRE PER 1010789-017, 26 AWG, YEL, RED, 220 FT TOT LG
	5	1	2014641- 5	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 20 FT TOT LG
	6	1	2014641- 6	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN 90 FT TOT LG
	7	1	2014641- 7	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 25 FT TOT LG
	8	1	2014641- 8	WIRE PER 1010789-011, 24 AWG, YEL, YEL JKT, 10 FT TOT LG
	9	1	2014641- 9	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 150 FT TOT LG
	10	1	2014641- 10	WIRE PER 1010789-013, 24 AWG, YEL, RED, GRN, YEL JKT, 10 FT TOT LG
	11	1	2014641- 11	WIRE PER 1010789-002, 24 AWG, BLK, 80 FT TOT LG
	12	1	2014741-011	CONNECTOR, PLUG, ELECTRICAL (56P9)
	13	1	2014749-011	CONNECTOR, PLUG, ELECTRICAL (56P10)
9	14	1	1010929-109	CONNECTOR, PLUG, ELECTRICAL (56P1)

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 8 OF 74

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	15	1	1010929-005	CONNECTOR, PLUG, ELECTRICAL (56P2)
9	16	1	1010929-102	CONNECTOR, PLUG, ELECTRICAL (56P3)
9	17	1	1010929-101	CONNECTOR, PLUG, ELECTRICAL (56P4)
9	18	1	1010929-103	CONNECTOR, PLUG, ELECTRICAL (56P5)
9	19	1	1010929-104	CONNECTOR, PLUG, ELECTRICAL (56P6)
9	20	1	1010929-108	CONNECTOR, PLUG, ELECTRICAL (56P7)
9	21	1	1010929-105	CONNECTOR, PLUG, ELECTRICAL (56P8)
9	22	X	1010770- 1	CONTACT, PIN, SUPPLIED WITH CONNECTOR 1010929
9	23	X	1010770- 2	CONTACT, SOCKET, SUPPLIED WITH CONNECTOR 1010929
9	24	311	1010955- 1	CONTACT, MALE
9	25	349	1010955- 2	CONTACT, MALE
	26	1	2014670- 4	ADAPTER, CONNECTOR
	27		2014670- 5	DELETED
	28	1	2014670- 7	ADAPTER, CONNECTOR
9	29	14	1012534- 36	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	30	2	1012534- 38	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	31	97	1010402- 2	SLEEVE, SOLDER
9	32	115	1010958- 1	PLUG, PROTECTIVE SEALING

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 9 OF 74

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	34	AR	1010989	TAPE, SHIELDING, EMI/RFI
	35	1	2014641-012	WIRE PER QQ-W-343, TYPE C, CLASS C, 22 AWG, 100 FT TOT LG
	36	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	37	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
9	38	AR	1012507-004	TAPE, LACING AND TYING
9	39	AR	1012503	COMPOUND, POTTING, POLYURETHANE
9	40	AR	1012504	PRIMER, METAL PARTS
9	41	AR	1010661	EPOXY RESIN
9	42	AR	1010679	ADHESIVE ACTIVATOR
9	43	AR	1008822	COLORANT, EPOXY BASE
9	44	AR	1006277	SILICA, PULVERIZED, PYROGENIC
9	45	AR	1006776- 44	INSULATION SLEEVING, 6 FEET TOTAL LENGTH
	46		MS17182-2	DELETED
	47	8	MS17182-1	TERMINAL LUG
	48	8	MS35333-69	WASHER, LOCK
9	49	8	1006783- 93	SCREW, BUTTON HD
	50	5	MS35335-57	WASHER, LOCK
9	51	5	1006783- 18	SCREW, BUTTON HD

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR L	SHEET 10 OF 74

SEE NOTE

LIST OF MATERIALS

NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	52	4	MS25036-52	TERMINAL LUG
28	53	1	2014641-013	WIRE BRAID,QQ-B-575,.12DIA. 36AWG, 5 FT TOT LG
	54	2	2014670- 11	ADAPTER, CONNECTOR
	55	2	2014670- 12	ADAPTER, CONNECTOR
	56	1	2014670- 13	ADAPTER,CONNECTOR
	57	1	2014670- 15	ADAPTER,CONNECTOR
	58	1	MS25036-48	TERMINAL LUG
	59	445	1010490-082	SLEEVE, INSULATION (HEAT SHRINKABLE)

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR L	SHEET 11 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	1		DELETED									
A	1A		DELETED									
A	1R		DELETED									
A	1Y		DELETED									
A	2		DELETED									
A	2A		DELETED									
A	2R		DELETED									
A	2Y		DELETED									
A	3		DELETED									
A	3A		DELETED									
A	3R		DELETED									
A	3Y		DELETED									

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR H	SHEET 12 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	4		DELETED									
A	4A		DELETED									
A	4R		DELETED									
A	4Y		DELETED									
A	5		DELETED									
A	5A		DELETED									
A	5R		DELETED									
A	5Y		DELETED									
A	6		DELETED									
A	6A		DELETED									
A	6R		DELETED									
A	6Y		DELETED									

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR H	SHEET 13 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	7		DELETED									
A	7A		DELETED									
A	7R		DELETED									
A	7Y		DELETED									
A	8		DELETED									
A	8A		DELETED									
A	8R		DELETED									
A	8Y		DELETED									
A	9		DELETED									
A	9A		DELETED									
A	9R		DELETED									
A	9Y		DELETED									

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR H	SHEET 14 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 10			DELETED									
A 10A			DELETED									
A 10R			DELETED									
A 10Y			DELETED									
A 11			DELETED									
A 11A			DELETED									
A 11R			DELETED									
A 11Y			DELETED									
A 12			DELETED									
A 12A			DELETED									
A 12R			DELETED									
A 12Y			DELETED									

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 13			DELETED									
A 13A			DELETED									
A 13R			DELETED									
A 13Y			DELETED									
A 14			DELETED									
A 14A			DELETED									
A 14R			DELETED									
A 14Y			DELETED									
A 15			DELETED									
A 15A			DELETED									
A 15R			DELETED									
A 15Y			DELETED									

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 16			DELETED									
A 16A			DELETED									
A 16R			DELETED									
A 16Y			DELETED									
A 17			DELETED									
A 17A			DELETED									
A 17R			DELETED									
A 17Y			DELETED									
A 18			DELETED									
A 18A			DELETED									
A 18R			DELETED									
A 18Y			DELETED									

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 19			DELETED									
A 19A			DELETED									
A 19R			DELETED									
A 19Y			DELETED									
A 20			DELETED									
A 20A			DELETED									
A 20R			DELETED									
A 20Y			DELETED									
A 21	9				1.00 1.00	.75 .75				6B 6B	31 31	
A 21A	11		SHLD A21 P9-111					.20 .18	NO NO		 24	 BRANCH 1
A 21B	11		E3 SHLD A21					.19 .20	NO NO			
A 21R			P9-311 P10-515					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 21Y			P9-211 P10-615					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 22	10				1.00 1.00	.75 .75				7 68	29 31	
A 22B	11		E3 SHLD A22					.19 .20	NO NO			
A 22G			P9-511 P10-536					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 5
A 22R			P9-611 P10-622					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 22Y			P9-411 P10-534					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 5
A 23	9				1.00 1.00	.75 .75				7 68	29 31	
A 23B	11		E4 SHLD A23					.19 .20	NO NO			
A 23R			P9-212 P10-112					.18 .18	NO NO		25 25	BRANCH 1
A 23Y			P9-112 P10-412					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 24	9				1.00 1.00	.75 .75				7 68	29 31	
A 24B	11		E4 SHLD A24					.19 .20	NO NO			

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24R			P9-412 P10-614					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 24Y			P9-312 P10-313					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 25	10				1.00 1.00	.75 .75				7 68	29 31	
A 25B	11		E4 SHLD A25					.19 .20	NO NO		52	
A 25G			P9-113 P10-514					.18 .18	NO NO		25 24	BRANCH 1 BRANCH 4
A 25R			P9-612 P10-314					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 25Y			P9-512 P10-414					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 26	9				1.00 1.00	.75 .75				7 68	29 31	
A 26B	11		E3 SHLD A26					.19 .20	NO NO		52	
A 26R			P9-313 P10-525					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 26Y			P9-213 P10-624					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 27	9				1.75 1.00	1.50 .75				68 68	31 31	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 27A	11		SHLD A27 P7-12					.20 .13	NO NO		 22	
A 27B	11		P9-637 SHLD A27					.18 .20	NO NO		24	BRANCH 3
A 27R			P7-27 P9-437					.13 .18	NO NO		22 25	 BRANCH 3
A 27Y			P7-13 P9-537					.13 .18	NO NO		22 25	 BRANCH 3
A 28	9				1.75 1.00	1.50 .75				68 68	31 31	
A 28A	11		SHLD A28 P7-26					.20 .13	NO NO		 22	
A 28B	11		P9-137 SHLD A28					.18 .20	NO NO		24	BRANCH 3
A 28R			P7-47 P9-237					.13 .18	NO NO		22 25	 BRANCH 3
A 28Y			P7-46 P9-337					.13 .18	NO NO		22 25	 BRANCH 3
A 29	9				1.75 1.00	1.50 .75				68 68	31 31	
A 29A	11		SHLD A29 P7-24					.20 .13	NO NO		 22	
A 29B	11		P9-634 SHLD A29					.18 .20	NO NO		24	BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 29R			P7-44 P9-434					.13 .18	NO NO		22 25	 BRANCH 2
A 29Y			P7-25 P9-534					.13 .18	NO NO		22 25	 BRANCH 2
A 30	9				1.75 1.00	1.50 .75				68 68	31 31	
A 30A	11		SHLD A30 P7-5					.20 .13	NO NO		 22	
A 30B	11		P9-335 SHLD A30					.18 .20	NO NO		24	BRANCH 2
A 30R			P7-4 P9-135					.13 .18	NO NO		22 25	 BRANCH 2
A 30Y			P7-1 P9-235					.13 .18	NO NO		22 25	 BRANCH 2
A 31	9				1.75 1.00	1.50 .75				68 68	31 31	
A 31A	11		SHLD A31 P7-3					.20 .13	NO NO		 22	
A 31B	11		P9-635 SHLD A31					.18 .20	NO NO		24	BRANCH 2
A 31R			P7-11 P9-435					.13 .18	NO NO		22 25	 BRANCH 2
A 31Y			P7-10 P9-535					.13 .18	NO NO		22 25	 BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 32	4											
A 32R			P7-53 P9-536					.13 .18	NO NO		22 25	BRANCH 3
A 32Y			P7-54 P9-636					.13 .18	NO NO		22 25	BRANCH 3
A 33	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 33A	11		SHLD A33 P1-13					.20 .13	NO NO		22	
A 33B	11		P9-332 SHLD A33					.18 .20	NO NO		24	BRANCH 2
A 33R			P1-28 P9-132					.13 .18	NO NO		22 25	BRANCH 2
A 33Y			P1-27 P9-232					.13 .18	NO NO		22 25	BRANCH 2
A 34	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 34A	11		SHLD A34 P1-1					.20 .13	NO NO		22	
A 34B	11		P9-632 SHLD A34					.18 .20	NO NO		24	BRANCH 2
A 34R			P1-4 P9-432					.13 .18	NO NO		22 25	BRANCH 2

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CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR M
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 34Y			P1-3 P9-532					.13 .18	NO NO		22 25	BRANCH 2
A 35	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 35A	11		SHLD A35 P1-16					.20 .13	NO NO		22	
A 35B	11		P9-333 SHLD A35					.18 .20	NO NO		24	BRANCH 2
A 35R			P1-6 P9-133					.13 .18	NO NO		22 25	BRANCH 2
A 35Y			P1-5 P9-233					.13 .18	NO NO		22 25	BRANCH 2
A 36	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 36A	11		SHLD A36 P1-17					.20 .13	NO NO		22	
A 36B	11		P9-346 SHLD A36					.18 .20	NO NO		24	BRANCH 3
A 36R			P1-34 P9-146					.13 .18	NO NO		22 25	BRANCH 3
A 36Y			P1-33 P9-246					.13 .18	NO NO		22 25	BRANCH 3
A 37	9				1.75 1.00	1.50 .75				6B 6B	31 31	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR M
SHEET 24 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 37A	11		SHLD A37 P1-18					.20 .13	NO NO		22	
A 37B	11		P9-646 SHLD A37					.18 .20	NO NO		24	BRANCH 3
A 37R			P1-35 P9-446					.13 .18	NO NO		22 25	BRANCH 3
A 37Y			P1-36 P9-546					.13 .18	NO NO		22 25	BRANCH 3
A 38	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 38A	11		SHLD A38 P1-14					.20 .13	NO NO		22	
A 38B	11		P9-348 SHLD A38					.18 .20	NO NO		24	BRANCH 3
A 38R			P1-30 P9-248					.13 .18	NO NO		22 25	BRANCH 3
A 38Y			P1-29 P9-148					.13 .18	NO NO		22 25	BRANCH 3
A 39	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 39A	11		SHLD A39 P1-15					.20 .13	NO NO		22	
A 39B	11		P9-648 SHLD A39					.18 .20	NO NO		24	BRANCH 3

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR K
SHEET 25 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 39R			P1-31 P9-448					.13 .18	NO NO		22 25	BRANCH 3
A 39Y			P1-32 P9-548					.13 .18	NO NO		22 25	BRANCH 3
A 40	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 40A	11		SHLD A40 P1-20					.20 .13	NO NO		22	
A 40B	11		P9-633 SHLD A40					.18 .20	NO NO		24	BRANCH 2
A 40R			P1-19 P9-533					.13 .18	NO NO		22 25	BRANCH 2
A 40Y			P1-37 P9-433					.13 .18	NO NO		22 25	BRANCH 2
A 41	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 41A	11		SHLD A41 P1-21					.20 .13	NO NO		22	
A 41B	11		P9-334 SHLD A41					.18 .20	NO NO		24	BRANCH 2
A 41R			P1-38 P9-234					.13 .18	NO NO		22 25	BRANCH 2
A 41Y			P1-39 P9-134					.13 .18	NO NO		22 25	BRANCH 2

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR K
SHEET 26 OF 74

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	42	6											
A	42G			P1-26 P9-421					.13 .18	NO NO		22 25	BRANCH 2
A	42R			P1-43 P9-620					.13 .18	NO NO		22 25	BRANCH 2
A	42Y			P1-44 P9-221					.13 .18	NO NO		22 25	BRANCH 2
A	43	6											
A	43G			P1-8 P9-222					.13 .18	NO NO		22 25	BRANCH 2
A	43R			P1-7 P9-621					.13 .18	NO NO		22 25	BRANCH 2
A	43Y			P1-2 P9-119					.13 .18	NO NO		22 25	BRANCH 2
A	46	2		P1-25 P9-422					.13 .18	NO NO		22 25	BRANCH 2
A	47	3											
A	47R			P1-40 P9-228					.13 .18	NO NO		22 24	BRANCH 2
A	47Y			P1-23 P9-328					.13 .18	NO NO		22 24	BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 27 OF 74

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	48	3											
A	48R			P1-41 P9-428					.13 .18	NO NO		22 24	BRANCH 2
A	48Y			P1-42 P9-528					.13 .18	NO NO		22 24	BRANCH 2
A	49	9				1.75 1.00	1.50 .75				68 68	31 31	
A	49A	11		SHLD A49 P4-30					.20 .13	NO NO		22	
A	49B	11		P9-340 SHLD A49					.18 .20	NO NO		24	BRANCH 3
A	49R			P4-52 P9-140					.13 .18	NO NO		22 25	BRANCH 3
A	49Y			P4-51 P9-240					.13 .18	NO NO		22 25	BRANCH 3
A	50	9				1.75 1.00	1.50 .75				68 68	31 31	
A	50A	11		SHLD A50 P4-31					.20 .13	NO NO		22	
A	50B	11		P9-640 SHLD A50					.18 .20	NO NO		24	BRANCH 3
A	50R			P4-54 P9-440					.13 .18	NO NO		22 25	BRANCH 3

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 28 OF 74

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	50Y			P4-53 P9-540					.13 .18	NO NO		22 25	BRANCH 3
A	51	9				1.75 1.00	1.50 .75				68 68	31 31	
A	51A	11		SHLD A51 P4-29					.20 .13	NO NO		22	
A	51B	11		P9-341 SHLD A51					.18 .20	NO NO		24	BRANCH 3
A	51R			P4-13 P9-141					.13 .18	NO NO		22 25	BRANCH 3
A	51Y			P4-14 P9-241					.13 .18	NO NO		22 25	BRANCH 3
A	52	9				1.75 1.00	1.50 .75				68 68	31 31	
A	52A	11		SHLD A52 P4-32					.20 .13	NO NO		22	
A	52B	11		P9-641 SHLD A52					.18 .20	NO NO		24	BRANCH 3
A	52R			P4-16 P9-441					.13 .18	NO NO		22 25	BRANCH 3
A	52Y			P4-15 P9-541					.13 .18	NO NO		22 25	BRANCH 3
A	53	9				1.75 1.00	1.50 .75				68 68	31 31	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 29 OF 74

	LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	53A	11		SHLD A53 P4-36					.20 .13	NO NO		22	
A	53B	11		P9-342 SHLD A53					.18 .20	NO NO		24	BRANCH 3
A	53R			P4-59 P9-142					.13 .18	NO NO		22 25	BRANCH 3
A	53Y			P4-60 P9-242					.13 .18	NO NO		22 25	BRANCH 3
A	54	9				1.75 1.00	1.50 .75				68 68	31 31	
A	54A	11		SHLD A54 P4-37					.20 .13	NO NO		22	
A	54B	11		P9-642 SHLD A54					.18 .20	NO NO		24	BRANCH 3
A	54R			P4-61 P9-442					.13 .18	NO NO		22 25	BRANCH 3
A	54Y			P4-38 P9-542					.13 .18	NO NO		22 25	BRANCH 3
A	55	9				1.75 1.00	1.50 .75				68 68	31 31	
A	55A	11		SHLD A55 P4-33					.20 .13	NO NO		22	
A	55B	11		P9-343 SHLD A55					.18 .20	NO NO		24	BRANCH 3

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 30 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 55R			P4-56 P9-143					.13 .18	NO NO		22 25	BRANCH 3
A 55Y			P4-55 P9-243					.13 .18	NO NO		22 25	BRANCH 3
A 56	9				1.75 1.00	1.50 .75				68 68	31 31	
A 56A	11		SHLD A56 P4-34					.20 .13	NO NO		22	
A 56B	11		P9-643 SHLD A56					.18 .20	NO NO		24	BRANCH 3
A 56R			P4-57 P9-443					.13 .18	NO NO		22 25	BRANCH 3
A 56Y			P4-58 P9-543					.13 .18	NO NO		22 25	BRANCH 3
A 57	9				1.75 1.00	1.50 .75				68 68	31 31	
A 57A	11		SHLD A57 P4-27					.20 .13	NO NO		22	
A 57B	11		P9-344 SHLD A57					.18 .20	NO NO		24	BRANCH 3
A 57R			P4-48 P9-144					.13 .18	NO NO		22 25	BRANCH 3
A 57Y			P4-47 P9-244					.13 .18	NO NO		22 25	BRANCH 3

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 58	9				1.75 1.00	1.50 .75				68 68	31 31	
A 58A	11		SHLD A58 P4-28					.20 .13	NO NO		22	
A 58B	11		P9-644 SHLD A58					.18 .20	NO NO		24	BRANCH 3
A 58R			P4-49 P9-444					.13 .18	NO NO		22 25	BRANCH 3
A 58Y			P4-50 P9-544					.13 .18	NO NO		22 25	BRANCH 3
A 59	9				1.75 1.00	1.50 .75				68 68	31 31	
A 59A	11		SHLD A59 P4-35					.20 .13	NO NO		22	
A 59B	11		P9-345 SHLD A59					.18 .20	NO NO		24	BRANCH 3
A 59R			P4-17 P9-145					.13 .18	NO NO		22 25	BRANCH 3
A 59Y			P4-18 P9-245					.13 .18	NO NO		22 25	BRANCH 3
A 60	9				1.75 1.00	1.50 .75				68 68	31 31	
A 60A	11		SHLD A60 P4-20					.20 .13	NO NO		22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 60B	11		P9-645 SHLD A60					.18 .20	NO NO		24	BRANCH 3
A 60R			P4-19 P9-445					.13 .18	NO NO		22 25	BRANCH 3
A 60Y			P4-8 P9-545					.13 .18	NO NO		22 25	BRANCH 3
A 61	9				1.75 1.00	1.50 .75				68 68	31 31	
A 61A	11		SHLD A61 P4-22					.20 .13	NO NO		22	
A 61B	11		P9-329 SHLD A61					.18 .20	NO NO		24	BRANCH 2
A 61R			P4-41 P9-129					.13 .18	NO NO		22 25	BRANCH 2
A 61Y			P4-42 P9-229					.13 .18	NO NO		22 25	BRANCH 2
A 62	9				1.75 1.00	1.50 .75				68 68	31 31	
A 62A	11		SHLD A62 P4-24					.20 .13	NO NO		22	
A 62B	11		P9-629 SHLD A62					.18 .20	NO NO		24	BRANCH 2
A 62R			P4-43 P9-429					.13 .18	NO NO		22 25	BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 62Y			P4-44 P9-529					.13 .18	NO NO		22 25	BRANCH 2
A 63	9				1.75 1.00	1.50 .75				68 68	31 31	
A 63A	11		SHLD A63 P4-25					.20 .13	NO NO		22	
A 63B	11		P9-330 SHLD A63					.18 .20	NO NO		24	BRANCH 2
A 63R			P4-45 P9-130					.13 .18	NO NO		22 25	BRANCH 2
A 63Y			P4-46 P9-230					.13 .18	NO NO		22 25	BRANCH 2
A 64	9				1.75 1.00	1.50 .75				68 68	31 31	
A 64A	11		SHLD A64 P4-21					.20 .13	NO NO		22	
A 64B	11		P9-630 SHLD A64					.18 .20	NO NO		24	BRANCH 2
A 64R			P4-39 P9-430					.13 .18	NO NO		22 25	BRANCH 2
A 64Y			P4-40 P9-530					.13 .18	NO NO		22 25	BRANCH 2
A 65	9				1.75 1.00	1.50 .75				68 68	31 31	

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 65A	11		SHLD A65 P4-10					.20 .13	NO NO		 22	
A 65B	11		P9-331 SHLD A65					.18 .20	NO NO		24	BRANCH 2
A 65R			P4-9 P9-131					.13 .18	NO NO		22 25	 BRANCH 2
A 65Y			P4-23 P9-231					.13 .18	NO NO		22 25	 BRANCH 2
A 66	9				1.75 1.00	1.50 .75				68 68	31 31	
A 66A	11		SHLD A66 P4-11					.20 .13	NO NO		 22	
A 66B	11		P9-631 SHLD A66					.18 .20	NO NO		24	BRANCH 2
A 66R			P4-26 P9-431					.13 .18	NO NO		22 25	 BRANCH 2
A 66Y			P4-12 P9-531					.13 .18	NO NO		22 25	 BRANCH 2
A 67	9				1.75 1.00	1.50 .75				68 7	31 29	
A 67A	11		SHLD A67 P4-1					.20 .13	NO NO		 22	
A 67R			P4-6 P9-338					.13 .18	NO NO		22 25	 BRANCH 3

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	H	SHEET 35 OF 74	

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 67Y			P4-7 P9-238					.13 .18	NO NO		22 25	 BRANCH 3
A 68	8				1.75 1.00	1.50 .75				68 7	31 29	
A 68A	11		SHLD A68 P4-2					.20 .13	NO NO		 22	
A 68R			DELETED									
A 68Y			P4-3 P9-138					.13 .18	NO NO		22 24	 BRANCH 3
A 69	1		P4-5 P9-336					.13 .18	NO NO		22 24	 BRANCH 3
A 70	1		P4-4 P9-136					.13 .18	NO NO		22 24	 BRANCH 3
A 71	1		P5-84 P9-236					.13 .18	NO NO		22 24	 BRANCH 3
A 72	1		P5-60 P9-436					.13 .18	NO NO		22 24	 BRANCH 3
A 74	4											F
A 74R			P2-55 P10-121					.13 .18	NO NO		23 25	F BRANCH 5
A 74Y			P2-56 P10-221					.13 .18	NO NO		23 25	F BRANCH 5

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 36 OF 74	

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 75	4											F
A 75R			P2-54 P10-120					.13 .18	NO NO		23 25	F BRANCH 5
A 75Y			P2-32 P10-220					.13 .18	NO NO		23 25	F BRANCH 5
A 76	4											F
A 76R			P2-17 P10-119					.13 .18	NO NO		23 25	F BRANCH 5
A 76Y			P2-33 P10-219					.13 .18	NO NO		23 25	F BRANCH 5
A 77	4											F
A 77R			P2-16 P10-118					.13 .18	NO NO		23 25	F BRANCH 5
A 77Y			P2-5 P10-218					.13 .18	NO NO		23 25	F BRANCH 5
A 78	4											F
A 78R			P2-57 P10-321					.13 .18	NO NO		23 25	F BRANCH 5
A 78Y			P2-34 P10-421					.13 .18	NO NO		23 25	F BRANCH 5

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 37 OF 74	

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 79	4											F
A 79R			P2-18 P10-320					.13 .18	NO NO		23 25	F BRANCH 5
A 79Y			P2-35 P10-420					.13 .18	NO NO		23 25	F BRANCH 5
A 80	4											F
A 80R			P2-52 P10-319					.13 .18	NO NO		23 25	F BRANCH 5
A 80Y			P2-53 P10-419					.13 .18	NO NO		23 25	F BRANCH 5
A 81	4											F
A 81R			P2-15 P10-318					.13 .18	NO NO		23 25	F BRANCH 5
A 81Y			P2-30 P10-418					.13 .18	NO NO		23 25	F BRANCH 5
A 82	4											F
A 82R			P2-50 P10-317					.13 .18	NO NO		23 25	F BRANCH 5
A 82Y			P2-51 P10-417					.13 .18	NO NO		23 25	F BRANCH 5

SIZE	CODE IDENT NO.			
A	80230	2014641		
SCALE-NONE	REV LTR	J	SHEET 38 OF 74	

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 83	4											F
A 83R			P2-13 P10-323					.13 .18	NO NO		23 25	F BRANCH 5
A 83Y			P2-29 P10-423					.13 .18	NO NO		23 25	F BRANCH 5
A 84	4											F
A 84R			P2-12 P10-322					.13 .18	NO NO		23 25	F BRANCH 5
A 84Y			P2-27 P10-422					.13 .18	NO NO		23 25	F BRANCH 5
A 85	4											F
A 85R			P2-48 P10-316					.13 .18	NO NO		23 25	F BRANCH 5
A 85Y			P2-49 P10-416					.13 .18	NO NO		23 25	F BRANCH 5
A 86	4											F
A 86R			P2-1 P10-315					.13 .18	NO NO		23 25	F BRANCH 5
A 86Y			P2-4 P10-415					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR J		SHEET 39 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 87	4											F
A 87R			P2-11 P10-324					.13 .18	NO NO		23 25	F BRANCH 5
A 87Y			P2-24 P10-424					.13 .18	NO NO		23 25	F BRANCH 5
A 88	4											F
A 88R			P2-10 P10-117					.13 .18	NO NO		23 24	F BRANCH 5
A 88Y			P2-2 P10-217					.13 .18	NO NO		23 25	F BRANCH 5
A 89	4											F
A 89R			P2-59 P10-139					.13 .18	NO NO		23 25	F BRANCH 5
A 89Y			P2-58 P10-239					.13 .18	NO NO		23 25	F BRANCH 5
A 90	4											F
A 90R			P2-7 P10-138					.13 .18	NO NO		23 25	F BRANCH 5
A 90Y			P2-6 P10-238					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR J		SHEET 40 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 91	4											F
A 91R			P2-36 P10-137					.13 .18	NO NO		23 25	F BRANCH 5
A 91Y			P2-60 P10-237					.13 .18	NO NO		23 25	F BRANCH 5
A 92	4											F
A 92R			P2-8 P10-136					.13 .18	NO NO		23 25	F BRANCH 5
A 92Y			P2-19 P10-236					.13 .18	NO NO		23 25	F BRANCH 5
A 93	4											F
A 93R			P2-61 P10-135					.13 .18	NO NO		23 25	F BRANCH 5
A 93Y			P2-38 P10-235					.13 .18	NO NO		23 25	F BRANCH 5
A 94	4											F
A 94R			P2-39 P10-134					.13 .18	NO NO		23 25	F BRANCH 5
A 94Y			P2-20 P10-234					.13 .18	NO NO		23 25	F BRANCH 5

SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR J		SHEET 41 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 95	4											F
A 95R			P2-43 P10-327					.13 .18	NO NO		23 25	F BRANCH 5
A 95Y			P2-42 P10-427					.13 .18	NO NO		23 25	F BRANCH 5
A 96	4											F
A 96R			P2-22 P10-326					.13 .18	NO NO		23 25	F BRANCH 5
A 96Y			P2-9 P10-426					.13 .18	NO NO		23 25	F BRANCH 5
A 97	4											F
A 97R			P2-41 P10-325					.13 .18	NO NO		23 25	F BRANCH 5
A 97Y			P2-40 P10-425					.13 .18	NO NO		23 25	F BRANCH 5
A 98	10				1.75 1.00	1.50 .75				6B 7	31 29	
A 98A	11		SHLD A98 P2-44					.20 .13	NO NO		 23	
A 98G			P2-25 P10-212					.13 .18	NO NO		23 24	 BRANCH 4

SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR J		SHEET 42 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 98R			P2-46 P10-113					.13 .18	NO NO		23 24	BRANCH 4
A 98Y			P2-45 P10-312					.13 .18	NO NO		23 24	BRANCH 4
A 99	8				1.75 1.00	1.50 .75				6B 7	31 29	
A 99A	11		SHLD A99 P2-26					.20 .13	NO NO		23	
A 99R			DELETED									
A 99Y			P2-47 P10-114					.13 .18	NO NO		23 24	BRANCH 4
A 104	2		P3-1 P10-538					.13 .18	NO NO		22 25	E BRANCH 5
A 105	2		P3-7 P10-556					.13 .18	NO NO		22 25	E BRANCH 5
A 106	2		P3-2 P10-625					.13 .18	NO NO		22 25	E BRANCH 5
A 113	2		P3-8 P10-547					.13 .18	NO NO		22 25	E BRANCH 5
A 116	1		P5-66 P10-602					.13 .18	NO NO		22 24	D BRANCH 4
A 118	1		P5-45 P10-504					.13 .18	NO NO		22 24	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 43 OF 74

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 125	2		P5-26 P10-409					.13 .22	NO NO		22	D BRANCH 4
A 127	5											A
A 127G			P5-53 P10-161					.13 .18	NO NO		22 24	A BRANCH 6
A 127R			P5-78 P10-159					.13 .18	NO NO		22 24	A BRANCH 6
A 127Y			P5-54 P10-160					.13 .18	NO NO		22 24	A BRANCH 6
A 128	5											A
A 128G			P5-55 P10-260					.13 .18	NO NO		22 24	A BRANCH 6
A 128R			P5-79 P10-261					.13 .18	NO NO		22 24	A BRANCH 6
A 128Y			P5-80 P10-259					.13 .18	NO NO		22 24	A BRANCH 6
A 129	5											A
A 129G			P5-16 P10-360					.13 .18	NO NO		22 24	A BRANCH 6
A 129R			P5-33 P10-361					.13 .18	NO NO		22 24	A BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 44 OF 74

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 129Y			P5-32 P10-359					.13 .18	NO NO		22 24	A BRANCH 6
A 130	5											A
A 130G			P5-56 P10-460					.13 .18	NO NO		22 24	A BRANCH 6
A 130R			P5-81 P10-461					.13 .18	NO NO		22 24	A BRANCH 6
A 130Y			P5-57 P10-459					.13 .18	NO NO		22 24	A BRANCH 6
A 131	5											A
A 131G			P5-35 P10-560					.13 .18	NO NO		22 24	A BRANCH 6
A 131R			P5-58 P10-561					.13 .18	NO NO		22 24	A BRANCH 6
A 131Y			P5-34 P10-559					.13 .18	NO NO		22 24	A BRANCH 6
A 139	2		P6-77 P10-636					.13 .18	NO NO		22 25	C BRANCH 6
A 148	2		P6-20 P10-613					.13 .18	NO NO		22 25	C BRANCH 6
A 149	4											C

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 45 OF 74

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 149R			P6-85 P10-133					.13 .18	NO NO		22 25	C BRANCH 6
A 149Y			P6-84 P10-233					.13 .18	NO NO		22 25	C BRANCH 6
A 150	4											C
A 150R			P6-82 P10-516					.13 .18	NO NO		22 25	C BRANCH 6
A 150Y			P6-57 P10-616					.13 .18	NO NO		22 25	C BRANCH 6
A 151	4											C
A 151R			P6-8 P10-158					.13 .18	NO NO		22 25	C BRANCH 6
A 151Y			P6-2 P10-258					.13 .18	NO NO		22 25	C BRANCH 6
A 152	4											C
A 152R			P6-19 P10-157					.13 .18	NO NO		22 25	C BRANCH 6
A 152Y			P6-7 P10-257					.13 .18	NO NO		22 25	C BRANCH 6
A 153	4											

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 46 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 153R			P6-6 P10-156					.13 .18	NO NO		22 25	C BRANCH 6
A 153Y			P6-1 P10-256					.13 .18	NO NO		22 25	C BRANCH 6
A 154	4											C
A 154R			P6-5 P10-155					.13 .18	NO NO		22 25	C BRANCH 6
A 154Y			P6-4 P10-255					.13 .18	NO NO		22 25	C BRANCH 6
A 155	4											C
A 155R			P6-15 P10-154					.13 .18	NO NO		22 25	C BRANCH 6
A 155Y			P6-16 P10-254					.13 .18	NO NO		22 25	C BRANCH 6
A 156	4											C
A 156R			P6-17 P10-153					.13 .18	NO NO		22 25	C BRANCH 6
A 156Y			P6-33 P10-253					.13 .18	NO NO		22 25	C BRANCH 6
A 157	4											C

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 157R			P6-61 P10-132					.13 .18	NO NO		22 25	C BRANCH 6
A 157Y			P6-60 P10-232					.13 .18	NO NO		22 25	C BRANCH 6
A 158	4											
A 158R			P6-37 P10-130					.13 .18	NO NO		22 25	C BRANCH 6
A 158Y			P6-36 P10-230					.13 .18	NO NO		22 25	C BRANCH 6
A 159	4											C
A 159R			P6-83 P10-352					.13 .18	NO NO		22 25	C BRANCH 6
A 159Y			P6-59 P10-452					.13 .18	NO NO		22 25	C BRANCH 6
A 160	4											C
A 160R			P6-35 P10-129					.13 .18	NO NO		22 25	C BRANCH 6
A 160Y			P6-18 P10-229					.13 .18	NO NO		22 25	C BRANCH 6
A 161	4											C

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 161R			P6-58 P10-128					.13 .18	NO NO		22 25	C BRANCH 6
A 161Y			P6-34 P10-228					.13 .18	NO NO		22 25	C BRANCH 6
A 164	1		P8-9 P10-302					.13 .18	NO NO		22 24	B BRANCH 4
A 170	2		P8-5 P10-509					.13 .18	NO NO		22 25	B BRANCH 4
A 177	2		P8-8 P10-108					.13 .22	NO NO		22	B BRANCH 4
A 178	9				1.75 1.75	1.50 1.50				68 68	31 31	
A 178A	11		SHLD A178 P3-52					.20 .13	NO NO		 22	
A 178B	11		P7-21 SHLD A178					.13 .20	NO NO		22	
A 178R			P3-77 P7-40					.13 .13	NO NO		22 22	
A 178Y			P3-53 P7-22					.13 .13	NO NO		22 22	
A 179	9				1.75 1.75	1.50 1.50				66 68	31 31	
A 179A	11		SHLD A179 P3-30					.20 .13	NO NO		 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 179B	11		P7-23 SHLD A179					.13 .20	NO NO		22	
A 179R			P3-31 P7-42					.13 .13	NO NO		22 22	
A 179Y			P3-15 P7-43					.13 .13	NO NO		22 22	
A 180	9				1.75 1.75	1.50 1.50				68 68	31 31	
A 180A	11		SHLD A180 P3-51					.20 .13	NO NO		 22	
A 180B	11		P7-2 SHLD A180					.13 .20	NO NO		22	
A 180R			P3-75 P7-8					.13 .13	NO NO		22 22	
A 180Y			P3-76 P7-9					.13 .13	NO NO		22 22	
A 181	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 181A	11		SHLD A181 P3-46					.20 .13	NO NO		 22	
A 181R			P3-71 P7-38					.13 .13	NO NO		22 22	
A 181Y			P3-70 P7-39					.13 .13	NO NO		22 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 182	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 182A	11		SHLD A182 P3-69					.20 .13	NO NO		 22	
A 182R			P3-45 P7-19					.13 .13	NO NO		22 22	
A 182Y			P3-44 P7-20					.13 .13	NO NO		22 22	
A 183	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 183A	11		SHLD A183 P3-28					.20 .13	NO NO		 22	
A 183R			P3-13 P7-60					.13 .13	NO NO		22 22	
A 183Y			P3-29 P7-61					.13 .13	NO NO		22 22	
A 184	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 184A	11		SHLD A184 P3-74					.20 .13	NO NO		 22	
A 184R			P3-49 P7-36					.13 .13	NO NO		22 22	
A 184Y			P3-50 P7-37					.13 .13	NO NO		22 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 185	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 185A	11		SHLD A185 P3-27					.20 .13	NO NO		 22	
A 185R			P3-26 P7-58					.13 .13	NO NO		22 22	
A 185Y			P3-47 P7-59					.13 .13	NO NO		22 22	
A 186	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 186A	11		SHLD A186 P3-48					.20 .13	NO NO		 22	
A 186R			P3-72 P7-35					.13 .13	NO NO		22 22	
A 186Y			P3-73 P7-18					.13 .13	NO NO		22 22	
A 187	3											
A 187R			P3-67 P7-57					.13 .13	NO NO		22 22	
A 187Y			P3-68 P7-34					.13 .13	NO NO		22 22	
A 188	7											

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 188G			P3-24 P7-51					.13 .13	NO NO		22 22	
A 188N			P3-43 P7-29					.13 .13	NO NO		22 22	
A 188R			P3-25 P7-50					.13 .13	NO NO		22 22	
A 188Y			P3-23 P7-28					.13 .13	NO NO		22 22	
A 189	4											
A 189R			P3-5 P7-49					.13 .13	NO NO		22 22	
A 189Y			P3-14 P7-48					.13 .13	NO NO		22 22	
A 195	2		P5-23 P10-608					.13 .22	NO NO		22	D BRANCH 4
A 196	2		P5-22 P10-609					.13 .22	NO NO		22	D BRANCH 4
A 198	6											
A 198G			P1-11 P9-521					.13 .18	NO NO		22 25	 BRANCH 2
A 198R			P1-10 P9-121					.13 .18	NO NO		22 25	 BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 198Y			P1-9 P9-321					.13 .18	NO NO		22 25	 BRANCH 2
A 199	5											A
A 199G			P5-5 P10-660					.13 .18	NO NO		22 24	A BRANCH 6
A 199R			P5-31 P10-661					.13 .18	NO NO		22 24	A BRANCH 6
A 199Y			P5-15 P10-659					.13 .18	NO NO		22 24	A BRANCH 6
A 200	2		P3-39 P10-202					.13 .18	NO NO		22 25	E BRANCH 5
A 201	2		P3-64 P10-102					.13 .18	NO NO		22 24	E BRANCH 5
A 202	2		P3-42 P10-652					.13 .18	NO NO		22 25	E BRANCH 5
A 203	2		P3-66 P10-551					.13 .18	NO NO		22 25	F BRANCH 5
A 204	2		P3-21 P10-552					.13 .18	NO NO		22 25	E BRANCH 5
A 205	2		P3-22 P10-651					.13 .18	NO NO		22 25	E BRANCH 5
A 206	2		P3-18 P10-548					.13 .18	NO NO		22 25	E BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 207	2		P3-36 P10-549					.13 .18	NO NO		22 25	E BRANCH 5
A 208	2		P3-19 P10-550					.13 .18	NO NO		22 25	E BRANCH 5
A 209	2		P3-41 P10-214					.13 .18	NO NO		22 25	E BRANCH 5
A 210	2		P3-65 P10-216					.13 .18	NO NO		22 25	E BRANCH 5
A 211	2		P3-40 P10-215					.13 .18	NO NO		22 25	E BRANCH 5
A 212	2		P3-33 P10-646					.13 .18	NO NO		22 25	E BRANCH 5
A 213	2		P3-17 P10-546					.13 .18	NO NO		22 25	E BRANCH 5
A 214	2		P3-57 P10-645					.13 .18	NO NO		22 25	E BRANCH 5
A 215	2		P3-82 P10-545					.13 .18	NO NO		22 25	E BRANCH 5
A 216	2		P3-81 P10-542					.13 .18	NO NO		22 25	E BRANCH 5
A 217	2		P3-80 P10-644					.13 .18	NO NO		22 25	E BRANCH 5
A 218	2		P3-56 P10-544					.13 .18	NO NO		22 25	E BRANCH 5

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A	80230	2014641	
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 219	2		P3-84 P10-623					.13 .18	NO NO		22 25	E BRANCH 5
A 220	2		P3-60 P10-524					.13 .18	NO NO		22 25	E BRANCH 5
A 221	2		P3-59 P10-522					.13 .18	NO NO		22 25	E BRANCH 5
A 222	2		P3-62 P10-648					.13 .18	NO NO		22 25	E BRANCH 5
A 223	2		P3-63 P10-649					.13 .18	NO NO		22 25	E BRANCH 5
A 224	2		P3-38 P10-650					.13 .18	NO NO		22 25	E BRANCH 5
A 225	2		P5-38 P10-401					.13 .18	NO NO		22 25	D BRANCH 4
A 226	2		P5-62 P10-601					.13 .18	NO NO		22 25	D BRANCH 4
A 227	2		P5-63 P10-501					.13 .18	NO NO		22 25	D BRANCH 4
A 228	2		P5-64 P10-101					.13 .18	NO NO		22 24	D BRANCH 4
A 229	2		P5-40 P10-301					.13 .18	NO NO		22 25	D BRANCH 4
A 230	2		P5-39 P10-201					.13 .18	NO NO		22 25	D BRANCH 4

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	J	SHEET 56 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 231	2		P5-41 P10-502					.13 .22	NO NO		22 25	D BRANCH 4
A 232	2		P5-42 P10-402					.13 .22	NO NO		22	D BRANCH 4
A 233	2		P5-30 P10-204					.13 .22	NO NO		22	D BRANCH 4
A 234	2		P5-14 P10-505					.13 .22	NO NO		22	D BRANCH 4
A 235	2		P5-29 P10-605					.13 .22	NO NO		22	D BRANCH 4
A 236	2		P5-77 P10-506					.13 .22	NO NO		22	D BRANCH 4
A 237	2		P5-52 P10-404					.13 .22	NO NO		22	D BRANCH 4
A 238	2		P5-76 P10-304					.13 .22	NO NO		22	D BRANCH 4
A 239	2		P5-50 P10-405					.13 .22	NO NO		22	D BRANCH 4
A 240	2		P5-51 P10-606					.13 .22	NO NO		22	D BRANCH 4
A 241	2		P5-75 P10-205					.13 .22	NO NO		22	D BRANCH 4
A 242	2		P5-73 P10-607					.13 .22	NO NO		22	D BRANCH 4

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	J	SHEET 57 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 243	2		P5-74 P10-305					.13 .22	NO NO		22	D BRANCH 4
A 244	2		P5-49 P10-507					.13 .22	NO NO		22	D BRANCH 4
A 245	2		P5-13 P10-306					.13 .22	NO NO		22	D BRANCH 4
A 246	2		P5-28 P10-206					.13 .22	NO NO		22	D BRANCH 4
A 247	2		P5-27 P10-406					.13 .22	NO NO		22	D BRANCH 4
A 248	2		P5-47 P10-307					.13 .22	NO NO		22	D BRANCH 4
A 249	2		P5-46 P10-208					.13 .22	NO NO		22	D BRANCH 4
A 250	2		P5-4 P10-308					.13 .22	NO NO		22	D BRANCH 4
A 251	2		P5-12 P10-309					.13 .22	NO NO		22	D BRANCH 4
A 252	2		P5-71 P10-207					.13 .22	NO NO		22	D BRANCH 4
A 253	2		P5-72 P10-407					.13 .22	NO NO		22	D BRANCH 4
A 254	2		P5-48 P10-604					.13 .22	NO NO		22	D BRANCH 4

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	J	SHEET 58 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 255	3											A
A 255R			P5-44 P10-107					.13 .18	NO NO		22 24	A BRANCH 6
A 255Y			P5-68 P10-105					.13 .18	NO NO		22 24	A BRANCH 6
A 256	2		P6-14 P10-540					.13 .18	NO NO		22 25	C BRANCH 6
A 257	2		P6-30 P10-639					.13 .18	NO NO		22 25	C BRANCH 6
A 258	2		P6-48 P10-658					.13 .18	NO NO		22 25	C BRANCH 6
A 259	2		P6-72 P10-557					.13 .18	NO NO		22 25	C BRANCH 6
A 260	2		P6-73 P10-558					.13 .18	NO NO		22 25	C BRANCH 6
A 261	2		P6-49 P10-657					.13 .18	NO NO		22 25	C BRANCH 6
A 262	2		P6-28 P10-640					.13 .18	NO NO		22 25	C BRANCH 6
A 263	2		P6-29 P10-520					.13 .18	NO NO		22 25	C BRANCH 6
A 264	2		P6-76 P10-523					.13 .18	NO NO		22 25	C BRANCH 6

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A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 59 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 265	2		P6-75 P10-647					.13 .18	NO NO		22 25	C BRANCH 6
A 266	2		P6-50 P10-641					.13 .18	NO NO		22 25	C BRANCH 6
A 267	2		P6-74 P10-541					.13 .18	NO NO		22 25	C BRANCH 6
A 268	2		P6-40 P10-109					.13 .18	NO NO		22 25	C BRANCH 6
A 269	2		P6-21 P10-410					.13 .18	NO NO		22 25	C BRANCH 6
A 270	2		P6-65 P10-209					.13 .18	NO NO		22 25	C BRANCH 6
A 271	2		P6-22 P10-310					.13 .18	NO NO		22 25	C BRANCH 6
A 272	2		P6-66 P10-510					.13 .18	NO NO		22 25	C BRANCH 6
A 273	2		P6-42 P10-210					.13 .18	NO NO		22 25	C BRANCH 6
A 274	2		P6-41 P10-610					.13 .18	NO NO		22 25	C BRANCH 6
A 275	2		P6-67 P10-110					.13 .18	NO NO		22 25	C BRANCH 6
A 276	2		P6-10 P10-111					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 60 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 277	2		P6-24 P10-612					.13 .18	NO NO		22 25	C BRANCH 6
A 278	2		P6-9 P10-211					.13 .18	NO NO		22 25	C BRANCH 6
A 279	2		P6-23 P10-512					.13 .18	NO NO		22 25	C BRANCH 6
A 280	2		P6-68 P10-511					.13 .18	NO NO		22 25	C BRANCH 6
A 281	2		P6-69 P10-411					.13 .18	NO NO		22 25	C BRANCH 6
A 282	2		P6-43 P10-611					.13 .18	NO NO		22 25	C BRANCH 6
A 283	2		P6-44 P10-311					.13 .18	NO NO		22 25	C BRANCH 6
A 284	2		P6-46 P10-627					.13 .18	NO NO		22 25	C BRANCH 6
A 285	2		P6-25 P10-628					.13 .18	NO NO		22 25	C BRANCH 6
A 286	2		P6-45 P10-528					.13 .18	NO NO		22 25	C BRANCH 6
A 287	2		P6-71 P10-526					.13 .18	NO NO		22 25	C BRANCH 6
A 288	2		P6-70 P10-527					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 61 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 289	2		P6-47 P10-626					.13 .18	NO NO		22 25	C BRANCH 6
A 290	2		P6-12 P10-654					.13 .18	NO NO		22 25	C BRANCH 6
A 291	2		P6-3 P10-655					.13 .18	NO NO		22 25	C BRANCH 6
A 292	2		P6-11 P10-555					.13 .18	NO NO		22 25	C BRANCH 6
A 293	2		P6-27 P10-553					.13 .18	NO NO		22 25	C BRANCH 6
A 294	2		P6-26 P10-554					.13 .18	NO NO		22 25	C BRANCH 6
A 295	2		P6-13 P10-653					.13 .18	NO NO		22 25	C BRANCH 6
A 296	2		P8-24 P10-403					.13 .18	NO NO		22 25	B BRANCH 4
A 297	2		P8-44 P10-603					.13 .18	NO NO		22 25	B BRANCH 4
A 298	2		P8-43 P10-503					.13 .18	NO NO		22 25	B BRANCH 4
A 299	2		P8-41 P10-103					.13 .18	NO NO		22 24	B BRANCH 4
A 300	2		P8-42 P10-303					.13 .18	NO NO		22 25	B BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 62 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 301	2		P8-23 P10-203					.13 .18	NO NO		22 25	B BRANCH 4
A 302	2		P8-22 P10-502					.13 .22	NO NO		22 24	B BRANCH 4
A 303	2		P8-10 P10-402					.13 .22	NO NO		22 24	B BRANCH 4
A 304	2		P8-52 P10-207					.13 .22	NO NO		22 24	B BRANCH 4
A 305	2		P8-50 P10-407					.13 .22	NO NO		22 24	B BRANCH 4
A 306	2		P8-51 P10-307					.13 .22	NO NO		22 24	B BRANCH 4
A 307	2		P8-31 P10-408					.13 .22	NO NO		22	B BRANCH 4
A 308	2		P8-53 P10-608					.13 .22	NO NO		22 24	B BRANCH 4
A 309	2		P8-54 P10-508					.13 .22	NO NO		22	B BRANCH 4
A 310	2		P8-32 P10-208					.13 .22	NO NO		22 24	B BRANCH 4
A 311	2		P8-30 P10-309					.13 .22	NO NO		22 24	B BRANCH 4
A 312	2		P8-29 P10-308					.13 .22	NO NO		22 24	B BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 313	2		P8-16 P10-409					.13 .22	NO NO		22 24	B BRANCH 4
A 314	2		P8-14 P10-604					.13 .22	NO NO		22 24	B BRANCH 4
A 315	2		P8-15 P10-609					.13 .22	NO NO		22 24	B BRANCH 4
A 316	1		P8-7 P10-106					.13 .18	NO NO		22 24	B BRANCH 4
A 317	1		P8-2 P10-104					.13 .18	NO NO		22 24	B BRANCH 4
A 318	2		P8-3 P10-607					.13 .22	NO NO		22 24	B BRANCH 4
A 319	2		P8-25 P10-606					.13 .22	NO NO		22 24	B BRANCH 4
A 320	2		P8-1 P10-507					.13 .22	NO NO		22 24	B BRANCH 4
A 321	2		P8-12 P10-406					.13 .22	NO NO		22 24	B BRANCH 4
A 322	2		P8-11 P10-506					.13 .22	NO NO		22 24	B BRANCH 4
A 323	2		P8-28 P10-405					.13 .22	NO NO		22 24	B BRANCH 4
A 324	2		P8-4 P10-206					.13 .22	NO NO		22 24	B BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 325	2		P8-13 P10-306					.13 .22	NO NO		22 24	B BRANCH 4
A 326	2		P8-26 P10-205					.13 .22	NO NO		22 24	B BRANCH 4
A 327	2		P8-27 P10-305					.13 .22	NO NO		22 24	B BRANCH 4
A 328	2		P8-47 P10-204					.13 .22	NO NO		22 24	B BRANCH 4
A 329	2		P8-45 P10-404					.13 .22	NO NO		22 24	B BRANCH 4
A 330	2		P8-46 P10-304					.13 .22	NO NO		22 24	B BRANCH 4
A 331	2		P8-48 P10-605					.13 .22	NO NO		22 24	B BRANCH 4
A 332	2		P8-49 P10-505					.13 .22	NO NO		22 24	B BRANCH 4
A 333	3									6A 6A	31 31	
A 333A	11		SHLD A333 E8					.20 .19	NO NO			
A 333B	11		E12 SHLD A333					.19 .20	NO NO			
A 333R			P3-3 P7-52					.13 .13	NO NO		22 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 333Y			P3-11 P7-31					.13 .13	NO NO		22 22	
A 334	8				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 334A	11		SHLD A334 E8					.20 .19	NO NO		 47	
A 334B	11		E11 SHLD A334					.19 .20	NO NO		47	
A 334R			DELETED									
A 334Y			P3-4 P6-51					.13 .13	NO NO		22 22	
A 335	9				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 335A	11		SHLD A335 E10					.20 .19	NO NO			
A 335B	11		E12 SHLD A335					.19 .20	NO NO		47	
A 335R			P5-19 P7-15					.13 .13	NO NO		22 22	
A 335Y			P5-18 P7-16					.13 .13	NO NO		22 22	
A 336	9				1.75 1.75	1.50 1.50				6A 6A	31 31	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 336A	11		SHLD A336 E10					.20 .19	NO NO			
A 336B	11		E13 SHLD A336					.19 .20	NO NO			
A 336R			P5-7 P7-30					.13 .13	NO NO		22 22	
A 336Y			P5-8 P7-14					.13 .13	NO NO		22 22	
A 337	3									6A 6A	31 31	
A 337A	11		SHLD A337 E10					.20 .19	NO NO		 47	
A 337B	11		E13 SHLD A337					.19 .20	NO NO		47	
A 337R			P5-9 P7-6					.13 .13	NO NO		22 22	
A 337Y			P5-2 P7-7					.13 .13	NO NO		22 22	
A 338	2		P5-10 P10-508					.13 .22	NO NO		22 24	D BRANCH 4
A 339	2		P5-24 P10-408					.13 .22	NO NO		22 24	D BRANCH 4
A 340	35		E7 E5					.19 .19	NO NO		47	F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 341	35		E8 E5					.19 .19	NO NO			E
A 342	35		E9 E5					.19 .19	NO NO		 52	D
A 343	35		E9 E6					.19 .19	NO NO		47	A
A 344	35		E11 E6					.19 .19	NO NO			C
A 345	35		E14 E6					.19 .19	NO NO		47 52	B
A 346	2		P5-43 P10-108					.13 .22	NO NO		22 24	A BRANCH 6
A 347	35		E3 E36					.19 .19	NO NO		 58	G
A 348	4											G
A 348R			P9-610 P10-332					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 348Y			P9-510 P10-432					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 349	4											G
A 349R			P9-310 P10-330					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 349Y			P9-210 P10-430					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 350	4											G
A 350R			P9-609 P10-329					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 350Y			P9-509 P10-429					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 351	4											G
A 351R			P9-309 P10-328					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 351Y			P9-209 P10-428					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 352	4											G
A 352R			P9-608 P10-334					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 352Y			P9-508 P10-434					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 353	4											G
A 353R			P9-308 P10-333					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 353Y			P9-208 P10-433					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 354	4											G
A 354R			P9-607 P10-338					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 354Y			P9-507 P10-438					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 355	4											G
A 355R			P9-307 P10-337					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 355Y			P9-207 P10-437					.18 .18	NO NO		25 25	B, BRANCH 1 BRANCH 5
A 356	4											G
A 356R			P9-606 P10-336					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 356Y			P9-506 P10-436					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 357	4											G
A 357R			P9-306 P10-335					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 357Y			P9-206 P10-435					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 358	4											G
A 358R			P9-605 P10-146					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 358Y			P9-505 P10-246					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359	4											G
A 359R			P9-305 P10-145					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359Y			P9-205 P10-245					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360	4											G
A 360R			P9-604 P10-144					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360Y			P9-504 P10-244					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 361	4											G
A 361R			P9-304 P10-143					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 71 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 361Y			P9-204 P10-243					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 362	4											G
A 362R			P9-603 P10-148					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 362Y			P9-503 P10-248					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363	4											G
A 363R			P9-303 P10-147					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363Y			P9-203 P10-247					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364	4											G
A 364R			P9-602 P10-152					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364Y			P9-502 P10-252					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 365	4											G
A 365R			P9-302 P10-151					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

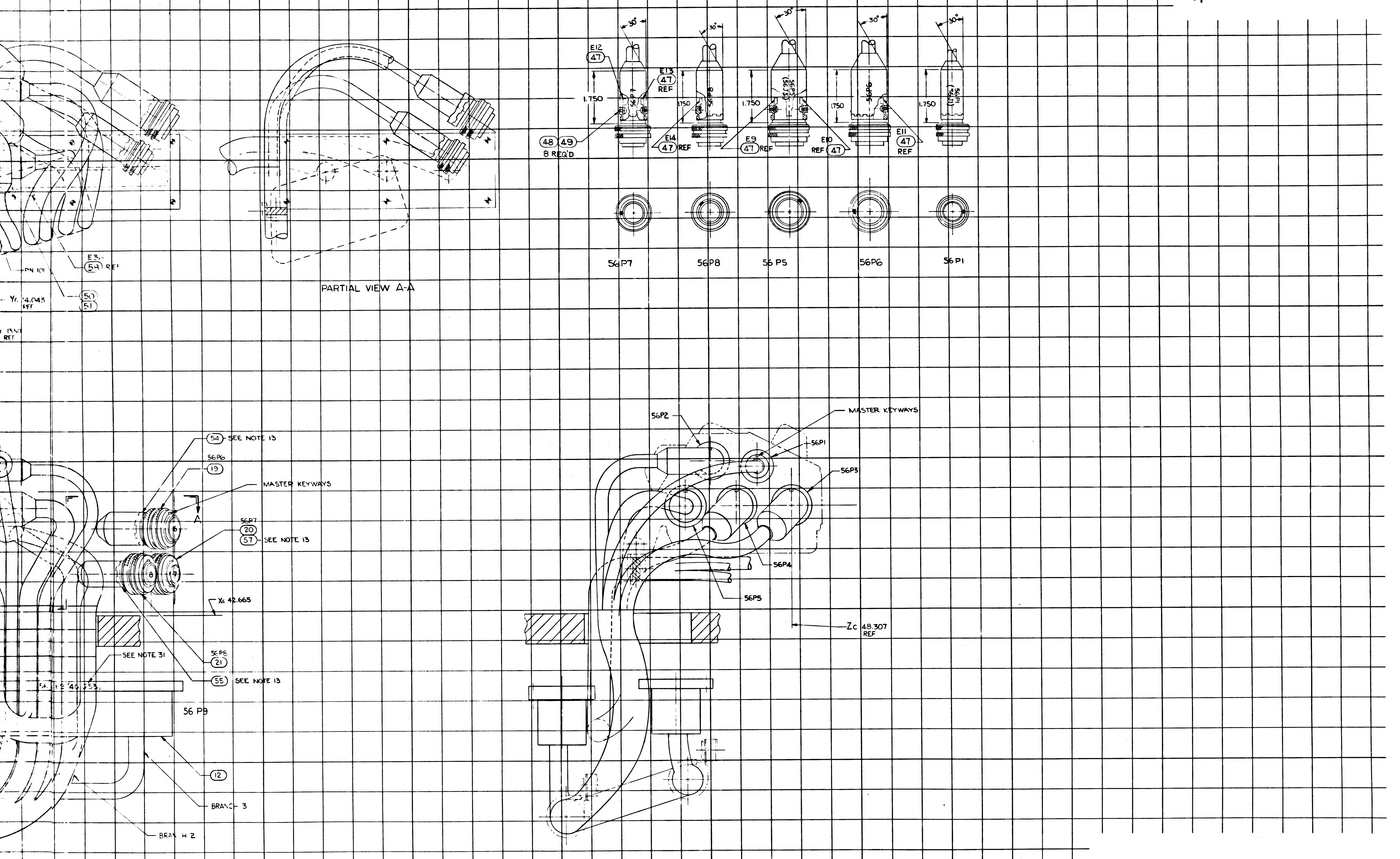
SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 72 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 365Y			P9-202 P10-251					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 366	4											G
A 366R			P9-601 P10-150					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 366Y			P9-501 P10-250					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367	4											G
A 367R			P9-301 P10-149					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367Y			P9-201 P10-249					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 73 OF 74

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD

SEE SHEET 1 FOR REVISION RECORD

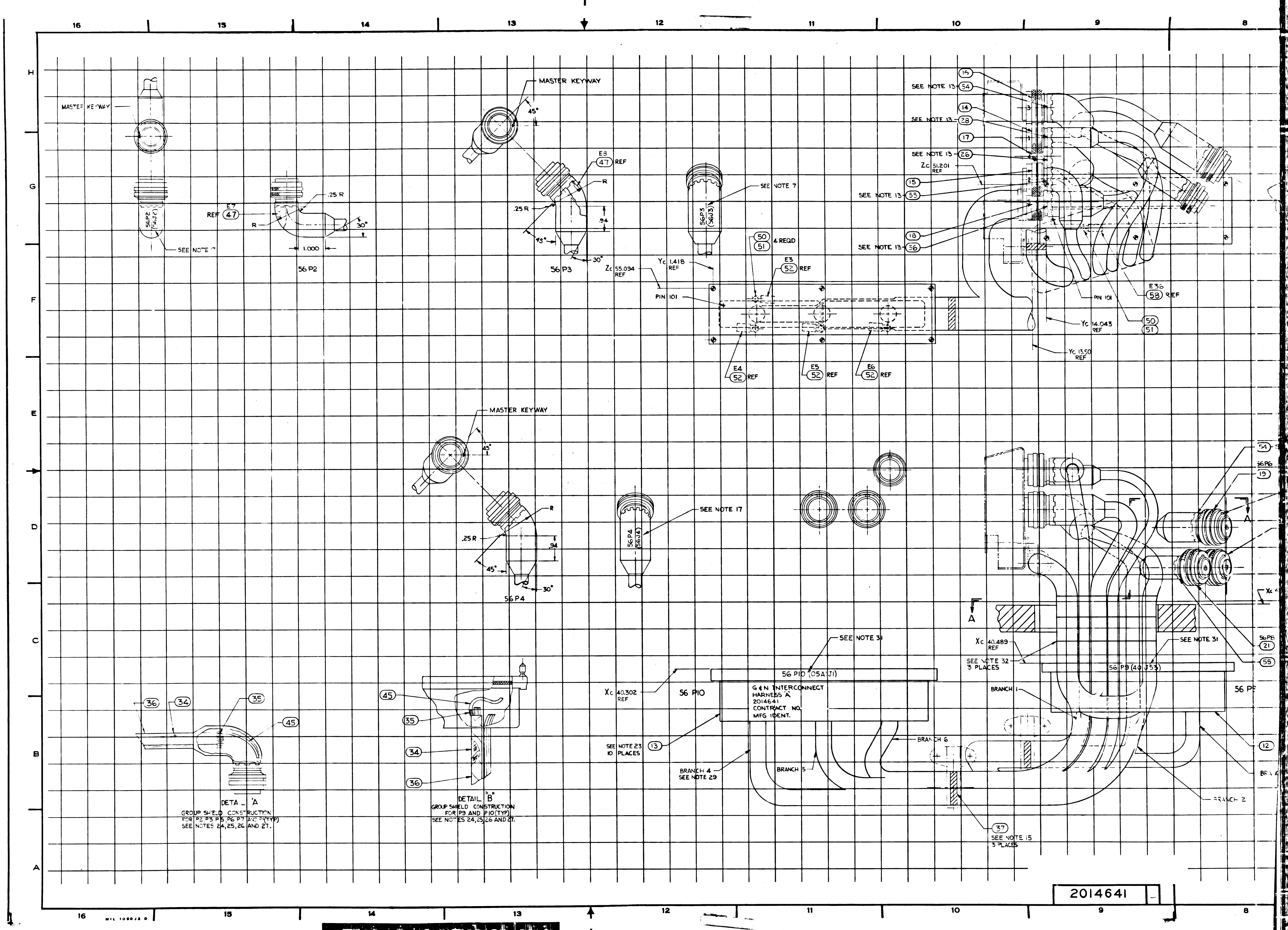


30°
E12
47
1.750
56P7
48 49
8 REQ'D
E13
47
REF
56P8
E14
47 REF
56P5
E9
47 REF
E10
REF 47
56P6
E11
47
REF
56P1
56P7
56P8
56 P5
56P6
56P1
PARTIAL VIEW A-A
E3
57 REF
PN 101
Yc 14.043
REF
50
51
REF
54 SEE NOTE 13
56P6
19
MASTER KEYWAYS
A
56P7
20
57 SEE NOTE 13
Xc 42.665
SEE NOTE 31
56P8
21
55 SEE NOTE 13
40.353
56 P9
12
BRANCH 3
BRANCH 2
56P2
MASTER KEYWAYS
56P1
56P3
56P4
56P5
Zc 48.307
REF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ±	MIT INSTRUMENTATION LAB CAMBRIDGE MASS DWG NO CONTRACT	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
DO NOT SCALE THIS DRAWING	DRAWN Dietrich DATE 1/24/66 CHECKED N.E. Graham 1/27/66 APPROVAL 2/3/66 APPROVAL 2/1/66	G&N INTERCONNECT HARNESS 'A' (C/M BLOCK II)
MATERIAL	NASA APPROVAL	CODE IDENT NO 80230 · SIZE J2 · 2014641
CONTRACT	MIT APPROVAL	SCALE · SHEET 74 OF 7

2014641

2/2014641


16
15
14
13
12
11
10
9
8
H
G
F
E
D
C
B
A
MASTER KEYWAY
56P2 (56J2)
SEE NOTE 17
E7
REF 47
R
.25 R
30°
1.000
56 P2
MASTER KEYWAY
45°
E8
47 REF
R
.25 R
.94
45°
30°
56 P3
56P3 (56J3)
SEE NOTE 7
50
51
4 REQD
E3
52 REF
Yc 1.418 REF
Zc 55.094 REF
PIN 101
E4
52 REF
E5
52 REF
E6
52 REF
16
SEE NOTE 13 54
14
SEE NOTE 13 28
17
SEE NOTE 13 26
Zc 51.201 REF
15
SEE NOTE 13 53
18
SEE NOTE 13 36
PIN 101
E36
58 REF
50
51
Yc 14.043 REF
Yc 13.50 REF
MASTER KEYWAY
45°
R
.25 R
.94
45°
30°
56 P4
56P4 (56J4)
SEE NOTE 17
54
56P6
19
A
A
Xc 40.489 REF
SEE NOTE 32 3 PLACES
SEE NOTE 31
56 P9 (40J53)
56 P
56P8
21
55
Xc
SEE NOTE 31
56 P10 (05A1J1)
Xc 40.302 REF
56 P10
G&N INTERCONNECT
HARNESS A
2014641
CONTRACT NO.
MFG IDENT.
SEE NOTE 23 10 PLACES
13
BRANCH 4 SEE NOTE 29
BRANCH 5
BRANCH 6
BRANCH 1
12
BRANCH 2
37
SEE NOTE 15 3 PLACES
36
34
35
45
DETAIL A
GROUP SHIELD CONSTRUCTION FOR P2, P3, P5, P6, P7 AND P8 (TYP)
SEE NOTES 24, 25, 26 AND 27.
45
35
34
36
DETAIL "B"
GROUP SHIELD CONSTRUCTION FOR P9 AND P10 (TYP)
SEE NOTES 24, 25, 26 AND 27.
2014641
MIL 1080J8 D

1/2014641

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-011	E	REPLACES REV D WITH CHANGE PER TDRR		
		F	CHAD PER TDRR 24806		
		G	Revised per TDRR 25306	2-4-66	
		H	REVISED PER TDRR 25886	10 FEB 66	RLP EF
		J	REVISED PER TDRR 25841	18 FEB 66	DKD EF
		K	REVISED PER TDRR 27430	30 MAR 66	RLP
		L	REVISED PER TDRR 28021	19 APR 66	R.W.T.
		M	REVISED PER TDRR 28020	21 APR 66	R.W.T. CP
		N	REVISED PER TDRR 28406	9 MAY 66	PHG

REPLACES REV D WITH CHANGE

REV	H	H	M	M	K	K	H	H	H	H	H	H	H	H	H	J	J	J	J	J	J	J	J	J	J	J
SHEET	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
REV STATUS OF SHEETS REV							N	N	J	L	J	N	H	J	J	N	N	H	H	H	H	H	H	L	L	L
SHEET							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Janowiak DATE 7 DEC 65
CHECKED W. Diehl 7 DEC 65
APPROVAL 8 DEC 65
APPROVAL 12/20/65

NASA APPROVAL A. C. METZGER
MIT APPROVAL 21 Dec 65
CONTRACT NAS9-497

G & N INTERCONNECT HARNESS "A"
(C/M, BLOCK II)

CODE IDENT NO.	SIZE		REV
80230	A	2014641	N
SCALE		SHEET 1 OF 74	

REVISION STATUS OF SHEETS

SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV
47	J																
48	J																
49	J																
50	J																
51	J																
52	J																
53	J																
54	J																
55	J																
56	J																
57	J																
58	J																
59	J																
60	J																
61	J																
62	J																
63	J																
64	J																
65	J																
66	J																
67	L																
68	L																
69	J																
70	J																
71	J																
72	J																
73	J																
74	N																

SIZE	CODE IDENT. NO.	
A	80230	2014641
SCALE NONE	REV LTR N	SHEET 2 of ~~68~~ 74

MIL 1377A3 8-65

GENERAL NOTES

NOTE NUMBER — DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6A AND 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014671.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR J	SHEET 3 OF 74

GENERAL NOTES

NOTE NUMBER — DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTOR 56P2, USE ITEM NUMBERS 23 AND 32.
CONNECTOR 56P1,3,4,5,6,7, AND 8 USE ITEM NUMBERS 22 AND 32.
CONNECTOR 56P9, AND P10 USE ITEM NUMBER 24.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 38.

13 APPLY BONDING MATERIAL PER ND1002187, TYPE I, USING ITEMS 41 AND 42 TO THE THREADED PORTION OF CONNECTOR AND TO THE THREADED PORTION OF THE ADAPTER PRIOR TO ASSEMBLY.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR L	SHEET 4 OF 74

GENERAL NOTES

NOTE NUMBER — DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED, INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE. SHORT CIRCUIT CURRENT LIMITED TO 15 MILLIAMPS.

22 PRESEAL BACK OF CONNECTORS 56P9 AND P10 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 41,42,43, AND 44.

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 39 AND 40.

24 CONDUCTORS WITH AN A,B,C,D,E,F OR G IN THE REMARKS COLUMN ARE TO BE GROUP SHIELDED PER DETAIL A AND/OR B OF THE CONF. DRAWING.

25 GROUP SHIELDING - THREAD ONE CONTINUOUS LENGTH OF GROUND WIRE, ITEM 35, THROUGH CENTER OF EMI/RFI SHIELDING TAPE. ITEM 34. ALLOW 6 INCHES OF GROUND WIRE TO EXTEND BEYOND ENDS OF SHIELDING TAPE. WRAP CABLE WITH ONE CONTINUOUS LENGTH OF PREPARED SHIELDING. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE, WITH A MINIMUM OF RIDGES AND FOLDS.

26 COMPLETELY COVER SHIELD WITH ONE CONTINUOUS WRAP OF INSULATION TAPE, ITEM 36. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE WITH A MINIMUM OF RIDGES AND FOLDS. WRAP TAPE IN OPPOSITE DIRECTION TO SHIELD WRAP.

27 ASSEMBLE INSULATION TUBING, ITEM 45, OVER GROUND WIRE AS REQUIRED TO REACH TERMINATION. ASSEMBLE SHRINK SLEEVING AS SHOWN.

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR J	SHEET 5 OF 74

GENERAL NOTES

NOTE NUMBER — DESCRIPTION

28 ASSEMBLE A LENGTH OF WIRE BRAID ITEM 53 OVER CONDUCTORS A333 AND A337. ALLOW 1.75 INCH OF LEAD TO EXTEND BEYOND BRAID. COVER BRAID WITH TEFLON TAPE, ITEM 36, PER NOTE 26. ALLOW .25 INCH OF BRAID TO EXTEND BEYOND TAPE. FOLD BRAID OVER TAPE AND TERMINATE PER ND1002071, FIG. 6B.

29 CONDUCTORS SHALL ENTER CONNECTORS 56P9 AND 56P10 THROUGH THE APPROPRIATE BRANCH SPECIFIED IN THE REMARKS COLUMN.

31 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 GRMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACECRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICROSECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

32 MARK CHARACTERS .10-.14 HIGH, BLACK, PER ND 1002019. CENTRALIZE AS SHOWN

33 LACE HARNESS BRANCHES TOGETHER USING A CONTINUOUS CLOVE HITCH AT LOCATIONS SHOWN.

34 ASSEMBLE SHRINK SLEEVE, ITEM 59, OVER EACH ELECTRICALLY CONNECTED PIN OF CONNECTORS P9 AND P10. POSITION SLEEVING FLUSH TO TOP OF NYLON INSULATOR.

35 SOLDER PER ND1002071 USING ITEMS 60 OR 61 AND 62.

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR N	SHEET 6 OF 74

WIRING HARNESS A 2014641 H

NOTE NUMBER | GENERAL NOTES DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR H	SHEET 7 OF 74	

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014641- 1	WIRE PER 1010789-006, 22 AWG, YEL, 25 FT TOT LG
	2	1	2014641- 2	WIRE PER 1010789-016, 26 AWG, YEL, 50 FT TOT LG
	3	1	2014641- 3	WIRE PER 1010789-008, 22 AWG, YEL, RED, 15 FT TOT LG
	4	1	2014641- 4	WIRE PER 1010789-017, 26 AWG, YEL, RED, 220 FT TOT LG
	5	1	2014641- 5	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 20 FT TOT LG
	6	1	2014641- 6	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN 90 FT TOT LG
	7	1	2014641- 7	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 25 FT TOT LG
	8	1	2014641- 8	WIRE PER 1010789-011, 24 AWG, YEL, YEL JKT, 10 FT TOT LG
	9	1	2014641- 9	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 150 FT TOT LG
	10	1	2014641- 10	WIRE PER 1010789-013, 24 AWG, YEL, RED, GRN, YEL JKT, 10 FT TOT LG
	11	1	2014641- 11	WIRE PER 1010789-002, 24 AWG, BLK, 80 FT TOT LG
	12	1	2014741-011	CONNECTOR, PLUG, ELECTRICAL (56P9)
	13	1	2014749-011	CONNECTOR, PLUG, ELECTRICAL (56P10)
9	14	1	1010929-109	CONNECTOR, PLUG, ELECTRICAL (56P1)

SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR J	SHEET 8 OF 74	

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	15	1	1010929-005	CONNECTOR, PLUG, ELECTRICAL (56P2)
9	16	1	1010929-102	CONNECTOR, PLUG, ELECTRICAL (56P3)
9	17	1	1010929-101	CONNECTOR, PLUG, ELECTRICAL (56P4)
9	18	1	1010929-103	CONNECTOR, PLUG, ELECTRICAL (56P5)
9	19	1	1010929-104	CONNECTOR, PLUG, ELECTRICAL (56P6)
9	20	1	1010929-108	CONNECTOR, PLUG, ELECTRICAL (56P7)
9	21	1	1010929-105	CONNECTOR, PLUG, ELECTRICAL (56P8)
9	22	X	1010770- 1	CONTACT, PIN, SUPPLIED WITH CONNECTOR 1010929
9	23	X	1010770- 2	CONTACT, SOCKET, SUPPLIED WITH CONNECTOR 1010929
9	24	311	1010955- 1	CONTACT, MALE
9	25	349	1010955- 2	CONTACT, MALE
	26	1	2014670- 4	ADAPTER, CONNECTOR
	27		2014670- 5	DELETED
	28	1	2014670- 7	ADAPTER, CONNECTOR
9	29	14	1012534- 36	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	30	2	1012534- 38	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	31	97	1010402- 2	SLEEVE, SOLDER
9	32	115	1010958- 1	PLUG, PROTECTIVE SEALING

SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR J	SHEET 9 OF 74	

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WIRING HARNESS A 2014641 N

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	34	AR	1010989	TAPE, SHIELDING, EMI/RFI
	35	1	2014641-012	WIRE PER QQ-W-343, TYPE C, CLASS C, 22 AWG, 100 FT TOT LG
	36	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	37	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
9	38	AR	1012507-004	TAPE, LACING AND TYING
9	39	AR	1012503	COMPOUND, POTTING, POLYURETHANE
9	40	AR	1012504	PRIMER, METAL PARTS
9	41	AR	1010661	EPOXY RESIN
9	42	AR	1010679	ADHESIVE ACTIVATOR
9	43	AR	1008822	COLORANT, EPOXY BASE
9	44	AR	1006277	SILICA, PULVERIZED, PYROGENIC
9	45	AR	1006776- 44	INSULATION SLEEVING, 6 FEET TOTAL LENGTH
	46		MS17182-2	DELETED
	47	8	2021203	TERMINAL LUG, SOLDER
	48	8	MS35333-69	WASHER, LOCK
9	49	8	1006783- 93	SCREW, BUTTON HD
	50	5	MS35335-57	WASHER, LOCK
9	51	5	1006783- 18	SCREW, BUTTON HD

SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR N	SHEET 10 OF 74	

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LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	52	4	MS25036-52	TERMINAL LUG
28	53	1	2014641-013	WIRE BRAID,QQ-B-575,.12DIA. 36AWG, 5 FT TOT LG
	54	2	2014670- 11	ADAPTER, CONNECTOR
	55	2	2014670- 12	ADAPTER, CONNECTOR
	56	1	2014670- 13	ADAPTER,CONNECTOR
	57	1	2014670- 15	ADAPTER,CONNECTOR
	58	1	MS25036-48	TERMINAL LUG
	59	445	1C10490-114	SLEEVE, INSULATION (HEAT SHRINKABLE)
	60	AR	QQ-S-571	SOLDER SN60WRAP 2
	61	AR	QQ-S-571	SOLDER SN60WS
	62	AR	MIL-F-14256	FLUX, TYPE A

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR N	SHEET 11 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 1			DELETED									
A 1A			DELETED									
A 1R			DELETED									
A 1Y			DELETED									
A 2			DELETED									
A 2A			DELETED									
A 2R			DELETED									
A 2Y			DELETED									
A 3			DELETED									
A 3A			DELETED									
A 3R			DELETED									
A 3Y			DELETED									

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR H	SHEET 12 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 4			DELETED									
A 4A			DELETED									
A 4R			DELETED									
A 4Y			DELETED									
A 5			DELETED									
A 5A			DELETED									
A 5R			DELETED									
A 5Y			DELETED									
A 6			DELETED									
A 6A			DELETED									
A 6R			DELETED									
A 6Y			DELETED									

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR H	SHEET 13 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 7			DELETED									
A 7A			DELETED									
A 7R			DELETED									
A 7Y			DELETED									
A 8			DELETED									
A 8A			DELETED									
A 8R			DELETED									
A 8Y			DELETED									
A 9			DELETED									
A 9A			DELETED									
A 9R			DELETED									
A 9Y			DELETED									

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR H	SHEET 14 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 10			DELETED									
A 10A			DELETED									
A 10R			DELETED									
A 10Y			DELETED									
A 11			DELETED									
A 11A			DELETED									
A 11R			DELETED									
A 11Y			DELETED									
A 12			DELETED									
A 12A			DELETED									
A 12R			DELETED									
A 12Y			DELETED									

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR H	SHEET 15 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 13			DELETED									
A 13A			DELETED									
A 13R			DELETED									
A 13Y			DELETED									
A 14			DELETED									
A 14A			DELETED									
A 14R			DELETED									
A 14Y			DELETED									
A 15			DELETED									
A 15A			DELETED									
A 15R			DELETED									
A 15Y			DELETED									

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR H	SHEET 16 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 16			DELETED									
A 16A			DELETED									
A 16R			DELETED									
A 16Y			DELETED									
A 17			DELETED									
A 17A			DELETED									
A 17R			DELETED									
A 17Y			DELETED									
A 18			DELETED									
A 18A			DELETED									
A 18R			DELETED									
A 18Y			DELETED									

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR H	SHEET 17 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 19			DELETED									
A 19A			DELETED									
A 19R			DELETED									
A 19Y			DELETED									
A 20			DELETED									
A 20A			DELETED									
A 20R			DELETED									
A 20Y			DELETED									
A 21	9				1.00 1.00	.75 .75				6B 6B	31 31	
A 21A	11		SHLD A21 P9-111					.20 .18	NO NO		 24	 BRANCH 1
A 21B	11		E3 SHLD A21					.19 .20	NO NO			
A 21R			P9-311 P10-515					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR L	SHEET 18 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 21Y			P9-211 P10-615					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 22	10				1.00 1.00	.75 .75				7 68	29 31	
A 22B	11		E3 SHLD A22					.19 .20	NO NO			
A 22G			P9-511 P10-536					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 5
A 22R			P9-611 P10-622					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 22Y			P9-411 P10-534					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 5
A 23	9				1.00 1.00	.75 .75				7 68	29 31	
A 23B	11		E4 SHLD A23					.19 .20	NO NO			
A 23R			P9-212 P10-112					.18 .18	NO NO		25 25	BRANCH 1
A 23Y			P9-112 P10-412					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 24	9				1.00 1.00	.75 .75				7 68	29 31	
A 24B	11		E4 SHLD A24					.19 .20	NO NO			

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24R			P9-412 P10-614					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 24Y			P9-312 P10-313					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 25	10				1.00 1.00	.75 .75				7 68	29 31	
A 25B	11		E4 SHLD A25					.19 .20	NO NO		52	
A 25G			P9-113 P10-514					.18 .18	NO NO		25 24	BRANCH 1 BRANCH 4
A 25R			P9-612 P10-314					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 25Y			P9-512 P10-414					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 26	9				1.00 1.00	.75 .75				7 68	29 31	
A 26B	11		E3 SHLD A26					.19 .20	NO NO		52	
A 26R			P9-313 P10-525					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 26Y			P9-213 P10-624					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 27	9				1.75 1.00	1.50 .75				68 68	31 31	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 27A	11		SHLD A27 P7-12					.20 .13	NO NO		 22	
A 27B	11		P9-637 SHLD A27					.18 .20	NO NO		24	BRANCH 3
A 27R			P7-27 P9-437					.13 .18	NO NO		22 25	 BRANCH 3
A 27Y			P7-13 P9-537					.13 .18	NO NO		22 25	 BRANCH 3
A 28	9				1.75 1.00	1.50 .75				68 68	31 31	
A 28A	11		SHLD A28 P7-26					.20 .13	NO NO		 22	
A 28B	11		P9-137 SHLD A28					.18 .20	NO NO		24	BRANCH 3
A 28R			P7-47 P9-237					.13 .18	NO NO		22 25	 BRANCH 3
A 28Y			P7-46 P9-337					.13 .18	NO NO		22 25	 BRANCH 3
A 29	9				1.75 1.00	1.50 .75				68 68	31 31	
A 29A	11		SHLD A29 P7-24					.20 .13	NO NO		 22	
A 29B	11		P9-634 SHLD A29					.18 .20	NO NO		24	BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 29R			P7-44 P9-434					.13 .18	NO NO		22 25	 BRANCH 2
A 29Y			P7-25 P9-534					.13 .18	NO NO		22 25	 BRANCH 2
A 30	9				1.75 1.00	1.50 .75				68 68	31 31	
A 30A	11		SHLD A30 P7-5					.20 .13	NO NO		 22	
A 30B	11		P9-335 SHLD A30					.18 .20	NO NO		24	BRANCH 2
A 30R			P7-4 P9-135					.13 .18	NO NO		22 25	 BRANCH 2
A 30Y			P7-1 P9-235					.13 .18	NO NO		22 25	 BRANCH 2
A 31	9				1.75 1.00	1.50 .75				68 68	31 31	
A 31A	11		SHLD A31 P7-3					.20 .13	NO NO		 22	
A 31B	11		P9-635 SHLD A31					.18 .20	NO NO		24	BRANCH 2
A 31R			P7-11 P9-435					.13 .18	NO NO		22 25	 BRANCH 2
A 31Y			P7-10 P9-535					.13 .18	NO NO		22 25	 BRANCH 2

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A 32	4											
A 32R			P7-53 P9-536					.13 .18	NO NO		22 25	BRANCH 3
A 32Y			P7-54 P9-636					.13 .18	NO NO		22 25	BRANCH 3
A 33	9				1.75 1.00	1.50 .75				68 68	31 31	
A 33A	11		SHLD A33 P1-13					.20 .13	NO NO		22	
A 33B	11		P9-332 SHLD A33					.18 .20	NO NO		24	BRANCH 2
A 33R			P1-28 P9-132					.13 .18	NO NO		22 25	BRANCH 2
A 33Y			P1-27 P9-232					.13 .18	NO NO		22 25	BRANCH 2
A 34	9				1.75 1.00	1.50 .75				68 68	31 31	
A 34A	11		SHLD A34 P1-1					.20 .13	NO NO		22	
A 34B	11		P9-632 SHLD A34					.18 .20	NO NO		24	BRANCH 2
A 34R			P1-#4 P9-432					.13 .18	NO NO		22 25	BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A 34Y			P1-#3 P9-532					.13 .18	NO NO		22 25	BRANCH 2
A 35	9				1.75 1.00	1.50 .75				68 68	31 31	
A 35A	11		SHLD A35 P1-16					.20 .13	NO NO		22	
A 35B	11		P9-333 SHLD A35					.18 .20	NO NO		24	BRANCH 2
A 35R			P1-#6 P9-133					.13 .18	NO NO		22 25	BRANCH 2
A 35Y			P1-#5 P9-233					.13 .18	NO NO		22 25	BRANCH 2
A 36	9				1.75 1.00	1.50 .75				68 68	31 31	
A 36A	11		SHLD A36 P1-17					.20 .13	NO NO		22	
A 36B	11		P9-346 SHLD A36					.18 .20	NO NO		24	BRANCH 3
A 36R			P1-34 P9-146					.13 .18	NO NO		22 25	BRANCH 3
A 36Y			P1-33 P9-246					.13 .18	NO NO		22 25	BRANCH 3
A 37	9				1.75 1.00	1.50 .75				68 68	31 31	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR #M	SHEET 24 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A 37A	11		SHLD A37 P1-18					.20 .13	NO NO		22	
A 37B	11		P9-646 SHLD A37					.18 .20	NO NO		24	BRANCH 3
A 37R			P1-35 P9-446					.13 .18	NO NO		22 25	BRANCH 3
A 37Y			P1-36 P9-546					.13 .18	NO NO		22 25	BRANCH 3
A 38	9				1.75 1.00	1.50 .75				68 68	31 31	
A 38A	11		SHLD A38 P1-14					.20 .13	NO NO		22	
A 38B	11		P9-348 SHLD A38					.18 .20	NO NO		24	BRANCH 3
A 38R			P1-30 P9-248					.13 .18	NO NO		22 25	BRANCH 3
A 38Y			P1-29 P9-148					.13 .18	NO NO		22 25	BRANCH 3
A 39	9				1.75 1.00	1.50 .75				68 68	31 31	
A 39A	11		SHLD A39 P1-15					.20 .13	NO NO		22	
A 39B	11		P9-648 SHLD A39					.18 .20	NO NO		24	BRANCH 3

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR K	SHEET 25 OF 74

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WIRING HARNESS A 2014641 K

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
A 39R			P1-31 P9-448					.13 .18	NO NO		22 25	BRANCH 3
A 39Y			P1-32 P9-548					.13 .18	NO NO		22 25	BRANCH 3
A 40	9				1.75 1.00	1.50 .75				68 68	31 31	
A 40A	11		SHLD A40 P1-20					.20 .13	NO NO		22	
A 40B	11		P9-633 SHLD A40					.18 .20	NO NO		24	BRANCH 2
A 40R			P1-19 P9-533					.13 .18	NO NO		22 25	BRANCH 2
A 40Y			P1-37 P9-433					.13 .18	NO NO		22 25	BRANCH 2
A 41	9				1.75 1.00	1.50 .75				68 68	31 31	
A 41A	11		SHLD A41 P1-21					.20 .13	NO NO		22	
A 41B	11		P9-334 SHLD A41					.18 .20	NO NO		24	BRANCH 2
A 41R			P1-38 P9-234					.13 .18	NO NO		22 25	BRANCH 2
A 41Y			P1-39 P9-134					.13 .18	NO NO		22 25	BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR K	SHEET 26 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 42	6											
A 42G			P1-26					.13	NO		22	
			P9-421					.18	NO		25	BRANCH 2
A 42R			P1-43					.13	NO		22	
			P9-620					.18	NO		25	BRANCH 2
A 42Y			P1-44					.13	NO		22	
			P9-221					.18	NO		25	BRANCH 2
A 43	6											
A 43G			P1-8					.13	NO		22	
			P9-222					.18	NO		25	BRANCH 2
A 43R			P1-7					.13	NO		22	
			P9-621					.18	NO		25	BRANCH 2
A 43Y			P1-2					.13	NO		22	
			P9-119					.18	NO		25	BRANCH 2
A 46	2		P1-25					.13	NO		22	
			P9-422					.18	NO		25	BRANCH 2
A 47	3											
A 47R			P1-40					.13	NO		22	
			P9-228					.18	NO		24	BRANCH 2
A 47Y			P1-23					.13	NO		22	
			P9-328					.18	NO		24	BRANCH 2

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 27 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 48	3											
A 48R			P1-41					.13	NO		22	
			P9-428					.18	NO		24	BRANCH 2
A 48Y			P1-42					.13	NO		22	
			P9-528					.18	NO		24	BRANCH 2
A 49	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 49A	11		SHLD A49					.20	NO			
			P4-30					.13	NO		22	
A 49B	11		P9-340					.18	NO		24	BRANCH 3
			SHLD A49					.20	NO			
A 49R			P4-52					.13	NO		22	
			P9-140					.18	NO		25	BRANCH 3
A 49Y			P4-51					.13	NO		22	
			P9-240					.18	NO		25	BRANCH 3
A 50	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 50A	11		SHLD A50					.20	NO			
			P4-31					.13	NO		22	
A 50B	11		P9-640					.18	NO		24	BRANCH 3
			SHLD A50					.20	NO			
A 50R			P4-54					.13	NO		22	
			P9-440					.18	NO		25	BRANCH 3

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 28 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 50Y			P4-53					.13	NO		22	
			P9-540					.18	NO		25	BRANCH 3
A 51	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 51A	11		SHLD A51					.20	NO			
			P4-29					.13	NO		22	
A 51B	11		P9-341					.18	NO		24	BRANCH 3
			SHLD A51					.20	NO			
A 51R			P4-13					.13	NO		22	
			P9-141					.18	NO		25	BRANCH 3
A 51Y			P4-14					.13	NO		22	
			P9-241					.18	NO		25	BRANCH 3
A 52	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 52A	11		SHLD A52					.20	NO			
			P4-32					.13	NO		22	
A 52B	11		P9-641					.18	NO		24	BRANCH 3
			SHLD A52					.20	NO			
A 52R			P4-16					.13	NO		22	
			P9-441					.18	NO		25	BRANCH 3
A 52Y			P4-15					.13	NO		22	
			P9-541					.18	NO		25	BRANCH 3
A 53	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 29 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 53A	11		SHLD A53					.20	NO			
			P4-36					.13	NO		22	
A 53B	11		P9-342					.18	NO		24	BRANCH 3
			SHLD A53					.20	NO			
A 53R			P4-59					.13	NO		22	
			P9-142					.18	NO		25	BRANCH 3
A 53Y			P4-60					.13	NO		22	
			P9-242					.18	NO		25	BRANCH 3
A 54	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 54A	11		SHLD A54					.20	NO			
			P4-37					.13	NO		22	
A 54B	11		P9-642					.18	NO		24	BRANCH 3
			SHLD A54					.20	NO			
A 54R			P4-61					.13	NO		22	
			P9-442					.18	NO		25	BRANCH 3
A 54Y			P4-38					.13	NO		22	
			P9-542					.18	NO		25	BRANCH 3
A 55	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 55A	11		SHLD A55					.20	NO			
			P4-33					.13	NO		22	
A 55B	11		P9-343					.18	NO		24	BRANCH 3
			SHLD A55					.20	NO			

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	H	SHEET 30 OF 74

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 55R			P4-56 P9-143					.13 .18	NO NO		22 25	 BRANCH 3
A 55Y			P4-55 P9-243					.13 .18	NO NO		22 25	 BRANCH 3
A 56	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 56A	11		SHLD A56 P4-34					.20 .13	NO NO		 22	
A 56B	11		P9-643 SHLD A56					.18 .20	NO NO		24	BRANCH 3
A 56R			P4-57 P9-443					.13 .18	NO NO		22 25	 BRANCH 3
A 56Y			P4-58 P9-543					.13 .18	NO NO		22 25	 BRANCH 3
A 57	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 57A	11		SHLD A57 P4-27					.20 .13	NO NO		 22	
A 57B	11		P9-344 SHLD A57					.18 .20	NO NO		24	BRANCH 3
A 57R			P4-48 P9-144					.13 .18	NO NO		22 25	 BRANCH 3
A 57Y			P4-47 P9-244					.13 .18	NO NO		22 25	 BRANCH 3

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 31 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 58	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 58A	11		SHLD A58 P4-28					.20 .13	NO NO		 22	
A 58B	11		P9-644 SHLD A58					.18 .20	NO NO		24	BRANCH 3
A 58R			P4-49 P9-444					.13 .18	NO NO		22 25	 BRANCH 3
A 58Y			P4-50 P9-544					.13 .18	NO NO		22 25	 BRANCH 3
A 59	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 59A	11		SHLD A59 P4-35					.20 .13	NO NO		 22	
A 59B	11		P9-345 SHLD A59					.18 .20	NO NO		24	BRANCH 3
A 59R			P4-17 P9-145					.13 .18	NO NO		22 25	 BRANCH 3
A 59Y			P4-18 P9-245					.13 .18	NO NO		22 25	 BRANCH 3
A 60	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 60A	11		SHLD A60 P4-20					.20 .13	NO NO		 22	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 32 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 60B	11		P9-645 SHLD A60					.18 .20	NO NO		24	BRANCH 3
A 60R			P4-19 P9-445					.13 .18	NO NO		22 25	 BRANCH 3
A 60Y			P4-8 P9-545					.13 .18	NO NO		22 25	 BRANCH 3
A 61	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 61A	11		SHLD A61 P4-22					.20 .13	NO NO		 22	
A 61B	11		P9-329 SHLD A61					.18 .20	NO NO		24	BRANCH 2
A 61R			P4-41 P9-129					.13 .18	NO NO		22 25	 BRANCH 2
A 61Y			P4-42 P9-229					.13 .18	NO NO		22 25	 BRANCH 2
A 62	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 62A	11		SHLD A62 P4-24					.20 .13	NO NO		 22	
A 62B	11		P9-629 SHLD A62					.18 .20	NO NO		24	BRANCH 2
A 62R			P4-43 P9-429					.13 .18	NO NO		22 25	 BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 33 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 62Y			P4-44 P9-529					.13 .18	NO NO		22 25	 BRANCH 2
A 63	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 63A	11		SHLD A63 P4-25					.20 .13	NO NO		 22	
A 63B	11		P9-330 SHLD A63					.18 .20	NO NO		24	BRANCH 2
A 63R			P4-45 P9-130					.13 .18	NO NO		22 25	 BRANCH 2
A 63Y			P4-46 P9-230					.13 .18	NO NO		22 25	 BRANCH 2
A 64	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 64A	11		SHLD A64 P4-21					.20 .13	NO NO		 22	
A 64B	11		P9-630 SHLD A64					.18 .20	NO NO		24	BRANCH 2
A 64R			P4-39 P9-430					.13 .18	NO NO		22 25	 BRANCH 2
A 64Y			P4-40 P9-530					.13 .18	NO NO		22 25	 BRANCH 2
A 65	9				1.75 1.00	1.50 .75				6B 6B	31 31	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 34 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 65A	11		SHLD A65 P4-10					.20 .13	NO NO		 22	
A 65B	11		P9-331 SHLD A65					.18 .20	NO NO		24	BRANCH 2
A 65R			P4-9 P9-131					.13 .18	NO NO		22 25	 BRANCH 2
A 65Y			P4-23 P9-231					.13 .18	NO NO		22 25	 BRANCH 2
A 66	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 66A	11		SHLD A66 P4-11					.20 .13	NO NO		 22	
A 66B	11		P9-631 SHLD A66					.18 .20	NO NO		24	BRANCH 2
A 66R			P4-26 P9-431					.13 .18	NO NO		22 25	 BRANCH 2
A 66Y			P4-12 P9-531					.13 .18	NO NO		22 25	 BRANCH 2
A 67	9				1.75 1.00	1.50 .75				6B 7	31 29	
A 67A	11		SHLD A67 P4-1					.20 .13	NO NO		 22	
A 67R			P4-6 P9-338					.13 .18	NO NO		22 25	 BRANCH 3

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 35 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 67Y			P4-7 P9-238					.13 .18	NO NO		22 25	 BRANCH 3
A 68	8				1.75 1.00	1.50 .75				6B 7	31 29	
A 68A	11		SHLD A68 P4-2					.20 .13	NO NO		 22	
A 68R			DELETED									
A 68Y			P4-3 P9-138					.13 .18	NO NO		22 24	 BRANCH 3
A 69	1		P4-5 P9-336					.13 .18	NO NO		22 24	 BRANCH 3
A 70	1		P4-4 P9-136					.13 .18	NO NO		22 24	 BRANCH 3
A 71	1		P5-84 P9-236					.13 .18	NO NO		22 24	 BRANCH 3
A 72	1		P5-60 P9-436					.13 .18	NO NO		22 24	 BRANCH 3
A 74	4											F
A 74R			P2-55 P10-121					.13 .18	NO NO		23 25	F BRANCH 5
A 74Y			P2-56 P10-221					.13 .18	NO NO		23 25	F BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 36 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 75	4											F
A 75R			P2-54 P10-120					.13 .18	NO NO		23 25	F BRANCH 5
A 75Y			P2-32 P10-220					.13 .18	NO NO		23 25	F BRANCH 5
A 76	4											F
A 76R			P2-17 P10-119					.13 .18	NO NO		23 25	F BRANCH 5
A 76Y			P2-33 P10-219					.13 .18	NO NO		23 25	F BRANCH 5
A 77	4											F
A 77R			P2-16 P10-118					.13 .18	NO NO		23 25	F BRANCH 5
A 77Y			P2-5 P10-218					.13 .18	NO NO		23 25	F BRANCH 5
A 78	4											F
A 78R			P2-57 P10-321					.13 .18	NO NO		23 25	F BRANCH 5
A 78Y			P2-34 P10-421					.13 .18	NO NO		23 25	F BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE NONE	REV LTR J	SHEET 37 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 79	4											F
A 79R			P2-18 P10-320					.13 .18	NO NO		23 25	F BRANCH 5
A 79Y			P2-35 P10-420					.13 .18	NO NO		23 25	F BRANCH 5
A 80	4											F
A 80R			P2-52 P10-319					.13 .18	NO NO		23 25	F BRANCH 5
A 80Y			P2-53 P10-419					.13 .18	NO NO		23 25	F BRANCH 5
A 81	4											F
A 81R			P2-15 P10-318					.13 .18	NO NO		23 25	F BRANCH 5
A 81Y			P2-30 P10-418					.13 .18	NO NO		23 25	F BRANCH 5
A 82	4											F
A 82R			P2-50 P10-317					.13 .18	NO NO		23 25	F BRANCH 5
A 82Y			P2-51 P10-417					.13 .18	NO NO		23 25	F BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 38 OF 74

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LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	83	4											F
A	83R			P2-13 P10-323					.13 .18	NO NO		23 25	F BRANCH 5
A	83Y			P2-29 P10-423					.13 .18	NO NO		23 25	F BRANCH 5
A	84	4											F
A	84R			P2-12 P10-322					.13 .18	NO NO		23 25	F BRANCH 5
A	84Y			P2-27 P10-422					.13 .18	NO NO		23 25	F BRANCH 5
A	85	4											F
A	85R			P2-48 P10-316					.13 .18	NO NO		23 25	F BRANCH 5
A	85Y			P2-49 P10-416					.13 .18	NO NO		23 25	F BRANCH 5
A	86	4											F
A	86R			P2-1 P10-315					.13 .18	NO NO		23 25	F BRANCH 5
A	86Y			P2-4 P10-415					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	87	4											F
A	87R			P2-11 P10-324					.13 .18	NO NO		23 25	F BRANCH 5
A	87Y			P2-24 P10-424					.13 .18	NO NO		23 25	F BRANCH 5
A	88	4											F
A	88R			P2-10 P10-117					.13 .18	NO NO		23 24	F BRANCH 5
A	88Y			P2-2 P10-217					.13 .18	NO NO		23 25	F BRANCH 5
A	89	4											F
A	89R			P2-59 P10-139					.13 .18	NO NO		23 25	F BRANCH 5
A	89Y			P2-58 P10-239					.13 .18	NO NO		23 25	F BRANCH 5
A	90	4											F
A	90R			P2-7 P10-138					.13 .18	NO NO		23 25	F BRANCH 5
A	90Y			P2-6 P10-238					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	91	4											F
A	91R			P2-36 P10-137					.13 .18	NO NO		23 25	F BRANCH 5
A	91Y			P2-60 P10-237					.13 .18	NO NO		23 25	F BRANCH 5
A	92	4											F
A	92R			P2-8 P10-136					.13 .18	NO NO		23 25	F BRANCH 5
A	92Y			P2-19 P10-236					.13 .18	NO NO		23 25	F BRANCH 5
A	93	4											F
A	93R			P2-61 P10-135					.13 .18	NO NO		23 25	F BRANCH 5
A	93Y			P2-38 P10-235					.13 .18	NO NO		23 25	F BRANCH 5
A	94	4											F
A	94R			P2-39 P10-134					.13 .18	NO NO		23 25	F BRANCH 5
A	94Y			P2-20 P10-234					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	95	4											F
A	95R			P2-43 P10-327					.13 .18	NO NO		23 25	F BRANCH 5
A	95Y			P2-42 P10-427					.13 .18	NO NO		23 25	F BRANCH 5
A	96	4											F
A	96R			P2-22 P10-326					.13 .18	NO NO		23 25	F BRANCH 5
A	96Y			P2-9 P10-426					.13 .18	NO NO		23 25	F BRANCH 5
A	97	4											F
A	97R			P2-41 P10-325					.13 .18	NO NO		23 25	F BRANCH 5
A	97Y			P2-40 P10-425					.13 .18	NO NO		23 25	F BRANCH 5
A	98	10				1.75 1.00	1.50 .75				6B 7	31 29	
A	98A	11		SHLD A98 P2-44					.20 .13	NO NO		 23	
A	98G			P2-25 P10-212					.13 .18	NO NO		23 24	BRANCH 4

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 98R			P2-46 P10-113					.13 .18	NO NO		23 24	BRANCH 4
A 98Y			P2-45 P1C-312					.13 .18	NO NO		23 24	BRANCH 4
A 99	8				1.75 1.00	1.50 .75				6B 7	31 29	
A 99A	11		SHLD A99 P2-26					.20 .13	NO NO		23	
A 99R			DELETED									
A 99Y			P2-47 P10-114					.13 .18	NO NO		23 24	BRANCH 4
A 1C4	2		P3-1 P10-538					.13 .18	NO NO		22 25	E BRANCH 5
A 1C5	2		P3-7 P10-556					.13 .18	NO NO		22 25	E BRANCH 5
A 106	2		P3-2 P10-625					.13 .18	NO NO		22 25	E BRANCH 5
A 113	2		P3-8 P10-547					.13 .18	NO NO		22 25	E BRANCH 5
A 116	1		P5-66 P10-602					.13 .18	NO NO		22 24	D BRANCH 4
A 118	1		P5-45 P10-504					.13 .18	NO NO		22 24	D BRANCH 4

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 125	2		P5-26 P10-409					.13 .22	NO NO		22	D BRANCH 4
A 127	5											A
A 127G			P5-53 P10-161					.13 .18	NO NO		22 24	A BRANCH 6
A 127R			P5-78 P10-159					.13 .18	NO NO		22 24	A BRANCH 6
A 127Y			P5-54 P10-160					.13 .18	NO NO		22 24	A BRANCH 6
A 128	5											A
A 128G			P5-55 P10-260					.13 .18	NO NO		22 24	A BRANCH 6
A 128R			P5-79 P10-261					.13 .18	NO NO		22 24	A BRANCH 6
A 128Y			P5-80 P10-259					.13 .18	NO NO		22 24	A BRANCH 6
A 129	5											A
A 129G			P5-16 P10-360					.13 .18	NO NO		22 24	A BRANCH 6
A 129R			P5-33 P10-361					.13 .18	NO NO		22 24	A BRANCH 6

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR J | SHEET 44 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 129Y			P5-32 P10-359					.13 .18	NO NO		22 24	A BRANCH 6
A 130	5											A
A 130G			P5-56 P10-460					.13 .18	NO NO		22 24	A BRANCH 6
A 130R			P5-81 P10-461					.13 .18	NO NO		22 24	A BRANCH 6
A 130Y			P5-57 P10-459					.13 .18	NO NO		22 24	A BRANCH 6
A 131	5											A
A 131G			P5-35 P10-560					.13 .18	NO NO		22 24	A BRANCH 6
A 131R			P5-58 P10-561					.13 .18	NO NO		22 24	A BRANCH 6
A 131Y			P5-34 P10-559					.13 .18	NO NO		22 24	A BRANCH 6
A 139	2		P6-77 P10-636					.13 .18	NO NO		22 25	C BRANCH 6
A 148	2		P6-20 P10-613					.13 .18	NO NO		22 25	C BRANCH 6
A 149	4											C

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SCALE-NONE | REV LTR J | SHEET 45 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 149R			P6-85 P10-133					.13 .18	NO NO		22 25	C BRANCH 6
A 149Y			P6-84 P10-233					.13 .18	NO NO		22 25	C BRANCH 6
A 150	4											C
A 150R			P6-82 P10-516					.13 .18	NO NO		22 25	C BRANCH 6
A 150Y			P6-57 P10-616					.13 .18	NO NO		22 25	C BRANCH 6
A 151	4											C
A 151R			P6-8 P10-158					.13 .18	NO NO		22 25	C BRANCH 6
A 151Y			P6-2 P1C-258					.13 .18	NO NO		22 25	C BRANCH 6
A 152	4											C
A 152R			P6-19 P1C-157					.13 .18	NO NO		22 25	C BRANCH 6
A 152Y			P6-7 P10-257					.13 .18	NO NO		22 25	C BRANCH 6
A 153	4											C

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 153R			P6-6 P10-156					.13 .18	NO NO		22 25	C BRANCH 6
A 153Y			P6-1 P10-256					.13 .18	NO NO		22 25	C BRANCH 6
A 154	4											C
A 154R			P6-5 P10-155					.13 .18	NO NO		22 25	C BRANCH 6
A 154Y			P6-4 P10-255					.13 .18	NO NO		22 25	C BRANCH 6
A 155	4											C
A 155R			P6-15 P10-154					.13 .18	NO NO		22 25	C BRANCH 6
A 155Y			P6-16 P10-254					.13 .18	NO NO		22 25	C BRANCH 6
A 156	4											C
A 156R			P6-17 P10-153					.13 .18	NO NO		22 25	C BRANCH 6
A 156Y			P6-33 P10-253					.13 .18	NO NO		22 25	C BRANCH 6
A 157	4											C

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 157R			P6-61 P10-132					.13 .18	NO NO		22 25	C BRANCH 6
A 157Y			P6-60 P10-232					.13 .18	NO NO		22 25	C BRANCH 6
A 158	4											
A 158R			P6-37 P10-130					.13 .18	NO NO		22 25	C BRANCH 6
A 158Y			P6-36 P10-230					.13 .18	NO NO		22 25	C BRANCH 6
A 159	4											C
A 159R			P6-83 P10-352					.13 .18	NO NO		22 25	C BRANCH 6
A 159Y			P6-59 P10-452					.13 .18	NO NO		22 25	C BRANCH 6
A 160	4											C
A 160R			P6-35 P10-129					.13 .18	NO NO		22 25	C BRANCH 6
A 160Y			P6-18 P10-229					.13 .18	NO NO		22 25	C BRANCH 6
A 161	4											C

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 161R			P6-58 P10-128					.13 .18	NO NO		22 25	C BRANCH 6
A 161Y			P6-34 P10-228					.13 .18	NO NO		22 25	C BRANCH 6
A 164	1		P8-9 P10-302					.13 .18	NO NO		22 24	B BRANCH 4
A 170	2		P8-5 P10-509					.13 .18	NO NO		22 25	B BRANCH 4
A 177	2		P8-8 P10-108					.13 .22	NO NO		22	B BRANCH 4
A 178	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 178A	11		SHLD A178 P3-52					.20 .13	NO NO		 22	
A 178B	11		P7-21 SHLD A178					.13 .20	NO NO		22	
A 178R			P3-77 P7-40					.13 .13	NO NO		22 22	
A 178Y			P3-53 P7-22					.13 .13	NO NO		22 22	
A 179	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 179A	11		SHLD A179 P3-30					.20 .13	NO NO		 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 179B	11		P7-23 SHLD A179					.13 .20	NO NO		22	
A 179R			P3-31 P7-42					.13 .13	NO NO		22 22	
A 179Y			P3-15 P7-43					.13 .13	NO NO		22 22	
A 180	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 180A	11		SHLD A180 P3-51					.20 .13	NO NO		 22	
A 180B	11		P7-2 SHLD A180					.13 .20	NO NO		22	
A 180R			P3-75 P7-8					.13 .13	NO NO		22 22	
A 180Y			P3-76 P7-9					.13 .13	NO NO		22 22	
A 181	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 181A	11		SHLD A181 P3-46					.20 .13	NO NO		 22	
A 181R			P3-71 P7-38					.13 .13	NO NO		22 22	
A 181Y			P3-70 P7-39					.13 .13	NO NO		22 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 182	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 182A	11		SHLD A182 P3-69					.20 .13	NO NO		22	
A 182R			P3-45 P7-19					.13 .13	NO NO		22 22	
A 182Y			P3-44 P7-20					.13 .13	NO NO		22 22	
A 183	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 183A	11		SHLD A183 P3-28					.20 .13	NO NO		22	
A 183R			P3-13 P7-60					.13 .13	NO NO		22 22	
A 183Y			P3-29 P7-61					.13 .13	NO NO		22 22	
A 184	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 184A	11		SHLD A184 P3-74					.20 .13	NO NO		22	
A 184R			P3-49 P7-36					.13 .13	NO NO		22 22	
A 184Y			P3-50 P7-37					.13 .13	NO NO		22 22	

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A	80230	2014641	
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 185	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 185A	11		SHLD A185 P3-27					.20 .13	NO NO		22	
A 185R			P3-26 P7-58					.13 .13	NO NO		22 22	
A 185Y			P3-47 P7-59					.13 .13	NO NO		22 22	
A 186	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 186A	11		SHLD A186 P3-48					.20 .13	NO NO		22	
A 186R			P3-72 P7-35					.13 .13	NO NO		22 22	
A 186Y			P3-73 P7-18					.13 .13	NO NO		22 22	
A 187	3											
A 187R			P3-67 P7-57					.13 .13	NO NO		22 22	
A 187Y			P3-68 P7-34					.13 .13	NO NO		22 22	
A 188	7											

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR J		SHEET 52 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 188G			P3-24 P7-51					.13 .13	NO NO		22 22	
A 188N			P3-43 P7-29					.13 .13	NO NO		22 22	
A 188R			P3-25 P7-50					.13 .13	NO NO		22 22	
A 188Y			P3-23 P7-28					.13 .13	NO NO		22 22	
A 189	4											
A 189R			P3-5 P7-49					.13 .13	NO NO		22 22	
A 189Y			P3-14 P7-48					.13 .13	NO NO		22 22	
A 195	2		P5-23 P10-608					.13 .22	NO NO		22	D BRANCH 4
A 196	2		P5-22 P10-609					.13 .22	NO NO		22	D BRANCH 4
A 198	6											
A 198G			P1-11 P9-521					.13 .18	NO NO		22 25	BRANCH 2
A 198R			P1-10 P9-121					.13 .18	NO NO		22 25	BRANCH 2

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR J		SHEET 53 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 198Y			P1-9 P9-321					.13 .18	NO NO		22 25	BRANCH 2
A 199	5											A
A 199G			P5-5 P10-660					.13 .18	NO NO		22 24	A BRANCH 6
A 199R			P5-31 P10-661					.13 .18	NO NO		22 24	A BRANCH 6
A 199Y			P5-15 P10-659					.13 .18	NO NO		22 24	A BRANCH 6
A 200	2		P3-39 P10-202					.13 .18	NO NO		22 25	E BRANCH 5
A 201	2		P3-64 P10-102					.13 .18	NO NO		22 24	E BRANCH 5
A 202	2		P3-42 P10-652					.13 .18	NO NO		22 25	E BRANCH 5
A 203	2		P3-66 P10-551					.13 .18	NO NO		22 25	E BRANCH 5
A 204	2		P3-21 P10-552					.13 .18	NO NO		22 25	E BRANCH 5
A 205	2		P3-22 P10-651					.13 .18	NO NO		22 25	E BRANCH 5
A 206	2		P3-18 P10-548					.13 .18	NO NO		22 25	E BRANCH 5

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR J		SHEET 54 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 207	2		P3-36 P10-549					.13 .18	NO NO		22 25	E BRANCH 5
A 208	2		P3-19 P10-550					.13 .18	NO NO		22 25	E BRANCH 5
A 209	2		P3-41 P10-214					.13 .18	NO NO		22 25	E BRANCH 5
A 210	2		P3-65 P10-216					.13 .18	NO NO		22 25	E BRANCH 5
A 211	2		P3-40 P10-215					.13 .18	NO NO		22 25	E BRANCH 5
A 212	2		P3-33 P10-646					.13 .18	NO NO		22 25	E BRANCH 5
A 213	2		P3-17 P10-546					.13 .18	NO NO		22 25	E BRANCH 5
A 214	2		P3-57 P10-645					.13 .18	NO NO		22 25	E BRANCH 5
A 215	2		P3-82 P10-545					.13 .18	NO NO		22 25	E BRANCH 5
A 216	2		P3-81 P10-542					.13 .18	NO NO		22 25	E BRANCH 5
A 217	2		P3-80 P10-644					.13 .18	NO NO		22 25	E BRANCH 5
A 218	2		P3-56 P10-544					.13 .18	NO NO		22 25	E BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 219	2		P3-84 P10-623					.13 .18	NO NO		22 25	E BRANCH 5
A 220	2		P3-60 P10-524					.13 .18	NO NO		22 25	E BRANCH 5
A 221	2		P3-59 P10-522					.13 .18	NO NO		22 25	E BRANCH 5
A 222	2		P3-62 P10-648					.13 .18	NO NO		22 25	E BRANCH 5
A 223	2		P3-63 P10-649					.13 .18	NO NO		22 25	E BRANCH 5
A 224	2		P3-38 P10-650					.13 .18	NO NO		22 25	E BRANCH 5
A 225	2		P5-38 P10-401					.13 .18	NO NO		22 25	D BRANCH 4
A 226	2		P5-62 P10-601					.13 .18	NO NO		22 25	D BRANCH 4
A 227	2		P5-63 P10-501					.13 .18	NO NO		22 25	D BRANCH 4
A 228	2		P5-64 P10-101					.13 .18	NO NO		22 24	D BRANCH 4
A 229	2		P5-40 P10-301					.13 .18	NO NO		22 25	D BRANCH 4
A 230	2		P5-39 P10-201					.13 .18	NO NO		22 25	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 231	2		P5-41 P10-502					.13 .22	NO NO		22 25	D BRANCH 4
A 232	2		P5-42 P10-402					.13 .22	NO NO		22	D BRANCH 4
A 233	2		P5-30 P10-204					.13 .22	NO NO		22	D BRANCH 4
A 234	2		P5-14 P10-505					.13 .22	NO NO		22	D BRANCH 4
A 235	2		P5-29 P10-605					.13 .22	NO NO		22	D BRANCH 4
A 236	2		P5-77 P10-506					.13 .22	NO NO		22	D BRANCH 4
A 237	2		P5-52 P10-404					.13 .22	NO NO		22	D BRANCH 4
A 238	2		P5-76 P10-304					.13 .22	NO NO		22	D BRANCH 4
A 239	2		P5-50 P10-405					.13 .22	NO NO		22	D BRANCH 4
A 240	2		P5-51 P10-606					.13 .22	NO NO		22	D BRANCH 4
A 241	2		P5-75 P10-205					.13 .22	NO NO		22	D BRANCH 4
A 242	2		P5-73 P10-607					.13 .22	NO NO		22	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 243	2		P5-74 P10-305					.13 .22	NO NO		22	D BRANCH 4
A 244	2		P5-49 P10-507					.13 .22	NO NO		22	D BRANCH 4
A 245	2		P5-13 P10-306					.13 .22	NO NO		22	D BRANCH 4
A 246	2		P5-28 P10-206					.13 .22	NO NO		22	D BRANCH 4
A 247	2		P5-27 P10-406					.13 .22	NO NO		22	D BRANCH 4
A 248	2		P5-47 P10-307					.13 .22	NO NO		22	D BRANCH 4
A 249	2		P5-46 P10-208					.13 .22	NO NO		22	D BRANCH 4
A 250	2		P5-4 P10-308					.13 .22	NO NO		22	D BRANCH 4
A 251	2		P5-12 P10-309					.13 .22	NO NO		22	D BRANCH 4
A 252	2		P5-71 P10-207					.13 .22	NO NO		22	D BRANCH 4
A 253	2		P5-72 P10-407					.13 .22	NO NO		22	D BRANCH 4
A 254	2		P5-48 P10-604					.13 .22	NO NO		22	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 255	3											A
A 255R			P5-44 P10-107					.13 .18	NO NO		22 24	A BRANCH 6
A 255Y			P5-68 P10-105					.13 .18	NO NO		22 24	A BRANCH 6
A 256	2		P6-14 P10-540					.13 .18	NO NO		22 25	C BRANCH 6
A 257	2		P6-30 P10-639					.13 .18	NO NO		22 25	C BRANCH 6
A 258	2		P6-48 P10-658					.13 .18	NO NO		22 25	C BRANCH 6
A 259	2		P6-72 P10-557					.13 .18	NO NO		22 25	C BRANCH 6
A 260	2		P6-73 P10-558					.13 .18	NO NO		22 25	C BRANCH 6
A 261	2		P6-49 P10-657					.13 .18	NO NO		22 25	C BRANCH 6
A 262	2		P6-28 P10-640					.13 .18	NO NO		22 25	C BRANCH 6
A 263	2		P6-29 P10-520					.13 .18	NO NO		22 25	C BRANCH 6
A 264	2		P6-76 P10-523					.13 .18	NO NO		22 25	C BRANCH 6

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 265	2		P6-75 P10-647					.13 .18	NO NO		22 25	C BRANCH 6
A 266	2		P6-50 P10-641					.13 .18	NO NO		22 25	C BRANCH 6
A 267	2		P6-74 P10-541					.13 .18	NO NO		22 25	C BRANCH 6
A 268	2		P6-40 P10-109					.13 .18	NO NO		22 25	C BRANCH 6
A 269	2		P6-21 P10-410					.13 .18	NO NO		22 25	C BRANCH 6
A 270	2		P6-65 P10-209					.13 .18	NO NO		22 25	C BRANCH 6
A 271	2		P6-22 P10-310					.13 .18	NO NO		22 25	C BRANCH 6
A 272	2		P6-66 P10-510					.13 .18	NO NO		22 25	C BRANCH 6
A 273	2		P6-42 P10-210					.13 .18	NO NO		22 25	C BRANCH 6
A 274	2		P6-41 P10-610					.13 .18	NO NO		22 25	C BRANCH 6
A 275	2		P6-67 P10-110					.13 .18	NO NO		22 25	C BRANCH 6
A 276	2		P6-10 P10-111					.13 .18	NO NO		22 25	C BRANCH 6

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SCALE-NONE
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 277	2		P6-24 P10-612					.13 .18	NO NO		22 25	C BRANCH 6
A 278	2		P6-9 P10-211					.13 .18	NO NO		22 25	C BRANCH 6
A 279	2		P6-23 P10-512					.13 .18	NO NO		22 25	C BRANCH 6
A 280	2		P6-68 P10-511					.13 .18	NO NO		22 25	C BRANCH 6
A 281	2		P6-69 P10-411					.13 .18	NO NO		22 25	C BRANCH 6
A 282	2		P6-43 P10-611					.13 .18	NO NO		22 25	C BRANCH 6
A 283	2		P6-44 P10-311					.13 .18	NO NO		22 25	C BRANCH 6
A 284	2		P6-46 P10-627					.13 .18	NO NO		22 25	C BRANCH 6
A 285	2		P6-25 P10-628					.13 .18	NO NO		22 25	C BRANCH 6
A 286	2		P6-45 P10-528					.13 .18	NO NO		22 25	C BRANCH 6
A 287	2		P6-71 P10-526					.13 .18	NO NO		22 25	C BRANCH 6
A 288	2		P6-70 P10-527					.13 .18	NO NO		22 25	C BRANCH 6

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 289	2		P6-47 P10-626					.13 .18	NO NO		22 25	C BRANCH 6
A 290	2		P6-12 P10-654					.13 .18	NO NO		22 25	C BRANCH 6
A 291	2		P6-3 P10-655					.13 .18	NO NO		22 25	C BRANCH 6
A 292	2		P6-11 P10-555					.13 .18	NO NO		22 25	C BRANCH 6
A 293	2		P6-27 P10-553					.13 .18	NO NO		22 25	C BRANCH 6
A 294	2		P6-26 P10-554					.13 .18	NO NO		22 25	C BRANCH 6
A 295	2		P6-13 P10-653					.13 .18	NO NO		22 25	C BRANCH 6
A 296	2		P8-24 P10-403					.13 .18	NO NO		22 25	B BRANCH 4
A 297	2		P8-44 P10-603					.13 .18	NO NO		22 25	B BRANCH 4
A 298	2		P8-43 P10-503					.13 .18	NO NO		22 25	B BRANCH 4
A 299	2		P8-41 P10-103					.13 .18	NO NO		22 24	B BRANCH 4
A 300	2		P8-42 P10-303					.13 .18	NO NO		22 25	B BRANCH 4

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2014641
CALE-NONE
REV LTR J
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 301	2		P8-23 P10-203					.13 .18	NO NO		22 25	B BRANCH 4
A 302	2		P8-22 P10-502					.13 .22	NO NO		22 24	B BRANCH 4
A 303	2		P8-10 P10-402					.13 .22	NO NO		22 24	B BRANCH 4
A 304	2		P8-52 P10-207					.13 .22	NO NO		22 24	B BRANCH 4
A 305	2		P8-50 P10-407					.13 .22	NO NO		22 24	B BRANCH 4
A 306	2		P8-51 P10-307					.13 .22	NO NO		22 24	B BRANCH 4
A 307	2		P8-31 P10-408					.13 .22	NO NO		22	B BRANCH 4
A 308	2		P8-53 P10-608					.13 .22	NO NO		22 24	B BRANCH 4
A 309	2		P8-54 P10-508					.13 .22	NO NO		22	B BRANCH 4
A 310	2		P8-32 P10-208					.13 .22	NO NO		22 24	B BRANCH 4
A 311	2		P8-30 P10-309					.13 .22	NO NO		22 24	B BRANCH 4
A 312	2		P8-29 P10-308					.13 .22	NO NO		22 24	B BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 313	2		P8-16 P10-409					.13 .22	NO NO		22 24	B BRANCH 4
A 314	2		P8-14 P10-604					.13 .22	NO NO		22 24	B BRANCH 4
A 315	2		P8-15 P10-609					.13 .22	NO NO		22 24	B BRANCH 4
A 316	1		P8-7 P10-106					.13 .18	NO NO		22 24	B BRANCH 4
A 317	1		P8-2 P10-104					.13 .18	NO NO		22 24	B BRANCH 4
A 318	2		P8-3 P10-607					.13 .22	NO NO		22 24	B BRANCH 4
A 319	2		P8-25 P10-606					.13 .22	NO NO		22 24	B BRANCH 4
A 320	2		P8-1 P10-507					.13 .22	NO NO		22 24	B BRANCH 4
A 321	2		P8-12 P10-406					.13 .22	NO NO		22 24	B BRANCH 4
A 322	2		P8-11 P10-506					.13 .22	NO NO		22 24	B BRANCH 4
A 323	2		P8-28 P10-405					.13 .22	NO NO		22 24	B BRANCH 4
A 324	2		P8-4 P10-206					.13 .22	NO NO		22 24	B BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 325	2		P8-13 P10-306					.13 .22	NO NO		22 24	B BRANCH 4
A 326	2		P8-26 P10-205					.13 .22	NO NO		22 24	B BRANCH 4
A 327	2		P8-27 P10-305					.13 .22	NO NO		22 24	B BRANCH 4
A 328	2		P8-47 P10-204					.13 .22	NO NO		22 24	B BRANCH 4
A 329	2		P8-45 P10-404					.13 .22	NO NO		22 24	B BRANCH 4
A 330	2		P8-46 P10-304					.13 .22	NO NO		22 24	B BRANCH 4
A 331	2		P8-48 P10-605					.13 .22	NO NO		22 24	B BRANCH 4
A 332	2		P8-49 P10-505					.13 .22	NO NO		22 24	B BRANCH 4
A 333	3									6A 6A	31 31	
A 333A	11		SHLD A333 E8					.20 .19	NO NO			
A 333B	11		E12 SHLD A333					.19 .20	NO NO			
A 333R			P3-3 P7-52					.13 .13	NO NO		22 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 333Y			P3-11 P7-31					.13 .13	NO NO		22 22	
A 334	8				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 334A	11		SHLD A334 E8					.20 .19	NO NO		 47	
A 334B	11		E11 SHLD A334					.19 .20	NO NO		47	
A 334R			DELETED									
A 334Y			P3-4 P6-51					.13 .13	NO NO		22 22	
A 335	9				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 335A	11		SHLD A335 E10					.20 .19	NO NO			
A 335B	11		E12 SHLD A335					.19 .20	NO NO		47	
A 335R			P5-19 P7-15					.13 .13	NO NO		22 22	
A 335Y			P5-18 P7-16					.13 .13	NO NO		22 22	
A 336	9				1.75 1.75	1.50 1.50				6A 6A	31 31	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 336A	11		SHLD A336 E10					.20 .19	NO NO			
A 336B	11		E13 SHLD A336					.19 .20	NO NO			
A 336R			P5-7 P7-30					.13 .13	NO NO		22 22	
A 336Y			P5-8 P7-14					.13 .13	NO NO		22 22	
A 337	3									6A 6A	31 31	
A 337A	11		SHLD A337 E10					.20 .19	NO NO		 47	
A 337B	11		E13 SHLD A337					.19 .20	NO NO		47	
A 337R			P5-9 P7-6					.13 .13	NO NO		22 22	
A 337Y			P5-2 P7-7					.13 .13	NO NO		22 22	
A 338	2		P5-10 P10-508					.13 .22	NO NO		22 24	D BRANCH 4
A 339	2		P5-24 P10-408					.13 .22	NO NO		22 24	D BRANCH 4
A 340	35		E7 E5					.19 .19	NO NO		47	F

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR L
SHEET 67 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 341	35		E8 E5					.19 .19	NO NO			E
A 342	35		E9 E5					.19 .19	NO NO		 52	D
A 343	35		E9 E6					.19 .19	NO NO		47	A
A 344	35		E11 E6					.19 .19	NO NO			C
A 345	35		E14 E6					.19 .19	NO NO		47 52	B
A 346	2		P5-43 P10-108					.13 .22	NO NO		22 24	A BRANCH 6
A 347	35		E3 E36					.19 .19	NO NO		 58	G
A 348	4											G
A 348R			P9-610 P10-332					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 348Y			P9-510 P10-432					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 349	4											G
A 349R			P9-310 P10-330					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR L
SHEET 68 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 349Y			P9-210 P10-430					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 350	4											G
A 350R			P9-609 P10-329					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 350Y			P9-509 P10-429					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 351	4											G
A 351R			P9-309 P10-328					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 351Y			P9-209 P10-428					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 352	4											G
A 352R			P9-608 P10-334					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 352Y			P9-508 P10-434					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 353	4											G
A 353R			P9-308 P10-333					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J
SHEET 69 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 353Y			P9-208 P10-433					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 354	4											G
A 354R			P9-607 P10-338					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 354Y			P9-507 P10-438					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 355	4											G
A 355R			P9-307 P10-337					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 355Y			P9-207 P10-437					.18 .18	NO NO		25 25	B, BRANCH 1 BRANCH 5
A 356	4											G
A 356R			P9-606 P10-336					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 356Y			P9-506 P10-436					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 357	4											G
A 357R			P9-306 P10-335					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J
SHEET 70 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 357Y			P9-206 P10-435					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 358	4											G
A 358R			P9-605 P10-146					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 358Y			P9-505 P10-246					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359	4											G
A 359R			P9-305 P10-145					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359Y			P9-205 P10-245					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360	4											G
A 360R			P9-604 P10-144					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360Y			P9-504 P10-244					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 361	4											G
A 361R			P9-304 P10-143					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 71 OF 74

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 361Y			P9-204 P10-243					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 362	4											G
A 362R			P9-603 P10-148					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 362Y			P9-503 P10-248					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363	4											G
A 363R			P9-303 P10-147					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363Y			P9-203 P10-247					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364	4											G
A 364R			P9-602 P10-152					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364Y			P9-502 P10-252					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 365	4											G
A 365R			P9-302 P10-151					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 72 OF 74

MIL 2084 9-65

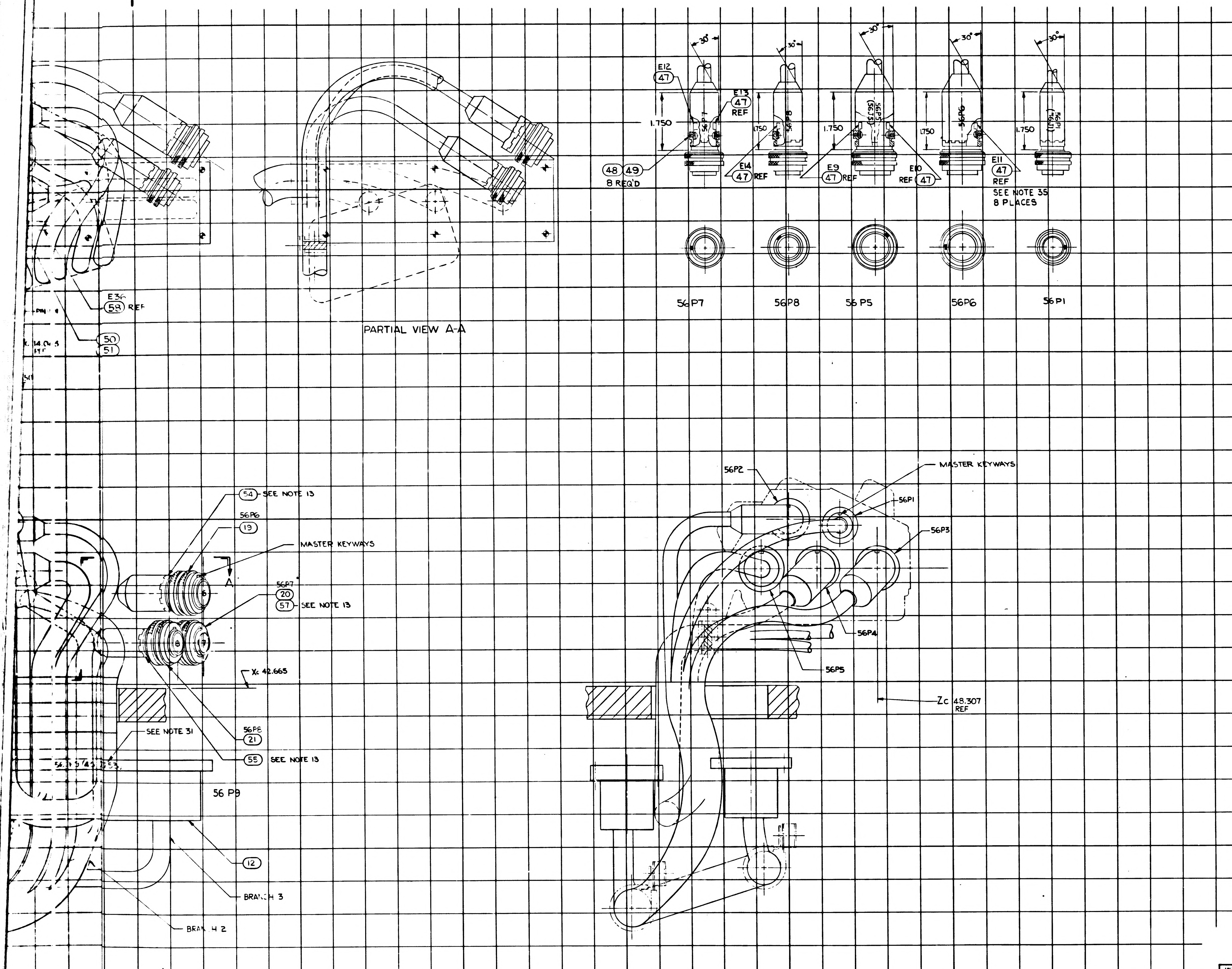
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 365Y			P9-202 P10-251					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 366	4											G
A 366R			P9-601 P10-150					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 366Y			P9-501 P10-250					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367	4											G
A 367R			P9-301 P10-149					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367Y			P9-201 P10-249					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 73 OF 74

MIL 2084 9-65

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD



30°
E12
47
1.750
56P7
E13
47
REF
56P8
56P5 (56J5)
56P6
56P1 (56J1)
48 49
8 REQ'D
E14
47 REF
E9
47 REF
E10
REF 47
E11
47
REF
SEE NOTE 35
8 PLACES
56P7
56P8
56P5
56P6
56P1
PARTIAL VIEW A-A
E36
58 REF
50
51
54 SEE NOTE 13
56P6
19
MASTER KEYWAYS
A
56P7
20
57 SEE NOTE 13
Xc 42.665
56P8
21
55 SEE NOTE 13
SEE NOTE 31
56 P9
12
BRANCH 3
BRANCH 2
56P2
MASTER KEYWAYS
56P1
56P3
56P4
56P5
Zc 48.307
REF

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT
DRAWN Dietrich DATE 1/24/66
CHECKED N. E. Abraham 1/27/66
APPROVAL FEB 66
APPROVAL 2/1/66
NASA APPROVAL A. C. ER
MIT APPROVAL

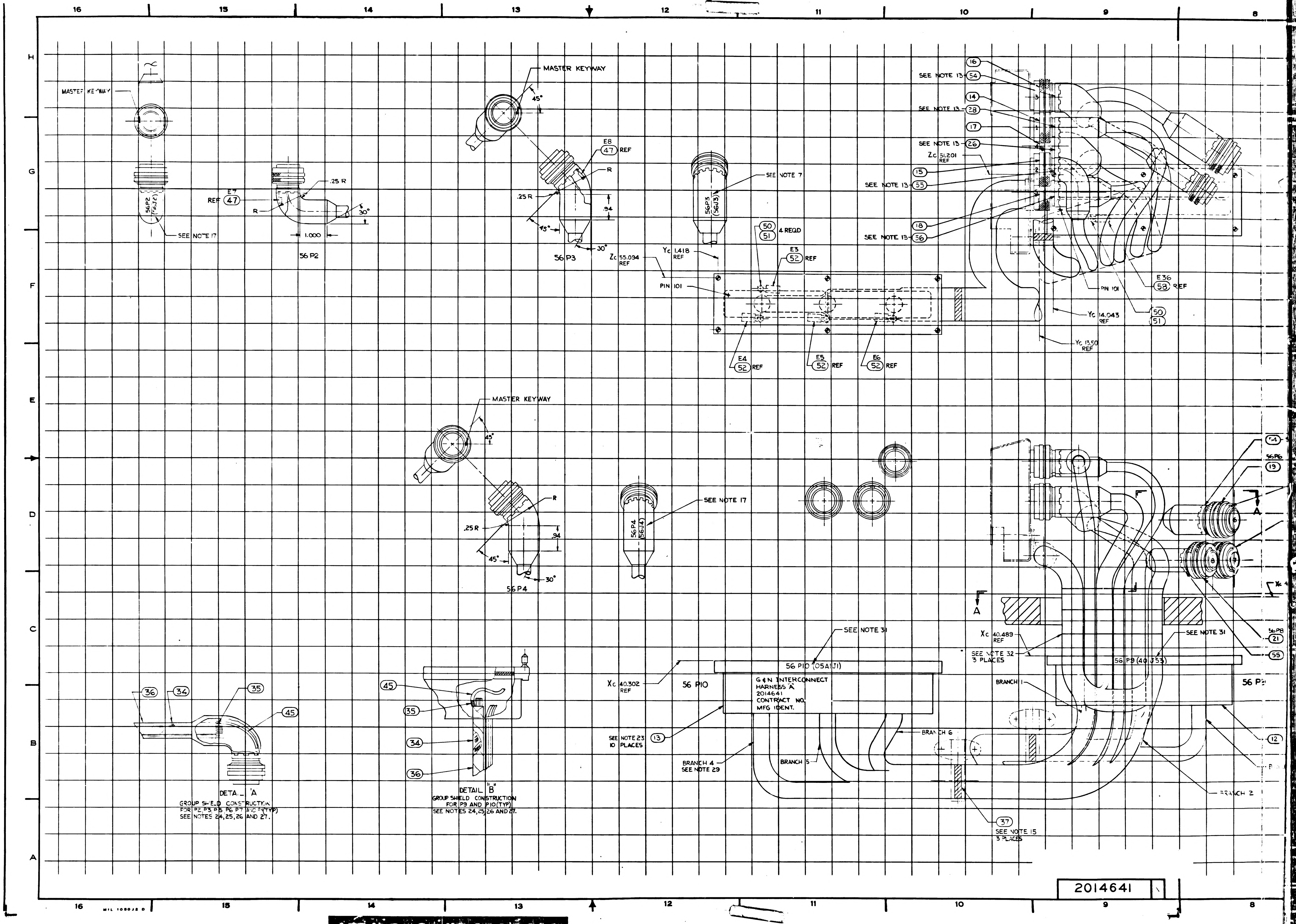
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS A
(C/M BLOCK II)

CODE IDENT NO. 80230
SIZE J2
2014641
SCALE
SHEET 74 OF 7–

2014641

2/2014641



16
15
14
13
12
11
10
9
8
H
G
F
E
D
C
B
A
MASTER KEYWAY
56P2 (56J2)
SEE NOTE 17
E7
REF 47
R
.25 R
30°
1.000
56 P2
MASTER KEYWAY
45°
E8
47 REF
R
.25 R
.94
45°
30°
56 P3
56P3 (56J3)
SEE NOTE 7
Zc 55.094 REF
Yc 1.418 REF
50
51
4 REQD
E3
52 REF
PIN 101
E4
52 REF
E5
52 REF
E6
52 REF
16
SEE NOTE 13 54
14
SEE NOTE 13 28
17
SEE NOTE 13 26
Zc 51.201 REF
15
SEE NOTE 13 33
18
SEE NOTE 13 56
PIN 101
E36
58 REF
Yc 14.043 REF
50
51
Yc 13.50 REF
MASTER KEYWAY
45°
R
.25 R
.94
45°
30°
56 P4
56P4 (56J4)
SEE NOTE 17
56P6
19
A
A
56P8
21
59
SEE NOTE 31
Xc 40.489 REF
SEE NOTE 32 3 PLACES
SEE NOTE 31
56 P9 (40 J53)
56 P10 (05A1J1)
Xc 40.302 REF
56 P10
G & N INTERCONNECT
HARNESS "A"
2014641
CONTRACT NO.
MFG IDENT.
56 P
BRANCH 1
BRANCH 6
SEE NOTE 23 10 PLACES
13
BRANCH 4 SEE NOTE 29
BRANCH 5
12
BRANCH 2
37
SEE NOTE 15 3 PLACES
36
34
35
45
DETAIL "A"
GROUP SHIELD CONSTRUCTION FOR P2, P3, P5, P6, P7 AND P8 (TYP)
SEE NOTES 24, 25, 26 AND 27.
45
35
34
36
DETAIL "B"
GROUP SHIELD CONSTRUCTION FOR P9 AND P10 (TYP)
SEE NOTES 24, 25, 26 AND 27.
MIL 1080J2 D

2014641

1/2014641

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-011	E	REPLACES REV D WITH CHANGE PER TDRR		
		F	CHGD PER TDRR 24806		
		G	Revised per TDRR 25306	2-4-66	
		H	REVISED PER TDRR 25886	10 FEB 66	RLP EF
		J	REVISED PER TDRR 25841	18 FEB 66	DRD EF
		K	REVISED PER TDRR 27430	30 MAR 66	RLP
		L	REVISED PER TDRR 28021	19 APR 66	R.N.T.
		M	REVISED PER TDRR 28020	21 APR 66	R.W.T. CP
		N	REVISED PER TDRR 28406	9 MAY 66	FWG
		P	REVISED PER TDRR 29549	17-JUN-66	B.

REPLACES REV D WITH CHANGE

REV		H	H	M	M	K	K	H	H	H	H	H	H	H	H	H	J	J	J	J	J	J	J	J	J	J	J
SHEET		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
REV STATUS	REV							P	P	J	L	J	N	H	J	J	N	N	H	H	H	H	H	H	L	L	L
OF SHEETS	SHEET							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DWG NO
CONTRACT

DRAWN Janowiak DATE 7 DEC 65
CHECKED W. Diehl 7 DEC 65
APPROVAL 8 DEC 65
APPROVAL 12/20/65

NASA APPROVAL
MIT APPROVAL 21 Dec 65

CONTRACT NAS9-497

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INTERCONNECT HARNESS "A"
(C/M, BLOCK II)

CODE IDENT NO.	SIZE		REV
80230	A	2014641	P
SCALE		SHEET 1 OF 74	

REVISION STATUS OF SHEETS

SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV	SH	REV
47	J																
48	J																
49	J																
50	J																
51	J																
52	J																
53	J																
54	J																
55	J																
56	J																
57	J																
58	J																
59	J																
60	J																
61	J																
62	J																
63	J																
64	J																
65	J																
66	J																
67	L																
68	L																
69	J																
70	J																
71	J																
72	J																
73	J																
74	P																

SIZE	CODE IDENT. NO.	
A	80230	2014641
SCALE NONE	REV LTR P	SHEET 2 of ~~68~~ 74

MIL 1377A3 8-65

NOTE NUMBER — GENERAL NOTES DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6A AND 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014671.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR J		SHEET 3 OF 74

NOTE NUMBER — GENERAL NOTES DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTOR 56P2, USE ITEM NUMBERS 23 AND 32.
CONNECTOR 56P1,3,4,5,6,7, AND 8 USE ITEM NUMBERS 22 AND 32.
CONNECTOR 56P9, AND P10 USE ITEM NUMBER 24.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 38.

13 APPLY BONDING MATERIAL PER ND1002187, TYPE I, USING ITEMS 41 AND 42 TO THE THREADED PORTION OF CONNECTOR AND TO THE THREADED PORTION OF THE ADAPTER PRIOR TO ASSEMBLY.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR L		SHEET 4 OF 74

NOTE NUMBER — GENERAL NOTES DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED, INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE. SHORT CIRCUIT CURRENT LIMITED TO 15 MILLIAMPS.

22 PRESEAL BACK OF CONNECTORS 56P9 AND P10 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 41,42,43, AND 44.

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 39 AND 40.

24 CONDUCTORS WITH AN A,B,C,D,E,F OR G IN THE REMARKS COLUMN ARE TO BE GROUP SHIELDED PER DETAIL A AND/OR B OF THE CONF. DRAWING.

25 GROUP SHIELDING - THREAD ONE CONTINUOUS LENGTH OF GROUND WIRE, ITEM 35, THROUGH CENTER OF EMI/RFI SHIELDING TAPE. ITEM 34. ALLOW 6 INCHES OF GROUND WIRE TO EXTEND BEYOND ENDS OF SHIELDING TAPE. WRAP CABLE WITH ONE CONTINUOUS LENGTH OF PREPARED SHIELDING. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE, WITH A MINIMUM OF RIDGES AND FOLDS.

26 COMPLETELY COVER SHIELD WITH ONE CONTINUOUS WRAP OF INSULATION TAPE, ITEM 36. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE WITH A MINIMUM OF RIDGES AND FOLDS. WRAP TAPE IN OPPOSITE DIRECTION TO SHIELD WRAP.

27 ASSEMBLE INSULATION TUBING, ITEM 45, OVER GROUND WIRE AS REQUIRED TO REACH TERMINATION. ASSEMBLE SHRINK SLEEVING AS SHOWN.

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR J		SHEET 5 OF 74

NOTE NUMBER — GENERAL NOTES DESCRIPTION

28 ASSEMBLE A LENGTH OF WIRE BRAID ITEM 53 OVER CONDUCTORS A333 AND A337. ALLOW 1.75 INCH OF LEAD TO EXTEND BEYOND BRAID. COVER BRAID WITH TEFLON TAPE, ITEM 36, PER NOTE 26. ALLOW .25 INCH OF BRAID TO EXTEND BEYOND TAPE. FOLD BRAID OVER TAPE AND TERMINATE PER ND1002071, FIG. 6B.

29 CONDUCTORS SHALL ENTER CONNECTORS 56P9 AND 56P10 THROUGH THE APPROPRIATE BRANCH SPECIFIED IN THE REMARKS COLUMN.

31 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 GRMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACECRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICROSECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

32 MARK CHARACTERS .10-.14 HIGH, BLACK, PER ND 1002019. CENTRALIZE AS SHOWN

33 LACE HARNESS BRANCHES TOGETHER USING A CONTINUOUS CLOVE HITCH AT LOCATIONS SHOWN.

34 ASSEMBLE SHRINK SLEEVE, ITEM 59, OVER EACH ELECTRICALLY CONNECTED PIN OF CONNECTORS P9 AND P10. POSITION SLEEVING FLUSH TO TOP OF NYLON INSULATOR.

35 SOLDER PER ND1002071 USING ITEMS 60 OR 61 AND 62.

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR N		SHEET 6 OF 74

NOTE NUMBER	GENERAL NOTES DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 7 OF 74

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014641- 1	WIRE PER 1010789-006, 22 AWG, YEL, 25 FT TOT LG
	2	1	2014641- 2	WIRE PER 1010789-016, 26 AWG, YEL, 50 FT TOT LG
	3	1	2014641- 3	WIRE PER 1010789-008, 22 AWG, YEL, RED, 15 FT TOT LG
	4	1	2014641- 4	WIRE PER 1010789-017, 26 AWG, YEL, RED, 220 FT TOT LG
	5	1	2014641- 5	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 20 FT TOT LG
	6	1	2014641- 6	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN 90 FT TOT LG
	7	1	2014641- 7	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 25 FT TOT LG
	8	1	2014641- 8	WIRE PER 1010789-011, 24 AWG, YEL, YEL JKT, 10 FT TOT LG
	9	1	2014641- 9	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 150 FT TOT LG
	10	1	2014641- 10	WIRE PER 1010789-013, 24 AWG, YEL, RED, GRN, YEL JKT, 10 FT TOT LG
	11	1	2014641- 11	WIRE PER 1010789-002, 24 AWG, BLK, 80 FT TOT LG
	12	1	2014741-011	CONNECTOR, PLUG, ELECTRICAL (56P9)
	13	1	2014749-011	CONNECTOR, PLUG, ELECTRICAL (56P10)
9	14	1	1010929-109	CONNECTOR, PLUG, ELECTRICAL (56P1)

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 8 OF 74

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	15	1	1010929-005	CONNECTOR, PLUG, ELECTRICAL (56P2)
9	16	1	1010929-102	CONNECTOR, PLUG, ELECTRICAL (56P3)
9	17	1	1010929-101	CONNECTOR, PLUG, ELECTRICAL (56P4)
9	18	1	1010929-103	CONNECTOR, PLUG, ELECTRICAL (56P5)
9	19	1	1010929-104	CONNECTOR, PLUG, ELECTRICAL (56P6)
9	20	1	1010929-108	CONNECTOR, PLUG, ELECTRICAL (56P7)
9	21	1	1010929-105	CONNECTOR, PLUG, ELECTRICAL (56P8)
9	22	X	1010770- 1	CONTACT, PIN, SUPPLIED WITH CONNECTOR 1010929
9	23	X	1010770- 2	CONTACT, SOCKET, SUPPLIED WITH CONNECTOR 1010929
9	24	311	1010955- 1	CONTACT, MALE
9	25	349	1010955- 2	CONTACT, MALE
	26	1	2014670- 4	ADAPTER, CONNECTOR
	27		2014670- 5	DELETED
	28	1	2014670- 7	ADAPTER, CONNECTOR
9	29	14	1012534- 36	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	30	2	1012534- 38	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	31	97	1010402- 2	SLEEVE, SOLDER
9	32	115	1010958- 1	PLUG, PROTECTIVE SEALING

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 9 OF 74

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	34	AR	1010989	TAPE, SHIELDING, EMI/RFI
	35	1	2014641-012	WIRE PER QQ-W-343, TYPE C, CLASS C, 22 AWG, 100 FT TOT LG
	36	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	37	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
9	38	AR	1012507-004	TAPE, LACING AND TYING
9	39	AR	1012503	COMPOUND, POTTING, POLYURETHANE
9	40	AR	1012504	PRIMER, METAL PARTS
9	41	AR	1010661	EPOXY RESIN
9	42	AR	1010679	ADHESIVE ACTIVATOR
9	43	AR	1008822	COLORANT, EPOXY BASE
9	44	AR	1006277	SILICA, PULVERIZED, PYROGENIC
9	45	AR	1006776- 44	INSULATION SLEEVING, 6 FEET TOTAL LENGTH
	46		MS17182-2	DELETED
	47	8	2021203	TERMINAL LUG, SOLDER
	48	8	MS35333-69	WASHER, LOCK
9	49	8	1006783- 93	SCREW, BUTTON HD
	50	5	MS35335-57	WASHER, LOCK
9	51	5	1006783- 18	SCREW, BUTTON HD

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR N	SHEET 10 OF 74

SEE NOTE

LIST OF MATERIALS

NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	52	4	MS25036-52	TERMINAL LUG
28	53	1	2014641-013	WIRE BRAID,QQ-B-575,.12DIA. 36AWG, 5 FT TOT LG
	54	2	2014670- 11	ADAPTER, CONNECTOR
	55	2	2014670- 12	ADAPTER, CONNECTOR
	56	1	2014670- 13	ADAPTER,CONNECTOR
	57	1	2014670- 15	ADAPTER,CONNECTOR
	58	1	MS25036-48	TERMINAL LUG
	59	445	1010490-114	SLEEVE, INSULATION (HEAT SHRINKABLE)
	60	AR	QQ-S-571	SOLDER SN60WRAP 2
	61	AR	QQ-S-571	SOLDER SN60WS
	62	AR	MIL-F-14256	FLUX, TYPE A

SIZE A CODE IDENT NO. 80230 2014641

SCALE-NONE REV LTR N SHEET 11 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	1		DELETED									
A	1A		DELETED									
A	1R		DELETED									
A	1Y		DELETED									
A	2		DELETED									
A	2A		DELETED									
A	2R		DELETED									
A	2Y		DELETED									
A	3		DELETED									
A	3A		DELETED									
A	3R		DELETED									
A	3Y		DELETED									

SIZE A CODE IDENT NO. 80230 2014641

SCALE-NONE REV LTR H SHEET 12 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	4		DELETED									
A	4A		DELETED									
A	4R		DELETED									
A	4Y		DELETED									
A	5		DELETED									
A	5A		DELETED									
A	5R		DELETED									
A	5Y		DELETED									
A	6		DELETED									
A	6A		DELETED									
A	6R		DELETED									
A	6Y		DELETED									

SIZE A CODE IDENT NO. 80230 2014641

SCALE-NONE REV LTR H SHEET 13 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	7		DELETED									
A	7A		DELETED									
A	7R		DELETED									
A	7Y		DELETED									
A	8		DELETED									
A	8A		DELETED									
A	8R		DELETED									
A	8Y		DELETED									
A	9		DELETED									
A	9A		DELETED									
A	9R		DELETED									
A	9Y		DELETED									

SIZE A CODE IDENT NO. 80230 2014641

SCALE-NONE REV LTR H SHEET 14 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	10		DELETED									
A	10A		DELETED									
A	10R		DELETED									
A	10Y		DELETED									
A	11		DELETED									
A	11A		DELETED									
A	11R		DELETED									
A	11Y		DELETED									
A	12		DELETED									
A	12A		DELETED									
A	12R		DELETED									
A	12Y		DELETED									

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 15 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	13		DELETED									
A	13A		DELETED									
A	13R		DELETED									
A	13Y		DELETED									
A	14		DELETED									
A	14A		DELETED									
A	14R		DELETED									
A	14Y		DELETED									
A	15		DELETED									
A	15A		DELETED									
A	15R		DELETED									
A	15Y		DELETED									

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 16 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	16		DELETED									
A	16A		DELETED									
A	16R		DELETED									
A	16Y		DELETED									
A	17		DELETED									
A	17A		DELETED									
A	17R		DELETED									
A	17Y		DELETED									
A	18		DELETED									
A	18A		DELETED									
A	18R		DELETED									
A	18Y		DELETED									

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 17 OF 74

WIRING HARNESS A 2014641 L

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	19		DELETED									
A	19A		DELETED									
A	19R		DELETED									
A	19Y		DELETED									
A	20		DELETED									
A	20A		DELETED									
A	20R		DELETED									
A	20Y		DELETED									
A	21	9			1.00 1.00	.75 .75				68 68	31 31	
A	21A	11	SHLD A21 P9-111					.20 .18	NO NO		24	BRANCH 1
A	21B	11	E3 SHLD A21					.19 .20	NO NO			
A	21R		P9-311 P10-515					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR L	SHEET 18 OF 74

WIRING HARNESS A 2014641 L

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 21Y			P9-211 P10-615					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 22	10				1.00 1.00	.75 .75				7 68	29 31	
A 22B	11		E3 SHLD A22					.19 .20	NO NO			
A 22G			P9-511 P10-536					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 5
A 22R			P9-611 P10-622					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 22Y			P9-411 P10-534					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 5
A 23	9				1.00 1.00	.75 .75				7 68	29 31	
A 23B	11		E4 SHLD A23					.19 .20	NO NO			
A 23R			P9-212 P10-112					.18 .18	NO NO		25 25	BRANCH 1
A 23Y			P9-112 P10-412					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 24	9				1.00 1.00	.75 .75				7 68	29 31	
A 24B	11		E4 SHLD A24					.19 .20	NO NO			

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SCALE-NONE | REV LTR L | SHEET 19 OF 74

WIRING HARNESS A 2014641 L

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24R			P9-412 P10-614					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 24Y			P9-312 P10-313					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 25	10				1.00 1.00	.75 .75				7 68	29 31	
A 25B	11		E4 SHLD A25					.19 .20	NO NO		52	
A 25G			P9-113 P10-514					.18 .18	NO NO		25 24	BRANCH 1 BRANCH 4
A 25R			P9-612 P10-314					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 25Y			P9-512 P10-414					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 26	9				1.00 1.00	.75 .75				7 68	29 31	
A 26B	11		E3 SHLD A26					.19 .20	NO NO		52	
A 26R			P9-313 P10-525					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 26Y			P9-213 P10-624					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 27	9				1.75 1.00	1.50 .75				68 68	31 31	

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR L | SHEET 20 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 27A	11		SHLD A27 P7-12					.20 .13	NO NO		22	
A 27B	11		P9-637 SHLD A27					.18 .20	NO NO		24	BRANCH 3
A 27R			P7-27 P9-437					.13 .18	NO NO		22 25	BRANCH 3
A 27Y			P7-13 P9-537					.13 .18	NO NO		22 25	BRANCH 3
A 28	9				1.75 1.00	1.50 .75				68 68	31 31	
A 28A	11		SHLD A28 P7-26					.20 .13	NO NO		22	
A 28B	11		P9-137 SHLD A28					.18 .20	NO NO		24	BRANCH 3
A 28R			P7-47 P9-237					.13 .18	NO NO		22 25	BRANCH 3
A 28Y			P7-46 P9-337					.13 .18	NO NO		22 25	BRANCH 3
A 29	9				1.75 1.00	1.50 .75				68 68	31 31	
A 29A	11		SHLD A29 P7-24					.20 .13	NO NO		22	
A 29B	11		P9-634 SHLD A29					.18 .20	NO NO		24	BRANCH 2

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR H | SHEET 21 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 29R			P7-44 P9-434					.13 .18	NO NO		22 25	BRANCH 2
A 29Y			P7-25 P9-534					.13 .18	NO NO		22 25	BRANCH 2
A 30	9				1.75 1.00	1.50 .75				68 68	31 31	
A 30A	11		SHLD A30 P7-5					.20 .13	NO NO		22	
A 30B	11		P9-335 SHLD A30					.18 .20	NO NO		24	BRANCH 2
A 30R			P7-4 P9-135					.13 .18	NO NO		22 25	BRANCH 2
A 30Y			P7-1 P9-235					.13 .18	NO NO		22 25	BRANCH 2
A 31	9				1.75 1.00	1.50 .75				68 68	31 31	
A 31A	11		SHLD A31 P7-3					.20 .13	NO NO		22	
A 31B	11		P9-635 SHLD A31					.18 .20	NO NO		24	BRANCH 2
A 31R			P7-11 P9-435					.13 .18	NO NO		22 25	BRANCH 2
A 31Y			P7-10 P9-535					.13 .18	NO NO		22 25	BRANCH 2

SIZE A | CODE IDENT NO. 80230 | 2014641

SCALE-NONE | REV LTR H | SHEET 22 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 32	4											
A 32R			P7-53 P9-536					.13 .18	NO NO		22 25	 BRANCH 3
A 32Y			P7-54 P9-636					.13 .18	NO NO		22 25	 BRANCH 3
A 33	9				1.75 1.00	1.50 .75				68 68	31 31	
A 33A	11		SHLD A33 P1-13					.20 .13	NO NO		 22	
A 33B	11		P9-332 SHLD A33					.18 .20	NO NO		24	BRANCH 2
A 33R			P1-28 P9-132					.13 .18	NO NO		22 25	 BRANCH 2
A 33Y			P1-27 P9-232					.13 .18	NO NO		22 25	 BRANCH 2
A 34	9				1.75 1.00	1.50 .75				68 68	31 31	
A 34A	11		SHLD A34 P1-1					.20 .13	NO NO		 22	
A 34B	11		P9-632 SHLD A34					.18 .20	NO NO		24	BRANCH 2
A 34R			P1-#4 P9-432					.13 .18	NO NO		22 25	 BRANCH 2

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR #M
SHEET 23 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 34Y			P1-#3 P9-532					.13 .18	NO NO		22 25	 BRANCH 2
A 35	9				1.75 1.00	1.50 .75				68 68	31 31	
A 35A	11		SHLD A35 P1-16					.20 .13	NO NO		 22	
A 35B	11		P9-333 SHLD A35					.18 .20	NO NO		24	BRANCH 2
A 35R			P1-#6 P9-133					.13 .18	NO NO		22 25	 BRANCH 2
A 35Y			P1-#5 P9-233					.13 .18	NO NO		22 25	 BRANCH 2
A 36	9				1.75 1.00	1.50 .75				68 68	31 31	
A 36A	11		SHLD A36 P1-17					.20 .13	NO NO		 22	
A 36B	11		P9-346 SHLD A36					.18 .20	NO NO		24	BRANCH 3
A 36R			P1-34 P9-146					.13 .18	NO NO		22 25	 BRANCH 3
A 36Y			P1-33 P9-246					.13 .18	NO NO		22 25	 BRANCH 3
A 37	9				1.75 1.00	1.50 .75				68 68	31 31	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR #M
SHEET 24 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 37A	11		SHLD A37 P1-18					.20 .13	NO NO		 22	
A 37B	11		P9-646 SHLD A37					.18 .20	NO NO		24	BRANCH 3
A 37R			P1-35 P9-446					.13 .18	NO NO		22 25	 BRANCH 3
A 37Y			P1-36 P9-546					.13 .18	NO NO		22 25	 BRANCH 3
A 38	9				1.75 1.00	1.50 .75				68 68	31 31	
A 38A	11		SHLD A38 P1-14					.20 .13	NO NO		 22	
A 38B	11		P9-348 SHLD A38					.18 .20	NO NO		24	BRANCH 3
A 38R			P1-30 P9-248					.13 .18	NO NO		22 25	 BRANCH 3
A 38Y			P1-29 P9-148					.13 .18	NO NO		22 25	 BRANCH 3
A 39	9				1.75 1.00	1.50 .75				68 68	31 31	
A 39A	11		SHLD A39 P1-15					.20 .13	NO NO		 22	
A 39B	11		P9-648 SHLD A39					.18 .20	NO NO		24	BRANCH 3

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CODE IDENT NO. 80230
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SCALE-NONE
REV LTR K
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 39R			P1-31 P9-448					.13 .18	NO NO		22 25	 BRANCH 3
A 39Y			P1-32 P9-548					.13 .18	NO NO		22 25	 BRANCH 3
A 40	9				1.75 1.00	1.50 .75				68 68	31 31	
A 40A	11		SHLD A40 P1-20					.20 .13	NO NO		 22	
A 40B	11		P9-633 SHLD A40					.18 .20	NO NO		24	BRANCH 2
A 40R			P1-19 P9-533					.13 .18	NO NO		22 25	 BRANCH 2
A 40Y			P1-37 P9-433					.13 .18	NO NO		22 25	 BRANCH 2
A 41	9				1.75 1.00	1.50 .75				68 68	31 31	
A 41A	11		SHLD A41 P1-21					.20 .13	NO NO		 22	
A 41B	11		P9-334 SHLD A41					.18 .20	NO NO		24	BRANCH 2
A 41R			P1-38 P9-234					.13 .18	NO NO		22 25	 BRANCH 2
A 41Y			P1-39 P9-134					.13 .18	NO NO		22 25	 BRANCH 2

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CODE IDENT NO. 80230
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SCALE-NONE
REV LTR K
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 42	6											
A 42G			P1-26 P9-421					.13 .18	NO NO		22 25	BRANCH 2
A 42R			P1-43 P9-620					.13 .18	NO NO		22 25	BRANCH 2
A 42Y			P1-44 P9-221					.13 .18	NO NO		22 25	BRANCH 2
A 43	6											
A 43G			P1-8 P9-222					.13 .18	NO NO		22 25	BRANCH 2
A 43R			P1-7 P9-621					.13 .18	NO NO		22 25	BRANCH 2
A 43Y			P1-2 P9-119					.13 .18	NO NO		22 25	BRANCH 2
A 46	2		P1-25 P9-422					.13 .18	NO NO		22 25	BRANCH 2
A 47	3											
A 47R			P1-40 P9-228					.13 .18	NO NO		22 24	BRANCH 2
A 47Y			P1-23 P9-328					.13 .18	NO NO		22 24	BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 48	3											
A 48R			P1-41 P9-428					.13 .18	NO NO		22 24	BRANCH 2
A 48Y			P1-42 P9-528					.13 .18	NO NO		22 24	BRANCH 2
A 49	9				1.75 1.00	1.50 .75				68 68	31 31	
A 49A	11		SHLD A49 P4-30					.20 .13	NO NO		22	
A 49B	11		P9-340 SHLD A49					.18 .20	NO NO		24	BRANCH 3
A 49R			P4-52 P9-140					.13 .18	NO NO		22 25	BRANCH 3
A 49Y			P4-51 P9-240					.13 .18	NO NO		22 25	BRANCH 3
A 50	9				1.75 1.00	1.50 .75				68 68	31 31	
A 50A	11		SHLD A50 P4-31					.20 .13	NO NO		22	
A 50B	11		P9-640 SHLD A50					.18 .20	NO NO		24	BRANCH 3
A 50R			P4-54 P9-440					.13 .18	NO NO		22 25	BRANCH 3

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 50Y			P4-53 P9-540					.13 .18	NO NO		22 25	BRANCH 3
A 51	9				1.75 1.00	1.50 .75				68 68	31 31	
A 51A	11		SHLD A51 P4-29					.20 .13	NO NO		22	
A 51B	11		P9-341 SHLD A51					.18 .20	NO NO		24	BRANCH 3
A 51R			P4-13 P9-141					.13 .18	NO NO		22 25	BRANCH 3
A 51Y			P4-14 P9-241					.13 .18	NO NO		22 25	BRANCH 3
A 52	9				1.75 1.00	1.50 .75				68 68	31 31	
A 52A	11		SHLD A52 P4-32					.20 .13	NO NO		22	
A 52B	11		P9-641 SHLD A52					.18 .20	NO NO		24	BRANCH 3
A 52R			P4-16 P9-441					.13 .18	NO NO		22 25	BRANCH 3
A 52Y			P4-15 P9-541					.13 .18	NO NO		22 25	BRANCH 3
A 53	9				1.75 1.00	1.50 .75				68 68	31 31	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 53A	11		SHLD A53 P4-36					.20 .13	NO NO		22	
A 53B	11		P9-342 SHLD A53					.18 .20	NO NO		24	BRANCH 3
A 53R			P4-59 P9-142					.13 .18	NO NO		22 25	BRANCH 3
A 53Y			P4-60 P9-242					.13 .18	NO NO		22 25	BRANCH 3
A 54	9				1.75 1.00	1.50 .75				68 68	31 31	
A 54A	11		SHLD A54 P4-37					.20 .13	NO NO		22	
A 54B	11		P9-642 SHLD A54					.18 .20	NO NO		24	BRANCH 3
A 54R			P4-61 P9-442					.13 .18	NO NO		22 25	BRANCH 3
A 54Y			P4-38 P9-542					.13 .18	NO NO		22 25	BRANCH 3
A 55	9				1.75 1.00	1.50 .75				68 68	31 31	
A 55A	11		SHLD A55 P4-33					.20 .13	NO NO		22	
A 55B	11		P9-343 SHLD A55					.18 .20	NO NO		24	BRANCH 3

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 55R			P4-56 P9-143					.13 .18	NO NO		22 25	BRANCH 3
A 55Y			P4-55 P9-243					.13 .18	NO NO		22 25	BRANCH 3
A 56	9				1.75 1.00	1.50 .75				68 68	31 31	
A 56A	11		SHLD A56 P4-34					.20 .13	NO NO		 22	
A 56B	11		P9-643 SHLD A56					.18 .20	NO NO		24	BRANCH 3
A 56R			P4-57 P9-443					.13 .18	NO NO		22 25	BRANCH 3
A 56Y			P4-58 P9-543					.13 .18	NO NO		22 25	BRANCH 3
A 57	9				1.75 1.00	1.50 .75				68 68	31 31	
A 57A	11		SHLD A57 P4-27					.20 .13	NO NO		 22	
A 57B	11		P9-344 SHLD A57					.18 .20	NO NO		24	BRANCH 3
A 57R			P4-48 P9-144					.13 .18	NO NO		22 25	BRANCH 3
A 57Y			P4-47 P9-244					.13 .18	NO NO		22 25	BRANCH 3

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 58	9				1.75 1.00	1.50 .75				68 68	31 31	
A 58A	11		SHLD A58 P4-28					.20 .13	NO NO		 22	
A 58B	11		P9-644 SHLD A58					.18 .20	NO NO		24	BRANCH 3
A 58R			P4-49 P9-444					.13 .18	NO NO		22 25	BRANCH 3
A 58Y			P4-50 P9-544					.13 .18	NO NO		22 25	BRANCH 3
A 59	9				1.75 1.00	1.50 .75				68 68	31 31	
A 59A	11		SHLD A59 P4-35					.20 .13	NO NO		 22	
A 59B	11		P9-345 SHLD A59					.18 .20	NO NO		24	BRANCH 3
A 59R			P4-17 P9-145					.13 .18	NO NO		22 25	BRANCH 3
A 59Y			P4-18 P9-245					.13 .18	NO NO		22 25	BRANCH 3
A 60	9				1.75 1.00	1.50 .75				68 68	31 31	
A 60A	11		SHLD A60 P4-20					.20 .13	NO NO		 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 60B	11		P9-645 SHLD A60					.18 .20	NO NO		24	BRANCH 3
A 60R			P4-19 P9-445					.13 .18	NO NO		22 25	BRANCH 3
A 60Y			P4-8 P9-545					.13 .18	NO NO		22 25	BRANCH 3
A 61	9				1.75 1.00	1.50 .75				68 68	31 31	
A 61A	11		SHLD A61 P4-22					.20 .13	NO NO		 22	
A 61B	11		P9-329 SHLD A61					.18 .20	NO NO		24	BRANCH 2
A 61R			P4-41 P9-129					.13 .18	NO NO		22 25	BRANCH 2
A 61Y			P4-42 P9-229					.13 .18	NO NO		22 25	BRANCH 2
A 62	9				1.75 1.00	1.50 .75				68 68	31 31	
A 62A	11		SHLD A62 P4-24					.20 .13	NO NO		 22	
A 62B	11		P9-629 SHLD A62					.18 .20	NO NO		24	BRANCH 2
A 62R			P4-43 P9-429					.13 .18	NO NO		22 25	BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 62Y			P4-44 P9-529					.13 .18	NO NO		22 25	BRANCH 2
A 63	9				1.75 1.00	1.50 .75				68 68	31 31	
A 63A	11		SHLD A63 P4-25					.20 .13	NO NO		 22	
A 63B	11		P9-330 SHLD A63					.18 .20	NO NO		24	BRANCH 2
A 63R			P4-45 P9-130					.13 .18	NO NO		22 25	BRANCH 2
A 63Y			P4-46 P9-230					.13 .18	NO NO		22 25	BRANCH 2
A 64	9				1.75 1.00	1.50 .75				68 68	31 31	
A 64A	11		SHLD A64 P4-21					.20 .13	NO NO		 22	
A 64B	11		P9-630 SHLD A64					.18 .20	NO NO		24	BRANCH 2
A 64R			P4-39 P9-430					.13 .18	NO NO		22 25	BRANCH 2
A 64Y			P4-40 P9-530					.13 .18	NO NO		22 25	BRANCH 2
A 65	9				1.75 1.00	1.50 .75				68 68	31 31	

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 65A	11		SHLD A65 P4-10					.20 .13	NO NO		 22	
A 65B	11		P9-331 SHLD A65					.18 .20	NO NO		24	BRANCH 2
A 65R			P4-9 P9-131					.13 .18	NO NO		22 25	 BRANCH 2
A 65Y			P4-23 P9-231					.13 .18	NO NO		22 25	 BRANCH 2
A 66	9				1.75 1.00	1.50 .75				68 68	31 31	
A 66A	11		SHLD A66 P4-11					.20 .13	NO NO		 22	
A 66B	11		P9-631 SHLD A66					.18 .20	NO NO		24	BRANCH 2
A 66R			P4-26 P9-431					.13 .18	NO NO		22 25	 BRANCH 2
A 66Y			P4-12 P9-531					.13 .18	NO NO		22 25	 BRANCH 2
A 67	9				1.75 1.00	1.50 .75				68 7	31 29	
A 67A	11		SHLD A67 P4-1					.20 .13	NO NO		 22	
A 67R			P4-6 P9-338					.13 .18	NO NO		22 25	 BRANCH 3

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 67Y			P4-7 P9-238					.13 .18	NO NO		22 25	 BRANCH 3
A 68	8				1.75 1.00	1.50 .75				68 7	31 29	
A 68A	11		SHLD A68 P4-2					.20 .13	NO NO		 22	
A 68R			DELETED									
A 68Y			P4-3 P9-138					.13 .18	NO NO		22 24	 BRANCH 3
A 69	1		P4-5 P9-336					.13 .18	NO NO		22 24	 BRANCH 3
A 70	1		P4-4 P9-136					.13 .18	NO NO		22 24	 BRANCH 3
A 71	1		P5-84 P9-236					.13 .18	NO NO		22 24	 BRANCH 3
A 72	1		P5-60 P9-436					.13 .18	NO NO		22 24	 BRANCH 3
A 74	4											F
A 74R			P2-55 P10-121					.13 .18	NO NO		23 25	F BRANCH 5
A 74Y			P2-56 P10-221					.13 .18	NO NO		23 25	F BRANCH 5

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SCALE-NONE | REV LTR J | SHEET 36 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 75	4											F
A 75R			P2-54 P10-120					.13 .18	NO NO		23 25	F BRANCH 5
A 75Y			P2-32 P10-220					.13 .18	NO NO		23 25	F BRANCH 5
A 76	4											F
A 76R			P2-17 P10-119					.13 .18	NO NO		23 25	F BRANCH 5
A 76Y			P2-33 P10-219					.13 .18	NO NO		23 25	F BRANCH 5
A 77	4											F
A 77R			P2-16 P10-118					.13 .18	NO NO		23 25	F BRANCH 5
A 77Y			P2-5 P10-218					.13 .18	NO NO		23 25	F BRANCH 5
A 78	4											F
A 78R			P2-57 P10-321					.13 .18	NO NO		23 25	F BRANCH 5
A 78Y			P2-34 P10-421					.13 .18	NO NO		23 25	F BRANCH 5

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 79	4											F
A 79R			P2-18 P10-320					.13 .18	NO NO		23 25	F BRANCH 5
A 79Y			P2-35 P10-420					.13 .18	NO NO		23 25	F BRANCH 5
A 80	4											F
A 80R			P2-52 P10-319					.13 .18	NO NO		23 25	F BRANCH 5
A 80Y			P2-53 P10-419					.13 .18	NO NO		23 25	F BRANCH 5
A 81	4											F
A 81R			P2-15 P10-318					.13 .18	NO NO		23 25	F BRANCH 5
A 81Y			P2-30 P10-418					.13 .18	NO NO		23 25	F BRANCH 5
A 82	4											F
A 82R			P2-50 P10-317					.13 .18	NO NO		23 25	F BRANCH 5
A 82Y			P2-51 P10-417					.13 .18	NO NO		23 25	F BRANCH 5

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 83	4											F
A 83R			P2-13 P10-323					.13 .18	NO NO		23 25	F BRANCH 5
A 83Y			P2-29 P10-423					.13 .18	NO NO		23 25	F BRANCH 5
A 84	4											F
A 84R			P2-12 P10-322					.13 .18	NO NO		23 25	F BRANCH 5
A 84Y			P2-27 P10-422					.13 .18	NO NO		23 25	F BRANCH 5
A 85	4											F
A 85R			P2-48 P10-316					.13 .18	NO NO		23 25	F BRANCH 5
A 85Y			P2-49 P10-416					.13 .18	NO NO		23 25	F BRANCH 5
A 86	4											F
A 86R			P2-1 P10-315					.13 .18	NO NO		23 25	F BRANCH 5
A 86Y			P2-4 P10-415					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 87	4											F
A 87R			P2-11 P10-324					.13 .18	NO NO		23 25	F BRANCH 5
A 87Y			P2-24 P10-424					.13 .18	NO NO		23 25	F BRANCH 5
A 88	4											F
A 88R			P2-10 P10-117					.13 .18	NO NO		23 24	F BRANCH 5
A 88Y			P2-2 P10-217					.13 .18	NO NO		23 25	F BRANCH 5
A 89	4											F
A 89R			P2-59 P10-139					.13 .18	NO NO		23 25	F BRANCH 5
A 89Y			P2-58 P10-239					.13 .18	NO NO		23 25	F BRANCH 5
A 90	4											F
A 90R			P2-7 P10-138					.13 .18	NO NO		23 25	F BRANCH 5
A 90Y			P2-6 P10-238					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 91	4											F
A 91R			P2-36 P10-137					.13 .18	NO NO		23 25	F BRANCH 5
A 91Y			P2-60 P10-237					.13 .18	NO NO		23 25	F BRANCH 5
A 92	4											F
A 92R			P2-8 P10-136					.13 .18	NO NO		23 25	F BRANCH 5
A 92Y			P2-19 P10-236					.13 .18	NO NO		23 25	F BRANCH 5
A 93	4											F
A 93R			P2-61 P10-135					.13 .18	NO NO		23 25	F BRANCH 5
A 93Y			P2-38 P10-235					.13 .18	NO NO		23 25	F BRANCH 5
A 94	4											F
A 94R			P2-39 P10-134					.13 .18	NO NO		23 25	F BRANCH 5
A 94Y			P2-20 P10-234					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 95	4											F
A 95R			P2-43 P10-327					.13 .18	NO NO		23 25	F BRANCH 5
A 95Y			P2-42 P10-427					.13 .18	NO NO		23 25	F BRANCH 5
A 96	4											F
A 96R			P2-22 P10-326					.13 .18	NO NO		23 25	F BRANCH 5
A 96Y			P2-9 P10-426					.13 .18	NO NO		23 25	F BRANCH 5
A 97	4											F
A 97R			P2-41 P10-325					.13 .18	NO NO		23 25	F BRANCH 5
A 97Y			P2-40 P10-425					.13 .18	NO NO		23 25	F BRANCH 5
A 98	10				1.75 1.00	1.50 .75				68 7	31 29	
A 98A	11		SHLD A98 P2-44					.20 .13	NO NO		 23	
A 98G			P2-25 P10-212					.13 .18	NO NO		23 24	BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 98R			P2-46 P10-113					.13 .18	NO NO		23 24	BRANCH 4
A 98Y			P2-45 P10-312					.13 .18	NO NO		23 24	BRANCH 4
A 99	8				1.75 1.00	1.50 .75				68 7	31 29	
A 99A	11		SHLD A99 P2-26					.20 .13	NO NO		23	
A 99R			DELETED									
A 99Y			P2-47 P10-114					.13 .18	NO NO		23 24	BRANCH 4
A 104	2		P3-1 P10-538					.13 .18	NO NO		22 25	E BRANCH 5
A 105	2		P3-7 P10-556					.13 .18	NO NO		22 25	E BRANCH 5
A 106	2		P3-2 P10-625					.13 .18	NO NO		22 25	E BRANCH 5
A 113	2		P3-8 P10-547					.13 .18	NO NO		22 25	E BRANCH 5
A 116	1		P5-66 P10-602					.13 .18	NO NO		22 24	D BRANCH 4
A 118	1		P5-45 P10-504					.13 .18	NO NO		22 24	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 125	2		P5-26 P10-409					.13 .22	NO NO		22	D BRANCH 4
A 127	5											A
A 127G			P5-53 P10-161					.13 .18	NO NO		22 24	A BRANCH 6
A 127R			P5-78 P10-159					.13 .18	NO NO		22 24	A BRANCH 6
A 127Y			P5-54 P10-160					.13 .18	NO NO		22 24	A BRANCH 6
A 128	5											A
A 128G			P5-55 P10-260					.13 .18	NO NO		22 24	A BRANCH 6
A 128R			P5-79 P10-261					.13 .18	NO NO		22 24	A BRANCH 6
A 128Y			P5-80 P10-259					.13 .18	NO NO		22 24	A BRANCH 6
A 129	5											A
A 129G			P5-16 P10-360					.13 .18	NO NO		22 24	A BRANCH 6
A 129R			P5-33 P10-361					.13 .18	NO NO		22 24	A BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 129Y			P5-32 P10-359					.13 .18	NO NO		22 24	A BRANCH 6
A 130	5											A
A 130G			P5-56 P10-460					.13 .18	NO NO		22 24	A BRANCH 6
A 130R			P5-81 P10-461					.13 .18	NO NO		22 24	A BRANCH 6
A 130Y			P5-57 P10-459					.13 .18	NO NO		22 24	A BRANCH 6
A 131	5											A
A 131G			P5-35 P10-560					.13 .18	NO NO		22 24	A BRANCH 6
A 131R			P5-58 P10-561					.13 .18	NO NO		22 24	A BRANCH 6
A 131Y			P5-34 P10-559					.13 .18	NO NO		22 24	A BRANCH 6
A 139	2		P6-77 P10-636					.13 .18	NO NO		22 25	C BRANCH 6
A 148	2		P6-20 P10-613					.13 .18	NO NO		22 25	C BRANCH 6
A 149	4											C

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 149R			P6-85 P10-133					.13 .18	NO NO		22 25	C BRANCH 6
A 149Y			P6-84 P10-233					.13 .18	NO NO		22 25	C BRANCH 6
A 150	4											C
A 150R			P6-82 P10-516					.13 .18	NO NO		22 25	C BRANCH 6
A 150Y			P6-57 P10-616					.13 .18	NO NO		22 25	C BRANCH 6
A 151	4											C
A 151R			P6-8 P10-158					.13 .18	NO NO		22 25	C BRANCH 6
A 151Y			P6-2 P10-258					.13 .18	NO NO		22 25	C BRANCH 6
A 152	4											C
A 152R			P6-19 P10-157					.13 .18	NO NO		22 25	C BRANCH 6
A 152Y			P6-7 P10-257					.13 .18	NO NO		22 25	C BRANCH 6
A 153	4											C

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCFSSORY ITEMS	REMARKS
A 153R			P6-6 P10-156					.13 .18	NO NO		22 25	C BRANCH 6
A 153Y			P6-1 P10-256					.13 .18	NO NO		22 25	C BRANCH 6
A 154	4											C
A 154R			P6-5 P10-155					.13 .18	NO NO		22 25	C BRANCH 6
A 154Y			P6-4 P10-255					.13 .18	NO NO		22 25	C BRANCH 6
A 155	4											C
A 155R			P6-15 P10-154					.13 .18	NO NO		22 25	C BRANCH 6
A 155Y			P6-16 P10-254					.13 .18	NO NO		22 25	C BRANCH 6
A 156	4											C
A 156R			P6-17 P10-153					.13 .18	NO NO		22 25	C BRANCH 6
A 156Y			P6-33 P10-253					.13 .18	NO NO		22 25	C BRANCH 6
A 157	4											C

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR J	SHEET 47 OF 74

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WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 157R			P6-61 P10-132					.13 .18	NO NO		22 25	C BRANCH 6
A 157Y			P6-60 P10-232					.13 .18	NO NO		22 25	C BRANCH 6
A 158	4											
A 158R			P6-37 P10-130					.13 .18	NO NO		22 25	C BRANCH 6
A 158Y			P6-36 P10-230					.13 .18	NO NO		22 25	C BRANCH 6
A 159	4											C
A 159R			P6-83 P10-352					.13 .18	NO NO		22 25	C BRANCH 6
A 159Y			P6-59 P10-452					.13 .18	NO NO		22 25	C BRANCH 6
A 160	4											C
A 160R			P6-35 P10-129					.13 .18	NO NO		22 25	C BRANCH 6
A 160Y			P6-18 P10-229					.13 .18	NO NO		22 25	C BRANCH 6
A 161	4											C

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR J	SHEET 48 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 161R			P6-58 P10-128					.13 .18	NO NO		22 25	C BRANCH 6
A 161Y			P6-34 P10-228					.13 .18	NO NO		22 25	C BRANCH 6
A 164	1		P8-9 P10-302					.13 .18	NO NO		22 24	B BRANCH 4
A 170	2		P8-5 P10-509					.13 .18	NO NO		22 25	B BRANCH 4
A 177	2		P8-8 P10-108					.13 .22	NO NO		22	B BRANCH 4
A 178	9				1.75 1.75	1.50 1.50				68 68	31 31	
A 178A	11		SHLD A178 P3-52					.20 .13	NO NO		 22	
A 178B	11		P7-21 SHLD A178					.13 .20	NO NO		22	
A 178R			P3-77 P7-40					.13 .13	NO NO		22 22	
A 178Y			P3-53 P7-22					.13 .13	NO NO		22 22	
A 179	9				1.75 1.75	1.50 1.50				68 68	31 31	
A 179A	11		SHLD A179 P3-30					.20 .13	NO NO		 22	

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR J	SHEET 49 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 179B	11		P7-23 SHLD A179					.13 .20	NO NO		22	
A 179R			P3-31 P7-42					.13 .13	NO NO		22 22	
A 179Y			P3-15 P7-43					.13 .13	NO NO		22 22	
A 180	9				1.75 1.75	1.50 1.50				68 68	31 31	
A 180A	11		SHLD A180 P3-51					.20 .13	NO NO		 22	
A 180B	11		P7-2 SHLD A180					.13 .20	NO NO		22	
A 180R			P3-75 P7-8					.13 .13	NO NO		22 22	
A 180Y			P3-76 P7-9					.13 .13	NO NO		22 22	
A 181	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 181A	11		SHLD A181 P3-46					.20 .13	NO NO		 22	
A 181R			P3-71 P7-38					.13 .13	NO NO		22 22	
A 181Y			P3-70 P7-39					.13 .13	NO NO		22 22	

SIZE A	CODE IDENT NO. 80230	2014641
SCALE-NONE	REV LTR J	SHEET 50 OF 74

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 182	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 182A	11		SHLD A182 P3-69					.20 .13	NO NO		 22	
A 182R			P3-45 P7-19					.13 .13	NO NO		22 22	
A 182Y			P3-44 P7-20					.13 .13	NO NO		22 22	
A 183	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 183A	11		SHLD A183 P3-28					.20 .13	NO NO		 22	
A 183R			P3-13 P7-60					.13 .13	NO NO		22 22	
A 183Y			P3-29 P7-61					.13 .13	NO NO		22 22	
A 184	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 184A	11		SHLD A184 P3-74					.20 .13	NO NO		 22	
A 184R			P3-49 P7-36					.13 .13	NO NO		22 22	
A 184Y			P3-50 P7-37					.13 .13	NO NO		22 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 185	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 185A	11		SHLD A185 P3-27					.20 .13	NO NO		 22	
A 185R			P3-26 P7-58					.13 .13	NO NO		22 22	
A 185Y			P3-47 P7-59					.13 .13	NO NO		22 22	
A 186	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 186A	11		SHLD A186 P3-48					.20 .13	NO NO		 22	
A 186R			P3-72 P7-35					.13 .13	NO NO		22 22	
A 186Y			P3-73 P7-18					.13 .13	NO NO		22 22	
A 187	3											
A 187R			P3-67 P7-57					.13 .13	NO NO		22 22	
A 187Y			P3-68 P7-34					.13 .13	NO NO		22 22	
A 188	7											

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 188G			P3-24 P7-51					.13 .13	NO NO		22 22	
A 188N			P3-43 P7-29					.13 .13	NO NO		22 22	
A 188R			P3-25 P7-50					.13 .13	NO NO		22 22	
A 188Y			P3-23 P7-28					.13 .13	NO NO		22 22	
A 189	4											
A 189R			P3-5 P7-49					.13 .13	NO NO		22 22	
A 189Y			P3-14 P7-48					.13 .13	NO NO		22 22	
A 195	2		P5-23 P10-608					.13 .22	NO NO		22	D BRANCH 4
A 196	2		P5-22 P10-609					.13 .22	NO NO		22	D BRANCH 4
A 198	6											
A 198G			P1-11 P9-521					.13 .18	NO NO		22 25	 BRANCH 2
A 198R			P1-10 P9-121					.13 .18	NO NO		22 25	 BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 198Y			P1-9 P9-321					.13 .18	NO NO		22 25	 BRANCH 2
A 199	5											A
A 199G			P5-5 P10-660					.13 .18	NO NO		22 24	A BRANCH 6
A 199R			P5-31 P10-661					.13 .18	NO NO		22 24	A BRANCH 6
A 199Y			P5-15 P10-659					.13 .18	NO NO		22 24	A BRANCH 6
A 200	2		P3-39 P10-202					.13 .18	NO NO		22 25	E BRANCH 5
A 201	2		P3-64 P10-102					.13 .18	NO NO		22 24	E BRANCH 5
A 202	2		P3-42 P10-652					.13 .18	NO NO		22 25	E BRANCH 5
A 203	2		P3-66 P10-551					.13 .18	NO NO		22 25	E BRANCH 5
A 204	2		P3-21 P10-552					.13 .18	NO NO		22 25	E BRANCH 5
A 205	2		P3-22 P10-651					.13 .18	NO NO		22 25	E BRANCH 5
A 206	2		P3-18 P10-548					.13 .18	NO NO		22 25	E BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 207	2		P3-36 P10-549					.13 .18	NO NO		22 25	E BRANCH 5
A 208	2		P3-19 P10-550					.13 .18	NO NO		22 25	E BRANCH 5
A 209	2		P3-41 P10-214					.13 .18	NO NO		22 25	E BRANCH 5
A 210	2		P3-65 P10-216					.13 .18	NO NO		22 25	E BRANCH 5
A 211	2		P3-40 P10-215					.13 .18	NO NO		22 25	E BRANCH 5
A 212	2		P3-33 P10-646					.13 .18	NO NO		22 25	E BRANCH 5
A 213	2		P3-17 P10-546					.13 .18	NO NO		22 25	E BRANCH 5
A 214	2		P3-57 P10-645					.13 .18	NO NO		22 25	E BRANCH 5
A 215	2		P3-82 P10-545					.13 .18	NO NO		22 25	E BRANCH 5
A 216	2		P3-81 P10-542					.13 .18	NO NO		22 25	E BRANCH 5
A 217	2		P3-80 P10-644					.13 .18	NO NO		22 25	E BRANCH 5
A 218	2		P3-56 P10-544					.13 .18	NO NO		22 25	E BRANCH 5

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 55 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 219	2		P3-84 P10-623					.13 .18	NO NO		22 25	E BRANCH 5
A 220	2		P3-60 P10-524					.13 .18	NO NO		22 25	E BRANCH 5
A 221	2		P3-59 P10-522					.13 .18	NO NO		22 25	F BRANCH 5
A 222	2		P3-62 P10-648					.13 .18	NO NO		22 25	E BRANCH 5
A 223	2		P3-63 P10-649					.13 .18	NO NO		22 25	E BRANCH 5
A 224	2		P3-38 P10-650					.13 .18	NO NO		22 25	E BRANCH 5
A 225	2		P5-38 P10-401					.13 .18	NO NO		22 25	D BRANCH 4
A 226	2		P5-62 P10-601					.13 .18	NO NO		22 25	D BRANCH 4
A 227	2		P5-63 P10-501					.13 .18	NO NO		22 25	D BRANCH 4
A 228	2		P5-64 P10-101					.13 .18	NO NO		22 24	D BRANCH 4
A 229	2		P5-40 P10-301					.13 .18	NO NO		22 25	D BRANCH 4
A 230	2		P5-39 P10-201					.13 .18	NO NO		22 25	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 56 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 231	2		P5-41 P10-502					.13 .22	NO NO		22 25	D BRANCH 4
A 232	2		P5-42 P10-402					.13 .22	NO NO		22	D BRANCH 4
A 233	2		P5-30 P10-204					.13 .22	NO NO		22	D BRANCH 4
A 234	2		P5-14 P10-505					.13 .22	NO NO		22	D BRANCH 4
A 235	2		P5-29 P10-605					.13 .22	NO NO		22	D BRANCH 4
A 236	2		P5-77 P10-506					.13 .22	NO NO		22	D BRANCH 4
A 237	2		P5-52 P10-404					.13 .22	NO NO		22	D BRANCH 4
A 238	2		P5-76 P10-304					.13 .22	NO NO		22	D BRANCH 4
A 239	2		P5-50 P10-405					.13 .22	NO NO		22	D BRANCH 4
A 240	2		P5-51 P10-606					.13 .22	NO NO		22	D BRANCH 4
A 241	2		P5-75 P10-205					.13 .22	NO NO		22	D BRANCH 4
A 242	2		P5-73 P10-607					.13 .22	NO NO		22	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 57 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 243	2		P5-74 P10-305					.13 .22	NO NO		22	D BRANCH 4
A 244	2		P5-49 P10-507					.13 .22	NO NO		22	D BRANCH 4
A 245	2		P5-13 P10-306					.13 .22	NO NO		22	D BRANCH 4
A 246	2		P5-28 P10-206					.13 .22	NO NO		22	D BRANCH 4
A 247	2		P5-27 P10-406					.13 .22	NO NO		22	D BRANCH 4
A 248	2		P5-47 P10-307					.13 .22	NO NO		22	D BRANCH 4
A 249	2		P5-46 P10-208					.13 .22	NO NO		22	D BRANCH 4
A 250	2		P5-4 P10-308					.13 .22	NO NO		22	D BRANCH 4
A 251	2		P5-12 P10-309					.13 .22	NO NO		22	C BRANCH 4
A 252	2		P5-71 P10-207					.13 .22	NO NO		22	D BRANCH 4
A 253	2		P5-72 P10-407					.13 .22	NO NO		22	D BRANCH 4
A 254	2		P5-48 P10-604					.13 .22	NO NO		22	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 58 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 255	3											A
A 255R			P5-44 P10-107					.13 .18	NO NO		22 24	A BRANCH 6
A 255Y			P5-68 P10-105					.13 .18	NO NO		22 24	A BRANCH 6
A 256	2		P6-14 P10-548					.13 .18	NO NO		22 25	C BRANCH 6
A 257	2		P6-30 P10-639					.13 .18	NO NO		22 25	C BRANCH 6
A 258	2		P6-48 P10-658					.13 .18	NO NO		22 25	C BRANCH 6
A 259	2		P6-72 P10-557					.13 .18	NO NO		22 25	C BRANCH 6
A 260	2		P6-73 P10-558					.13 .18	NO NO		22 25	C BRANCH 6
A 261	2		P6-49 P10-657					.13 .18	NO NO		22 25	C BRANCH 6
A 262	2		P6-28 P10-640					.13 .18	NO NO		22 25	C BRANCH 6
A 263	2		P6-29 P10-520					.13 .18	NO NO		22 25	C BRANCH 6
A 264	2		P6-76 P10-523					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 59 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 265	2		P6-75 P10-647					.13 .18	NO NO		22 25	C BRANCH 6
A 266	2		P6-50 P10-641					.13 .18	NO NO		22 25	C BRANCH 6
A 267	2		P6-74 P10-541					.13 .18	NO NO		22 25	C BRANCH 6
A 268	2		P6-40 P10-109					.13 .18	NO NO		22 25	C BRANCH 6
A 269	2		P6-21 P10-410					.13 .18	NO NO		22 25	C BRANCH 6
A 270	2		P6-65 P10-209					.13 .18	NO NO		22 25	C BRANCH 6
A 271	2		P6-22 P10-310					.13 .18	NO NO		22 25	C BRANCH 6
A 272	2		P6-66 P10-510					.13 .18	NO NO		22 25	C BRANCH 6
A 273	2		P6-42 P10-210					.13 .18	NO NO		22 25	C BRANCH 6
A 274	2		P6-41 P10-610					.13 .18	NO NO		22 25	C BRANCH 6
A 275	2		P6-67 P10-110					.13 .18	NO NO		22 25	C BRANCH 6
A 276	2		P6-10 P10-111					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 60 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 277	2		P6-24 P10-612					.13 .18	NO NO		22 25	C BRANCH 6
A 278	2		P6-9 P10-211					.13 .18	NO NO		22 25	C BRANCH 6
A 279	2		P6-23 P10-512					.13 .18	NO NO		22 25	C BRANCH 6
A 280	2		P6-68 P10-511					.13 .18	NO NO		22 25	C BRANCH 6
A 281	2		P6-69 P10-411					.13 .18	NO NO		22 25	C BRANCH 6
A 282	2		P6-43 P10-611					.13 .18	NO NO		22 25	C BRANCH 6
A 283	2		P6-44 P10-311					.13 .18	NO NO		22 25	C BRANCH 6
A 284	2		P6-46 P10-627					.13 .18	NO NO		22 25	C BRANCH 6
A 285	2		P6-25 P10-628					.13 .18	NO NO		22 25	C BRANCH 6
A 286	2		P6-45 P10-528					.13 .18	NO NO		22 25	C BRANCH 6
A 287	2		P6-71 P10-526					.13 .18	NO NO		22 25	C BRANCH 6
A 288	2		P6-70 P10-527					.13 .18	NO NO		22 25	C BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 61 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 289	2		P6-47 P10-626					.13 .18	NO NO		22 25	C BRANCH 6
A 290	2		P6-12 P10-654					.13 .18	NO NO		22 25	C BRANCH 6
A 291	2		P6-3 P10-655					.13 .18	NO NO		22 25	C BRANCH 6
A 292	2		P6-11 P10-555					.13 .18	NO NO		22 25	C BRANCH 6
A 293	2		P6-27 P10-553					.13 .18	NO NO		22 25	C BRANCH 6
A 294	2		P6-26 P10-554					.13 .18	NO NO		22 25	C BRANCH 6
A 295	2		P6-13 P10-653					.13 .18	NO NO		22 25	C BRANCH 6
A 296	2		P8-24 P10-403					.13 .18	NO NO		22 25	B BRANCH 4
A 297	2		P8-44 P10-603					.13 .18	NO NO		22 25	B BRANCH 4
A 298	2		P8-43 P10-503					.13 .18	NO NO		22 25	B BRANCH 4
A 299	2		P8-41 P10-103					.13 .18	NO NO		22 24	B BRANCH 4
A 300	2		P8-42 P10-303					.13 .18	NO NO		22 25	B BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 62 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 301	2		P8-23 P10-203					.13 .18	NO NO		22 25	B BRANCH 4
A 302	2		P8-22 P10-502					.13 .22	NO NO		22 24	B BRANCH 4
A 303	2		P8-10 P10-402					.13 .22	NO NO		22 24	B BRANCH 4
A 304	2		P8-52 P10-207					.13 .22	NO NO		22 24	B BRANCH 4
A 305	2		P8-50 P10-407					.13 .22	NO NO		22 24	B BRANCH 4
A 306	2		P8-51 P10-307					.13 .22	NO NO		22 24	B BRANCH 4
A 307	2		P8-31 P10-408					.13 .22	NO NO		22	B BRANCH 4
A 308	2		P8-53 P10-608					.13 .22	NO NO		22 24	B BRANCH 4
A 309	2		P8-54 P1C-508					.13 .22	NO NO		22	B BRANCH 4
A 310	2		P8-32 P10-208					.13 .22	NO NO		22 24	B BRANCH 4
A 311	2		P8-30 P10-309					.13 .22	NO NO		22 24	B BRANCH 4
A 312	2		P8-29 P10-308					.13 .22	NO NO		22 24	B BRANCH 4

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J
SHEET 63 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 313	2		P8-16 P10-409					.13 .22	NO NO		22 24	B BRANCH 4
A 314	2		P8-14 P10-604					.13 .22	NO NO		22 24	B BRANCH 4
A 315	2		P8-15 P10-609					.13 .22	NO NO		22 24	B BRANCH 4
A 316	1		P8-7 P10-106					.13 .18	NO NO		22 24	B BRANCH 4
A 317	1		P8-2 P10-104					.13 .18	NO NO		22 24	B BRANCH 4
A 318	2		P8-3 P10-607					.13 .22	NO NO		22 24	B BRANCH 4
A 319	2		P8-25 P10-606					.13 .22	NO NO		22 24	B BRANCH 4
A 320	2		P8-1 P10-507					.13 .22	NO NO		22 24	B BRANCH 4
A 321	2		P8-12 P10-406					.13 .22	NO NO		22 24	B BRANCH 4
A 322	2		P8-11 P10-506					.13 .22	NO NO		22 24	B BRANCH 4
A 323	2		P8-28 P10-405					.13 .22	NO NO		22 24	B BRANCH 4
A 324	2		P8-4 P10-206					.13 .22	NO NO		22 24	B BRANCH 4

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CODE IDENT NO. 80230
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SCALE-NONE
REV LTR J
SHEET 64 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 325	2		P8-13 P10-306					.13 .22	NO NO		22 24	B BRANCH 4
A 326	2		P8-26 P10-205					.13 .22	NO NO		22 24	B BRANCH 4
A 327	2		P8-27 P10-305					.13 .22	NO NO		22 24	B BRANCH 4
A 328	2		P8-47 P10-204					.13 .22	NO NO		22 24	B BRANCH 4
A 329	2		P8-45 P10-404					.13 .22	NO NO		22 24	B BRANCH 4
A 330	2		P8-46 P10-304					.13 .22	NO NO		22 24	B BRANCH 4
A 331	2		P8-48 P10-605					.13 .22	NO NO		22 24	B BRANCH 4
A 332	2		P8-49 P10-505					.13 .22	NO NO		22 24	B BRANCH 4
A 333	3									6A 6A	31 31	
A 333A	11		SHLD A333 E8					.20 .19	NO NO			
A 333B	11		E12 SHLD A333					.19 .20	NO NO			
A 333R			P3-3 P7-52					.13 .13	NO NO		22 22	

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SCALE-NONE
REV LTR J
SHEET 65 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 333Y			P3-11 P7-31					.13 .13	NO NO		22 22	
A 334	8				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 334A	11		SHLD A334 E8					.20 .19	NO NO		 47	
A 334B	11		E11 SHLD A334					.19 .20	NO NO		47	
A 334R			DELETED									
A 334Y			P3-4 P6-51					.13 .13	NO NO		22 22	
A 335	9				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 335A	11		SHLD A335 E10					.20 .19	NO NO			
A 335B	11		E12 SHLD A335					.19 .20	NO NO		47	
A 335R			P5-19 P7-15					.13 .13	NO NO		22 22	
A 335Y			P5-18 P7-16					.13 .13	NO NO		22 22	
A 336	9				1.75 1.75	1.50 1.50				6A 6A	31 31	

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REV LTR J
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 336A	11		SHLD A336					.20	NO			
			E10					.19	NO			
A 336B	11		E13					.19	NO			
			SHLD A336					.20	NO			
A 336R			P5-7					.13	NO		22	
			P7-30					.13	NO		22	
A 336Y			P5-8					.13	NO		22	
			P7-14					.13	NO		22	
A 337	3									6A	31	
										6A	31	
A 337A	11		SHLD A337					.20	NO			
			E10					.19	NO		47	
A 337B	11		E13					.19	NO		47	
			SHLD A337					.20	NO			
A 337R			P5-9					.13	NO		22	
			P7-6					.13	NO		22	
A 337Y			P5-2					.13	NO		22	
			P7-7					.13	NO		22	
A 338	2		P5-10					.13	NO		22	D
			P10-508					.22	NO		24	BRANCH 4
A 339	2		P5-24					.13	NO		22	D
			P10-408					.22	NO		24	BRANCH 4
A 340	35		E7					.19	NO		47	F
			E5					.19	NO			

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 341	35		E8					.19	NO			E
			E5					.19	NO			
A 342	35		E9					.19	NO			D
			E5					.19	NO		52	
A 343	35		E9					.19	NO		47	A
			E6					.19	NO			
A 344	35		E11					.19	NO			C
			E6					.19	NO			
A 345	35		E14					.19	NO		47	B
			E6					.19	NO		52	
A 346	2		P5-43					.13	NO		22	A
			P10-108					.22	NO		24	BRANCH 6
A 347	35		E3					.19	NO			G
			E36					.19	NO		58	
A 348	4											G
A 348R			P9-610					.18	NO		25	G, BRANCH 1
			P10-332					.18	NO		25	BRANCH 5
A 348Y			P9-510					.18	NO		25	G, BRANCH 1
			P10-432					.18	NO		25	BRANCH 5
A 349	4											G
A 349R			P9-310					.18	NO		25	G, BRANCH 1
			P10-330					.18	NO		25	BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 349Y			P9-210					.18	NO		25	G, BRANCH 1
			P10-430					.18	NO		25	BRANCH 5
A 350	4											G
A 350R			P9-609					.18	NO		25	G, BRANCH 1
			P10-329					.18	NO		25	BRANCH 5
A 350Y			P9-509					.18	NO		25	G, BRANCH 1
			P10-429					.18	NO		25	BRANCH 5
A 351	4											G
A 351R			P9-309					.18	NO		25	G, BRANCH 1
			P10-328					.18	NO		25	BRANCH 5
A 351Y			P9-209					.18	NO		25	G, BRANCH 1
			P10-428					.18	NO		25	BRANCH 5
A 352	4											G
A 352R			P9-608					.18	NO		25	G, BRANCH 1
			P10-334					.18	NO		25	BRANCH 5
A 352Y			P9-508					.18	NO		25	G, BRANCH 1
			P10-434					.18	NO		25	BRANCH 5
A 353	4											G
A 353R			P9-308					.18	NO		25	G, BRANCH 1
			P10-333					.18	NO		25	BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 353Y			P9-208					.18	NO		25	G, BRANCH 1
			P10-433					.18	NO		25	BRANCH 5
A 354	4											G
A 354R			P9-607					.18	NO		25	G, BRANCH 1
			P10-338					.18	NO		25	BRANCH 5
A 354Y			P9-507					.18	NO		25	G, BRANCH 1
			P10-438					.18	NO		25	BRANCH 5
A 355	4											G
A 355R			P9-307					.18	NO		25	G, BRANCH 1
			P10-337					.18	NO		25	BRANCH 5
A 355Y			P9-207					.18	NO		25	B, BRANCH 1
			P10-437					.18	NO		25	BRANCH 5
A 356	4											G
A 356R			P9-606					.18	NO		25	G, BRANCH 1
			P10-336					.18	NO		25	BRANCH 5
A 356Y			P9-506					.18	NO		25	G, BRANCH 1
			P10-436					.18	NO		25	BRANCH 5
A 357	4											G
A 357R			P9-306					.18	NO		25	G, BRANCH 1
			P10-335					.18	NO		25	BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 357Y			P9-206 P10-435					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 358	4											G
A 358R			P9-605 P10-146					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 358Y			P9-505 P10-246					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359	4											G
A 359R			P9-305 P10-145					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359Y			P9-205 P10-245					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360	4											G
A 360R			P9-604 P10-144					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360Y			P9-504 P10-244					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 361	4											G
A 361R			P9-304 P10-143					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 361Y			P9-204 P10-243					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 362	4											G
A 362R			P9-603 P10-148					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 362Y			P9-503 P10-248					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363	4											G
A 363R			P9-303 P10-147					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363Y			P9-203 P10-247					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364	4											G
A 364R			P9-602 P10-152					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364Y			P9-502 P10-252					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 365	4											G
A 365R			P9-302 P10-151					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J

MIL 2084 9-65

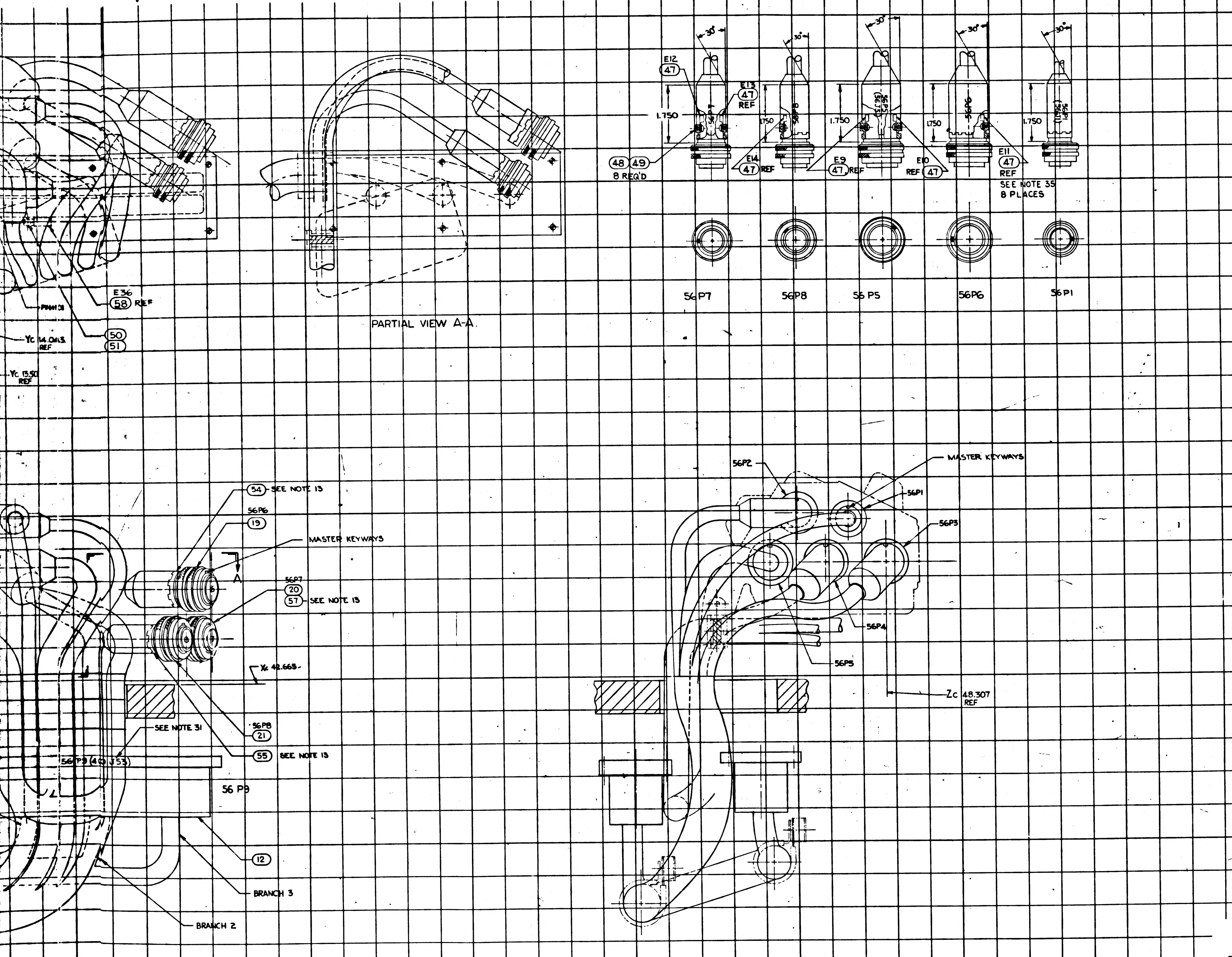
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 365Y			P9-202 P10-251					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 366	4											G
A 366R			P9-601 P10-150					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 366Y			P9-501 P10-250					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367	4											G
A 367R			P9-301 P10-149					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367Y			P9-201 P10-249					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE
REV LTR J

MIL 2084 9-65

REVISIONS TDRR 25841				
SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

(N) (M) SEE SHEET 1 FOR REVISION RECORD



E12
47
E13
47
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48 49
8 REQ'D
E14
47 REF
E9
47 REF
E10
REF 47
E11
47
REF
SEE NOTE 35
8 PLACES
56P7
56P8
56P5
56P6
56P1
E36
58 REF
PIN H 31
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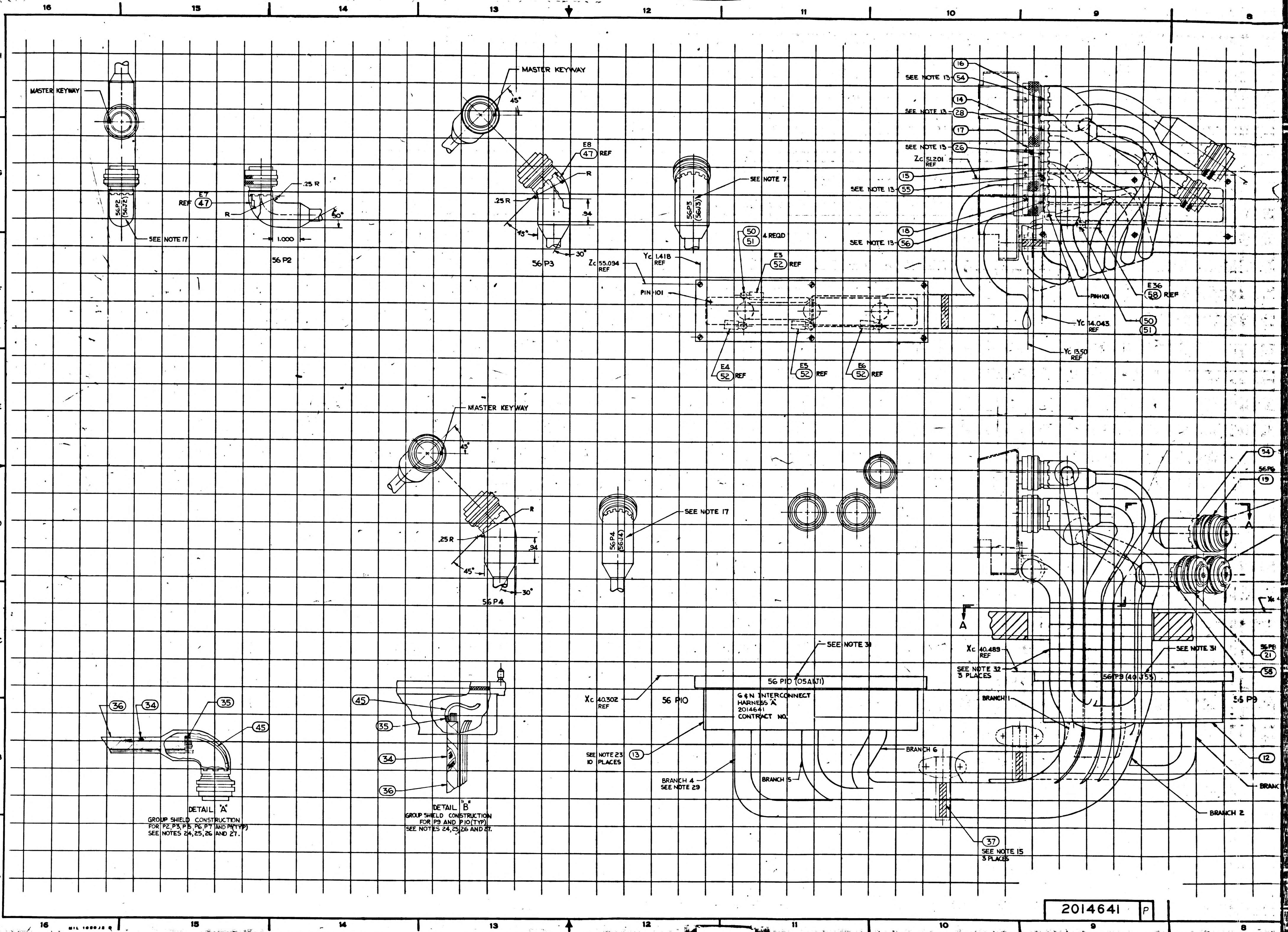
51
Yc 14.013 REF
Yc 13.50 REF
PARTIAL VIEW A-A
54 SEE NOTE 13
56P6
19
MASTER KEYWAYS
56P7
20
57 SEE NOTE 13
A
Yc 42.663
56P8
21
SEE NOTE 31
55 SEE NOTE 13
56P9 (40) J53
56 P9
12
BRANCH 3
BRANCH 2
56P2
MASTER KEYWAYS
56P1
56P3
56P4
56P5
Zc 48.307 REF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	MIT INSTRUMENTATION LAB Cambridge Mass	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
FRACTIONS ± DECIMALS ± ANGLES ±	DRAWN J Kubick DATE 1/26/66 CHECKED N. E. Abraham 1/27/66 APPROVAL Carl Watson 1 FEB 66 APPROVAL 2/1/66	G&N INTERCONNECT HARNESS "A" (C/M BLOCK II)
DO NOT SCALE THIS DRAWING		
MATERIAL	NASA APPROVAL A. C. METZGER	CODE IDENT NO. 80230 · SIZE J2 · 2014641
CONTRACT	MIT APPROVAL 1 Feb 66	SCALE · SHEET 74 OF 74

2014641 P

2/2014641


16
15
14
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H
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D
C
B
A
MASTER KEYWAY
SEE NOTE 17
56P2 (56J2)
E7
REF 47
R
.25 R
60°
1.000
56 P2
MASTER KEYWAY
45°
E8
47 REF
R
.25 R
.94
45°
30°
56 P3
56P3 (56J3)
SEE NOTE 7
Yc 1.418 REF
Zc 55.094 REF
PIN 101
50
51
4 REQD
E3
52 REF
E4
52 REF
E5
52 REF
E6
52 REF
16
SEE NOTE 13 54
14
SEE NOTE 13 28
17
SEE NOTE 13 26
Zc 51.201 REF
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SEE NOTE 13 55
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SEE NOTE 13 56
PIN 101
E36
58 REF
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Yc 14.043 REF
Yc 13.50 REF
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56 P4
56P4 (56J4)
SEE NOTE 17
54
56P6
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Xc 4
Xc 40.489 REF
SEE NOTE 32 3 PLACES
SEE NOTE 31
56P9 (40J53)
56 P9
56P8
21
58
12
BRANCH 1
BRANCH
BRANCH 2
SEE NOTE 31
56 P10 (05A1J1)
Xc 40.302 REF
56 P10
G & N INTERCONNECT
HARNESS "A"
2014641
CONTRACT NO.
SEE NOTE 23 10 PLACES
13
BRANCH 6
BRANCH 4 SEE NOTE 29
BRANCH 5
37
SEE NOTE 15 3 PLACES
36
34
35
45
DETAIL "A"
GROUP SHIELD CONSTRUCTION
FOR P2, P3, P5, P6, P7 AND P8 (TYP)
SEE NOTES 24, 25, 26 AND 27.
45
35
34
36
DETAIL "B"
GROUP SHIELD CONSTRUCTION
FOR P9 AND P10 (TYP)
SEE NOTES 24, 25, 26 AND 27.
MIL 1000/2 Q

2014641	P

1/2014641

APPLICATION	
NEXT ASSY	USED ON
2014567-011	2014567-011

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
E	REPLACES REV D WITH CHANGE PER TDRR		
F	CH..D PER TDRR 24806		
G	Revised per TDRR 25306	2-4-66	
H	REVISED PER TDRR 25886	10 FEB 66	RCP EF
J	REVISED PER TDRR 25841	18 FEB 66	DRD EF
K	REVISED PER TDRR 27430	30 MAR 66	RP
L	REVISED PER TDRR 28021	19 APR 66	R.W.T.
M	REVISED PER TDRR 28020	21 APR 66	R.W.T. CP
N	REVISED PER TDRR 28406	9 MAY 66	PHG
P	REVISED PER TDRR 29549	17-JUN-66	B.
R	REVISED PER TDRR 29543	21-JUN-66	B. JAC

REPLACES REV D WITH CHANGE

REV	H	H	M	M	K	K	H	H	H	H	H	H	H	H	H	R	J	J	J	J	J	J	R	J	J	J
SHEET	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
REV STATUS OF SHEETS REV							R	R	J	R	R	N	H	J	R	R	R	H	H	H	H	H	H	L	L	L
SHEET							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DWG NO
CONTRACT

DRAWN Janowiak DATE 7 DEC 65
CHECKED W. Diehl 7 DEC 65
APPROVAL 8 DEC 65
APPROVAL 12/10/65
NASA APPROVAL R. C. METZGER
MIT APPROVAL
CONTRACT NAS9-497

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INTERCONNECT HARNESS "A"
(C/M, BLOCK II)

CODE IDENT NO.	SIZE		REV
80230	A	2014641	R
SCALE		SHEET 1 OF 74	

REVISION STATUS OF SHEETS

SH	REV
47	J
48	J
49	J
50	J
51	J
52	J
53	J
54	J
55	J
56	J
57	J
58	J
59	J
60	J
61	J
62	J
63	J
64	J
65	J
66	R
67	L
68	L
69	J
70	J
71	J
72	J
73	J
74	R

SIZE	CODE IDENT. NO.	
A	80230	2014641
SCALE NONE	REV LTR R	SHEET 2 of ~~68~~ 74

MIL 1377A3 8-65

NOTE NUMBER — GENERAL NOTES DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6A AND 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014671.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
   A - FROM END OF SHIELD
   B - TO END OF SHIELD
   G - GREEN
   K - BLACK
   L - BLUE
   N - BROWN
   R - RED
   W - WHITE
   Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	J	SHEET 3 OF 74

NOTE NUMBER — GENERAL NOTES DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
   CONNECTOR 56P2, USE ITEM NUMBERS 23 AND 32.
   CONNECTOR 56P1,3,4,5,6,7, AND 8 USE ITEM NUMBERS 22 AND 32.
   CONNECTOR 56P9, AND P10 USE ITEM NUMBER 24.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 38.

13 APPLY BONDING MATERIAL PER ND1002187, TYPE I, USING ITEMS 41 AND 42 TO THE THREADED PORTION OF CONNECTOR AND TO THE THREADED PORTION OF THE ADAPTER PRIOR TO ASSEMBLY.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS OR ACCESSORIES AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	R	SHEET 4 OF 74

NOTE NUMBER — GENERAL NOTES DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
   A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
   B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED, INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE. SHORT CIRCUIT CURRENT LIMITED TO 15 MILLIAMPS.

22 DELETED

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 39 AND 40.

24 CONDUCTORS WITH AN A,B,C,D,E,F OR G IN THE REMARKS COLUMN ARE TO BE GROUP SHIELDED PER DETAIL A AND/OR B OF THE CONF. DRAWING.

25 GROUP SHIELDING - THREAD ONE CONTINUOUS LENGTH OF GROUND WIRE, ITEM 35, THROUGH CENTER OF EMI/RFI SHIELDING TAPE. ITEM 34. ALLOW 6 INCHES OF GROUND WIRE TO EXTEND BEYOND ENDS OF SHIELDING TAPE. WRAP CABLE WITH ONE CONTINUOUS LENGTH OF PREPARED SHIELDING. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE, WITH A MINIMUM OF RIDGES AND FOLDS.

26 COMPLETELY COVER SHIELD WITH ONE CONTINUOUS WRAP OF INSULATION TAPE, ITEM 36. SUCCESSIVE TURNS SHALL OVERLAP BY APPROXIMATELY 1/2 THE WIDTH OF THE TAPE WITH A MINIMUM OF RIDGES AND FOLDS. WRAP TAPE IN OPPOSITE DIRECTION TO SHIELD WRAP.

27 ASSEMBLE INSULATION TUBING, ITEM 45, OVER GROUND WIRE AS REQUIRED TO REACH TERMINATION. ASSEMBLE SHRINK SLEEVING AS SHOWN.

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	R	SHEET 5 OF 74

NOTE NUMBER — GENERAL NOTES DESCRIPTION

28 ASSEMBLE A LENGTH OF WIRE BRAID ITEM 53 OVER CONDUCTORS A333 AND A337. ALLOW 1.75 INCH OF LEAD TO EXTEND BEYOND BRAID. COVER BRAID WITH TEFLON TAPE, ITEM 36, PER NOTE 26. ALLOW .25 INCH OF BRAID TO EXTEND BEYOND TAPE. FOLD BRAID OVER TAPE AND TERMINATE PER ND1002071, FIG. 6B.

29 CONDUCTORS SHALL ENTER CONNECTORS 56P9 AND 56P10 THROUGH THE APPROPRIATE BRANCH SPECIFIED IN THE REMARKS COLUMN.

31 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 GRMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACECRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICROSECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

32 MARK CHARACTERS .10-.14 HIGH, BLACK, PER ND 1002019. CENTRALIZE AS SHOWN

33 LACE HARNESS BRANCHES TOGETHER USING A CONTINUOUS CLOVE HITCH AT LOCATIONS SHOWN.

34 ASSEMBLE SHRINK SLEEVE, ITEM 59, OVER EACH ELECTRICALLY CONNECTED PIN OF CONNECTORS P9 AND P10. POSITION SLEEVING FLUSH TO TOP OF NYLON INSULATOR.

35 SOLDER PER ND1002071 USING ITEMS 60 OR 61 AND 62.

SIZE	CODE IDENT NO.		
A	80230	2014641	
SCALE-NONE	REV LTR	N	SHEET 6 OF 74

NOTE NUMBER | GENERAL NOTES DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014641- 1	WIRE PER 1010789-006, 22 AWG, YEL, 25 FT TOT LG
	2	1	2014641- 2	WIRE PER 1010789-016, 26 AWG, YEL, 50 FT TOT LG
	3	1	2014641- 3	WIRE PER 1010789-008, 22 AWG, YEL, RED, 15 FT TOT LG
	4	1	2014641- 4	WIRE PER 1010789-017, 26 AWG, YEL, RED, 220 FT TOT LG
	5	1	2014641- 5	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 20 FT TOT LG
	6	1	2014641- 6	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN 90 FT TOT LG
	7	1	2014641- 7	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 25 FT TOT LG
	8	1	2014641- 8	WIRE PER 1010789-011, 24 AWG, YEL, YEL JKT, 10 FT TOT LG
	9	1	2014641- 9	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 150 FT TOT LG
	10	1	2014641- 10	WIRE PER 1010789-013, 24 AWG, YEL, RED, GRN, YEL JKT, 10 FT TOT LG
	11	1	2014641- 11	WIRE PER 1010789-002, 24 AWG, BLK, 80 FT TOT LG
	12	1	2014741-011	CONNECTOR, PLUG, ELECTRICAL (56P9)
	13	1	2014749-011	CONNECTOR, PLUG, ELECTRICAL (56P10)
9	14	1	1010929-109	CONNECTOR, PLUG, ELECTRICAL (56P1)

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	15	1	1010929-005	CONNECTOR, PLUG, ELECTRICAL (56P2)
9	16	1	1010929-102	CONNECTOR, PLUG, ELECTRICAL (56P3)
9	17	1	1010929-101	CONNECTOR, PLUG, ELECTRICAL (56P4)
9	18	1	1010929-103	CONNECTOR, PLUG, ELECTRICAL (56P5)
9	19	1	1010929-104	CONNECTOR, PLUG, ELECTRICAL (56P6)
9	20	1	1010929-108	CONNECTOR, PLUG, ELECTRICAL (56P7)
9	21	1	1010929-105	CONNECTOR, PLUG, ELECTRICAL (56P8)
9	22	X	1010770- 1	CONTACT, PIN, SUPPLIED WITH CONNECTOR 1010929
9	23	X	1010770- 2	CONTACT, SOCKET, SUPPLIED WITH CONNECTOR 1010929
9	24	311	1010955- 1	CONTACT, MALE
9	25	349	1010955- 2	CONTACT, MALE
	26	1	2014670- 4	ADAPTER, CONNECTOR
	27		2014670- 5	DELETED
	28	1	2014670- 7	ADAPTER, CONNECTOR
9	29	14	1012534- 36	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	30	2	1012534- 38	SLEEVE, INSULATION (HEAT SHRINKABLE)
9	31	93	1010402- 2	SLEEVE, SOLDER
9	32	115	1010958- 1	PLUG, PROTECTIVE SEALING

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	34	AR	1010989	TAPE, SHIELDING, EMI/RFI
	35	1	2014641-012	WIRE PER QQ-W-343, TYPE C, CLASS C, UNCOATED, SILVER PLATED, 22AWG, 100 FT TOT LG
	36	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	37	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
9	38	AR	1012507-004	TAPE, LACING AND TYING
9	39	AR	1012503	COMPOUND, POTTING, POLYURETHANE
9	40	AR	1012504	PRIMER, METAL PARTS
9	41	AR	1010661	EPOXY RESIN
9	42	AR	1010679	ADHESIVE ACTIVATOR
	43		1008822	DELETED
	44		1006277	DELETED
9	45	AR	1006776- 19	INSULATION SLEEVING, 6 FEET TOTAL LENGTH
	46		MS17182-2	DELETED
	47	8	2021203	TERMINAL LUG, SOLDER
	48	8	MS35333-69	WASHER, LOCK
9	49	8	1006783- 93	SCREW, BUTTON HD
	50		MS35335-57	DELETED
9	51	5	1006783- 18	SCREW, BUTTON HD

WIRING HARNESS A 2014641 R

SEE NOTE

LIST OF MATERIALS

NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	52	4	MS25036-52	TERMINAL LUG
28	53	1	2014641-013	WIRE BRAID,QQ-B-575,.12DIA. 36AWG, 5 FT TOT LG
	54	2	2014670- 11	ADAPTER, CONNECTOR
	55	2	2014670- 12	ADAPTER, CONNECTOR
	56	1	2014670- 13	ADAPTER,CONNECTOR
	57	1	2014670- 15	ADAPTER,CONNECTOR
	58	1	MS25036-48	TERMINAL LUG
	59	445	1010490-114	SLEEVE, INSULATION (HEAT SHRINKABLE)
	60	AR	QQ-S-571	SOLDER SN60WRAP 2
	61	AR	QQ-S-571	SOLDER SN60WS
	62	AR	MIL-F-14256	FLUX, TYPE A
	63	4	1010402- 1	SLEEVE, SOLDER

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR R	SHEET 11 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	1		DELETED									
A	1A		DELETED									
A	1R		DELETED									
A	1Y		DELETED									
A	2		DELETED									
A	2A		DELETED									
A	2R		DELETED									
A	2Y		DELETED									
A	3		DELETED									
A	3A		DELETED									
A	3R		DELETED									
A	3Y		DELETED									

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 12 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	4		DELETED									
A	4A		DELETED									
A	4R		DELETED									
A	4Y		DELETED									
A	5		DELETED									
A	5A		DELETED									
A	5R		DELETED									
A	5Y		DELETED									
A	6		DELETED									
A	6A		DELETED									
A	6R		DELETED									
A	6Y		DELETED									

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 13 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	7		DELETED									
A	7A		DELETED									
A	7R		DELETED									
A	7Y		DELETED									
A	8		DELETED									
A	8A		DELETED									
A	8R		DELETED									
A	8Y		DELETED									
A	9		DELETED									
A	9A		DELETED									
A	9R		DELETED									
A	9Y		DELETED									

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 14 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	10		DELETED									
A	10A		DELETED									
A	10R		DELETED									
A	10Y		DELETED									
A	11		DELETED									
A	11A		DELETED									
A	11R		DELETED									
A	11Y		DELETED									
A	12		DELETED									
A	12A		DELETED									
A	12R		DELETED									
A	12Y		DELETED									

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	13		DELETED									
A	13A		DELETED									
A	13R		DELETED									
A	13Y		DELETED									
A	14		DELETED									
A	14A		DELETED									
A	14R		DELETED									
A	14Y		DELETED									
A	15		DELETED									
A	15A		DELETED									
A	15R		DELETED									
A	15Y		DELETED									

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	16		DELETED									
A	16A		DELETED									
A	16R		DELETED									
A	16Y		DELETED									
A	17		DELETED									
A	17A		DELETED									
A	17R		DELETED									
A	17Y		DELETED									
A	18		DELETED									
A	18A		DELETED									
A	18R		DELETED									
A	18Y		DELETED									

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	19		DELETED									
A	19A		DELETED									
A	19R		DELETED									
A	19Y		DELETED									
A	20		DELETED									
A	20A		DELETED									
A	20R		DELETED									
A	20Y		DELETED									
A	21	9			1.00 1.00	.75 .75				68 68	31 31	
A	21A	11	SHLD A21 P9-111					.20 .18	NO NO		 24	 BRANCH 1
A	21B	11	E3 SHLD A21					.19 .20	NO NO			
A	21R		P9-311 P10-515					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 21Y			P9-211 P10-615					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 22	10				1.00 1.00	.75 .75				7 68	29 31	
A 22B	11		E3 SHLD A22					.19 .20	NO NO			
A 22G			P9-511 P10-536					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 5
A 22R			P9-611 P10-622					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 22Y			P9-411 P10-534					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 5
A 23	9				1.00 1.00	.75 .75				7 68	29 31	
A 23B	11		E4 SHLD A23					.19 .20	NO NO			
A 23R			P9-212 P10-112					.18 .18	NO NO		25 25	BRANCH 1
A 23Y			P9-112 P10-412					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 24	9				1.00 1.00	.75 .75				7 68	29 31	
A 24B	11		E4 SHLD A24					.19 .20	NO NO			

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR L	SHEET 19 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 24R			P9-412 P10-614					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 24Y			P9-312 P10-313					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 25	10				1.00 1.00	.75 .75				7 68	29 31	
A 25B	11		E4 SHLD A25					.19 .20	NO NO		52	
A 25G			P9-113 P10-514					.18 .18	NO NO		25 24	BRANCH 1 BRANCH 4
A 25R			P9-612 P10-314					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 25Y			P9-512 P10-414					.18 .18	NO NO		24 24	BRANCH 1 BRANCH 4
A 26	9				1.00 1.00	.75 .75				7 68	29 31	
A 26B	11		E3 SHLD A26					.19 .20	NO NO		52	
A 26R			P9-313 P10-525					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 26Y			P9-213 P10-624					.18 .18	NO NO		25 25	BRANCH 1 BRANCH 4
A 27	9				1.75 1.00	1.50 .75				68 68	31 31	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR L	SHEET 20 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 27A	11		SHLD A27 P7-12					.20 .13	NO NO		 22	
A 27B	11		P9-637 SHLD A27					.18 .20	NO NO		24	BRANCH 3
A 27R			P7-27 P9-437					.13 .18	NO NO		22 25	 BRANCH 3
A 27Y			P7-13 P9-537					.13 .18	NO NO		22 25	 BRANCH 3
A 28	9				1.75 1.00	1.50 .75				68 68	31 31	
A 28A	11		SHLD A28 P7-26					.20 .13	NO NO		 22	
A 28B	11		P9-137 SHLD A28					.18 .20	NO NO		24	BRANCH 3
A 28R			P7-47 P9-237					.13 .18	NO NO		22 25	 BRANCH 3
A 28Y			P7-46 P9-337					.13 .18	NO NO		22 25	 BRANCH 3
A 29	9				1.75 1.00	1.50 .75				68 68	31 31	
A 29A	11		SHLD A29 P7-24					.20 .13	NO NO		 22	
A 29B	11		P9-634 SHLD A29					.18 .20	NO NO		24	BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 21 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 29R			P7-44 P9-434					.13 .18	NO NO		22 25	 BRANCH 2
A 29Y			P7-25 P9-534					.13 .18	NO NO		22 25	 BRANCH 2
A 30	9				1.75 1.00	1.50 .75				68 68	31 31	
A 30A	11		SHLD A30 P7-5					.20 .13	NO NO		 22	
A 30B	11		P9-335 SHLD A30					.18 .20	NO NO		24	BRANCH 2
A 30R			P7-4 P9-135					.13 .18	NO NO		22 25	 BRANCH 2
A 30Y			P7-1 P9-235					.13 .18	NO NO		22 25	 BRANCH 2
A 31	9				1.75 1.00	1.50 .75				68 68	31 31	
A 31A	11		SHLD A31 P7-3					.20 .13	NO NO		 22	
A 31B	11		P9-635 SHLD A31					.18 .20	NO NO		24	BRANCH 2
A 31R			P7-11 P9-435					.13 .18	NO NO		22 25	 BRANCH 2
A 31Y			P7-10 P9-535					.13 .18	NO NO		22 25	 BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 22 OF 74

WIRING HARNESS A 2014641 M#

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 32	4											
A 32R			P7-53					.13	NO		22	
			P9-536					.18	NO		25	BRANCH 3
A 32Y			P7-54					.13	NO		22	
			P9-636					.18	NO		25	BRANCH 3
A 33	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 33A	11		SHLD A33					.20	NO			
			P1-13					.13	NO		22	
A 33B	11		P9-332					.18	NO		24	BRANCH 2
			SHLD A33					.20	NO			
A 33R			P1-28					.13	NO		22	
			P9-132					.18	NO		25	BRANCH 2
A 33Y			P1-27					.13	NO		22	
			P9-232					.18	NO		25	BRANCH 2
A 34	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 34A	11		SHLD A34					.20	NO			
			P1-1					.13	NO		22	
A 34B	11		P9-632					.18	NO		24	BRANCH 2
			SHLD A34					.20	NO			
A 34R			P1-4					.13	NO		22	
			P9-432					.18	NO		25	BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR #M	SHEET 23 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 M#

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 34Y			P1-3					.13	NO		22	
			P9-532					.18	NO		25	BRANCH 2
A 35	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 35A	11		SHLD A35					.20	NO			
			P1-16					.13	NO		22	
A 35B	11		P9-333					.18	NO		24	BRANCH 2
			SHLD A35					.20	NO			
A 35R			P1-6					.13	NO		22	
			P9-133					.18	NO		25	BRANCH 2
A 35Y			P1-5					.13	NO		22	
			P9-233					.18	NO		25	BRANCH 2
A 36	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 36A	11		SHLD A36					.20	NO			
			P1-17					.13	NO		22	
A 36B	11		P9-346					.18	NO		24	BRANCH 3
			SHLD A36					.20	NO			
A 36R			P1-34					.13	NO		22	
			P9-146					.18	NO		25	BRANCH 3
A 36Y			P1-33					.13	NO		22	
			P9-246					.18	NO		25	BRANCH 3
A 37	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR #M	SHEET 24 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 K

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 37A	11		SHLD A37					.20	NO			
			P1-18					.13	NO		22	
A 37B	11		P9-646					.18	NO		24	BRANCH 3
			SHLD A37					.20	NO			
A 37R			P1-35					.13	NO		22	
			P9-446					.18	NO		25	BRANCH 3
A 37Y			P1-36					.13	NO		22	
			P9-546					.18	NO		25	BRANCH 3
A 38	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 38A	11		SHLD A38					.20	NO			
			P1-14					.13	NO		22	
A 38B	11		P9-348					.18	NO		24	BRANCH 3
			SHLD A38					.20	NO			
A 38R			P1-30					.13	NO		22	
			P9-248					.18	NO		25	BRANCH 3
A 38Y			P1-29					.13	NO		22	
			P9-148					.18	NO		25	BRANCH 3
A 39	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 39A	11		SHLD A39					.20	NO			
			P1-15					.13	NO		22	
A 39B	11		P9-648					.18	NO		24	BRANCH 3
			SHLD A39					.20	NO			

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR K	SHEET 25 OF 74

WIRING HARNESS A 2014641 K

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 39R			P1-31					.13	NO		22	
			P9-448					.18	NO		25	BRANCH 3
A 39Y			P1-32					.13	NO		22	
			P9-548					.18	NO		25	BRANCH 3
A 40	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 40A	11		SHLD A40					.20	NO			
			P1-20					.13	NO		22	
A 40B	11		P9-633					.18	NO		24	BRANCH 2
			SHLD A40					.20	NO			
A 40R			P1-19					.13	NO		22	
			P9-533					.18	NO		25	BRANCH 2
A 40Y			P1-37					.13	NO		22	
			P9-433					.18	NO		25	BRANCH 2
A 41	9				1.75	1.50				6B	31	
					1.00	.75				6B	31	
A 41A	11		SHLD A41					.20	NO			
			P1-21					.13	NO		22	
A 41B	11		P9-334					.18	NO		24	BRANCH 2
			SHLD A41					.20	NO			
A 41R			P1-38					.13	NO		22	
			P9-234					.18	NO		25	BRANCH 2
A 41Y			P1-39					.13	NO		22	
			P9-134					.18	NO		25	BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR K	SHEET 26 OF 74

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 42	6											
A 42G			P1-26 P9-421					.13 .18	NO NO		22 25	 BRANCH 2
A 42R			P1-43 P9-620					.13 .18	NO NO		22 25	 BRANCH 2
A 42Y			P1-44 P9-221					.13 .18	NO NO		22 25	 BRANCH 2
A 43	6											
A 43G			P1-8 P9-222					.13 .18	NO NO		22 25	 BRANCH 2
A 43R			P1-7 P9-621					.13 .18	NO NO		22 25	 BRANCH 2
A 43Y			P1-2 P9-119					.13 .18	NO NO		22 25	 BRANCH 2
A 46	2		P1-25 P9-422					.13 .18	NO NO		22 25	 BRANCH 2
A 47	3											
A 47R			P1-40 P9-228					.13 .18	NO NO		22 24	 BRANCH 2
A 47Y			P1-23 P9-328					.13 .18	NO NO		22 24	 BRANCH 2

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE REV LTR H SHEET 27 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 48	3											
A 48R			P1-41 P9-428					.13 .18	NO NO		22 24	 BRANCH 2
A 48Y			P1-42 P9-528					.13 .18	NO NO		22 24	 BRANCH 2
A 49	9				1.75 1.00	1.50 .75				68 68	31 31	
A 49A	11		SHLD A49 P4-30					.20 .13	NO NO		 22	
A 49B	11		P9-340 SHLD A49					.18 .20	NO NO		24	BRANCH 3
A 49R			P4-52 P9-140					.13 .18	NO NO		22 25	 BRANCH 3
A 49Y			P4-51 P9-240					.13 .18	NO NO		22 25	 BRANCH 3
A 50	9				1.75 1.00	1.50 .75				68 68	31 31	
A 50A	11		SHLD A50 P4-31					.20 .13	NO NO		 22	
A 50B	11		P9-640 SHLD A50					.18 .20	NO NO		24	BRANCH 3
A 50R			P4-54 P9-440					.13 .18	NO NO		22 25	 BRANCH 3

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE REV LTR H SHEET 28 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 50Y			P4-53 P9-540					.13 .18	NO NO		22 25	 BRANCH 3
A 51	9				1.75 1.00	1.50 .75				68 68	31 31	
A 51A	11		SHLD A51 P4-29					.20 .13	NO NO		 22	
A 51B	11		P9-341 SHLD A51					.18 .20	NO NO		24	BRANCH 3
A 51R			P4-13 P9-141					.13 .18	NO NO		22 25	 BRANCH 3
A 51Y			P4-14 P9-241					.13 .18	NO NO		22 25	 BRANCH 3
A 52	9				1.75 1.00	1.50 .75				68 68	31 31	
A 52A	11		SHLD A52 P4-32					.20 .13	NO NO		 22	
A 52B	11		P9-641 SHLD A52					.18 .20	NO NO		24	BRANCH 3
A 52R			P4-16 P9-441					.13 .18	NO NO		22 25	 BRANCH 3
A 52Y			P4-15 P9-541					.13 .18	NO NO		22 25	 BRANCH 3
A 53	9				1.75 1.00	1.50 .75				68 68	31 31	

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE REV LTR H SHEET 29 OF 74

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 53A	11		SHLD A53 P4-36					.20 .13	NO NO		 22	
A 53B	11		P9-342 SHLD A53					.18 .20	NO NO		24	BRANCH 3
A 53R			P4-59 P9-142					.13 .18	NO NO		22 25	 BRANCH 3
A 53Y			P4-60 P9-242					.13 .18	NO NO		22 25	 BRANCH 3
A 54	9				1.75 1.00	1.50 .75				68 68	31 31	
A 54A	11		SHLD A54 P4-37					.20 .13	NO NO		 22	
A 54B	11		P9-642 SHLD A54					.18 .20	NO NO		24	BRANCH 3
A 54R			P4-61 P9-442					.13 .18	NO NO		22 25	 BRANCH 3
A 54Y			P4-38 P9-542					.13 .18	NO NO		22 25	 BRANCH 3
A 55	9				1.75 1.00	1.50 .75				68 68	31 31	
A 55A	11		SHLD A55 P4-33					.20 .13	NO NO		 22	
A 55B	11		P9-343 SHLD A55					.18 .20	NO NO		24	BRANCH 3

SIZE A
CODE IDENT NO. 80230
2014641
SCALE-NONE REV LTR H SHEET 30 OF 74

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 55R			P4-56 P9-143					.13 .18	NO NO		22 25	 BRANCH 3
A 55Y			P4-55 P9-243					.13 .18	NO NO		22 25	 BRANCH 3
A 56	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 56A	11		SHLD A56 P4-34					.20 .13	NO NO		 22	
A 56B	11		P9-643 SHLD A56					.18 .20	NO NO		24	BRANCH 3
A 56R			P4-57 P9-443					.13 .18	NO NO		22 25	 BRANCH 3
A 56Y			P4-58 P9-543					.13 .18	NO NO		22 25	 BRANCH 3
A 57	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 57A	11		SHLD A57 P4-27					.20 .13	NO NO		 22	
A 57B	11		P9-344 SHLD A57					.18 .20	NO NO		24	BRANCH 3
A 57R			P4-48 P9-144					.13 .18	NO NO		22 25	 BRANCH 3
A 57Y			P4-47 P9-244					.13 .18	NO NO		22 25	 BRANCH 3

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 31 OF 74

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WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 58	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 58A	11		SHLD A58 P4-28					.20 .13	NO NO		 22	
A 58B	11		P9-644 SHLD A58					.18 .20	NO NO		24	BRANCH 3
A 58R			P4-49 P9-444					.13 .18	NO NO		22 25	 BRANCH 3
A 58Y			P4-50 P9-544					.13 .18	NO NO		22 25	 BRANCH 3
A 59	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 59A	11		SHLD A59 P4-35					.20 .13	NO NO		 22	
A 59B	11		P9-345 SHLD A59					.18 .20	NO NO		24	BRANCH 3
A 59R			P4-17 P9-145					.13 .18	NO NO		22 25	 BRANCH 3
A 59Y			P4-18 P9-245					.13 .18	NO NO		22 25	 BRANCH 3
A 60	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 60A	11		SHLD A60 P4-20					.20 .13	NO NO		 22	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 32 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 60B	11		P9-645 SHLD A60					.18 .20	NO NO		24	BRANCH 3
A 60R			P4-19 P9-445					.13 .18	NO NO		22 25	 BRANCH 3
A 60Y			P4-8 P9-545					.13 .18	NO NO		22 25	 BRANCH 3
A 61	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 61A	11		SHLD A61 P4-22					.20 .13	NO NO		 22	
A 61B	11		P9-329 SHLD A61					.18 .20	NO NO		24	BRANCH 2
A 61R			P4-41 P9-129					.13 .18	NO NO		22 25	 BRANCH 2
A 61Y			P4-42 P9-229					.13 .18	NO NO		22 25	 BRANCH 2
A 62	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 62A	11		SHLD A62 P4-24					.20 .13	NO NO		 22	
A 62B	11		P9-629 SHLD A62					.18 .20	NO NO		24	BRANCH 2
A 62R			P4-43 P9-429					.13 .18	NO NO		22 25	 BRANCH 2

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 33 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 62Y			P4-44 P9-529					.13 .18	NO NO		22 25	 BRANCH 2
A 63	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 63A	11		SHLD A63 P4-25					.20 .13	NO NO		 22	
A 63B	11		P9-330 SHLD A63					.18 .20	NO NO		24	BRANCH 2
A 63R			P4-45 P9-130					.13 .18	NO NO		22 25	 BRANCH 2
A 63Y			P4-46 P9-230					.13 .18	NO NO		22 25	 BRANCH 2
A 64	9				1.75 1.00	1.50 .75				6B 6B	31 31	
A 64A	11		SHLD A64 P4-21					.20 .13	NO NO		 22	
A 64B	11		P9-630 SHLD A64					.18 .20	NO NO		24	BRANCH 2
A 64R			P4-39 P9-430					.13 .18	NO NO		22 25	 BRANCH 2
A 64Y			P4-40 P9-530					.13 .18	NO NO		22 25	 BRANCH 2
A 65	9				1.75 1.00	1.50 .75				6B 6B	31 31	

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR H	SHEET 34 OF 74

MIL 2084 9-65

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	65A	11		SHLD A65 P4-10					.20 .13	NO NO		 22	
A	65B	11		P9-331 SHLD A65					.18 .20	NO NO		24	BRANCH 2
A	65R			P4-9 P9-131					.13 .18	NO NO		22 25	 BRANCH 2
A	65Y			P4-23 P9-231					.13 .18	NO NO		22 25	 BRANCH 2
A	66	9				1.75 1.00	1.50 .75				68 68	31 31	
A	66A	11		SHLD A66 P4-11					.20 .13	NO NO		 22	
A	66B	11		P9-631 SHLD A66					.18 .20	NO NO		24	BRANCH 2
A	66R			P4-26 P9-431					.13 .18	NO NO		22 25	 BRANCH 2
A	66Y			P4-12 P9-531					.13 .18	NO NO		22 25	 BRANCH 2
A	67	9				1.75 1.00	1.50 .75				68 7	31 29	
A	67A	11		SHLD A67 P4-1					.20 .13	NO NO		 22	
A	67R			P4-6 P9-338					.13 .18	NO NO		22 25	 BRANCH 3

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	67Y			P4-7 P9-238					.13 .18	NO NO		22 25	 BRANCH 3
A	68	8				1.75 1.00	1.50 .75				68 7	63 29	
A	68A	11		SHLD A68 P4-2					.20 .13	NO NO		 22	
A	68R			DELETED									
A	68Y			P4-3 P9-138					.13 .18	NO NO		22 24	 BRANCH 3
A	69	1		P4-5 P9-336					.13 .18	NO NO		22 24	 BRANCH 3
A	70	1		P4-4 P9-136					.13 .18	NO NO		22 24	 BRANCH 3
A	71	1		P5-84 P9-236					.13 .18	NO NO		22 24	 BRANCH 3
A	72	1		P5-60 P9-436					.13 .18	NO NO		22 24	 BRANCH 3
A	74	4											F
A	74R			P2-55 P10-121					.13 .18	NO NO		23 25	F BRANCH 5
A	74Y			P2-56 P10-221					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	75	4											F
A	75R			P2-54 P10-120					.13 .18	NO NO		23 25	F BRANCH 5
A	75Y			P2-32 P10-220					.13 .18	NO NO		23 25	F BRANCH 5
A	76	4											F
A	76R			P2-17 P10-119					.13 .18	NO NO		23 25	F BRANCH 5
A	76Y			P2-33 P10-219					.13 .18	NO NO		23 25	F BRANCH 5
A	77	4											F
A	77R			P2-16 P10-118					.13 .18	NO NO		23 25	F BRANCH 5
A	77Y			P2-5 P10-218					.13 .18	NO NO		23 25	F BRANCH 5
A	78	4											F
A	78R			P2-57 P10-321					.13 .18	NO NO		23 25	F BRANCH 5
A	78Y			P2-34 P10-421					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A	79	4											F
A	79R			P2-18 P10-320					.13 .18	NO NO		23 25	F BRANCH 5
A	79Y			P2-35 P10-420					.13 .18	NO NO		23 25	F BRANCH 5
A	80	4											F
A	80R			P2-52 P10-319					.13 .18	NO NO		23 25	F BRANCH 5
A	80Y			P2-53 P10-419					.13 .18	NO NO		23 25	F BRANCH 5
A	81	4											F
A	81R			P2-15 P10-318					.13 .18	NO NO		23 25	F BRANCH 5
A	81Y			P2-30 P10-418					.13 .18	NO NO		23 25	F BRANCH 5
A	82	4											F
A	82R			P2-50 P10-317					.13 .18	NO NO		23 25	F BRANCH 5
A	82Y			P2-51 P10-417					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 83	4											F
A 83R			P2-13 P10-323					.13 .18	NO NO		23 25	F BRANCH 5
A 83Y			P2-29 P10-423					.13 .18	NO NO		23 25	F BRANCH 5
A 84	4											F
A 84R			P2-12 P10-322					.13 .18	NO NO		23 25	F BRANCH 5
A 84Y			P2-27 P10-422					.13 .18	NO NO		23 25	F BRANCH 5
A 85	4											F
A 85R			P2-48 P10-316					.13 .18	NO NO		23 25	F BRANCH 5
A 85Y			P2-49 P10-416					.13 .18	NO NO		23 25	F BRANCH 5
A 86	4											F
A 86R			P2-1 P10-315					.13 .18	NO NO		23 25	F BRANCH 5
A 86Y			P2-4 P10-415					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 87	4											F
A 87R			P2-11 P10-324					.13 .18	NO NO		23 25	F BRANCH 5
A 87Y			P2-24 P10-424					.13 .18	NO NO		23 25	F BRANCH 5
A 88	4											F
A 88R			P2-10 P10-117					.13 .18	NO NO		23 24	F BRANCH 5
A 88Y			P2-2 P10-217					.13 .18	NO NO		23 25	F BRANCH 5
A 89	4											F
A 89R			P2-59 P10-139					.13 .18	NO NO		23 25	F BRANCH 5
A 89Y			P2-58 P10-239					.13 .18	NO NO		23 25	F BRANCH 5
A 90	4											F
A 90R			P2-7 P10-138					.13 .18	NO NO		23 25	F BRANCH 5
A 90Y			P2-6 P10-238					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 91	4											F
A 91R			P2-36 P10-137					.13 .18	NO NO		23 25	F BRANCH 5
A 91Y			P2-60 P10-237					.13 .18	NO NO		23 25	F BRANCH 5
A 92	4											F
A 92R			P2-8 P10-136					.13 .18	NO NO		23 25	F BRANCH 5
A 92Y			P2-19 P10-236					.13 .18	NO NO		23 25	F BRANCH 5
A 93	4											F
A 93R			P2-61 P10-135					.13 .18	NO NO		23 25	F BRANCH 5
A 93Y			P2-38 P10-235					.13 .18	NO NO		23 25	F BRANCH 5
A 94	4											F
A 94R			P2-39 P10-134					.13 .18	NO NO		23 25	F BRANCH 5
A 94Y			P2-20 P10-234					.13 .18	NO NO		23 25	F BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 95	4											F
A 95R			P2-43 P10-327					.13 .18	NO NO		23 25	F BRANCH 5
A 95Y			P2-42 P10-427					.13 .18	NO NO		23 25	F BRANCH 5
A 96	4											F
A 96R			P2-22 P10-326					.13 .18	NO NO		23 25	F BRANCH 5
A 96Y			P2-9 P10-426					.13 .18	NO NO		23 25	F BRANCH 5
A 97	4											F
A 97R			P2-41 P10-325					.13 .18	NO NO		23 25	F BRANCH 5
A 97Y			P2-40 P10-425					.13 .18	NO NO		23 25	F BRANCH 5
A 98	10				1.75 1.00	1.50 .75				68 7	31 29	
A 98A	11		SHLD A98 P2-44					.20 .13	NO NO		 23	
A 98G			P2-25 P10-212					.13 .18	NO NO		23 24	BRANCH 4

WIRING HARNESS A 2014641 R

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 98R			P2-46 P10-113					.13 .18	NO NO		23 24	 BRANCH 4
A 98Y			P2-45 P10-312					.13 .18	NO NO		23 24	 BRANCH 4
A 99	8				1.75 1.00	1.50 .75				68 7	63 29	
A 99A	11		SHLD A99 P2-26					.20 .13	NO NO		 23	
A 99R			DELETED									
A 99Y			P2-47 P10-114					.13 .18	NO NO		23 24	 BRANCH 4
A 104	2		P3-1 P10-538					.13 .18	NO NO		22 25	E BRANCH 5
A 105	2		P3-7 P10-556					.13 .18	NO NO		22 25	E BRANCH 5
A 106	2		P3-2 P10-625					.13 .18	NO NO		22 25	E BRANCH 5
A 113	2		P3-8 P10-547					.13 .18	NO NO		22 25	E BRANCH 5
A 116	1		P5-66 P10-602					.13 .18	NO NO		22 24	D BRANCH 4
A 118	1		P5-45 P10-504					.13 .18	NO NO		22 24	D BRANCH 4

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR R	SHEET 43 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 125	2		P5-26 P10-409					.13 .22	NO NO		22	D BRANCH 4
A 127	5											A
A 127G			P5-53 P10-161					.13 .18	NO NO		22 24	A BRANCH 6
A 127R			P5-78 P10-159					.13 .18	NO NO		22 24	A BRANCH 6
A 127Y			P5-54 P10-160					.13 .18	NO NO		22 24	A BRANCH 6
A 128	5											A
A 128G			P5-55 P10-260					.13 .18	NO NO		22 24	A BRANCH 6
A 128R			P5-79 P10-261					.13 .18	NO NO		22 24	A BRANCH 6
A 128Y			P5-80 P10-259					.13 .18	NO NO		22 24	A BRANCH 6
A 129	5											A
A 129G			P5-16 P10-360					.13 .18	NO NO		22 24	A BRANCH 6
A 129R			P5-33 P10-361					.13 .18	NO NO		22 24	A BRANCH 6

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 44 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 129Y			P5-32 P10-359					.13 .18	NO NO		22 24	A BRANCH 6
A 130	5											A
A 130G			P5-56 P10-460					.13 .18	NO NO		22 24	A BRANCH 6
A 130R			P5-81 P10-461					.13 .18	NO NO		22 24	A BRANCH 6
A 130Y			P5-57 P10-459					.13 .18	NO NO		22 24	A BRANCH 6
A 131	5											A
A 131G			P5-35 P10-560					.13 .18	NO NO		22 24	A BRANCH 6
A 131R			P5-58 P10-561					.13 .18	NO NO		22 24	A BRANCH 6
A 131Y			P5-34 P10-559					.13 .18	NO NO		22 24	A BRANCH 6
A 139	2		P6-77 P10-636					.13 .18	NO NO		22 25	C BRANCH 6
A 148	2		P6-20 P10-613					.13 .18	NO NO		22 25	C BRANCH 6
A 149	4											C

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 45 OF 74

MIL 2084 9-65

WIRING HARNESS A 2014641 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 149R			P6-85 P10-133					.13 .18	NO NO		22 25	C BRANCH 6
A 149Y			P6-84 P10-233					.13 .18	NO NO		22 25	C BRANCH 6
A 150	4											C
A 150R			P6-82 P10-516					.13 .18	NO NO		22 25	C BRANCH 6
A 150Y			P6-57 P10-616					.13 .18	NO NO		22 25	C BRANCH 6
A 151	4											C
A 151R			P6-8 P10-158					.13 .18	NO NO		22 25	C BRANCH 6
A 151Y			P6-2 P10-258					.13 .18	NO NO		22 25	C BRANCH 6
A 152	4											C
A 152R			P6-19 P10-157					.13 .18	NO NO		22 25	C BRANCH 6
A 152Y			P6-7 P10-257					.13 .18	NO NO		22 25	C BRANCH 6
A 153	4											C

SIZE	CODE IDENT NO.	
A	80230	2014641
SCALE-NONE	REV LTR J	SHEET 46 OF 74

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 153R			P6-6 P10-156					.13 .18	NO NO		22 25	C BRANCH 6
A 153Y			P6-1 P10-256					.13 .18	NO NO		22 25	C BRANCH 6
A 154	4											C
A 154R			P6-5 P10-155					.13 .18	NO NO		22 25	C BRANCH 6
A 154Y			P6-4 P10-255					.13 .18	NO NO		22 25	C BRANCH 6
A 155	4											C
A 155R			P6-15 P10-154					.13 .18	NO NO		22 25	C BRANCH 6
A 155Y			P6-16 P10-254					.13 .18	NO NO		22 25	C BRANCH 6
A 156	4											C
A 156R			P6-17 P10-153					.13 .18	NO NO		22 25	C BRANCH 6
A 156Y			P6-33 P10-253					.13 .18	NO NO		22 25	C BRANCH 6
A 157	4											C

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 157R			P6-61 P10-132					.13 .18	NO NO		22 25	C BRANCH 6
A 157Y			P6-60 P10-232					.13 .18	NO NO		22 25	C BRANCH 6
A 158	4											
A 158R			P6-37 P10-130					.13 .18	NO NO		22 25	C BRANCH 6
A 158Y			P6-36 P10-230					.13 .18	NO NO		22 25	C BRANCH 6
A 159	4											C
A 159R			P6-83 P10-352					.13 .18	NO NO		22 25	C BRANCH 6
A 159Y			P6-59 P10-452					.13 .18	NO NO		22 25	C BRANCH 6
A 160	4											C
A 160R			P6-35 P10-129					.13 .18	NO NO		22 25	C BRANCH 6
A 160Y			P6-18 P10-229					.13 .18	NO NO		22 25	C BRANCH 6
A 161	4											C

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 161R			P6-58 P10-128					.13 .18	NO NO		22 25	C BRANCH 6
A 161Y			P6-34 P10-228					.13 .18	NO NO		22 25	C BRANCH 6
A 164	1		P8-9 P10-302					.13 .18	NO NO		22 24	B BRANCH 4
A 170	2		P8-5 P10-509					.13 .18	NO NO		22 25	B BRANCH 4
A 177	2		P8-8 P10-108					.13 .22	NO NO		22	B BRANCH 4
A 178	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 178A	11		SHLD A178 P3-52					.20 .13	NO NO		 22	
A 178B	11		P7-21 SHLD A178					.13 .20	NO NO		22	
A 178R			P3-77 P7-40					.13 .13	NO NO		22 22	
A 178Y			P3-53 P7-22					.13 .13	NO NO		22 22	
A 179	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 179A	11		SHLD A179 P3-30					.20 .13	NO NO		 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 179B	11		P7-23 SHLD A179					.13 .20	NO NO		22	
A 179R			P3-31 P7-42					.13 .13	NO NO		22 22	
A 179Y			P3-15 P7-43					.13 .13	NO NO		22 22	
A 180	9				1.75 1.75	1.50 1.50				6B 6B	31 31	
A 180A	11		SHLD A180 P3-51					.20 .13	NO NO		 22	
A 180B	11		P7-2 SHLD A180					.13 .20	NO NO		22	
A 180R			P3-75 P7-8					.13 .13	NO NO		22 22	
A 180Y			P3-76 P7-9					.13 .13	NO NO		22 22	
A 181	9				1.75 1.75	1.50 1.50				6B 7	31 29	
A 181A	11		SHLD A181 P3-46					.20 .13	NO NO		 22	
A 181R			P3-71 P7-38					.13 .13	NO NO		22 22	
A 181Y			P3-70 P7-39					.13 .13	NO NO		22 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 182	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 182A	11		SHLD A182 P3-69					.20 .13	NO NO		22	
A 182R			P3-45 P7-19					.13 .13	NO NO		22 22	
A 182Y			P3-44 P7-20					.13 .13	NO NO		22 22	
A 183	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 183A	11		SHLD A183 P3-28					.20 .13	NO NO		22	
A 183R			P3-13 P7-60					.13 .13	NO NO		22 22	
A 183Y			P3-29 P7-61					.13 .13	NO NO		22 22	
A 184	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 184A	11		SHLD A184 P3-74					.20 .13	NO NO		22	
A 184R			P3-49 P7-36					.13 .13	NO NO		22 22	
A 184Y			P3-50 P7-37					.13 .13	NO NO		22 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 185	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 185A	11		SHLD A185 P3-27					.20 .13	NO NO		22	
A 185R			P3-26 P7-58					.13 .13	NO NO		22 22	
A 185Y			P3-47 P7-59					.13 .13	NO NO		22 22	
A 186	9				1.75 1.75	1.50 1.50				68 7	31 29	
A 186A	11		SHLD A186 P3-48					.20 .13	NO NO		22	
A 186R			P3-72 P7-35					.13 .13	NO NO		22 22	
A 186Y			P3-73 P7-18					.13 .13	NO NO		22 22	
A 187	3											
A 187R			P3-67 P7-57					.13 .13	NO NO		22 22	
A 187Y			P3-68 P7-34					.13 .13	NO NO		22 22	
A 188	7											

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 188G			P3-24 P7-51					.13 .13	NO NO		22 22	
A 188N			P3-43 P7-29					.13 .13	NO NO		22 22	
A 188R			P3-25 P7-50					.13 .13	NO NO		22 22	
A 188Y			P3-23 P7-28					.13 .13	NO NO		22 22	
A 189	4											
A 189R			P3-5 P7-49					.13 .13	NO NO		22 22	
A 189Y			P3-14 P7-48					.13 .13	NO NO		22 22	
A 195	2		P5-23 P10-608					.13 .22	NO NO		22	D BRANCH 4
A 196	2		P5-22 P10-609					.13 .22	NO NO		22	D BRANCH 4
A 198	6											
A 198G			P1-11 P9-521					.13 .18	NO NO		22 25	BRANCH 2
A 198R			P1-10 P9-121					.13 .18	NO NO		22 25	BRANCH 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 198Y			P1-9 P9-321					.13 .18	NO NO		22 25	BRANCH 2
A 199	5											A
A 199G			P5-5 P10-660					.13 .18	NO NO		22 24	A BRANCH 6
A 199R			P5-31 P10-661					.13 .18	NO NO		22 24	A BRANCH 6
A 199Y			P5-15 P10-659					.13 .18	NO NO		22 24	A BRANCH 6
A 200	2		P3-39 P10-202					.13 .18	NO NO		22 25	E BRANCH 5
A 201	2		P3-64 P10-102					.13 .18	NO NO		22 24	E BRANCH 5
A 202	2		P3-42 P10-652					.13 .18	NO NO		22 25	E BRANCH 5
A 203	2		P3-66 P10-551					.13 .18	NO NO		22 25	E BRANCH 5
A 204	2		P3-21 P10-552					.13 .18	NO NO		22 25	E BRANCH 5
A 205	2		P3-22 P10-651					.13 .18	NO NO		22 25	E BRANCH 5
A 206	2		P3-18 P10-548					.13 .18	NO NO		22 25	E BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 207	2		P3-36 P10-549					.13 .18	NO NO		22 25	E BRANCH 5
A 208	2		P3-19 P10-550					.13 .18	NO NO		22 25	E BRANCH 5
A 209	2		P3-41 P10-214					.13 .18	NO NO		22 25	E BRANCH 5
A 210	2		P3-65 P10-216					.13 .18	NO NO		22 25	E BRANCH 5
A 211	2		P3-40 P10-215					.13 .18	NO NO		22 25	E BRANCH 5
A 212	2		P3-33 P10-646					.13 .18	NO NO		22 25	E BRANCH 5
A 213	2		P3-17 P10-546					.13 .18	NO NO		22 25	E BRANCH 5
A 214	2		P3-57 P10-645					.13 .18	NO NO		22 25	E BRANCH 5
A 215	2		P3-82 P10-545					.13 .18	NO NO		22 25	E BRANCH 5
A 216	2		P3-81 P10-542					.13 .18	NO NO		22 25	E BRANCH 5
A 217	2		P3-80 P10-644					.13 .18	NO NO		22 25	E BRANCH 5
A 218	2		P3-56 P10-544					.13 .18	NO NO		22 25	E BRANCH 5

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 219	2		P3-84 P10-623					.13 .18	NO NO		22 25	E BRANCH 5
A 220	2		P3-60 P10-524					.13 .18	NO NO		22 25	E BRANCH 5
A 221	2		P3-59 P10-522					.13 .18	NO NO		22 25	E BRANCH 5
A 222	2		P3-62 P10-648					.13 .18	NO NO		22 25	E BRANCH 5
A 223	2		P3-63 P10-649					.13 .18	NO NO		22 25	E BRANCH 5
A 224	2		P3-38 P10-650					.13 .18	NO NO		22 25	E BRANCH 5
A 225	2		P5-38 P10-401					.13 .18	NO NO		22 25	D BRANCH 4
A 226	2		P5-62 P10-601					.13 .18	NO NO		22 25	D BRANCH 4
A 227	2		P5-63 P10-501					.13 .18	NO NO		22 25	D BRANCH 4
A 228	2		P5-64 P10-101					.13 .18	NO NO		22 24	D BRANCH 4
A 229	2		P5-40 P10-301					.13 .18	NO NO		22 25	D BRANCH 4
A 230	2		P5-39 P10-201					.13 .18	NO NO		22 25	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 231	2		P5-41 P10-502					.13 .22	NO NO		22 25	D BRANCH 4
A 232	2		P5-42 P10-402					.13 .22	NO NO		22	D BRANCH 4
A 233	2		P5-30 P10-204					.13 .22	NO NO		22	D BRANCH 4
A 234	2		P5-14 P10-505					.13 .22	NO NO		22	D BRANCH 4
A 235	2		P5-29 P10-605					.13 .22	NO NO		22	D BRANCH 4
A 236	2		P5-77 P10-506					.13 .22	NO NO		22	D BRANCH 4
A 237	2		P5-52 P10-404					.13 .22	NO NO		22	D BRANCH 4
A 238	2		P5-76 P10-304					.13 .22	NO NO		22	D BRANCH 4
A 239	2		P5-50 P10-405					.13 .22	NO NO		22	D BRANCH 4
A 240	2		P5-51 P10-606					.13 .22	NO NO		22	D BRANCH 4
A 241	2		P5-75 P10-205					.13 .22	NO NO		22	D BRANCH 4
A 242	2		P5-73 P10-607					.13 .22	NO NO		22	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 243	2		P5-74 P10-305					.13 .22	NO NO		22	D BRANCH 4
A 244	2		P5-49 P10-507					.13 .22	NO NO		22	D BRANCH 4
A 245	2		P5-13 P10-306					.13 .22	NO NO		22	D BRANCH 4
A 246	2		P5-28 P10-206					.13 .22	NO NO		22	D BRANCH 4
A 247	2		P5-27 P10-406					.13 .22	NO NO		22	D BRANCH 4
A 248	2		P5-47 P10-307					.13 .22	NO NO		22	D BRANCH 4
A 249	2		P5-46 P10-208					.13 .22	NO NO		22	D BRANCH 4
A 250	2		P5-4 P10-308					.13 .22	NO NO		22	D BRANCH 4
A 251	2		P5-12 P10-309					.13 .22	NO NO		22	D BRANCH 4
A 252	2		P5-71 P10-207					.13 .22	NO NO		22	D BRANCH 4
A 253	2		P5-72 P10-407					.13 .22	NO NO		22	D BRANCH 4
A 254	2		P5-48 P10-604					.13 .22	NO NO		22	D BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 255	3											A
A 255R			P5-44 P10-107					.13 .18	NO NO		22 24	A BRANCH 6
A 255Y			P5-68 P10-105					.13 .18	NO NO		22 24	A BRANCH 6
A 256	2		P6-14 P10-540					.13 .18	NO NO		22 25	C BRANCH 6
A 257	2		P6-30 P10-639					.13 .18	NO NO		22 25	C BRANCH 6
A 258	2		P6-48 P10-658					.13 .18	NO NO		22 25	C BRANCH 6
A 259	2		P6-72 P10-557					.13 .18	NO NO		22 25	C BRANCH 6
A 260	2		P6-73 P10-558					.13 .18	NO NO		22 25	C BRANCH 6
A 261	2		P6-49 P10-657					.13 .18	NO NO		22 25	C BRANCH 6
A 262	2		P6-28 P10-640					.13 .18	NO NO		22 25	C BRANCH 6
A 263	2		P6-29 P10-520					.13 .18	NO NO		22 25	C BRANCH 6
A 264	2		P6-76 P10-523					.13 .18	NO NO		22 25	C BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 265	2		P6-75 P10-647					.13 .18	NO NO		22 25	C BRANCH 6
A 266	2		P6-50 P10-641					.13 .18	NO NO		22 25	C BRANCH 6
A 267	2		P6-74 P10-541					.13 .18	NO NO		22 25	C BRANCH 6
A 268	2		P6-40 P10-109					.13 .18	NO NO		22 25	C BRANCH 6
A 269	2		P6-21 P10-410					.13 .18	NO NO		22 25	C BRANCH 6
A 270	2		P6-65 P10-209					.13 .18	NO NO		22 25	C BRANCH 6
A 271	2		P6-22 P10-310					.13 .18	NO NO		22 25	C BRANCH 6
A 272	2		P6-66 P10-510					.13 .18	NO NO		22 25	C BRANCH 6
A 273	2		P6-42 P10-210					.13 .18	NO NO		22 25	C BRANCH 6
A 274	2		P6-41 P10-610					.13 .18	NO NO		22 25	C BRANCH 6
A 275	2		P6-67 P10-110					.13 .18	NO NO		22 25	C BRANCH 6
A 276	2		P6-10 P10-111					.13 .18	NO NO		22 25	C BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 277	2		P6-24 P10-612					.13 .18	NO NO		22 25	C BRANCH 6
A 278	2		P6-9 P10-211					.13 .18	NO NO		22 25	C BRANCH 6
A 279	2		P6-23 P10-512					.13 .18	NO NO		22 25	C BRANCH 6
A 280	2		P6-68 P10-511					.13 .18	NO NO		22 25	C BRANCH 6
A 281	2		P6-69 P10-411					.13 .18	NO NO		22 25	C BRANCH 6
A 282	2		P6-43 P10-611					.13 .18	NO NO		22 25	C BRANCH 6
A 283	2		P6-44 P10-311					.13 .18	NO NO		22 25	C BRANCH 6
A 284	2		P6-46 P10-627					.13 .18	NO NO		22 25	C BRANCH 6
A 285	2		P6-25 P10-628					.13 .18	NO NO		22 25	C BRANCH 6
A 286	2		P6-45 P10-528					.13 .18	NO NO		22 25	C BRANCH 6
A 287	2		P6-71 P10-526					.13 .18	NO NO		22 25	C BRANCH 6
A 288	2		P6-70 P10-527					.13 .18	NO NO		22 25	C BRANCH 6

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 289	2		P6-47 P10-626					.13 .18	NO NO		22 25	C BRANCH 6
A 290	2		P6-12 P10-654					.13 .18	NO NO		22 25	C BRANCH 6
A 291	2		P6-3 P10-655					.13 .18	NO NO		22 25	C BRANCH 6
A 292	2		P6-11 P10-555					.13 .18	NO NO		22 25	C BRANCH 6
A 293	2		P6-27 P10-553					.13 .18	NO NO		22 25	C BRANCH 6
A 294	2		P6-26 P10-554					.13 .18	NO NO		22 25	C BRANCH 6
A 295	2		P6-13 P10-653					.13 .18	NO NO		22 25	C BRANCH 6
A 296	2		P8-24 P10-403					.13 .18	NO NO		22 25	B BRANCH 4
A 297	2		P8-44 P10-603					.13 .18	NO NO		22 25	B BRANCH 4
A 298	2		P8-43 P10-503					.13 .18	NO NO		22 25	B BRANCH 4
A 299	2		P8-41 P10-103					.13 .18	NO NO		22 24	B BRANCH 4
A 300	2		P8-42 P10-303					.13 .18	NO NO		22 25	B BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 301	2		P8-23 P10-203					.13 .18	NO NO		22 25	B BRANCH 4
A 302	2		P8-22 P10-502					.13 .22	NO NO		22 24	B BRANCH 4
A 303	2		P8-10 P10-402					.13 .22	NO NO		22 24	B BRANCH 4
A 304	2		P8-52 P10-207					.13 .22	NO NO		22 24	B BRANCH 4
A 305	2		P8-50 P10-407					.13 .22	NO NO		22 24	B BRANCH 4
A 306	2		P8-51 P10-307					.13 .22	NO NO		22 24	B BRANCH 4
A 307	2		P8-31 P10-408					.13 .22	NO NO		22	B BRANCH 4
A 308	2		P8-53 P10-608					.13 .22	NO NO		22 24	B BRANCH 4
A 309	2		P8-54 P10-508					.13 .22	NO NO		22	B BRANCH 4
A 310	2		P8-32 P10-208					.13 .22	NO NO		22 24	B BRANCH 4
A 311	2		P8-30 P10-309					.13 .22	NO NO		22 24	B BRANCH 4
A 312	2		P8-29 P10-308					.13 .22	NO NO		22 24	B BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 313	2		P8-16 P10-409					.13 .22	NO NO		22 24	B BRANCH 4
A 314	2		P8-14 P10-604					.13 .22	NO NO		22 24	B BRANCH 4
A 315	2		P8-15 P10-609					.13 .22	NO NO		22 24	B BRANCH 4
A 316	1		P8-7 P10-106					.13 .18	NO NO		22 24	B BRANCH 4
A 317	1		P8-2 P10-104					.13 .18	NO NO		22 24	B BRANCH 4
A 318	2		P8-3 P10-607					.13 .22	NO NO		22 24	B BRANCH 4
A 319	2		P8-25 P10-606					.13 .22	NO NO		22 24	B BRANCH 4
A 320	2		P8-1 P10-507					.13 .22	NO NO		22 24	B BRANCH 4
A 321	2		P8-12 P10-406					.13 .22	NO NO		22 24	B BRANCH 4
A 322	2		P8-11 P10-506					.13 .22	NO NO		22 24	B BRANCH 4
A 323	2		P8-28 P10-405					.13 .22	NO NO		22 24	B BRANCH 4
A 324	2		P8-4 P10-206					.13 .22	NO NO		22 24	B BRANCH 4

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 325	2		P8-13 P10-306					.13 .22	NO NO		22 24	B BRANCH 4
A 326	2		P8-26 P10-205					.13 .22	NO NO		22 24	B BRANCH 4
A 327	2		P8-27 P10-305					.13 .22	NO NO		22 24	B BRANCH 4
A 328	2		P8-47 P10-204					.13 .22	NO NO		22 24	B BRANCH 4
A 329	2		P8-45 P10-404					.13 .22	NO NO		22 24	B BRANCH 4
A 330	2		P8-46 P10-304					.13 .22	NO NO		22 24	B BRANCH 4
A 331	2		P8-48 P10-605					.13 .22	NO NO		22 24	B BRANCH 4
A 332	2		P8-49 P10-505					.13 .22	NO NO		22 24	B BRANCH 4
A 333	3									6A 6A	31 31	
A 333A	11		SHLD A333 E8					.20 .19	NO NO			
A 333B	11		E12 SHLD A333					.19 .20	NO NO			
A 333R			P3-3 P7-52					.13 .13	NO NO		22 22	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 333Y			P3-11 P7-31					.13 .13	NO NO		22 22	
A 334	8				1.75 1.75	1.50 1.50				6A 6A	63 63	
A 334A	11		SHLD A334 E8					.20 .19	NO NO		 47	
A 334B	11		E11 SHLD A334					.19 .20	NO NO		47	
A 334R			DELETED									
A 334Y			P3-4 P6-51					.13 .13	NO NO		22 22	
A 335	9				1.75 1.75	1.50 1.50				6A 6A	31 31	
A 335A	11		SHLD A335 E10					.20 .19	NO NO			
A 335B	11		E12 SHLD A335					.19 .20	NO NO		47	
A 335R			P5-19 P7-15					.13 .13	NO NO		22 22	
A 335Y			P5-18 P7-16					.13 .13	NO NO		22 22	
A 336	9				1.75 1.75	1.50 1.50				6A 6A	31 31	

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 336A	11		SHLD A336					.20	NO			
			E10					.19	NO			
A 336B	11		E13					.19	NO			
			SHLD A336					.20	NO			
A 336R			P5-7					.13	NO		22	
			P7-30					.13	NO		22	
A 336Y			P5-8					.13	NO		22	
			P7-14					.13	NO		22	
A 337	3									6A	31	
										6A	31	
A 337A	11		SHLD A337					.20	NO			
			E10					.19	NO		47	
A 337B	11		E13					.19	NO		47	
			SHLD A337					.20	NO			
A 337R			P5-9					.13	NO		22	
			P7-6					.13	NO		22	
A 337Y			P5-2					.13	NO		22	
			P7-7					.13	NO		22	
A 338	2		P5-10					.13	NO		22	D
			P10-508					.22	NO		24	BRANCH 4
A 339	2		P5-24					.13	NO		22	D
			P10-408					.22	NO		24	BRANCH 4
A 340	35		E7					.19	NO		47	F
			E5					.19	NO			

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 341	35		E8					.19	NO			E
			E5					.19	NO			
A 342	35		E9					.19	NO			D
			E5					.19	NO		52	
A 343	35		E9					.19	NO		47	A
			E6					.19	NO			
A 344	35		E11					.19	NO			C
			E6					.19	NO			
A 345	35		E14					.19	NO		47	B
			E6					.19	NO		52	
A 346	2		P5-43					.13	NO		22	A
			P10-108					.22	NO		24	BRANCH 6
A 347	35		E3					.19	NO			G
			E36					.19	NO		58	
A 348	4											G
A 348R			P9-610					.18	NO		25	G, BRANCH 1
			P10-332					.18	NO		25	BRANCH 5
A 348Y			P9-510					.18	NO		25	G, BRANCH 1
			P10-432					.18	NO		25	BRANCH 5
A 349	4											G
A 349R			P9-310					.18	NO		25	G, BRANCH 1
			P10-330					.18	NO		25	BRANCH 5

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 349Y			P9-210					.18	NO		25	G, BRANCH 1
			P10-430					.18	NO		25	BRANCH 5
A 350	4											G
A 350R			P9-609					.18	NO		25	G, BRANCH 1
			P10-329					.18	NO		25	BRANCH 5
A 350Y			P9-509					.18	NO		25	G, BRANCH 1
			P10-429					.18	NO		25	BRANCH 5
A 351	4											G
A 351R			P9-309					.18	NO		25	G, BRANCH 1
			P10-328					.18	NO		25	BRANCH 5
A 351Y			P9-209					.18	NO		25	G, BRANCH 1
			P10-428					.18	NO		25	BRANCH 5
A 352	4											G
A 352R			P9-608					.18	NO		25	G, BRANCH 1
			P10-334					.18	NO		25	BRANCH 5
A 352Y			P9-508					.18	NO		25	G, BRANCH 1
			P10-434					.18	NO		25	BRANCH 5
A 353	4											G
A 353R			P9-308					.18	NO		25	G, BRANCH 1
			P10-333					.18	NO		25	BRANCH 5

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 353Y			P9-208					.18	NO		25	G, BRANCH 1
			P10-433					.18	NO		25	BRANCH 5
A 354	4											G
A 354R			P9-607					.18	NO		25	G, BRANCH 1
			P10-338					.18	NO		25	BRANCH 5
A 354Y			P9-507					.18	NO		25	G, BRANCH 1
			P10-438					.18	NO		25	BRANCH 5
A 355	4											G
A 355R			P9-307					.18	NO		25	G, BRANCH 1
			P10-337					.18	NO		25	BRANCH 5
A 355Y			P9-207					.18	NO		25	B, BRANCH 1
			P10-437					.18	NO		25	BRANCH 5
A 356	4											G
A 356R			P9-606					.18	NO		25	G, BRANCH 1
			P10-336					.18	NO		25	BRANCH 5
A 356Y			P9-506					.18	NO		25	G, BRANCH 1
			P10-436					.18	NO		25	BRANCH 5
A 357	4											G
A 357R			P9-306					.18	NO		25	G, BRANCH 1
			P10-335					.18	NO		25	BRANCH 5

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LFAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCFSSORY ITEMS	REMARKS
A 357Y			P9-206 P10-435					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 358	4											G
A 358R			P9-605 P10-146					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 358Y			P9-505 P10-246					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359	4											G
A 359R			P9-305 P10-145					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 359Y			P9-205 P10-245					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360	4											G
A 360R			P9-604 P10-144					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 360Y			P9-504 P10-244					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 361	4											G
A 361R			P9-304 P10-143					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 361Y			P9-204 P10-243					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 362	4											G
A 362R			P9-603 P10-148					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 362Y			P9-503 P10-248					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363	4											G
A 363R			P9-303 P10-147					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 363Y			P9-203 P10-247					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364	4											G
A 364R			P9-602 P10-152					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 364Y			P9-502 P10-252					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 365	4											G
A 365R			P9-302 P10-151					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

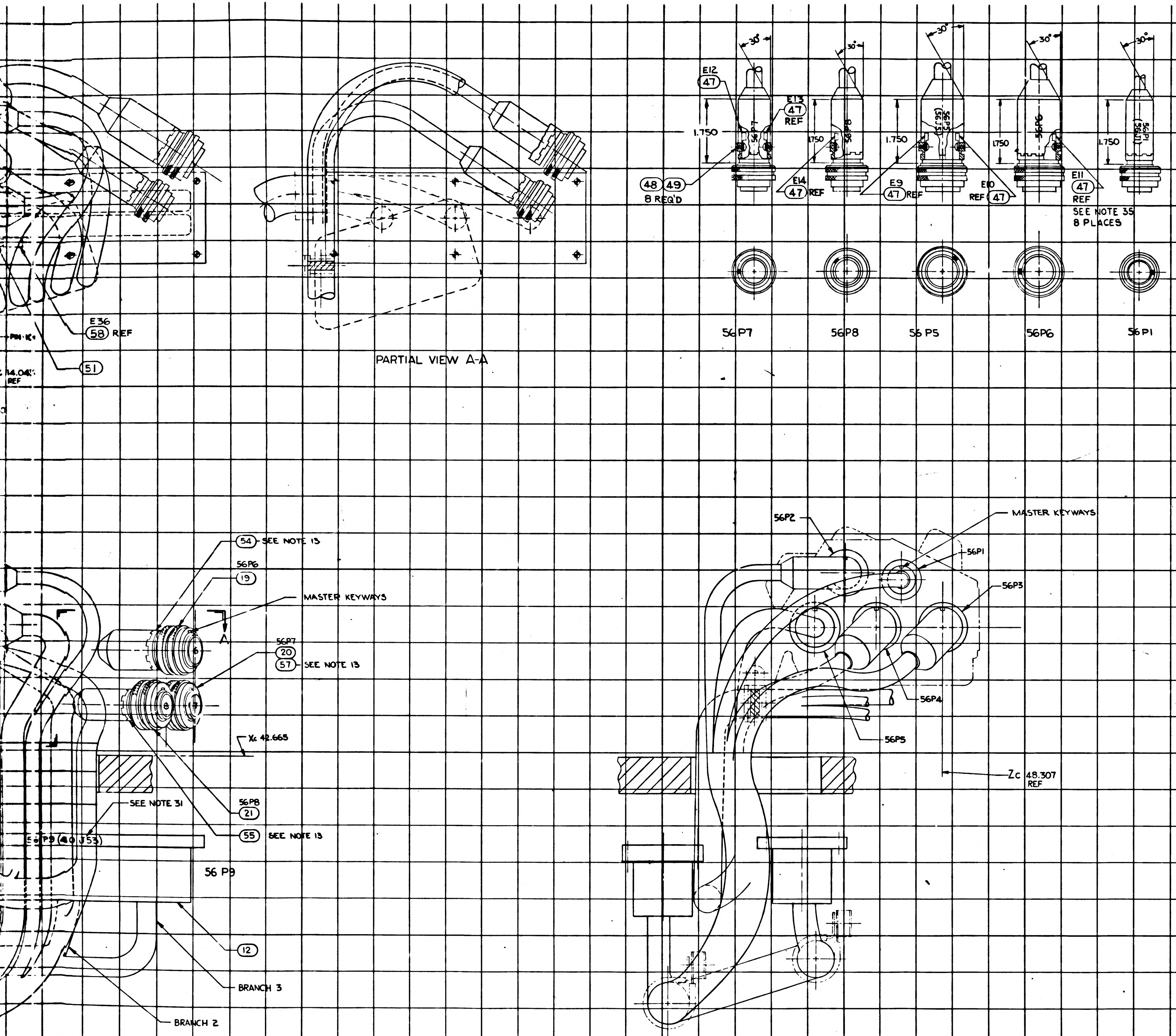
SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR J	SHEET 72 OF 74	

LEAD IDENT	WIRE MATL ITEM	LFAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
A 365Y			P9-202 P10-251					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 366	4											G
A 366R			P9-601 P10-150					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 366Y			P9-501 P10-250					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367	4											G
A 367R			P9-301 P10-149					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5
A 367Y			P9-201 P10-249					.18 .18	NO NO		25 25	G, BRANCH 1 BRANCH 5

SIZE A	CODE IDENT NO. 80230	2014641	
SCALE-NONE	REV LTR J	SHEET 73 OF 74	

REVISIONS TDRR 25841				
SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO.		

NM SEE SHEET I FOR REVISION RECORD



30°
E12
47
E13
47
REF
1.750
48
49
8 REQ'D
E14
47 REF
E9
47 REF
E10
REF 47
E11
47
REF
SEE NOTE 35
8 PLACES
56P7
56P8
56P5
56P6
56P1
E36
58 REF
51
14.04
REF
PARTIAL VIEW A-A
56P2
MASTER KEYWAYS
56P1
56P3
56P4
56P5
Zc 48.307
REF
54 SEE NOTE 13
56P6
19
MASTER KEYWAYS
A
56P7
20
57 SEE NOTE 13
Xc 42.665
SEE NOTE 31
56P8
21
55 SEE NOTE 13
56 P9 (40 J53)
56 P9
12
BRANCH 3
BRANCH 2

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON			MIT INSTRUMENTATION LAB CAMBRIDGE MASS DWG NO CONTRACT	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
FRACTIONS + −	DECIMALS + −	ANGLES + −	DRAWN J. Dietrich DATE 1/24/66 CHECKED N. E. Abraham 1/27/66 APPROVAL Earl Nation 1 FEB 66 APPROVAL 2/1/66	G&N INTERCONNECT HARNESS "A" (C/M BLOCK II)
DO NOT SCALE THIS DRAWING				
MATERIAL			NASA APPROVAL A. C. METZGER MIT APPROVAL 1 Feb 66	CODE IDENT NO 80230 | SIZE J2 | 2014641
CONTRACT				SCALE | SHEET 74 OF 74

2014641 R

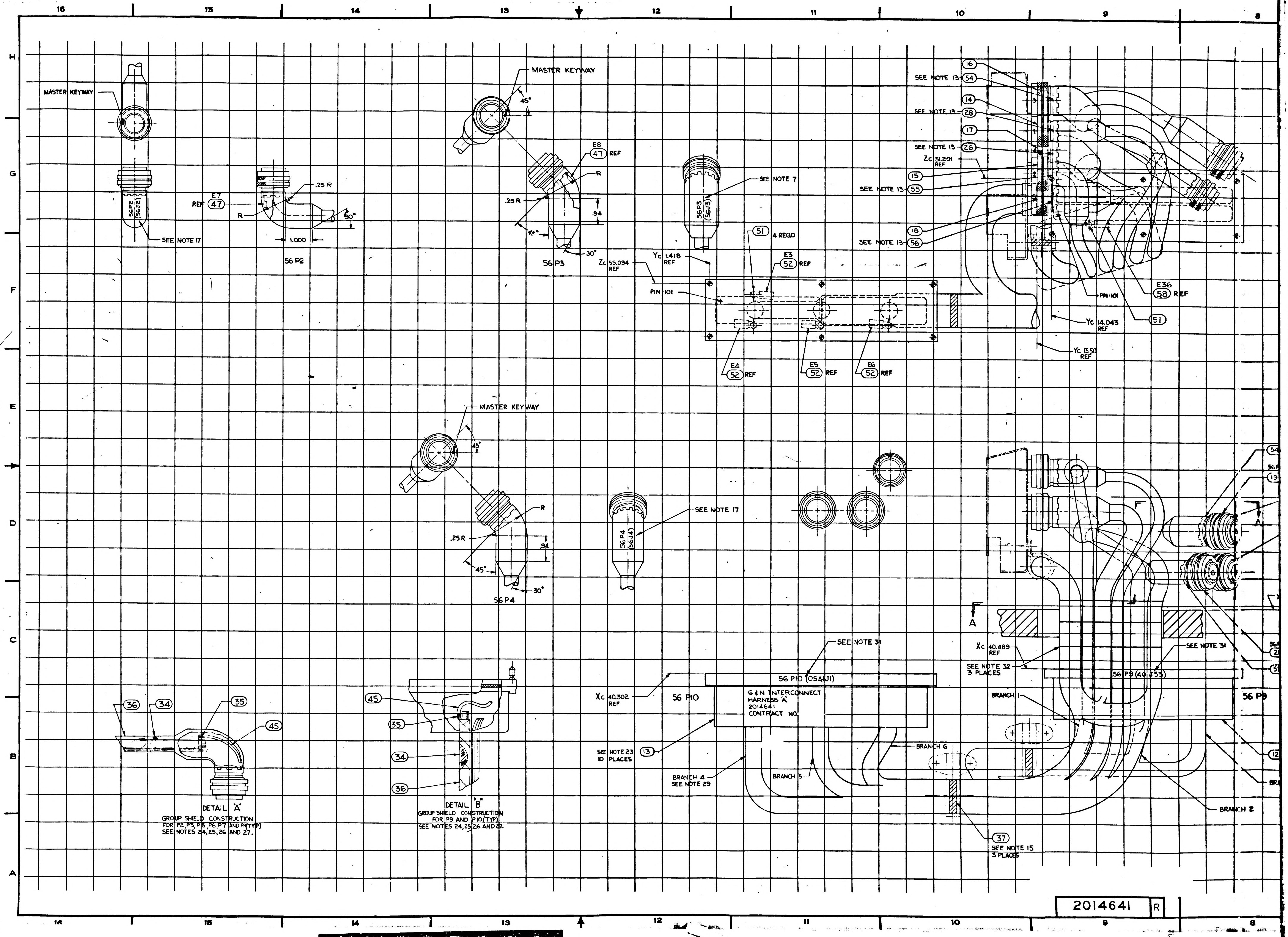
2014641 REV R

2014641 B

A

1404105

2/2014641


MASTER KEYWAY
SEE NOTE 17
56P2 (56J2)
56 P2
E7 REF 47
.25 R
R
30°
1.000
MASTER KEYWAY
45°
E8 47 REF
R
.25 R
.94
45°
30°
56 P3
SEE NOTE 7
56P3 (56J3)
Zc 55.094 REF
Yc 1.418 REF
PIN 101
51 4 REQD
E3 52 REF
E4 52 REF
E5 52 REF
E6 52 REF
16
SEE NOTE 13 54
14
SEE NOTE 13 28
17
SEE NOTE 13 26
Zc 51.201 REF
15
SEE NOTE 13 55
18
SEE NOTE 13 56
PIN 101
E36 58 REF
51
Yc 14.043 REF
Yc 13.50 REF
MASTER KEYWAY
45°
R
.25 R
.94
45°
30°
56 P4
SEE NOTE 17
56P4 (56J4)
A
A
Xc 40.489 REF
SEE NOTE 32 3 PLACES
SEE NOTE 31
56 P9 (40 J53)
56 P9
BRANCH 1
SEE NOTE 31
56 P10 (05A1J1)
Xc 40.302 REF
56 P10
G & N INTERCONNECT HARNESS "A" 2014641 CONTRACT NO.
SEE NOTE 23 10 PLACES
13
BRANCH 4 SEE NOTE 29
BRANCH 5
BRANCH 6
37
SEE NOTE 15 3 PLACES
BRANCH 2
36
34
35
45
DETAIL "A"
GROUP SHIELD CONSTRUCTION FOR P2, P3, P5, P6, P7 AND P8 (TYP)
SEE NOTES 24, 25, 26 AND 27.
45
35
34
36
DETAIL "B"
GROUP SHIELD CONSTRUCTION FOR P9 AND P10 (TYP)
SEE NOTES 24, 25, 26 AND 27.
16
15
14
13
12
11
10
9
8
H
G
F
E
D
C
B
A

2014641 R

1/2014641

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. VENDOR ITEM - SEE SPECIFICATION CONTROL DRAWING.
3. SELECT AS REQUIRED.
4. DRAWING FOR REFERENCE ONLY.

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
C		INITIAL CLASS A RELEASE TDRR NO. 22050			

	ITEM NO	NO REQD	PART NO	DESCRIPTION
		4		CLAMP, PSA CONNECTOR 5052-H32-AL PER QQ-A-250/8, 2" LG × 1/2" WIDE × 1/16" THK
		2		COVER, PSA CONNECTOR 5052-H32-AL PER QQ-A-250/8, 7" LG × 3" WIDE × 1/32" THK
		1		CONNECTOR, PSA (P18) 6061-T6-AL PER QQ-A-250/11, 5" LG × 2" WIDE × 1/2" THK
		14	1010490-118	SLEEVE, INSULATION (HEAT SHRINKABLE)
		16	1010490-114	SLEEVE, INSULATION (HEAT SHRINKABLE)
		1	-010	-002 25
		1	-009	-018 5
		1	-008	-009 10
		1	-007	-015 75
		1	-006	-017 10
		1	-005	-003 10
		1	-004	-008 10
		1	-003	-016 5
		1	-002	-001 5
		1	2014642-001	WIRE PER 1010789-006 5 FT TOT LG
		54	1010955-2	CONTACT, MALE
SEE NOTE 4		☒	2014672	INTERCONNECT LIST
		2	6008007	SCREW, CAPTIVE
		8	MS21209-C0415	INSERT, SCREW THD, SELF LOCKING

	ITEM NO.	NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
		1		CLAMP, CONNECTOR
		1		CLAMP, CONNECTOR
		AR	1010989	TAPE, SHIELDING, EMI/RFI
SEE NOTES 2		4	1010400-3	CLAMP, CABLE
SEE NOTE 3		1	1010981-30 THRU 1010981-1	GROMMET
SEE NOTE 2		8	1010490-112	INSULATION, SLEEVING, ELECT
SEE NOTE 2		46	1010490-110	
SEE NOTES 2&3		AR	1012507-4 1012507-2	TAPE, LACING
SEE NOTE 2		AR	1010679	ADHESIVE ACTIVATOR
SEE NOTE 2		AR	1012503	COMPOUND, POTTING, POLYURETHANE
SEE NOTE 2		AR	1010661	EPOXY RESIN
SEE NOTE 2		24	1010402-2	SLEEVE, SOLDER
SEE NOTE 2				
		1		ADAPTER, POTTING MOLD
		1		ADAPTER, POTTING MOLD
		AR	MIL-T-23594	TAPE, TEFLON
		16	1010958-1	PLUG, PROTECTIVE SEALING
		100	1010956-1	INSULATOR, MALE
		46	1010955-1	CONTACT MALE
SEE NOTE 2		98	1010770-2	CONTACT SOCKET
		1	1010929-017	CONNECTOR, PLUG (P14)
SEE NOTE 2		1	1010771-201	CONNECTOR, PLUG (P13)

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
2014567-011	2014567-011

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± ___ DECIMALS ± ___ ANGLES ± ___
DO NOT SCALE THIS DRAWING
MATERIAL ——
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO.
CONTRACT
DRAWN E. LITZOW DATE 26 MAY 65
CHECKED FESLER 28 MAY 65
APPROVAL P C Watson 8-24-65
APPROVAL NEA 8-16-65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G & N INTERCONNECT HARNESS "B"

CODE IDENT NO. 80230
SIZE C
2014642
SCALE —
SHEET 1 OF 1

MIL 1077C—P.

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-011	E	REPLACES REV D WITH CHANGE PER TDRR	24 Nov 65	Em nem
		F	ADD CONFIGURATION AND CHANGES PER TDRR 24807		

REV STATUS OF SHEETS																			
REV	F	E	F	F	F	E	E	E	E	E	E	E	E	E	E	E	E	E	F
SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. LITZOW DATE 26 MAY 65
CHECKED P. FESLER 28 MAY 66
APPROVAL RCW Dec. 16 1965
APPROVAL J.F. Vaun 12/20/65
NASA APPROVAL
MIT APPROVAL 21 Dec 65
CONTRACT NAS 9-497

G&N INTERCONNECT HARNESS "B"
(C/M, BLOCK II)
4/19

CODE IDENT NO. 80230
SIZE A
2014642
REV F
SCALE NONE
SHEET 1 OF 19

NOTE NUMBER	GENERAL NOTES DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014672.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

NOTE NUMBER	GENERAL NOTES DESCRIPTION

11 ALL UNUSED ~~GROMMET HOLES~~ CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTORS 56P13, AND P14 USE ITEM NUMBERS 13 AND 17.
CONNECTOR 56P18, USE ITEM NUMBER 14.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 25.

13 A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED, TO BUILD UP DIAMETER TO FIT ~~CABLE CLAMP.~~ SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

NOTE NUMBER	GENERAL NOTES DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED. INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.

22 PRESEAL BACK OF CONNECTORS P18 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 30,29,20, AND 21.

23 ENCAPSULATE BACK OF CONNECTORS ~~[illegible]~~ PER ND1002236 USING ITEMS 22 AND ~~[illegible]~~ 31.

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SEE NOTE

LIST OF MATERIALS

NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014642-001	WIRE PER 1010789-006, 22 AWG, YEL, 5 FT TOT LG
	2	1	2014642-002	WIRE PER 1010789-016, 26 AWG, YEL, 5 FT TOT LG
	3	1	2014642-003	WIRE PER 1010789-008, 22 AWG, YEL, RED, 10 FT TOT LG
	4	1	2014642-004	WIRE PER 1010789-003, 24 AWG, YEL, RED, 10 FT TOT LG
	5	1	2014642-005	WIRE PER 1010789-017, 26 AWG, YEL, RED, 10 FT TOT LG
	6	1	2014642-006	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 10 FT TOT LG
	7	1	2014642-007	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN, 5 FT TOT LG
	8	1	2014642-008	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 75 FT TOT LG
	9	1	2014642-009	WIRE PER 1010789-002, 24 AWG, BLK, 25 FT TOT LG
	10	1	2014742-011	CONNECTOR, ASSEMBLY, ELECTRICAL (56P18)
9	11	1	1010771-201	CONNECTOR, PLUG, ELECTRICAL (P13)
9	12	1	1010929-017	CONNECTOR, PLUG, ELECTRICAL (P14)
9	13	~~98~~ X	1010770- 2	CONTACT SOCKET, SUPPLIED WITH CONNECTORS 1010929 AND 1010771
	14	58	1010955- 1	CONTACT, MALE
	15	54	1010955- 2	CONTACT, MALE

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR ~~E~~ F	SHEET 5 OF 19

SEE NOTE

LIST OF MATERIALS

NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	17	16	1010958- 1	PLUG, PROTECTIVE SEALING
9	18	24	1010402- 2	SLEEVE, SOLDER
9	19	22	1012534- 36	INSULATION, SLEEVING, ELEC, (HEAT SHRINKABLE)
	20	AR	1006277	SILICA, PULVERIZED, PYROGENIC
	21	AR	1008822	COLORANT, EPOXY BASE
	22	AR	1012504	PRIMER, METAL PARTS
	23	1	2014670- 4	ADAPTOR, CONNECTOR
	24	1	2014670- 10	ADAPTOR, CONNECTOR
	25	AR	1012507- 4	TAPE, LACING
	27	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
	28	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
9	29	AR	1010679	ADHESIVE, ACTIVATOR
9	30	AR	1010661	EPOXY RESIN
	31	AR	1012503	COMPOUND, POTTING, POLYURETHANE

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 6 OF 19

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B	1	2	P13-66 P13-67					.13 .13	NO NO		13 13	
B	2	5										
B	2R		P13-59 P14-1					.13 .13	NO NO		13 13	
B	2Y		P13-58 P14-2					.13 .13	NO NO		13 13	
B	3	5										
B	3R		P13-30 P14-5					.13 .13	NO NO		13 13	
B	3Y		P13-27 P14-6					.13 .13	NO NO		13 13	
B	4	5										
B	4R		P14-3 P18-A8					.13 .18	NO NO		13 15	
B	4Y		P14-4 P18-A9					.13 .18	NO NO		13 15	
B	5	8			1.75 1.00	1.50 .75				7 6B	19 18	
B	5B	9	P18-A5 SHLD B5					.18 .20	NO NO		14	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 7 OF 19

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B	5R		P13-87 P18-A3					.13 .18	NO NO		13 15	
B	5Y		P13-86 P18-A4					.13 .18	NO NO		13 15	
B	6	8			1.75 1.00	1.50 .75				7 6B	19 18	
B	6B	9	P18-B3 SHLD B6					.18 .20	NO NO		14	
B	6R		P13-90 P18-B2					.13 .18	NO NO		13 15	
B	6Y		P13-91 P18-B1					.13 .18	NO NO		13 15	
B	7	8			1.75 1.00	1.50 .75				7 6B	19 18	
B	7B	9	P18-C4 SHLD B7					.18 .20	NO NO		14	
B	7R		P13-38 P18-D4					.13 .18	NO NO		13 15	
B	7Y		P13-39 P18-F4					.13 .18	NO NO		13 15	
B	8	8			1.75 1.00	1.50 .75				6L	19 18	
B	8B	9	P18-C5 SHLD B8					.18 .20	NO NO		14	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 8 OF 19

WIRING HARNESS B 2014642 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 8R			P13-41 P18-D5					.13 .18	NO NO		13 15	
B 8Y			P13-40 P18-F5					.13 .18	NO NO		13 15	
B 9	5											
B 9R			P13-71 P18-B8					.13 .18	NO NO		13 15	
B 9Y			P13-70 P18-B9					.13 .18	NO NO		13 15	
B 10	3											
B 10R			P13-76 P18-H15					.13 .18	NO NO		13 14	
B 10Y			P13-77 P18-H14					.13 .18	NO NO		13 14	
B 11	6											
B 11G			P13-16 P18-H12					.13 .18	NO NO		13 15	
B 11R			P13-5 P18-G12					.13 .18	NO NO		13 14	
B 11Y			P13-33 P18-G13					.13 .18	NO NO		13 14	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 9 OF 19

WIRING HARNESS B 2014642 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 12	4											
B 12R			P13-84 P18-C8					.13 .18	NO NO		13 14	
B 12Y			P13-85 P18-C9					.13 .18	NO NO		13 14	
B 13	8				1.75 1.00	1.50 .75				6B 6B	19 19	
B 13A	9		SHLD B13 P13-37					.20 .13	NO NO		 13	
B 13B	9		P18-G10 SHLD B13					.18 .20	NO NO		14	
B 13R			P13-34 P18-H10					.13 .18	NO NO		13 15	
B 13Y			P13-35 P18-K10					.13 .18	NO NO		13 15	
B 14	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 14B	9		P18-G4 SHLD B14					.18 .20	NO NO		14	
B 14R			P13-63 P18-H4					.13 .18	NO NO		13 15	
B 14Y			P13-62 P18-K4					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 10 OF 19

WIRING HARNESS B 2014642 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 15	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 15B	9		P18-G3 SHLD B15					.18 .20	NO NO		14	
B 15R			P13-57 P18-H3					.13 .18	NO NO		13 15	
B 15Y			P13-56 P18-K3					.13 .18	NO NO		13 15	
B 16	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 16B	9		P18-G8 SHLD B16					.18 .20	NO NO		14	
B 16R			P13-45 P18-H8					.13 .18	NO NO		13 15	
B 16Y			P13-46 P18-K8					.13 .18	NO NO		13 15	
B 17	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 17B	9		P18-G7 SHLD B17					.18 .20	NO NO		14	
B 17R			P13-26 P18-K7					.13 .18	NO NO		13 15	
B 17Y			P13-25 P18-H7					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 11 OF 19

WIRING HARNESS B 2014642 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 18	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 18B	9		P18-G6 SHLD B18					.18 .20	NO NO		14	
B 18R			P13-50 P18-K6					.13 .18	NO NO		13 15	
B 18Y			P13-49 P18-H6					.13 .18	NO NO		13 15	
B 19	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 19B	9		P18-G5 SHLD B19					.18 .20	NO NO		14	
B 19R			P13-48 P18-K5					.13 .18	NO NO		13 15	
B 19Y			P13-47 P18-H5					.13 .18	NO NO		13 15	
B 20	6											
B 20G			P13-19 P18-H13					.13 .18	NO NO		13 15	
B 20R			P13-8 P18-K12					.13 .18	NO NO		13 14	
B 20Y			P13-36 P18-K13					.13 .18	NO NO		13 14	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 12 OF 19

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 21	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 21B	9		P18-G9 SHLD B21					.18 .20	NO NO		14	
B 21R			P13-23 P18-K9					.13 .18	NO NO		13 15	
B 21Y			P13-24 P18-H9					.13 .18	NO NO		13 15	
B 22	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 22B	9		P18-G2 SHLD B22					.18 .20	NO NO		14	
B 22R			P13-6 P18-H1					.13 .18	NO NO		13 15	
B 22Y			P13-7 P18-H2					.13 .18	NO NO		13 15	
B 23	7											
B 23G			P13-14 P18-F10					.13 .18	NO NO		13 15	
B 23R			P13-12 P18-F8					.13 .18	NO NO		13 15	
B 23Y			P13-13 P18-F9					.13 .18	NO NO		13 15	

SIZE A | CODE IDENT NO. 80230 | 2014642
SCALE-NONE | REV LTR E | SHEET 13 OF 19

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 24	4											
B 24R			P13-32 P18-D8					.13 .18	NO NO		13 14	
B 24Y			P13-55 P18-D9					.13 .18	NO NO		13 14	
B 25	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 25B	9		P18-G1 SHLD B25					.18 .20	NO NO		14	
B 25R			P13-79 P18-F1					.13 .18	NO NO		13 15	
B 25Y			P13-78 P18-F2					.13 .18	NO NO		13 15	
B 26	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 26B	9		P18-A6 SHLD B26					.18 .20	NO NO		14	
B 26R			P13-83 P18-C6					.13 .18	NO NO		13 15	
B 26Y			P13-82 P18-B6					.13 .18	NO NO		13 15	
B 27	8				1.75 1.00	1.50 .75				7 6B	19 18	

SIZE A | CODE IDENT NO. 80230 | 2014642
SCALE-NONE | REV LTR E | SHEET 14 OF 19

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 27B	9		P18-C3 SHLD B27					.18 .20	NO NO		14	
B 27R			P13-54 P18-C2					.13 .18	NO NO		13 15	
B 27Y			P13-53 P18-C1					.13 .18	NO NO		13 15	
B 28	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 28B	9		P18-D3 SHLD B28					.18 .20	NO NO		14	
B 28R			P13-52 P18-D1					.13 .18	NO NO		13 15	
B 28Y			P13-51 P18-D2					.13 .18	NO NO		13 15	
B 29	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 29B	9		P18-C10 SHLD B29					.18 .20	NO NO		14	
B 29R			P13-10 P18-C11					.13 .18	NO NO		13 15	
B 29Y			P13-11 P18-C12					.13 .18	NO NO		13 15	
B 30	8				1.75 1.00	1.50 .75				7 6B	19 18	

SIZE A | CODE IDENT NO. 80230 | 2014642
SCALE-NONE | REV LTR E | SHEET 15 OF 19

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 30B	9		P18-B13 SHLD B30					.18 .20	NO NO		14	
B 30R			P13-64 P18-B14					.13 .18	NO NO		13 15	
B 30Y			P13-65 P18-B15					.13 .18	NO NO		13 15	
B 31	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 31B	9		P18-D10 SHLD B31					.18 .20	NO NO		14	
B 31R			P13-72 P18-D12					.13 .18	NO NO		13 15	
B 31Y			P13-73 P18-D11					.13 .18	NO NO		13 15	
B 32	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 32B	9		P18-B10 SHLD B32					.18 .20	NO NO		14	
B 32R			P13-17 P18-B12					.13 .18	NO NO		13 15	
B 32Y			P13-18 P18-B11					.13 .18	NO NO		13 15	
B 33	8				1.75 1.00	1.50 .75				7 6B	19 18	

SIZE A | CODE IDENT NO. 80230 | 2014642
SCALE-NONE | REV LTR E | SHEET 16 OF 19

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B	33B	9	P18-D13 SHLD B33					.18 .20	NO NO		14	
B	33R		P13-88 P18-D14					.13 .18	NO NO		13 15	
B	33Y		P13-89 P18-D15					.13 .18	NO NO		13 15	
B	34	8			1.75 1.00	1.50 .75				7 6B	19 18	
B	34B	9	P18-C13 SHLD B34					.18 .20	NO NO		14	
B	34R		P13-80 P18-C15					.13 .18	NO NO		13 15	
B	34Y		P13-81 P18-C14					.13 .18	NO NO		13 15	
B	35	3										
B	35R		P13-68 P18-F15					.13 .18	NO NO		13 15	
B	35Y		P13-69 P18-F13					.13 .18	NO NO		13 15	
B	36	2	P13-9 P18-F3					.13 .18	NO NO		13 14	
B	37	4										

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 17 OF 19

MIL 2084 9-65

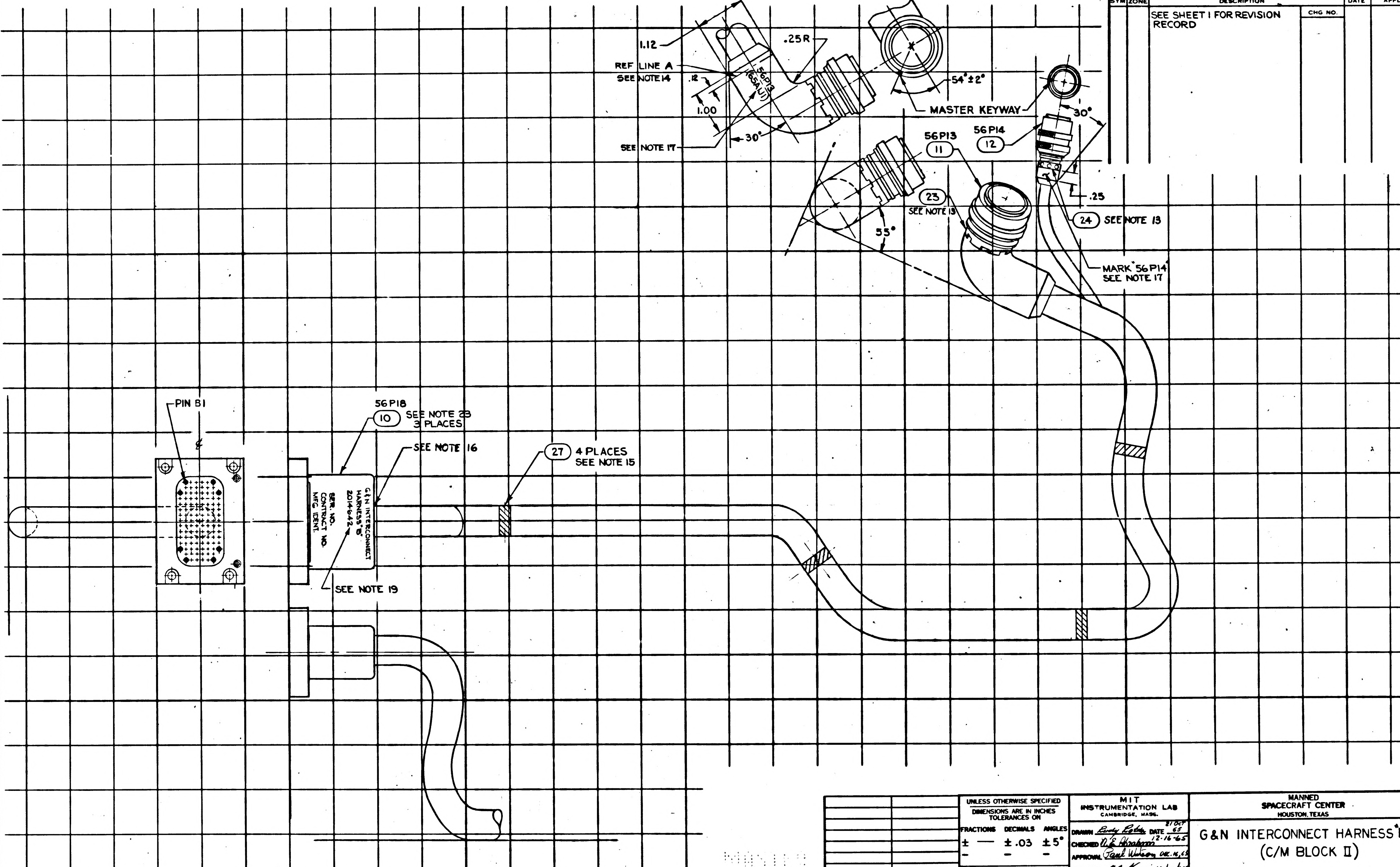
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B	37R		P13-43 P18-G14					.13 .18	NO NO		13 14	
B	37Y		P13-44 P18-G15					.13 .18	NO NO		13 14	
B	38	1	P13-1 P18-A7					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 18 OF 19

MIL 2084 9-65

REVISIONS REV F 24807

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
		SEE SHEET 1 FOR REVISION RECORD			


8
7
6
5
4
3
2
1
D
C
B
A
1.12
.25R
REF LINE A
SEE NOTE 14
.12
56P13 (65AJ1)
1.00
30°
SEE NOTE 17
54°±2°
MASTER KEYWAY
30°
56P13
11
56P14
12
23
SEE NOTE 13
55°
.25
24 SEE NOTE 13
MARK "56P14"
SEE NOTE 17
PIN B1
℄
56P18
10 SEE NOTE 23
3 PLACES
SEE NOTE 16
27 4 PLACES
SEE NOTE 15
G&N INTERCONNECT
HARNESS "B"
2014642
SER. NO.
CONTRACT NO.
MFG IDENT.
SEE NOTE 19

2014567-011	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
± —	±.03	±5°

DO NOT SCALE THIS DRAWING

MATERIAL ——

CONTRACT

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Rudy Robb DATE 21 Oct 65
CHECKED R. E. Abraham 12-16-65
APPROVAL Paul Watson DEC. 16, 65
APPROVAL J. J. Kim 12/22/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "B"
(C/M BLOCK II)

CODE IDENT NO. SIZE D 2014642
SCALE 1:1
SHEET 19 OF 19

NOTE NUMBER	GENERAL NOTES DESCRIPTION
1	SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND1002032 FOR FIGURE 7.
2	INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
3	INTERCONNECT LIST FOR THIS HARNESS IS 2014672.
4	PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT
5	THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER. A - FROM END OF SHIELD B - TO END OF SHIELD G - GREEN K - BLACK L - BLUE N - BROWN R - RED W - WHITE Y - YELLOW
6	ASTERISK DENOTES LOWER CASE LETTER
7	GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION
8	UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.
9	VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.
10	CRIMP CONTACTS PER ND1002032.

SIZE	CODE IDENT NO.		
A	80230	2014642	
SCALE-NONE	REV LTR E		SHEET 2 OF 19

MIL 2084 9-65

NOTE NUMBER	GENERAL NOTES DESCRIPTION
11	ALL UNUSED ~~GROMMET HOLES~~ CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS CONNECTORS 56P13, AND P14 USE ITEM NUMBERS 13 AND 17. CONNECTOR 56P18, USE ITEM NUMBER 14.
12	LACE HARNESS PER ND1002032 USING ITEM NUMBER 25.
13	A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.
14	ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.
15	BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.
16	WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED, TO BUILD UP DIAMETER TO FIT ~~CABLE CLAMP~~ SHELL HOLE.
17	MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.
19	MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.
20	CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

SIZE	CODE IDENT NO.		
A	80230	2014642	
SCALE-NONE	REV LTR ~~E~~ F		SHEET 3 OF 19

MIL 2084 9-65

APPLICATION	
NEXT ASSY	USED ON
2014567-011	2014567-011

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REPLACES REV D WITH CHANGE PER TDRR	24 Nov 65	EM nEM
F	ADD CONFIGURATION AND CHANGES PER TDRR 24807		
G	Revised per TDRR 25306	7/4/66	

REV																			
SHEET																			
REV STATUS REV	G	E	F	G	F	E	E	E	E	E	E	E	E	E	E	E	E	E	F
OF SHEETS SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN E. LITROW DATE 26 MAY 65
CHECKED P. FESLER 28 MAY 65
APPROVAL Dec. 16 1965
APPROVAL 12/15/65
NASA APPROVAL
MIT APPROVAL 21 Dec 65
CONTRACT NAS 9-497

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "B"
(C/M, BLOCK II)

CODE IDENT NO.	SIZE		REV
80230	A	2014642	G
SCALE NONE		SHEET 1 OF 19	

NOTE NUMBER	GENERAL NOTES DESCRIPTION
21	INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND. B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED. INCLUDING ALL SPARE PINS. TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.
22	PRESEAL BACK OF CONNECTORS P18 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 30,29,20, AND 21.
23	ENCAPSULATE BACK OF CONNECTORS ~~P18~~ PER ND1002236 USING ITEMS 22 AND ~~32~~ 31.

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

24 Perform Workmanship Vibration:

A. Sinusoidal sweep at 3.5 g rms. Limited to 0.3 inch peak to peak displacement, from 10 to 2000 cps at a rate of 4 octaves per minute.

B. Vibration along the X axis of the space craft.

C. Monitor for discontinuities of 10μ seconds or greater during vibration.

D. Complete continuity and insulation resistance testing must be accomplished after vibration.

SIZE	CODE IDENT NO.		
A	80230	2014642	
SCALE-NONE	REV LTR G		SHEET 4 OF 19

MIL 2084 9-65

SEE NOTE

LIST OF MATERIALS

NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	17	16	1010958- 1	PLUG, PROTECTIVE SEALING
9	18	24	1010402- 2	SLEEVE, SOLDER
9	19	22	1012534- 36	INSULATION, SLEEVING, ELEC, (HEAT SHRINKABLE)
	20	AR	1006277	SILICA, PULVERIZED, PYROGENIC
	21	AR	1008822	COLORANT, EPOXY BASE
	22	AR	1012504	PRIMER, METAL PARTS
	23	1	2014670- 4	ADAPTOR, CONNECTOR
	24	1	2014670- 10	ADAPTOR, CONNECTOR
	25	AR	1012507- 4	TAPE, LACING
	27	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
	28	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
9	29	AR	1010679	ADHESIVE, ACTIVATOR
9	30	AR	1010661	EPOXY RESIN
	31	AR	1012503	COMPOUND, POTTING, POLYURETHANE

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 6 OF 19

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 1	2		P13-66 P13-67					.13 .13	NO NO		13 13	
B 2	5											
B 2R			P13-59 P14-1					.13 .13	NO NO		13 13	
B 2Y			P13-58 P14-2					.13 .13	NO NO		13 13	
B 3	5											
3R			P13-30 P14-5					.13 .13	NO NO		13 13	
3Y			P13-27 P14-6					.13 .13	NO NO		13 13	
4	5											
4R			P14-3 P18-A8					.13 .18	NO NO		13 15	
4Y			P14-4 P18-A9					.13 .18	NO NO		13 15	
5	8				1.75 1.00	1.50 .75				7 6B	19 18	
5B	9		P18-A5 SHLD B5					.18 .20	NO NO		14	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 7 OF 19

SEE NOTE

LIST OF MATERIALS

NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014642-001	WIRE PER 1010789-006, 22 AWG, YEL, 5 FT TOT LG
	2	1	2014642-002	WIRE PER 1010789-016, 26 AWG, YEL, 5 FT TOT LG
	3	1	2014642-003	WIRE PER 1010789-008, 22 AWG, YEL, RED, 10 FT TOT LG
	4	1	2014642-004	WIRE PER 1010789-003, 24 AWG, YEL, RED, 10 FT TOT LG
	5	1	2014642-005	WIRE PER 1010789-017, 26 AWG, YEL, RED, 10 FT TOT LG
	6	1	2014642-006	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 10 FT TOT LG
	7	1	2014642-007	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN, 5 FT TOT LG
	8	1	2014642-008	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 75 FT TOT LG
	9	1	2014642-009	WIRE PER 1010789-002, 24 AWG, BLK, 25 FT TOT LG
	10	1	2014742-011	CONNECTOR, ASSEMBLY, ELECTRICAL (56P18)
9	11	1	1010771-201	CONNECTOR, PLUG, ELECTRICAL (P13)
9	12	1	1010929-017	CONNECTOR, PLUG, ELECTRICAL (P14)
9	13	~~90~~ X	1010770- 2	CONTACT SOCKET, SUPPLIED WITH CONNECTORS 1010929 AND 1010771
	14	58	1010955- 1	CONTACT, MALE
	15	54	1010955- 2	CONTACT, MALE

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR ~~E~~ F	SHEET 5 OF 19

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 5R			P13-87 P18-A3					.13 .18	NO NO		13 15	
B 5Y			P13-86 P18-A4					.13 .18	NO NO		13 15	
B 6	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 6B	9		P18-B3 SHLD B6					.18 .20	NO NO		14	
B 6R			P13-90 P18-B2					.13 .18	NO NO		13 15	
B 6Y			P13-91 P18-B1					.13 .18	NO NO		13 15	
B 7	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 7B	9		P18-C4 SHLD B7					.18 .20	NO NO		14	
B 7R			P13-38 P18-D4					.13 .18	NO NO		13 15	
B 7Y			P13-39 P18-F4					.13 .18	NO NO		13 15	
B 8	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 8B	9		P18-C5 SHLD B8					.18 .20	NO NO		14	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 8 OF 19

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 12	4											
B 12R			P13-84 P18-C8					.13 .18	NO NO		13 14	
B 12Y			P13-85 P18-C9					.13 .18	NO NO		13 14	
B 13	8				1.75 1.00	1.50 .75				68 68	19 19	
B 13A	9		SHLD B13 P13-37					.20 .13	NO NO		13	
B 13B	9		P18-G10 SHLD B13					.18 .20	NO NO		14	
B 13R			P13-34 P18-H10					.13 .18	NO NO		13 15	
B 13Y			P13-35 P18-K10					.13 .18	NO NO		13 15	
B 14	8				1.75 1.00	1.50 .75				7 68	19 18	
B 14B	9		P18-G4 SHLD B14					.18 .20	NO NO		14	
B 14R			P13-63 P18-H4					.13 .18	NO NO		13 15	
B 14Y			P13-62 P18-K4					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 10 OF 19

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 15	8				1.75 1.00	1.50 .75				7 68	19 18	
B 15B	9		P18-G3 SHLD B15					.18 .20	NO NO		14	
B 15R			P13-57 P18-H3					.13 .18	NO NO		13 15	
B 15Y			P13-56 P18-K3					.13 .18	NO NO		13 15	
B 16	8				1.75 1.00	1.50 .75				7 68	19 18	
B 16B	9		P18-G8 SHLD B16					.18 .20	NO NO		14	
B 16R			P13-45 P18-H8					.13 .18	NO NO		13 15	
B 16Y			P13-46 P18-K8					.13 .18	NO NO		13 15	
B 17	8				1.75 1.00	1.50 .75				7 68	19 18	
B 17B	9		P18-G7 SHLD B17					.18 .20	NO NO		14	
B 17R			P13-26 P18-K7					.13 .18	NO NO		13 15	
B 17Y			P13-25 P18-H7					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 11 OF 19

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 8R			P13-41 P18-D5					.13 .18	NO NO		13 15	
B 8Y			P13-40 P18-F5					.13 .18	NO NO		13 15	
B 9	5											
B 9R			P13-71 P18-B8					.13 .18	NO NO		13 15	
B 9Y			P13-70 P18-B9					.13 .18	NO NO		13 15	
B 10	3											
B 10R			P13-76 P18-H15					.13 .18	NO NO		13 14	
B 10Y			P13-77 P18-H14					.13 .18	NO NO		13 14	
B 11	6											
B 11G			P13-16 P18-H12					.13 .18	NO NO		13 15	
B 11R			P13-5 P18-G12					.13 .18	NO NO		13 14	
B 11Y			P13-33 P18-G13					.13 .18	NO NO		13 14	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 9 OF 19

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 18	8				1.75 1.00	1.50 .75				7 68	19 18	
B 18B	9		P18-G6 SHLD B18					.18 .20	NO NO		14	
B 18R			P13-50 P18-K6					.13 .18	NO NO		13 15	
B 18Y			P13-49 P18-H6					.13 .18	NO NO		13 15	
B 19	8				1.75 1.00	1.50 .75				7 68	19 18	
B 19B	9		P18-G5 SHLD B19					.18 .20	NO NO		14	
B 19R			P13-48 P18-K5					.13 .18	NO NO		13 15	
B 19Y			P13-47 P18-H5					.13 .18	NO NO		13 15	
B 20	6											
B 20G			P13-19 P18-H13					.13 .18	NO NO		13 15	
B 20R			P13-8 P18-K12					.13 .18	NO NO		13 14	
B 20Y			P13-36 P18-K13					.13 .18	NO NO		13 14	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 12 OF 19

MIL 2084 9-65

WIRING HARNESS B 2014642 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 24	4											
B 24R			P13-32 P18-D8					.13 .18	NO NO		13 14	
B 24Y			P13-55 P18-D9					.13 .18	NO NO		13 14	
B 25	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 25B	9		P18-G1 SHLD B25					.18 .20	NO NO		14	
B 25R			P13-79 P18-F1					.13 .18	NO NO		13 15	
B 25Y			P13-78 P18-F2					.13 .18	NO NO		13 15	
B 26	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 26B	9		P18-A6 SHLD B26					.18 .20	NO NO		14	
B 26R			P13-83 P18-C6					.13 .18	NO NO		13 15	
B 26Y			P13-82 P18-B6					.13 .18	NO NO		13 15	
B 27	8				1.75 1.00	1.50 .75				7 6B	19 18	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 14 OF 19

MIL 2084 9-65

WIRING HARNESS B 2014642 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 27B	9		P18-C3 SHLD B27					.18 .20	NO NO		14	
B 27R			P13-54 P18-C2					.13 .18	NO NO		13 15	
B 27Y			P13-53 P18-C1					.13 .18	NO NO		13 15	
B 28	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 28B	9		P18-D3 SHLD B28					.18 .20	NO NO		14	
B 28R			P13-52 P18-D1					.13 .18	NO NO		13 15	
B 28Y			P13-51 P18-D2					.13 .18	NO NO		13 15	
B 29	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 29B	9		P18-C10 SHLD B29					.18 .20	NO NO		14	
B 29R			P13-10 P18-C11					.13 .18	NO NO		13 15	
B 29Y			P13-11 P18-C12					.13 .18	NO NO		13 15	
B 30	8				1.75 1.00	1.50 .75				7 6B	19 18	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 15 OF 19

MIL 2084 9-65

WIRING HARNESS B 2014642 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 21	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 21B	9		P18-G9 SHLD B21					.18 .20	NO NO		14	
B 21R			P13-23 P18-K9					.13 .18	NO NO		13 15	
B 21Y			P13-24 P18-H9					.13 .18	NO NO		13 15	
B 22	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 22B	9		P18-G2 SHLD B22					.18 .20	NO NO		14	
B 22R			P13-6 P18-H1					.13 .18	NO NO		13 15	
B 22Y			P13-7 P18-H2					.13 .18	NO NO		13 15	
B 23	7											
B 23G			P13-14 P18-F10					.13 .18	NO NO		13 15	
B 23R			P13-12 P18-F8					.13 .18	NO NO		13 15	
B 23Y			P13-13 P18-F9					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 13 OF 19

MIL 2084 9-65

WIRING HARNESS B 2014642 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 30B	9		P18-B13 SHLD B30					.18 .20	NO NO		14	
B 30R			P13-64 P18-B14					.13 .18	NO NO		13 15	
B 30Y			P13-65 P18-B15					.13 .18	NO NO		13 15	
B 31	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 31B	9		P18-D10 SHLD B31					.18 .20	NO NO		14	
B 31R			P13-72 P18-D12					.13 .18	NO NO		13 15	
B 31Y			P13-73 P18-D11					.13 .18	NO NO		13 15	
B 32	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 32B	9		P18-B10 SHLD B32					.18 .20	NO NO		14	
B 32R			P13-17 P18-B12					.13 .18	NO NO		13 15	
B 32Y			P13-18 P18-B11					.13 .18	NO NO		13 15	
B 33	8				1.75 1.00	1.50 .75				7 6B	19 18	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR E	SHEET 16 OF 19

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 33B	9		P18-D13 SHLD B33					.18 .20	NO NO		14	
B 33R			P13-88 P18-D14					.13 .18	NO NO		13 15	
B 33Y			P13-89 P18-D15					.13 .18	NO NO		13 15	
B 34	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 34B	9		P18-C13 SHLD B34					.18 .20	NO NO		14	
B 34R			P13-80 P18-C15					.13 .18	NO NO		13 15	
B 34Y			P13-81 P18-C14					.13 .18	NO NO		13 15	
B 35	3											
B 35R			P13-68 P18-F15					.13 .18	NO NO		13 15	
B 35Y			P13-69 P18-F13					.13 .18	NO NO		13 15	
B 36	2		P13-9 P18-F3					.13 .18	NO NO		13 14	
B 37	4											

SIZE	CODE IDENT NO.		
A	80230	2014642	
SCALE-NONE	REV LTR E	SHEET 17 OF 19	

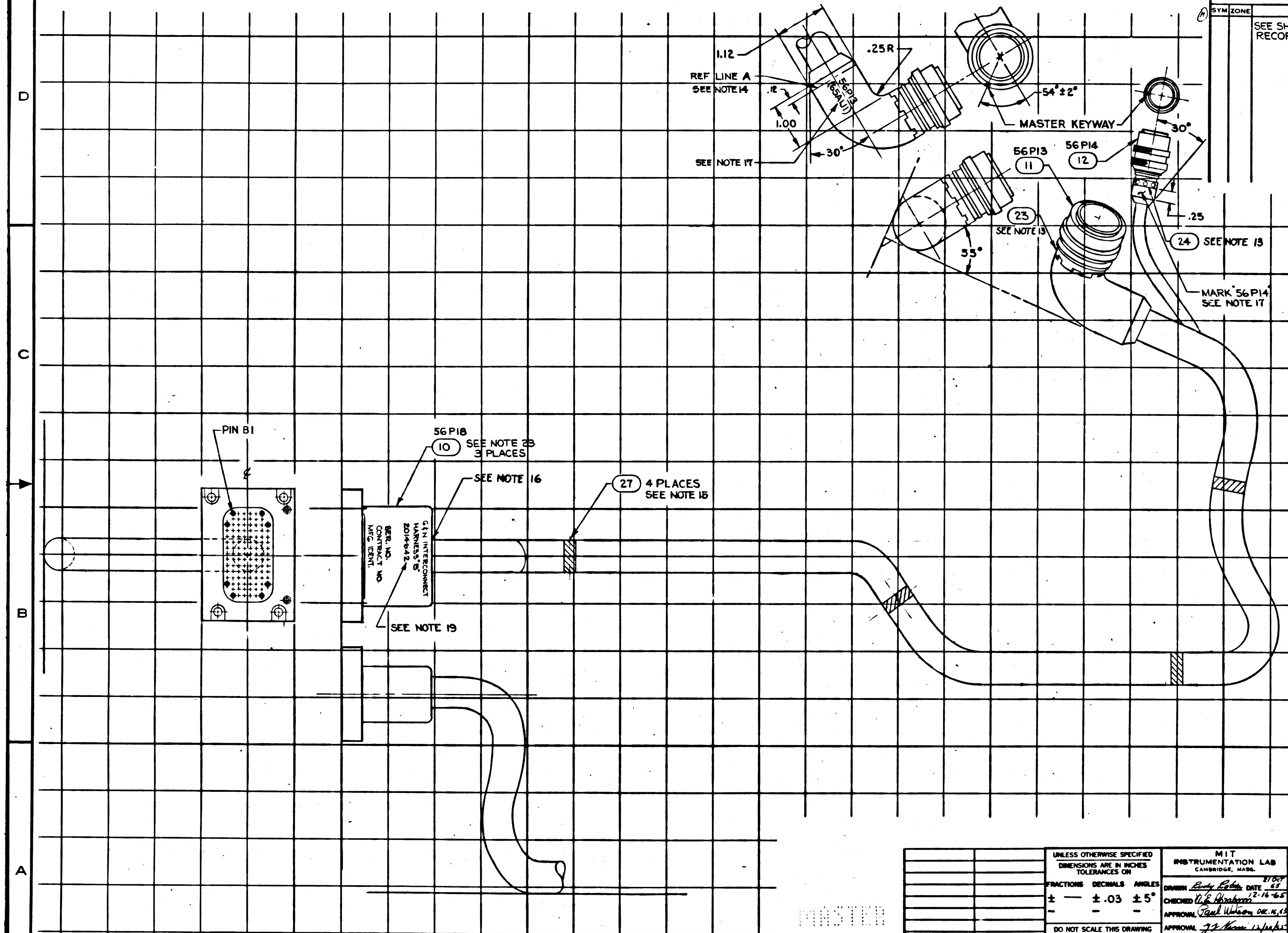
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 37R			P13-43 P18-G14					.13 .18	NO NO		13 14	
B 37Y			P13-44 P18-G15					.13 .18	NO NO		13 14	
B 38	1		P13-1 P18-A7					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.		
A	80230	2014642	
SCALE-NONE	REV LTR E	SHEET 18 OF 19	

2014642 F

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
		SEE SHEET 1 FOR REVISION RECORD			

REVISIONS REV F 24807


1.12
.25R
REF LINE A
SEE NOTE 14
.12
56P13 (65A1J1)
1.00
30°
SEE NOTE 17
54° ± 2°
MASTER KEYWAY
30°
56P13
11
56P14
12
.25
23
SEE NOTE 13
55°
24 SEE NOTE 13
MARK "56P14" SEE NOTE 17
PIN B1
℄
56P18
10 SEE NOTE 23 3 PLACES
SEE NOTE 16
27 4 PLACES SEE NOTE 15
G&N INTERCONNECT HARNESS "B" 2014642
SER. NO.
CONTRACT NO.
MFG IDENT.
SEE NOTE 19

MASTER

2014567-011	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
± —	± .03	± 5°

DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Rudy Roba DATE 21 Oct 65
CHECKED N. E. Abraham 12-16-65
APPROVAL Paul Watson DEC. 16, 65
APPROVAL J J Kern 12/20/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 21 Dec 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "B"
(C/M BLOCK II)

CODE IDENT NO.
SIZE D
2014642
SCALE 1:1
SHEET 19 OF 19

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-011	E	REPLACES REV D WITH CHANGE PER TDRR	24 Nov 65	Em / MEM
		F	ADD CONFIGURATION AND CHANGES PER TDRR 24807		
		Ⓜ G	Revised per TDRR 25306	2/4/66	
		H	REVISED PER TDRR 26659	7 MAR 66	JIM P / AU

REV																					
SHEET																					
REV STATUS	REV	H	G	G	G	G	G	H	G	G	G	G	H	H	G	G	H	H	H	H	G
OF SHEETS	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. LITZOW DATE 26 MAY 65
CHECKED R. FESLER 28 MAY 65
APPROVAL Dec. 16 1965
APPROVAL 12/16/65

G&N INTERCONNECT HARNESS "B"
(C/M, BLOCK II)

NASA APPROVAL
MIT APPROVAL 21 Dec 65

CONTRACT NAS 9-497

CODE IDENT NO.	SIZE		REV
80230	A	2014642	H

SCALE None

SHEET 1 OF 20

NOTE GENERAL NOTES

NUMBER DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014672.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE A	CODE IDENT NO. 80230	2014642		
SCALE-NONE	REV LTR	G	SHEET	2 OF 20

NOTE GENERAL NOTES

NUMBER DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTORS 56P13, AND P14 USE ITEM NUMBERS 13 AND 17.
CONNECTOR 56P18, USE ITEM NUMBER 14.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 25.

13 A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED, TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

SIZE A	CODE IDENT NO. 80230	2014642		
SCALE-NONE	REV LTR	G	SHEET	3 OF 20

NOTE GENERAL NOTES

NUMBER DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED. INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.

22 PRESEAL BACK OF CONNECTORS P18 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 30,29,20, AND 21.

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 22 AND 31.

24 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 G RMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACE CRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICRO SECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

SIZE A	CODE IDENT NO. 80230	2014642		
SCALE-NONE	REV LTR	G	SHEET	4 OF 20

NOTE GENERAL NOTES

NUMBER DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SIZE A	CODE IDENT NO. 80230	2014642		
SCALE-NONE	REV LTR	G	SHEET	5 OF 20

SEE NOTE LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014642-001	WIRE PER 1010789-006, 22 AWG, YEL, 5 FT TOT LG
	2	1	2014642-002	WIRE PER 1010789-016, 26 AWG, YEL, 5 FT TOT LG
	3	1	2014642-003	WIRE PER 1010789-008, 22 AWG, YEL, RED, 10 FT TOT LG
	4	1	2014642-004	WIRE PER 1010789-003, 24 AWG, YEL, RED, 10 FT TOT LG
	5	1	2014642-005	WIRE PER 1010789-017, 26 AWG, YEL, RED, 10 FT TOT LG
	6	1	2014642-006	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 10 FT TOT LG
	7	1	2014642-007	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN, 5 FT TOT LG
	8	1	2014642-008	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 75 FT TOT LG
	9	1	2014642-009	WIRE PER 1010789-002, 24 AWG, BLK, 25 FT TOT LG
	10	1	2014742-011	CONNECTOR, ASSEMBLY, ELECTRICAL (56P18)
9	11	1	1010771-201	CONNECTOR, PLUG, ELECTRICAL (P13)
9	12	1	1010929-017	CONNECTOR, PLUG, ELECTRICAL (P14)
9	13	X	1010770- 2	CONTACT SOCKET, SUPPLIED WITH CONNECTORS 1010929 AND 1010771
	14	58	1010955- 1	CONTACT, MALE
	15	54	1010955- 2	CONTACT, MALE

SIZE A	CODE IDENT NO. 80230	2014642
SCALE-NONE	REV LTR G	SHEET 6 OF 20

SEE NOTE LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	17	16	1010958- 1	PLUG, PROTECTIVE SEALING
9	18	24	1010402- 2	SLEEVE, SOLDER
9	19	22	1012534- 36	INSULATION, SLEEVING, ELEC, (HEAT SHRINKABLE)
	20	AR	1006277	SILICA, PULVERIZED, PYROGENIC
	21	AR	1008822	COLORANT, EPOXY BASE
	22	AR	1012504	PRIMER, METAL PARTS
	23	1	2014670- 4	ADAPTOR, CONNECTOR
	24	1	2014670- 10	ADAPTOR, CONNECTOR
	25	AR	1012507- 4	TAPE, LACING
	27	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
	28	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
9	29	AR	1010679	ADHESIVE, ACTIVATOR
9	30	AR	1010661	EPOXY RESIN
	31	AR	1012503	COMPOUND, POTTING, POLYURETHANE
	32	1	2014642-010	WIRE PER 1010789-011, 24AWG, YEL, YEL JKT, 5 FEET TOTAL LENGTH
	33	1	1012534- 38	INSULATION, SLEEVING (HEAT SHRINKABLE)

SIZE A	CODE IDENT NO. 80230	2014642
SCALE-NONE	REV LTR H	SHEET 7 OF 2

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 1	2		P13-66 P13-67					.13 .13	NO NO		13 13	
B 2	5											
B 2R			P13-59 P14-1					.13 .13	NO NO		13 13	
B 2Y			P13-58 P14-2					.13 .13	NO NO		13 13	
B 3	5											
B 3R			P13-30 P14-5					.13 .13	NO NO		13 13	
B 3Y			P13-27 P14-6					.13 .13	NO NO		13 13	
B 4	5											
B 4R			P14-3 P18-A8					.13 .18	NO NO		13 15	
B 4Y			P14-4 P18-A9					.13 .18	NO NO		13 15	
B 5	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 5B	9		P18-A5 SHLD B5					.18 .20	NO NO		14	

SIZE A	CODE IDENT NO. 80230	2014642
SCALE-NONE	REV LTR G	SHEET 8 OF 20

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 5R			P13-87 P18-A3					.13 .18	NO NO		13 15	
B 5Y			P13-86 P18-A4					.13 .18	NO NO		13 15	
B 6	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 6B	9		P18-B3 SHLD B6					.18 .20	NO NO		14	
B 6R			P13-90 P18-B2					.13 .18	NO NO		13 15	
B 6Y			P13-91 P18-B1					.13 .18	NO NO		13 15	
B 7	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 7B	9		P18-C4 SHLD B7					.18 .20	NO NO		14	
B 7R			P13-38 P18-D4					.13 .18	NO NO		13 15	
B 7Y			P13-39 P18-F4					.13 .18	NO NO		13 15	
B 8	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 8B	9		P18-C5 SHLD B8					.18 .20	NO NO		14	

SIZE A	CODE IDENT NO. 80230	2014642
SCALE-NONE	REV LTR G	SHEET 9 OF 20

WIRING HARNESS B 2014642 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 8R			P13-41 P18-D5					.13 .18	NO NO		13 15	
B 8Y			P13-40 P18-F5					.13 .18	NO NO		13 15	
B 9	5											
B 9R			P13-71 P18-B8					.13 .18	NO NO		13 15	
B 9Y			P13-70 P18-B9					.13 .18	NO NO		13 15	
B 10	3											
B 10R			P13-76 P18-H15					.13 .18	NO NO		13 14	
B 10Y			P13-77 P18-H14					.13 .18	NO NO		13 14	
B 11	6											
B 11G			P13-16 P18-H12					.13 .18	NO NO		13 15	
B 11R			P13-5 P18-G12					.13 .18	NO NO		13 14	
B 11Y			P13-33 P18-G13					.13 .18	NO NO		13 14	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR G	SHEET 10 OF 20

MIL 2084 9-65

WIRING HARNESS B 2014642 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 12	4											
B 12R			P13-84 P18-C8					.13 .18	NO NO		13 14	
B 12Y			P13-85 P18-C9					.13 .18	NO NO		13 14	
B 13	8				1.75 1.00	1.50 .75				6B 6B	19 19	
B 13A	9		SHLD B13 P13-37					.20 .13	NO NO		 13	
B 13B	9		P18-G10 SHLD B13					.18 .20	NO NO		14	
B 13R			P13-34 P18-H10					.13 .18	NO NO		13 15	
B 13Y			P13-35 P18-K10					.13 .18	NO NO		13 15	
B 14	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 14B	9		P18-G4 SHLD B14					.18 .20	NO NO		14	
B 14R			P13-63 P18-H4					.13 .18	NO NO		13 15	
B 14Y			P13-62 P18-K4					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR G	SHEET 11 OF 20

MIL 2084 9-65

WIRING HARNESS B 2014642 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 15	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 15B	9		P18-G3 SHLD B15					.18 .20	NO NO		14	
B 15R			P13-57 P18-H3					.13 .18	NO NO		13 15	
B 15Y			P13-56 P18-K3					.13 .18	NO NO		13 15	
B 16	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 16B	9		P18-G8 SHLD B16					.18 .20	NO NO		14	
B 16R			P13-45 P18-K8					.13 .18	NO NO		13 15	
B 16Y			P13-46 P18-H8					.13 .18	NO NO		13 15	
B 17	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 17B	9		P18-G7 SHLD B17					.18 .20	NO NO		14	
B 17R			P13-26 P18-K7					.13 .18	NO NO		13 15	
B 17Y			P13-25 P18-H7					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR H	SHEET 12 OF 20

MIL 2084 9-65

WIRING HARNESS B 2014642 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 18	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 18B	9		P18-G6 SHLD B18					.18 .20	NO NO		14	
B 18R			P13-50 P18-K6					.13 .18	NO NO		13 15	
B 18Y			P13-49 P18-H6					.13 .18	NO NO		13 15	
B 19	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 19B	9		P18-G5 SHLD B19					.18 .20	NO NO		14	
B 19R			P13-48 P18-H5					.13 .18	NO NO		13 15	
B 19Y			P13-47 P18-K5					.13 .18	NO NO		13 15	
B 20	6											
B 20G			P13-19 P18-H13					.13 .18	NO NO		13 15	
B 20R			P13-8 P18-K12					.13 .18	NO NO		13 14	
B 20Y			P13-36 P18-K13					.13 .18	NO NO		13 14	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR H	SHEET 13 OF 20

MIL 2084 9-65

WIRING HARNESS B 2014642 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 21	8				1.75 1.00	1.50 .75				7 68	19 18	
B 21B	9		P18-G9 SHLD B21					.18 .20	NO NO		14	
B 21R			P13-23 P18-K9					.13 .18	NO NO		13 15	
B 21Y			P13-24 P18-H9					.13 .18	NO NO		13 15	
B 22	8				1.75 1.00	1.50 .75				7 68	19 18	
B 22B	9		P18-G2 SHLD B22					.18 .20	NO NO		14	
B 22R			P13-6 P18-H1					.13 .18	NO NO		13 15	
B 22Y			P13-7 P18-H2					.13 .18	NO NO		13 15	
B 23	7											
B 23G			P13-14 P18-F10					.13 .18	NO NO		13 15	
B 23R			P13-12 P18-F8					.13 .18	NO NO		13 15	
B 23Y			P13-13 P18-F9					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR G	SHEET 14 OF 20

WIRING HARNESS B 2014642 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 24	4											
B 24R			P13-32 P18-D8					.13 .18	NO NO		13 14	
B 24Y			P13-55 P18-D9					.13 .18	NO NO		13 14	
B 25	8				1.75 1.00	1.50 .75				7 68	19 18	
B 25B	9		P18-G1 SHLD B25					.18 .20	NO NO		14	
B 25R			P13-79 P18-F1					.13 .18	NO NO		13 15	
B 25Y			P13-78 P18-F2					.13 .18	NO NO		13 15	
B 26	8				1.75 1.00	1.50 .75				7 68	19 18	
B 26B	9		P18-A6 SHLD B26					.18 .20	NO NO		14	
B 26R			P13-83 P18-C6					.13 .18	NO NO		13 15	
B 26Y			P13-82 P18-B6					.13 .18	NO NO		13 15	
B 27	8				1.75 1.00	1.50 .75				7 68	19 18	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR G	SHEET 15 OF 20

WIRING HARNESS B 2014642 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 27B	9		P18-C3 SHLD B27					.18 .20	NO NO		14	
B 27R			P13-54 P18-C2					.13 .18	NO NO		13 15	
B 27Y			P13-53 P18-C1					.13 .18	NO NO		13 15	
B 28	8				1.75 1.00	1.50 .75				7 68	19 18	
B 28B	9		P18-D3 SHLD B28					.18 .20	NO NO		14	
B 28R			P13-52 P18-D1					.13 .18	NO NO		13 15	
B 28Y			P13-51 P18-D2					.13 .18	NO NO		13 15	
B 29	8				1.75 1.00	1.50 .75				7 68	19 18	
B 29B	9		P18-C10 SHLD B29					.18 .20	NO NO		14	
B 29R			P13-11 P18-C11					.13 .18	NO NO		13 15	
B 29Y			P13-10 P18-C12					.13 .18	NO NO		13 15	
B 30	8				1.75 1.00	1.50 .75				7 68	19 18	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR H	SHEET 16 OF 20

WIRING HARNESS B 2014642 H ~~G~~

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 30B	9		P18-B13 SHLD B30					.18 .20	NO NO		14	
B 30R			P13-64 P18-B14					.13 .18	NO NO		13 15	
B 30Y			P13-65 P18-B15					.13 .18	NO NO		13 15	
B 31	8				1.75 1.00	1.50 .75				7 68	19 18	
B 31B	9		P18-D10 SHLD B31					.18 .20	NO NO		14	
B 31R			P13-72 P18-D12					.13 .18	NO NO		13 15	
B 31Y			P13-73 P18-D11					.13 .18	NO NO		13 15	
B 32	8				1.75 1.00	1.50 .75				7 68	19 18	
B 32B	9		P18-B10 SHLD B32					.18 .20	NO NO		14	
B 32R			P13-~~17~~ 18 P18-B12					.13 .18	NO NO		13 15	
B 32Y			P13-~~18~~ 17 P18-B11					.13 .18	NO NO		13 15	
B 33	~~8~~		DELETED		~~1.75~~ ~~1.00~~	~~1.50~~ ~~.75~~				~~7~~ ~~68~~	~~19~~ ~~18~~	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR ~~G~~ H	SHEET 17 OF 20

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 33B	~~9~~		~~P18-D13~~ ~~SHLD B33~~	DELETED				~~.18~~ ~~.20~~	~~NO~~ ~~NO~~		~~14~~	
B 33R			~~P13-88~~ ~~P18-D14~~	DELETED				~~.13~~ ~~.18~~	~~NO~~ ~~NO~~		~~13~~ ~~15~~	
B 33Y			~~P13-89~~ ~~P18-D15~~	DELETED				~~.13~~ ~~.18~~	~~NO~~ ~~NO~~		~~13~~ ~~15~~	
B 34	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 34B	9		P18-C13 SHLD B34					.18 .20	NO NO		14	
B 34R			P13-80 P18-C15					.13 .18	NO NO		13 15	
B 34Y			P13-81 P18-C14					.13 .18	NO NO		13 15	
B 35	3											
B 35R			P13-68 P18-F15					.13 .18	NO NO		13 15	
B 35Y			P13-69 P18-F13					.13 .18	NO NO		13 15	
B 36	2		P13-9 P18-F3					.13 .18	NO NO		13 14	
B 37	4											

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR H	SHEET 18 OF 20

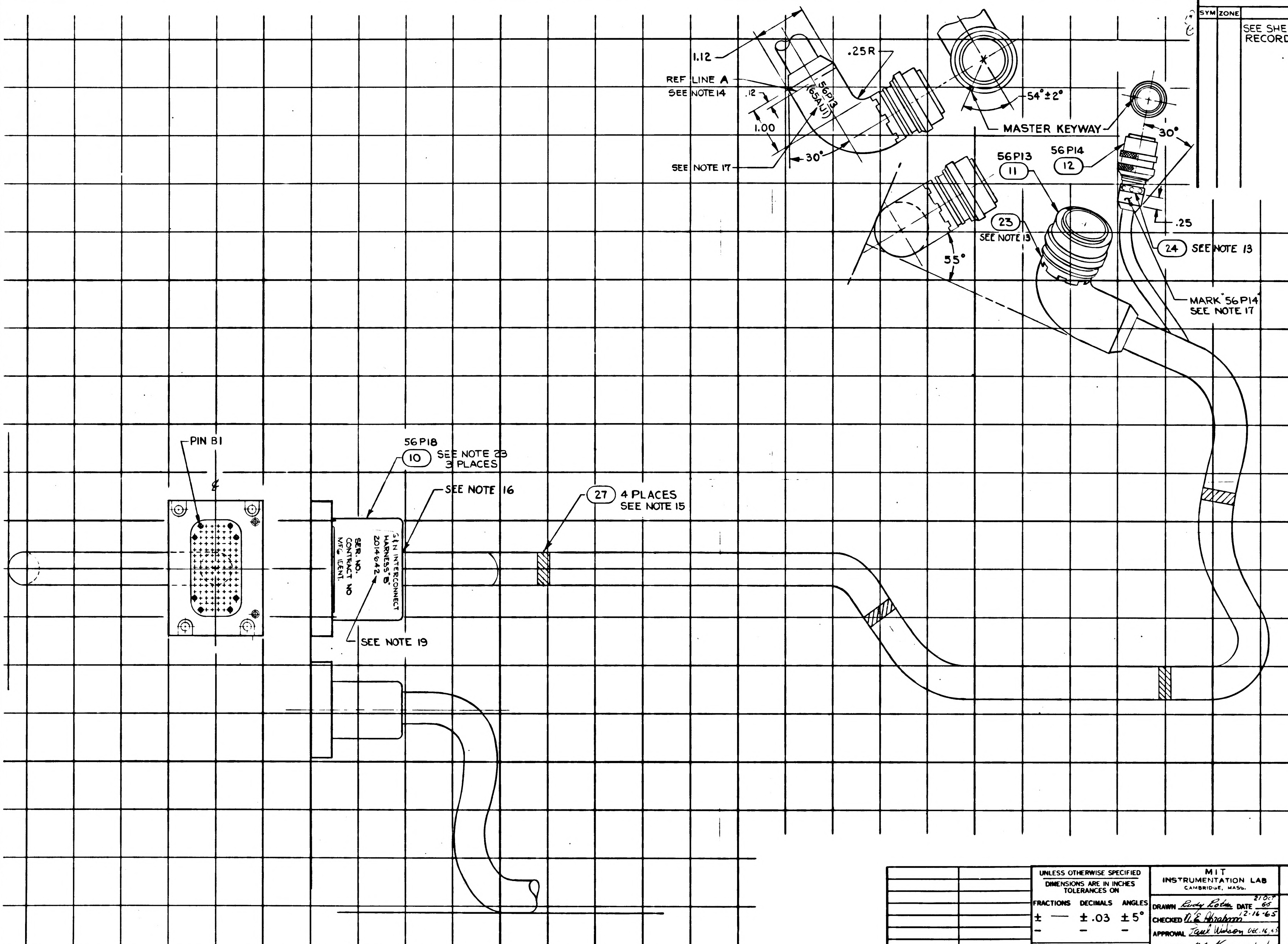
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 37R			P13-43 P18-G14					.13 .18	NO NO		13 14	
B 37Y			P13-44 P18-G15					.13 .18	NO NO		13 14	
B 38	1		P13-1 P18-A7					.13 .18	NO NO		13 15	
B 39	32				1.75 1.00	1.50 .75				7 6B	33 18	
B 39B	9		P18-D13 SHLD B39					.18 .20	NO NO		14	
B 39Y			P13-88 P18-D14					.13 .18	NO NO		13 14	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR H	SHEET 19 OF 20

2014642 G

REVISIONS [illegible]

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
		SEE SHEET 1 FOR REVISION RECORD			


1.12
.25R
REF LINE A
SEE NOTE 14
.12
1.00
56P13 (65A1J1)
SEE NOTE 17
30°
54°±2°
MASTER KEYWAY
30°
56P13
11
56P14
12
.25
23
SEE NOTE 13
55°
24 SEE NOTE 13
MARK "56P14"
SEE NOTE 17
PIN B1
56P18
10 SEE NOTE 23
3 PLACES
SEE NOTE 16
G&N INTERCONNECT HARNESS "B"
2014642
SER. NO.
CONTRACT NO
MFG IDENT.
SEE NOTE 19
27 4 PLACES
SEE NOTE 15

2014567-011	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
± —	±.03	±5°

DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Rudy Roth DATE 21 Oct 65
CHECKED N.E. Abraham 12-16-65
APPROVAL Paul Wilson Dec. 16, 65
APPROVAL [illegible] 12/20/65
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "B"
(C/M BLOCK II)

CODE IDENT NO.
SIZE D
2014642
SCALE 1:1
SHEET 20 OF 20

APPLICATION	
NEXT ASSY	USED ON
2014567-011	2014567-011

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REPLACES REV D WITH CHANGE PER TDRR	24 Nov 65	Em MEM
F	ADD CONFIGURATION AND CHANGES PER TDRR 24807		
G	Revised per TDRR 25306	2/4/66	
H	REVISED PER TDRR 26659	7 MAR 66	JIM P AU
J	REVISED PER TDRR 28407	10 MAY 66	DKD

REV STATUS	REV	J	G	J	J	G	J	J	G	G	J	J	H	J	G	G	H	H	J	J	J
OF SHEETS	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN E. LITZOW DATE 26 MAY 65
CHECKED P. FESLER 28 MAY 65
APPROVAL Dec. 16 1965
APPROVAL 12/21/65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "B"
(C/M, BLOCK II)

NASA APPROVAL
MIT APPROVAL 21 Dec 65
CONTRACT NAS 9-497

CODE IDENT NO.	SIZE		REV
80230	A	2014642	J

SCALE NONE

SHEET 1 OF 20

NOTE GENERAL NOTES

NUMBER DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014672.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

NOTE GENERAL NOTES

NUMBER DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTORS 56P13, AND P14 USE ITEM NUMBERS 13 AND 17.
CONNECTOR 56P18, USE ITEM NUMBER 14.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 25.

13 APPLY BONDING MATERIAL PER ND1002187, TYPE I, USING ITEMS 29 AND 30, TO THE THREADED PORTION OF CONNECTOR AND TO THE THREADED PORTION OF ADAPTER PRIOR TO ASSEMBLY.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS OR ACCESSORIES AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED, TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

NOTE GENERAL NOTES

NUMBER DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND. EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED. INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE. SHORT CIRCUIT CURRENT SHALL BE LIMITED TO 15 MA.

22 PRESEAL BACK OF CONNECTORS P18 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 30,29,20, AND 21.

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 22 AND 31.

24 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 G RMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACE CRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICRO SECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

NOTE GENERAL NOTES

NUMBER DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014642-001	WIRE PER 1010789-006, 22 AWG, YEL, 5 FT TOT LG
	2	1	2014642-002	WIRE PER 1010789-016, 26 AWG, YEL, 5 FT TOT LG
	3	1	2014642-003	WIRE PER 1010789-008, 22 AWG, YEL, RED, 10 FT TOT LG
	4	1	2014642-004	WIRE PER 1010789-003, 24 AWG, YEL, RED, 10 FT TOT LG
	5	1	2014642-005	WIRE PER 1010789-017, 26 AWG, YEL, RED, 10 FT TOT LG
	6	1	2014642-006	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN, 10 FT TOT LG
	7	1	2014642-007	WIRE PER 1010789-018, 26 AWG, YEL, RED, GRN, 5 FT TOT LG
	8	1	2014642-008	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 75 FT TOT LG
	9	1	2014642-009	WIRE PER 1010789-002, 24 AWG, BLK, 25 FT TOT LG
	10	1	2014742-011	CONNECTOR, ASSEMBLY, ELECTRICAL (56P18)
9	11	1	1010771-201	CONNECTOR, PLUG, ELECTRICAL (P13)
9	12	1	1010929-017	CONNECTOR, PLUG, ELECTRICAL (P14)
9	13	X	1010770- 2	CONTACT SOCKET, SUPPLIED WITH CONNECTORS 1010929 AND 1010771
	14	60	1010955- 1	CONTACT, MALE
	15	52	1010955- 2	CONTACT, MALE

SIZE	CODE IDENT NO.	
A	80230	2014642

SCALE-NONE | REV LTR J | SHEET 6 OF 20

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	17	17	1010958- 1	PLUG, PROTECTIVE SEALING
9	18	24	1010402- 2	SLEEVE, SOLDER
9	19	21	1012534- 36	INSULATION, SLEEVING, ELEC, (HEAT SHRINKABLE)
	20	AR	1006277	SILICA, PULVERIZED, PYROGENIC
	21	AR	1008822	COLORANT, EPOXY BASE
	22	AR	1012504	PRIMER, METAL PARTS
	23	1	2014670- 4	ADAPTOR, CONNECTOR
	24	1	2014670- 10	ADAPTOR, CONNECTOR
	25	AR	1012507- 4	TAPE, LACING
	27	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
	28	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
9	29	AR	1010679	ADHESIVE, ACTIVATOR
9	30	AR	1010661	EPOXY RESIN
	31	AR	1012503	COMPOUND, POTTING, POLYURETHANE
	32	1	2014642-010	WIRE PER 1010789-011, 24AWG, YEL, YEL JKT, 5 FEET TOTAL LENGTH
	33	1	1012534- 38	INSULATION, SLEEVING (HEAT SHRINKABLE)

SIZE	CODE IDENT NO.	
A	80230	2014642

SCALE-NONE | REV LTR J | SHEET 7 OF 20

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 1	2		P13-66 P13-67					.13 .13	NO NO		13 13	
B 2	5											
B 2R			P13-59 P14-1					.13 .13	NO NO		13 13	
B 2Y			P13-58 P14-2					.13 .13	NO NO		13 13	
B 3	5											
B 3R			P13-30 P14-5					.13 .13	NO NO		13 13	
B 3Y			P13-27 P14-6					.13 .13	NO NO		13 13	
B 4	5											
B 4R			P14-3 P18-A8					.13 .18	NO NO		13 15	
B 4Y			P14-4 P18-A9					.13 .18	NO NO		13 15	
B 5	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 5B	9		P18-A5 SHLD B5					.18 .20	NO NO		14	

SIZE	CODE IDENT NO.	
A	80230	2014642

SCALE-NONE | REV LTR G | SHEET 8 OF 20

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 5R			P13-87 P18-A3					.13 .18	NO NO		13 15	
B 5Y			P13-86 P18-A4					.13 .18	NO NO		13 15	
B 6	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 6B	9		P18-B3 SHLD B6					.18 .20	NO NO		14	
B 6R			P13-90 P18-B2					.13 .18	NO NO		13 15	
B 6Y			P13-91 P18-B1					.13 .18	NO NO		13 15	
B 7	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 7B	9		P18-C4 SHLD B7					.18 .20	NO NO		14	
B 7R			P13-38 P18-D4					.13 .18	NO NO		13 15	
B 7Y			P13-39 P18-F4					.13 .18	NO NO		13 15	
B 8	8				1.75 1.00	1.50 .75				7 6B	19 18	
B 8B	9		P18-C5 SHLD B8					.18 .20	NO NO		14	

SIZE	CODE IDENT NO.	
A	80230	2014642

SCALE-NONE | REV LTR G | SHEET 9 OF 20

WIRING HARNESS B 2014642 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B	8R		P13-41 P18-D5					.13 .18	NO NO		13 15	
B	8Y		P13-40 P18-F5					.13 .18	NO NO		13 15	
B	9	5										
B	9R		P13-71 P18-B8					.13 .18	NO NO		13 15	
B	9Y		P13-70 P18-B9					.13 .18	NO NO		13 15	
B	10	3										
B	10R		P13-76 P18-H15					.13 .18	NO NO		13 14	
B	10Y		P13-77 P18-H14					.13 .18	NO NO		13 14	
B	11	6										
B	11G		P13-16 P18-H12					.13 .18	NO NO		13 14	
B	11R		P13-5 P18-G12					.13 .18	NO NO		13 14	
B	11Y		P13-33 P18-G13					.13 .18	NO NO		13 14	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR J	SHEET 10 OF 20

MIL 2084 9-65

WIRING HARNESS B 2014642 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B	12	4										
B	12R		P13-84 P18-C8					.13 .18	NO NO		13 14	
B	12Y		P13-85 P18-C9					.13 .18	NO NO		13 14	
B	13	8			1.75 1.00	1.50 .75				68 68	18 18	
B	13A	9	SHLD B13 P13-37					.20 .13	NO NO		 13	
B	13B	9	P18-G10 SHLD B13					.18 .20	NO NO		14	
B	13R		P13-34 P18-H10					.13 .18	NO NO		13 15	
B	13Y		P13-35 P18-K10					.13 .18	NO NO		13 15	
B	14	8			1.75 1.00	1.50 .75				7 68	19 18	
B	14B	9	P18-G4 SHLD B14					.18 .20	NO NO		14	
B	14R		P13-63 P18-H4					.13 .18	NO NO		13 15	
B	14Y		P13-62 P18-K4					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR J	SHEET 11 OF 20

MIL 2084 9-65

WIRING HARNESS B 2014642 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B	15	8			1.75 1.00	1.50 .75				7 68	19 18	
B	15B	9	P18-G3 SHLD B15					.18 .20	NO NO		14	
B	15R		P13-57 P18-H3					.13 .18	NO NO		13 15	
B	15Y		P13-56 P18-K3					.13 .18	NO NO		13 15	
B	16	8			1.75 1.00	1.50 .75				7 68	19 18	
B	16B	9	P18-G8 SHLD B16					.18 .20	NO NO		14	
B	16R		P13-45 P18-K8					.13 .18	NO NO		13 15	
B	16Y		P13-46 P18-H8					.13 .18	NO NO		13 15	
B	17	8			1.75 1.00	1.50 .75				7 68	19 18	
B	17B	9	P18-G7 SHLD B17					.18 .20	NO NO		14	
B	17R		P13-26 P18-K7					.13 .18	NO NO		13 15	
B	17Y		P13-25 P18-H7					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR H	SHEET 12 OF 20

MIL 2084 9-65

WIRING HARNESS B 2014642 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B	18	8			1.75 1.00	1.50 .75				7 68	19 18	
B	18B	9	P18-G6 SHLD B18					.18 .20	NO NO		14	
B	18R		P13-50 P18-K6					.13 .18	NO NO		13 15	
B	18Y		P13-49 P18-H6					.13 .18	NO NO		13 15	
B	19	8			1.75 1.00	1.50 .75				7 68	19 18	
B	19B	9	P18-G5 SHLD B19					.18 .20	NO NO		14	
B	19R		P13-48 P18-H5					.13 .18	NO NO		13 15	
B	19Y		P13-47 P18-K5					.13 .18	NO NO		13 15	
B	20	6										
B	20G		P13-19 P18-H13					.13 .18	NO NO		13 14	
B	20R		P13-8 P18-K12					.13 .18	NO NO		13 14	
B	20Y		P13-36 P18-K13					.13 .18	NO NO		13 14	

SIZE	CODE IDENT NO.	
A	80230	2014642
SCALE-NONE	REV LTR J	SHEET 13 OF 20

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 21	8				1.75 1.00	1.50 .75				7 68	19 18	
B 21B	9		P18-G9 SHLD B21					.18 .20	NO NO		14	
B 21R			P13-23 P18-K9					.13 .18	NO NO		13 15	
B 21Y			P13-24 P18-H9					.13 .18	NO NO		13 15	
B 22	8				1.75 1.00	1.50 .75				7 68	19 18	
B 22B	9		P18-G2 SHLD B22					.18 .20	NO NO		14	
B 22R			P13-6 P18-H1					.13 .18	NO NO		13 15	
B 22Y			P13-7 P18-H2					.13 .18	NO NO		13 15	
B 23	7											
B 23G			P13-14 P18-F10					.13 .18	NO NO		13 15	
B 23R			P13-12 P18-F8					.13 .18	NO NO		13 15	
B 23Y			P13-13 P18-F9					.13 .18	NO NO		13 15	

SIZE A	CODE IDENT NO. 80230	2014642
SCALE-NONE	REV LTR G	SHEET 14 OF 20

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 24	4											
B 24R			P13-32 P18-D8					.13 .18	NO NO		13 14	
B 24Y			P13-55 P18-D9					.13 .18	NO NO		13 14	
B 25	8				1.75 1.00	1.50 .75				7 68	19 18	
B 25B	9		P18-G1 SHLD B25					.18 .20	NO NO		14	
B 25R			P13-79 P18-F1					.13 .18	NO NO		13 15	
B 25Y			P13-78 P18-F2					.13 .18	NO NO		13 15	
B 26	8				1.75 1.00	1.50 .75				7 68	19 18	
B 26B	9		P18-A6 SHLD B26					.18 .20	NO NO		14	
B 26R			P13-83 P18-C6					.13 .18	NO NO		13 15	
B 26Y			P13-82 P18-B6					.13 .18	NO NO		13 15	
B 27	8				1.75 1.00	1.50 .75				7 68	19 18	

SIZE A	CODE IDENT NO. 80230	2014642
SCALE-NONE	REV LTR G	SHEET 15 OF 20

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 27B	9		P18-C3 SHLD B27					.18 .20	NO NO		14	
B 27R			P13-54 P18-C2					.13 .18	NO NO		13 15	
B 27Y			P13-53 P18-C1					.13 .18	NO NO		13 15	
B 28	8				1.75 1.00	1.50 .75				7 68	19 18	
B 28B	9		P18-D3 SHLD B28					.18 .20	NO NO		14	
B 28R			P13-52 P18-D1					.13 .18	NO NO		13 15	
B 28Y			P13-51 P18-D2					.13 .18	NO NO		13 15	
B 29	8				1.75 1.00	1.50 .75				7 68	19 18	
B 29B	9		P18-C10 SHLD B29					.18 .20	NO NO		14	
B 29R			P13-11 P18-C11					.13 .18	NO NO		13 15	
B 29Y			P13-10 P18-C12					.13 .18	NO NO		13 15	
B 30	8				1.75 1.00	1.50 .75				7 68	19 18	

SIZE A	CODE IDENT NO. 80230	2014642
SCALE-NONE	REV LTR H	SHEET 16 OF 20

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
B 30B	9		P18-B13 SHLD B30					.18 .20	NO NO		14	
B 30R			P13-64 P18-B14					.13 .18	NO NO		13 15	
B 30Y			P13-65 P18-B15					.13 .18	NO NO		13 15	
B 31	8				1.75 1.00	1.50 .75				7 68	19 18	
B 31B	9		P18-D10 SHLD B31					.18 .20	NO NO		14	
B 31R			P13-72 P18-D12					.13 .18	NO NO		13 15	
B 31Y			P13-73 P18-D11					.13 .18	NO NO		13 15	
B 32	8				1.75 1.00	1.50 .75				7 68	19 18	
B 32B	9		P18-B10 SHLD B32					.18 .20	NO NO		14	
B 32R			P13-~~17~~ 18 P18-B12					.13 .18	NO NO		13 15	
B 32Y			P13-~~10~~ 17 P18-B11					.13 .18	NO NO		13 15	
B 33	~~8~~		DELETED		~~1.75~~ ~~1.00~~	~~1.50~~ ~~.75~~				~~7~~ ~~68~~	~~19~~ ~~18~~	

SIZE A	CODE IDENT NO. 80230	2014642
SCALE-NONE	REV LTR ~~G~~ H	SHEET 17 OF 20

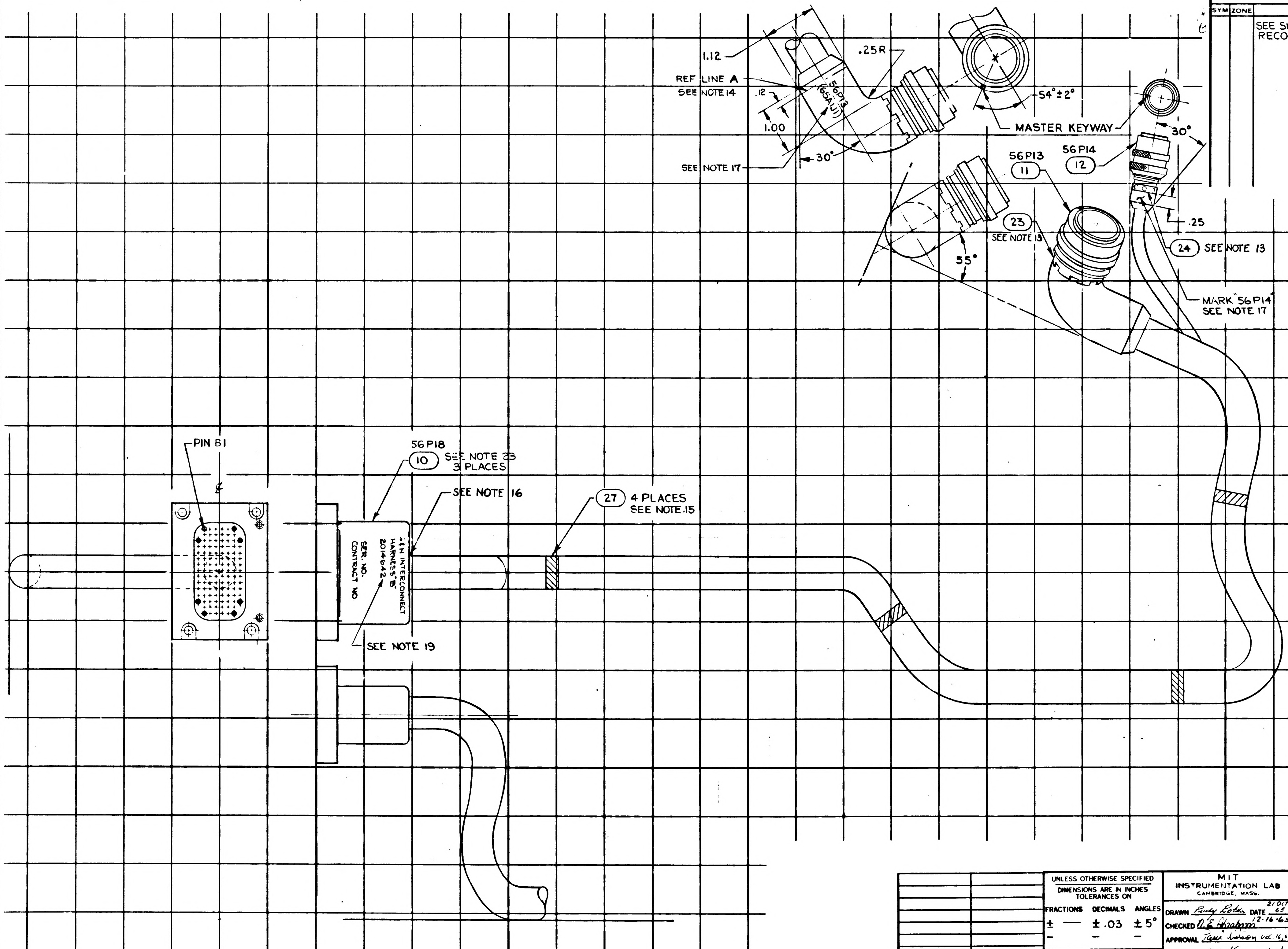
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
B 33B			DELETED									
B 33R			DELETED									
B 33Y			DELETED									
B 34	8				1.75 1.00	1.50 .75				7 68	19 18	
B 34B	9		P18-C13 SHLD B34					.18 .20	NO NO		14	
B 34R			P13-80 P18-C15					.13 .18	NO NO		13 15	
B 34Y			P13-81 P18-C14					.13 .18	NO NO		13 15	
B 35	3											
B 35R			P13-68 P18-F15					.13 .18	NO NO		13 14	
B 35Y			P13-69 P18-F13					.13 .18	NO NO		13 14	
B 36	2		P13-9 P18-F3					.13 .18	NO NO		13 15	
B 37	4											

SIZE	CODE IDENT NO.		
A	80230	2014642	
SCALE-NONE	REV LTR	J	SHEET 18 OF 20

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE. FIG	ACCESSORY ITEMS	REMARKS
B 37R			P13-43 P18-G14					.13 .18	NO NO		13 14	
B 37Y			P13-44 P18-G15					.13 .18	NO NO		13 14	
B 38	1		P13-1 P18-A7					.13 .18	NO NO		13 14	
B 39	32				1.75 1.00	1.50 .75				7 68	33 18	
B 39B	9		P18-D13 SHLD B39					.18 .20	NO NO		14	
B 39Y			P13-88 P18-D14					.13 .18	NO NO		13 14	

SIZE	CODE IDENT NO.		
A	80230	2014642	
SCALE-NONE	REV LTR	J	SHEET 19 OF 20

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
		SEE SHEET I FOR REVISION RECORD			


1.12
.25R
REF LINE A
SEE NOTE 14
.12
56P13 (65A1J1)
1.00
30°
SEE NOTE 17
54°±2°
MASTER KEYWAY
30°
56P13
11
56P14
12
.25
23
SEE NOTE 13
24 SEE NOTE 13
55°
MARK "56P14"
SEE NOTE 17
PIN B1
56P18
10 SEE NOTE 23
3 PLACES
SEE NOTE 16
27 4 PLACES
SEE NOTE 15
G&N INTERCONNECT
HARNESS "B"
2014642
SER. NO.
CONTRACT NO
SEE NOTE 19

2014567-011	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
± —	±.03	±5°

DO NOT SCALE THIS DRAWING

MATERIAL ——

CONTRACT

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Rudy Roth DATE 21 Oct 65
CHECKED N.E. Abraham 12-16-65
APPROVAL Oct. 16, 65
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "B"
(C/M BLOCK II)

CODE IDENT NO.	SIZE	
80230	D	2014642
SCALE 1:1		SHEET 20 OF 20

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
C		INITIAL CLASS A RELEASE TDRR NO. 22050			

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. VENDOR ITEM - SEE SPECIFICATION CONTROL DRAWING.
3. SELECT AS REQUIRED.
4. DRAWING FOR REFERENCE ONLY.

	ITEM NO	NO REQD	PART NO	DESCRIPTION
		4		CLAMP, PSA CONNECTOR 5052-H32-AL PER QQ-A-250/8, 2" LG × 1/2" WIDE × 1/16" THK
		2		COVER, PSA CONNECTOR 5052-H32 AL PER QQ-A-250/8, 8" LG × 3" WIDE × 1/32" THK
		1		CONNECTOR, PSA (P19) 6061-T6-AL PER QQ-A-250/11, 6" LG × 2" WIDE × 1/2" THK
		1	-009	WIRE PER 1010789-002 45
		1	-008	WIRE PER 1010707-1 15
		1	-007	-009 10
		1	-006	-015 60
		1	-005	-017 25
		1	-004	-008 30
		1	-003	-016 15
		1	-002	-001 10
		1	2014643-001	WIRE PER 1010789-006 5 FT TOT LG
		80	1010955-2	CONTACT, MALE
SEE NOTE 4		☒	2014673	INTERCONNECT LIST
		8	MS21209-C0415	INSERT, SCREW THD, SELFLOCKING
		2	6008007	SCREW, CAPTIVE
		16	1010862	BUSHING, SLEEVE
		1		SLEEVE, STANDOFF 1/2" LG
		1		SLEEVE, STANDOFF 1" LG
		2	1010400-2	CLAMP, CABLE
		2	1010705-8	CLAMP, CABLE

	ITEM NO.	NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
		2		CLAMP, CONNECTOR
		2		CLAMP, CONNECTOR
		AR	1010989	TAPE, SHIELDING, EMI/RFI
		2		ADAPTER, POTTING MOLD
SEE NOTE 2		1	1010400-1	CLAMP, CABLE
SEE NOTE 2		42	1010402-2	SLEEVE, SOLDER
SEE NOTE 2		AR	1010661	EPOXY RESIN
SEE NOTE 2		AR	1010679	ADHESIVE ACTIVATOR
SEE NOTE 2		AR	1012503	COMPOUND, POTTING, POLYURETHANE
SEE NOTE 2 & 3		AR	1012507-4	TAPE, LACING
			1012507-2	TAPE, LACING
SEE NOTE 2		44	1010490-112	INSULATION, SLEEVE, ELECTRICAL
SEE NOTE 2		32	1010490-110	INSULATION, SLEEVE, ELECTRICAL
		AR	MIL-T-23594	TAPE, TEFLON
		2		ADAPTER, POTTING MOLD
		1	1010981-30 THRU 1010981-1	GROMMET
		28	1010984-1	PLUG, PROTECTIVE SEALING
		13	1010958-1	PLUG, PROTECTIVE SEALING
		150	1010956-1	INSULATOR, MALE
		70	1010955-1	CONTACT, MALE
		122	1010781-1	CONTACT, SOCKET
SEE NOTE 2		85	1010770-2	CONTACT, SOCKET
		1	1010929-001	CONNECTOR, PLUG (P12)
		1	1010965-2	CONNECTOR, PLUG (P15)
		1	1010965-1	CONNECTOR, PLUG (P16)

LIST OF PARTS AND MATERIALS

2014567-011	2014567-011
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN E LITZOW DATE 27 MAY 65
CHECKED FESLER 28 MAY 65
APPROVAL PC Watson 8-24-65
APPROVAL [illegible] 8/23/65 DEB 8-16-65
NASA APPROVAL [illegible] 8/3/65
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "C"

CODE IDENT NO. 80230
SIZE C
2014643
SCALE —
SHEET 1 OF 1

MIL 1077C-P

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-01	E	REPLACES REV D WITH CHANGE PER TDRR	24-NOV-65	B. EF
		F	ADDED CONFIGURATION AND CHANGES PER TDRR 24808		

REV	E	E	E	E	E	E	E	E	F
SHEET	20	21	22	23	24	25	26	27	28

REV STATUS REV	F	E	F	F	E	F	E	E	E	E	E	E	E	E	E	E	E	F	E
OF SHEETS SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. LITZOW DATE 27 MAY 65
CHECKED FESLER 28 MAY 65
APPROVAL P.C. WATSON 8-24-65
APPROVAL [illegible] 12/2/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL [illegible]
CONTRACT NAS 9-497

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

CODE IDENT NO. 80230 | SIZE A | 2014643 | REV F
SCALE NONE | SHEET 1 OF 28

NOTE NUMBER — GENERAL NOTES — DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014673.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE A | CODE IDENT NO. ~~99974~~ 80230 | 2014643
SCALE-NONE | REV LTR E | SHEET 2 OF 28

NOTE NUMBER — GENERAL NOTES — DESCRIPTION

11 ALL UNUSED ~~GROMMET HOLES~~ CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTOR 56P15 AND 16 USE ITEM NUMBERS 19 AND 14.
CONNECTOR 56P12 USE ITEM NUMBERS 18 AND 13.
CONNECTOR 56P19 USE ITEM NUMBER 15.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 32.

13 A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE, ITEM 25, TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED, TO BUILD UP DIAMETER TO FIT ~~[illegible]~~. SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

SIZE A | CODE IDENT NO. ~~99974~~ 80230 | 2014643
SCALE-NONE | REV LTR ~~E~~F | SHEET 3 OF 28

NOTE NUMBER — GENERAL NOTES — DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED. INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.

22 PRESEAL BACK OF CONNECTOR P19 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 23,24,27, AND 28.

23 ENCAPSULATE BACK OF CONNECTORS ~~[illegible]~~ PER ND1002236 USING ITEMS 22 AND ~~27.~~ 29.

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SIZE A | CODE IDENT NO. ~~99974~~ 80230 | 2014643
SCALE-NONE | REV LTR ~~E~~F | SHEET 4 OF 28

SEE NOTE

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014643-001	WIRE PER 1010789-006, ~~26~~ 22 AWG, YEL, 5 FT TOT LG
	2	1	2014643-002	WIRE PER 1010789-016, 26 AWG, YEL, 10 FT TOT LG
	3	1	2014643-003	WIRE PER 1010789-008, 22AWG, YEL, RED, 30 FT TOT LG
	4	1	2014643-004	WIRE PER 1010789-017, 26 AWG, YEL, RED, 25 FT TOT LG
	5	1	2014643-005	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN 5 FT TOT LG
	6	1	2014643-006	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 5 FT TOT LG
	7	1	2014643-007	WIRE PER 1010707-1, RED JKT, 29 AWG, RED, WHT, BLUE, 20 FT TOT LG
	8	1	2014643-008	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 40 FT TOT LG
	9	1	2014643-009	WIRE PER 1010789-002, 24 AWG, BLK, 35 FT TOT LG
9	10	1	1010929-001	CONNECTOR, PLUG, ELECTRICAL (P12)
9	11	1	1010965- 1	CONNECTOR, PLUG, ELECTRICAL (P16)
9	12	1	1010965- 2	CONNECTOR, PLUG, ELECTRICAL (P15)
9	13	~~85~~ X	101C770- 2	CONTACT, SOCKET
9	14	122	1010781- 1	CONTACT, SOCKET
9	15	104	1010955- 1	CONTACT, MALE

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~E~~F	SHEET 5 OF 28

SEE NOTE

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	16	78	1010955- 2	CONTACT, MALE
	17	1	2014743 -011	CONNECTOR, PLUG, ELECTRICAL (P19)
9	18	13	1010958- 1	PLUG, PROTECTIVE SEALING
9	19	30	1010984- 1	PLUG, PROTECTIVE SEALING
9	20	39	1010402- 2	SLEEVE SOLDER
9	21	15	1012534- 36	INSULATION SLEEVE (HEAT SHRINKABLE)
	22	AR	1012503	COMPOUND, POTTING, POLYURETHANE
	23	AR	1010679	ADHESIVE ACTIVATOR
	24	AR	1010661	EPOXY RESIN
	25	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
	26	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	27	AR	1006277	SILICA, PULVERIZED, PYROGENIC
	28	AR	1008822	COLORANT, EPOXY BASE
	29	AR	1012504	PRIMER, METAL PARTS
9	30	24	1010862	BUSHING, SLEEVE
9	32	AR	1012507- 4	TAPE, LACING
	33	6	1012534- 37	SLEEVE, INSULATION (HEAT SHRINKABLE)
	34	2	2014670- 6	ADAPTER, CONNECTOR

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~E~~F	SHEET 6 OF 28

SEE NOTE

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	35	1	2014670- 4	ADAPTER, CONNECTOR

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR E	SHEET 7 OF 28

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 1	7				1.75 1.75	1.50 1.50				6B 7	20 21	A
C 1A	9		SHLD C1 P12-38					.20 .13	NO NO		 13	
C 1L			P12-63 P15-3					.13 .13	NO NO		13 14, 30	
C 1R			P12-39 P15-1					.13 .13	NO NO		13 14, 30	
C 1W			P12-64 P15-2					.13 .13	NO NO		13 14, 30	
C 2	7				1.75 1.75	1.50 1.50				6B 7	20 21	
C 2A	9		SHLD C2 P12-59					.20 .13	NO NO		 13	
C 2L			P12-84 P15-14					.13 .13	NO NO		13 14, 30	
C 2R			P12-60 P15-12					.13 .13	NO NO		13 14, 30	
C 2W			P12-85 P15-13					.13 .13	NO NO		13 14, 30	
C 3	7				1.75 1.75	1.50 1.50				6B 7	20 21	
C 3A	9		SHLD C3 P12-80					.20 .13	NO NO		 13	

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~D~~E	SHEET 8 OF 28

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 3L			P12-81 P15-61					.13 .13	NO NO		13 14, 30	
C 3R			P12-56 P15-59					.13 .13	NO NO		13 14, 30	
C 3W			P12-57 P15-60					.13 .13	NO NO		13 14, 30	
C 4	8				1.75 1.75	1.50 1.50				6B 7	20 21	
C 4A	9		SHLD C4 P12-33					.20 .13	NO NO		 13	
C 4R			P12-16 P15-6					.13 .13	NO NO		13 14	
C 4Y			P12-17 P15-7					.13 .13	NO NO		13 14	
C 5	8				1.75 1.75	1.50 1.50				6B 7	20 21	
C 5A	9		SHLD C5 P12-27					.20 .13	NO NO		 13	
C 5R			P12-26 P15-17					.13 .13	NO NO		13 14	
C 5Y			P12-12 P15-18					.13 .13	NO NO		13 14	
C 6	8				1.75 1.75	1.50 1.50				6B 7	20 21	

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~D~~E	SHEET 9 OF 28

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 6A	9		SHLD C6 P12-47					.20 .13	NO NO		 13	
C 6R			P12-72 P15-35					.13 .13	NO NO		13 14	
C 6Y			P12-71 P15-36					.13 .13	NO NO		13 14	
C 7	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 7A	9		SHLD C7 P12-48					.20 .13	NO NO		 13	
C 7B	9		P19-C5 SHLD C7					.18 .20	NO NO		15	
C 7R			P12-28 P19-B5					.13 .18	NO NO		13	
C 7Y			P12-49 P19-A5					.13 .18	NO NO		13	
C 8	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 8A	9		SHLD C8 P12-53					.20 .13	NO NO		 13	
C 8B	9		P19-C4 SHLD C8					.18 .20	NO NO		15	
C 8R			P12-78 P19-A4					.13 .18	NO NO		13	

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~D~~E	SHEET 10 OF 28

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 8Y			P12-54 P19-B4					.13 .18	NO NO		13	
C 9	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 9A	9		SHLD C9 P12-29					.20 .13	NO NO		 13	
C 9B	9		P19-C7 SHLD C9					.18 .20	NO NO		15	
C 9R			P12-14 P19-B7					.13 .18	NO NO		13	
C 9Y			P12-13 P19-A7					.13 .18	NO NO		13	
C 10	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 10A	9		SHLD C10 P12-50					.20 .13	NO NO		 13	
C 10B	9		P19-C6 SHLD C10					.18 .20	NO NO		15	
C 10R			P12-74 P19-A6					.13 .18	NO NO		13	
C 1CY			P12-75 P19-B6					.13 .18	NO NO		13	
C 11	8				1.75 1.00	1.50 .75				6B 6B	20 20	

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~D~~E	SHEET 11 OF 28

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 11A	9		SHLD C11 P12-30					.20 .13	NO NO		 13	
C 11B	9		P19-C3 SHLD C11					.18 .20	NO NO		15	
C 11R			P12-31 P19-B3					.13 .18	NO NO		13	
C 11Y			P12-15 P19-A3					.13 .18	NO NO		13	
C 12	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 12A	9		SHLD C12 P12-52					.20 .13	NO NO		 13	
C 12B	9		P19-C2 SHLD C12					.18 .20	NO NO		15	
C 12R			P12-76 P19-B1					.13 .18	NO NO		13	
C 12Y			P12-51 P19-B2					.13 .18	NO NO		13	
C 13	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 13A	9		SHLD C13 P12-42					.20 .13	NO NO		 13	
C 13B	9		P19-C8 SHLD C13					.18 .20	NO NO		15	

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~D~~E	SHEET 12 OF 28

WIRING HARNESS C 2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 13R			P12-67 P19-A8					.13 .18	NO NO		13	
C 13Y			P12-43 P19-B8					.13 .18	NO NO		13	
C 14	8				1.75 1.00	1.50 .75				68 68	20 20	
C 14A	9		SHLD C14 P12-45					.20 .13	NO NO		13	
C 14B	9		P19-C9 SHLD C14					.18 .20	NO NO		15	
C 14R			P12-70 P19-B9					.13 .18	NO NO		13	
C 14Y			P12-46 P19-A9					.13 .18	NO NO		13	
C 15	8				1.75 1.00	1.50 .75				68 68	20 20	
C 15A	9		SHLD C15 P12-44					.20 .13	NO NO		13	
C 15B	9		P19-C10 SHLD C15					.18 .20	NO NO		15	
C 15R			P12-69 P19-A10					.13 .18	NO NO		13	
C 15Y			P12-68 P19-B10					.13 .18	NO NO		13	

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~D~~E	SHEET 13 OF 28

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WIRING HARNESS C 2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 16	4											
C 16R			P12-9 P19-K4					.13 .18	NO NO		13 16	
C 16Y			P12-22 P19-H4					.13 .18	NO NO		13 16	
C 17	4											
C 17R			P12-24 P19-G3					.13 .18	NO NO		13 16	
C 17Y			P12-23 P19-G4					.13 .18	NO NO		13 16	
C 18	4											
C 18R			P12-11 P19-F3					.13 .18	NO NO		13 16	
C 18Y			P12-10 P19-F4					.13 .18	NO NO		13 16	
C 19	4											
C 19R			P12-66 P19-K3					.13 .18	NO NO		13 16	
C 19Y			P12-41 P19-H3					.13 .18	NO NO		13 16	

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~D~~E	SHEET 14 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 20	5											
C 20G			P12-19 P19-F22					.13 .18	NO NO		13 15	
C 20R			P12-8 P19-H22					.13 .18	NO NO		13 15	
C 20Y			P12-7 P19-G22					.13 .18	NO NO		13 15	
C 21	3											
C 21R			P12-18 P19-G19					.13 .18	NO NO		13 15	
C 21Y			P12-6 P19-F19					.13 .18	NO NO		13 15	
C 22	3											
C 22R			P12-4 P19-G18					.13 .18	NO NO		13 15	
C 22Y			P12-5 P19-F18					.13 .18	NO NO		13 15	
C 23	3											
C 23R			P12-3 P19-G17					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~D~~E	SHEET 15 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 23Y			P12-2 P19-F17					.13 .18	NO NO		13 15	
C 24	4											
C 24R			P12-82 P19-G13					.13 .18	NO NO		13 16	
C 24Y			P12-58 P19-H13					.13 .18	NO NO		13 16	
C 25	4											
C 25R			P12-35 P19-H14					.13 .18	NO NO		13 16	
C 25Y			P12-34 P19-G14					.13 .18	NO NO		13 16	
C 26	4											
C 26R			P12-61 P19-G15					.13 .18	NO NO		13 16	
C 26Y			P12-37 P19-H15					.13 .18	NO NO		13 16	
C 27	1		P12-1 P19-D11					.13 .18	NO NO		13 16	
C 28	7				1.75 1.00	1.50 .75				7 68	21 20	

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~D~~E	SHEET 16 OF 28

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WIRING HARNESS C 2014643 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 28B	9		P19-D25 SHLD C28					.18 .20	NO NO		15	
C 28L			NONE NONE				1.75 1.00		NO NO			
C 28R			P15-5 P19-D23					.13 .18	NO NO		14, 30 16	
C 28W			P15-4 P19-D24					.13 .18	NO NO		14, 30 16	
C 29	7				1.75 1.00	1.50 .75				7 68	21 20	
C 29B	9		P19-C23 SHLD C29					.18 .20	NO NO		15	
C 29L			NONE NONE				1.75 1.00		NO NO			
C 29R			P15-16 P19-B23					.13 .18	NO NO		14, 30	
C 29W			P15-15 P19-A23					.13 .18	NO NO		14, 30	
C 30	7				1.75 1.00	1.50 .75				7 68	21 20	
C 30B	9		P19-C24 SHLD C30					.18 .20	NO NO		15	
C 30L			P15-34 P19-B24					.13 .18	NO NO		14, 30	

SIZE	CODE IDENT NO.		
A	~~99974~~ 80230	2014643	
SCALE-NONE	REV LTR	E	SHEET 17 OF 28

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WIRING HARNESS C 2014643 F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 30R			P15-33 P19-C25					.13 .18	NO NO		14, 30 16	
C 30W			P15-32 P19-B25					.13 .18	NO NO		14, 30	
C 34	3											
C 34R			P15-~~39~~ 40 P19-K20					.13 .18	NO NO		14 15	
C 34Y			P15-~~40~~ 39 P19-H20					.13 .18	NO NO		14 15	
C 35	3											
C 35R			P15-~~41~~ 42 P19-H21					.13 .18	NO NO		14 15	
C 35Y			P15-~~42~~ 41 P19-K21					.13 .18	NO NO		14 15	
C 36	3											
C 36R			P15-~~51~~ 52 P19-K22					.13 .18	NO NO		14 15	
C 36Y			P15-~~52~~ 51 P19-K23					.13 .18	NO NO		14 15	
C 37	5											

SIZE	CODE IDENT NO.		
A	~~99974~~ 80230	2014643	
SCALE-NONE	REV LTR	F	SHEET 18 OF 28

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WIRING HARNESS C 2014643 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 37G			P16-24 P19-K16					.13 .18	NO NO		14 15	
C 37R			P16-25 P19-H17					.13 .18	NO NO		14 15	
C 37Y			P16-23 P19-H18					.13 .18	NO NO		14 15	
C 38	3											
C 38R			P16-21 P19-H16					.13 .18	NO NO		14 15	
C 38Y			P16-22 P19-H19					.13 .18	NO NO		14 15	
C 39	3											
C 39R			P15-8 P19-G10					.13 .18	NO NO		14 15	
C 39Y			P15-9 P19-G9					.13 .18	NO NO		14 15	
C 40	4											
C 40R			P15-10 P19-K9					.13 .18	NO NO		14 16	
C 40Y			P15-11 P19-H9					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.		
A	~~99974~~ 80230	2014643	
SCALE-NONE	REV LTR	E	SHEET 19 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 41	3											
C 41R			P16-6 P19-H2					.13 .18	NO NO		14 15	
C 41Y			P16-8 P19-G2					.13 .18	NO NO		14 15	
C 42	3											
C 42R			P16-7 P19-H1					.13 .18	NO NO		14 15	
C 42Y			P16-9 P19-G1					.13 .18	NO NO		14 15	
C 43	4											
C 43R			P16-14 P19-H6					.13 .18	NO NO		14 16	
C 43Y			P16-15 P19-K6					.13 .18	NO NO		14 16	
C 44	2		P16-16 P19-K8					.13 .18	NO NO		14 16	
C 45	4											
C 45R			P16-17 P19-K7					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.		
A	~~99974~~ 80230	2014643	
SCALE-NONE	REV LTR	E	SHEET 20 OF 28

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 45Y			P16-18 P19-H7					.13 .18	NO NO		14 16	
C 46	5											
C 46G			P16-12 P19-K17					.13 .18	NO NO		14 15	
C 46R			P16-10 P19-K19					.13 .18	NO NO		14 15	
C 46Y			P16-11 P19-K18					.13 .18	NO NO		14 15	
C 47	3											
C 47R			P16-2 P19-G11					.13 .18	NO NO		14 15	
C 47Y			P16-4 P19-G12					.13 .18	NO NO		14 15	
C 48	3											
C 48R			P16-3 P19-H11					.13 .18	NO NO		14 15	
C 48Y			P16-5 P19-H12					.13 .18	NO NO		14 15	
C 49	3											

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR E	SHEET 21 OF 28

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 49R			P15-38 P19-F16					.13 .18	NO NO		14 15	
C 49Y			P15-37 P19-G16					.13 .18	NO NO		14 15	
C 50	2		P16-13 P19-D1					.13 .18	NO NO		14 16	
C 51	2		P15-25 P19-H5					.13 .18	NO NO		14 16	
C 52	2		P16-20 P19-K5					.13 .18	NO NO		14 16	
C 53	2		P16-19 P19-F1					.13 .18	NO NO		14 16	
C 54	3											
C 54R			P16-27 P19-H10					.13 .18	NO NO		14 15	
C 54Y			P16-28 P19-K10					.13 .18	NO NO		14 15	
C 55	8				1.75 1.00	1.50 .75				7 68	21 20	
C 55B	9		P19-C20 SHLD C55					.18 .20	NO NO		15	
C 55R			P16-33 P19-A20					.13 .18	NO NO		14	

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR E	SHEET 22 OF 28

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 55Y			P16-34 P19-B20					.13 .18	NO NO		14	
C 56	8				1.75 1.00	1.50 .75				7 68	21 20	
C 56B	9		P19-C19 SHLD C56					.18 .20	NO NO		15	
C 56R			P16-35 P19-B19					.13 .18	NO NO		14	
C 56Y			P16-36 P19-A19					.13 .18	NO NO		14	
C 57	8				1.75 1.00	1.50 .75				7 68	21 20	
C 57B	9		P19-C22 SHLD C57					.18 .20	NO NO		15	
C 57R			P16-37 P19-A22					.13 .18	NO NO		14	
C 57Y			P16-38 P19-B22					.13 .18	NO NO		14	
C 58	8				1.75 1.00	1.50 .75				7 68	21 20	
C 58B	9		P19-C21 SHLD C58					.18 .20	NO NO		15	
C 58R			P16-39 P19-B21					.13 .18	NO NO		14	

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR E	SHEET 23 OF 28

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 58Y			P16-40 P19-A21					.13 .18	NO NO		14	
C 59	8				1.75 1.00	1.50 .75				7 68	21 20	
C 59B	9		P19-C18 SHLD C59					.18 .20	NO NO		15	
C 59R			P16-41 P19-A18					.13 .18	NO NO		14	
C 59Y			P16-42 P19-B18					.13 .18	NO NO		14	
C 60	8				1.75 1.00	1.50 .75				7 68	21 20	
C 60B	9		P19-C17 SHLD C60					.18 .20	NO NO		15	
C 60R			P16-43 P19-B17					.13 .18	NO NO		14	
C 60Y			P16-44 P19-A17					.13 .18	NO NO		14	
C 61	8				1.75 1.00	1.50 .75				7 68	21 20	
C 61B	9		P19-D22 SHLD C61					.18 .20	NO NO		15	
C 61R			P16-45 P19-D20					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR E	SHEET 24 OF 28

WIRING HARNESS C 2014643 ZE

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 61Y			P16-46 P19-D21					.13 .18	NO NO		14 16	
C 62	8				1.75 1.00	1.50 .75				7 68	21 20	
C 62B	9		P19-D16 SHLD C62					.18 .20	NO NO		15	
C 62R			P16-47 P19-D17					.13 .18	NO NO		14 16	
C 62Y			P16-48 P19-D18					.13 .18	NO NO		14 16	
C 63	8				1.75 1.00	1.50 .75				7 68	21 20	
C 63B	9		P19-C16 SHLD C63					.18 .20	NO NO		15	
C 63R			P16-51 P19-A16					.13 .18	NO NO		14	
C 63Y			P16-52 P19-B16					.13 .18	NO NO		14	
C 64	8				1.75 1.00	1.50 .75				7 68	21 20	
C 64B	9		P19-D15 SHLD C64					.18 .20	NO NO		15	
C 64R			P16-53 P19-C15					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.		
A	~~99974~~ 80230	2014643	
SCALE-NONE	REV LTR ZE		SHEET 25 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 ZE

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 64Y			P16-54 P19-B15					.13 .18	NO NO		14	
C 65	8				1.75 1.00	1.50 .75				7 68	21 20	
C 65B	9		P19-D14 SHLD C65					.18 .20	NO NO		15	
C 65R			P16-55 P19-B14					.13 .18	NO NO		14	
C 65Y			P16-56 P19-C14					.13 .18	NO NO		14 16	
C 66	8				1.75 1.00	1.50 .75				7 68	21 20	
C 66B	9		P19-D13 SHLD C66					.18 .20	NO NO		15	
C 66R			P16-57 P19-C13					.13 .18	NO NO		14 16	
C 66Y			P16-58 P19-B13					.13 .18	NO NO		14	
C 67	1		P16-1 P19-D12					.13 .18	NO NO		14 16	
C 74	6											
C 74G			P15-22 P19-G25					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.		
A	~~99974~~ 80230	2014643	
SCALE-NONE	REV LTR ZE		SHEET 26 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 ZE

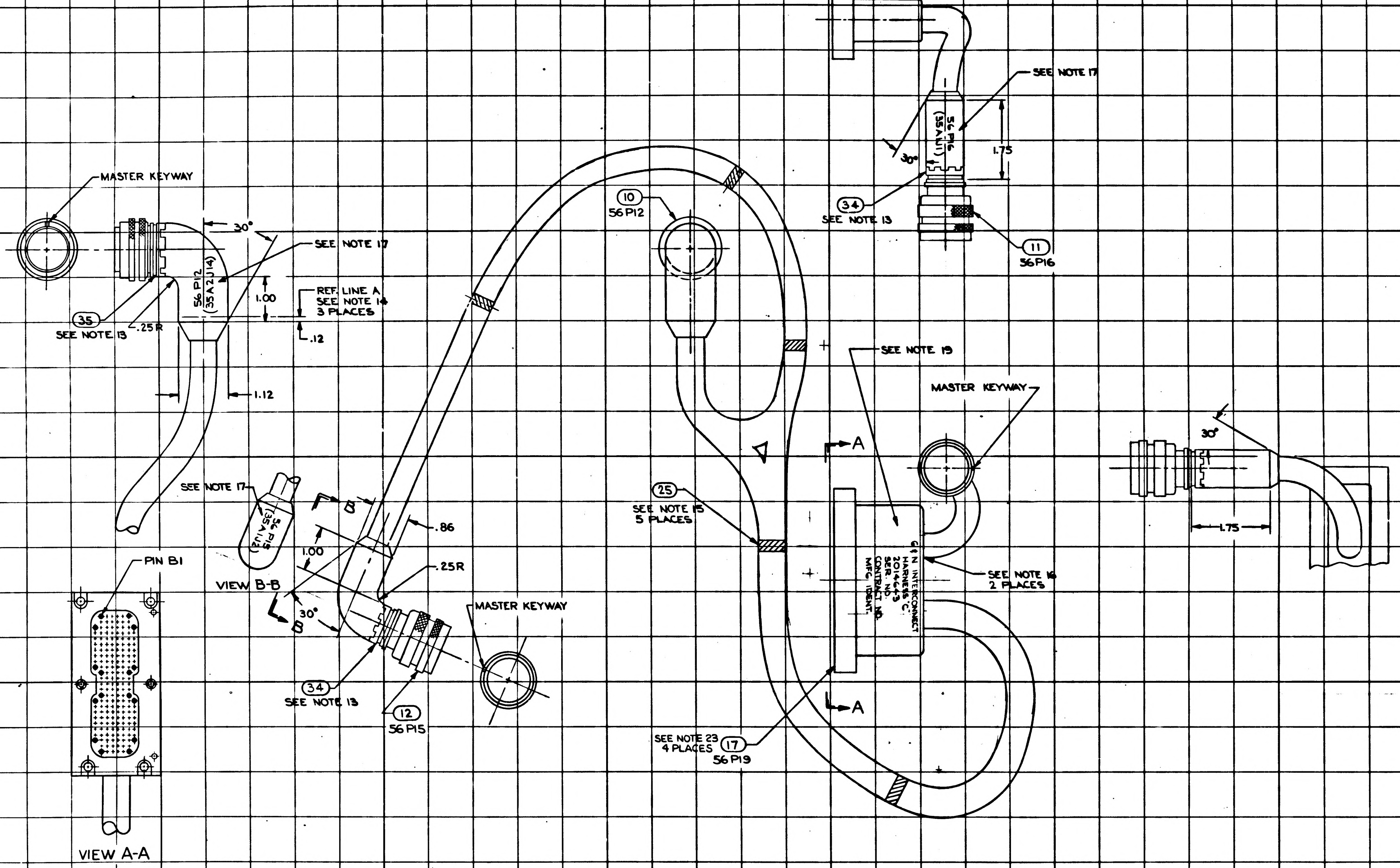
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 74N			P15-21 P19-G24					.13 .18	NO NO		14 16	
C 74R			P15-19 P19-F25					.13 .18	NO NO		14 16	
C 74Y			P15-20 P19-F24					.13 .18	NO NO		14 16	
C 76	2		P16-59 P19-F15					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.		
A	~~99974~~ 80230	2014643	
SCALE-NONE	REV LTR ZE		SHEET 27 OF 28

MIL 2084 9-65

SYM	ZONE	DESCRIPTION	DATE	APPD
REVISIONS Rev F TDRR 24808				
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
30°
SEE NOTE 17
56 P12 (35A2J14)
REF. LINE A
SEE NOTE 14
3 PLACES
1.00
.12
35
SEE NOTE 13
.25 R
1.12
10
56P12
SEE NOTE 17
56 P16 (35A1J1)
30°
1.75
34
SEE NOTE 13
11
56P16
SEE NOTE 19
MASTER KEYWAY
A
A
25
SEE NOTE 15
5 PLACES
G&N INTERCONNECT HARNESS "C" 2014643 SER. NO. CONTRACT NO. MFG. IDENT.
SEE NOTE 16
2 PLACES
SEE NOTE 23
4 PLACES
17
56P19
30°
1.75
SEE NOTE 17
56 P15 (35A1J2)
B
B
.86
1.00
.25R
VIEW B-B
30°
MASTER KEYWAY
34
SEE NOTE 13
12
56P15
PIN B1
VIEW A-A

2014643
REV LTR F

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2014567-011	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.03 ANGLES ±5°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN P.A. Leone 11/16/65
CHECKED R. Abraham 12-17-65
APPROVED Paul Watson DEC 20 65
APPROVED J.F. Kean 12/20/65
APPROVED MIT A.L. SELTZER 2/16/65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

CODE IDENT NO. 80230
SIZE
DRAWING NO. 2014643
SCALE 1:1
SHEET 28 OF 28

GENERAL NOTES

NOTE NUMBER	DESCRIPTION
1	SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND1002032 FOR FIGURE 7.
2	INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
3	INTERCONNECT LIST FOR THIS HARNESS IS 2014673.
4	PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT
5	THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER. A - FROM END OF SHIELD B - TO END OF SHIELD G - GREEN K - BLACK L - BLUE N - BROWN R - RED W - WHITE Y - YELLOW
6	ASTERISK DENOTES LOWER CASE LETTER
7	GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION
8	UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.
9	VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.
10	CRIMP CONTACTS PER ND1002032.

GENERAL NOTES

NOTE NUMBER	DESCRIPTION
11	ALL UNUSED ~~GROMMET HOLES~~ CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS CONNECTOR 56P15 AND 16 USE ITEM NUMBERS 19 AND 14. CONNECTOR 56P12 USE ITEM NUMBERS 18 AND 13. CONNECTOR 56P19 USE ITEM NUMBER 15.
12	LACE HARNESS PER ND1002032 USING ITEM NUMBER 32.
13	A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.
14	ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.
15	BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE, ITEM 25, TO INDICATE CABLE CLAMP LOCATION.
16	WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED, TO BUILD UP DIAMETER TO FIT ~~CABLE CLAMP~~. SHELL HOLE.
17	MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.
19	MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.
20	CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

APPLICATION

NEXT ASSY	USED ON
2014567-011	2014567-01

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
E	REPLACES REV D WITH CHANGE PER TDRR 23067	24-NOV-65	B. ~~E~~F
F	ADDED CONFIGURATION AND CHANGES PER TDRR 24808		WJM
G	Revised per TDRR 25306	2/4/66	JWM

REV	E	E	E	E	E	E	E	E	F
SHEET	20	21	22	23	24	25	26	27	28

REV STATUS REV	G	F	F	G	E	F	E	E	E	E	E	E	E	E	E	E	E	F	E
OF SHEETS SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. LITZOW 27 MAY 65
CHECKED FESLER 28 MAY 65
APPROVAL P.C. WATSON 6-21-65
APPROVAL 12/6/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL 11/65
CONTRACT NAS 9-497

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

SIZE A | CODE IDENT NO. 80230 | 2014643 | REV G
SCALE NONE | SHEET 1 OF 28

GENERAL NOTES

NOTE NUMBER	DESCRIPTION
21	INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND. B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED. INCLUDING ALL SPARE PINS. TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.
22	PRESEAL BACK OF CONNECTOR P19 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 23,24,27, AND 28.
23	ENCAPSULATE BACK OF CONNECTORS~~P19~~ PER ND1002236 USING ITEMS 22 AND ~~27.~~ 29.

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

24 Perform Workmanship Vibration:

A. Sinusoidal sweep at 3.5 g rms. Limited to 0.3 inch peak to peak displacement, from 10 to 2000 cps at a rate of 4 octaves per minute.

B. Vibration along the X axis of the space craft.

C. Monitor for discontinuities of 10μ seconds or greater during vibration.

D. Complete continuity and insulation resistance testing must be accomplished after vibration.

WIRING HARNESS C 2014643 ~~E~~F

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	16	78	1010955- 2	CONTACT, MALE
	17	1	2014743 -011	CONNECTOR, PLUG, ELECTRICAL (P19)
9	18	13	1010958- 1	PLUG, PROTECTIVE SEALING
9	19	30	1010984- 1	PLUG, PROTECTIVE SEALING
9	20	39	1010402- 2	SLEEVE SOLDER
9	21	15	1012534- 36	INSULATION SLEEVE (HEAT SHRINKABLE)
	22	AR	1012503	COMPOUND, POTTING, POLYURETHANE
	23	AR	1010679	ADHESIVE ACTIVATOR
	24	AR	1010661	EPOXY RESIN
	25	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
	26	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	27	AR	1006277	SILICA, PULVERIZED, PYROGENIC
	28	AR	1008822	COLORANT, EPOXY BASE
	29	AR	1012504	PRIMER, METAL PARTS
9	30	24	1010862	BUSHING, SLEEVE
9	32	AR	1012507- 4	TAPE, LACING
	33	6	1012534- 37	SLEEVE, INSULATION (HEAT SHRINKABLE)
	34	2	2014670- 6	ADAPTER, CONNECTOR

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~E~~F	SHEET 6 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 E

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	35	1	2014670- 4	ADAPTER, CONNECTOR

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR E	SHEET 7 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 ~~E~~F

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014643-001	WIRE PER 1010789-006, ~~26~~ 22 AWG, YEL, 5 FT TOT LG
	2	1	2014643-002	WIRE PER 1010789-016, 26 AWG, YEL, 10 FT TOT LG
	3	1	2014643-003	WIRE PER 1010789-008, 22AWG, YEL, RED, 30 FT TOT LG
	4	1	2014643-004	WIRE PER 1010789-017, 26 AWG, YEL, RED, 25 FT TOT LG
	5	1	2014643-005	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN 5 FT TOT LG
	6	1	2014643-006	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 5 FT TOT LG
	7	1	2014643-007	WIRE PER 1010707-1, RED JKT, 29 AWG, RED, WHT, BLUE, 20 FT TOT LG
	8	1	2014643-008	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 40 FT TOT LG
	9	1	2014643-009	WIRE PER 1010789-002, 24 AWG, BLK, 35 FT TOT LG
9	10	1	1010929-001	CONNECTOR, PLUG, ELECTRICAL (P12)
9	11	1	1010965- 1	CONNECTOR, PLUG, ELECTRICAL (P16)
9	12	1	1010965- 2	CONNECTOR, PLUG, ELECTRICAL (P15)
9	13	~~85~~ X	1010770- 2	CONTACT, SOCKET
9	14	122	1010781- 1	CONTACT, SOCKET
9	15	104	1010955- 1	CONTACT, MALE

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~E~~F	SHEET 5 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 1	7				1.75 1.75	1.50 1.50				6B 7	20 21	A
C 1A	9		SHLD C1 P12-38					.20 .13	NO NO		 13	
C 1L			P12-63 P15-3					.13 .13	NO NO		13 14, 30	
C 1R			P12-39 P15-1					.13 .13	NO NO		13 14, 30	
C 1W			P12-64 P15-2					.13 .13	NO NO		13 14, 30	
C 2	7				1.75 1.75	1.50 1.50				6B 7	20 21	
C 2A	9		SHLD C2 P12-59					.20 .13	NO NO		 13	
C 2L			P12-84 P15-14					.13 .13	NO NO		13 14, 30	
C 2R			P12-60 P15-12					.13 .13	NO NO		13 14, 30	
C 2W			P12-85 P15-13					.13 .13	NO NO		13 14, 30	
C 3	7				1.75 1.75	1.50 1.50				6B 7	20 21	
C 3A	9		SHLD C3 P12-80					.20 .13	NO NO		 13	

SIZE	CODE IDENT NO.	
A	~~99974~~ 80230	2014643
SCALE-NONE	REV LTR ~~D~~E	SHEET 8 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 6A	9		SHLD C6 P12-47					.20 .13	NO NO		 13	
C 6R			P12-72 P15-35					.13 .13	NO NO		13 14	
C 6Y			P12-71 P15-36					.13 .13	NO NO		13 14	
C 7	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 7A	9		SHLD C7 P12-43					.20 .13	NO NO		 13	
C 7B	9		P19-C5 SHLD C7					.18 .20	NO NO		15	
C 7R			P12-28 P19-B5					.13 .18	NO NO		13	
C 7Y			P12-49 P19-A5					.13 .18	NO NO		13	
C 8	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 8A	9		SHLD C8 P12-53					.20 .13	NO NO		 13	
C 8B	9		P19-C4 SHLD C8					.18 .20	NO NO		15	
C 8R			P12-78 P19-A4					.13 .18	NO NO		13	

SIZE A | CODE IDENT NO. ~~99974~~ 80230 | 2014643

SCALE-NONE | REV LTR ~~D~~E | SHEET 10 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 8Y			P12-54 P19-B4					.13 .18	NO NO		13	
C 9	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 9A	9		SHLD C9 P12-29					.20 .13	NO NO		 13	
C 9B	9		P19-C7 SHLD C9					.18 .20	NO NO		15	
C 9R			P12-14 P19-B7					.13 .18	NO NO		13	
C 9Y			P12-13 P19-A7					.13 .18	NO NO		13	
C 10	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 10A	9		SHLD C10 P12-50					.20 .13	NO NO		 13	
C 10B	9		P19-C6 SHLD C10					.18 .20	NO NO		15	
C 10R			P12-74 P19-A6					.13 .18	NO NO		13	
C 10Y			P12-75 P19-B6					.13 .18	NO NO		13	
C 11	8				1.75 1.00	1.50 .75				6B 6B	20 20	

SIZE A | CODE IDENT NO. ~~99974~~ 80230 | 2014643

SCALE-NONE | REV LTR ~~D~~E | SHEET 11 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 3L			P12-81 P15-61					.13 .13	NO NO		13 14, 30	
C 3R			P12-56 P15-59					.13 .13	NO NO		13 14, 30	
C 3W			P12-57 P15-60					.13 .13	NO NO		13 14, 30	
C 4	8				1.75 1.75	1.50 1.50				6B 7	20 21	
C 4A	9		SHLD C4 P12-33					.20 .13	NO NO		 13	
C 4R			P12-16 P15-6					.13 .13	NO NO		13 14	
C 4Y			P12-17 P15-7					.13 .13	NO NO		13 14	
C 5	8				1.75 1.75	1.50 1.50				6B 7	20 21	
C 5A	9		SHLD C5 P12-27					.20 .13	NO NO		 13	
C 5R			P12-26 P15-17					.13 .13	NO NO		13 14	
C 5Y			P12-12 P15-18					.13 .13	NO NO		13 14	
C 6	8				1.75 1.75	1.50 1.50				6B 7	20 21	

SIZE A | CODE IDENT NO. ~~99974~~ 80230 | 2014643

SCALE-NONE | REV LTR ~~D~~E | SHEET 9 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 11A	9		SHLD C11 P12-30					.20 .13	NO NO		 13	
C 11B	9		P19-C3 SHLD C11					.18 .20	NO NO		15	
C 11R			P12-31 P19-B3					.13 .18	NO NO		13	
C 11Y			P12-15 P19-A3					.13 .18	NO NO		13	
C 12	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 12A	9		SHLD C12 P12-52					.20 .13	NO NO		 13	
C 12B	9		P19-C2 SHLD C12					.18 .20	NO NO		15	
C 12R			P12-76 P19-B1					.13 .18	NO NO		13	
C 12Y			P12-51 P19-B2					.13 .18	NO NO		13	
C 13	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 13A	9		SHLD C13 P12-42					.20 .13	NO NO		 13	
C 13B	9		P19-C8 SHLD C13					.18 .20	NO NO		15	

SIZE A | CODE IDENT NO. ~~99974~~ 80230 | 2014643

SCALE-NONE | REV LTR ~~D~~E | SHEET 12 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 16	4											
C 16R			P12-9 P19-K4					.13 .18	NO NO		13 16	
C 16Y			P12-22 P19-H4					.13 .18	NO NO		13 16	
C 17	4											
C 17R			P12-24 P19-G3					.13 .18	NO NO		13 16	
C 17Y			F12-23 P19-G4					.13 .18	NO NO		13 16	
C 18	4											
C 18R			P12-11 P19-F3					.13 .18	NO NO		13 16	
C 18Y			P12-10 P19-F4					.13 .18	NO NO		13 16	
C 19	4											
C 19R			P12-66 P19-K3					.13 .18	NO NO		13 16	
C 19Y			P12-41 P19-H3					.13 .18	NO NO		13 16	

SIZE A | CODE IDENT NO. ~~99974~~ 80230 | 2014643

SCALE-NONE | REV LTR ~~D~~E | SHEET 14 OF 28

WIRING HARNESS C 2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 20	5											
C 20G			P12-19 P19-F22					.13 .18	NO NO		13 15	
C 20R			P12-8 P19-H22					.13 .18	NO NO		13 15	
C 20Y			P12-7 P19-G22					.13 .18	NO NO		13 15	
C 21	3											
C 21R			P12-18 P19-G19					.13 .18	NO NO		13 15	
C 21Y			P12-6 P19-F19					.13 .18	NO NO		13 15	
C 22	3											
C 22R			P12-4 P19-G18					.13 .18	NO NO		13 15	
C 22Y			P12-5 P19-F18					.13 .18	NO NO		13 15	
C 23	3											
C 23R			P12-3 P19-G17					.13 .18	NO NO		13 15	

SIZE A | CODE IDENT NO. ~~99974~~ 80230 | 2014643

SCALE-NONE | REV LTR ~~D~~E | SHEET 15 OF 28

WIRING HARNESS C 2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 13R			P12-67 P19-A8					.13 .18	NO NO		13	
C 13Y			P12-43 P19-B8					.13 .18	NO NO		13	
C 14	8				1.75 1.00	1.50 .75				68 68	20 20	
C 14A	9		SHLD C14 P12-45					.20 .13	NO NO		 13	
C 14B	9		P19-C9 SHLD C14					.18 .20	NO NO		15	
C 14R			P12-70 P19-B9					.13 .18	NO NO		13	
C 14Y			P12-46 P19-A9					.13 .18	NO NO		13	
C 15	8				1.75 1.00	1.50 .75				68 68	20 20	
C 15A	9		SHLD C15 P12-44					.20 .13	NO NO		 13	
C 15B	9		P19-C10 SHLD C15					.18 .20	NO NO		15	
C 15R			P12-69 P19-A10					.13 .18	NO NO		13	
C 15Y			P12-68 P19-B10					.13 .18	NO NO		13	

SIZE A | CODE IDENT NO. ~~99974~~ 80230 | 2014643

SCALE-NONE | REV LTR ~~D~~E | SHEET 13 OF 28

WIRING HARNESS C 2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 23Y			P12-2 P19-F17					.13 .18	NO NO		13 15	
C 24	4											
C 24R			P12-82 P19-G13					.13 .18	NO NO		13 16	
C 24Y			P12-58 P19-H13					.13 .18	NO NO		13 16	
C 25	4											
C 25R			P12-35 P19-H14					.13 .18	NO NO		13 16	
C 25Y			P12-34 P19-G14					.13 .18	NO NO		13 16	
C 26	4											
C 26R			P12-61 P19-G15					.13 .18	NO NO		13 16	
C 26Y			P12-37 P19-H15					.13 .18	NO NO		13 16	
C 27	1		P12-1 P19-D11					.13 .18	NO NO		13 16	
C 28	7				1.75 1.00	1.50 .75				7 68	21 20	

SIZE A | CODE IDENT NO. ~~99974~~ 80230 | 2014643

SCALE-NONE | REV LTR ~~D~~E | SHEET 16 OF 28

WIRING HARNESS C 2014643 F

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 30R			P15-33 P19-C25					.13 .18	NO NO		14, 30 16	
C 30W			P15-32 P19-B25					.13 .18	NO NO		14, 30	
C 34	3											
C 34R			P15-~~39~~ 40 P19-K20					.13 .18	NO NO		14 15	
C 34Y			P15-~~40~~ 39 P19-H20					.13 .18	NO NO		14 15	
C 35	3											
C 35R			P15-~~41~~ 42 P19-H21					.13 .18	NO NO		14 15	
C 35Y			P15-~~42~~ 41 P19-K21					.13 .18	NO NO		14 15	
C 36	3											
C 36R			P15-~~51~~ 52 P19-K22					.13 .18	NO NO		14 15	
C 36Y			P15-~~52~~ 51 P19-K23					.13 .18	NO NO		14 15	
C 37	5											

SIZE A	CODE IDENT NO. ~~99974~~ 80230	2014643	
SCALE-NONE	REV LTR F	SHEET 18 OF 28	

WIRING HARNESS C 2014643 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 37G			P16-24 P19-K16					.13 .18	NO NO		14 15	
C 37R			P16-25 P19-H17					.13 .18	NO NO		14 15	
C 37Y			P16-23 P19-H18					.13 .18	NO NO		14 15	
C 38	3											
C 38R			P16-21 P19-H16					.13 .18	NO NO		14 15	
C 38Y			P16-22 P19-H19					.13 .18	NO NO		14 15	
C 39	3											
C 39R			P15-8 P19-G10					.13 .18	NO NO		14 15	
C 39Y			P15-9 P19-G9					.13 .18	NO NO		14 15	
C 40	4											
C 40R			P15-10 P19-K9					.13 .18	NO NO		14 16	
C 40Y			P15-11 P19-H9					.13 .18	NO NO		14 16	

SIZE A	CODE IDENT NO. ~~99974~~ 80230	2014643	
SCALE-NONE	REV LTR E	SHEET 19 OF 28	

WIRING HARNESS C 2014643 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 28B	9		P19-D25 SHLD C28					.18 .20	NO NO		15	
C 28L			NONE NONE				1.75 1.00		NO NO			
C 28R			P15-5 P19-D23					.13 .18	NO NO		14, 30 16	
C 28W			P15-4 P19-D24					.13 .18	NO NO		14, 30 16	
C 29	7				1.75 1.00	1.50 .75				7 68	21 20	
C 29B	9		P19-C23 SHLD C29					.18 .20	NO NO		15	
C 29L			NONE NONE				1.75 1.00		NO NO			
C 29R			P15-16 P19-B23					.13 .18	NO NO		14, 30	
C 29W			P15-15 P19-A23					.13 .18	NO NO		14, 30	
C 30	7				1.75 1.00	1.50 .75				7 68	21 20	
C 30B	9		P19-C24 SHLD C30					.18 .20	NO NO		15	
C 30L			P15-34 P19-B24					.13 .18	NO NO		14, 30	

SIZE A	CODE IDENT NO. ~~99974~~ 80230	2014643	
SCALE-NONE	REV LTR E	SHEET 17 OF 28	

WIRING HARNESS C 2014643 E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 41	3											
C 41R			P16-6 P19-H2					.13 .18	NO NO		14 15	
C 41Y			P16-8 P19-G2					.13 .18	NO NO		14 15	
C 42	3											
C 42R			P16-7 P19-H1					.13 .18	NO NO		14 15	
C 42Y			P16-9 P19-G1					.13 .18	NO NO		14 15	
C 43	4											
C 43R			P16-14 P19-H6					.13 .18	NO NO		14 16	
C 43Y			P16-15 P19-K6					.13 .18	NO NO		14 16	
C 44	2		P16-16 P19-K8					.13 .18	NO NO		14 16	
C 45	4											
C 45R			P16-17 P19-K7					.13 .18	NO NO		14 16	

SIZE A	CODE IDENT NO. ~~99974~~ 80230	2014643	
SCALE-NONE	REV LTR E	SHEET 20 OF 28	

WIRING HARNESS C

2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 49R			P15-38 P19-F16					.13 .18	NO NO		14 15	
C 49Y			P15-37 P19-G16					.13 .18	NO NO		14 15	
C 50	2		P16-13 P19-D1					.13 .18	NO NO		14 16	
C 51	2		P15-25 P19-H5					.13 .18	NO NO		14 16	
C 52	2		P16-20 P19-K5					.13 .18	NO NO		14 16	
C 53	2		P16-19 P19-F1					.13 .18	NO NO		14 16	
C 54	3											
C 54R			P16-27 P19-H10					.13 .18	NO NO		14 15	
C 54Y			P16-28 P19-K10					.13 .18	NO NO		14 15	
C 55	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 55B	9		P19-C20 SHLD C55					.18 .20	NO NO		15	
C 55R			P16-33 P19-A20					.13 .18	NO NO		14	

SIZE A

CODE IDENT NO. ~~99974~~ 80230

2014643

SCALE-NONE

REV LTR ~~D~~E

SHEET 22 OF 28

WIRING HARNESS C

2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 55Y			P16-34 P19-B20					.13 .18	NO NO		14	
C 56	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 56B	9		P19-C19 SHLD C56					.18 .20	NO NO		15	
C 56R			P16-35 P19-B19					.13 .18	NO NO		14	
C 56Y			P16-36 P19-A19					.13 .18	NO NO		14	
C 57	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 57B	9		P19-C22 SHLD C57					.18 .20	NO NO		15	
C 57R			P16-37 P19-A22					.13 .18	NO NO		14	
C 57Y			P16-38 P19-B22					.13 .18	NO NO		14	
C 58	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 58B	9		P19-C21 SHLD C58					.18 .20	NO NO		15	
C 58R			P16-39 P19-B21					.13 .18	NO NO		14	

SIZE A

CODE IDENT NO. ~~99974~~ 80230

2014643

SCALE-NONE

REV LTR ~~D~~E

SHEET 23 OF 28

WIRING HARNESS C

2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 45Y			P16-18 P19-H7					.13 .18	NO NO		14 16	
C 46	5											
C 46G			P16-12 P19-K17					.13 .18	NO NO		14 15	
C 46R			P16-10 P19-K19					.13 .18	NO NO		14 15	
C 46Y			P16-11 P19-K18					.13 .18	NO NO		14 15	
C 47	3											
C 47R			P16-2 P19-G11					.13 .18	NO NO		14 15	
C 47Y			P16-4 P19-G12					.13 .18	NO NO		14 15	
C 48	3											
C 48R			P16-3 P19-H11					.13 .18	NO NO		14 15	
C 48Y			P16-5 P19-H12					.13 .18	NO NO		14 15	
C 49	3											

SIZE A

CODE IDENT NO. ~~99974~~ 80230

2014643

SCALE-NONE

REV LTR ~~D~~E

SHEET 21 OF 28

WIRING HARNESS C

2014643 ~~D~~E

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 58Y			P16-40 P19-A21					.13 .18	NO NO		14	
C 59	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 59B	9		P19-C18 SHLD C59					.18 .20	NO NO		15	
C 59R			P16-41 P19-A18					.13 .18	NO NO		14	
C 59Y			P16-42 P19-B18					.13 .18	NO NO		14	
C 60	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 60B	9		P19-C17 SHLD C60					.18 .20	NO NO		15	
C 60R			P16-43 P19-B17					.13 .18	NO NO		14	
C 60Y			P16-44 P19-A17					.13 .18	NO NO		14	
C 61	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 61B	9		P19-D22 SHLD C61					.18 .20	NO NO		15	
C 61R			P16-45 P19-D20					.13 .18	NO NO		14 16	

SIZE A

CODE IDENT NO. ~~99974~~ 80230

2014643

SCALE-NONE

REV LTR ~~D~~E

SHEET 24 OF 28

WIRING HARNESS C 2014643 ZE

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 61Y			P16-46 P19-D21					.13 .18	NO NO		14 16	
C 62	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 62B	9		P19-D16 SHLD C62					.18 .20	NO NO		15	
C 62R			P16-47 P19-D17					.13 .18	NO NO		14 16	
C 62Y			P16-48 P19-D18					.13 .18	NO NO		14 16	
C 63	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 63B	9		P19-C16 SHLD C63					.18 .20	NO NO		15	
C 63R			P16-51 P19-A16					.13 .18	NO NO		14	
C 63Y			P16-52 P19-B16					.13 .18	NO NO		14	
C 64	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 64B	9		P19-D15 SHLD C64					.18 .20	NO NO		15	
C 64R			P16-53 P19-C15					.13 .18	NO NO		14 16	

SIZE A
CODE IDENT NO. ~~99974~~ 80230
2014643
SCALE-NONE
REV LTR ZE
SHEET 25 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 ZE

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 64Y			P16-54 P19-B15					.13 .18	NO NO		14	
C 65	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 65B	9		P19-D14 SHLD C65					.18 .20	NO NO		15	
C 65R			P16-55 P19-B14					.13 .18	NO NO		14	
C 65Y			P16-56 P19-C14					.13 .18	NO NO		14 16	
C 66	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 66B	9		P19-D13 SHLD C66					.18 .20	NO NO		15	
C 66R			P16-57 P19-C13					.13 .18	NO NO		14 16	
C 66Y			P16-58 P19-B13					.13 .18	NO NO		14	
C 67	1		P16-1 P19-D12					.13 .18	NO NO		14 16	
C 74	6											
C 74G			P15-22 P19-G25					.13 .18	NO NO		14 16	

SIZE A
CODE IDENT NO. ~~99974~~ 80230
2014643
SCALE-NONE
REV LTR ZE
SHEET 26 OF 28

MIL 2084 9-65

WIRING HARNESS C 2014643 ZE

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 74N			P15-21 P19-G24					.13 .18	NO NO		14 16	
C 74R			P15-19 P19-F25					.13 .18	NO NO		14 16	
C 74Y			P15-20 P19-F24					.13 .18	NO NO		14 16	
C 76	2		P16-59 P19-F15					.13 .18	NO NO		14 16	

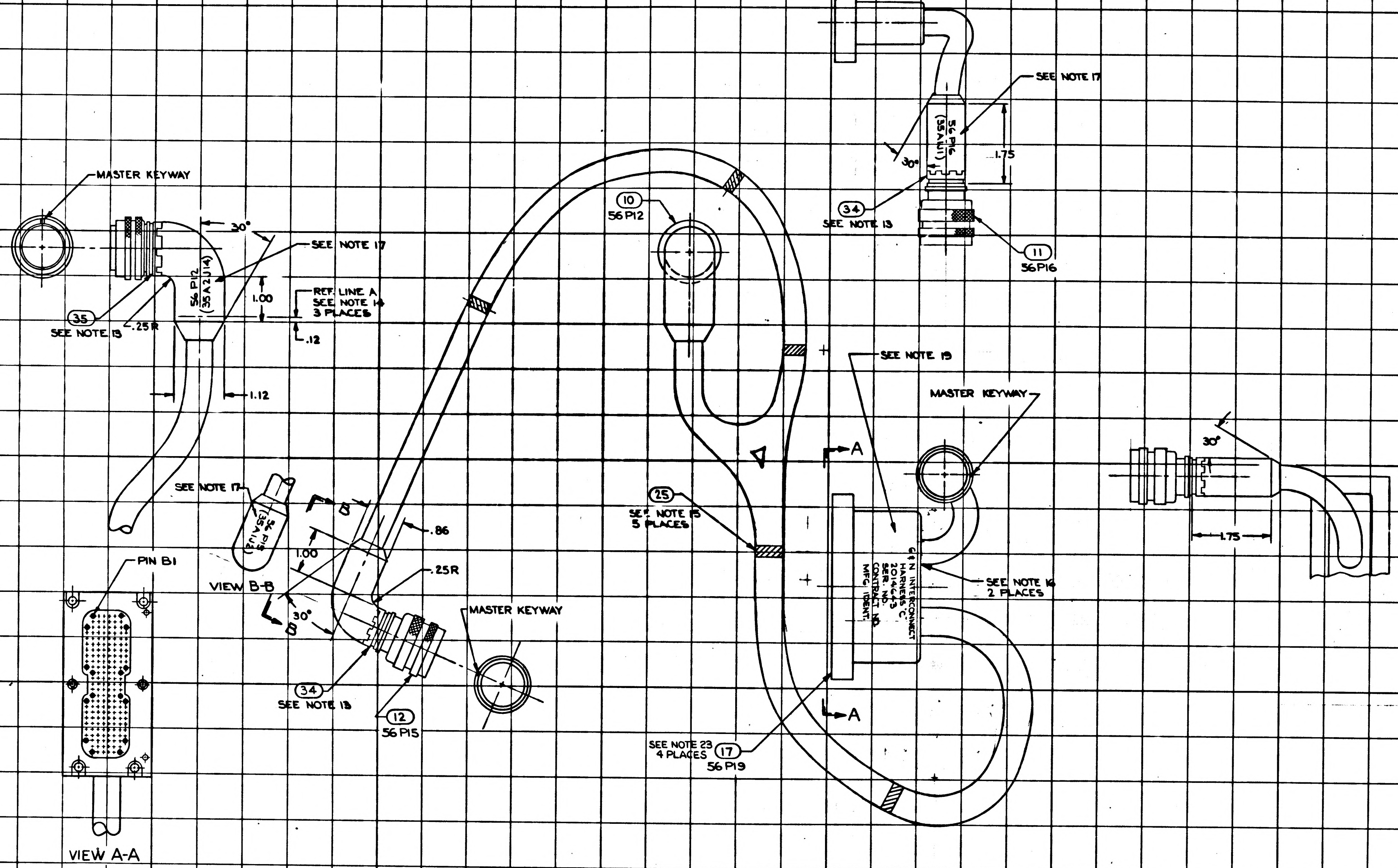
SIZE A
CODE IDENT NO. ~~99974~~ 80230
2014643
SCALE-NONE
REV LTR ZE
SHEET 27 OF 28

MIL 2084 9-65

REVISIONS Rev F TDRR 24808

SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
30°
SEE NOTE 17
56 P12 (35A2J14)
35
SEE NOTE 13
.25R
1.00
REF. LINE A
SEE NOTE 14
3 PLACES
.12
1.12
10
56P12
SEE NOTE 17
56 P16 (35A1J17)
30°
1.75
34
SEE NOTE 13
11
56P16
SEE NOTE 19
MASTER KEYWAY
A
A
SEE NOTE 17
56 P15 (35A1J15)
B
B
.86
1.00
VIEW B-B
.25R
30°
34
SEE NOTE 13
12
56P15
MASTER KEYWAY
25
SEE NOTE 15
5 PLACES
G&N INTERCONNECT
HARNESS "C"
2014643
SER. NO.
CONTRACT NO.
MFG IDENT.
SEE NOTE 16
2 PLACES
SEE NOTE 23
4 PLACES
17
56P19
30°
1.75
PIN B1
VIEW A-A

2014643

REV LTR F

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

20145670	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ±.03 ±5°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN P.A. Lemos 11/16/65
CHECKED N. Abrahams 12-1-65
APPROVED Paul Wilson
APPROVED
APPROVED MIT A.C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014643
SCALE 1:1
SHEET 28 OF 28

APPLICATION	
NEXT ASSY	USED ON
2014567-011	2014567-011

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REPLACES REV D WITH CHANGE PER TDRR	24-NOV-65	B. EF
F	ADDED CONFIGURATION AND CHANGES PER TDRR 24808		W.H.M.
G	Revised per TDRR 25306	2/4/66	WHM
H	REVISED PER TDRR-26660	7-MAR-66	B. AU

REV	G	G	G	G	G	G	G	G	G	H
SHEET	20	21	22	23	24	25	26	27	28	29

REV STATUS OF SHEETS																							
REV					H	G	G	G	G	H	H	H	H	G	G	G	G	G	G	G	H	H	G
SHEET					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

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INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. LITZOW DATE 27 MAY 65
CHECKED FESLER 28 MAY 65
APPROVAL P.C. WATSON 8-24-65
APPROVAL 12/20/65
NASA APPROVAL A. C. METZGER
MIT APPROVAL
CONTRACT NAS 9-497

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

CODE IDENT NO. 80230
SIZE A
2014643
REV H
SCALE NONE
SHEET 1 OF 29

NOTE GENERAL NOTES

NUMBER DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014673.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR G	SHEET 2 OF 29

NOTE GENERAL NOTES

NUMBER DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTOR 56P15 AND 16 USE ITEM NUMBERS 19 AND 14.
CONNECTOR 56P12 USE ITEM NUMBERS 18 AND 13.
CONNECTOR 56P19 USE ITEM NUMBER 15.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 32.

13 A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE, ITEM 25, TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED, TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR G	SHEET 3 OF 29

NOTE GENERAL NOTES

NUMBER DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED. INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.

22 PRESEAL BACK OF CONNECTOR P19 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 23,24,27, AND 28.

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 22 AND 29.

24 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 G RMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACE CRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICRO SECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR G	SHEET 4 OF 29

NOTE GENERAL NOTES

NUMBER DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR G	SHEET 5 OF 29

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014643-001	WIRE PER 1010789-006, 22AWG, YEL, 5 FT TOT LG
	2	1	2014643-002	WIRE PER 1010789-016, 26 AWG, YEL, 10 FT TOT LG
	3	1	2014643-003	WIRE PER 1010789-008, 22AWG, YEL, RED, 30 FT TOT LG
	4	1	2014643-004	WIRE PER 1010789-017, 26 AWG, YEL, RED, 25 FT TOT LG
	5	1	2014643-005	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN 5 FT TOT LG
	6	1	2014643-006	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 5 FT TOT LG
	7	1	2014643-007	WIRE PER 1010707-1, RED JKT, 29 AWG, RED, WHT, BLUE, 20 FT TOT LG
	8	1	2014643-008	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 40 FT TOT LG
	9	1	2014643-009	WIRE PER 1010789-002, 24 AWG, BLK, 35 FT TOT LG
9	10	1	1010929-001	CONNECTOR, PLUG, ELECTRICAL (P12)
9	11	1	1010965- 1	CONNECTOR, PLUG, ELECTRICAL (P16)
9	12	1	1010965- 2	CONNECTOR, PLUG, ELECTRICAL (P15)
9	13	X	1010770- 2	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010929
9	14	X	1010781- 1	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010965
9	15	104	1010955- 1	CONTACT, MALE

SIZE	CODE IDENT NO.			
A	80230	2014643		
SCALE-NONE	REV LTR	H	SHEET	6 OF 29

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	16	78	1010955- 2	CONTACT, MALE
	17	1	2014743-011	CONNECTOR, PLUG, ELECTRICAL (P19)
9	18	13	1010958- 1	PLUG, PROTECTIVE SEALING
9	19	30	1010984	PLUG, PROTECTIVE SEALING
9	20	33	1010402- 2	SLEEVE SOLDER
9	21	15	1012534- 36	INSULATION SLEEVE (HEAT SHRINKABLE)
	22	AR	1012503	COMPOUND, PUTTING, POLYURETHANE
	23	AR	1010679	ADHESIVE ACTIVATOR
	24	AR	1010661	EPOXY RESIN
	25	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
	26	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	27	AR	1006277	SILICA, PULVERIZED, PYROGENIC
	28	AR	1008822	COLORANT, EPOXY BASE
	29	AR	1012504	PRIMER, METAL PARTS
9	30	24	1010862	BUSHING, SLEEVE
9	32	AR	1012507- 4	TAPE, LACING
	33	6	1012534- 37	SLEEVE, INSULATION (HEAT SHRINKABLE)
	34	2	2014670- 6	ADAPTER, CONNECTOR

SIZE	CODE IDENT NO.			
A	80230	2014643		
SCALE-NONE	REV LTR	H	SHEET	7 OF 29

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	35	1	2014670- 4	ADAPTER, CONNECTOR
	36	6	1010763- 2	SLEEVE, SOLDER

SIZE	CODE IDENT NO.			
A	80230	2014643		
SCALE-NONE	REV LTR	H	SHEET	8 OF 29

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	1	7			1.75 1.75	1.50 1.50				68 7	36 21	A
C	1A	9	SHLD C1 P12-38					.20 .13	NO NO		13	
C	1L		P12-63 P15-3					.13 .13	NO NO		13 14, 30	
C	1R		P12-39 P15-1					.13 .13	NO NO		13 14, 30	
C	1W		P12-64 P15-2					.13 .13	NO NO		13 14, 30	
C	2	7			1.75 1.75	1.50 1.50				68 7	36 21	
C	2A	9	SHLD C2 P12-59					.20 .13	NO NO		13	
C	2L		P12-84 P15-14					.13 .13	NO NO		13 14, 30	
C	2R		P12-60 P15-12					.13 .13	NO NO		13 14, 30	
C	2W		P12-85 P15-13					.13 .13	NO NO		13 14, 30	
C	3	7			1.75 1.75	1.50 1.50				68 7	36 21	
C	3A	9	SHLD C3 P12-80					.20 .13	NO NO		13	

SIZE	CODE IDENT NO.			
A	80230	2014643		
SCALE-NONE	REV LTR	H	SHEET	9 OF 29

WIRING HARNESS C 2014643 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	3L		P12-81 P15-61					.13 .13	NO NO		13 14, 30	
C	3R		P12-56 P15-59					.13 .13	NO NO		13 14, 30	
C	3W		P12-57 P15-60					.13 .13	NO NO		13 14, 30	
C	4	8			1.75 1.75	1.50 1.50				6B 7	20 21	
C	4A	9	SHLD C4 P12-33					.20 .13	NO NO		 13	
C	4R		P12-16 P15-6					.13 .13	NO NO		13 14	
C	4Y		P12-17 P15-7					.13 .13	NO NO		13 14	
C	5	8			1.75 1.75	1.50 1.50				6B 7	20 21	
C	5A	9	SHLD C5 P12-27					.20 .13	NO NO		 13	
C	5R		P12-26 P15-17					.13 .13	NO NO		13 14	
C	5Y		P12-12 P15-18					.13 .13	NO NO		13 14	
C	6	8			1.75 1.75	1.50 1.50				6B 7	20 21	

SIZE	CODE IDENT NO.			
A	80230	2014643		
SCALE-NONE	REV LTR	G	SHEET	10 OF 29

MIL 2084 9-65

WIRING HARNESS C 2014643 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	6A	9	SHLD C6 P12-47					.20 .13	NO NO		 13	
C	6R		P12-72 P15-35					.13 .13	NO NO		13 14	
C	6Y		P12-71 P15-36					.13 .13	NO NO		13 14	
C	7	8			1.75 1.00	1.50 .75				6B 6B	20 20	
C	7A	9	SHLD C7 P12-48					.20 .13	NO NO		 13	
C	7B	9	P19-C5 SHLD C7					.18 .20	NO NO		15	
C	7R		P12-28 P19-B5					.13 .18	NO NO		13	
C	7Y		P12-49 P19-A5					.13 .18	NO NO		13	
C	8	8			1.75 1.00	1.50 .75				6B 6B	20 20	
C	8A	9	SHLD C8 P12-53					.20 .13	NO NO		 13	
C	8B	9	P19-C4 SHLD C8					.18 .20	NO NO		15	
C	8R		P12-78 P19-A4					.13 .18	NO NO		13	

SIZE	CODE IDENT NO.			
A	80230	2014643		
SCALE-NONE	REV LTR	G	SHEET	11 OF 29

MIL 2084 9-65

WIRING HARNESS C 2014643 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	8Y		P12-54 P19-B4					.13 .18	NO NO		13	
C	9	8			1.75 1.00	1.50 .75				6B 6B	20 20	
C	9A	9	SHLD C9 P12-29					.20 .13	NO NO		 13	
C	9B	9	P19-C7 SHLD C9					.18 .20	NO NO		15	
C	9R		P12-14 P19-B7					.13 .18	NO NO		13	
C	9Y		P12-13 P19-A7					.13 .18	NO NO		13	
C	10	8			1.75 1.00	1.50 .75				6B 6B	20 20	
C	10A	9	SHLD C10 P12-50					.20 .13	NO NO		 13	
C	10B	9	P19-C6 SHLD C10					.18 .20	NO NO		15	
C	10R		P12-74 P19-A6					.13 .18	NO NO		13	
C	10Y		P12-75 P19-B6					.13 .18	NO NO		13	
C	11	8			1.75 1.00	1.50 .75				6B 6B	20 20	

SIZE	CODE IDENT NO.			
A	80230	2014643		
SCALE-NONE	REV LTR	G	SHEET	12 OF 29

MIL 2084 9-65

WIRING HARNESS C 2014643 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	11A	9	SHLD C11 P12-30					.20 .13	NO NO		 13	
C	11B	9	P19-C3 SHLD C11					.18 .20	NO NO		15	
C	11R		P12-31 P19-B3					.13 .18	NO NO		13	
C	11Y		P12-15 P19-A3					.13 .18	NO NO		13	
C	12	8			1.75 1.00	1.50 .75				6B 6B	20 20	
C	12A	9	SHLD C12 P12-52					.20 .13	NO NO		 13	
C	12B	9	P19-C2 SHLD C12					.18 .20	NO NO		15	
C	12R		P12-76 P19-B1					.13 .18	NO NO		13	
C	12Y		P12-51 P19-B2					.13 .18	NO NO		13	
C	13	8			1.75 1.00	1.50 .75				6B 6B	20 20	
C	13A	9	SHLD C13 P12-42					.20 .13	NO NO		 13	
C	13B	9	P19-C8 SHLD C13					.18 .20	NO NO		15	

SIZE	CODE IDENT NO.			
A	80230	2014643		
SCALE-NONE	REV LTR	G	SHEET	13 OF 29

MIL 2084 9-65

WIRING HARNESS C 2014643 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 13R			P12-67 P19-A8					.13 .18	NO NO		13	
C 13Y			P12-43 P19-B8					.13 .18	NO NO		13	
C 14	8				1.75 1.00	1.50 .75				68 68	20 20	
C 14A	9		SHLD C14 P12-45					.20 .13	NO NO		 13	
C 14B	9		P19-C9 SHLD C14					.18 .20	NO NO		15	
C 14R			P12-70 P19-B9					.13 .18	NO NO		13	
C 14Y			P12-46 P19-A9					.13 .18	NO NO		13	
C 15	8				1.75 1.00	1.50 .75				68 68	20 20	
C 15A	9		SHLD C15 P12-44					.20 .13	NO NO		 13	
C 15B	9		P19-C10 SHLD C15					.18 .20	NO NO		15	
C 15R			P12-69 P19-A10					.13 .18	NO NO		13	
C 15Y			P12-68 P19-B10					.13 .18	NO NO		13	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR G	SHEET 14 OF 29

MIL 2084 9-65

WIRING HARNESS C 2014643 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 16	4											
C 16R			P12-9 P19-K4					.13 .18	NO NO		13 16	
C 16Y			P12-22 P19-H4					.13 .18	NO NO		13 16	
C 17	4											
C 17R			P12-24 P19-G3					.13 .18	NO NO		13 16	
C 17Y			P12-23 P19-G4					.13 .18	NO NO		13 16	
C 18	4											
C 18R			P12-11 P19-F3					.13 .18	NO NO		13 16	
C 18Y			P12-10 P19-F4					.13 .18	NO NO		13 16	
C 19	4											
C 19R			P12-66 P19-K3					.13 .18	NO NO		13 16	
C 19Y			P12-41 P19-H3					.13 .18	NO NO		13 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR G	SHEET 15 OF 29

MIL 2084 9-65

WIRING HARNESS C 2014643 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 20	5											
C 20G			P12-19 P19-F22					.13 .18	NO NO		13 15	
C 20R			P12-8 P19-H22					.13 .18	NO NO		13 15	
C 20Y			P12-7 P19-G22					.13 .18	NO NO		13 15	
C 21	3											
C 21R			P12-18 P19-G19					.13 .18	NO NO		13 15	
C 21Y			P12-6 P19-F19					.13 .18	NO NO		13 15	
C 22	3											
C 22R			P12-4 P19-G18					.13 .18	NO NO		13 15	
C 22Y			P12-5 P19-F18					.13 .18	NO NO		13 15	
C 23	3											
C 23R			P12-3 P19-G17					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR G	SHEET 16 OF 29

MIL 2084 9-65

WIRING HARNESS C 2014643 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 23Y			P12-2 P19-F17					.13 .18	NO NO		13 15	
C 24	4											
C 24R			P12-62 P19-G13					.13 .18	NO NO		13 16	
C 24Y			P12-58 P19-H13					.13 .18	NO NO		13 16	
C 25	4											
C 25R			P12-35 P19-H14					.13 .18	NO NO		13 16	
C 25Y			P12-34 P19-G14					.13 .18	NO NO		13 16	
C 26	4											
C 26R			P12-61 P19-G15					.13 .18	NO NO		13 16	
C 26Y			P12-37 P19-H15					.13 .18	NO NO		13 16	
C 27	1		P12-1 P19-D11					.13 .18	NO NO		13 16	
C 28	7				1.75 1.00	1.50 .75				7 68	21 36	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR H	SHEET 17 OF 29

MIL 2084 9-65

WIRING HARNESS C 2014643 H

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 28B	9		P19-D25 SHLD C28					.18 .20	NO NO		15	
C 28L			NONE NONE				1.75 1.00		NO NO			
C 28R			P15-5 P19-D23					.13 .18	NO NO		14, 30 16	
C 28W			P15-4 P19-D24					.13 .18	NO NO		14, 30 16	
C 29	7				1.75 1.00	1.50 .75				7 6B	21 36	
C 29B	9		P19-C23 SHLD C29					.18 .20	NO NO		15	
C 29L			NONE NONE				1.75 1.00		NO NO			
C 29R			P15-16 P19-B23					.13 .18	NO NO		14, 30	
C 29W			P15-15 P19-A23					.13 .18	NO NO		14, 30	
C 30	7				1.75 1.00	1.50 .75				7 6B	21 36	
C 30B	9		P19-C24 SHLD C30					.18 .20	NO NO		15	
C 30L			P15-34 P19-B24					.13 .18	NO NO		14, 30	

SIZE	CODE IDENT NO.		
A	80230	2014643	
SCALE-NONE	REV LTR	H	SHEET 18 OF 29

MIL 2084 9-65

WIRING HARNESS C 2014643 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 30R			P15-33 P19-C25					.13 .18	NO NO		14, 30 16	
C 30W			P15-32 P19-B25					.13 .18	NO NO		14, 30	
C 34	3											
C 34R			P15-40 P19-K20					.13 .18	NO NO		14 15	
C 34Y			P15-39 P19-H20					.13 .18	NO NO		14 15	
C 35	3											
C 35R			P15-42 P19-H21					.13 .18	NO NO		14 15	
C 35Y			P15-41 P19-K21					.13 .18	NO NO		14 15	
C 36	3											
C 36R			P15-52 P19-K22					.13 .18	NO NO		14 15	
C 36Y			P15-51 P19-K23					.13 .18	NO NO		14 15	
C 37	5											

SIZE	CODE IDENT NO.		
A	80230	2014643	
SCALE-NONE	REV LTR	G	SHEET 19 OF 29

MIL 2084 9-65

WIRING HARNESS C 2014643 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 37G			P16-24 P19-K16					.13 .18	NO NO		14 15	
C 37R			P16-25 P19-H17					.13 .18	NO NO		14 15	
C 37Y			P16-23 P19-H18					.13 .18	NO NO		14 15	
C 38	3											
C 38R			P16-21 P19-H16					.13 .18	NO NO		14 15	
C 38Y			P16-22 P19-H19					.13 .18	NO NO		14 15	
C 39	3											
C 39R			P15-8 P19-G10					.13 .18	NO NO		14 15	
C 39Y			P15-9 P19-G9					.13 .18	NO NO		14 15	
C 40	4											
C 40R			P15-10 P19-K9					.13 .18	NO NO		14 16	
C 40Y			P15-11 P19-H9					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.		
A	80230	2014643	
SCALE-NONE	REV LTR	G	SHEET 20 OF 29

MIL 2084 9-65

WIRING HARNESS C 2014643 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 41	3											
C 41R			P16-6 P19-H2					.13 .18	NO NO		14 15	
C 41Y			P16-8 P19-G2					.13 .18	NO NO		14 15	
C 42	3											
C 42R			P16-7 P19-H1					.13 .18	NO NO		14 15	
C 42Y			P16-9 P19-G1					.13 .18	NO NO		14 15	
C 43	4											
C 43R			P16-14 P19-H6					.13 .18	NO NO		14 16	
C 43Y			P16-15 P19-K6					.13 .18	NO NO		14 16	
C 44	2		P16-16 P19-K8					.13 .18	NO NO		14 16	
C 45	4											
C 45R			P16-17 P19-K7					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.		
A	80230	2014643	
SCALE-NONE	REV LTR	G	SHEET 21 OF 29

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 45Y			P16-18 P19-H7					.13 .18	NO NO		14 16	
C 46	5											
C 46G			P16-12 P19-K17					.13 .18	NO NO		14 15	
C 46R			P16-10 P19-K19					.13 .18	NO NO		14 15	
C 46Y			P16-11 P19-K18					.13 .18	NO NO		14 15	
C 47	3											
C 47R			P16-2 P19-G11					.13 .18	NO NO		14 15	
C 47Y			P16-4 P19-G12					.13 .18	NO NO		14 15	
C 48	3											
C 48R			P16-3 P19-H11					.13 .18	NO NO		14 15	
C 48Y			P16-5 P19-H12					.13 .18	NO NO		14 15	
C 49	3											

SIZE A CODE IDENT NO. 80230 2014643

SCALE-NONE REV LTR G SHEET 22 OF 29

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 49R			P15-38 P19-F16					.13 .18	NO NO		14 15	
C 49Y			P15-37 P19-G16					.13 .18	NO NO		14 15	
C 50	2		P16-13 P19-D1					.13 .18	NO NO		14 16	
C 51	2		P15-25 P19-H5					.13 .18	NO NO		14 16	
C 52	2		P16-20 P19-K5					.13 .18	NO NO		14 16	
C 53	2		P16-19 P19-F1					.13 .18	NO NO		14 16	
C 54	3											
C 54R			P16-27 P19-H10					.13 .18	NO NO		14 15	
C 54Y			P16-28 P19-K10					.13 .18	NO NO		14 15	
C 55	8				1.75 1.00	1.50 .75				7 68	21 20	
C 55B	9		P19-C20 SHLD C55					.18 .20	NO NO		15	
C 55R			P16-33 P19-A20					.13 .18	NO NO		14	

SIZE A CODE IDENT NO. 80230 2014643

SCALE-NONE REV LTR G SHEET 23 OF 29

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 55Y			P16-34 P19-B20					.13 .18	NO NO		14	
C 56	8				1.75 1.00	1.50 .75				7 68	21 20	
C 56B	9		P19-C19 SHLD C56					.18 .20	NO NO		15	
C 56R			P16-35 P19-B19					.13 .18	NO NO		14	
C 56Y			P16-36 P19-A19					.13 .18	NO NO		14	
C 57	8				1.75 1.00	1.50 .75				7 68	21 20	
C 57B	9		P19-C22 SHLD C57					.18 .20	NO NO		15	
C 57R			P16-37 P19-A22					.13 .18	NO NO		14	
C 57Y			P16-38 P19-B22					.13 .18	NO NO		14	
C 58	8				1.75 1.00	1.50 .75				7 68	21 20	
C 58B	9		P19-C21 SHLD C58					.18 .20	NO NO		15	
C 58R			P16-39 P19-B21					.13 .18	NO NO		14	

SIZE A CODE IDENT NO. 80230 2014643

SCALE-NONE REV LTR G SHEET 24 OF 29

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 58Y			P16-40 P19-A21					.13 .18	NO NO		14	
C 59	8				1.75 1.00	1.50 .75				7 68	21 20	
C 59B	9		P19-C18 SHLD C59					.18 .20	NO NO		15	
C 59R			P16-41 P19-A18					.13 .18	NO NO		14	
C 59Y			P16-42 P19-B18					.13 .18	NO NO		14	
C 60	8				1.75 1.00	1.50 .75				7 68	21 20	
C 60B	9		P19-C17 SHLD C60					.18 .20	NO NO		15	
C 60R			P16-43 P19-B17					.13 .18	NO NO		14	
C 60Y			P16-44 P19-A17					.13 .18	NO NO		14	
C 61	8				1.75 1.00	1.50 .75				7 68	21 20	
C 61B	9		P19-D22 SHLD C61					.18 .20	NO NO		15	
C 61R			P16-45 P19-D20					.13 .18	NO NO		14 16	

SIZE A CODE IDENT NO. 80230 2014643

SCALE-NONE REV LTR G SHEET 25 OF 29

WIRING HARNESS C 2014643 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 61Y			P16-46 P19-D21					.13 .18	NO NO		14 16	
C 62	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 62B	9		P19-D16 SHLD C62					.18 .20	NO NO		15	
C 62R			P16-47 P19-D17					.13 .18	NO NO		14 16	
C 62Y			P16-48 P19-D18					.13 .18	NO NO		14 16	
C 63	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 63B	9		P19-C16 SHLD C63					.18 .20	NO NO		15	
C 63R			P16-51 P19-A16					.13 .18	NO NO		14	
C 63Y			P16-52 P19-B16					.13 .18	NO NO		14	
C 64	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 64B	9		P19-D15 SHLD C64					.18 .20	NO NO		15	
C 64R			P16-53 P19-C15					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR G	SHEET 26 OF 29

WIRING HARNESS C 2014643 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 64Y			P16-54 P19-B15					.13 .18	NO NO		14	
C 65	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 65B	9		P19-D14 SHLD C65					.18 .20	NO NO		15	
C 65R			P16-55 P19-B14					.13 .18	NO NO		14	
C 65Y			P16-56 P19-C14					.13 .18	NO NO		14 16	
C 66	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 66B	9		P19-D13 SHLD C66					.18 .20	NO NO		15	
C 66R			P16-57 P19-C13					.13 .18	NO NO		14 16	
C 66Y			P16-58 P19-B13					.13 .18	NO NO		14	
C 67	1		P16-1 P19-D12					.13 .18	NO NO		14 16	
C 74	6											
C 74G			P15-22 P19-G25					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR G	SHEET 27 OF 29

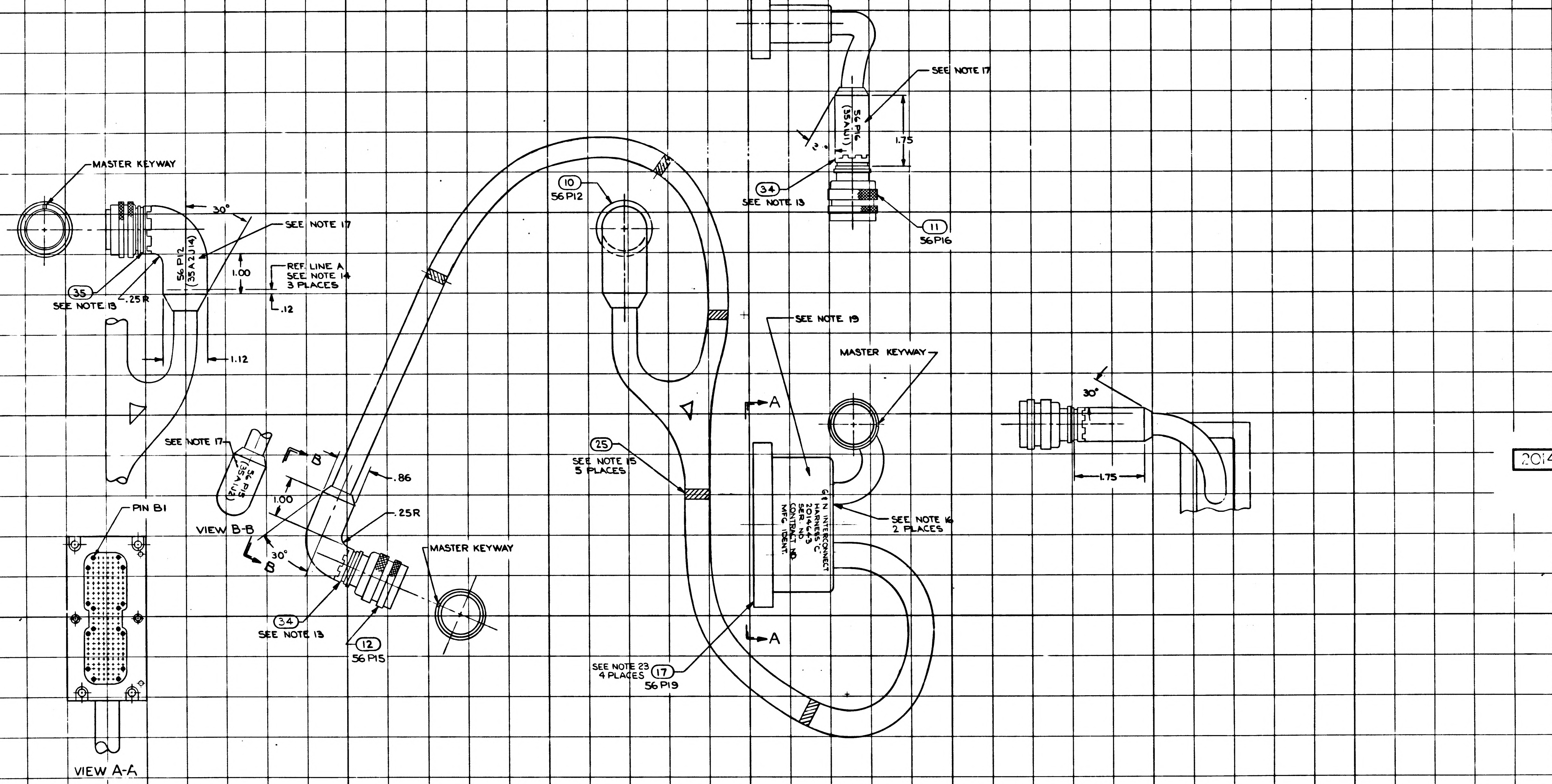
WIRING HARNESS C 2014643 G

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 74N			P15-21 P19-G24					.13 .18	NO NO		14 16	
C 74R			P15-19 P19-F25					.13 .18	NO NO		14 16	
C 74Y			P15-20 P19-F24					.13 .18	NO NO		14 16	
C 76	2		P16-59 P19-F15					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR G	SHEET 28 OF 29

REVISIONS REV F TDRR 24808				
SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
30°
SEE NOTE 17
56 P12 (35A2J14)
1.00
REF. LINE A
SEE NOTE 14
3 PLACES
.12
35
SEE NOTE 13
.25R
1.12
SEE NOTE 17
56 P15 (35A1J2)
B
.86
1.00
VIEW B-B
30°
B
.25R
MASTER KEYWAY
34
SEE NOTE 13
12
56P15
PIN B1
VIEW A-A
10
56P12
SEE NOTE 17
56 P16 (35A1J1)
1.75
34
SEE NOTE 13
11
56P16
SEE NOTE 19
MASTER KEYWAY
A
25
SEE NOTE 15
5 PLACES
G&N INTERCONNECT
HARNESS "C"
2014643
SER. NO
CONTRACT NO.
MFG IDENT.
SEE NOTE 16
2 PLACES
A
SEE NOTE 23
4 PLACES
17
56P19
30°
1.75

2014643

REV LTR H

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014567-011	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.03 ANGLES ±5°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	P.A. Leone	11/16/65
CHECKED	N. Abraham	12-17-65
APPROVED	Paul Watson	Dec 20 65
APPROVED	J. E. Kun	12/20/65
APPROVED MIT	W. Jaffe	2/1/66
APPROVED MSC		DATE

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2014643
SCALE 1:1		SHEET 29 OF 29

MX-10989I

APPLICATION	
NEXT ASSY	USED ON
2014567-011	2014567-011

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REPLACES REV D WITH CHANGE PER TDRR	24-NOV-65	B. EF
F	ADDED CONFIGURATION AND CHANGES PER TDRR 24808		
G	Revised per TDRR 25306	2/4/66	
H	REVISED PER TDRR-26660	7 MAR-66	B. AU
J	REVISED PER TDRR 28058	19 APR 66	PHG

	REV	J	J	J	J	J	J	J	J	J	J	J											
	SHEET	20	21	22	23	24	25	26	27	28	29	30											
REV STATUS	REV					J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
OF SHEETS	SHEET					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. LITZON DATE 27 MAY 65
CHECKED FESLER 28 MAY 65
APPROVAL P.C. WATSON 8-21-65
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL
CONTRACT NAS 9-497

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

CODE IDENT NO.	SIZE		REV
80230	A	2014643	J
SCALE NONE		SHEET 1 OF 30	

NOTE GENERAL NOTES

NUMBER DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014673.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
  A - FROM END OF SHIELD
  B - TO END OF SHIELD
  G - GREEN
  K - BLACK
  L - BLUE
  N - BROWN
  R - RED
  W - WHITE
  Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

NOTE GENERAL NOTES

NUMBER DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
  CONNECTOR 56P15 AND 16 USE ITEM NUMBERS 19 AND 14.
  CONNECTOR 56P12 USE ITEM NUMBERS 18 AND 13.
  CONNECTOR 56P19 USE ITEM NUMBER 15.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 32.

13 A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE, ITEM 25, TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED, TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

NOTE GENERAL NOTES

NUMBER DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
  A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
  B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED. INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.

22 PRESEAL BACK OF CONNECTOR P19 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 23,24,27, AND 28.

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 22 AND 29.

24 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 G RMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACE CRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICRO SECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

NOTE GENERAL NOTES

NUMBER DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SEE NOTE

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014643-001	WIRE PER 1010789-006, 22AWG, YEL, 5 FT TOT LG
	2	1	2014643-002	WIRE PER 1010789-016, 26 AWG, YEL, 10 FT TOT LG
	3	1	2014643-003	WIRE PER 1010789-008, 22AWG, YEL, RED, 30 FT TOT LG
	4	1	2014643-004	WIRE PER 1010789-017, 26 AWG, YEL, RED, 25 FT TOT LG
	5	1	2014643-005	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN 5 FT TOT LG
	6	1	2014643-006	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 5 FT TOT LG
	7	1	2014643-007	WIRE PER 1010707-1, RED JKT, 29 AWG, RED, WHT, BLUE, 26 FT TOT LG
	8	1	2014643-008	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 40 FT TOT LG
	9	1	2014643-009	WIRE PER 1010789-002, 24 AWG, BLK, 35 FT TOT LG
9	10	1	1010929-001	CONNECTOR, PLUG, ELECTRICAL (P12)
9	11	1	1010965- 1	CONNECTOR, PLUG, ELECTRICAL (P16)
9	12	1	1010965- 2	CONNECTOR, PLUG, ELECTRICAL (P15)
9	13	X	1010770- 2	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010929
9	14	X	1010781- 1	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010965
9	15	98	1010955- 1	CONTACT, MALE

SIZE	CODE IDENT NO.		
A	80230	2014643	
SCALE-NONE	REV LTR J		SHEET 6 OF 30

SEE NOTE

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	16	84	1010955- 2	CONTACT, MALE
	17	1	2014743-011	CONNECTOR, PLUG, ELECTRICAL (P19)
9	18	13	1010958- 1	PLUG, PROTECTIVE SEALING
9	19	30	1010984	PLUG, PROTECTIVE SEALING
9	20	33	1010402- 2	SLEEVE SOLDER
9	21	15	1012534- 36	INSULATION SLEEVE (HEAT SHRINKABLE)
	22	AR	1012503	COMPOUND, POTTING, POLYURETHANE
	23	AR	1010679	ADHESIVE ACTIVATOR
	24	AR	1010661	EPOXY RESIN
	25	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
	26	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	27	AR	1006277	SILICA, PULVERIZED, PYROGENIC
	28	AR	1008822	COLORANT, EPOXY BASE
	29	AR	1012504	PRIMER, METAL PARTS
9	30	29	1010862	BUSHING, SLEEVE
9	32	AR	1012507- 4	TAPE, LACING
	33	6	1012534- 37	SLEEVE, INSULATION (HEAT SHRINKABLE)
	34	2	2014670- 6	ADAPTER, CONNECTOR

SIZE	CODE IDENT NO.		
A	80230	2014643	
SCALE-NONE	REV LTR J		SHEET 7 OF 30

SEE NOTE

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	35	1	2014670- 4	ADAPTER, CONNECTOR
	36	12	1010763- 2	SLEEVE, SOLDER

SIZE	CODE IDENT NO.		
A	80230	2014643	
SCALE-NONE	REV LTR J		SHEET 8 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 1	7				1.75 1.75	1.50 1.50				68 7	36 21	A
C 1A	9		SHLD C1 P12-38					.20 .13	NO NO		13	
C 1L			P12-63 P15-3					.13 .13	NO NO		13, 30 14, 30	
C 1R			P12-39 P15-1					.13 .13	NO NO		13, 30 14, 30	
C 1W			P12-64 P15-2					.13 .13	NO NO		13, 30 14, 30	
C 2	7				1.75 1.75	1.50 1.50				68 7	36 21	
C 2A	9		SHLD C2 P12-59					.20 .13	NO NO		13	
C 2L			P12-84 P15-14					.13 .13	NO NO		13, 30 14, 30	
C 2R			P12-60 P15-12					.13 .13	NO NO		13, 30 14, 30	
C 2W			P12-85 P15-13					.13 .13	NO NO		13, 30 14, 30	
C 3	7				1.75 1.75	1.50 1.50				68 7	36 21	
C 3A	9		SHLD C3 P12-80					.20 .13	NO NO		13	

SIZE	CODE IDENT NO.		
A	80230	2014643	
SCALE-NONE	REV LTR J		SHEET 9 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 3L			P12-81 P15-61					.13 .13	NO NO		13, 30 14, 30	
C 3R			P12-56 P15-59					.13 .13	NO NO		13, 30 14, 30	
C 3W			P12-57 P15-60					.13 .13	NO NO		13, 30 14, 30	
C 4	8				1.75 1.75	1.50 1.50				6B 7	20 21	
C 4A	9		SHLD C4 P12-33					.20 .13	NO NO		 13	
C 4R			P12-16 P15-6					.13 .13	NO NO		13 14	
C 4Y			P12-17 P15-7					.13 .13	NO NO		13 14	
C 5	8				1.75 1.75	1.50 1.50				6B 7	20 21	
C 5A	9		SHLD C5 P12-27					.20 .13	NO NO		 13	
C 5R			P12-26 P15-17					.13 .13	NO NO		13 14	
C 5Y			P12-12 P15-18					.13 .13	NO NO		13 14	
C 6	8				1.75 1.75	1.50 1.50				6B 7	20 21	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 10 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 6A	9		SHLD C6 P12-47					.20 .13	NO NO		 13	
C 6R			P12-72 P15-35					.13 .13	NO NO		13 14	
C 6Y			P12-71 P15-36					.13 .13	NO NO		13 14	
C 7	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 7A	9		SHLD C7 P12-48					.20 .13	NO NO		 13	
C 7B	9		P19-C5 SHLD C7					.18 .20	NO NO		15	
C 7R			P12-28 P19-B5					.13 .18	NO NO		13	
C 7Y			P12-49 P19-A5					.13 .18	NO NO		13	
C 8	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 8A	9		SHLD C8 P12-53					.20 .13	NO NO		 13	
C 8B	9		P19-C4 SHLD C8					.18 .20	NO NO		15	
C 8R			P12-78 P19-A4					.13 .18	NO NO		13	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 11 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 8Y			P12-54 P19-B4					.13 .18	NO NO		13	
C 9	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 9A	9		SHLD C9 P12-29					.20 .13	NO NO		 13	
C 9B	9		P19-C7 SHLD C9					.18 .20	NO NO		15	
C 9R			P12-14 P19-B7					.13 .18	NO NO		13	
C 9Y			P12-13 P19-A7					.13 .18	NO NO		13	
C 10	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 10A	9		SHLD C10 P12-50					.20 .13	NO NO		 13	
C 10B	9		P19-C6 SHLD C10					.18 .20	NO NO		15	
C 10R			P12-74 P19-A6					.13 .18	NO NO		13	
C 10Y			P12-75 P19-B6					.13 .18	NO NO		13	
C 11	8				1.75 1.00	1.50 .75				6B 6B	20 20	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 12 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 11A	9		SHLD C11 P12-30					.20 .13	NO NO		 13	
C 11B	9		P19-C3 SHLD C11					.18 .20	NO NO		15	
C 11R			P12-31 P19-B3					.13 .18	NO NO		13	
C 11Y			P12-15 P19-A3					.13 .18	NO NO		13	
C 12	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 12A	9		SHLD C12 P12-52					.20 .13	NO NO		 13	
C 12B	9		P19-C2 SHLD C12					.18 .20	NO NO		15	
C 12R			P12-76 P19-B1					.13 .18	NO NO		13	
C 12Y			P12-51 P19-B2					.13 .18	NO NO		13	
C 13	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 13A	9		SHLD C13 P12-42					.20 .13	NO NO		 13	
C 13B	9		P19-C8 SHLD C13					.18 .20	NO NO		15	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 13 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 13R			P12-57 P19-A8					.13 .18	NO NO		13	
C 13Y			P12-43 P19-B8					.13 .18	NO NO		13	
C 14	8				1.75 1.00	1.50 .75				68 68	20 20	
C 14A	9		SHLD C14 P12-45					.20 .13	NO NO		 13	
C 14B	9		P19-C9 SHLD C14					.18 .20	NO NO		15	
C 14R			P12-70 P19-B9					.13 .18	NO NO		13	
C 14Y			P12-46 P19-A9					.13 .18	NO NO		13	
C 15	8				1.75 1.00	1.50 .75				68 68	20 20	
C 15A	9		SHLD C15 P12-44					.20 .13	NO NO		 13	
C 15B	9		P19-C10 SHLD C15					.18 .20	NO NO		15	
C 15R			P12-69 P19-A10					.13 .18	NO NO		13	
C 15Y			P12-68 P19-B10					.13 .18	NO NO		13	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 14 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 16	4											
C 16R			P12-9 P19-K4					.13 .18	NO NO		13 16	
C 16Y			P12-22 P19-H4					.13 .18	NO NO		13 16	
C 17	4											
C 17R			P12-24 P19-G3					.13 .18	NO NO		13 16	
C 17Y			P12-23 P19-G4					.13 .18	NO NO		13 16	
C 18	4											
C 18R			P12-11 P19-F3					.13 .18	NO NO		13 16	
C 18Y			P12-10 P19-F4					.13 .18	NO NO		13 16	
C 19	4											
C 19R			P12-66 P19-K3					.13 .18	NO NO		13 16	
C 19Y			P12-41 P19-H3					.13 .18	NO NO		13 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 15 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 20	5											
C 20G			P12-19 P19-F22					.13 .18	NO NO		13 15	
C 20R			P12-8 P19-H22					.13 .18	NO NO		13 15	
C 20Y			P12-7 P19-G22					.13 .18	NO NO		13 15	
C 21	3											
C 21R			P12-18 P19-G19					.13 .18	NO NO		13 15	
C 21Y			P12-6 P19-F19					.13 .18	NO NO		13 15	
C 22	3											
C 22R			P12-4 P19-G18					.13 .18	NO NO		13 15	
C 22Y			P12-5 P19-F18					.13 .18	NO NO		13 15	
C 23	3											
C 23R			P12-3 P19-G17					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 16 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 23Y			P12-2 P19-F17					.13 .18	NO NO		13 15	
C 24	4											
C 24R			P12-82 P19-G13					.13 .18	NO NO		13 16	
C 24Y			P12-58 P19-H13					.13 .18	NO NO		13 16	
C 25	4											
C 25R			P12-35 P19-H14					.13 .18	NO NO		13 16	
C 25Y			P12-34 P19-G14					.13 .18	NO NO		13 16	
C 26	4											
C 26R			P12-61 P19-G15					.13 .18	NO NO		13 16	
C 26Y			P12-37 P19-H15					.13 .18	NO NO		13 16	
C 27	1		P12-1 P19-D11					.13 .18	NO NO		13 16	
C 28	7				1.75 1.00	1.50 .75				7 68	21 36	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 17 OF 30

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 28B	9		P19-D25 SHLD C28					.18 .20	NO NO		15	
C 28L			NONE NONE				1.75 1.00		NO NO			
C 28R			P15-5 P19-D23					.13 .18	NO NO		14, 30 16	
C 28W			P15-4 P19-D24					.13 .18	NO NO		14, 30 16	
C 29	7				1.75 1.00	1.50 .75				7 68	21 36	
C 29B	9		P19-C23 SHLD C29					.18 .20	NO NO		15	
C 29L			NONE NONE				1.75 1.00		NO NO			
C 29R			P15-16 P19-B23					.13 .18	NO NO		14, 30	
C 29W			P15-15 P19-A23					.13 .18	NO NO		14, 30	
C 30	7				1.75 1.00	1.50 .75				7 68	21 36	
C 30B	9		P19-C24 SHLD C30					.18 .20	NO NO		15	
C 30L			P15-34 P19-B24					.13 .18	NO NO		14, 30	

SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR J
SHEET 18 OF 30

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WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 30R			P15-33 P19-C25					.13 .18	NO NO		14, 30 16	
C 30W			P15-32 P19-B25					.13 .18	NO NO		14, 30	
C 34	3											
C 34R			P15-40 P19-K20					.13 .18	NO NO		14 15	
C 34Y			P15-39 P19-H20					.13 .18	NO NO		14 15	
C 35	3											
C 35R			P15-42 P19-H21					.13 .18	NO NO		14 15	
C 35Y			P15-41 P19-K21					.13 .18	NO NO		14 15	
C 36	3											
C 36R			P15-52 P19-K22					.13 .18	NO NO		14 15	
C 36Y			P15-51 P19-K23					.13 .18	NO NO		14 15	
C 37	5											

SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR J
SHEET 19 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 37G			P16-24 P19-K16					.13 .18	NO NO		14 15	
C 37R			P16-25 P19-H17					.13 .18	NO NO		14 15	
C 37Y			P16-23 P19-H18					.13 .18	NO NO		14 15	
C 38	3											
C 38R			P16-21 P19-H16					.13 .18	NO NO		14 15	
C 38Y			P16-22 P19-H19					.13 .18	NO NO		14 15	
C 39	3											
C 39R			P15-8 P19-G10					.13 .18	NO NO		14 15	
C 39Y			P15-9 P19-G9					.13 .18	NO NO		14 15	
C 40	4											
C 40R			P15-10 P19-K9					.13 .18	NO NO		14 16	
C 40Y			P15-11 P19-H9					.13 .18	NO NO		14 16	

SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR J
SHEET 20 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 41	3											
C 41R			P16-6 P19-H2					.13 .18	NO NO		14 15	
C 41Y			P16-8 P19-G2					.13 .18	NO NO		14 15	
C 42	3											
C 42R			P16-7 P19-H1					.13 .18	NO NO		14 15	
C 42Y			P16-9 P19-G1					.13 .18	NO NO		14 15	
C 43	4											
C 43R			P16-14 P19-H6					.13 .18	NO NO		14 16	
C 43Y			P16-15 P19-K6					.13 .18	NO NO		14 16	
C 44	2		P16-16 P19-K8					.13 .18	NO NO		14 16	
C 45	4											
C 45R			P16-17 P19-K7					.13 .18	NO NO		14 16	

SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR J
SHEET 21 OF 30

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 45Y			P16-18 P19-H7					.13 .18	NO NO		14 16	
C 46	5											
C 46G			P16-12 P19-K17					.13 .18	NO NO		14 15	
C 46R			P16-10 P19-K19					.13 .18	NO NO		14 15	
C 46Y			P16-11 P19-K18					.13 .18	NO NO		14 15	
C 47	3											
C 47R			P16-2 P19-G11					.13 .18	NO NO		14 15	
C 47Y			P16-4 P19-G12					.13 .18	NO NO		14 15	
C 48	3											
C 48R			P16-3 P19-H11					.13 .18	NO NO		14 15	
C 48Y			P16-5 P19-H12					.13 .18	NO NO		14 15	
C 49	3											

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 22 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 49R			P15-38 P19-F16					.13 .18	NO NO		14 15	
C 49Y			P15-37 P19-G16					.13 .18	NO NO		14 15	
C 50	2		P16-13 P19-D1					.13 .18	NO NO		14 16	
C 51	2		P15-25 P19-H5					.13 .18	NO NO		14 16	
C 52	2		P16-20 P19-K5					.13 .18	NO NO		14 16	
C 53	2		P16-19 P19-F1					.13 .18	NO NO		14 16	
C 54	3											
C 54R			P16-27 P19-H10					.13 .18	NO NO		14 15	
C 54Y			P16-28 P19-K10					.13 .18	NO NO		14 15	
C 55	8				1.75 1.00	1.50 .75				7 68	21 20	
C 55B	9		P19-C20 SHLD C55					.18 .20	NO NO		15	
C 55R			P16-33 P19-A20					.13 .18	NO NO		14	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 23 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 55Y			P16-34 P19-B20					.13 .18	NO NO		14	
C 56	8				1.75 1.00	1.50 .75				7 68	21 20	
C 56B	9		P19-C19 SHLD C56					.18 .20	NO NO		15	
C 56R			P16-35 P19-B19					.13 .18	NO NO		14	
C 56Y			P16-36 P19-A19					.13 .18	NO NO		14	
C 57	8				1.75 1.00	1.50 .75				7 68	21 20	
C 57B	9		P19-C22 SHLD C57					.18 .20	NO NO		15	
C 57R			P16-37 P19-A22					.13 .18	NO NO		14	
C 57Y			P16-38 P19-B22					.13 .18	NO NO		14	
C 58	8				1.75 1.00	1.50 .75				7 68	21 20	
C 58B	9		P19-C21 SHLD C58					.18 .20	NO NO		15	
C 58R			P16-39 P19-B21					.13 .18	NO NO		14	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 24 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 58Y			P16-40 P19-A21					.13 .18	NO NO		14	
C 59	8				1.75 1.00	1.50 .75				7 68	21 20	
C 59B	9		P19-C18 SHLD C59					.18 .20	NO NO		15	
C 59R			P16-41 P19-A18					.13 .18	NO NO		14	
C 59Y			P16-42 P19-B18					.13 .18	NO NO		14	
C 60	8				1.75 1.00	1.50 .75				7 68	21 20	
C 60B	9		P19-C17 SHLD C60					.18 .20	NO NO		15	
C 60R			P16-43 P19-B17					.13 .18	NO NO		14	
C 60Y			P16-44 P19-A17					.13 .18	NO NO		14	
C 61	8				1.75 1.00	1.50 .75				7 68	21 20	
C 61B	9		P19-D22 SHLD C61					.18 .20	NO NO		15	
C 61R			P16-45 P19-D20					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 25 OF 30

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 61Y			P16-46 P19-D21					.13 .18	NO NO		14 16	
C 62	8				1.75 1.00	1.50 .75				7 68	21 20	
C 62B	9		P19-D16 SHLD C62					.18 .20	NO NO		15	
C 62R			P16-47 P19-D17					.13 .18	NO NO		14 16	
C 62Y			P16-48 P19-D18					.13 .18	NO NO		14 16	
C 63	8				1.75 1.00	1.50 .75				7 68	21 20	
C 63B	9		P19-C16 SHLD C63					.18 .20	NO NO		15	
C 63R			P16-51 P19-A16					.13 .18	NO NO		14	
C 63Y			P16-52 P19-B16					.13 .18	NO NO		14	
C 64	8				1.75 1.00	1.50 .75				7 68	21 20	
C 64B	9		P19-D15 SHLD C64					.18 .20	NO NO		15	
C 64R			P16-53 P19-C15					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 26 OF 30

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WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 64Y			P16-54 P19-B15					.13 .18	NO NO		14	
C 65	8				1.75 1.00	1.50 .75				7 68	21 20	
C 65B	9		P19-D14 SHLD C65					.18 .20	NO NO		15	
C 65R			P16-55 P19-B14					.13 .18	NO NO		14	
C 65Y			P16-56 P19-C14					.13 .18	NO NO		14 16	
C 66	8				1.75 1.00	1.50 .75				7 68	21 20	
C 66B	9		P19-D13 SHLD C66					.18 .20	NO NO		15	
C 66R			P16-57 P19-C13					.13 .18	NO NO		14 16	
C 66Y			P16-56 P19-B13					.13 .18	NO NO		14	
C 67	1		P16-1 P19-D12					.13 .18	NO NO		14 16	
C 74	6											
C 74G			P15-22 P19-G25					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 27 OF 30

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WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 74N			P15-21 P19-G24					.13 .18	NO NO		14 16	
C 74R			P15-19 P19-F25					.13 .18	NO NO		14 16	
C 74Y			P15-20 P19-F24					.13 .18	NO NO		14 16	
C 76	2		P16-59 P19-F15					.13 .18	NO NO		14 16	
C 77	7				1.75 1.00	1.50 .75				68 68	36 36	
C 77A	9		SHLD C77 P12-65					.20 .13	NO NO		13	
C 77B	9		P19-D7 SHLD C77					.18 .20	NO NO		15	
C 77L			NONE NONE				1.75 1.00		NO NO			
C 77R			P12-40 P19-D5					.13 .18	NO NO		13, 30 16	
C 77W			P12-21 P19-D6					.13 .18	NO NO		13, 30 16	
C 78	7				1.75 1.00	1.50 .75				68 68	36 36	
C 78A	9		SHLD C78 P12-79					.20. .13	NO NO		13	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 28 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

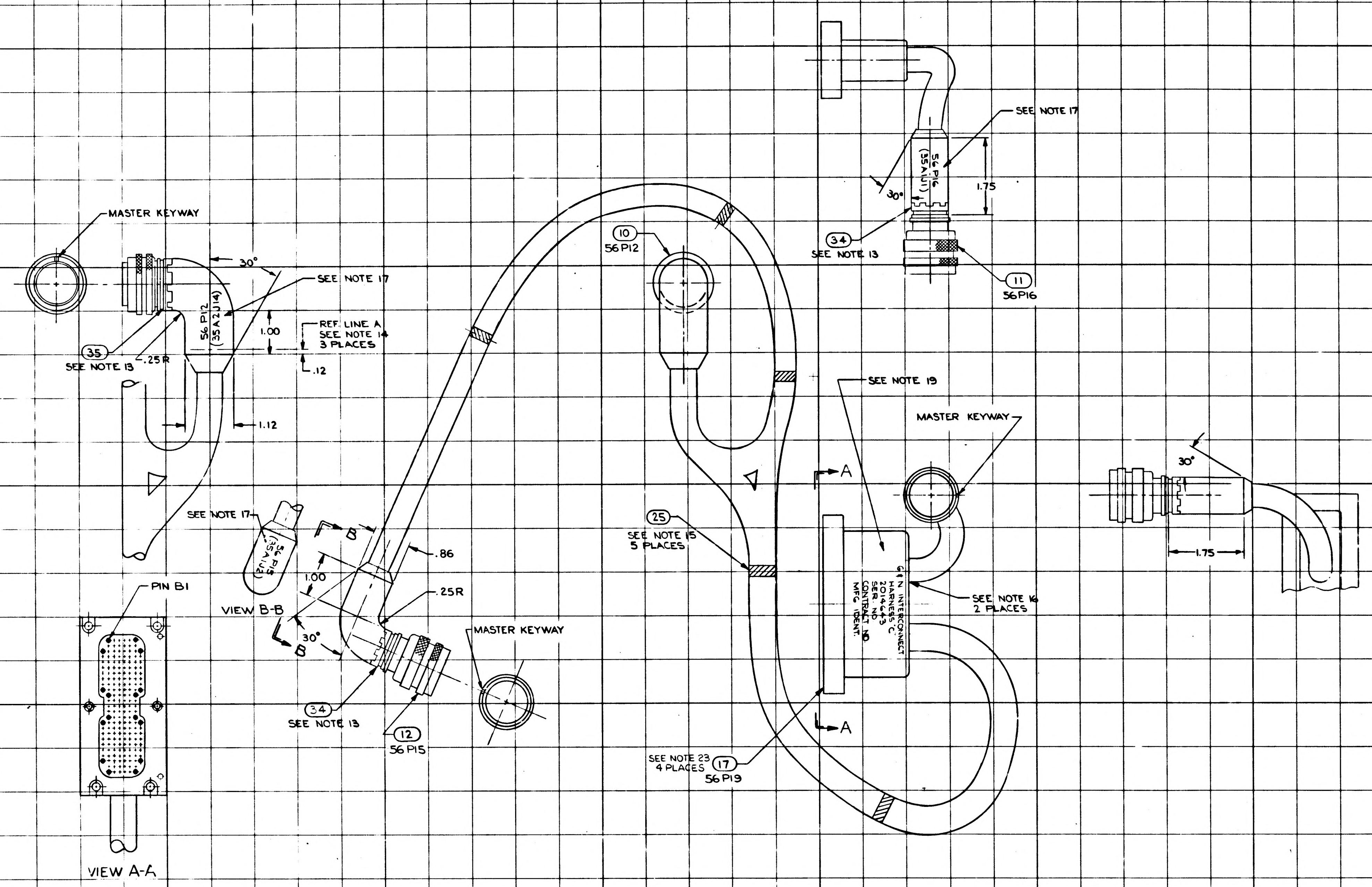
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 78B	9		P19-F7 SHLD C78					.18 .20	NO NO		15	
C 78L			NONE NONE				1.75 1.00		NO NO			
C 78R			P12-32 P19-F5					.13 .18	NO NO		13, 30 16	
C 78W			P12-55 P19-F6					.13 .18	NO NO		13, 30 16	
C 79	7				1.75 1.00	1.50 .75				68 68	36 36	
C 79A	9		SHLD C79 P12-62					.20 .13	NO NO		13	
C 79B	9		P19-G7 SHLD C79					.18 .20	NO NO		15	
C 79L			NONE NONE				1.75 1.00		NO NO			
C 79R			P12-36 P19-G5					.13 .18	NO NO		13, 30 16	
C 79W			P12-20 P19-G6					.13 .18	NO NO		13, 30 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 29 OF 30

MIL 2084 9-65

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
30°
SEE NOTE 17
56 P12 (35A2J14)
1.00
REF. LINE A
SEE NOTE 14
3 PLACES
.12
35
SEE NOTE 13
.25R
1.12
SEE NOTE 17
56 P15 (35A1J2)
B
.86
1.00
.25R
VIEW B-B
30°
B
MASTER KEYWAY
34
SEE NOTE 13
12
56P15
PIN B1
VIEW A-A
10
56P12
SEE NOTE 17
56 P16 (35A1J1)
30°
1.75
34
SEE NOTE 13
11
56P16
SEE NOTE 19
MASTER KEYWAY
A
25
SEE NOTE 15
5 PLACES
G&N INTERCONNECT
HARNESS "C"
2014643
SER. NO.
CONTRACT NO.
MFG. IDENT.
SEE NOTE 16
2 PLACES
A
SEE NOTE 23
4 PLACES
17
56P19
30°
1.75

2014643
REV LTR J

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

2014567-011	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.03 ANGLES ±5°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN P.A. Leone 11/16/65
CHECKED N. Abraham 12-17-65
APPROVED Paul Watson
APPROVED
APPROVED MIT 2/14/65
APPROVED MSC
DATE

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

CODE IDENT NO. 80230
SIZE F
DRAWING NO. 2014643
SCALE 1:1
SHEET 30 OF 30

MX-109891

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-011	E	REPLACES REV D WITH CHANGE PER TDRR	24-NOV-65	B. EF
		F	ADDED CONFIGURATION AND CHANGES PER TDRR 24808		
	Ⓓ	G	Revised per TDRR 25306	2/4/66	
	Ⓜ	H	REVISED PER TDRR-26660	7-MAR-66	B. AU
	Ⓜ	J	REVISED PER TDRR 28058	19-APR-66	PHG
		K	REVISED PER TDRR 28231	2-MAY-66	B. JAC

REV	J	J	J	J	J	J	J	J	J	J	J
SHEET	20	21	22	23	24	25	26	27	28	29	30

REV STATUS OF SHEETS																				
	REV	K	J	J	J	J	J	J	J	J	J	K	K	K	J	J	J	J	J	J
	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. LITZON DATE 27 MAY 65
CHECKED FESLER 28 MAY 65
APPROVAL P.C. WATSON 8-21-65
APPROVAL

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

NASA APPROVAL A. C. METZGER
MIT APPROVAL

CODE IDENT NO.	SIZE		REV
80230	A	2014643	K

CONTRACT NAS9-497
SCALE NONE
SHEET 1 OF 30

NOTE GENERAL NOTES

NUMBER DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014673.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

NOTE GENERAL NOTES

NUMBER DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTOR 56P15 AND 16 USE ITEM NUMBERS 19 AND 14.
CONNECTOR 56P12 USE ITEM NUMBERS 18 AND 13.
CONNECTOR 56P19 USE ITEM NUMBER 15.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 32.

13 A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE, ITEM 25, TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED, TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

NOTE GENERAL NOTES

NUMBER DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED. INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.

22 PRESEAL BACK OF CONNECTOR P19 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 23,24,27, AND 28.

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 22 AND 29.

24 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 G RMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACE CRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICRO SECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

NOTE GENERAL NOTES

NUMBER DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014643-001	WIRE PER 1010789-006, 22AWG, YEL, 5 FT TOT LG
	2	1	2014643-002	WIRE PER 1010789-016, 26 AWG, YEL, 10 FT TOT LG
	3	1	2014643-003	WIRE PER 1010789-008, 22AWG, YEL, RED, 30 FT TOT LG
	4	1	2014643-004	WIRE PER 1010789-017, 26 AWG, YEL, RED, 25 FT TOT LG
	5	1	2014643-005	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN 5 FT TOT LG
	6	1	2014643-006	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 5 FT TOT LG
	7	1	2014643-007	WIRE PER 1010707-1, RED JKT, 29 AWG, RED, WHT, BLUE, 26 FT TOT LG
	8	1	2014643-008	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 40 FT TOT LG
	9	1	2014643-009	WIRE PER 1010789-002, 24 AWG, BLK, 35 FT TOT LG
9	10	1	1010929-001	CONNECTOR, PLUG, ELECTRICAL (P12)
9	11	1	1010965- 1	CONNECTOR, PLUG, ELECTRICAL (P16)
9	12	1	1010965- 2	CONNECTOR, PLUG, ELECTRICAL (P15)
9	13	X	1010770- 2	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010929
9	14	X	1010781- 1	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010965
9	15	98	1010955- 1	CONTACT, MALE

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 6 OF 30

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	16	84	1010955- 2	CONTACT, MALE
	17	1	2014743-011	CONNECTOR, PLUG, ELECTRICAL (P19)
9	18	13	1010958- 1	PLUG, PROTECTIVE SEALING
9	19	30	1010984	PLUG, PROTECTIVE SEALING
9	20	33	1010402- 2	SLEEVE SOLDER
9	21	15	1012534- 36	INSULATION SLEEVE (HEAT SHRINKABLE)
	22	AR	1012503	COMPOUND, POTTING, POLYURETHANE
	23	AR	1010679	ADHESIVE ACTIVATOR
	24	AR	1010661	EPOXY RESIN
	25	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
	26	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	27	AR	1006277	SILICA, PULVERIZED, PYROGENIC
	28	AR	1008822	COLORANT, EPOXY BASE
	29	AR	1012504	PRIMER, METAL PARTS
9	30	29	1010862	BUSHING, SLEEVE
9	32	AR	1012507- 4	TAPE, LACING
	33	6	1012534- 37	SLEEVE, INSULATION (HEAT SHRINKABLE)
	34	2	2014670- 6	ADAPTER, CONNECTOR

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 7 OF 30

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	35	1	2014670- 4	ADAPTER, CONNECTOR
	36	12	1010763- 2	SLEEVE, SOLDER

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 8 OF 30

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	1	7				1.75 1.75	1.50 1.50				68 7	36 21	A
C	1A	9		SHLD C1 P12-38					.20 .13	NO NO		13	
C	1L			P12-63 P15-3					.13 .13	NO NO		13, 30 14, 30	
C	1R			P12-39 P15-1					.13 .13	NO NO		13, 30 14, 30	
C	1W			P12-64 P15-2					.13 .13	NO NO		13, 30 14, 30	
C	2	7				1.75 1.75	1.50 1.50				68 7	36 21	
C	2A	9		SHLD C2 P12-59					.20 .13	NO NO		13	
C	2L			P12-84 P15-14					.13 .13	NO NO		13, 30 14, 30	
C	2R			P12-60 P15-12					.13 .13	NO NO		13, 30 14, 30	
C	2W			P12-85 P15-13					.13 .13	NO NO		13, 30 14, 30	
C	3	7				1.75 1.75	1.50 1.50				68 7	36 21	
C	3A	9		SHLD C3 P12-80					.20 .13	NO NO		13	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 9 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	3L		P12-81					.13	NO		13, 30	
			P15-61					.13	NO		14, 30	
C	3R		P12-56					.13	NO		13, 30	
			P15-59					.13	NO		14, 30	
C	3W		P12-57					.13	NO		13, 30	
			P15-60					.13	NO		14, 30	
C	4	8			1.75	1.50				6B	20	
					1.75	1.50				7	21	
C	4A	9	SHLD C4					.20	NO			
			P12-33					.13	NO		13	
C	4R		P12-16					.13	NO		13	
			P15-6					.13	NO		14	
C	4Y		P12-17					.13	NO		13	
			P15-7					.13	NO		14	
C	5	8			1.75	1.50				6B	20	
					1.75	1.50				7	21	
C	5A	9	SHLD C5					.20	NO			
			P12-27					.13	NO		13	
C	5R		P12-26					.13	NO		13	
			P15-17					.13	NO		14	
C	5Y		P12-12					.13	NO		13	
			P15-18					.13	NO		14	
C	6	8			1.75	1.50				6B	20	
					1.75	1.50				7	21	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 10 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	6A	9	SHLD C6					.20	NO			
			P12-47					.13	NO		13	
C	6R		P12-72					.13	NO		13	
			P15-35					.13	NO		14	
C	6Y		P12-71					.13	NO		13	
			P15-36					.13	NO		14	
C	7	8			1.75	1.50				6B	20	
					1.00	.75				6B	20	
C	7A	9	SHLD C7					.20	NO			
			P12-48					.13	NO		13	
C	7B	9	P19-C5					.18	NO		15	
			SHLD C7					.20	NO			
C	7R		P12-~~28~~ 49					.13	NO		13	
			P19-B5					.18	NO			
C	7Y		P12-~~44~~ 28					.13	NO		13	
			P19-A5					.18	NO			
C	8	8			1.75	1.50				6B	20	
					1.00	.75				6B	20	
C	8A	9	SHLD C8					.20	NO			
			P12-53					.13	NO		13	
C	8B	9	P19-C4					.18	NO		15	
			SHLD C8					.20	NO			
C	8R		P12-~~78~~ 54					.13	NO		13	
			P19-A4					.18	NO			

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR K	SHEET 11 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	8Y		P12-~~54~~ 78					.13	NO		13	
			P19-B4					.18	NO			
C	9	8			1.75	1.50				6B	20	
					1.00	.75				6B	20	
C	9A	9	SHLD C9					.20	NO			
			P12-29					.13	NO		13	
C	9B	9	P19-C7					.18	NO		15	
			SHLD C9					.20	NO			
C	9R		P12-~~14~~ 13					.13	NO		13	
			P19-B7					.18	NO			
C	9Y		P12-~~15~~ 14					.13	NO		13	
			P19-A7					.18	NO			
C	10	8			1.75	1.50				6B	20	
					1.00	.75				6B	20	
C	10A	9	SHLD C10					.20	NO			
			P12-50					.13	NO		13	
C	10B	9	P19-C6					.18	NO		15	
			SHLD C10					.20	NO			
C	10R		P12-~~74~~ 75					.13	NO		13	
			P19-A6					.18	NO			
C	10Y		P12-~~75~~ 74					.13	NO		13	
			P19-B6					.18	NO			
C	11	8			1.75	1.50				6B	20	
					1.00	.75				6B	20	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR K	SHEET 12 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	11A	9	SHLD C11					.20	NO			
			P12-30					.13	NO		13	
C	11B	9	P19-C3					.18	NO		15	
			SHLD C11					.20	NO			
C	11R		P12-~~31~~ 15					.13	NO		13	
			P19-B3					.18	NO			
C	11Y		P12-~~15~~ 31					.13	NO		13	
			P19-A3					.18	NO			
C	12	8			1.75	1.50				6B	20	
					1.00	.75				6B	20	
C	12A	9	SHLD C12					.20	NO			
			P12-52					.13	NO		13	
C	12B	9	P19-C2					.18	NO		15	
			SHLD C12					.20	NO			
C	12R		P12-~~76~~ 51					.13	NO		13	
			P19-B1					.18	NO			
C	12Y		P12-~~51~~ 76					.13	NO		13	
			P19-B2					.18	NO			
C	13	8			1.75	1.50				6B	20	
					1.00	.75				6B	20	
C	13A	9	SHLD C13					.20	NO			
			P12-42					.13	NO		13	
C	13B	9	P19-C8					.18	NO		15	
			SHLD C13					.20	NO			

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR K	SHEET 13 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 13R			P12-67 P19-A8					.13 .18	NO NO		13	
C 13Y			P12-43 P19-B8					.13 .18	NO NO		13	
C 14	8				1.75 1.00	1.50 .75				68 68	20 20	
C 14A	9		SHLD C14 P12-45					.20 .13	NO NO		 13	
C 14B	9		P19-C9 SHLD C14					.18 .20	NO NO		15	
C 14R			P12-70 P19-B9					.13 .18	NO NO		13	
C 14Y			P12-46 P19-A9					.13 .18	NO NO		13	
C 15	8				1.75 1.00	1.50 .75				68 68	20 20	
C 15A	9		SHLD C15 P12-44					.20 .13	NO NO		 13	
C 15B	9		P19-C10 SHLD C15					.18 .20	NO NO		15	
C 15R			P12-69 P19-A10					.13 .18	NO NO		13	
C 15Y			P12-68 P19-B10					.13 .18	NO NO		13	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 14 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 16	4											
C 16R			P12-9 P19-K4					.13 .18	NO NO		13 16	
C 16Y			P12-22 P19-H4					.13 .18	NO NO		13 16	
C 17	4											
C 17R			P12-24 P19-G3					.13 .18	NO NO		13 16	
C 17Y			P12-23 P19-G4					.13 .18	NO NO		13 16	
C 18	4											
C 18R			P12-11 P19-F3					.13 .18	NO NO		13 16	
C 18Y			P12-10 P19-F4					.13 .18	NO NO		13 16	
C 19	4											
C 19R			P12-66 P19-K3					.13 .18	NO NO		13 16	
C 19Y			P12-41 P19-H3					.13 .18	NO NO		13 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 15 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 20	5											
C 20G			P12-19 P19-F22					.13 .18	NO NO		13 15	
C 20R			P12-8 P19-H22					.13 .18	NO NO		13 15	
C 20Y			P12-7 P19-G22					.13 .18	NO NO		13 15	
C 21	3											
C 21R			P12-18 P19-G19					.13 .18	NO NO		13 15	
C 21Y			P12-6 P19-F19					.13 .18	NO NO		13 15	
C 22	3											
C 22R			P12-4 P19-G18					.13 .18	NO NO		13 15	
C 22Y			P12-5 P19-F18					.13 .18	NO NO		13 15	
C 23	3											
C 23R			P12-3 P19-G17					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 16 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 23Y			P12-2 P19-F17					.13 .18	NO NO		13 15	
C 24	4											
C 24R			P12-82 P19-G13					.13 .18	NO NO		13 16	
C 24Y			P12-58 P19-H13					.13 .18	NO NO		13 16	
C 25	4											
C 25R			P12-35 P19-H14					.13 .18	NO NO		13 16	
C 25Y			P12-34 P19-G14					.13 .18	NO NO		13 16	
C 26	4											
C 26R			P12-61 P19-G15					.13 .18	NO NO		13 16	
C 26Y			P12-37 P19-H15					.13 .18	NO NO		13 16	
C 27	1		P12-1 P19-D11					.13 .18	NO NO		13 16	
C 28	7				1.75 1.00	1.50 .75				7 68	21 36	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 17 OF 30

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 28B	9		P19-D25 SHLD C28					.18 .20	NO NO		15	
C 28L			NONE NONE				1.75 1.00		NO NO			
C 28R			P15-5 P19-D23					.13 .18	NO NO		14, 30 16	
C 28W			P15-4 P19-D24					.13 .18	NO NO		14, 30 16	
C 29	7				1.75 1.00	1.50 .75				7 68	21 36	
C 29B	9		P19-C23 SHLD C29					.18 .20	NO NO		15	
C 29L			NONE NONE				1.75 1.00		NO NO			
C 29R			P15-16 P19-B23					.13 .18	NO NO		14, 30	
C 29W			P15-15 P19-A23					.13 .18	NO NO		14, 30	
C 30	7				1.75 1.00	1.50 .75				7 68	21 36	
C 30B	9		P19-C24 SHLD C30					.18 .20	NO NO		15	
C 30L			P15-34 P19-B24					.13 .18	NO NO		14, 30	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 18 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 30R			P15-33 P19-C25					.13 .18	NO NO		14, 30 16	
C 30W			P15-32 P19-B25					.13 .18	NO NO		14, 30	
C 34	3											
C 34R			P15-40 P19-K20					.13 .18	NO NO		14 15	
C 34Y			P15-39 P19-H20					.13 .18	NO NO		14 15	
C 35	3											
C 35R			P15-42 P19-H21					.13 .18	NO NO		14 15	
C 35Y			P15-41 P19-K21					.13 .18	NO NO		14 15	
C 36	3											
C 36R			P15-52 P19-K22					.13 .18	NO NO		14 15	
C 36Y			P15-51 P19-K23					.13 .18	NO NO		14 15	
C 37	5											

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 19 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 37G			P16-24 P19-K16					.13 .18	NO NO		14 15	
C 37R			P16-25 P19-H17					.13 .18	NO NO		14 15	
C 37Y			P16-23 P19-H18					.13 .18	NO NO		14 15	
C 38	3											
C 38R			P16-21 P19-H16					.13 .18	NO NO		14 15	
C 38Y			P16-22 P19-H19					.13 .18	NO NO		14 15	
C 39	3											
C 39R			P15-8 P19-G10					.13 .18	NO NO		14 15	
C 39Y			P15-9 P19-G9					.13 .18	NO NO		14 15	
C 40	4											
C 40R			P15-10 P19-K9					.13 .18	NO NO		14 16	
C 40Y			P15-11 P19-H9					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 20 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 41	3											
C 41R			P16-6 P19-H2					.13 .18	NO NO		14 15	
C 41Y			P16-8 P19-G2					.13 .18	NO NO		14 15	
C 42	3											
C 42R			P16-7 P19-H1					.13 .18	NO NO		14 15	
C 42Y			P16-9 P19-G1					.13 .18	NO NO		14 15	
C 43	4											
C 43R			P16-14 P19-H6					.13 .18	NO NO		14 16	
C 43Y			P16-15 P19-K6					.13 .18	NO NO		14 16	
C 44	2		P16-16 P19-K8					.13 .18	NO NO		14 16	
C 45	4											
C 45R			P16-17 P19-K7					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 21 OF 30

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 45Y			P16-18 P19-H7					.13 .18	NO NO		14 16	
C 46	5											
C 46G			P16-12 P19-K17					.13 .18	NO NO		14 15	
C 46R			P16-10 P19-K19					.13 .18	NO NO		14 15	
C 46Y			P16-11 P19-K18					.13 .18	NO NO		14 15	
C 47	3											
C 47R			P16-2 P19-G11					.13 .18	NO NO		14 15	
C 47Y			P16-4 P19-G12					.13 .18	NO NO		14 15	
C 48	3											
C 48R			P16-3 P19-H11					.13 .18	NO NO		14 15	
C 48Y			P16-5 P19-H12					.13 .18	NO NO		14 15	
C 49	3											

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 22 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 49R			P15-38 P19-F16					.13 .18	NO NO		14 15	
C 49Y			P15-37 P19-G16					.13 .18	NO NO		14 15	
C 50	2		P16-13 P19-D1					.13 .18	NO NO		14 16	
C 51	2		P15-25 P19-H5					.13 .18	NO NO		14 16	
C 52	2		P16-20 P19-K5					.13 .18	NO NO		14 16	
C 53	2		P16-19 P19-F1					.13 .18	NO NO		14 16	
C 54	3											
C 54R			P16-27 P19-H10					.13 .18	NO NO		14 15	
C 54Y			P16-28 P19-K10					.13 .18	NO NO		14 15	
C 55	8				1.75 1.00	1.50 .75				7 68	21 20	
C 55B	9		P19-C20 SHLD C55					.18 .20	NO NO		15	
C 55R			P16-33 P19-A20					.13 .18	NO NO		14	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 23 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 55Y			P16-34 P19-B20					.13 .18	NO NO		14	
C 56	8				1.75 1.00	1.50 .75				7 68	21 20	
C 56B	9		P19-C19 SHLD C56					.18 .20	NO NO		15	
C 56R			P16-35 P19-B19					.13 .18	NO NO		14	
C 56Y			P16-36 P19-A19					.13 .18	NO NO		14	
C 57	8				1.75 1.00	1.50 .75				7 68	21 20	
C 57B	9		P19-C22 SHLD C57					.18 .20	NO NO		15	
C 57R			P16-37 P19-A22					.13 .18	NO NO		14	
C 57Y			P16-38 P19-B22					.13 .18	NO NO		14	
C 58	8				1.75 1.00	1.50 .75				7 68	21 20	
C 58B	9		P19-C21 SHLD C58					.18 .20	NO NO		15	
C 58R			P16-39 P19-B21					.13 .18	NO NO		14	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 24 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 58Y			P16-40 P19-A21					.13 .18	NO NO		14	
C 59	8				1.75 1.00	1.50 .75				7 68	21 20	
C 59B	9		P19-C18 SHLD C59					.18 .20	NO NO		15	
C 59R			P16-41 P19-A18					.13 .18	NO NO		14	
C 59Y			P16-42 P19-B18					.13 .18	NO NO		14	
C 60	8				1.75 1.00	1.50 .75				7 68	21 20	
C 60B	9		P19-C17 SHLD C60					.18 .20	NO NO		15	
C 60R			P16-43 P19-B17					.13 .18	NO NO		14	
C 60Y			P16-44 P19-A17					.13 .18	NO NO		14	
C 61	8				1.75 1.00	1.50 .75				7 68	21 20	
C 61B	9		P19-D22 SHLD C61					.18 .20	NO NO		15	
C 61R			P16-45 P19-D20					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 25 OF 30

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 61Y			P16-46 P19-D21					.13 .18	NO NO		14 16	
C 62	8				1.75 1.00	1.50 .75				7 68	21 20	
C 62B	9		P19-D16 SHLD C62					.18 .20	NO NO		15	
C 62R			P16-47 P19-D17					.13 .18	NO NO		14 16	
C 62Y			P16-48 P19-D18					.13 .18	NO NO		14 16	
C 63	8				1.75 1.00	1.50 .75				7 68	21 20	
C 63B	9		P19-C16 SHLD C63					.18 .20	NO NO		15	
C 63R			P16-51 P19-A16					.13 .18	NO NO		14	
C 63Y			P16-52 P19-B16					.13 .18	NO NO		14	
C 64	8				1.75 1.00	1.50 .75				7 68	21 20	
C 64B	9		P19-D15 SHLD C64					.18 .20	NO NO		15	
C 64R			P16-53 P19-C15					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 26 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 64Y			P16-54 P19-B15					.13 .18	NO NO		14	
C 65	8				1.75 1.00	1.50 .75				7 68	21 20	
C 65B	9		P19-D14 SHLD C65					.18 .20	NO NO		15	
C 65R			P16-55 P19-B14					.13 .18	NO NO		14	
C 65Y			P16-56 P19-C14					.13 .18	NO NO		14 16	
C 66	8				1.75 1.00	1.50 .75				7 68	21 20	
C 66B	9		P19-D13 SHLD C66					.18 .20	NO NO		15	
C 66R			P16-57 P19-C13					.13 .18	NO NO		14 16	
C 66Y			P16-58 P19-B13					.13 .18	NO NO		14	
C 67	1		P16-1 P19-D12					.13 .18	NO NO		14 16	
C 74	6											
C 74G			P15-22 P19-G25					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 27 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 74N			P15-21 P19-G24					.13 .18	NO NO		14 16	
C 74R			P15-19 P19-F25					.13 .18	NO NO		14 16	
C 74Y			P15-20 P19-F24					.13 .18	NO NO		14 16	
C 76	2		P16-59 P19-F15					.13 .18	NO NO		14 16	
C 77	7				1.75 1.00	1.50 .75				68 68	36 36	
C 77A	9		SHLD C77 P12-65					.20 .13	NO NO		 13	
C 77B	9		P19-D7 SHLD C77					.18 .20	NO NO		15	
C 77L			NONE NONE				1.75 1.00		NO NO			
C 77R			P12-40 P19-D5					.13 .18	NO NO		13, 30 16	
C 77W			P12-21 P19-D6					.13 .18	NO NO		13, 30 16	
C 78	7				1.75 1.00	1.50 .75				68 68	36 36	
C 78A	9		SHLD C78 P12-79					.20 .13	NO NO		 13	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 28 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

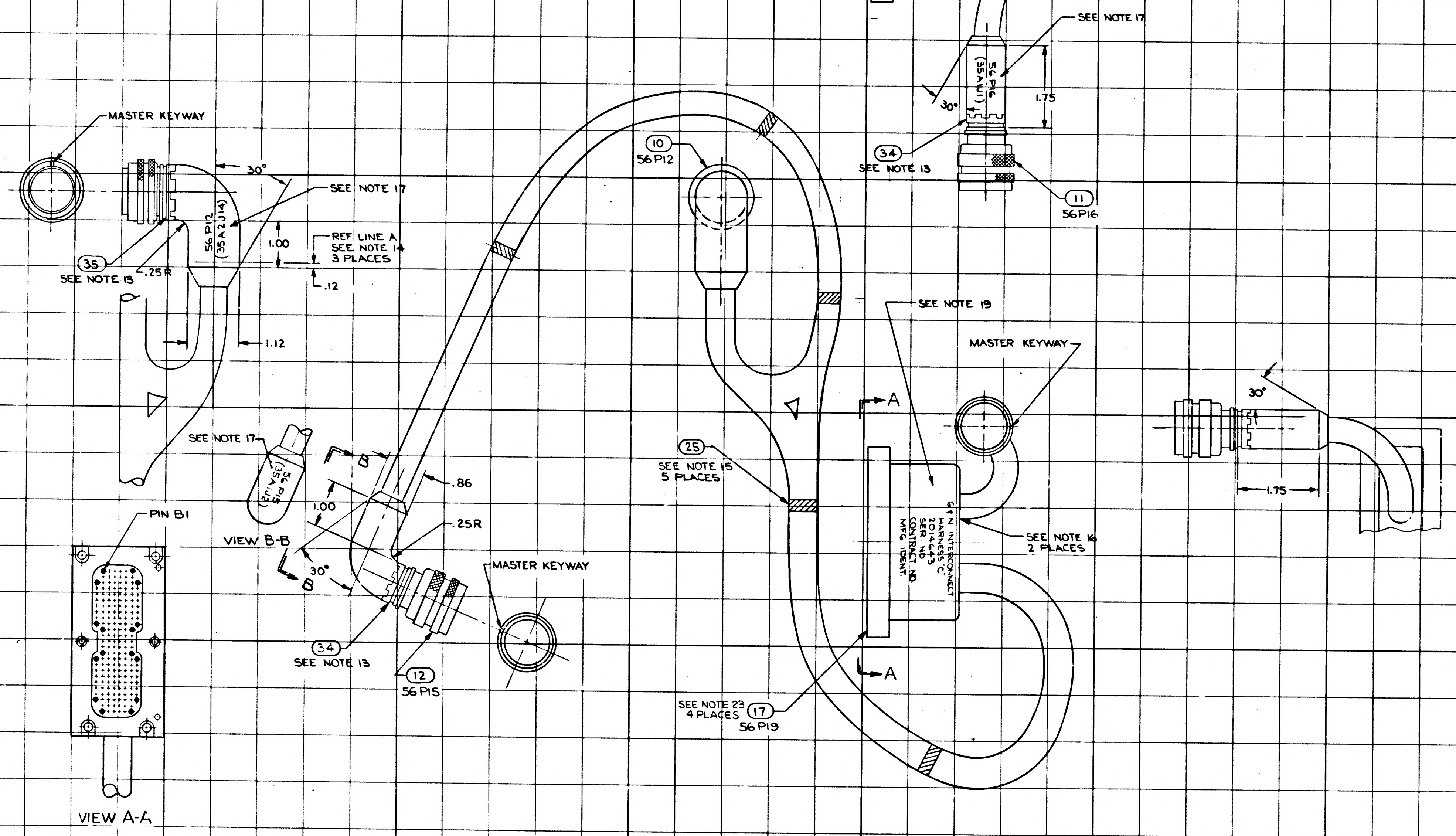
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 78B	9		P19-F7 SHLD C78					.18 .20	NO NO		15	
C 78L			NONE NONE				1.75 1.00		NO NO			
C 78R			P12-32 P19-F5					.13 .18	NO NO		13, 30 16	
C 78W			P12-55 P19-F6					.13 .18	NO NO		13, 30 16	
C 79	7				1.75 1.00	1.50 .75				68 68	36 36	
C 79A	9		SHLD C79 P12-62					.20 .13	NO NO		 13	
C 79B	9		P19-G7 SHLD C79					.18 .20	NO NO		15	
C 79L			NONE NONE				1.75 1.00		NO NO			
C 79R			P12-36 P19-G5					.13 .18	NO NO		13, 30 16	
C 79W			P12-20 P19-G6					.13 .18	NO NO		13, 30 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 29 OF 30

MIL 2084 9-65

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
30°
SEE NOTE 17
56 P12 (35A2J14)
35
SEE NOTE 13
.25R
1.00
REF LINE A
SEE NOTE 14
3 PLACES
.12
1.12
SEE NOTE 17
56 P15 (35A1J2)
B
B
.86
1.00
.25R
VIEW B-B
30°
34
SEE NOTE 13
12
56P15
MASTER KEYWAY
PIN B1
VIEW A-A
10
56P12
SEE NOTE 19
25
SEE NOTE 15
5 PLACES
A
A
G&N INTERCONNECT
HARNESS "C"
2014643
SER. NO
CONTRACT NO
MFG IDENT.
SEE NOTE 16
2 PLACES
MASTER KEYWAY
SEE NOTE 23
4 PLACES
17
56P19
SEE NOTE 17
56 P16 (35A1J1)
30°
1.75
34
SEE NOTE 13
11
56P16
30°
1.75

2014643

REV LTR J

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± .03 ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY	USED ON
2014567-011	

APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN	P.A. Leone	11/16/65
CHECKED	N. Abraham	12-17-65
APPROVED	Paul Watson	DEC 20 65
APPROVED		
APPROVED MIT		2/1/65
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

CODE IDENT NO	SIZE	DRAWING NO.
80230	E	2014643
SCALE 1:1		SHEET 30 OF 30

MX-09891

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-011	E	REPLACES REV D WITH CHANGE PER TDRR	24-NOV-65	B. EF
		F	ADDED CONFIGURATION AND CHANGES PER TDRR 24808		
	Ⓜ	G	Revised per TDRR 25306	2/4/66	
	Ⓜ	H	REVISED PER TDRR-26660	7-MAR-66	B. AU
	Ⓜ	J	REVISED PER TDRR 28058	19-APR-66	PHG
	Ⓜ	K	REVISED PER TDRR 28231	2-MAY-66	B. JAC
		L	REVISED PER TDRR 28408	10-MAY-66	B.

RE.	J	J	J	J	J	J	J	J	J	J	L												
SHEET	20	21	22	23	24	25	26	27	28	29	30												
REV STATUS OF SHEETS REV					L	J	J	J	J	J	J	J	J	J	K	K	K	J	J	J	J	J	J
SHEET					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. LITZOW DATE 27 MAY 65
CHECKED FESLER 28 MAY 65
APPROVAL P.C. WATSON 8-20-65
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
CONTRACT NAS 9-497

G&N INTERCONNECT HARNESS "C" (C/M, BLOCK II)

CODE IDENT NO.	SIZE		REV
80230	A	2014643	L

SCALE NONE

SHEET 1 OF 30

NOTE GENERAL NOTES

NUMBER DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014673.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
  A - FROM END OF SHIELD
  B - TO END OF SHIELD
  G - GREEN
  K - BLACK
  L - BLUE
  N - BROWN
  R - RED
  W - WHITE
  Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE A	CODE IDENT NO. 80230	2014643	
SCALE NONE	REV LTR	J	SHEET 2 OF 30

NOTE GENERAL NOTES

NUMBER DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
  CONNECTOR 56P15 AND 16 USE ITEM NUMBERS 19 AND 14.
  CONNECTOR 56P12 USE ITEM NUMBERS 16 AND 13.
  CONNECTOR 56P19 USE ITEM NUMBER 15.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 32.

13 A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE, ITEM 25, TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED, TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, HOT IMPRESSION STAMPING PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

SIZE A	CODE IDENT NO. 80230	2014643	
SCALE NONE	REV LTR	J	SHEET 3 OF 30

NOTE GENERAL NOTES

NUMBER DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
  A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
  B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED. INCLUDING ALL SPARE PINS.
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.

22 PRESEAL BACK OF CONNECTOR P19 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 23,24,27, AND 28.

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 22 AND 29.

24 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 G RMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACE CRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICRO SECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

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NOTE GENERAL NOTES

NUMBER DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

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LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014643-001	WIRE PER 1010789-006, 22AWG, YEL, 5 FT TOT LG
	2	1	2014643-002	WIRE PER 1010789-016, 26 AWG, YEL, 10 FT TOT LG
	3	1	2014643-003	WIRE PER 1010789-008, 22AWG, YEL, RED, 30 FT TOT LG
	4	1	2014643-004	WIRE PER 1010789-017, 26 AWG, YEL, RED, 25 FT TOT LG
	5	1	2014643-005	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN 5 FT TOT LG
	6	1	2014643-006	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 5 FT TOT LG
	7	1	2014643-007	WIRE PER 1010707-1, RED JKT, 29 AWG, RED, WHT, BLUE, 26 FT TOT LG
	8	1	2014643-008	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 40 FT TOT LG
	9	1	2014643-009	WIRE PER 1010789-002, 24 AWG, BLK, 35 FT TOT LG
9	10	1	1010929-001	CONNECTOR, PLUG, ELECTRICAL (P12)
9	11	1	1010965- 1	CONNECTOR, PLUG, ELECTRICAL (P16)
9	12	1	1010965- 2	CONNECTOR, PLUG, ELECTRICAL (P15)
9	13	X	1010770- 2	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010929
9	14	X	1010781- 1	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010965
9	15	98	1010955- 1	CONTACT, MALE

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	16	84	1010955- 2	CONTACT, MALE
	17	1	2014743-011	CONNECTOR, PLUG, ELECTRICAL (P19)
9	18	13	1010958- 1	PLUG, PROTECTIVE SEALING
9	19	30	1010984	PLUG, PROTECTIVE SEALING
9	20	33	1010402- 2	SLEEVE SOLDER
9	21	15	1012534- 36	INSULATION SLEEVE (HEAT SHRINKABLE)
	22	AR	1012503	COMPOUND, POTTING, POLYURETHANE
	23	AR	1010679	ADHESIVE ACTIVATOR
	24	AR	1010661	EPOXY RESIN
	25	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
	26	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	27	AR	1006277	SILICA, PULVERIZED, PYROGENIC
	28	AR	1008822	COLORANT, EPOXY BASE
	29	AR	1012504	PRIMER, METAL PARTS
9	30	29	1010862	BUSHING, SLEEVE
9	32	AR	1012507- 4	TAPE, LACING
	33	6	1012534- 37	SLEEVE, INSULATION (HEAT SHRINKABLE)
	34	2	2014670- 6	ADAPTER, CONNECTOR

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	35	1	2014670- 4	ADAPTER, CONNECTOR
	36	12	1010763- 2	SLEEVE, SOLDER

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	1	7			1.75 1.75	1.50 1.50				68 7	36 21	A
C	1A	9	SHLD C1 P12-38					.20 .13	NO NO		 13	
C	1L		P12-63 P15-3					.13 .13	NO NO		13, 30 14, 30	
C	1R		P12-39 P15-1					.13 .13	NO NO		13, 30 14, 30	
C	1W		P12-64 P15-2					.13 .13	NO NO		13, 30 14, 30	
C	2	7			1.75 1.75	1.50 1.50				68 7	36 21	
C	2A	9	SHLD C2 P12-59					.20 .13	NO NO		 13	
C	2L		P12-84 P15-14					.13 .13	NO NO		13, 30 14, 30	
C	2R		P12-60 P15-12					.13 .13	NO NO		13, 30 14, 30	
C	2W		P12-85 P15-13					.13 .13	NO NO		13, 30 14, 30	
C	3	7			1.75 1.75	1.50 1.50				68 7	36 21	
C	3A	9	SHLD C3 P12-80					.20 .13	NO NO		 13	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 3L			P12-81					.13	NO		13, 30	
			P15-61					.13	NO		14, 30	
C 3R			P12-56					.13	NO		13, 30	
			P15-59					.13	NO		14, 30	
C 3W			P12-57					.13	NO		13, 30	
			P15-60					.13	NO		14, 30	
C 4	8				1.75	1.50				6B	20	
					1.75	1.50				7	21	
C 4A	9		SHLD C4					.20	NO			
			P12-33					.13	NO		13	
C 4R			P12-16					.13	NO		13	
			P15-6					.13	NO		14	
C 4Y			P12-17					.13	NO		13	
			P15-7					.13	NO		14	
C 5	8				1.75	1.50				6B	20	
					1.75	1.50				7	21	
C 5A	9		SHLD C5					.20	NO			
			P12-27					.13	NO		13	
C 5R			P12-26					.13	NO		13	
			P15-17					.13	NO		14	
C 5Y			P12-12					.13	NO		13	
			P15-18					.13	NO		14	
C 6	8				1.75	1.50				6B	20	
					1.75	1.50				7	21	

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 6A	9		SHLD C6					.20	NO			
			P12-47					.13	NO		13	
C 6R			P12-72					.13	NO		13	
			P15-35					.13	NO		14	
C 6Y			P12-71					.13	NO		13	
			P15-36					.13	NO		14	
C 7	8				1.75	1.50				6B	20	
					1.00	.75				6B	20	
C 7A	9		SHLD C7					.20	NO			
			P12-48					.13	NO		13	
C 7B	9		P19-C5					.18	NO		15	
			SHLD C7					.20	NO			
C 7R			P12-~~28~~ 49					.13	NO		13	
			P19-B5					.18	NO			
C 7Y			P12-~~44~~ 28					.13	NO		13	
			P19-A5					.18	NO			
C 8	8				1.75	1.50				6B	20	
					1.00	.75				6B	20	
C 8A	9		SHLD C8					.20	NO			
			P12-53					.13	NO		13	
C 8B	9		P19-C4					.18	NO		15	
			SHLD C8					.20	NO			
C 8R			P12-~~78~~ 54					.13	NO		13	
			P19-A4					.18	NO			

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SCALE-NONE | REV LTR ~~J~~ K | SHEET 11 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 8Y			P12-~~54~~ 78					.13	NO		13	
			P19-B4					.18	NO			
C 9	8				1.75	1.50				6B	20	
					1.00	.75				6B	20	
C 9A	9		SHLD C9					.20	NO			
			P12-29					.13	NO		13	
C 9B	9		P19-C7					.18	NO		15	
			SHLD C9					.20	NO			
C 9R			P12-~~14~~ 13					.13	NO		13	
			P19-B7					.18	NO			
C 9Y			P12-~~15~~ 14					.13	NO		13	
			P19-A7					.18	NO			
C 10	8				1.75	1.50				6B	20	
					1.00	.75				6B	20	
C 10A	9		SHLD C10					.20	NO			
			P12-50					.13	NO		13	
C 10B	9		P19-C6					.18	NO		15	
			SHLD C10					.20	NO			
C 10R			P12-~~74~~ 75					.13	NO		13	
			P19-A6					.18	NO			
C 10Y			P12-~~75~~ 74					.13	NO		13	
			P19-B6					.18	NO			
C 11	8				1.75	1.50				6B	20	
					1.00	.75				6B	20	

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 11A	9		SHLD C11					.20	NO			
			P12-30					.13	NO		13	
C 11B	9		P19-C3					.18	NO		15	
			SHLD C11					.20	NO			
C 11R			P12-~~31~~ 15					.13	NO		13	
			P19-B3					.18	NO			
C 11Y			P12-~~15~~ 31					.13	NO		13	
			P19-A3					.18	NO			
C 12	8				1.75	1.50				6B	20	
					1.00	.75				6B	20	
C 12A	9		SHLD C12					.20	NO			
			P12-52					.13	NO		13	
C 12B	9		P19-C2					.18	NO		15	
			SHLD C12					.20	NO			
C 12R			P12-~~76~~ 51					.13	NO		13	
			P19-B1					.18	NO			
C 12Y			P12-~~51~~ 76					.13	NO		13	
			P19-B2					.18	NO			
C 13	8				1.75	1.50				6B	20	
					1.00	.75				6B	20	
C 13A	9		SHLD C13					.20	NO			
			P12-42					.13	NO		13	
C 13B	9		P19-C8					.18	NO		15	
			SHLD C13					.20	NO			

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LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	13R			P12-57 P19-A8					.13 .18	NO NO		13	
C	13Y			P12-43 P19-B8					.13 .18	NO NO		13	
C	14	8				1.75 1.00	1.50 .75				68 68	20 20	
C	14A	9		SHLD C14 P12-45					.20 .13	NO NO		 13	
C	14B	9		P19-C9 SHLD C14					.18 .20	NO NO		15	
C	14R			P12-70 P19-89					.13 .18	NO NO		13	
C	14Y			P12-46 P19-A9					.13 .18	NO NO		13	
C	15	8				1.75 1.00	1.50 .75				68 68	20 20	
C	15A	9		SHLD C15 P12-44					.20 .13	NO NO		 13	
C	15B	9		P19-C10 SHLD C15					.18 .20	NO NO		15	
C	15R			P12-69 P19-A10					.13 .18	NO NO		13	
C	15Y			P12-68 P19-B10					.13 .18	NO NO		13	

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	16	4											
C	16R			P12-9 P19-K4					.13 .18	NO NO		13 16	
C	16Y			P12-22 P19-H4					.13 .18	NO NO		13 16	
C	17	4											
C	17R			P12-24 P19-G3					.13 .18	NO NO		13 16	
C	17Y			P12-23 P19-G4					.13 .18	NO NO		13 16	
C	18	4											
C	18R			P12-11 P19-F3					.13 .18	NO NO		13 16	
C	18Y			P12-10 P19-F4					.13 .18	NO NO		13 16	
C	19	4											
C	19R			P12-66 P19-K3					.13 .18	NO NO		13 16	
C	19Y			P12-41 P19-H3					.13 .16	NO NO		13 16	

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	20	5											
C	20G			P12-19 P19-F22					.13 .18	NO NO		13 15	
C	20R			P12-8 P19-H22					.13 .18	NO NO		13 15	
C	20Y			P12-7 P19-G22					.13 .18	NO NO		13 15	
C	21	3											
C	21R			P12-18 P19-G19					.13 .18	NO NO		13 15	
C	21Y			P12-6 P19-F19					.13 .18	NO NO		13 15	
C	22	3											
C	22R			P12-4 P19-G18					.13 .18	NO NO		13 15	
C	22Y			P12-5 P19-F18					.13 .18	NO NO		13 15	
C	23	3											
C	23R			P12-3 P19-G17					.13 .18	NO NO		13 15	

LEAD IDENT		WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	23Y			P12-2 P19-F17					.13 .18	NO NO		13 15	
C	24	4											
C	24R			P12-82 P19-G13					.13 .18	NO NO		13 16	
C	24Y			P12-58 P19-H13					.13 .18	NO NO		13 16	
C	25	4											
C	25R			P12-35 P19-H14					.13 .18	NO NO		13 16	
C	25Y			P12-34 P19-G14					.13 .18	NO NO		13 16	
C	26	4											
C	26R			P12-61 P19-G15					.13 .18	NO NO		13 16	
C	26Y			P12-37 P19-H15					.13 .18	NO NO		13 16	
C	27	1		P12-1 P19-D11					.13 .18	NO NO		13 16	
C	28	7				1.75 1.00	1.50 .75				7 68	21 36	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 28B	9		P19-D25 SHLD C28					.18 .20	NO NO		15	
C 28L			NONE NONE				1.75 1.00		NO NO			
C 28R			P15-5 P19-D23					.13 .18	NO NO		14, 30 16	
C 28W			P15-4 P19-D24					.13 .18	NO NO		14, 30 16	
C 29	7				1.75 1.00	1.50 .75				7 68	21 36	
C 29B	9		P19-C23 SHLD C29					.18 .20	NO NO		15	
C 29L			NONE NONE				1.75 1.00		NO NO			
C 29R			P15-16 P19-B23					.13 .18	NO NO		14, 30	
C 29W			P15-15 P19-A23					.13 .18	NO NO		14, 30	
C 30	7				1.75 1.00	1.50 .75				7 68	21 36	
C 30B	9		P19-C24 SHLD C30					.18 .20	NO NO		15	
C 30L			P15-34 P19-B24					.13 .18	NO NO		14, 30	

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 30R			P15-33 P19-C25					.13 .18	NO NO		14, 30 16	
C 30W			P15-32 P19-B25					.13 .18	NO NO		14, 30	
C 34	3											
C 34R			P15-40 P19-K20					.13 .18	NO NO		14 15	
C 34Y			P15-39 P19-H20					.13 .18	NO NO		14 15	
C 35	3											
C 35R			P15-42 P19-H21					.13 .18	NO NO		14 15	
C 35Y			P15-41 P19-K21					.13 .18	NO NO		14 15	
C 36	3											
C 36R			P15-52 P19-K22					.13 .18	NO NO		14 15	
C 36Y			P15-51 P19-K23					.13 .18	NO NO		14 15	
C 37	5											

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REV LTR J
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 37G			P16-24 P19-K16					.13 .18	NO NO		14 15	
C 37R			P16-25 P19-H17					.13 .18	NO NO		14 15	
C 37Y			P16-23 P19-H18					.13 .18	NO NO		14 15	
C 38	3											
C 38R			P16-21 P19-H16					.13 .18	NO NO		14 15	
C 38Y			P16-22 P19-H19					.13 .18	NO NO		14 15	
C 39	3											
C 39R			P15-8 P19-G10					.13 .18	NO NO		14 15	
C 39Y			P15-9 P19-G9					.13 .18	NO NO		14 15	
C 40	4											
C 40R			P15-10 P19-K9					.13 .18	NO NO		14 16	
C 40Y			P15-11 P19-H9					.13 .18	NO NO		14 16	

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 41	3											
C 41R			P16-6 P19-H2					.13 .18	NO NO		14 15	
C 41Y			P16-8 P19-G2					.13 .18	NO NO		14 15	
C 42	3											
C 42R			P16-7 P19-H1					.13 .18	NO NO		14 15	
C 42Y			P16-9 P19-G1					.13 .18	NO NO		14 15	
C 43	4											
C 43R			P16-14 P19-H6					.13 .18	NO NO		14 16	
C 43Y			P16-15 P19-K6					.13 .18	NO NO		14 16	
C 44	2		P16-16 P19-K8					.13 .18	NO NO		14 16	
C 45	4											
C 45R			P16-17 P19-K7					.13 .18	NO NO		14 16	

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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 45Y			P16-18 P19-H7					.13 .18	NO NO		14 16	
C 46	5											
C 46G			P16-12 P19-K17					.13 .18	NO NO		14 15	
C 46R			P16-10 P19-K19					.13 .18	NO NO		14 15	
C 46Y			P16-11 P19-K16					.13 .18	NO NO		14 15	
C 47	3											
C 47R			P16-2 P19-G11					.13 .18	NO NO		14 15	
C 47Y			P16-4 P19-G12					.13 .18	NO NO		14 15	
C 48	3											
C 48R			P16-3 P19-H11					.13 .18	NO NO		14 15	
C 48Y			P16-5 P19-H12					.13 .18	NO NO		14 15	
C 49	3											

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 49R			P15-38 P19-F16					.13 .18	NO NO		14 15	
C 49Y			P15-37 P19-G16					.13 .18	NO NO		14 15	
C 50	2		P16-13 P19-D1					.13 .18	NO NO		14 16	
C 51	2		P15-25 P19-H5					.13 .18	NO NO		14 16	
C 52	2		P16-20 P19-K5					.13 .18	NO NO		14 16	
C 53	2		P16-19 P19-F1					.13 .18	NO NO		14 16	
C 54	3											
C 54R			P16-27 P19-H10					.13 .18	NO NO		14 15	
C 54Y			P16-28 P19-K10					.13 .18	NO NO		14 15	
C 55	8				1.75 1.00	1.50 .75				7 68	21 20	
C 55B	9		P19-C20 SHLD C55					.18 .20	NO NO		15	
C 55R			P16-33 P19-A20					.13 .18	NO NO		14	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 55Y			P16-34 P19-B20					.13 .18	NO NO		14	
C 56	8				1.75 1.00	1.50 .75				7 68	21 20	
C 56B	9		P19-C19 SHLD C56					.18 .20	NO NO		15	
C 56R			P16-35 P19-B19					.13 .18	NO NO		14	
C 56Y			P16-36 P19-A19					.13 .18	NO NO		14	
C 57	8				1.75 1.00	1.50 .75				7 68	21 20	
C 57B	9		P19-C22 SHLD C57					.18 .20	NO NO		15	
C 57R			P16-37 P19-A22					.13 .18	NO NO		14	
C 57Y			P16-38 P19-B22					.13 .18	NO NO		14	
C 58	8				1.75 1.00	1.50 .75				7 68	21 20	
C 58B	9		P19-C21 SHLD C58					.18 .20	NO NO		15	
C 58R			P16-39 P19-B21					.13 .18	NO NO		14	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 58Y			P16-40 P19-A21					.13 .18	NO NO		14	
C 59	8				1.75 1.00	1.50 .75				7 68	21 20	
C 59B	9		P19-C18 SHLD C59					.18 .20	NO NO		15	
C 59R			P16-41 P19-A18					.13 .18	NO NO		14	
C 59Y			P16-42 P19-B18					.13 .18	NO NO		14	
C 60	8				1.75 1.00	1.50 .75				7 68	21 20	
C 60B	9		P19-C17 SHLD C60					.18 .20	NO NO		15	
C 60R			P16-43 P19-B17					.13 .18	NO NO		14	
C 60Y			P16-44 P19-A17					.13 .18	NO NO		14	
C 61	8				1.75 1.00	1.50 .75				7 68	21 20	
C 61B	9		P19-D22 SHLD C61					.18 .20	NO NO		15	
C 61R			P16-45 P19-D20					.13 .18	NO NO		14 16	

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 61Y			P16-46					.13	NO		14	
			P19-D21					.18	NO		16	
C 62	8				1.75	1.50				7	21	
					1.00	.75				68	20	
C 62B	9		P19-D16					.18	NO		15	
			SHLD C62					.20	NO			
C 62R			P16-47					.13	NO		14	
			P19-D17					.18	NO		16	
C 62Y			P16-48					.13	NO		14	
			P19-D18					.18	NO		16	
C 63	8				1.75	1.50				7	21	
					1.00	.75				68	20	
C 63B	9		P19-C16					.18	NO		15	
			SHLD C63					.20	NO			
C 63R			P16-51					.13	NO		14	
			P19-A16					.18	NO			
C 63Y			P16-52					.13	NO		14	
			P19-B16					.18	NO			
C 64	8				1.75	1.50				7	21	
					1.00	.75				68	20	
C 64B	9		P19-D15					.18	NO		15	
			SHLD C64					.20	NO			
C 64R			P16-53					.13	NO		14	
			P19-C15					.18	NO		16	

SIZE A | CODE IDENT NO. 80230 | 2014643

SCALE-NONE | REV LTR J | SHEET 26 OF 30

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 64Y			P16-54					.13	NO		14	
			P19-B15					.18	NO			
C 65	8				1.75	1.50				7	21	
					1.00	.75				68	20	
C 65B	9		P19-D14					.18	NO		15	
			SHLD C65					.20	NO			
C 65R			P16-55					.13	NO		14	
			P19-B14					.18	NO			
C 65Y			P16-56					.13	NO		14	
			P19-C14					.18	NO		16	
C 66	8				1.75	1.50				7	21	
					1.00	.75				68	20	
C 66B	9		P19-D13					.18	NO		15	
			SHLD C66					.20	NO			
C 66R			P16-57					.13	NO		14	
			P19-C13					.18	NO		16	
C 66Y			P16-58					.13	NO		14	
			P19-B13					.18	NO			
C 67	1		P16-1					.13	NO		14	
			P19-D12					.18	NO		16	
C 74	6											
C 74G			P15-22					.13	NO		14	
			P19-G25					.18	NO		16	

SIZE A | CODE IDENT NO. 80230 | 2014643

SCALE-NONE | REV LTR J | SHEET 27 OF 30

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 74N			P15-21					.13	NO		14	
			P19-G24					.18	NO		16	
C 74R			P15-19					.13	NO		14	
			P19-F25					.18	NO		16	
C 74Y			P15-20					.13	NO		14	
			P19-F24					.18	NO		16	
C 76	2		P16-59					.13	NO		14	
			P19-F15					.18	NO		16	
C 77	7				1.75	1.50				68	36	
					1.00	.75				68	36	
C 77A	9		SHLD C77					.20	NO			
			P12-65					.13	NO		13	
C 77B	9		P19-D7					.18	NO		15	
			SHLD C77					.20	NO			
C 77L			NONE				1.75		NO			
			NONE				1.00		NO			
C 77R			P12-40					.13	NO		13, 30	
			P19-D5					.18	NO		16	
C 77W			P12-21					.13	NO		13, 30	
			P19-D6					.18	NO		16	
C 78	7				1.75	1.50				68	36	
					1.00	.75				68	36	
C 78A	9		SHLD C78					.20	NO			
			P12-79					.13	NO		13	

SIZE A | CODE IDENT NO. 80230 | 2014643

SCALE-NONE | REV LTR J | SHEET 28 OF 30

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	TERM.JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 78B	9		P19-F7					.18	NO		15	
			SHLD C78					.20	NO			
C 78L			NONE				1.75		NO			
			NONE				1.00		NO			
C 78R			P12-32					.13	NO		13, 30	
			P19-F5					.18	NO		16	
C 78W			P12-55					.13	NO		13, 30	
			P19-F6					.18	NO		16	
C 79	7				1.75	1.50				68	36	
					1.00	.75				68	36	
C 79A	9		SHLD C79					.20	NO			
			P12-62					.13	NO		13	
C 79B	9		P19-G7					.18	NO		15	
			SHLD C79					.20	NO			
C 79L			NONE				1.75		NO			
			NONE				1.00		NO			
C 79R			P12-36					.13	NO		13, 30	
			P19-G5					.18	NO		16	
C 79W			P12-20					.13	NO		13, 30	
			P19-G6					.18	NO		16	

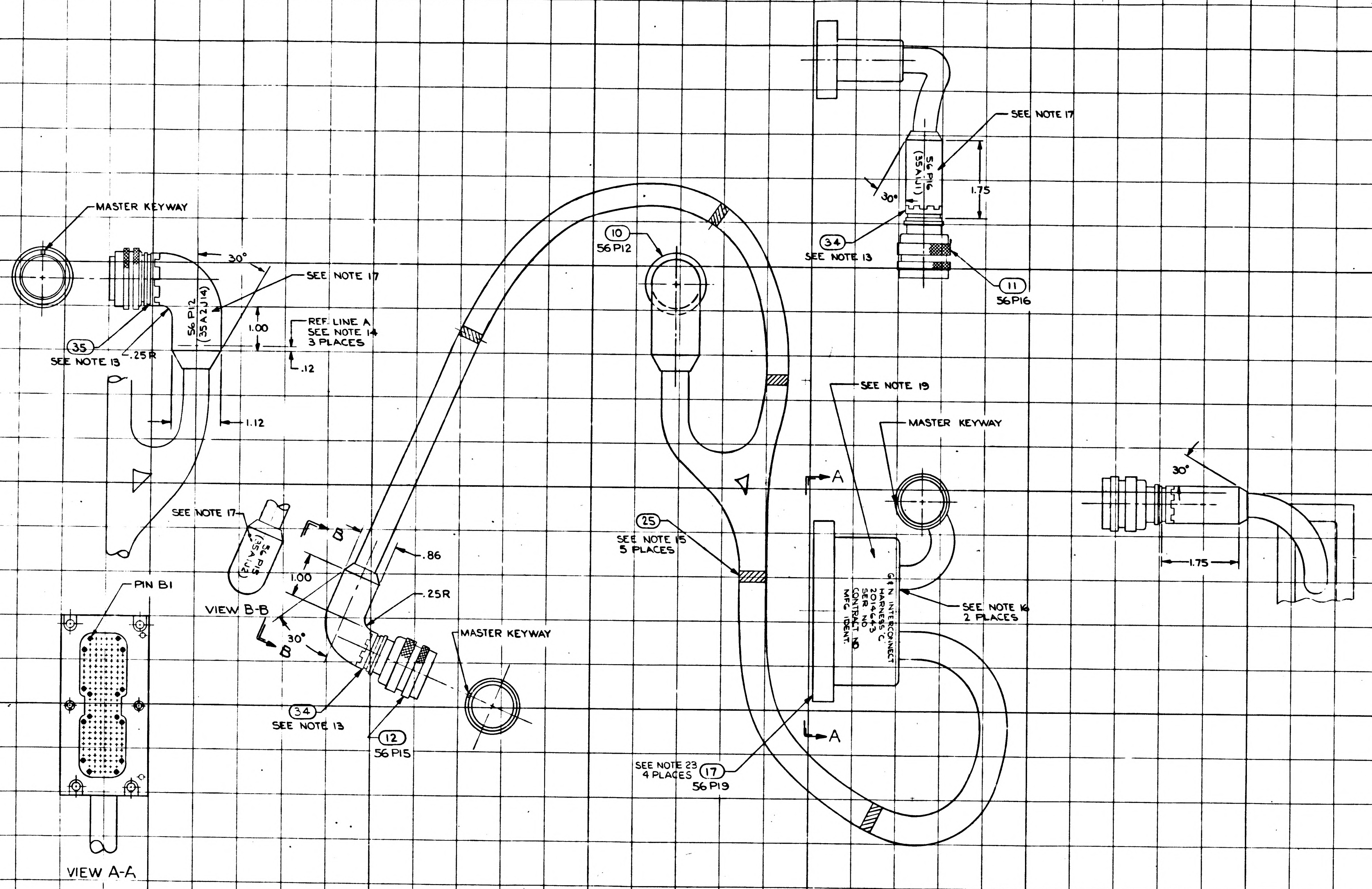
SIZE A | CODE IDENT NO. 80230 | 2014643

SCALE-NONE | REV LTR J | SHEET 29 OF 30

REVISIONS REV F TJKR 24808

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
30°
SEE NOTE 17
56 P12 (35A2J14)
1.00
REF. LINE A SEE NOTE 14 3 PLACES
.12
35
SEE NOTE 13
.25 R
1.12
SEE NOTE 17
56 P15 (35 A2J13)
B
VIEW B-B
1.00
30°
.86
.25R
MASTER KEYWAY
34
SEE NOTE 13
12
56 P15
PIN B1
VIEW A-A
10
56 P12
25
SEE NOTE 15 5 PLACES
SEE NOTE 23 4 PLACES
17
56 P19
A
SEE NOTE 19
MASTER KEYWAY
G&N INTERCONNECT HARNESS 'C' 2014643 SER. NO CONTRACT NO MFG IDENT.
SEE NOTE 16 2 PLACES
SEE NOTE 17
56 P16 (35A1J1)
30°
1.75
34
SEE NOTE 13
11
56 P16
30°
1.75

2014643

REV LTR L

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2014567-011	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ±.03 ±5°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN P.J. Jerome 11/16/65
CHECKED N. Graham 12-17-65
APPROVED Paul Watson 2/1/66
APPROVED J.E. Kuna 2/1/66
APPROVED MIT W. Hoag 2/1/66
APPROVED MSC
DATE

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2014643
SCALE 1:1
SHEET 30 OF 30

MX-109891

APPLICATION		REVISIONS				
NEXT ASSY	USED ON		SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-011		E	REPLACES REV D WITH CHANGE PER TDRR	24-NOV-65	B. EF
			F	ADDED CONFIGURATION AND CHANGES PER TDRR 24808		
			G	Revised per TDRR 25306	2/4/66	
		Ⓜ	H	REVISED PER TDRR-26660 .	7-MAR-66	B. AU
		Ⓜ	J	REVISED PER TDRR 28058	19-APR-66	PHG
		Ⓜ	K	REVISED PER TDRR 28231	2-MAY-66	B. JAC
			L	REVISED PER TDRR 28408	10-MAY-66	B.
			M	REVISED PER TDRR 28409	10-MAY-66	B.

REV	J	J	J	J	J	J	J	J	J	J	L
SHEET	20	21	22	23	24	25	26	27	28	29	30

REV STATUS OF SHEETS	REV	M	J	M	M	J	J	J	J	J	J	K	K	K	J	J	J	J	J	J
	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. LITZOW DATE 27 MAY 65
CHECKED FESLER 28 MAY 65
APPROVAL P.C. WATSON 8-24-65
APPROVAL

G&N INTERCONNECT HARNESS "C" (C/M, BLOCK II)

NASA APPROVAL A. C. METZGER
MIT APPROVAL

CODE IDENT NO.	SIZE		REV
80230	A	2014643	M

CONTRACT NAS9-497
SCALE NONE
SHEET 1 OF 30

NOTE GENERAL NOTES

NUMBER DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014673.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE A	CODE IDENT NO. 80230	2014643	
SCALE-NONE	REV LTR J	SHEET 2 OF 30	

NOTE GENERAL NOTES

NUMBER DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTOR 56P15 AND 16 USE ITEM NUMBERS 19 AND 14.
CONNECTOR 56P12 USE ITEM NUMBERS 18 AND 13.
CONNECTOR 56P19 USE ITEM NUMBER 15.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 32.

~~13 A SMALL QUANTITY OF POTTING COMPOUND MUST BE PUT BETWEEN THE THREADED PORTION OF CONNECTOR AND SILICONE RUBBER GROMMET TO SEAL AND BOND RING TO CONNECTOR PRIOR TO POTTING.~~

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE, ITEM 25, TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED, TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, ~~HOT IMPRESSION STAMPING~~ PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM. TEST PER MIL-STD-202, METHOD 303.

13 APPLY BONDING MATERIAL PER ND 1002187, TYPE I, USING ITEMS 23 AND 24 TO THE THREADED PORTION OF CONNECTOR AND TO THE THREADED PORTION OF THE ADAPTER PRIOR TO ASSEMBLY.

SIZE A	CODE IDENT NO. 80230	2014643	
SCALE-NONE	REV LTR M	SHEET 3 OF 30	

NOTE GENERAL NOTES

NUMBER DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED. INCLUDING ALL SPARE PINS. **SHORT CIRCUIT CURRENT SHALL BE LIMITED TO 15 MA,**
TEST PER MIL-STD-202, METHOD 302,∧EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.

22 PRESEAL BACK OF CONNECTOR P19 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 23,24,27, AND 26.

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 22 AND 29.

24 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 G RMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACE CRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICRO SECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

SIZE A	CODE IDENT NO. 80230	2014643	
SCALE-NONE	REV LTR M	SHEET 4 OF 30	

NOTE GENERAL NOTES

NUMBER DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SIZE A	CODE IDENT NO. 80230	2014643	
SCALE-NONE	REV LTR J	SHEET 5 OF 30	

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014643-001	WIRE PER 1010789-006, 22AWG, YEL, 5 FT TOT LG
	2	1	2014643-002	WIRE PER 1010789-016, 26 AWG, YEL, 10 FT TOT LG
	3	1	2014643-003	WIRE PER 1010789-008, 22AWG, YEL, RED, 30 FT TOT LG
	4	1	2014643-004	WIRE PER 1010789-017, 26 AWG, YEL, RED, 25 FT TOT LG
	5	1	2014643-005	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN 5 FT TOT LG
	6	1	2014643-006	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 5 FT TOT LG
	7	1	2014643-007	WIRE PER 1010707-1, RED JKT, 29 AWG, RED, WHT, BLUE, 26 FT TOT LG
	8	1	2014643-008	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 40 FT TOT LG
	9	1	2014643-009	WIRE PER 1010789-002, 24 AWG, BLK, 35 FT TOT LG
9	10	1	1010929-001	CONNECTOR, PLUG, ELECTRICAL (P12)
9	11	1	1010965- 1	CONNECTOR, PLUG, ELECTRICAL (P16)
9	12	1	1010965- 2	CONNECTOR, PLUG, ELECTRICAL (P15)
9	13	X	1010770- 2	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010929
9	14	X	1010781- 1	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010965
9	15	98	1010955- 1	CONTACT, MALE

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 6 OF 30

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	16	84	1010955- 2	CONTACT, MALE
	17	1	2014743-011	CONNECTOR, PLUG, ELECTRICAL (P19)
9	18	13	1010958- 1	PLUG, PROTECTIVE SEALING
9	19	30	1010984	PLUG, PROTECTIVE SEALING
9	20	33	1010402- 2	SLEEVE SOLDER
9	21	15	1012534- 36	INSULATION SLEEVE (HEAT SHRINKABLE)
	22	AR	1012503	COMPOUND, POTTING, POLYURETHANE
	23	AR	1010679	ADHESIVE ACTIVATOR
	24	AR	1010661	EPOXY RESIN
	25	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
	26	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	27	AR	1006277	SILICA, PULVERIZED, PYROGENIC
	28	AR	1008822	COLORANT, EPOXY BASE
	29	AR	1012504	PRIMER, METAL PARTS
9	30	29	1010862	BUSHING, SLEEVE
9	32	AR	1012507- 4	TAPE, LACING
	33	6	1012534- 37	SLEEVE, INSULATION (HEAT SHRINKABLE)
	34	2	2014670- 6	ADAPTER, CONNECTOR

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 7 OF 30

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	35	1	2014670- 4	ADAPTER, CONNECTOR
	36	12	1010763- 2	SLEEVE, SOLDER

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 8 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	1	7			1.75 1.75	1.50 1.50				68 7	36 21	A
C	1A	9	SHLD C1 P12-38					.20 .13	NO NO		13	
C	1L		P12-63 P15-3					.13 .13	NO NO		13, 30 14, 30	
C	1R		P12-39 P15-1					.13 .13	NO NO		13, 30 14, 30	
C	1W		P12-64 P15-2					.13 .13	NO NO		13, 30 14, 30	
C	2	7			1.75 1.75	1.50 1.50				68 7	36 21	
C	2A	9	SHLD C2 P12-59					.20 .13	NO NO		13	
C	2L		P12-84 P15-14					.13 .13	NO NO		13, 30 14, 30	
C	2R		P12-60 P15-12					.13 .13	NO NO		13, 30 14, 30	
C	2W		P12-85 P15-13					.13 .13	NO NO		13, 30 14, 30	
C	3	7			1.75 1.75	1.50 1.50				68 7	36 21	
C	3A	9	SHLD C3 P12-80					.20 .13	NO NO		13	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 9 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	3L		P12-81 P15-61					.13 .13	NO NO		13, 30 14, 30	
C	3R		P12-56 P15-59					.13 .13	NO NO		13, 30 14, 30	
C	3W		P12-57 P15-60					.13 .13	NO NO		13, 30 14, 30	
C	4	8			1.75 1.75	1.50 1.50				6B 7	20 21	
C	4A	9	SHLD C4 P12-33					.20 .13	NO NO		 13	
C	4R		P12-16 P15-6					.13 .13	NO NO		13 14	
C	4Y		P12-17 P15-7					.13 .13	NO NO		13 14	
C	5	8			1.75 1.75	1.50 1.50				6B 7	20 21	
C	5A	9	SHLD C5 P12-27					.20 .13	NO NO		 13	
C	5R		P12-26 P15-17					.13 .13	NO NO		13 14	
C	5Y		P12-12 P15-18					.13 .13	NO NO		13 14	
C	6	8			1.75 1.75	1.50 1.50				6B 7	20 21	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	6A	9	SHLD C6 P12-47					.20 .13	NO NO		 13	
C	6R		P12-72 P15-35					.13 .13	NO NO		13 14	
C	6Y		P12-71 P15-36					.13 .13	NO NO		13 14	
C	7	8			1.75 1.00	1.50 .75				6B 6B	20 20	
C	7A	9	SHLD C7 P12-48					.20 .13	NO NO		 13	
C	7B	9	P19-C5 SHLD C7					.18 .20	NO NO		15	
C	7R		P12-~~28~~ 49 P19-B5					.13 .18	NO NO		13	
C	7Y		P12-~~44~~ 28 P19-A5					.13 .18	NO NO		13	
C	8	8			1.75 1.00	1.50 .75				6B 6B	20 20	
C	8A	9	SHLD C8 P12-53					.20 .13	NO NO		 13	
C	8B	9	P19-C4 SHLD C8					.18 .20	NO NO		15	
C	8R		P12-~~78~~ 54 P19-A4					.13 .18	NO NO		13	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	8Y		P12-~~54~~ 78 P19-B4					.13 .18	NO NO		13	
C	9	8			1.75 1.00	1.50 .75				6B 6B	20 20	
C	9A	9	SHLD C9 P12-29					.20 .13	NO NO		 13	
C	9B	9	P19-C7 SHLD C9					.18 .20	NO NO		15	
C	9R		P12-~~14~~ 13 P19-B7					.13 .18	NO NO		13	
C	9Y		P12-~~15~~ 14 P19-A7					.13 .18	NO NO		13	
C	10	8			1.75 1.00	1.50 .75				6B 6B	20 20	
C	10A	9	SHLD C10 P12-50					.20 .13	NO NO		 13	
C	10B	9	P19-C6 SHLD C10					.18 .20	NO NO		15	
C	10R		P12-~~74~~ 75 P19-A6					.13 .18	NO NO		13	
C	10Y		P12-~~75~~ 74 P19-B6					.13 .18	NO NO		13	
C	11	8			1.75 1.00	1.50 .75				6B 6B	20 20	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C	11A	9	SHLD C11 P12-30					.20 .13	NO NO		 13	
C	11B	9	P19-C3 SHLD C11					.18 .20	NO NO		15	
C	11R		P12-~~31~~ 15 P19-B3					.13 .18	NO NO		13	
C	11Y		P12-~~15~~ 31 P19-A3					.13 .18	NO NO		13	
C	12	8			1.75 1.00	1.50 .75				6B 6B	20 20	
C	12A	9	SHLD C12 P12-52					.20 .13	NO NO		 13	
C	12B	9	P19-C2 SHLD C12					.18 .20	NO NO		15	
C	12R		P12-~~76~~ 51 P19-B1					.13 .18	NO NO		13	
C	12Y		P12-~~51~~ 76 P19-B2					.13 .18	NO NO		13	
C	13	8			1.75 1.00	1.50 .75				6B 6B	20 20	
C	13A	9	SHLD C13 P12-42					.20 .13	NO NO		 13	
C	13B	9	P19-C8 SHLD C13					.18 .20	NO NO		15	

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 13R			P12-57 P19-A8					.13 .18	NO NO		13	
C 13Y			P12-43 P19-B8					.13 .18	NO NO		13	
C 14	8				1.75 1.00	1.50 .75				68 68	20 20	
C 14A	9		SHLD C14 P12-45					.20 .13	NO NO		13	
C 14B	9		P19-C9 SHLD C14					.18 .20	NO NO		15	
C 14R			P12-70 P19-B9					.13 .18	NO NO		13	
C 14Y			P12-46 P19-A9					.13 .18	NO NO		13	
C 15	8				1.75 1.00	1.50 .75				68 68	20 20	
C 15A	9		SHLD C15 P12-44					.20 .13	NO NO		13	
C 15B	9		P19-C10 SHLD C15					.18 .20	NO NO		15	
C 15R			P12-69 P19-A10					.13 .18	NO NO		13	
C 15Y			P12-68 P19-B10					.13 .18	NO NO		13	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 14 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 16	4											
C 16R			P12-9 P19-K4					.13 .18	NO NO		13 16	
C 16Y			P12-22 P19-H4					.13 .18	NO NO		13 16	
C 17	4											
C 17R			P12-24 P19-G3					.13 .18	NO NO		13 16	
C 17Y			P12-23 P19-G4					.13 .18	NO NO		13 16	
C 18	4											
C 18R			P12-11 P19-F3					.13 .18	NO NO		13 16	
C 18Y			P12-10 P19-F4					.13 .18	NO NO		13 16	
C 19	4											
C 19R			P12-66 P19-K3					.13 .18	NO NO		13 16	
C 19Y			P12-41 P19-H3					.13 .18	NO NO		13 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 15 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 20	5											
C 20G			P12-19 P19-F22					.13 .18	NO NO		13 15	
C 20R			P12-8 P19-H22					.13 .18	NO NO		13 15	
C 20Y			P12-7 P19-G22					.13 .18	NO NO		13 15	
C 21	3											
C 21R			P12-18 P19-G19					.13 .18	NO NO		13 15	
C 21Y			P12-6 P19-F19					.13 .18	NO NO		13 15	
C 22	3											
C 22R			P12-4 P19-G18					.13 .18	NO NO		13 15	
C 22Y			P12-5 P19-F18					.13 .18	NO NO		13 15	
C 23	3											
C 23R			P12-3 P19-G17					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 16 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 23Y			P12-2 P19-F17					.13 .18	NO NO		13 15	
C 24	4											
C 24R			P12-82 P19-G13					.13 .18	NO NO		13 16	
C 24Y			P12-58 P19-H13					.13 .18	NO NO		13 16	
C 25	4											
C 25R			P12-35 P19-H14					.13 .18	NO NO		13 16	
C 25Y			P12-34 P19-G14					.13 .18	NO NO		13 16	
C 26	4											
C 26R			P12-61 P19-G15					.13 .18	NO NO		13 16	
C 26Y			P12-37 P19-H15					.13 .18	NO NO		13 16	
C 27	1		P12-1 P19-D11					.13 .18	NO NO		13 16	
C 28	7				1.75 1.00	1.50 .75				7 68	21 36	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 17 OF 30

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 28B	9		P19-D25 SHLD C28					.18 .20	NO NO		15	
C 28L			NONE NONE				1.75 1.00		NO NO			
C 28R			P15-5 P19-D23					.13 .18	NO NO		14, 30 16	
C 28W			P15-4 P19-D24					.13 .18	NO NO		14, 30 16	
C 29	7				1.75 1.00	1.50 .75				7 68	21 36	
C 29B	9		P19-C23 SHLD C29					.18 .20	NO NO		15	
C 29L			NONE NONE				1.75 1.00		NO NO			
C 29R			P15-16 P19-B23					.13 .18	NO NO		14, 30	
C 29W			P15-15 P19-A23					.13 .18	NO NO		14, 30	
C 30	7				1.75 1.00	1.50 .75				7 68	21 36	
C 30B	9		P19-C24 SHLD C30					.18 .20	NO NO		15	
C 30L			P15-34 P19-B24					.13 .18	NO NO		14, 30	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 18 OF 30

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 30R			P15-33 P19-C25					.13 .18	NO NO		14, 30 16	
C 30W			P15-32 P19-B25					.13 .18	NO NO		14, 30	
C 34	3											
C 34R			P15-40 P19-K20					.13 .18	NO NO		14 15	
C 34Y			P15-39 P19-H20					.13 .18	NO NO		14 15	
C 35	3											
C 35R			P15-42 P19-H21					.13 .18	NO NO		14 15	
C 35Y			P15-41 P19-K21					.13 .18	NO NO		14 15	
C 36	3											
C 36R			P15-52 P19-K22					.13 .18	NO NO		14 15	
C 36Y			P15-51 P19-K23					.13 .18	NO NO		14 15	
C 37	5											

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 19 OF 30

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 37G			P16-24 P19-K16					.13 .18	NO NO		14 15	
C 37R			P16-25 P19-H17					.13 .18	NO NO		14 15	
C 37Y			P16-23 P19-H18					.13 .18	NO NO		14 15	
C 38	3											
C 38R			P16-21 P19-H16					.13 .18	NO NO		14 15	
C 38Y			P16-22 P19-H19					.13 .18	NO NO		14 15	
C 39	3											
C 39R			P15-8 P19-G10					.13 .18	NO NO		14 15	
C 39Y			P15-9 P19-G9					.13 .18	NO NO		14 15	
C 40	4											
C 40R			P15-10 P19-K9					.13 .18	NO NO		14 16	
C 40Y			P15-11 P19-H9					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 20 OF 30

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 41	3											
C 41R			P16-6 P19-H2					.13 .18	NO NO		14 15	
C 41Y			P16-8 P19-G2					.13 .18	NO NO		14 15	
C 42	3											
C 42R			P16-7 P19-H1					.13 .18	NO NO		14 15	
C 42Y			P16-9 P19-G1					.13 .18	NO NO		14 15	
C 43	4											
C 43R			P16-14 P19-H6					.13 .18	NO NO		14 16	
C 43Y			P16-15 P19-K6					.13 .18	NO NO		14 16	
C 44	2		P16-16 P19-K8					.13 .18	NO NO		14 16	
C 45	4											
C 45R			P16-17 P19-K7					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 21 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643. J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 45Y			P16-18 P19-H7					.13 .18	NO NO		14 16	
C 46	5											
C 46G			P16-12 P19-K17					.13 .18	NO NO		14 15	
C 46R			P16-10 P19-K19					.13 .18	NO NO		14 15	
C 46Y			P16-11 P19-K18					.13 .18	NO NO		14 15	
C 47	3											
C 47R			P16-2 P19-G11					.13 .18	NO NO		14 15	
C 47Y			P16-4 P19-G12					.13 .18	NO NO		14 15	
C 48	3											
C 48R			P16-3 P19-H11					.13 .18	NO NO		14 15	
C 48Y			P16-5 P19-H12					.13 .18	NO NO		14 15	
C 49	3											

SIZE A	CODE IDENT NO. 80230	2014643		
SCALE-NONE	REV LTR	J	SHEET 22 OF 30	

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 49R			P15-38 P19-F16					.13 .18	NO NO		14 15	
C 49Y			P15-37 P19-G16					.13 .18	NO NO		14 15	
C 50	2		P16-13 P19-D1					.13 .18	NO NO		14 16	
C 51	2		P15-25 P19-H5					.13 .18	NO NO		14 16	
C 52	2		P16-20 P19-K5					.13 .18	NO NO		14 16	
C 53	2		P16-19 P19-F1					.13 .18	NO NO		14 16	
C 54	3											
C 54R			P16-27 P19-H10					.13 .18	NO NO		14 15	
C 54Y			P16-28 P19-K10					.13 .18	NO NO		14 15	
C 55	8				1.75 1.00	1.50 .75				7 68	21 20	
C 55B	9		P19-C20 SHLD C55					.18 .20	NO NO		15	
C 55R			P16-33 P19-A20					.13 .18	NO NO		14	

SIZE A	CODE IDENT NO. 80230	2014643		
SCALE-NONE	REV LTR	J	SHEET 23 OF 30	

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 55Y			P16-34 P19-B20					.13 .18	NO NO		14	
C 56	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 56B	9		P19-C19 SHLD C56					.18 .20	NO NO		15	
C 56R			P16-35 P19-B19					.13 .18	NO NO		14	
C 56Y			P16-36 P19-A19					.13 .18	NO NO		14	
C 57	8				1.75 1.00	1.50 .75				7 6B	21 2C	
C 57B	9		P19-C22 SHLD C57					.18 .20	NO NO		15	
C 57R			P16-37 P19-A22					.13 .18	NO NO		14	
C 57Y			P16-38 P19-B22					.13 .18	NO NO		14	
C 58	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 58B	9		P19-C21 SHLD C58					.18 .20	NO NO		15	
C 58R			P16-39 P19-B21					.13 .18	NO NO		14	

SIZE A	CODE IDENT NO. 80230	2014643		
SCALE-NONE	REV LTR	J	SHEET 24 OF 30	

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 58Y			P16-40 P19-A21					.13 .18	NO NO		14	
C 59	8				1.75 1.00	1.50 .75				7 68	21 20	
C 59B	9		P19-C18 SHLD C59					.18 .20	NO NO		15	
C 59R			P16-41 P19-A18					.13 .18	NO NO		14	
C 59Y			P16-42 P19-B18					.13 .18	NO NO		14	
C 60	8				1.75 1.00	1.50 .75				7 68	21 20	
C 60B	9		P19-C17 SHLD C60					.18 .20	NO NO		15	
C 60R			P16-43 P19-B17					.13 .18	NO NO		14	
C 60Y			P16-44 P19-A17					.13 .18	NO NO		14	
C 61	8				1.75 1.00	1.50 .75				7 68	21 20	
C 61B	9		P19-D22 SHLD C61					.18 .20	NO NO		15	
C 61R			P16-45 P19-D20					.13 .18	NO NO		14 16	

SIZE A	CODE IDENT NO. 80230	2014643		
SCALE-NONE	REV LTR	J	SHEET 25 OF 30	

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 61Y			P16-46 P19-D21					.13 .18	NO NO		14 16	
C 62	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 62B	9		P19-D16 SHLD C62					.18 .20	NO NO		15	
C 62R			P16-47 P19-D17					.13 .18	NO NO		14 16	
C 62Y			P16-48 P19-D18					.13 .18	NO NO		14 16	
C 63	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 63B	9		P19-C16 SHLD C63					.18 .20	NO NO		15	
C 63R			P16-51 P19-A16					.13 .18	NO NO		14	
C 63Y			P16-52 P19-B16					.13 .18	NO NO		14	
C 64	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 64B	9		P19-D15 SHLD C64					.18 .20	NO NO		15	
C 64R			P16-53 P19-C15					.13 .18	NO NO		14 16	

SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR J
SHEET 26 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 64Y			P16-54 P19-B15					.13 .18	NO NO		14	
C 65	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 65B	9		P19-D14 SHLD C65					.18 .20	NO NO		15	
C 65R			P16-55 P19-B14					.13 .18	NO NO		14	
C 65Y			P16-56 P19-C14					.13 .18	NO NO		14 16	
C 66	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 66B	9		P19-D13 SHLD C66					.18 .20	NO NO		15	
C 66R			P16-57 P19-C13					.13 .18	NO NO		14 16	
C 66Y			P16-58 P19-B13					.13 .18	NO NO		14	
C 67	1		P16-1 P19-D12					.13 .18	NO NO		14 16	
C 74	6											
C 74G			P15-22 P19-G25					.13 .18	NO NO		14 16	

SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR J
SHEET 27 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 74N			P15-21 P19-G24					.13 .18	NO NO		14 16	
C 74R			P15-19 P19-F25					.13 .18	NO NO		14 16	
C 74Y			P15-20 P19-F24					.13 .18	NO NO		14 16	
C 76	2		P16-59 P19-F15					.13 .18	NO NO		14 16	
C 77	7				1.75 1.00	1.50 .75				6B 6B	36 36	
C 77A	9		SHLD C77 P12-65					.20 .13	NO NO		 13	
C 77B	9		P19-D7 SHLD C77					.18 .20	NO NO		15	
C 77L			NONE NONE				1.75 1.00		NO NO			
C 77R			P12-40 P19-D5					.13 .18	NO NO		13, 30 16	
C 77W			P12-21 P19-D6					.13 .18	NO NO		13, 30 16	
C 78	7				1.75 1.00	1.50 .75				6B 6B	36 36	
C 78A	9		SHLD C78 P12-79					.20 .13	NO NO		 13	

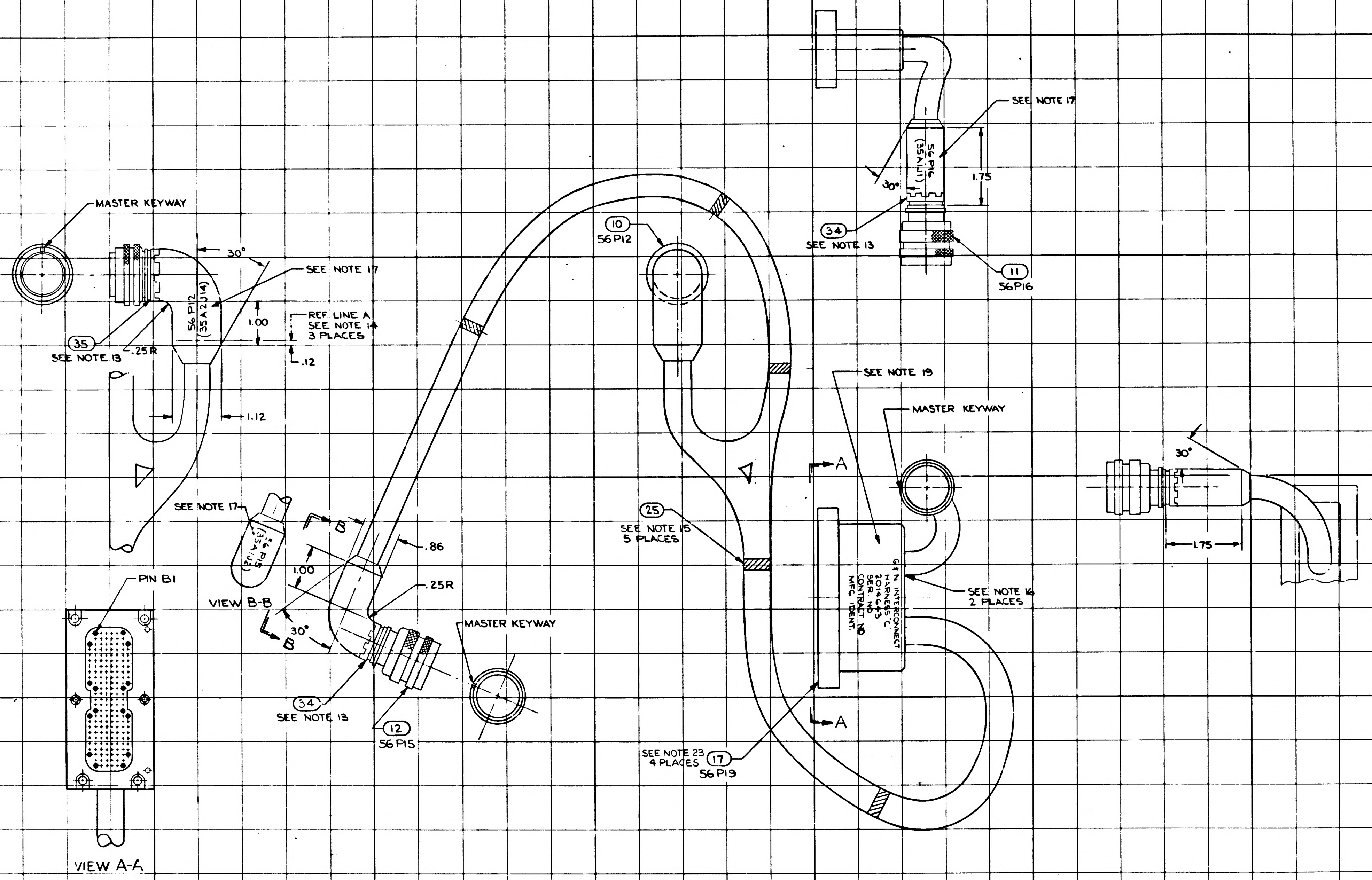
SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR J
SHEET 28 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 78B	9		P19-F7 SHLD C78					.18 .20	NO NO		15	
C 78L			NONE NONE				1.75 1.00		NO NO			
C 78R			P12-32 P19-F5					.13 .18	NO NO		13, 30 16	
C 78W			P12-55 P19-F6					.13 .18	NO NO		13, 30 16	
C 79	7				1.75 1.00	1.50 .75				6B 6B	36 36	
C 79A	9		SHLD C79 P12-62					.20 .13	NO NO		 13	
C 79B	9		P19-G7 SHLD C79					.18 .20	NO NO		15	
C 79L			NONE NONE				1.75 1.00		NO NO			
C 79R			P12-36 P19-G5					.13 .18	NO NO		13, 30 16	
C 79W			P12-20 P19-G6					.13 .18	NO NO		13, 30 16	

SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR J
SHEET 29 OF 30

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
30°
SEE NOTE 17
56 P12 (35A2J14)
REF LINE A SEE NOTE 14 3 PLACES
1.00
.12
35
SEE NOTE 13
.25R
1.12
SEE NOTE 17
56 P15 (35A1J2)
B
.86
1.00
.25R
VIEW B-B
30°
B
MASTER KEYWAY
34
SEE NOTE 13
12
56P15
PIN B1
VIEW A-A
10
56P12
SEE NOTE 19
MASTER KEYWAY
A
25
SEE NOTE 15 5 PLACES
G&N INTERCONNECT HARNESS C 2014643 SER NO CONTRACT NO MFG IDENT
SEE NOTE 16 2 PLACES
A
SEE NOTE 23 4 PLACES
17
56P19
SEE NOTE 17
56 P16 (35A1J1)
30°
1.75
34
SEE NOTE 13
11
56P16
30°
1.75

2014643

REV LTR L

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2014567-011	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ±.03 ±5°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN P.A. Leone 11/16/65
CHECKED N. Abraham 12-17-65
APPROVED Paul Watson DEC 20 65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

CODE IDENT NO 80230
SIZE E
DRAWING NO. 2014643
SCALE 1:1
SHEET 30 OF 30

MX-09891

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVAL
2014567-011	2014567-011	E	REPLACES REV D WITH CHANGE PER TDRR	24-NOV-65	B. EF
		F	ADDED CONFIGURATION AND CHANGES PER TDRR 24808	[illegible]	
		(M) G	Revised per TDRR 25306	2/4/66	
		(M) H	REVISED PER TDRR-26660	7-MAR-66	B. AU
		(M) J	REVISED PER TDRR 28058	19-APR-66	PHG
		(M) K	REVISED PER TDRR 28231	2-MAY-66	B. JAC
		L	REVISED PER TDRR 28408	10-MAY-66	B.
		(M) M	REVISED PER TDRR 28409	10 MAY-66	B.
		N	REVISED PER TDRR 28837	20 MAY 66	JW CP

REV		J	J	J	J	J	J	J	J	J	J	L									
SHEET		20	21	22	23	24	25	26	27	28	29	30									
REV STATUS	REV					N	J	N	M	J	J	J	J	J	J	K	K	K	J	J	J	J	J	J
OF SHEETS	SHEET					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. LITZON DATE 27 MAY 65
CHECKED FESLER 28 MAY 65
APPROVAL P.C. WATSON 8-24-65
APPROVAL

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

NASA APPROVAL A. C. METZGER
MIT APPROVAL

CODE IDENT NO.	SIZE		REV
80230	A	2014643	N

CONTRACT NAS 9-497
SCALE NONE
SHEET 1 OF 30

NOTE NUMBER — GENERAL NOTES DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 68 AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014673.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
A - FROM END OF SHIELD
B - TO END OF SHIELD
G - GREEN
K - BLACK
L - BLUE
N - BROWN
R - RED
W - WHITE
Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 2 OF 30

MIL 2084 9-65

NOTE NUMBER — GENERAL NOTES DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
CONNECTOR 56P15 AND 16 USE ITEM NUMBERS 19 AND 14.
CONNECTOR 56P12 USE ITEM NUMBERS 18 AND 13.
CONNECTOR 56P19 USE ITEM NUMBER 15.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 32.

13 APPLY BONDING MATERIAL PER ND1002187, TYPE I, USING ITEMS 23 AND 24 TO THE THREADED PORTION OF CONNECTOR AND TO THE THREADED PORTION OF THE ADAPTER PRIOR TO ASSEMBLY.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE, ITEM 25, TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED, TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM, EXCEPT FOR CONDUCTORS USING ITEM 7. THESE SHALL BE LESS THAN 2 OHMS. TEST PER MIL-STD-202, METHOD 303.

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR N	SHEET 3 OF 30

MIL 2084 9-65

NOTE NUMBER — GENERAL NOTES DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED. INCLUDING ALL SPARE PINS. SHORT CIRCUIT CURRENT SHALL BE LIMITED TO 15 MA,
TEST PER MIL-STD-202, METHOD 302, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.

22 PRESEAL BACK OF CONNECTOR P19 PRIOR TO ENCAPSULATION PER ND1002187 TYPE III USING ITEMS 23,24,27, AND 28.

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 22 AND 29.

24 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 G RMS. LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACE CRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICRO SECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR M	SHEET 4 OF 30

MIL 2084 9-65

NOTE NUMBER — GENERAL NOTES DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 5 OF 30

MIL 2084 9-65

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014643-001	WIRE PER 1010789-006, 22AWG, YEL, 5 FT TOT LG
	2	1	2014643-002	WIRE PER 1010789-016, 26 AWG, YEL, 10 FT TOT LG
	3	1	2014643-003	WIRE PER 1010789-008, 22AWG, YEL, RED, 30 FT TOT LG
	4	1	2014643-004	WIRE PER 1010789-017, 26 AWG, YEL, RED, 25 FT TOT LG
	5	1	2014643-005	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN 5 FT TOT LG
	6	1	2014643-006	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 5 FT TOT LG
	7	1	2014643-007	WIRE PER 1010707-1, RED JKT, 29 AWG, RED, WHT, BLUE, 26 FT TOT LG
	8	1	2014643-008	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 40 FT TOT LG
	9	1	2014643-009	WIRE PER 1010789-002, 24 AWG, BLK, 35 FT TOT LG
9	10	1	1010929-001	CONNECTOR, PLUG, ELECTRICAL (P12)
9	11	1	1010965- 1	CONNECTOR, PLUG, ELECTRICAL (P16)
9	12	1	1010965- 2	CONNECTOR, PLUG, ELECTRICAL (P15)
9	13	X	1010770- 2	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010929
9	14	X	1010781- 1	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010965
9	15	98	1010955- 1	CONTACT, MALE

SIZE A | CODE IDENT NO. 80230 | 2014643

SCALE-NONE | REV LTR J | SHEET 6 OF 30

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	16	84	1010955- 2	CONTACT, MALE
	17	1	2014743-011	CONNECTOR, PLUG, ELECTRICAL (P19)
9	18	13	1010958- 1	PLUG, PROTECTIVE SEALING
9	19	30	1010984	PLUG, PROTECTIVE SEALING
9	20	33	1010402- 2	SLEEVE SOLDER
9	21	15	1012534- 36	INSULATION SLEEVE (HEAT SHRINKABLE)
	22	AR	1012503	COMPOUND, POTTING, POLYURETHANE
	23	AR	1010679	ADHESIVE ACTIVATOR
	24	AR	1010661	EPOXY RESIN
	25	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
	26	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	27	AR	1006277	SILICA, PULVERIZED, PYROGENIC
	28	AR	1008822	COLORANT, EPOXY BASE
	29	AR	1012504	PRIMER, METAL PARTS
9	30	29	1010862	BUSHING, SLEEVE
9	32	AR	1012507- 4	TAPE, LACING
	33	6	1012534- 37	SLEEVE, INSULATION (HEAT SHRINKABLE)
	34	2	2014670- 6	ADAPTER, CONNECTOR

SIZE A | CODE IDENT NO. 80230 | 2014643

SCALE-NONE | REV LTR J | SHEET 7 OF 30

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	35	1	2014670- 4	ADAPTER, CONNECTOR
	36	12	1010763- 2	SLEEVE, SOLDER

SIZE A | CODE IDENT NO. 80230 | 2014643

SCALE-NONE | REV LTR J | SHEET 8 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 1	7				1.75 1.75	1.50 1.50				6B 7	36 21	A
C 1A	9		SHLD C1 P12-38					.20 .13	NO NO		13	
C 1L			P12-63 P15-3					.13 .13	NO NO		13, 30 14, 30	
C 1R			P12-39 P15-1					.13 .13	NO NO		13, 30 14, 30	
C 1W			P12-64 P15-2					.13 .13	NO NO		13, 30 14, 30	
C 2	7				1.75 1.75	1.50 1.50				6B 7	36 21	
C 2A	9		SHLD C2 P12-59					.20 .13	NO NO		13	
C 2L			P12-84 P15-14					.13 .13	NO NO		13, 30 14, 30	
C 2R			P12-60 P15-12					.13 .13	NO NO		13, 30 14, 30	
C 2W			P12-85 P15-13					.13 .13	NO NO		13, 30 14, 30	
C 3	7				1.75 1.75	1.50 1.50				6B 7	36 21	
C 3A	9		SHLD C3 P12-80					.20 .13	NO NO		13	

SIZE A | CODE IDENT NO. 80230 | 2014643

SCALE-NONE | REV LTR J | SHEET 9 OF 30

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 3L			P12-81 P15-61					.13 .13	NO NO		13, 30 14, 30	
C 3R			P12-56 P15-59					.13 .13	NO NO		13, 30 14, 30	
C 3W			P12-57 P15-60					.13 .13	NO NO		13, 30 14, 30	
C 4	8				1.75 1.75	1.50 1.50				6B 7	20 21	
C 4A	9		SHLD C4 P12-33					.20 .13	NO NO		 13	
C 4R			P12-16 P15-6					.13 .13	NO NO		13 14	
C 4Y			P12-17 P15-7					.13 .13	NO NO		13 14	
C 5	8				1.75 1.75	1.50 1.50				6B 7	20 21	
C 5A	9		SHLD C5 P12-27					.20 .13	NO NO		 13	
C 5R			P12-26 P15-17					.13 .13	NO NO		13 14	
C 5Y			P12-12 P15-18					.13 .13	NO NO		13 14	
C 6	8				1.75 1.75	1.50 1.50				6B 7	20 21	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 10 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 ✓K

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 6A	9		SHLD C6 P12-47					.20 .13	NO NO		 13	
C 6R			P12-72 P15-35					.13 .13	NO NO		13 14	
C 6Y			P12-71 P15-36					.13 .13	NO NO		13 14	
C 7	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 7A	9		SHLD C7 P12-48					.20 .13	NO NO		 13	
C 7B	9		P19-C5 SHLD C7					.18 .20	NO NO		15	
C 7R			P12-~~28~~ 49 P19-B5					.13 .18	NO NO		13	
C 7Y			P12-~~44~~ 28 P19-A5					.13 .18	NO NO		13	
C 8	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 8A	9		SHLD C8 P12-53					.20 .13	NO NO		 13	
C 8B	9		P19-C4 SHLD C8					.18 .20	NO NO		15	
C 8R			P12-~~70~~ 54 P19-A4					.13 .18	NO NO		13	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR ✓K	SHEET 11 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 ✓K

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 8Y			P12-~~54~~ 78 P19-B4					.13 .18	NO NO		13	
C 9	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 9A	9		SHLD C9 P12-29					.20 .13	NO NO		 13	
C 9B	9		P19-C7 SHLD C9					.18 .20	NO NO		15	
C 9R			P12-~~14~~ 13 P19-B7					.13 .18	NO NO		13	
C 9Y			P12-~~15~~ 14 P19-A7					.13 .18	NO NO		13	
C 10	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 10A	9		SHLD C10 P12-50					.20 .13	NO NO		 13	
C 10B	9		P19-C6 SHLD C10					.18 .20	NO NO		15	
C 10R			P12-~~74~~ 75 P19-A6					.13 .18	NO NO		13	
C 10Y			P12-~~75~~ 74 P19-B6					.13 .18	NO NO		13	
C 11	8				1.75 1.00	1.50 .75				6B 6B	20 20	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR ✓K	SHEET 12 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 ✓K

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 11A	9		SHLD C11 P12-30					.20 .13	NO NO		 13	
C 11B	9		P19-C3 SHLD C11					.18 .20	NO NO		15	
C 11R			P12-~~31~~ 15 P19-B3					.13 .18	NO NO		13	
C 11Y			P12-~~15~~ 31 P19-A3					.13 .18	NO NO		13	
C 12	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 12A	9		SHLD C12 P12-52					.20 .13	NO NO		 13	
C 12B	9		P19-C2 SHLD C12					.18 .20	NO NO		15	
C 12R			P12-~~36~~ 51 P19-B1					.13 .18	NO NO		13	
C 12Y			P12-~~51~~ 76 P19-B2					.13 .18	NO NO		13	
C 13	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 13A	9		SHLD C13 P12-42					.20 .13	NO NO		 13	
C 13B	9		P19-C8 SHLD C13					.18 .20	NO NO		15	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR ✓K	SHEET 13 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 13R			P12-67 P19-A8					.13 .18	NO NO		13	
C 13Y			P12-43 P19-B8					.13 .18	NO NO		13	
C 14	8				1.75 1.00	1.50 .75				68 68	20 20	
C 14A	9		SHLD C14 P12-45					.20 .13	NO NO		13	
C 14B	9		P19-C9 SHLD C14					.18 .20	NO NO		15	
C 14R			P12-70 P19-B9					.13 .18	NO NO		13	
C 14Y			P12-46 P19-A9					.13 .18	NO NO		13	
C 15	8				1.75 1.00	1.50 .75				68 68	20 20	
C 15A	9		SHLD C15 P12-44					.20 .13	NO NO		13	
C 15B	9		P19-C10 SHLD C15					.18 .20	NO NO		15	
C 15R			P12-69 P19-A10					.13 .18	NO NO		13	
C 15Y			P12-68 P19-B10					.13 .18	NO NO		13	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 14 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 16	4											
C 16R			P12-9 P19-K4					.13 .18	NO NO		13 16	
C 16Y			P12-22 P19-H4					.13 .18	NO NO		13 16	
C 17	4											
C 17R			P12-24 P19-G3					.13 .18	NO NO		13 16	
C 17Y			P12-23 P19-G4					.13 .18	NO NO		13 16	
C 18	4											
C 18R			P12-11 P19-F3					.13 .18	NO NO		13 16	
C 18Y			P12-10 P19-F4					.13 .18	NO NO		13 16	
C 19	4											
C 19R			P12-66 P19-K3					.13 .18	NO NO		13 16	
C 19Y			P12-41 P19-H3					.13 .18	NO NO		13 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 15 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 20	5											
C 20G			P12-19 P19-F22					.13 .18	NO NO		13 15	
C 20R			P12-8 P19-H22					.13 .18	NO NO		13 15	
C 20Y			P12-7 P19-G22					.13 .18	NO NO		13 15	
C 21	3											
C 21R			P12-18 P19-G19					.13 .18	NO NO		13 15	
C 21Y			P12-6 P19-F19					.13 .18	NO NO		13 15	
C 22	3											
C 22R			P12-4 P19-G18					.13 .18	NO NO		13 15	
C 22Y			P12-5 P19-F18					.13 .18	NO NO		13 15	
C 23	3											
C 23R			P12-3 P19-G17					.13 .18	NO NO		13 15	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 16 OF 30

MIL 2084 9-65

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 23Y			P12-2 P19-F17					.13 .18	NO NO		13 15	
C 24	4											
C 24R			P12-82 P19-G13					.13 .18	NO NO		13 16	
C 24Y			P12-58 P19-H13					.13 .18	NO NO		13 16	
C 25	4											
C 25R			P12-35 P19-H14					.13 .18	NO NO		13 16	
C 25Y			P12-34 P19-G14					.13 .18	NO NO		13 16	
C 26	4											
C 26R			P12-61 P19-G15					.13 .18	NO NO		13 16	
C 26Y			P12-37 P19-H15					.13 .18	NO NO		13 16	
C 27	1		P12-1 P19-D11					.13 .18	NO NO		13 16	
C 28	7				1.75 1.00	1.50 .75				7 68	21 36	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 17 OF 30

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 28B	9		P19-D25 SHLD C28					.18 .20	NO NO		15	
C 28L			NONE NONE				1.75 1.00		NO NO			
C 28R			P15-5 P19-D23					.13 .18	NO NO		14, 30 16	
C 28W			P15-4 P19-D24					.13 .18	NO NO		14, 30 16	
C 29	7				1.75 1.00	1.50 .75				7 68	21 36	
C 29B	9		P19-C23 SHLD C29					.18 .20	NO NO		15	
C 29L			NONE NONE				1.75 1.00		NO NO			
C 29R			P15-16 P19-B23					.13 .18	NO NO		14, 30	
C 29W			P15-15 P19-A23					.13 .18	NO NO		14, 30	
C 30	7				1.75 1.00	1.50 .75				7 68	21 36	
C 30B	9		P19-C24 SHLD C30					.18 .20	NO NO		15	
C 30L			P15-34 P19-B24					.13 .18	NO NO		14, 30	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 18 OF 30

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 30R			P15-33 P19-C25					.13 .18	NO NO		14, 30 16	
C 30W			P15-32 P19-B25					.13 .18	NO NO		14, 30	
C 34	3											
C 34R			P15-40 P19-K20					.13 .18	NO NO		14 15	
C 34Y			P15-39 P19-H20					.13 .18	NO NO		14 15	
C 35	3											
C 35R			P15-42 P19-H21					.13 .18	NO NO		14 15	
C 35Y			P15-41 P19-K21					.13 .18	NO NO		14 15	
C 36	3											
C 36R			P15-52 P19-K22					.13 .18	NO NO		14 15	
C 36Y			P15-51 P19-K23					.13 .18	NO NO		14 15	
C 37	5											

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 19 OF 30

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 37G			P16-24 P19-K16					.13 .18	NO NO		14 15	
C 37R			P16-25 P19-H17					.13 .18	NO NO		14 15	
C 37Y			P16-23 P19-H18					.13 .18	NO NO		14 15	
C 38	3											
C 38R			P16-21 P19-H16					.13 .18	NO NO		14 15	
C 38Y			P16-22 P19-H19					.13 .18	NO NO		14 15	
C 39	3											
C 39R			P15-8 P19-G10					.13 .18	NO NO		14 15	
C 39Y			P15-9 P19-G9					.13 .18	NO NO		14 15	
C 40	4											
C 40R			P15-10 P19-K9					.13 .18	NO NO		14 16	
C 40Y			P15-11 P19-H9					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 20 OF 30

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 41	3											
C 41R			P16-6 P19-H2					.13 .18	NO NO		14 15	
C 41Y			P16-8 P19-G2					.13 .18	NO NO		14 15	
C 42	3											
C 42R			P16-7 P19-H1					.13 .18	NO NO		14 15	
C 42Y			P16-9 P19-G1					.13 .18	NO NO		14 15	
C 43	4											
C 43R			P16-14 P19-H6					.13 .18	NO NO		14 16	
C 43Y			P16-15 P19-K6					.13 .18	NO NO		14 16	
C 44	2		P16-16 P19-K8					.13 .18	NO NO		14 16	
C 45	4											
C 45R			P16-17 P19-K7					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 21 OF 30

MIL 2084 9-65

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 45Y			P16-18 P19-H7					.13 .18	NO NO		14 16	
C 46	5											
C 46G			P16-12 P19-K17					.13 .18	NO NO		14 15	
C 46R			P16-10 P19-K19					.13 .18	NO NO		14 15	
C 46Y			P16-11 P19-K18					.13 .18	NO NO		14 15	
C 47	3											
C 47R			P16-2 P19-G11					.13 .18	NO NO		14 15	
C 47Y			P16-4 P19-G12					.13 .18	NO NO		14 15	
C 48	3											
C 48R			P16-3 P19-H11					.13 .18	NO NO		14 15	
C 48Y			P16-5 P19-H12					.13 .18	NO NO		14 15	
C 49	3											

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 22 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 49R			P15-38 P19-F16					.13 .18	NO NO		14 15	
C 49Y			P15-37 P19-G16					.13 .18	NO NO		14 15	
C 50	2		P16-13 P19-D1					.13 .18	NO NO		14 16	
C 51	2		P15-25 P19-H5					.13 .18	NO NO		14 16	
C 52	2		P16-20 P19-K5					.13 .18	NO NO		14 16	
C 53	2		P16-19 P19-F1					.13 .18	NO NO		14 16	
C 54	3											
C 54R			P16-27 P19-H10					.13 .18	NO NO		14 15	
C 54Y			P16-28 P19-K10					.13 .18	NO NO		14 15	
C 55	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 55B	9		P19-C20 SHLD C55					.18 .20	NO NO		15	
C 55R			P16-33 P19-A20					.13 .18	NO NO		14	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 23 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 55Y			P16-34 P19-B20					.13 .18	NO NO		14	
C 56	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 56B	9		P19-C19 SHLD C56					.18 .20	NO NO		15	
C 56R			P16-35 P19-B19					.13 .18	NO NO		14	
C 56Y			P16-36 P19-A19					.13 .18	NO NO		14	
C 57	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 57B	9		P19-C22 SHLD C57					.18 .20	NO NO		15	
C 57R			P16-37 P19-A22					.13 .18	NO NO		14	
C 57Y			P16-38 P19-B22					.13 .18	NO NO		14	
C 58	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 58B	9		P19-C21 SHLD C58					.18 .20	NO NO		15	
C 58R			P16-39 P19-B21					.13 .18	NO NO		14	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 24 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 58Y			P16-40 P19-A21					.13 .18	NO NO		14	
C 59	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 59B	9		P19-C18 SHLD C59					.18 .20	NO NO		15	
C 59R			P16-41 P19-A18					.13 .18	NO NO		14	
C 59Y			P16-42 P19-B18					.13 .18	NO NO		14	
C 60	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 60B	9		P19-C17 SHLD C60					.18 .20	NO NO		15	
C 60R			P16-43 P19-B17					.13 .18	NO NO		14	
C 60Y			P16-44 P19-A17					.13 .18	NO NO		14	
C 61	8				1.75 1.00	1.50 .75				7 6B	21 20	
C 61B	9		P19-D22 SHLD C61					.18 .20	NO NO		15	
C 61R			P16-45 P19-D20					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 25 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 61Y			P16-46 P19-D21					.13 .18	NO NO		14 16	
C 62	8				1.75 1.00	1.50 .75				7 68	21 20	
C 62B	9		P19-D16 SHLD C62					.18 .20	NO NO		15	
C 62R			P16-47 P19-D17					.13 .18	NO NO		14 16	
C 62Y			P16-48 P19-D18					.13 .18	NO NO		14 16	
C 63	8				1.75 1.00	1.50 .75				7 68	21 20	
C 63B	9		P19-C16 SHLD C63					.18 .20	NO NO		15	
C 63R			P16-51 P19-A16					.13 .18	NO NO		14	
C 63Y			P16-52 P19-B16					.13 .18	NO NO		14	
C 64	8				1.75 1.00	1.50 .75				7 68	21 20	
C 64B	9		P19-D15 SHLD C64					.18 .20	NO NO		15	
C 64R			P16-53 P19-C15					.13 .18	NO NO		14 16	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 64Y			P16-54 P19-B15					.13 .18	NO NO		14	
C 65	8				1.75 1.00	1.50 .75				7 68	21 20	
C 65B	9		P19-D14 SHLD C65					.18 .20	NO NO		15	
C 65R			P16-55 P19-B14					.13 .18	NO NO		14	
C 65Y			P16-56 P19-C14					.13 .18	NO NO		14 16	
C 66	8				1.75 1.00	1.50 .75				7 68	21 20	
C 66B	9		P19-D13 SHLD C66					.18 .20	NO NO		15	
C 66R			P16-57 P19-C13					.13 .18	NO NO		14 16	
C 66Y			P16-58 P19-B13					.13 .18	NO NO		14	
C 67	1		P16-1 P19-D12					.13 .18	NO NO		14 16	
C 74	6											
C 74G			P15-22 P19-G25					.13 .18	NO NO		14 16	

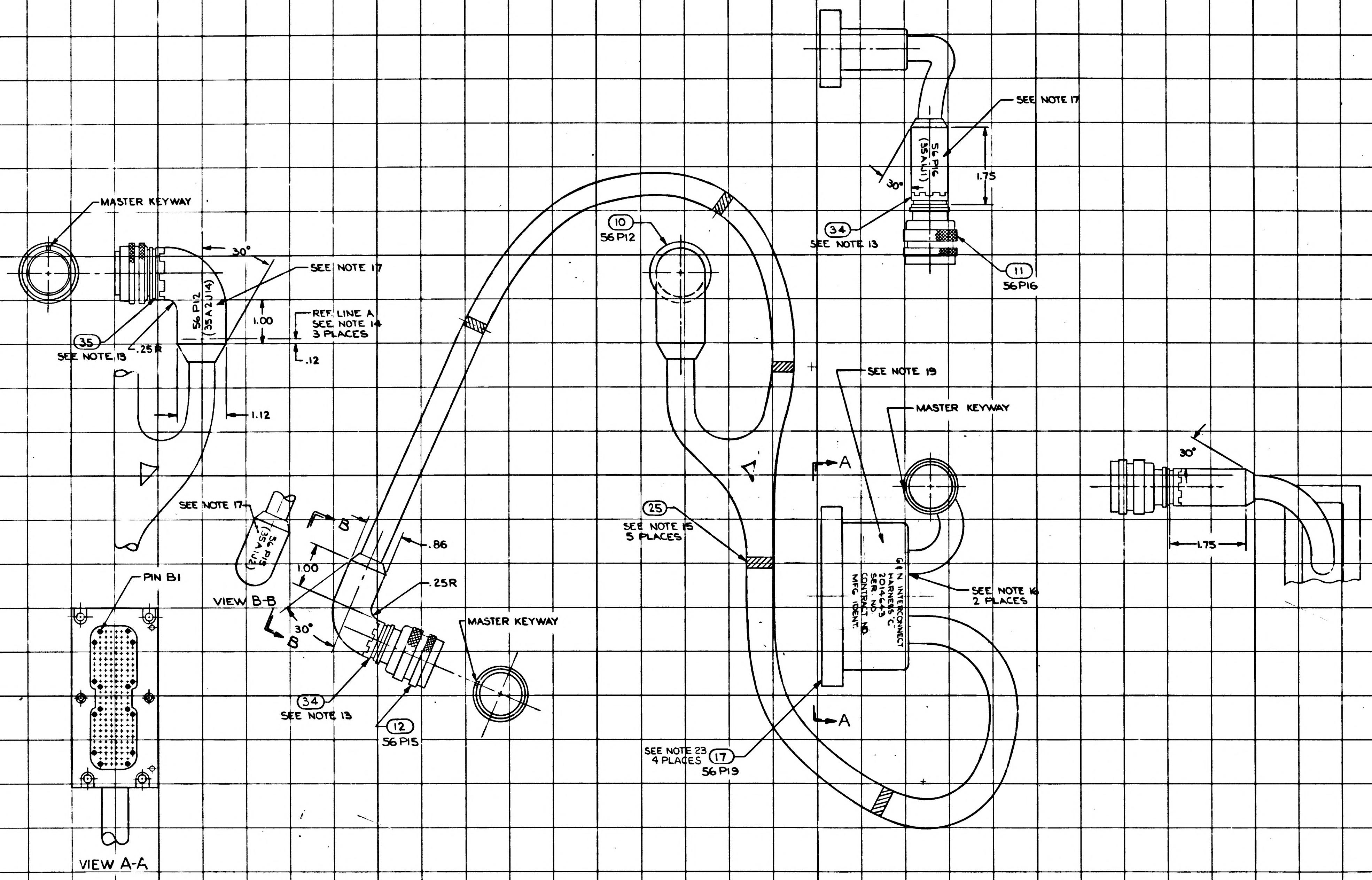
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 74N			P15-21 P19-G24					.13 .18	NO NO		14 16	
C 74R			P15-19 P19-F25					.13 .18	NO NO		14 16	
C 74Y			P15-20 P19-F24					.13 .18	NO NO		14 16	
C 76	2		P16-59 P19-F15					.13 .18	NO NO		14 16	
C 77	7				1.75 1.00	1.50 .75				68 68	36 36	
C 77A	9		SHLD C77 P12-65					.20 .13	NO NO		13	
C 77B	9		P19-D7 SHLD C77					.18 .20	NO NO		15	
C 77L			NONE NONE				1.75 1.00		NO NO			
C 77R			P12-40 P19-D5					.13 .18	NO NO		13, 30 16	
C 77W			P12-21 P19-D6					.13 .18	NO NO		13, 30 16	
C 78	7				1.75 1.00	1.50 .75				68 68	36 36	
C 78A	9		SHLD C78 P12-79					.20 .13	NO NO		13	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 78B	9		P19-F7 SHLD C78					.18 .20	NO NO		15	
C 78L			NONE NONE				1.75 1.00		NO NO			
C 78R			P12-32 P19-F5					.13 .18	NO NO		13, 30 16	
C 78W			P12-55 P19-F6					.13 .18	NO NO		13, 30 16	
C 79	7				1.75 1.00	1.50 .75				68 68	36 36	
C 79A	9		SHLD C79 P12-62					.20 .13	NO NO		13	
C 79B	9		P19-G7 SHLD C79					.18 .20	NO NO		15	
C 79L			NONE NONE				1.75 1.00		NO NO			
C 79R			P12-36 P19-G5					.13 .18	NO NO		13, 30 16	
C 79W			P12-20 P19-G6					.13 .18	NO NO		13, 30 16	

REVISIONS REV F TDRR 24808

SYM	ZONE	DESCRIPTION	DATE	APPD
		CHG NO		

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
30°
SEE NOTE 17
56 P12 (35A2J14)
REF. LINE A SEE NOTE 14 3 PLACES
1.00
.12
35
SEE NOTE 13
.25 R
1.12
10
56P12
56 P16 (35A1J1)
SEE NOTE 17
30°
1.75
34
SEE NOTE 13
11
56P16
SEE NOTE 19
MASTER KEYWAY
A
A
G&N INTERCONNECT HARNESS "C" 2014643 SER. NO. CONTRACT NO. MFG IDENT.
SEE NOTE 16 2 PLACES
25
SEE NOTE 15 5 PLACES
SEE NOTE 23 4 PLACES
17
56P19
SEE NOTE 17
56 P15 (35A1J2)
B
B
VIEW B-B
1.00
.86
.25R
30°
MASTER KEYWAY
34
SEE NOTE 13
12
56P15
PIN B1
VIEW A-A
30°
1.75

2014643

REV LTR L

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2014567-011	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ±.03 ±5°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN P.A. Leone 11/16/65
CHECKED N. Abraham 12-17-65
APPROVED Paul Watson DEC 20 65
APPROVED J.E. Kuser
APPROVED MIT W. Hayfer 21/65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

CODE IDENT NO 80230
SIZE E
DRAWING NO. 2014643
SCALE 1:1
SHEET 30 OF 30

MX-109891

APPLICATION	
NEXT ASSY	USED ON
2014567-011	2014567-C11

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REPLACES REV D WITH CHANGE PER TDRR	24-NOV-65	B. EF
F	ADDED CONFIGURATION AND CHANGES PER TDRR 24808		
G	Revised per TDRR 25306	2/4/66	
H	REVISED PER TDRR-26660	7-MAR-66	B. AU
J	REVISED PER TDRR 28058	19-APR-66	PHG
K	REVISED PER TDRR 28231	2-MAY-66	B. JAC
L	REVISED PER TDRR 28408	10-MAY-66	B.
M	REVISED PER TDRR 28409	10 MAY-66	B.
N	REVISED PER TDRR 28837	20 MAY 66	JW CP
P	REVISED PER TDRR 29546	17 JUN 66	JIMP

REV	J	J	J	J	J	J	J	J	J	J	L
SHEET	20	21	22	23	24	25	26	27	28	29	30

REV STATUS OF SHEETS																				
REV	P	J	N	P	J	J	P	P	J	J	K	K	K	J	J	J	J	J	J
SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	19	19

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. LITZON DATE 27 MAY 65
CHECKED FESLER 28 MAY 65
APPROVAL P.C. WATSON 8-28-65
APPROVAL
NASA APPROVAL
MIT APPROVAL
CONTRACT NAS 9-497

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

CODE IDENT NO. 80230
SIZE A
2014643
REV P
SCALE NONE
SHEET 1 OF 30

NOTE GENERAL NOTES

NUMBER DESCRIPTION

1 SHIELD TERMINATION FIGURES ARE PER ND1002071 FOR FIGURE 6B AND ND1002032 FOR FIGURE 7.

2 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

3 INTERCONNECT LIST FOR THIS HARNESS IS 2014673.

4 PARTIAL CIRCUIT POINTS ARE SHOWN. PREFIX WITH UNIT NUMBER 56 FOR COMPLETE CIRCUIT POINT

5 THE SUFFIX LETTER OF A CONDUCTOR IDENTIFICATION NUMBER IDENTIFIES A SHIELD LEAD, COLOR, OR MARKED LETTER.
- A - FROM END OF SHIELD
- B - TO END OF SHIELD
- G - GREEN
- K - BLACK
- L - BLUE
- N - BROWN
- R - RED
- W - WHITE
- Y - YELLOW

6 ASTERISK DENOTES LOWER CASE LETTER

7 GRID MODULE ON PICTURE SHEET IS 1 INCH TRUE POSITION

8 UNLESS OTHERWISE SPECIFIED FEATURE CENTERLINES ON PICTURE SHEET ARE LOCATED WITHIN + OR - .25. ENDS OF HOOKUP WIRES OR ACCESSORIES ARE LOCATED WITHIN .12.

9 VENDOR ITEM - SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING.

10 CRIMP CONTACTS PER ND1002032.

SIZE A	CODE IDENT NO. 80230	2014643
SCALE-NONE	REV LTR J	SHEET 2 OF 30

NOTE GENERAL NOTES

NUMBER DESCRIPTION

11 ALL UNUSED CONTACT CAVITIES SHALL BE FILLED WITH A CONTACT OR CONTACT AND SEALING PLUG AS FOLLOWS
- CONNECTOR 56P15 AND 16 USE ITEM NUMBERS 19 AND 14.
- CONNECTOR 56P12 USE ITEM NUMBERS 18 AND 13.
- CONNECTOR 56P19 USE ITEM NUMBER 15.

12 LACE HARNESS PER ND1002032 USING ITEM NUMBER 32.

13 APPLY BONDING MATERIAL PER ND1002187, TYPE 1, USING ITEMS 23 AND 24 TO THE THREADED PORTION OF CONNECTOR AND TO THE THREADED PORTION OF THE ADAPTER PRIOR TO ASSEMBLY.

14 ALL SHIELDED TERMINATIONS SHALL BE LOCATED BELOW REFERENCE LINE A. THERE SHALL BE NO EXPOSED CONDUCTORS AT THE SURFACE OF THE POTTING COMPOUND.

15 BEFORE LACING HARNESS, APPLY 2 TURNS OF TAPE, ITEM 25, TO INDICATE CABLE CLAMP LOCATION.

16 WRAP TAPE AROUND HARNESS IN AREA SHOWN AS REQUIRED, TO BUILD UP DIAMETER TO FIT SHELL HOLE.

17 MARK CONNECTOR WITH REFERENCE DESIGNATION AS SHOWN .12 HIGH, BLACK, PER ND1002019, CENTRALIZE.

19 MARK CHARACTERS .12 HIGH, BLACK, PER ND1002019, SERIALIZE PER ND1002023.

20 CONTINUITY TEST PER CONDUCTOR CHART. RESISTANCE SHALL BE LESS THAN 1/2 OHM, EXCEPT FOR CONDUCTORS USING ITEM 7. THESE SHALL BE LESS THAN 2 OHMS. TEST PER MIL-STD-202, METHOD 303.

SIZE A	CODE IDENT NO. 80230	2014643
SCALE-NONE	REV LTR N	SHEET 3 OF 30

NOTE GENERAL NOTES

NUMBER DESCRIPTION

21 INSULATION RESISTANCE SHALL BE GREATER THAN 100 MEGOHMS WITH 500 VDC APPLIED BETWEEN
- A. THE ASSEMBLY PINS AND STRUCTURE GROUND, EXCEPT THOSE_PINS ELECTRICALLY CONNECTED TO STRUCTURE GROUND.
- B. EACH PIN AND ALL OTHER PINS NOT ELECTRICALLY CONNECTED, INCLUDING ALL SPARE PINS.

TEST PER MIL-STD-202, METHOD 302. SHORT CIRCUIT CURRENT SHALL BE LIMITED TO 15 MA, EXCEPT ELECTRIFICATION TIME NOT APPLICABLE.

22 DELETED

23 ENCAPSULATE BACK OF CONNECTORS PER ND1002236 USING ITEMS 22 AND 29.

24 PERFORM WORKMANSHIP VIBRATION
A. SINUSOIDAL SWEEP AT 3.5 G RMS, LIMITED TO 0.3 INCH PEAK TO PEAK DISPLACEMENT, FROM 10 TO 2000 CPS AT A RATE OF 4 OCTAVES PER MINUTE.
B. VIBRATION ALONG THE X AXIS OF THE SPACE CRAFT.
C. MONITOR FOR DISCONTINUITIES OF 10 MICRO SECONDS OR GREATER DURING VIBRATION.
D. COMPLETE CONTINUITY AND INSULATION RESISTANCE TESTING MUST BE ACCOMPLISHED AFTER VIBRATION.

25 ASSEMBLE INSULATION SLEEVE ITEM 37 OVER EACH ELECTRICALLY CONNECTED PIN OF CONNECTOR P19. POSITION SLEEVING FLUSH TO TOP OF NYLON INSULATOR.

SIZE A	CODE IDENT NO. 80230	2014643
SCALE-NONE	REV LTR P	SHEET 4 OF 30

NOTE GENERAL NOTES

NUMBER DESCRIPTION

LEAD TOLERANCE CHART

	LEAD LG	JKT STRIP LG	SHIELD STRIP LG	LEAD CUT LG	INS STRIP LG
UNDER 3 INCHES	+ .12-.00	+.06-.06	+.06-.06	+.06-.06	+.06-.00
3 INCH TO 3 FT	+ .50-.00	+.25-.25	+.25-.25	+.25-.25	
3 FT TO 10 FT	+1.00-.00				
10 FT AND OVER	+2.00-.00				

SIZE A	CODE IDENT NO. 80230	2014643
SCALE-NONE	REV LTR J	SHEET 5 OF 30

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	1	1	2014643-001	WIRE PER 1010789-006, 22AWG, YEL, 5 FT TOT LG
	2	1	2014643-002	WIRE PER 1010789-016, 26 AWG, YEL, 10 FT TOT LG
	3	1	2014643-003	WIRE PER 1010789-008, 22AWG, YEL, RED, 30 FT TOT LG
	4	1	2014643-004	WIRE PER 1010789-017, 26 AWG, YEL, RED, 25 FT TOT LG
	5	1	2014643-005	WIRE PER 1010789-009, 22 AWG, YEL, RED, GRN 5 FT TOT LG
	6	1	2014643-006	WIRE PER 1010789-019, 26 AWG, YEL, RED, GRN, BRN, 5 FT TOT LG
	7	1	2014643-007	WIRE PER 1010707-1, RED JKT, 29 AWG, RED, WHT, BLUE, 26 FT TOT LG
	8	1	2014643-008	WIRE PER 1010789-015, 26 AWG, YEL, RED, YEL JKT, 40 FT TOT LG
	9	1	2014643-009	WIRE PER 1010789-002, 24 AWG, BLK, 35 FT TOT LG
9	10	1	1010929-001	CONNECTOR, PLUG, ELECTRICAL (P12)
9	11	1	1010965- 1	CONNECTOR, PLUG, ELECTRICAL (P16)
9	12	1	1010965- 2	CONNECTOR, PLUG, ELECTRICAL (P15)
9	13	X	1010770- 2	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010929
9	14	X	1010781- 1	CONTACT, SOCKET SUPPLIED WITH CONNECTOR 1010965
9	15	98	1010955- 1	CONTACT, MALE

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SCALE-NONE
REV LTR J
SHEET 6 OF 30

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
9	16	84	1010955- 2	CONTACT, MALE
	17	1	2014743-011	CONNECTOR, PLUG, ELECTRICAL (P19)
9	18	13	1010958- 1	PLUG, PROTECTIVE SEALING
9	19	30	1010984	PLUG, PROTECTIVE SEALING
9	20	33	1010402- 2	SLEEVE SOLDER
9	21	15	1012534- 36	INSULATION SLEEVE (HEAT SHRINKABLE)
9	22	AR	1012503	COMPOUND, POTTING, POLYURETHANE
9	23	AR	1010679	ADHESIVE ACTIVATOR
9	24	AR	1010661	EPOXY RESIN
	25	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1/4 INCH WIDE
	26	AR	MIL-T-23594	TAPE, TEFLON, TYPE II, 1 INCH WIDE
	27		1006277	DELETED
	28		1008822	DELETED
9	29	AR	1012504	PRIMER, METAL PARTS
9	30	29	1010862	BUSHING, SLEEVE
9	32	AR	1012507- 4	TAPE, LACING
9	33	6	1012534- 37	SLEEVE, INSULATION (HEAT SHRINKABLE)
	34	2	2014670- 6	ADAPTER, CONNECTOR

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SCALE-NONE
REV LTR P
SHEET 7 OF 30

LIST OF MATERIALS

SEE NOTE NUMBER	ITEM	QTY	PART NO.	DESCRIPTION
	35	1	2014670- 4	ADAPTER, CONNECTOR
9	36	12	1010763- 2	SLEEVE, SOLDER
9	37	142	1010490-114	INSULATION SLEEVING (HEAT SHRINKABLE)

SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR P
SHEET 8 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 1	7				1.75 1.75	1.50 1.50				68 7	36 21	A
C 1A	9		SHLD C1 P12-38					.20 .13	NO NO		13	
C 1L			P12-63 P15-3					.13 .13	NO NO		13, 30 14, 30	
C 1R			P12-39 P15-1					.13 .13	NO NO		13, 30 14, 30	
C 1W			P12-64 P15-2					.13 .13	NO NO		13, 30 14, 30	
C 2	7				1.75 1.75	1.50 1.50				68 7	36 21	
C 2A	9		SHLD C2 P12-59					.20 .13	NO NO		13	
C 2L			P12-84 P15-14					.13 .13	NO NO		13, 30 14, 30	
C 2R			P12-60 P15-12					.13 .13	NO NO		13, 30 14, 30	
C 2W			P12-85 P15-13					.13 .13	NO NO		13, 30 14, 30	
C 3	7				1.75 1.75	1.50 1.50				68 7	36 21	
C 3A	9		SHLD C3 P12-80					.20 .13	NO NO		13	

SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR J
SHEET 9 OF 30

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 3L			P12-81 P15-61					.13 .13	NO NO		13, 30 14, 30	
C 3R			P12-56 P15-59					.13 .13	NO NO		13, 30 14, 30	
C 3W			P12-57 P15-60					.13 .13	NO NO		13, 30 14, 30	
C 4	8				1.75 1.75	1.50 1.50				6B 7	20 21	
C 4A	9		SHLD C4 P12-33					.20 .13	NO NO		 13	
C 4R			P12-16 P15-6					.13 .13	NO NO		13 14	
C 4Y			P12-17 P15-7					.13 .13	NO NO		13 14	
C 5	8				1.75 1.75	1.50 1.50				6B 7	20 21	
C 5A	9		SHLD C5 P12-27					.20 .13	NO NO		 13	
C 5R			P12-26 P15-17					.13 .13	NO NO		13 14	
C 5Y			P12-12 P15-18					.13 .13	NO NO		13 14	
C 6	8				1.75 1.75	1.50 1.50				6B 7	20 21	

SIZE	CODE IDENT NO.		
A	80230	2014643	
SCALE-NONE	REV LTR J	SHEET 10 OF 30	

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 6A	9		SHLD C6 P12-47					.20 .13	NO NO		 13	
C 6R			P12-72 P15-35					.13 .13	NO NO		13 14	
C 6Y			P12-71 P15-36					.13 .13	NO NO		13 14	
C 7	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 7A	9		SHLD C7 P12-48					.20 .13	NO NO		 13	
C 7B	9		P19-C5 SHLD C7					.18 .20	NO NO		15	
C 7R			P12-~~28~~ 49 P19-B5					.13 .18	NO NO		13	
C 7Y			P12-~~44~~ 28 P19-A5					.13 .18	NO NO		13	
C 8	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 8A	9		SHLD C8 P12-53					.20 .13	NO NO		 13	
C 8B	9		P19-C4 SHLD C8					.18 .20	NO NO		15	
C 8R			P12-~~78~~ 54 P19-A4					.13 .18	NO NO		13	

SIZE	CODE IDENT NO.		
A	80230	2014643	
SCALE-NONE	REV LTR K	SHEET 11 OF 30	

WIRING HARNESS C 2014643 K

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 8Y			P12-~~54~~ 78 P19-B4					.13 .18	NO NO		13	
C 9	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 9A	9		SHLD C9 P12-29					.20 .13	NO NO		 13	
C 9B	9		P19-C7 SHLD C9					.18 .20	NO NO		15	
C 9R			P12-~~14~~ 13 P19-B7					.13 .18	NO NO		13	
C 9Y			P12-~~15~~ 14 P19-A7					.13 .18	NO NO		13	
C 10	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 10A	9		SHLD C10 P12-50					.20 .13	NO NO		 13	
C 10B	9		P19-C6 SHLD C10					.18 .20	NO NO		15	
C 10R			P12-~~74~~ 75 P19-A6					.13 .18	NO NO		13	
C 10Y			P12-~~75~~ 74 P19-B6					.13 .18	NO NO		13	
C 11	8				1.75 1.00	1.50 .75				6B 6B	20 20	

SIZE	CODE IDENT NO.		
A	80230	2014643	
SCALE-NONE	REV LTR K	SHEET 12 OF 30	

WIRING HARNESS C 2014643 K

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 11A	9		SHLD C11 P12-30					.20 .13	NO NO		 13	
C 11B	9		P19-C3 SHLD C11					.18 .20	NO NO		15	
C 11R			P12-~~31~~ 15 P19-B3					.13 .18	NO NO		13	
C 11Y			P12-~~15~~ 31 P19-A3					.13 .18	NO NO		13	
C 12	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 12A	9		SHLD C12 P12-52					.20 .13	NO NO		 13	
C 12B	9		P19-C2 SHLD C12					.18 .20	NO NO		15	
C 12R			P12-~~76~~ 51 P19-B1					.13 .18	NO NO		13	
C 12Y			P12-~~51~~ 76 P19-B2					.13 .18	NO NO		13	
C 13	8				1.75 1.00	1.50 .75				6B 6B	20 20	
C 13A	9		SHLD C13 P12-42					.20 .13	NO NO		 13	
C 13B	9		P19-C8 SHLD C13					.18 .20	NO NO		15	

SIZE	CODE IDENT NO.		
A	80230	2014643	
SCALE-NONE	REV LTR K	SHEET 13 OF 30	

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 13R			P12-57 P19-A8					.13 .18	NO NO		13	
C 13Y			P12-43 P19-B8					.13 .18	NO NO		13	
C 14	8				1.75 1.00	1.50 .75				68 68	20 20	
C 14A	9		SHLD C14 P12-45					.20 .13	NO NO		13	
C 14B	9		P19-C9 SHLD C14					.18 .20	NO NO		15	
C 14R			P12-70 P19-89					.13 .18	NO NO		13	
C 14Y			P12-46 P19-A9					.13 .18	NO NO		13	
C 15	8				1.75 1.00	1.50 .75				68 68	20 20	
C 15A	9		SHLD C15 P12-44					.20 .13	NO NO		13	
C 15B	9		P19-C10 SHLD C15					.18 .20	NO NO		15	
C 15R			P12-69 P19-A10					.13 .18	NO NO		13	
C 15Y			P12-68 P19-B10					.13 .18	NO NO		13	

SIZE A | CODE IDENT NO. 80230 | 2014643

SCALE-NONE | REV LTR J | SHEET 14 OF 30

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 16	4											
C 16R			P12-9 P19-K4					.13 .18	NO NO		13 16	
C 16Y			P12-22 P19-H4					.13 .18	NO NO		13 16	
C 17	4											
C 17R			P12-24 P19-G3					.13 .18	NO NO		13 16	
C 17Y			P12-23 P19-G4					.13 .18	NO NO		13 16	
C 18	4											
C 18R			P12-11 P19-F3					.13 .18	NO NO		13 16	
C 18Y			P12-10 P19-F4					.13 .18	NO NO		13 16	
C 19	4											
C 19R			P12-66 P19-K3					.13 .18	NO NO		13 16	
C 19Y			P12-41 P19-H3					.13 .16	NO NO		13 16	

SIZE A | CODE IDENT NO. 80230 | 2014643

SCALE-NONE | REV LTR J | SHEET 15 OF 30

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 20	5											
C 20G			P12-19 P19-F22					.13 .18	NO NO		13 15	
C 20R			P12-8 P19-H22					.13 .18	NO NO		13 15	
C 20Y			P12-7 P19-G22					.13 .18	NO NO		13 15	
C 21	3											
C 21R			P12-18 P19-G19					.13 .18	NO NO		13 15	
C 21Y			P12-6 P19-F19					.13 .18	NO NO		13 15	
C 22	3											
C 22R			P12-4 P19-G18					.13 .18	NO NO		13 15	
C 22Y			P12-5 P19-F18					.13 .18	NO NO		13 15	
C 23	3											
C 23R			P12-3 P19-G17					.13 .18	NO NO		13 15	

SIZE A | CODE IDENT NO. 80230 | 2014643

SCALE-NONE | REV LTR J | SHEET 16 OF 30

WIRING HARNESS C 2014643 J

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 23Y			P12-2 P19-F17					.13 .18	NO NO		13 15	
C 24	4											
C 24R			P12-82 P19-G13					.13 .18	NO NO		13 16	
C 24Y			P12-58 P19-H13					.13 .18	NO NO		13 16	
C 25	4											
C 25R			P12-35 P19-H14					.13 .18	NO NO		13 16	
C 25Y			P12-34 P19-G14					.13 .18	NO NO		13 16	
C 26	4											
C 26R			P12-61 P19-G15					.13 .18	NO NO		13 16	
C 26Y			P12-37 P19-H15					.13 .18	NO NO		13 16	
C 27	1		P12-1 P19-D11					.13 .18	NO NO		13 16	
C 28	7				1.75 1.00	1.50 .75				7 68	21 36	

SIZE A | CODE IDENT NO. 80230 | 2014643

SCALE-NONE | REV LTR J | SHEET 17 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 28B	9		P19-D25 SHLD C28					.18 .20	NO NO		15	
C 28L			NONE NONE				1.75 1.00		NO NO			
C 28R			P15-5 P19-D23					.13 .18	NO NO		14, 30 16	
C 28W			P15-4 P19-D24					.13 .18	NO NO		14, 30 16	
C 29	7				1.75 1.00	1.50 .75				7 68	21 36	
C 29B	9		P19-C23 SHLD C29					.18 .20	NO NO		15	
C 29L			NONE NONE				1.75 1.00		NO NO			
C 29R			P15-16 P19-B23					.13 .18	NO NO		14, 30	
C 29W			P15-15 P19-A23					.13 .18	NO NO		14, 30	
C 30	7				1.75 1.00	1.50 .75				7 68	21 36	
C 30B	9		P19-C24 SHLD C30					.18 .20	NO NO		15	
C 30L			P15-34 P19-B24					.13 .18	NO NO		14, 30	

SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR J
SHEET 18 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 30R			P15-33 P19-C25					.13 .18	NO NO		14, 30 16	
C 30W			P15-32 P19-B25					.13 .18	NO NO		14, 30	
C 34	3											
C 34R			P15-40 P19-K20					.13 .18	NO NO		14 15	
C 34Y			P15-39 P19-H20					.13 .18	NO NO		14 15	
C 35	3											
C 35R			P15-42 P19-H21					.13 .18	NO NO		14 15	
C 35Y			P15-41 P19-K21					.13 .18	NO NO		14 15	
C 36	3											
C 36R			P15-52 P19-K22					.13 .18	NO NO		14 15	
C 36Y			P15-51 P19-K23					.13 .18	NO NO		14 15	
C 37	5											

SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR J
SHEET 19 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 37G			P16-24 P19-K16					.13 .18	NO NO		14 15	
C 37R			P16-25 P19-H17					.13 .18	NO NO		14 15	
C 37Y			P16-23 P19-H18					.13 .18	NO NO		14 15	
C 38	3											
C 38R			P16-21 P19-H16					.13 .18	NO NO		14 15	
C 38Y			P16-22 P19-H19					.13 .18	NO NO		14 15	
C 39	3											
C 39R			P15-8 P19-G10					.13 .18	NO NO		14 15	
C 39Y			P15-9 P19-G9					.13 .18	NO NO		14 15	
C 40	4											
C 40R			P15-10 P19-K9					.13 .18	NO		14 16	
C 40Y			P15-11 P19-H9					.13 .18	NO NO		14 16	

SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR J
SHEET 20 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM.JKT AREA NO.	STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 41	3											
C 41R			P16-6 P19-H2					.13 .18	NO NO		14 15	
C 41Y			P16-8 P19-G2					.13 .18	NO NO		14 15	
C 42	3											
C 42R			P16-7 P19-H1					.13 .18	NO NO		14 15	
C 42Y			P16-9 P19-G1					.13 .18	NO NO		14 15	
C 43	4											
C 43R			P16-14 P19-H6					.13 .18	NO NO		14 16	
C 43Y			P16-15 P19-K6					.13 .18	NO NO		14 16	
C 44	2		P16-16 P19-K8					.13 .18	NO NO		14 16	
C 45	4											
C 45R			P16-17 P19-K7					.13 .18	NO NO		14 16	

SIZE A
CODE IDENT NO. 80230
2014643
SCALE-NONE
REV LTR J
SHEET 21 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 45Y			P16-18 P19-H7					.13 .18	NO NO		14 16	
C 46	5											
C 46G			P16-12 P19-K17					.13 .18	NO NO		14 15	
C 46R			P16-10 P19-K19					.13 .18	NO NO		14 15	
C 46Y			P16-11 P19-K18					.13 .18	NO NO		14 15	
C 47	3											
C 47R			P16-2 P19-G11					.13 .18	NO NO		14 15	
C 47Y			P16-4 P19-G12					.13 .18	NO NO		14 15	
C 48	3											
C 48R			P16-3 P19-H11					.13 .18	NO NO		14 15	
C 48Y			P16-5 P19-H12					.13 .18	NO NO		14 15	
C 49	3											

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 49R			P15-38 P19-F16					.13 .18	NO NO		14 15	
C 49Y			P15-37 P19-G16					.13 .18	NO NO		14 15	
C 50	2		P16-13 P19-D1					.13 .18	NO NO		14 16	
C 51	2		P15-25 P19-H5					.13 .18	NO NO		14 16	
C 52	2		P16-20 P19-K5					.13 .18	NO NO		14 16	
C 53	2		P16-19 P19-F1					.13 .18	NO NO		14 16	
C 54	3											
C 54R			P16-27 P19-H10					.13 .18	NO NO		14 15	
C 54Y			P16-28 P19-K10					.13 .18	NO NO		14 15	
C 55	8				1.75 1.00	1.50 .75				7 68	21 20	
C 55B	9		P19-C20 SHLD C55					.18 .20	NO NO		15	
C 55R			P16-33 P19-A20					.13 .18	NO NO		14	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 55Y			P16-34 P19-B20					.13 .18	NO NO		14	
C 56	8				1.75 1.00	1.50 .75				7 68	21 20	
C 56B	9		P19-C19 SHLD C56					.18 .20	NO NO		15	
C 56R			P16-35 P19-B19					.13 .18	NO NO		14	
C 56Y			P16-36 P19-A19					.13 .18	NO NO		14	
C 57	8				1.75 1.00	1.50 .75				7 68	21 20	
C 57B	9		P19-C22 SHLD C57					.18 .20	NO NO		15	
C 57R			P16-37 P19-A22					.13 .18	NO NO		14	
C 57Y			P16-38 P19-B22					.13 .18	NO NO		14	
C 58	8				1.75 1.00	1.50 .75				7 68	21 20	
C 58B	9		P19-C21 SHLD C58					.18 .20	NO NO		15	
C 58R			P16-39 P19-B21					.13 .18	NO NO		14	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 58Y			P16-40 P19-A21					.13 .18	NO NO		14	
C 59	8				1.75 1.00	1.50 .75				7 68	21 20	
C 59B	9		P19-C18 SHLD C59					.18 .20	NO NO		15	
C 59R			P16-41 P19-A18					.13 .18	NO NO		14	
C 59Y			P16-42 P19-B18					.13 .18	NO NO		14	
C 60	8				1.75 1.00	1.50 .75				7 68	21 20	
C 60B	9		P19-C17 SHLD C60					.18 .20	NO NO		15	
C 60R			P16-43 P19-B17					.13 .18	NO NO		14	
C 60Y			P16-44 P19-A17					.13 .18	NO NO		14	
C 61	8				1.75 1.00	1.50 .75				7 68	21 20	
C 61B	9		P19-D22 SHLD C61					.18 .20	NO NO		15	
C 61R			P16-45 P19-D20					.13 .18	NO NO		14 16	

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 61Y			P16-46 P19-D21					.13 .18	NO NO		14 16	
C 62	8				1.75 1.00	1.50 .75				7 68	21 20	
C 62B	9		P19-D16 SHLD C62					.18 .20	NO NO		15	
C 62R			P16-47 P19-D17					.13 .18	NO NO		14 16	
C 62Y			P16-48 P19-D18					.13 .18	NO NO		14 16	
C 63	8				1.75 1.00	1.50 .75				7 68	21 20	
C 63B	9		P19-C16 SHLD C63					.18 .20	NO NO		15	
C 63R			P16-51 P19-A16					.13 .18	NO NO		14	
C 63Y			P16-52 P19-B16					.13 .18	NO NO		14	
C 64	8				1.75 1.00	1.50 .75				7 68	21 20	
C 64B	9		P19-D15 SHLD C64					.18 .20	NO NO		15	
C 64R			P16-53 P19-C15					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
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LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 64Y			P16-54 P19-B15					.13 .18	NO NO		14	
C 65	8				1.75 1.00	1.50 .75				7 68	21 20	
C 65B	9		P19-D14 SHLD C65					.18 .20	NO NO		15	
C 65R			P16-55 P19-B14					.13 .18	NO NO		14	
C 65Y			P16-56 P19-C14					.13 .18	NO NO		14 16	
C 66	8				1.75 1.00	1.50 .75				7 68	21 20	
C 66B	9		P19-D13 SHLD C66					.18 .20	NO NO		15	
C 66R			P16-57 P19-C13					.13 .18	NO NO		14 16	
C 66Y			P16-58 P19-B13					.13 .18	NO NO		14	
C 67	1		P16-1 P19-D12					.13 .18	NO NO		14 16	
C 74	6											
C 74G			P15-22 P19-G25					.13 .18	NO NO		14 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 27 OF 30

LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 74N			P15-21 P19-G24					.13 .18	NO NO		14 16	
C 74R			P15-19 P19-F25					.13 .18	NO NO		14 16	
C 74Y			P15-20 P19-F24					.13 .18	NO NO		14 16	
C 76	2		P16-59 P19-F15					.13 .18	NO NO		14 16	
C 77	7				1.75 1.00	1.50 .75				68 68	36 36	
C 77A	9		SHLD C77 P12-65					.20 .13	NO NO		 13	
C 77B	9		P19-D7 SHLD C77					.18 .20	NO NO		15	
C 77L			NONE NONE				1.75 1.00		NO NO			
C 77R			P12-40 P19-D5					.13 .18	NO NO		13, 30 16	
C 77W			P12-21 P19-D6					.13 .18	NO NO		13, 30 16	
C 78	7				1.75 1.00	1.50 .75				68 68	36 36	
C 78A	9		SHLD C78 P12-79					.20 .13	NO NO		 13	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 28 OF 30

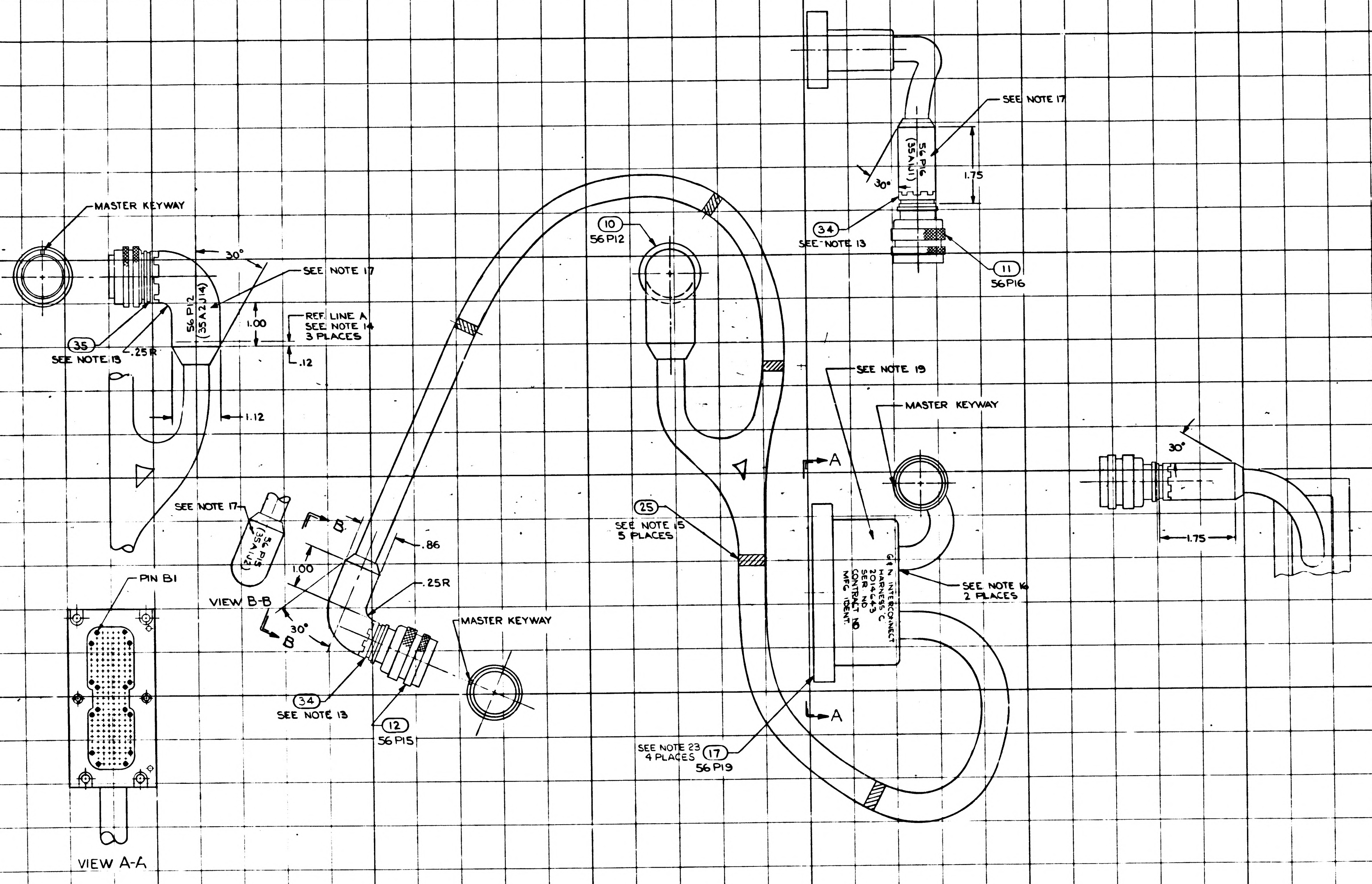
LEAD IDENT	WIRE MATL ITEM	LEAD LG	CIRCUIT PT FROM (A) TO (B)	TERM. AREA NO.	JKT STRIP LG	SHLD STRIP LG	LEAD CUT LG	INS STRIP LG	TIN	NOTE ONE, FIG	ACCESSORY ITEMS	REMARKS
C 78B	9		P19-F7 SHLD C78					.18 .20	NO NO		15	
C 78L			NONE NONE				1.75 1.00		NO NO			
C 78R			P12-32 P19-F5					.13 .18	NO NO		13, 30 16	
C 78W			P12-55 P19-F6					.13 .18	NO NO		13, 30 16	
C 79	7				1.75 1.00	1.50 .75				68 68	36 36	
C 79A	9		SHLD C79 P12-62					.20 .13	NO NO		 13	
C 79B	9		P19-G7 SHLD C79					.18 .20	NO NO		15	
C 79L			NONE NONE				1.75 1.00		NO NO			
C 79R			P12-36 P19-G5					.13 .18	NO NO		13, 30 16	
C 79W			P12-20 P19-G6					.13 .18	NO NO		13, 30 16	

SIZE	CODE IDENT NO.	
A	80230	2014643
SCALE-NONE	REV LTR J	SHEET 29 OF 30

REVISIONS Rev F TDRR 24808

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD

SEE SHEET 1 FOR REVISION RECORD



MASTER KEYWAY
30°
SEE NOTE 17
56 P12 (35 A2J14)
35
SEE NOTE 13
.25R
1.00
REF. LINE A
SEE NOTE 14
3 PLACES
.12
1.12
SEE NOTE 17
56 P15 (35A1J2)
VIEW B-B
B
1.00
30°
.86
.25R
34
SEE NOTE 13
12
56P15
MASTER KEYWAY
PIN B1
VIEW A-A
10
56P12
25
SEE NOTE 15
5 PLACES
A
SEE NOTE 19
MASTER KEYWAY
G&N INTERCONNECT HARNESS C 2014643 SER. NO. CONTRACT NO. MFG. IDENT.
SEE NOTE 16
2 PLACES
SEE NOTE 23
4 PLACES
17
56P19
SEE NOTE 17
56 P16 (35A1J1)
1.75
30°
34
SEE NOTE 13
11
56P16
30°
1.75

2014643

REV LTR L

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2014567-011	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ±.03 ±5°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN P A Leone 1/16/65
CHECKED R Abrahamson 12-17-65
APPROVED Paul Weston
APPROVED J E Kinnan
APPROVED MIT 2/16/65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

G&N INTERCONNECT HARNESS "C"
(C/M, BLOCK II)

CODE IDENT NO 80230
SIZE E
DRAWING NO. 2014643
SCALE 1:1
SHEET 30 OF 30